

Renal and Ureteric stones: assessment and management

NICE guideline: search strategies

NICE guideline <number>

Search strategies

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Draft for Consultation

*This guideline was developed by the
National Guideline Centre*

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Appendix A: Search strategies

Renal and ureteric stones search strategy 1

This literature search strategy was used for the following reviews;

A.1 Medical expulsive therapy

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.1.1 Clinical search literature search strategy

Searches were constructed using a PICO framework where population (P) terms were combined with Intervention (I) and in some cases Comparison (C) terms. Outcomes (O) are rarely used in search strategies for interventions as these concepts may not be well described in title, abstract or indexes and therefore difficult to retrieve. Search filters were applied to the search where appropriate.

Table 1: Database date parameters and filters used

Database	Dates searched	Search filter used
Medline (OVID)	1946 – 21 March 2018	Exclusions Randomised controlled trials Systematic review studies Observational studies
Embase (OVID)	1974 – 21 March 2018	Exclusions Randomised controlled trials Systematic review studies Observational studies
The Cochrane Library (Wiley)	Cochrane Reviews to 2018 Issue 3 of 12 CENTRAL to 2018 Issue 2 of 12 DARE, and NHSEED to 2015 Issue 2 of 4 HTA to 2016 Issue 2 of 4	None

Medline (Ovid) search terms

1.	exp urolithiasis/
2.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
3.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
4.	stone disease*.ti,ab.
5.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
6.	or/1-5
7.	letter/

8.	editorial/
9.	news/
10.	exp historical article/
11.	Anecdotes as Topic/
12.	comment/
13.	case report/
14.	(letter or comment*).ti.
15.	or/7-14
16.	randomized controlled trial/ or random*.ti,ab.
17.	15 not 16
18.	animals/ not humans/
19.	exp Animals, Laboratory/
20.	exp Animal Experimentation/
21.	exp Models, Animal/
22.	exp Rodentia/
23.	(rat or rats or mouse or mice).ti.
24.	or/17-23
25.	6 not 24
26.	limit 25 to English language
27.	(expuls* adj3 (therap* or treatment* or intervention*)).ti,ab.
28.	((calculus or calculi or stone*) adj3 (expuls* or pass*)).ti,ab.
29.	exp Adrenergic alpha-Antagonists/ or exp Adrenergic alpha-1 Receptor Antagonists/ or exp Adrenergic alpha-2 Receptor Antagonists/
30.	(alpha* adj3 blocker*).ti,ab.
31.	(tamsulosin or alfuzosin or doxazosin).ti,ab.
32.	(Cositam or Contiflo or Diffundox or Faramsil or Flectone or Flomax or Flomaxtra or Galebon or Losinate or Pamsvax or Petyme or Pinexel or Prosurin or Tabphyn or Tamfrex or Tamurex or Combodart or Urimax or Vesomni or Besavar or Uroxatral or Xatral or Fuzatal or Varsan or Larbex or Cardozin or Cardura or Doxadura or Raporsin or Slocinx).ti,ab.
33.	exp Calcium Channel Blockers/
34.	(calcium channel blocker* or c-channel blocker* or Ca channel blocker* or CCB).ti,ab.
35.	exp Nifedipine/
36.	nifedipine.ti,ab.
37.	(Adalat or Adipine or Calchan or Coracten or Cordipin or Cordipine or Corinfar or Fenigidin or Fortipine or Korinfar or Nifangin or Nifedipress or Nimodrel or Procardia or Tenif or Tensipine or Valni or Vascard).ti,ab.
38.	or/27-37
39.	26 and 38
40.	randomized controlled trial.pt.
41.	controlled clinical trial.pt.
42.	randomi#ed.ti,ab.
43.	placebo.ab.
44.	randomly.ti,ab.
45.	Clinical Trials as topic.sh.
46.	trial.ti.
47.	or/40-46

48.	39 and 47
49.	Meta-Analysis/
50.	exp Meta-Analysis as Topic/
51.	(meta analy* or metanaly* or metaanaly* or meta regression).ti,ab.
52.	((systematic* or evidence*) adj3 (review* or overview*)).ti,ab.
53.	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
54.	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
55.	(search* adj4 literature).ab.
56.	(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.
57.	cochrane.jw.
58.	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
59.	or/49-58
60.	39 and 59
61.	Epidemiologic studies/
62.	Observational study/
63.	exp Cohort studies/
64.	(cohort adj (study or studies or analys* or data)).ti,ab.
65.	((follow up or observational or uncontrolled or non randomi#ed or epidemiologic*) adj (study or studies or data)).ti,ab.
66.	((longitudinal or retrospective or prospective or cross sectional) and (study or studies or review or analys* or cohort* or data)).ti,ab.
67.	Controlled Before-After Studies/
68.	Historically Controlled Study/
69.	Interrupted Time Series Analysis/
70.	(before adj2 after adj2 (study or studies or data)).ti,ab.
71.	or/61-70
72.	exp case control study/
73.	case control*.ti,ab.
74.	or/72-73
75.	71 or 74
76.	Cross-sectional studies/
77.	(cross sectional and (study or studies or review or analys* or cohort* or data)).ti,ab.
78.	or/76-77
79.	71 or 78
80.	71 or 74 or 78
81.	39 and 80
82.	48 or 60
83.	81 or 82

Embase (Ovid) search terms

1.	exp urolithiasis/
2.	(nephrolitiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
3.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.

4.	stone disease*.ti,ab.
5.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
6.	or/1-5
7.	letter.pt. or letter/
8.	note.pt.
9.	editorial.pt.
10.	case report/ or case study/
11.	(letter or comment*).ti.
12.	or/7-11
13.	randomized controlled trial/ or random*.ti,ab.
14.	12 not 13
15.	animal/ not human/
16.	nonhuman/
17.	exp Animal Experiment/
18.	exp Experimental Animal/
19.	animal model/
20.	exp Rodent/
21.	(rat or rats or mouse or mice).ti.
22.	or/14-21
23.	6 not 22
24.	limit 23 to English language
25.	(expuls* adj3 (therap* or treatment* or intervention*)).ti,ab.
26.	((calculus or calculi or stone*) adj3 (expuls* or pass*)).ti,ab.
27.	exp alpha adrenergic receptor blocking agent/ or exp alpha 1 adrenergic receptor blocking agent/ or exp alpha 2 adrenergic receptor blocking agent/
28.	(alpha* adj3 blocker*).ti,ab.
29.	(tamsulosin or alfuzosin or doxazosin).ti,ab.
30.	(Flomax or Flomaxtra or Urimax or Besavar or Uroxatral or Xatral or Cardozin or Cardura or Doxadura or Raporsin or Slocinx).ti,ab.
31.	exp calcium channel blocking agent/
32.	(calcium channel blocker* or c-channel blocker* or Ca channel blocker* or CCB).ti,ab.
33.	exp nifedipine/
34.	nifedipine.ti,ab.
35.	(Adalat or Adipine or Calchan or Coracten or Cordipin or Cordipine or Corinfar or Fenigidin or Fortipine or Korinfar or Nifangin or Nifedipress or Nimodrel or Procardia or Tensipine or Valni or Vascard).ti,ab.
36.	or/25-35
37.	24 and 36
38.	random*.ti,ab.
39.	factorial*.ti,ab.
40.	(crossover* or cross over*).ti,ab.
41.	((doubl* or singl*) adj blind*).ti,ab.
42.	(assign* or allocat* or volunteer* or placebo*).ti,ab.
43.	crossover procedure/
44.	single blind procedure/

45.	randomized controlled trial/
46.	double blind procedure/
47.	or/38-46
48.	37 and 47
49.	systematic review/
50.	meta-analysis/
51.	(meta analy* or metanaly* or metaanaly* or meta regression).ti,ab.
52.	((systematic* or evidence*) adj3 (review* or overview*)).ti,ab.
53.	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
54.	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
55.	(search* adj4 literature).ab.
56.	(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.
57.	cochrane.jw.
58.	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
59.	or/49-58
60.	37 and 59
61.	Clinical study/
62.	Observational study/
63.	family study/
64.	longitudinal study/
65.	retrospective study/
66.	prospective study/
67.	cohort analysis/
68.	follow-up/
69.	cohort*.ti,ab.
70.	68 and 69
71.	(cohort adj (study or studies or analys* or data)).ti,ab.
72.	((follow up or observational or uncontrolled or non randomi#ed or epidemiologic*) adj (study or studies or data)).ti,ab.
73.	((longitudinal or retrospective or prospective or cross sectional) and (study or studies or review or analys* or cohort* or data)).ti,ab.
74.	(before adj2 after adj2 (study or studies or data)).ti,ab.
75.	or/61-67,70-74
76.	exp case control study/
77.	case control*.ti,ab.
78.	or/76-77
79.	75 or 78
80.	cross-sectional study/
81.	(cross sectional and (study or studies or review or analys* or cohort* or data)).ti,ab.
82.	or/80-81
83.	75 or 82
84.	75 or 78 or 82
85.	37 and 84
86.	48 or 60

87.	85 or 86
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Cochrane Library (Wiley) search terms

#1.	MeSH descriptor: [Urolithiasis] explode all trees
#2.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s):ti,ab
#3.	((renal or kidney* or urinary or ureter* or urethra*) near/3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)):ti,ab
#4.	stone disease*:ti,ab
#5.	((calculi or calculus or calcium oxalate or cystine) near/3 (crystal* or stone* or lithiasis)):ti,ab
#6.	(or #1-#5)
#7.	(expuls* near/3 (therap* or treatment* or intervention*)):ti,ab
#8.	((calculus or calculi or stone*) near/3 (expuls* or pass*)):ti,ab
#9.	MeSH descriptor: [Adrenergic alpha-Antagonists] explode all trees
#10.	MeSH descriptor: [Adrenergic alpha-1 Receptor Antagonists] explode all trees
#11.	MeSH descriptor: [Adrenergic alpha-2 Receptor Antagonists] explode all trees
#12.	(alpha* near/3 blocker*):ti,ab
#13.	(tamsulosin or alfuzosin or doxazosin):ti,ab
#14.	(Cositam or Contiflo or Diffundox or Faramsil or Flectone or Flomax or Flomaxtra or Galebon or Losinate or Pamsvax or Petyme or Pinexel or Prosurin or Tabphyn or Tamfrex or Tamurex or Combodart or Urimax or Vesomni or Besavar or Uroxatral or Xatral or Fuzatal or Varsan or Larbex or Cardozin or Cardura or Doxadura or Raporsin or Slocinx):ti,ab
#15.	MeSH descriptor: [Calcium Channel Blockers] explode all trees
#16.	(calcium channel blocker* or c-channel blocker* or Ca channel blocker* or CCB):ti,ab
#17.	MeSH descriptor: [Nifedipine] explode all trees
#18.	nifedipine:ti,ab
#19.	(Adalat or Adipine or Calchan or Coracten or Cordipin or Cordipine or Corinfar or Fenigidin or Fortipine or Korinfar or Nifangin or Nifedipress or Nimodrel or Procardia or Tenif or Tensipine or Valni or Vascard):ti,ab
#20.	(or #7-#19)
#21.	#6 and #20

A.1.2 Health Economics literature search strategy

Health economic evidence was identified by conducting a broad search relating to renal and ureteric stones 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 studies.

Table 2: Database date parameters and filters used

Database	Dates searched	Search filter used
Medline	2014 – 9 March 2018	Exclusions Health economics studies
Embase	2014 – 9 March 2018	Exclusions Health economics studies
Centre for Research and Dissemination (CRD)	HTA - Inception – 9 March 2018 NHSEED - Inception to March	None

Database	Dates searched	Search filter used
	2015	

Medline (Ovid) search terms

1.	exp urolithiasis/
2.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
3.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
4.	stone disease*.ti,ab.
5.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
6.	or/1-5
7.	letter/
8.	editorial/
9.	news/
10.	exp historical article/
11.	Anecdotes as Topic/
12.	comment/
13.	case report/
14.	(letter or comment*).ti.
15.	or/7-14
16.	randomized controlled trial/ or random*.ti,ab.
17.	15 not 16
18.	animals/ not humans/
19.	exp Animals, Laboratory/
20.	exp Animal Experimentation/
21.	exp Models, Animal/
22.	exp Rodentia/
23.	(rat or rats or mouse or mice).ti.
24.	or/17-23
25.	6 not 24
26.	limit 25 to English language
27.	Economics/
28.	Value of life/
29.	exp "Costs and Cost Analysis"/
30.	exp Economics, Hospital/
31.	exp Economics, Medical/
32.	Economics, Nursing/
33.	Economics, Pharmaceutical/
34.	exp "Fees and Charges"/
35.	exp Budgets/
36.	budget*.ti,ab.
37.	cost*.ti.
38.	(economic* or pharmaco?economic*).ti.
39.	(price* or pricing*).ti,ab.
40.	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or

	variable*)),ab.
41.	(financ* or fee or fees).ti,ab.
42.	(value adj2 (money or monetary)).ti,ab.
43.	or/27-42
44.	26 and 43

Embase (Ovid) search terms

1.	exp urolithiasis/
2.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
3.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
4.	stone disease*.ti,ab.
5.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
6.	or/1-5
7.	letter.pt. or letter/
8.	note.pt.
9.	editorial.pt.
10.	case report/ or case study/
11.	(letter or comment*).ti.
12.	or/7-11
13.	randomized controlled trial/ or random*.ti,ab.
14.	12 not 13
15.	animal/ not human/
16.	nonhuman/
17.	exp Animal Experiment/
18.	exp Experimental Animal/
19.	animal model/
20.	exp Rodent/
21.	(rat or rats or mouse or mice).ti.
22.	or/14-21
23.	6 not 22
24.	limit 23 to English language
25.	health economics/
26.	exp economic evaluation/
27.	exp health care cost/
28.	exp fee/
29.	budget/
30.	funding/
31.	budget*.ti,ab.
32.	cost*.ti.
33.	(economic* or pharmaco?economic*).ti.
34.	(price* or pricing*).ti,ab.

35.	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.
36.	(financ* or fee or fees).ti,ab.
37.	(value adj2 (money or monetary)).ti,ab.
38.	or/25-37
39.	24 and 38

NHS EED and HTA (CRD) search terms

#1.	MeSH DESCRIPTOR urolithiasis EXPLODE ALL TREES
#2.	((nephrolithiasis or nephrolith or urolithiasis))
#3.	((((renal or kidney or urinary or ureteric or ureteral or ureter or urethra*) adj2 (stone* or calculi or calculus or calculosis or lithiasis or colic))))
#4.	((stone disease*))
#5.	((((calculi or calculus) adj2 (stone* or lithiasis))))
#6.	(#1 OR #2 OR #3 OR #4 OR #5)

Renal and ureteric stones search strategy 2

This literature search strategy was used for the following reviews;

A.2 Pain management

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.2.1 Clinical search literature search strategy

Searches were constructed using a PICO framework where population (P) terms were combined with Intervention (I) and in some cases Comparison (C) terms. Outcomes (O) are rarely used in search strategies for interventions as these concepts may not be well described in title, abstract or indexes and therefore difficult to retrieve. Search filters were applied to the search where appropriate.

Separate searches were run to identify studies about pain in adults and in children.

A.2.1.1 Adults

Table 3: Database date parameters and filters used

Database	Dates searched	Search filter used
Medline (OVID)	1946 – 21 March 2018	Exclusions Randomised controlled trials Systematic review studies
Embase (OVID)	1974 – 21 March 2018	Exclusions Randomised controlled trials Systematic review studies
The Cochrane Library (Wiley)	Cochrane Reviews to 2018 Issue 3 of 12	None

Database	Dates searched	Search filter used
	CENTRAL to 2018 Issue 2 of 12 DARE, and NHSEED to 2015 Issue 2 of 4 HTA to 2016 Issue 4 of 4	

Medline (Ovid) search terms

84.	exp urolithiasis/
85.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
86.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
87.	stone disease*.ti,ab.
88.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
89.	or/1-5
90.	letter/
91.	editorial/
92.	news/
93.	exp historical article/
94.	Anecdotes as Topic/
95.	comment/
96.	case report/
97.	(letter or comment*).ti.
98.	or/7-14
99.	randomized controlled trial/ or random*.ti,ab.
100.	15 not 16
101.	animals/ not humans/
102.	exp Animals, Laboratory/
103.	exp Animal Experimentation/
104.	exp Models, Animal/
105.	exp Rodentia/
106.	(rat or rats or mouse or mice).ti.
107.	or/17-23
108.	6 not 24
109.	limit 25 to English language
110.	exp Analgesics/
111.	analgesic*.ti,ab.
112.	exp anti inflammatory agents, non steroidal/
113.	((non-steroid* or nonsteroid*) adj (antiinflammatory or anti-inflammatory)).ti,ab.
114.	NSAID*.ti,ab.
115.	exp Ibuprofen/
116.	(ibuprofen or brufen or calprofen or cuprofen or ibucalm or ibuderm or ibugel or ibuleve or ibuspray or nurofen).ti,ab.
117.	Diclofenac/
118.	(diclofenac or Voltarol or Voltaren or Fenactol or Dicloflex or Diclomax or Motifene or Econac).ti,ab.

119.	Naproxen/
120.	(naproxen or Arthrofen or Naprosyn or Naprosin or Stirlescent or Vimovo or Napratec).ti,ab.
121.	exp Analgesics, Opioid/
122.	exp Opiate Alkaloids/
123.	Narcotics/
124.	(opioid* or opiate* or narcotic*).ti,ab.
125.	exp Morphine/
126.	(morphine or Sevredol or MST Continus or Morphgesic or MXL or Zomorph or Oramorph or Cyclimorph).ti,ab.
127.	Meperidine/
128.	(pethidine or meperidine).ti,ab.
129.	Tramadol/
130.	(tramadol or Zydol or Zamadol or Invodol or Mabron or Maneo or Marol or Oldaram or Tilodol or Tradorec or Tramulief or Zamadol or Zeridame or Maxitram or Tramquel).ti,ab.
131.	exp Codeine/
132.	(codeine or methymorphine or Galcodine or Co-codamol or Codipar or Kapake or Solpadol or Zapain or Codipar or Paracodol or Tylex).ti,ab.
133.	Acetaminophen/
134.	(paracetamol or acetaminophen or Mandanol or Panadol or Paravict or Calpol or Perfalgan or Alvedon or Tramacet).ti,ab.
135.	Butylscopolammonium Bromide/
136.	(Buscopan or butylscopolammonium or N-butylscopolammonium or hyoscine or scopolamine or butylscopolamine).ti,ab.
137.	or/27-53
138.	26 and 54
139.	randomized controlled trial.pt.
140.	controlled clinical trial.pt.
141.	randomi#ed.ti,ab.
142.	placebo.ab.
143.	randomly.ti,ab.
144.	Clinical Trials as topic.sh.
145.	trial.ti.
146.	or/56-62
147.	Meta-Analysis/
148.	exp Meta-Analysis as Topic/
149.	(meta analy* or metanaly* or metaanaly* or meta regression).ti,ab.
150.	((systematic* or evidence*) adj3 (review* or overview*)).ti,ab.
151.	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
152.	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
153.	(search* adj4 literature).ab.
154.	(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.
155.	cochrane.jw.
156.	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.

