

Literature searches

Literature search strategies for the CKD guideline

Appendix for CKD guideline

Search strategies

21 January 2014

*Commissioned by the National Institute for
Health and Care Excellence*

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Healthcare professionals are expected to take NICE clinical guidelines fully into account when exercising their clinical judgement. However, the guidance does not override the responsibility of healthcare professionals to make decisions appropriate to the circumstances of each patient, in consultation with the patient and/or their guardian or carer.

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Funding

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1 Literature Search

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Search strategies used for the chronic kidney disease guideline are outlined below and were run in accordance with the methodology in the NICE Guidelines Manual 2012.³ All searches were run up to 25 November 2013 unless otherwise stated. Any studies added to the databases after this date were not included unless specifically stated in the text. Where possible searches were limited to retrieve material published in English.

Searches for the **clinical reviews** were run in Medline (OVID), Embase (OVID) and the Cochrane Library (Wiley). Usually, searches were constructed in the following way:

- A PICO format was used for **intervention** searches where population (P) terms were combined with Intervention (I) and sometimes comparison (C) terms. An intervention can be a drug, a procedure or a diagnostic test. Outcomes (O) are rarely used in search strategies for interventions. Search filters were also added to the search where appropriate.

- A PEO format was used for **prognosis** searches where population (P) terms were combined with exposure (E) terms and sometimes outcomes (O). Search filters were added to the search where appropriate.

Searches for the **health economic reviews** were run in Medline (Ovid), Embase (Ovid), the NHS Economic Evaluations Database (NHS EED via CRD), the Health Technology Assessment (HTA via CRD) database and the Health Economic Evaluation Database (HEED). Searches in CRD and HEED were constructed only using population terms. For Medline and Embase an economic filter (instead of a study type filter) was added to the same clinical search strategy.

A.1 Population search strategies

Medline search terms

1	renal insufficiency, chronic/
2	exp kidney failure, chronic/
3	kidney diseases/ and chronic.ti,ab.
4	((chronic or progressive) adj2 (renal or kidney)).ti,ab.
5	(chronic adj (kidney or renal) adj insufficienc*).ti,ab.
6	CKD.ti,ab.
7	diabetic nephropathies/
8	exp glomerulonephritis/
9	exp proteinuria/
10	acidosis, renal tubular/
11	exp hypertension, renal/
12	(diabetic adj (kidney or renal) adj (disease* or failure)).ti,ab.
13	((renal or renovascular) adj2 hypertensi*).ti,ab.
14	(glomerulosclerosis or glomerulonephritis or nephropath* or proteinuria* or albuminuria or microalbuminuria).ti,ab.
15	(glomerular adj (sclerosis or nephritis)).ti,ab.
16	((renal or distal or proximal or tubul*) adj2 acidosis*).ti,ab.
17	hyperuricemia/ or hyperuric?emi*.ti,ab.
18	exp hyperparathyroidism, secondary/
19	(renal adj2 (osteo* or hyperparathyroidism)).ti,ab.
20	or/1-19
21	ureteral obstruction/
22	exp urethral obstruction/
23	((uropath* or ureter* or urethra*) adj obstruct*).ti,ab.
24	(renal of kidney or chronic).ti,ab.
25	(21 or 22 or 23) and 24
26	20 or 25
27	(transplant* or donor* or graft* or allograft*).ti.
28	pregnan*.ti.
29	*renal dialysis/ not (predialysis or pre dialysis or ("not" adj4 dialysis)).ti.
30	26 not (27 or 28 or 29)

Embase search terms

1	chronic kidney disease/
2	chronic kidney failure/

3	(kidney failure/ or kidney disease/) and chronic.ti,ab.
4	((chronic or progressive) adj2 (renal or kidney)).ti,ab.
5	(chronic adj (kidney or renal) adj insufficienc*).ti,ab.
6	CKD.ti,ab.
7	diabetic nephropathy/
8	exp glomerulonephritis/
9	exp proteinuria/
10	kidney tubule acidosis/
11	renovascular hypertension/
12	(diabetic adj (kidney or renal) adj (disease* or failure)).ti,ab.
13	((renal or renovascular) adj2 hypertensi*).ti,ab.
14	(glomerulosclerosis or glomerulonephritis or nephropath* or proteinuria* or albuminuria or microalbuminuria).ti,ab.
15	(glomerular adj (sclerosis or nephritis)).ti,ab.
16	((renal or distal or proximal or tubul*) adj2 acidosis*).ti,ab.
17	hyperuricemia/ or hyperuric?emi*.ti,ab.
18	secondary hyperparathyroidism/ or renal osteodystrophy/
19	(renal adj2 (osteo* or hyperparathyroidism)).ti,ab.
20	or/1-19
21	obstructive uropathy/
22	exp urinary tract obstruction/
23	((uropath* or ureter* or urethra*) adj obstruct*).ti,ab.
24	(renal or chronic or kidney).ti,ab.
25	(21 or 26 or 23) and 24
26	20 or 25
27	(transplant* or donor* or graft* or allograft*).ti.
28	pregnan*.ti.
29	*hemodialysis/ not (predialysis or pre dialysis or ("not" adj4 dialysis)).ti.
30	26 not (27 or 28 or 29)

Cochrane search terms

#1	MeSH descriptor Renal Insufficiency, Chronic, this term only
#2	MeSH descriptor Kidney Failure, Chronic explode all trees
#3	MeSH descriptor Kidney Diseases explode all trees
#4	chronic:ti,ab
#5	(#1 OR #2 OR (#3 AND #4))
#6	((chronic or progressive) NEAR/2 (renal or kidney)):ti,ab
#7	(chronic NEXT (kidney or renal) NEXT insufficienc*):ti,ab
#8	CKD:ti,ab
#9	MeSH descriptor Diabetic Nephropathies, this term only
#10	MeSH descriptor Glomerulonephritis explode all trees
#11	MeSH descriptor Proteinuria explode all trees
#12	MeSH descriptor Acidosis, Renal Tubular, this term only
#13	MeSH descriptor Hypertension, Renal explode all trees
#14	(diabetic NEXT (kidney or renal) NEXT (disease* or failure)):ti,ab
#15	((renal or renovascular) NEAR/2 hypertensi*):ti,ab

#16	(glomerulosclerosis or glomerulonephritis or nephropath* or proteinuria* or albuminuria or microalbuminuria):ti,ab
#17	(glomerular NEXT (sclerosis or nephritis)):ti,ab
#18	((renal or distal or proximal or tubul*) NEAR/2 acidosis):ti,ab
#19	(hyperuricaemi* or hyperuricemi*):ti,ab
#20	MeSH descriptor Hyperuricemia, this term only
#21	MeSH descriptor Hyperparathyroidism, Secondary explode all trees
#22	(renal NEAR/2 (osteo* or hyperparathyroidism)):ti,ab
#23	(#5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22)
#24	MeSH descriptor Ureteral Obstruction, this term only
#25	MeSH descriptor Urethral Obstruction explode all trees
#26	((uropath* or ureter* or urethra*) NEXT obstruct*):ti,ab
#27	(#24 OR #25 OR #26)
#28	(renal of kidney* or chronic):ti,ab
#29	(#27 AND #28)
#30	(#23 OR #29)
#31	(transplant* or donor* or graft* or allograft* or pregnan*):ti
#32	MeSH descriptor Renal Dialysis, this term only
#33	(predialysis or "pre dialysis" or ("not" NEAR/4 dialysis)):ti
#34	(#32 AND NOT #33)
#35	(#30 AND NOT (#31 OR #34))

A.2 Study filter search terms

A.2.1 Systematic review (SR) search terms

Medline search terms

1	meta-analysis/
2	meta-analysis as topic/
3	(meta analy* or metanaly* or metaanaly* or meta regression).ti,ab.
4	((systematic* or evidence*) adj2 (review* or overview*)):ti,ab.
5	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
6	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
7	(search* adj4 literature).ab.
8	(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.
9	cochrane.jw.
10	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
11	or/1-10

Embase search terms

1	systematic review/
2	meta-analysis/
3	(meta analy* or metanaly* or metaanaly* or meta regression).ti,ab.
4	((systematic or evidence) adj2 (review* or overview*)):ti,ab.

