Appendix E. Evidence Tables

Appendix E Table 1. Methodological and Intervention Characteristics of Included One-Time Screening Studies (KQs 1 and 3)

Comparison	Author, Year Trial name	Study Quality	N Randomized	Country	Mean Length of FU, y	Intervention	Control
Screening vs. no screening	Ashton, 2007[113] (Men only) & Scott, 2002[36] (Women only) Chichester	Fair	15,382 Men: 6,040 Women: 9,342	UK	15.0 (Men only) 10 (Women only)	Ultrasound screening; patients with an aneurysm of 3.0–4.4 cm diameter were rescanned annually and those with an aneurysm of 4.5–5.9 cm diameter were rescanned every 3 months. This was continued until February 1994 or until the patient died, underwent surgical intervention, or declined followup.	Surveillance
	Thompson, 2012[12, 170] MASS	Good	67,770	UK	13.1	Ultrasound screening; patients with an aortic diameter of 3.0–4.4 cm were rescanned yearly. Those with an aortic diameter of 4.5–5.4 cm were rescanned at 3-month intervals. Urgent referral to a vascular surgeon was recommended for patients with aortic diameter ≥5.5 cm. QOL was assessed in patients with screen-detected AAA and those with normal scans at 1.5, 3, and 12 months (n=1,956).[12]	Surveillance
	Lindholt, 2010[147] Viborg	Good	12,639	Denmark	13	Ultrasound screening; participants with aneurysms ≥5 cm were referred to a vascular surgeon; those with AAAs 3–4.9 cm were offered annual scans to check for expansion. After 5 years those with initial ectatic aorta (diameter 2.5–2.9 cm) were offered rescreening.	Surveillance
	Lindholt, 2017[146] VIVA	Fair	50,156 (Screening group n=25,078)	Denmark	4.4*	Ultrasound screening; patients with aneurysms ≥5 cm were referred to CT scanning and assessment by a vascular surgeon for repair. Participants were invited to one annual clinical followup, which consisted of ultrasound screening. Person identification numbers were used to search the Danish Vascular Registry for vascular procedures. ABI screening; participants with possible hypertension alone encouraged to consult with general practitioner for confirmation of	Surveillance

Comparison	Author, Year Trial name	Study Quality	N Randomized	Country	Mean Length of FU, y	Intervention	Control
						diagnosis, initiation of prophylactic activities, or both. Blood total cholesterol measurement if diagnosis of AAA or PAD was confirmed with repeated ultrasonography and ABI measurement. If total serum cholesterol concentration exceeded 4.0 mmol/L, participant prescribed statin therapy (40 mg/day simvastatin) and aspirin (75 mg/day). All positive findings and initiated medications communicated to general practitioner to ensure medication continuation and followup.	
	McCaul, 2016[15, 168] Western Australia	Fair	38,480	Australia	12.8*	Ultrasound screening†; QOL (SF-36, EuroQOL EQ-5D) was assessed 12 months after screening (n=365).	Surveillance
Screening harms	Lesjak, 2012[141]	Fair	NR‡	Australia	6 mo	At the time of time of screening, self-administered questionnaires were completed including the Medical Outcomes Short Form 36v.2 (MOSF36). Six months after screening, all participants who had an abnormal aortic diameter (≥2.6 cm) were followed up and completed MOSF36 questionnaires (n=53).	A random sample of men with normal scans were followed up 6 months after screening (n=130).
	Lucarotti, 1997[150]	Fair	NR	UK	1 mo	Men invited to screening filled out the QOL questionnaire (General Health Questionnaire; linear analogue scale) prior to screening. One month after initial screening, the first 61 men with diagnosed AAA (definition NR) were asked to complete the QOL assessment again (n=61).	Men invited to screening filled out the QOL questionnaire (General Health Questionnaire; linear analogue scale) prior to screening. One month after initial screening, the first 100 men with normal scans were asked to complete the QOL assessment again (n=100).

Appendix E. Evidence Tables

Comparison	Author, Year Trial name	Study Quality	N Randomized	Country	Mean Length of FU, y	Intervention	Control
	Wanhainen, 2004[174]	Fair	NR	Sweden	1.0	Participants were given a QOL assessment questionnaire (SF-36) at baseline and then 12 months after screening. A cohort of participants with screen-detected AAA were followed (n=24).	Participants were given a QOL assessment questionnaire (SF-36) at baseline and 12 months after screening. A cohort of age-/sex-matched controls with normal AAA scans were followed (n=45).

*Median.

†After screening, participants were given a letter containing the results of their scan and a copy for their primary care physician. Any followup investigations or referral to a surgeon were arranged by the primary care physician. No attempt was made by investigators to influence clinical management with regards to threshold for intervention or method of repair.

‡53 men completed the questionnaire (out of 516).

Abbreviations: AAA = abdominal aortic aneurysm; EQ-5D = EuroQOL-5D; MASS = Multicenter Aneurysm Screening Study; QOL = quality of life; SF-36 = Short-form 36-item Health Survey; NR = not reported.

