2022 MID-ATLANTIC CONFERENCE

***10th ANNUAL*** CURRENT CONCEPTS IN

# VASCULAR THERAPIES

# 2022

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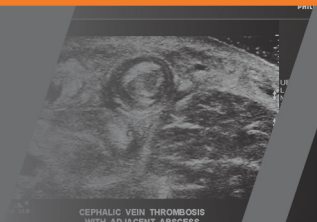
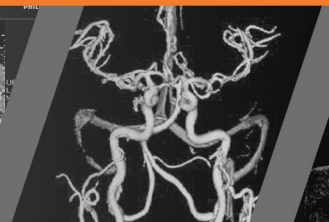
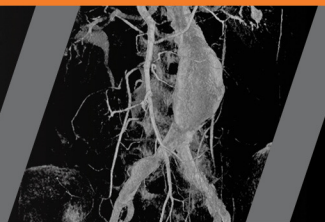
Virginia Beach, Virginia

**APRIL 28-30**





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2022

# Small Abdominal Aortic Aneurysms (4.5-5.4) Should Be Left Alone

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Sentara Martha Jefferson Hospital

# FACTS

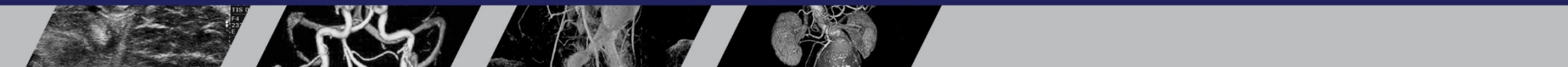
1. Approximately 7000-15000 deaths per year are attributed to ruptured AAA in the United States.
2. Without repair, ruptured AAA is nearly uniformly fatal.
3. For asymptomatic patients, elective repair of an aneurysm, when indicated, is the most effective, lowest risk strategy to prevent rupture.
4. The risk of aneurysm rupture does not exceed the risk of repair until the aneurysm diameter reaches 5.5 cm. For low-risk surgical candidates with a reasonable life expectancy and AAA $\geq$ 5.5 cm, elective AAA repair (open or endovascular) is generally accepted medical practice.
5. Most importantly, for those patients with asymptomatic infrarenal AAA <5.5 cm, conservative management and surveillance, rather than elective AAA repair, is recommended.

# Facts

- Fortunately, guidelines exist to guide appropriate care for patients with abdominal aortic aneurysms.

The Society for Vascular Surgery Practice Guidelines on the Care of Patients with an Abdominal Aortic Aneurysm.

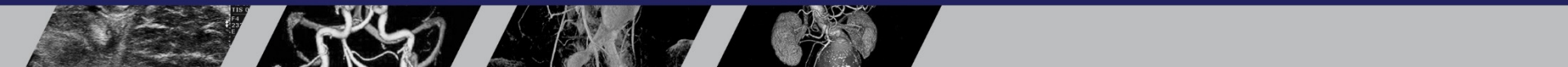
J Vasc Surg 2018; 67:2.



# Areas of Agreement

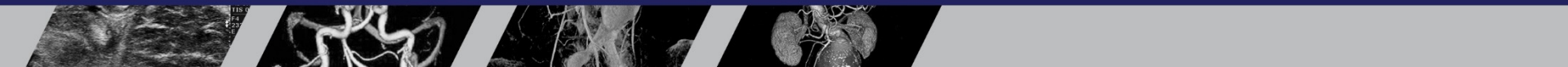
- I believe we can all accept the premise that the goal of aneurysm detection and treatment is to both reduce the risk for aneurysm rupture and to extend life.

- And…there is general consensus that small aneurysms, <4.0 cm in maximum diameter, are at low risk of rupture and should be monitored, whereas an aneurysm ≥ 5.5 cm in diameter should be repaired in an otherwise healthy patient.

