



Transcatheter Aortic Valve Replacement (TAVR): Pre, Post, Lifetime Management

Joshua A. Cohen, MD
Advanced Cardiac Imaging, Structural Heart
Sentara Heart Hospital, Norfolk, VA

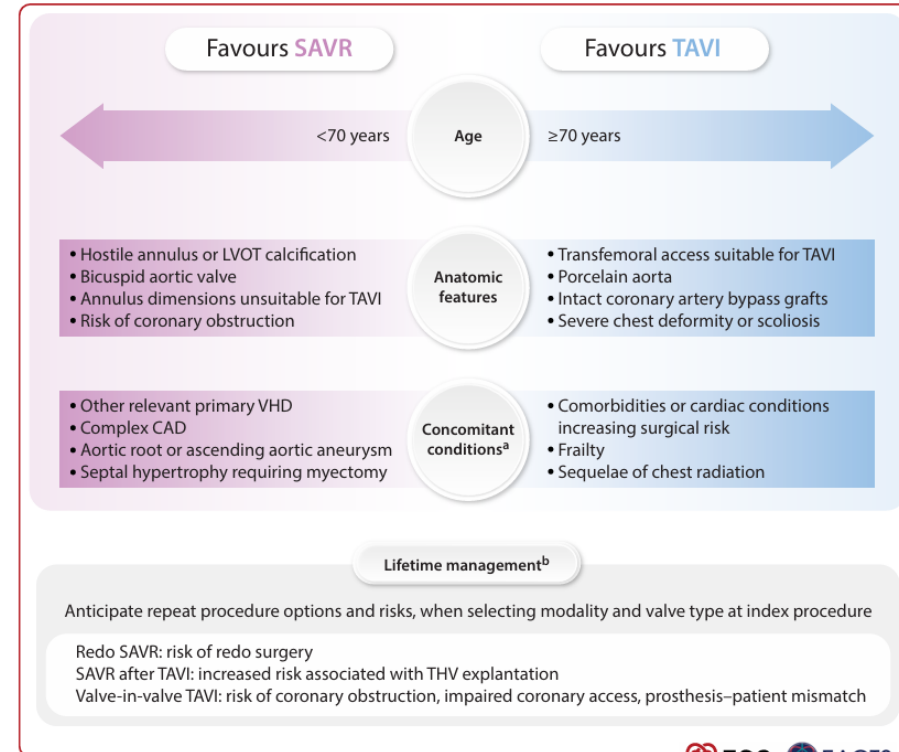
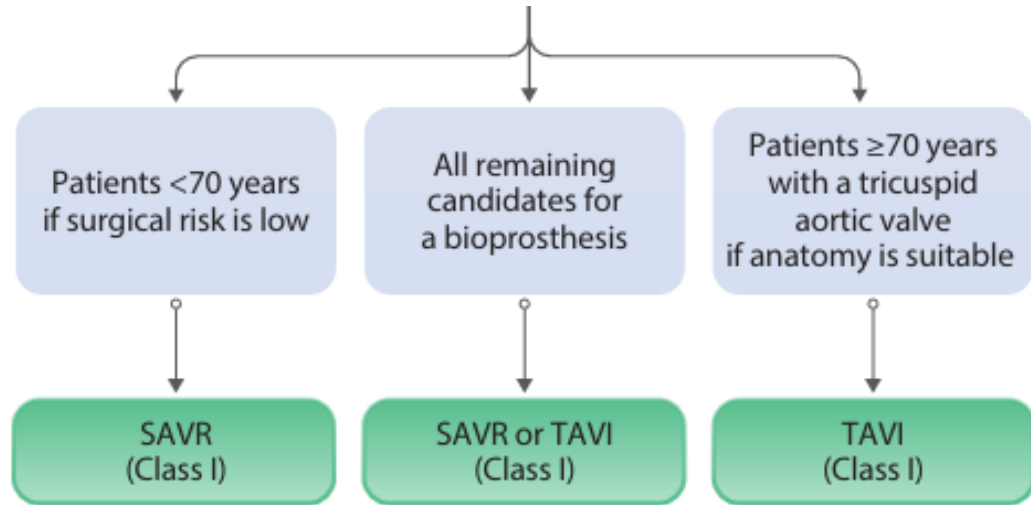
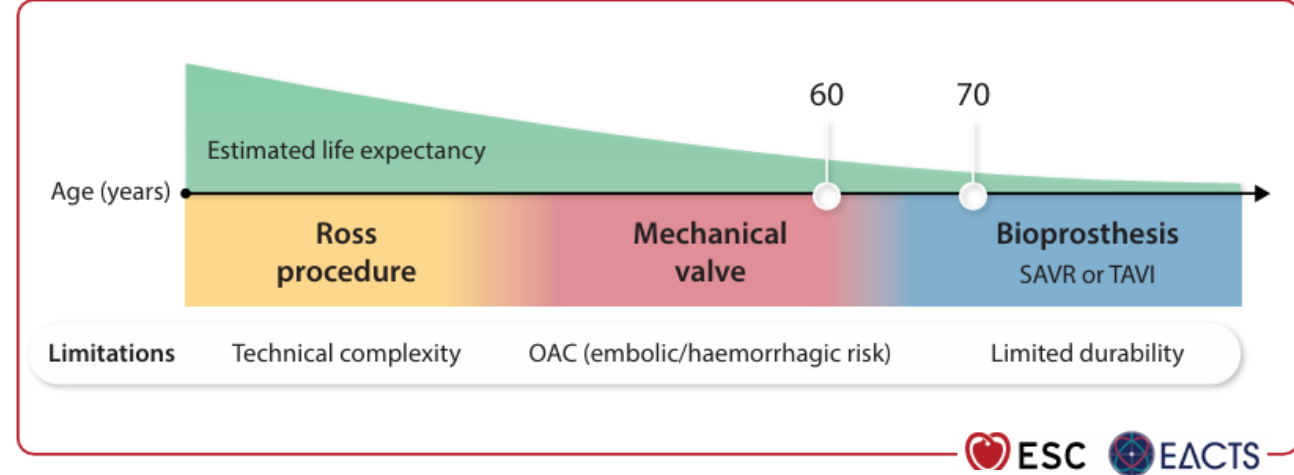
Disclosures

