2022 MID-ATLANTIC CONFERENCE

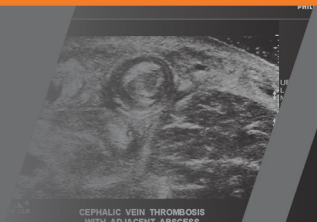
10th ANNUAL CURRENT CONCEPTS IN

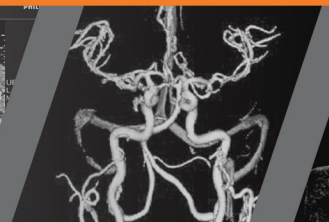
VASCULAR THERAPIES

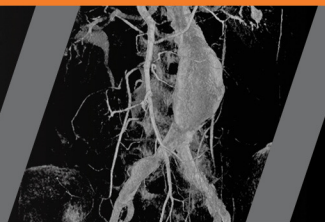
2022

Hilton Virginia Beach Oceanfront
Virginia Beach, Virginia

APRIL 28-30







Sentara Vascular Specialists

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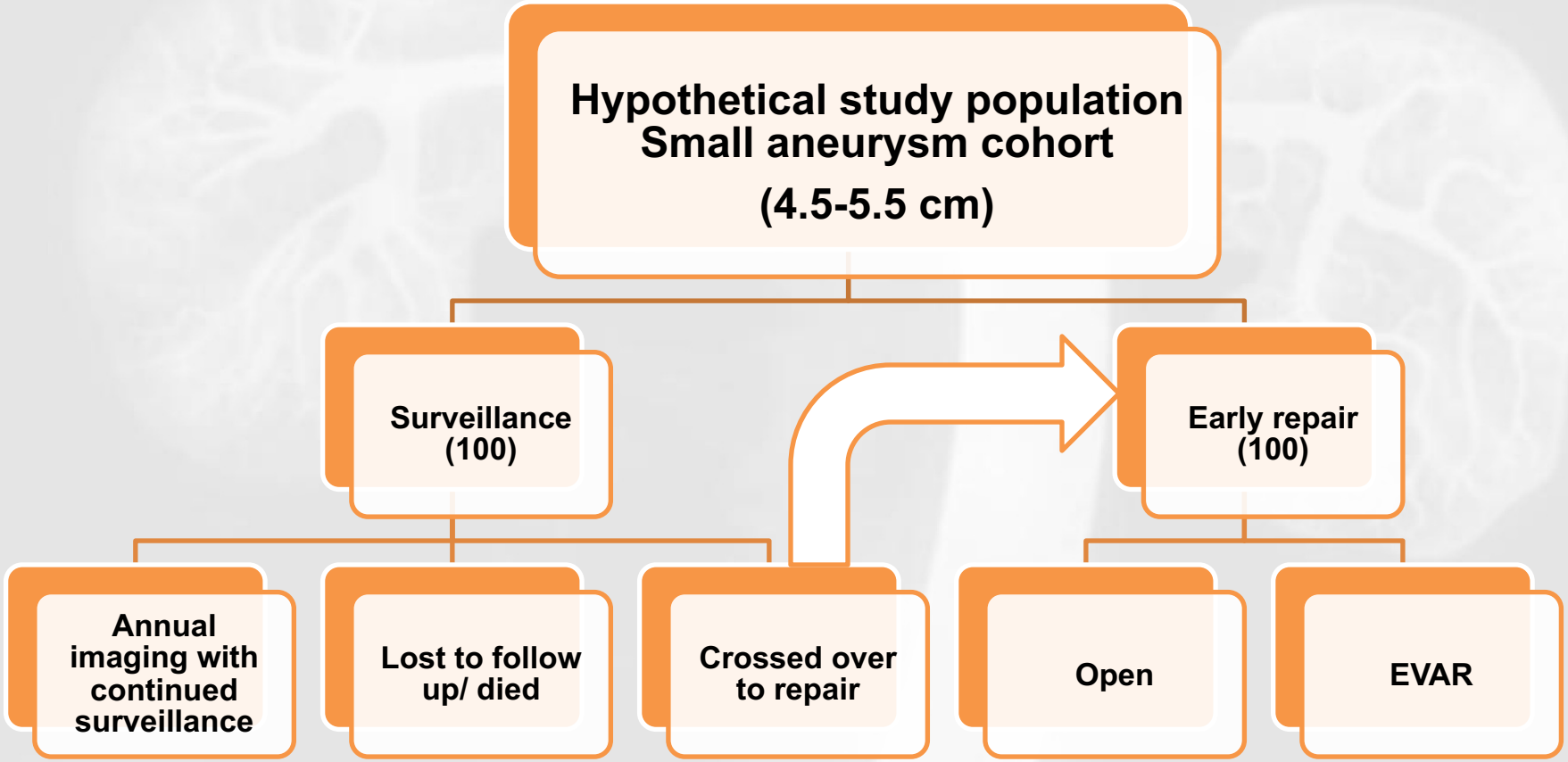
2022

