

Abdominal aortic aneurysm: diagnosis and management

Search strategies

NICE guideline <number>

Search strategies

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1 Scoping search strategies

1.1 Scoping searches

Scoping searches were undertaken on the following websites and databases (listed in alphabetical order) in April 2015 to provide information for scope development and project planning. Browsing or simple search strategies were employed.

Guidelines/website	Systematic review/economic evaluations
British Thoracic Society	Cochrane Database of Systematic Reviews (CDSR)
Care Quality Commission	Database of Abstracts of Reviews of Effects (DARE) – last updated Dec 2014
Core Outcome Measures in Effectiveness Trials (COMET)	DUETS
Department of Health	Health Technology Assessment (HTA) Database
General Medical Council	NHS Economic Evaluation Database (NHS EED) – last updated December 2014
Guidelines & Audit Implementation Network (GAIN)	NIHR Health Technology Assessment Programme
Guidelines International Network (GIN)	NIHR Health Services and Delivery Research (HS&DR) Programme
Health and Social Care Information Centre	PROSPERO
Healthtalk Online	TRIP Database
Map of Medicine	
Medicines and Products Regulatory Agency (MHRA)	
National Audit Office	
National Health and Medical Research Council - Australia	
National Institute for Health and Care Excellence (NICE) - published & in development guidelines	
National Institute for Health and Care Excellence (NICE) - Topic Selection	
NHS Choices	
NHS England	
NICE Clinical Knowledge Summaries (CKS)	
NICE Evidence Search	
Patient UK	
Public Health England	
Royal College of Anaesthetists	
Royal College of Emergency Medicine	
Royal College of Nursing	
Royal College of Physicians	
Royal College of Radiologists	
Royal College of Surgeons	
Scottish Government	
Scottish Intercollegiate Guidelines Network (SIGN)	
Society of Nuclear Medicine and Molecular Imaging	
US National Guideline Clearinghouse	
Vascular Society	

1.2 Main searches

Bibliographic databases searched for the guideline

- Cumulative Index to Nursing and Allied Health Literature - CINAHL (EBSCO)
- Cochrane Database of Systematic Reviews – CDSR (Wiley)
- Cochrane Central Register of Controlled Trials – CENTRAL (Wiley)
- Database of Abstracts of Reviews of Effects – DARE (Wiley)
- Health Technology Assessment Database – HTA (Wiley)
- EMBASE (Ovid)
- MEDLINE (Ovid)
- MEDLINE Epub Ahead of Print (Ovid)
- MEDLINE In-Process (Ovid)

1.3 Identification of evidence for review questions

The searches were conducted between November 2015 and October 2017 for 31 review questions (RQ). In collaboration with Cochrane, the evidence for several review questions was identified by an update of an existing Cochrane review. Review questions in this category are indicated below. Where review questions had a broader scope, supplement searches were undertaken by NICE.

Searches were re-run in December 2017.

Where appropriate, study design filters (either designed in-house or by McMaster) were used to limit the retrieval to, for example, randomised controlled trials. Details of the study design filters used can be found in section 4.

2 Review question search strategies

2.1 Search strategy review questions 1, 3, 8, 9, 15, 16 and 21

RQ1: Which signs, symptoms and risk factors (or combinations of these) are most accurate in predicting the presence of an abdominal aortic aneurysm? What is the effectiveness of available risk assessment tools?

RQ3: What risk factors are associated with abdominal aortic aneurysm a) expansion and b) rupture?

RQ8: What tests are effective in predicting poor and good surgical outcomes in people with unruptured abdominal aortic aneurysms?

RQ9: What is the accuracy of available risk assessment tools in predicting poor and good surgical outcomes in people with unruptured abdominal aortic aneurysms?

RQ15: Which signs, symptoms, risk factors (or combinations of these) and diagnostic assessment tools are most accurate in indicating the presence of a ruptured or symptomatic unruptured abdominal aortic aneurysm i) before arrival at the hospital and ii) in a nonspecialist hospital setting?

RQ16: Which signs, symptoms, risk factors (or combinations of these) and prognostic risk assessment tools are most accurate in indicating a patient's suitability for transfer

RQ21: Which signs, symptoms, risk factors (or combinations of these) and assessment tools predict survival in people with ruptured abdominal aortic aneurysms?

Table 1: search strategy RQ1, 3, 8, 9, 15, 16, and 21

Medline Strategy, searched 29th September 2016
Database: 1946 to September Week 3 2016
Search Strategy:

- 1 Aortic Aneurysm, Abdominal/
- 2 Aortic Rupture/
- 3 (aneurysm* adj4 (abdom* or thoracoabdom* or thoraco-abdom* or aort* or spontan* or juxtarenal* or juxta-renal* or juxta renal* or paraarenal* or para-renal* or para renal* or suprarenal* or supra renal* or supra-renal* or short neck* or short-neck* or shortneck* or visceral aortic segment*)).tw.
- 4 or/1-3
- 5 prognosis.sh.
- 6 diagnosed.tw.
- 7 cohort.mp.
- 8 predictor:.tw.
- 9 death.tw.
- 10 exp models, statistical/
- 11 or/5-10
- 12 (sensitiv: or predictive value:).mp. or accurac:.tw.
- 13 11 or 12
- 14 "signs and symptoms"/
- 15 ((sign or signs) adj5 symptom*).tw.
- 16 Risk Factors/
- 17 factor*.tw.
- 18 predict*.tw.
- 19 or/14-18
- 20 13 or 19
- 21 4 and 20
- 22 animals/ not humans/
- 23 21 not 22 (12444)
- 24 limit 23 to english language

Note: McMaster optimal prognosis and diagnosis filters included in the strategy above.

2.2 Search strategy review questions 2, 4, 5, 7, 10, 18, 22, 27, 28 and 29

RQ2: Which imaging techniques are the most useful in confirming the presence and size of an abdominal aortic aneurysm?

RQ4: What is the most effective frequency for monitoring people with a) a small and b) a medium unruptured abdominal aortic aneurysm for signs of aneurysm expansion and risk of rupture?

RQ5: Which imaging techniques are most useful when monitoring people with an unruptured abdominal aortic aneurysm to predict risk of rupture?

RQ7: What is the effectiveness of early surgery compared with a continued surveillance approach in reducing morbidity and mortality in people with unruptured abdominal aortic aneurysms?

RQ10: Is CT angiography with post-processing techniques effective compared to CT angiography alone in planning surgery for an unruptured abdominal aortic aneurysm?

RQ18: What imaging techniques are most accurate in confirming the presence of a ruptured or symptomatic unruptured abdominal aortic aneurysm?

RQ22: Is CT angiography with post-processing techniques effective compared to CT angiography alone in planning surgery for a ruptured abdominal aortic aneurysm?

RQ27: How frequently should people be monitored for postoperative complications, further aneurysm expansion and aneurysm rupture after EVAR or open repair of an abdominal aortic aneurysm?

RQ28: When checking people after they have had EVAR or open repair of an abdominal aortic aneurysm, which imaging techniques are most useful for detecting postoperative complications, further aneurysm expansion and aneurysm rupture?

RQ29: Is tailored surveillance more effective than generalised surveillance in monitoring for postoperative complications, further aneurysm expansion and aneurysm rupture after EVAR or open repair of an abdominal aortic aneurysm?

