

Build the case for structural heart program investments

Tools to advocate for additional resources

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Created for cardiovascular service line leaders and structural heart (SH) program directors and managers, this toolkit aims to help hospitals and health systems advance their structural heart programs.

This toolkit provides a framework to help structural heart program leaders advocate for additional staffing and infrastructure resources.

How to use this toolkit

Structural heart program leaders continuously educate the enterprise about the value of their SH program. Use these steps and corresponding strategies and tactics to learn how to gain buy-in for investment in SH to advance your program and capture today's SH demand.

01

Illustrate growth outlook

Demonstrate the value and necessity of your SH program investment to key stakeholders

02

Examine current performance

Evaluate efficiency of current operations across the entire SH continuum to identify the correct level of investment

03

Articulate the need

Communicate an effective business case to justify investment in your SH program

Case profiles

Appendix

Illustrate growth outlook

Instructions: Use the components of this section to continuously educate key stakeholders on growth projections, market drivers, and anticipated volume capture. By doing this, leaders will set the foundation to make the case for why the program needs a new resource.

In this section:

- Guidance on how to educate leaders on the market trends and future outlook of SH
- Sample worksheets to understand local market trends and quantify projected demand across SH procedures

“As administrators, we need to be constantly showing the growth plans and planting the seed now about how to allocate resources and why. **If your CFO is hearing about a staffing need for the first time when you desperately need one, it’s too late. You need to start now.**”

CV Administrator/Executive
Suburban hospital in the South

Illustrate the growing demand for structural heart...

National estimates, 2020–2025

KEY INSIGHTS

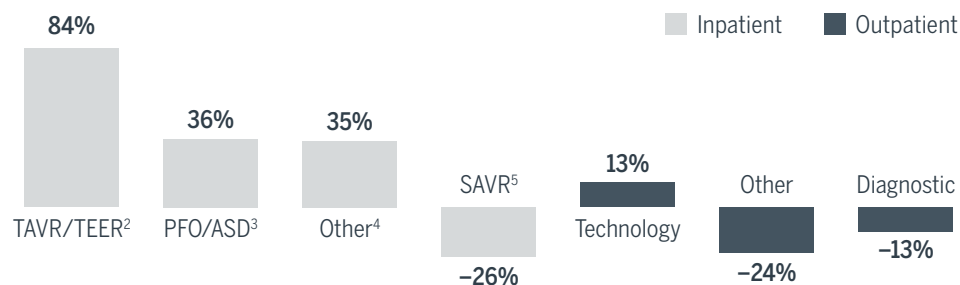
Structural heart is expected to surpass other key cardiovascular sub-service lines in terms of raw volume by 2025.

TAVR is expected to grow at almost twice the rate of other structural heart procedures by 2025.

Inpatient sub-service line¹ five-year projected growth

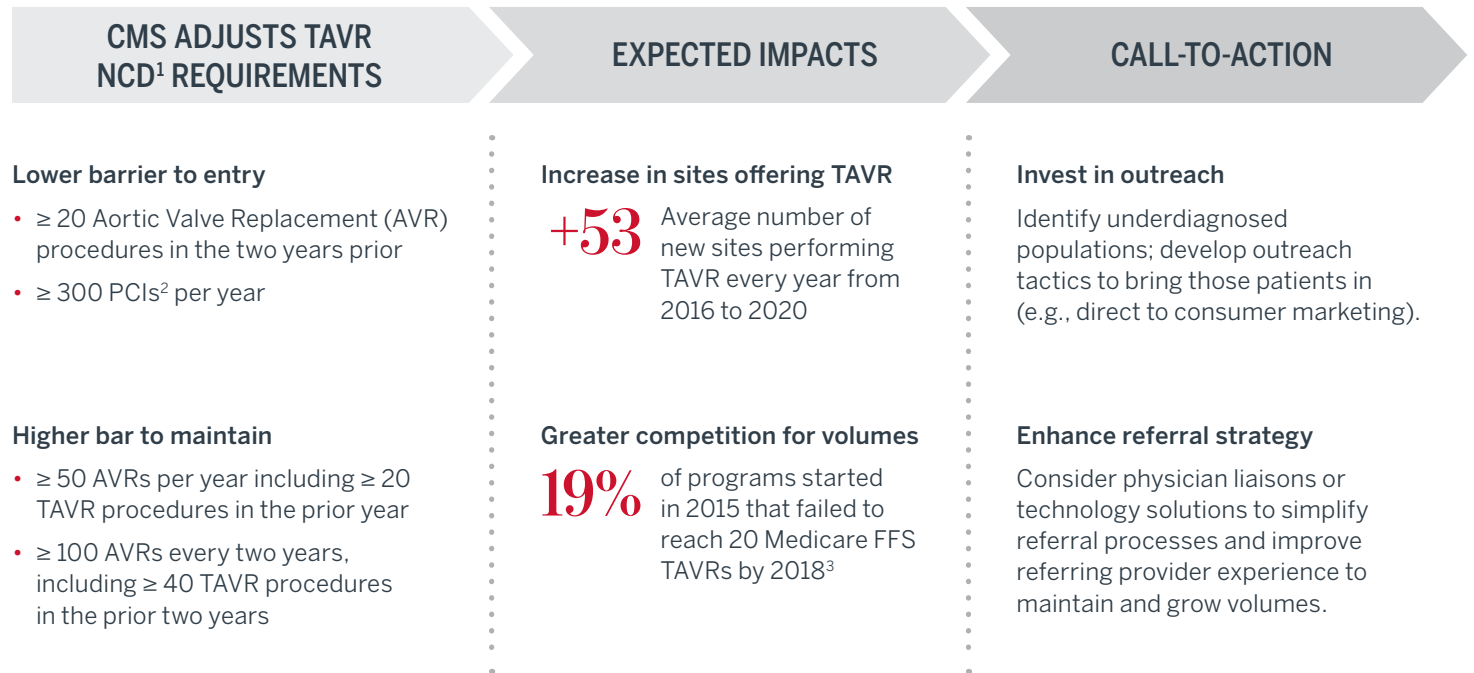


Structural heart five-year growth projections, by procedure group¹



1. Definitions of sub-service lines and procedure groups are located in the appendix.
 2. Transcatheter edge-to-edge repair (TEER), formerly referenced as TMVR..
 3. Patent foramen ovale (PFO)/ Atrial septal defect (ASD).
 4. Inpatient "Other" encompasses procedures not included in other groupings and might include some outside of structural heart.
 5. Surgical aortic valve replacement (SAVR).

...and the consequent competition for patients



1. National coverage determination
2. Percutaneous coronary intervention.
3. Limited to hospitals that had volumes above 0 in 2015.

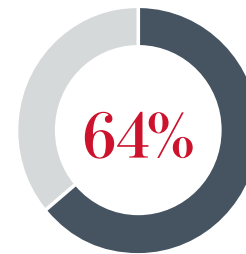
Source: Carroll J, et al., "STS-ACC TVT Registry of Transcatheter Aortic Valve Replacement," *Journal of the American College of Cardiology*, 2020; CMS Standard Analytical File; "Decision memo for transcatheter aortic valve replacement (TAVR)," *Centers for Medicare and Medicaid Services*, Jun. 21, 2019; Neale T, "Public comments largely supportive of CMS plan for TAVR, with some suggested tweaks," *TCTMD*, May 01, 2019.

