

The Evolution of the Structural Heart Program

MedAxiom survey results indicate emerging trends in leadership, staffing, and economics of structural heart programs.

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With the advent of transcatheter aortic valve replacement (TAVR), the MitraClip mitral valve repair system (Abbott Vascular), and left atrial appendage occlusion (LAAO) procedures, the cardiovascular industry has seen a significant increase in the volume of structural heart procedures to treat complex patients. To accommodate this influx, most organizations have developed their procedural offerings and services into a formalized structural heart program.

Because the structural heart patient population tends to primarily include those with multiple comorbidities, there are many requirements for pre- and postprocedural care. A multidisciplinary approach in a clinic that is solely dedicated to treating structural heart patients has become best practice in many programs. The dedicated structural heart clinic model has been shown to provide higher-quality care and a better patient experience than the traditional cardiology or surgical clinic model. Chambers et al showed that the proportion of patients followed in a structural heart clinic who were managed to best practice guidelines rose from 41% to 92%.¹ In another example, a Midwest program that developed a comprehensive, multidisciplinary structural heart clinic found that it provided more efficient care and improved the patient experience by significantly decreasing the time and distance for patient navigation.²

Although the concept of a structural heart clinic to deliver periprocedural care is not new, many programs are challenged with achieving effective leadership, appropriate staffing, and efficient support. Structural heart procedural management requires a great deal

of program development and care coordination.

A team-based approach is very important to maintain appropriate, effective objectives of care for each step in the patient workflow. When programs first start a structural heart clinic, the work is often shared by a few key team members. As volume grows, continued success relies on processes that must be shared among a larger team if the program is to be scalable and sustainable. It is during this growth phase that structural heart programs are often challenged.

To better understand the challenges as well as the status and evolution of structural heart programs across the United States, MedAxiom conducted a national survey to collect information about program leadership, procedural type and volumes, staffing type and ratios, referral management, and program economics.³ The survey focused on the nonprocedural elements of structural heart care delivery; therefore, no procedural questions were asked. Forty programs completed the 50-question survey and shared their current models. This article provides an overview of the survey responses and highlights several best practices that have evolved.

LEADERSHIP AND ORGANIZATIONAL STRUCTURE

Program leadership and structure are important for any program regardless of the objective. Given that structural heart programs involve many stakeholders—such as physician specialists, clinic staff, and hospital quality and revenue cycle staff—effective leadership and organization are vital to ongoing success. Survey results indicated that more half (52%) of structural

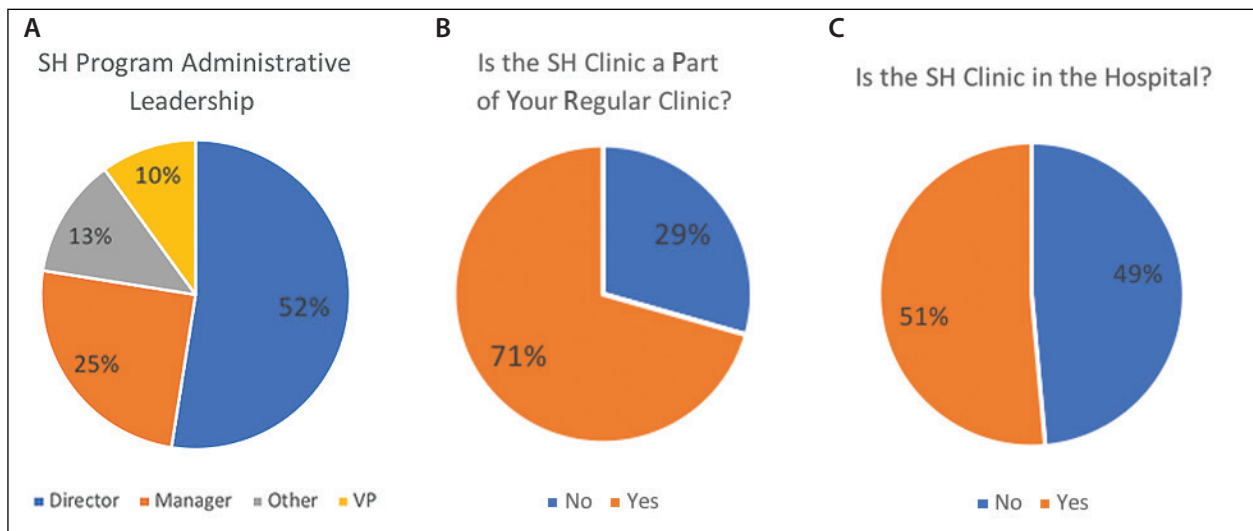


Figure 1. Survey results pertaining to structural heart (SH) program leadership (A) and structure (B, C). VP, vice president.

heart programs are led by a director-level role, 25% are supported by a manager-level role, and 10% by a vice president-level role; 13% of programs reported their leadership role as “Other” (Figure 1A).³ Additionally, more than three-quarters (78%) of the programs reported that they have a structural heart medical director, with 19% of those reporting that they had a separate medical director for each type of procedure.

