Today's presentation is brought to you by:

American Heart Association®

Target: Aortic Stenosis™

For more information on Target: AS

visit: https://www.heart.org/en/professional/quality-improvement/target-aortic-stenosis

Edwards

Edwards Lifesciences is the national sponsor of American Heart Association's Target: Aortic Stenosis

American Heart Association.
Target: Aortic Stenosis™

Today's Discussion

MODERATOR

Brian R. Lindman, MD, MSc

Medical Director, Structural Heart and Valve Center,
Vanderbilt University Medical Center

American Heart Association®

Target: Aortic Stenosis™

Undertreatment of Aortic Stenosis: Where do we stand?

June 21, 2022

Sammy Elmariah, MD, MPH, FACC, FAHA, FSCAI

Director, Interventional Cardiology Research

Associate Professor, Harvard Medical School

Interventional Cardiology and Structural Heart Disease, MGH

American Heart Association.
Target: Aortic Stenosis™

Disclosures

Industry Institutional Grant or Research Support

Abbott

Edwards Lifesciences

Medtronic

Consulting Fees/ Honoraria

Cardiovascular Research Foundation

Edwards Lifesciences

Medtronic

American Heart Association.
Target: Aortic Stenosis™

Objectives

- Review trends in utilization of AVR for severe symptomatic aortic stenosis (SSAS)
- Discuss drivers of underdiagnosis and undertreatment of SSAS
- Strategize systems of care that would improve recognition and referral for treatment of SSAS

American Heart Association.
Target: Aortic Stenosis™

Historic Rates of SSAS Treatment

In 2001, 1/3 of patients with severe AS were not treated

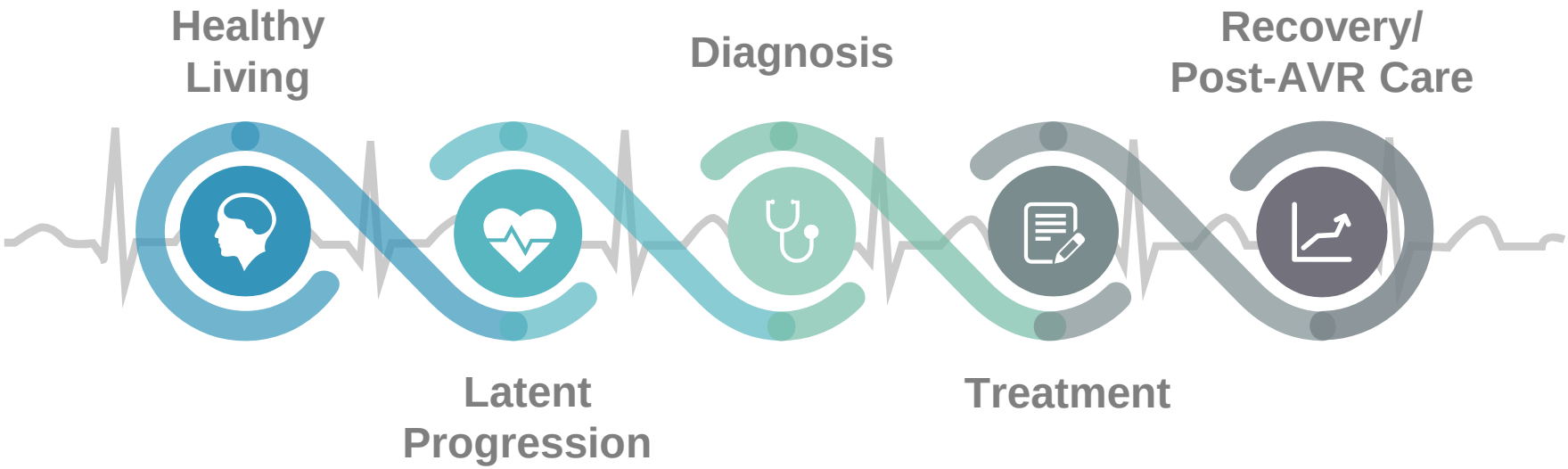
Development and widespread adoption of TAVR

Growing aging population

Has widespread adoption of TAVR met the demands of a growing population of patients with AS?