Highlight AS opportunity, exacerbated by inequities

KEY INSIGHT

Sizable AVR opportunity illustrates need for improved screening and access to TAVR treatment.

AVR treatment rates for patients with severe symptomatic aortic stenosis



Percentage of patients who did not receive AVR (TAVR or SAVR) within a year of diagnosis

Disparities in AVR access and treatment by sociodemographic factors

RACE

24% ▼

Less likely for black patients to receive AVR than white patients

GENDER

9% ▼

Less likely for women to receive AVR than men

ECONOMIC STATUS

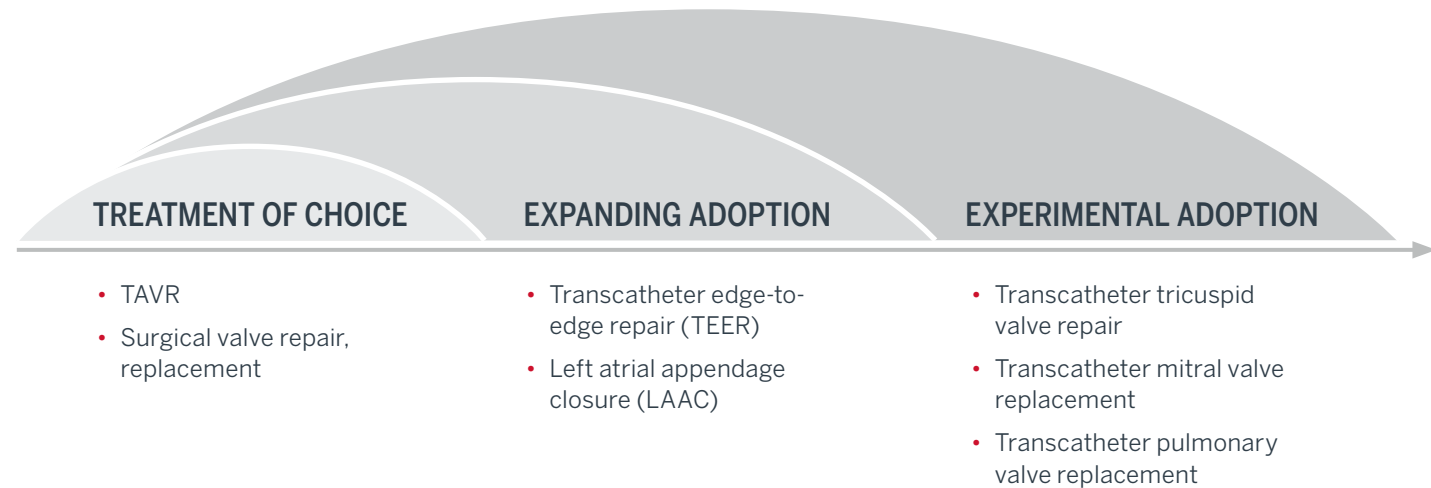
10% ▲

Increase in odds of receiving a TAVR with every \$10,000 increase in income

Source: Alkhouli M, et al., "Racial Disparities in the Utilization and Outcomes of TAVR: TVT Registry Report," *JACC Cardiovascular Interventions*, 2019; Brennan J, et al., "Association Between Patient Survival and Clinician Variability in Treatment Rates for Aortic Valve Stenosis," *Journal of the American Heart Association*, 2021; Brennan J, et al., "Racial Differences in the Use of Aortic Valve Replacement for Treatment of Symptomatic Severe Aortic Valve Stenosis in the Transcatheter Aortic Valve Replacement Era," *Journal of the American Heart Association*, 2020; Lowenstern A, et al., "Sex disparities in patients with symptomatic severe aortic stenosis," *Elsevier*, 2021; Sleder A, et al., "Socioeconomic and Racial Disparities: a Case-Control Study of Patients Receiving Transcatheter Aortic Valve Replacement for Severe Aortic Stenosis," *Journal of Racial and Ethnic Health Disparities*, 2017.

Drive importance of SH portfolio diversification

Procedures included in structural heart programs at various stages of adoption



“I am preparing for volume growth to come from more than just TAVR but also TEER and LAAC.”

Cardiovascular director
Academic medical center on the East Coast

“Today, TAVR is a requirement. When I look ahead strategically, I’m not looking at just TAVRs, I’m looking at mitrals and tricuspids.”

Cardiovascular director
Health system on the East Coast

Emphasize investment as vehicle for advancement

Use this maturity model to determine where staff investment is needed. Check all that apply.

	Early stage	Transitional	Mature
Leadership and organization	Physician champion or medical director	Administrative director	Cross-site meetings reporting structure
Staffing	Interventional cardiologist Cardiac surgeon Dedicated structural heart coordinator (with registry separate, if possible)	Registry submission and coding support (e.g., data analyst or MA)	Structural heart coordinator team with subspecialization Scheduler Referral coordinator ¹
Infrastructure and facilities	Hybrid OR Operating room	Hybrid cath lab and/or hybrid OR Dedicated multidisciplinary screening clinic for structural heart	Hybrid cath lab and/or cath lab Network of clinics with screening capabilities
Service offerings and technology	TAVR Minimally invasive valve procedures	Left atrial appendage closure Transcatheter edge-to-edge repair	Transcatheter pulmonary valve replacement Transcatheter tricuspid valve replacement
Care coordination and protocols	Heart team approach Standardized patient referral guidelines Targeted patient screening	Multidisciplinary case conferences Standardized patient selection criteria Standardized post-discharge follow-up	Multidisciplinary input beyond structural heart team (e.g., electrophysiology, heart failure) E-visits for care plan discussions Remote monitoring for post-discharge follow-up Moderate sedation for transcatheter procedures

1. Sample responsibilities for the referral coordinator include being the main point of contact for referring physicians, analyzing where referrals are and aren't coming from, conducting some clinical work, and handling referral follow-up.

Identify your national and local SH market growth drivers



National structural heart five-year market growth drivers, 2020–2025

Market growth driver ¹	Projected growth	Associated national volumes
Population change	▲	+3.2K
Demographic shifts	▲	+13.4K
Disease prevalence	▲	+31.5K
Care management	▲	+500
Insurance	▼	-12K
Readmissions	▼	-1.4K
Net impact		+65.1K

1. Definitions of growth drivers are located in the appendix.

DISCUSS

Use these questions to determine your **local market growth drivers** to help inform your discussions with leaders and to advocate for resources.

Patients

- How is total market size growing based on local demographic shifts?
- How will referral volumes change based on marketing and physician education efforts?
- What demographic shifts are impacting the program (e.g., out-migrating patient share due to customers “shopping” for care)?

Competition

- What components of the program provide a competitive advantage against competitors (e.g., service portfolio, appointment time, brand strength) to gain market share?
- Are there potential new market entrants or competitors who are evolving services and marketing tactics?

Regulators

- How will projected payer trends impact our program volumes?
- What are the forecasted changes at the local, state, and federal level?

Communicate your projected volume demand across SH

Complete this worksheet on current versus projected volume demand. Click each cell in the table to input your data and insert other procedures and services as necessary.

Example	Current volumes (2020)	x Growth factor ¹	Projected volumes (2025)
Total program volumes		1.59	
TAVR		1.84	
LAAC		1.35	
TEER		1.84	
PFO/ASD		1.35	
SMVR ²		0.74	
Halo effect services			
PCI		1.05	
CT		1.11	
Echos		1.26	

1. Growth factors derived from national data using Advisory Board's Market Scenario Planner tool.
 2. Surgical mitral valve repair/replacement.

