Aortic Stenosis Fact Sheet

Introduction
Up to 1.5 million people in the United States suffer from aortic stenosis, a progressive disease that affects the aortic valve of their hearts. Within this group of patients, the U.S. Census Bureau and other sources indicate that approximately 300,000 suffer from severe aortic stenosis, often developing debilitating symptoms that can restrict normal day-to-day activities, such as walking short distances or climbing stairs. These patients can often benefit from surgical valve replacement – the gold standard treatment for severe aortic stenosis – but only about two-thirds of them undergo the procedure each year. Those who are not treated may be deemed too high risk for surgery, are not referred for it, or delay the procedure for personal reasons. Patients who do not undergo surgical valve replacement have no effective, long-term treatment option to prevent or delay their disease progression. Without treatment, severe symptomatic aortic stenosis is life-threatening and previous studies have indicated 50 percent of patients will not survive more than two to three years. A recent randomized, controlled study involving only inoperable patients showed outcomes were just as dismal with one year outcomes showing a 50.7 percent mortality rate for standard therapy (non-surgical) patients post enrollment in the study.

In September of 2010, The New England Journal of Medicine published results online from the inoperable patients studied in The PARTNER Trial, the world’s first randomized clinical trial of transcatheter heart valve replacement (TAVR). This portion of the trial studied the investigational Edwards SAPIEN transcatheter heart valve versus standard therapy in 358 inoperable patients with severe aortic stenosis. Study authors reported that the rate of death from any cause at one year was 50.7 percent in the patients that received standard therapy, as compared to 30.7 percent of patients treated with TAVR. According to the authors, "aortic stenosis is an insidious disease with a long latency period followed by rapid progression after the appearance of symptoms, resulting in a high rate of death" and concluded that standard therapy “did not alter the natural history of severe aortic stenosis.”

Overview of the Disease
A healthy aortic valve allows oxygen-rich blood from the lungs to flow from the left ventricle of the heart to the aorta, where it then flows to the brain and the rest of the body. Severe aortic stenosis is the narrowing or obstruction of the aortic heart valve and is most often caused by accumulations of calcium deposits on the valve’s leaflets. The resulting stenosis impairs the valve’s ability to open and close properly. The prevalence of aortic stenosis increases with age. Today, buildup of calcium on the leaflets that occurs with age (called senile degenerative aortic stenosis) is the most common cause of acquired aortic stenosis. It usually occurs in patients older than 75 years of age. In a minority of cases, a congenital heart defect, rheumatic fever or endocarditis can also cause the valve to narrow.
Symptoms
Patients with severe aortic stenosis may experience debilitating symptoms, such as:
• Severe shortness of breath that leads to gasping – even at rest
• Chest pain
• Fainting
• Extreme fatigue
• Lightheadedness/dizziness
• Difficulty exercising

Diagnosis
Initial clinical evaluations can be confirmed by examining the heart and listening for the heart murmur typical of the disease or by performing an echocardiogram. Making the correct diagnosis is critical, as once patients begin exhibiting symptoms, the disease progresses rapidly and can be life-threatening. Due to the high risks associated with leaving this condition untreated, aortic valve replacement (AVR) should be performed without delay after initial diagnosis of symptoms.

Treatment
Aortic valve replacement is currently the primary effective treatment that provides symptomatic relief and long-term survival in adults with severe aortic stenosis. During this procedure, the damaged “native” heart valve is removed and replaced with a prosthetic valve. AVR is recommended for virtually all adult patients who do not have other serious medical conditions. Today, the expected operative mortality for AVR is very low and the procedure is considered the gold standard for the treatment of severe aortic stenosis. For patients who are at very high-risk for surgery or deemed inoperable, a less invasive treatment called transcatheter aortic valve replacement is being studied worldwide.

Edwards’ second randomized clinical trial of TAVR – The PARTNER II Trial – is evaluating the safety and effectiveness of the company’s next-generation Edwards SAPIEN XT valve in inoperable patients with severe aortic stenosis. The Edwards SAPIEN XT valve, which features a low-profile delivery system, has been available commercially in Europe since early 2010 and is also being studied in Japan’s first clinical trial of a transcatheter heart valve.