157.	or/64-73
158.	63 or 74
159.	55 and 75

Embase (Ovid) search terms

88.	exp urolithiasis/
89.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
90.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
91.	stone disease*.ti,ab.
92.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
93.	or/1-5
94.	letter.pt. or letter/
95.	note.pt.
96.	editorial.pt.
97.	case report/ or case study/
98.	(letter or comment*).ti.
99.	or/7-11
100.	randomized controlled trial/ or random*.ti,ab.
101.	12 not 13
102.	animal/ not human/
103.	nonhuman/
104.	exp Animal Experiment/
105.	exp Experimental Animal/
106.	animal model/
107.	exp Rodent/
108.	(rat or rats or mouse or mice).ti.
109.	or/14-21
110.	6 not 22
111.	limit 23 to English language
112.	exp analgesic agent/
113.	analgesic*.ti,ab.
114.	exp nonsteroid antiinflammatory agent/
115.	((non-steroid* or nonsteroid*) adj (antiinflammatory or anti-inflammatory)).ti,ab.
116.	NSAID*.ti,ab.
117.	ibuprofen/
118.	(ibuprofen or brufen or calprofen or cuprofen or ibucalm or ibuderm or ibugel or ibuleve or ibuspray or nurofen).ti,ab.
119.	diclofenac/
120.	(diclofenac or Voltarol or Voltaren or Fenactol or Dicloflex or Diclomax or Motifene or Econac).ti,ab.
121.	naproxen/
122.	(naproxen or Arthrofen or Naprosyn or Naprosin or Stirlescent or Vimovo or Napratec).ti,ab.
123.	exp narcotic analgesic agent/
124.	exp opiate/

125.	exp narcotic agent/
126.	(opioid* or opiate* or narcotic*).ti,ab.
127.	morphine/
128.	exp morphine derivate/
129.	(morphine or Sevredol or MST Continus or Morphgesic or MXL or Zomorph or Oramorph or Cyclimorph).ti,ab.
130.	pethidine/
131.	(pethidine or meperidine).ti,ab.
132.	tramadol/
133.	(tramadol or Zydol or Zamadol or Invodol or Mabron or Maneo or Marol or Oldaram or Tilodol or Tradorec or Tramulief or Zamadol or Zeridame or Maxitram or Tramquel).ti,ab.
134.	codeine/
135.	(codeine or methyilmorphine or Galcodine or Co-codamol or Codipar or Kapake or Solpadol or Zapain or Codipar or Paracodol or Tylex).ti,ab.
136.	paracetamol/
137.	paracetamol plus tramadol/
138.	(paracetamol or acetaminophen or Mandanol or Panadol or Paravict or Calpol or Perfalgan or Alvedon or Tramacet).ti,ab.
139.	scopolamine butyl bromide/
140.	(Buscopan or butylscopolammonium or N-butylscopolammonium or hyoscine or scopolamine or butylscopolamine).ti,ab.
141.	or/25-53
142.	24 and 54
143.	random*.ti,ab.
144.	factorial*.ti,ab.
145.	(crossover* or cross over*).ti,ab.
146.	((doubl* or singl*) adj blind*).ti,ab.
147.	(assign* or allocat* or volunteer* or placebo*).ti,ab.
148.	crossover procedure/
149.	single blind procedure/
150.	randomized controlled trial/
151.	double blind procedure/
152.	or/56-64
153.	systematic review/
154.	meta-analysis/
155.	(meta analy* or metanaly* or metaanaly* or meta regression).ti,ab.
156.	((systematic* or evidence*) adj3 (review* or overview*)).ti,ab.
157.	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
158.	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
159.	(search* adj4 literature).ab.
160.	(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.
161.	cochrane.jw.
162.	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
163.	or/66-75

164.	65 or 76
165.	55 and 77

Cochrane Library (Wiley) search terms

#22.	MeSH descriptor: [Urolithiasis] explode all trees
#23.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s):ti,ab
#24.	((renal or kidney* or urinary or ureter* or urethra*) near/3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)):ti,ab
#25.	stone disease*:ti,ab
#26.	((calculi or calculus or calcium oxalate or cystine) near/3 (crystal* or stone* or lithiasis)):ti,ab
#27.	(or #1-#5)
#28.	MeSH descriptor: [Analgesics] explode all trees
#29.	MeSH descriptor: [Anti-Inflammatory Agents, Non-Steroidal] explode all trees
#30.	((non-steroid* or nonsteroid*) near (antiinflammatory or anti-inflammatory)):ti,ab
#31.	NSAID*:ti,ab
#32.	MeSH descriptor: [Ibuprofen] this term only
#33.	(ibuprofen or brufen or calprofen or cuprofen or ibucalm or ibuderm or ibugel or ibuleve or ibuspray or nurofen):ti,ab
#34.	MeSH descriptor: [Diclofenac] this term only
#35.	(diclofenac or Voltarol or Voltaren or Fenactol or Dicloflex or Diclomax or Motifene or Econac):ti,ab
#36.	MeSH descriptor: [Naproxen] this term only
#37.	(naproxen or Arthrofen or Naprosyn or Naprosin or Stirlescent or Vimovo or Napratec):ti,ab
#38.	MeSH descriptor: [Analgesics, Opioid] explode all trees
#39.	MeSH descriptor: [Opiate Alkaloids] explode all trees
#40.	MeSH descriptor: [Narcotics] explode all trees
#41.	(opiod* or opiate* or narcotic*):ti,ab
#42.	MeSH descriptor: [Morphine] explode all trees
#43.	(morphine or Sevredol or MST Continus or Morphgesic or MXL or Zomorph or Oramorph or Cyclimorph):ti,ab
#44.	MeSH descriptor: [Meperidine] this term only
#45.	(pethidine or meperidine) .ti,ab
#46.	MeSH descriptor: [Tramadol] this term only
#47.	(tramadol or Zydol or Zamadol or Invodol or Mabron or Maneo or Marol or Oldaram or Tilodol or Tradorec or Tramulief or Zamadol or Zeridame or Maxitram or Tramquel):ti,ab
#48.	MeSH descriptor: [Codeine] explode all trees
#49.	(codeine or methylmorphine or Galcodine or Co-codamol or Codipar or Kapake or Solpadol or Zapain or Codipar or Paracodol or Tylex):ti,ab
#50.	MeSH descriptor: [Acetaminophen] explode all trees
#51.	(paracetamol or acetaminophen or Mandanol or Panadol or Paravict or Calpol or Perfalgan or Alvedon or Tramacet):ti,ab
#52.	MeSH descriptor: [Butylscopolammonium Bromide] this term only
#53.	(Buscopan or butylscopolammonium or N-butylscopolammonium or hyoscine or scopolamine or butylscopolamine):ti,ab
#54.	(or #7-#32)
#55.	#6 and #33

A.2.1.2 Children

Table 4: Database date parameters and filters used

Database	Dates searched	Search filter used
Medline (OVID)	1946 – 21 March 2018	Exclusions Children
Embase (OVID)	1974 – 21 March 2018	Exclusions Children
The Cochrane Library (Wiley)	Cochrane Reviews to 2018 Issue 3 of 12 CENTRAL to 2018 Issue 2 of 12 DARE, and NHSEED to 2015 Issue 2 of 4 HTA to 2016 Issue 4 of 4	Children

Medline (Ovid) search terms

1.	exp urolithiasis/
2.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
3.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
4.	stone disease*.ti,ab.
5.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
6.	or/1-5
7.	letter/
8.	editorial/
9.	news/
10.	exp historical article/
11.	Anecdotes as Topic/
12.	comment/
13.	case report/
14.	(letter or comment*).ti.
15.	or/7-14
16.	randomized controlled trial/ or random*.ti,ab.
17.	15 not 16
18.	animals/ not humans/
19.	exp Animals, Laboratory/
20.	exp Animal Experimentation/
21.	exp Models, Animal/
22.	exp Rodentia/
23.	(rat or rats or mouse or mice).ti.
24.	or/17-23
25.	6 not 24
26.	limit 25 to English language
27.	exp Analgesics/
28.	analgesic*.ti,ab.
29.	exp anti inflammatory agents, non steroidal/

30.	((non-steroid* or nonsteroid*) adj (antiinflammatory or anti-inflammatory)).ti,ab.
31.	NSAID*.ti,ab.
32.	exp Ibuprofen/
33.	(ibuprofen or brufen or calprofen or cuprofen or ibucalm or ibuderm or ibugel or ibuleve or ibuspray or nurofen).ti,ab.
34.	Diclofenac/
35.	(diclofenac or Voltarol or Voltaren or Fenactol or Dicloflex or Diclomax or Motifene or Econac).ti,ab.
36.	Naproxen/
37.	(naproxen or Arthrofen or Naprosyn or Naprosin or Stirlescent or Vimovo or Napratec).ti,ab.
38.	exp Analgesics, Opioid/
39.	exp Opiate Alkaloids/
40.	Narcotics/
41.	(opioid* or opiate* or narcotic*).ti,ab.
42.	exp Morphine/
43.	(morphine or Sevredol or MST Continus or Morphgesic or MXL or Zomorph or Oramorph or Cyclimorph).ti,ab.
44.	Meperidine/
45.	(pethidine or meperidine).ti,ab.
46.	Tramadol/
47.	(tramadol or Zydol or Zamadol or Invodol or Mabron or Maneo or Marol or Oldaram or Tilodol or Tradorec or Tramulief or Zamadol or Zeridame or Maxitram or Tramquel).ti,ab.
48.	exp Codeine/
49.	(codeine or methylmorphine or Galcodine or Co-codamol or Codipar or Kapake or Solpadol or Zapain or Codipar or Paracodol or Tylex).ti,ab.
50.	Acetaminophen/
51.	(paracetamol or acetaminophen or Mandanol or Panadol or Paravict or Calpol or Perfalgan or Alvedon or Tramacet).ti,ab.
52.	Butylscopolammonium Bromide/
53.	(Buscopan or butylscopolammonium or N-butylscopolammonium or hyoscine or scopolamine or butylscopolamine).ti,ab.
54.	or/27-53
55.	26 and 54
56.	exp child/
57.	exp Pediatrics/
58.	child*.ti,ab.
59.	exp Infant/
60.	infan*.ti,ab.
61.	(baby or babies).ti,ab.
62.	"Adolescent"/ or adolescen*.ti,ab.
63.	(pediatric*1 or paediatric*1).ti,ab.
64.	(neonat* or newborn*).ti,ab.
65.	or/56-64
66.	55 and 65

Embase (Ovid) search terms

1.	exp urolithiasis/
2.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
3.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
4.	stone disease*.ti,ab.
5.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
6.	or/1-5
7.	letter.pt. or letter/
8.	note.pt.
9.	editorial.pt.
10.	case report/ or case study/
11.	(letter or comment*).ti.
12.	or/7-11
13.	randomized controlled trial/ or random*.ti,ab.
14.	12 not 13
15.	animal/ not human/
16.	nonhuman/
17.	exp Animal Experiment/
18.	exp Experimental Animal/
19.	animal model/
20.	exp Rodent/
21.	(rat or rats or mouse or mice).ti.
22.	or/14-21
23.	6 not 22
24.	limit 23 to English language
25.	exp analgesic agent/
26.	analgesic*.ti,ab.
27.	exp nonsteroid antiinflammatory agent/
28.	((non-steroid* or nonsteroid*) adj (antiinflammatory or anti-inflammatory)).ti,ab.
29.	NSAID*.ti,ab.
30.	ibuprofen/
31.	(ibuprofen or brufen or calprofen or cuprofen or ibucalm or ibuderm or ibugel or ibuleve or ibuspray or nurofen).ti,ab.
32.	diclofenac/
33.	(diclofenac or Voltarol or Voltaren or Fenactol or Dicloflex or Diclomax or Motifene or Econac).ti,ab.
34.	naproxen/
35.	(naproxen or Arthrophen or Naprosyn or Naprosin or Stirlescent or Vimovo or Napratec).ti,ab.
36.	exp narcotic analgesic agent/
37.	exp opiate/
38.	exp narcotic agent/
39.	(opioid* or opiate* or narcotic*).ti,ab.
40.	morphine/
41.	exp morphine derivate/
42.	(morphine or Sevredol or MST Continus or Morphgesic or MXL or Zomorph or

	Oramorph or Cyclimorph).ti,ab.
43.	pethidine/
44.	(pethidine or meperidine).ti,ab.
45.	tramadol/
46.	(tramadol or Zydol or Zamadol or Invodol or Mabron or Maneo or Marol or Oldaram or Tilodol or Tradorec or Tramulief or Zamadol or Zeridame or Maxitram or Tramquel).ti,ab.
47.	codeine/
48.	(codeine or methymorphine or Galcodine or Co-codamol or Codipar or Kapake or Solpadol or Zapain or Codipar or Paracodol or Tylex).ti,ab.
49.	paracetamol/
50.	paracetamol plus tramadol/
51.	(paracetamol or acetaminophen or Mandanol or Panadol or Paravict or Calpol or Perfalgan or Alvedon or Tramacet).ti,ab.
52.	scopolamine butyl bromide/
53.	(Buscopan or butylscopolammonium or N-butylscopolammonium or hyoscine or scopolamine or butylscopolamine).ti,ab.
54.	or/25-53
55.	24 and 54
56.	exp child/
57.	exp pediatrics/
58.	child*.ti,ab.
59.	infan*.ti,ab.
60.	(baby or babies).ti,ab.
61.	exp adolescent/ or adolescen*.ti,ab.
62.	(pediatric*1 or paediatric*1).ti,ab.
63.	(neonat* or newborn*).ti,ab.
64.	or/56-63
65.	55 and 64

Cochrane Library (Wiley) search terms

#7.	MeSH descriptor: [Urolithiasis] explode all trees
#8.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s):ti,ab
#9.	((renal or kidney* or urinary or ureter* or urethra*) near/3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)):ti,ab
#10.	stone disease*:ti,ab
#11.	((calculi or calculus or calcium oxalate or cystine) near/3 (crystal* or stone* or lithiasis)):ti,ab
#12.	(or #1-#5)
#13.	MeSH descriptor: [Analgesics] explode all trees
#14.	MeSH descriptor: [Anti-Inflammatory Agents, Non-Steroidal] explode all trees
#15.	((non-steroid* or nonsteroid*) near (antiinflammatory or anti-inflammatory)):ti,ab
#16.	NSAID*:ti,ab
#17.	MeSH descriptor: [Ibuprofen] this term only
#18.	(ibuprofen or brufen or calprofen or cuprofen or ibucalm or ibuderm or ibugel or ibuleve or ibuspray or nurofen):ti,ab
#19.	MeSH descriptor: [Diclofenac] this term only
#20.	(diclofenac or Voltarol or Voltaren or Fenactol or Dicloflex or Diclomax or Motifene or

	Econac):ti,ab
#21.	MeSH descriptor: [Naproxen] this term only
#22.	(naproxen or Arthrofen or Naprosyn or Naprosin or Stirlescent or Vimovo or Napratec):ti,ab
#23.	MeSH descriptor: [Analgesics, Opioid] explode all trees
#24.	MeSH descriptor: [Opiate Alkaloids] explode all trees
#25.	MeSH descriptor: [Narcotics] explode all trees
#26.	(opiod* or opiate* or narcotic*):ti,ab
#27.	MeSH descriptor: [Morphine] explode all trees
#28.	(morphine or Sevredol or MST Continus or Morphgesic or MXL or Zomorph or Oramorph or Cyclimorph):ti,ab
#29.	MeSH descriptor: [Meperidine] this term only
#30.	(pethidine or meperidine) .ti,ab
#31.	MeSH descriptor: [Tramadol] this term only
#32.	(tramadol or Zydol or Zamadol or Invodol or Mabron or Maneo or Marol or Oldaram or Tilodol or Tradorec or Tramulief or Zamadol or Zeridame or Maxitram or Tramquel):ti,ab
#33.	MeSH descriptor: [Codeine] explode all trees
#34.	(codeine or methylmorphine or Galcodine or Co-codamol or Codipar or Kapake or Solpadol or Zapain or Codipar or Paracodol or Tylex):ti,ab
#35.	MeSH descriptor: [Acetaminophen] explode all trees
#36.	(paracetamol or acetaminophen or Mandanol or Panadol or Paravict or Calpol or Perfalgan or Alvedon or Tramacet):ti,ab
#37.	MeSH descriptor: [Butylscopolammonium Bromide] this term only
#38.	(Buscopan or butylscopolammonium or N-butylscopolammonium or hyoscine or scopolamine or butylscopolamine):ti,ab
#39.	(or #7-#32)
#40.	#6 and #33
#41.	[mh child]
#42.	[mh Pediatrics]
#43.	child*:ti,ab
#44.	[mh Infant]
#45.	infan*:ti,ab
#46.	(baby or babies):ti,ab
#47.	[mh ^Adolescent] or adolescen*:ti,ab
#48.	(pediatric* or paediatric*):ti,ab
#49.	(neonat* or newborn*):ti,ab
#50.	(or #35-#43)
#51.	#34 and #44

A.2.2 Health Economics literature search strategy

Health economic evidence was identified by conducting a broad search relating to renal and ureteric stones 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 studies.

Table 5: Database date parameters and filters used

Database	Dates searched	Search filter used
Medline	2014 – 9 March 2018	Exclusions Health economics studies
Embase	2014 – 9 March 2018	Exclusions Health economics studies
Centre for Research and Dissemination (CRD)	HTA - Inception – 9 March 2018 NHSEED - Inception to March 2015	None

Medline (Ovid) search terms

45.	exp urolithiasis/
46.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
47.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
48.	stone disease*.ti,ab.
49.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
50.	or/1-5
51.	letter/
52.	editorial/
53.	news/
54.	exp historical article/
55.	Anecdotes as Topic/
56.	comment/
57.	case report/
58.	(letter or comment*).ti.
59.	or/7-14
60.	randomized controlled trial/ or random*.ti,ab.
61.	15 not 16
62.	animals/ not humans/
63.	exp Animals, Laboratory/
64.	exp Animal Experimentation/
65.	exp Models, Animal/
66.	exp Rodentia/
67.	(rat or rats or mouse or mice).ti.
68.	or/17-23
69.	6 not 24
70.	limit 25 to English language
71.	Economics/
72.	Value of life/
73.	exp "Costs and Cost Analysis"/
74.	exp Economics, Hospital/
75.	exp Economics, Medical/
76.	Economics, Nursing/
77.	Economics, Pharmaceutical/

78.	exp "Fees and Charges"/
79.	exp Budgets/
80.	budget*.ti,ab.
81.	cost*.ti.
82.	(economic* or pharmaco?economic*).ti.
83.	(price* or pricing*).ti,ab.
84.	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)),ab.
85.	(financ* or fee or fees).ti,ab.
86.	(value adj2 (money or monetary)).ti,ab.
87.	or/27-42
88.	26 and 43

Embase (Ovid) search terms

40.	exp urolithiasis/
41.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
42.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
43.	stone disease*.ti,ab.
44.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
45.	or/1-5
46.	letter.pt. or letter/
47.	note.pt.
48.	editorial.pt.
49.	case report/ or case study/
50.	(letter or comment*).ti.
51.	or/7-11
52.	randomized controlled trial/ or random*.ti,ab.
53.	12 not 13
54.	animal/ not human/
55.	nonhuman/
56.	exp Animal Experiment/
57.	exp Experimental Animal/
58.	animal model/
59.	exp Rodent/
60.	(rat or rats or mouse or mice).ti.
61.	or/14-21
62.	6 not 22
63.	limit 23 to English language
64.	health economics/
65.	exp economic evaluation/
66.	exp health care cost/

67.	exp fee/
68.	budget/
69.	funding/
70.	budget*.ti,ab.
71.	cost*.ti.
72.	(economic* or pharmaco?economic*).ti.
73.	(price* or pricing*).ti,ab.
74.	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.
75.	(financ* or fee or fees).ti,ab.
76.	(value adj2 (money or monetary)).ti,ab.
77.	or/25-37
78.	24 and 38

NHS EED and HTA (CRD) search terms

#52.	MeSH DESCRIPTOR urolithiasis EXPLODE ALL TREES
#53.	((nephrolithiasis or nephrolith or urolithiasis))
#54.	((((renal or kidney or urinary or ureteric or ureteral or ureter or urethra*) adj2 (stone* or calculi or calculus or calculosis or lithiasis or colic))))
#55.	((stone disease*))
#56.	((((calculi or calculus) adj2 (stone* or lithiasis))))
#57.	(#1 OR #2 OR #3 OR #4 OR #5)

Renal and ureteric stones search strategy 3

This literature search strategy was used for the following reviews;

A.3 Surgical treatment

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.3.1 Clinical search literature search strategy

Searches were constructed using a PICO framework where population (P) terms were combined with Intervention (I) and in some cases Comparison (C) terms. Outcomes (O) are rarely used in search strategies for interventions as these concepts may not be well described in title, abstract or indexes and therefore difficult to retrieve. Search filters were applied to the search where appropriate.

