

Medtronic

Engineering the extraordinary

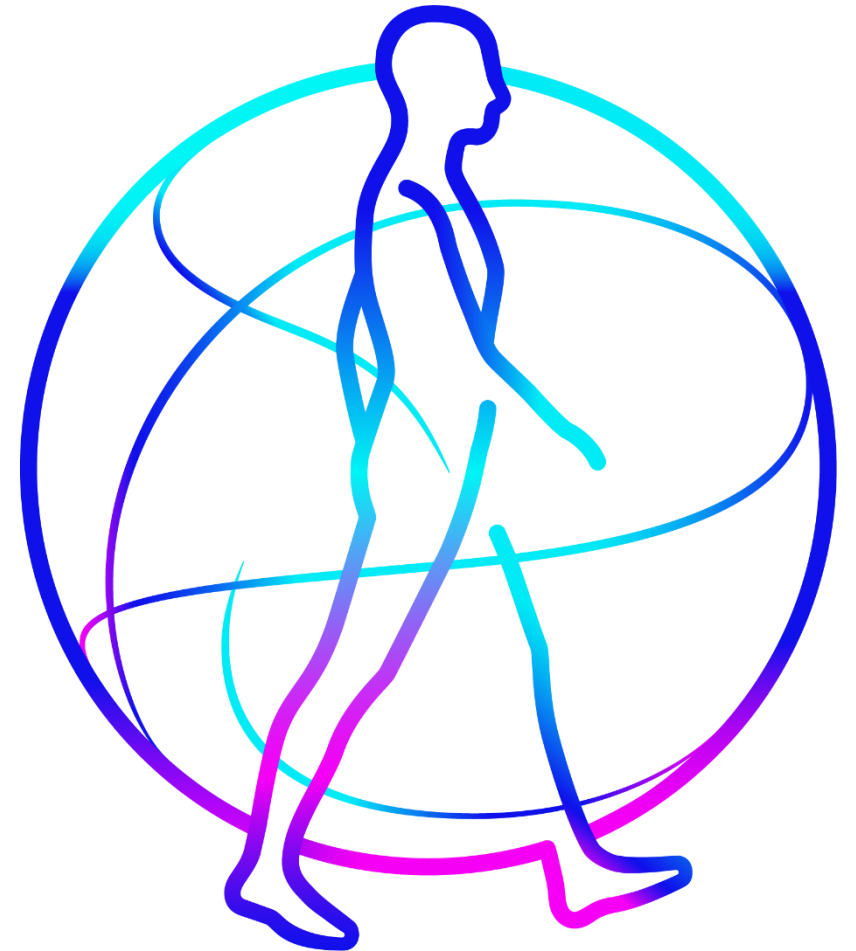
WELCOME

TAVR Staff and Clinic Optimization 2.0

Featuring:
TriStar Centennial
Heart & Vascular Heart Team
Nashville, TN

Thursday, May 4th, 2023

UC# 202400846 EN
June 2023





Objectives



Evolution of the SH program at Centennial Heart & Vascular



Physicians' perspective regarding staffing & leadership needs for a growing structural heart Program



Factors that drive decisions to expand programmatic staffing model



Review clinical operations & workflow that aim to improve quality outcomes



Share our patient pathway from referral to implant & beyond



TAVR Staff & Clinic Optimization 2.0

Tristar Centennial Heart & Vascular Heart Team Perspective



TriStar  **Centennial**
HEART & VASCULAR



Disclosures

Dr. Riddick

- Medtronic-Proctor
- Edwards Lifesciences-Proctor

Dr. Reddy

- Medtronic Global Advisory Board

Nicole Dellise

- Medtronic -Faculty/Speaker Bureau
- Abbott -Speaker Bureau

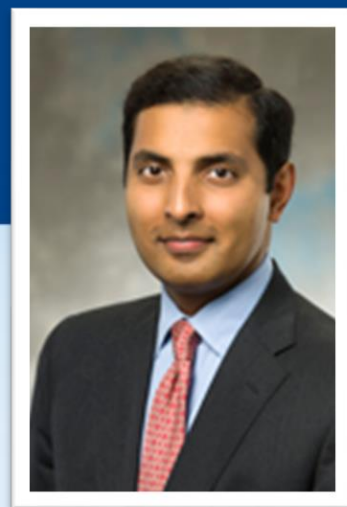
Laura Little

- Medtronic-Speaker Bureau



Building a Structural Heart Team

10 + Years in the Making



TriStar  **Centennial**
HEART & VASCULAR



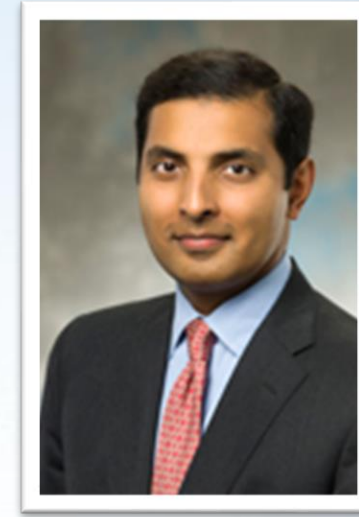
Experience at Centennial Heart



John Riddick, MD

Emory Cardiology 2004-07
Emory Interventional Cardiology 2007-2008
Centennial Heart 2008 - Present

- Start a Structural Program
- PFO/ASD
- Balloon Aortic Valvuloplasty
- Start Planning for TAVR....



Seenu Reddy, MD

Emory Cardiac Surgery 2002-05
Emory Endovascular Surgery 2005
TriStar CV Surgery 2011 - Present

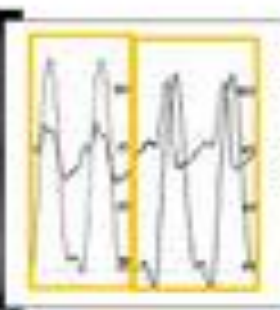
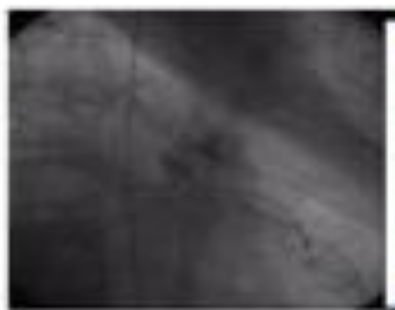
- Started the Aligned Group of Surgeons
- Min. invasive valve surgery (MVR/AVR)
- Enhanced Recovery After Cardiac Surgery
- Endovascular treatment of Aortic Disease
- Percutaneous treatment of TVIE



TAVR was born in Rouen, France in 2002

Treatment for Aortic Stenosis

First implantation—from dream to reality





Emory Cath Lab 1st TAVR September 2007 - Research Trials





Centennial Hospital 1st TAVR May 2012

THE HEART TEAM IN ACTION





Centennial Minimalist TAVR 2023





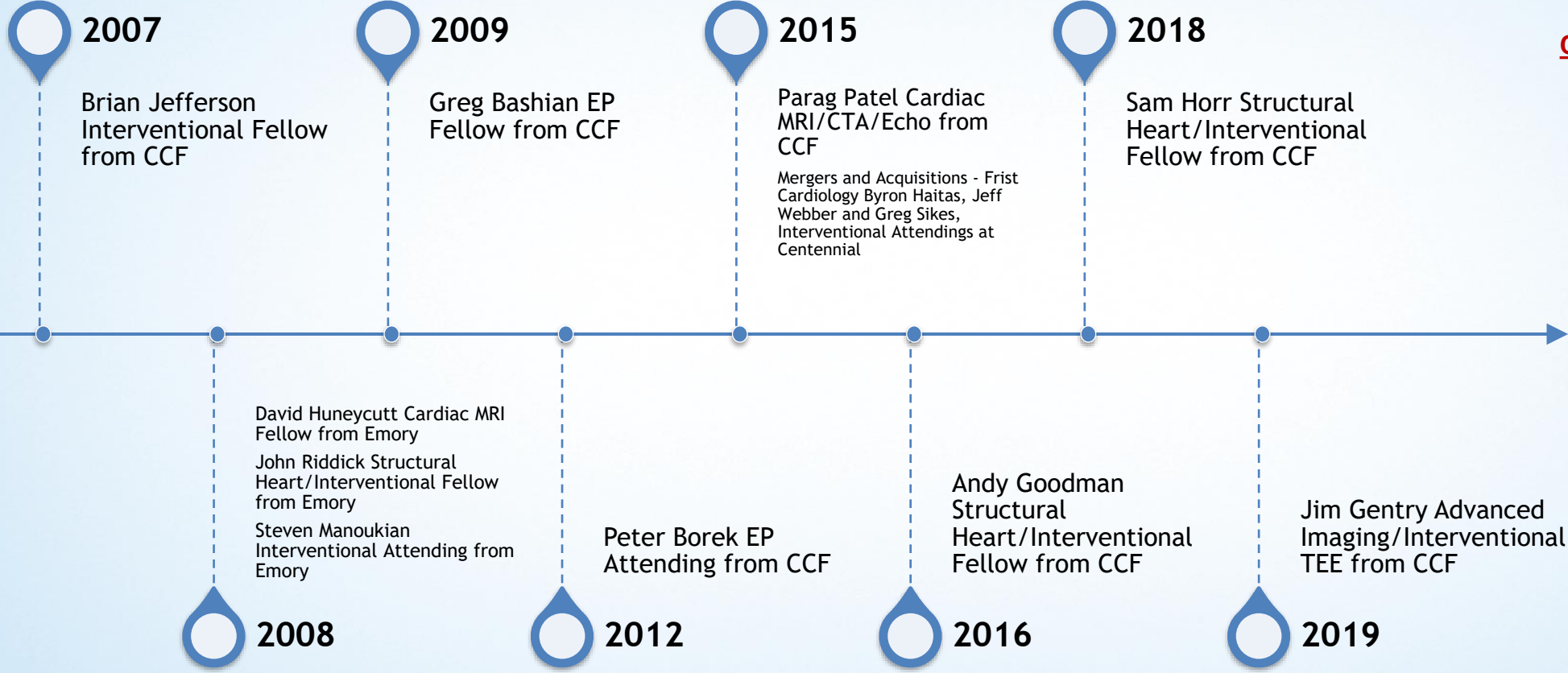
How did we get there?