Appendix E. Evidence Tables

Appendix E Table 2. Patient Characteristics of Included One-Time Screening Studies (KQs 1 and 3)

Comparison	Author, Year Trial Name	Major Inclusion Criteria	Mean Age % Female	% Current Smoking	% Family History	% Diabetes	% CVD Risk Factors
Screening vs. no screening	Ashton, 2007[113] (Men only) & Scott, 2002[36] (Women only) Chichester	Patients ages 65–80 years	72.0* 59.2	NR	NR	NR	NR
	Thompson, 2012[170] MASS	Men ages 65–74 years	69.2 0	NR	NR	NR	NR
	Lindholt, 2010[147] Viborg	Men ages 64–73 years who lived in Viborg County	67.7 0	NR	NR	NR	NR
	Lindholt, 2017[146] VIVA	Men ages 65-74 years living in Central Denmark	69.0* 0	NR	NR	NR	History of, %: Stroke: 3.0 MI: 2.7 Ischemic heart disease: 6.6 Peripheral occlusive arterial disease: 1.1
	McCaul, 2016[15] Western Australia	Men ages 64–83 years living in Perth and surrounding towns	72.6 0	NR	NR	NR	NR
Screening harms	Lesjak, 2012[141]	Rural men ages 65-74 years who attended a community-based screening for AAA	NR 0	NR	NR	NR	NR
	Lucarotti, 1997[150]	Men born between 1925 and 1928 living in Gloucestershire and participating in the AAA screening program	NR 0	NR	NR	NR	NR
	Wanhainen, 2004[174]	Men and women ages 65–75 years with screen-detected AAA (≥3.0 cm) along with a group of adults with a normal scan to act as controls	71.0 19.4	NR	NR	NR	NR

*Median.

Abbreviations: AAA = abdominal aortic aneurysm; MASS = Multicenter Aneurysm Screening Study; NR = not reported.

Appendix E. Evidence Tables

Appendix E Table 3. Percent of Screened Population With AAA of the Specified Size

Author, Year Trial Name	Total Scanned	Total AAA (Prevalence), n (%)	≥5.5 cm, n (%)	5.0 to 5.9 cm, n (%)	4.5 to 5.4 cm, n (%)	3.0 to 4.4 cm, n (%)
Scott, 1995[13] Chichester	5,394 (men and women)*	218 (4.0)	19 (0.4)[†]	20 (0.4)[†]	NR	179 (3.3)[†,‡]
Thompson, 2012[12, 170] MASS	27,147 (men)	1,334 (4.9)	166 (0.6)	NR	223 (0.8)	944 (3.5)
Lindholt, 2010[14, 143, 147] Viborg	4,860 (men)	191 (3.9)[§]	24 (0.5)	NR	NR	NR
Lindholt, 2017[146] VIVA	25,078 (men)	619 (3.3)	61 (0.3)	NR	NR	558 (3.0)[‖]
McCaul, 2016[15, 155] Western Australia	12,203 (men)	879 (7.2)	61 (0.5)	NR	115 (0.9)[¶]	699 (5.7)[¶]

* From 5-year followup (Scott, 1995).[13]
† Estimated.
‡ AAA of 3.0 to 4.0 cm.
§ N analyzed for prevalence: 4,816.
‖ AAA of 3.0 to 4.9 cm.
¶ From 3.6-year followup (Norman, 2004).[155]

Abbreviations: AAA = abdominal aortic aneurysm; MASS = Multicenter Aneurysm Screening Study; NR = not reported.

Appendix E. Evidence Tables

Appendix E Table 4. Methodological and Intervention Characteristics of Included Rescreening Studies (KQ 2)

Study, Year Quality	Trial	N	N Analyzed	Country	Mean length of follow up (yrs)	Measurement technique	Rescreening intervals; number of times rescreened
D'Audiffret, 2002[121] Fair	Patients from the ADAM trial	223	223	US	5.9 Range: NR	Aortic measurements were made in both the anteriorposterior and transverse planes and the greatest diameter was recorded.	Rescreening annually after aortic diameters of 2.5–2.9 cm were identified 5 repeat scans
Deveraj, 2008[123] Fair	Patients from the Good Hope Hospital Screening Program	999	358	UK	5.4 Range: 1–14 years	Assessed anterioposterior diameter	Rescreening of abnormal aortas (2.6–2.9 cm) annually NR
Oliver-Williams, 2018[156] Good	Patients from the Gloucestershire Aneurysm Screening Study	80,150	1,233	UK	7.8 Range: 2.7–11 years†	Maximum anteroposterior diameter assessed by measurement from the inner wall to the inner wall of the aorta.	Men with small AAA (2.4–4.4 cm had annual ultrasound followup. 6 (3–11)‡ repeat scans
Lederle, 2000[138] Good	Patients from the ADAM trial	15,098	2,622	US	4 Range: NR	Assessed infrarenal and suprarenal aortic diameter	Rescreening in those found to have no AAA 4 years after initial screening 1 repeat scan
Lindholt, 2000[148] Fair	Case/control study of the Viborg Trial	6,339	248 for 2.5–2.9 group 275 Control group	Denmark	5 Range: 3–5 yrs	Infrarenal aorta was first visualized anteroposteriorly in its entire length. Its anteroposteriorly and transversely diameters were measured and recorded at their maximal sizes.	Those with aortas 2.5–2.9 cm were offered rescreening 3 to 5 years after initial screen; control group were those with no AAA
Scott, 2001[165] Fair	Cohort of 65-year-old men found to have normal aorta	1,011	649	UK	10 Range: NR	Both anteroposterior and transverse measurements of aortic diameter were taken and the maximum of the two measurements was used as the defining diameter.	Individuals with normal-sized aortas at initial scan were rescreened every 2 years. (These patients were NOT Chichester trial participants.) 5 repeat scans