Table 6: Database date parameters and filters used

Database	Dates searched	Search filter used
Medline (OVID)	1946 – 21 March 2018	Exclusions Randomised controlled trials Systematic review studies Observational studies
Embase (OVID)	1974 – 21 March 2018	Exclusions Randomised controlled trials Systematic review studies Observational studies
The Cochrane Library (Wiley)	Cochrane Reviews to 2018 Issue 3 of 12 CENTRAL to 2018 Issue 2 of 12 DARE, and NHSEED to 2015 Issue 2 of 4 HTA to 2016 Issue 4 of 4	None

Medline (Ovid) search terms

160.	exp urolithiasis/
161.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
162.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
163.	stone disease*.ti,ab.
164.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
165.	or/1-5
166.	letter/
167.	editorial/
168.	news/
169.	exp historical article/

170.	Anecdotes as Topic/
171.	comment/
172.	case report/
173.	(letter or comment*).ti.
174.	or/7-14
175.	randomized controlled trial/ or random*.ti,ab.
176.	15 not 16
177.	animals/ not humans/
178.	exp Animals, Laboratory/
179.	exp Animal Experimentation/
180.	exp Models, Animal/
181.	exp Rodentia/
182.	(rat or rats or mouse or mice).ti.
183.	or/17-23
184.	6 not 24
185.	limit 25 to English language
186.	exp Lithotripsy/
187.	Lithotripsy, Laser/
188.	Lithotripsy.ti,ab.
189.	Litholapaxy.ti,ab.
190.	High-Energy Shock Waves/
191.	(shockwave* or shock wave* or sound wave* or soundwave*).ti,ab.
192.	HESW .ti,ab.
193.	ESWL.ti,ab.
194.	(electrotherap* or electro therap* or extracorporeal or extra corporeal).ti,ab.
195.	(ultra sound* or ultrasound* or ultrasonic* or ultra sonic*).ti,ab.
196.	(Holmium or Ho:YAG).ti,ab.
197.	((fiber or fibre) adj2 laser).ti,ab.
198.	Ureteroscopy/
199.	Ureteroscopes/
200.	Ureteroscop*.ti,ab.
201.	nephroscop*.ti,ab.
202.	renoscop*.ti,ab.
203.	(ureterorenoscop* or uretero renoscop*).ti,ab.
204.	(nephrolithotom* or nephrostom*).ti,ab.
205.	PCNL.ti,ab.
206.	((intrarenal or intra renal) adj2 surger*).ti,ab.
207.	RIRS.ti,ab.
208.	or/27-48
209.	26 and 49
210.	randomized controlled trial.pt.
211.	controlled clinical trial.pt.
212.	randomi#ed.ti,ab.
213.	placebo.ab.
214.	randomly.ti,ab.

215.	Clinical Trials as topic.sh.
216.	trial.ti.
217.	or/51-57
218.	Meta-Analysis/
219.	exp Meta-Analysis as Topic/
220.	(meta analy* or metanaly* or metaanaly* or meta regression).ti,ab.
221.	((systematic* or evidence*) adj3 (review* or overview*)).ti,ab.
222.	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
223.	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
224.	(search* adj4 literature).ab.
225.	(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.
226.	cochrane.jw.
227.	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
228.	or/59-68
229.	Epidemiologic studies/
230.	Observational study/
231.	exp Cohort studies/
232.	(cohort adj (study or studies or analys* or data)).ti,ab.
233.	((follow up or observational or uncontrolled or non randomi#ed or epidemiologic*) adj (study or studies or data)).ti,ab.
234.	((longitudinal or retrospective or prospective or cross sectional) and (study or studies or review or analys* or cohort* or data)).ti,ab.
235.	Controlled Before-After Studies/
236.	Historically Controlled Study/
237.	Interrupted Time Series Analysis/
238.	(before adj2 after adj2 (study or studies or data)).ti,ab.
239.	or/70-79
240.	exp case control study/
241.	case control*.ti,ab.
242.	or/81-82
243.	80 or 83
244.	Cross-sectional studies/
245.	(cross sectional and (study or studies or review or analys* or cohort* or data)).ti,ab.
246.	or/85-86
247.	80 or 87
248.	80 or 83 or 87
249.	50 and (58 or 69)
250.	50 and 89
251.	91 not 90

Embase (Ovid) search terms

166.	exp urolithiasis/
167.	(nephrolitiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
168.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or

	calculosis or lithiasis or c?olic*).ti,ab.
169.	stone disease*.ti,ab.
170.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
171.	or/1-5
172.	letter.pt. or letter/
173.	note.pt.
174.	editorial.pt.
175.	case report/ or case study/
176.	(letter or comment*).ti.
177.	or/7-11
178.	randomized controlled trial/ or random*.ti,ab.
179.	12 not 13
180.	animal/ not human/
181.	nonhuman/
182.	exp Animal Experiment/
183.	exp Experimental Animal/
184.	animal model/
185.	exp Rodent/
186.	(rat or rats or mouse or mice).ti.
187.	or/14-21
188.	6 not 22
189.	limit 23 to English language
190.	exp lithotripsy/
191.	laser lithotripsy/
192.	lithotripsy.ti,ab.
193.	litholapaxy.ti,ab.
194.	(shockwave* or shock wave* or sound wave* or soundwave*).ti,ab.
195.	HESW.ti,ab.
196.	ESWL.ti,ab.
197.	(electrotherap* or electro therap* or extracorporeal or extra corporeal).ti,ab.
198.	ultrasonic lithotripsy/
199.	(ultra sound* or ultrasound* or ultrasonic* or ultra sonic*).ti,ab.
200.	(Holmium or Ho:YAG).ti,ab.
201.	((fiber or fibre) adj2 laser).ti,ab.
202.	ureteroscopy/
203.	exp ureteroscope/
204.	ureteroscop*.ti,ab.
205.	nephroscop*.ti,ab.
206.	renoscop*.ti,ab.
207.	(ureterorenoscop* or uretero renoscop*).ti,ab.
208.	(nephrolithotom* or nephrostom*).ti,ab.
209.	PCNL.ti,ab.
210.	((intrarenal or intra renal) adj2 surger*).ti,ab.
211.	RIRS.ti,ab.

212.	or/25-46
213.	24 and 47
214.	random*.ti,ab.
215.	factorial*.ti,ab.
216.	(crossover* or cross over*).ti,ab.
217.	((doubl* or singl*) adj blind*).ti,ab.
218.	(assign* or allocat* or volunteer* or placebo*).ti,ab.
219.	crossover procedure/
220.	single blind procedure/
221.	randomized controlled trial/
222.	double blind procedure/
223.	or/49-57
224.	systematic review/
225.	meta-analysis/
226.	(meta analy* or metanaly* or metaanaly* or meta regression).ti,ab.
227.	((systematic* or evidence*) adj3 (review* or overview*)).ti,ab.
228.	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
229.	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
230.	(search* adj4 literature).ab.
231.	(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.
232.	cochrane.jw.
233.	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
234.	or/59-68
235.	Clinical study/
236.	Observational study/
237.	family study/
238.	longitudinal study/
239.	retrospective study/
240.	prospective study/
241.	cohort analysis/
242.	follow-up/
243.	cohort*.ti,ab.
244.	77 and 78
245.	(cohort adj (study or studies or analys* or data)).ti,ab.
246.	((follow up or observational or uncontrolled or non randomi#ed or epidemiologic*) adj (study or studies or data)).ti,ab.
247.	((longitudinal or retrospective or prospective or cross sectional) and (study or studies or review or analys* or cohort* or data)).ti,ab.
248.	(before adj2 after adj2 (study or studies or data)).ti,ab.
249.	or/70-76,79-83
250.	exp case control study/
251.	case control*.ti,ab.
252.	or/85-86
253.	84 or 87

254.	cross-sectional study/
255.	(cross sectional and (study or studies or review or analys* or cohort* or data)).ti,ab.
256.	or/89-90
257.	84 or 91
258.	84 or 87 or 91
259.	58 or 69
260.	48 and 94
261.	48 and 93
262.	96 not 95

Cochrane Library (Wiley) search terms

#56.	MeSH descriptor: [Urolithiasis] explode all trees
#57.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s):ti,ab
#58.	((renal or kidney* or urinary or ureter* or urethra*) near/3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)):ti,ab
#59.	stone disease*:ti,ab
#60.	((calculi or calculus or calcium oxalate or cystine) near/3 (crystal* or stone* or lithiasis)):ti,ab
#61.	(or #1-#5)
#62.	MeSH descriptor: [Lithotripsy] explode all trees
#63.	MeSH descriptor: [Lithotripsy, Laser] explode all trees
#64.	Lithotripsy:ti,ab
#65.	Litholapaxy:ti,ab
#66.	MeSH descriptor: [High-Energy Shock Waves] explode all trees
#67.	(shockwave* or shock wave* or sound wave* or soundwave*):ti,ab
#68.	HESW:ti,ab
#69.	ESWL:ti,ab
#70.	(electrotherap* or electro therap* or extracorporeal or extra corporeal):ti,ab
#71.	(ultra sound* or ultrasound* or ultrasonic* or ultra sonic*):ti,ab
#72.	(Holmium or Ho YAG):ti,ab
#73.	((fiber or fibre) near/2 laser):ti,ab
#74.	MeSH descriptor: [Ureteroscopy] explode all trees
#75.	MeSH descriptor: [Ureteroscopes] explode all trees
#76.	Ureteroscop*:ti,ab
#77.	nephroscop*.ti,ab.
#78.	Renoscop:ti,ab
#79.	(ureterorenoscop* or uretero renoscop*):ti,ab
#80.	(nephrolithotom* or nephrostom*):ti,ab
#81.	PCNL:ti,ab
#82.	(intrarenal or intra renal) near/2 surger*:ti,ab
#83.	RIRS:ti,ab
#84.	(or #7-#28)
#85.	#6 and #29

A.3.2 Health Economics literature search strategy

Health economic evidence was identified by conducting a broad search relating to renal and ureteric stones 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 and quality of life studies.

Table 7: Database date parameters and filters used

Database	Dates searched	Search filter used
Medline	For health economics (line 64): 2014 – 9 March 2018 For quality of life (line 65): 1946 – 9 March 2018	Exclusions Health economics studies Quality of life studies
Embase	For health economics (line 61): 2014 – 9 March 2018 For quality of life (line 62): 1974 – 9 March 2018	Exclusions Health economics studies Quality of life studies
Centre for Research and Dissemination (CRD)	HTA - Inception – 9 March 2018 NHSEED - Inception to March 2015	None

Medline (Ovid) search terms

89.	exp urolithiasis/
90.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
91.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
92.	stone disease*.ti,ab.
93.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
94.	or/1-5
95.	letter/
96.	editorial/
97.	news/
98.	exp historical article/
99.	Anecdotes as Topic/
100.	comment/
101.	case report/
102.	(letter or comment*).ti.
103.	or/7-14
104.	randomized controlled trial/ or random*.ti,ab.
105.	15 not 16
106.	animals/ not humans/
107.	exp Animals, Laboratory/
108.	exp Animal Experimentation/
109.	exp Models, Animal/
110.	exp Rodentia/

111.	(rat or rats or mouse or mice).ti.
112.	or/17-23
113.	6 not 24
114.	limit 25 to English language
115.	Economics/
116.	Value of life/
117.	exp "Costs and Cost Analysis"/
118.	exp Economics, Hospital/
119.	exp Economics, Medical/
120.	Economics, Nursing/
121.	Economics, Pharmaceutical/
122.	exp "Fees and Charges"/
123.	exp Budgets/
124.	budget*.ti,ab.
125.	cost*.ti.
126.	(economic* or pharmaco?economic*).ti.
127.	(price* or pricing*).ti,ab.
128.	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.
129.	(financ* or fee or fees).ti,ab.
130.	(value adj2 (money or monetary)).ti,ab.
131.	or/27-42
132.	quality-adjusted life years/
133.	sickness impact profile/
134.	(quality adj2 (wellbeing or well being)).ti,ab.
135.	sickness impact profile.ti,ab.
136.	disability adjusted life.ti,ab.
137.	(qal* or qtime* or qwb* or daly*).ti,ab.
138.	(euroqol* or eq5d* or eq 5*).ti,ab.
139.	(qol* or hql* or hqol* or h qol* or hrqol* or hr qol*).ti,ab.
140.	(health utility* or utility score* or disutilit* or utility value*).ti,ab.
141.	(hui or hui1 or hui2 or hui3).ti,ab.
142.	(health* year* equivalent* or hye or hyes).ti,ab.
143.	discrete choice*.ti,ab.
144.	rosser.ti,ab.
145.	(willingness to pay or time tradeoff or time trade off or tto or standard gamble*).ti,ab.
146.	(sf36* or sf 36* or short form 36* or shortform 36* or shortform36*).ti,ab.
147.	(sf20 or sf 20 or short form 20 or shortform 20 or shortform20).ti,ab.
148.	(sf12* or sf 12* or short form 12* or shortform 12* or shortform12*).ti,ab.
149.	(sf8* or sf 8* or short form 8* or shortform 8* or shortform8*).ti,ab.
150.	(sf6* or sf 6* or short form 6* or shortform 6* or shortform6*).ti,ab.
151.	or/44-62
152.	26 and 43
153.	26 and 63

Embase (Ovid) search terms

79.	exp urolithiasis/
80.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
81.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
82.	stone disease*.ti,ab.
83.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
84.	or/1-5
85.	letter.pt. or letter/
86.	note.pt.
87.	editorial.pt.
88.	case report/ or case study/
89.	(letter or comment*).ti.
90.	or/7-11
91.	randomized controlled trial/ or random*.ti,ab.
92.	12 not 13
93.	animal/ not human/
94.	nonhuman/
95.	exp Animal Experiment/
96.	exp Experimental Animal/
97.	animal model/
98.	exp Rodent/
99.	(rat or rats or mouse or mice).ti.
100.	or/14-21
101.	6 not 22
102.	limit 23 to English language
103.	health economics/
104.	exp economic evaluation/
105.	exp health care cost/
106.	exp fee/
107.	budget/
108.	funding/
109.	budget*.ti,ab.
110.	cost*.ti.
111.	(economic* or pharmaco?economic*).ti.
112.	(price* or pricing*).ti,ab.
113.	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.
114.	(financ* or fee or fees).ti,ab.
115.	(value adj2 (money or monetary)).ti,ab.
116.	or/25-37
117.	quality adjusted life year/

118.	"quality of life index"/
119.	short form 12/ or short form 20/ or short form 36/ or short form 8/
120.	sickness impact profile/
121.	(quality adj2 (wellbeing or well being)).ti,ab.
122.	sickness impact profile.ti,ab.
123.	disability adjusted life.ti,ab.
124.	(qal* or qtime* or qwb* or daly*).ti,ab.
125.	(euroqol* or eq5d* or eq 5*).ti,ab.
126.	(qol* or hql* or hqol* or h qol* or hrqol* or hr qol*).ti,ab.
127.	(health utility* or utility score* or disutilit* or utility value*).ti,ab.
128.	(hui or hui1 or hui2 or hui3).ti,ab.
129.	(health* year* equivalent* or hye or hyes).ti,ab.
130.	discrete choice*.ti,ab.
131.	rosser.ti,ab.
132.	(willingness to pay or time tradeoff or time trade off or tto or standard gamble*).ti,ab.
133.	(sf36* or sf 36* or short form 36* or shortform 36* or shortform36*).ti,ab.
134.	(sf20 or sf 20 or short form 20 or shortform 20 or shortform20).ti,ab.
135.	(sf12* or sf 12* or short form 12* or shortform 12* or shortform12*).ti,ab.
136.	(sf8* or sf 8* or short form 8* or shortform 8* or shortform8*).ti,ab.
137.	(sf6* or sf 6* or short form 6* or shortform 6* or shortform6*).ti,ab.
138.	or/39-59
139.	24 and 38
140.	24 and 60

NHS EED and HTA (CRD) search terms

#58.	MeSH DESCRIPTOR urolithiasis EXPLODE ALL TREES
#59.	((nephrolithiasis or nephrolith or urolithiasis))
#60.	((((renal or kidney or urinary or ureteric or ureteral or ureter or urethra*) adj2 (stone* or calculi or calculus or calculosis or lithiasis or colic))))
#61.	((stone disease*))
#62.	((((calculi or calculus) adj2 (stone* or lithiasis))))
#63.	(#1 OR #2 OR #3 OR #4 OR #5)

Renal and ureteric stones search strategy 4

This literature search strategy was used for the following reviews;

A.4 Prevention of recurrence

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.4.1 Clinical search literature search strategy

Searches were constructed using a PICO framework where population (P) terms were combined with Intervention (I) and in some cases Comparison (C) terms. Outcomes (O) are rarely used in search strategies for interventions as these concepts may not be well described in title, abstract or indexes and therefore difficult to retrieve. Search filters were applied to the search where appropriate.