American Heart Association.
Target: Aortic Stenosis™

The Aortic Stenosis Patient Journey

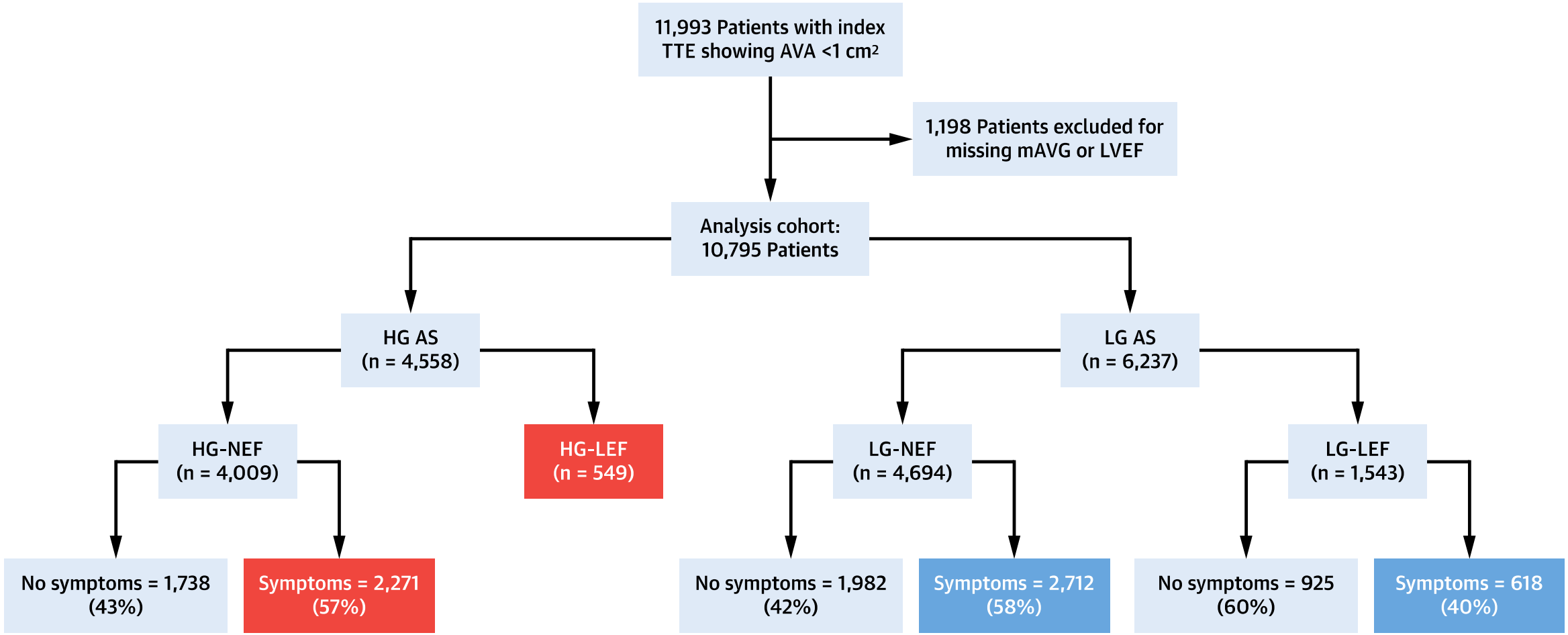


Mass General Brigham experience 2000-2017:

- We identified patients with severe AS (aortic valve area <1cm2) on transthoracic echocardiograms (n=11,993) from 2000-2017 at two large academic medical centers (MGH and BWH).
- AVR utilization investigated among patients with an indication for AVR for severe AS
- Natural language processing (NLP) models were developed and validated to identify symptoms consistent with severe AS and to identify AS-related referral and AVR refusal.