- Consulting, Proctoring, Educational Faculty
 - Philips
 - Abbott
 - Medtronic
 - Murmur MD

Outline

- **Current day TAVR**
 - Who should get it?
- **Pre Procedural Planning**
 - CTA
 - AI based simulation
 - Valve Platforms
- **Post Procedural Considerations**
 - PPM rate
 - PVL
 - Antiplatelets/Anticoagulants
- **Red Flags**
 - Gradients
 - AR
 - Neurologic Events
 - Infectious Symptoms

Who Should get TAVR? Guidelines: ESC 2025



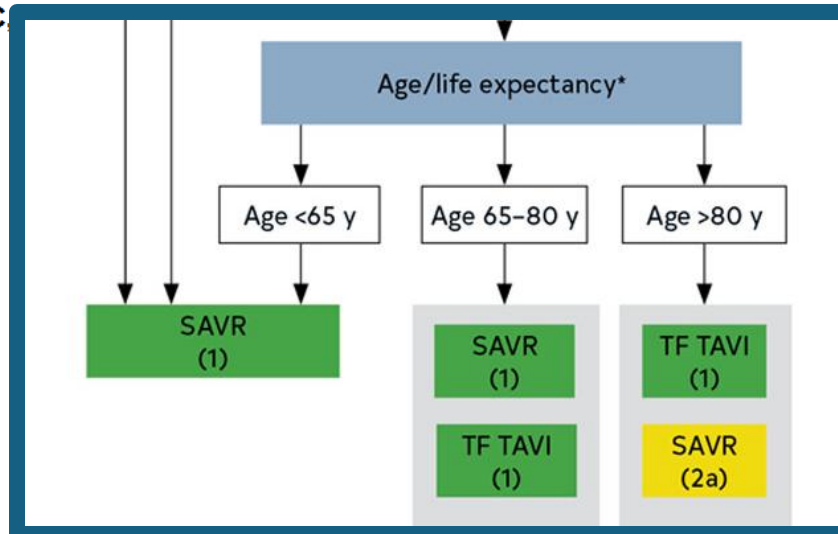
Who Should Get TAVR?

Guidelines ACC/AHA 2020

ACC/AHA CLINICAL PRACTICE GUIDELINE

2020 ACC/AHA Guideline for the Management of Patients With Valvular Heart Disease: A Report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines

Catherine M. Otto, MD, FACC, FAHA, Co-Chair, Rick A. Nishimura, MD, MACC, FAHA, Co-Chair, Robert O. Bonow, MD, MS, MACC, FAHA, Blase A. Carabello, MD, FACC, FAHA, John P. Erwin III, MD, FACC, FAHA, Federico Gentile, MD, FACC, Hani Jneid, MD, FACC, FAHA, Eric V. Krieger, MD, FACC, Michael Mack, MD, MACC, Christopher McLeod, MBChB, PhD, FAHA, Patrick T. O’Gara, MD, MACC, FAHA[†], Vera H. Rigolin, MD, FACC, FAHA, Thoralf M. Sundt III, MD, FACC, and Christopher Toly



