

## A Guide to the Guidelines

This section provides a quick glance at some of the key AS recommendations from the ACC/AHA 2006 practice guidelines update.<sup>1</sup>

### Determining Severity of Stenosis

	Mild	Moderate	Severe
<b>Valve area</b>	>1.5 cm <sup>2</sup>	1.0 – 1.5 cm <sup>2</sup>	<1.0 cm <sup>2</sup>
<b>Valve area index</b>			<0.6 cm <sup>2</sup> per m <sup>2</sup>
<b>Mean gradient</b>	<25 mm Hg	25 – 40 mm Hg	>40 mm Hg
<b>Jet velocity</b>	<3.0 m/second	3.0 – 4.0 m/second	>4.0 m/second

While these measures are a good indicator of severity, therapeutic decisions should also be largely based on the presence or absence of symptoms.

### Treating Asymptomatic Aortic Stenosis

Asymptomatic aortic stenosis should be proactively treated—those with severe disease should be considered for AVR if:

- Exercise triggers symptoms; OR
- LV ejection fraction is less than 0.50; OR
- There is severe calcification and rapid progression or delays in surgery are expected; OR
- Patient is having CABG or other heart surgery (even with moderate disease).

### Age is Not a Contraindication to AVR

Symptomatic patients that are otherwise healthy and have strong heart muscles are good candidates for surgery—no matter what their age. It is reasonable for older patients to elect AVR as long as they have been clearly informed of the risks.



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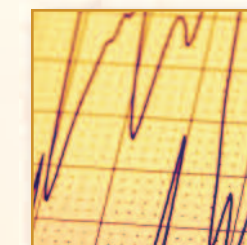
A Physician's Guide

## Aortic Stenosis in Seniors



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**Aortic stenosis (AS) is primarily caused by calcification of the valve, which is increasingly seen with age.** Even though aortic valve replacement surgery (AVR) greatly improves survival and quality of life, aortic stenosis is undertreated. Studies have shown that this may, in part, be due to the incorrect belief that age is a contraindication to surgery.

While a cardiologist will most likely handle your patient's treatment, you play a crucial role in diagnosis and can provide valued advice during treatment decisions. This guide provides diagnosis and treatment information, as well as tips on having a conversation with your patient about AS and AVR surgery.

### Recognizing Symptomatic Aortic Stenosis

#### Symptoms of severe AS can include:

- Dyspnea
- Fatigue and/or weakness
- Exercise intolerance
- Syncope
- Congestive heart failure
- Numbness or tingling sensations
- Angina
- Shortness of breath
- Lightheadedness
- Dizziness
- Arrhythmia

Many of these symptoms will occur during activity but may also occur during rest as the disease progresses.

Some classic symptoms may be absent in older patients or progress at a rate that appears to be like "normal" aging. This makes it especially important to ask about all possible symptoms—it may be helpful to integrate this into your routine symptom screening.

## Age—The Primary Risk Factor

While diabetes, hypertension, and high cholesterol may increase risk, unlike other cardiovascular diseases, lifestyle factors have not been proven to play a role in the development and progression of aortic stenosis (AS).

### **Known risk factors include:**

- Age—significantly more common with age
- Gender—more common in men than women
- Aortic sclerosis—a precursor for AS
- Congenital abnormalities such as bicuspid valve
- Rheumatic fever or history of other heart infections

## Screening For & Diagnosing Aortic Stenosis

A stenotic valve causes a pressure gradient between the left ventricle and aortic valve—the more severe, the higher the gradient between systolic pressures. AS can be diagnosed clinically and confirmed through echocardiography. Additional diagnostic tools can further assess severity.

### **Physical Exam**

Carotid pulse may reveal a slow-rising and low volume pulse. Systolic blood pressure may be high with mild or moderate AS.

### **Cardiac Auscultation**

An AS murmur is systolic and harsh in quality and can be heard at the right and left upper sternal border with the patient leaning forward. As it progresses the murmur peaks later near the 2<sup>nd</sup> heart sound which becomes softer—a 3<sup>rd</sup> and 4<sup>th</sup> sound may also become noticeable.

### **Echocardiography**

Evaluates the valve and shows aortic valve area, poorly mobile aortic leaflets, high outflow gradient, left ventricular hypertrophy, and other abnormalities.

### **Electrocardiography**

Usually reveals signs of left ventricular hypertrophy.

### **Cardiac Catheterization**

Can assess severity of ischemia for AVR surgery candidates. Not recommended in asymptomatic patients.