5	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
6	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
7	(search* adj4 literature).ab.
8	(medline or pubmed or cochrane or embase or psychlit or psychlit or psychinfo or psycinfo or cinahl or science citation index or bids or cancerlit).ab.
9	cochrane.jw.
10	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
11	or/1-10

A.2.2 Randomised controlled studies (RCT) search terms

Medline search terms

1	randomized controlled trial.pt.
2	controlled clinical trial.pt.
3	randomi#ed.ab.
4	placebo.ab.
5	randomly.ab.
6	clinical trials as topic.sh.
7	trial.ti.
8	or/1-7

Embase search terms

1	random*.ti,ab.
2	factorial*.ti,ab.
3	(crossover* or cross over*).ti,ab.
4	((doubl* or singl*) adj blind*).ti,ab.
5	(assign* or allocat* or volunteer* or placebo*).ti,ab.
6	crossover procedure/
7	single blind procedure/
8	randomized controlled trial/
9	double blind procedure/
10	or/1-9

A.2.3 Observational studies search terms

Medline search terms

1	exp cohort studies/
2	cross-sectional studies/
3	((prospective or cross sectional or follow up or longitudinal or comparative) and (study or studies or review or analys*)).ti,ab.
4	comparative study.pt.
5	(cohort* or participant*).ti,ab.
6	or/1-5

Embase search terms

1	comparative study/
2	longitudinal study/

3	prospective study/
4	cross-sectional study/
5	cohort analysis/
6	((prospective or cross sectional or follow up or longitudinal or comparative) and (study or studies or review or analys*)).ti,ab.
7	(cohort* or participant*).ti,ab.
8	or/1-7

A.2.4 Exclusions search terms

These terms were combined with searches using the NOT Boolean operator, in order to exclude unwanted study types such as animal studies.

Medline search terms

1	letter/
2	editorial/
3	news/
4	exp historical article/
5	anecdotes as topic/
6	comment/
7	case report/
8	(letter or comment*).ti.
9	or/1-8
10	9 not (randomized controlled trial/ or random*.ti,ab.)
11	animals/ not humans/
12	exp animals, laboratory/
13	exp animal experimentation/
14	exp models, animal/
15	exp rodentia/
16	(rat or rats or mouse or mice).ti.
17	or/10-16

Embase search terms

1	letter.pt. or letter/
2	note.pt.
3	editorial.pt.
4	case report/ or case study/
5	(letter or comment*).ti.
6	or/1-5
7	6 not (randomized controlled trial/ or random*.ti,ab.)
8	animal/ not human/
9	nonhuman/
10	exp animal experiment/
11	exp experimental animal/
12	animal model/
13	exp rodent/
14	(rat or rats or mouse or mice).ti.

15	or/7-14
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A.2.5 Health economic search terms

Medline search terms

1	economics/
2	value of life/
3	exp "costs and cost analysis"/
4	exp economics, hospital/
5	exp economics, medical/
6	economics, nursing/
7	economics, pharmaceutical/
8	exp "fees and charges"/
9	exp budgets/
10	budget*.ti,ab.
11	cost*.ti.
12	(economic* or pharmaco?economic*).ti.
13	(price* or pricing*).ti,ab.
14	(cost* adj2 (effectiv* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.
15	(financ* or fee or fees).ti,ab.
16	(value adj2 (money or monetary)).ti,ab.
17	or/1-16

Embase search terms

1	health economics/
2	exp economic evaluation/
3	exp health care cost/
4	exp fee/
5	budget/
6	funding/
7	budget*.ti,ab.
8	cost*.ti.
9	(economic* or pharmaco?economic*).ti.
10	(price* or pricing*).ti,ab.
11	(cost* adj2 (effectiv* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.
12	(financ* or fee or fees).ti,ab.
13	(value adj2 (money or monetary)).ti,ab.
14	or/1-13

A.2.6 Quality of life search terms

Medline search terms

1	quality-adjusted life years/
2	sickness impact profile/
3	(quality adj2 (wellbeing or well being)).ti,ab.
4	sickness impact profile.ti,ab.
5	disability adjusted life.ti,ab.

6	(qal* or qtime* or qwb* or daly*).ti,ab.
7	(euroqol* or eq5d* or eq 5*).ti,ab.
8	(qol* or hql* or hqol* or h qol* or hrqol* or hr qol*).ti,ab.
9	(health utility* or utility score* or disutilit* or utility value*).ti,ab.
10	(hui or hui1 or hui2 or hui3).ti,ab.
11	(health* year* equivalent* or hye or hyes).ti,ab.
12	discrete choice*.ti,ab.
13	rosser.ti,ab.
14	(willingness to pay or time tradeoff or time trade off or tto or standard gamble*).ti,ab.
15	(sf36* or sf 36* or short form 36* or shortform 36* or shortform36*).ti,ab.
16	(sf20 or sf 20 or short form 20 or shortform 20 or shortform20).ti,ab.
17	(sf12* or sf 12* or short form 12* or shortform 12* or shortform12*).ti,ab.
18	(sf8* or sf 8* or short form 8* or shortform 8* or shortform8*).ti,ab.
19	(sf6* or sf 6* or short form 6* or shortform 6* or shortform6*).ti,ab.
20	or/1-19

Embase search terms

1	quality adjusted life year/
2	"quality of life index"/
3	short form 12/ or short form 20/ or short form 36/ or short form 8/
4	sickness impact profile/
5	(quality adj2 (wellbeing or well being)).ti,ab.
6	sickness impact profile.ti,ab.
7	disability adjusted life.ti,ab.
8	(qal* or qtime* or qwb* or daly*).ti,ab.
9	(euroqol* or eq5d* or eq 5*).ti,ab.
10	(qol* or hql* or hqol* or h qol* or hrqol* or hr qol*).ti,ab.
11	(health utility* or utility score* or disutilit* or utility value*).ti,ab.
12	(hui or hui1 or hui2 or hui3).ti,ab.
13	(health* year* equivalent* or hye or hyes).ti,ab.
14	discrete choice*.ti,ab.
15	rosser.ti,ab.
16	(willingness to pay or time tradeoff or time trade off or tto or standard gamble*).ti,ab.
17	(sf36* or sf 36* or short form 36* or shortform 36* or shortform36*).ti,ab.
18	(sf20 or sf 20 or short form 20 or shortform 20 or shortform20).ti,ab.
19	(sf12* or sf 12* or short form 12* or shortform 12* or shortform12*).ti,ab.
20	(sf8* or sf 8* or short form 8* or shortform 8* or shortform8*).ti,ab.
21	(sf6* or sf 6* or short form 6* or shortform 6* or shortform6*).ti,ab.
22	or/1-21

A.3 Searches by specific questions**A.3.1 Measures and markers**

Searches for the following two questions were run as one search:

What is the accuracy of equations to estimate GFR as a measurement of kidney function?

What is the best combination of measures of kidney function and markers of kidney damage to identify people with CKD who are at increased risk of progression?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Kidneys <i>Population terms in section A.1 not used. See below for all search terms:</i>	Measures and markers		SR, Observational NOT Exclusions (Medline and Embase only)	Search run from 2007 up to 25 November 2013.

