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Heart Summit



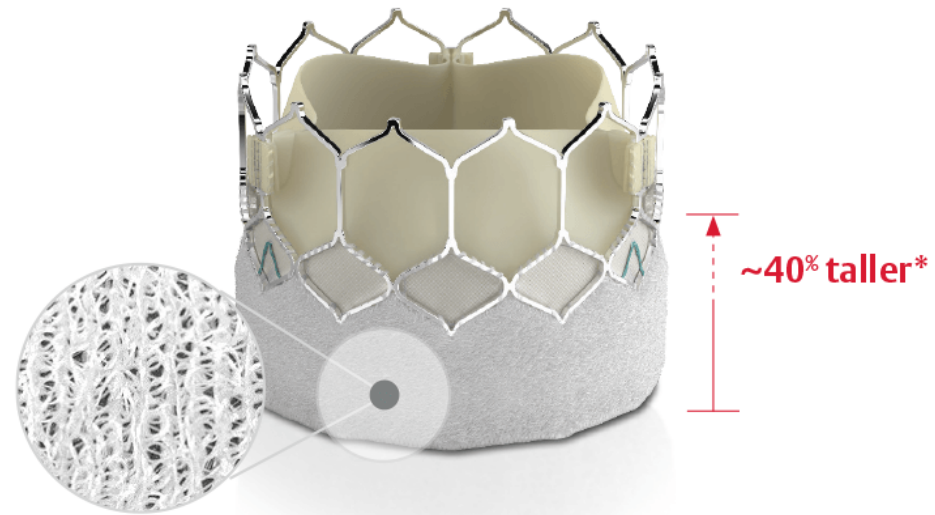
Lifetime Management of a Young Patient With Severe Aortic Stenosis

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Disclosures

1. Proctor for Edwards Lifesciences
2. Speaker for Edwards Lifesciences
3. Research with Edwards and Boston Scientific



Aortic Stenosis

- Etiology

- Calcific degenerative

Degenerative process with proliferative & inflammatory changes, lipid accumulation, up regulation ACE, infiltration with macrophages & T lymphocytes. Bone formation (vascular calcification)

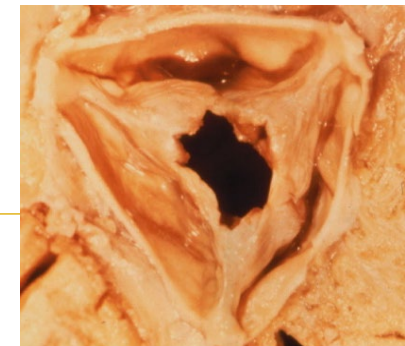
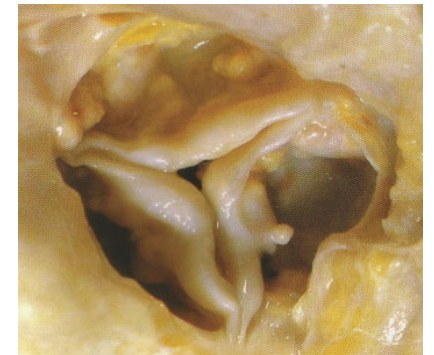
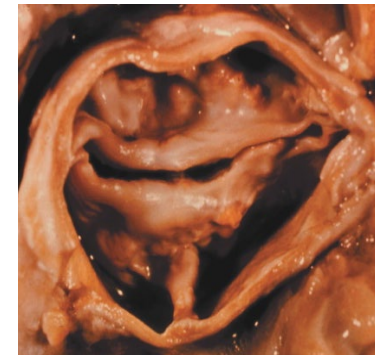
- Congenital - Bicuspid

Turbulent flow - traumatizes leaflet
fibrosis, rigidity, calcification & narrowed orifice

- Rheumatic

Adhesion & fusion of commissures & cusps
retraction & stiffening

Calcific nodules both surfaces - small round or triangular opening



Questions

- Age of patient?
- Is the valve bicuspid (aortic size) or tricuspid?
 - Do they need concomitant procedures now or later?
- How long will the patient live?
- How long will the first valve last?
- What is my strategy when they need a second valve?
 - Do we have the option for TAV in TAV?
- Patient preference- counts but is not absolute



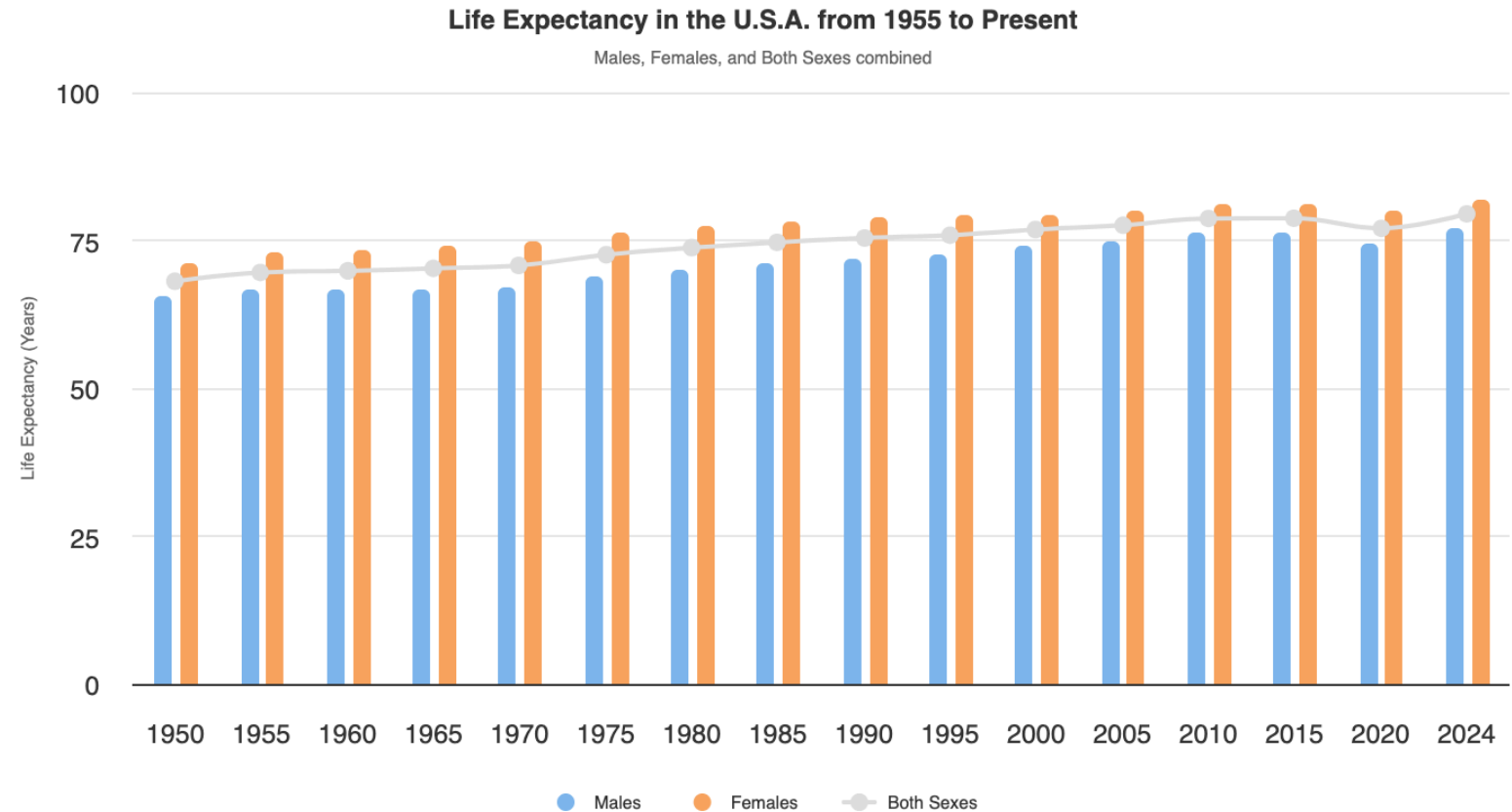
Recommendations for Choice of Mechanical Versus Bioprosthetic AVR
Referenced studies that support the recommendations are summarized in Online Data Supplements 11 and 12.