Appendix E. Evidence Tables

Study, Year Quality	Trial	N	N Analyzed	Country	Mean length of follow up (yrs)	Measurement technique	Rescreening intervals; number of times rescreened
Soderberg, 2017[167] Fair	Population-based cohort of 70-year-old women	5,140	2.5–2.9 cm group: 33; 26 rescanned ≥3.0 cm group: 19	Sweden	5 Range: NR	The maximum anteroposterior diameter was registered according to the leading edge to leading edge principle.	All women with screen-detected subaneurysms with a diameter of 2.5–2.9 cm were rescanned at 5 years. 1 repeat scan
Svensjo, 2014[169] Fair	Population-based cohort of 65-year-old men	3,270	<2.5 cm group: 2,652 2.5–2.9 cm group: 40 ≥3.0 cm group: 44	Sweden	5 Range: 5 yrs	The maximum anteroposterior diameter of the infrarenal aorta was recorded using the leading edge to leading edge principle.	Individuals with an infrarenal aortic diameter of 2.5–2.9 cm were rescanned after 5 years. 1 repeat scan

*Median.
† Duration of followup was calculated for each man as the time from the initial scan to death, or to most recent scan if the individual had not died.
‡ Median (IQR) within.

Abbreviations: AAA = abdominal aortic aneurysm; ADAM = Abdominal Aortic Aneurysm Detection and Management Study; IQR = interquartile range; NR = not reported.

Appendix E. Evidence Tables

Appendix E Table 5. Baseline Characteristics of Included Rescreening Studies for Small AAA (KQ 2)

Author, Year Quality	Major Inclusion Criteria	Mean AAA Size	Mean Age % Female	% Current Smoking	% Family History	% Diabetes	% CVD Risk Factors
D'Audiffret, 2002[121] Fair	Those with aortic diameters of 2.5–2.9 cm	2.7 cm	68.4 NR	81.6*	13.9	11.2	PAD: 12.5 HTN: 49.8 Hypercholesterolemia: 17.5
Deveraj, 2008[123] Fair	Men found to have ectatic aortas (2.6–2.9 cm in diameter) at first scan with a minimum of 1-year followup	2.8 cm	NR 0	NR	NR	NR	NR
Oliver-Williams, 2018[156] Good	Men ages 65–66 years at the time of original study who had aortic diameters <2.6 cm	1.7 cm (initial screening in years 2010–2015) 2.1 cm (initial screening in early 1990s)	65.3† 0	NR	NR	NR	NR
Lederle, 2000[138] Good	VA patients ages 50–79 years without AAA (aortic diameters of ≤3.0 cm) who were part of the ADAM trial	2.0 cm	66.0 2.4	14.6	6.0	17.6	HTN: 55.2 High cholesterol: 38.9 CAD: 36.6 Any atherosclerosis: 42.3
Lindholt, 2000[148] Fair	Men ages 65–73 years with either identified small AAA (2.5–2.9 cm) or those with a normal initial scan (along with 380 controls)	NR	65.6 0	NR	NR	NR	NR
Scott, 2001[165] Fair	Male patients with a normal aorta on their initial scan at age 65 years	NR	65 0	NR	NR	NR	NR

Appendix E. Evidence Tables

Author, Year Quality	Major Inclusion Criteria	Mean AAA Size	Mean Age % Female	% Current Smoking	% Family History	% Diabetes	% CVD Risk Factors
Soderberg, 2017[167] Fair	All 70-year-old women identified through the National Population Registry, in two neighboring counties in Sweden. Women diagnosed with subaneurysmal aortas (2.5–2.9 cm) were followed.	2.64 for 2.5–2.9 cm group	70 100	36	21‡	NR	Coronary disease: 12 HTN: 39 Hyperlipidemia: 36 Claudication: 9
		3.52 cm for ≥3.0 cm group	70 100	63	5‡	NR	Coronary disease: 16 HTN: 68 Hyperlipidemia: 47 Claudication: 11
Svensjo, 2014[169] Fair	2006–2007 All men age 65 years identified in the National Population Registry in Uppsala County. Rescanned 2011–2012. Men with a history of AAA repair were excluded from invitation.	1.85	70 0	NR	NR	NR	NR

* Defined as smoking history.
† Median.
‡ Family history defined as first-degree relative.