Medline search terms

1	exp kidney diseases/ or exp kidney function tests/ or exp kidney/
2	(kidney* or renal or ckd).ti,ab.
3	1 or 2
4	(transplant* or graft* or allograft* or pregnan*).ti.
5	((child* or adolescen* or school* or infant* or teen* or paediatric* or pediatric* or youth*) not adult*).ti.
6	3 not (4 or 5)
7	glomerular filtration rate/
8	glomerul* filtration rate.ti,ab.
9	(eGFR* or GFR*).ti,ab.
10	or/7-9
11	6 and 10
12	(formula* or equation* or reclassif* or re classif*).ti,ab.
13	(chronic kidney disease epidemiology collaboration or CKD EPI*).ti,ab.
14	(modif* of diet in renal disease* or MDRD*).ti,ab.
15	(multimark* or multi-mark* or multi* mark*).ti,ab.
16	or/12-15
17	11 and 16
18	cystatin c/
19	creatinine/
20	(creatinine or cystatin c or acr).ti,ab.
21	or/18-20
22	17 and 21
23	exp "sensitivity and specificity"/
24	disease progression/
25	prognosis/
26	risk/
27	risk factors/
28	(sensitivity or specificity or precision or bias).ti,ab.
29	(predict* or diagnos* or detect* or performance or accura* or risk* or prognos* or progression or PPV or NPV).ti,ab.
30	(reference or gold standard*).ti,ab.
31	or/23-30
32	22 and 31

Embase search terms

1	exp kidney disease/ or exp kidney function test/ or exp kidney/
2	(kidney* or renal or ckd).ti,ab.
3	1 or 2
4	(transplant* or graft* or allograft* or pregnan*).ti.
5	((child* or adolescen* or school* or infant* or teen* or paediatric* or pediatric* or youth*) not adult*).ti.
6	3 not (4 or 5)
7	glomerulus filtration rate/
8	glomerul* filtration rate.ti,ab.
9	(eGFR* or GFR*).ti,ab.
10	or/7-9
11	6 and 10
12	(formula* or equation* or reclassif* or re classif*).ti,ab.
13	(chronic kidney disease epidemiology collaboration or CKD EPI*).ti,ab.
14	(modif* of diet in renal disease* or MDRD*).ti,ab.
15	(multimark* or multi-mark* or multi* mark*).ti,ab.
16	or/12-15
17	11 and 17
18	cystatin C/
19	(cystatin c or acr).ti,ab.
20	creatinine.ti,ab,hw.
21	or/18-20
22	17 and 21
23	"sensitivity and specificity"/
24	predictive value/
25	diagnostic accuracy/
26	diagnostic test accuracy study/
27	risk factor/
28	disease course/
29	disease exacerbation/
30	(predict* or diagnos* or detect* or performance or accura* or risk* or prognos* or progression or PPV or NPV).ti,ab.
31	(sensitivity or specificity or precision or bias).ti,ab.
32	(reference or gold standard*).ti,ab.
33	or/23-32
34	22 and 34

Cochrane search terms

#1	MeSH descriptor: [Kidney Diseases] explode all trees
#2	MeSH descriptor: [Kidney Function Tests] explode all trees
#3	MeSH descriptor: [Kidney] explode all trees
#4	(kidney* or renal or CKD):ti,ab
#5	#1 or #2 or #3 or #4
#6	(transplant* or graft* or allograft* or pregnan*):ti
#7	((child* or adolescen* or school* or infant* or teen* or paediatric* or pediatric* or youth*)

	not adult*):ti
#8	#5 not (#6 or #7)
#9	MeSH descriptor: [Glomerular Filtration Rate] this term only
#10	(glomerul* next filtration next rate*):ti,ab
#11	(eGFR* or GFR*):ti,ab
#12	#9 or #10 or #11
#13	#8 and #12
#14	(formula* or equation* or reclassif* or "re classification" or "re classify" or "re classified"):ti,ab
#15	("chronic kidney disease epidemiology collaboration"):ti,ab
#16	(CKD next EPI*):ti,ab
#17	("modification of diet in renal disease" or "modifying of diet in renal disease" or MDRD*):ti,ab
#18	#14 or #15 or #16 or #17
#19	#13 and #18
#20	MeSH descriptor: [Cystatin C] this term only
#21	MeSH descriptor: [Creatinine] this term only
#22	(creatinine or "cystatin c" or acr):ti,ab
#23	#20 or #21 or #22
#24	#19 and #23
#25	MeSH descriptor: [Sensitivity and Specificity] explode all trees
#26	MeSH descriptor: [Disease Progression] this term only
#27	MeSH descriptor: [Prognosis] this term only
#28	MeSH descriptor: [Risk] this term only
#29	MeSH descriptor: [Risk Factors] this term only
#30	(sensitivity or specificity or precision or bias):ti,ab
#31	(predict* or diagnos* or detect* or performance or accura* or risk* or prognos* or progression or PPV or NPV):ti,ab
#32	(reference or "gold standard"):ti,ab
#33	#25 or #26 or #27 or #28 or #29 or #30 or #31 or #32
#34	#24 and #33

A.3.2 Classification

For people with suspected CKD, what is the effect of proteinuria at any given eGFR on adverse outcomes (CKD progression, AKI, all-cause mortality and cardiovascular mortality)?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Kidneys <i>Population terms in section A.1 not used. See below for all search terms:</i>	Proteinuria		SR, Observational NOT Exclusions (Medline and Embase only)	Search run from 2007 up to 25 November 2013.

Medline search terms

1	exp kidney diseases/ or exp kidney function tests/ or exp kidney/
2	(kidney* or renal or ckd).ti,ab.
3	1 or 2

4	(transplant* or graft* or allograft* or pregnan*).ti.
5	((child* or adolescen* or school* or infant* or teen* or paediatric* or pediatric* or youth*) not adult*).ti.
6	3 not (4 or 5)
7	glomerular filtration rate/
8	glomerul* filtration rate.ti,ab.
9	(eGFR* or GFR*).ti,ab.
10	or/7-9
11	6 and 10
12	exp Proteinuria/
13	((urin* or ratio*) adj5 (albumin* or protein*)).ti,ab.
14	(PCR* or ACR* or UACR* or UPCR* proteinuria or albuminuria or microalbuminuria).ti,ab.
15	or/12-14
16	11 and 15
17	disease progression/
18	prognosis/
19	risk/
20	risk factors/
21	(predict* or diagnos* or risk* or hazard or prognos* or progress* or PPV or NPV or death* or mortality).ti,ab.
22	or/17-21
23	16 and 22

Embase search terms

1	exp kidney disease/ or exp kidney function test/ or exp kidney/
2	(kidney* or renal or ckd).ti,ab.
3	1 or 2
4	(transplant* or graft* or allograft* or pregnan*).ti.
5	((child* or adolescen* or school* or infant* or teen* or paediatric* or pediatric* or youth*) not adult*).ti.
6	3 not (4 or 5)
7	glomerulus filtration rate/
8	glomerul* filtration rate.ti,ab.
9	(eGFR* or GFR*).ti,ab.
10	or/7-9
11	6 and 10
12	exp proteinuria/
13	(PCR* or ACR* or UACR* or UPCR*).ti,ab.
14	((urin* or ratio*) adj5 (albumin* or protein*)).ti,ab.
15	(proteinuria or albuminuria or microalbuminuria).ti,ab.
16	or/12-15
17	11 and 16
18	prognosis/
19	risk factor/
20	disease course/
21	disease exacerbation/

22	(predict* or diagnos* or risk* or hazard or prognos* or progress* or PPV or NPV or death* or mortality).ti,ab.
23	or/18-22
24	17 and 23