Great Debate: Small AAA (4.5 cm to 5.5 cm) should be fixed

Dr. John Ligush, Jr, MD

Should we fix small aneurysms, HELL NO!!

- Extensive experience
- Trained at premier institutions (UPMC, UNC)
- Carries our Sentara flag in the backyard of UVA


Hypothetical study population
Small aneurysm cohort
(4.5-5.5 cm)
Surveillance (100)
Early repair (100)
Annual imaging with continued surveillance
Lost to follow up/ died
Crossed over to repair
Open
EVAR

Society guidelines (EVS, ESVS)

- Fix AAA >5.5 for males (1A) and >5.0 for females (2B), saccular (2C), symptomatic (1C), rapid growth >1 cm/yr (2C).
- Nothing clear about small AAA
- Rupture risk for 4.5 cm in female equivalent to 5.5 cm in males, but threshold used is 5 cm as operative risks are higher

The decision to treat. We suggest referral to a vascular surgeon at the time of initial diagnosis of an aortic aneurysm.

Level of recommendation	Good Practice Statement
Quality of evidence	Ungraded

We recommend repair for the patient who presents with an AAA and abdominal or back pain that is likely to be attributed to the aneurysm.

Level of recommendation	1 (Strong)
Quality of evidence	C (Low)

We recommend elective repair for the patient at low or acceptable surgical risk with a fusiform AAA that is ≥5.5 cm.

Level of recommendation	1 (Strong)
Quality of evidence	A (High)

We suggest elective repair for the patient who presents with a saccular aneurysm.

Level of recommendation	2 (Weak)
Quality of evidence	C (Low)

We suggest repair in women with AAA between 5.0 cm and 5.4 cm in maximum diameter.

Level of recommendation	2 (Weak)
Quality of evidence	B (Moderate)

In patients with a small aneurysm (4.0-5.4 cm) who will require chemotherapy, radiation therapy, or solid organ transplantation, we suggest a shared decision-making approach to decide about treatment options.

Level of recommendation	2 (Weak)
Quality of evidence	C (Low)