COR	LOE	Recommendations
1	C-EO	1. In patients with an indication for AVR, the choice of prosthetic valve should be based on a shared decision-making process that accounts for the patient's values and preferences and includes discussion of the indications for and risks of anticoagulant therapy and the potential need for and risks associated with valve reintervention.
1	C-EO	2. For patients of any age requiring AVR for whom VKA anticoagulant therapy is contraindicated, cannot be managed appropriately, or is not desired, a bioprosthetic AVR is recommended.
2a	B-R	3. For patients <50 years of age who do not have a contraindication to anticoagulation and require AVR, it is reasonable to choose a mechanical aortic prosthesis over a bioprosthetic valve. ¹
2a	B-NR	4. For patients 50 to 65 years of age who require AVR and who do not have a contraindication to anticoagulation, it is reasonable to individualize the choice of either a mechanical or bioprosthetic AVR with consideration of individual patient factors and after informed shared decision-making. ¹⁻¹⁰
2a	B-R	5. In patients >65 years of age who require AVR, it is reasonable to choose a bioprosthesis over a mechanical valve. ¹
2b	B-NR	6. In patients <50 years of age who prefer a bioprosthetic AVR and have appropriate anatomy, replacement of the aortic valve by a pulmonic autograft (the Ross procedure) may be considered at a Comprehensive Valve Center. ¹¹⁻¹³

SAVR	TAVI
Technical or anatomic	
Prior mediastinal radiation	Aorto-iliac occlusive disease precluding transfemoral approach
Ascending aortic calcification (porcelain aorta may be prohibitive)	Aortic arch atherosclerosis (protuberant lesions) Severe MR or TR Low-lying coronary arteries Basal septal hypertrophy Valve morphology (eg, bicuspid or unicuspid valve) Extensive LV outflow tract calcification
Comorbidities	
Severe COPD or home oxygen therapy Pulmonary hypertension Severe RV dysfunction Hepatic dysfunction Frailty*	Severe COPD or home oxygen therapy Pulmonary hypertension Severe RV dysfunction Hepatic dysfunction Frailty*
Futility	
STS score >15 Life expectancy <1 y Poor candidate for rehabilitation	STS score >15 Life expectancy <1 y Poor candidate for rehabilitation

How long with THIS patient live (USA)

- **Women**
 - 60- 25 years
 - 70- 17 years
 - 80- 10 years
- **Men**
 - 60- 22 years
 - 70- 14 years
 - 80- 8 years





The NOTION trial

Ten-year follow-up after transcatheter or surgical aortic valve implantation in severe aortic valve stenosis

Clinical outcomes and aortic bioprosthetic durability

Troels Højsgaard Jørgensen, MD, PhD
Rigshospitalet, Copenhagen University Hospital, Denmark

On behalf of the NOTION investigators

28/08/2023

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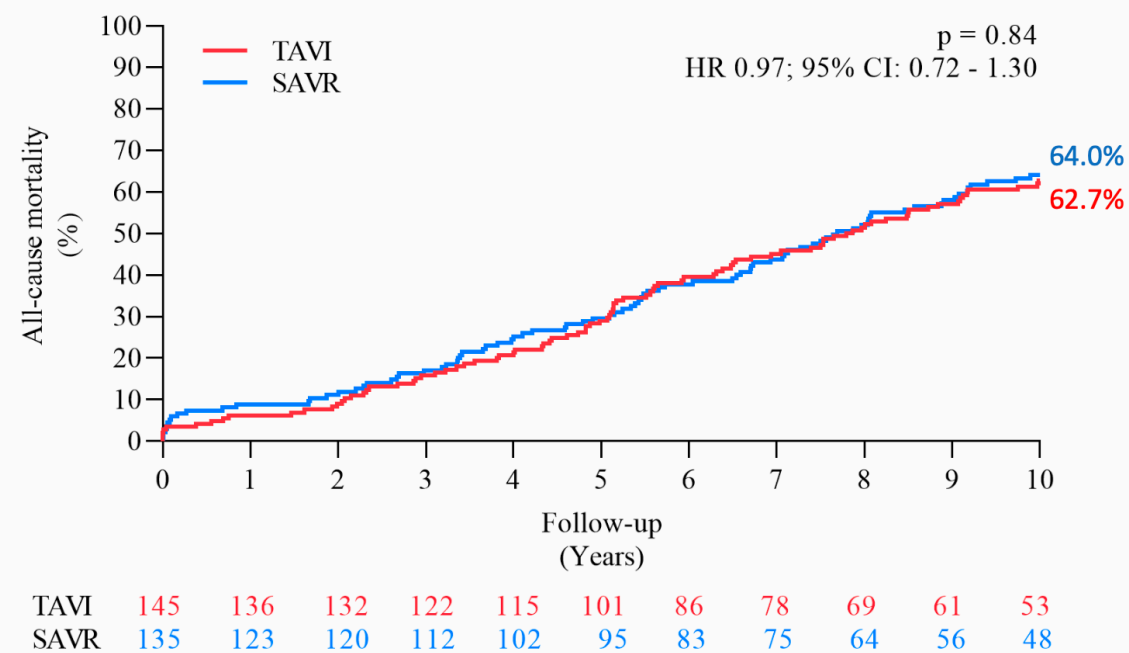
NOTION trial

