Chronic Disease and Medical Innovation in an Aging Nation

The Silver Book®: Valve Disease
Prevalence & Incidence

As many as 11.6 million Americans in the U.S. have heart valve disease (HVD), and more than 1 in 10 adults ages 75 and older have HVD. Thankfully, the HVD field has experienced tremendous advances in improving survival, recovery, and quality of life for patients.

SAS = symptomatic aortic stenosis
sSAS = severe symptomatic aortic stenosis
MR = mitral regurgitation
SAVR = surgical aortic valve replacement
TAVR = transcatheter aortic valve replacement

~8.7 to 11.6 MILLION PEOPLE IN THE U.S. have HEART VALVE DISEASE


~2.5% of the U.S. population has HEART VALVE DISEASE
(Nkomo et al. 2006)

More than 1 in 10 Americans age 75+ have heart valve disease (Nkomo et al. 2006)

Economic Burden

TOTAL COST* OF HEART VALVE DISEASE IN THE U.S.

Symptomatic aortic valve disease $5.6 BILLION
Asymptomatic aortic valve disease $4.6 BILLION
Symptomatic mitral valve disease $7.6 BILLION
Asymptomatic mitral valve disease $5.6 BILLION

TOTAL $23.4 BILLION

Total Medical Costs Per Patient with Medically Managed SAS
(Clark, Arnold et al. 2012)

Year 1: $34,194 Year 2: $46,748 Year 3: $54,824 Year 4: $59,767 Year 5: $63,844

Skilled Nursing
Physician
Other
Inpatient

*Annual direct healthcare expenditures (Moore et al. 2016)
Human Burden

For patients with sSAS without repair or replacement (Otto 2000)

- only 50% SURVIVE 2 years
- only 20% SURVIVE 5 years

Medicare patients with sSAS have an average lifespan of 1.8 years without repair or replacement (Goel et al. 2014)

EVERY YEAR, MORE THAN 25,000 AMERICANS DIE of heart valve disease (Benjamin et al. 2017)

Patients with severe MR who don’t have surgery have mortality rates of 20% after 1-year and 50% after 5-years (Goel et al. 2014)

Survival Rates for SAS patients without treatment (Clark, Arnold et al. 2012)

Survival Rates of SAS patients Ages 80+

Value of Innovation

In 2010, ~67,500 SAVRs WERE PERFORMED in the U.S. (Clark, Duhay et al. 2012)

Survival Rates of SAS patients Ages 80+

TAVR IMPROVED quality of life in SAS patients from 5.3 at baseline to 7.4 at four years (on a 10-point scale) (Kovac 2016)

Mortality and Hospitalization Rates for Heart Failure in Unoperated Severe MR Patients (Goel et al. 2014)

Survival Rates of Patients Ages 65-75 Undergoing

Mortality

<table>
<thead>
<tr>
<th>Years</th>
<th>Mortality (%)</th>
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<tr>
<td>1</td>
<td>20%</td>
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<tr>
<td>2</td>
<td>41%</td>
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<tr>
<td>3</td>
<td>50%</td>
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<tr>
<td>4</td>
<td>58%</td>
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<tr>
<td>5</td>
<td>68%</td>
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Proportion of Surviving Patients Hospitalized for Heart Failure

<table>
<thead>
<tr>
<th>Years</th>
<th>Surviving Patients (%)</th>
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<tbody>
<tr>
<td>1</td>
<td>41%</td>
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<tr>
<td>2</td>
<td>29%</td>
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<tr>
<td>3</td>
<td>37%</td>
</tr>
<tr>
<td>4</td>
<td>46%</td>
</tr>
<tr>
<td>5</td>
<td>50%</td>
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Survival Rates of Patients Ages 65-75 Undergoing

Mitra Valve Repair

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<tr>
<th>1-Year</th>
<th>5-Year</th>
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<tbody>
<tr>
<td>93.6%</td>
<td>83.3%</td>
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Mitra Valve Replacement

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<th>1-Year</th>
<th>5-Year</th>
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<tr>
<td>85.9%</td>
<td>70.7%</td>
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From approval in 2011 through 2015 >54,000 TAVRs WERE PERFORMED in 418 centers in 48 states (Grover et al. 2017)
Fill the Research Gaps

Addressing the significant gaps in our understanding of HVD will allow for advocates, government agencies, policymakers, and providers to better address existing barriers to treatment and care. Identified areas for research should include:

- Updated prevalence and incidence estimates to recognize the current scope and burden of this disease, including specific minority subgroups
- Exploration of differences among the undiagnosed population to inform and guide discussions on disease detection efforts
- Analysis of the causes of lower detection and referral, barriers to accessing treatment, and treatment refusal among minorities
- Study of primary care physician detection rates of valvular murmurs to improve training, and ultimately detection and referral rates
- Comparison of patient outcomes at various timeframes during watchful waiting between diagnosis and treatment
- Evaluation of whether systematic detection efforts among high risk populations would uncover previously undetected disease, and inform future quality measures and practice guidelines
- A GAO-led analysis to understand the economic burden of heart valve disease and the value of new treatments
- An AHRQ-generated evidence map that explores detection and care, and leads to future research agendas and guideline recommendations

Valve Disease Awareness

6 in 10 heart valve patients didn’t have or recognize their symptoms, and were only diagnosed after a regular check-up or unrelated doctor visit. (BRS 2016, Opinion Research)

>40% of heart murmurs — detected with a stethoscope and sometimes the first sign of HVD — are missed by family practitioners. (Vukanovic-Criley et al. 2006)

Aortic stenosis is often undertreated — one study found 56% of sSAS patients referred to a surgeon weren’t operated on. (Rach 2011)

www.ValveDiseaseDay.org
References


The Alliance for Aging Research is the leading non-profit organization dedicated to accelerating the pace of scientific discoveries and their application in order to vastly improve the universal human experience of aging and health.

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