

STRUCTURAL HEART DISEASE
BENCHMARKING REPORT
2023

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Introduction

I invite you to review egnite's annual Structural Heart Disease (SHD) Benchmarking Report, an exploration of trends in structural heart patient care and best practices in the United States. This research report draws insights from leading health systems that contribute to egnite's extensive de-identified diagnostic echocardiographic and electronic medical record (EMR) database.

By examining the state of patient care, we also identify gaps and emerging opportunities for the transformative potential offered by digital technologies to improve practices and patient outcomes. With the expanding indications for the treatment of structural heart disease, the need for timely diagnosis and guideline-directed therapy has never been more urgent.

Existing health care infrastructure poses significant challenges, with limited clinician time and a growing cardiovascular (CV) patient population. To address these challenges effectively, I believe more clinicians will use Artificial Intelligence (A.I.)-powered digital technologies, such as egnite's CardioCare platform, in an effort to save time and help their teams drive timely treatment for patients in need. By harnessing these innovative solutions, we can unlock new avenues to enhance patient care in our communities, ensuring optimal outcomes and improved quality of life.

egnite's SHD Benchmarking Report is a valuable resource for understanding the state of structural heart patient care, identifying care trends, and envisioning where providers can harness the power of digital technologies to advance health care. Through collaboration and innovation, we can drive positive change and elevate patient care in the dynamic landscape of modern health care.



Rahul Sharma, MBBS, FRACP

Senior Medical Advisor, egnite

The CardioCare platform is not intended for use in the diagnosis, cure, mitigation, treatment or prevention of cardiovascular diseases.

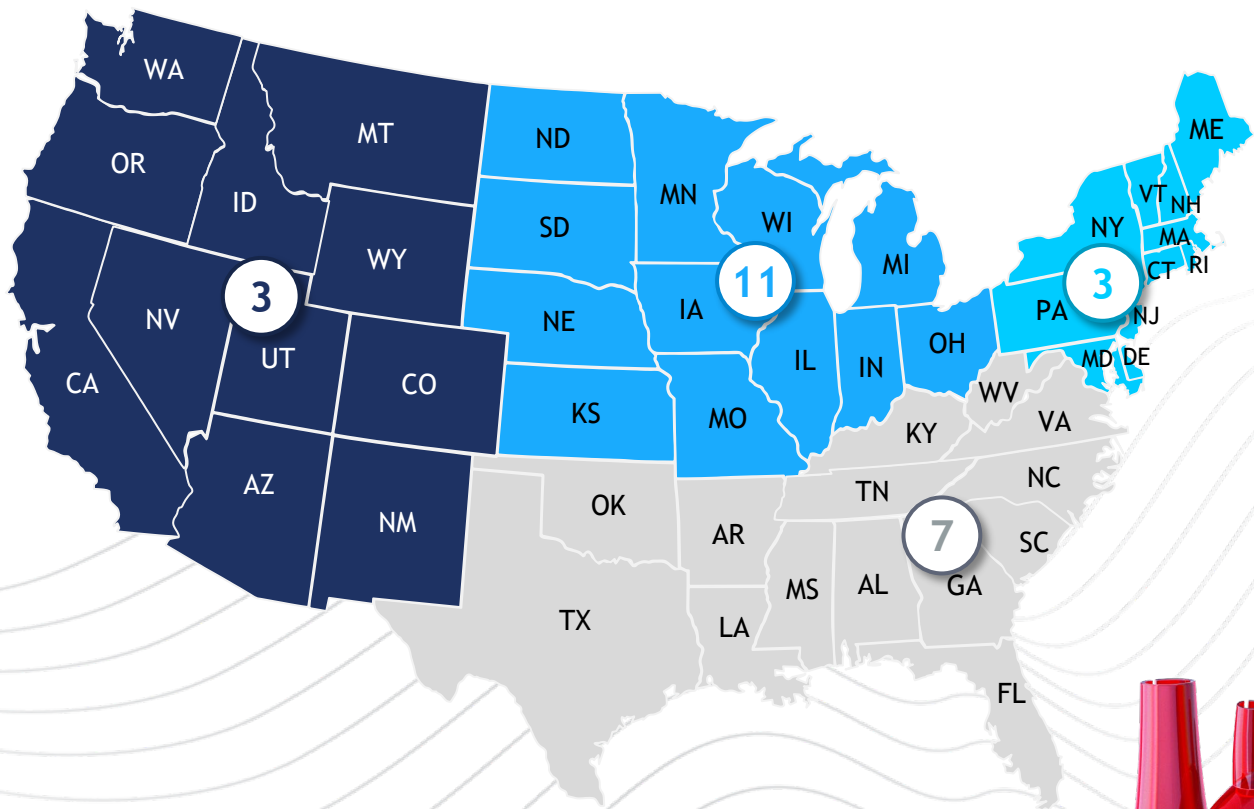
Population Summary¹



24 Health systems
with EMR & echocardiographic data

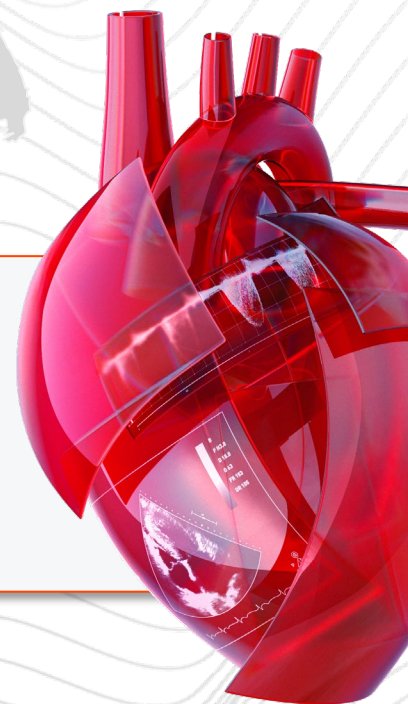


102,000+
Physicians²



UNCOVERING TRENDS AMONG STRUCTURAL HEART PROGRAMS

This report looks at 24 health systems across the nation who are utilizing egnite's digital health platform, CardioCare, to unveil trends in structural heart patient care.



Population Summary, cont.