Objective:	To compare TAVI vs. SAVR in lower risk patients ≥ 70 years eligible for surgery (all-comers population)
Primary outcome:	Composite rate of all-cause mortality, stroke or myocardial infarction at 1 year (VARC II-defined)
Design:	Prospective, multi-centre, non-blinded, randomised
Enrollment period:	December 2009 - April 2013
Treatment	TAVI with self-expanding CoreValve SAVR with any bioprosthesis





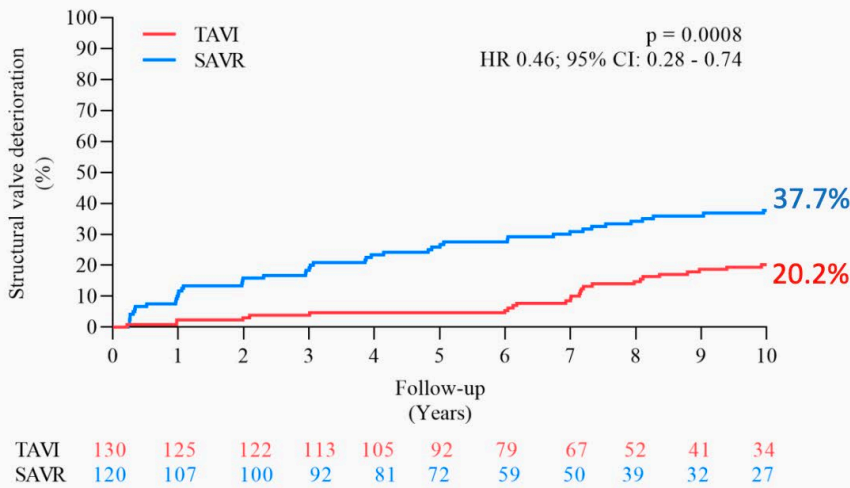
All-cause mortality



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Structural Valve Deterioration (SVD)



	TAVI (n = 130)	SAVR (n = 120)	p-value
Structural valve deterioration	20.2	37.7	0.0008
Moderate structural valve deterioration	19.4	36.0	0.0012
- Mean gradient 20 - 40 mmHg	14.3	34.0	<0.0001
- Mean gradient 10 - 20 mmHg from 3 months	13.3	18.5	0.21
- Moderate intraprosthentic AR	4.5	0	0.018
Severe structural valve deterioration	3.1	11.0	0.014
- Mean gradient ≥40mmHg	0.8	5.7	0.024
- Mean gradient ≥20mmHg from 3 months	2.3	10.9	0.006
- Severe intraprosthentic AR	0	0	-



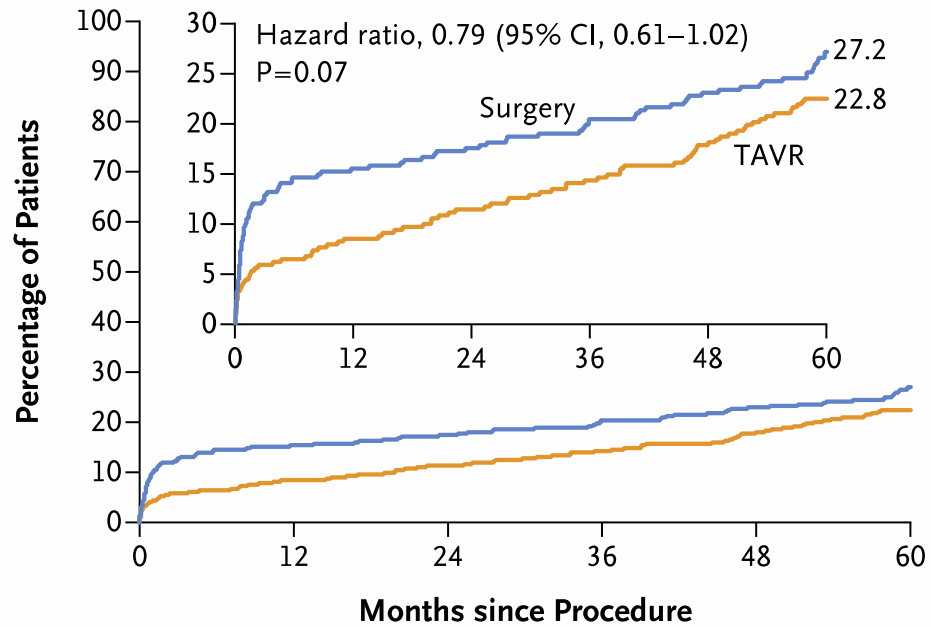
ORIGINAL ARTICLE

Transcatheter Aortic-Valve Replacement in Low-Risk Patients at Five Years

M.J. Mack, M.B. Leon, V.H. Thourani, P. Pibarot, R.T. Hahn,
P. Genereux, S.K. Kodali, S.R. Kapadia, D.J. Cohen, S.J. Pocock, M. Lu,
R. White, M. Szerlip, J. Ternacle, S.C. Malaisrie, H.C. Herrmann, W.Y. Szeto,
M.J. Russo, V. Babaliaros, C.R. Smith, P. Blanke, J.G. Webb, and R. Makkar,
for the PARTNER 3 Investigators*