Table 2: search strategy RQ2, 4, 5, 7, 10, 18, 22, 27, 28 and 29

Medline Strategy, searched 13th April 2016	
Database: Ovid MEDLINE(R) 1946 to March Week 5 2016	
Search Strategy:	
1	Aortic Aneurysm, Abdominal/
2	(aneurysm* adj4 (abdom* or thoracoabdom* or thoraco-abdom* or aort* or spontan* or juxtarenal* or juxta-renal* or juxta renal* or paraarenal* or para-renal* or para renal* or suprarenal* or supra renal* or supra-renal* or short neck* or short-neck* or shortneck* or visceral aortic segment*)).tw.
3	Aortic Rupture/
4	(AAA or RAAA).tw.
5	(endovascular* adj4 aneurysm* adj4 repair*).tw.
6	(endovascular* adj4 aort* adj4 repair*).tw.
7	(EVAR or EVRAR or FEVAR or F-EAVAR or BEVAR or B-EVAR).tw.
8	(Anaconda or Zenith Dynalink or Hemobahn or Luminex* or Memoth-erm or Wallstent).tw.
9	(Viabahn or Nitinol or Hemobahn or Intracoil or Tantalum).tw.
10	or/1-9
11	X-Rays/
12	(x-ray* or x ray* or xray* or x-radiation* or x radiation* or roentgen ray* or grenz ray* or radiograph*).tw.
13	Aortography/
14	aortograph*.tw.
15	Tomography, X-Ray Computed/ (
16	(cat scan* or ct scan* or cine ct or cine-ct or tomodensitomet*).tw.
17	((computed or computer assisted or computeriz* or computeris* or electron beam* or axial*) adj4 tomograph*).tw.
18	Four-Dimensional Computed Tomography/
19	(4d ct or 4dct or 4-dimensional CT or four dimensional CT).tw.
20	exp Tomography, Spiral Computed/
21	((helical or spiral) adj4 ct*).tw.
22	exp Magnetic Resonance Imaging/
23	(nmr tomograph* or mr tomograph* or nmr imag* or mri scan* or functional mri* or fmri* or zeugmatograph* or cine-mri* or cinemri*).tw.
24	(proton spin adj4 tomograph*).tw.
25	((chemical shift or magnetic resonance or magneti* transfer) adj4 imag*).tw.
26	exp Angiography/
27	(angiograph* or arteriograph*).tw.
28	exp Ultrasonography/
29	(ultrasound* or ultrason* or sonograph* or echograph* or echotomograph*).tw.
30	exp Echocardiography/
31	echocardiograph*.tw.
32	Finite element analysis/
33	(finite adj4 element* adj4 analys*).tw.
34	(finite adj4 element* adj4 comput*).tw.
35	FEA.tw.
36	((wall adj4 stress adj4 analys*) or (wall adj4 stress adj4 comput*).tw.
37	exp Computer simulation/
38	Software/
39	Image interpretation, computer-assisted/ or Radiographic image interpretation, computer-assisted/
40	Imaging Three-Dimensional/
41	exp Image enhancement/
42	Stress, mechanical/
43	(stress* adj4 mechanical*).tw.
44	(scan* or imag*).tw.
45	Watchful waiting/
46	(watchful adj4 waiting*).tw.

Medline Strategy, searched 13th April 2016

Database: Ovid MEDLINE(R) 1946 to March Week 5 2016

Search Strategy:

- 47 Mass screening/
- 48 screen*.tw.
- 49 Population surveillance/
- 50 surveillan*.tw.
- 51 ((period* or test* or frequen* or regular* or routine* or rate or optimal* or optimis* or optimiz* or repeat* or interval*) adj4 (test* or monitor* or observ* or measur* or assess* or screen* or re-screen* or rescreen* or exam* or evaluat*)).tw.
- 52 ((aneurysm* or sign* or diameter or risk*) adj4 (grow* or siz* or measur* or expan* or ruptur* or tear* or progress* or enlarg* or dilat* or bulg* or evaluat*)).tw.
- 53 Patient Selection/
- 54 ((patient or subject or criteria or treatment*) adj4 select*).tw.
- 55 ((follow-up or follow up) adj4 (visit* or repeat* or monitor* or assess* or care*)).tw.
- 56 Aftercare/
- 57 (aftercare or after-care).tw.
- 58 Disease progression/
- 59 ((disease or illness or condition) adj4 (progress* or worsen* or exacerbat* or deterior* or course or duration or trajector* or improv* or recur* or relaps* or remission)).tw.
- 60 or/11-59
- 61 10 and 60
- 62 animals/ not humans/
- 63 61 not 62
- 64 limit 63 to english language

Note: RCT, Systematic Review and Observational study filters appended to strategy.

2.3 Search strategy review question 6

Which non-surgical interventions (including drug treatment and risk factor management) are effective in slowing aneurysm expansion and reducing the risk of rupture?

This search was constructed in two parts. The first part was covered by a Cochrane Review and the Medline strategy for the Cochrane searches can be found in D.3.

The NICE guidance Information Services search below covered an update of a Cochrane Review

Table 3: search strategy RQ6

Medline Strategy, searched 27th June 2017

Database: Ovid MEDLINE(R) 1946 to June Week 3 2017

Search Strategy:

- 1 Aortic Aneurysm, Abdominal/
- 2 (aneurysm* adj4 (abdom* or thoracoabdom* or thoraco-abdom* or aort* or spontan* or juxtarenal* or juxta-renal* or juxta renal* or paraarenal* or para-renal* or para renal* or suprarenal* or supra renal* or supra-renal* or short neck* or short-neck* or shortneck* or visceral aortic segment*)).tw.
- 3 AAA*.tw.
- 4 or/1-3
- 5 exp Hydroxymethylglutaryl-CoA Reductase Inhibitors/
- 6 (Hydroxymethylglutaryl-CoA adj4 Reductase adj4 Inhibitor*).tw.
- 7 statin*.tw.
- 8 (hmg-CoA adj4 Reductase adj4 Inhibitor*).tw.

Medline Strategy, searched 27th June 2017
Database: Ovid MEDLINE(R) 1946 to June Week 3 2017
Search Strategy:

- 9 exp Platelet Aggregation Inhibitors/
- 10 (antithrombocytic* adj4 agent*).tw.
- 11 antiplatelet*.tw.
- 12 (platelet adj4 (inhibitor* or antiaggregant* or anti-aggregant*)).tw.
- 13 (blood adj4 platelet adj4 antagonist*).tw.
- 14 Anticoagulants/
- 15 anticoagulant*.tw.
- 16 (indirect adj4 thrombin adj4 inhibitor*).tw.
- 17 Antihypertensive Agents/
- 18 (anti-hypertensive* or antihypertensive* or anti hypertensive*).tw.
- 19 Anti-bacterial Agents/
- 20 ((anti-bacterial or antibacterial or anti bacterial or anti-mycobacterial or antimycobacterial or anti mycobacterial or bacteriocidal*) adj4 (agent* or compound*)).tw.
- 21 (antibiotic* or bactericide*).tw.
- 22 Hypoglycemic Agents/
- 23 (diabet* adj4 control*).tw.
- 24 ((antidiabetic or anti-diabetic or anti diabetic) adj4 (agent* or medication* or medicine* or drug*)).tw.
- 25 (anti-hyperglycemic* or antihyperglycemic* or anti hyperglycemic* or anti-hyperglycaemic* or antihyperglycaemic* or anti hyperglycaemic* or hypoglycemic* or hypoglycaemic*).tw.
- 26 Motor Activity/
- 27 ((motor or physical* or locomotor or supervis*) adj4 activit*).tw.
- 28 exp Exercise/ or Exercise Therapy/
- 29 (exercise* or exercisi* or kinesiotherap*).tw.
- 30 exp Physical Fitness/
- 31 Physical endurance/
- 32 fitness*.tw.
- 33 (walk* or swim* or jog* or cycl* or bicycl* or gym*).tw.
- 34 ((physical* or keep* or cardio* or aerobic or fitness or endurance) adj4 (fit* or activit* or active or train* or therap*)).tw.
- 35 (aerobic adj4 condition*).tw.
- 36 Muscle strength/
- 37 (muscle adj4 strength*).tw.
- 38 Smoking Cessation/
- 39 "Tobacco Use Cessation"/
- 40 ((cigarette* or smok* or tobacco or nicotine*) adj4 (cessation or withdrawal or ceas*)).tw.
- 41 ((quit* or stop* or giv* or abstin* or abstain*) adj4 (tobacco or cigarette or smoking or nicotine*)).tw.
- 42 (smoking adj4 (therap* or rehab*)).tw.
- 43 (cessation adj4 (treat* or therap* or assist* or advice or advis* or program* or interven* or service*)).tw.
- 44 exp Diet/
- 45 (diet or diets or dieting).tw.
- 46 (health* adj4 eat*).tw.
- 47 exp Food/
- 48 food*.tw.
- 49 (weight adj4 (manag* or control* or maintain* or achiev* or goal* or health*)).tw.
- 50 exp Alcohol-Related Disorders/

Medline Strategy, searched 27th June 2017

Database: Ovid MEDLINE(R) 1946 to June Week 3 2017

Search Strategy:

51 (alcohol* adj4 (use* or abus* or drink* or reduc* or intake or consum* or control* or abstain* or abstinen* or depend* or addict* or chonic*)).tw.
52 exp Pulmonary Disease, Chronic Obstructive/
53 Lung diseases, obstructive/
54 (COPD* or COAD* or COBD* or AECB*).tw.
55 (chronic adj4 obstruct* adj4 (disease* or airway*)).tw.
56 (chronic* adj4 (airflow* or airway* or bronch* or lung* or respirat* or pulmonary) adj4 obstruct*).tw.
57 exp Muscarinic Antagonists/
58 ((muscarinic adj4 antagonist*) or (antimuscarinolytic* or antimuscarinic* or LAMA or SAMAs)).tw.
59 exp Adrenergic beta-2 Receptor Agonists/
60 ((beta-2 or beta2 or "beta 2") adj4 (agonist* or agent* or stimula*)).tw.
61 exp Glucocorticoids/
62 (glucocorticoid* or glucocortoid* or corticosteroid*).tw.
63 exp Expectorants/
64 (expectorants or mucolytic*).tw.
65 exp Antitussive Agents/
66 ((cough adj4 suppressant) or antitussive*).tw.
67 (cough* adj4 (relie* or depressant*)).tw.
68 (anticough or anti-cough).tw.
69 Theophylline/
70 theophylline.tw.
71 or/5-70
72 4 and 71
73 animals/ not humans/
74 72 not 73
75 limit 74 to english language
76 limit 75 to ed=20120501-20171220

Note: RCT, Systematic Review and Observational study filters appended to strategy.