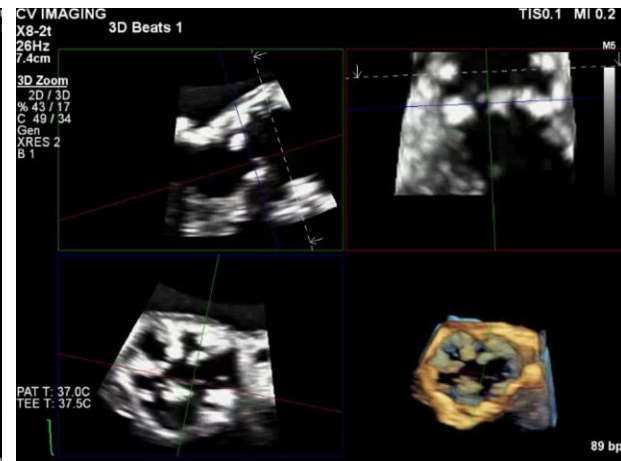
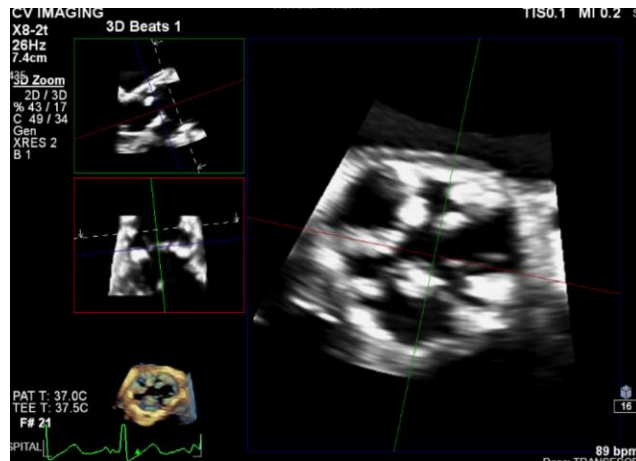
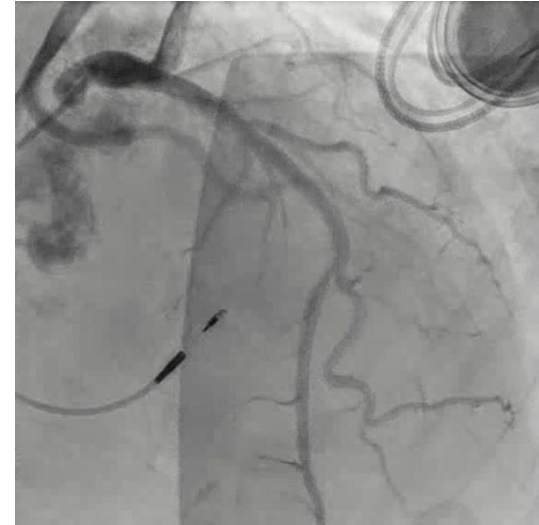
3.2.4.2. Choice of SAVR Versus TAVI for Patients for Whom a Bioprosthetic AVR Is Appropriate

Recommendations for Choice of SAVR Versus TAVI for Patients for Whom a Bioprosthetic AVR Is Appropriate
Referenced studies that support the recommendations are summarized in Online Data Supplements 11 to 13.

COR	LOE	Recommendations
1	A	1. For symptomatic and asymptomatic patients with severe AS and any indication for AVR who are <65 years of age or have a life expectancy >20 years, SAVR is recommended. ^{123–125}
1	A	2. For symptomatic patients with severe AS who are 65 to 80 years of age and have no anatomic contraindication to transfemoral TAVI, either SAVR or transfemoral TAVI is recommended after shared decision-making about the balance between expected patient longevity and valve durability. ^{123,126–130}
1	A	3. For symptomatic patients with severe AS who are >80 years of age or for younger patients with a life expectancy <10 years and no anatomic contraindication to transfemoral TAVI, transfemoral TAVI is recommended in preference to SAVR. ^{123,126–132}