Cochrane search terms

#1	MeSH descriptor: [Kidney Diseases] explode all trees
#2	MeSH descriptor: [Kidney Function Tests] explode all trees
#3	MeSH descriptor: [Kidney] explode all trees
#4	(kidney* or renal or CKD):ti,ab
#5	#1 or #2 or #3 or #4
#6	(transplant* or graft* or allograft* or pregnan*):ti
#7	((child* or adolescen* or school* or infant* or teen* or paediatric* or pediatric* or youth*) not adult*):ti
#8	#5 not (#6 or #7)
#9	MeSH descriptor: [Glomerular Filtration Rate] this term only
#10	(glomerul* next filtration next rate*):ti,ab
#11	(eGFR* or GFR*):ti,ab
#12	#9 or #10 or #11
#13	#8 and #12
#14	MeSH descriptor: [Proteinuria] explode all trees
#15	((urin* or ratio*) near/5 (albumin* or protein*)):ti,ab
#16	(proteinuria or albuminuria or microalbuminuria or PCR* or ACR* or UPCR* or UACR*):ti,ab
#17	#14 or #15 or #16
#18	#13 and #17
#19	MeSH descriptor: [Disease Progression] this term only
#20	MeSH descriptor: [Prognosis] this term only
#21	MeSH descriptor: [Risk] this term only
#22	MeSH descriptor: [Risk Factors] this term only
#23	(predict* or diagnos* or risk* or hazard or prognos* or progress* or PPV or NPV or death* or mortality):ti,ab
#24	#19 or #20 or #21 or #22 or #23
#25	#18 and #24

A.3.3 Cause – AKI

Searches for the following two questions were run as one search:

For people with CKD, does the presence of acute kidney injury (AKI) have an effect on adverse outcomes at any given category of eGFR and ACR (CKD progression, all-cause mortality and cardiovascular mortality)?

What is the risk of developing and/or progression of CKD after an episode of AKI?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
CKD	AKI		SR, Observational NOT Exclusions	Search run from 2002 up to 25

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
			(Medline and Embase only)	November 2013.

AKI search terms**Medline search terms**

1	exp acute kidney injury/
2	AKI.ti,ab.
3	((acute or early) adj (kidney or renal) adj (failure* or injur* or insufficien* or dysfunction* or impair*)).ti,ab.
4	or/1-3
5	glomerular filtration rate/
6	glomerul* filtration rate.ti,ab.
7	(eGFR* or GFR*).ti,ab.
8	exp proteinuria/
9	((urin* or ratio*) adj5 (albumin* or protein*)).ti,ab.
10	(PCR* or ACR* or UACR* or UPCR* or proteinuria or albuminuria or microalbuminuria).ti,ab.
11	or/5-10
12	4 and 11
13	disease progression/
14	prognosis/
15	risk/
16	risk factors/
17	(predict* or risk* or hazard* or prognos* or progress* or PPV or NPV or death* or mortality).ti,ab.
18	or/13-17
19	12 and 18

Embase search terms

1	acute kidney failure/ or acute kidney tubule necrosis/
2	((acute or early) adj (kidney or renal) adj (failure* or injur* or insufficien* or dysfunction* or impair*)).ti,ab.
3	AKI.ti,ab.
4	kidney injury/ and acute.ti,ab.
5	or/1-4
6	glomerulus filtration rate/
7	exp proteinuria/
8	glomerul* filtration rate.ti,ab.
9	(eGFR* or GFR*).ti,ab.
10	(PCR* or ACR* or UACR* or UPCR*).ti,ab.
11	((urin* or ratio*) adj5 (albumin* or protein*)).ti,ab.
12	(proteinuria or albuminuria or microalbuminuria).ti,ab.
13	or/6-12
14	5 and 13
15	prognosis/
16	risk factor/

17	disease course/
18	disease exacerbation/
19	(predict* or risk* or hazard* or prognos* or progress* or PPV or NPV or death* or mortality).ti,ab.
20	or/15-19
21	14 and 20

Cochrane search terms

#1	MeSH descriptor: [Acute Kidney Injury] explode all trees
#2	AKI:ti,ab
#3	((acute or early) next (kidney or renal) next (failure* or injur* or insufficien* or dysfunction* or impair*)):ti,ab
#4	#1 or #2 or #3
#5	MeSH descriptor: [Glomerular Filtration Rate] explode all trees
#6	MeSH descriptor: [Proteinuria] explode all trees
#7	(glomerul* next filtration next rate*):ti,ab
#8	(eGFR* or GFR*):ti,ab
#9	((urin* or ratio*) near/5 (albumin* or protein*)):ti,ab
#10	(proteinuria or albuminuria or microalbuminuria or PCR* or ACR* or UPCR* or UACR*):ti,ab
#11	#5 or #6 or #7 or #8 or #9 or #10
#12	#4 and #11
#13	MeSH descriptor: [Disease Progression] this term only
#14	MeSH descriptor: [Prognosis] this term only
#15	MeSH descriptor: [Risk] this term only
#16	MeSH descriptor: [Risk Factors] this term only
#17	(predict* or risk* or hazard* or prognos* or progress* or PPV or NPV or death* or mortality):ti,ab
#18	#13 or #14 or #15 or #16 or #17
#19	#12 and #18

A.3.4 Cause – glomerular disease

For people with CKD, does the presence of glomerular disease have an effect on adverse outcomes at any given category of eGFR and ACR (CKD progression, AKI, all-cause mortality and cardiovascular mortality)?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
CKD	Glomerular disease		SR, Observational NOT Exclusions (Medline and Embase only)	Search run from 2002 up to 25 November 2013.

Glomerular disease search terms

Medline search terms

1	exp glomerulonephritis/
2	nephrosis, lipoid/

3	((inflam* or disease) adj2 glomerul*).ti,ab.
4	(glomerulosclero* or glomerul* sclero* or glomerulonephr* or glomerul* nephro* or glomerulopath* or glomerulitis).ti,ab.
5	((glomerular or segmental) adj2 hyalino*).ti,ab.
6	((iga or immunoglobulin a or membran* or lupus or minim* change or lipoid) adj2 (nephro* or nephriti*)).ti,ab.
7	((dense deposit or bright* or b?erger* or minim* change or basement membrane) adj disease*).ti,ab.
8	or/1-7
9	glomerular filtration rate/
10	glomerul* filtration rate.ti,ab.
11	(eGFR* or GFR*).ti,ab.
12	exp proteinuria/
13	((urin* or ratio*) adj5 (albumin* or protein*)).ti,ab.
14	(PCR* or ACR* or UACR* or UPCR* or proteinuria or albuminuria or microalbuminuria).ti,ab.
15	or/9-14
16	8 and 15
17	disease progression/
18	prognosis/
19	risk/
20	risk factors/
21	(predict* or risk* or hazard* or prognos* or progress* or PPV or NPV or death* or mortality).ti,ab.
22	or/17-21
23	16 and 22
24	(gene* or genome* or serum or plasma or polymorphism* or allel* or effect of or effects of or dose* or dosage* or therap* or drug* or excretion or receptor* or smoking or weight or obesity or obese or exercise or activity or agent* or marker* or biomarker*).ti.
25	23 not 24

Embase search terms

1	exp glomerulonephritis/
2	glomerulopathy/
3	immunoglobulin a nephropathy/
4	glomerulosclerosis/
5	focal glomerulosclerosis/
6	lipoid nephrosis/
7	((inflam* or disease) adj2 glomerul*).ti,ab.
8	(glomerulosclero* or glomerul* sclero* or glomerulonephr* or glomerul* nephro* or glomerulopath* or glomerulitis).ti,ab.
9	((glomerular or segmental) adj2 hyalino*).ti,ab.
10	((iga or immunoglobulin a or membran* or lupus or minim* change or lipoid) adj2 (nephro* or nephriti*)).ti,ab.
11	((dense deposit or bright* or b?erger* or minim* change or basement membrane) adj disease*).ti,ab.
12	or/1-11
13	glomerulus filtration rate/