2.4 Search strategy review questions 14 and 26

RQ14: Is goal-directed therapy effective during the surgical repair of an unruptured abdominal aortic aneurysm?

RQ26: Is goal-directed therapy effective during the repair of a ruptured abdominal aortic aneurysm?

Table 4: search strategy RQ14 and 26

Medline Strategy, searched 27th June 2017

Database: Ovid MEDLINE(R) 1946 to June Week 3 2017

Search Strategy:

1 Aortic Aneurysm, Abdominal/
2 (aneurysm* adj4 (abdom* or thoracoabdom* or thoraco-abdom* or aort* or spontan* or juxtarenal* or juxta-renal* or juxta renal* or paraarenal* or para-renal* or para renal* or suprarenal*

Medline Strategy, searched 27th June 2017

Database: Ovid MEDLINE(R) 1946 to June Week 3 2017

Search Strategy:

or supra renal* or supra-renal* or short neck* or short-neck* or shortneck* or visceral aortic segment*)).tw.
3 Aortic Rupture/
4 (AAA or RAAA).tw.
5 (endovascular* adj4 aneurysm* adj4 repair*).tw.
6 (endovascular* adj4 aort* adj4 repair*).tw.
7 (EVAR or EVRAR or FEVAR or F-EAVAR or BEVAR or B-EVAR).tw.
8 (Anaconda or Zenith Dynalink or Hemobahn or Luminex* or Memoth-erm or Wallstent).tw.
9 (Viabahn or Nitinol or Hemobahn or Intracoil or Tantalum).tw.
10 or/1-9
11 X-Rays/
12 (x-ray* or x ray* or xray* or x-radiation* or x radiation* or roentgen ray* or grenz ray* or radiograph*).tw.
13 Aortography/
14 aortograph*.tw.
15 Tomography, X-Ray Computed/
16 (cat scan* or ct scan* or cine ct or cine-ct or tomodensitomet*).tw.
17 ((computed or computer assisted or computeriz* or computeris* or electron beam* or axial*) adj4 tomograph*).tw.
18 Four-Dimensional Computed Tomography/
19 (4d ct or 4dct or 4-dimensional CT or four dimensional CT).tw.
20 exp Tomography, Spiral Computed/
21 ((helical or spiral) adj4 ct*).tw.
22 exp Magnetic Resonance Imaging/
23 (nmr tomograph* or mr tomograph* or nmr imag* or mri scan* or functional mri* or fmri* or zeugmatograph* or cine-mri* or cinemri*).tw.
24 (proton spin adj4 tomograph*).tw.
25 ((chemical shift or magnetic resonance or magneti* transfer) adj4 imag*).tw.
26 exp Angiography/
27 (angiograph* or arteriograph*).tw.
28 exp Ultrasonography/
29 (ultrasound* or ultrason* or sonograph* or echograph* or echotomograph*).tw.
30 exp Echocardiography/
31 echocardiograph*.tw.
32 Finite element analysis/
33 (finite adj4 element* adj4 analys*).tw.
34 (finite adj4 element* adj4 comput*).tw.
35 FEA.tw.
36 ((wall adj4 stress adj4 analys*) or (wall adj4 stress adj4 comput*).tw.
37 exp Computer simulation/
38 Software/
39 Image interpretation, computer-assisted/ or Radiographic image interpretation, computer-assisted/
40 Imaging Three-Dimensional/
41 exp Image enhancement/
42 Stress, mechanical/
43 (stress* adj4 mechanical*).tw.
44 (scan* or imag*).tw.
45 Watchful waiting/
46 (watchful adj4 waiting*).tw.
47 Mass screening/
48 screen*.tw.
49 Population surveillance/
50 surveillan*.tw.

Medline Strategy, searched 27th June 2017

Database: Ovid MEDLINE(R) 1946 to June Week 3 2017

Search Strategy:

- 51 ((period* or test* or frequen* or regular* or routine* or rate or optimal* or optimis* or optimiz* or repeat* or interval*) adj4 (test* or monitor* or observ* or measur* or assess* or screen* or re-screen* or rescreen* or exam* or evaluat*)).tw.
- 52 ((aneurysm* or sign* or diameter or risk*) adj4 (grow* or siz* or measur* or expan* or ruptur* or tear* or progress* or enlarg* or dilat* or bulg* or evaluat*)).tw.
- 53 Patient Selection/
- 54 ((patient or subject or criteria or treatment*) adj4 select*).tw.
- 55 ((follow-up or follow up) adj4 (visit* or repeat* or monitor* or assess* or care*)).tw.
- 56 Aftercare/
- 57 (aftercare or after-care).tw.
- 58 Disease progression/
- 59 ((disease or illness or condition) adj4 (progress* or worsen* or exacerbat* or deterior* or course or duration or trajector* or improv* or recur* or relaps* or remission)).tw.
- 60 endosure*.tw.
- 61 ((endosensor* or intrasac*) adj4 (monitor* or transduc*)).tw.
- 62 or/11-61
- 63 10 and 62
- 64 animals/ not humans/
- 65 63 not 64
- 66 limit 65 to english language

Note: RCT, Systematic Review and Observational study filters appended to strategy.

2.5 Search strategy review questions 11 and 30

RQ11: What presurgical interventions are effective in optimising surgical outcome in people undergoing surgical repair of an unruptured abdominal aortic aneurysm?

RQ30: What post-operative interventions are effective in reducing the risk of complications after surgical repair of an abdominal aortic aneurysm, as well as optimising postoperative outcomes and survival?

Table 5: search strategy RQ7

Medline Strategy, searched 16th May 2017

Database: Ovid MEDLINE(R) 1946 to May Week 1 2017

Search Strategy:

- 1 Aortic Aneurysm, Abdominal/
- 2 Aortic Rupture/
- 3 (aneurysm* adj4 (abdom* or thoracoabdom* or thoraco-abdom* or aort* or spontan* or juxtarenal* or juxta-renal* or juxta renal* or paraarenal* or para-renal* or para renal* or suprarenal* or supra renal* or supra-renal* or short neck* or short-neck* or shortneck* or visceral aortic segment*)).tw.
- 4 (AAA* or RAAA*).tw.
- 5 or/1-4
- 6 Preoperative Care/ or Perioperative Care/ or Perioperative Nursing/ or Postoperative Care/
- 7 home care services/ or home care services, hospital-based/
- 8 (presurg* or pre-surg* or pre surg* or preop* or pre-op* or pre op or periop* or peri-op* or peri op*).tw.
- 9 ((perianaesthe* or perianesthe* or surgical) adj4 nursing).tw.
- 10 ((before or plan* or electiv* or ahead* or prepar* or prior) adj4 (surg* or operat* or procedure* or repair* or care* or outcome*)).tw.
- 11 (postsurg* or post-surg* or post surg* or postop* or post-op* or post op*).tw.
- 12 ((after or follow* or electiv* or post*) adj4 (surg* or operat* or procedure* or repair* or care* or outcome*)).tw.
- 13 (medical* adj4 (therap* or treat* or interven* or manag*)).tw.