An important aspect of structural heart program care delivery is the pre- and postprocedural care management and coordination. The majority (88%) of programs surveyed reported a formal structural heart clinic; 71% described this clinic as being part of a regular cardiovascular clinic space, while 29% said that there

was a separate space for a clinic (Figure 1B).³ The setting of the structural heart program was almost equally divided between being within a hospital (51%) or in an office-based setting (49%) (Figure 1C).³

PROCEDURAL OFFERINGS

All survey respondents offered TAVR, with the majority also performing MitraClip and LAAO procedures (Figure 2A).³ More than a quarter (28%) also offered “Other” procedures, which respondents said included atrial septal defect and patent foramen ovale closures, perivalvular leak closures, balloon valvuloplasties, transcatheter pulmonary valve replacements, and ventricular septal defect closures.

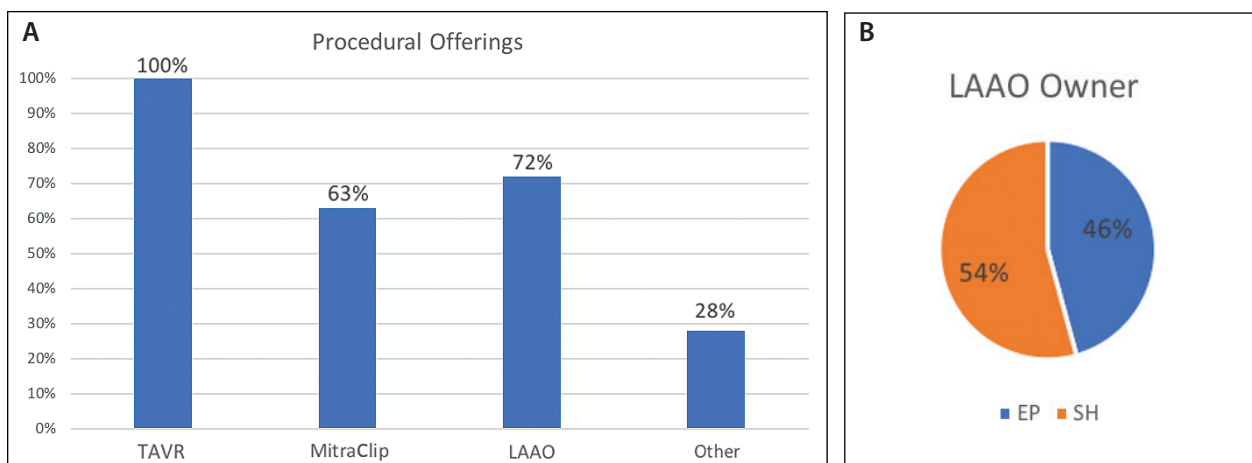


Figure 2. Survey results related to procedural offerings (A) and ownership of the LAAO program (B). EP, electrophysiology; SH, structural heart.

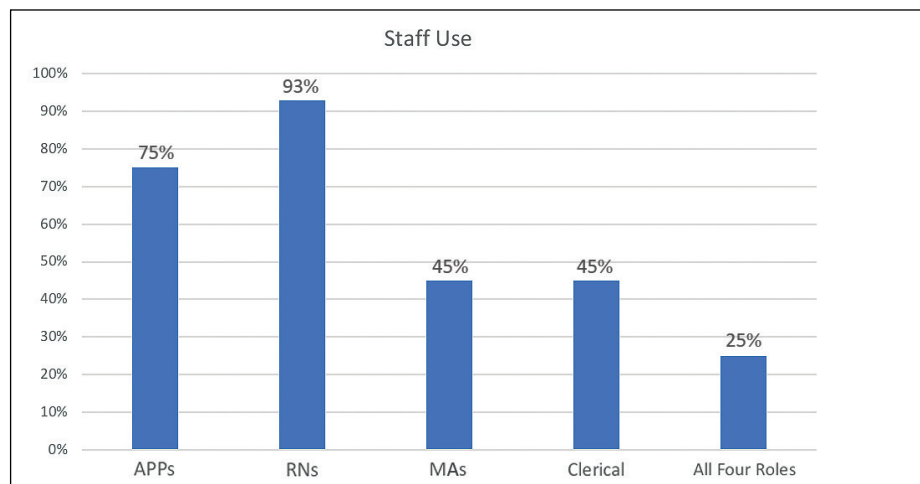


Figure 3. Roles reported by structural heart program respondents.