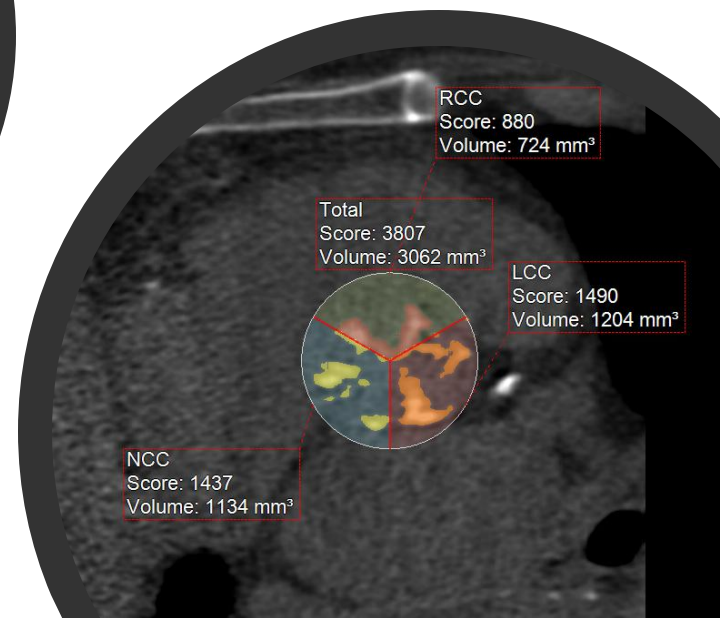
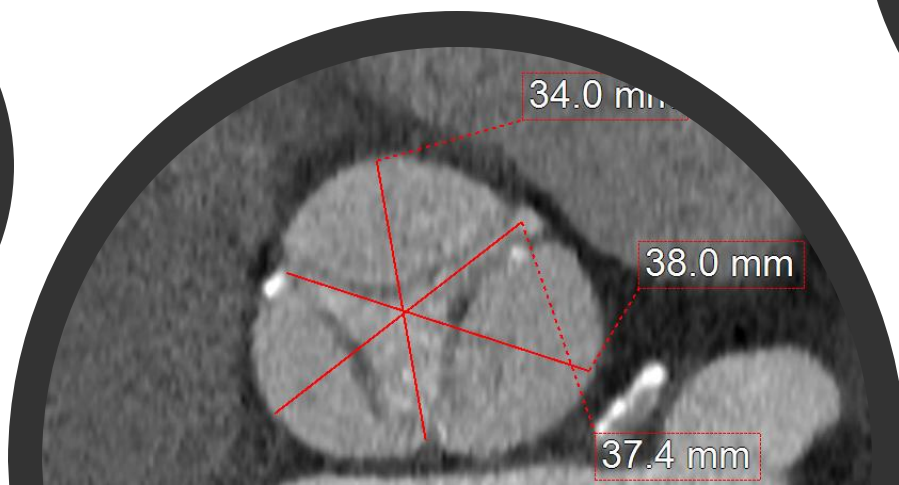
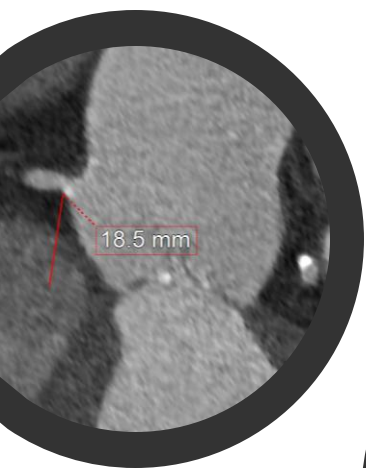
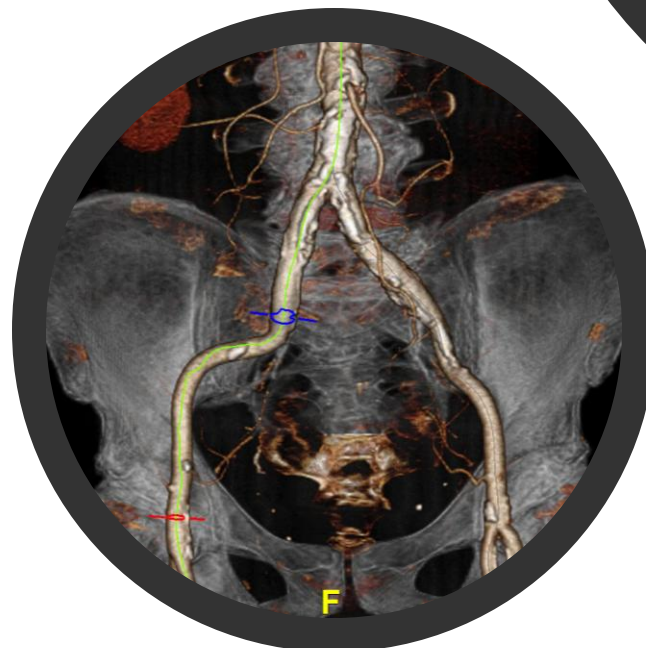
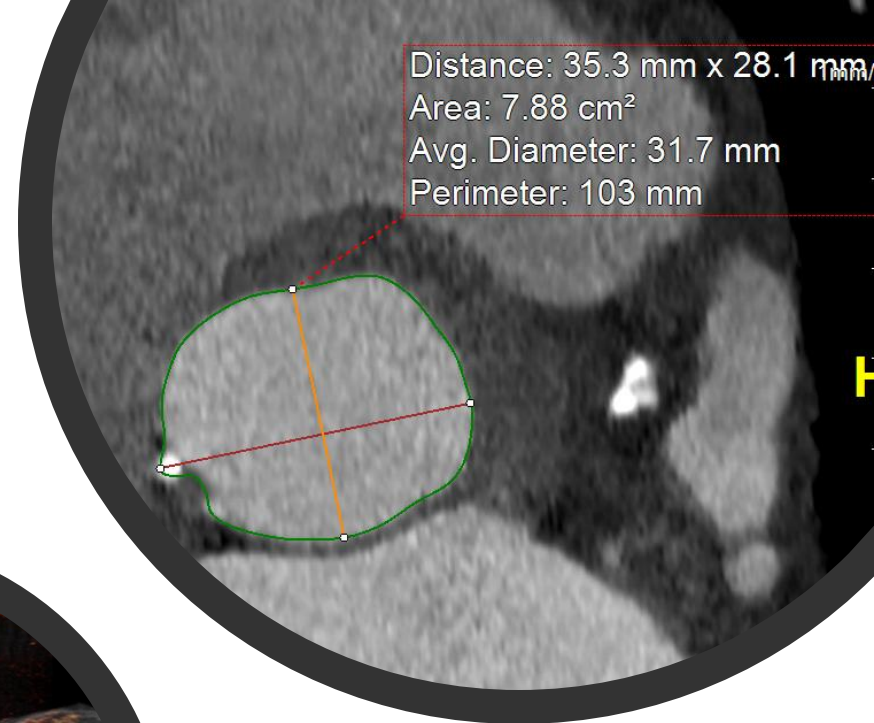
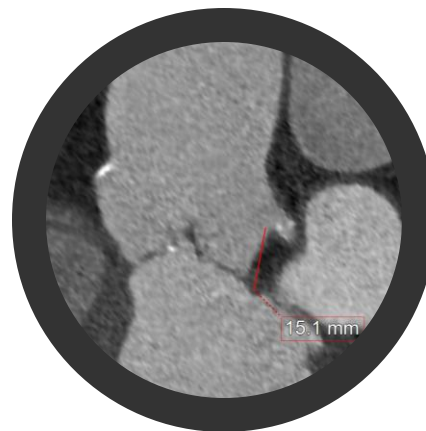
Pre Procedural Planning

