

Hypertension search strategy 9

This literature search strategy was used for the following reviews;

- Malignant or accelerated hypertension

The literature searches for this review are detailed below and complied with the methodology outlined in Developing NICE guidelines: the manual 2014, updated 2017  
<https://www.nice.org.uk/guidance/pmg20/resources/developing-nice-guidelines-the-manual-pdf-72286708700869>

For more detailed information, please see the Methodology Review. [\[Add cross reference\]](#)

## A.1 Clinical search literature search strategy

Searches were constructed using one or more of the following approaches:

- Population AND Prognostic terms AND Study filter(s)

**Table 1: Database date parameters and filters used**

Database	Dates searched	Search filter used
Medline (OVID)	1946 – 02 October 2018	Exclusions Randomised controlled trials Systematic review studies Observational studies Diagnostic tests studies Prognostic studies
Embase (OVID)	1974 – 02 October 2018	Exclusions Randomised controlled trials Systematic review studies Observational studies Diagnostic tests studies Prognostic studies
The Cochrane Library (Wiley)	Cochrane Reviews to Issue 8 of 12, August 2018 CENTRAL to Issue 7 of 12, July 2018 DARE and NHSEED to Issue 2 of 4, April 2015 HTA to Issue 4 of 4, October 2016	None

### Medline (Ovid) search terms

1.	Hypertension, Malignant/
2.	((malignant or accelerat* or severe or emergenc* or cris?s or urgenc*) adj3 hypertens*).ti,ab.
3.	((uncontrol* or acute* or rising or risen or raised or excess* or severe or emergen* or cris?s or urgen*) adj3 (blood pressure or BP or hypertens* or arterial pressure)).ti,ab.
4.	or/1-3
5.	exp pregnancy/
6.	exp Hypertension, Pregnancy-Induced/ not exp Hypertension/
7.	(pre eclampsia or pre-eclampsia or preeclampsia).ti,ab.
8.	exp Hypertension, Portal/ not exp Hypertension/

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9.	exp Hypertension, Pulmonary/ not exp Hypertension/
10.	exp Intracranial Hypertension/ not exp Hypertension/
11.	exp Ocular Hypertension/ not exp Hypertension/
12.	exp Diabetes Mellitus, Type 1/ not exp Diabetes Mellitus, Type 2/
13.	or/5-12
14.	4 not 13
15.	letter/
16.	editorial/
17.	news/
18.	exp historical article/
19.	Anecdotes as Topic/
20.	comment/
21.	case report/
22.	(letter or comment*).ti.
23.	or/15-22
24.	randomized controlled trial/ or random*.ti,ab.
25.	23 not 24
26.	animals/ not humans/
27.	exp Animals, Laboratory/
28.	exp Animal Experimentation/
29.	exp Models, Animal/
30.	exp Rodentia/
31.	(rat or rats or mouse or mice).ti.
32.	or/25-31
33.	14 not 32
34.	(exp child/ or exp pediatrics/ or exp infant/) not (exp adolescent/ or exp adult/ or exp middle age/ or exp aged/)
35.	33 not 34
36.	limit 35 to English language
37.	randomized controlled trial.pt.
38.	controlled clinical trial.pt.
39.	randomi#ed.ti,ab.
40.	placebo.ab.
41.	randomly.ti,ab.
42.	Clinical Trials as topic.sh.
43.	trial.ti.
44.	or/37-43
45.	Meta-Analysis/
46.	exp Meta-Analysis as Topic/
47.	(meta analy* or metanaly* or metaanaly* or meta regression).ti,ab.
48.	((systematic* or evidence*) adj3 (review* or overview*)).ti,ab.
49.	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
50.	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
51.	(search* adj4 literature).ab.
52.	(medline or pubmed or cochrane or embase or psychlit or psycliit or psychinfo or psycinfo or cinahl or science citation index or bids or cancerlit).ab.