14	exp proteinuria/
15	glomerul* filtration rate.ti,ab.
16	(eGFR* or GFR*).ti,ab.
17	(PCR* or ACR* or UACR* or UPCR*).ti,ab.
18	((urin* or ratio*) adj5 (albumin* or protein*)).ti,ab.
19	(proteinuria or albuminuria or microalbuminuria).ti,ab.
20	or/13-19
21	12 and 20
22	prognosis/
23	risk factor/
24	disease course/
25	disease exacerbation/
26	(predict* or risk* or hazard* or prognos* or progress* or PPV or NPV or death* or mortality).ti,ab.
27	or/22-26
28	21 and 27
29	(gene* or genome* or serum or plasma or polymorphism* or allel* or effect of or effects of or dose* or dosage* or therap* or drug* or excretion or receptor* or smoking or weight or obesity or obese or exercise or activity or agent* or marker* or biomarker*).ti.
30	28 not 29

Cochrane search terms

#1	MeSH descriptor: [Glomerulonephritis] explode all trees
#2	MeSH descriptor: [Nephrosis, Lipoid] explode all trees
#3	((inflammation or disease) near/2 (glomerulus or glomerular)):ti,ab
#4	((glomerulo or glomerulus or glomerular) near/2 (sclerosis or scleroses or nephritis or nephritides or nephrosis or nephroses or nephropathy or nephropathies)):ti,ab
#5	(glomerulosclero* or glomerulonephr* or glomerulopath* or glomerulitis):ti,ab
#6	((glomerular or segmental) near/2 hyalinosis):ti,ab
#7	((iga or "immunoglobulin a" or membranous or lupus or "minimal change" or "minimum change" or lipoid) near/2 (nephritis or nephritides or nephrosis or nephroses or nephrotic or nephropathy or nephropathies or nephro)):ti,ab
#8	((("dense deposit" or brights or bright or buerger or berger or "minimal change" or "minimum change" or "basement membrane") next (disease or diseases)):ti,ab
#9	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8
#10	MeSH descriptor: [Glomerular Filtration Rate] this term only
#11	MeSH descriptor: [Proteinuria] explode all trees
#12	(glomerul* next filtration next rate*):ti,ab
#13	(eGFR* or GFR*):ti,ab
#14	((urin* or ratio*) near/5 (albumin* or protein*)):ti,ab
#15	(proteinuria or albuminuria or microalbuminuria or PCR* or ACR* or UPCR* or UACR*):ti,ab
#16	#10 or #11 or #12 or #13 or #14 or #15
#17	#9 and #16
#18	MeSH descriptor: [Disease Progression] this term only
#19	MeSH descriptor: [Prognosis] this term only
#20	MeSH descriptor: [Risk] this term only
#21	MeSH descriptor: [Risk Factors] this term only

#22	(predict* or risk* or hazard* or prognos* or progress* or PPV or NPV or death* or mortality):ti,ab
#23	#18 or #19 or #20 or #21 or #22
#24	#17 and #23
#25	(gene* or genome* or serum or plasma or polymorphism* or allel* or effect of or effects of or dose* or dosage* or therap* or drug* or excretion or receptor* or smoking or weight or obesity or obese or exercise or activity or agent* or marker* or biomarker*):ti
#26	#24 not #25

A.3.5 Cause – diabetes and hypertension

IPD analyses^{1,2} were found from the Classification search that answered the following two questions; no additional searches were undertaken:

For people with CKD, does the presence of diabetes have an effect on adverse outcomes at any given category of eGFR and ACR (CKD progression, AKI, all-cause mortality and cardiovascular mortality)?

For people with CKD, does the presence of hypertension have an effect on adverse outcomes at any given category of eGFR and ACR (CKD progression, AKI, all-cause mortality and cardiovascular mortality)?

A.3.6 Frequency of monitoring

How frequently should eGFR, ACR or PCR be monitored in people with CKD?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
CKD	Monitoring		SR, Observational NOT Exclusions (Medline and Embase only)	Search run from 2007 up to 25 November 2013.

Monitoring search terms

Medline search terms

1	glomerular filtration rate/
2	exp proteinuria/
3	glomerul* filtration rate*.ti,ab.
4	((urin* or ratio*) adj5 (albumin* or protein*)).ti,ab.
5	(eGFR* or GFR* or PCR* or ACR* or UACR* or UPCR* proteinuria or albuminuria or microalbuminuria).ti,ab.
6	or/1-5
7	disease progression/
8	monitor*.ti.
9	6 and (7 or 8)
10	prognosis/
11	time factors/
12	((interval* or every) adj5 (month* or year* or week*)).ti,ab.
13	(treatment adj3 (nonresponse* or failure* or response* or duration or outcome*)).ti,ab,hw.
14	(predict* adj2 (value* or treatment* or response* or outcome* or factor*)).ti,ab,hw.

15	((review* or recall* or follow up* or regular* or periodic*) adj3 (interval* or visit* or examin* or attend* or test*)).ti,ab.
16	(management adj (strateg* or protocol* or plan*)).ti,ab.
17	natural histor*.ti,ab.
18	(PPV or NPV).ti,ab.
19	or/10-18
20	monitor*.ab,hw.
21	19 and 20
22	6 and 21
23	9 or 22

Embase search terms

1	glomerulus filtration rate/
2	exp proteinuria/
3	glomerul* filtration rate*.ti,ab.
4	(PCR* or ACR* or UACR* or UPCR* or eGFR* or GFR*).ti,ab.
5	((urin* or ratio*) adj5 (albumin* or protein*)).ti,ab.
6	(proteinuria or albuminuria or microalbuminuria).ti,ab.
7	or/1-6
8	disease course/
9	disease exacerbation/
10	monitor*.ti.
11	or/8-10
12	7 and 11
13	therapy delay/
14	prognosis/
15	((interval* or every) adj5 (month* or year* or week*)).ti,ab.
16	(treatment adj3 (nonresponse* or failure* or response* or duration or outcome* or planning)).ti,ab,hw.
17	(predict* adj2 (value* or treatment* or response* or outcome* or factor*)).ti,ab,hw.
18	((review* or recall* or follow up* or regular* or periodic*) adj3 (interval* or visit* or examin* or attend* or test*)).ti,ab.
19	(PPV or NPV).ti,ab.
20	(management adj (strateg* or protocol* or plan*)).ti,ab.
21	natural histor*.ti,ab.
22	or/13-21
23	monitor*.ab,hw.
24	22 and 23
25	7 and 24
26	12 or 25

Cochrane search terms

#1	MeSH descriptor: [Glomerular Filtration Rate] this term only
#2	MeSH descriptor: [Proteinuria] explode all trees
#3	(glomerul* next filtration next rate*).ti,ab
#4	((urin* or ratio*) near/5 (albumin* or protein*)):ti,ab
#5	(proteinuria or albuminuria or microalbuminuria or PCR* or ACR* or UPCR* or UACR* or

	eGFR* or GFR*):ti,ab
#6	#1 or #2 or #3 or #4 or #5
#7	MeSH descriptor: [Disease Progression] this term only
#8	monitor*:ti
#9	#7 or #8
#10	#6 and #9
#11	MeSH descriptor: [Time Factors] this term only
#12	MeSH descriptor: [Predictive Value of Tests] this term only
#13	MeSH descriptor: [Prognosis] this term only
#14	((interval* or every) near/5 (month* or year* or week*)):ti,ab
#15	(treatment near/3 (nonresponse* or failure* or response* or duration or outcome*)):ti,ab
#16	((review* or recall* or "follow up" or regular* or periodic*) near/3 (interval* or visit* or examin* or attend* or test*)):ti,ab
#17	(predict* near/2 (treatment* or response* or outcome* or factor* or value*)):ti,ab
#18	(PPV or NPV):ti,ab
#19	(management next (strateg* or protocol* or plan*)):ti,ab
#20	(natural next histor*):ti,ab
#21	#11 or #12 or #13 or #14 or #15 or #16 or #17 or #18 or #19 or #20
#22	monitor*:ab
#23	MeSH descriptor: [Monitoring, Physiologic] explode all trees
#24	#22 or #23
#25	#21 and #24
#26	#11 or #25

A.3.7 Low protein diet

For people with CKD, are low protein diets a clinically and cost effective method for the management of CKD?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
CKD	Low protein diet		SR, RCT NOT Exclusions (Medline and Embase only)	Search run from 2007 up to 25 November 2013.