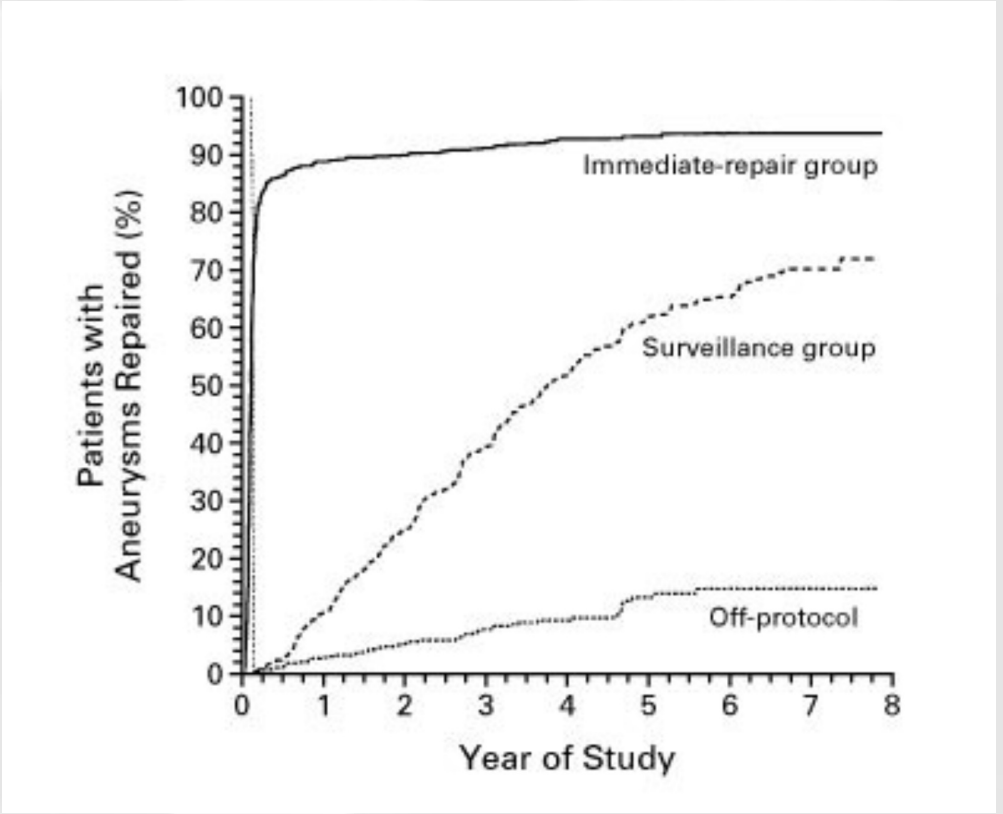
Landmark clinical trials

- Aneurysm detection and management (ADAM):2002
- UK Small Aneurysm Trial: 2002
- Positive impact of endovascular options for treating aneurysm early (PIVOTAL): 2010
- Comparison of surveillance vs aortic endografting for small aneurysm repair (CAESAR): 2011

ADAM trial

2002, VA study randomized < 55 mm aneurysm to surveillance (567) vs open repair (569)

- Similar mortality
- 61% of surveillance ultimately needed repair
- 3% (11) rupture rate in surveillance arm. 7 died.

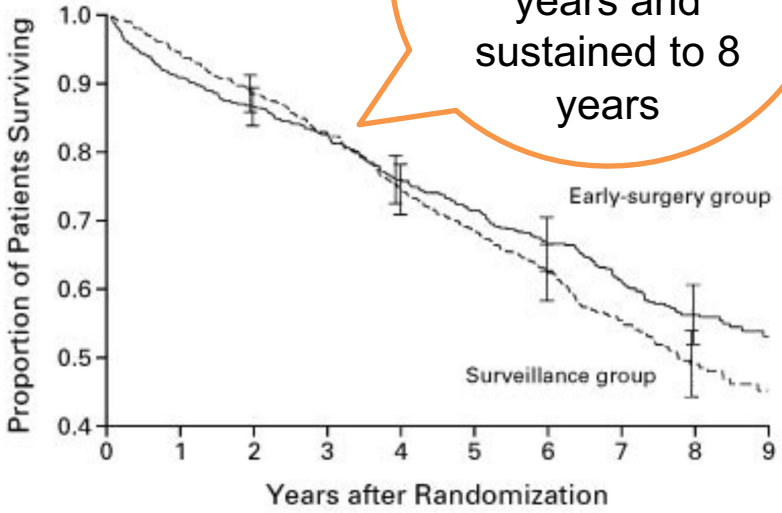


UK Small Aneurysm Trial

2002, randomized < 55 mm aneurysm to surveillance (527) vs open repair (563)

- Similar mortality
- 62% of surveillance underwent surgical repair
- Female pts 4 times more likely to have rupture

Survival benefit with surgery at 3 years and sustained to 8 years



No. at Risk										
Surveillance group	527	497	468	437	394	363	316	173	97	41
Early-surgery group	563	513	489	465	429	402	371	253	154	66

ADAM/UKSAT

- Similar mortality
- But ~80% would have been repaired

cal study population
neurysm cohort
(4.5-5.5 cm)

Surveillance (100)

Early repair (100)

Annual imaging with continued surveillance

Lost to follow up/ died

Crossed over to repair

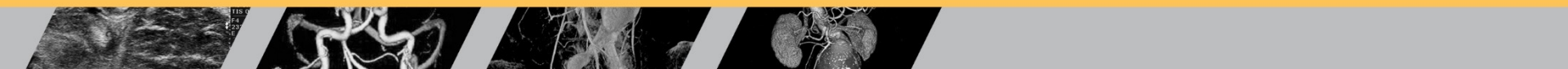
Open

EVAR

PIVOTAL trial

2010, randomized < 50 mm aneurysm to surveillance (362) vs endovascular repair (366).