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53.	cochrane.jw.
54.	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
55.	or/45-54
56.	Epidemiologic studies/
57.	Observational study/
58.	exp Cohort studies/
59.	(cohort adj (study or studies or analys* or data)).ti,ab.
60.	((follow up or observational or uncontrolled or non randomi#ed or epidemiologic*) adj (study or studies or data)).ti,ab.
61.	((longitudinal or retrospective or prospective or cross sectional) and (study or studies or review or analys* or cohort* or data)).ti,ab.
62.	Controlled Before-After Studies/
63.	Historically Controlled Study/
64.	Interrupted Time Series Analysis/
65.	(before adj2 after adj2 (study or studies or data)).ti,ab.
66.	or/56-65
67.	exp case control study/
68.	case control*.ti,ab.
69.	or/67-68
70.	66 or 69
71.	Cross-sectional studies/
72.	(cross sectional and (study or studies or review or analys* or cohort* or data)).ti,ab.
73.	or/71-72
74.	66 or 73
75.	66 or 69 or 73
76.	36 and (44 or 55 or 75)
77.	exp "signs and symptoms"/
78.	symptom assessment/
79.	diagnosis/ or prognosis/
80.	(clinical adj3 (manifestation? or feature? or finding? or aspect? or marker?)).ti,ab.
81.	(presenting adj3 (feature? or finding? or factor?)).ti,ab.
82.	presentation?.ti,ab.
83.	(physical adj3 (manifestation? or characteristic? or feature? or finding?)).ti,ab.
84.	(sign or signs or symptom* or recogni* or identifi* or complain*).ti,ab.
85.	(diagnos* or prognos* or assess* or criteria* or predict*).ti,ab.
86.	or/77-85
87.	exp "sensitivity and specificity"/
88.	(sensitivity or specificity).ti,ab.
89.	((pre test or pretest or post test) adj probability).ti,ab.
90.	(predictive value* or PPV or NPV).ti,ab.
91.	likelihood ratio*.ti,ab.
92.	likelihood function/
93.	((area under adj4 curve) or AUC).ti,ab.
94.	(receive* operat* characteristic* or receive* operat* curve* or ROC curve*).ti,ab.
95.	(diagnos* adj3 (performance* or accurac* or utilit* or value* or efficien* or effectiveness)).ti,ab.
96.	gold standard.ab.
97.	or/87-96

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98.	prognosis/
99.	(predict* or prognos*).ti,ab.
100.	Logistic models/
101.	Disease progression/
102.	or/98-101
103.	exp Survival analysis/
104.	exp Mortality/
105.	or/102-104
106.	36 and (86 or 97 or 105)
107.	76 or 106

### **Embase (Ovid) search terms**

1.	*malignant hypertension/
2.	((malignant or accelerat* or severe or emergenc* or cris?s or urgenc*) adj3 hypertens*).ti,ab.
3.	((uncontrol* or acute* or rising or risen or raised or excess* or severe or emergent* or cris?s or urgen*) adj3 (blood pressure or BP or hypertens* or arterial pressure)).ti,ab.
4.	or/1-3
5.	exp pregnancy/
6.	exp maternal hypertension/
7.	(pre eclampsia or pre-eclampsia or preeclampsia).ti,ab.
8.	exp portal hypertension/ not exp hypertension/
9.	exp pulmonary hypertension/ not exp hypertension/
10.	exp intracranial hypertension/
11.	exp intraocular hypertension/ not exp hypertension/
12.	exp insulin dependent diabetes mellitus/ not exp non insulin dependent diabetes mellitus/
13.	or/5-12
14.	4 not 13
15.	letter.pt. or letter/
16.	note.pt.
17.	editorial.pt.
18.	case report/ or case study/
19.	(letter or comment*).ti.
20.	or/15-19
21.	randomized controlled trial/ or random*.ti,ab.
22.	20 not 21
23.	animal/ not human/
24.	nonhuman/
25.	exp Animal Experiment/
26.	exp Experimental Animal/
27.	animal model/
28.	exp Rodent/
29.	(rat or rats or mouse or mice).ti.
30.	or/22-29
31.	14 not 30
32.	(exp child/ or exp pediatrics/) not (exp adult/ or exp adolescent/)
33.	31 not 32