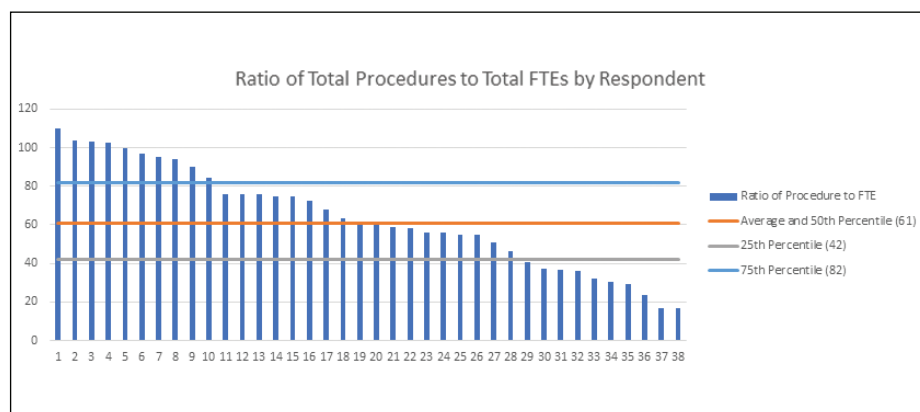


Figure 4. Comparison of procedure volume and staffing FTEs.

Procedural offerings for structural heart are rapidly expanding. The majority of the programs surveyed included the care for all structural heart procedural patients in their structural heart programs. However, the common outlier was LAAO procedures, which are often performed by an electrophysiologist. Nearly half (46%) of respondents described their LAAO procedures as being supported by their electrophysiology program rather than their structural heart program (Figure 2B).³

STAFFING TYPE AND RATIO

Structural heart care, regardless of the procedure, requires a great deal of program development and care coordination. A multidisciplinary, team-based approach becomes increasingly important to effectively maintain objectives of care for each step in the patient flow as the volumes grow. Doherty and Crowley provide the following definition of a clinical care team:

“A clinical care team for a given patient consists of the health professionals—physicians, advanced practice registered nurses (RNs), other RNs, physician assistants, clinical pharmacists, and other health care professionals—with the training and skills needed to provide high-quality, coordinated care specific to the patient’s clinical needs and circumstances.”⁴

A structural heart team fits this description well. However, when a clinical care team program is first developed, the ability to deploy an entire team is usually not financially feasible. When these programs are first launched, the work is often shared by a few key team members, typically an RN or advanced practice provider (APP). As programs grow, the work must be shared among a larger team to create a program that is scalable and sustainable. Developing a

care team where roles and responsibilities are defined based on license will create a much more cost-effective strategy than a team of RNs or APPs who manage everything.

Not a single program that responded to the survey uses only one type of professional. All programs reported a combination, with 25% using all four roles (ie, RN, APP, medical assistants [MAs], and clerical staff) in their program. The majority of programs utilize RNs (93%) and APPs (75%), while just less than half utilize MAs (45%) and clerical staff (45%) (Figure 3).³

One of the main challenges with structural heart programs is staffing coverage. Many programs feel understaffed, but the economics do not allow for a large investment in staff. Coupled with the complexity of the structural heart patient and the tracking required for these programs, the equation creates a concern for understaffing.

TABLE 1. SH PROGRAM ROLES AND RESPONSIBILITIES*

Physician	APP	RN	Clerical	Program Director	Medical Director
• Patient evaluation—referrals, clinical and hospital patients • Develop a plan of care for each patient—outlined in the documentation • Perform SH procedures • Communication with referring physicians • Diagnostic interpretations—specialty specific • Development of clinical protocols, guidelines, and policies for clinical team • Promote team-based care approach with education, communication, and support • E/M coding, documentation, and CPOE where required • Attend SH case review meetings when physician's patient is being reviewed	• Facilitate a plan of care as developed by the physician within the scope of practice • Follow-up care for posthospital, postprocedure, and medication changes • Initiate hospital admissions, consults, and daily rounds with the physician for SH patients • Hospital discharges with care coordination and follow-up • E/M coding, documentation, and CPOE where required • Provide support for the RN and MA team—patient questions and education • Ensure communication with referring physicians • Develop protocols, policy, and order sets with physicians	• Centralized point of contact • Screening of patient calls • Reviews records for candidacy • Maintains patient tracking • Patient education via phone and face-to-face visits • Reviews charts for proper documentation and follows up on deficiencies • Patient rooming—chief complaint, medications, past history, VS, and ROS—patient visits; could also be an MA if available • Coordinates all information needed for SH review meetings • Postprocedure calls and KCCQ phone calls—30 days, 6 months, 1 year	• Receives referrals and sets up appointments • Manages incoming and outgoing medical records—ensuring all are available for consults/visits • Scans documents to Cerner • Patient check-in/check-out for clinic visits • Uploads images to vendor sites • Maintains tracking tool in conjunction with the RN • Schedules pre-procedure testing, procedure, and postprocedure follow-up • Coordinates all information needed for SH review meetings with the RN	• Program development • Program oversight—staffing, operations, economics • Management of SH monthly meetings • Initial review of registry data, fiscal review for rev cycle, patient satisfaction scorecard review	• Program development • Program oversight—privileging, physicians, economics • Comanagement of SH monthly meetings • Initial review of registry data, fiscal review for rev cycle, patient satisfaction scorecard review

