Current Size Thresholds for AAA are Low and Warrant Reconsideration

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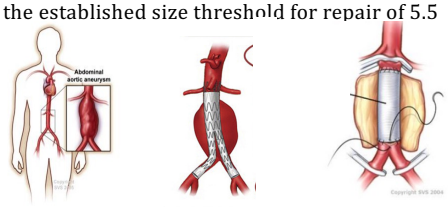
Disclosures

- None

Background: AAA

- Historical AAA practice has been predicated on the established size threshold for repair of 5.5



Current Societal Guideline:

- The SVS and European SVS both endorse the 5.5 cm threshold, giving it a class 1A recommendation

SVS

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)

esvs

Recommendation 22	Class	Level
In men, the threshold for considering elective abdominal aortic aneurysm repair is recommended to be ≥5.5 cm diameter.	I	A

Background: AAA

- This class 1A recommendation is based on trial data demonstrating no benefit for repair

The New England Journal of Medicine

IMMEDIATE REPAIR COMPARED WITH SURVEILLANCE OF SMALL ABDOMINAL AORTIC ANEURYSMS

Articles

Mortality results for randomised controlled trial of early elective surgery or ultrasonographic surveillance for small abdominal aortic aneurysms

*The UK Small Aneurysm Trial Participants**

EDITORIAL: FOR DEBATE

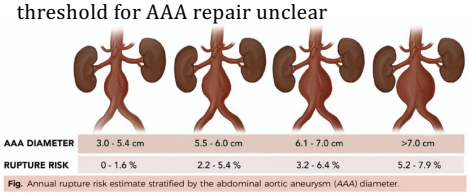
The Indication for Elective Repair of Abdominal Aortic Aneurysm Should Be Reviewed

Thus, by default, aortic diameter of 5.5 cm became the agreed indication for elective intervention for patients with a standard aneurysm, a threshold that has remained the same around the world today. Modern treatment of AAA is thus based on a misunderstanding of the evidence, as there has never been a randomised study comparing intervention with watchful waiting for AAA >5.5 cm.

-Earnshaw, EJVES 2021

Updated Rupture Risk!

- The SVS has modified its guidelines to reflect a lower AAA rupture potential than was historically accepted, making the optimal size threshold for AAA repair unclear



AAA DIAMETER	3.0 - 5.4 cm	5.5 - 6.0 cm	6.1 - 7.0 cm	>7.0 cm
RUPTURE RISK	0 - 1.6 %	2.2 - 5.4 %	3.2 - 6.4 %	5.2 - 7.9 %

Fig. Annual rupture risk estimate stratified by the abdominal aortic aneurysm (AAA) diameter.

Objective:

To determine the optimal size threshold for AAA repair in current practice

Methods:

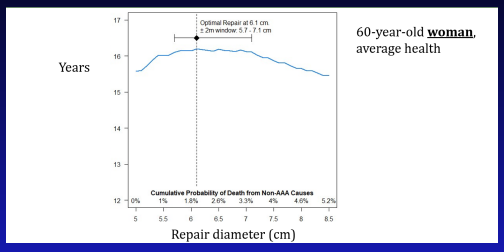
- Markov chain to estimate life expectancy for AAA patients
- Base cases
  - 60-year-old man with a 5.0 cm AAA
  - 60-year-old woman with 5.0 cm AAA
- Primary endpoint: AAA-related mortality

Methods:

- Baseline life expectancy: Social Security Administration
- Annual rupture risk: SVS
- Risk of mortality after surgery and complications: Primary data from VQI