Table 8: Database date parameters and filters used

Database	Dates searched	Search filter used
Medline (OVID)	1946 – 24 October 2017	Exclusions Randomised controlled trials Systematic review studies Observational studies
Embase (OVID)	1974 – 24 October 2017	Exclusions Randomised controlled trials Systematic review studies Observational studies
The Cochrane Library (Wiley)	Cochrane Reviews to 2017 Issue 10 of 12 CENTRAL to 2017 Issue 9 of 12 DARE, and NHSEED to 2015 Issue 2 of 4 HTA to 2016 Issue 4 of 4	None

Medline (Ovid) search terms

252.	exp urolithiasis/
253.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
254.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
255.	stone disease*.ti,ab.
256.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
257.	or/1-5
258.	letter/
259.	editorial/
260.	news/
261.	exp historical article/

262.	Anecdotes as Topic/
263.	comment/
264.	case report/
265.	(letter or comment*).ti.
266.	or/7-14
267.	randomized controlled trial/ or random*.ti,ab.
268.	15 not 16
269.	animals/ not humans/
270.	exp Animals, Laboratory/
271.	exp Animal Experimentation/
272.	exp Models, Animal/
273.	exp Rodentia/
274.	(rat or rats or mouse or mice).ti.
275.	or/17-23
276.	6 not 24
277.	limit 25 to English language
278.	exp Citrates/
279.	((potassium or sodium or K or Na) adj3 citrate*).ti,ab.
280.	or/27-28
281.	Allopurinol/
282.	(allopurinol or Uricto or Zyloric).ti,ab.
283.	or/30-31
284.	exp Thiazides/
285.	exp Bendroflumethiazide/ or exp Hydrochlorothiazide/ or exp Chlorothiazide/ or exp Cyclopenthiazide/ or exp Hydroflumethiazide/ or exp Methyclothiazide/ or exp Polythiazide/
286.	(thiazide* or Bendroflumethiazide or Hydrochlorothiazide or Chlorothiazide or Cyclopenthiazide or Hydroflumethiazide or Methyclothiazide or Polythiazide).ti,ab.
287.	or/33-35
288.	exp Sodium Bicarbonate/
289.	bicarb*.ti,ab.
290.	((baking or bicarbonate) adj5 soda).ti,ab.
291.	((Na or sodium acid or sodium hydrogen) adj5 carbonate).ti,ab.
292.	NaHCO3.ti,ab.
293.	or/37-41
294.	Cystinuria/
295.	((high* or raise* or elevate*) adj3 cystine).ti,ab.
296.	exp Chelating Agents/
297.	Chelation Therapy/
298.	(chelation adj3 (agent* or therap*)).ti,ab.
299.	(D-Penicillamine or Penicillamine or Tiopronin or Thiola or mercaptopropionylglycine).ti,ab.
300.	exp Angiotensin-Converting Enzyme Inhibitors/
301.	(angiotensin-converting adj3 inhibitor*).ti,ab.
302.	(Captopril or Capoten or Ecopace or Noyada).ti,ab.
303.	or/43-51

304.	Calcium/
305.	Calcium, Dietary/
306.	((calcium or Ca) adj3 (oral or supplement*)).ti,ab.
307.	or/53-55
308.	Pyridoxine/
309.	(pyridoxine or pyridoxal phosphate or vitamin B6 or vit B6 or B 6 or Pyrid).ti,ab.
310.	or/57-58
311.	exp Vitamin D/
312.	((vitamin D or vit D) adj3 (oral or supplement*)).ti,ab.
313.	or/60-61
314.	Magnesium/
315.	((magnesium or Mg) adj3 (oral or supplement*)).ti,ab.
316.	or/63-64
317.	exp Methionine/
318.	methionine.ti,ab.
319.	or/66-67
320.	exp Anti-bacterial Agents/
321.	Antibiotic Prophylaxis/
322.	antibiotic*.ti,ab.
323.	or/69-71
324.	29 or 32 or 36 or 42 or 52 or 56 or 59 or 62 or 65 or 68 or 72
325.	26 and 73
326.	randomized controlled trial.pt.
327.	controlled clinical trial.pt.
328.	randomi#ed.ti,ab.
329.	placebo.ab.
330.	randomly.ti,ab.
331.	Clinical Trials as topic.sh.
332.	trial.ti.
333.	or/75-81
334.	Meta-Analysis/
335.	exp Meta-Analysis as Topic/
336.	(meta analy* or metanaly* or metaanaly* or meta regression).ti,ab.
337.	((systematic* or evidence*) adj3 (review* or overview*)).ti,ab.
338.	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
339.	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
340.	(search* adj4 literature).ab.
341.	(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.
342.	cochrane.jw.
343.	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
344.	or/83-92
345.	Epidemiologic studies/
346.	Observational study/

347.	exp Cohort studies/
348.	(cohort adj (study or studies or analys* or data)).ti,ab.
349.	((follow up or observational or uncontrolled or non randomi#ed or epidemiologic*) adj (study or studies or data)).ti,ab.
350.	((longitudinal or retrospective or prospective or cross sectional) and (study or studies or review or analys* or cohort* or data)).ti,ab.
351.	Controlled Before-After Studies/
352.	Historically Controlled Study/
353.	Interrupted Time Series Analysis/
354.	(before adj2 after adj2 (study or studies or data)).ti,ab.
355.	or/94-103
356.	exp case control study/
357.	case control*.ti,ab.
358.	or/105-106
359.	104 or 107
360.	Cross-sectional studies/
361.	(cross sectional and (study or studies or review or analys* or cohort* or data)).ti,ab.
362.	or/109-110
363.	104 or 111
364.	104 or 107 or 111
365.	74 and 82
366.	74 and 93
367.	114 or 115
368.	74 and 113
369.	117 not 116

Embase (Ovid) search terms

263.	exp urolithiasis/
264.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
265.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
266.	stone disease*.ti,ab.
267.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
268.	or/1-5
269.	letter.pt. or letter/
270.	note.pt.
271.	editorial.pt.
272.	case report/ or case study/
273.	(letter or comment*).ti.
274.	or/7-11
275.	randomized controlled trial/ or random*.ti,ab.
276.	12 not 13
277.	animal/ not human/
278.	nonhuman/
279.	exp Animal Experiment/
280.	exp Experimental Animal/

281.	animal model/
282.	exp Rodent/
283.	(rat or rats or mouse or mice).ti.
284.	or/14-21
285.	6 not 22
286.	limit 23 to English language
287.	exp citric acid/
288.	citric acid.ti,ab.
289.	((potassium or sodium or K or Na) adj3 citrate*).ti,ab.
290.	or/25-27
291.	allopurinol sodium/
292.	(allopurinol or Uricto or Zyloric).ti,ab.
293.	or/29-30
294.	exp thiazide diuretic agent/
295.	bendroflumethiazide/ or hydrochlorothiazide/ or chlorothiazide/ or cyclopenthiiazide/ or hydroflumethiazide/ or methyclothiazide/ or polythiazide/
296.	(thiazide* or Bendroflumethiazide or Hydrochlorothiazide or Chlorothiazide or Cyclopenthiiazide or Hydroflumethiazide or Methyclothiazide or Polythiazide).ti,ab.
297.	or/32-34
298.	exp bicarbonate sodium/
299.	bicarb*.ti,ab.
300.	((baking or bicarbonate) adj5 soda).ti,ab.
301.	((Na or sodium acid or sodium hydrogen) adj5 carbonate).ti,ab.
302.	NaHCO3.ti,ab.
303.	or/36-40
304.	cystinuria/
305.	((high* or raise* or elevate*) adj3 cystine).ti,ab.
306.	exp chelating agent/
307.	chelation therapy/
308.	(chelation adj3 (agent* or therap*)).ti,ab.
309.	(D-Penicillamine or Penicillamine or Tiopronin or Thiola or mercaptopropionylglycine).ti,ab.
310.	exp dipeptidyl carboxypeptidase inhibitor/
311.	(angiotensin-converting adj3 inhibitor*).ti,ab.
312.	(Captopril or Capoten or Ecopace or Noyada).ti,ab.
313.	or/42-50
314.	calcium/
315.	calcium intake/
316.	((calcium or Ca) adj3 (oral or supplement*)).ti,ab.
317.	or/52-54
318.	pyridoxine/
319.	(pyridoxine or pyridoxal phosphate or vitamin B6 or vit B6 or B 6 or Pyrid).ti,ab.
320.	or/56-57
321.	exp vitamin D/
322.	((vitamin D or vit D) adj3 (oral or supplement*)).ti,ab.
323.	or/59-60

324.	magnesium/
325.	((magnesium or Mg) adj3 (oral or supplement*)).ti,ab.
326.	or/62-63
327.	exp methionine/
328.	methionine.ti,ab.
329.	or/65-66
330.	exp antibiotic agent/
331.	antibiotic prophylaxis/
332.	antibiotic*.ti,ab.
333.	or/68-70
334.	28 or 31 or 35 or 41 or 51 or 55 or 58 or 61 or 64 or 67 or 71
335.	24 and 72
336.	random*.ti,ab.
337.	factorial*.ti,ab.
338.	(crossover* or cross over*).ti,ab.
339.	((doubl* or singl*) adj blind*).ti,ab.
340.	(assign* or allocat* or volunteer* or placebo*).ti,ab.
341.	crossover procedure/
342.	single blind procedure/
343.	randomized controlled trial/
344.	double blind procedure/
345.	or/74-82
346.	systematic review/
347.	meta-analysis/
348.	(meta analy* or metanaly* or metaanaly* or meta regression).ti,ab.
349.	((systematic* or evidence*) adj3 (review* or overview*)).ti,ab.
350.	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
351.	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
352.	(search* adj4 literature).ab.
353.	(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.
354.	cochrane.jw.
355.	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
356.	or/84-93
357.	Clinical study/
358.	Observational study/
359.	family study/
360.	longitudinal study/
361.	retrospective study/
362.	prospective study/
363.	cohort analysis/
364.	follow-up/
365.	cohort*.ti,ab.
366.	102 and 103

367.	(cohort adj (study or studies or analys* or data)).ti,ab.
368.	((follow up or observational or uncontrolled or non randomi#ed or epidemiologic*) adj (study or studies or data)).ti,ab.
369.	((longitudinal or retrospective or prospective or cross sectional) and (study or studies or review or analys* or cohort* or data)).ti,ab.
370.	(before adj2 after adj2 (study or studies or data)).ti,ab.
371.	or/95-101,104-108
372.	exp case control study/
373.	case control*.ti,ab.
374.	or/110-111
375.	109 or 112
376.	cross-sectional study/
377.	(cross sectional and (study or studies or review or analys* or cohort* or data)).ti,ab.
378.	or/114-115
379.	109 or 116
380.	109 or 112 or 116
381.	73 and 83
382.	73 and 94
383.	119 or 120
384.	73 and 118
385.	122 not 121

Cochrane Library (Wiley) search terms

#86.	MeSH descriptor: [Urolithiasis] explode all trees
#87.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s):ti,ab
#88.	((renal or kidney* or urinary or ureter* or urethra*) near/3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)):ti,ab
#89.	stone disease*:ti,ab
#90.	((calculi or calculus or calcium oxalate or cystine) near/3 (crystal* or stone* or lithiasis)):ti,ab
#91.	(or #1-#5)
#92.	MeSH descriptor: [Citrates] explode all trees
#93.	((potassium or sodium or K or Na) near/3 citrate*):ti,ab
#94.	(or #7-#8)
#95.	MeSH descriptor: [Allopurinol] this term only
#96.	(allopurinol or Uricto or Zyloric):ti,ab
#97.	(or #10-#11)
#98.	MeSH descriptor: [Thiazides] explode all trees
#99.	MeSH descriptor: [Bendroflumethiazide] explode all trees
#100.	MeSH descriptor: [Hydrochlorothiazide] explode all trees
#101.	MeSH descriptor: [Chlorothiazide] explode all trees
#102.	MeSH descriptor: [Cyclopenthiazide] explode all trees
#103.	MeSH descriptor: [Hydroflumethiazide] explode all trees
#104.	MeSH descriptor: [Methyclothiazide] explode all trees
#105.	MeSH descriptor: [Polythiazide] explode all trees
#106.	(thiazide* or Bendroflumethiazide or Hydrochlorothiazide or Chlorothiazide or Cyclopenthiazide or Hydroflumethiazide or Methyclothiazide or Polythiazide):ti,ab

#107.	(or #13-#21)
#108.	MeSH descriptor: [Sodium Bicarbonate] explode all trees
#109.	bicarb*:ti,ab
#110.	((baking or bicarbonate) near/5 soda):ti,ab
#111.	((Na or sodium acid or sodium hydrogen) near/5 carbonate):ti,ab
#112.	NaHCO3:ti,ab
#113.	(or #23-#27)
#114.	MeSH descriptor: [Cystinuria] this term only
#115.	((high* or raise* or elevate*) near/3 cystine):ti,ab
#116.	MeSH descriptor: [Chelating Agents] explode all trees
#117.	MeSH descriptor: [Chelation Therapy] this term only
#118.	(chelation near/3 (agent* or therap*)):ti,ab
#119.	(D-Penicillamine or Penicillamine or Tiopronin or Thiola or mercaptopropionylglycine):ti,ab
#120.	MeSH descriptor: [Angiotensin-Converting Enzyme Inhibitors] explode all trees
#121.	(angiotensin-converting near/3 inhibitor*):ti,ab
#122.	(Captopril or Capoten or Ecopace or Noyada):ti,ab
#123.	(or #29-#37)
#124.	MeSH descriptor: [Calcium] this term only
#125.	MeSH descriptor: [Calcium, Dietary] this term only
#126.	((calcium or Ca) near/3 (oral or supplement*)):ti,ab
#127.	(or #39-#41)
#128.	MeSH descriptor: [Pyridoxine] this term only
#129.	(pyridoxine or pyridoxal phosphate or vitamin B6 or vit B6 or B 6 or Pyrid):ti,ab
#130.	(or #43-#44)
#131.	MeSH descriptor: [Vitamin D] explode all trees
#132.	((vitamin D or vit D) near/3 (oral or supplement*)):ti,ab
#133.	(or #46-#47}
#134.	MeSH descriptor: [Magnesium] this term only
#135.	((magnesium or Mg) near/3 (oral or supplement*)):ti,ab
#136.	(or #49-#50)
#137.	MeSH descriptor: [Methionine] explode all trees
#138.	methionine:ti,ab
#139.	(or #52-#53)
#140.	MeSH descriptor: [Anti-Bacterial Agents] explode all trees
#141.	MeSH descriptor: [Antibiotic Prophylaxis] this term only
#142.	antibiotic*:ti,ab
#143.	(or #55-#57)
#144.	(or #9, #12, #22, #28, #38, #42, #45, #48, #51, #54, #58)
#145.	#6 and #59

A.4.2 Health Economics literature search strategy

Health economic evidence was identified by conducting a broad search relating to renal and ureteric stones 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 studies.

Table 9: Database date parameters and filters used

Database	Dates searched	Search filter used
Medline	2014 – 9 March 2018	Exclusions Health economics studies
Embase	2014 – 9 March 2018	Exclusions Health economics studies
Centre for Research and Dissemination (CRD)	HTA - Inception – 9 March 2018 NHSEED - Inception to March 2015	None

Medline (Ovid) search terms

154.	exp urolithiasis/
155.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
156.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
157.	stone disease*.ti,ab.
158.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
159.	or/1-5
160.	letter/
161.	editorial/
162.	news/
163.	exp historical article/
164.	Anecdotes as Topic/
165.	comment/
166.	case report/
167.	(letter or comment*).ti.
168.	or/7-14
169.	randomized controlled trial/ or random*.ti,ab.
170.	15 not 16
171.	animals/ not humans/
172.	exp Animals, Laboratory/
173.	exp Animal Experimentation/
174.	exp Models, Animal/
175.	exp Rodentia/
176.	(rat or rats or mouse or mice).ti.
177.	or/17-23
178.	6 not 24
179.	limit 25 to English language
180.	Economics/
181.	Value of life/
182.	exp "Costs and Cost Analysis"/
183.	exp Economics, Hospital/

184.	exp Economics, Medical/
185.	Economics, Nursing/
186.	Economics, Pharmaceutical/
187.	exp "Fees and Charges"/
188.	exp Budgets/
189.	budget*.ti,ab.
190.	cost*.ti.
191.	(economic* or pharmaco?economic*).ti.
192.	(price* or pricing*).ti,ab.
193.	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)),ab.
194.	(financ* or fee or fees).ti,ab.
195.	(value adj2 (money or monetary)).ti,ab.
196.	or/27-42
197.	26 and 43

Embase (Ovid) search terms

141.	exp urolithiasis/
142.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
143.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*).ti,ab.
144.	stone disease*.ti,ab.
145.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
146.	or/1-5
147.	letter.pt. or letter/
148.	note.pt.
149.	editorial.pt.
150.	case report/ or case study/
151.	(letter or comment*).ti.
152.	or/7-11
153.	randomized controlled trial/ or random*.ti,ab.
154.	12 not 13
155.	animal/ not human/
156.	nonhuman/
157.	exp Animal Experiment/
158.	exp Experimental Animal/
159.	animal model/
160.	exp Rodent/
161.	(rat or rats or mouse or mice).ti.
162.	or/14-21
163.	6 not 22
164.	limit 23 to English language
165.	health economics/

166.	exp economic evaluation/
167.	exp health care cost/
168.	exp fee/
169.	budget/
170.	funding/
171.	budget*.ti,ab.
172.	cost*.ti.
173.	(economic* or pharmaco?economic*).ti.
174.	(price* or pricing*).ti,ab.
175.	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.
176.	(financ* or fee or fees).ti,ab.
177.	(value adj2 (money or monetary)).ti,ab.
178.	or/25-37
179.	24 and 38

NHS EED and HTA (CRD) search terms

#64.	MeSH DESCRIPTOR urolithiasis EXPLODE ALL TREES
#65.	((nephrolithiasis or nephrolith or urolithiasis))
#66.	((((renal or kidney or urinary or ureteric or ureteral or ureter or urethra*) adj2 (stone* or calculi or calculus or calculosis or lithiasis or colic))))
#67.	((stone disease*))
#68.	((((calculi or calculus) adj2 (stone* or lithiasis))))
#69.	(#1 OR #2 OR #3 OR #4 OR #5)

Renal and ureteric stones search strategy 5

This literature search strategy was used for the following reviews;

A.5 Stent before surgery

A.6 Stent after surgery

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.6.1 Clinical search literature search strategy

Searches were constructed using a PICO framework where population (P) terms were combined with Intervention (I) and in some cases Comparison (C) terms. Outcomes (O) are rarely used in search strategies for interventions as these concepts may not be well described in title, abstract or indexes and therefore difficult to retrieve. Search filters were applied to the search where appropriate.