Abbreviations: AAA = abdominal aortic aneurysm; CAD = coronary artery disease; CVD = cardiovascular disease; HTN = hypertension; NR = not reported; PAD = peripheral artery disease; VA = Department of Veterans Affairs.

Appendix E. Evidence Tables

Appendix E Table 6. Quality of Life Results of Included One-Time Screening Studies (KQs 1 and 3)

Comparison	Author, Year Trial Name	Study Quality	N Randomized	Country	Mean Length of FU, years	Instrument	Group	Quality of Life Data
Screening vs. no screening	Ashton, 2007[113] (Men only) & Scott, 2002[36] (Women only) Chichester	Fair	15,382 Men: 6,040 Women: 9,342	UK	15.0 (Men only) 10 (Women only)	--	--	--
	Thompson, 2012[12, 170] MASS	Good	67,770	UK	13.1	SF-36, HADS, EQ-5D	Surgery	3 months Physical Health, mean: 50.0[‡] Mental Health, mean: 48.4[‖] Depression, mean: 3.0[‡] Anxiety, mean: 29.1[‡] Weighted Health Index, mean: 0.85[‡] 12 months Physical Health. mean: 51.1[‡] Mental Health, mean: 50.6[‡] Depression, mean: 3.1[‡] Anxiety, mean: 28.6[‡] Weighted Health Index, mean: 0.85[‡]
							Surveillance	3 months Physical Health, mean: 51.0[‡] Mental Health, mean: 51.7[‖] Depression, mean: 3.0[‡] Anxiety, mean: 28.9[‡] Weighted Health Index, mean: 0.83[‡] 12 months Physical Health, mean: 49.8[‡] Mental Health, mean: 50.1[‡] Depression, mean: 3.2[‡] Anxiety, mean: 29.6[‡] Weighted Health Index, mean: 0.83[‡]
	Lindholt, 2010[147] Viborg	Good	12,639	Denmark	13	--	--	--

Appendix E. Evidence Tables

Comparison	Author, Year Trial Name	Study Quality	N Randomized	Country	Mean Length of FU, years	Instrument	Group	Quality of Life Data
	Lindholt, 2017[146] VIVA	Fair	50,156 (Screening group n=25,078)	Denmark	4.4*	--	--	--
	McCaul, 2016[15, 168] Western Australia	Fair	38,480	Australia	12.8*	MOS SF-36; HADS, EQ-5D	AAA Group	12 months Physical Functioning, mean (SD): 62.9 (27.4)‖ Mental Health, mean (SD): 81.3 (15.9) Anxiety/Depression, mean (SD): 3.6 (3.0) Health States Score, mean (SD): 0.83 (0.18)
							CG	12 months Physical Functioning, mean (SD): 68.9 (25.8)‖ Mental Health, mean (SD): 78.3 (17.7) Anxiety/Depression, mean (SD): 3.6 (3.2) Health States Score, mean (SD): 0.80 (0.21)
Screening harms	Lesjak, 2012[141]	Fair	NR‡	Australia	6 month	MOS SF-36, HADS	AAA Group	*Physical Functioning* Prescreening score, mean (SD): 40.4 (10.7) Postscreening score, mean (SD): 41.1 (11.7) *Mental Health* Prescreening score, mean (SD): 49.6 (11.1) Postscreening score, mean (SD): 49.8 (11.9) *Depression* Prescreening score, mean (SD): 5.1 (4.1) Postscreening score, mean (SD): 5.5 (4.6)

Appendix E. Evidence Tables

Comparison	Author, Year Trial Name	Study Quality	N Randomized	Country	Mean Length of FU, years	Instrument	Group	Quality of Life Data
								Anxiety Prescreening score, mean (SD): 5.1 (3.9) Postscreening score, mean (SD): 5.9 (4.9)
							CG	*Physical Functioning* Prescreening score, mean (SD): 41.3 (11.7) Postscreening score, mean (SD): 44.3 (10.2) *Mental Health* Prescreening score, mean (SD): 51.6 (10.5) Postscreening score, mean (SD): 51.8 (10.7) *Depression* Prescreening score, mean (SD): 4.2 (3.3) Postscreening score, mean (SD): 4.1 (3.6) *Anxiety* Prescreening score, mean (SD): 5.3 (3.8) Postscreening score, mean (SD): 4.8 (3.7)
	Lucarotti, 1997[150]	Fair	NR	UK	1 month	GHQ	AAA Group	Prescreening score, mean (SD): 15.71 (9.13)‡ Postscreening score, mean (SD): 14.25 (7.68)‡
							CG	Prescreening score, mean (SD): 15.51 (9.17)‡ Postscreening score, mean (SD): 14.36 (7.28)‡
	Wanhainen, 2004[174]	Fair	NR	Sweden	1.0	SF-36	AAA Group	*Physical Health Cluster* Mean score before screening: 43‡ Mean score after screening: 43‡

Comparison	Author, Year Trial Name	Study Quality	N Randomized	Country	Mean Length of FU, years	Instrument	Group	Quality of Life Data
								Mental Health Cluster Mean score before screening: 52‖ Mean score after screening: 49‖
							CG	*Physical Health Cluster* Mean score before screening: 46‡ Mean score after screening: 44‡ *Mental Health Cluster* Mean score before screening: 51‡ Mean score after screening: 52‡

* Median.