American Heart Association.
Target: Aortic Stenosis™

Indication for AVR based on 2014 AHA/ACC VHD Guidelines

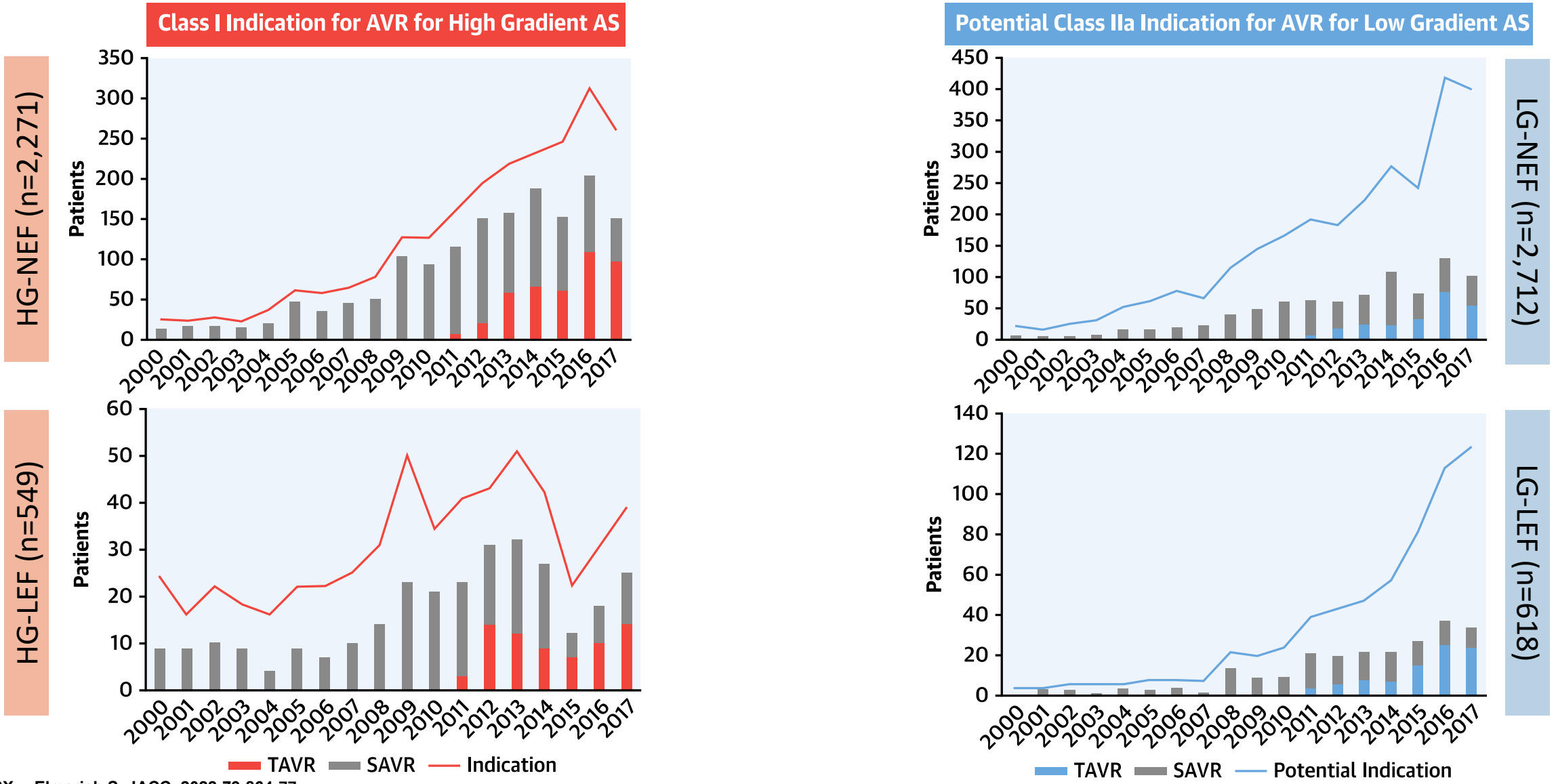


*Based on the 2014 American Heart Association (AHA) / American College of Cardiology (ACC) guidelines for the management of VHD

Li SX… Elmariah S. JACC, 2022;79:864-77.

American Heart Association.
Target: Aortic Stenosis™

Trends in AVR Utilization
Mass General Brigham experience 2000-2017



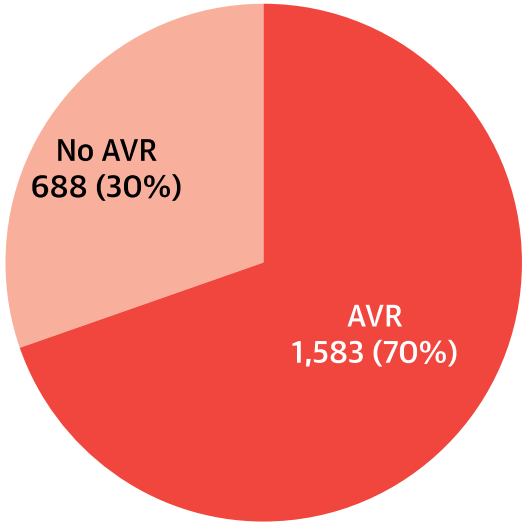
Li SX... Elmariah S. JACC, 2022;79:864-77.

American Heart Association.
Target: Aortic Stenosis™

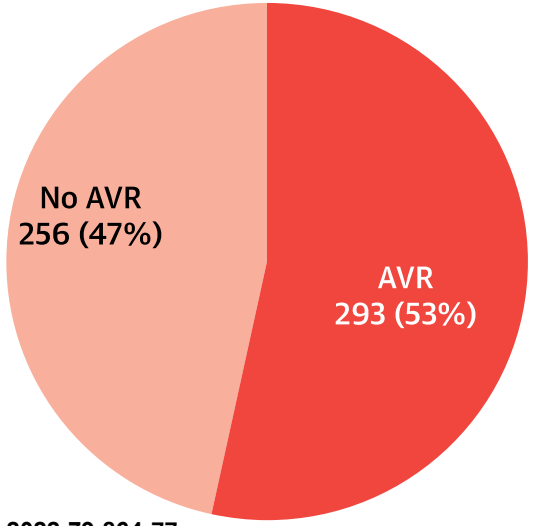
Trends in AVR Utilization
Mass General Brigham experience 2000-2017