- Similar aorta related mortality 4%
- 31% of surveillance underwent surgical repair
- Low complications from surgery
- First/second generation EVAR devices



CAESAR trial

2011, randomized < 50 mm aneurysm to surveillance (178) vs Endovascular repair (182).

- Similar aorta related mortality, overall mortality, major morbidity
- 60% of surveillance underwent surgical repair, of these 16.4% lost candidacy to EVAR
- Only 4% female population

PIVOTAL/CAESAR

- Similar mortality (despite older generation devices)
- But ~80% would have been repaired
- 16% would need a more invasive repair

study population
urysm cohort
5.5 cm)

Early repair (100)

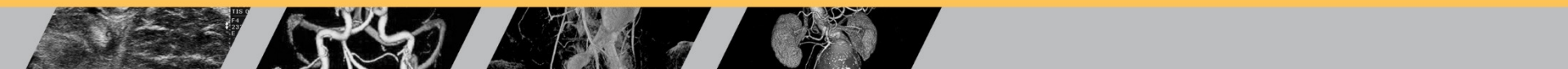
Annual imaging with continued surveillance

Lost to follow up/ died

Crossed over to repair

Open

EVAR




What You Know
What You Need To Learn

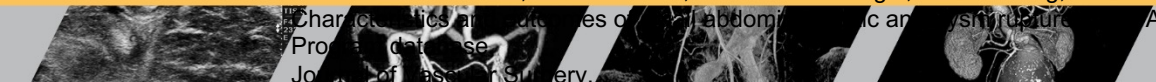
What about the real world

- 2019 VQI paper evaluating 22975 EVAR from 2003-17
- 41% of EVAR done for small AAA (<5.5 cm M, <5 cm F), 47% for medium (5.5-6.5 cm M, 5-6.5 cm F)
- Small AAA younger and healthier, lowest 5 year (12%) and 30D mortality (0.4%), lowest type 1 endoleak, shortest OR time, LOS, lowest reintervention, better technical success
- AAA diameter independent predictor of poor outcomes
- Survival benefit persists despite mortality prediction tools

Differences in patient selection and outcomes based on abdominal aortic aneurysm diameter thresholds in the Vascular Quality Initiative - Journal of Vascular Surgery (jvascsurg.org)

More facts

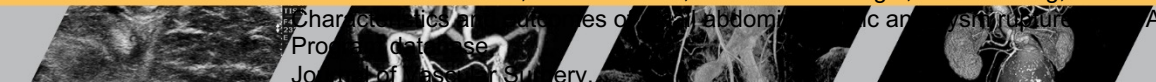
- 10% of all rupture are small AAA
- Small AAA presenting with rupture occur in patient with lower BMI
- Overall improved outcomes
- Larger AAA undergoing repair have higher mortality, complication, reinterventions



Kirthi S. Bellamkonda, Naiem Nassiri, Mehran M. Sadeghi, Yawei Zhang, Raul J. Guzman, Cassius Iyad Ochoa Chaar,
Characteristics and outcomes of ruptured abdominal aortic aneurysm repair: American College of Surgeons National Surgical Quality Improvement Program database,
Journal of Vascular Surgery,

More facts

- Diameter of AAA likely not the best criteria for repair. BMI, morphology, Aneurysm size index (diameter/BSA)
- New prediction tools



Kirthi S. Bellamkonda, Naiem Nassiri, Mehran M. Sadeghi, Yawei Zhang, Raul J. Guzman, Cassius Iyad Ochoa Chaar,
Characteristics and outcomes of open abdominal aortic aneurysm repair in the American College of Surgeons National Surgical Quality Improvement Program database,
Journal of Vascular Surgery,

Small AAA

Younger, better outcomes, less intervention, better survival, less invasive treatment, more durable repair

study population
urysm cohort
5.5 cm)

Early repair (100)