- R/LHC +/- BAV
 - Syncope, Critical AS, ADHF
- Proximal Vessel Screening on CT
- +/- TEE
- TAVR CTA



Pre Procedural Planning

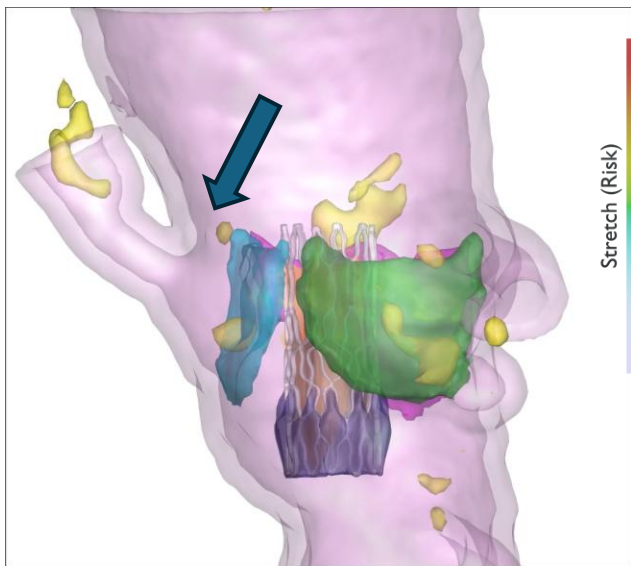
- TAVR CTA
 - 4D Imaging of the Heart
 - Vascular Imaging (Abdomen/Pelvis +/- Carotids)
- AV Calcium Score
- Valve Morphology, SOV measurements
- Annular Measurement + Anatomy
- Coronary Heights