Medline Strategy, searched 16th May 2017

Database: Ovid MEDLINE(R) 1946 to May Week 1 2017

Search Strategy:

- 14 Elective Surgical Procedures/
- 15 Endovascular Procedures/ or Vascular Surgical Procedures/
- 16 (endovascular* adj4 aneurysm* adj4 repair*).tw.
- 17 (endovascular* adj4 aort* adj4 repair*).tw.
- 18 (upper adj4 abdominal adj4 (repair* or surger* or surgic* or operat* or procedur*)).tw.
- 19 (EVAR or EVRAR or FEVAR or F-EAVAR or BEVAR or B-EVAR).tw.
- 20 (Anaconda or Zenith Dynalink or Hemobahn or Luminex* or Memoth-erm or Wallstent).tw.
- 21 (Viabahn or Nitinol or Hemobahn or Intracoil or Tantalum).tw.
- 22 or/6-21
- 23 exp Antifibrinolytic Agents/
- 24 ((antifibrinolytic or anti-fibrinolytic) adj4 (hemostatic or haemostatic or agent*)).tw.
- 25 ((tranexam* or tranex-am* or tranex am* or tranexan or tranex-an or tranex an) adj4 acid*).tw.
- 26 TXA.tw.
- 27 (aminocaproic* adj4 acid*).tw.
- 28 vitamin k*.tw.
- 29 (anti plasmin* or anti-plasmin* or (plasmin* adj4 inhibitor*)).tw.
- 30 Iron/
- 31 iron.tw.
- 32 exp Coronary Artery Bypass/
- 33 ((coronary adj4 arter* adj4 bypass*) or (aortocoronary adj4 bypass*)).tw.
- 34 ((off-pump or off pump) adj4 bypass*).tw.
- 35 CABG.tw.
- 36 ((blood-flow or blood flow or perfus*) adj4 restor*).tw.
- 37 (coronary adj4 (revasculari* or recanali* or reperfus*)).tw.
- 38 Antibiotic Prophylaxis/
- 39 (antibiotic* adj4 (premed* or prophyla*)).tw.
- 40 (Doxycyclin* or Atridox or Cyclodox or Demix or Doxylar or Efracea or Nordox or Periostat or Ramysis or Vibramycin or Vibramycin).tw.
- 41 Roxithromycin*.tw.
- 42 (Azithromycin* or Azyter or Clamelle or Zedbac or Zithromax).tw.
- 43 Smoking Cessation/
- 44 "Tobacco Use Cessation"/
- 45 ((cigarette* or smok* or tobacco or nicotine*) adj4 (cessation or withdrawal or ceas*)).tw.
- 46 ((quit* or stop* or giv* or abstin* or abstain*) adj4 (tobacco or cigarette or smoking or nicotine*)).tw.
- 47 (smoking adj4 (therap* or rehab*)).tw.
- 48 (cessation adj4 (treat* or therap* or assist* or advice or advis* or program* or interven* or service*)).tw.
- 49 Motor Activity/
- 50 ((motor or physical* or locomotor or supervis*) adj4 activit*).tw.
- 51 exp Exercise/ or Exercise Therapy/
- 52 (exercise* or exercisi* or kinesiotherap*).tw.
- 53 exp Physical Fitness/
- 54 Physical endurance/
- 55 fitness*.tw.
- 56 (walk* or swim* or jog* or cycl* or bicycl* or bike* or gym*).tw.
- 57 ((physical* or keep* or cardio* or aerobic or fitness or endurance) adj4 (fit* or activit* or active or train* or therap*)).tw.
- 58 (aerobic adj4 condition*).tw.
- 59 Muscle strength/
- 60 (muscle adj4 strength*).tw.
- 61 Ischemic Preconditioning/
- 62 ((ischemic* or ischaemic* or remote) adj4 (precondition* or pre-condition* or pre condition*)).tw.
- 63 (IPC or RIC or RIPC).tw.
- 64 Respiratory therapy/

Medline Strategy, searched 16th May 2017

Database: Ovid MEDLINE(R) 1946 to May Week 1 2017

Search Strategy:

65 exp Breathing Exercises/
66 ((breath* or respirat* or inhal*) adj4 (exercis* or therap* or train* or alter* or chang* or deepen* or physio* or rehab*)).tw.
67 exp Spirometry/
68 (spiometr* or bronchspiometr*).tw.
69 exp Diet/
70 (diet or diets or dieting).tw.
71 (health* adj4 eat*).tw.
72 exp Food/
73 food*.tw.
74 (weight adj4 (manag* or control* or maintain* or achiev* or goal* or health*)).tw.
75 exp Alcohol-Related Disorders/
76 (alcohol* adj4 (use* or abus* or drink* or reduc* or intake or consum* or control* or abstain* or abstin* or depend* or addict* or chonic*)).tw.
77 ((problem* adj4 drink*) or (alcoholic* or alcoholism)).tw.
78 exp Pulmonary Disease, Chronic Obstructive/
79 Lung diseases, obstructive/
80 (COPD* or COAD* or COBD* or AECB*).tw.
81 (chronic adj4 obstruct* adj4 (disease* or airway*)).tw.
82 (chronic* adj4 (airflow* or airway* or bronch* or lung* or respirat* or pulmonary) adj4 obstruct*).tw.
83 exp Diabetes Mellitus/
84 diabet*.tw.
85 or/23-84
86 5 and 22 and 85
87 Aortic Aneurysm, Abdominal/su [Surgery]
88 85 and 87
89 86 or 88
90 animals/ not humans/
91 89 not 90
92 limit 91 to english language

Note: RCT, Systematic Review and Observational study filters appended to strategy

2.6 Search strategy review question 12

RQ12: What is the effectiveness of EVAR compared to open repair surgery in reducing morbidity and mortality in people with unruptured abdominal aortic aneurysms?

This search was done in several parts. The Cochrane Review looked at RCTs comparing standard EVAR with open surgical repair for unruptured aneurysms. The CENTRAL strategy for the Cochrane searches can be found in D.3.

The NICE guidance information services search looked for any type of study on complex EVAR with no date restriction.

Table 6: search strategy RQ12

Medline Strategy, searched 15th August 2017

Database: Ovid MEDLINE(R) 1946 to August Week 1 2017

Search Strategy:

1 Aortic Aneurysm, Abdominal/
2 (aneurysm* adj4 (abdom* or thoracoabdom* or thoraco-abdom* or aort* or spontan* or juxtarenal* or juxta-renal* or juxta renal* or paraarenal* or para-renal* or para renal* or suprarenal* or supra renal* or supra-renal* or short neck* or short-neck* or shortneck* or visceral aortic segment*)).tw.

Medline Strategy, searched 15th August 2017

Database: Ovid MEDLINE(R) 1946 to August Week 1 2017

Search Strategy:

- 3 (AAA or cAAA).tw.
- 4 or/1-3
- 5 exp Stents/
- 6 Vascular Surgical Procedures/ or Blood Vessel Prosthesis/ or Blood Vessel Prosthesis Implantation/
- 7 (blood adj4 vessel* adj4 (transplant* or graft* or implant*)).tw.
- 8 (endovasc* or endostent* or endograft* or EVAR* or Palmaz or stent* or graft*).tw.
- 9 (endovascular* adj4 aneurysm* adj4 repair*).tw.
- 10 (endovascular* adj4 aort* adj4 repair*).tw.
- 11 or/5-10
- 12 4 and 11
- 13 Aortic Aneurysm, Abdominal/su [Surgery]
- 14 12 or 13
- 15 (complex or fenestrat* or branched or chimney* or snorkel* or periscope* or sandwich* or CHIMPS).tw.
- 16 14 and 15
- 17 (FEVAR or F-EVAR or BEVAR or B-EVAR or BREVAR or BR-EVAR or CHEVAR or CH-EVAR or Co-EVAR or CoEVAR or Co-FEVAR or CoFEVAR).tw.
- 18 (complex adj4 EVAR*).tw.
- 19 17 or 18
- 20 16 or 19
- 21 animals/ not humans/
- 22 20 not 21
- 23 limit 22 to english language

2.7 Search strategy review questions 13 and 24

RQ13: What is the most effective approach to anaesthesia and/or analgesia in improving surgical outcome in people undergoing i) EVAR and ii) open repair of an unruptured abdominal aortic aneurysm?

RQ24: What is the most effective approach to anaesthesia and/or analgesia in improving surgical outcome in people undergoing i) EVAR and ii) open repair of a ruptured abdominal aortic aneurysm?