Centennial Heart Timeline of Events:

Cardiology/IC Recruitment

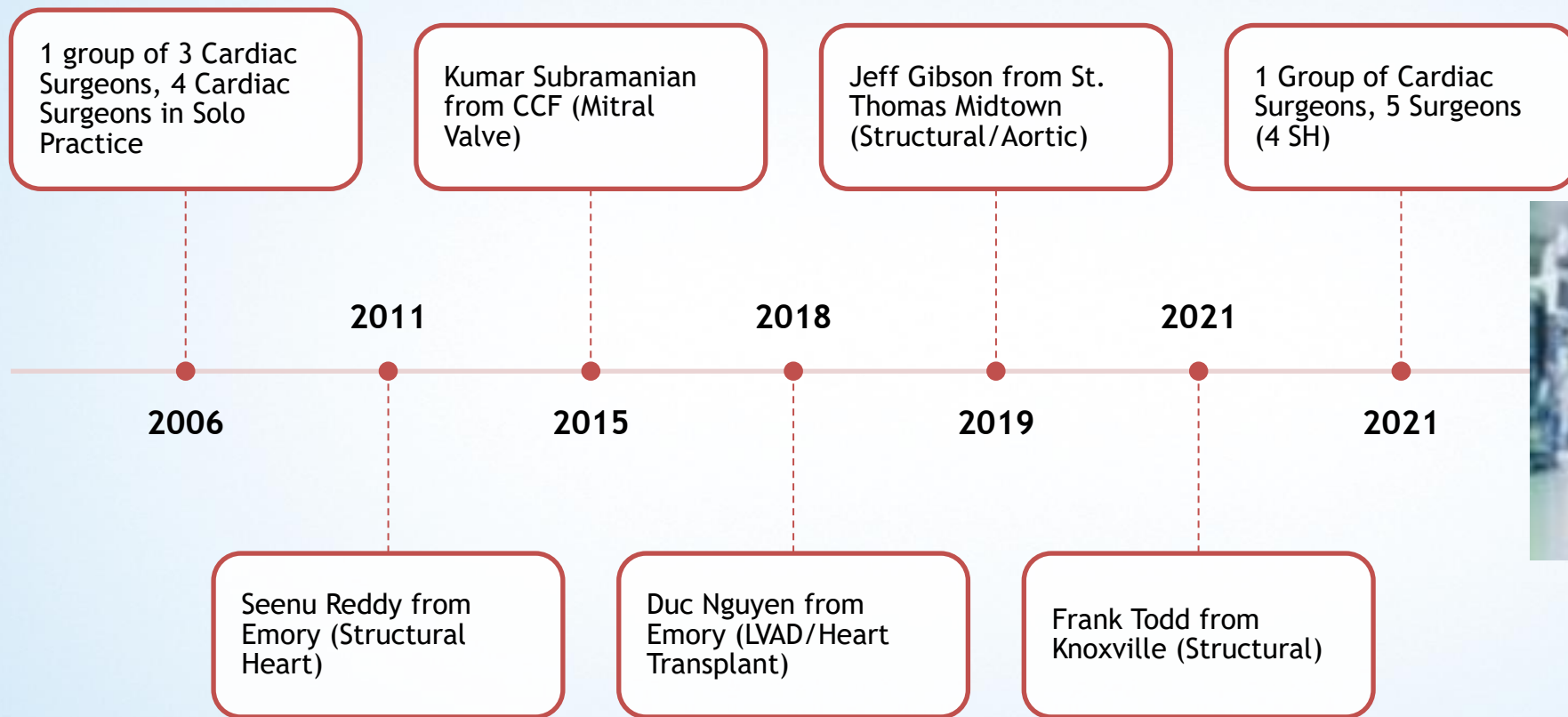


2023
Centennial Heart
Cardiovascular Consultants

- Gregory Bashian, MD
- Peter Borek, MD
- Ashley Bock, MD
- Bryan Doherty, MD
- Snadeep Duggal, MD
- Ann Gage, MD
- James Gentry, MD
- Andrew Goodman, MD
- Byron Haitas, MD
- Sam Horr, MD
- David Huneycutt, MD
- Brian Jefferson, MD
- Tom Johnston, MD
- Chris Jones, MD
- Kyle Mandsager, MD
- Tom McRae, MD
- Paul Myers, MD
- Parag Patel, MD
- John Riddick, MD
- Jeffrey Webber, MD
- Robert Wheatley, MD



Cardiac Surgery Timeline of Events: Addition by subtraction





40+ Cardiologists and Surgeons Providing Regional Comprehensive Cardiovascular Care

30+ Cardiac Physician Clinics across middle Tennessee and southern Kentucky

Accredited Chest Pain Center Performing 4500+ Procedures annually Including High-Risk PCI & Chronic Total Occlusions

Accredited Destination Therapy Left Ventricular Assist Device Program

Cardiac Surgery Center Performing 1300+ Open Hearts annually

Arrhythmia Center of Excellence, Aortic Center of Excellence, Heart Failure & Hypertension Clinics

Aortic & High-risk Valve Clinic

Established 1st Cardiogenic Shock Program in the State to Support Middle TN

Nationally Recognized Cardiovascular Research with Sarah Cannon Research Institute. Currently 47 active cardiac trials.



Surgical Specialties

- **Coronary Revascularization**
- **Minimally invasive cardiac surgery**
- **Valve Replacement and Repair**
- **Complex Thoracic including Thoracic aortic aneurysm**
- **Mechanical Circulatory Support including LVAD, PVAD, and ECMO**

Aortic Stenosis:

Addressing a serious unmet need

250,000 people in the U.S. are diagnosed annually with severe, symptomatic aortic stenosis.

48% of those patients are undertreated.

120,000 + remain untreated.

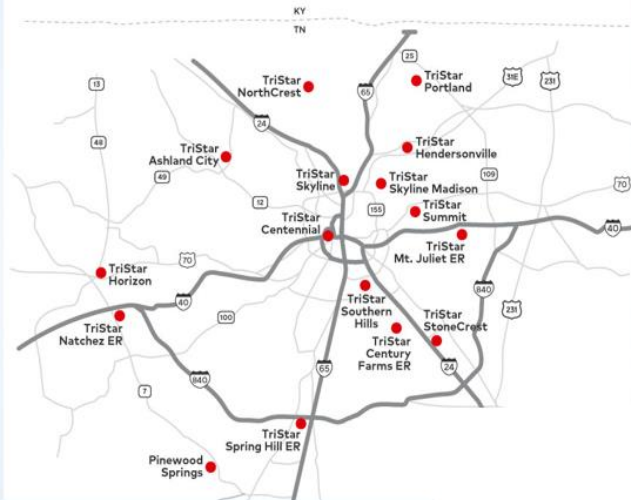
Symptomatic severe aortic stenosis is associated with high mortality rates, up to 50% at 1 year

Leon MB, Smith CR, Mack M, et al; PARTNER Trial Investigators. Transcatheter aortic-valve implantation for aortic stenosis in patients who cannot undergo surgery. *N Engl J Med*. 2010;363(17):1597-1607. doi:[10.1056/NEJMoa1008232](https://doi.org/10.1056/NEJMoa1008232)



Aortic Stenosis: Addressing the local market need

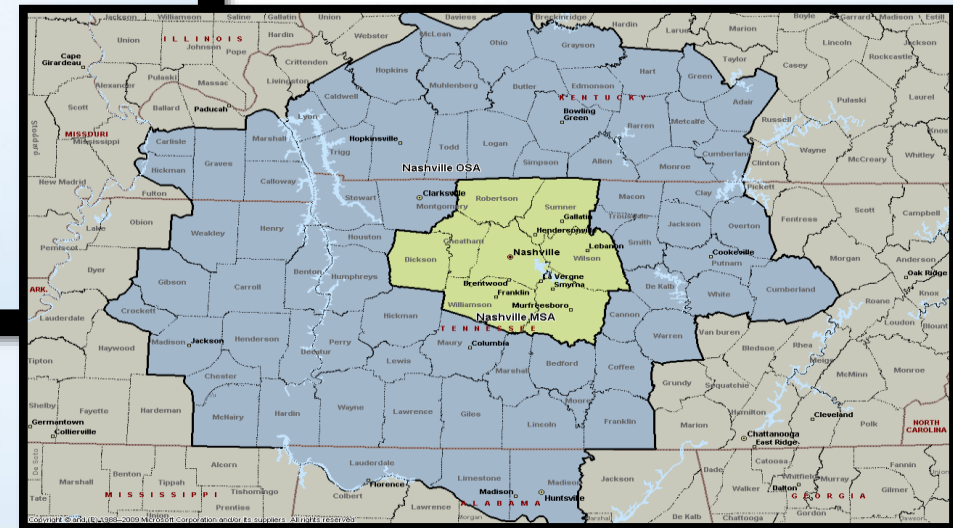
Nashville Market:



TriStar Health Overview

Tristar Division Comprehensive Network of Care

- ✓ 15 Hospitals
- ✓ 43 TriStar Medical Group Locations
- ✓ 8 Freestanding ER's
- ✓ 9 Imaging Centers
- ✓ 18 Care Now Locations
- ✓ 1 Comprehensive Stroke Center
- ✓ 1 ACS Level II Trauma Center
- 1 Burn Center
- 1 Transfer Center