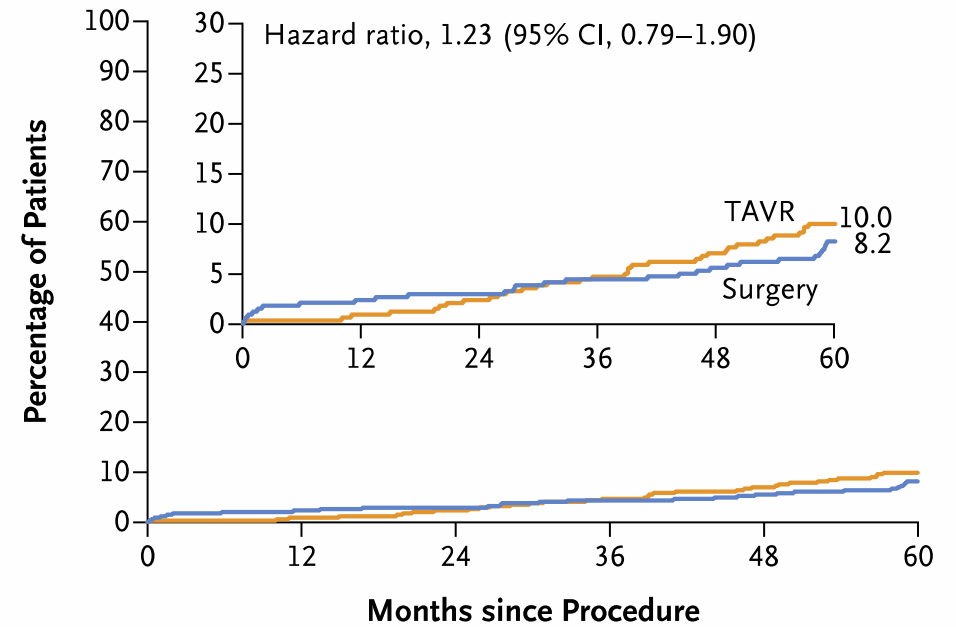
A Death from Any Cause, Stroke, or Rehospitalization



No. at Risk

Surgery	454	372	349	328	309	276
TAVR	496	453	434	415	391	353

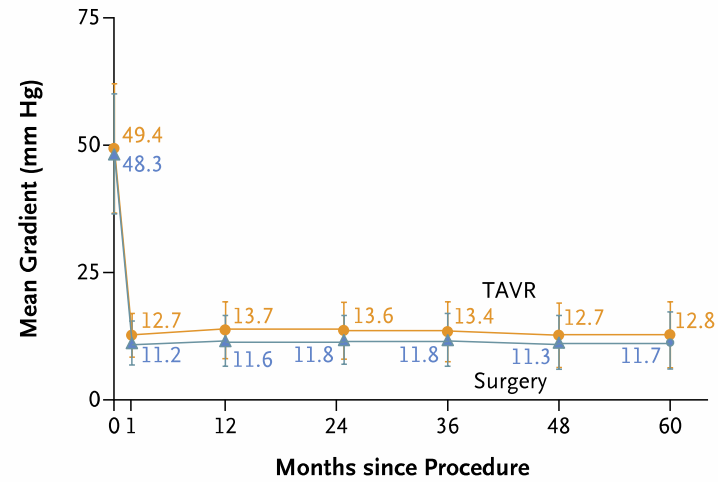
B Death from Any Cause



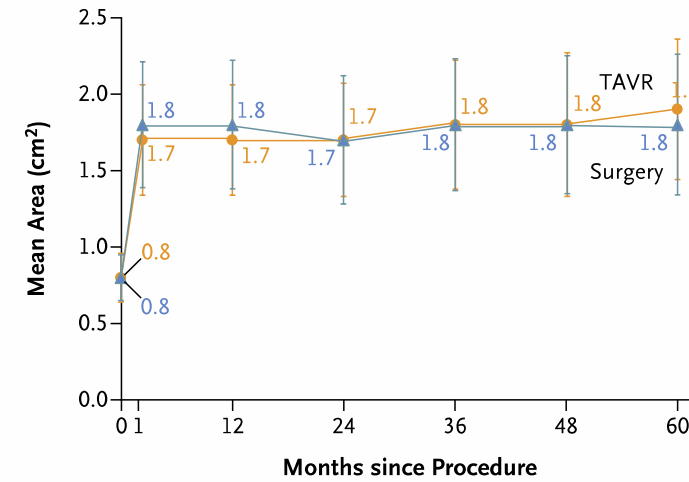
No. at Risk

Surgery	454	427	409	394	379	346
TAVR	496	490	478	460	438	405

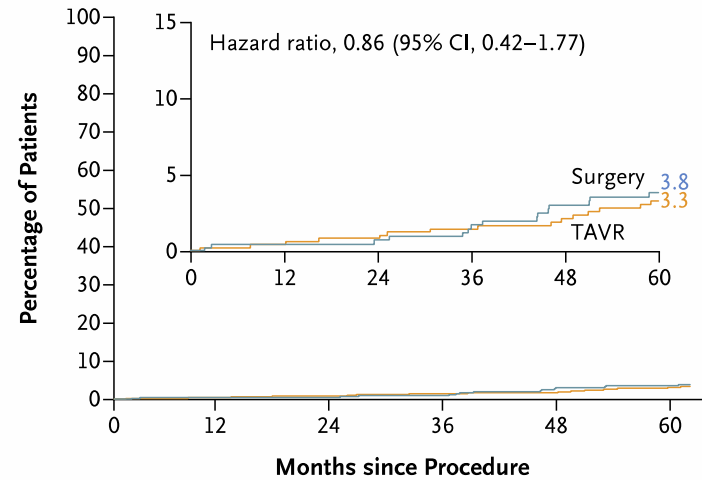


A Aortic-Valve Gradient**No. at Risk**

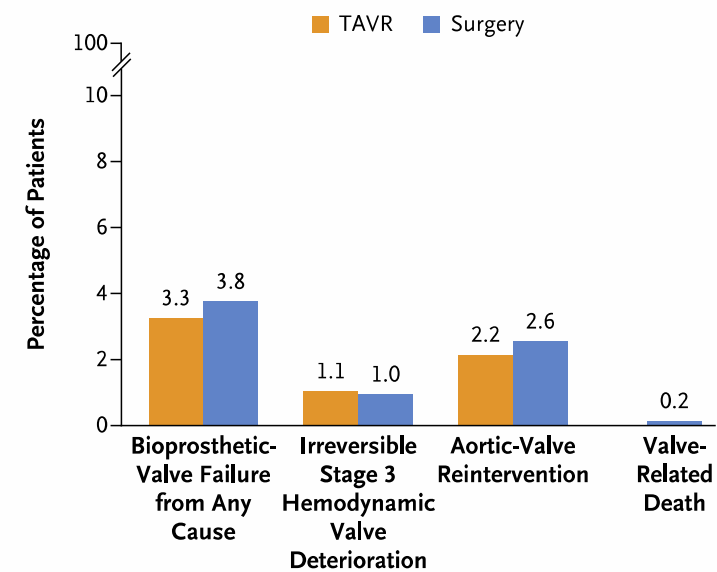
TAVR	483	492	474	437	372	348	329
Surgery	442	432	391	360	304	305	282