Table 7: search strategy RQ13 and 24

Medline Strategy, searched 11th February 2016

Database: Ovid MEDLINE(R) <1946 to January week 1 2016

Search Strategy:

- 1 Aortic Aneurysm, Abdominal/
- 2 Aortic Rupture/
- 3 (aneurysm* adj4 (abdom* or thoracoabdom* or thoraco-abdom* or aort* or spontan* or juxtarenal* or juxta-renal* or juxta renal* or paraarenal* or para-renal* or para renal* or suprarenal* or supra renal* or supra-renal* or short neck* or short-neck* or shortneck* or visceral aortic segment*)).tw.
- 4 (AAA or RAAA).tw.
- 5 or/1-4
- 6 exp Anesthesia/
- 7 (anaesthe* or anesthe*).tw.
- 8 exp Anesthetics/
- 9 Anesthesiology/

Medline Strategy, searched 11th February 2016
Database: Ovid MEDLINE(R) <1946 to January week 1 2016
Search Strategy:

10 Nurse Anesthetists/
11 exp Analgesia/
12 Analgesi*.tw.
13 Pain Management/
14 (Pain* adj4 (manag* or relie*)).tw.
15 or/6-14
16 5 and 15
17 Animals/ not humans/
18 16 not 17
19 limit 18 to english language

2.8 Search strategy review questions 17 and 20

RQ17: Within what time period should people with suspected ruptured or symptomatic unruptured abdominal aortic aneurysms be transferred from a nonspecialist setting to a specialist vascular unit?

RQ20: Does tranexamic acid improve a person's chance of survival or improve the stability of their condition in the transfer of people with ruptured or symptomatic abdominal aortic aneurysms to a specialist vascular unit?

Table 8: search strategy RQ17 and 20

Medline Strategy, searched 4th October 2017
Database: Ovid MEDLINE(R) <1946 to September Week 3 2017>
Search Strategy:

1 Aortic Rupture/
2 RAAA.tw.
3 1 or 2
4 Aortic Aneurysm, Abdominal/
5 (Aneurysm* adj4 (abdom* or thoracoabdom* or thoraco-abdom* or aort* or spontan*)).tw.
6 ((juxtarenal* or juxta-renal* or juxta renal* or paraarenal* or para-renal* or para renal* or suprarenal* or supra renal* or supra-renal* or short neck* or short-neck* or shortneck* or visceral aortic segment*) adj4 aneur?sm*).tw.
7 AAA.tw.
8 or/4-7
9 (aort* adj4 (balloon* or dilat* or bulg* or expan*)).tw.
10 (ruptur* or tear* or bleed* or trauma* or burst* or large* or big*).tw.
11 symptom*.tw.
12 or/9-11
13 8 and 12
14 3 or 13
15 Patient transfer/
16 "Transportation of Patients"/

Medline Strategy, searched 4th October 2017

Database: Ovid MEDLINE(R) <1946 to September Week 3 2017>

Search Strategy:

- 17 "continuity of patient care"/ or patient handoff/
- 18 ((clinical or patient* or intershift* or nurs* or physician* or shift or staff*) adj4 (handover* or hand-off or handoff or hand off)).tw.
- 19 (transition* adj4 care).tw.
- 20 og.fs.
- 21 Ambulances/
- 22 ambulance*.tw.
- 23 (emergency adj4 (unit* or vehicle* or paramedic* or transport* or transfer*)).tw.
- 24 ((transfer* or transport* or travel* or move* or moving or continuity or transition* or hando* or journey* or arriv*) adj4 (hospital* or intrahospital* or emergenc* or paramedic* or facilit* or "cardiothoracic unit*" or "vascular unit*" or "vascular centre*" or "vascular center*" or "vascular service*" or "endovascular unit*" or "specialist unit*" or "specialist centre*" or "specialist center*" or "specialist service*" or "endovascular centre*" or "endovascular center*" or "endovascular service*" or "primary care" or "secondary care" or "tertiary care" or "tertiary centre*" or "tertiary center*" or "referral centre*" or "referral center*" or centrali* or regionali*)).tw.
- 25 (patient* adj4 (transfer* or transport* or travel* or move* or moving or continuity or transition* or hando* or journey* or arriv*)).tw.
- 26 ((transfer* or transport* or travel* or transition* or hando* or journey* or arriv*) adj4 (quick* or delay* or slow* or fast* or speed* or time* or length* or duration or mode)).tw.
- 27 ((interfacilit* or inter facilit* or intrafacilit* or intra facilit* or inter hospital* or interhospital* or intrahospital* or intra hospital*) adj4 (transfer* or travel* or move* or moving)).tw.
- 28 Time-to-treatment/
- 29 "time to treatment".tw.
- 30 "door to treatment".tw.
- 31 antifibrinolytic agents/
- 32 (antifibrinoly* or antiplasmin*).tw.
- 33 ((plasmin or fibrinoly*) adj4 inhibitor*).tw.
- 34 Tranexamic Acid/
- 35 ((tranexam* or tranex-am* or tranex am* or tranexan* or tranex-an* or tranex an*) adj4 acid*).tw.
- 36 TXA.tw.
- 37 or/15-36
- 38 14 and 37
- 39 animals/ not humans/
- 40 38 not 39
- 41 limit 40 to english language

2.9 Search strategy review question 25

RQ25: What is the most effective approach in preventing abdominal compartment syndrome during surgical repair of a ruptured abdominal aortic aneurysm?

Table 9: search strategy RQ25

Medline Strategy, searched 11th September 2017	
Database: Ovid MEDLINE(R) 1946 to August Week 5 2017	
Search Strategy:	
1	Aortic Aneurysm, Abdominal/
2	Aortic Rupture/
3	(aneurysm* adj4 (abdom* or thoracoabdom* or thoraco-abdom* or aort* or spontan* or juxtarenal* or juxta-renal* or juxta renal* or paraarenal* or para-renal* or para renal* or suprarenal* or supra renal* or supra-renal* or short neck* or short-neck* or shortneck* or visceral aortic segment*)).tw.
4	(AAA* or RAAA*).tw.
5	Endovascular Procedures/ or Vascular Surgical Procedures/
6	(endovascular* adj4 aneurysm* adj4 repair*).tw.
7	(endovascular adj4 aort* adj4 repair*).tw.
8	(upper adj4 abdominal adj4 (repair* or surger* or surgic* or operat* or procedur*)).tw.
9	(EVAR or EVRAR or FEVAR or F-EAVAR or BEVAR or B-EVAR).tw.
10	(Anaconda or Zenith Dynalink or Hemobahn or Luminexx* or Memoth-erm or Wallstent).tw.
11	(Viabahn or Nitinol or Hemobahn or Intracoil or Tantalum).tw.
12	or/1-11
13	Intra-Abdominal Hypertension/
14	(abdominal adj4 compartment adj4 syndrome*).tw.
15	((intra-abdominal or intra abdominal or intraabdominal) adj4 hypertens*).tw.
16	or/13-15
17	12 and 16
18	(prevent* or avert* or avoid* or stop*).tw.
19	17 and 18
20	monitoring, physiologic/
21	((continuos* or continual* or physiologic*) adj4 monitor*).tw.
22	((monitor* or control* or observ* or check*) adj4 (intra-abdominal* adj4 pressure*)).tw.
23	((monitor* or control* or observ* or check*) adj4 (intraabdominal* adj4 pressure*)).tw.
24	((monitor* or control* or observ* or check*) adj4 (intra abdominal* adj4 pressure*)).tw.
25	((monitor or control or observ* or check*) adj4 (abdom* adj4 pressure*)).tw.
26	((monitor or control or observ* or check*) adj4 (abdom* adj4 tension)).tw.
27	IAP.tw.
28	Pressure/
29	Partial Pressure/
30	(perfus* adj4 pressure).tw.
31	exp Analgesia/
32	Analgesi*.tw.
33	Pain management/
34	(Pain* adj4 (manag* or relie*)).tw.
35	conscious sedation/ or deep sedation/
36	sedat*.tw.
37	Neuromuscular Blockade/
38	((neuromuscular or myoneural) adj4 block*).tw.
39	(nerve* adj4 muscl* adj4 block*).tw.
40	(neuromuscular adj4 inhibition).tw.
41	(prokinetic* or gastroprokinetic* or gastrokinetic*).tw.
42	(motility adj4 agent*).tw.
43	Gastric Emptying/de [Drug Effects]
44	(stomach adj4 empty* adj4 accelerat*).tw.
45	(gastric* adj4 empty* adj4 accelerat*).tw.
46	Fluid Therapy/

Medline Strategy, searched 11th September 2017
Database: Ovid MEDLINE(R) 1946 to August Week 5 2017
Search Strategy:

47 (fluid* adj4 resuscitat*).tw.
48 exp Diuretics/
49 diuretic*.tw.
50 (saluretic* adj4 agent*).tw.
51 Hemofiltration/
52 (haemofiltrat* or hemofiltrat*).tw.
53 (CAVH or CVVH).tw.
54 Ultrafiltration/
55 (ultrafiltrat* or ultra-filtrat* or ultra filtrat* or hyperfiltrat* or hyper-filtrat* or hyper filtrat*).tw.
56 Decompression, Surgical/
57 ((catheter* or abdominal*) adj4 decompress*).tw.
58 Laparotomy/
59 (laparotom* or laparostom* or minilaparotom* or relaparotom*).tw.
60 or/19-59
61 12 and 60
62 animals/ not humans/
63 61 not 62

Note: RCT, systematic review and observational study filters appended to strategy.

