The Role of TAVI in Current Era.

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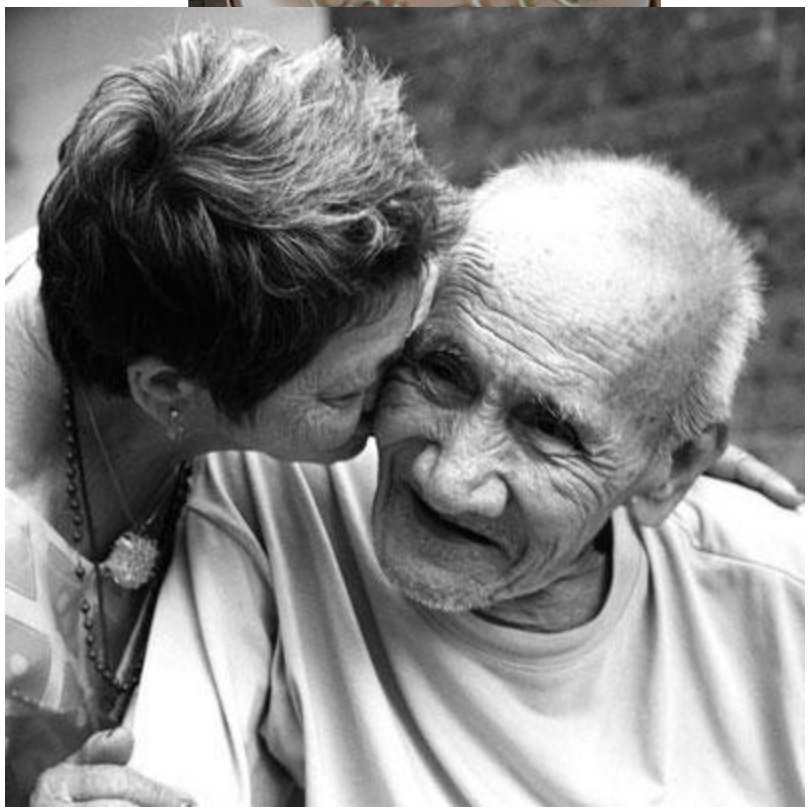
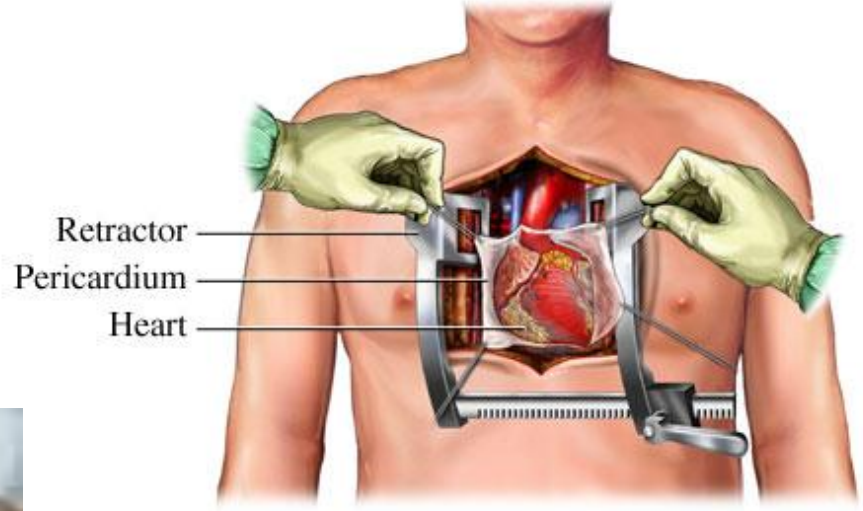
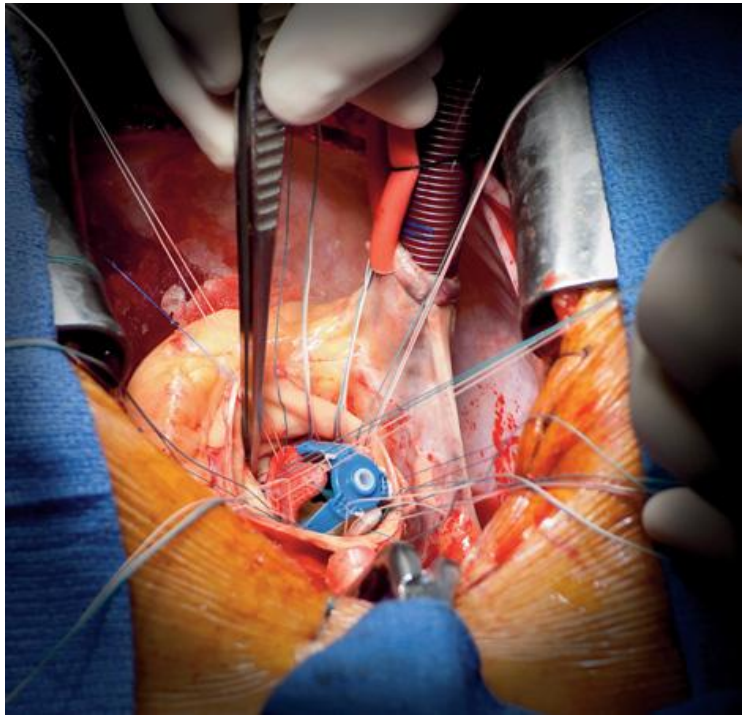
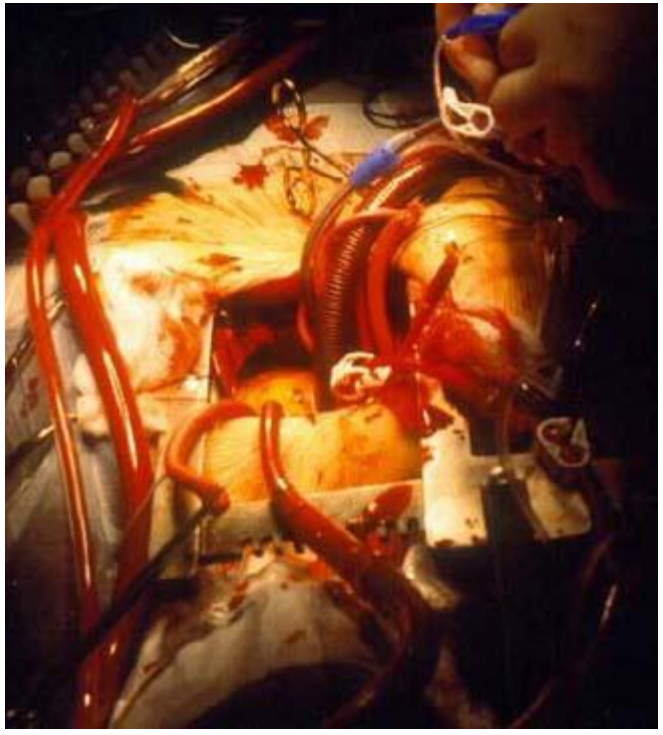
Korea University Anam Hospital
Division of Cardiology