Low protein diet search terms

Medline search terms

1	exp proteins/ and exp diet therapy/
2	diet, protein-restricted/
3	exp dietary proteins/
4	((protein or proteins) adj5 (low or intake* or restrict* or consum* or reduc* or diet*)):ti,ab.
5	hypoproteic.ti,ab.
6	or/1-5

Embase search terms

1	diet restriction/ or diet therapy/
---	------------------------------------

2	protein/
3	1 and 2
4	protein restriction/
5	protein diet/
6	protein intake/
7	((protein or proteins) adj5 (low or intake* or restrict* or consum* or reduc* or diet*)).ti,ab.
8	hypoproteic.ti,ab.
9	or/3-8

Cochrane search terms

#1	MeSH descriptor Proteins explode all trees
#2	MeSH descriptor Diet Therapy explode all trees
#3	(#1 AND #2)
#4	MeSH descriptor Diet, Protein-Restricted, this term only
#5	MeSH descriptor Dietary Proteins explode all trees
#6	((protein or proteins) NEAR/5 (low or intake* or restrict* or consum* or reduc* or diet*)):ti,ab
#7	hypoproteic:ti,ab
#8	(#3 OR #4 OR #5 OR #6 OR #7)

A.3.8 Self management support systems

For people with CKD, what is the clinical and cost effectiveness of self-management support systems?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
CKD	Self management support systems		NOT Exclusions (Medline and Embase only)	Search run from 2007 up to 25 November 2013.

Medline search terms

1	exp self care/
2	patient education as topic/
3	telemedicine/
4	publications/
5	pamphlets/
6	internet/
7	access to information/
8	consumer health information/
9	information dissemination/
10	patient preference/
11	disease management/
12	(self adj3 (manag* or care)).ti,ab.
13	((train* or teach* or educat*) adj3 (model* or program* or structured or intervention* or support)).ti,ab.
14	(patient* adj3 (information* or educat* or knowledge or literacy or learn* or train* or program* or prefer* or expectation*)).ti,ab.
15	(information* adj3 (need* or requirement* or support* or seek* or access* or

	disseminat*).ti,ab.
16	(decision adj5 (aid* or tool*).ti,ab.
17	(patient* adj3 (literature or leaflet* or booklet* or pamphlet* or handout* or internet or website* or interview* or survey*).ti,ab.
18	Focus groups/
19	or/1-18

Embase search terms

1	exp self care/
2	exp telehealth/
3	publication/
4	internet/
5	patient decision making/
6	patient preference/
7	access to information/
8	consumer health information/
9	information dissemination/
10	patient education/
11	(self adj3 (manag* or care)).ti,ab.
12	((train* or teach* or educat*) adj3 (model* or program* or structured or intervention* or support)).ti,ab.
13	(patient* adj3 (information* or educat* or knowledge or literacy or learn* or train* or program* or prefer* or expectation*).ti,ab.
14	(information* adj3 (need* or requirement* or support* or seek* or access* or disseminat*).ti,ab.
15	(patient* adj3 (literature or leaflet* or booklet* or pamphlet* or handout* or internet or website* or interview* or survey*).ti,ab.
16	(decision adj5 (aid* or tool*).ti,ab.
17	or/1-16

Cochrane search terms

#1	MeSH descriptor Self Care explode all trees
#2	MeSH descriptor Patient Education as Topic, this term only
#3	MeSH descriptor Telemedicine, this term only
#4	MeSH descriptor Publications, this term only
#5	MeSH descriptor Pamphlets, this term only
#6	MeSH descriptor Internet, this term only
#7	MeSH descriptor Access to Information, this term only
#8	MeSH descriptor Consumer Health Information explode all trees
#9	MeSH descriptor Information Dissemination, this term only
#10	MeSH descriptor Patient Preference explode all trees
#11	MeSH descriptor Disease Management, this term only
#12	(self NEAR/3 (manag* or care)):ti,ab
#13	((train* or teach* or educat*) NEAR/3 (model* or program* or structured or intervention* or support)):ti,ab
#14	(patient* NEAR/3 (information* or educat* or knowledge or literacy or learn* or train* or program* or prefer* or expectation*)):ti,ab
#15	(information* NEAR/3 (need* or requirement* or support* or seek* or access* or

	disseminat*)):ti,ab
#16	(patient* NEAR/3 (literature or leaflet* or booklet* or pamphlet* or handout* or internet or website* or interview* or survey*)):ti,ab
#17	(#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16)

A.3.9 RAAS

For people with CKD, what is the clinical and cost effectiveness of renin-angiotensin-aldosterone system antagonists in the management of CKD?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
CKD	RAAS		RCT NOT Exclusions (Medline and Embase only)	Search run from 2007 up to 25 November 2013.

RAAS search terms

Medline search terms

1	angiotensin-converting enzyme inhibitors/
2	angiotensin ii type 1 receptor blockers/
3	angiotensin ii type 2 receptor blockers/
4	aldosterone antagonists/
5	((angiotensin* or renin or aldosterone or ace) adj5 (antagonist* or blocker* or inhibitor*)):ti,ab.
6	(RAAS or RAS or RASI or ARB or ARBs).ti,ab.
7	exp enalapril/
8	fosinopril/
9	lisinopril/
10	perindopril/
11	ramipril/
12	captopril/
13	(enalapril* or fosinopril* or lisinopril* or perindopril* or quinapril* or ramipril* or cilizapril* or captopril* ortrandolapril* or imidapril* or moexipril*).ti,ab.
14	(innovace* or innozide* or zestril* or carace* or zestoretic* or coversyl* or accupro* or accuretic* or tritace* or triapin* or vascace* or capoten* or capozide* or cozidocapt* or zidocapt* or gopten* or tarka* or tanatril* or perdix*).ti,ab.
15	spironolactone/
16	(eplerenone* or spironolactone* or aliskiren*).ti,ab.
17	(inspra* or aldactone* or coflumactone* or flumactone* or lasilactone* or rasilez*).ti,ab.
18	losartan/
19	(candesartan* or azilsartan* or eprosartan* or irbesartan* or losartan* or olmesartan* or telmisartan*).ti,ab.
20	(amias* or atacand* or edarbi* or teveten* or aprovel* or coaprovel* or cozaar* or olmetec* or benicar* or sevikar* or micardis* or diovan* or codiovan*).ti,ab.
21	or/1-20