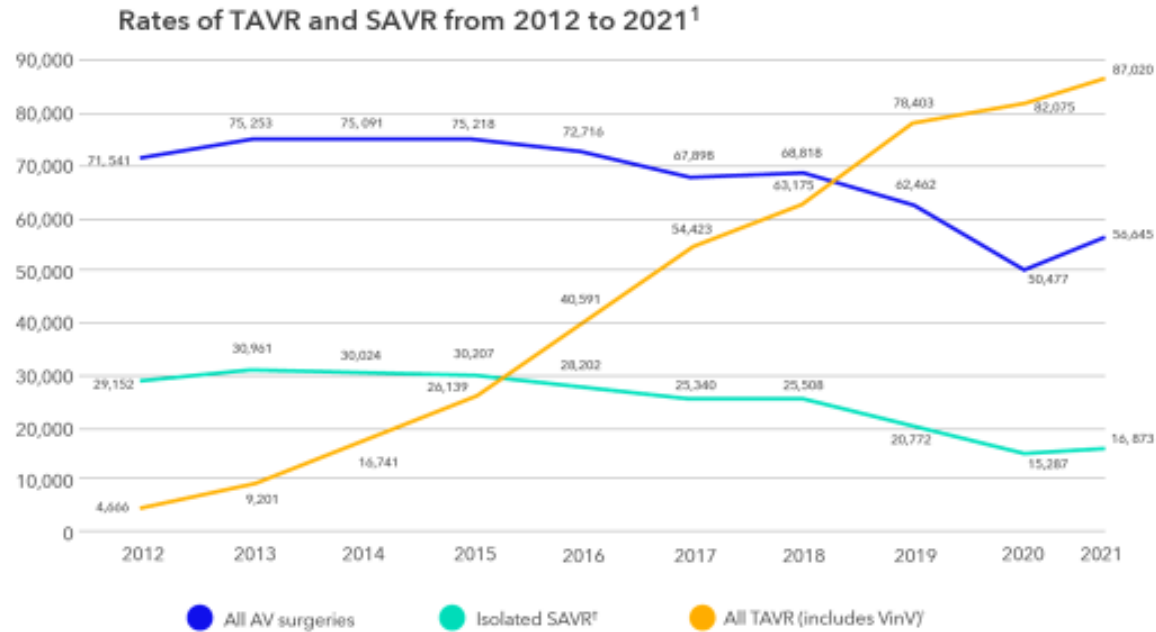


TAVR Rapid Growth Not Showing Signs of Slowing

A paradigm shift has occurred with the treatment of AS

From 2012-2021, TAVR has more than Tripled in the US.

- Technology advancement
- Strong clinical data
- Expanded indications
- Expansion in number of TAVR programs
- Guideline adoption



[†] Isolated = no other procedure or clinical intervention.

¹ TVT Registry Datamart and STS Database Data, October 2022. Data used with permission from ACC.

FIRST 10 Years focused on:

- Procedural Excellence
- Procedural Efficiency
- Expanding Transcatheter Portfolio

NEXT 10 Years focused on:

- Operational Excellence
- Clinic and Staff Optimization
- Capacity planning to improve patient access to care
- Continue to expand Transcatheter Portfolio



The Heart Team

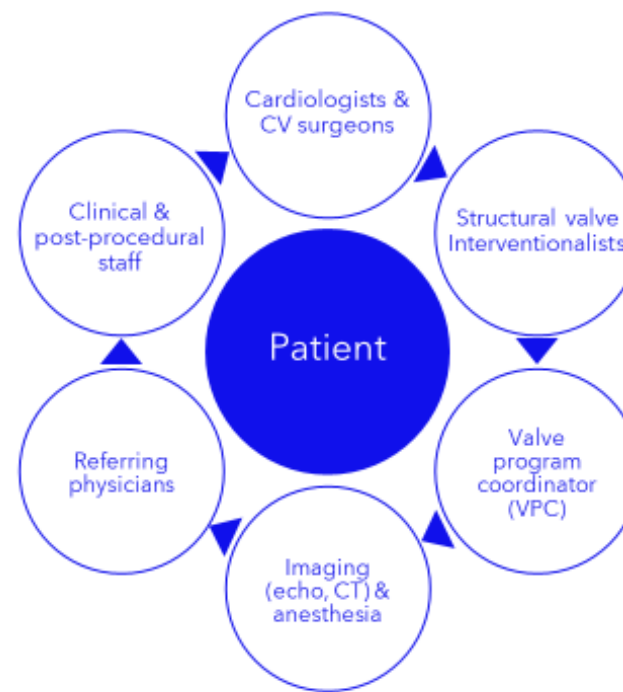
ACC/AHA Guidelines for VHD management

Shared decision-making: guidelines support multidisciplinary team approach

The 2020 ACC/AHA Guideline for the Management of Valvular Heart Disease recommends that all patients with symptomatic severe heart disease be evaluated by a multidisciplinary heart valve team when intervention is considered.¹

- Multidisciplinary teams have been the standard of care for other disciplines like cancer or transplantation
- A comprehensive multidisciplinary approach:
 - Ensures therapies and procedures are patient centric
 - Provides a holistic evaluation of all risks and benefits
 - Enables shared decision-making
- Joint procedural participation
 - Collaborative approach to procedural excellence
 - Optimized patient outcomes

Multidisciplinary heart valve team may include:



¹ Otto CM, et al. Circulation. 2021;43:e35-e71.



Structural Heart Physician Team: IC +Imaging + CT Surgery

Interventional cardiology:



John Riddick, MD, FACC
Medical Director
Cardiology/Interventional Cardiology



Andrew Goodman, MD, FACC
Cardiology/Interventional Cardiology



Samuel E. Horr, MD, FACC
Cardiology/Interventional Cardiology



Dr. David Huneycutt



Dr. Tom McRae



Dr. James Gentry



Dr. Parag Patel



Cardiovascular surgery:



V. Seenu Reddy, MD, MBA, FACS
Surgical Director
Thoracic and Cardiac Surgery



Sreekumar Subramanian, MD, FACS
Thoracic and Cardiac Surgery



Jeffrey B. Gibson, MD, FACS
Thoracic and Cardiac Surgery



H. Frank Todd, MD
Cardiac Surgery



Comprehensive Growth

AVR & TAVR

AVR Volume



TAVR Volume



	2015	2016	2017	2018	2019	2020	2021	2022	2023 YTD	Grand Total
AVR	25	17	24	48	57	143	172	150	50	686

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
TAVR	18	27	37	65	81	120	123	192	177	181	226

Throughput → CTS Clinic Suite 307

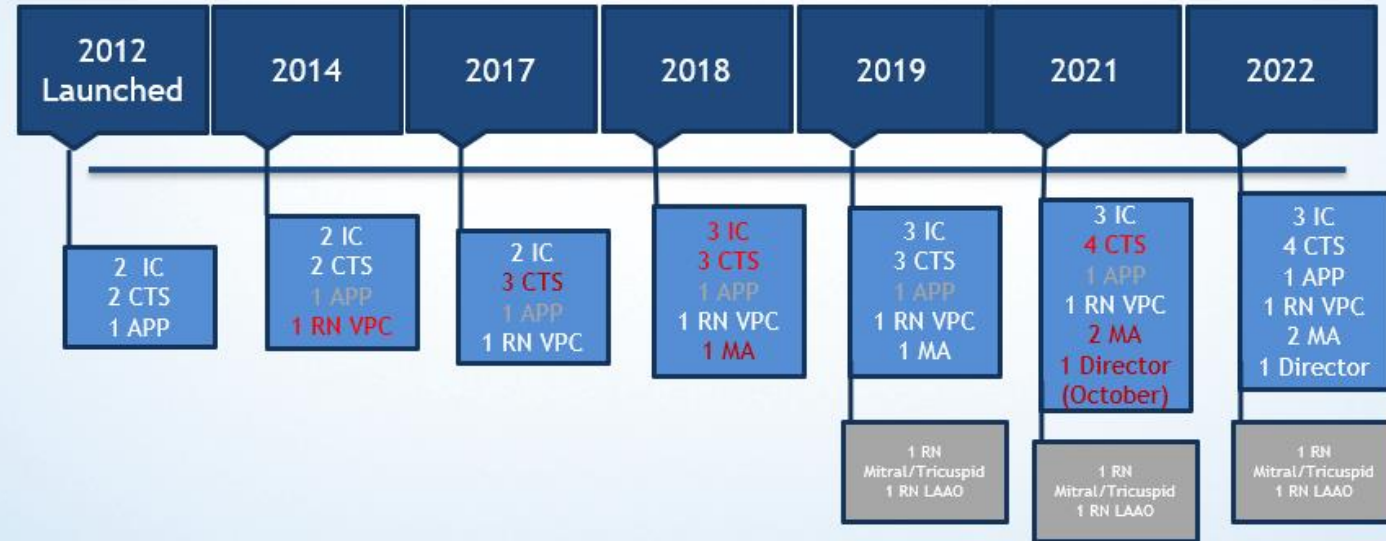
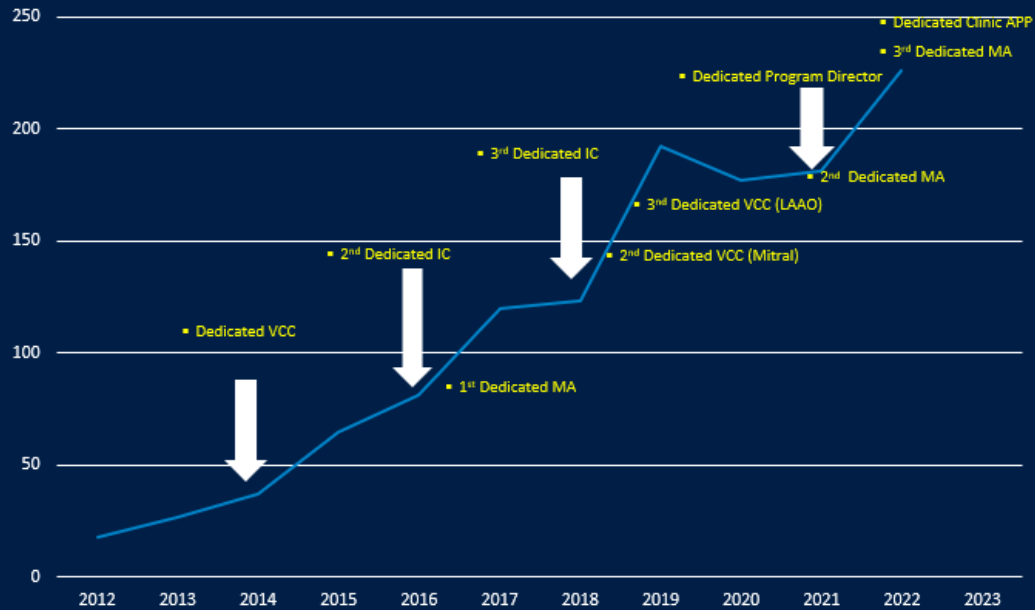
Throughput → SH Clinic Suite 515 + CTS Clinic





Centennial Heart Timeline of Events: Expanding SH staffing model = more patients treated

ANNUAL TAVR VOLUME & STAFFING



Milestone in 2022 over **500**
Structural Heart Procedures

TAVR=226 TEER =47 LAAC= 212 Other (pfo/asd): 52



Physician Perspective on Operational Leadership

Need to Expand Staffing

- Growth
- Therapy expansion
- Specialty recruitment
- Local market need

Benefit to Expand Staffing

- Continued growth
- Workflow optimization
- Improving patient access to treatment
- Improved quality of care



Key Take Aways:

What is the staffing model needed to grow a SH program?