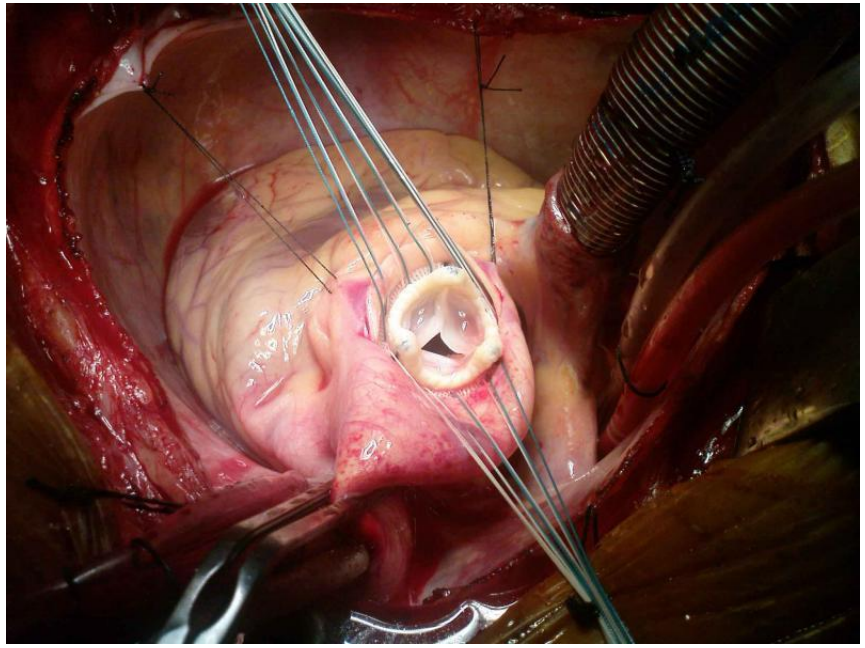

100



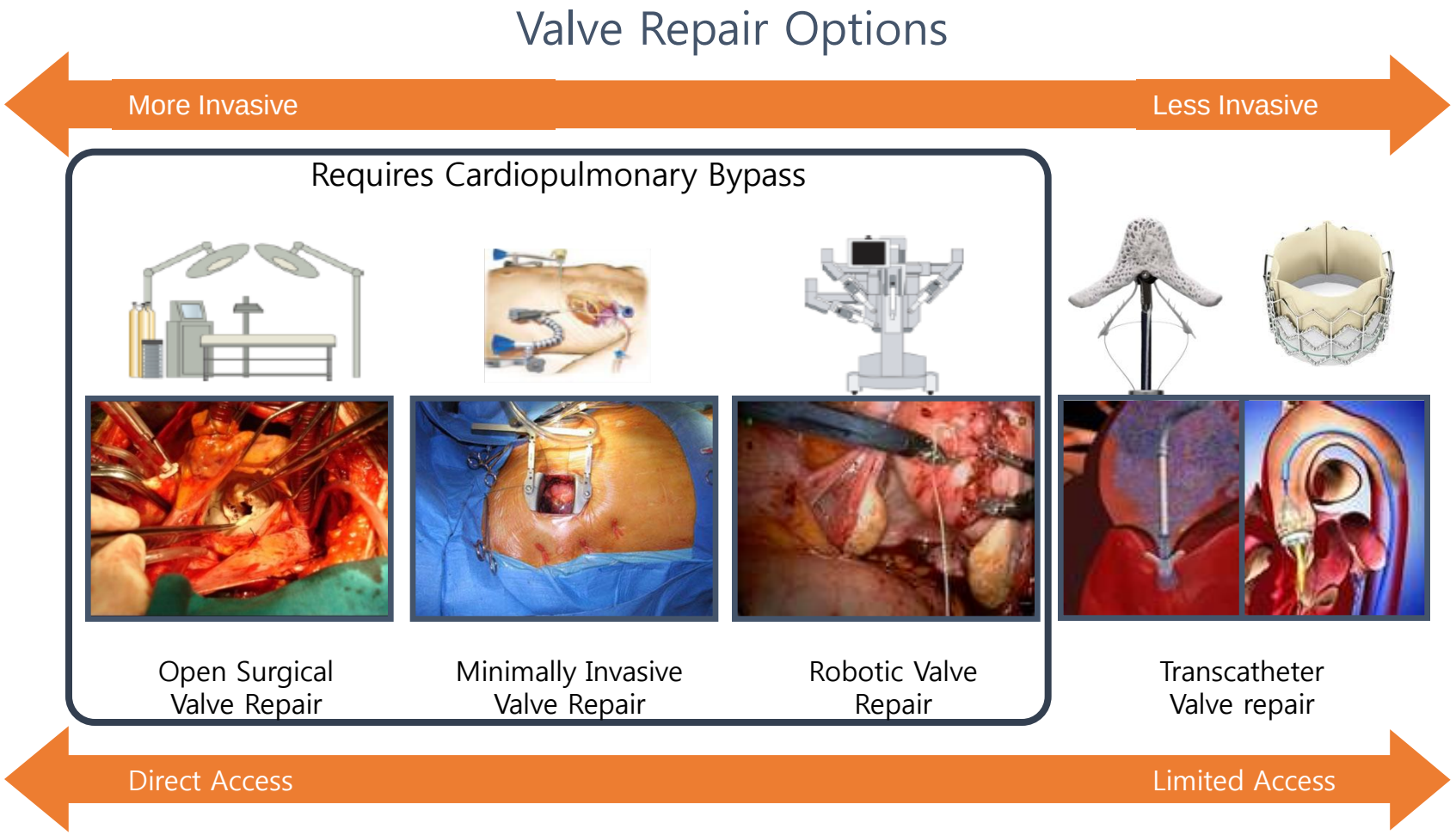

Retractor
Pericardium
Heart







From invasive to non invasive is a general trend



Current Status: *What about guidelines for TAVI?*

- **The Joint Task Force on the Management of Valvular Heart Disease of the European Society of Cardiology and the European Association for Cardio-Thoracic Surgery** defined indications for TAVI in the 2012 Guidelines on the Management of Valvular Heart Disease.

- **The corresponding 2014 U.S. Guidelines** define similar indications

Both recommend

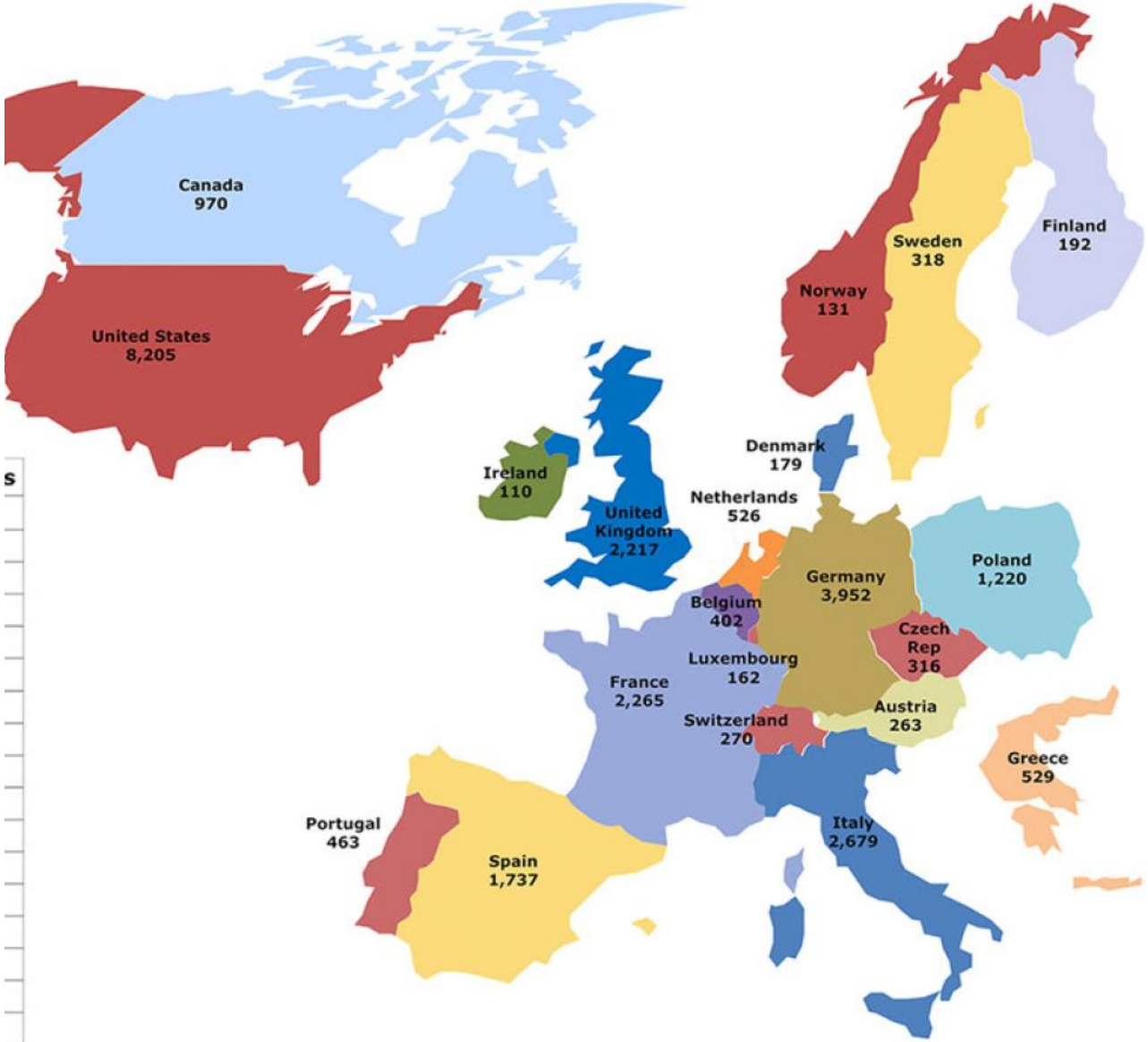
- TAVI in patients with severe symptomatic AS who are not suitable to undergo conventional AVR as assessed by a heart team, if they are likely to gain improvement in their quality of life (QoL) and if they have a life expectancy >1 year given their comorbidities **[Class of Recommendation (COR) I, Level of Evidence (LOE) B].**