Examine current performance

Instructions: After understanding where your SH program is headed, leaders holistically review their current state by identifying capacity constraints across the entire SH care continuum and working to ensure highly efficient operations by right-sizing staff and optimizing process. By conducting a current state performance assessment and improving internal operations as applicable, leaders complete their due diligence before requesting the next asset. Use the components of this section to help accomplish this.

In this section:

- Sample metrics to identify and address capacity constraints by process, staffing, and infrastructure
- Sample staffing benchmarks and triggers to determine when to add FTEs
- Strategies to align with ancillary programs (e.g., imaging) to identify infrastructure investment need

“Before I go to my COO, I show how much I have tried to fix the problem internally with existing resources. **When I make the case for an additional FTE, I am showing the present-day inefficiencies and telling the stories of patients waiting eight weeks for an echo.**”

CV Administrator/Executive
Mid-size health system in the mid-Atlantic

Judge your capacity constraints beyond TAVR volumes

02 Examine current performance

Use these sample capacity metrics from Edwards Lifesciences to assess current capacity and project future need. Some programs use these metrics to identify current capacity constraints such as screening bottlenecks (e.g., time to echo or CT). Others use them to calculate projected need (e.g., additional staff hours, cath lab time) based on future volumes.



Procedural capacity

- TAVR
- SAVR
- TEER
- SMVR
- LAAC
- Other transcatheter intervention



Staffing capacity

- CTS hours
- Interventional cardiologist hours
- APP hours
- RN hours



Screening capacity

- X-ray hours
- Transthoracic echo hours
- CT
- Cath
- Prior auth
- Registry



Procedure capacity

- OR/hybrid time
- Cardiac cath lab time
- Coronary care unit time
- Routine bed stays

KEY INSIGHTS

- Hospital and health system leaders need to understand the impact that increased volumes will have on already strained hospital resources. For example, volume growth in emerging therapies and services leads to reduced OR and/or ICU capacity and can have significant margin impact.
- A well-thought structural heart global budget impact will include considerations about outpatient halo effect, a mix of inpatient services, and an evolving payer mix.

Adopt a holistic, operational view of program efficiency



Traditional focus has been procedural efficiency...

- Alleviates challenges of limited resources and maximizes “TAVR days”
- Accelerates program towards elusive structural heart profitability



...yet operational efficiency is key for sustained success

- Frees capacity to accommodate new volumes from regulatory changes
- Expands into new service offerings as approved
- Allows for differentiation on access, experience as competition increases

Review common capacity relieving investments

Review these sample capacity-relieving investments for program benchmarking and planning. Check all that apply to your situation.

Investment category	<200 SH volumes	200-400 SH volumes	>400 SH volumes
Staffing	<ul style="list-style-type: none"> Cross-training opportunities on structural heart to prevent FTE dependency Structural heart nurse apprenticeship to develop staffing pipeline 	<ul style="list-style-type: none"> Hire additional non-clinical staff (e.g., dedicated administrative assistants to help with scheduling and prior authorization) Add structural heart fellows to improve procedural throughput 	<ul style="list-style-type: none"> Hire dedicated staff to support outpatient valve clinics (e.g., schedulers, administrative assistants, nurses) Re-purpose and leverage administrative staff (e.g., schedulers, data registry analysts) from other hospital staff
Infrastructure	<ul style="list-style-type: none"> Technology solutions including: <ul style="list-style-type: none"> Scheduling software EHR plug-ins Referral apps for PCPs 	<ul style="list-style-type: none"> Expand echocardiography capacity through new capital purchases Purchase additional CT scanners New ambulatory center for pre- and post-procedure space Convert additional hybrid cath labs 	<ul style="list-style-type: none"> Expand valve clinic access points to reduce hospital traffic Construct additional hybrid OR Dedicated structural heart imaging team and equipment
Other	<ul style="list-style-type: none"> Stack structural heart procedures on a single day Discharge patients to home or post-acute site within one day 	<ul style="list-style-type: none"> Embed structural heart protocols across sites of care 	<ul style="list-style-type: none"> Prioritize access and/or ownership over ancillary services (e.g., echocardiography) Develop care pathways for standardized testing protocols at patient intake

Verify whether operational solutions address pain points

02 Examine current performance

Review these sample operational efficiencies from peer organizations who are innovating on process to enable program growth, and check all that apply to your program.

Optimize use of procedural areas—e.g., perform procedure in cath lab instead of OR to decrease staff and overhead costs or refigure space and staffing for procedures, like TEER, that don't require a surgeon.

Build in additional evaluation steps—e.g., protocols to proactively identify complications with the goal of streamlining recovery and ensuring efficiency gains are not lost.

Adjust post-procedure recovery workflows—e.g., identify patients who can bypass ICU, moving straight to telemetry unit or progressive care unit.

Expand outpatient operations—e.g., where possible, shift staff from inpatient hospital to conduct consults or other services in the outpatient setting where possible to free up inpatient space.

Streamline TAVR or other structural heart procedure days by stacking cases and cross-training staff—e.g., conduct procedures in one day by flipping between the OR and cath lab and leveraging cross-trained teams of OR, Electrophysiology, and cath lab staff who can alternate conducting procedures as necessary.

Divide patient support between care settings—e.g., an APP manages the patient in the outpatient setting and the nurse manages the patient in the inpatient setting, or a VCC handles pre-op and nurse navigator manages post-op.

Prioritize certain procedural areas for structural heart—e.g., by assessing what procedures should be done at what sites some programs prioritize TAVR, ablations, etc. for the cath lab and have procedures like peripheral vascular conducted elsewhere.

Adapt coordinator role to optimize efficiencies

To accommodate growth, programs should look to standardize and limit the number of patient visits with the coordinator.¹ Programs who standardize when visits happen and what happens at each visit will position themselves best for growth. Evaluate the subsequent models to identify the appropriate match for your program.



Specialize roles by structural heart procedure

Programs have their coordinators assigned to each individual structural heart procedure. For example, patients receiving TAVR would be assigned to a TAVR coordinator versus a LAAC coordinator. This model is seen most frequently with newer and/or smaller SH programs looking to ensure quality and patient experience. Additionally, programs choose this model to scope the coordinator role to prevent burnout.



Cross-train roles across structural heart procedures

Programs have their coordinators cross-trained across structural heart procedures. For example, coordinators can support patients who are receiving a TAVR, TEER, or LAAC procedure. This model is the most common and is suggested for programs managing rapidly increasing volumes and who can provide resources (e.g., non-clinical FTEs or technology solutions) to prevent staff burnout.



Divide roles across the care continuum or by program goal

Programs scope the coordinator role based on program need by site of care or part of procedure. For example, if the program needs to allow for growth and efficiency, VCC handles pre-op from referral to procedure and a nurse navigator handles post-op. If the program needs to focus on patient experience, the coordinator handles all non-clinical work and APPs manages all patient touch-points. This model is newer and less common but seen by advanced programs who are looking to maximize efficiency.

Increased volumes and program maturity

1. Coordinator role varies by organization but often include responsibilities such as development and coordination of patient evaluation and screening processes including patient tracking and triage, oversight over valve clinic processes, involvement in patient and family education and consent, coordination of inter-hospital and inter-departmental processes and communication, etc.