Class I Indication for AVR for High Gradient AS

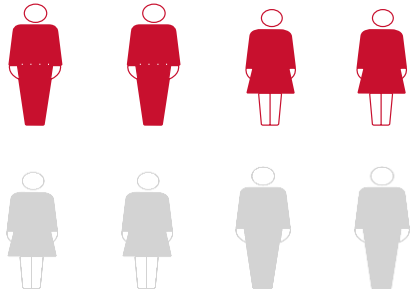
HG-NEF (n=2,271)



HG-LEF (n=549)



Severe symptomatic AS

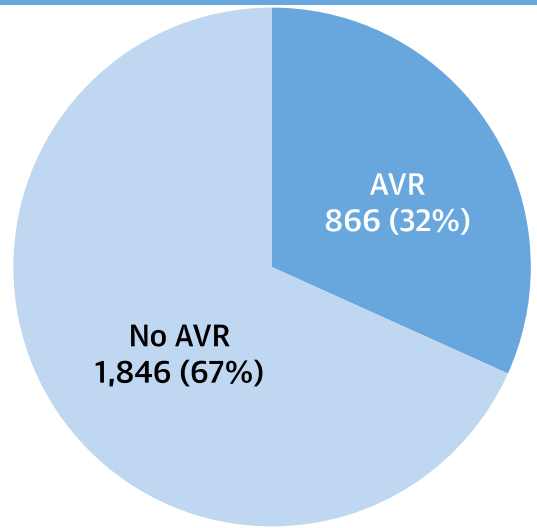


Treatment Rate

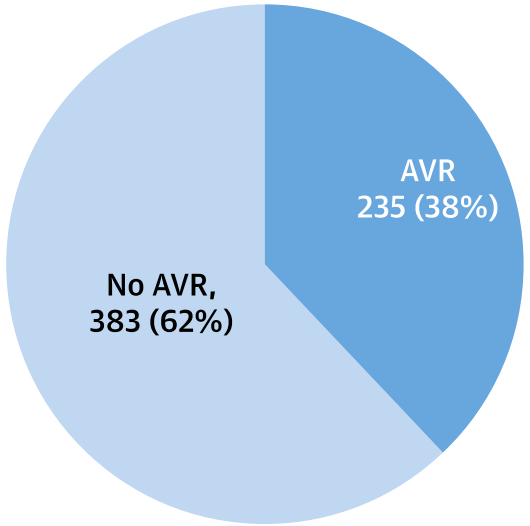
<50%

Potential Class IIa Indication for AVR for Low Gradient AS

LG-NEF (n=2,712)



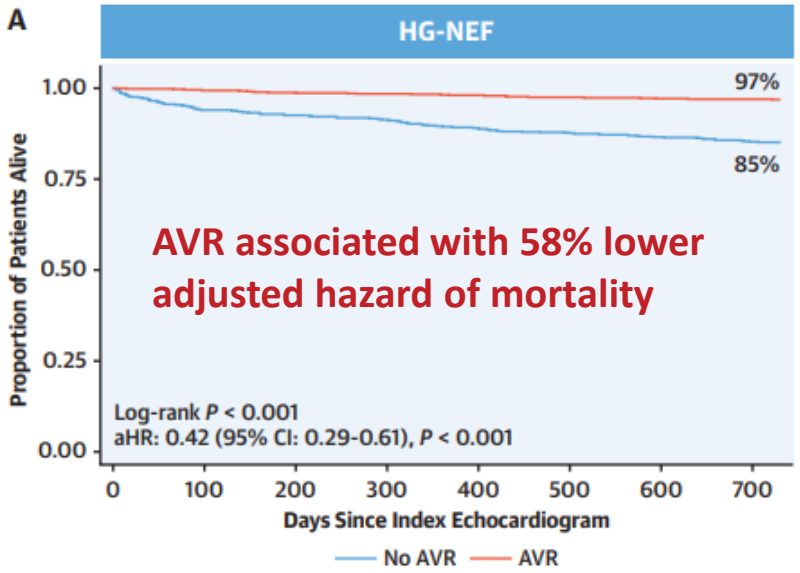
LG-LEF (n=618)