1,450,302
Echocardiographic reports

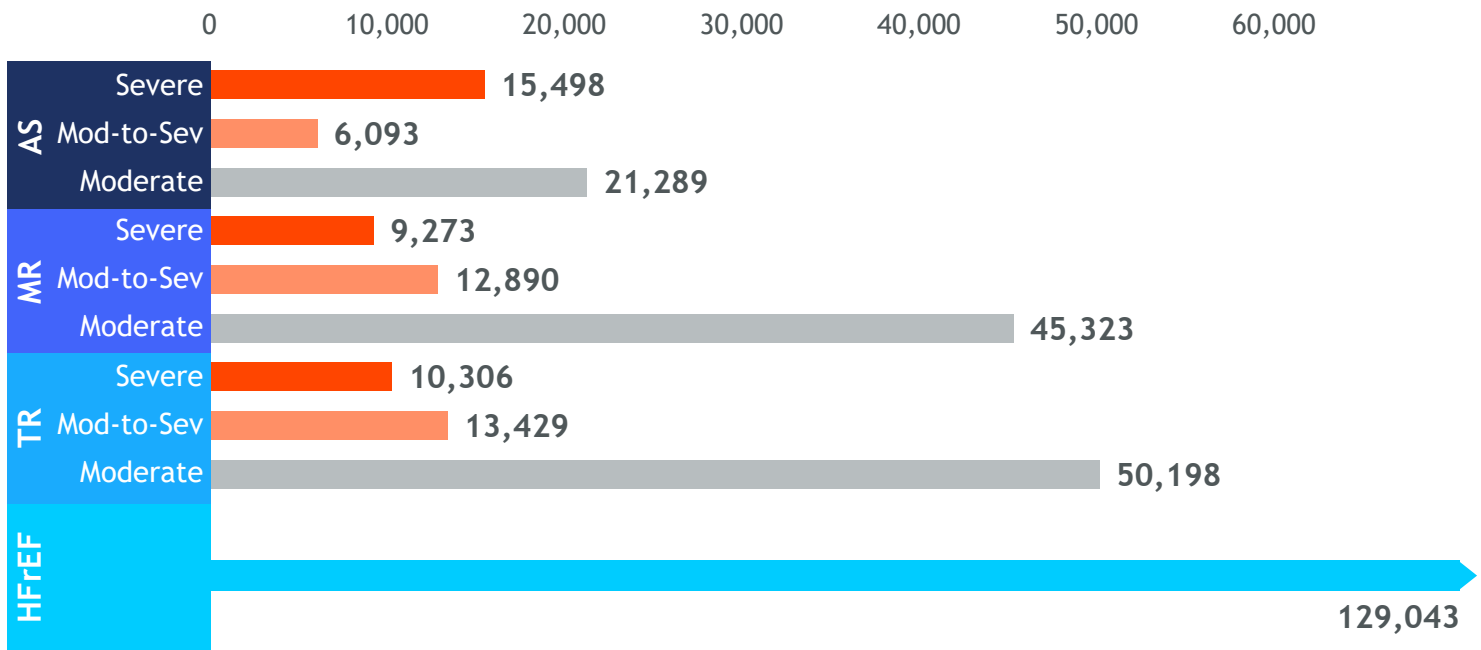


979,941
Unique patients

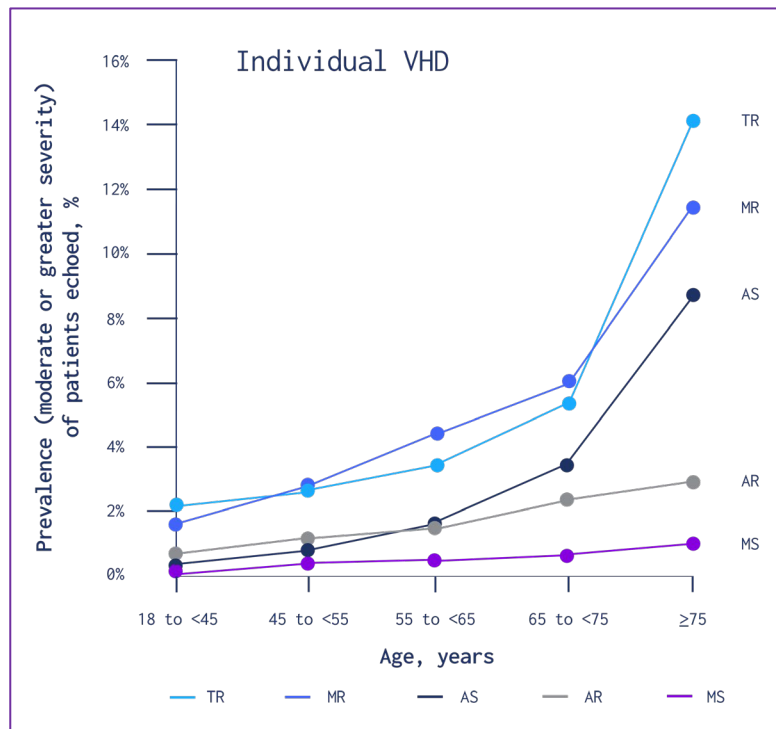


3.8%
Severe aortic stenosis (AS),
mitral regurgitation (MR), and/or
tricuspid regurgitation (TR) diagnoses³

Number of Patients by Disease Severity⁴



Valvular Heart Disease (VHD) Is Prevalent & Increases With Age



7.1% TR

MR 6.5%

4.1% AS

AR 2.3%

0.5% MS

As featured in the *Journal of American College of Cardiology (JACC)* and presented at the American College of Cardiology (ACC) 2022 meeting.⁵



LEVERAGING A.I. & DIGITAL TECHNOLOGY TO STANDARDIZE CARE ACROSS THE SERVICE LINE

“ This is really exciting because it’s one of the largest-ever databases using natural language processing, capturing and working from more than 1 million real-world echocardiograms. Now we can start to tap into this large database to try to gather more information about patients and cardiovascular disease. ”



Philippe Généreux, MD, FACC
Interventional Cardiology
Director, Structural Heart Disease Program
Morristown Medical Center

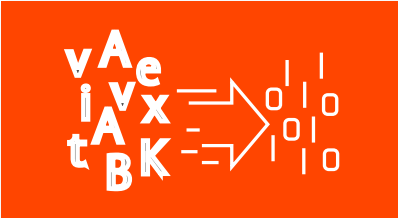
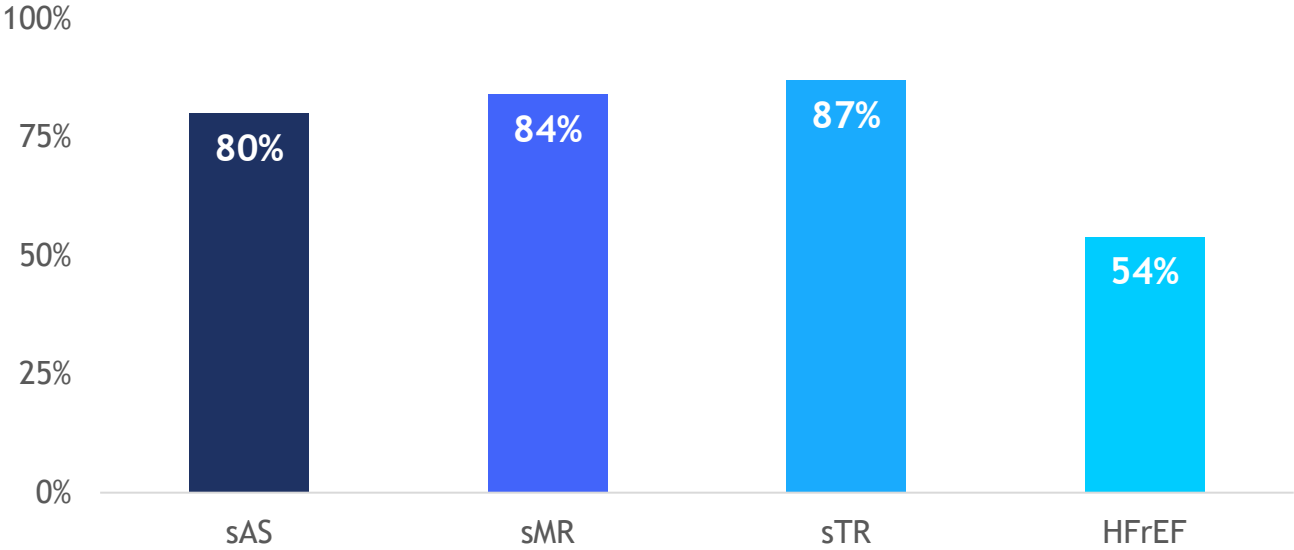


SEE MORE PUBLISHED EVIDENCE FROM EGNITE

Most Patients With Structural Heart Disease Are Symptomatic

A patient must have 2+ relevant symptoms documented in the EMR in the 12 months prior to a diagnosis or any time after to be symptomatic.

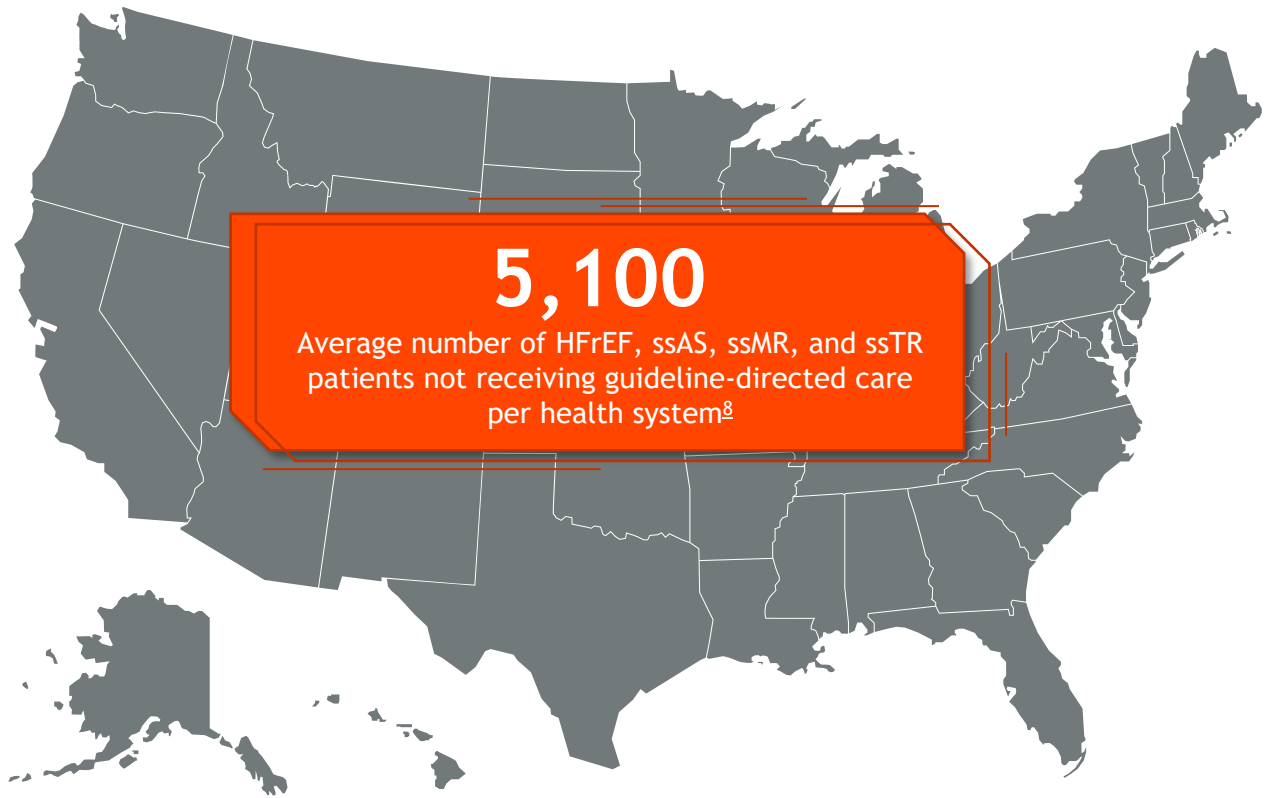
% SHD Patients with Symptoms⁶



A.I. POWERING CLINICAL INSIGHTS

- AS, MR and TR diagnoses in this report are extracted via egnite’s proprietary natural language processing (NLP) algorithms⁷
- This report combines key diagnoses and structured fields from echocardiograms with EMR data including labs, encounters, guideline-directed medical therapy (GDMT) prescriptions, and treatments to provide a comprehensive view of the system’s cardiovascular patient population