- TAVI should also be considered in high-risk patients with severe symptomatic AS who are suitable for surgery but in whom TAVI is favoured by a Heart Team as **a COR IIa LOE B recommendation.**

TABLE 1 Summary of Recommendations for AS: Choice of Surgical or Transcatheter Intervention

	COR	LOE
SAVR is recommended in patients who meet an indication for AVR with low or intermediate surgical risk	I	A
For patients in whom TAVR or high-risk SAVR is being considered, members of a Heart Valve Team should collaborate to provide optimal patient care	I	C
TAVR is recommended in patients who meet an indication for AVR for AS who have a prohibitive surgical risk and a predicted post-TAVR survival >12 months	I	B
TAVR is a reasonable alternative to SAVR in patients who meet an indication for AVR and who have high surgical risk	IIa	B
Percutaneous aortic balloon dilation may be considered as a bridge to SAVR or TAVR in severely symptomatic patients with severe AS	IIb	C
TAVR is not recommended in patients in whom existing comorbidities would preclude the expected benefit from correction of AS	III: No benefit	B

Under these current treatment indications, a significant clinical unmet need still exists worldwide



Annual number of new TAVR candidates	
Country	**Candidates (95%CI)**
Austria	263 (115-152)
Belgium	402 (172-232)
Czech Republic	316 (136-581)
Denmark	179 (78-325)
Finland	192 (82-349)
France	2,265 (990-4,160)
Germany	3,952 (1,684-7,227)
Greece	529 (226-954)
Italy	2,679 (1,145-4,958)
Ireland	110 (46-203)
Luxembourg	15 (6-27)
Norway	131 (55-24)
Poland	1,220 (512-2,226)
Portugal	463 (197-844)
Spain	1,737 (728-3,155)
Sweden	318 (133-582)
Switzerland	270 (115-495)
The Netherlands	526 (224-965)
The United Kingdom	2,217 (896-3,904)
Total 19 European countries	**17,712 (7,590-32,691)***
The United States	8,205 (3,470-15,139)
Canada	970 (408-1,777)
Total North America	**9,189 (3,898-16,682)***

Annual number of elderly patients with severe AS who are potential TAVR candidates in different countries under current treatment indications; from Osnabrugge et al.

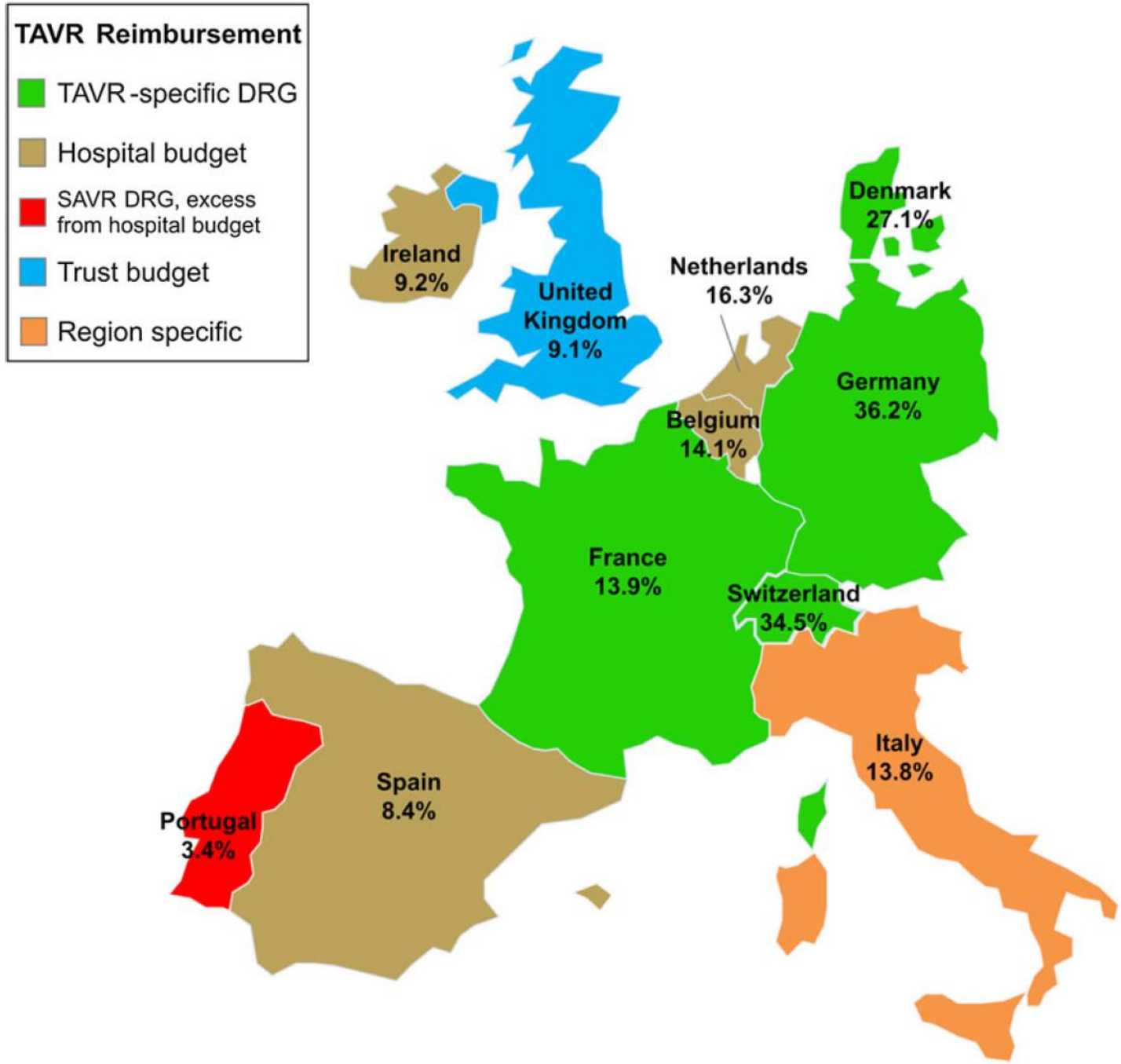
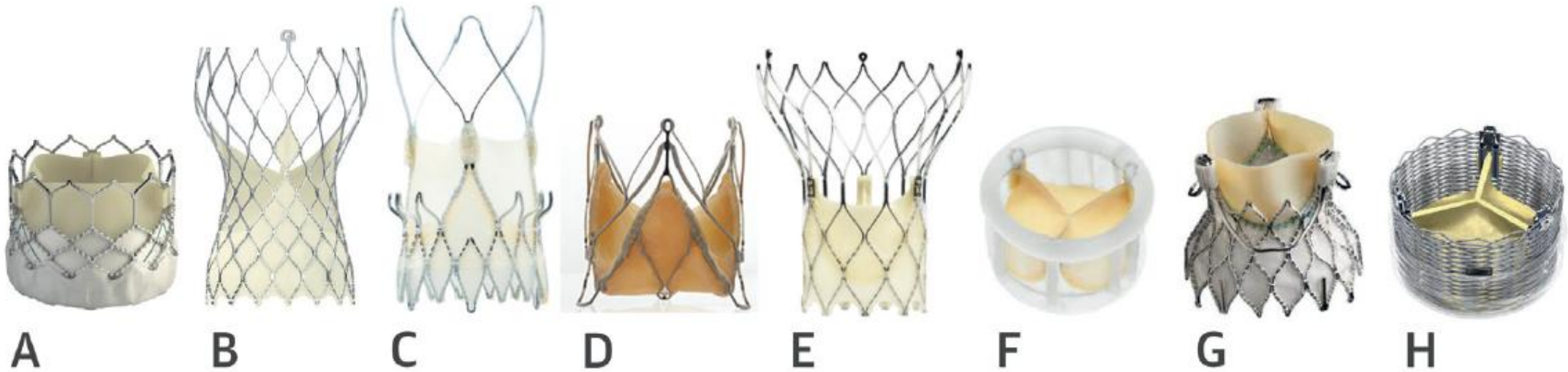
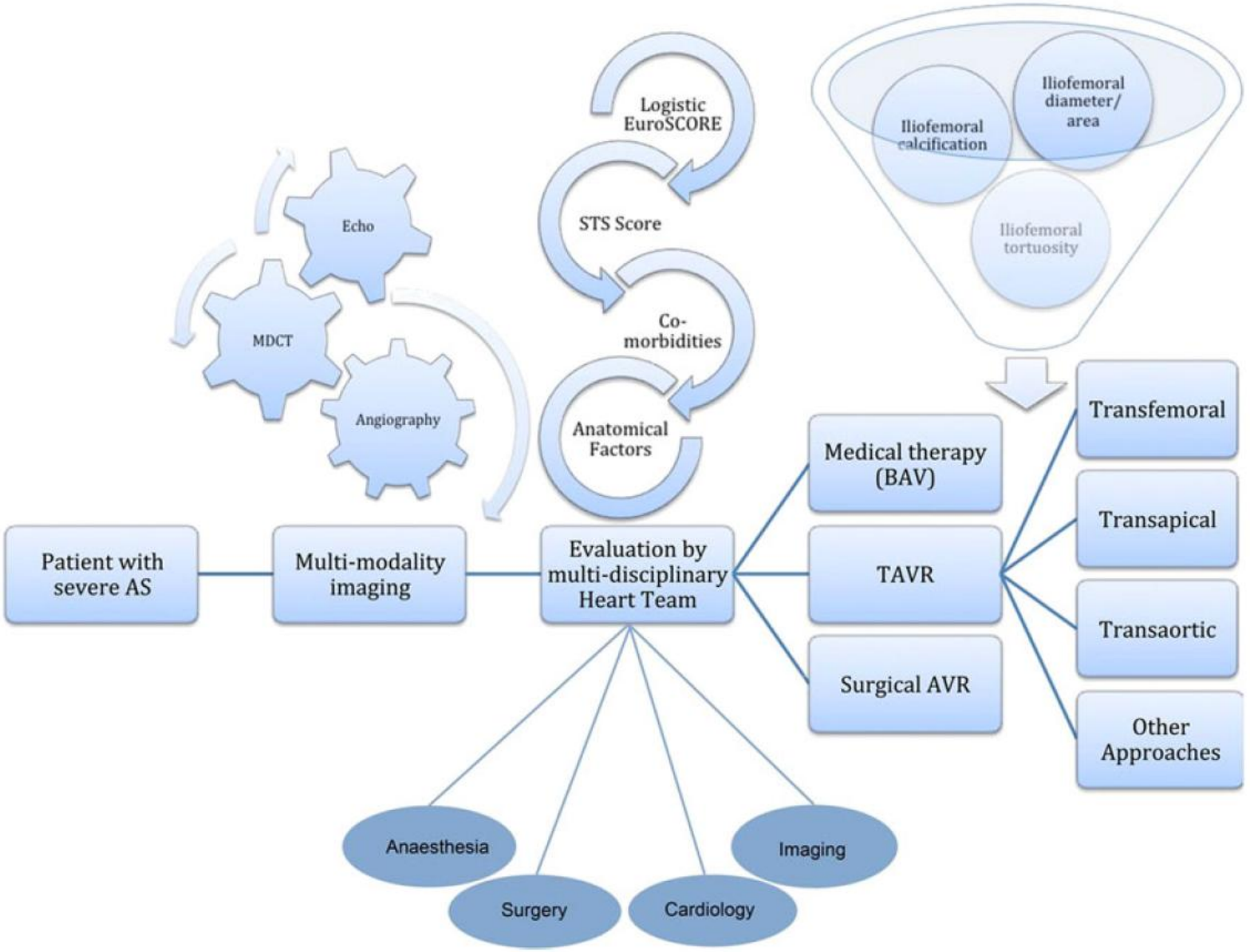