† 53 men completed the questionnaire (out of 516).

‡ Between group: p = NS.

§ Within group: p = NS.

‖ p<0.05.

Abbreviations: AAA = abdominal aortic aneurysm; CG = Control group; EQ-5D = European Quality of Life; GHQ = General Health Questionnaire; HADS = Hospital Anxiety & Depression Scale; MASS = Multicenter Aneurysm Screening Study; MOS SF-36 = Medical Outcomes Short Form-36; NR = not reported; SD = standard deviation; SF-36 = Short Form-36; UK = United Kingdom.

Appendix E. Evidence Tables

Appendix E Table 7. Methodological and Intervention Characteristics of Included Treatment Studies (KQs 4 and 5)

Intervention	Study, Year	Quality	N randomized	Country	Mean followup, years	Intervention	Control
Open surgery vs. surveillance	Lederle, 2002[140] ADAM	Good	1,136	United States	4.9	Elective open surgery within 6 weeks of AAA identification	Surveillance until AAA reached 5.5 cm, enlarged by at least 0.7 cm in 6 months/1.0 cm in 1 year, or symptoms developed
	Powell, 2007[161-163] UKSAT	Good	1,090	United Kingdom	12	Elective open surgery within 3 months of AAA identification	Surveillance until AAA reached 5.5 cm, rapidly increased in diameter (>1 cm/year) or developed symptoms
EVAR vs. surveillance	Cao, 2011[118] CAESAR	Fair	360	20 European/Western Asian hospitals	2.6[‡]	Patients received surgery via EVAR as soon as possible	Surveillance until AAA reached 5.5 cm in diameter, a rapid increase of >1 cm/year was found, or the aneurysm became symptomatic
	Ouriel, 2010[158] PIVOTAL	Fair	728	United States	1.7	Patients underwent EVAR ≤30 days of randomization	Surveillance until AAA reached 5.5 cm or enlarged ≥0.5 cm between any two 6-month assessments
Pharmacotherapy vs. placebo	Bicknell, 2016[114] AARDVARK	Good	227	United Kingdom	2	10 mg perindopril (IG1) or 5 mg amlodipine (IG2) daily for 2 years	Placebo
	Hogh 2009[132]	Good	92	Denmark	5	300 mg oral roxithromycin once daily for 28 days	Placebo
	Karlsson, 2009[133]	Fair	247	Sweden	1.5	600 mg azithromycin once daily for 3 days, followed by 600 mg once a week for 15 weeks	Placebo
	Lindholt, 1999[142]‖	Fair	54	Denmark	2	40 mg propranolol twice a day for 2 years	Placebo
	Meijer, 2013[152]	Fair	286	The Netherlands	1.5	100 mg doxycycline daily for 18 months	Placebo

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Intervention	Study, Year	Quality	N randomized	Country	Mean followup, years	Intervention	Control
	Mosorin, 2001[153]	Fair	32	Finland	1.5	150 mg doxycycline daily for 3 months	Placebo
	PAT Investigators, 2002[164] PAT	Good	552	Canada	2.5	20 mg propranolol twice a day; increased to 40 mg after 1 week, 80 mg after 2 weeks, and 120 mg at 4 weeks. Target dose was 80–120 mg twice a day. Patients observed for mean of 2.5 years	Placebo
	Sillensen, 2015[166] AORTA	Fair	168	Multisite[¶]	1	40 mg pemirolast twice a day[#] for 52 weeks	Placebo

* No AAA-related death was found in both groups.
† This study also reported 5-year followup data on growth rate.
‡ Median.
§ Due to a large loss to followup, efficacy data were not usable. However, these losses were due to adverse events so the harms data are included.
‖ This study is included for KQ5 (harms) only.
¶ 15 sites participated from Sweden, Denmark, and the United Kingdom.
# Study also reports 10 mg twice a day and 25 mg twice a day.

Abbreviations: AAA = abdominal aortic aneurysm; ADAM = Abdominal Aortic Aneurysm Detection and Management Study; AORTA: the Anti-inflammatory Oral Treatment of AAA; CAESAR = Comparison of Surveillance vs. Aortic Endografting for Small Aneurysm Repair; N = sample size; NA = not applicable; EUROSTAR = European Collaborators on Stent-Graft Techniques for aAbdominal Aortic Aneurysm Repair; PAT = Propanolol Aneurysm Trial; PIVOTAL = Positive Impact of Endovascular Options for Treating Aneurysms Early; UKSAT = UK Small Aneurysm Trial.