National Treatment Rates Remain Low Despite Proven Therapies



National Treatment Rate



Symptomatic severe aortic stenosis (ssAS)²

58%



Symptomatic severe mitral regurgitation (ssMR)²

32%



Symptomatic severe tricuspid regurgitation (ssTR)²

6%



HFrEF patients prescribed 4-class GDMT¹⁰

9%

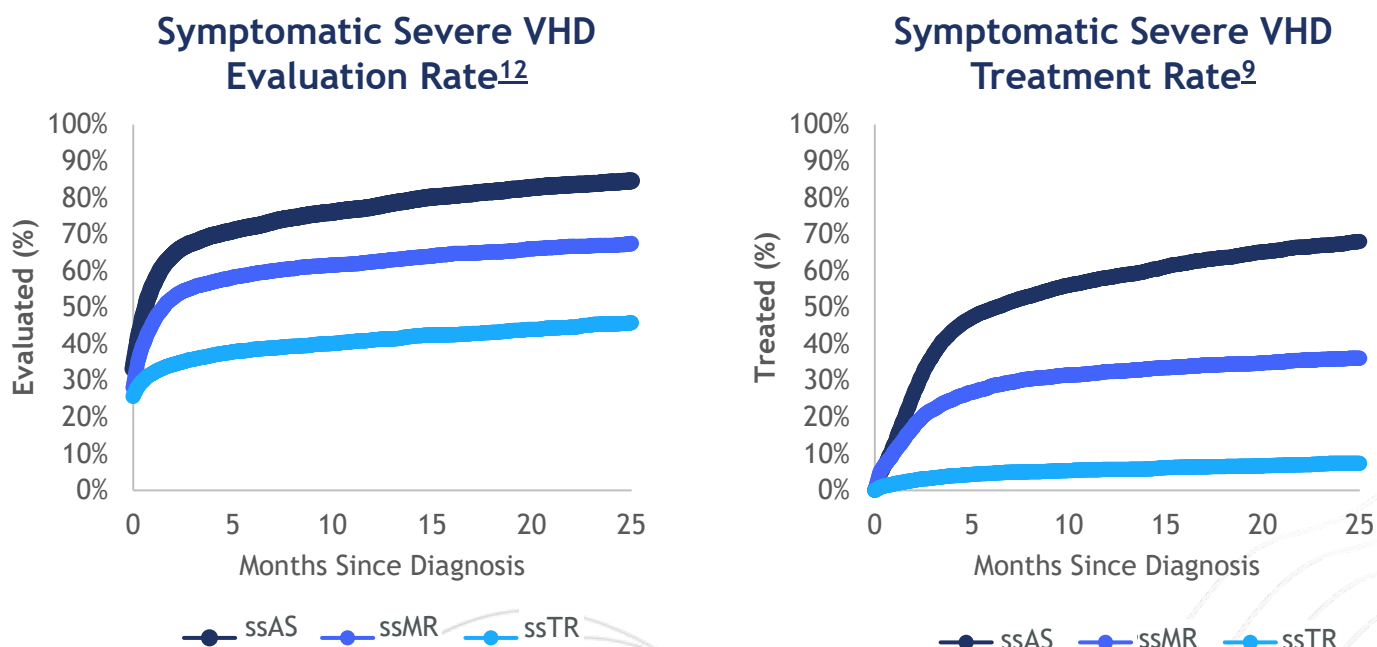
RESOURCE & STAFFING CONSTRAINTS POSE A THREAT

Limited hospital resources demand a better solution for managing the most vulnerable cardiovascular patient populations.



Trends in Valvular Heart Disease Patient Care

Patients Not Evaluated Within 3 Months Are Unlikely to Receive Treatment¹¹



What are high-performing programs doing to drive timely care for their patients?

NEED FOR COORDINATED CARE

“ If a patient is not evaluated within 3 months of diagnosis, that patient has probably fallen through the cracks of the health system and is not likely to receive therapy. This is where digital health platforms like CardioCare can help ensure better care coordination, empowering health care providers to deliver timely treatment and revolutionize patient care. ”



Rahul Sharma, MBBS, FRACP
Director of Structural Interventions, Stanford Health Care
Associate Professor of Medicine, Stanford University
Senior Medical Advisor, egnite

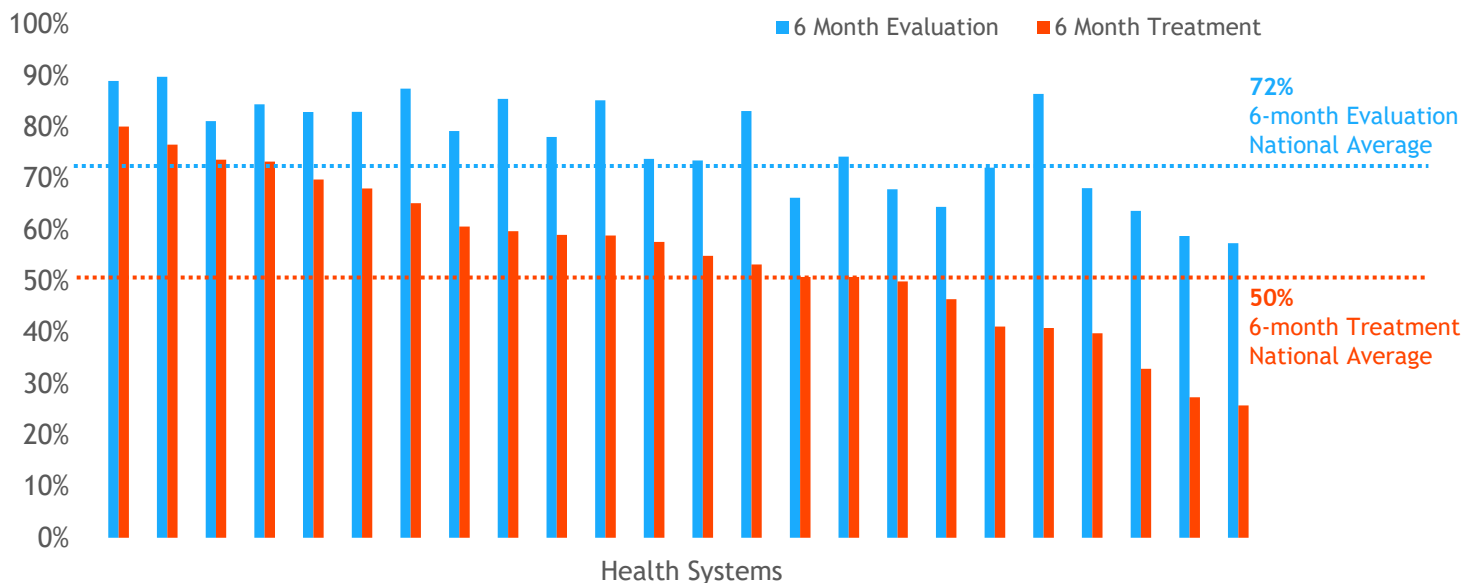
Evaluation & Treatment Trends in Aortic Stenosis

Aortic Stenosis



High-performing programs treat their ssAS patients faster.¹³

ssAS Treatment Rate⁹



TIME TO TREATMENT CAN IMPACT SURVIVAL



Mortality while waiting for aortic valve replacement (AVR) is **50% greater** at 6 months than at 3 months.¹⁴