Three ways to adapt the coordinator role for efficiency

02 Examine current performance

MODEL 1



Specialize roles by structural heart procedure

Pros:

- Removes distractions, enables focus on understanding each procedure and patient's process
- Maximizes efficiency for each individual procedure
- Easier to train

Cons

- Difficult to scale with growing volumes without having to add additional FTEs
- Patients interface with multiple coordinators if they need different structural heart procedures

Case example A:

≈100 TAVRs annually, community hospital

Coordinators are divided by procedure (e.g., TAVR, LAAC, TEER). With the goal of isolating burnout and addressing high coordinator turnover, the program has coordinators focused on the patient process of each assigned procedure.

Case example B:

≈200 TAVRs annually, urban health system

Out of five coordinators, one is focused on TAVR, the second assists and does outreach clinics, third does TEER/ASD, the fourth does LAAC, and the fifth is currently vacant.

Three ways to adapt the coordinator role for efficiency (cont.)

MODEL 2



Cross-train across structural heart procedures

Pros:

- Creates agility as program volumes grow
- Helps prevent FTE dependency
- Helps build patient-clinician relationship across procedural processes

Cons

- Requires additional time and resource investment in training
- Places significant responsibility on individual roles

Case example A:

≈450 TAVRs annually, large health system

Each patient is assigned an APP coordinator who is responsible for documentation, follow-up appointments, etc. The APP conducts 1-2 visits before the procedure, then the required follow-ups after the procedure.

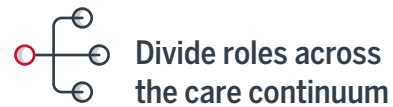
Case example B:

≈500 TAVRs annually, AMC

From the initial clinic visit with the physician to post-procedure care, APPs are the main point of contact. Coordinators and MAs are hired to help support APPs to be top-of-license and handle scheduling and non-clinical tasks.

Three ways to adapt the coordinator role for efficiency (cont.)

MODEL 3



Pros:

- Reduces coordinator overwhelm and slows need to hire additional FTEs with volume growth
- May improve cross-continuum communication and prepare program for a future bundled payment environment

Cons

- Cross-continuum communication and patient hand-off can be difficult to operationalize
- Patient experience might decline with multiple patient coordinators

Case example A:

≈300 TAVRs annually, large health system

APP conducts outpatient workup and outpatient follow-ups while inpatient cardiologist NP manages the patient within the hospital. Outpatient APP schedules follow-up before procedure.

Case example B:

≈450 TAVRs annually, AMC

VCC handles the referral to procedure and the nurse navigator is then responsible for post-procedure care.

Consider ancillary role investments to match market trends

02 Examine current performance

Review the ancillary roles and services below and consider how they might help you capture demand.

QUALITY

Quality outcomes are the vehicle to win over patients, referring physicians, and payers. Ratings and rankings reports, program accolades, and quality accreditations are expected to rise in importance for structural heart.



Dedicate resources to manage data

Example: Dedicated non-clinical resource to manage registry and other data functions to optimize for reporting to quality ratings and rankings programs.

CONSUMERISM

With the rise of structural heart programs in the market, patients are increasingly "shopping" for care and assessing programs who can differentiate based on access, quality, and experience.



Invest in cross-continuum patient support

Example: Physical therapist offers prehab services to structural heart patients to distinguish program among patients looking for a quality-driven patient experience.

HEALTH EQUITY

Addressing the inequities in access and care outcomes has become an increasing imperative not just among C-suite leaders but also structural heart leaders.



Expand care management

Example: Social worker sees structural heart patients before the procedure to assess sociodemographic risk factors, determine goals for discharge, and arrange support services that enable optimal recovery, as necessary.

Define triggers for when to add FTEs

Review the approaches below to help gauge when additional staff might be needed.



By clinic and hospital staff workload/work hours

- Number of cases per coordinator vs. projected
- Hours worked per week by SH staff (e.g., APPs)/hours worked overtime
- Projected decline in patient experience

“Each new consult adds hours to the coordinator’s week. Ask, ‘How many consults can a coordinator handle before they are working more than 40 hours per week?’”

Community hospital
100 TAVRs annually



By projected SH procedural volume capture

- Volume of referrals today vs. projected
- Projected volumes lost due to workload
- Number of cases conducted by SH procedure vs. projected

“There are no magic staffing ratios. Look at what you expect to see in a year vs. how you are managing now, the current and projected workload. Referrals are also a good proxy for when to add resources.”

Large health system
450 TAVRs annually

BEST PRACTICE

On average, most leaders add a new FTE for every 100 additional structural heart procedures.

“In our experience, for every 100 additional cases a new FTE is hired. This ratio isn’t perfect, but is reasonably accurate based on conversations with peer institutions.”

Large, urban AMC
500 TAVRs annually

“When looking at projected growth, if you are adding two patients per month then look internally, but if it’s another six to eight cases per month then you add another person.”

Mid-size health system
250 TAVRs annually

Compare your staffing to industry benchmarks

02 Examine current performance

Typical dedicated staffing for structural heart programs, by program size

Program size ^{1,2}	Small programs (<200 SH volumes)	Medium programs (201–400 SH volumes)	Large programs (>400 SH volumes)
Physicians	2–4	4–8	5–10
Interventional cardiologists	2	2.5	3
Surgeons	1	2	2
Other	0.5	1	2
Staff	3–6	4–7	10–13
Coordinators	1	1.5	2.5
Advanced practice providers (APPs)	1	2	3
Other ³	1	2	4.5
Total FTEs	5–9	8–12	15–21

1. These are anecdotal staffing numbers provided by organizations when asked, "what does staffing look like for your TAVR and/or structural heart program?" FTE titles are based on variable role definitions across programs. For example, some programs have coordinators who are RNs by background and so the table reflects those RNs as coordinators, not as separate RNs.

2. Calculations are based on interviews and profiles of fourteen different structural heart programs across the United States. "Physicians," "Staff," and "Total FTEs" represent generalized ranges and the sub-categories represent medians for each category.

3. "Other" includes medical assistants, registered nurses, schedulers, registry, and dedicated IT FTEs.

Understand how peer organizations are staffing up

02 Examine current performance

Example ¹	Organization A ² Suburban health system	Organization B ³ Suburban hospital	Organization C ⁴ Suburban health system	Organization D Suburban AMC	Organization E ⁵ Suburban health system
Sample annual program volumes	≈34 TAVR, 21 TEER	≈100 TAVR, 80 LAAC	≈165 TAVR, 35 TEER	240 TAVR	240 TAVR, 15–20 PFO/ ASD, TEER
Physicians	4	4	7	4	4
Interventional cardiologists	2	2	4	2	2
Surgeons	1	2	2	2	2
Other	1	–	1	–	–
Staff	4	7	1	8	2
Coordinators	1	3	1	3	1
APPs	1	4	–	2	1
Registered nurses	–	–	–	1	–
Medical assistants	1	–	–	–	–
Non-clinical staff	1	–	–	2	–
Total FTEs	8	11	8	12	6

1. These are anecdotal staffing numbers provided by organizations when asked, “what does staffing look like for your TAVR and/or structural heart program?” FTE titles are based on variable role definitions across programs. For example, some programs have coordinators who are RNs by background and so the table reflects those RNs as coordinators, not as separate RNs.

2. “Other” physician is a peripheral vascular specialist. Staffing also includes an echocardiographer.

3. Program has two outpatient registered nurses who are paired with each cardiac surgeon and consequently not included in this table. See expanded case profiles for additional staff details.