Appendix E. Evidence Tables

Appendix E Table 8. Patient Characteristics of Included Treatment Studies (KQs 4 and 5)

Intervention	Study, Year	Major Inclusion Criteria	Mean Age % Female	AAA Diameter at Baseline, cm	% Current Smoking	% Family History	% CVD Risk Factors
Open surgery vs. surveillance	Lederle, 2002[140] ADAM	Patients ages 50–79 years with AAA 4.0–5.4 cm identified via CT within the previous 12 weeks	68.1 0.8	4.7	39.2	12.9	Coronary disease: 41.9 Cerebrovascular disease: 12.4 Hypertension: 56.4
	Powell, 2007[161-163] UKSAT	Patients ages 60–76 years with asymptomatic, small AAA (4.0–5.5 cm)	69.3 17.5	4.6	37.1	NR	Hypertension: 39 Probable ischemic heart disease: 14
EVAR vs. surveillance	Cao, 2011[118] CAESAR	Patients ages 50–79 years; nonsymptomatic AAA 4.1–5.4 cm in diameter measured by CT within the previous 3 months	68.9 4.2	4.7	55.3	NR	Coronary disease: 39.2 Hypertension: 75.3
	Ouriel, 2010[158] PIVOTAL	Patients ages 40–90 years with AAA between 4.0 and 5.0 cm found by CT performed ≤3 months prior; eligible for EVAR	70.5 13.4	4.4	91.0	23.5	MI: 31.3 CHF: 6.2 CAD: 55.4 PVD: 28.2 Hypertension: 77.8
Pharmacotherapy vs. surveillance	Hogh 2009[132]	AAA ≥3.0 cm detected by ultrasound the day of study entry; exclusively men	72.5 0	3.8	59.5	NR	NR
	Karlsson, 2009[133]	Patents aged ≤80 years with AAA 3.5–4.9 cm	71[†] 18.5	NR	40	14	MI: 31.0 Stroke: 14.1 Hypertension: 62.5
	Lindholt, 1999[142]	Men with AAA 3.0–4.9 cm	69.2 0	3.4	NR	NR	NR
	Meijer, 2013[152]	Aneurysm diameter 3.5–5.0 cm, or a larger aneurysm unfit for repair, or declined repair	70.0 18.2	4.3	35.0	25.2	History of CVD: 52.1
	Mosorin, 2001[153]	Aneurysm diameter perpendicular to the aortic axis of ≥3.0 cm in size or a ratio of	68.4 9.4	3.3	35.4	NR	Hypertension: 40.2

Intervention	Study, Year	Major Inclusion Criteria	Mean Age % Female	AAA Diameter at Baseline, cm	% Current Smoking	% Family History	% CVD Risk Factors
		infrarenal to suprarenal aortic diameter of ≥1.2 and a diameter <5.5 cm; followup of at least 6 months with two or more ultrasound examinations					
	PAT Investigators, 2002[164] PAT	Asymptomatic small AAA (3.0–5.0 cm; some centers only, 3.0–4.5 cm) measured by ultrasound; no contraindications to study drug	68.9 16	3.8	34.7	NR	Angina: 14.8 Heart failure: 2.0 Claudication: 19.2 Hyperlipidemia: 33.6 Hypertension: 35.8 MI: 16.9 Stroke: 6.3
	Bicknell, 2016[114] AARDVARK	Men or women age ≥55 years, with AAA 3.0–5.4 cm, and an SBP <150 mm Hg	71.3 5.8	4.0	25.0	NR	Hypertension: 0
	Sillensen, 2015[166] AORTA	Patients age ≥50 years with AAA 3.9–4.9 cm	70.9 8.9	4.4	41.1	NR	History of cardiac disorders: IG: 38.0 CG: 42.0

*Defined as angina, MI, arrhythmia, or heart failure.
†Median.
‡Mean.

Abbreviations: AAA = abdominal aortic aneurysm; ADAM = Abdominal Aortic Aneurysm Detection and Management Study; AORTA: the Anti-inflammatory Oral Treatment of AAA; CAD = coronary artery disease; CAESAR = Comparison of Surveillance Versus Aortic Endografting for Small Aneurysm Repair; CHF = congestive heart failure; CT = computed tomography; CVD = cardiovascular disease; EUROSTAR = European Collaborators on Stent-Graft Techniques for Abdominal Aortic Aneurysm Repair; EVAR = endovascular aneurysm repair; MI = myocardial infarction; NR = not reported; PAT = Propranolol Aneurysm Trial; PIVOTAL = Positive Impact of Endovascular Options for Treating Aneurysms Early; PVD = peripheral vascular disease; UKSAT = UK Small Aneurysm Trial.