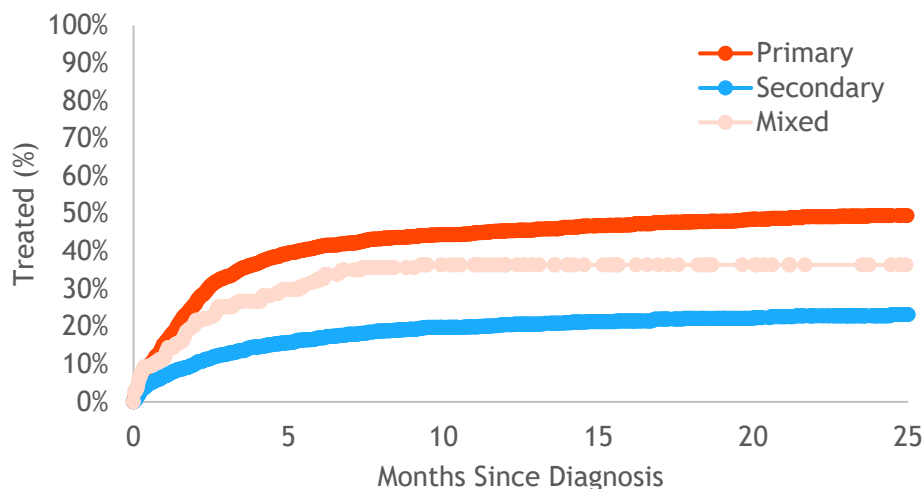


Treatment Trends in Primary & Secondary Mitral Regurgitation¹⁵

Mitral Regurgitation

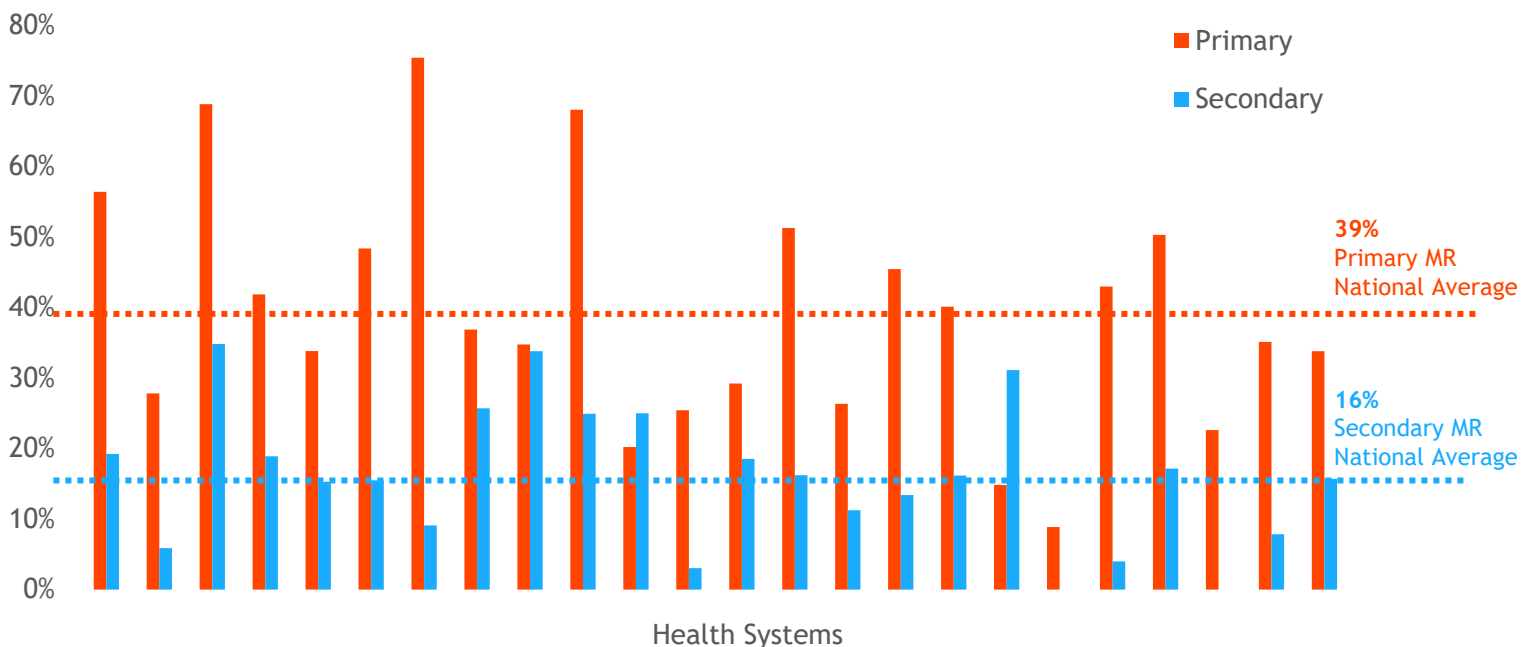


ssMR Treatment Rate⁹



Secondary MR is treated less often than primary MR.

ssMR 6-month Treatment Rate by Site⁹



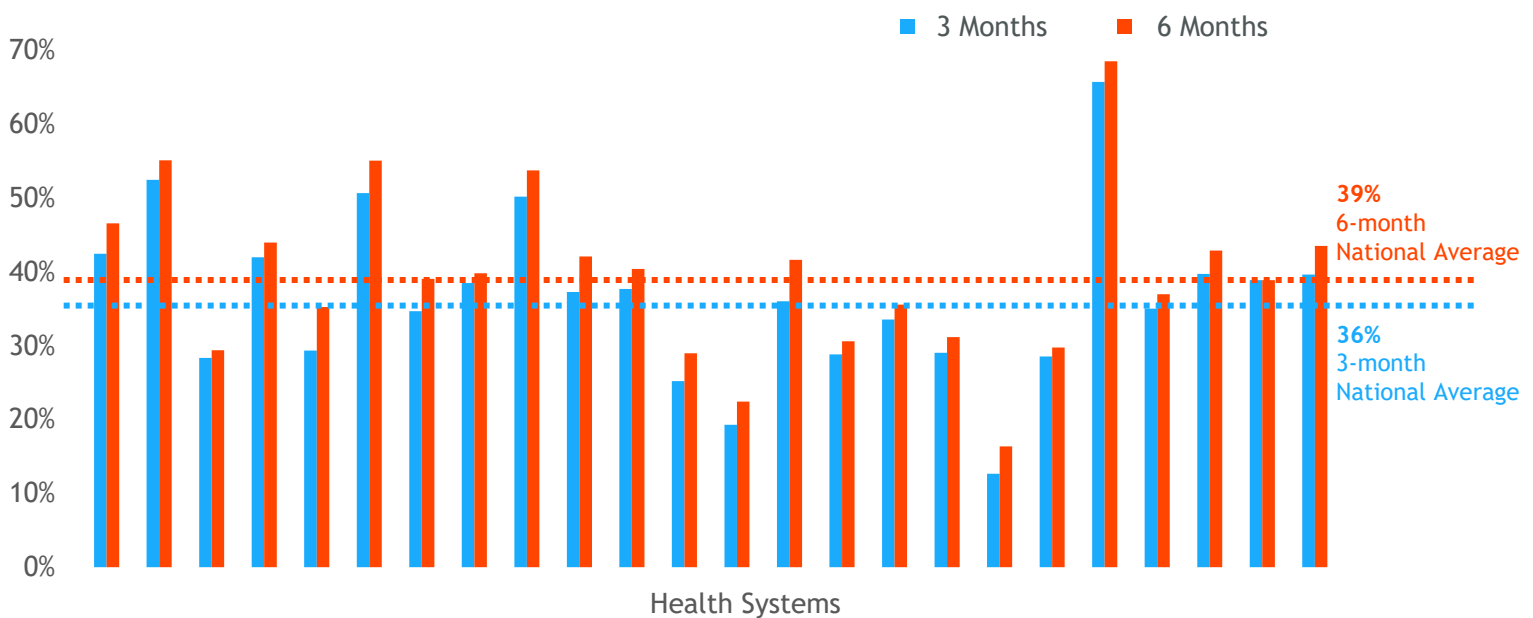
Evaluation Trends in Tricuspid Regurgitation

Tricuspid Regurgitation



Specialist evaluations for severe TR are similar between 3 and 6 months.