B Aortic-Valve Area**No. at Risk**

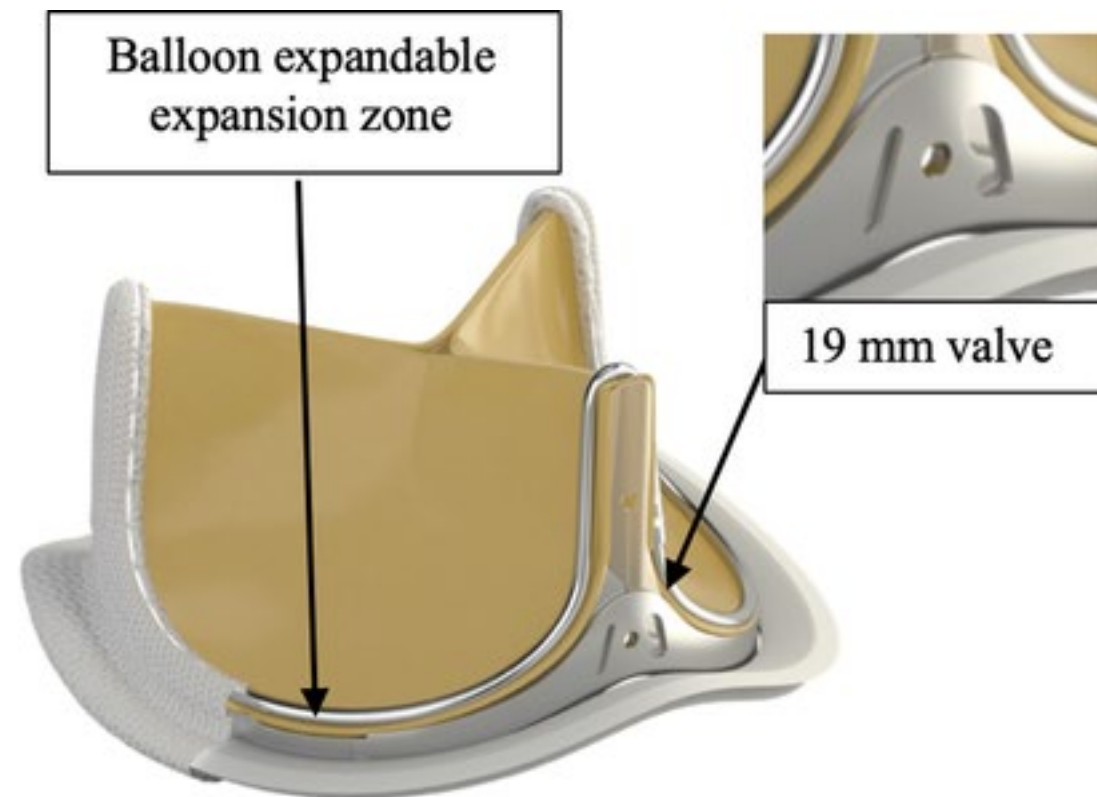
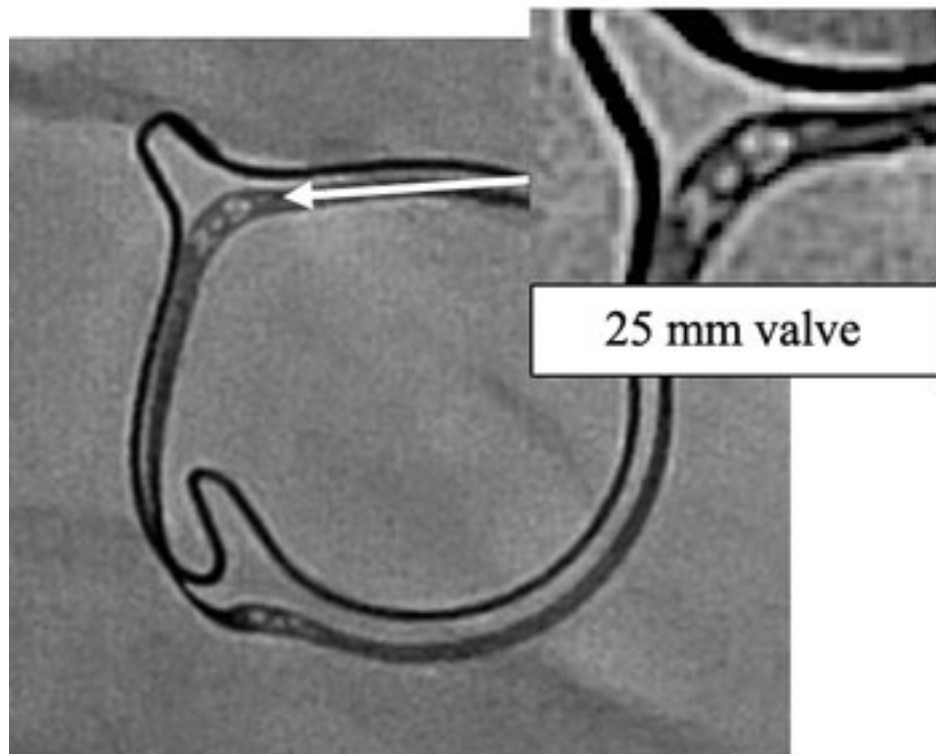
TAVR	458	482	450	416	347	334	320
Surgery	424	415	371	342	289	295	275