Appendix E. Evidence Tables

Appendix E Table 9. Methodological Characteristics of Included Registry Studies (KQ5)

Author, Year Quality	Registry	Country	Recruitment	Mean Followup, years	Surgical Technique(s) Included	Population Characteristics in Patients With Small AAA	N (%) of Small AAA	Definition of Small AAA
Budtz-Lilly, 2017[116] Fair	Vascunet	International*	Data on primary intact AAA repairs were collected from vascular registries for the time period of 2005–2013. Data on small AAA <5.5 cm available for 2010–2013 time period. It was estimated that coverage of participating registries was >90% for the majority, 80% in Norway, and 62% in Australia.	NR	EVAR, open	Mean age (range): NR % Female: NR % Smokers: NR	12,610 (25.6)	<5.5 cm
Golledge, 2007[129] Fair	ASERNIP-S	Australia	Surgeries performed from November 1999 to May 2001 were recorded in the registry. Participation by vascular surgeons was initially enforced. An audit cross checking Health Insurance Commission data found >90% of procedures were included.	3.2 (Median)	EVAR	Mean age (range): 75 (NR) % Female: 15.9 % Current smokers: 11.0	478 (49.7)	≤5.5 cm

Appendix E. Evidence Tables

Author, Year Quality	Registry	Country	Recruitment	Mean Followup, years	Surgical Technique(s) Included	Population Characteristics in Patients With Small AAA	N (%) of Small AAA	Definition of Small AAA
Lo, 2013[149] Fair	VSGNE	US	Voluntary collaboration among vascular surgeons, cardiologists, and radiologists from 30 academic and community hospitals in New England. The data are validated periodically to ensure that all procedures are included in the registry. This publication analyzed 2003–2011 data.	1.0	EVAR, open	Mean age (range): 71 (NR) % Female: 26.2 % Smokers (past or current): 88.5	1,336 (37.1)	<5.5 cm
Overbey, 2017[159] Fair	ACS NSQIP	US	A nationally validated, risk-adjusted dataset comprising major surgical procedures and 30-day outcomes. Data are collected from medical charts by a trained Surgical Clinical Reviewer. This article is analysis of 2011–2015 data.	NR	EVAR, open	Mean age (range): 72.3 (NR) % Female: 21.9 % Current smokers: 33.6	5,126 (51.1)	Smallest quartile: 3.5–5 cm Second quartile: 5.01–5.5 cm

Appendix E. Evidence Tables

Author, Year Quality	Registry	Country	Recruitment	Mean Followup, years	Surgical Technique(s) Included	Population Characteristics in Patients With Small AAA	N (%) of Small AAA	Definition of Small AAA
Peppelenbosch, 2004[160] Fair	EUROSTAR	International†	110 European institutions participate in the registry. Patient data are recorded on case record forms and submitted. Only elective treatments are tracked. This article is an analysis of 1997–2002 data.	1.7	EVAR	Mean age (range): 69.7 (43–94) % Female: 7.0 % Smokers: NR	1,962 (44.7)	4.0–5.4 cm

* Eleven countries: Australia, Denmark, Hungary, Iceland, New Zealand, Norway, Sweden, Switzerland, United Kingdom, Finland (Helsinki region only), and Germany.
†Austria, Belgium, Denmark, United Kingdom, France, Germany, Greece, Israel, Italy, Luxembourg, Monaco, the Netherlands, Norway, Poland, Spain, Sweden, and Switzerland.

Abbreviations: AAA = abdominal aortic aneurysm; CAD = coronary artery disease; CT = computed tomography; CVD = cardiovascular disease; EUROSTAR = European Collaborators on Stent-Graft Techniques for Abdominal Aortic Aneurysm Repair; EVAR = endovascular aneurysm repair; MI = myocardial infarction; NR = not reported; PAT = Propranolol Aneurysm Trial; PIVOTAL = Positive Impact of Endovascular Options for Treating Aneurysms Early; PVD = peripheral vascular disease; US = United States.

Appendix E Table 10. Quality of Life Results in Studies of Treatment for Small AAA (KQs 4 and 5)