Cardiologist & CT Surgeon Recruitment

Dedicated VPCs

Option to Outsource Data Abstraction

Structural Heart Program Director



Key Take Aways:

A look back and a look into the future

First 10 Years -Recruitment & Procedural Efficiencies

Next 10 Years- Operational Efficiencies & Plan for future advancement

Know your Market

Operational Leadership Dedicated SH Program Director



The Role of the Structural Heart Program Director

A look back at “Year 1”





Structural Heart Program Director

Position Discussion 2019

Position approval 2021

Start Date October 2021

Background DNP

Nursing Faculty/Educator

10+ years APP practice

15 + years combined RN/APP (Heart Failure)



Structural Heart Program Director

Job Description

Collaborate with hospital & clinic leadership team

Develop & revise policies & procedures

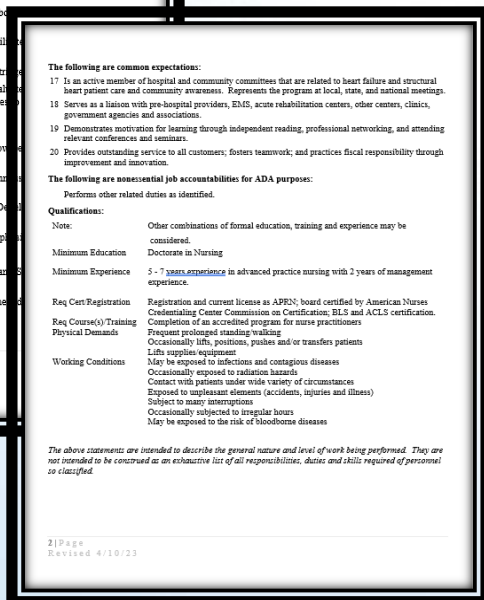
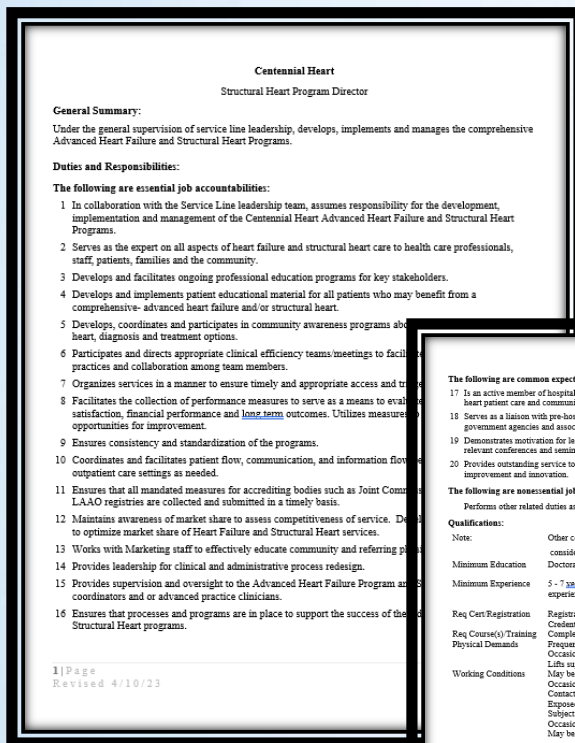
Review quality & process improvement plan

Assist w/ strategic planning & program growth initiatives

Collaborates w/ marketing team

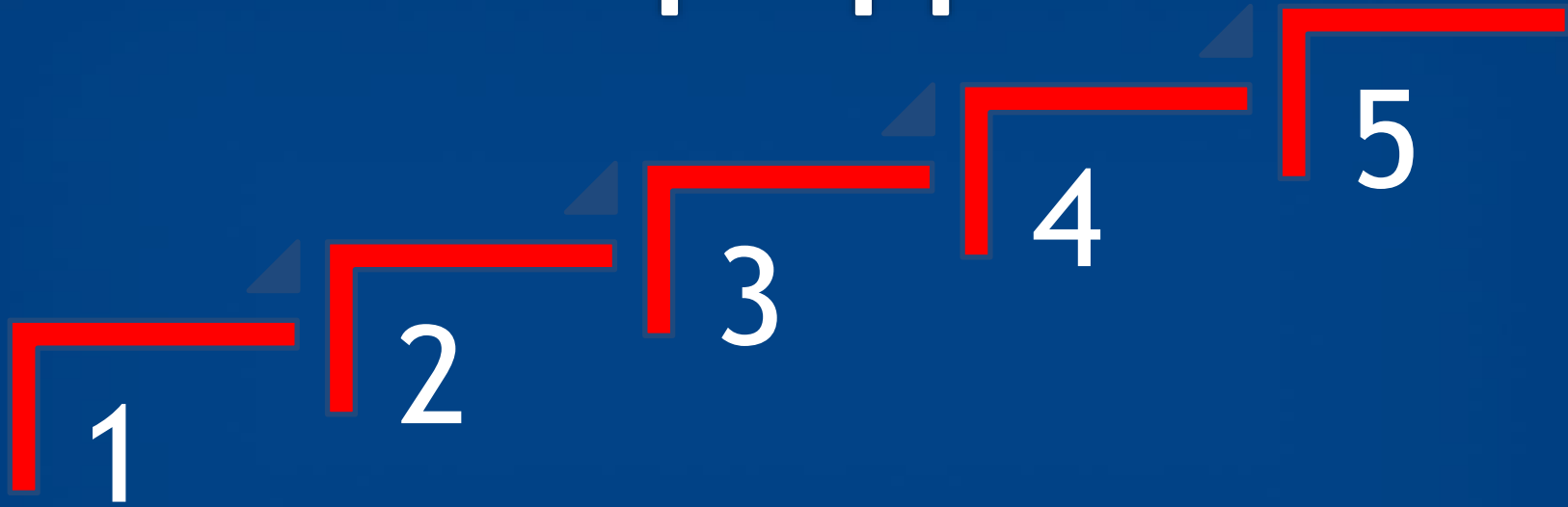
Evaluate staffing model, roles & responsibilities