2.10 Search strategy review question 31

RQ31: How should the following complications be managed if they do arise?

- a) Endoleak (type 2 in particular)
- b) Expanding aneurysm sac
- c) Stent fractures and occlusions
- d) Graft infection
- e) Graft migration
- f) Aortoenteric fistula
- g) Aortic rupture
- h) Ischaemic complications (limb, visceral and renal)

Table 10: search strategy 31

Medline Strategy, searched 18th October 2017
Database: Ovid MEDLINE(R) 1946 to October Week 1 2017
Search Strategy:

1 Aortic Aneurysm, Abdominal/ (18071)
2 (aneurysm* adj4 (abdom* or thoracoabdom* or thoraco-abdom* or aort* or spontan* or juxtarenal* or juxta-renal* or juxta renal* or paraarenal* or para-renal* or para renal* or suprarenal* or supra renal* or supra-renal* or short neck* or short-neck* or shortneck* or visceral aortic segment*).tw. (36093)
3 AAA*.tw. (13513)
4 or/1-3 (45989)
5 exp Perioperative Care/ (149869)
6 (postsurg* or post-surg* or post surg* or postop* or post-op* or post op* or post-endovascular* or post endovascular* or post endovascular*).tw. (513005)
7 ((after or following or followed or electiv* or post*) adj4 (surg* or operat* or procedure* or repair* or care* or outcome*).tw. (714418)
8 or/5-7 (1062271)
9 Elective Surgical Procedures/ (12513)

Medline Strategy, searched 18th October 2017

Database: Ovid MEDLINE(R) 1946 to October Week 1 2017

Search Strategy:

10 Endovascular Procedures/ or Vascular Surgical Procedures/ (42604)
11 (endovascular* adj4 aneurysm* adj4 repair*).tw. (4258)
12 (endovascular adj4 aort* adj4 repair*).tw. (4633)
13 (upper adj4 abdominal adj4 (repair* or surger* or surgic* or operat* or procedur*)).tw.
14 (EVAR or EVRAR or FEVAR or F-EAVAR or BEVAR or B-EVAR).tw.
15 (Anaconda or Zenith Dynalink or Hemobahn or Luminex* or Memoth-erm or Wallstent).tw.
16 (Viabahn or Nitinol or Hemobahn or Intracoil or Tantalum).tw.
17 or/9-16
18 4 and 8 and 17
19 Aortic Aneurysm, Abdominal/su [Surgery]
20 8 and 19
21 18 or 20
22 (manag* adj4 complication*).tw.
23 Endoleak/
24 Prosthesis Failure/
25 (endoleak or (perigraft* adj4 leak*)).tw.
26 (prosthe* adj4 (fail* or loose* or migrat* or break* or fail*)).tw.
27 Postoperative Hemorrhage/
28 (haemorrhag* or hemorrhag* or bleed* or blood-loss or bloodloss or blood loss).tw.
29 (blood adj4 los*).tw.
30 (expan* adj4 aneurysm* adj4 sac*).tw.
31 (expan* adj4 AAA adj4 sac*).tw.
32 (rupture* adj4 sac*).tw.
33 Stents/ae [Adverse Effects]
34 (stent* adj4 (fractur* or occlus*)).tw.
35 Prosthesis-Related Infections/
36 ((prosthe* or graft* or endograft*) adj4 infect*).tw.
37 ((graft* or endograft*) adj4 (fail* or loose* or migrat* or break* or fail*)).tw.
38 Intestinal Fistula/
39 ((intestin* or cholecystoduoden* or colovesic* or enterocutan* or aortoenteric* or bowel* or enteric*) adj4 fistul*).tw.
40 (aliment* adj4 tract* adj4 fistul*).tw.
41 Aortic Rupture/
42 RAAA.tw.
43 ((aort* or aneurysm*) adj4 ruptur*).tw.
44 Ischemia/
45 ((limb* or lower-limb* or visceral* or intestin* or colon* or bowel* or mesenteric* or renal* or kidney* or nephric* or asnephric*) adj4 (ischaemi* or ischemi*)).tw.
46 (blood adj4 deficien* adj4 (limb* or lower-limb* or visceral* or intestin* or colon* or bowel* or mesenteric* or renal* or kidney* or nephric* or asnephric*)).tw.
47 (insufficien* adj4 blood adj4 (limb* or lower-limb* or visceral* or intestin* or colon* or bowel* or mesenteric* or renal* or kidney* or nephric* or asnephric*)).tw.
48 (decreas* adj4 blood adj4 (limb* or lower-limb* or visceral* or intestin* or colon* or bowel* or mesenteric* or renal* or kidney* or nephric* or asnephric*)).tw.
49 (reduc* adj4 blood adj4 (limb* or lower-limb* or visceral* or intestin* or colon* or bowel* or mesenteric* or renal* or kidney* or nephric* or asnephric*)).tw.
50 (circulat* adj4 (disorder* or fail* or disturb*) adj4 (limb* or lower-limb* or visceral* or intestin* or colon* or bowel* or mesenteric* or renal* or kidney* or nephric* or asnephric*)).tw.
51 or/22-50
52 21 and 51
53 animals/ not humans/
54 52 not 53
55 limit 54 to english language

Note: RCT, systematic review and observational study filters appended to strategy.

3 Cochrane search strategies

3.1 Search Strategy review question 6

RQ6: Which non-surgical interventions (including drug treatment and risk factor management) are effective in slowing aneurysm expansion and reducing the risk of rupture? Include? Move to Cochrane section?

Rughani G, Robertson L, Clarke M. Medical treatment for small abdominal aortic aneurysms. Cochrane Database Syst Rev. 2012 Sep 12;9:CD009536 c

CENTRAL Strategy, searched May 2012

Search Strategy:

#1 MeSH descriptor Aortic Aneurysm explode all trees
#2 (aort* near3 (balloon* or dilat* or bulg* or ruptur* or expan*))
#3 (aneury*)
#4 (AAA*)
#5 (#1 OR #2 OR #3 OR #4)
#6 (grow* or expan* or diameter* or ruptur* or size or dilat* or measur*):ti,ab,kw
#7 (#5 AND #6)

3.2 Search strategy review question 12

RQ12: What is the effectiveness of EVAR compared to open repair surgery in reducing morbidity and mortality in people with unruptured abdominal aortic aneurysms?

Paravastu SC, Jayarajasingam R, Cottam R et al. (2014) Endovascular repair of abdominal aortic aneurysm. Cochrane Database Syst Rev;(1): CD004178. doi: 10.1002/14651858.CD004178.pub2.