TAVR Reimbursement
TAVR-specific DRG
Hospital budget
SAVR DRG, excess from hospital budget
Trust budget
Region specific
Ireland 9.2%
United Kingdom 9.1%
Netherlands 16.3%
Denmark 27.1%
Germany 36.2%
Belgium 14.1%
France 13.9%
Switzerland 34.5%
Italy 13.8%
Spain 8.4%
Portugal 3.4%

FIGURE 3 **Overview of TAVR Systems**



Currently, 8 transcatheter aortic valve replacement (TAVR) systems are commercially available in Europe **(A–H)**, whereas 2 TAVR systems are approved by the U.S. Food and Drug Administration in the United States **(A, B)**. **(A)** Edwards Lifesciences Sapien 3 Valve (Edwards Lifesciences, Irvine, California); **(B)** Medtronic CoreValve Evolut R (Medtronic, Minneapolis, Minnesota); **(C)** Symetis Acurate *neo* Valve (Symetis, Ecublens VD, Switzerland); **(D)** JenaValve (JVT Research & Development Corporation, Irvine, California); **(E)** St. Jude Medical Portico Valve (St. Jude Medical, St. Paul, Minnesota); **(F)** Direct Flow Medical Valve (Direct Flow Medical, Inc., Santa Rosa, California); **(G)** Medtronic Engager Valve (Medtronic, Minneapolis, Minnesota); and **(H)** Boston Scientific Lotus Valve (Boston Scientific, Marlborough, Massachusetts).



Optimal patient selection is best accomplished by a Heart Team, who must consider all of the patient's comorbidities (COR 1, LOE C)

Transcatheter Aortic Valve-In-Valve Implantation for Severe Bioprosthetic Stenosis after Bentall Operation Using a Homograft in a Patient with Behçet's Disease