ssTR Evaluation Rate¹⁶



DIGITAL HEALTH PLATFORMS ARE THE FUTURE OF CARDIOVASCULAR CARE



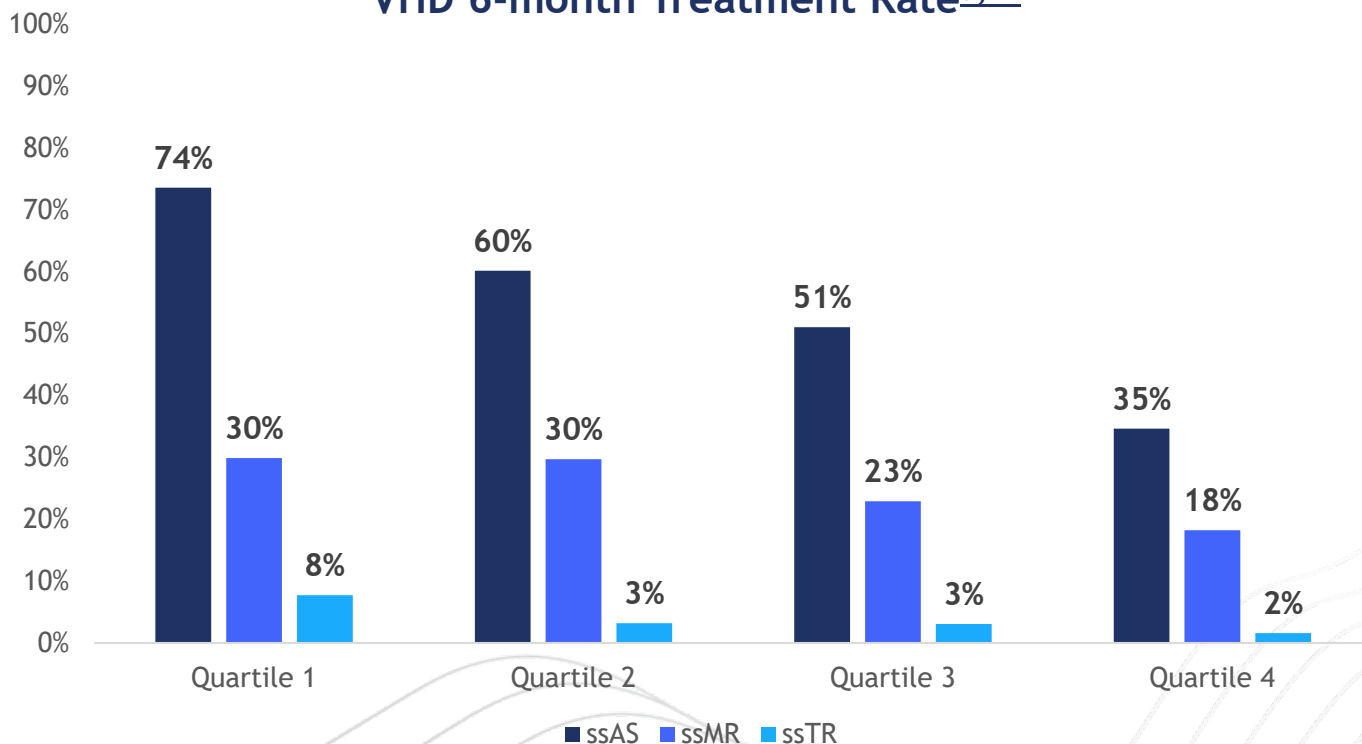
Digital health platforms, like CardioCare, can help drive efficiencies and improve care delivery.

Key Benefits of Digital Health Platforms:

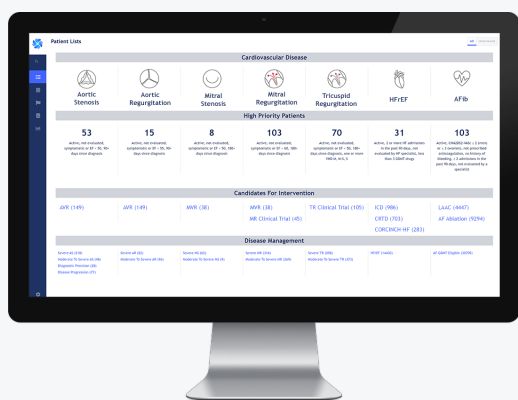
- Automatically identify and prioritize high-risk patients by utilizing A.I. and big data processing to combine thousands of EMR and echo datapoints
- Helps ensure more efficient clinic visits by utilizing A.I. to identify patients eligible for intervention
- Streamlines work-up process to ensure patients don't fall through the cracks

Trends Among High-performing Valvular Heart Disease Programs

VHD 6-month Treatment Rate^{9,17}



OBSERVATIONS IN VALVULAR HEART DISEASE PATIENT CARE



CardioCare
Digital Health Platform



LEARN MORE ABOUT THE
CARDIOCARE PLATFORM

Quartiles were established by ranking health systems by their 6-month treatment rates for patients with severe symptomatic VHD.

Programs in Quartile 1 were programs with the highest 6-month treatment rates.

VHD Observed Trends:

- Quartile 1 programs mainly consist of mid-sized, non-teaching institutions
- Quartile 1 programs treat ssAS patients faster
- Overall, secondary MR is treated less often than primary MR
- Overall, specialist evaluations for severe TR are similar between 3 and 6 months

Trends in HFrEF Patient Care

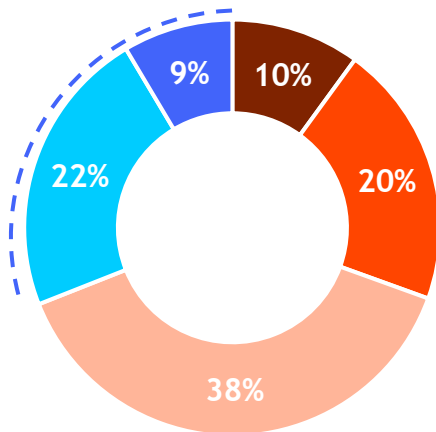
Only 1 in 3 HFrEF Patients Are Prescribed 3+ GDMT Classes Despite Survival Benefits

HFrEF



Average GDMT Rates Across Programs

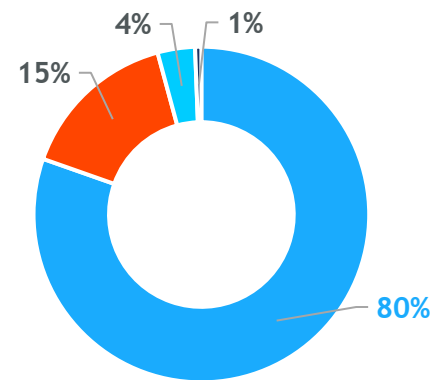
31% of Patients Prescribed 3+ GDMT Classes



■ 0 GDMT classes ■ 1 GDMT class ■ 2 GDMT classes ■ 3 GDMT classes ■ 4 GDMT classes

Trends in 3-Class GDMT Combinations Reported^{18,19}

GDMT Class Combinations Prescribed



■ ACEi/ARB/ARNi + Beta Blocker + MRA
 ■ ACEi/ARB/ARNi + Beta Blocker + SGLT2i
 ■ ACEi/ARB/ARNi + MRA + SGLT2i
 ■ MRA + Beta Blocker + SGLT2i

A.I. NEEDED TO CARE FOR THE GROWING CARDIOVASCULAR POPULATION



“ The next big challenge to overcome is implementing care at a time of growing disease burden and fewer clinical resources. A.I.-powered insights, like those provided by egnite, will enable us to ensure appropriate care is provided to our entire patient population. ”



John Mignone, MD, PhD
 Medical Director for Heart Failure
 Co-Executive Medical Director
 Swedish Heart and Vascular Institute