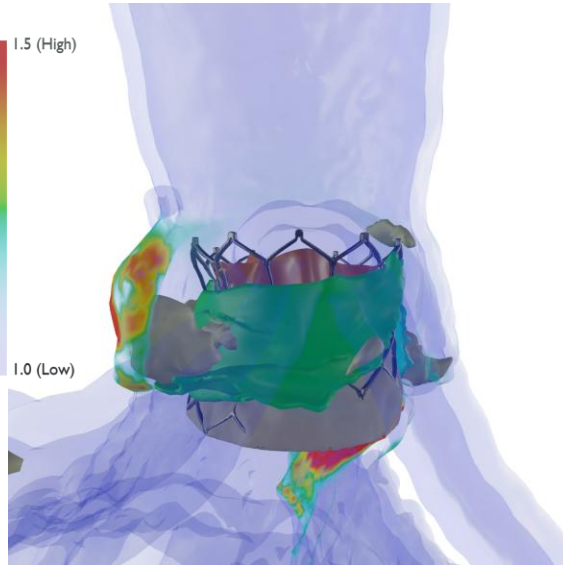
AI-Based Simulation



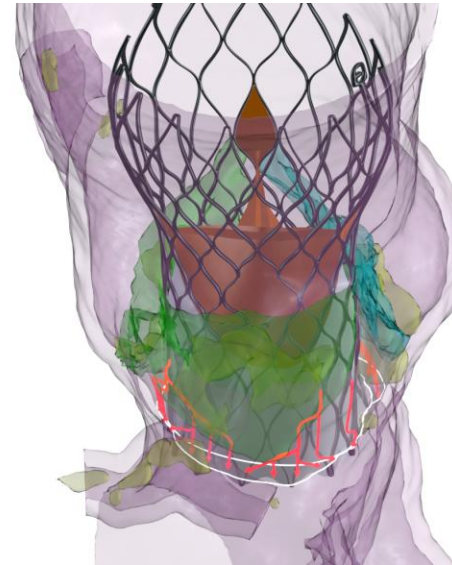
Predictive modeling optimizes deployment parameters and procedural modifications



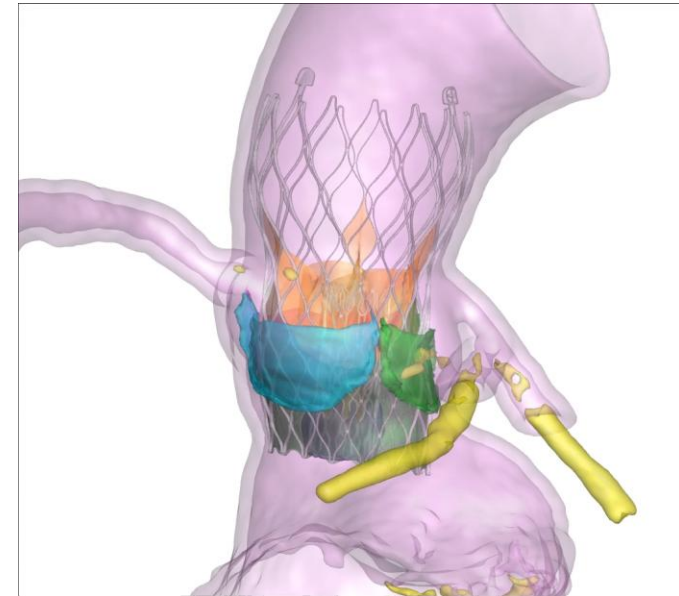
Coronary Analysis



Stretch Analysis



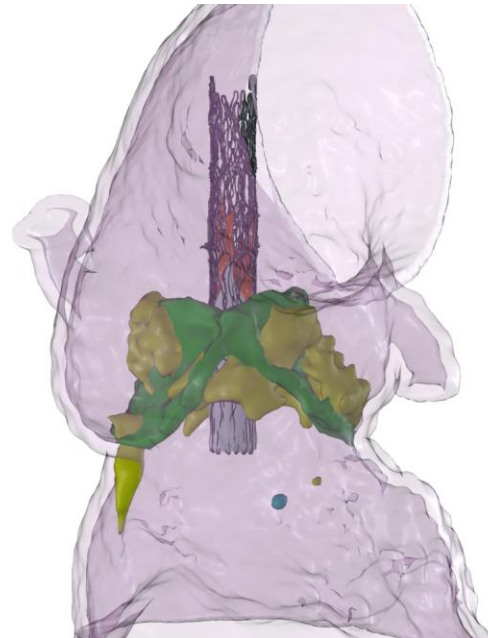
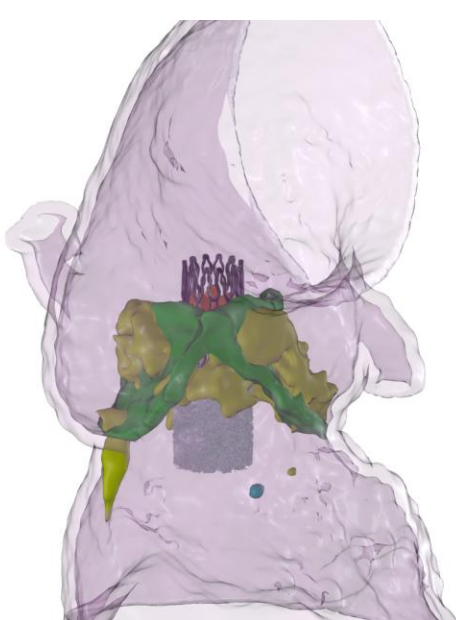
THV Apposition