Table 12: search strategy for RQ12

CENTRAL Strategy, searched January 2013

Search Strategy:

#1 MeSH descriptor: [Endovascular Procedures] explode all trees
#2 MeSH descriptor: [Stents] explode all trees
#3 MeSH descriptor: [Vascular Surgical Procedures] this term only
#4 MeSH descriptor: [Blood Vessel Prosthesis] explode all trees
#5 MeSH descriptor: [Blood Vessel Prosthesis Implantation] this term only
#6 endovasc*:ti,ab,kw
#7 endostent*:ti,ab,kw
#8 stent*:ti,ab,kw
#9 EVAR:ti,ab,kw
#10 EVRAR:ti,ab,kw
#11 percutaneous:ti,ab,kw
#12 TEVAR:ti,ab,kw

CENTRAL Strategy, searched January 2013

Search Strategy:

#13 (endoprosth* or endograft*):ti,ab,kw
#14 Palmaz:ti,ab,kw
#15 Zenith or Dynalink or Hemobahn or Luminex* or Memotherm or Wallstent:ti,ab,kw
#16 Viabahn or Nitinol or Hemobahn or Intracoil or Tantalum:ti,ab,kw
#17 #1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16
#18 MeSH descriptor: [Aortic Aneurysm] explode all trees
#19 aneurysm* near/4 (abdom* or thoracoabdom* or thoraco-abdom* or aort*)
#20 (aort* near/3 (ballon* or dilat* or bulg*))
#21 AAA
#22 #18 or #19 or #20 or #21
#23 #17 and #22 in Trials

3.3 Search strategy review question 19

RQ19: Does permissive hypotension improve a person's chance of survival or improve the stability of their condition in the transfer of people with ruptured or symptomatic abdominal aortic aneurysms to a specialist vascular unit?

Moreno DH, Cacione DG, Baptista-Silva JC. Controlled hypotension versus normotensive resuscitation strategy for people with ruptured abdominal aortic aneurysm. Cochrane Database Syst Rev. 2016 May 13;5:CD011664

Table 13: search strategy for RQ19

Cochrane Register of Studies (CRS) Strategy, searched 12 April 2016

Search Strategy:

#1 MESH DESCRIPTOR Aortic Aneurysm EXPLODE ALL TREES
#2 MESH DESCRIPTOR Aneurysm, Ruptured EXPLODE ALL TREES
#3 (aneurysm* near4 (abdom* or thoracoabdom* or thoraco-abdom* or aort*)):TI,AB,KY
#4 (aort* near3 (ballon* or dilat* or bulg*)):TI,AB,KY
#5 AAA*:TI,AB,KY
#6 MESH DESCRIPTOR Aorta, Abdominal EXPLODE ALL TREES WITH QUALIFIERS SU
#7 #1 OR #2 OR #3 OR #4 OR #5 OR #6
#8 MESH DESCRIPTOR Fluid Therapy EXPLODE ALL TREES
#9 MESH DESCRIPTOR Infusions, Intravenous EXPLODE ALL TREES
#10 MESH DESCRIPTOR Lactic Acid EXPLODE ALL TREES
#11 MESH DESCRIPTOR Glucose EXPLODE ALL TREES
#12 MESH DESCRIPTOR Saline Solution, Hypertonic EXPLODE ALL TREES
#13 MESH DESCRIPTOR Mannitol EXPLODE ALL TREES
#14 MESH DESCRIPTOR Albumins EXPLODE ALL TREES
#15 MESH DESCRIPTOR Dextrans EXPLODE ALL TREES
#16 MESH DESCRIPTOR Isotonic Solutions EXPLODE ALL TREES
#17 MESH DESCRIPTOR Plasma Substitutes EXPLODE ALL TREES
#18 MESH DESCRIPTOR Osmotic Pressure EXPLODE ALL TREES
#19 MESH DESCRIPTOR Hemodilution EXPLODE ALL TREES
#20 MESH DESCRIPTOR Hemoglobins EXPLODE ALL TREES
#21 MESH DESCRIPTOR Blood Pressure EXPLODE ALL TREES
#22 MESH DESCRIPTOR Shock, Hemorrhagic

Cochrane Register of Studies (CRS) Strategy, searched 12 April 2016

Search Strategy:

#23 MESH DESCRIPTOR Resuscitation EXPLODE ALL TREES
#24 MESH DESCRIPTOR Hypotension EXPLODE ALL TREES
#25 MESH DESCRIPTOR Hydroxyethyl Starch Derivatives
#26 starch:TI,AB,KY
#27 hydroxyethyl*:TI,AB,KY
#28 (haemoglobin or hemoglobin):TI,AB,KY
#29 fluid:TI,AB,KY
#30 (saline or NaCl):TI,AB,KY
#31 dextran:TI,AB,KY
#32 ringer:TI,AB,KY
#33 lactate:TI,AB,KY
#34 glucose:TI,AB,KY
#35 gelatin:TI,AB,KY
#36 (HES 130*):TI,AB,KY
#37 voluven:TI,AB,KY
#38 albumin:TI,AB,KY
#39 mannitol:TI,AB,KY
#40 HBOC-201:TI,AB,KY
#41 (crystalloid or colloid):TI,AB,KY
#42 isovol*:TI,AB,KY
#43 normovol*:TI,AB,KY
#44 electrolyte:TI,AB,KY
#45 hypertonic:TI,AB,KY
#46 (osmotic pressure):TI,AB,KY
#47 (volume loading):TI,AB,KY
#48 (volume expansion):TI,AB,KY
#49 (volume substitution):TI,AB,KY
#50 (haemodilution or hemodilution):TI,AB,KY
#51 resuscitation:TI,AB,KY
#52 hypotens*:TI,AB,KY
#53 normotensive
#54 (organ perfusion):TI,AB,KY
#55 (systolic blood pressure):TI,AB,KY
#56 #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19
OR #20 OR #21 OR #22 OR #23 OR #24 OR #25 OR #26 OR #27 OR #28 OR #29 OR #30
OR #31 OR #32 OR #33 OR #34 OR #35 OR #36 OR #37 OR #38 OR #39 OR #40 OR #41
OR #42 OR #43 OR #44 OR #45 OR #46 OR #47 OR #48 OR #49 OR #50 OR #51 OR #52
OR #53 OR #54 OR #55
#57 #7 AND #56

3.4 Search strategy review question 23

RQ23 What is the effectiveness of EVAR compared to open repair surgery in repairing ruptured abdominal aortic aneurysms

Badger S, Bedenis R, Blair PH et al. (2017) Endovascular treatment for ruptured abdominal aortic aneurysm. *Cochrane Database Syst Rev*;(5):CD005261. doi: 10.1002/14651858.CD005261.pub4

Table 14: search strategy for RQ23

Medline Strategy, searched 22nd June 2016
Search Strategy:
#1 MESH DESCRIPTOR Aneurysm, Ruptured EXPLODE ALL TREES
#2 MESH DESCRIPTOR Aneurysm, Dissecting
#3 MESH DESCRIPTOR Aorta EXPLODE ALL TREES WITH QUALIFIERS SU
#4 ((aneurysm* or abdom* or thoracoabdom* or thoraco-abdom* or aort*) near (ruptur* or tear or bleed* or trauma)):TI,AB,KY
#5 RAAA:TI,AB,KY
#6 #1 OR #2 OR #3 OR #4 OR #5
#7 MESH DESCRIPTOR Endovascular Procedures EXPLODE ALL TREES
#8 MESH DESCRIPTOR Stents EXPLODE ALL TREES
#9 MESH DESCRIPTOR Vascular Surgical Procedures
#10 MESH DESCRIPTOR Blood Vessel Prosthesis EXPLODE ALL TREES
#11 MESH DESCRIPTOR Blood Vessel Prosthesis Implantation EXPLODE ALL TREES
#12 endovasc*:TI,AB,KY
#13 endostent*:TI,AB,KY
#14 endoluminal:TI,AB,KY
#15 endoproshe*:TI,AB,KY
#16 (graft or endograft*):TI,AB,KY
#17 percutaneous*:TI,AB,KY
#18 stent*:TI,AB,KY
#19 (Palmaz or Zenith or Dynalink or Hemobahn or Luminex* or Memotherm or Wallstent):TI,AB,KY
#20 (Viabahn or Nitinol or Intracoil or Tantalum):TI,AB,KY
#21 EVAR:TI,AB,KY
#22 EVRAR:TI,AB,KY
#23 TEVAR:TI,AB,KY
#24 #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23
#25 #6 AND #24
#26 * NOT SR-PVD:CC AND 31/03/2014 TO 31/07/2016:DL
#27 #25 AND #26

3.5 Search strategy review question 28

RQ 28 When checking people after they have had EVAR or open repair of an abdominal aortic aneurysm, which imaging techniques are most useful for detecting postoperative complications?