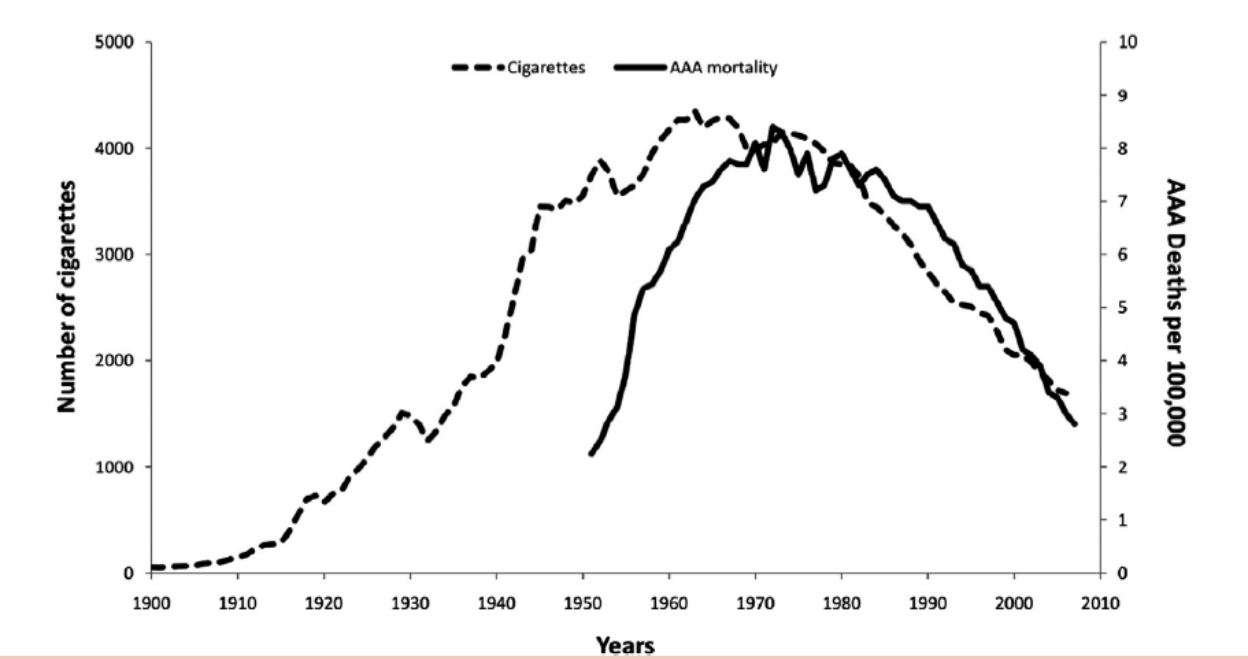


# Areas of Contention

- Unfortunately, most recommendations regarding the treatment of abdominal aortic aneurysms are based solely on the diameter of the aneurysm because of the historically established correlation between diameter and risk of aneurysm rupture.
- Many vascular surgeons focus purely on the size of the aneurysm and not on the physiologic condition or life expectancy of their patients when making recommendations regarding treatment options.
  - It is not always a bad thing to die from a ruptured aneurysm when one is elderly and ill
- But the risk for AAA rupture has probably been greatly overstated in the older literature. In fact,the risk of rupture and death has been declining over the past several decades.
- Parallels reductions in per capita smoking.



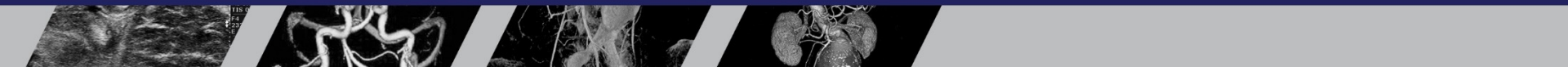
# Smoking and  AAA upture



# Smoking and AAA

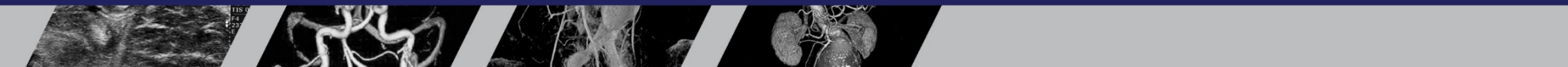
- More than 90% of patients with AAA have smoked cigarettes at some point in their lifetime.

- AAA is second only to lung cancer in epidemiologic association to cigarette smoking - even more closely associated than either cerebrovascular or coronary artery disease.