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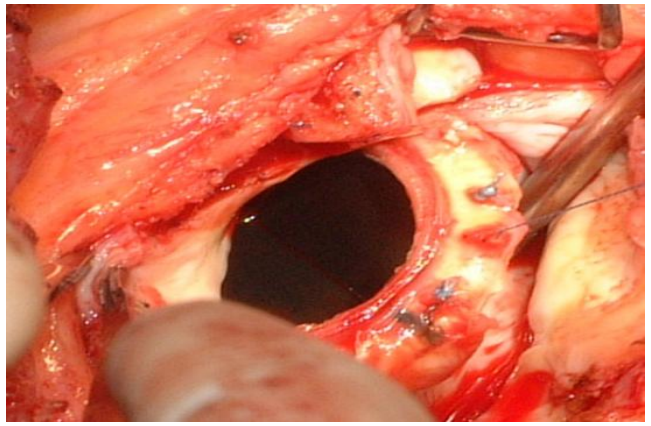
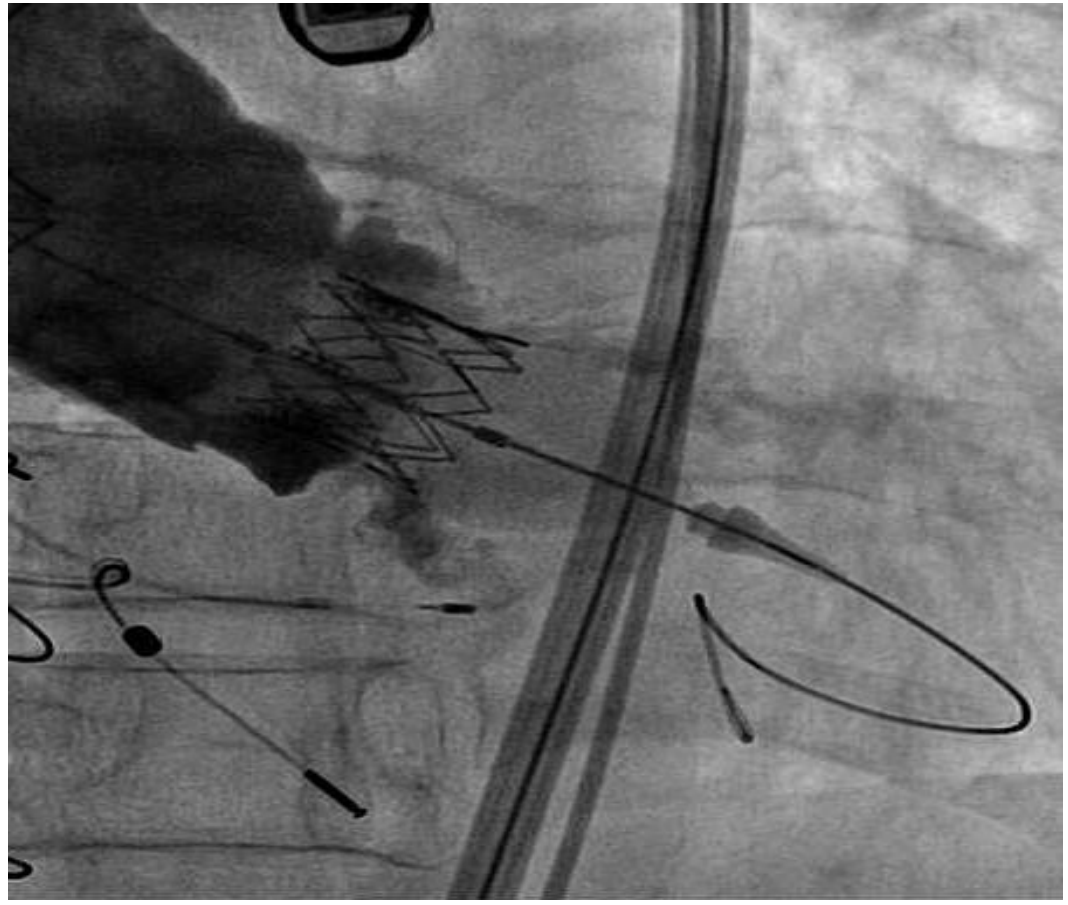
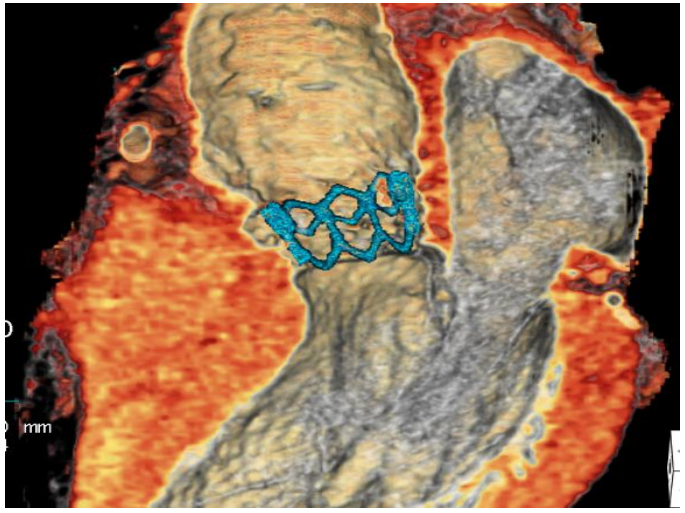
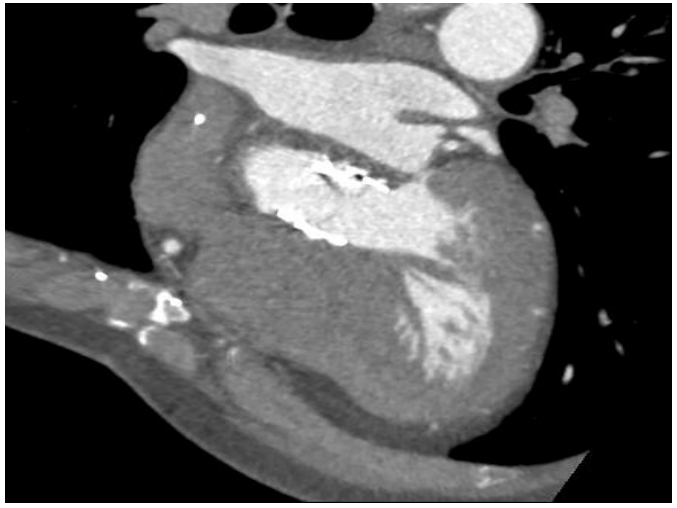
Department of Cardiology, Cardiovascular Center, Korea University Anam Hospital, Seoul, Korea

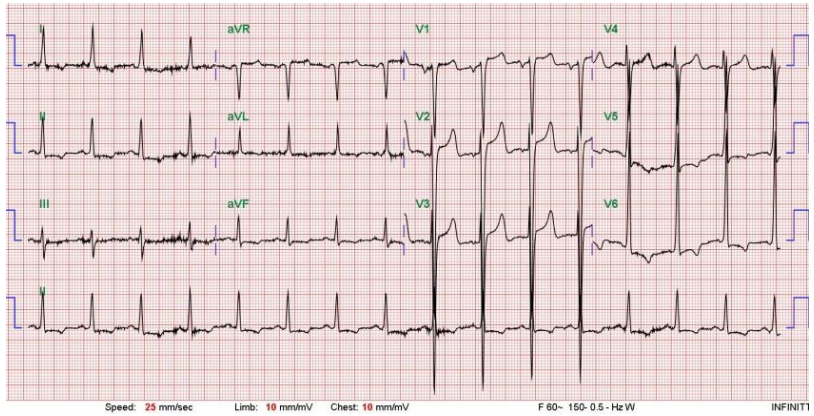








How should we treat this patient?