4. “Other” physician is an imaging cardiologist. CMAs, techs, and schedulers are staffed at the outpatient sites and conduct half day clinics to see up to 20 patients per day.

5. Program is looking to hire more support staff and another interventional cardiologist.

Expanded case profiles located in Appendix.

Understand how peer organizations are staffing up (cont.)

02 Examine current performance

Example ¹	Organization F ² Urban health system	Organization G Urban health system	Organization H ³ Urban AMC	Organization I ⁴ Suburban health system	Organization J ⁵ Suburban health system
Sample annual program volumes	≈200 TAVR, 180 LAAC, 45 TEER, 40 PSO/ASD	≈300 TAVR	≈300 TAVR 75 TEER	≈300 TAVR, 250 other structural heart	≈470 TAVRs
Physicians	8	6	6	8	10
Interventional cardiologists	3	3	2	2	7
Surgeons	3	3	3	4	3
Other	2	–	1	2	–
Staff	11	4.5	5	10	11
Coordinators	5	2.5	–	–	1
APPs	3	1	3	6	4
Registered nurses	–	1	1	3	3
Medical assistants	2	–	–	1	–
Non-clinical staff	1	–	1	–	3
Total FTEs	19	10.5	11	18	21

1. These are anecdotal staffing numbers provided by organizations when asked, "what does staffing look like for your TAVR and/or structural heart program?" FTE titles are based on variable role definitions across programs. For example, some programs have coordinators who are RNs by background and so the table reflects those RNs as coordinators, not as separate RNs.

2. "Other" physicians are imaging cardiologists. Coordinators include a TAVR coordinator, LAAC coordinator, Mitral/ASD coordinator, and outreach coordinator.

3. "Other" physician is a fellow. Non-clinical staff are a 0.5 data registry and 0.5 administrative assistant. APPs and RNs may act as coordinators.

4. "Other" physicians are two electrophysiologists. There are four inpatient APPs, two outpatient APPs, and one outpatient MA. RNs act as nurse navigators. APPs and RNs may act as coordinators.

5. Program manager listed as a coordinator.

Expanded case profiles located in Appendix.

Align with supporting programs to assess investments

02 Examine current performance

Steps to ensure infrastructure investment success:

- 1 Identify how the equipment will be used, any gaps it can fill in current portfolio, for current patients, as well as for potential/additional patients.
- 2 Model how investment will increase or decrease utilization of other services and gauge overall impact to secure buy-in.
- 3 Involve stakeholders from other service lines, particularly radiology, to ensure optimal evaluation, investment, and operations.

“When looking ahead, it’s not just an investment in staff but ancillary services, which is more than structural heart and critical to have a leading program.”

Cardiovascular executive

Large health system on the East Coast

DISCUSS

Use these topics to guide discussions with cardiology and imaging leaders.

Capacity

- Cardiac and non-cardiac volumes
- Distribution of time for machines
- Changes in diagnostic utilization, case mix

Finances

- Allocation of investment funds
- Division of technical and professional fees
- Ownership of coding, reimbursement duties

Operations

- Placement of new equipment
- Training for technologists
- Ownership of scheduling responsibilities
- Selection of physicians to read exams

Establish a process for ensuring conversations happen

Refer to this as a sample investment lifecycle.



Articulate the need

Instructions: When justifying resource needs, structural heart leaders start by explaining the value of the program to the enterprise. Then, they paint a clear picture of the financial implications of not investing in structural heart (the “do nothing” scenario). Finally, they advocate for specific resources as the vehicle to remain competitive and drive growth through structural heart. Use the components of this section to help accomplish this.

In this section:

- Talking points and strategies to communicate resource needs
- Metrics to support making the case for additional SH investment

“To make the case, we start by educating leadership about what is done within the heart and vascular service line and within structural heart. **We tell the story of where we are, where we need to go, how to get there, and the financials to get there.** For example, each position is going to cost X amount and we are going to create Y amount of revenue. We have physicians tell this story versus administrators.”

CV Administrator/Executive

Suburban health system in the Southeast

Present resource need in the context of a leading program

03 Articulate the need



Sample talking points to make the ask for investment

Advancing our structural heart program is...

- ▶ Foundational to being a competitive, comprehensive cardiac surgery program in our region and core to building our brand.
- ▶ A strategic imperative based on the volumes associated with structural heart.
- ▶ Highly desirable and attractive to top talent especially interventional cardiologists and cardiac surgeons.
- ▶ Essential to ensuring patients have access to critical procedures in their own community—allowing them to recover in a familiar setting and ensuring they receive care from us versus seek care elsewhere.
- ▶ Critical to grow revenue for the broader cardiovascular department.

EXAMPLES

\$5M investment ask

An investment in structural heart services of around \$5M could generate \$6M in direct revenue and upwards of \$10M in revenue for associated services. This entails:

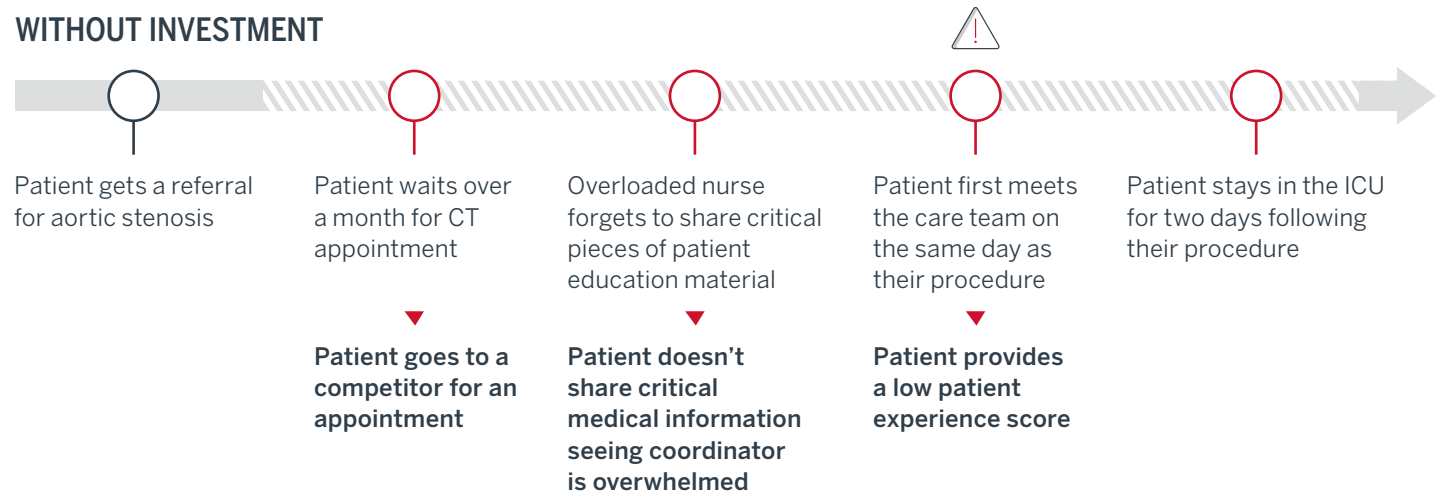
- Hiring a new interventionalist
- Hiring a new nurse coordinator
- Re-purposing existing non-clinical staff to support registry participation