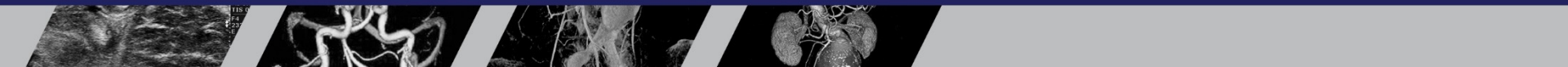
# AAA Size/ Rupture risk

- Aneurysm Detection and Management (ADAM) trial - 2002
- 9% per year for patients with aortic diameters between 5.5 and 5.9 cm,
- 10% for aneurysms between 6.0 and 6.9 cm
- 33% for those >7.0 cm



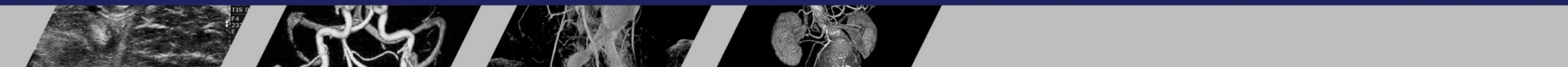
# AAA Size/ Rupture risk

- However, more recent data suggest that rupture estimates based on aortic diameter should be revised downward.
- In fact, as recently as 2015 a study that included 1514 patients with untreated AAA showed cumulative annual rupture rates that were
  - 3.5 percent for AAAs 5.5 to 6.0 cm
  - 4.1 percent for AAAs 6.1 to 7.0 cm
  - 6.3 percent for AAAs >7.0 cm.



# AAA Size/ Rupture risk

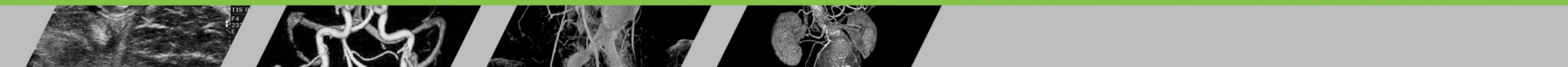
- In fact the risk of death from causes other than AAA was higher than the risk of death from rupture (J Vasc Surg. 2015 Jun;61(6):1606-12).
- This fact has been borne out in study after study. For example, in the EVAR 2 trial EVAR did not affect overall survival when compared to patients deemed inappropriate for therapy. Two-year survival after EVAR was only 60% and 5-year survival was 35%. Thus, for a patient with high operative risk and shortened life expectancy, rupture risk must be high for benefit to be obtained from EVAR.
- Personally, I have struggled for over 25 years answering the question as to whether I am helping patients survive longer by repairing aneurysms.
- We can only accomplish a survival benefit by employing a very conservative , selective treatment algorithm for our patients.



# Screening for AAA

- Taking these matters into consideration, as a side note, I will state emphatically that random screening for AAA in random patient populations should be condemned.

- There is little doubt that random screening will likely lead to rare but definitive identification of the disorder, thus resulting in more inappropriate treatment recommendations by those with a lack of comprehensive knowledge regarding more current AAA evaluation and management guidelines.



# U.S. Preventive Services Task Force
# Screening for Abdominal Aortic Aneurysm: Recommendation Statement

*Abdominal Aortic Aneurysm: Screening*

*Recommendations made by the USPSTF are independent of the U.S. government. They should not be construed as an official position of the Agency for Healthcare Research and Quality or the U.S. Department of Health and Human Services.*

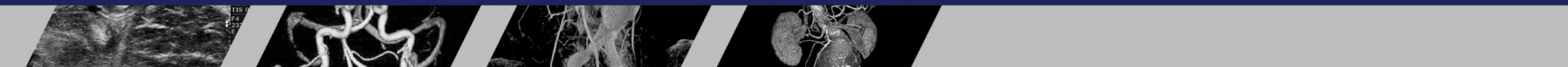
| | |
|---|---|
| **What does the USPSTF recommend?** | **For men aged 65 to 75 years who have ever smoked: Grade B**<br>Perform 1-time screening for abdominal aortic aneurysm (AAA) with ultrasonography in men who have a history of smoking. |
| | **For men aged 65 to 75 years who have never smoked: Grade C**<br>Selectively offer screening to men who do not have a history of smoking, rather than routinely screening all men in this group |
| | **For women who have never smoked and have no family history of AAA: Grade D**<br>Do not screen women who have never smoked and do not have a family history of AAA. |
| | **For women aged 65 to 75 years who have ever smoked or have a family history of AAA: I statement**<br>Evidence is insufficient to assess the balance of benefits and harms of screening for AAA with ultrasonography in women aged 65 to 75 years who have ever smoked or have a family history of AAA. |
| **To whom does this recommendation apply?** | Asymptomatic adults |
| **What's new?** | This recommendation is consistent with the 2014 USPSTF recommendation. Family history (first-degree relative) of AAA has been added as a risk factor for screening decisions in women. |
| **How to implement this recommendation?** | 1. **Assess risk**. Risk factors for AAA include older age, male sex, smoking, and having a first-degree relative with an AAA. The recommendation varies based on a patient's sex, age, and smoking history. "Ever smoker" is commonly defined as smoking 100 or more cigarettes.<br>2. **Screen**. Abdominal duplex ultrasonography is the standard approach for AAA screening.<br>a. Screen men aged 65 to 75 years who have ever smoked.<br>b. Selectively offer screening to men aged 65 to 75 years who have never smoked. Evidence shows that the overall benefit for screening all men in this group is small. To determine whether this service is appropriate, patients and clinicians should consider the patient's medical history, family history, other risk factors, and personal values.<br>For those who screen positive, treatment of AAA will depend on aneurysm size, the risk of rupture, and the risk of operative mortality. |
| **How often?** | One-time screening |
| **What are other relevant USPSTF recommendations?** | The USPSTF has made recommendations on screening for carotid artery stenosis and screening for peripheral arterial disease. These recommendations are available at www.uspreventiveservicestaskforce.org. |
| **Where to read the full recommendation statement?** | Visit the USPSTF website to read the full recommendation statement. This includes more details on the rationale of the recommendation, including benefits and harms; supporting evidence; and recommendations of others. |