Embase search terms

1	*dipeptidyl carboxypeptidase inhibitor/
2	angiotensin receptor antagonist/
3	aldosterone antagonist/
4	renin inhibitor/
5	((angiotensin* or renin or aldosterone or ACE) adj5 (antagonist* or blocker* or inhibitor*)):ti,ab.
6	enalapril maleate/ or fosinopril/ or lisinopril/ or perindopril/ or quinapril/ or ramipril/ or captopril/ or trandolapril/ or imidapril/ or moexipril/
7	(enalapril* or fosinopril* or lisinopril* or perindopril* or quinapril* or ramipril* or cilizapril* or captopril* or trandolapril* or imidapril* or moexipril*):ti,ab.
8	(innovace* or innozide* or zestril* or carace* or zestoretic* or coversyl* or accupro* or accuretic* or tritace* or triapin* or vascace* or capoten* or capozide* or cozidocapt* or zidocapt* or gopten* or tarka* or tanatril* or perdix*):ti,ab.
9	eplerenone/
10	spironolactone/
11	aliskiren/
12	(eplerenone* or spironolactone* or aliskiren*):ti,ab.
13	(inspra* or aldactone* or coflumactone* or flumactone* or lasilactone* or rasilez*):ti,ab.
14	candesartan/ or azilsartan/ or eprosartan/ or irbesartan/ or losartan potassium/ or olmesartan/ or telmisartan/
15	(candesartan* or azilsartan* or eprosartan* or irbesartan* or losartan* or olmesartan* or telmisartan*):ti,ab.
16	(amias* or atacand* or edarbi* or teveten* or aprovel* or coaprovel* or cozaar* or olmetec* or benicar* or sevikar* or micardis* or diovan* or codiovan*):ti,ab.
17	or/1-16

Cochrane search terms

#1	MeSH descriptor: [Angiotensin-Converting Enzyme Inhibitors] this term only
#2	MeSH descriptor: [Angiotensin II Type 1 Receptor Blockers] this term only
#3	MeSH descriptor: [Angiotensin II Type 2 Receptor Blockers] this term only
#4	MeSH descriptor: [Aldosterone Antagonists] this term only
#5	((angiotensin* or renin or aldosterone or ACE) near/5 (antagonist* or blocker* or inhibitor*)):ti,ab
#6	(RAAS or RAS or RASI or ARB or ARBs):ti,ab
#7	MeSH descriptor: [Enalapril] explode all trees
#8	MeSH descriptor: [Fosinopril] this term only
#9	MeSH descriptor: [Lisinopril] this term only
#10	MeSH descriptor: [Perindopril] this term only
#11	MeSH descriptor: [Ramipril] this term only
#12	MeSH descriptor: [Captopril] this term only
#13	(enalapril* or fosinopril* or lisinopril* or perindopril* or quinapril* or ramipril* or cilizapril* or captopril* or trandolapril* or imidapril* or moexipril*):ti,ab
#14	(innovace* or innozide* or zestril* or carace* or zestoretic* or coversyl* or accupro* or accuretic* or tritace* or triapin* or vascace* or capoten* or capozide* or cozidocapt* or zidocapt* or gopten* or tarka* or tanatril* or perdix*):ti,ab
#15	MeSH descriptor: [Spironolactone] this term only
#16	(eplerenone* or spironolactone* or aliskiren*):ti,ab

#17	(inspra* or aldactone* or coflumactone* or flumactone* or lasilactone* or rasilez*):ti,ab
#18	MeSH descriptor: [Losartan] this term only
#19	(candesartan* or azilsartan* or eprosartan* or irbesartan* or losartan* or olmesartan* or telmisartan*):ti,ab
#20	(amias* or atacand* or edarbi* or teveten* or aprovel* or coaprovel* or cozaar* or olmetec* or benicar* or sevikar* or micardis* or diovan* or codiovan*):ti,ab
#21	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18 or #19 or #20

A.3.10 Antiplatelet and anticoagulant therapy

For people with CKD, what is the clinical and cost effectiveness of oral antiplatelet and anticoagulant therapy in reducing cardiovascular disease?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Kidneys <i>Population terms in section A.1 not used. See below for all search terms:</i>	Antiplatelets		SR, RCT NOT Exclusions (Medline and Embase only)	Search run from 2007 up to 25 November 2013.

Medline search terms

1	exp kidney diseases/ or exp kidney function tests/ or exp kidney/
2	(kidney* or renal or ckd).ti,ab.
3	transplant*.ti.
4	(1 or 2) not 3
5	aspirin/
6	warfarin/
7	(acetylsalicylic acid* or aspirin* or apixaban* or rivaroxaban* or warfarin* or clopidogrel* or ticagrelor* or prasugrel* or dabigatran*).ti,ab.
8	(coumadin* or jantoven* or marevan* or lawarin* or waran* or warfant* or plavix* or briliq* or brilinta* or possia* or pradax* or prazaxa* or effient* or efient* or eliquis* or xarelto*).ti,ab.
9	or/5-8
10	4 and 9

Embase search terms

1	exp kidney disease/ or exp kidney function test/ or exp kidney/
2	(kidney* or renal or ckd).ti,ab.
3	transplant*.ti.
4	(1 or 2) not 3
5	*acetylsalicylic acid/
6	warfarin/
7	clopidogrel/
8	ticagrelor/
9	dabigatran/
10	dabigatran etexilate/
11	prasugrel/

12	apixaban/
13	rivaroxaban/
14	(acetylsalicylic acid* or aspirin* or apixaban* or rivaroxaban* or warfarin* or clopidogrel* or ticagrelor* or prasugrel* or dabigatran*).ti,ab.
15	(coumadin* or jantoven* or marevan* or lawarin* or waran* or warfant* or plavix* or briliq* or brilinta* or possia* or pradax* or prazaxa* or effient* or efient* or eliquis* or xarelto*).ti,ab.
16	or/5-15
17	4 and 16

Cochrane search terms

#1	MeSH descriptor: [Kidney Diseases] explode all trees
#2	MeSH descriptor: [Kidney Function Tests] explode all trees
#3	MeSH descriptor: [Kidney] explode all trees
#4	(kidney* or renal or CKD):ti,ab
#5	transplant*:ti
#6	(#1 or #2 or #3 or #4) not #5
#8	MeSH descriptor: [Aspirin] explode all trees
#9	MeSH descriptor: [Warfarin] explode all trees
#10	("acetylsalicylic acid" or aspirin* or apixaban* or rivaroxaban* or warfarin* or clopidogrel* or ticagrelor* or prasugrel* or dabigatran*):ti,ab
#11	(coumadin* or jantoven* or marevan* or lawarin* or waran* or warfant* or plavix* or briliq* or brilinta* or possia* or pradax* or prazaxa* or effient* or efient* or eliquis* or xarelto*) .ti,ab.
#12	#8 or #9 or #10 or #11
#13	#6 and #12

A.3.11 Asymptomatic hyperuricaemia

For people with CKD and asymptomatic hyperuricaemia, what is the clinical and cost effectiveness of uric acid lowering with allopurinol or febuxostat in the management of CKD?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
CKD	Allopurinol, febuxostat		SR, RCT NOT Exclusions (Medline and Embase only)	Search run from 2007 up to 25 November 2013.

Allopurinol, febuxostat search terms

Medline search terms

1	allopurinol/
2	(allopurinol* or purinol).ti,ab.
3	(febuxostat or adenuic or uloric).ti,ab.
4	or/1-3

Embase search terms

1	febuxostat/
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2	(febuxostat or adenuric or uric or purinol).ti,ab.
3	allopurinol*.ti,ab,hw.
4	or/1-3

Cochrane search terms

#1	MeSH descriptor Allopurinol, this term only
#2	(allopurinol* or purinol):ti,ab
#3	(febuxostat or adenuric or uric):ti,ab
#4	(#1 OR #2 OR #3)

A.3.12 Vitamin D

For people with GFR 15-60, what is the clinical and cost-effectiveness of vitamin D supplementation for the management of renal bone disease?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
CKD	Vitamin D		SR, RCT NOT Exclusions (Medline and Embase only)	Search run from 2007 up to 25 November 2013.