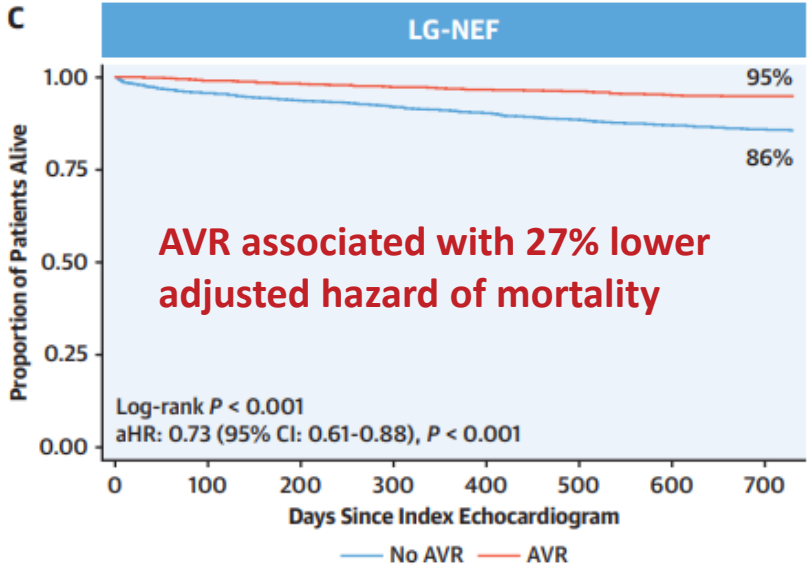


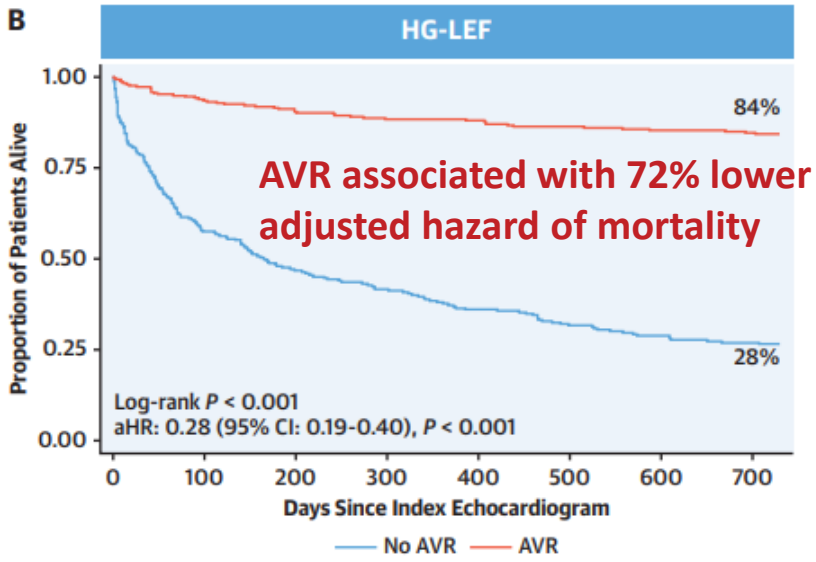
Li SX… Elmariah S. JACC, 2022;79:864-77.

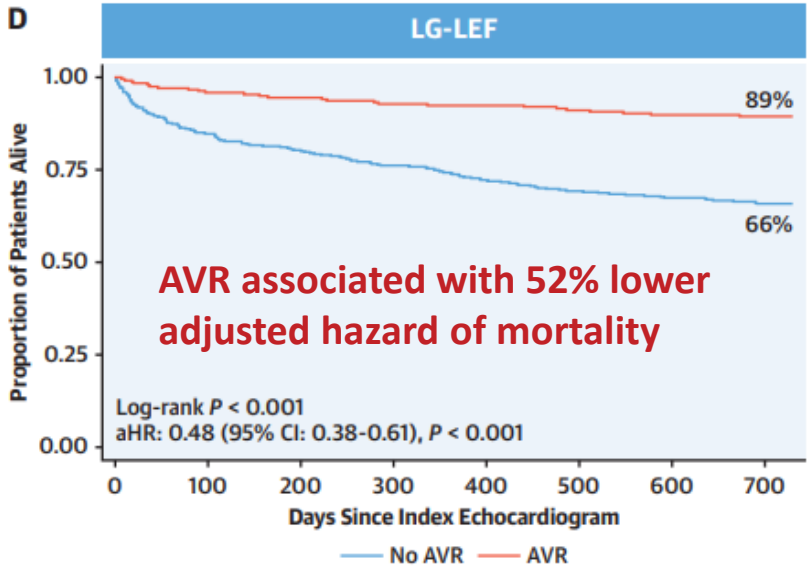
American Heart Association.
Target: Aortic Stenosis™

AVR Associates with Improved Survival Across Spectrum of SSAS









Li SX… Elmariah S. JACC, 2022;79:864-77.