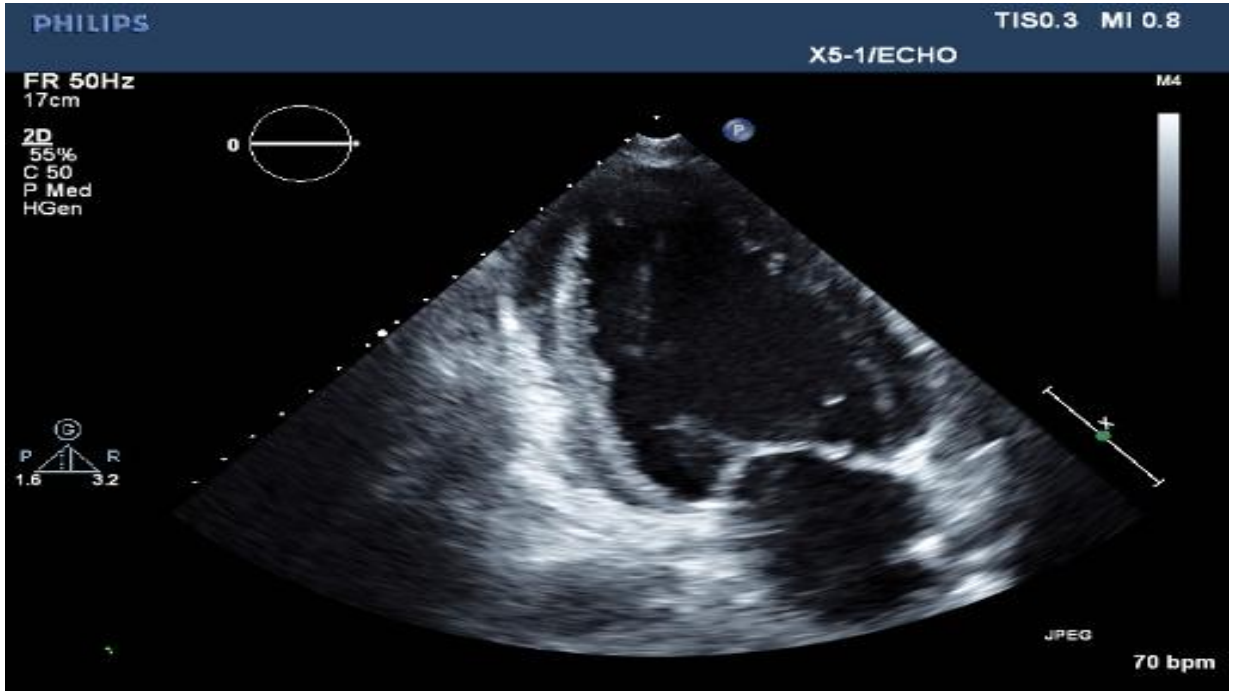


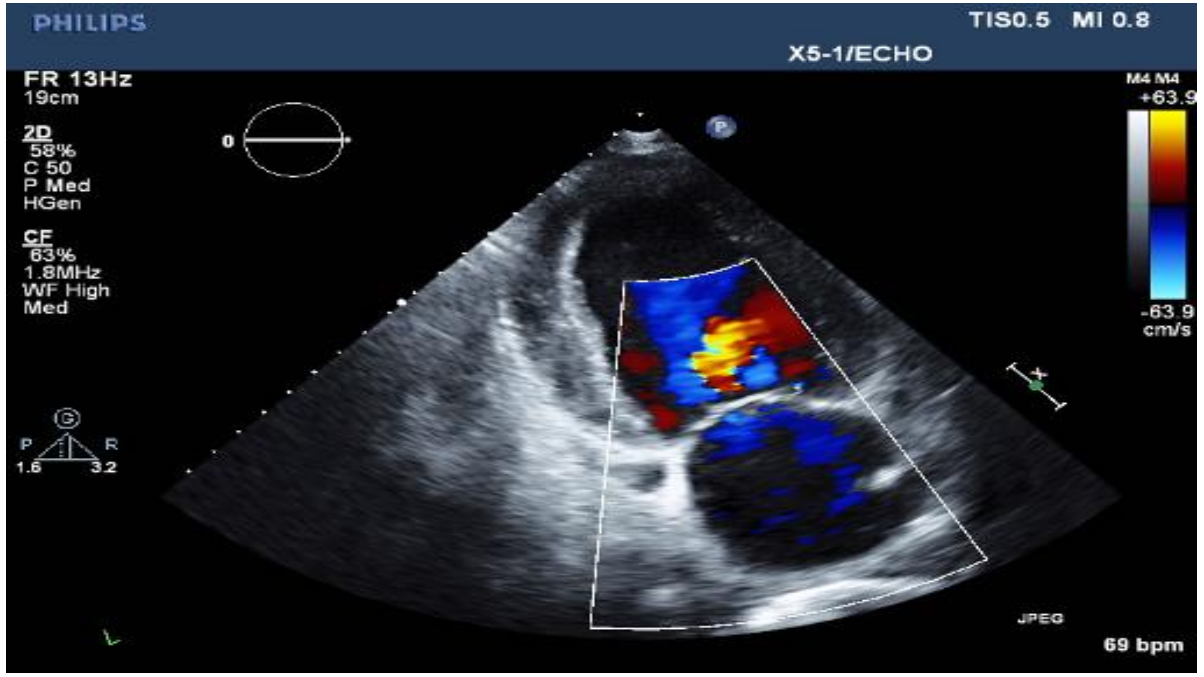
M/80
CC. :NYHA Fc IV dyspnea and mental change
Past Hx; HTN, HBsAg(+)
Transfer to our hospital due to severe AS with pul edema.
V/S : unstable..

Total bilirubin; 3.1
AST/ALT 3592/2938
BUN/Creatinine 72/2.23
Uric acid 13.0

Severe AS with multiorgan failure!

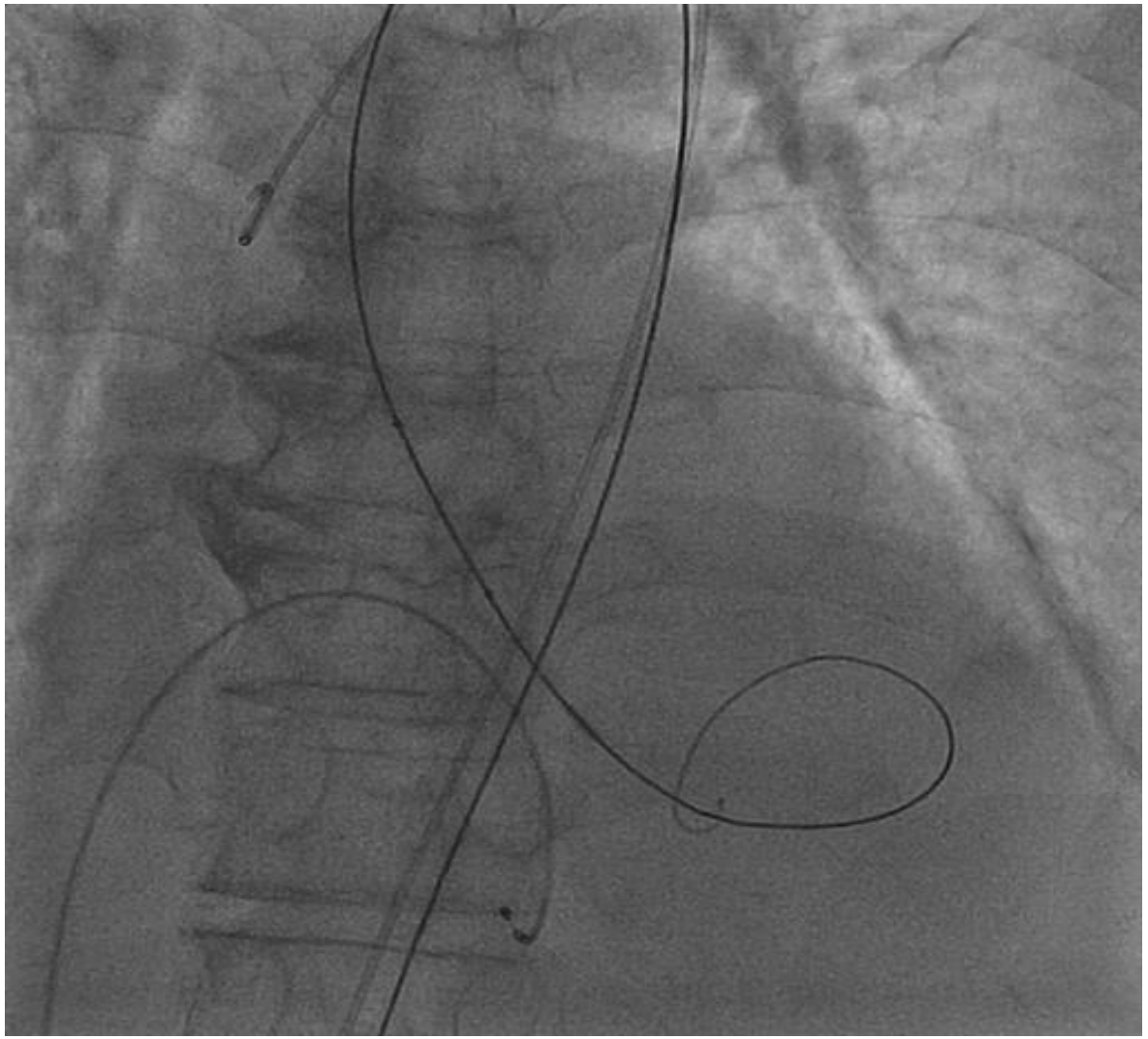
Severe LV systolic dysfunction and moderate to severe MR