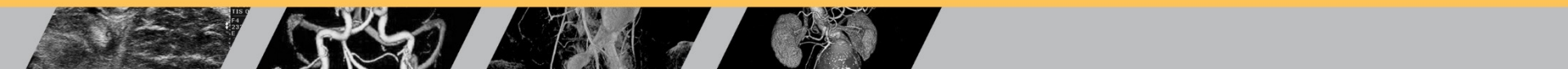
Annual imaging with continued surveillance

Lost to follow up/ died

Crossed over to repair

Open

EVAR

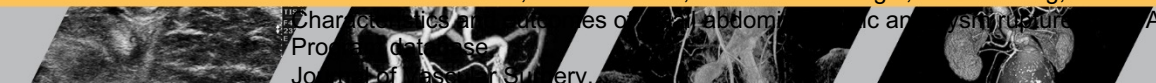


More facts: contd

- Early EVAR associated with better QOL (CAESAR trial participant survey 2011 EJVES)
- Poor follow up (65%) with small AAA surveillance. Poorer prognosis when no follow up scan, assisted living, older age, lower household income

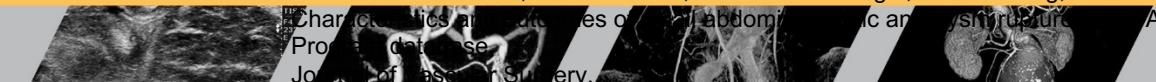
Sounds familiar?

Kirthi S. Bellamkonda, Naiem Nassiri, Mehran M. Sadeghi, Yawei Zhang, Raul J. Guzman, Cassius Iyad Ochoa Chaar,
Characteristics and outcomes of [illegible] abdominal aortic aneurysm repair in the American College of Surgeons National Surgical Quality Improvement Program database,
Journal of Vascular Surgery,



Other factors

- Cost of care
- Patient satisfaction
- Future trainees
- ? Unnecessary surgery
- Other disease processes



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If early surgery is safe, effective, durable, less invasive, more successful, has a better patient satisfaction:

IS IT REALLY A QUESTION?

ulation
ort

Early repair (100)

Annual imaging with continued surveillance

Lost to follow up/ died

Crossed over to repair

Open

EVAR

So back to our initial question

- Should AAA repair be offered to patients with small AAA with acceptable risk factors, appropriate anatomy, good 5 year survival ???

YES PLEASE!!!

Continued surveillance, travel, office appointment, repeated images, anxiety about rupture risk, missed appointment, accumulating expenses

Early repair Open/EVAR

64 yo male with 5.0 cm AAA, favorable anatomy for EVAR, low medical risk..


Need to wake up to reality and work towards affordable technology for treatment and surveillance and better prediction tools for outcomes with AAA

My take

In an appropriate patient with acceptable operative risk and favorable anatomy of a small aneurysm (4.5 to 5.5 cm)

SURGERY (open or endovascular) SHOULD BE OFFERED

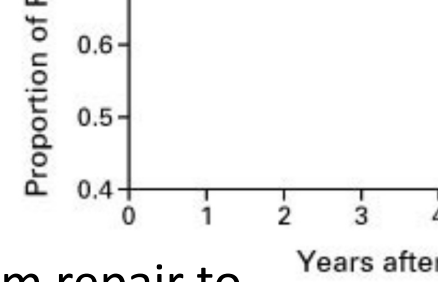
Common sense should still prevail and individualized care plan appropriate for the patient specific condition should be made.

THANK YOU!

Outline

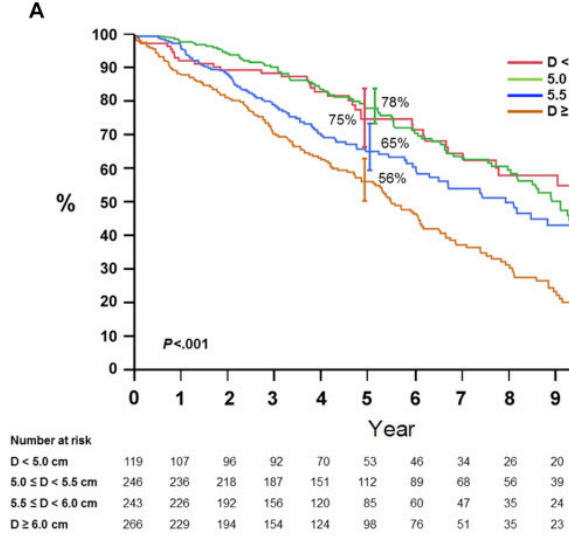
- Dr. Liguish
- Hypothetical study population
- Society guidelines
- Landmark trials
- Is diameter the best criteria (aortic volume, role of BMI, morphology)
- Case for Open versus endo
- Risk scores
- Guidelines
- Cost considerations
- Current practice
- Patient factors
- Education and research
- Better prediction tools