American Heart Association.
Target: Aortic Stenosis™

Contributors to AVR Underutilization

TABLE 3 OR of Baseline and Echocardiographic Characteristics Associated With Performance of AVR

	Univariate OR	95% CI	*P* Value	Multivariate OR	95% CI	*P* Value
High-gradient AS with Class I indication for AVR						
Age	0.972	0.965-0.979	<0.001	0.978	0.971-0.986	<0.001
Male	1.283	1.097-1.501	0.002	-	-	-
White	1.34	1.007-1.783	0.045	-	-	-
CAD	1.242	1.057-1.460	0.009	1.759	1.455-2.126	<0.001
DM	1.04	0.840-1.287	0.72	-	-	-
Smoker	1.816	1.538-2.145	<0.001	1.457	1.209-1.756	<0.001
Hct	1.069	1.053-1.085	<0.001	1.053	1.035-1.071	<0.001
eGFR	1.012	1.009-1.016	<0.001	-	-	-
IP TTE	0.583	0.496-0.686	<0.001	0.773	0.631-0.948	0.014
LVEF ≥0.5	2.01	1.662-2.431	<0.001	1.713	1.369-2.143	<0.001
Low-gradient AS with potential Class IIa indication for AVR in contemporary era (2014-2017)						
Age	0.975	0.966-0.984	<0.001	0.976	0.966-0.986	<0.001
Male	1.813	1.471-2.235	<0.001	1.683	1.336-2.119	<0.001
White	1.533	1.045-2.249	0.029	-	-	-
CAD	1.211	0.068-1.487	0.068	1.369	1.084-1.727	0.008
DM	1.052	0.838-1.321	0.662	-	-	-
Smoker	1.364	1.111-1.674	0.003		-	-
Hct	1.061	1.041-1.082	<0.001	1.041	1.019-1.063	<0.001
eGFR	1.010	1.005-1.014	<0.001	-	-	-
IP TTE	0.600	0.486-0.741	<0.001	0.687	0.539-0.875	0.002
LVEF ≥0.5	0.945	0.739-1.209	0.653	-	-	-

AS = aortic stenosis; AVR = aortic valve replacement; CAD = coronary artery disease; DM = diabetes mellitus; eGFR = estimated glomerular filtrate rate (mL/min/1.73 m^2); IP TTE = inpatient transthoracic echocardiogram; LVEF = left ventricular ejection fraction; mAVG = mean aortic valve gradient.