Develop & implement patient & staff education materials





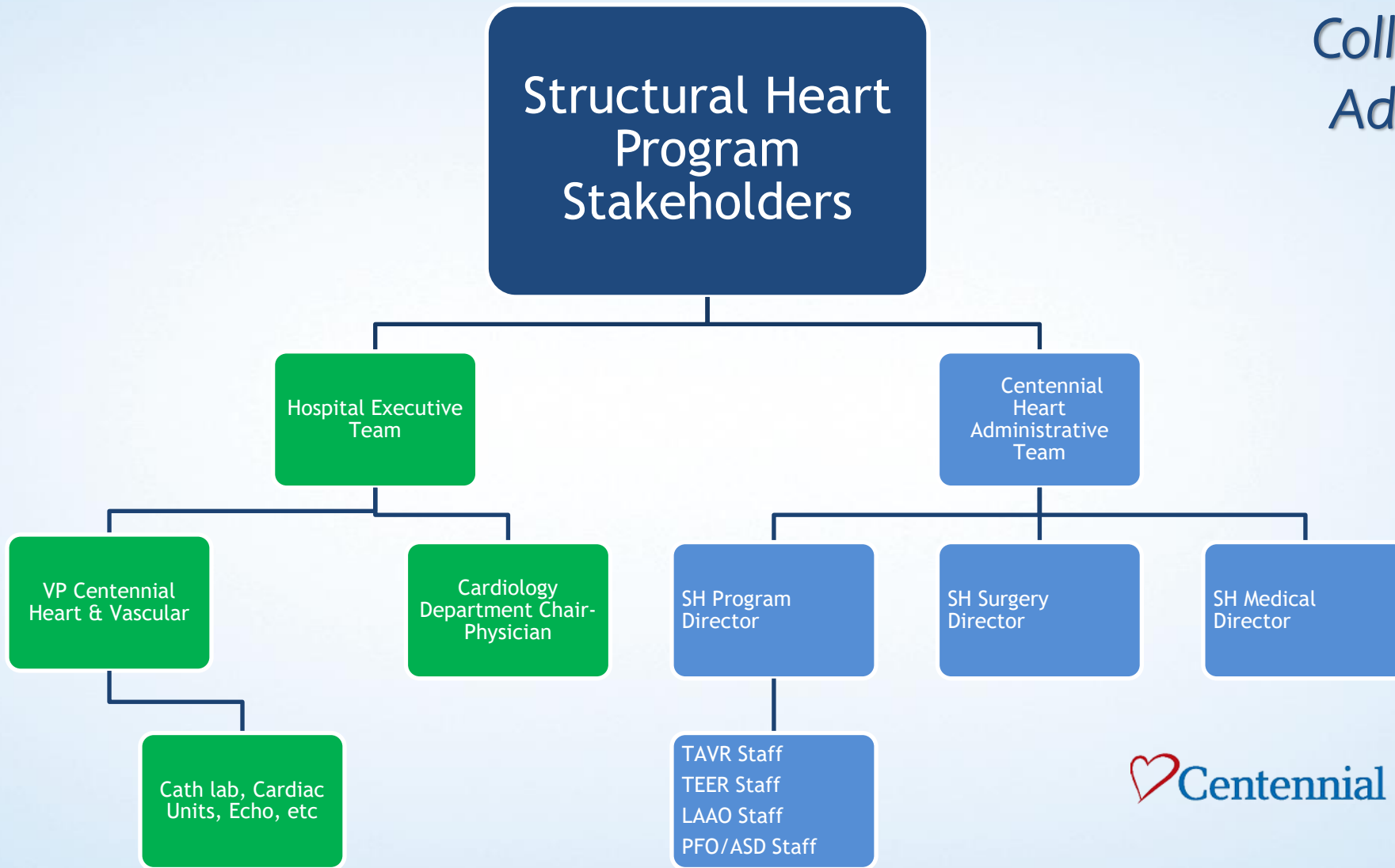
Year 1: A 5-Step Approach





Step 1: Know Your Stakeholders

*Collaborative
Advocacy is
Key*





Step 2: Evaluate Your Program

Opportunities

- ✓ Review internal staffing model to ensure top of license practice
- ✓ Review program growth and quality data
- ✓ Improve workflow efficiencies
- ✓ Build a business case

Threats?

- ✓ Patient wait times
- ✓ Patient outcomes
- ✓ Quality

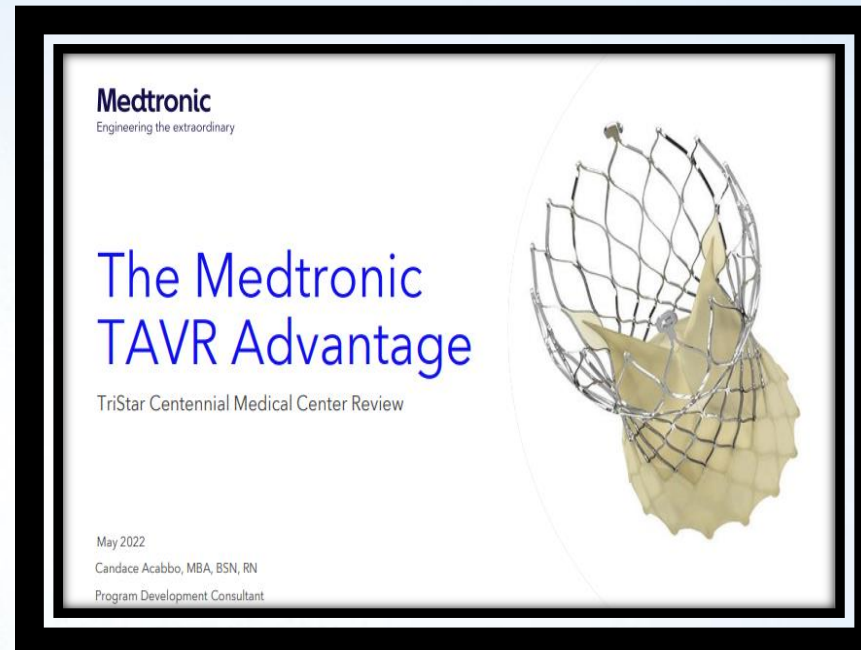
- ✓ SWOT Analysis Clinic Setting
- ✓ SWOT Analysis Inpatient Setting



Step 3: Be Open to a Third Party Review

Benefits to the Program

- 1). Identified Targeted Opportunities
 - ✓ Hospital vs Clinic
- 2). Facilitated Team Discussions
- 3). Provided Program Resources
- 4). Identify Change Initiatives (Clinic)



Medtronic TAVR Advantage took a comprehensive look **beyond the valve** to support opportunities for program and pathway optimization



Step 4 Clinic Focus

Know your data

1). Clinic Volume

- ✓ New patient visits → referral volume
- ✓ Established visits
- ✓ Evaluate year to year growth
- ✓ ? Next available visit
 - ✓ Importance of timely follow up for quality patient outcomes and TVT registry compliance

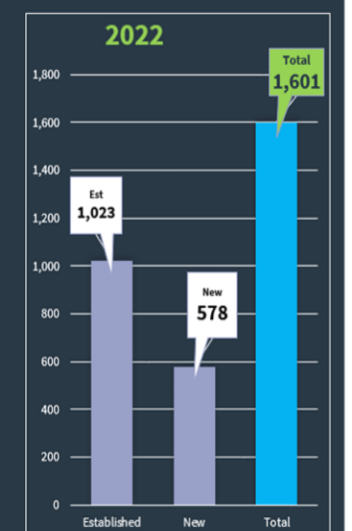
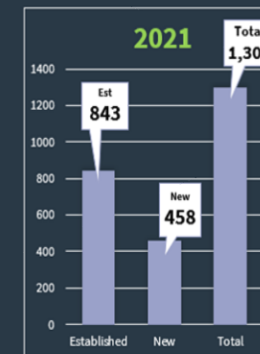
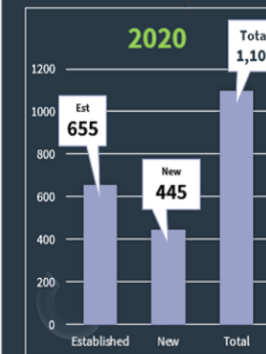
2). Procedure Volume

- ✓ Evaluate year to year growth

3). Quality Outcomes

- ✓ TVT registry compliance

Clinic Productivity & Growth



Elevator Speech



Step 4 Clinic Focus

Know your data



TVT Registry Follow Up Tracker											
Base Procedure											
Patient	DOB	Referring	CTS	IC	Referral Date	Consult Date	Referral to Consult Time	Procedure Date	Consult to Procedure Time	Discharge Date	LOS (Procedure to DC)



Step 4: Clinic Focus:

Assessment of roles & responsibilities

Staff

- RN Valve Coordinator
- Medical Assistant
- APP/MD

TAVR Pathway Phase

- Pre-Clinic
- Clinic
- Pre-Procedure
- Post-Procedure
- Quality Tasks

Structural Heart Coordinator: Role Assessment				
Appropriate- Task is within scope of practice for RN				
APP/MD Provider Task				
Below Scope-Task needs reassignment to ancillary supportive staff (MA, MOS)				
	RN Appropriate	APP/MD Task	RN Below Scope	Variable
PRE-CLINIC TASK				
1. Receives referral, schedules new patient appointment, gathers outlying records.			X	
2. Reviews outlying records, determines testing needed for new patient evaluation and orders testing.		X		
3. Orders Pre-Clinic testing, provides patient with pre-imaging instructions and medication hold parameters.		X		
4. Prep clinic note - PMH				X
5. Coordinates clinic appointment, testing, and referral appointment			X	
6. Educates patient on clinic appointment expectations, develops written instruction document to send to patient.	X			
7. Mails new patient packet.			X	
CLINIC TASK				
1. Obtains HPI and documents in clinic note				X
2. Obtains <u>Exercise</u> walk test and patient questionnaires.	X			
3. Provides patient education on procedure and expectations	X			
4. Coordinates follow up and execution of provider plan	X			
5. Documents clinic note		X		
PRE-PROCEDURE TASK				
1. Orders PAT (standard order form)	X			
2. Reviews PAT results		X		
3. Interprets pertinent lab data or other objective data		X		
4. Reviews pre-procedure CT, Carotid US, labs, other diagnostics		X		
5. Documents Pre-Procedure HP or Updated Problem List		X		
6. Schedules and coordinates procedure date	X			
7. Provides patient with pre-procedure instruction and medication hold parameters.		X		
8. Educates patient on pre-procedure instructions, written and verbal	X			
8. Communicates case plan to industry rep	X			
9. Provides hospital team with pre-procedural paperwork and case plan	X			
POST-PROCEDURE TASK				
1. Develops post procedure education discharge packet	X			
2. Provides patient education prior to discharge		X		
3. Orders post procedure follow up testing		X		
4. Schedules and coordinates post procedure follow up and testing			X	
5. Contacts patient 48-72 hours post discharge				Not being done
Programmatic Quality Task				
1. Completes Medicare Worksheet and provides to MD to sign	X			
2. Tracks and maintains working patient list (eval, pre-procedure, and post procedure)	X			
4. Reviews chart for complete documentation per registry requirements	X			
6. Reviews and addresses outliers per request of Paragon	X			
8. Prepares and maintains documents for weekly multidisciplinary conference.	X			
7. Communicates amongst implanting and referring teams via vital engine	X			



Step 4 Clinic Focus:

Workflow, Policies & Procedures

Pre Clinic Assessment

- Policy & Procedure
- Order form

CTA

- Policy & Procedure
- order from

Pre-Procedure

- Policy & Procedure
- Order form

DEPARTMENT: Centennial Heart, Tristar Centennial Cardiovascular Specialty Clinic-Structural Heart Program APPROVED Date: 6/7/2022	POLICY DESCRIPTION: Ambulatory Structural Heart Clinic <u>Pre Consult</u> Assessment
ANNUAL REVIEW DATE: 6/7/2023 Authors/Reviewers: Andrew Goodman, MD John Riddick, MD Samuel Horr, MD Nicole DeLise, DNP, FNP-BC, CHFN Seenu Reddy, MD	REFERENCE NUMBER: 2022

SCOPE: Registered Nursing, Ambulatory Structural Heart, Tristar Centennial Cardiovascular Specialty Clinic

PURPOSE:

- To ensure quality, comprehensive, and timely evaluation for patients referred to the structural heart program.
- To provide standardization of pre consult assessments, including: ordering of diagnostics, patient education, and nursing assessments.