Table 10: Database date parameters and filters used

Database	Dates searched	Search filter used
Medline (OVID)	1946 – 12 September 2017	Exclusions Randomised controlled trials Systematic review studies Observational studies
Embase (OVID)	1974 – 12 September 2017	Exclusions Randomised controlled trials Systematic review studies Observational studies
The Cochrane Library (Wiley)	Cochrane Reviews to 2017 Issue 9 of 12 CENTRAL to 2017 Issue 8 of 12 DARE, and NHSEED to 2015 Issue 2 of 4 HTA to 2016 Issue 4 of 4	None

Medline (Ovid) search terms

370.	exp urolithiasis/
371.	(nephrolitiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
372.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
373.	stone disease*.ti,ab.
374.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
375.	or/1-5
376.	letter/
377.	editorial/
378.	news/

379.	exp historical article/
380.	Anecdotes as Topic/
381.	comment/
382.	case report/
383.	(letter or comment*).ti.
384.	or/7-14
385.	randomized controlled trial/ or random*.ti,ab.
386.	15 not 16
387.	animals/ not humans/
388.	exp Animals, Laboratory/
389.	exp Animal Experimentation/
390.	exp Models, Animal/
391.	exp Rodentia/
392.	(rat or rats or mouse or mice).ti.
393.	or/17-23
394.	6 not 24
395.	limit 25 to English language
396.	exp Stents/
397.	stent*.ti,ab.
398.	exp Catheters/ or exp Cannula/
399.	(catheter* or cannul*).ti,ab.
400.	or/27-30
401.	26 and 31
402.	randomized controlled trial.pt.
403.	controlled clinical trial.pt.
404.	randomi#ed.ti,ab.
405.	placebo.ab.
406.	randomly.ti,ab.
407.	Clinical Trials as topic.sh.
408.	trial.ti.
409.	or/33-39
410.	Meta-Analysis/
411.	exp Meta-Analysis as Topic/
412.	(meta analy* or metanaly* or metaanaly* or meta regression).ti,ab.
413.	((systematic* or evidence*) adj3 (review* or overview*)).ti,ab.
414.	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
415.	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
416.	(search* adj4 literature).ab.
417.	(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.
418.	cochrane.jw.
419.	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
420.	or/41-50
421.	Epidemiologic studies/

422.	Observational study/
423.	exp Cohort studies/
424.	(cohort adj (study or studies or analys* or data)).ti,ab.
425.	((follow up or observational or uncontrolled or non randomi#ed or epidemiologic*) adj (study or studies or data)).ti,ab.
426.	((longitudinal or retrospective or prospective or cross sectional) and (study or studies or review or analys* or cohort* or data)).ti,ab.
427.	Controlled Before-After Studies/
428.	Historically Controlled Study/
429.	Interrupted Time Series Analysis/
430.	(before adj2 after adj2 (study or studies or data)).ti,ab.
431.	or/52-61
432.	exp case control study/
433.	case control*.ti,ab.
434.	or/63-64
435.	62 or 65
436.	Cross-sectional studies/
437.	(cross sectional and (study or studies or review or analys* or cohort* or data)).ti,ab.
438.	or/67-68
439.	62 or 69
440.	62 or 65 or 69
441.	32 and 40
442.	32 and 51
443.	72 or 73
444.	32 and 71
445.	75 not 74

Embase (Ovid) search terms

386.	exp urolithiasis/
387.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
388.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
389.	stone disease*.ti,ab.
390.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
391.	or/1-5
392.	letter.pt. or letter/
393.	note.pt.
394.	editorial.pt.
395.	case report/ or case study/
396.	(letter or comment*).ti.
397.	or/7-11
398.	randomized controlled trial/ or random*.ti,ab.
399.	12 not 13
400.	animal/ not human/
401.	nonhuman/
402.	exp Animal Experiment/

403.	exp Experimental Animal/
404.	animal model/
405.	exp Rodent/
406.	(rat or rats or mouse or mice).ti.
407.	or/14-21
408.	6 not 22
409.	limit 23 to English language
410.	exp stent/
411.	stent*.ti,ab.
412.	exp catheter/ or exp cannula/
413.	(catheter* or cannul*).ti,ab.
414.	or/25-28
415.	24 and 29
416.	random*.ti,ab.
417.	factorial*.ti,ab.
418.	(crossover* or cross over*).ti,ab.
419.	((doubl* or singl*) adj blind*).ti,ab.
420.	(assign* or allocat* or volunteer* or placebo*).ti,ab.
421.	crossover procedure/
422.	single blind procedure/
423.	randomized controlled trial/
424.	double blind procedure/
425.	or/31-39
426.	systematic review/
427.	meta-analysis/
428.	(meta analy* or metanaly* or metaanaly* or meta regression).ti,ab.
429.	((systematic* or evidence*) adj3 (review* or overview*)).ti,ab.
430.	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
431.	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
432.	(search* adj4 literature).ab.
433.	(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.
434.	cochrane.jw.
435.	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
436.	or/41-50
437.	Clinical study/
438.	Observational study/
439.	family study/
440.	longitudinal study/
441.	retrospective study/
442.	prospective study/
443.	cohort analysis/
444.	follow-up/
445.	cohort*.ti,ab.

446.	59 and 60
447.	(cohort adj (study or studies or analys* or data)).ti,ab.
448.	((follow up or observational or uncontrolled or non randomi#ed or epidemiologic*) adj (study or studies or data)).ti,ab.
449.	((longitudinal or retrospective or prospective or cross sectional) and (study or studies or review or analys* or cohort* or data)).ti,ab.
450.	(before adj2 after adj2 (study or studies or data)).ti,ab.
451.	or/52-58,61-65
452.	exp case control study/
453.	case control*.ti,ab.
454.	or/67-68
455.	66 or 69
456.	cross-sectional study/
457.	(cross sectional and (study or studies or review or analys* or cohort* or data)).ti,ab.
458.	or/71-72
459.	66 or 73
460.	66 or 69 or 73
461.	30 and 40
462.	30 and 51
463.	76 or 77
464.	30 and 75
465.	79 not 78

Cochrane Library (Wiley) search terms

#146.	MeSH descriptor: [Urolithiasis] explode all trees
#147.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s):ti,ab
#148.	((renal or kidney* or urinary or ureter* or urethra*) near/3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)):ti,ab
#149.	stone disease*:ti,ab
#150.	((calculi or calculus or calcium oxalate or cystine) near/3 (crystal* or stone* or lithiasis)):ti,ab
#151.	(or #1-#5)
#152.	MeSH descriptor: [Stents] explode all trees
#153.	stent*:ti,ab
#154.	MeSH descriptor: [Catheters] explode all trees
#155.	MeSH descriptor: [Cannula] explode all trees
#156.	catheter*:ti,ab
#157.	cannul*:ti,ab
#158.	(or #7-#12)
#159.	#6 and #13

A.6.2 Health Economics literature search strategy

Health economic evidence was identified by conducting a broad search relating to renal and ureteric stones 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 studies.

Table 11: Database date parameters and filters used

Database	Dates searched	Search filter used
Medline	For health economics 2014 – 9 March 2018	Exclusions Health economics studies
Embase	For health economics 2014 – 9 March 2018	Exclusions Health economics studies
Centre for Research and Dissemination (CRD)	HTA - Inception – 9 March 2018 NHSEED - Inception to March 2015	None

Medline (Ovid) search terms

198.	exp urolithiasis/
199.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
200.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
201.	stone disease*.ti,ab.
202.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
203.	or/1-5
204.	letter/
205.	editorial/
206.	news/
207.	exp historical article/
208.	Anecdotes as Topic/
209.	comment/
210.	case report/
211.	(letter or comment*).ti.
212.	or/7-14
213.	randomized controlled trial/ or random*.ti,ab.
214.	15 not 16
215.	animals/ not humans/
216.	exp Animals, Laboratory/
217.	exp Animal Experimentation/
218.	exp Models, Animal/
219.	exp Rodentia/
220.	(rat or rats or mouse or mice).ti.
221.	or/17-23
222.	6 not 24
223.	limit 25 to English language
224.	Economics/
225.	Value of life/
226.	exp "Costs and Cost Analysis"/
227.	exp Economics, Hospital/
228.	exp Economics, Medical/
229.	Economics, Nursing/
230.	Economics, Pharmaceutical/

231.	exp "Fees and Charges"/
232.	exp Budgets/
233.	budget*.ti,ab.
234.	cost*.ti.
235.	(economic* or pharmaco?economic*).ti.
236.	(price* or pricing*).ti,ab.
237.	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)),ab.
238.	(financ* or fee or fees).ti,ab.
239.	(value adj2 (money or monetary)).ti,ab.
240.	or/27-42
241.	26 and 43

Embase (Ovid) search terms

180.	exp urolithiasis/
181.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
182.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
183.	stone disease*.ti,ab.
184.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
185.	or/1-5
186.	letter.pt. or letter/
187.	note.pt.
188.	editorial.pt.
189.	case report/ or case study/
190.	(letter or comment*).ti.
191.	or/7-11
192.	randomized controlled trial/ or random*.ti,ab.
193.	12 not 13
194.	animal/ not human/
195.	nonhuman/
196.	exp Animal Experiment/
197.	exp Experimental Animal/
198.	animal model/
199.	exp Rodent/
200.	(rat or rats or mouse or mice).ti.
201.	or/14-21
202.	6 not 22
203.	limit 23 to English language
204.	health economics/
205.	exp economic evaluation/
206.	exp health care cost/

207.	exp fee/
208.	budget/
209.	funding/
210.	budget*.ti,ab.
211.	cost*.ti.
212.	(economic* or pharmaco?economic*).ti.
213.	(price* or pricing*).ti,ab.
214.	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.
215.	(financ* or fee or fees).ti,ab.
216.	(value adj2 (money or monetary)).ti,ab.
217.	or/25-37
218.	24 and 38

NHS EED and HTA (CRD) search terms

#70.	MeSH DESCRIPTOR urolithiasis EXPLODE ALL TREES
#71.	((nephrolithiasis or nephrolith or urolithiasis))
#72.	((((renal or kidney or urinary or ureteric or ureteral or ureter or urethra*) adj2 (stone* or calculi or calculus or calculosis or lithiasis or colic))))
#73.	((stone disease*))
#74.	((((calculi or calculus) adj2 (stone* or lithiasis))))
#75.	(#1 OR #2 OR #3 OR #4 OR #5)

Renal and ureteric stones search strategy 6

This literature search strategy was used for the following reviews;

A.7 Metabolic investigations

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.7.1 Clinical search literature search strategy

A search was constructed using the following approach:

- Population AND Prognostic/risk factor terms AND Study filter(s)

A separate search was performed to identify studies about metabolic investigations (test-and-treat approach).

A.7.1.1 Metabolic investigations

Table 12: Database date parameters and filters used

Database	Dates searched	Search filter used
Medline (OVID)	1946 – 7 December 2017	Exclusions Observational studies Diagnostic tests studies Prognostic studies
Embase (OVID)	1974 – 7 December 2017	Exclusions Observational studies Diagnostic tests studies Prognostic studies
The Cochrane Library (Wiley)	Cochrane Reviews to 2017 Issue 12 of 12 CENTRAL to 2017 Issue 11 of 12 DARE, and NHSEED to 2015 Issue 2 of 4 HTA to 2016 Issue 4 of 4	None

Medline (Ovid) search terms

446.	exp urolithiasis/
447.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
448.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
449.	stone disease*.ti,ab.
450.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
451.	or/1-5
452.	letter/
453.	editorial/

454.	news/
455.	exp historical article/
456.	Anecdotes as Topic/
457.	comment/
458.	case report/
459.	(letter or comment*).ti.
460.	or/7-14
461.	randomized controlled trial/ or random*.ti,ab.
462.	15 not 16
463.	animals/ not humans/
464.	exp Animals, Laboratory/
465.	exp Animal Experimentation/
466.	exp Models, Animal/
467.	exp Rodentia/
468.	(rat or rats or mouse or mice).ti.
469.	or/17-23
470.	6 not 24
471.	limit 25 to English language
472.	Hypercalcemia/
473.	(hypercalcemia or hypercalcaemia).ti,ab.
474.	Hypercalciuria/
475.	hypercalciuria.ti,ab.
476.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) adj3 (calcium or Ca)).ti,ab.
477.	exp Hyperoxaluria/
478.	hyperoxaluria.ti,ab.
479.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) adj3 (oxalate* or C2O4-2 or ethanedioate)).ti,ab.
480.	hyperuricosuria.ti,ab.
481.	Hyperuricemia/
482.	(hyperuricemia or hyperuricaemia).ti,ab.
483.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) adj3 uric acid).ti,ab.
484.	hypernatruria.ti,ab.
485.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) adj3 (sodium or Na)).ti,ab.
486.	Cystine/
487.	Cystinuria/
488.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) adj3 cystine).ti,ab.
489.	hypocitraturia.ti,ab.
490.	((reduce* or decrease* or low* or less* or drop*) adj3 citrate*).ti,ab.
491.	hypomagnesuria.ti,ab.
492.	((reduce* or decrease* or low* or less* or drop*) adj3 (magnesium or Mg)).ti,ab.
493.	((metabolic* or blood* or urine) adj2 (analys* or test* or investigat*)).ti,ab.
494.	(urinalysis or full blood count or FBC).ti,ab.
495.	or/27-49

496.	26 and 50
497.	prognosis/
498.	(predict* or prognos*).ti,ab.
499.	Logistic models/
500.	Disease progression/
501.	or/52-55
502.	Epidemiologic studies/
503.	Observational study/
504.	exp Cohort studies/
505.	(cohort adj (study or studies or analys* or data)).ti,ab.
506.	((follow up or observational or uncontrolled or non randomi#ed or epidemiologic*) adj (study or studies or data)).ti,ab.
507.	((longitudinal or retrospective or prospective or cross sectional) and (study or studies or review or analys* or cohort* or data)).ti,ab.
508.	Controlled Before-After Studies/
509.	Historically Controlled Study/
510.	Interrupted Time Series Analysis/
511.	(before adj2 after adj2 (study or studies or data)).ti,ab.
512.	or/57-66
513.	exp case control study/
514.	case control*.ti,ab.
515.	or/68-69
516.	67 or 70
517.	Cross-sectional studies/
518.	(cross sectional and (study or studies or review or analys* or cohort* or data)).ti,ab.
519.	or/72-73
520.	67 or 74
521.	67 or 70 or 74
522.	exp "sensitivity and specificity"/
523.	(sensitivity or specificity).ti,ab.
524.	((pre test or pretest or post test) adj probability).ti,ab.
525.	(predictive value* or PPV or NPV).ti,ab.
526.	likelihood ratio*.ti,ab.
527.	likelihood function/
528.	((area under adj4 curve) or AUC).ti,ab.
529.	(receive* operat* characteristic* or receive* operat* curve* or ROC curve*).ti,ab.
530.	(diagnos* adj3 (performance* or accurac* or utilit* or value* or efficien* or effectiveness)).ti,ab.
531.	gold standard.ab.
532.	or/77-86
533.	56 or 76 or 87
534.	51 and 88

Embase (Ovid) search terms

466.	exp urolithiasis/
467.	(nephrolitiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.

468.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
469.	stone disease*.ti,ab.
470.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
471.	or/1-5
472.	letter.pt. or letter/
473.	note.pt.
474.	editorial.pt.
475.	case report/ or case study/
476.	(letter or comment*).ti.
477.	or/7-11
478.	randomized controlled trial/ or random*.ti,ab.
479.	12 not 13
480.	animal/ not human/
481.	nonhuman/
482.	exp Animal Experiment/
483.	exp Experimental Animal/
484.	animal model/
485.	exp Rodent/
486.	(rat or rats or mouse or mice).ti.
487.	or/14-21
488.	6 not 22
489.	limit 23 to English language
490.	*hypercalcemia/
491.	(hypercalcemia or hypercalcaemia).ti,ab.
492.	*hypercalciuria/
493.	hypercalciuria.ti,ab.
494.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) adj3 (calcium or Ca)).ti,ab.
495.	exp *hyperoxaluria/
496.	hyperoxaluria.ti,ab.
497.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) adj3 (oxalate* or C2O4-2 or ethanedioate)).ti,ab.
498.	hyperuricosuria.ti,ab.
499.	*hyperuricemia/
500.	(hyperuricemia or hyperuricaemia).ti,ab.
501.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) adj3 uric acid).ti,ab.
502.	hypernatruria.ti,ab.
503.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) adj3 (sodium or Na)).ti,ab.
504.	*cystine/
505.	*cystinuria/
506.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) adj3 cystine).ti,ab.
507.	hypocitraturia.ti,ab.

508.	((reduce* or decrease* or low* or less* or drop*) adj3 citrate*).ti,ab.
509.	hypomagnesuria.ti,ab.
510.	((reduce* or decrease* or low* or less* or drop*) adj3 (magnesium or Mg)).ti,ab.
511.	((metabolic* or blood* or urine) adj2 (analys* or test* or investigat*)).ti,ab.
512.	(urinalysis or full blood count or FBC).ti,ab.
513.	or/25-47
514.	24 and 48
515.	Clinical study/
516.	Observational study/
517.	family study/
518.	longitudinal study/
519.	retrospective study/
520.	prospective study/
521.	cohort analysis/
522.	follow-up/
523.	cohort*.ti,ab.
524.	57 and 58
525.	(cohort adj (study or studies or analys* or data)).ti,ab.
526.	((follow up or observational or uncontrolled or non randomi#ed or epidemiologic*) adj (study or studies or data)).ti,ab.
527.	((longitudinal or retrospective or prospective or cross sectional) and (study or studies or review or analys* or cohort* or data)).ti,ab.
528.	(before adj2 after adj2 (study or studies or data)).ti,ab.
529.	or/50-56,59-63
530.	exp case control study/
531.	case control*.ti,ab.
532.	or/65-66
533.	64 or 67
534.	cross-sectional study/
535.	(cross sectional and (study or studies or review or analys* or cohort* or data)).ti,ab.
536.	or/69-70
537.	64 or 71
538.	64 or 67 or 71
539.	exp "sensitivity and specificity"/
540.	(sensitivity or specificity).ti,ab.
541.	((pre test or pretest or post test) adj probability).ti,ab.
542.	(predictive value* or PPV or NPV).ti,ab.
543.	likelihood ratio*.ti,ab.
544.	((area under adj4 curve) or AUC).ti,ab.
545.	(receive* operat* characteristic* or receive* operat* curve* or ROC curve*).ti,ab.
546.	(diagnos* adj3 (performance* or accurac* or utilit* or value* or efficien* or effectiveness)).ti,ab.
547.	diagnostic accuracy/
548.	diagnostic test accuracy study/
549.	gold standard.ab.
550.	or/74-84

551.	exp prognosis/
552.	prognostic assessment/
553.	(predict* or prognos*).ti,ab.
554.	disease course/
555.	statistical model/
556.	or/86-90
557.	73 or 85 or 91
558.	49 and 92

Cochrane Library (Wiley) search terms

#160.	MeSH descriptor: [Urolithiasis] explode all trees
#161.	(nephrolithiasis or nephrolith or urolithiasis):ti,ab
#162.	((renal or kidney or urinary or ureteric or ureteral or ureter) near/2 (stone* or calculi or calculus or calculosis or lithiasis or colic)):ti,ab
#163.	(stone disease*):ti,ab
#164.	((calculi or calculus or calcium oxalate or cystine) near/2 (crystal* or stone* or lithiasis)):ti,ab
#165.	(or #1-#5)
#166.	MeSH descriptor: [Hypercalcemia] explode all trees
#167.	(hypercalcemia or hypercalcaemia):ti,ab
#168.	MeSH descriptor: [Hypercalciuria] explode all trees
#169.	hypercalciuria:ti,ab
#170.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) near/3 (calcium or Ca)):ti,ab
#171.	MeSH descriptor: [Hyperoxaluria] explode all trees
#172.	hyperoxaluria:ti,ab
#173.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) near/3 (oxalate* or C2O4-2 or ethanedioate)):ti,ab
#174.	hyperuricosuria:ti,ab
#175.	MeSH descriptor: [Hyperuricemia] explode all trees
#176.	(hyperuricemia or hyperuricaemia):ti,ab
#177.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) near/3 uric acid):ti,ab
#178.	hypnatriuria:ti,ab
#179.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) near/3 (sodium or Na)):ti,ab
#180.	MeSH descriptor: [Cystine] explode all trees
#181.	MeSH descriptor: [Cystinuria] explode all trees
#182.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) near/3 cystine):ti,ab
#183.	hypocitraturia:ti,ab
#184.	((reduce* or decrease* or low* or less* or drop*) near/3 citrate*):ti,ab
#185.	hypomagnesuria:ti,ab
#186.	((reduce* or decrease* or low* or less* or drop*) near/3 (magnesium or Mg)):ti,ab
#187.	((metabolic* or blood* or urine) near/2 (analys* or test* or investigat*)):ti,ab
#188.	(urinalysis or full blood count or FBC):ti,ab
#189.	(or #7-#29)
#190.	#6 and #30

A.7.1.2 Metabolic investigations – test-and-treat approach

Table 13: Database date parameters and filters used

Database	Dates searched	Search filter used
Medline (OVID)	1946 – 23 January 2018	Exclusions Randomised controlled trials Systematic review studies
Embase (OVID)	1974 – 23 January 2018	Exclusions Randomised controlled trials Systematic review studies
The Cochrane Library (Wiley)	Cochrane Reviews to 2018 Issue 1 of 12 CENTRAL to 2018 Issue 12 of 12 DARE, and NHSEED to 2015 Issue 2 of 4 HTA to 2016 Issue 4 of 4	None

Medline (Ovid) search terms

1.	exp urolithiasis/
2.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
3.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
4.	stone disease*.ti,ab.
5.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
6.	or/1-5
7.	letter/
8.	editorial/
9.	news/
10.	exp historical article/
11.	Anecdotes as Topic/
12.	comment/
13.	case report/
14.	(letter or comment*).ti.
15.	or/7-14
16.	randomized controlled trial/ or random*.ti,ab.
17.	15 not 16
18.	animals/ not humans/
19.	exp Animals, Laboratory/
20.	exp Animal Experimentation/
21.	exp Models, Animal/
22.	exp Rodentia/
23.	(rat or rats or mouse or mice).ti.
24.	or/17-23
25.	6 not 24
26.	limit 25 to English language
27.	((stone* or calculi or calculus or crystal*) adj3 (analys* or test* or investigat* or evaluat* or etiolog* or morpholog* or compos*)).ti,ab.