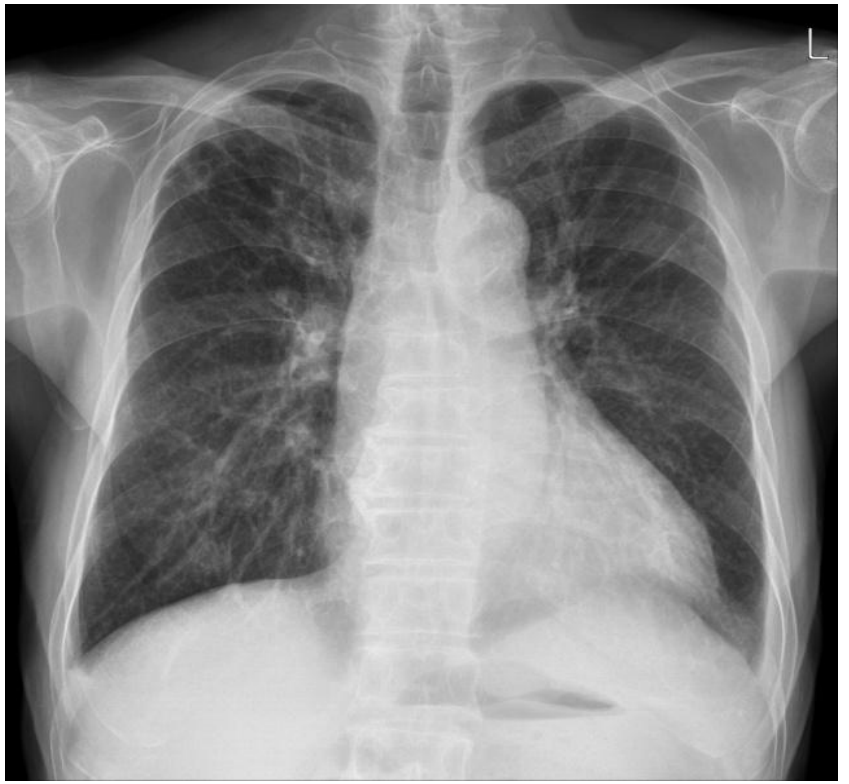




Logistic Euroscore:46.7%
STS score:17.1%

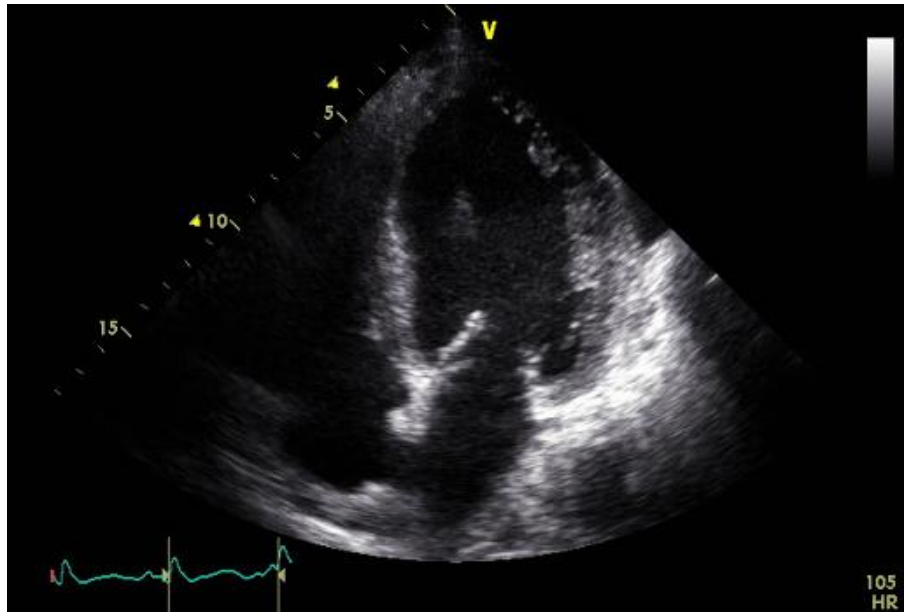
Diagnostic and theraputic BAV!