Request for APP funding

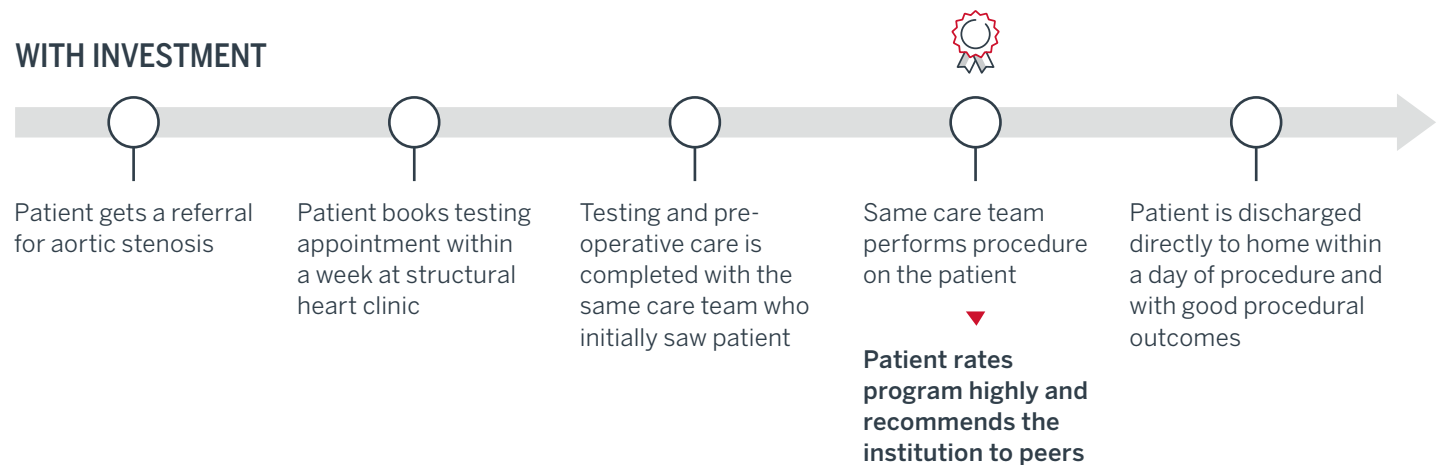
Our organization's mission is to make sure patients feel like we are invested in their care success and not just another case to be completed. An investment in another APP for structural heart will ensure our patients have timely access to foundational cardiovascular care and guarantees an improved patient experience. Access and patient experience will differentiate us in the market.

Illustrate what will be lost without resource investment

WITHOUT INVESTMENT



WITH INVESTMENT



Communicate the benefits of making an investment

03 Articulate the need

Benefits of dedicated staff— regardless of care team member



Availability

More time to dedicate exclusively to executing task with highest quality



Focus

Attention likely to yield a more positive patient experience



Capacity

Time allows for scalability, patient capture rate, and improved patient and referring provider follow-up



Standardization

Familiarity with process enables standardization, generates efficiencies

“When we needed to hire a nurse coordinator, our medical director made a patient-centered pitch that the hospital ‘owed it’ to our patient population. He made the argument that **we need to provide the right care, at the right time, in the right place.**”

Cardiovascular executive
Suburban health system in the Southeast

“In a year, we are going to need another APP and nurse to meet volume demand so we are asking for those FTEs now. **You need to consider the time it takes to recruit and train clinical staff.**”

Cardiovascular executive
Suburban health system in the Mid-Atlantic

Emphasize quality outcomes and halo effect

03 Articulate the need

How to leverage data to build the case

“Dashboards help align the multidisciplinary team while also making the case to executives about the program. **Executives like to see the outcome metrics, positive contribution margin, the length of stay.** If you can have a trend line to make it easy to read and then have key statistics like mortality rate, pacemaker rate, stroke rate, length of stay and benchmark against the national data, then you have the foundations of a case.”

Cardiovascular executive

Large health system on the East Coast

“Capturing the halo effect in terms of financials is a separate data pull that is not reflected in financial reports. When you look at supply costs, you don’t see what else is happening. **You need to educate stakeholders about the process, the workup with TAVR** such as ultrasounds, echos, X-rays, CT, incidental findings, and the consequent additional referrals.”

Cardiovascular executive

Community hospital in the South

Sample TVT outcomes dashboard¹

Procedure Information	2019 Q1	2019 Q2	2019 Q3	2019 Q4	N/D	R4Q	50th Percent	90th Percent
Outcome Metrics								
Mortality- In Hospital UNADJUSTED	8.3%	0.0%	0.0%	0.0%	1/52	1.9%	1.0%	0.0%
Significant Cardiac Events	0.0%	0.0%	0.0%	0.0%	0/52	0.0%	0.7%	0.0%
Acute Kidney Injury (AKIN stage 3)	0.0%	0.0%	0.0%	8.3%	1/50	2.0%	0.0%	0.0%
Bleeding(disabling or life threatening)	16.7%	0.0%	7.1%	0.0%	3/52	5.8%	1.3%	0.0%
Vascular Site Complication Req. Treatment	0.0%	0.0%	0.0%	0.0%	0/52	0.0%	2.4%	0.0%
Valve Metrics								
Device Complications	0.0%	0.0%	0.0%	0.0%	0/52	0.0%	0.0%	0.0%
Aortic Regurgitation	0.0%	0.0%	0.0%	0.0%	0/52	0.0%	0.0%	0.0%
Utilization/Process Metrics								
Length of Stay	1	1	1	1.5		1	1.5	1
Median Fuoro Time	13.7	13.5	15.0	14.1		14.3	14.8	11.0
Data Quality Metrics								
KCCQ12 performed pre procedure	100.0%	100.0%	100.0%	100.0%	52/52	95.5%	98.1%	100.0%
Five meter Walk Test	100.0%	100.0%	100.0%	100.0%	52/52	100.0%	96.3%	100.0%
30 DAY FOLLOW UP								
30 day Records not submitted	0.0%	0.0%	0.0%	8.3%	1/51	2.0%	3.8%	0.0%
Patient classified for 30 day reporting	100.0%	100.0%	100.0%	91.7%	51/52	98.1%	95.6%	100.0%
Echo not performed @ DC and 30 day	0.0%	0.0%	0.0%	0.0%	0/51	0.0%	0.0%	0.0%
Aortic Regurgitation (moderate to severe)	0.0%	0.0%	0.0%	0.0%	0/51	0.0%	0.0%	0.0%
Observed Mortality 30 day	8.3%	0.0%	0.0%	0.0%	1/52	1.9%	1.8%	0.0%
CVA (any)	8.3%	0.0%	0.0%	16.7%	3/52	5.8%	1.8%	0.0%
Vascular Access Site Complication (any)	0.0%	7.1%	0.0%	0.0%	1/52	1.9%	3.0%	0.0%
Readmission (any reason)	27.3%	21.4%	7.1%	0.0%	7/51	13.7%	7.1%	1.5%
Combined Safety Endpoint (VARC)	25.0%	7.1%	7.1%	25.0%	8/52	15.4%	6.1%	2.7%
Improved/Acceptable QoL at 30 days	58.3%	85.7%	85.7%	66.7%	39/52	75.0%	70.0%	85.6%
RY3 Risk Model								
Risk Adjusted In-Hospital Mortality Odds Ratio			2019 Q3	2019 Q4		50th Percent	90th Percent	
			1.35%	1.25%		0.99%	0.84%	
Risk Adjusted In-Hospital Stroke Odds Ratio			0.83%	1.01%		0.99%	0.79%	
Risk Adjusted 30 day Mortality Odds Ratio			1.22%	1.14%		0.99%	0.87%	



1. Dashboard provided by Edwards Lifesciences.

Come armed with multiple pieces of evidence

Use the samples below to gather data that will help build the case for structural heart investment.