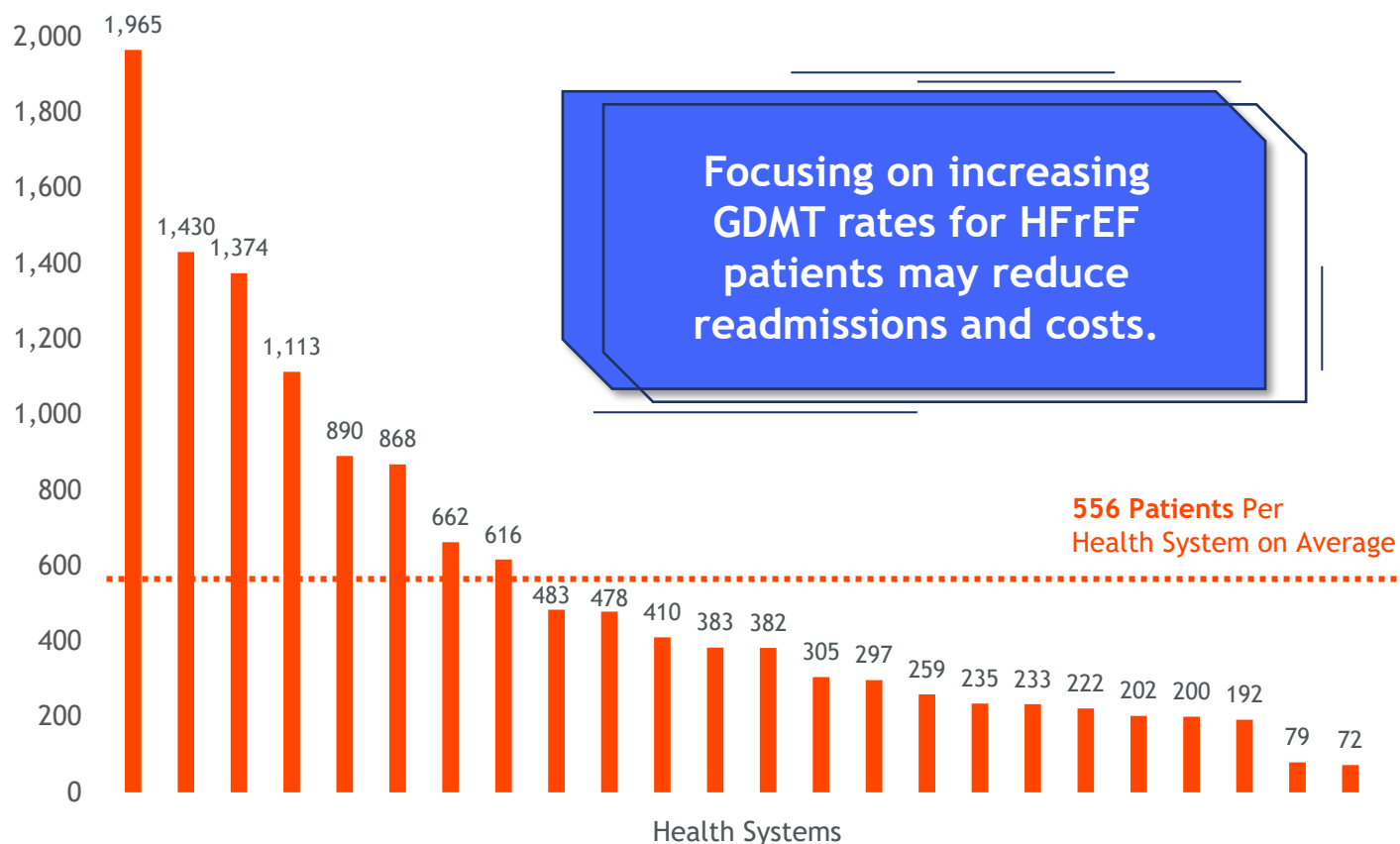
18. Mignone JL, Alexander KM, Dobbles M, Fonarow GC, Ellenbogen KA. Outcomes with guideline-directed medical therapy and cardiac implantable electronic device therapies for patients with heart failure with reduced ejection fraction. Presented at: Heart Rhythm 2023; May 19-21, 2023; New Orleans, LA, USA.

Many Heart Failure Patients Are Not Prescribed Any GDMT

HFrEF



Number of HFrEF Patients Prescribed 0 GDMT Classes²⁰



BENEFITS ASSOCIATED WITH GDMT²¹

67% reduction in 30-day HF-related readmissions for patients prescribed 4-class GDMT

70% improvement in 3-year survival for patients prescribed 4-class GDMT



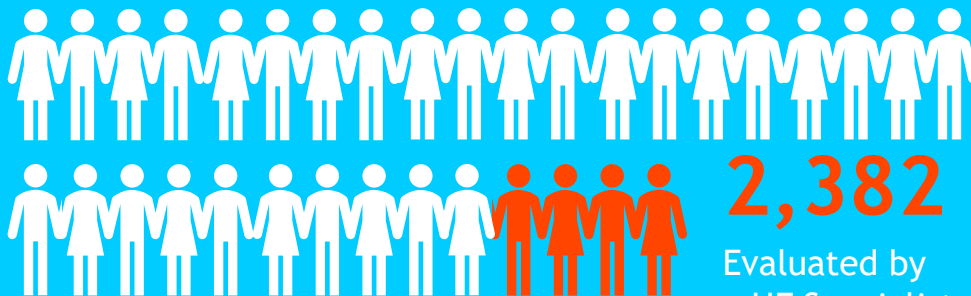
Most Patients Hospitalized With Heart Failure Have Not Been Evaluated by a Specialist²²

HFrEF



20,680

HFrEF Patients With
2+ Admissions in 1 Year



Evaluated by
a HF Specialist

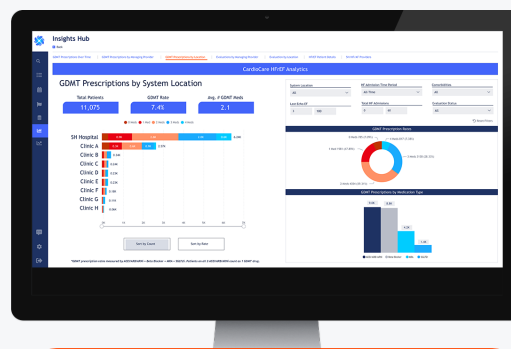
Only **12%** of HFrEF patients with 2+ admissions have been evaluated by a HF specialist.

THE NEED FOR MORE DEDICATED HEART FAILURE PROGRAMS



Only **55%** of health systems in this analysis have a heart failure program.²³

As the population ages and the number of cardiologists decreases, how will health systems manage their sick patients in the future?



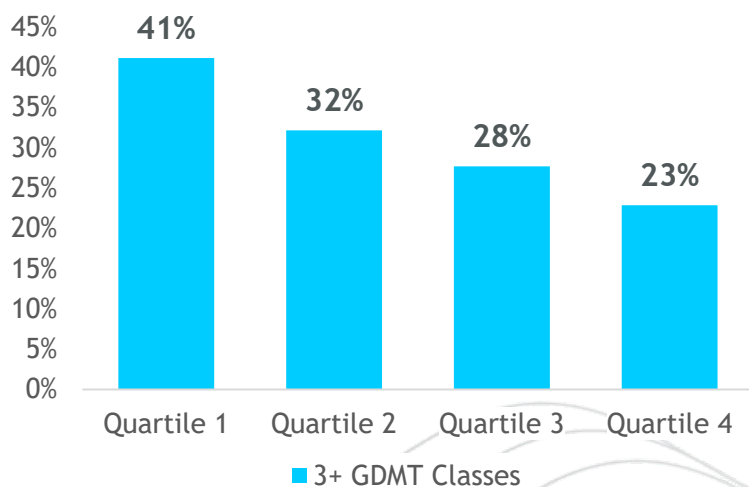
LEARN MORE ABOUT THE
CARDIOCARE PLATFORM

Trends Among High-performing Heart Failure Programs

HFrEF

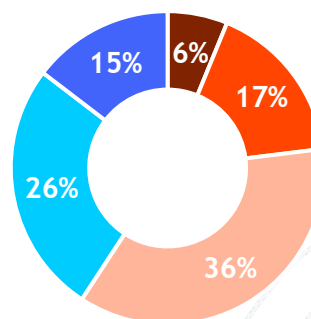


Proportion of HFrEF Patients Prescribed 3+ GDMT Classes²⁴



GDMT Rates for Quartile 1 HF Programs²⁴

41% of Patients Prescribed 3+ GDMT Classes



■ 0 GDMT classes ■ 1 GDMT class ■ 2 GDMT classes ■ 3 GDMT classes ■ 4 GDMT classes



Cardiologists are over **2x more likely to prescribe 4-class GDMT** than noncardiologists.²⁵

KEY INSIGHTS OF TOP-QUARTILE HEART FAILURE PROGRAMS

Quartiles were established by health systems with the highest proportion of HFrEF patients prescribed 3+ GDMT classes.

Programs in Quartile 1 were programs with the highest 3+ GDMT class prescription rate.

Observed Trends in Quartile 1 Programs:

- Representative of teaching and non-teaching programs with a specialized HF clinic
- Prescribe 3+ GDMT classes for every HFrEF in-patient visit
- Deploy protocols to refer every HFrEF patient with 2+ admissions to the HF team or designated specialist



Cardiovascular Service Line Impact

The CardioCare Platform Helps Uncover Opportunities for the CV Service Line²⁶



Small Health System (<100 Beds; <100k Patients)

	Active Candidates ²⁷ >90 days since diagnosis	Financial Impact ²⁸
Severe AS	6 AVR Candidates	+ \$0.1M
Severe MR	7 MVR Candidates	+ \$0.1M
HFref	167 CRT-D or ICD Candidates	+ \$0.7M
Total	180	+ \$0.9M



Medium Health System (150+ Beds; 120k Patients)

	Active Candidates ²⁷ >90 days since diagnosis	Financial Impact ²⁸
	43 AVR Candidates	+ \$0.6M
	16 MVR Candidates	+ \$0.2M
	89 CRT-D or ICD Candidates	+ \$0.4M
Total	148	+ \$1.2M



Large Health System (400+ Beds; 230k Patients)

	Active Candidates ²⁷ >90 days since diagnosis	Financial Impact ²⁸
Severe AS	54 AVR Candidates	+ \$0.8M
Severe MR	37 MVR Candidates	+ \$0.5M
HFref	431 CRT-D or ICD Candidates	+ \$1.8M
Total	522	+ \$3.1M



Extra Large Health System (500+ Beds; 370k+ patients)

	Active Candidates ²⁷ >90 days since diagnosis	Financial Impact ²⁸
	88 AVR Candidates	+ \$1.3M
	61 MVR Candidates	+ \$0.9M
	803 CRT-D or ICD Candidates	+ \$3.4M
Total	952	+ \$5.6M

Financial impact assumes 50% of the patients are treated and leverages the average procedural contribution from CMS.