Abraha Iosief, Luchetta Maria Laura, De Florio , Rita , Cozzolino Francesco, Casazza Giovanni, Duca Piergiorgio, Parente Basso, Orso Massimiliano, Germani Antonella, Eusebi Paolo, and Montedori Alessandro (2017) Ultrasonography for endoleak detection after endoluminal abdominal aortic aneurysm repair. The Cochrane database of systematic reviews 6, CD010296

Table 15: search strategy for RQ28

Medline Strategy, searched June 2016

Search Strategy:

1 exp Aortic Aneurysm/
2 Aorta, Abdominal/su [Surgery]
3 (abdom* adj3 aneurysm?).tw,kf.
4 (aort* adj3 aneurysm?).tw,kf.
5 (abdom* adj3 aort*).tw,kf.
6 (aort* adj3 morphol*).tw,kf.
7 (EVAR or TEVAR or EVRAR).tw,kf.
8 AAA*.tw,kf.
9 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8
10 Blood Vessel Prosthesis/
11 Blood Vessel Prosthesis Implantation/
12 Endovascular Procedures/
13 endovascular.tw,kf.
14 endoluminal*.tw,kf.
15 endoproshe*.tw,kf.
16 exp stents/
17 stent*.tw,kf.
18 graft*.tw,kf.
19 endograft*.tw,kf.
20 prothe*.tw,kf.
21 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20
22 (aort* or abdominal).tw,kf.
23 21 and 22
24 9 or 23
25 postoperative complications/ or anastomotic leak/ or prosthesis failure/
26 (endoleak* or endotension).tw,kf.
27 perigraft leak*.tw,kf.
28 perigraft flow.tw,kf.
29 follow-up.tw,kf.
30 surveillance.tw,kf.
31 postoperative.tw,kf.
32 outcome.tw,kf.
33 evaluat*.tw,kf.
34 effecti*.tw,kf.
35 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34
36 us.fs.
37 ultrasonics/
38 ultrasonography/
39 ultrasonography, Doppler/
40 ultrasonography, Doppler, color/
41 ultrasonography, Doppler, duplex/
42 ultrasonography, Doppler, pulsed/
43 ultrasound.tw,kf.
44 ultrasonic imaging.tw,kf.
45 ultrasonogra*.tw,kf.
46 echograph*.tw,kf.
47 (USS or DUS or CDUS or CEUS).tw,kf.
48 (doppler or duplex).tw,kf. (
49 sonograph*.tw,kf.
50 sonogram*.tw,kf.
51 (contrast adj4 US).tw,kf.
52 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 or 50 or 51
53 24 and 35 and 52

4 Study Design Filters

Table 13: study design filters

The MEDLINE SR, RCT, diagnostic, prognostic and observational studies filters are presented below.

Systematic review

1. Meta-Analysis.pt.
2. Network Meta-Analysis/
3. Meta-Analysis as Topic/
4. Review.pt.
5. exp Review Literature as Topic/
6. (metaanaly\$ or metanaly\$ or (meta adj3 analy\$)).tw.
7. (review\$ or overview\$).ti.
8. (systematic\$ adj5 (review\$ or overview\$)).tw.
9. ((quantitative\$ or qualitative\$) adj5 (review\$ or overview\$)).tw.
10. ((studies or trial\$) adj2 (review\$ or overview\$)).tw.
11. (integrat\$ adj3 (research or review\$ or literature)).tw.
12. (pool\$ adj2 (analy\$ or data)).tw.
13. (handsearch\$ or (hand adj3 search\$)).tw.
14. (manual\$ adj3 search\$).tw.
15. or/1-14
16. animals/ not humans/
17. 15 not 16

RCT

1. Randomized Controlled Trial.pt.
2. Controlled Clinical Trial.pt.
3. Clinical Trial.pt.
4. exp Clinical Trials as Topic/
5. Placebos/
6. Random Allocation/
7. Double-Blind Method/
8. Single-Blind Method/
9. Cross-Over Studies/
10. ((random* or control* or clinical*) adj3 (trial* or stud*)).tw.
11. (random* adj3 allocat*).tw.
12. placebo*.tw.
13. ((singl* or doubl* or trebl* or tripl*) adj (blind* or mask*)).tw.
14. (crossover* or (cross adj over*)).tw.
15. or/1-14
16. animals/ not humans/
17. 15 not 16

Diagnosis studies (optimal McMaster)

1. (sensitive: or predictive value:).mp. or accuracy:.tw.

Prognosis studies (optimal McMaster)

1. Prognosis.sh.
2. Diagnosed.tw.
3. Cohort.mp.
4. Predictor:.tw.
5. Death.tw

The MEDLINE SR, RCT, diagnostic, prognostic and observational studies filters are presented below.

6. Exp models, statistical/
7. or/1-6

Observational studies

1. Observational Studies as Topic/
2. Observational Study/
3. Epidemiologic Studies/
4. exp Case-Control Studies/
5. exp Cohort Studies/
6. Cross-Sectional Studies/
7. Controlled Before-After Studies/
8. Historically Controlled Study/
9. Interrupted Time Series Analysis/
10. Comparative Study.pt.
11. case control\$.tw.
12. case series.tw.
13. (cohort adj (study or studies)).tw.
14. cohort analy\$.tw.
15. (follow up adj (study or studies)).tw.
16. (observational adj (study or studies)).tw.
17. longitudinal.tw.
18. prospective.tw.
19. retrospective.tw.
20. cross sectional.tw.
- 21 or/1-20

5 Health economics search strategy

5.1 Economic evaluations and quality of life data

Sources searched to identify economic evaluations

- NHS Economic Evaluation Database – NHS EED (Wiley) last updated Dec 2014
- Health Technology Assessment Database – HTA (Wiley) last updated Oct 2016
- Embase (Ovid)
- MEDLINE (Ovid)
- MEDLINE In-Process (Ovid)

Search filters to retrieve economic evaluations and quality of life papers were appended to the population and intervention terms to identify relevant evidence. Searches were not undertaken for qualitative RQs. For social care topic questions additional terms were added. Searches were re-run in September 2017 where the filters were added to the population terms.

Table 14: Economic evaluation and quality of life filters

Medline Strategy	
Economic evaluations	
1	Economics/
2	exp "Costs and Cost Analysis"/
3	Economics, Dental/
4	exp Economics, Hospital/
5	exp Economics, Medical/
6	Economics, Nursing/
7	Economics, Pharmaceutical/
8	Budgets/
9	exp Models, Economic/
10	Markov Chains/
11	Monte Carlo Method/
12	Decision Trees/
13	econom*.tw.
14	cba.tw.
15	cea.tw.
16	cua.tw.
17	markov*.tw.
18	(monte adj carlo).tw.
19	(decision adj3 (tree* or analys*)).tw.
20	(cost or costs or costing* or costly or costed).tw.
21	(price* or pricing*).tw.
22	budget*.tw.
23	expenditure*.tw.
24	(value adj3 (money or monetary)).tw.
25	(pharmacoeconomic* or (pharmaco adj economic*)).tw.
26	or/1-25

Medline Strategy

Quality of life

- 1 "Quality of Life"/
- 2 quality of life.tw.
- 3 "Value of Life"/
- 4 Quality-Adjusted Life Years/
- 5 quality adjusted life.tw.
- 6 (qaly* or qald* or qale* or qtime*).tw.
- 7 disability adjusted life.tw.
- 8 daly*.tw.
- 9 Health Status Indicators/
- 10 (sf36 or sf 36 or short form 36 or shortform 36 or sf thirtysix or sf thirty six or shortform thirtysix or shortform thirty six or short form thirtysix or short form thirty six).tw.
- 11 (sf6 or sf 6 or short form 6 or shortform 6 or sf six or sfsix or shortform six or short form six).tw.
- 12 (sf12 or sf 12 or short form 12 or shortform 12 or sf twelve or sftwelve or shortform twelve or short form twelve).tw.
- 13 (sf16 or sf 16 or short form 16 or shortform 16 or sf sixteen or sfsixteen or shortform sixteen or short form sixteen).tw.
- 14 (sf20 or sf 20 or short form 20 or shortform 20 or sf twenty or sftwenty or shortform twenty or short form twenty).tw.
- 15 (euroqol or euro qol or eq5d or eq 5d).tw.
- 16 (qol or hql or hqol or hrqol).tw.
- 17 (hye or hyes).tw.
- 18 health* year* equivalent*.tw.
- 19 utilit*.tw.
- 20 (hui or hui1 or hui2 or hui3).tw.
- 21 disutili*.tw.
- 22 rosser.tw.
- 23 quality of wellbeing.tw.
- 24 quality of well-being.tw.
- 25 qwb.tw.
- 26 willingness to pay.tw.
- 27 standard gamble*.tw.
- 28 time trade off.tw.
- 29 time tradeoff.tw.
- 30 tto.tw.
- 31 or/1-30