03 Articulate the need

MARKET POSITION

- Market share of your primary service area
- Analysis of competitor structural heart offerings
- Number of patients originating from outside of primary service area
- Number of outmigrating patients who are leaving the market for care
- Percentage of structural heart patients who leave to go to competitors for care

CLINICAL PERFORMANCE

- Valve repair composite score
- Operative mortality for valve repair
- Percentage of patients discharged to home
- Length of stay
- Pacemaker rate
- Stroke rate
- Proportion of patients under partial sedation
- Readmissions rates
- Composite quality-of-life metric for TAVR
- Identification to intervention metrics

GROWTH

- Volume growth in related services, e.g., PCI, compared to previous quarter and future projections
- Structural heart volume growth compared to previous quarter and future projections
- Referral volumes compared to previous quarter and future projections

FINANCE

- Margin per case
- Payer mix and trends
- Supply costs
- Halo impact to ancillary service revenue
- Referrals from incidental findings from structural heart workup

EXPERIENCE

- Average procedure-day wait times, time to appointment
- Patient likelihood to recommend
- Patient or referring provider stories

Match the request to enterprise strategic priorities

Identify stakeholder(s) interest and select appropriate metrics to make the case based on what the enterprise values.

Areas of interest

Growth

Is your structural heart program self-sustaining and/or growing the broader cardiovascular department?

Efficiency

Are you running your structural heart program efficiently?

Destination care

Is your structural heart program helping you operate as a regional destination for high-quality care?

Competitive advantage

Are you able to compete in structural heart with other cardiovascular providers in the market?

Consumers

Are you differentiating your program based on patient experience, referring provider experience, and brand?

Sample metrics

Margin per case, current and projected procedural volumes, volume growth in related services, e.g., PCI, compared to previous quarter and future projections, current and projected referral volumes

Length of stay, proportion of patients under partial sedation, readmissions rates, ability to perform 4+ structural heart procedures in a day, referral to intervention metrics

Average procedure-day wait times, patient likelihood to recommend, number of patients originating from outside of primary service area

Market share, percentage of structural heart patients who leave market to go to competitors for care, structural heart volume growth compared to previous quarter

Patient likelihood to recommend, patient or referring provider stories, follow-up with referring providers, quality outcomes

Case profiles

Case profiles

Organization B, suburban hospital

Around 100 TAVR, 80 LAAC annual volumes

Staffing breakdown

Interventional cardiologists	2
Cardiac surgeons	2
Mid-levels	4
Clinic-based nurses	2
TAVR coordinators (RN)	2
LAAC coordinator (RN)	1
Implanters	4
Electrophysiologists	2

Staffing model

- Coordinators are dedicated by procedure to reduce burnout.
- In addition to their dedicated TAVR team within the lab, the program is cross-training cath and Electrophysiology staff to prevent FTE dependency.

Stakeholder quote

“Administrators need to be constantly advocating for more staff before there is a need. You need to educate about your program across the enterprise through corporate meetings and conferences and show where the program is going and growing, and what is needed to succeed. It’s showing the numbers (e.g., volumes, referrals, growth plans) and starting the conversation now.”

KEY INSIGHTS

Conduct 1:1 check-ins with coordinators to provide support and boost engagement

To address turnover, the program lead conducts 1:1 check-ins to understand the coordinators entire workflow and workload. The program lead uses this conversation to understand what are the workflow pain points that can be offloaded to technology or a non-clinical administrator. Non-clinical administrators (e.g., front desk staff) are trained and utilized to improve patient experience.

Future investment

- Technology to support coordinator workflows
- Cross-training for members of the cath and Electrophysiology teams to prevent FTE dependency
- Hire more staff once the facility reaches 150 TAVR volumes
- Expanding direct to consumer marketing efforts

Organization C, suburban health system

Around 165 TAVR, 35 TEER annual volumes

Staffing breakdown

Cardiologists	4
Cardiac surgeons	2
TAVR coordinator (RN)	1
Imaging cardiologist	1
Hospital schedulers	–

Staffing model

- Certified medical assistants (CMA), techs, and schedulers support non-clinical operations and help conduct a half-day clinic so about ~20 patients can be seen per day.
- Physicians see patient at the 7 and 30-day follow-up, and after nurse handles follow-up care.
- Currently, the program is moving TAVR days from 1.5 days per week to 3 days per week.

Stakeholder quote

“When making the initial case to the board to hire a nurse coordinator, our medical director made a patient-centered pitch that the hospital “owed it” to their patients to perform these procedures close to patients’ homes. The director used compelling data to show the efficacy of the valve and tied that to their program identity as the largest system in their region. He made the argument that they need to provide the right care, at the right time, in the right place.”

KEY INSIGHTS

- **Utilize a hybrid model of OR and cath lab staff for structural heart procedures:** To remain a lean program in terms of staff, the program has a hybrid model of surgery and cath lab employees who conduct cases.
- **Dedicate an SH post-op area:** To bypass the ICU, patients remain in a dedicated structural heart recovery unit for about 8-12 hours and then are sent to a step-down unit where they remain overnight. The ten-bed unit is staffed with nurses who have ICU experience.

Future investment

- Dedicate the hybrid lab to the structural heart team and then Electrophysiology can use secondarily
- Build an additional hybrid lab
- Increase CT scanners to two
- Hire another nurse to work under the current coordinator
- Develop or purchase technology solutions to simplify the referral process for community physicians to refer to their program

Organization E, suburban health system

Around 240 TAVR, 15–20 TEER, PFO/ASD, TEER annual volumes

Staffing breakdown

Interventional cardiologists	2
Cardiac surgeons	2
TAVR coordinator (RN)	1
APP	1
Certified medical assistant (CMA) support	–

Staffing model

- Navigators and APPs are not divided by procedure. Capacity concerns and growth projections trigger the need for additional staff.
- The program has hybrid CMA support to help clinicians operate top of license.
- Program currently has an OR and a cath lab outfitted for TAVR.

Stakeholder quote

“To make the case from staff to capital planning, extensive work has been done to develop aggressive business plans, engage the executive team and decisions makers, and create alignment. We have been good at telling the story and defining the why. We are working with philanthropy partners as well. The physicians and administrators work hand-in-hand to make the case.”

KEY INSIGHTS

- **Streamline TAVR days by stacking procedures and cross-training staff:** To create efficiency, the team conducts procedures in one day by flipping between the OR and cath lab and leveraging cross-trained teams of OR and cath lab staff.
- **Adjust post-procedure recovery workflows:** To streamline care, patients recover in a holding area then go to progressive care unit instead of ICU.
- **Create a dedicated structural heart clinic:** To support efficiency, the program is creating a dedicated SH clinic not in the general cardiology practice to create more availability.

Future investment

- Explore capital investments for cath lab space
- Build a new ambulatory center near hospital facility for pre- and post-procedure space
- Hire three more support staff and another interventional cardiologist

Organization F, urban health system

Around 200 TAVR, 180 LAAC, 45 TEER, 40 PFO/ASD annual volumes

Staffing breakdown

Interventional cardiologists	3
Cardiac surgeons	3
Structural heart imaging cardiologists	2
APPs	3
Medical assistants	2
TAVR coordinators (RN)	2
LAAC coordinator (RN)	1
Mitral/ASD coordinator (RN)	1
Outreach clinic coordinator (RN)	1
Scheduler	1

Staffing model

- Interventional cardiologists rotate seeing patients in clinic every day except one day when they jointly see patients with one of the cardiac surgeons who also rotates.
- Administrative work is done by the coordinators, so APPs are 95% clinical.