Contact Us to Learn How the CardioCare Platform Can Advance Your Health System

Digital tools like the CardioCare platform help you to identify and manage your most vulnerable cardiovascular patient populations.



Our approach drives efficiencies in clinical care, ensures vulnerable patients are prioritized, and helps to reduce costs in health systems.



CONTACT US

Real-world Evidence From egnite's Database

Largest Contemporary Analysis of VHD in the US Performed on Over 929,000 De-identified Echocardiograms From egnite's Database⁵

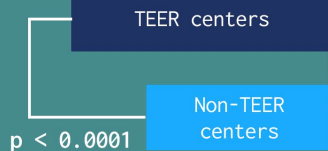
egnite Announces Data from the Largest Contemporary Analysis of Valvular Heart Disease Prevalence in the U.S.

Over **929,000** echos

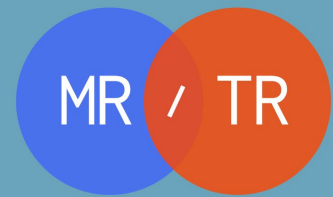
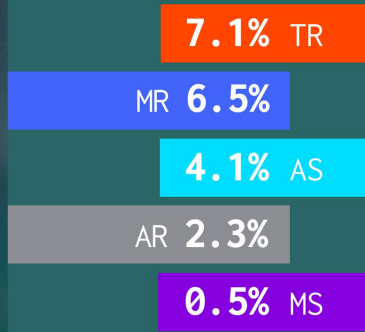
Over **714,000** patients

35
community and academic programs
across the U.S.

Severe MR was more commonly diagnosed at centers that offer transcatheter mitral valve repair technologies.

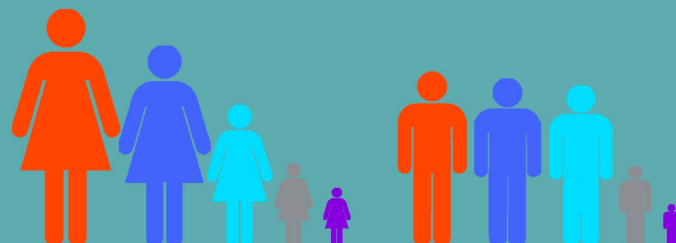


Prevalence of VHD continues to be substantial and more common as patients age.



The combination of MR and TR is the most common form of mixed valvular disease across all age categories.

Overall, VHD of moderate or greater severity was found to be more common among female patients versus male patients.



Female

Male

Source: Brennan JM, et al. Poster presented at: American College of Cardiology 71st Annual Scientific Session & Expo, April 2-4, 2022; Washington, DC; Brennan JM, et al. JACC 2022

aortic regurgitation (AR), aortic stenosis (AS), mitral regurgitation (MR), mitral stenosis (MS), tricuspid regurgitation (TR), valvular heart disease (VHD), transcatheter edge-to-edge repair (TEER)



As featured in JACC and presented at ACC 2022.



In partnership with...

Matthew Brennan, MD, MPH

Duke University School of Medicine

Novel Research Demonstrated Increased Mortality Across All Degrees of Severity of AS²⁹

Untreated Aortic Stenosis Mortality by Diagnosis Severity: Results From a Large Real-World Database

Over 1,600,000 echos

Over 1,000,000 patients

24

teaching and non-teaching cardiology programs across the U.S.

Incrementally increased mortality across all degrees of severity for AS suggesting the need to re-evaluate currently recommended timing of intervention.

Incrementally increased two-year untreated mortality across all degrees of AS severity:

7.9%

No AS

19.8%

Mild-to-Moderate AS

24.6%

Moderate-to-Severe AS

14.8%

Mild AS

19.7%

Moderate AS

27.5%

Severe AS

However, corresponding two-year treatment rates were low, at:

0.1%

No AS

1.3%

Mild-to-Moderate AS

26.1%

Moderate-to-Severe AS

0.5%

Mild AS

5.6%

Moderate AS

50.4%

Severe AS



Source: Généreux P, et al. Poster presented at: American College of Cardiology's 72nd Annual Scientific Session Together with the World Congress of Cardiology; March 4-6, 2023; New Orleans, LA.

aortic stenosis (AS)

As featured in JACC and presented at ACC 2023.



In partnership with...

Philippe Généreux, MD, FACC
Morristown Medical Center

Research to Understand the Care Patterns & Associated Outcomes for Patients With AR³⁰

Clinical Journey for Patients With Aortic Regurgitation: A retrospective observational study from a multicenter database

1,002,850+ patients

25

teaching and non-teaching
cardiology programs
across the U.S.

Untreated patients
with **at least**
moderate AR
may have poor
clinical outcomes.



Rates of evaluation by the Heart Team at two years appeared low:

65.4%

severe AR

43.5%

moderate-to-severe AR



Low treatment rates with AVR:

46.5%

severe AR

19.4%

moderate-to-severe AR



High untreated two-year mortality without AVR:

20.7%

severe AR

18.9%

moderate-to-severe AR



Similar mortality for AR patients with left ventricular dilation¹:

37.2%

severe AR

34.3%

moderate AR



Source: Amoroso NS, et al. Presented at TVT: The Structural Heart Summit; June 7-10, 2023; Phoenix, AZ.
1. LVESDi >25 mm/m².
aortic regurgitation (AR), aortic valve replacement (AVR), left ventricular end-systolic dimension index (LVESDi)

As presented at *Transcatheter Valve Therapies (TVT) 2023.*



Sponsored by...



In partnership with...

Nicholas Amoroso, MD, FACC, FSCAI
Medical University of South Carolina



Real-world Data Demonstrated Evidence for Increased Survival in Patients Receiving Combined Device and 4-Class Medical Therapy¹⁸

Outcomes with Guideline-Directed Medical Therapy and Cardiac Implantable Electronic Device Therapies for Patients with Heart Failure with Reduced Ejection Fraction

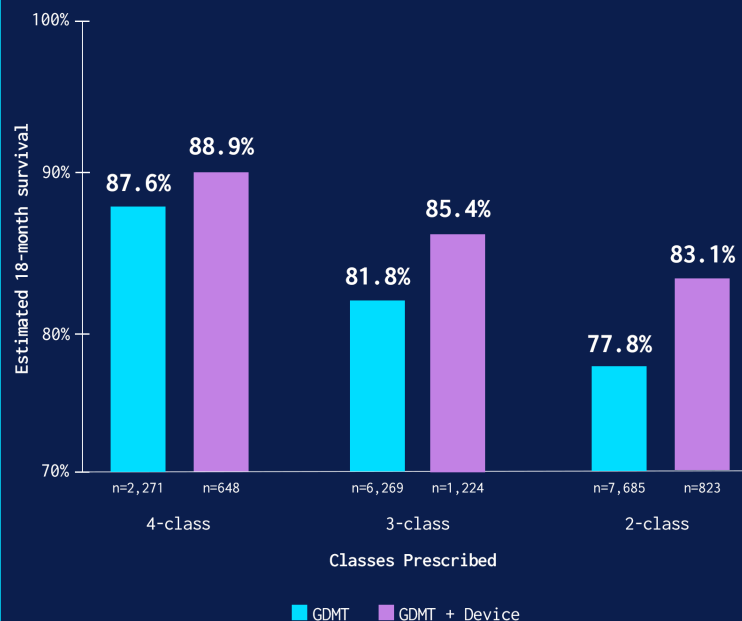
5,200,000+ patients

360,000+ patients with documented HF

20 teaching and non-teaching cardiology programs across the U.S.

Combined GDMT and device therapy was associated with greater survival in patients with HFrEF

Estimated 18-month survival for HFrEF patients who received GDMT and a device:



Source: Mignone JL, et al. Presented at: Heart Rhythm Society 44th Annual meeting (Heart Rhythm 2023); May 19-21, 2023; New Orleans, LA.
heart failure (HF), heart failure with reduced ejection fraction (HFrEF), guideline-directed medical therapy (GDMT)

As featured in *Heart Rhythm Journal* and presented at *Heart Rhythm 2023*.



In partnership with...

John Mignone, MD, PhD

Swedish Heart and Vascular Institute

Have a Research Question?

egnite can partner with you to answer your most challenging questions in cardiovascular patient care.