DEFINITIONS:

- TAVR: Transcatheter
- TMVR: Transcatheter
- TEER: Transcatheter
- LAAC: Left Atrial Appendage
- PFO: Patent Foramen Ovale
- ASD: Atrial Septal Defect

POLICY:
This ambulatory structural heart structural heart specialty clinic

PROCEDURE:

- Document referring provider
- Document referral indication
- Review and upload previous medical chart.
- Document previous cardiac history
- Physician or APP to coordinate

<p>Referred by: _____</p> <p>PCP: _____</p> <p>CTS: _____</p> <p>STRUCTURAL HEART REFERRAL INDICATION:</p> <p><input type="checkbox"/> Transcatheter Valve Replacement</p> <p><input type="checkbox"/> Transcatheter Valve Repair</p> <p><input type="checkbox"/> Paravalvular Leak Closure</p> <p><input type="checkbox"/> Left Atrial Appendage Closure</p> <p><input type="checkbox"/> Patent Foramen Ovale Closure</p> <p><input type="checkbox"/> Atrial Septal Defect Closure</p> <p><input type="checkbox"/> Left Atrial Appendage Closure</p> <p><input type="checkbox"/> Other: _____</p> <p>Labs Results: Date: _____</p> <table border="1"> <tr><td>Sodium</td><td>ENR</td><td></td></tr> <tr><td>Potassium</td><td>EGG</td><td></td></tr> <tr><td>BUN</td><td>Hct</td><td></td></tr> <tr><td>Creatinine</td><td>Hgb</td><td></td></tr> <tr><td>eGFR</td><td>AST/ALT</td><td></td></tr> </table>	Sodium	ENR		Potassium	EGG		BUN	Hct		Creatinine	Hgb		eGFR	AST/ALT		<p>PREVIOUS IMAGES/REPORTS</p> <p><input type="checkbox"/> LHC: _____</p> <p><input type="checkbox"/> BHC: _____</p> <p><input type="checkbox"/> TTE: _____</p> <p><input type="checkbox"/> TEE: _____</p> <p><input type="checkbox"/> CUS: _____</p> <p><input type="checkbox"/> PETS: _____</p> <p><input type="checkbox"/> CT Scan: _____</p> <p><input type="checkbox"/> Cardiac MRI: _____</p> <p><input type="checkbox"/> CABG Op Note: _____</p> <p><input type="checkbox"/> Hospital Note: _____</p> <p><input type="checkbox"/> Office Note: _____</p> <p>Image: Date: _____</p> <table border="1"> <tr><td>LVEF</td><td>AV gradients</td></tr> <tr><td>LVEDD</td><td>MV</td></tr> <tr><td>RALA</td><td>TV</td></tr> </table>	LVEF	AV gradients	LVEDD	MV	RALA	TV
Sodium	ENR																					
Potassium	EGG																					
BUN	Hct																					
Creatinine	Hgb																					
eGFR	AST/ALT																					
LVEF	AV gradients																					
LVEDD	MV																					
RALA	TV																					

ORDERS

<p>PRE STRUCTURAL HEART CLINIC</p> <p><input type="checkbox"/> EKG</p> <p><input type="checkbox"/> CTA</p> <p><input type="checkbox"/> CT</p> <p><input type="checkbox"/> Carotid US, Bilateral</p> <p><input type="checkbox"/> Transthoracic Echocardiogram (TTE)</p> <p><input type="checkbox"/> Transthoracic Echocardiogram (TTE) w/ bubble study</p> <p><input type="checkbox"/> Transesophageal Echocardiogram (TEE)</p> <p><input type="checkbox"/> PFT</p> <p><input type="checkbox"/> Spirometry pre and post bronchodilators (B&A)</p> <p><input type="checkbox"/> Albuterol 2 puffs</p> <p><input type="checkbox"/> Labs</p>	<p>NURSING ASSESSMENT</p> <p><input checked="" type="checkbox"/> Patient Education</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Pre structural heart clinic testing <input checked="" type="checkbox"/> Pre structural heart clinic process and evaluation with anticipated length of appointment <input checked="" type="checkbox"/> Assess need for disease process education <p><input checked="" type="checkbox"/> Medication reconciliation</p> <ul style="list-style-type: none"> <input type="checkbox"/> Modified Rankin Scale <input type="checkbox"/> CHADS₂ Score <input type="checkbox"/> HASBLED Score <input type="checkbox"/> Activity of Daily Living as per Katz Index <input type="checkbox"/> 5-Meter Gait Speed Test <input type="checkbox"/> 6 Minute Walk Test <input type="checkbox"/> KCCQ12 Questionnaire <p><input type="checkbox"/> Other Orders:</p>
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Step 4: Clinic Focus

Understand your EMR to optimize workflow

Electronic Medical Record

- ✓ ? Workflow enhancements
- ✓ ? Documentation templates
- ✓ ? Patient communication
- ✓ Decrease patient phone time

How to engage: IT & EMR

- ✓ Ask questions
- ✓ Evaluate time to complete tasks
- ✓ Make a wish list
- ✓ Meet with IT and EMR specialist
- ✓ Shadow day
- ✓ Leverage TVT registry

Work smarter, not harder....



Step 5: Review Findings & Develop a Plan

What We Discovered:

- Need for delineation of roles & responsibilities
- Need to develop policies & procedures
- Need to reallocate physician time/clinic schedule
- Need for patient education tools
- Need for EMR optimization
- Need for collaboration w/data abstraction team

APP Revenue Proposal

<p>Total Direct Revenue \$91,440.00/year</p> <ul style="list-style-type: none"> • TAVR 1 year follow up (200/year-99214 @ \$132.00 = \$26,400.00) • TEER 1 year follow up (50/year-99214 @ 132.00 = \$6,600.00) • LAAC 6 month follow up (200/year-99213 @ \$93.00 = \$18,600.00) • LAAC 1 year follow up (200/year-99213 @ \$93.00 = \$18,600.00) • LAAC 2 year follow up (200/year-99213 @ 93.00 = \$18,600.00) • Valve Disease Monitoring Visits (20/year- 99214 @\$132.00= \$2,640) 	<p>Total Indirect Revenue \$66,707.00/year PLUS Halo Effect</p> <ul style="list-style-type: none"> • Reallocate 470 established visits from MD schedule <ul style="list-style-type: none"> • + 235 additional new patient visits • 235 New Pt Visits- 99215 @ 185.00= \$43,475.00 • Increase implant volume at a 75 % implant rate (implant rate demonstrated in 2020 and 2021)= +176/year procedure growth. • 2024 addition of 176 follow ups/year- 99214= \$23,232.00 • Halo Effect (Echo, TEE, CUS, CT, Cath, CT surgery volume) Increase Revenue
Total Generated Revenue per year	

Use MD availability for Procedures and New Patients***

TVT Registry Guided Follow Up Schedule

- 1 TAVR Procedure = (1) 30 day OV
(1) 1 year OV
- 1 TEER Procedure = (1) 30 day OV
(1) 1 year OV
- 1 LAAO Procedure = (1) 45 day OV
(1) 6 month OV
(1) 1 year OV
(1) 2 year OV

Encounters	Annual Volume of TAVR Procedures				
	1	20	50	100	200
Referrals	2	40	100	200	400
Direct Encounters					
Provider consultations	3	60	150	300	600
Initial diagnostic tests	4	80	200	400	800
Preprocedure tests and visits	4	80	200	400	800
Definitive procedure (TAVR/SAVR)	1	20	50	100	200
Follow-up tests and visits	5	100	250	500	1000
Indirect Encounters					
Order entry	6	120	300	600	1200
Results review	6	120	300	600	1200
Authorizations	6	120	300	600	1200
Encounter scheduling	13	260	650	1300	2600
Total Encounters	50	1000	2500	5000	10,000

Source: Transcatheter Aortic Valve Replacement Program Development: A guide for the Heart Team



A Look Back at Year 1

Quality Interventions 2022

- 1) TVT Registry
 - HIM barcode update
 - Weekly "outlier" review to be brought to valve conference for "acceptance" vs "dispute"
 - MCO "outlier" tracker provided to HIM Department Director
- 2) Tracking Tool
 - IC, CTS, Referring, LOS, Consult to Implant, Follow Up Schedule
 - 2023-Referral to Implant Date
 - Available on P-Drive
- 3) KCCQ12
 - Now administered by staff
 - Paper copy saved and filed
 - Tracker
- 4) Cardiac Rehab Phase 2 (order or document)
 - Documentation reviewed and process updated
 - Note "needs to be ordered at hosp discharge"
- 5) Echo Documentation
 - Echo tech dinner education (Fall 2022)
 - SH Echo Template go live 12/22
 - Template in development at THV
- 6) Policies & Procedure Development
 - Pre-clinic, CT, Pre-Procedure

Quality Interventions 2022

- 7) Vital Engine
 - Vital Voice (hotline)
 - Vital Fax
 - Data
- 8) eCW CarePlan
 - Process efficiency
 - Documentation of St
 - Patient list/risk strat
 - Data

DEPARTMENT: Centennial Heart, Tristar Centennial Cardiovascular Specialty Clinic-Structural Heart Program APPROVED Date: 6/7/2022	POLICY DESCRIPTION: Ambulatory Structural Heart Clinic Pre-Consult Assessment
ANNUAL REVIEW DATE: 6/7/2023	REFERENCE NUMBER:
Author's/Reviewers: Andrew Goodman, MD John Raddeck, MD Samuel Herz, MD Nicole DeRose, DNP, FNP-BC, CHFN Soms Reddy, MD	

APP Revenue Propos



Structural Heart Team Completes OVER 200 TAVRS FOR 2022



CELEBRATING OVER 200 LEFT ATRIAL APPENDAGE CLOSURE DEVICE IMPLANTS IN 2022

Patient Name: _____ Date of Birth: _____ Age: _____ Cardiovascular Specialty _____