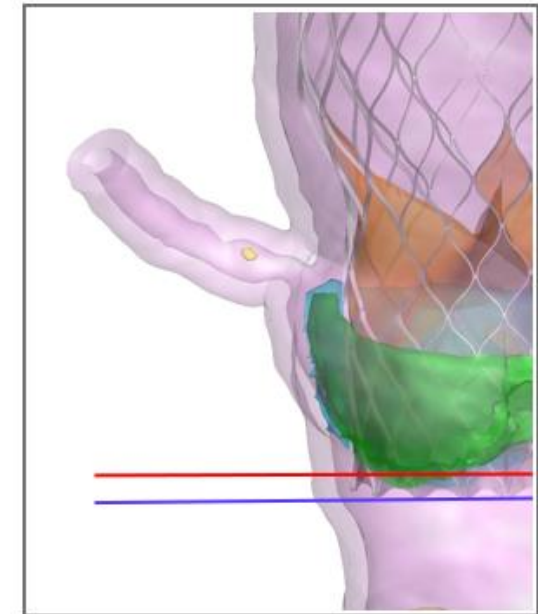
Lifetime Management

Case Summary

Valve	% Oversizing [2]	Coronary Analysis [3,4]	Stent Apposition	Stretch Analysis [5]
BE 29	-2.0% undersized	LCA DLC/d = 1.8 RCA DLC/d = 1.3	Largest gap = 0.8 mm	Max Stretch 1.4
SE 34	16.6% oversized	LCA DLC/d = 2.3 RCA DLC/d = 2.8	Largest gap = 2.8 mm	N/A



— Annulus
— HIS Bundle



Right-Non Cusp Overlap View

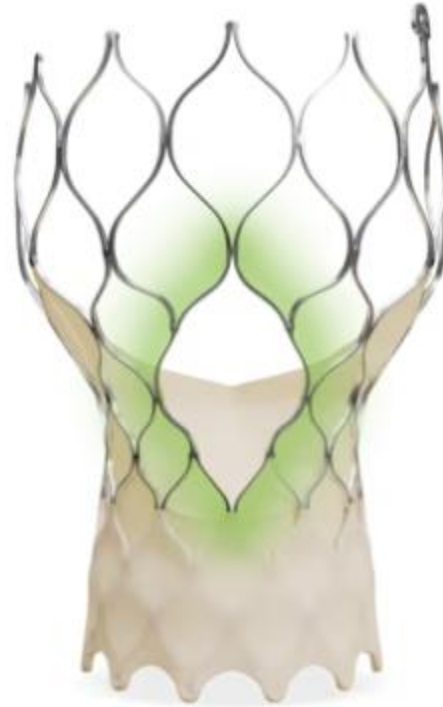
AI Based Simulation

- Coronary Obstruction
- Coronary Re-access/Commissural Alignment
- Hemodynamics (Patient Prosthesis Mismatch)
- Annular Rupture Risk
- Pacemaker Risk
- Paravalvular Leak Risk