Contact us to learn more about how you can partner with us to access insights like these and more!

RESEARCH AREAS SUPPORTED INCLUDE...

- Disease Prevalence
- Treatment Rates & Patterns
- Disparities in Care

[CONTACT US](#) 

Appendix

Abbreviations

Abbreviation	Meaning	Abbreviation	Meaning
ACC	American College of Cardiology	LVESDi	Left Ventricular End-systolic Dimension Index
ACEi	Angiotensin-Converting Enzyme Inhibitor	M	Millions
A.I.	Artificial Intelligence	MRA	Mineralocorticoid Receptor Antagonists
ARB	Angiotensin Receptor Blockers	MR	Mitral Regurgitation
ARNi	Angiotensin Receptor Neprilysin Inhibitor	MS	Mitral Stenosis
AR	Aortic Regurgitation	MVR	Mitral Valve Replacement
AS	Aortic Stenosis	Mod-to-Sev	Moderate-to-Severe
AVR	Aortic Valve Replacement	NLP	Natural Language Processing
CRT-D	Cardiac Resynchronization Therapy Defibrillator	sAS	Severe Aortic Stenosis
CV	Cardiovascular	sMR	Severe Mitral Regurgitation
EMR	Electronic Medical Record	ssAS	Severe Symptomatic Aortic Stenosis
GDMT	Guideline-directed Medical Therapy	ssMR	Severe Symptomatic Mitral Regurgitation
HF	Heart Failure	ssTR	Severe Symptomatic Tricuspid Regurgitation
HFrEF	Heart Failure with Reduced Ejection Fraction	SGLT2i	Sodium Glucose Co-Transporter 2 Inhibitor
ICD	Implantable Cardioverter Defibrillator	SHD	Structural Heart Disease
ICD-10	<i>International Classification of Diseases, Tenth Revision</i>	TEER	Transcatheter Edge-to-Edge Repair
JACC	<i>Journal of the American College of Cardiology</i>	TR	Tricuspid Regurgitation
K	Thousand	TVT	Transcatheter Valve Therapies
LVEF	Left Ventricular Ejection Fraction	VHD	Valvular Heart Disease

Footnotes and References

1. Data include 24 teaching and non-teaching institutions participating in the egnite Database (egnite, Aliso Viejo, CA, USA) with appropriate permissions. Data were analyzed using the same data logic as implemented in the CardioCare platform. The integrated EMR and echocardiographic dataset used reflects patients echoed or diagnosed between January 1, 2020 and March 31, 2023 and their care pathway status as of May 1, 2023. Patients receiving palliative care at time of diagnosis were excluded from analysis. For analyses of VHD, egnite's proprietary NLP was applied to echo reports for detailed VHD diagnosis, including severity. To be considered symptomatic, a patient must have had 2+ relevant symptom entries within 12 months prior to or any time after their diagnosis, populated from eligible ICD-10 codes and based on the 2020 ACC/American Heart Association (AHA) guideline for the management of patients with VHD and expert consensus. For analyses of HFrEF, patients were included if they had a record of receiving a systolic heart failure ICD-10 diagnosis code in the EMR or a heart failure diagnosis and an ejection fraction (EF) $\leq 40\%$. To be considered symptomatic, a patient must have had 2+ relevant symptom entries within 12 months prior to or any time after their diagnosis, populated from eligible ICD-10 codes and based on the 2022 AHA/ACC/Heart Failure Society of American (HFSA) guideline for the management of patients with heart failure and expert consensus.
2. Data represent every physician with unique National Provider Identifier (NPI) who have had at least 1 patient encounter of any type in the EMR.
3. Data represent the proportion of unique sAS, sMR, and/or sTR diagnoses in the echoed population.
4. Patients with multiple diagnoses counted for each disease. For analysis of HFrEF, patients had to meet diagnosis criteria as described in footnote 1 above.
5. Brennan JM, Petrescu M, McCarthy P, et al. Contemporary prevalence of valvular heart disease & diagnostic variability across centers. *J Am Coll Cardiol.* 2022;79(9 suppl):1723.
6. To be considered symptomatic in this analysis, patients had to meet symptomatic criteria as described in footnote 1 above.
7. Algorithm validated by both a clinical and non-clinical reviewer to identify the presence and severity of valvular heart diseases in echocardiographic reports with an overall accuracy >99% on a random validation sample of 8,000 reports. Previous validation findings on this algorithm are published in an abstract in *JACC*: Brennan JM, Petrescu M, McCarthy P, et al. *J Am Coll Cardiol.* 2022;79(9 suppl):1723.
8. Data represent the average number of patients across 24 sites with untreated symptomatic severe VHD, and patients with HFrEF prescribed 0-2 GDMT classes.

Footnotes and References

9. Treatment rate based on Kaplan-Meier analysis of procedural (surgical or transcatheter) interventions for symptomatic severe VHD at 12 months. Excludes patients receiving palliative care at the time of diagnosis.
10. Average percentage of patients with HFrEF prescribed 4-class GDMT across all institutions included in the analysis.
11. Observed within a 24-month follow-up window.
12. Evaluation rate based on Kaplan-Meier analysis of evaluation by the Heart Team for patients diagnosed with symptomatic severe VHD. Heart Team members were reported by each site. Excluded patients receiving palliative care at the time of diagnosis.
13. Based on high-performing programs' treatment rate at 6 months versus the national average at 6 months (74% vs 50%, respectively).
14. Malaisrie SC, McDonald E, Kruse J, et al. Mortality while waiting for aortic valve replacement. *Ann Thorac Surg*. 2014;98(5):1564-1570.
15. egnite's proprietary NLP-based algorithm was applied to determine the likely mechanism of disease (primary degenerative, secondary, mixed, unknown). Algorithm validated on a random sample of 300 deidentified reports with diagnoses of moderate or greater MR and found to sort reports with an accuracy of at least 97% per adjudication against the algorithm's rules framework.
16. Patients must have had an encounter with a member of the Heart Team to be classified as "evaluated" in this analysis. Heart Team members were reported by each site.
17. Institutions assigned to quartiles by ranking highest to lowest Class I procedural (surgical or transcatheter) treatment rates per the 2020 ACC/AHA guideline for the management of patients with VHD.
18. Mignone JL, Alexander KM, Dobbles M, Fonarow GC, Ellenbogen KA. Outcomes with guideline-directed medical therapy and cardiac implantable electronic device therapies for patients with heart failure with reduced ejection fraction. Presented at: Heart Rhythm 2023; May 19-21, 2023; New Orleans, LA, USA.
19. For a select analysis population with HFrEF and index LVEF $\leq 35\%$. Similar trends were also observed in a cohort of patients with an ICD/CRT-D.

Footnotes and References

20. Analysis includes patients with 2+ admissions in 1 year who were prescribed 0 classes of GDMT. Analysis includes health systems with or without HF programs.
21. Analysis from egnite's database of sites participating in the CardioCare platform, representing 5 heart programs (both teaching and non-teaching included) that manage a total of more than 50,000 patients with HFrEF. Here, GDMT includes an ACEi/ARB/ARNi, beta blocker, MRA, and SGLT2i per the 2022 AHA/ACC/HFSA guideline for heart failure. Observed in patients prescribed medications from all 4 GDMT classes compared to those prescribed 0 classes.
22. Analysis only includes 15 of the 24 health systems that have a HF program. Patients' evaluation status as defined at the time of their second admission.
23. Heart failure programs consisted of both physical and virtual programs as reported by the site.
24. Institutions assigned to quartiles by ranking highest to lowest prescription rates for 3+ GDMT classes to patients with HFrEF.
25. Percent difference between the average prescription rate of 4-class GDMT across all sites for cardiologists versus noncardiologists.
26. Data represent each site's candidate pool as of May 31, 2023.
27. Patients meeting guideline indications for treatment who are 'Active' in the system—i.e., alive, untreated, not palliative, not lost to follow-up. For AVR and MVR candidates, that is a Class I recommendation. For CRT-D or ICD candidates, that is a Class I indication and prescriptions for at least 2 GDMT meds.
28. 50% of untreated patients multiplied by estimated contribution margin per treated patient (Center for Medicare & Medicaid Services national average): sAS \$29,679, sMR \$29,679, and HFrEF CRT/ICD \$8,500.
29. Généreux P, Sharma RP, Cubeddu RJ, et al. Untreated aortic stenosis mortality by diagnosis severity: Results from a large real-world database. *J Am Coll Cardiol*. 2023;81(8 suppl):1989.
30. Amoroso NS, Sharma RP, Genereux P, et al. Clinical journey for patients with aortic regurgitation: A retrospective observational study from a multicenter database. Presented at TVT: The Structural Heart Summit; June 7-10, 2023; Phoenix, AZ, USA.

egnite, Inc. Structural Heart Disease Benchmarking Report 2023.

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