C Bioprosthetic-Valve Failure**No. at Risk**

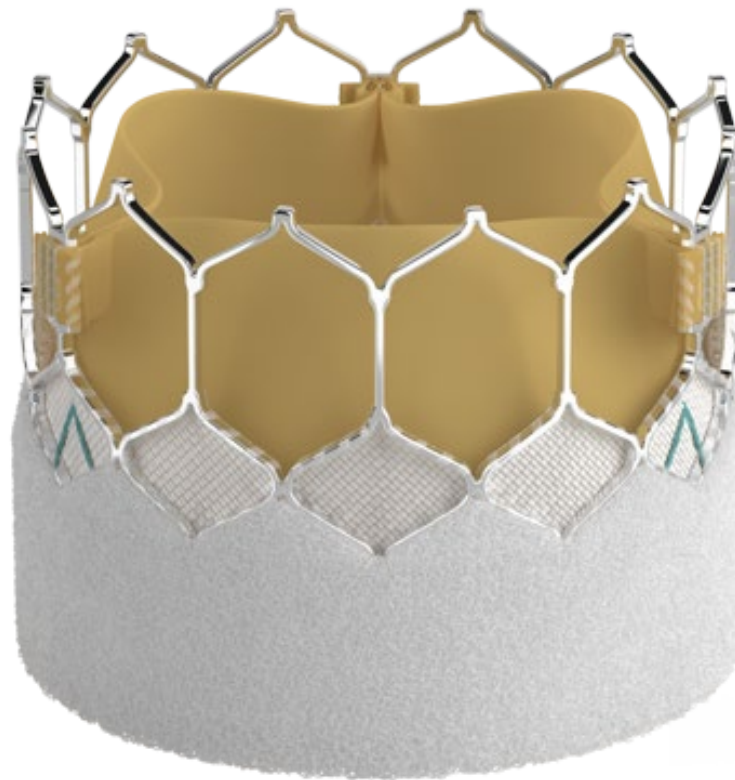
TAVR	496	489	475	454	430	392
Surgery	454	426	407	390	369	334