Abbreviations: APP, advanced practice provider; CPOE, computerized physician order entry; E/M, evaluation and management; KCCQ, Kansas City Cardiomyopathy Questionnaire; MA, medical assistant; RN, registered nurse; ROS, review of systems; SH, structural heart; VS, vital signs.

*All roles are responsible for process improvement, monthly meeting attendance, and team collaboration/communication.

An important aspect of the survey was the comparison of by-procedure volumes with staffing full-time equivalents (FTEs). The study evaluated data about the total number of staff FTEs (regardless of staff type) and the total number of procedures over a 12-month period (regardless of procedure type). The responses varied from as low as 17 procedures per FTE to as high as 107 procedures per FTE; the average was 61 procedures per FTE (Figure 4).³ It is important to understand that new programs often have lower ratios due to lower volumes. However, those in the top quartile have worked

hard to become efficient and streamlined in their care delivery.

As programs grow and add more staff, it is extremely important to size the team by defining license level roles/responsibilities and staff to match. Table 1 is a sample list of the typical roles/responsibilities for each staff member based on license and skill set. Of course, the volumes for a program that has this number of staff would have to be significant. For lower-volume programs that are still growing, the next staff member addition will likely be someone of

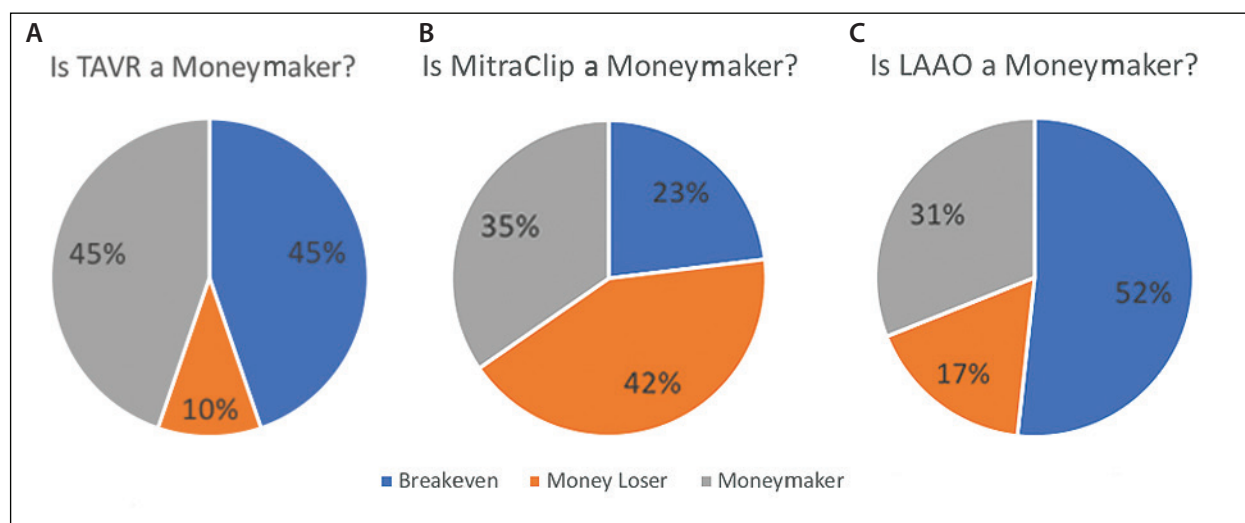


Figure 5. Survey results depicting whether TAVR (A), MitraClip (B), or LAAO (C) was a moneymaker, breakeven, or money loser.

a different skill set with a reallocation of who does what on the team.