28.	Chemistry Techniques, Analytical/
29.	(chemical adj (analys* or analytic* or test* or investigat* or technique*)).ti,ab.
30.	Crystallography/
31.	(optical crystallography or stereomicroscopy or thermogravimetry or thermal analysis).ti,ab.
32.	((scanning electron or polari?ed or polari?ing) adj microscopy).ti,ab.
33.	X-Ray Diffraction/
34.	(x ray adj2 diffraction).ti,ab.
35.	Spectrum Analysis/
36.	(spectrum adj2 analy*).ti,ab.
37.	X-Ray Absorption Spectroscopy/
38.	((x ray or xray or infra red or infrared or Raman or Fourier) adj3 spectroscopy).ti,ab.
39.	(dual adj (source or energy) adj (CT or computed tomograph*)).ti,ab.
40.	or/27-39
41.	((metabolic* or blood* or urine or 24h or 24 hour) adj2 (analys* or test* or investigat*)).ti,ab.
42.	(urinalysis or full blood count or FBC).ti,ab.
43.	Hypercalcemia/
44.	(hypercalcemia or hypercalcaemia).ti,ab.
45.	Hypercalciuria/
46.	hypercalciuria.ti,ab.
47.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) adj3 (calcium or Ca)).ti,ab.
48.	Hyperuricemia/
49.	(hyperuricemia or hyperuricaemia or hyperuricosuria or hyper uricosuria or hypo uricosuria or hypouricosuria).ti,ab.
50.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten* or reduce* or decrease* or low* or less* or drop*) adj3 uric acid).ti,ab.
51.	exp Hyperoxaluria/
52.	hyperoxaluria.ti,ab.
53.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) adj3 (oxalate* or C2O4-2 or ethanedioate)).ti,ab.
54.	hypocitraturia.ti,ab.
55.	((reduce* or decrease* or low* or less* or drop*) adj3 citrate*).ti,ab.
56.	hypernatruria.ti,ab.
57.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) adj3 (sodium or Na)).ti,ab.
58.	Cystine/
59.	Cystinuria/
60.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) adj3 cystine).ti,ab.
61.	or/40-60
62.	26 and 61
63.	randomized controlled trial.pt.
64.	controlled clinical trial.pt.
65.	randomi#ed.ti,ab.
66.	placebo.ab.

67.	randomly.ti,ab.
68.	Clinical Trials as topic.sh.
69.	trial.ti.
70.	or/63-69
71.	Meta-Analysis/
72.	exp Meta-Analysis as Topic/
73.	(meta analy* or metanaly* or metaanaly* or meta regression).ti,ab.
74.	((systematic* or evidence*) adj3 (review* or overview*)).ti,ab.
75.	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
76.	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
77.	(search* adj4 literature).ab.
78.	(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.
79.	cochrane.jw.
80.	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
81.	or/71-80
82.	62 and (70 or 81)

Embase (Ovid) search terms

1.	exp urolithiasis/
2.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
3.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
4.	stone disease*.ti,ab.
5.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
6.	or/1-5
7.	letter.pt. or letter/
8.	note.pt.
9.	editorial.pt.
10.	case report/ or case study/
11.	(letter or comment*).ti.
12.	or/7-11
13.	randomized controlled trial/ or random*.ti,ab.
14.	12 not 13
15.	animal/ not human/
16.	nonhuman/
17.	exp Animal Experiment/
18.	exp Experimental Animal/
19.	animal model/
20.	exp Rodent/
21.	(rat or rats or mouse or mice).ti.
22.	or/14-21
23.	6 not 22
24.	limit 23 to English language

25.	stone analysis/
26.	((stone* or calculi or calculus or crystal*) adj3 (analys* or test* or investigat* or evaluat* or etiolog* or morpholog* or compos*)).ti,ab.
27.	*chemical analysis/
28.	(chemical adj (analys* or analytic* or test* or investigat* or technique*)).ti,ab.
29.	*crystallography/
30.	(optical crystallography or stereomicroscopy or thermogravimetry or thermal analysis).ti,ab.
31.	((scanning electron or polari?ed or polari?ing) adj microscopy).ti,ab.
32.	*x ray diffraction/
33.	(x ray adj2 diffraction).ti,ab.
34.	*spectroscopy/
35.	*x ray absorption spectroscopy/
36.	((x ray or xray or infra red or infrared or Raman or Fourier) adj3 spectroscopy).ti,ab.
37.	(dual adj (source or energy) adj (CT or computed tomograph*)).ti,ab.
38.	or/25-37
39.	*urinalysis/
40.	((metabolic* or blood* or urine or 24h or 24 hour) adj2 (analys* or test* or investigat*)).ti,ab.
41.	(urinalysis or full blood count or FBC).ti,ab.
42.	*hypercalcemia/
43.	(hypercalcemia or hypercalcaemia).ti,ab.
44.	*hypercalciuria/
45.	hypercalciuria.ti,ab.
46.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) adj3 (calcium or Ca)).ti,ab.
47.	*hyperuricemia/
48.	(hyperuricemia or hyperuricaemia or hyperuricosuria or hyper uricosuria or hypo uricosuria or hypouricosuria).ti,ab.
49.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten* or reduce* or decrease* or low* or less* or drop*) adj3 uric acid).ti,ab.
50.	exp *hyperoxaluria/
51.	hyperoxaluria.ti,ab.
52.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) adj3 (oxalate* or C2O4-2 or ethanedioate)).ti,ab.
53.	hypocitraturia.ti,ab.
54.	((reduce* or decrease* or low* or less* or drop*) adj3 citrate*).ti,ab.
55.	hypernatriuria.ti,ab.
56.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) adj3 (sodium or Na)).ti,ab.
57.	*cystine/
58.	*cystinuria/
59.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) adj3 cystine).ti,ab.
60.	or/38-59
61.	24 and 60
62.	random*.ti,ab.
63.	factorial*.ti,ab.

64.	(crossover* or cross over*).ti,ab.
65.	((doubl* or singl*) adj blind*).ti,ab.
66.	(assign* or allocat* or volunteer* or placebo*).ti,ab.
67.	crossover procedure/
68.	single blind procedure/
69.	randomized controlled trial/
70.	double blind procedure/
71.	or/62-70
72.	systematic review/
73.	meta-analysis/
74.	(meta analy* or metanaly* or metaanaly* or meta regression).ti,ab.
75.	((systematic* or evidence*) adj3 (review* or overview*)).ti,ab.
76.	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
77.	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
78.	(search* adj4 literature).ab.
79.	(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.
80.	cochrane.jw.
81.	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
82.	or/72-81
83.	61 and (71 or 82)

Cochrane Library (Wiley) search terms

#1.	MeSH descriptor: [Urolithiasis] explode all trees
#2.	(nephrolitiasis or nephrolith or urolithiasis):ti,ab
#3.	((renal or kidney or urinary or ureteric or ureteral or ureter) near/2 (stone* or calculi or calculus or calculosis or lithiasis or colic)):ti,ab
#4.	(stone disease*):ti,ab
#5.	((calculi or calculus or calcium oxalate or cystine) near/2 (crystal* or stone* or lithiasis)):ti,ab
#6.	(or #1-#5)
#7.	((stone* or calculi or calculus or crystal*) near/3 (analys* or test* or investigat* or evaluat* or etiolog* or morpholog* or compos*)):ti,ab
#8.	MeSH descriptor: [Chemistry Techniques, Analytical] explode all trees
#9.	chemical near/1 (analys* or analytic* or test* or investigat* or technique*):ti,ab
#10.	MeSH descriptor: [Crystallography] explode all trees
#11.	(optical crystallography or stereomicroscopy or thermogravimetry or thermal analysis):ti,ab
#12.	((scanning electron or polari?ed or polari?ing) near microscopy):ti,ab
#13.	MeSH descriptor: [X-Ray Diffraction] explode all trees
#14.	(x ray near/2 diffraction):ti,ab
#15.	MeSH descriptor: [Spectrum Analysis] explode all trees
#16.	(spectrum near/2 analy*):ti,ab
#17.	MeSH descriptor: [X-Ray Absorption Spectroscopy] explode all trees
#18.	((x ray or xray or infra red or infrared or Raman or Fourier) near/3 spectroscopy):ti,ab
#19.	(dual near/1 (source or energy) near/1 (CT or computed tomograph*)):ti,ab

#20.	(or #7-#19)
#21.	((metabolic* or blood* or urine or 24h or 24 hour) near/2 (analys* or test* or investigat*)):ti,ab
#22.	(urinalysis or full blood count or FBC):ti,ab
#23.	MeSH descriptor: [Hypercalcemia] explode all trees
#24.	(hypercalcemia or hypercalcaemia):ti,ab
#25.	MeSH descriptor: [Hypercalciuria] explode all trees
#26.	hypercalciuria:ti,ab
#27.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) near/3 (calcium or Ca)):ti,ab
#28.	MeSH descriptor: [Hyperuricemia] explode all trees
#29.	(hyperuricemia or hyperuricaemia or hyperuricosuria or hyper uricosuria or hypo uricosuria or hypouricosuria):ti,ab
#30.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten* or reduce* or decrease* or low* or less* or drop*) near/3 uric acid):ti,ab
#31.	MeSH descriptor: [Hyperoxaluria] explode all trees
#32.	hyperoxaluria:ti,ab
#33.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) near/3 (oxalate* or C2O4-2 or ethanedioate)):ti,ab
#34.	hypocitraturia:ti,ab
#35.	((reduce* or decrease* or low* or less* or drop*) near/3 citrate*):ti,ab
#36.	hypnatriuria:ti,ab
#37.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) near/3 (sodium or Na)):ti,ab
#38.	MeSH descriptor: [Cystine] explode all trees
#39.	MeSH descriptor: [Cystinuria] explode all trees
#40.	((high* or raise* or increase* or elevat* or excess* or lift* or uplift* or inflat* or heighten*) near/3 cystine):ti,ab
#41.	(or #20-#40)
#42.	#6 and #41

A.7.2 Health Economics literature search strategy

Health economic evidence was identified by conducting a broad search relating to renal and ureteric stones 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 studies.

Table 14: Database date parameters and filters used

Database	Dates searched	Search filter used
Medline	2014 – 9 March 2018	Exclusions Health economics studies
Embase	2014 – 9 March 2018	Exclusions Health economics studies
Centre for Research and Dissemination (CRD)	HTA - Inception – 9 March 2018 NHSEED - Inception to March 2015	None

Medline (Ovid) search terms

242.	exp urolithiasis/
243.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
244.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
245.	stone disease*.ti,ab.
246.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
247.	or/1-5
248.	letter/
249.	editorial/
250.	news/
251.	exp historical article/
252.	Anecdotes as Topic/
253.	comment/
254.	case report/
255.	(letter or comment*).ti.
256.	or/7-14
257.	randomized controlled trial/ or random*.ti,ab.
258.	15 not 16
259.	animals/ not humans/
260.	exp Animals, Laboratory/
261.	exp Animal Experimentation/
262.	exp Models, Animal/
263.	exp Rodentia/
264.	(rat or rats or mouse or mice).ti.
265.	or/17-23
266.	6 not 24
267.	limit 25 to English language
268.	Economics/
269.	Value of life/
270.	exp "Costs and Cost Analysis"/
271.	exp Economics, Hospital/
272.	exp Economics, Medical/
273.	Economics, Nursing/
274.	Economics, Pharmaceutical/
275.	exp "Fees and Charges"/
276.	exp Budgets/
277.	budget*.ti,ab.
278.	cost*.ti.
279.	(economic* or pharmaco?economic*).ti.
280.	(price* or pricing*).ti,ab.
281.	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.
282.	(financ* or fee or fees).ti,ab.

283.	(value adj2 (money or monetary)).ti,ab.
284.	or/27-42
285.	26 and 43

Embase (Ovid) search terms

219.	exp urolithiasis/
220.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
221.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
222.	stone disease*.ti,ab.
223.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
224.	or/1-5
225.	letter.pt. or letter/
226.	note.pt.
227.	editorial.pt.
228.	case report/ or case study/
229.	(letter or comment*).ti.
230.	or/7-11
231.	randomized controlled trial/ or random*.ti,ab.
232.	12 not 13
233.	animal/ not human/
234.	nonhuman/
235.	exp Animal Experiment/
236.	exp Experimental Animal/
237.	animal model/
238.	exp Rodent/
239.	(rat or rats or mouse or mice).ti.
240.	or/14-21
241.	6 not 22
242.	limit 23 to English language
243.	health economics/
244.	exp economic evaluation/
245.	exp health care cost/
246.	exp fee/
247.	budget/
248.	funding/
249.	budget*.ti,ab.
250.	cost*.ti.
251.	(economic* or pharmaco?economic*).ti.
252.	(price* or pricing*).ti,ab.
253.	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.

254.	(financ* or fee or fees).ti,ab.
255.	(value adj2 (money or monetary)).ti,ab.
256.	or/25-37
257.	24 and 38

NHS EED and HTA (CRD) search terms

#76.	MeSH DESCRIPTOR urolithiasis EXPLODE ALL TREES
#77.	((nephrolithiasis or nephrolith or urolithiasis))
#78.	((((renal or kidney or urinary or ureteric or ureteral or ureter or urethra*) adj2 (stone* or calculi or calculus or calculosis or lithiasis or colic))))
#79.	((stone disease*))
#80.	((((calculi or calculus) adj2 (stone* or lithiasis))))
#81.	(#1 OR #2 OR #3 OR #4 OR #5)

Renal and ureteric stones search strategy 7

This literature search strategy was used for the following reviews;

A.8 Imaging for first diagnosis

A.9 Imaging for follow-up

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.9.1 Clinical search literature search strategy

Searches were constructed using a PICO framework where population (P) terms were combined with Intervention (I) and in some cases Comparison (C) terms. Outcomes (O) are rarely used in search strategies for interventions as these concepts may not be well described in title, abstract or indexes and therefore difficult to retrieve. Search filters were applied to the search where appropriate.

Table 15: Database date parameters and filters used

Database	Dates searched	Search filter used
Medline (OVID)	1946 – 29 November 2017	Exclusions Randomised controlled trials Systematic review studies Observational studies Diagnostic tests studies
Embase (OVID)	1974 – 29 November 2017	Exclusions Randomised controlled trials Systematic review studies Observational studies Diagnostic tests studies
The Cochrane Library (Wiley)	Cochrane Reviews to 2017 Issue 11 of 12 CENTRAL to 2017 Issue 10 of 12 DARE, and NHSEED to 2015 Issue 2 of 4 HTA to 2016 Issue 4 of 4	None

Medline (Ovid) search terms

535.	exp urolithiasis/
536.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
537.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
538.	stone disease*.ti,ab.
539.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
540.	or/1-5
541.	letter/

542.	editorial/
543.	news/
544.	exp historical article/
545.	Anecdotes as Topic/
546.	comment/
547.	case report/
548.	(letter or comment*).ti.
549.	or/7-14
550.	randomized controlled trial/ or random*.ti,ab.
551.	15 not 16
552.	animals/ not humans/
553.	exp Animals, Laboratory/
554.	exp Animal Experimentation/
555.	exp Models, Animal/
556.	exp Rodentia/
557.	(rat or rats or mouse or mice).ti.
558.	or/17-23
559.	6 not 24
560.	limit 25 to English language
561.	exp Tomography/
562.	tomograph*.ti,ab.
563.	(NCCT or CT or UHCT).ti,ab.
564.	((CAT or body) adj2 scan*).ti,ab.
565.	or/27-30
566.	Radiography/
567.	Radiography, Abdominal/
568.	Urography/
569.	(radiograph* or x ray* or xray* KUB or urograph*).ti,ab.
570.	or/32-35
571.	Ultrasonography/
572.	(ultrasonograph* or ultrasound or ultrasonic or sonograph* or echograph* or echotomograph*).ti,ab.
573.	(ultra adj2 (sound or sonic)).ti,ab.
574.	(sound* adj2 (wave* or frequenc*)).ti,ab.
575.	(US adj3 imag*).ti,ab.
576.	or/37-41
577.	Magnetic Resonance Imaging/
578.	((magnetic or nuclear) adj2 resonance adj3 imag*).ti,ab.
579.	(MRI or NMR or NMRI or fMRI or MR).ti,ab.
580.	or/43-45
581.	31 or 36 or 42 or 46
582.	26 and 47
583.	exp "sensitivity and specificity"/
584.	(sensitivity or specificity).ti,ab.
585.	((pre test or pretest or post test) adj probability).ti,ab.