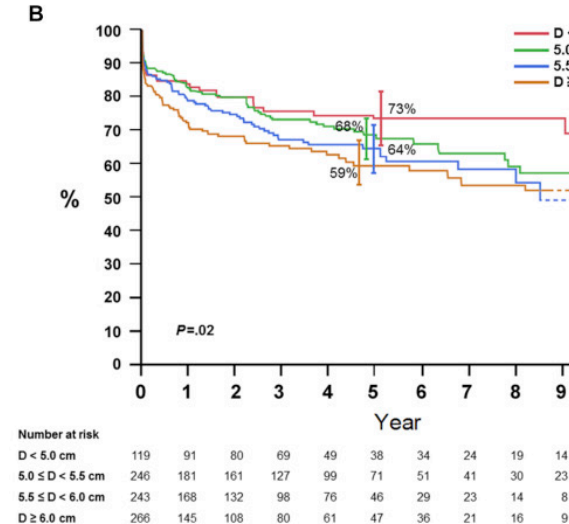
- 10% of ruptures at 4.1 cm in F and 4.5 in M (lower BMI, AA, HTN)
- VQI 40% EVAR repair done for small AAA. Lower mortality at 30D and 5Y, less complications, lower Type 1 endoleak, shorter OR time, LOS, better 1 year reintervention free survival, 5 year overall survival. Better than medium AAA.
- Small diameter independent predictor for lower reinterventions while large aneurysm predictor for mortality on multiple regression model



- 2002. VA study. Randomized open repair for >5.5 569 pts imm repair to 567 surveillance. 3% in surveillance ruptures. Overall similar mortality. 61% of surveillance ultimately underwent repair.
- UKSAT 2002.1090 pt with small AAA randomized to open repair. Survival crossed at 3 years. At 8 years, early surgery grp had survival advantage. May be due to better lifestyle choices by patients.
- PIVOTAL 2010. Small AAA. 4-5 cm. Early EVAR. 3 year survival same. Similar ARM. Some drop out rate and cross over rate.
- CAESAR trial 2011. 369 pt <5.5. early EVAR vs surveillance. Similar mortality, ARM, rupture. 60% needed delayed repair. 16% lost candidacy for EVAR.

- Larger AAA have higher mortality, complication, reintervention after EVAR than smaller. >6 cm independent predictor of mortality
- Improved QOL with early EVAR
- Poor follow up (65%) with small AAA surveillance. Poorer prognosis with no follow up scan, assisted living, older age, lower household income





The Society for Vascular Surgery practice guidelines on the care of patients with an abdominal aortic aneurysm

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Boston, Mass; Palo Alto, Calif; Chicago, Ill; Philadelphia, Pa; Boca Raton, Fla; Grand Rapids, Mich; London, United Kingdom; Rochester, Minn; and Seattle, Wash

ABSTRACT

Background: Decision-making related to the care of patients with an abdominal aortic aneurysm (AAA) is complex. Aneurysms present with varying risks of rupture, and patient-specific factors influence anticipated life expectancy, operative risk, and need to intervene. Careful attention to the choice of operative strategy along with optimal treatment of medical comorbidities is critical to achieving excellent outcomes. Moreover, appropriate postoperative surveillance is necessary to minimize subsequent aneurysm-related death or morbidity.

Methods: The committee made specific practice recommendations using the Grading of Recommendations Assessment, Development, and Evaluation system. Three systematic reviews were conducted to support this guideline. Two focused on evaluating the best modalities and optimal frequency for surveillance after endovascular aneurysm repair (EVAR). A third focused on identifying the best available evidence on the diagnosis and management of AAA. Specific areas of focus included (1) general approach to the patient, (2) treatment of the patient with an AAA, (3) anesthetic considerations and