# Patient Discussions

- Informing a patient that he or she has an abdominal aortic aneurysm is quite challenging.

- The discussion frequently elicits a dramatic, fearful response.

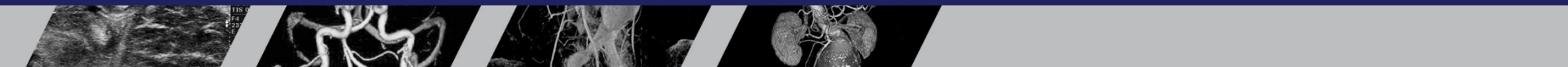
- Quite often I am asked, "how long do I have to live?" or "when do we schedule my surgery?".



# Patient Discussions

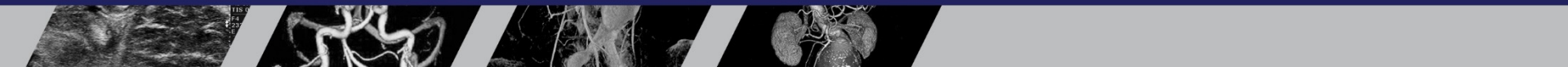
- Some of these fears are justified.  Indeed, historically speaking there was once a widespread over-treatment of AAA based on the espoused benefit of reducing the risk for aneurysm rupture and death related thereto.

- However, the truth of the matter is that the vast majority of AAA's are benign, never rupture, and never require repair.



# Patient Discussions

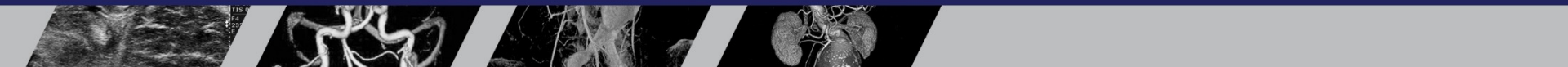
- Case in point -Massachusetts General Hospital – 1977
- 24,000 consecutive autopsies performed between 1952 and 1975 identified 473 patients with undetected or unrepaired AAA’s.
- 75% of those patients had a cause of death completely unrelated to the AAA
- 41% of the AAA's were greater than 5.1 cm in maximal diameter.



# Patient Discussions

- In addition to overtreatment, again long-term data suggest that surgical repair does not impart significant long-term survival benefits for the vast majority of patients who do not have a high risk for aneurysm rupture at presentation.
  - We all die from something, but not often from AAA.

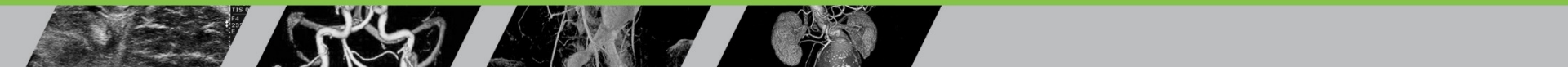
- More recent data have provided guidelines for therapy that have proven extremely beneficial for our patients.  It is through the application of these guidelines and evidence-based principles that unnecessary surgical procedures can be avoided, and patients may receive sound advice to potentially allay their fears about their new diagnosis.



# Controversy

- Obviously, some controversy exists regarding treatment strategies for patients who present with an AAA between 4.0 and 5.4 cm
  - Otherwise, we would not be having this debate.