586.	(predictive value* or PPV or NPV).ti,ab.
587.	likelihood ratio*.ti,ab.
588.	likelihood function/
589.	((area under adj4 curve) or AUC).ti,ab.
590.	(receive* operat* characteristic* or receive* operat* curve* or ROC curve*).ti,ab.
591.	(diagnos* adj3 (performance* or accurac* or utilit* or value* or efficien* or effectiveness)).ti,ab.
592.	gold standard.ab.
593.	or/49-58
594.	randomized controlled trial.pt.
595.	controlled clinical trial.pt.
596.	randomi#ed.ti,ab.
597.	placebo.ab.
598.	randomly.ti,ab.
599.	Clinical Trials as topic.sh.
600.	trial.ti.
601.	or/60-66
602.	Meta-Analysis/
603.	exp Meta-Analysis as Topic/
604.	(meta analy* or metanaly* or metaanaly* or meta regression).ti,ab.
605.	((systematic* or evidence*) adj3 (review* or overview*)).ti,ab.
606.	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
607.	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
608.	(search* adj4 literature).ab.
609.	(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.
610.	cochrane.jw.
611.	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
612.	or/68-77
613.	Epidemiologic studies/
614.	Observational study/
615.	exp Cohort studies/
616.	(cohort adj (study or studies or analys* or data)).ti,ab.
617.	((follow up or observational or uncontrolled or non randomi#ed or epidemiologic*) adj (study or studies or data)).ti,ab.
618.	((longitudinal or retrospective or prospective or cross sectional) and (study or studies or review or analys* or cohort* or data)).ti,ab.
619.	Controlled Before-After Studies/
620.	Historically Controlled Study/
621.	Interrupted Time Series Analysis/
622.	(before adj2 after adj2 (study or studies or data)).ti,ab.
623.	or/79-88
624.	exp case control study/
625.	case control*.ti,ab.
626.	or/90-91

627.	89 or 92
628.	Cross-sectional studies/
629.	(cross sectional and (study or studies or review or analys* or cohort* or data)).ti,ab.
630.	or/94-95
631.	89 or 96
632.	89 or 92 or 96
633.	59 or 67 or 78 or 98
634.	48 and 99

Embase (Ovid) search terms

559.	exp urolithiasis/
560.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
561.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
562.	stone disease*.ti,ab.
563.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
564.	or/1-5
565.	letter.pt. or letter/
566.	note.pt.
567.	editorial.pt.
568.	case report/ or case study/
569.	(letter or comment*).ti.
570.	or/7-11
571.	randomized controlled trial/ or random*.ti,ab.
572.	12 not 13
573.	animal/ not human/
574.	nonhuman/
575.	exp Animal Experiment/
576.	exp Experimental Animal/
577.	animal model/
578.	exp Rodent/
579.	(rat or rats or mouse or mice).ti.
580.	or/14-21
581.	6 not 22
582.	limit 23 to English language
583.	exp *tomography/
584.	tomograph*.ti,ab.
585.	(NCCT or CT or UHCT).ti,ab.
586.	((CAT or body) adj2 scan*).ti,ab.
587.	or/25-28
588.	*radiography/
589.	*abdominal radiography/
590.	*urography/
591.	(radiograph* or x ray* or xray* KUB or urograph*).ti,ab.
592.	or/30-33

593.	*echography/
594.	(ultrasonograph* or ultrasound or ultrasonic or sonograph* or echograph* or echotomograph*).ti,ab.
595.	(ultra adj2 (sound or sonic)).ti,ab.
596.	(sound* adj2 (wave* or frequenc*)).ti,ab.
597.	(US adj3 imag*).ti,ab.
598.	or/35-39
599.	*nuclear magnetic resonance imaging/
600.	((magnetic or nuclear) adj2 resonance adj3 imag*).ti,ab.
601.	(MRI or NMR or NMRI or fMRI or MR).ti,ab.
602.	or/41-43
603.	29 or 34 or 40 or 44
604.	24 and 45
605.	exp "sensitivity and specificity"/
606.	(sensitivity or specificity).ti,ab.
607.	((pre test or pretest or post test) adj probability).ti,ab.
608.	(predictive value* or PPV or NPV).ti,ab.
609.	likelihood ratio*.ti,ab.
610.	((area under adj4 curve) or AUC).ti,ab.
611.	(receive* operat* characteristic* or receive* operat* curve* or ROC curve*).ti,ab.
612.	(diagnos* adj3 (performance* or accurac* or utilit* or value* or efficien* or effectiveness)).ti,ab.
613.	diagnostic accuracy/
614.	diagnostic test accuracy study/
615.	gold standard.ab.
616.	or/47-57
617.	random*.ti,ab.
618.	factorial*.ti,ab.
619.	(crossover* or cross over*).ti,ab.
620.	((doubl* or singl*) adj blind*).ti,ab.
621.	(assign* or allocat* or volunteer* or placebo*).ti,ab.
622.	crossover procedure/
623.	single blind procedure/
624.	randomized controlled trial/
625.	double blind procedure/
626.	or/59-67
627.	systematic review/
628.	meta-analysis/
629.	(meta analy* or metanaly* or metaanaly* or meta regression).ti,ab.
630.	((systematic* or evidence*) adj3 (review* or overview*)).ti,ab.
631.	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
632.	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
633.	(search* adj4 literature).ab.
634.	(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.

635.	cochrane.jw.
636.	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
637.	or/69-78
638.	Clinical study/
639.	Observational study/
640.	family study/
641.	longitudinal study/
642.	retrospective study/
643.	prospective study/
644.	cohort analysis/
645.	follow-up/
646.	cohort*.ti,ab.
647.	87 and 88
648.	(cohort adj (study or studies or analys* or data)).ti,ab.
649.	((follow up or observational or uncontrolled or non randomi#ed or epidemiologic*) adj (study or studies or data)).ti,ab.
650.	((longitudinal or retrospective or prospective or cross sectional) and (study or studies or review or analys* or cohort* or data)).ti,ab.
651.	(before adj2 after adj2 (study or studies or data)).ti,ab.
652.	or/80-86,89-93
653.	exp case control study/
654.	case control*.ti,ab.
655.	or/95-96
656.	94 or 97
657.	cross-sectional study/
658.	(cross sectional and (study or studies or review or analys* or cohort* or data)).ti,ab.
659.	or/99-100
660.	94 or 101
661.	94 or 97 or 101
662.	58 or 68 or 79 or 103
663.	46 and 104

Cochrane Library (Wiley) search terms

#191.	MeSH descriptor: [Urolithiasis] explode all trees
#192.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s):ti,ab
#193.	((renal or kidney* or urinary or ureter* or urethra*) near/3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)):ti,ab
#194.	stone disease*:ti,ab
#195.	((calculi or calculus or calcium oxalate or cystine) near/3 (crystal* or stone* or lithiasis)):ti,ab
#196.	(or #1-#5)
#197.	MeSH descriptor: [Tomography] explode all trees
#198.	tomograph*:ti,ab
#199.	(NCCT or CT or UHCT):ti,ab
#200.	((CAT or body) near/2 scan*):ti,ab
#201.	(or #7-#10)
#202.	MeSH descriptor: [Radiography] this term only

#203.	MeSH descriptor: [Radiography, Abdominal] this term only
#204.	MeSH descriptor: [Urography] explode all trees
#205.	(radiograph* or x ray* or xray or KUB or urograph*):ti,ab
#206.	(or #12-#15)
#207.	MeSH descriptor: [Ultrasonography] this term only
#208.	(ultrasonograph* or ultrasound or ultrasonic or sonograph* or echograph* or echotomograph*):ti,ab
#209.	(ultra near/2 (sound or sonic)):ti,ab
#210.	(sound* near/2 (wave* or frequenc*)):ti,ab
#211.	(US near/3 imag*):ti,ab
#212.	(or #17-#21)
#213.	MeSH descriptor: [Magnetic Resonance Imaging] this term only
#214.	((magnetic or nuclear) near/2 resonance near/3 imag*):ti,ab
#215.	(MRI or NMR or NMRI or fMRI or MR):ti,ab
#216.	(or #23-#25)
#217.	#11 or #16 or #22 or #26
#218.	#6 and #27

A.9.2 Health Economics literature search strategy

Health economic evidence was identified by conducting a broad search relating to renal and ureteric stones 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 studies.

Table 16: Database date parameters and filters used

Database	Dates searched	Search filter used
Medline	2014 – 9 March 2018	Exclusions Health economics studies
Embase	2014 – 9 March 2018	Exclusions Health economics studies
Centre for Research and Dissemination (CRD)	HTA - Inception – 9 March 2018 NHSEED - Inception to March 2015	None

Medline (Ovid) search terms

286.	exp urolithiasis/
287.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
288.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)):ti,ab.
289.	stone disease*.ti,ab.
290.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
291.	or/1-5
292.	letter/
293.	editorial/

294.	news/
295.	exp historical article/
296.	Anecdotes as Topic/
297.	comment/
298.	case report/
299.	(letter or comment*).ti.
300.	or/7-14
301.	randomized controlled trial/ or random*.ti,ab.
302.	15 not 16
303.	animals/ not humans/
304.	exp Animals, Laboratory/
305.	exp Animal Experimentation/
306.	exp Models, Animal/
307.	exp Rodentia/
308.	(rat or rats or mouse or mice).ti.
309.	or/17-23
310.	6 not 24
311.	limit 25 to English language
312.	Economics/
313.	Value of life/
314.	exp "Costs and Cost Analysis"/
315.	exp Economics, Hospital/
316.	exp Economics, Medical/
317.	Economics, Nursing/
318.	Economics, Pharmaceutical/
319.	exp "Fees and Charges"/
320.	exp Budgets/
321.	budget*.ti,ab.
322.	cost*.ti.
323.	(economic* or pharmaco?economic*).ti.
324.	(price* or pricing*).ti,ab.
325.	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.
326.	(financ* or fee or fees).ti,ab.
327.	(value adj2 (money or monetary)).ti,ab.
328.	or/27-42
329.	26 and 43

Embase (Ovid) search terms

258.	exp urolithiasis/
259.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
260.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
261.	stone disease*.ti,ab.
262.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.

263.	or/1-5
264.	letter.pt. or letter/
265.	note.pt.
266.	editorial.pt.
267.	case report/ or case study/
268.	(letter or comment*).ti.
269.	or/7-11
270.	randomized controlled trial/ or random*.ti,ab.
271.	12 not 13
272.	animal/ not human/
273.	nonhuman/
274.	exp Animal Experiment/
275.	exp Experimental Animal/
276.	animal model/
277.	exp Rodent/
278.	(rat or rats or mouse or mice).ti.
279.	or/14-21
280.	6 not 22
281.	limit 23 to English language
282.	health economics/
283.	exp economic evaluation/
284.	exp health care cost/
285.	exp fee/
286.	budget/
287.	funding/
288.	budget*.ti,ab.
289.	cost*.ti.
290.	(economic* or pharmaco?economic*).ti.
291.	(price* or pricing*).ti,ab.
292.	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.
293.	(financ* or fee or fees).ti,ab.
294.	(value adj2 (money or monetary)).ti,ab.
295.	or/25-37
296.	24 and 38

NHS EED and HTA (CRD) search terms

#82.	MeSH DESCRIPTOR urolithiasis EXPLODE ALL TREES
#83.	((nephrolithiasis or nephrolith or urolithiasis))
#84.	((((renal or kidney or urinary or ureteric or ureteral or ureter or urethra*) adj2 (stone* or calculi or calculus or calculosis or lithiasis or colic))))
#85.	((stone disease*))

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Search strategiesSearch strategies

#86.	(((calculi or calculus) adj2 (stone* or lithiasis)))
#87.	(#1 OR #2 OR #3 OR #4 OR #5)

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Renal and ureteric stones search strategy 8

This literature search strategy was used for the following reviews;

A.10 Dietary interventions

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.10.1 Clinical search literature search strategy

Searches were constructed using a PICO framework where population (P) terms were combined with Intervention (I) and in some cases Comparison (C) terms. Outcomes (O) are rarely used in search strategies for interventions as these concepts may not be well described in title, abstract or indexes and therefore difficult to retrieve. Search filters were applied to the search where appropriate.

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Database	Dates searched	Search filter used
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Embase (OVID)	1974 – 5 June 2017	Exclusions Randomised controlled trials Systematic review studies
The Cochrane Library (Wiley)	Cochrane Reviews to 2017 Issue 6 of 12 CENTRAL to 2017 Issue 5 of 12 DARE, and NHSEED to 2015 Issue 2 of 4 HTA to 2016 Issue 4 of 4	None

Medline (Ovid) search terms

635.	exp urolithiasis/
636.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
637.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
638.	stone disease*.ti,ab.
639.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
640.	or/1-5
641.	letter/
642.	editorial/
643.	news/
644.	exp historical article/
645.	Anecdotes as Topic/
646.	comment/

647.	case report/
648.	(letter or comment*).ti.
649.	or/7-14
650.	randomized controlled trial/ or random*.ti,ab.
651.	15 not 16
652.	animals/ not humans/
653.	exp Animals, Laboratory/
654.	exp Animal Experimentation/
655.	exp Models, Animal/
656.	exp Rodentia/
657.	(rat or rats or mouse or mice).ti.
658.	or/17-23
659.	6 not 24
660.	limit 25 to English language
661.	exp Diet/
662.	Sodium, Dietary/
663.	Calcium, Dietary/
664.	exp Diet Therapy/
665.	exp diet, protein-restricted/ or exp diet, reducing/ or exp diet, sodium-restricted/
666.	exp Ascorbic Acid/
667.	exp citric acid/
668.	exp Purines/
669.	exp "diet, food, and nutrition"/
670.	exp Oxalic Acid/
671.	Drinking/
672.	exp Drinking Water/
673.	exp Carbonated Beverages/
674.	((fluid* or liquid*) adj2 (low* or reduc* or avoid* or misus* or stop* or high* or percent* or increas* or benefit* or intake* or ingest* or drink* or imbib* or consume* or manage* or hydrat* or has or have or take or taking or taken or took)).ti,ab.
675.	(drink* or beverage* or water* or H2O or juice* or lemon* or citr* or orange* or cranberr* or coffee* or tea* or fizzy or carbonated or cola* or soda* or Coke or Coca Cola or Kola or 7Up or Sprite or Dr Pepper or Pepsi or Red Bull or Mountain Dew or Fanta or Crush or Sunkist or Fresca or Lucozade or Irn-Bru or J2O or Schweppes or Tango or Ribena or Lilt or beer* or bitter* or ale* or lager* or wine* or alcohol* or sparkling or milk or fruit* or grapefruit* or punch* or smooth* or phosphoric or lime*).ti,ab.
676.	((diet* or low* or reduc* or decreas* or avoid* or misus* or abus* or withdr* or high* or percent* or consum* or intak* or benefit* or increas* or raise*) adj3 (calcium or Ca or salt or NaCl or sodium or sodium chloride or sodium glutamate or citrate or citric or protein* or purine* or magnesium or Mg or fiber or fibre or oxalic or oxalate* or ascorbic or vit* c)).ti,ab.
677.	(dairy or non dairy or cheese* or yogurt* or meat* or flesh* or game or veal or lamb or beef or steak* or burger* or hamburger* or pork or ham* or bacon or poultry or chicken or turkey or duck or fish or herring or mackerel or tuna or salmon or seafood* or shrimp* or lobster or scallop* or vegetable* or legume* or salad* or green* or plant* or avocado* or potato* or banana* or seed* or almond* or flaxseed or sunflower or spinach or beet* or berries or berry* or bean* or pulses or soybean* or nuts or peanut* or walnut* or chocolate* or wholegrain* or wholemeal or rice or bran or oat* or porridge*).ti,ab.

678.	exp Exercise/
679.	exercise*.ti,ab.
680.	(physical* adj2 (activit* or train* or program* or therap*)).ti,ab.
681.	Weight Loss/
682.	(weight adj3 (loss* or lose or reduc* or percent*)).ti,ab.
683.	or/27-48
684.	randomized controlled trial.pt.
685.	controlled clinical trial.pt.
686.	randomi#ed.ti,ab.
687.	placebo.ab.
688.	randomly.ti,ab.
689.	Clinical Trials as topic.sh.
690.	trial.ti.
691.	or/50-56
692.	Meta-Analysis/
693.	exp Meta-Analysis as Topic/
694.	(meta analy* or metanaly* or metaanaly* or meta regression).ti,ab.
695.	((systematic* or evidence*) adj3 (review* or overview*)).ti,ab.
696.	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
697.	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
698.	(search* adj4 literature).ab.
699.	(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.
700.	cochrane.jw.
701.	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
702.	or/58-67
703.	26 and 49
704.	57 or 68
705.	69 and 70

Embase (Ovid) search terms

664.	exp urolithiasis/
665.	(nephrolitiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
666.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
667.	stone disease*.ti,ab.
668.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
669.	or/1-5
670.	letter.pt. or letter/
671.	note.pt.
672.	editorial.pt.
673.	case report/ or case study/
674.	(letter or comment*).ti.
675.	or/7-11

676.	randomized controlled trial/ or random*.ti,ab.
677.	12 not 13
678.	animal/ not human/
679.	nonhuman/
680.	exp Animal Experiment/
681.	exp Experimental Animal/
682.	animal model/
683.	exp Rodent/
684.	(rat or rats or mouse or mice).ti.
685.	or/14-21
686.	6 not 22
687.	limit 23 to English language
688.	*diet/
689.	*sodium intake/
690.	*calcium intake
691.	*diet therapy
692.	protein restriction/ or sodium restriction/ or low calory diet/
693.	*ascorbic acid/
694.	*citric acid/
695.	"purines and purine derivatives"/
696.	*nutrition/
697.	oxalic acid/
698.	*drinking/
699.	*drinking water/
700.	*carbonated beverage/
701.	((fluid* or liquid*) adj2 (low* or reduc* or avoid* or misus* or stop* or high* or percent* or increas* or benefit* or intake* or ingest* or drink* or imbib* or consume* or manage* or hydrat* or has or have or take or taking or taken or took)).ti,ab.
702.	(drink* or beverage* or water* or H2O or juice* or lemon* or citr* or orange* or cranberr* or coffee* or tea* or fizzy or carbonated or cola* or soda* or Coke or Coca Cola or Kola or 7Up or Sprite or Dr Pepper or Pepsi or Red Bull or Mountain Dew or Fanta or Crush or Sunkist or Fresca or Lucozade or Irn-Bru or J2O or Schweppes or Tango or Ribena or Lilt or beer* or bitter* or ale* or lager* or wine* or alcohol* or sparkling or milk or fruit* or grapefruit* or punch* or smooth* or phosphoric or lime*).ti,ab.
703.	((diet* or low* or reduc* or decreas* or avoid* or misus* or abus* or withdr* or high* or percent* or consum* or intak* or benefit* or increas* or raise*) adj3 (calcium or Ca or salt or NaCl or sodium or sodium chloride or sodium glutamate or citrate or citric or protein* or purine* or magnesium or Mg or fiber or fibre or oxalic or oxalate* or ascorbic or vit* c)).ti,ab.
704.	(dairy or non dairy or cheese* or yogurt* or meat* or flesh* or game or veal or lamb or beef or steak* or burger* or hamburger* or pork or ham* or bacon or poultry or chicken or turkey or duck or fish or herring or mackerel or tuna or salmon or seafood* or shrimp* or lobster or scallop* or vegetable* or legume* or salad* or green* or plant* or avocado* or potato* or banana* or seed* or almond* or flaxseed or sunflower or spinach or beet* or berries or berry or bean* or pulses or soybean* or nuts or peanut* or walnut* or chocolate* or wholegrain* or wholemeal or rice or bran or oat* or porridge*).ti,ab.
705.	exercise/
706.	exercise*.ti,ab.