Stakeholder quote

“I provide procedural volumes, clinic volumes, and quality metrics to tell the story of how a SH program is different from a regular cardiovascular center. I show treatment time, access metrics. We present the growth case to help advocate for a new resource.”

KEY INSIGHTS

- **Projects that for every 100 additional structural heart cases a new FTE is required:** For their most recent hire, the program re-purposed a program manager into a coordinator after growing by 50 TAVR, 40 LAAC, and 10 TEER volumes.
- **Double down on market differentiation:** Located in a saturated market, the program is developing a one-stop-shop model for patients and leveraging outreach coordinators and nurses to help relay the unique value prop of the program to referring physicians.

Future investment

- Increase access to echocardiography across the system
- Create TAVR protocol at five different sites to receive higher quality images
- Add a fourth primary outreach clinic
- Looking to train all coordinator nurses across therapies

Organization H, urban AMC

Around 300 TAVR, 75 TEER annual volumes

Staffing breakdown

Interventional cardiologists	2
Cardiac surgeons	3
Fellow	1
APPs	3
RNs	1
Non-clinical administrator	0.5
Data registry	0.5

Staffing model

- Staff and clinicians are not divided up by SH procedure. The APPs (cardiologist nurse practitioners) manage the patient in the outpatient setting and the inpatient nurse practitioner manages them in the inpatient setting.

Stakeholder quote

“In growing the program, it was difficult to make the administration realize how many work hours are needed to invest in the registry. We had to show them that data is a reflection of transparency and consumers are demanding it. The data helps benchmark against other sites, helps us improve clinically by highlighting success and opportunities, and most importantly justifies growth, needs, and resources.”

KEY INSIGHTS

- **Scope the coordinator role:** To prevent burnout, the program lead ensures coordinators have work-life balance (e.g., cannot take calls or send emails after hours)
- **Invest in patient experience when access to diagnostics is the limiting factor:** If there are delays for patients to get a CT, for example, the program increases tailored patient touch-points.
- **Assign dedicated data resources:** There is a growing imperative to have high-quality, dedicated resources fill out and manage program data. The program consequently assigned a dedicated asset to the task.

Future investment

- Hire another non-clinical admin FTE, a nurse, and 0.5 data registry
- Another CT scanner

Organization J, large suburban health system

Around 470 TAVR annual volumes

Staffing breakdown¹

Interventional cardiologists	7
Cardiac surgeons	3
APPs	4
Program manager	1
RNs	3
Additional FTEs to support scheduling, follow-up, non-clinical tasks	3

Staffing model

- Patients see structural interventionalists first. When the patient has been identified with AS, the patient gets a standardized set of workups so that once the patient is referred most of the work is already completed.
- Nurses and APPs are not divided by procedure. Patients receive a standardized set of visits (e.g., patient gets their education, APP consult, physician drive-by, post-op, follow-up). Physician assistants handle post-op.

Stakeholder quote

“From an institutional support perspective, if you show your leadership you have a program that is increasing its footprint and volumes are growing and you aren’t losing money the support will be there. There is halo associated with it. It is not just the procedural revenue but it is all the other stuff that rolls into SH that makes volume for the organization.”

1. Physicians have responsibilities outside of structural heart program.

KEY INSIGHTS

- **Better utilize procedural areas** especially since TEER doesn’t require a surgeon present
- **Move patients away from the surgical workflow** (e.g., patients go to cardiac ICU rather than surgical; patients go to progressive cardiac care unit rather than cardiac surgical)
- **Leverage cath lab over the hybrid OR** to decrease staff and overhead costs

Future investment

- Expand ambulatory footprint
- Hire another APP and RN in a year

Organization K, urban AMC

Around 500 TAVR, 160 LAAC , 40 Mitral, 35 PFO/ASD annual volumes

Staffing breakdown

Interventional cardiologists	5
Cardiac surgeons	1
Medical assistants	1.5
Receptionist	1
Schedulers	3
Practice manager	1
Chief valve coordinator	1
Full- and-part-time APPs	2/2
Echocardiographers	3

Staffing model

- APPs help patient navigate from start to finish. They are the patients main point of contact from the outpatient visit to post-procedure care.
- None of the APPs are divided by procedure, unless necessary.

Stakeholder quote

“When demanding more resources from our leadership, we frame it as a personal appeal.”

KEY INSIGHTS

- **Hire MAs to help APPs operate at top-of-license:** APPs help patients navigate the program from start to finish. Currently, APPs take histories and are the main point of contact for the patient. The program is hiring MAs to handle non-clinical tasks so APPs can work at top-of-license.
- **Recognize that advancements are operational:** As programs grow in volume and also adopt new procedures, advancing the SH program is more about appropriate recovery location, length of stay, and addressing inefficiencies in the cath lab, etc.

Future investment

- Hire another echocardiographer, surgeon, and outpatient nursing staff
- Purchase 2 CT machines to replace the current one and add one more for capacity
- Add a second hybrid cath lab to handle growth in TEER, LAAC, and PFO/ASD procedures
- Opening more outpatient clinics with a TAVR appropriate CT scanner and echo

Appendix

Appendix

Inpatient and outpatient procedure groupings

Inpatient procedure grouping	DRG
TAVR/TEER	266, 267
PFO/ASD	273, 274
SAVR	216–221

Outpatient procedure grouping	DRG
Diagnostic	Other diagnostic cardiac catheterization
Diagnostic	Diagnostic cardiac catheterization
Diagnostic	Intravascular coronary ultrasound
Diagnostic	Concomitant diagnostic coronary and peripheral catheterization
Other	Other transcatheter cardiac procedure
Imaging	Cardiac CT
Imaging	Cardiac CT angiography
Imaging	Chest CT angiography
Imaging	Transthoracic echocardiography
Imaging	Transesophageal echocardiography

Sub-service line definitions

Sub-service line	DRG
PCI	246, 247, 248, 249, 250, 251
Structural heart	266, 267, 273, 274
Vascular	268, 269, 270, 271, 272, 319, 320
Electrophysiology	242, 243, 244
Heart failure	001, 002, 003, 215
Other	229, 286, 287

Appendix

Market growth driver definitions

Seven categories of growth drivers

Population change	Accounts for population growth and transformation, such as population movement patterns, using demographic data from Applied Geographic Solutions (AGS).
Demographic shift	Accounts for aging, which moves people from one demographic group to another, using demographic data from Applied Geographic Solutions (AGS).
Readmissions	A national focus on reducing readmissions is expected to reduce inpatient utilization while increasing demand for outpatient and post-acute services.
Disease prevalence	Accounts for the impact of increasing number of chronic and multi-morbid patients.
Insurance	Accounts for changes in the insurance market. Trends include expanding coverage, increased cost-sharing and increased payer scrutiny of medical necessity.
Care management	Continued investments in care management are expected to reduce inpatient utilization and grow certain outpatient services.
Technology	Accounts for the role of new technologies in changing demand and shifting site of care.

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Project director

Prianca Pai
paip@advisory.com

Research team

Megan Director
Ben Wheeler

Program leadership

Laura Wilson

Designer

Kate Young

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