Finally, a key aspect of staffing is cross-coverage. For programs that offer multiple procedures, the ability for the staff to provide care to all patients is important. Early in the development of the program, only one team member may be allocated to the new procedure, but as the program grows, cross-coverage is required so as to not lose expertise when a transition occurs with that position. Survey results showed that 80% of the programs described their staff as being cross-trained to cover multiple procedures.

REFERRAL MANAGEMENT

Patient referrals are important to growing a structural heart program. Without referrals, a program would not be sustainable. Typically, when a program first starts, the procedural physicians have a short list of their own patients who qualify for the procedure. Those physicians then rely on their partners for internal referrals and subsequently seek external referrals through community engagements, referring physician education, and systematic patient identification.

The survey attempted to understand the average referral-to-procedure ratio. The amount of care delivery during the patient evaluation is significant for these patients, which can be taxing on the care team and program resources. Developing an effective referral strategy with an appropriate referral-to-procedure ratio is key. The question many program leaders want to answer is: what is the appropriate referral-to-procedure ratio? Although there are definitive answers because

variables are numerous, the survey respondents did provide some valuable insights.

First, only 28% of the programs track referral-to-procedure ratios, which was surprising. Second, of the programs that track their TAVR referrals, the average percentage of referrals that qualified for procedures was 62%. For the programs that track MitraClip procedures, the percentage of referrals that qualified was 43%. For the programs that track LAAOs, the percentage of referrals that qualified was 60%.

Although the number of respondents for each of the referral questions was not high, the percentages for each program were similar, providing some insights for comparisons.

PROGRAM ECONOMICS

Understanding the overall program margin for structural heart procedures can be challenging. The methodology for cost and revenue calculations is often varied. Some programs can calculate some form for halo financial effect, while others cannot. Some programs can calculate very granular cost per case, while others use a percentage of charges to estimate their costs.

To keep the questions related to program economics simple, the survey asked program administrators if they identified each procedure type as a moneymaker, breakeven, or money loser (Figure 5).³ TAVR was predominantly identified as a moneymaker or breakeven procedure, which is interesting because when the procedure was initially introduced, it was often considered as a money loser. The MitraClip procedure was mostly reported as a money loser or breakeven, and LAAO was primarily described as a moneymaker or

breakeven procedure. However, all three procedures had programs that identified them as a money loser.

The program, at some point, will need to become economically sustainable. Very few programs can maintain a negative margin for very long and still survive. As programs look to optimize, it is important to understand and manage expenses.

Typically, the number one expense is the implant for these procedures, followed by the staffing and facility costs. Understanding the costs and revenue for these procedures is essential to creating a sustainable structural heart program. Here are several emerging opportunities for optimizing program expenses:

- **Implant costs.** Renegotiate vendor contracts, product rebates, and pricing discounts.
- **Staffing costs.** Ensure that the appropriate staffing model is in place based on top of license roles/responsibilities for each team member.
- **Facility costs.** Review patient flow to produce the highest quality of care in the lowest-cost setting, including the procedural room, recovery support, and length of stay.
- **Revenue cycle.** Conduct a billing/coding review to ensure appropriate documentation and coding that captures the value of the care provided based on procedure and patient acuity.

CONCLUSION

Structural heart programs are common in cardiovascular service lines, but many are still struggling to be cost-effective and sustainable. Because these programs and clinics are a new area of care delivery, there is no reliable road map that outlines how these programs should be set up. The patients are complex, volumes are highly variable, and requirements for care coordination and tracking are greater than any other cardiovascular delivery model, except cardiac transplant.

The feedback provided by survey respondents offers the following insights:

- Structural heart clinics are common, with many being separate from the traditional cardiovascular clinic.

- About half of clinics are located in the hospital and half are office based.
- Most programs are led by a director-level administrator and have both medical directors and administrative leadership.
- Although most programs start by providing TAVR, the majority of the respondents evolve to provide multiple structural heart procedures.
- Programs have diverse staffing models with multidisciplinary teams bringing a variety of licensure and skill sets to the delivery model.
- Referral tracking is still not a common practice, but programs that do track referrals report a 40% to 60% referral-to-procedure rate, depending on procedure type.
- Program economics are evolving; TAVR and LAAO result in a positive or breakeven margin, and MitraClip procedures result in a negative margin for most programs.

As structural heart programs continue to evolve, the ability for programs to learn from each other is imperative. The cardiovascular industry does an effective job researching and creating evidence-based guidelines for appropriate therapy and quality outcomes. However, as new programs are emerging, understanding effective program leadership, staffing, and economics is the key to sustainability and maintaining the ability to provide effective, local patient care. ■

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Disclosures: None.