Ambulatory Structural Heart Clinic Pre Consult Assessment Order Form

SCOPE: Registered Nursing, Ambulatory Structural Heart, Tristar Centennial Cardiovascular Specialty Clinic

INTAKE REVIEW

Referring: _____
 PCP: _____
 CTS: _____

STRUCTURAL HEART REFERRAL INDICATION:

Transcatheter Valve Replacement
 Transcatheter Valve Repair
 Paravalvular Leak Closure
 Left Atrial Appendage Closure
 Patent Foramen Ovale Closure
 Atrial Septal Defect Closure
 Left Atrial Appendage Closure
 Other: _____

PREVIOUS IMAGES/REPORTS

LHC: _____
 BHC: _____
 TTE: _____
 TEE: _____
 CUS: _____
 PETS: _____
 CT Scan: _____
 Cardiac MRI: _____
 CABG Op Note: _____
 Hospital Note: _____
 Office Note: _____

LABS RESULTS: Date: _____

Sodium	INR	Image:	Date:
Potassium	Hgb	LVEF	AV gradients
PT/PTT	Hct	LVEDD	MV
		RA/LA	TV

NURSING ASSESSMENT

Patient Education

- Pre structural heart clinic testing
- Pre structural heart clinic process and evaluation with anticipated length of appointment
- Assess need for disease process education

Medication reconciliation

Modified Rankin Scale
 CHADS₂ Score
 HASBLED Score
 Activity of Daily Living as per Katz Index
 5-Meter Gait Speed Test
 6 Minute Walk Test
 KCCQ12 Questionnaire
 Other Orders: _____





Key Points

- 1). Know Your Stakeholders
- 2). Evaluate Your Program
- 3). Consider 3rd Party Program Review
- 4). Focus Accordingly (Hospital vs Clinic)
 - a. Know Your Data
 - ✓ Year to Year SH **Procedure Growth**
 - ✓ Year to Year SH **New Patient** Visit Growth (**Referrals**)
 - ✓ Year to Year SH **Established Patient** Visit Growth
 - » Snowball effect → increased procedures
 - ✓ Referral to consult time (Clinic Staffing)
 - ✓ Consult to referral time (Hospital Staffing)
 - b. Staff Roles & Responsibilities
 - c. Policies & Procedures
 - d. EMR Efficiencies
- 5). Advocate Program Needs & Develop a Plan

TEAMWORK





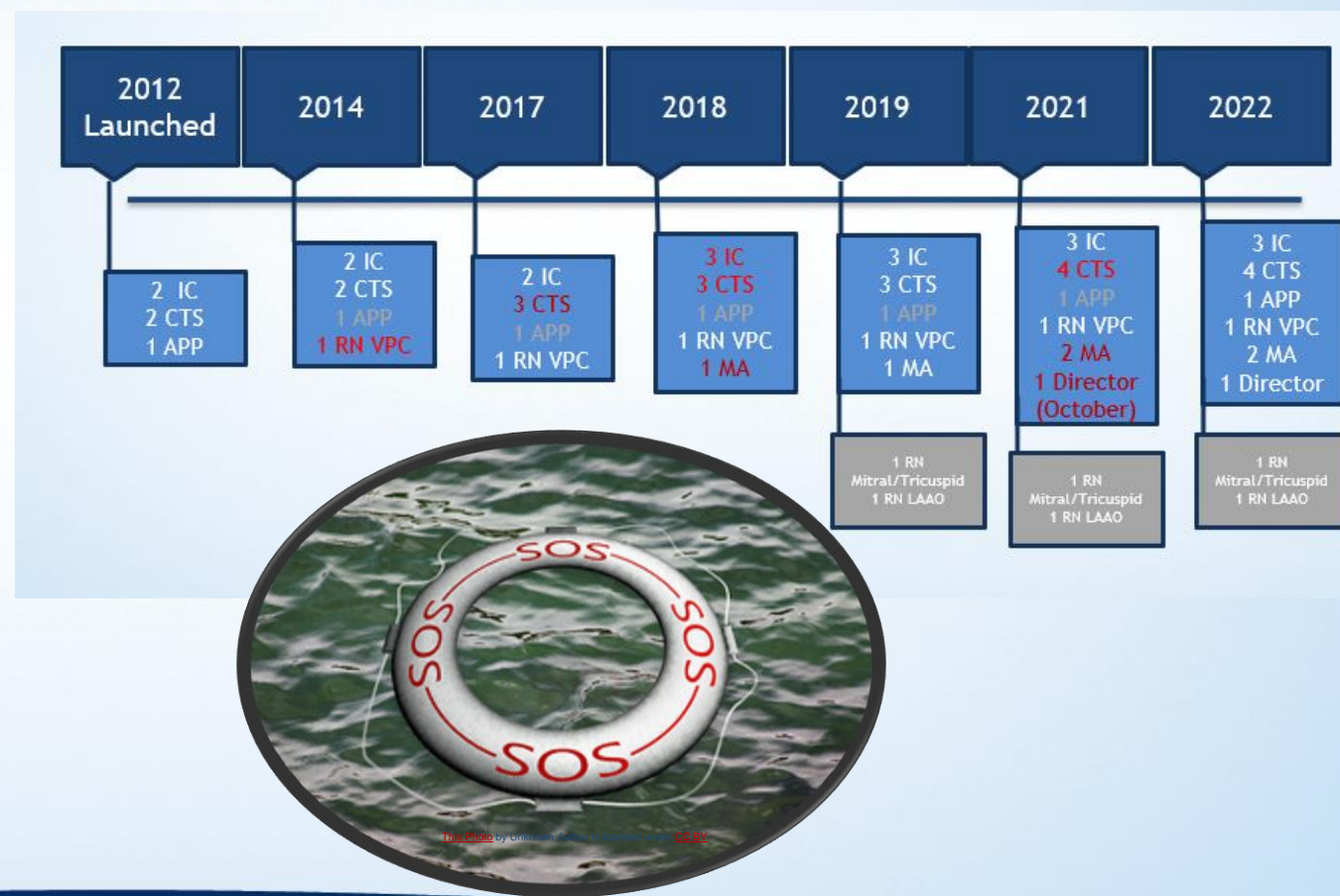
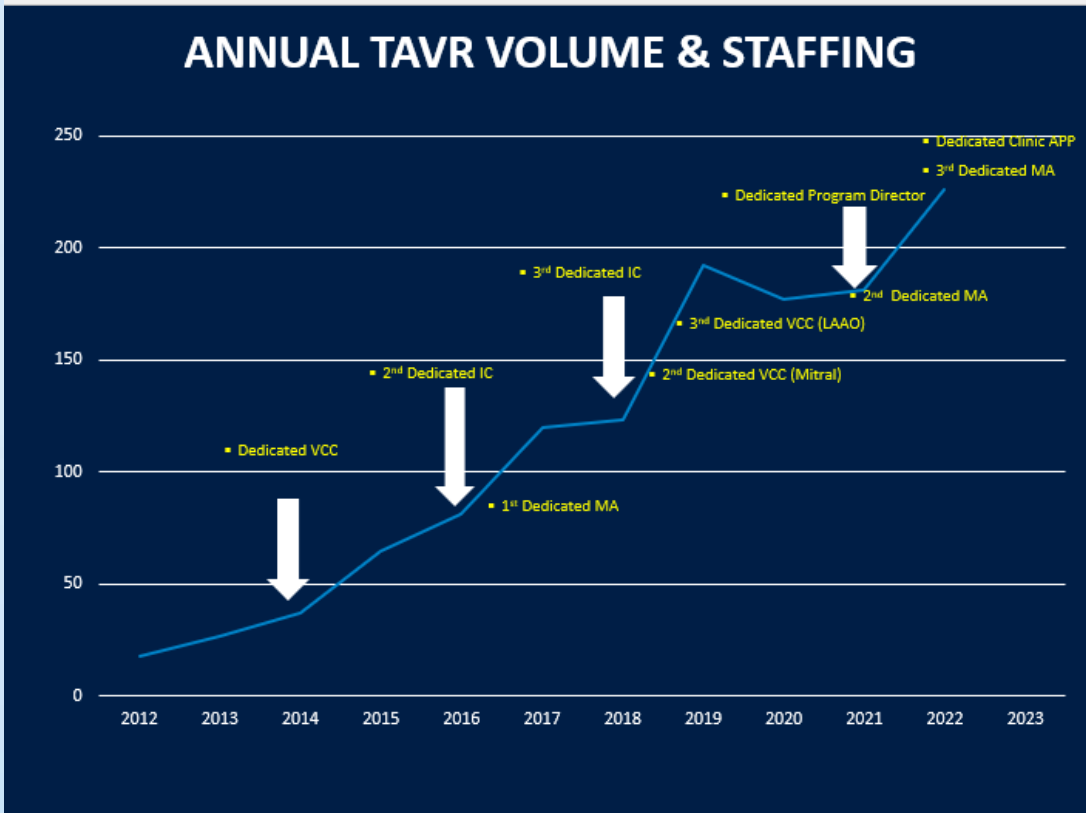
The Role of the Valve Clinic Coordinator

A Decade of Insight





Centennial Heart Timeline of Events: Knowing when to add additional VPCs





Role Transition

SH Coordinator to TAVR Coordinator

Why was this Necessary?

- Indication expansions
- Transcatheter therapy expansion
- Guideline adoption
- Streamline communication
- Overall program growth

Benefits to a Dedicated TAVR Coordinator?