D Bioprosthetic-Valve Failure and Components at 5 Yr

Lifetime Management- Inspiris

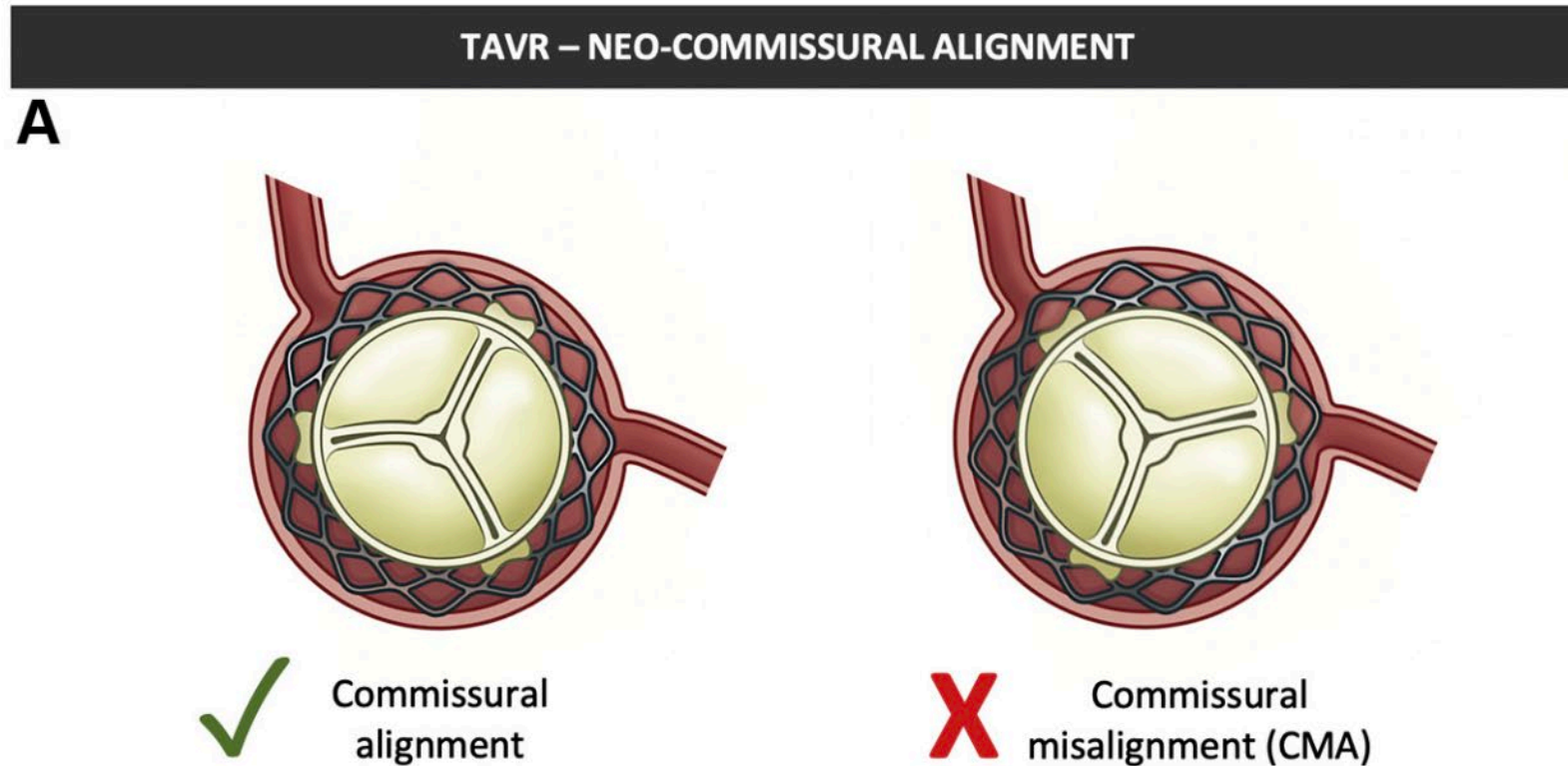


Lifetime Management



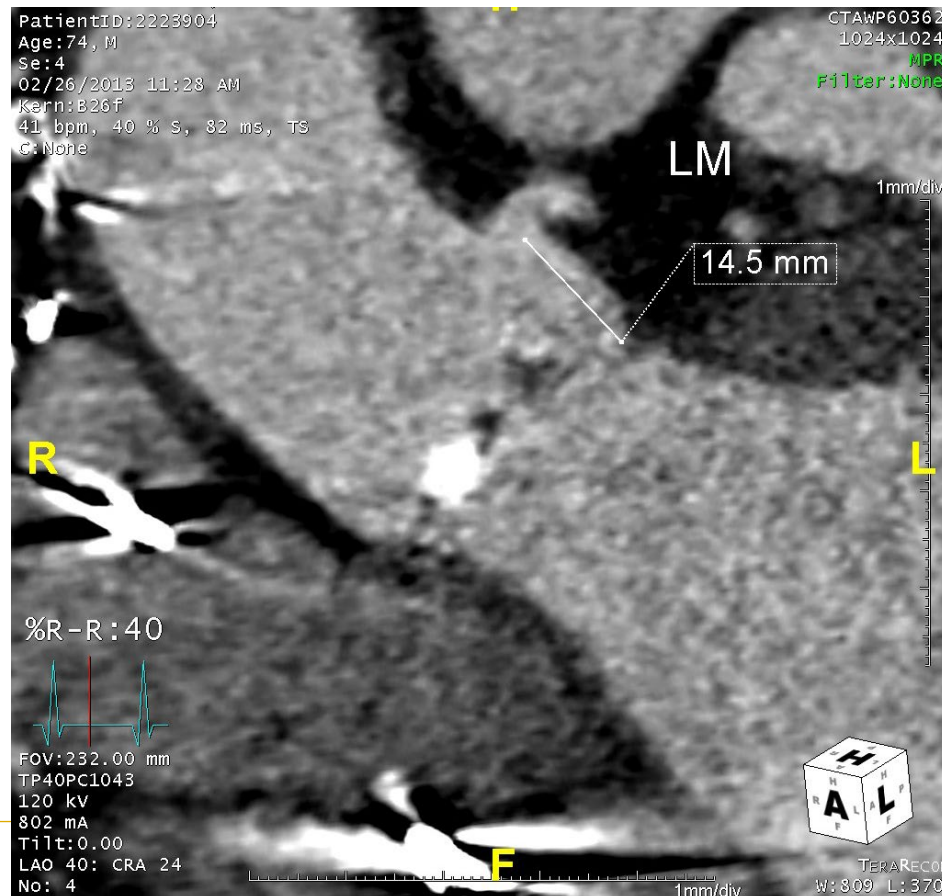
Commissural Alignment

FIGURE 1 Neo-Commissural Alignment in TAVR

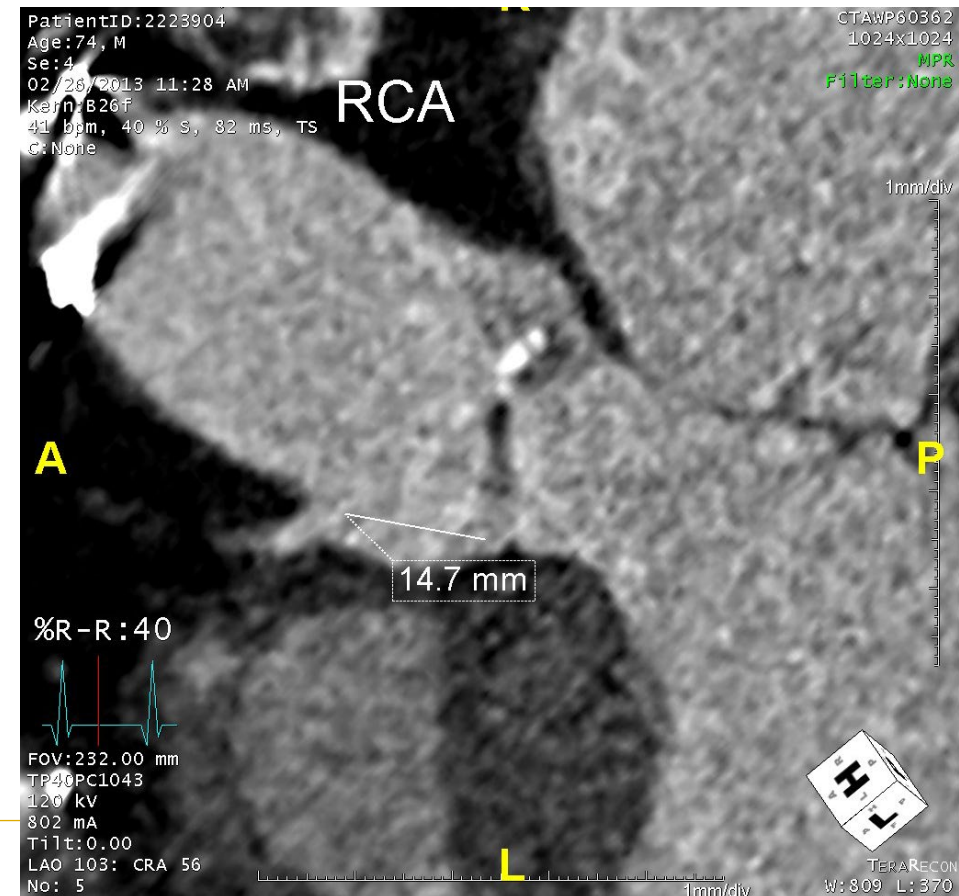


Cardiac CT – Coronary Ostia

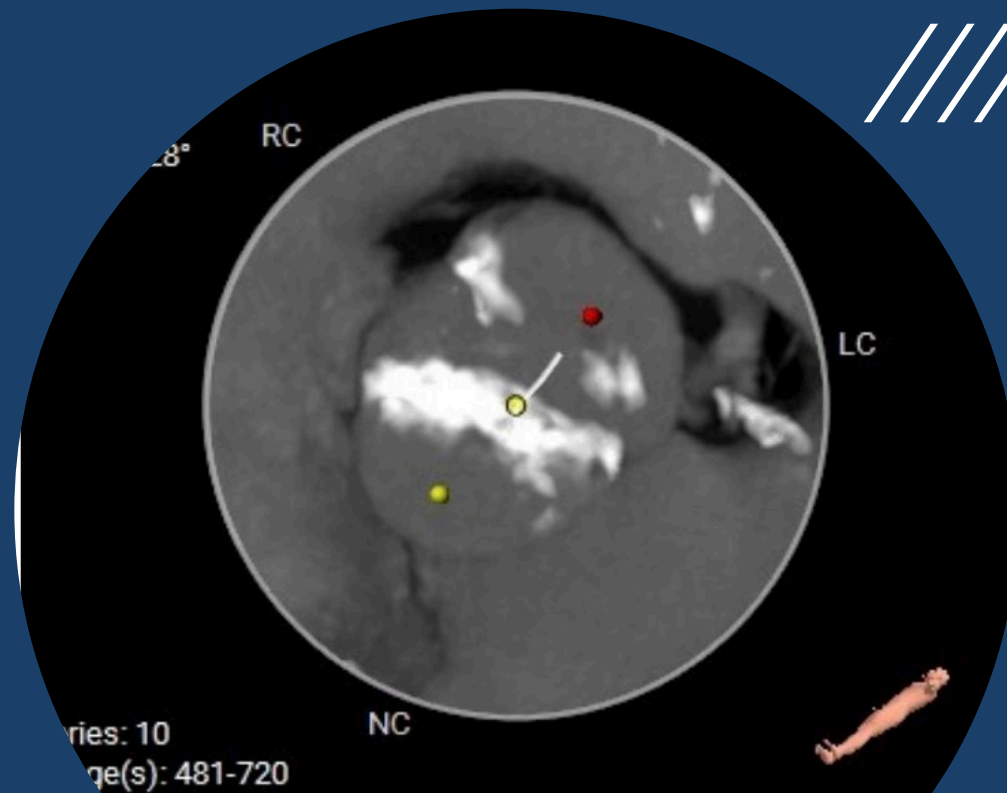
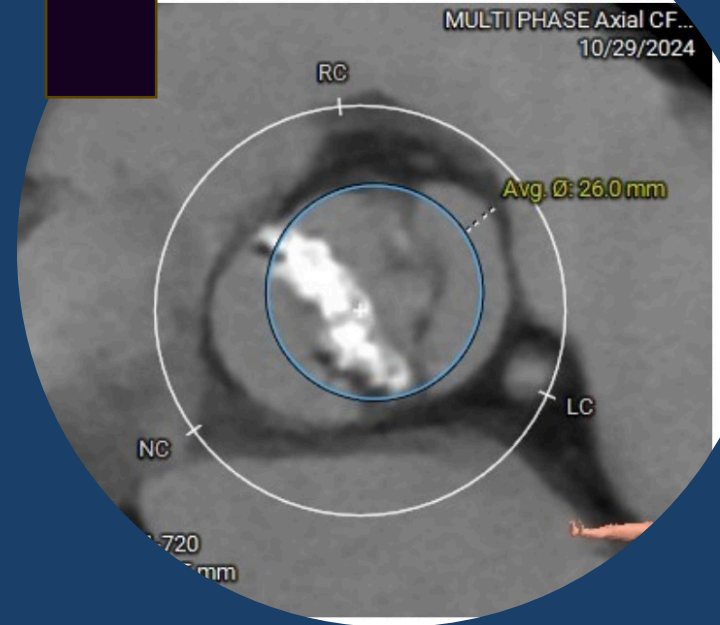
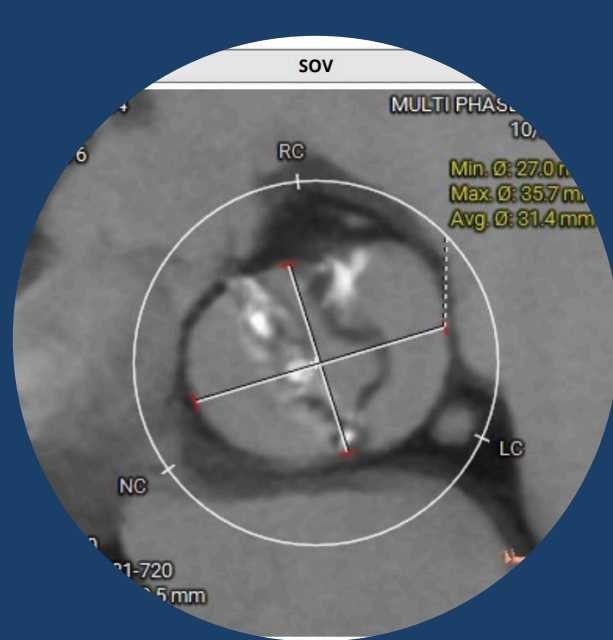
Annulus to LM – 14.5 mm



Annulus to RCA – 14.7 mm



45-year-old- Bicuspid



23mm THV @80/20