Intervention	Study	QOL Screening	Time Period	Treatment Group	N Analyzed	QOL Scores, Mean (SD)¶	Mean Difference (95% CI), P-Value
Open surgery vs. surveillance	Forbes 1998[127] UKSAT	MOS subscale*	Baseline	IG	480	Physical function: 64.2 (30.7) Mental health: 80.2 (17.2)	Physical function: -2.3 (-6.0 to 1.5); NR Mental health: 0.7 (-1.5 to 2.8); NR
				CG	512	Physical function: 66.5 (29.3) Mental health: 79.5 (17.0)	
			12 months post-randomization	IG	429	Physical function: 62.1 (29.9) Mental health: 81.7 (17.9) *Mean difference from BL:* Physical function: -3.5 (-6.1 to -0.8) Mental health: 0 (-1.5 to 1.5)	Physical function: 1.7 (-2.3 to 5.7) Mental health: 2.1 (-0.4 to 4.5)
				CG	436	Physical function: 60.3 (30.2) Mental health: 79.6 (18.6) *Mean difference from BL:* Physical function: -6.2 (-8.8 to -3.7) Mental health: 0 (1.7 to 1.8)	
EVAR vs. surveillance	De Rango 2011[122] CAESAR	SF-36*	Baseline through 6 months post-randomization	IG	173	*Mean difference (95% CI) from BL:* Overall QOL: 4.6 (2.3 to 7) Physical functioning: -0.6 (-3.7 to 2.4) Mental health: 5.2 (2.8 to 7.5)	*IG vs. CG* Overall QOL: 5.4 (2.1 to 8.8); p=0.002 Physical function: 3.8 (0.5 to 7.2); p=0.02 Mental health: 6.0 (2.7 to 9.3); p=0.0005
				CG	166	*Mean difference (95% CI) from BL:* Overall QOL: -0.8 (-3.2 to 1.6) Physical functioning: -4.3 (-7.3 to -1.2) Mental health: -0.8 (-3.2 to 1.5)	
			Baseline through end of followup§	IG	173	*Mean difference (95% CI) from BL:* Overall QOL: 4.6 (2.3 to 7) Physical functioning: -0.6 (-3.7 to 2.4) Mental health: 5.2 (2.8 to 7.5)	*IG vs. CG* Overall QOL: 2.4 (-1.7 to 6.6); p=0.25 Physical function: 1.5 (-2.6 to 5.5); p=0.48 Mental health: 2.0 (-2.4 to 6.4); p=0.38
				CG	166	*Mean difference (95% CI) from BL:* Overall QOL: -6.3 (-9.3 to -3.4)‖ Physical functioning: -8.2 (-12.0 to -4.4) Mental health: 4.8 (-7.9 to -1.7)‖	
	Eisenstein, 2013[124] PIVOTAL	EQ-5D#	Baseline	IG	351	*Utility score: 0.805 (0.1)** Visual analog scale: 77.8 (14)*	NR
				CG	350	*Utility score: 0.783 (0.2)** Visual analog scale: 78.2 (15)*	
			24 months post-baseline	IG	205	*Utility score: 0.797 (0.2)** Visual analog scale: 76.2 (17)*	
				CG	197	*Utility score: 0.817 (0.2)** Visual analog scale: 76.5 (18)*	

Appendix E. Evidence Tables

Intervention	Study	QOL Screening	Time Period	Treatment Group	N Analyzed	QOL Scores, Mean (SD)¶	Mean Difference (95% CI), P-Value
Pharmacotherapy vs. surveillance	Lindholt 1999[142]	ScreenQL*†	Baseline through 2 y	IG	30	NR	Overall QOL: -5.83 (6.2)‡; p=0.05 Emotional domain: -0.35 (2.1)‡; p=0.59 Health perception: -1.39 (2.98)‡; p=0.13
				CG	24	NR	Overall QOL: -1.70 (5.5)‡; p=0.07 Emotional domain: 0.00 (2.0)‡; p=0.69 Health perception: -0.38 (2.10)‡; p=0.30
	PAT Investigators, 2002[164] PAT	SF-36*	Baseline	IG	276	Physical function: 70.8 (23.9) Mental health: 78.9 (17.3)	Physical function: p=0.11 Mental health: p=0.45
				CG	272	Physical function: 74.1 (24.0) Mental health: 77.8 (17.9)	
			1 month post-randomization	IG	276	Physical function: 68.9 (18.9) Mental health: 78.9 (17.6)	Physical function: p=0.006
				CG	272	Physical function: 74.4 (23.8) Mental health: 78.3 (17.5)	Mental health: p=0.58

*Lower score denotes poorer status.
†A validated generic and global QOL questionnaire with 24 items evaluating six categories: general QOL, emotional health, physical health, psychosomatic distress, social and family functions, and marriage.
‡Mean (SD); change from baseline in each group, not IG vs. CG.
§Mean, 3 years from baseline (SD, 1.2 years).
‖p<0.01.
¶Only summary scores reported here. For complete subscales please see full text.
Utility score uses responses to the five dimensions (Mobility, Self-care, Usual activity, Pain/discomfort, Anxious/depressed) to compute a value on a scale of -0.54 to 1.00; higher utility score indicates a better quality of life and a negative value indicates a health state worse than death that can be used to quality-adjust study patient survival time. The final EQ-5D element, visual analog score (VAS), provides a one-question assessment of an individual's quality of life and ranges from 0 to 100, with a higher score indicating a better quality of life.
**Utility score N analyzed by group and followup: Baseline IG n = 348, CG n = 349; 24-month postbaseline IG n = 203, CG n = 191.

Abbreviations: BL = baseline; CAESAR = Comparison of Surveillance Versus Aortic Endografting for Small Aneurysm Repair; CG = control group; EVAR = endovascular aneurysm repair; IG = intervention group; MOS = Medical Outcomes Study; NR = not reported; PAT = Propanolol Aneurysm Trial; QOL = quality of life; SF-36 = Short-Form 36-Item Health Survey; UKSAT = UK Small Aneurysm Trial.