Vitamin D search terms**Medline search terms**

1	exp vitamin d/
2	(vitamin adj (D or D2 or D3 or D4 or D5)).ti,ab.
3	(paracalcitol* or zemplar* or ergocalciferol* or alfacalcidol* or one-alpha* or calcitriol* or rocalcitol* or calcijex* or oxacalcitriol* or falecalcitriol* or fluorocalcitril*).ti,ab.
4	(dihydrotachysterol* or maxacalcitol* or calciferol* or calcifediol* or doxercalciferol* or cholecalciferol* or ercalcidiol* or hectorol* or sitocalciferol* or paracalcin*).ti,ab.
5	(dihydroxyvitamin* or hydroxyvitamin* or hydroxycalciferol* or dihydroxycalciferol* or hydroxyergocalciferol* or dihydroxyergocalciferol* or hydroxycholecalciferol* or dihydroxycholecalciferol*).ti,ab.
6	or/1-5

Embase search terms

1	exp vitamin d/
2	(vitamin adj (D or D2 or D3 or D4 or D5)).ti,ab.
3	(paracalcitol* or zemplar* or ergocalciferol* or alfacalcidol* or one-alpha* or calcitriol* or rocalcitol* or calcijex* or oxacalcitriol* or falecalcitriol* or fluorocalcitril*).ti,ab.
4	(dihydrotachysterol* or maxacalcitol* or calciferol* or calcifediol* or doxercalciferol* or cholecalciferol* or ercalcidiol* or hectorol* or sitocalciferol* or paracalcin*).ti,ab.
5	(dihydroxyvitamin* or hydroxyvitamin* or hydroxycalciferol* or dihydroxycalciferol* or hydroxyergocalciferol* or dihydroxyergocalciferol* or hydroxycholecalciferol* or dihydroxycholecalciferol*).ti,ab.
6	or/1-5

Cochrane search terms

#1	MeSH descriptor Vitamin D explode all trees
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#2	(vitamin NEXT (D or D2 or D3 or D4 or D5)):ti,ab
#3	(paracalcitol* or zemplar* or ergocalciferol* or alfacalcidol* or one-alpha* or calcitriol* or rocalcitol* or calcijex* or oxacalcitriol* or falecalcitriol* or fluorocalcitril*):ti,ab
#4	(dihydotachysterol* or maxacalcitol* or calciferol* or calcifediol* or doxercalciferol* or cholecalciferol* or ercalcidiol* or hectorol* or sitocalciferol* or paracalcin*):ti,ab
#5	(dihydroxyvitamin* or hydroxyvitamin* or hydroxycalciferol* or dihydroxycalciferol* or hydroxyergocalciferol* or dihydroxyergocalciferol* or hydroxycholecalciferol* or dihydroxycholecalciferol*):ti,ab
#6	(#1 OR #2 OR #3 OR #4 OR #5)

A.3.13 Bicarbonate supplements

What is the clinical and cost effectiveness of oral bicarbonate supplements in the management of CKD?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
CKD	Bicarbonate		SR, RCT NOT Exclusions (Medline and Embase only)	Search run up to 25 November 2013. No start date restrictions.

Bicarbonate search terms

Medline search terms

1	exp bicarbonates/
2	bicarbonate*.ti,ab.
3	(hydrogen adj2 carbonate*).ti,ab.
4	or/1-3
5	((contrast or radiocontrast) and (nephropathy or induce*)).ti.
6	4 not 5

Embase search terms

1	exp bicarbonates/
2	bicarbonate*.ti,ab.
3	(hydrogen adj2 carbonate*).ti,ab.
4	or/1-3
5	((contrast or radiocontrast) and (nephropathy or induce*)).ti.
6	4 not 5

Cochrane search terms

#1	MeSH descriptor Bicarbonates explode all trees
#2	bicarbonate*:ti,ab
#3	(hydrogen near/2 carbonate*).ti,ab
#4	(#1 OR #2 OR #3)
#5	((contrast or radiocontrast) and (nephropathy or induce*)):ti
#6	(#4 AND NOT #5)

A.4 Economics search

A.4.1 Economics search

Economic searches were conducted in Medline, Embase, HEED and CRD for NHS EED and HTA.

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
CKD			Economic NOT Exclusions (Medline and Embase only)	Search run from 2009 in Medline and Embase, from 2007 in CRD and HEED, up to 25 November 2013.

CRD search terms

#1	MeSH DESCRIPTOR Renal Insufficiency, Chronic EXPLODE ALL TREES IN NHSEED,HTA
#2	MeSH DESCRIPTOR Kidney Diseases EXPLODE ALL TREES IN NHSEED,HTA
#3	(chronic) IN NHSEED, HTA
#4	#2 AND #3
#5	((chronic or progressive) adj2 (renal or kidney))) IN NHSEED, HTA
#6	((chronic NEXT (kidney or renal) NEXT insufficienc*)) IN NHSEED, HTA
#7	("end stage" adj2 (kidney or renal))) IN NHSEED, HTA
#8	((CKD or ESRD)) IN NHSEED, HTA
#9	MeSH DESCRIPTOR Diabetic Nephropathies IN NHSEED,HTA
#10	MeSH DESCRIPTOR Glomerulonephritis EXPLODE ALL TREES IN NHSEED,HTA
#11	MeSH DESCRIPTOR Proteinuria EXPLODE ALL TREES IN NHSEED,HTA
#12	MeSH DESCRIPTOR Acidosis, Renal Tubular IN NHSEED,HTA
#13	MeSH DESCRIPTOR Hypertension, Renal EXPLODE ALL TREES IN NHSEED,HTA
#14	((diabetic NEXT (kidney or renal) NEXT (disease* or failure))) IN NHSEED, HTA
#15	((renal or renovascular) adj2 hypertensi*)) IN NHSEED, HTA
#16	((glomerulosclerosis or glomerulonephritis or nephropath* or proteinuria*)) IN NHSEED, HTA
#17	((glomerular NEXT (sclerosis or nephritis))) IN NHSEED, HTA
#18	((renal or distal or proximal) NEXT "tubular acidosis") IN NHSEED, HTA
#19	("asymptomatic hyperuricaemia") IN NHSEED, HTA
#20	#1 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19

HEED search terms

1	AX=kidney or renal
2	AX=chronic
3	CS=1 AND 2
4	AX=CKD
5	CS=3 OR 4

A.4.2 Quality of life search

Quality of life searches were conducted in Medline and Embase

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
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Population	Intervention / exposure	Comparison	Study filter used	Date parameters
CKD			Quality of life NOT Exclusions	Search run from 2007 up to 25 November 2013.

A.5 References

- 1 Fox CS, Matsushita K, Woodward M, Bilo HJG, Chalmers J, Heerspink HJL et al. Associations of kidney disease measures with mortality and end-stage renal disease in individuals with and without diabetes: a meta-analysis. *Lancet*. 2012; 380(9854):1662-1673
- 2 Mahmoodi BK, Matsushita K, Woodward M, Blankestijn PJ, Cirillo M, Ohkubo T et al. Associations of kidney disease measures with mortality and end-stage renal disease in individuals with and without hypertension: a meta-analysis. *Lancet*. 2012; 380(9854):1649-1661
- 3 National Institute for Health and Clinical Excellence. The guidelines manual. London: National Institute for Health and Clinical Excellence; 2012. Available from: <http://publications.nice.org.uk/the-guidelines-manual-pmg6/>