FDA Approved Valve Platforms



Sapien S3 Ultra Resilia



Medtronic Evolut Pro +



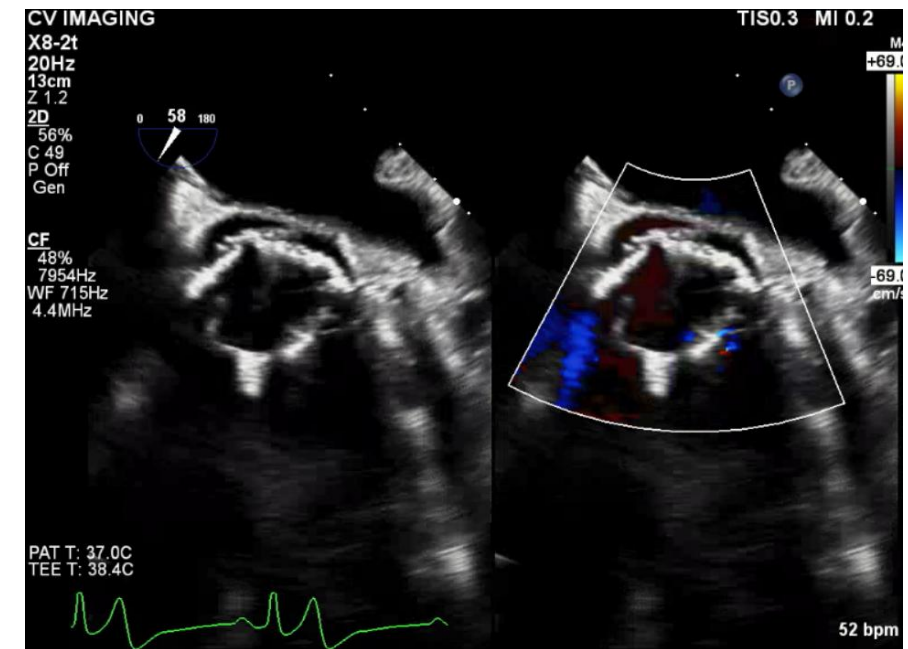
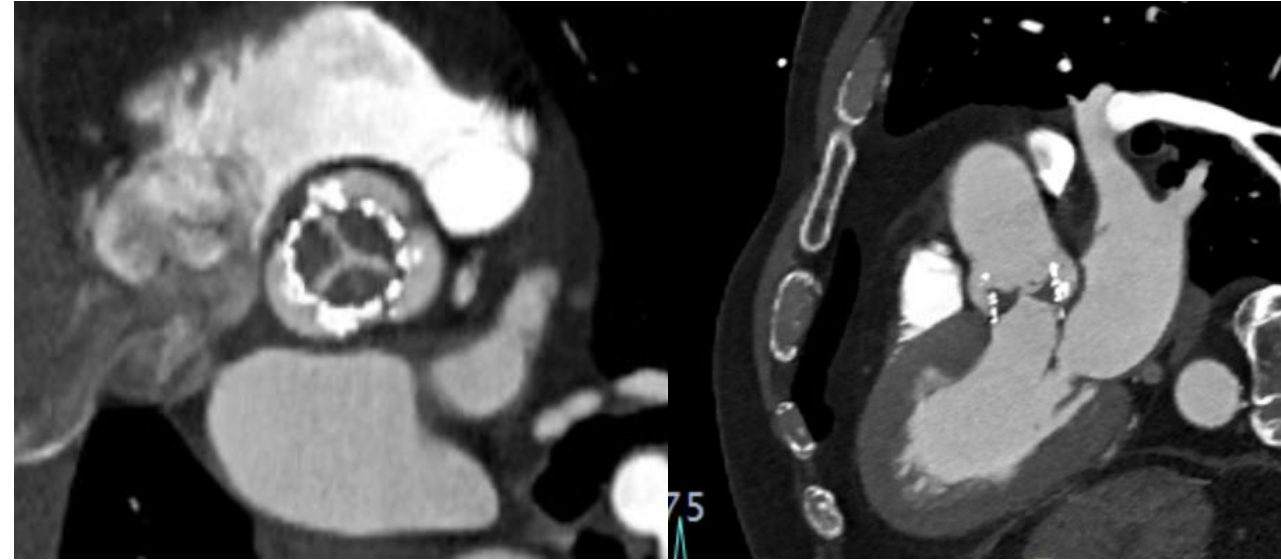
Abbott Navitor

Post Procedural Assessment

- Rhythm Monitoring
 - Pacemaker Requirement
- Echocardiographic Assessment
 - Gradients, PVL, EOAs (heavily error prone)
- Post Procedure Medical Management
 - **Antiplatelets**
 - **SAPT:**
 - **Plavix 75mg daily 6mo → ASA 81mg indefinitely (our center)**
 - **ASA 81mg daily**
 - **If indication for OAC, then OAC monotherapy**
 - **Antibiotic Prophylaxis prior to dental procedures (avoid dental procedures for 6mo).**
 - **Amoxicillin 2g PO 30-60min prior to procedure**

Red Flags

- Elevated Gradients $>8-10\text{mmHg}$ (from baseline)
 - Patient-Prosthesis Mismatch, PV stenosis, High Flow State, HALT
- Aortic Regurgitation
 - Mechanism: PVL vs Valvular
- CVA
- Persistent Fevers, Chills, Night sweats
 - Prosthetic Valve Endocarditis





Questions?

Jacohen2@sentara.com