### **Exercise Testing**

May elicit exercise-induced symptoms and abnormal blood pressure responses in asymptomatic patients. Should **NOT** be performed in symptomatic patients due to high risk of sudden death.

## Optimal Treatment

### **AVR Surgery**

**The only way to eliminate AS is to repair or replace the valve.** Aortic valve replacement (AVR) surgery is the most effective treatment for symptomatic patients (see *Guide to the Guidelines* for asymptomatic recommendations). Surgery for AS alleviates symptoms, increases survival, and significantly improves quality of life in patients of all ages.

There are relatively few risks of operative mortality and complications from AVR surgery. While surgical risks rise slightly with age, **age alone is not a contraindication.** In the absence of comorbidities such as cancer or severe lung disease, virtually all symptomatic AS patients are candidates.

Stenotic valves can be replaced with mechanical or bioprosthetic valves—both have specific risks and benefits. While mechanical valves last longer, bioprosthetics may be used in elderly patients who cannot take anticoagulants.

Other repair or replacement options such as balloon valvotomy are not as successful long-term. Percutaneous or transcatheter valve replacement is an experimental procedure proposed for patients who are not candidates for traditional AVR.

### **Monitoring the Disease**

Most asymptomatic patients do not need immediate surgery but should be monitored regularly (see exceptions in *Guide to the Guidelines*). Asymptomatic patients should be reevaluated every 1-2 years for moderate cases, and every 3-5 years for mild cases.

**Once a patient becomes symptomatic sudden death risk increases dramatically and surgery should be done as soon as possible.** Patients with moderate to severe AS should avoid competitive sports and all other exercise as advised. They should not participate in an exercise stress test due to risk of sudden death. Prophylactic antibiotics to prevent endocarditis are no longer universally recommended.

### **Medications**

Because AS is progressive and can lead to serious complications and sudden death, symptomatic patients should be treated medically only if they have contraindications to or elect not to have surgery. Some medications such as digitalis and diuretics may provide temporary symptom relief.

## Prognosis of Older Patients

### **Without Replacement Surgery**

**AS is progressive and will not improve without treatment**

- Average progression of stenotic valve:
  - Valve area decrease of 0.1 cm<sup>2</sup>/yr
  - Jet velocity increase of 0.3 m/s/yr
  - Mean pressure gradient increase of 7 mm Hg/yr
- Untreated AS can lead to pulmonary hypertension, arrhythmias, endocarditis, heart attack, congestive heart failure, and sudden death
- Symptomatic AS significantly decreases lifespan:
  - Average life expectancy after onset of angina or syncope is <3 yrs<sup>2</sup>
  - Average life expectancy after heart failure is 6-24 months<sup>3</sup>

### **With Replacement Surgery**

**Surgery greatly increases survival and improves quality of life**

- 80% of people who survive surgery have marked symptom improvement<sup>4</sup>
- Majority return to their own homes and retain independence after surgery
- Post-operative lifespan in older patients is comparable to younger counterparts
- Older patients do have a higher risk of operative mortality, arrhythmias, and surgical complications such as stroke and acute renal failure

## Talking to Your Patients About Aortic Stenosis

You have built a relationship of trust with your patients and play an important role in their understanding of the disease and their decision-making.

### **Explain Important Terminology**

This may be the first time many of your patients have heard of AS. Take some time to explain the heart's anatomy, the course of the disease, and key terms. It may be helpful to relate aortic stenosis to other cardiovascular diseases that they know more about.

### **Discuss Benefits and Risks of Surgery**

Explain that medication will only ease symptoms but that AVR surgery can eliminate symptoms and add healthy years to their life. In comparison, surgical risks are small.

### **Emphasize That Age is Not a Contraindication**

Your older patients may be nervous and incorrectly feel that surgery is inappropriate at their age. Explain that AVR surgery is often a great success story in older patients.

Visit [www.agingresearch.org](http://www.agingresearch.org) to watch a video with additional information on AS from a leading expert in the field.

<sup>1</sup> American College of Cardiology/American Heart Association Task Force on Practice Guidelines. 2006. ACC/AHA Practice Guidelines for the Management of Patients with Valvular Heart Disease. *J Am Coll Cardiol* 48:598-675.

<sup>2</sup> Ross J., and E. Braunwald. 1968. Aortic Stenosis. *Circulation* 38(1 Suppl):61-7.

<sup>3</sup> ACC/AHA Task Force, *Practice Guidelines*.

<sup>4</sup> Abdul-Hamid A.R., and G.P. Mulley. 1999. Why Do So Few Older People with Aortic Stenosis Have Valve Replacement Surgery? *Age & Ageing* 28:261-4.