Less likely to get AVR

- Low mean AVG
- Older age
- Women
- Inpatient TTE
- Low LVEF
- Low hematocrit

More likely to get AVR

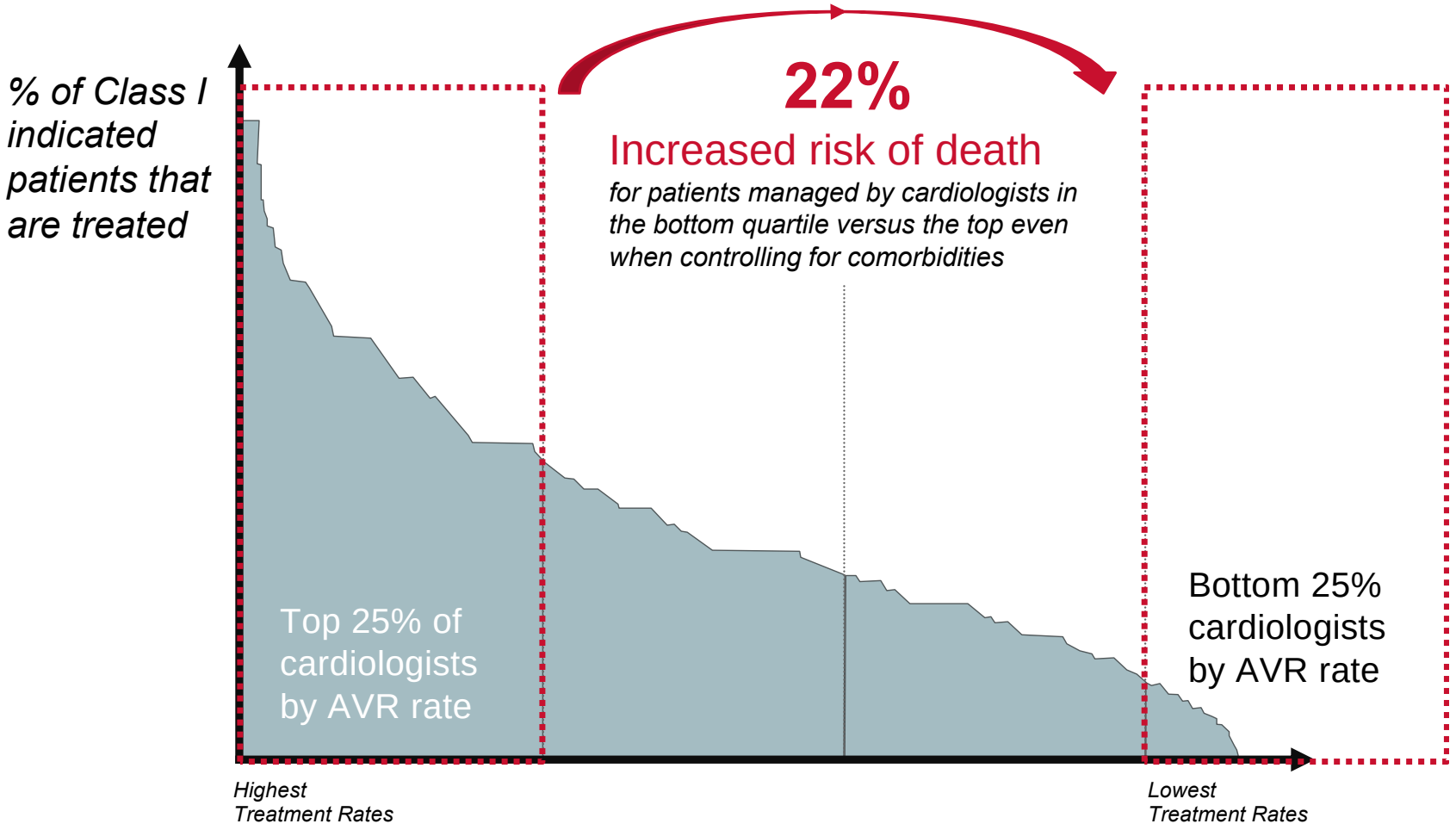
- CAD
- Smoker

Li SX… Elmariah S. JACC, 2022;79:864-77.

American Heart Association.
Target: Aortic Stenosis™

Variation in Physician Referral Patterns

< 1 in 3 referred to a HVT member or cardiac surgeon

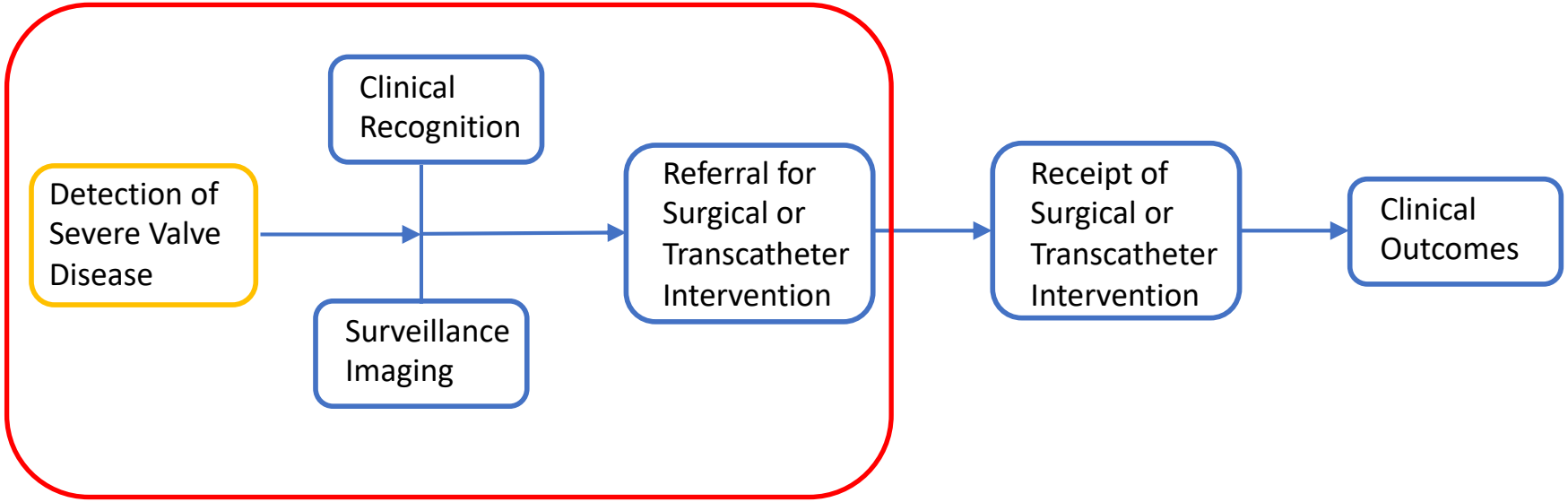


Li SX… Elmariah S. JACC, 2022;79:864-77.