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34.	limit 33 to English language
35.	random*.ti,ab.
36.	factorial*.ti,ab.
37.	(crossover* or cross over*).ti,ab.
38.	((doubl* or singl*) adj blind*).ti,ab.
39.	(assign* or allocat* or volunteer* or placebo*).ti,ab.
40.	crossover procedure/
41.	single blind procedure/
42.	randomized controlled trial/
43.	double blind procedure/
44.	or/35-43
45.	systematic review/
46.	meta-analysis/
47.	(meta analy* or metanaly* or metaanaly* or meta regression).ti,ab.
48.	((systematic* or evidence*) adj3 (review* or overview*)).ti,ab.
49.	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
50.	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
51.	(search* adj4 literature).ab.
52.	(medline or pubmed or cochrane or embase or psychlit or psyclit or psychinfo or psycinfo or cinahl or science citation index or bids or cancerlit).ab.
53.	cochrane.jw.
54.	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
55.	or/45-54
56.	Clinical study/
57.	Observational study/
58.	family study/
59.	longitudinal study/
60.	retrospective study/
61.	prospective study/
62.	cohort analysis/
63.	follow-up/
64.	cohort*.ti,ab.
65.	63 and 64
66.	(cohort adj (study or studies or analys* or data)).ti,ab.
67.	((follow up or observational or uncontrolled or non randomi#ed or epidemiologic*) adj (study or studies or data)).ti,ab.
68.	((longitudinal or retrospective or prospective or cross sectional) and (study or studies or review or analys* or cohort* or data)).ti,ab.
69.	(before adj2 after adj2 (study or studies or data)).ti,ab.
70.	or/56-62,65-69
71.	exp case control study/
72.	case control*.ti,ab.
73.	or/71-72
74.	70 or 73
75.	cross-sectional study/
76.	(cross sectional and (study or studies or review or analys* or cohort* or data)).ti,ab.

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77.	or/75-76
78.	70 or 77
79.	70 or 73 or 77
80.	34 and (44 or 55 or 79)
81.	symptom assessment/
82.	diagnosis/
83.	prognosis/
84.	(clinical adj3 (manifestation? or feature? or finding? or aspect? or marker?)).ti,ab.
85.	(presenting adj3 (feature? or finding? or factor?)).ti,ab.
86.	presentation?.ti,ab.
87.	(physical adj3 (manifestaion? or characteristic? or feature? or finding?)).ti,ab.
88.	(sign or signs or symptom* or recogni* or identif* or complain*).ti,ab.
89.	(diagnos* or prognos* or assess* or criteria* or predict*).ti,ab.
90.	exp symptomatology/
91.	or/81-90
92.	exp "sensitivity and specificity"/
93.	(sensitivity or specificity).ti,ab.
94.	((pre test or pretest or post test) adj probability).ti,ab.
95.	(predictive value* or PPV or NPV).ti,ab.
96.	likelihood ratio*.ti,ab.
97.	((area under adj4 curve) or AUC).ti,ab.
98.	(receive* operat* characteristic* or receive* operat* curve* or ROC curve*).ti,ab.
99.	(diagnos* adj3 (performance* or accurac* or utilit* or value* or efficien* or effectiveness)).ti,ab.
100.	diagnostic accuracy/
101.	diagnostic test accuracy study/
102.	gold standard.ab.
103.	or/92-102
104.	exp prognosis/
105.	prognostic assessment/
106.	(predict* or prognos*).ti,ab.
107.	disease course/
108.	statistical model/
109.	or/104-108
110.	exp Survival analysis/
111.	exp Mortality/
112.	or/109-111
113.	34 and (91 or 103 or 112)
114.	80 or 113

### **Cochrane Library (Wiley) search terms**

#1.	MeSH descriptor: [Hypertension, Malignant] explode all trees
#2.	((malignant or accelerat* or severe or emergenc* or cris?s or urgenc*) near/3 hypertens*).ti,ab
#3.	((uncontrol* or acute* or rising or risen or raised or excess* or severe or emergen* or cris?s or urgen*) near/3 (blood pressure or BP or hypertens* or arterial pressure)).ti,ab
#4.	(or #1-#3)

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#5.	MeSH descriptor: [Signs and Symptoms] explode all trees
#6.	MeSH descriptor: [Symptom Assessment] this term only
#7.	MeSH descriptor: [Diagnosis] this term only
#8.	MeSH descriptor: [Prognosis] this term only
#9.	(clinical near/3 (manifestation* or feature* or finding* or aspect* or marker*)):ti,ab
#10.	(presenting near/3 (feature* or finding* or factor*)):ti,ab
#11.	presentation*:ti,ab
#12.	(physical near/3 (manifestation* or characteristic* or feature* or finding*)):ti,ab
#13.	(sign or signs or symptom* or recogni* or identif* or complain*):ti,ab
#14.	(diagnos* or prognos* or assess* or criteria* or predict*):ti,ab
#15.	(or #5-#14)
#16.	#4 and #15

## A.2 Health Economics literature search strategy

Health economic evidence was identified by conducting a broad search relating to hypertension in adults population in NHS Economic Evaluation Database (NHS EED – this ceased to be updated after March 2015) and the Health Technology Assessment database (HTA) with no date restrictions. NHS EED and HTA databases are hosted by the Centre for Research and Dissemination (CRD). Additional searches were run on Medline and Embase for health economics, economic modelling and quality of life studies.