707.	(physical* adj2 (activit* or train* or program* or therap*)).ti,ab.
708.	*weight reduction/
709.	(weight adj3 (loss* or lose or reduc* or percent*)).ti,ab.
710.	or/25-46
711.	random*.ti,ab.
712.	factorial*.ti,ab.
713.	(crossover* or cross over*).ti,ab.
714.	((doubl* or singl*) adj blind*).ti,ab.
715.	(assign* or allocat* or volunteer* or placebo*).ti,ab.
716.	crossover procedure/
717.	single blind procedure/
718.	randomized controlled trial/
719.	double blind procedure/
720.	or/48-56
721.	systematic review/
722.	meta-analysis/
723.	(meta analy* or metanaly* or metaanaly* or meta regression).ti,ab.
724.	((systematic* or evidence*) adj3 (review* or overview*)).ti,ab.
725.	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
726.	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
727.	(search* adj4 literature).ab.
728.	(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.
729.	cochrane.jw.
730.	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
731.	or/58-67
732.	24 and 47
733.	57 or 68
734.	69 and 70

Cochrane Library (Wiley) search terms

#219.	MeSH descriptor: [Urolithiasis] explode all trees
#220.	(nephrolithiasis or nephrolith or urolithiasis):ti,ab
#221.	((renal or kidney or urinary or ureteric or ureteral or ureter) near/2 (stone* or calculi or calculus or calculosis or lithiasis or colic)):ti,ab
#222.	(stone disease*):ti,ab
#223.	((calculi or calculus or calcium oxalate or cystine) near/2 (crystal* or stone* or lithiasis)):ti,ab
#224.	(or #1-#5)
#225.	MeSH descriptor: [Diet] explode all trees
#226.	MeSH descriptor: [Sodium, Dietary] this term only
#227.	MeSH descriptor: [Calcium, Dietary] this term only
#228.	MeSH descriptor: [Diet Therapy] explode all trees
#229.	MeSH descriptor: [Ascorbic Acid] explode all trees
#230.	MeSH descriptor: [Citric Acid] explode all trees

#231.	MeSH descriptor: [Purines] explode all trees
#232.	MeSH descriptor: [Diet, Food, and Nutrition] explode all trees
#233.	MeSH descriptor: [Oxalates] explode all trees
#234.	MeSH descriptor: [Drinking] this term only
#235.	MeSH descriptor: [Drinking Water] explode all trees
#236.	MeSH descriptor: [Carbonated Beverages] explode all trees
#237.	((fluid* or liquid*) near/2 (low* or reduc* or avoid* or misus* or stop* or high* or percent* or increas* or benefit* or intake* or ingest* or drink* or imbib* or consume* or manage* or hydrat* or has or have or take or taking or taken or took)):ti,ab
#238.	(drink* or beverage* or water* or H2O or juice* or lemon* or citr* or orange* or cranberr* or coffee* or tea* or fizzy or carbonated or cola* or soda* or Coke or Coca Cola or Kola or 7Up or Sprite or Dr Pepper or Pepsi or Red Bull or Mountain Dew or Fanta or Crush or Sunkist or Fresca or Lucozade or Irn-Bru or J2O or Schweppes or Tango or Ribena or Lilt or beer* or bitter* or ale* or lager* or wine* or alcohol* or sparkling or milk or fruit* or grapefruit* or punch* or smooth* or phosphoric or lime*):ti,ab
#239.	((diet* or low* or reduc* or decreas* or avoid* or misus* or abus* or withdr* or high* or percent* or consum* or intak* or benefit* or increas* or raise*) near/3 (calcium or Ca or salt or NaCl or sodium or sodium chloride or sodium glutamate or citrate or citric or protein* or purine* or magnesium or Mg or fiber or fibre or oxalic or oxalate* or ascorbic or vit* c)):ti,ab
#240.	(dairy or non dairy or cheese* or yogurt* or meat* or flesh* or game or veal or lamb or beef or steak* or burger* or hamburger* or pork or ham* or bacon or poultry or chicken or turkey or duck or fish or herring or mackerel or tuna or salmon or seafood* or shrimp* or lobster or scallop* or vegetable* or legume* or salad* or green* or plant* or avocado* or potato* or banana* or seed* or almond* or flaxseed or sunflower or spinach or beet* or berries or berry or bean* or pulses or soybean* or nuts or peanut* or walnut* or chocolate* or wholegrain* or wholemeal or rice or bran or oat* or porridge*):ti,ab
#241.	MeSH descriptor: [Exercise] explode all trees
#242.	exercise*:ti,ab
#243.	(physical* near/2 (activit* or train* or program* or therap*)):ti,ab
#244.	MeSH descriptor: [Weight Loss] this term only
#245.	(weight near/3 (loss* or lose or reduc* or percent*)):ti,ab
#246.	(or #7-#27)
#247.	#6 and #28

A.10.2 Health Economics literature search strategy

Health economic evidence was identified by conducting a broad search relating to renal and ureteric stones 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 studies.

Table 18: Database date parameters and filters used

Database	Dates searched	Search filter used
Medline	2014 – 9 March 2018	Exclusions Health economics studies
Embase	2014 – 9 March 2018	Exclusions Health economics studies
Centre for Research and	HTA - Inception – 9 March	None

Database	Dates searched	Search filter used
Dissemination (CRD)	2018 NHSEED - Inception to March 2015	

Medline (Ovid) search terms

330.	exp urolithiasis/
331.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
332.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
333.	stone disease*.ti,ab.
334.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
335.	or/1-5
336.	letter/
337.	editorial/
338.	news/
339.	exp historical article/
340.	Anecdotes as Topic/
341.	comment/
342.	case report/
343.	(letter or comment*).ti.
344.	or/7-14
345.	randomized controlled trial/ or random*.ti,ab.
346.	15 not 16
347.	animals/ not humans/
348.	exp Animals, Laboratory/
349.	exp Animal Experimentation/
350.	exp Models, Animal/
351.	exp Rodentia/
352.	(rat or rats or mouse or mice).ti.
353.	or/17-23
354.	6 not 24
355.	limit 25 to English language
356.	Economics/
357.	Value of life/
358.	exp "Costs and Cost Analysis"/
359.	exp Economics, Hospital/
360.	exp Economics, Medical/
361.	Economics, Nursing/
362.	Economics, Pharmaceutical/
363.	exp "Fees and Charges"/
364.	exp Budgets/
365.	budget*.ti,ab.
366.	cost*.ti.
367.	(economic* or pharmaco?economic*).ti.

368.	(price* or pricing*).ti,ab.
369.	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)),ab.
370.	(financ* or fee or fees).ti,ab.
371.	(value adj2 (money or monetary)).ti,ab.
372.	or/27-42
373.	26 and 43

Embase (Ovid) search terms

297.	exp urolithiasis/
298.	(nephrolitiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
299.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
300.	stone disease*.ti,ab.
301.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
302.	or/1-5
303.	letter.pt. or letter/
304.	note.pt.
305.	editorial.pt.
306.	case report/ or case study/
307.	(letter or comment*).ti.
308.	or/7-11
309.	randomized controlled trial/ or random*.ti,ab.
310.	12 not 13
311.	animal/ not human/
312.	nonhuman/
313.	exp Animal Experiment/
314.	exp Experimental Animal/
315.	animal model/
316.	exp Rodent/
317.	(rat or rats or mouse or mice).ti.
318.	or/14-21
319.	6 not 22
320.	limit 23 to English language
321.	health economics/
322.	exp economic evaluation/
323.	exp health care cost/
324.	exp fee/
325.	budget/
326.	funding/
327.	budget*.ti,ab.
328.	cost*.ti.

329.	(economic* or pharmaco?economic*).ti.
330.	(price* or pricing*).ti,ab.
331.	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.
332.	(financ* or fee or fees).ti,ab.
333.	(value adj2 (money or monetary)).ti,ab.
334.	or/25-37
335.	24 and 38

NHS EED and HTA (CRD) search terms

#88.	MeSH DESCRIPTOR urolithiasis EXPLODE ALL TREES
#89.	((nephrolithiasis or nephrolith or urolithiasis))
#90.	((((renal or kidney or urinary or ureteric or ureteral or ureter or urethra*) adj2 (stone* or calculi or calculus or calculosis or lithiasis or colic))))
#91.	((stone disease*))
#92.	((((calculi or calculus) adj2 (stone* or lithiasis))))
#93.	(#1 OR #2 OR #3 OR #4 OR #5)

Renal and ureteric stones search strategy 9

This literature search strategy was used for the following reviews;

A.11 Timing of surgery

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.11.1 Clinical search literature search strategy

Searches were constructed using a PICO framework where population (P) terms were combined with Intervention (I) and in some cases Comparison (C) terms. Outcomes (O) are rarely used in search strategies for interventions as these concepts may not be well described in title, abstract or indexes and therefore difficult to retrieve. Search filters were applied to the search where appropriate.

Table 19: Database date parameters and filters used

Database	Dates searched	Search filter used
Medline (OVID)	1946 – 14 March 2018	Exclusions Randomised controlled trials Systematic review studies Observational studies
Embase (OVID)	1974 – 14 March 2018	Exclusions Randomised controlled trials Systematic review studies Observational studies
The Cochrane Library (Wiley)	Cochrane Reviews to 2018 Issue 3 of 12 CENTRAL to 2018 Issue 2 of 12 DARE, and NHSEED to 2015 Issue 2 of 4 HTA to 2016 Issue 4 of 4	None

Medline (Ovid) search terms

706.	exp urolithiasis/
707.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
708.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
709.	stone disease*.ti,ab.
710.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
711.	or/1-5
712.	letter/
713.	editorial/
714.	news/
715.	exp historical article/
716.	Anecdotes as Topic/

717.	comment/
718.	case report/
719.	(letter or comment*).ti.
720.	or/7-14
721.	randomized controlled trial/ or random*.ti,ab.
722.	15 not 16
723.	animals/ not humans/
724.	exp Animals, Laboratory/
725.	exp Animal Experimentation/
726.	exp Models, Animal/
727.	exp Rodentia/
728.	(rat or rats or mouse or mice).ti.
729.	or/17-23
730.	6 not 24
731.	limit 25 to English language
732.	Surgery/
733.	exp Surgical Procedures, Operative/
734.	surger*.ti,ab.
735.	((surgical or operative or chirurgic*) adj3 (therap* or treatment* or intervention* or procedure*)).ti,ab.
736.	((urologic* or ureter* or kidney or renal or invasive or non invasive or extracorporeal or extra corporeal or percutaneous or retrograde) adj3 (procedure* or operation* or technique* or intervention*)).ti,ab.
737.	or/27-31
738.	Time Factors/
739.	Time to Treatment/
740.	((earl* or immediate* or first* or before or delay* or defer* or postpone* or belated or after* or wait* or time or timing) adj3 (surger* or therap* or treatment* or intervention* or procedure*)).ti,ab.
741.	(emergen* or acute).ti,ab.
742.	or/33-36
743.	32 and 37
744.	26 and 38
745.	randomized controlled trial.pt.
746.	controlled clinical trial.pt.
747.	randomi#ed.ti,ab.
748.	placebo.ab.
749.	randomly.ti,ab.
750.	Clinical Trials as topic.sh.
751.	trial.ti.
752.	or/40-46
753.	Meta-Analysis/
754.	exp Meta-Analysis as Topic/
755.	(meta analy* or metanaly* or metaanaly* or meta regression).ti,ab.
756.	((systematic* or evidence*) adj3 (review* or overview*)).ti,ab.
757.	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.

758.	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
759.	(search* adj4 literature).ab.
760.	(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.
761.	cochrane.jw.
762.	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
763.	or/48-57
764.	Epidemiologic studies/
765.	Observational study/
766.	exp Cohort studies/
767.	(cohort adj (study or studies or analys* or data)).ti,ab.
768.	((follow up or observational or uncontrolled or non randomi#ed or epidemiologic*) adj (study or studies or data)).ti,ab.
769.	((longitudinal or retrospective or prospective or cross sectional) and (study or studies or review or analys* or cohort* or data)).ti,ab.
770.	Controlled Before-After Studies/
771.	Historically Controlled Study/
772.	Interrupted Time Series Analysis/
773.	(before adj2 after adj2 (study or studies or data)).ti,ab.
774.	or/59-68
775.	exp case control study/
776.	case control*.ti,ab.
777.	or/70-71
778.	69 or 72
779.	Cross-sectional studies/
780.	(cross sectional and (study or studies or review or analys* or cohort* or data)).ti,ab.
781.	or/74-75
782.	69 or 76
783.	69 or 72 or 76
784.	39 and 47
785.	39 and 58
786.	79 or 80
787.	39 and 78
788.	82 not 81

Embase (Ovid) search terms

735.	exp urolithiasis/
736.	(nephrolitiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
737.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
738.	stone disease*.ti,ab.
739.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
740.	or/1-5
741.	letter.pt. or letter/
742.	note.pt.

743.	editorial.pt.
744.	case report/ or case study/
745.	(letter or comment*).ti.
746.	or/7-11
747.	randomized controlled trial/ or random*.ti,ab.
748.	12 not 13
749.	animal/ not human/
750.	nonhuman/
751.	exp Animal Experiment/
752.	exp Experimental Animal/
753.	animal model/
754.	exp Rodent/
755.	(rat or rats or mouse or mice).ti.
756.	or/14-21
757.	6 not 22
758.	limit 23 to English language
759.	surgery/
760.	surger*.ti,ab.
761.	((surgical or operative or chirurgic*) adj3 (therap* or treatment* or intervention* or procedure*)).ti,ab.
762.	((urologic* or ureter* or kidney or renal or invasive or non invasive or extracorporeal or extra corporeal or percutaneous or retrograde) adj3 (procedure* or operation* or technique* or intervention*)).ti,ab.
763.	or/25-29
764.	time factor/
765.	time to treatment/
766.	((earl* or immediate* or first* or before or delay* or defer* or postpone* or belated or after* or wait* or time or timing) adj3 (surger* or therap* or treatment* or intervention* or procedure*)).ti,ab.
767.	(emergen* or acute).ti,ab.
768.	or/30-33
769.	30 and 34
770.	24 and 35
771.	random*.ti,ab.
772.	factorial*.ti,ab.
773.	(crossover* or cross over*).ti,ab.
774.	((doubl* or singl*) adj blind*).ti,ab.
775.	(assign* or allocat* or volunteer* or placebo*).ti,ab.
776.	crossover procedure/
777.	single blind procedure/
778.	randomized controlled trial/
779.	double blind procedure/
780.	or/37-45
781.	systematic review/
782.	meta-analysis/
783.	(meta analy* or metanaly* or metaanaly* or meta regression).ti,ab.

784.	((systematic* or evidence*) adj3 (review* or overview*)).ti,ab.
785.	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
786.	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
787.	(search* adj4 literature).ab.
788.	(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.
789.	cochrane.jw.
790.	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
791.	or/47-56
792.	Clinical study/
793.	Observational study/
794.	family study/
795.	longitudinal study/
796.	retrospective study/
797.	prospective study/
798.	cohort analysis/
799.	follow-up/
800.	cohort*.ti,ab.
801.	65 and 66
802.	(cohort adj (study or studies or analys* or data)).ti,ab.
803.	((follow up or observational or uncontrolled or non randomi#ed or epidemiologic*) adj (study or studies or data)).ti,ab.
804.	((longitudinal or retrospective or prospective or cross sectional) and (study or studies or review or analys* or cohort* or data)).ti,ab.
805.	(before adj2 after adj2 (study or studies or data)).ti,ab.
806.	or/58-64,68-71
807.	exp case control study/
808.	case control*.ti,ab.
809.	or/73-74
810.	72 or 75
811.	cross-sectional study/
812.	(cross sectional and (study or studies or review or analys* or cohort* or data)).ti,ab.
813.	or/77-78
814.	72 or 79
815.	72 or 75 or 79
816.	36 and 46
817.	36 and 57
818.	82 or 83
819.	36 and 81
820.	85 not 84

Cochrane Library (Wiley) search terms

#248.	MeSH descriptor: [Urolithiasis] explode all trees
#249.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s):ti,ab
#250.	((renal or kidney* or urinary or ureter* or urethra*) near/3 (stone* or calculi or calculus

	or calculosis or lithiasis or c?olic*)):ti,ab
#251.	stone disease*:ti,ab
#252.	((calculi or calculus or calcium oxalate or cystine) near/3 (crystal* or stone* or lithiasis)):ti,ab
#253.	(or #1-#5)
#254.	MeSH descriptor: [General Surgery] explode all trees
#255.	MeSH descriptor: [Surgical Procedures, Operative] explode all trees
#256.	surger*:ti,ab
#257.	(surgical or operative or chirurgic*) near/3 (therap* or treatment* or intervention* or procedure*):ti,ab
#258.	(urologic* or ureter* or kidney or renal or invasive or non invasive or extracorporeal or extra corporeal or percutaneous or retrograde) near/3 (procedure* or operation* or techniqe* or intervention*):ti,ab
#259.	(or #7-#11)
#260.	MeSH descriptor: [Time Factors] this term only
#261.	MeSH descriptor: [Time-to-Treatment] this term only
#262.	(earl* or immediate* or first* or before or delay* or defer* or postpone* or belated or after* or wait* or time or timing) near/3 (surger* or therap* or treatment* or intervention* or procedure*):ti,ab
#263.	(emergen* or acute):ti,ab
#264.	(or #13-#16)
#265.	#12 and #17
#266.	#6 and #18

A.11.2 Health Economics literature search strategy

Health economic evidence was identified by conducting a broad search relating to renal and ureteric stones 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 studies.

Table 20: Database date parameters and filters used

Database	Dates searched	Search filter used
Medline	2014 – 9 March 2018	Exclusions Health economics studies
Embase	2014 – 9 March 2018	Exclusions Health economics studies
Centre for Research and Dissemination (CRD)	HTA - Inception – 9 March 2018 NHSEED - Inception to March 2015	None

Medline (Ovid) search terms

374.	exp urolithiasis/
375.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
376.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)):ti,ab.
377.	stone disease*.ti,ab.

378.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
379.	or/1-5
380.	letter/
381.	editorial/
382.	news/
383.	exp historical article/
384.	Anecdotes as Topic/
385.	comment/
386.	case report/
387.	(letter or comment*).ti.
388.	or/7-14
389.	randomized controlled trial/ or random*.ti,ab.
390.	15 not 16
391.	animals/ not humans/
392.	exp Animals, Laboratory/
393.	exp Animal Experimentation/
394.	exp Models, Animal/
395.	exp Rodentia/
396.	(rat or rats or mouse or mice).ti.
397.	or/17-23
398.	6 not 24
399.	limit 25 to English language
400.	Economics/
401.	Value of life/
402.	exp "Costs and Cost Analysis"/
403.	exp Economics, Hospital/
404.	exp Economics, Medical/
405.	Economics, Nursing/
406.	Economics, Pharmaceutical/
407.	exp "Fees and Charges"/
408.	exp Budgets/
409.	budget*.ti,ab.
410.	cost*.ti.
411.	(economic* or pharmaco?economic*).ti.
412.	(price* or pricing*).ti,ab.
413.	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.
414.	(financ* or fee or fees).ti,ab.
415.	(value adj2 (money or monetary)).ti,ab.
416.	or/27-42
417.	26 and 43

Embase (Ovid) search terms

336.	exp urolithiasis/
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337.	(nephrolithiasis or nephrolith or nephroliths or urolithias?s or ureterolithias?s).ti,ab.
338.	((renal or kidney* or urinary or ureter* or urethra*) adj3 (stone* or calculi or calculus or calculosis or lithiasis or c?olic*)).ti,ab.
339.	stone disease*.ti,ab.
340.	((calculi or calculus or calcium oxalate or cystine) adj3 (crystal* or stone* or lithiasis)).ti,ab.
341.	or/1-5
342.	letter.pt. or letter/
343.	note.pt.
344.	editorial.pt.
345.	case report/ or case study/
346.	(letter or comment*).ti.
347.	or/7-11
348.	randomized controlled trial/ or random*.ti,ab.
349.	12 not 13
350.	animal/ not human/
351.	nonhuman/
352.	exp Animal Experiment/
353.	exp Experimental Animal/
354.	animal model/
355.	exp Rodent/
356.	(rat or rats or mouse or mice).ti.
357.	or/14-21
358.	6 not 22
359.	limit 23 to English language
360.	health economics/
361.	exp economic evaluation/
362.	exp health care cost/
363.	exp fee/
364.	budget/
365.	funding/
366.	budget*.ti,ab.
367.	cost*.ti.
368.	(economic* or pharmaco?economic*).ti.
369.	(price* or pricing*).ti,ab.
370.	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.
371.	(financ* or fee or fees).ti,ab.
372.	(value adj2 (money or monetary)).ti,ab.
373.	or/25-37
374.	24 and 38

NHS EED and HTA (CRD) search terms

#94.	MeSH DESCRIPTOR urolithiasis EXPLODE ALL TREES
#95.	((nephrolithiasis or nephrolith or urolithiasis))
#96.	((((renal or kidney or urinary or ureteric or ureteral or ureter or urethra*) adj2 (stone* or calculi or calculus or calculosis or lithiasis or colic))))
#97.	((stone disease*))
#98.	((((calculi or calculus) adj2 (stone* or lithiasis))))
#99.	(#1 OR #2 OR #3 OR #4 OR #5)