HEART SYST 35%
10/1/2024
35.0%

Series: 5
Image(s): 1-229
Slice Spacing: 0.6 mm

LAO: 98°
Caudal: 39°

RC

LC

NC

Series: 5
Image(s): 1-229

HEART SYST 35%
10/1/2024
35.0%

RC

Ø 29.9 mm

Ø 30.5 mm

Ø 29.9 mm

NC

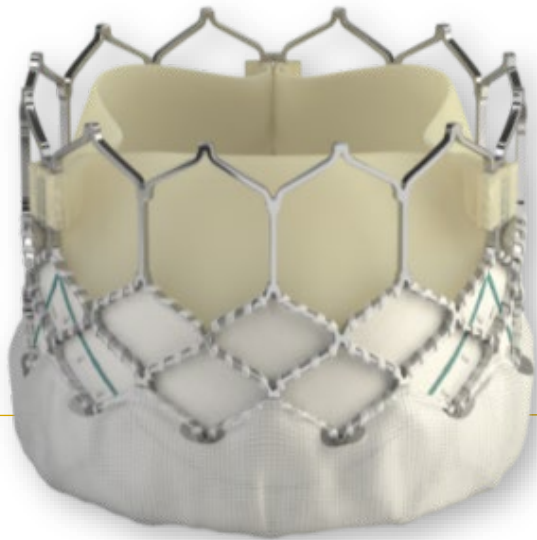
LC

Series: 5
Image(s): 1-229

Transcatheter Aortic Valve Replacement

TAVR

- T- eam
- A- pproach to
- V- alve
- R- eplacement



Team

- Administration
- Cardiology
- CT Surgery
- Anesthesia
- Nurses- Cath lab/OR/CCU
- Cath Lab Techs
- Perfusionists
- Echo staff
- Ancillary support



Thanks