**Table 2: Database date parameters and filters used**

Database	Dates searched	Search filter used
Medline	2014 – 28 August 2018	Exclusions Health economics studies
Embase	2014 – 28 August 2018	Exclusions Health economics studies
Centre for Research and Dissemination (CRD)	HTA - Inception – 28 August 2018 NHSEED - Inception to March 2015	None

### Medline (Ovid) search terms

1.	exp Hypertension/
2.	hypertens*.ti,ab.
3.	(elevat* adj2 blood adj pressur*).ti,ab.
4.	(high adj blood adj pressur*).ti,ab.
5.	(increase* adj2 blood pressur*).ti,ab.
6.	((systolic or diastolic or arterial) adj2 pressur*).ti,ab.
7.	or/1-6
8.	letter/
9.	editorial/
10.	news/
11.	exp historical article/
12.	Anecdotes as Topic/
13.	comment/

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14.	case report/
15.	(letter or comment*).ti.
16.	or/8-15
17.	randomized controlled trial/ or random*.ti,ab.
18.	16 not 17
19.	animals/ not humans/
20.	exp Animals, Laboratory/
21.	exp Animal Experimentation/
22.	exp Models, Animal/
23.	exp Rodentia/
24.	(rat or rats or mouse or mice).ti.
25.	or/18-24
26.	7 not 25
27.	limit 26 to English language
28.	Economics/
29.	Value of life/
30.	exp "Costs and Cost Analysis"/
31.	exp Economics, Hospital/
32.	exp Economics, Medical/
33.	Economics, Nursing/
34.	Economics, Pharmaceutical/
35.	exp "Fees and Charges"/
36.	exp Budgets/
37.	budget*.ti,ab.
38.	cost*.ti.
39.	(economic* or pharmaco?economic*).ti.
40.	(price* or pricing*).ti,ab.
41.	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)),ab.
42.	(financ* or fee or fees).ti,ab.
43.	(value adj2 (money or monetary)).ti,ab.
44.	or/28-43
45.	27 and 44

**Embase (Ovid) search terms**

1.	exp Hypertension/
2.	hypertens*.ti,ab.
3.	(elevat* adj2 blood adj pressur*).ti,ab.
4.	(high adj blood adj pressur*).ti,ab.
5.	(increase* adj2 blood pressur*).ti,ab.
6.	((systolic or diastolic or arterial) adj2 pressur*).ti,ab.
7.	or/1-6
8.	letter.pt. or letter/
9.	note.pt.
10.	editorial.pt.
11.	case report/ or case study/

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12.	(letter or comment*).ti.
13.	or/8-12
14.	randomized controlled trial/ or random*.ti,ab.
15.	13 not 14
16.	animal/ not human/
17.	nonhuman/
18.	exp Animal Experiment/
19.	exp Experimental Animal/
20.	animal model/
21.	exp Rodent/
22.	(rat or rats or mouse or mice).ti.
23.	or/15-22
24.	7 not 23
25.	limit 24 to English language
26.	health economics/
27.	exp economic evaluation/
28.	exp health care cost/
29.	exp fee/
30.	budget/
31.	funding/
32.	budget*.ti,ab.
33.	cost*.ti.
34.	(economic* or pharmaco?economic*).ti.
35.	(price* or pricing*).ti,ab.
36.	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)),ab.
37.	(financ* or fee or fees).ti,ab.
38.	(value adj2 (money or monetary)).ti,ab.
39.	or/26-38
40.	25 and 39

#### **NHS EED and HTA (CRD) search terms**

#1.	MeSH DESCRIPTOR Hypertension EXPLODE ALL TREES IN NHSEED,HTA
#2.	(Hypertens*) IN NHSEED, HTA
#3.	(elevat* adj2 blood adj pressur*) IN NHSEED, HTA
#4.	(high adj blood adj pressur*) IN NHSEED, HTA
#5.	(increase* adj2 blood pressur*) IN NHSEED, HTA
#6.	((systolic or diastolic or arterial) adj2 pressur*) IN NHSEED, HTA
#7.	#1 OR #2 OR #3 OR #4 OR #5 OR #6

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