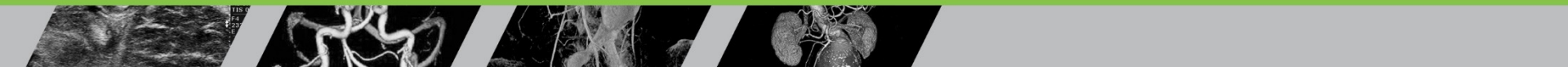
- However, there are strong data to support the 5.5 cm diameter as a guideline to the treatment of abdominal aortic aneurysms, regardless of the surgical approach.



# Controversy

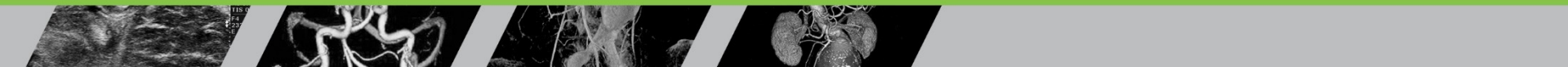
- In the UKSAT and the ADAM trial (randomized treatment of 4.0-5.4 AAA)
  - 30-day operative mortality in the immediate surgery groups (5.5% UKSAT, 2.1% ADAM) led to an early disadvantage in survival.

- The investigators found no statistically significant difference in long-term survival between the immediate open AAA and surveillance groups.



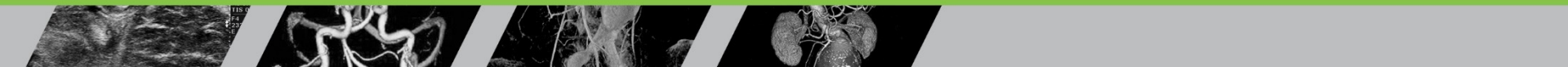
# Controversy

- Currently, nearly 80% of all AAAs are treated by EVAR in the United States.
- Given the less invasive nature of EVAR, two studies re-evaluated the appropriateness of intervention for small aneurysms.
- The Comparison of Surveillance versus Aortic Endografting for Small Aneurysm Repair (CAESAR) and Positive Impact of Endovascular Options for Treating Aneurysms Early (PIVOTAL) trials compared immediate EVAR with surveillance for AAAs between 4.1 and 5.4 cm (CAESAR) and 4.0 and 5.0 cm (PIVOTAL)
- Found no survival benefit for early EVAR
- Admittedly,  neither trial was designed to determine whether immediate EVAR might be beneficial or harmful for specific AAA size ranges or age subgroups



# Controversy

- However, A Cochrane database review ( multivariable analysis ) of these four studies (UKSAT, ADAM, CAESAR,PIVOTAL) demonstrated no survival advantage to immediate repair by open surgery or EVAR for small AAAs (4.0-5.5 cm).

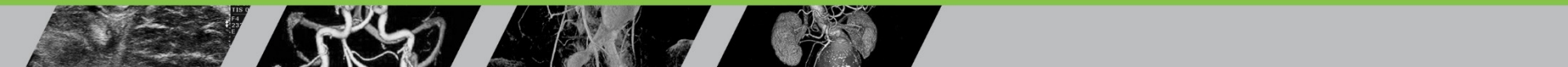


# Conclusions

- The recommendations for the treatment for aneurysm disease should only be undertaken when clinicians have a strong grasp of the data regarding appropriate treatment for aneurysm disease, and only after all clinical factors are considered.

- As a general rule, discussion regarding AAA repair should only be undertaken when an aneurysm reaches 5.5 cm in diameter , but not smaller, to avoid harm.

- The plain fact is that the vast majority of patients with AAA should not be offered surgical intervention and should be offered follow-up when rupture risk is low.



# Conclusions

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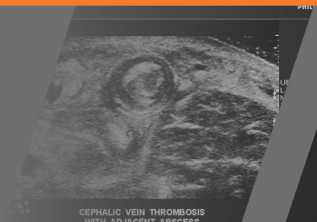


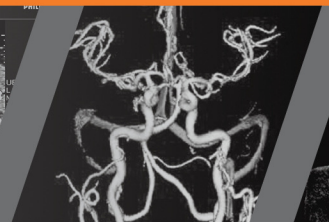

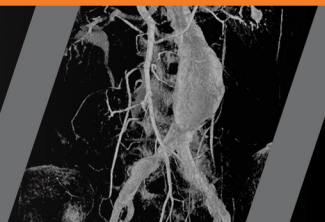

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