Brennan JM, *et al.* J Am Heart Assoc. 2021; 10:e020490

American Heart Association.
Target: Aortic Stenosis™

Clinical Implications



Efforts are needed to:

- Encourage screening of patients at risk of AS (PE and TTE)
- Increase awareness of low-gradient AS
- Clarify echocardiogram reporting of AS
- Bolster transitions of care
- Facilitate referral of patients with AS to Heart Valve Teams

American Heart Association.
Target: Aortic Stenosis™

Panel Discussion

American Heart Association.
Target: Aortic Stenosis™

Today's Panel Discussion

PANELISTS

Wayne Batchelor, MD, MHS
Director of the Interventional Heart Program,
Inova Health System

Ethan Korngold , MD
Division Chair, Interventional Cardiology
and Structural Heart
Providence Heart Institute

Melissa M. Levack, MD
Director of Thoracic Aortic Surgery,
Vanderbilt University Medical Center

Angela Lowenstern, MD, MHS
Assistant Professor of
Medicine Interventional Cardiology,
Division of Cardiovascular Medicine,
Vanderbilt University Medical Center

Catherine M. Otto, MD
Professor of Medicine, University of
Washington School of Medicine

Amar D. Patel, MD
Co-Director Structural Heart & Valve
Program, Wellstar Center for
Cardiovascular Care
Wellstar Health System

Elizabeth M. Perpetua, DNP, ACNP-BC
Founder, Empath Health Services LLC,
University of Washington School of Nursing

Sreekanth Vemulapalli, MD
Medical Director, Cardiac Diagnostic
United and Echocardiography Lab,
Duke University Medical Center

DETECT AS Study:

Electronic Physician Notification to Facilitate the Recognition and Management of Severe Aortic Stenosis:

American Heart Association.
Target: Aortic Stenosis™

Consecutive patients with severe AS (AVA <1cm^2)
Inclusion Criteria: ≥ 18 years
Exclusion Criteria: mechanical or prosthetic aortic valve

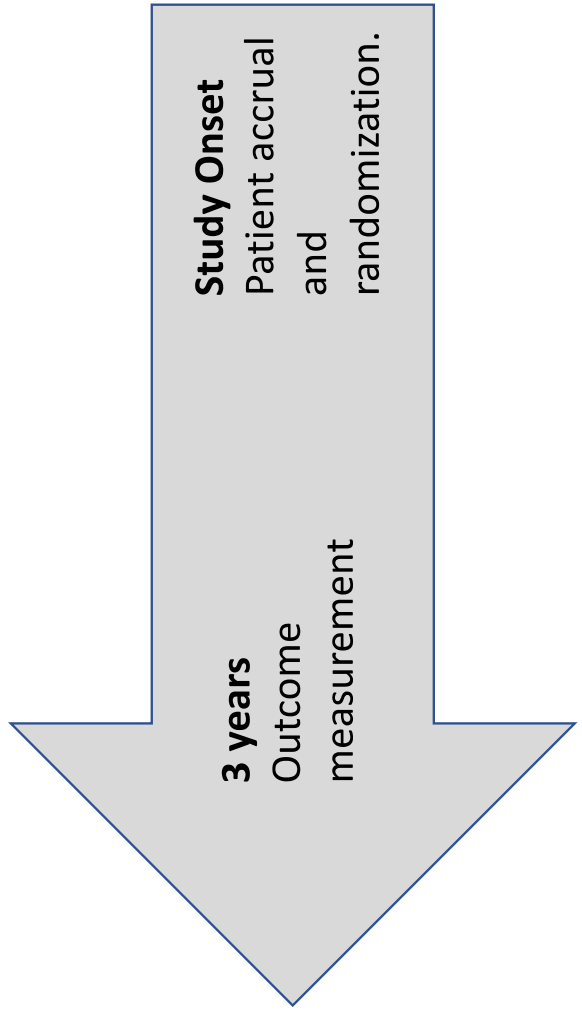
Randomization by provider

470 patients
Control Arm: No intervention

470 patients
Intervention Arm: Physician Notification Letter via email reporting the diagnosis and providing guideline recommendations for further intervention and/or monitoring

Follow-up for 1 year following final patient enrollment.
Primary outcome: AVR utilization
Secondary outcomes: mortality, heart failure hospitalization, TTE utilization/surveillance, AS billing code diagnosis, and cardiology/Heart Valve Team referral.

Timeline



ClinicalTrials.gov Identifier: NCT05230225

Today's presentation was brought to you by:

American Heart Association®

Target: Aortic Stenosis™

For more information on Target: AS

visit: https://www.heart.org/en/professional/quality-improvement/target-aortic-stenosis

Edwards

Edwards Lifesciences is the national sponsor of American Heart Association's Target: Aortic Stenosis