- Improved patient centered care
- Improved workflow and patient throughput
- Improved program standardization & quality





TAVR COORDINATOR

Roles & Responsibilities

Coordinate
Patient
Referrals

Patient
Education

Valve
Conference

Communication

TVT
Registry/Quality



Coordinated Patient Referrals



Patient Education

Patient is contacted by medical assistant
New patient packet mailed



Comprehensive Medical Record/History Review

Pre-planning for consult day
Ordering appropriate testing



New Patient Consult Day

Same day coordination with CT Surgery & Interventional Cardiologist
Testing considered: CT scan, Carotid US, PFTs, Labs, etc.
Education/Cardiosmart/Valve Pathway



Multidisciplinary Valve Team Conference

Weekly- Monday at 5:00
Shared Decision Making

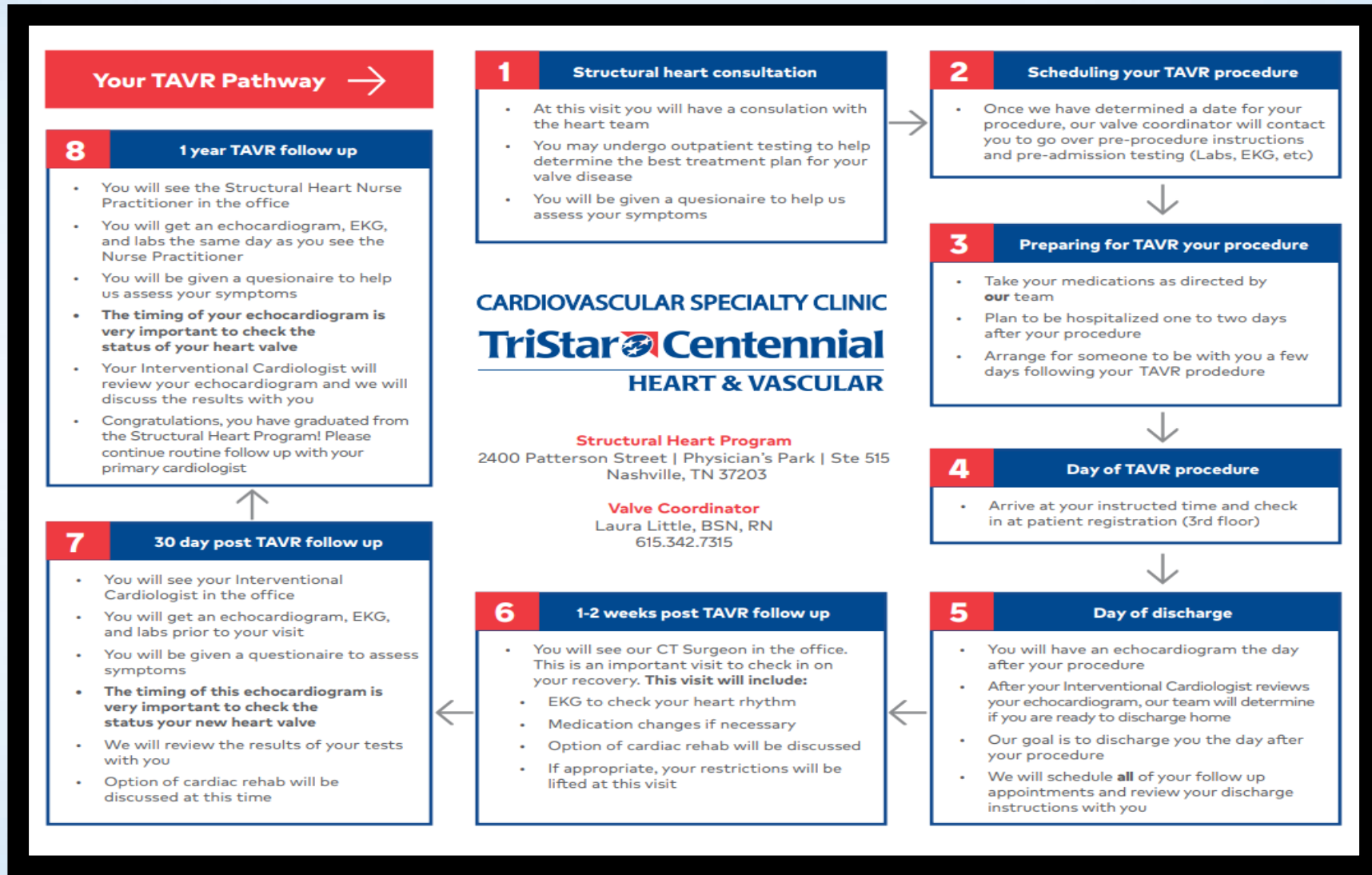


Preparing & Scheduling Procedure

Pre-admission testing
Detailed pre-procedure instructions

Teamwork! VPC + MA

Patient Education: What to Expect





Weekly Valve Conference



What is discussed:

VALVE CONFERENCE
May 22, 2017

EP – Discuss protocol for Post TAVR AV Conduction Delays

- ICA-TMVR (WV) 5/23/17 (Goodman, Subramanian), 98% Ethanol available, proctor→Paolo Tartara
- Symptomatic mitral stenosis from bioprosthetic MVR failure, Afib, DM2, and CAD
- Stress echo 5/5→ post stress MV gradients 32/12mmHg
- TTE 5/2→ EF 55-60%, LA severely dilated, mean MV gradient 5mmHg
- Cath 4/13→ RA 20/15/13, RV 49/12/17, wedge 29/30/23, PA 28/17/22, CO 3L/min, mean gradient MV 10.7mmHg, mild diffuse CAD
- TEE 4/25→ EF 60-65%, RVSP 30-35mmHg, MV mean gradient 13mmHg
- Coronary CTA 2/17
- CUS 3/14→ <50% bilateral ICA stenosis
- STS→14%
- CTS→Subramanian 5/5, Wheatley 5/6
- Referring Jonathan Hoda

- TAVR 5/23 (Goodman, Subramanian), ____Medtronic Pro, high risk, ____perc approach, ____anesthesia, ____postop, no surgery team or perfusion
- HTN, AS, ESRD w/ LUE fistula (MWF), recent fall with ankle fx, severe pulmonary HTN, Afib, PPM, TIA, CVA, DM, hypothyroid, glaucoma w/ blindness, contrast allergy, polycystic kidney disease
- TTE 5/18→EF 55-60%, severe AS, mild AI, peak/mean 64/34mmHg, Vmax 4m/s, AVA 0.51cm2
- CTA 5/19→small bilateral pleural effusions, PPM, moderate MAC, trileaflet AV w/ mild ca+, LVOT 25x21mm, annulus 25x22mm, circ 74mm, area 420mm2, left main 6mm, RCA 16mm, sinuses 31mm, STJ 27mm, aortic bifurcation 14mm, RCA 5mm, LCA 7mm, bilateral EIA 6mm, bilateral CFA 6mm, dilated central pulmonary arteries, smooth plaque SMA 70% narrowing
- CUS 5/22→pending
- PFT 5/22→pending
- EKG 5/22→pending
- STS→11.08%
- CTS evals→Subramanian 5/18, needs 2nd surgeon
- Referring→Dr. Salifu (TJ Sampson)

- TAVR 5/23 (Goodman, Reddy), 23mmS3, right perc, MAC, PACU, intermediate risk, no surgery team or perfusion
- HTN, DM, arthritis, refuses open heart surgery
- Cath 8/2015→LAD/RCA irregularities, prox OM 75%
- TTE 3/21→EF 65%, peak/mean 60/33mmHg, AVA 0.6cm2, mod MR
- CUS 3/21→no sig stenosis
- PFT 5/8→FEV1 1.37L, DLCO 43%
- CTA 5/8→trileaflet AV w/ mod ca+, LVOT 20mm, annulus 25x22mm, circ 73mm, area 400mm2, left main 13mm, RCA 13mm, sinuses 29mm, STJ 25mm, aortic bifurcation 15mm, bilateral CIA 10mm, bilateral EIA 8mm, bilateral CFA 8mm, cholelithiasis, mild wall thickening of stomach and distal esophagus
- EKG 5/8→SB, RBBB, 59bpm, QRS 110ms
- CTS evals→Reddy 4/13, Subramanian 5/8
- STS→5.6%
- Referring→Robert Ripley

- TAVR 5/24 (Reddy, Riddick), 29mmS3, left subclavian approach, ____anesthesia, ____postop, intermediate risk, surgery team needed, no perfusion



VPC: The Center of Communication





TVT Registry

How Do You Ensure Quality With Outsourcing?

- ✓ Review “Queries” 2-3 x per week
- ✓ Monthly quality review
- ✓ Collaboration with data abstraction team
- ✓ Education



Presented on March 27, 2023

CONFIDENTIAL - Contains proprietary information. Not intended for external distribution.



TVT Outlier Case Review

February, 2023

CONFIDENTIAL - Contains proprietary information. Not intended for external distribution.



	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Mortality	0	0											
Stroke	0	0											
30 day Readmit	0	0											
PPM	0	0											
Vasc Comp	0	0											

- Mortality
- Stroke
- 30 day Readmit
- PPM
- Vasc Comp



Key Take Aways

**TAVR
2012**

- VPC Role

**TAVR
2023**

- VPC Role



2022....Reaching More Patients



Valve Disease Awareness Day
Aortic Stenosis: 2020 ACC/AHA Guideline Review

VIRTUAL SEMINAR

Thursday, February 22
12:45 p.m. - 1:00 p.m.

12:45 p.m.
with Dr. Bennett Wofford, Dr. Nicole DeRose, Dr. Emily Pagel, and Dr. Laura Little

 Bennett Wofford MD, PhD, MPH, ACC Structural Heart Nurse Practitioner	 Nicole DeRose MD, MPH, ACC, CCSA Director, Structural Heart Program & Mitral and Heart Failure Therapy	 Emily Pagel MD, PhD, MPH, ACC Structural Heart Nurse Practitioner	 Laura Little MD, PhD Valve Coordinator
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*Structural Heart Team Completes
OVER 200 TAVRS FOR 2022*



CELEBRATING OVER
200 LEFT ATRIAL APPENDAGE CLOSURE
DEVICE IMPLANTS IN 2022





Thank you



TriStar  **Centennial**
HEART & VASCULAR

Panel Discussion

THANK YOU

Q & A

Please type your questions in the CHAT

Complete the Survey via
QR code or Link in CHAT