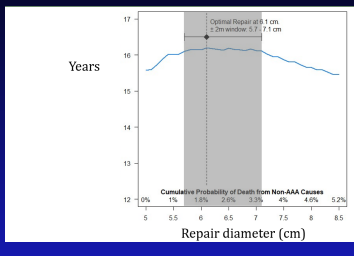
SVS | VQI

Optimal Repair Size Threshold



60-year-old **woman**, average health

Optimal Repair Size Threshold

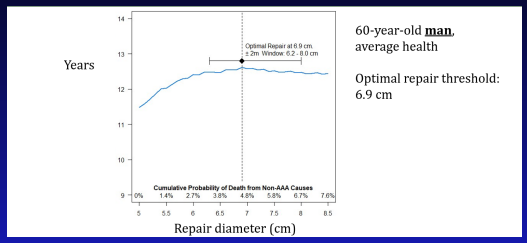


60-year-old **woman**, average health

Optimal repair threshold: 6.1 cm

Range at which survival varies by <2 months: 5.7 cm – 7.1 cm

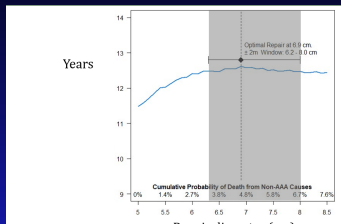
Optimal Repair Size Threshold



60-year-old **man**, average health

Optimal repair threshold: 6.9 cm

Optimal Repair Size Threshold

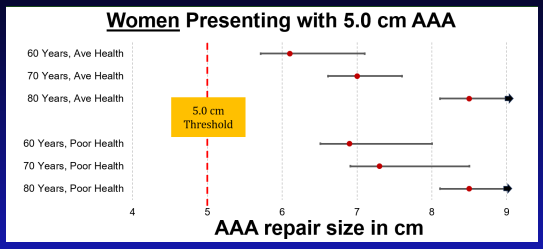


60-year-old **man**, average health

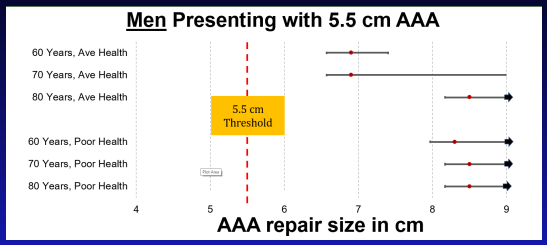
Optimal repair threshold: 6.9 cm

Range at which survival varies by <2 months: 6.2 cm – 8.0 cm

Optimal Repair Size Threshold



Optimal Repair Size Threshold



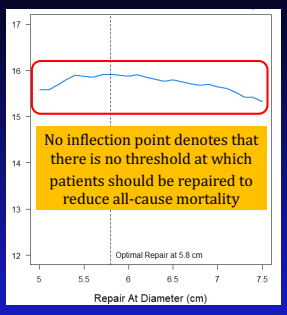
Sub-analysis: All Cause Mortality

60-year-old **woman** in average health with 5.0 cm AAA

Repair size threshold	Annual risk of death (all cause)
5.5 cm	1.7%
6.0 cm	2.3%
6.5 cm	2.7%
7.0 cm	2.8%

Sub-analysis: All Cause Mortality

Life expectancy post diagnosis Years



60-year-old **woman**, average health

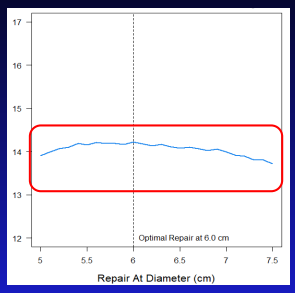
Sub-analysis: All Cause Mortality

60-year-old **man** in average health with 5.0 cm AAA

Repair size threshold	Annual risk of death (all cause)
5.5 cm	2.3%
6.0 cm	2.9%
6.5 cm	3.3%
7.0 cm	3.4%

Sub-analysis: All Cause Mortality

Life expectancy post diagnosis
Years



60-year-old **man**, average health

Limitations:

- Women may have different AAA rupture and expansion rates
- Optimal thresholds are different when looking at AAA-related vs all-cause mortality

Conclusions:

- We may be repairing more aneurysms than are necessary to minimize the risk of AAA-related mortality
- AAA repair size thresholds for use in clinical practice should be revisited or revised
- The optimal size threshold for AAA repair is more nuanced than a discrete one size fits all.

Thank You