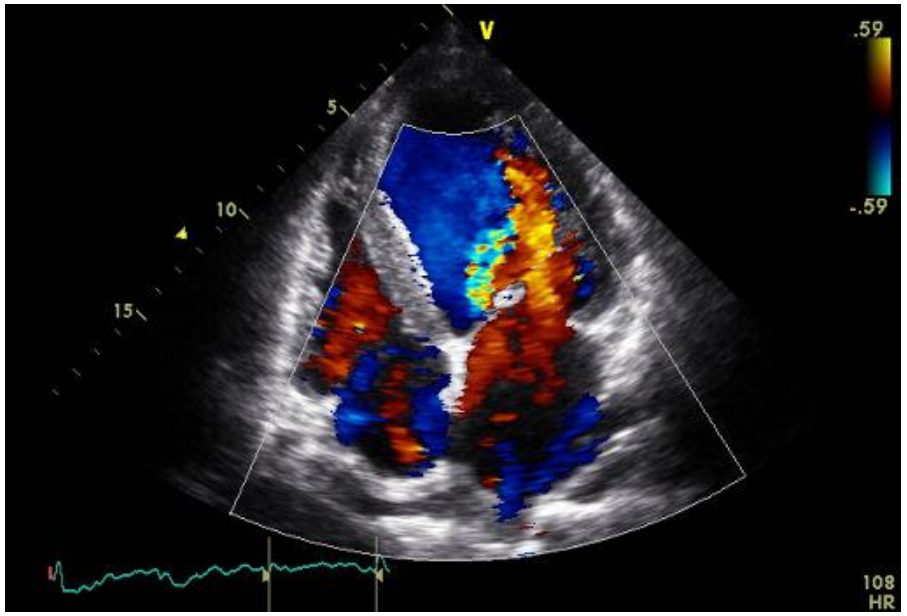




Total bilirubin; 1.2
AST/ALT 28/17
BUN/Creatinine 25/1.17
Uric acid 7.3

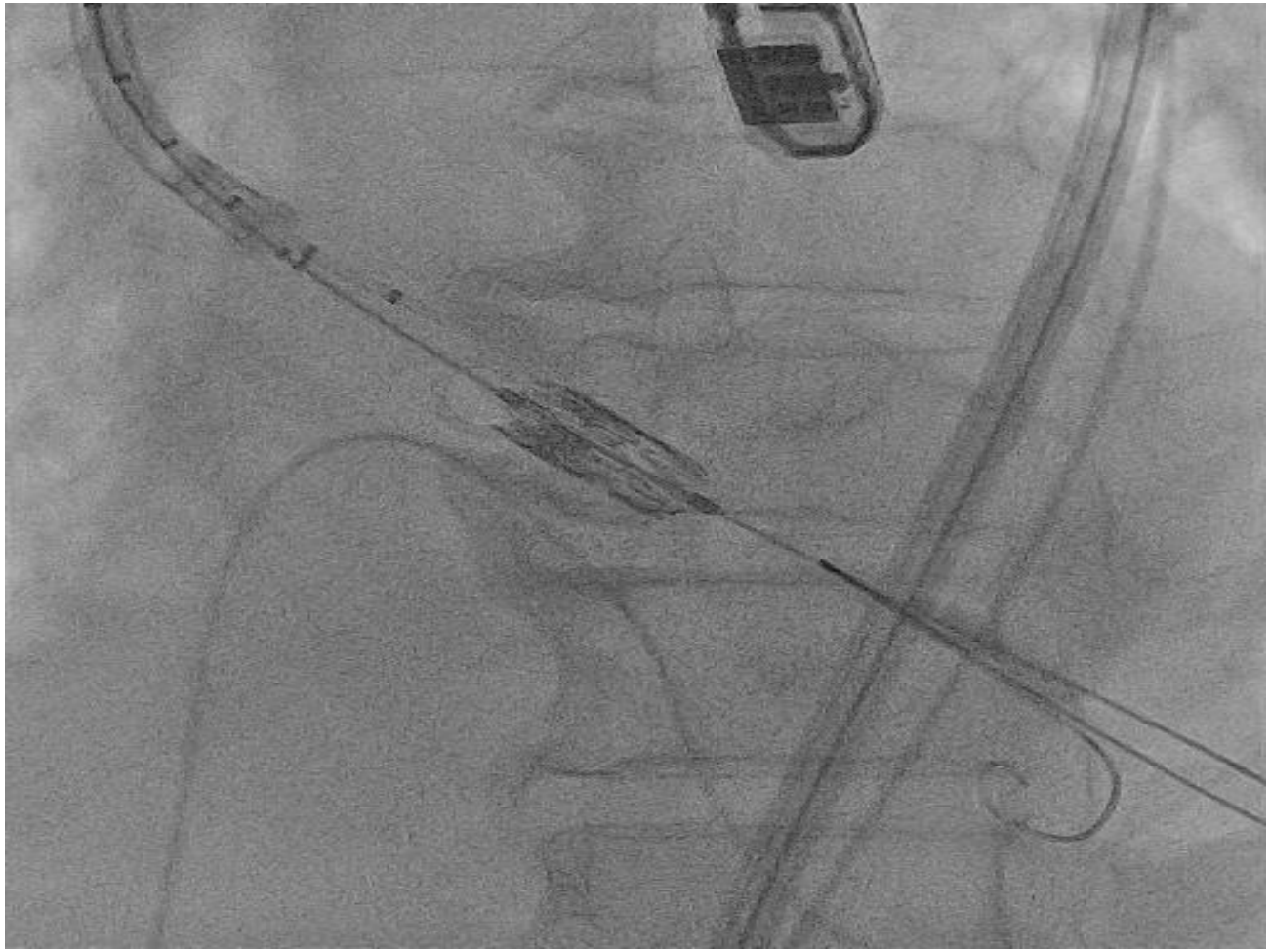
Post BAV Echo

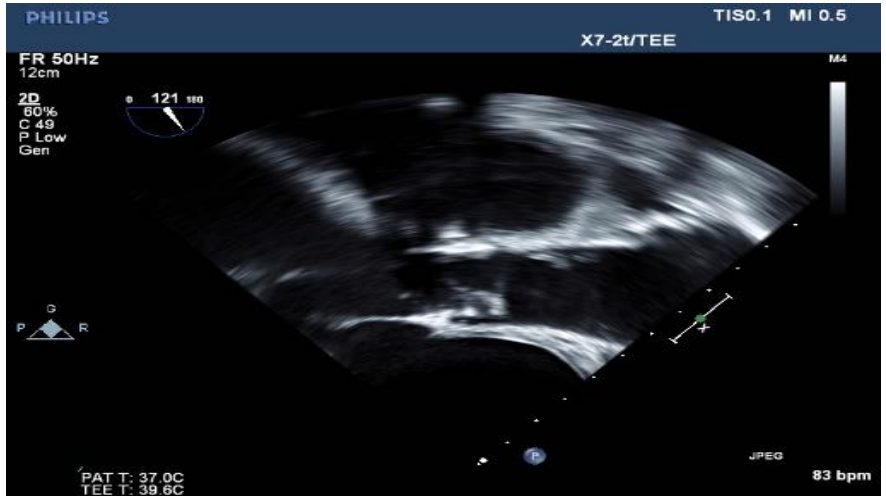




The problems are from AS, not comorbidities with AS

Elective TAVR





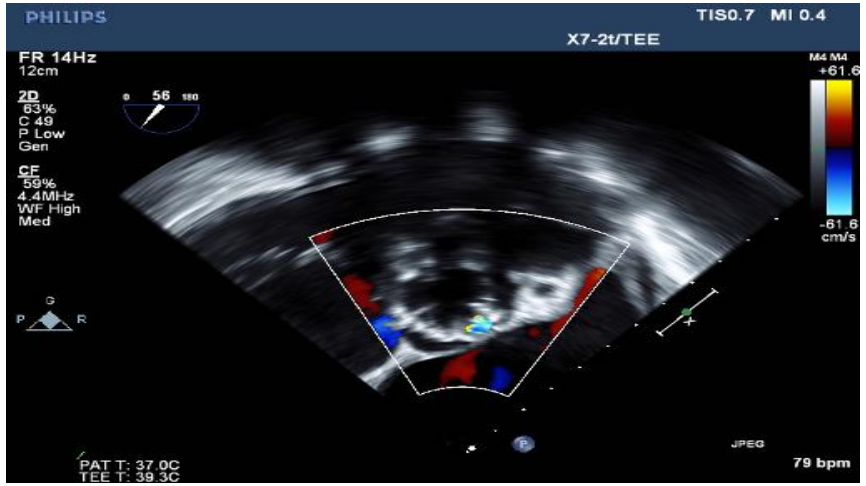
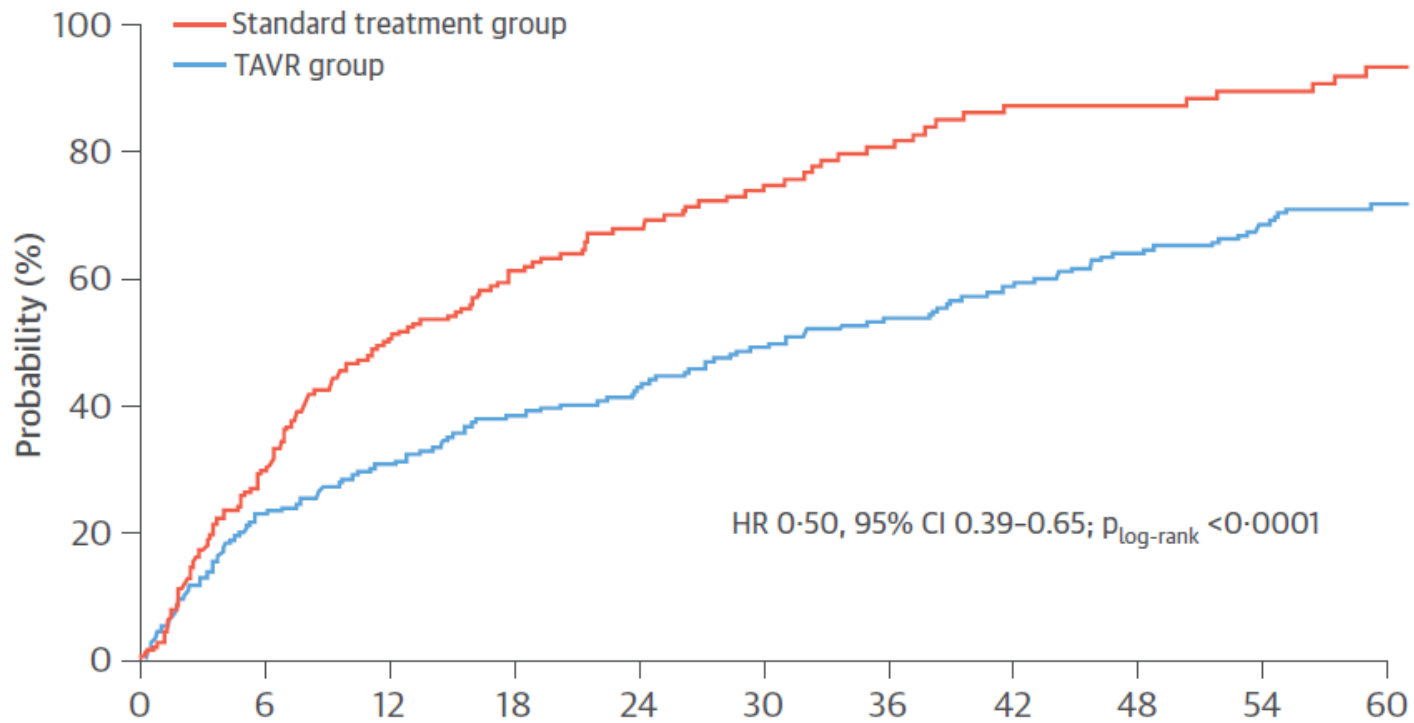
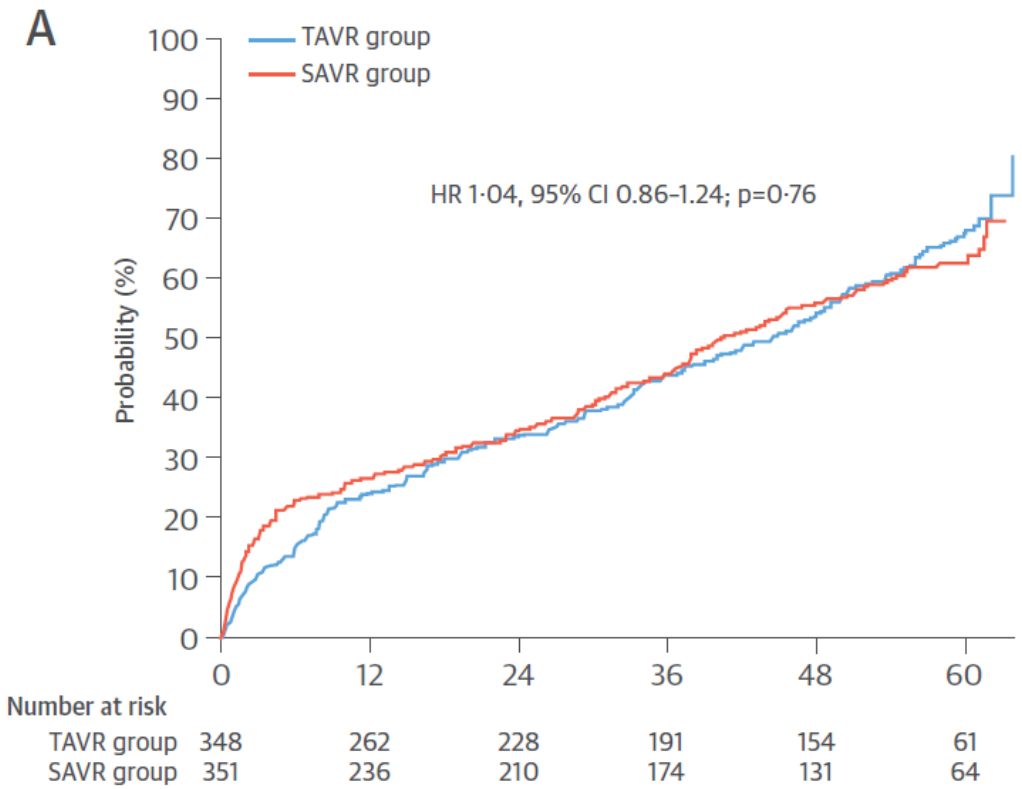


FIGURE 1 **Effect of TAVR on Mortality Over Time**

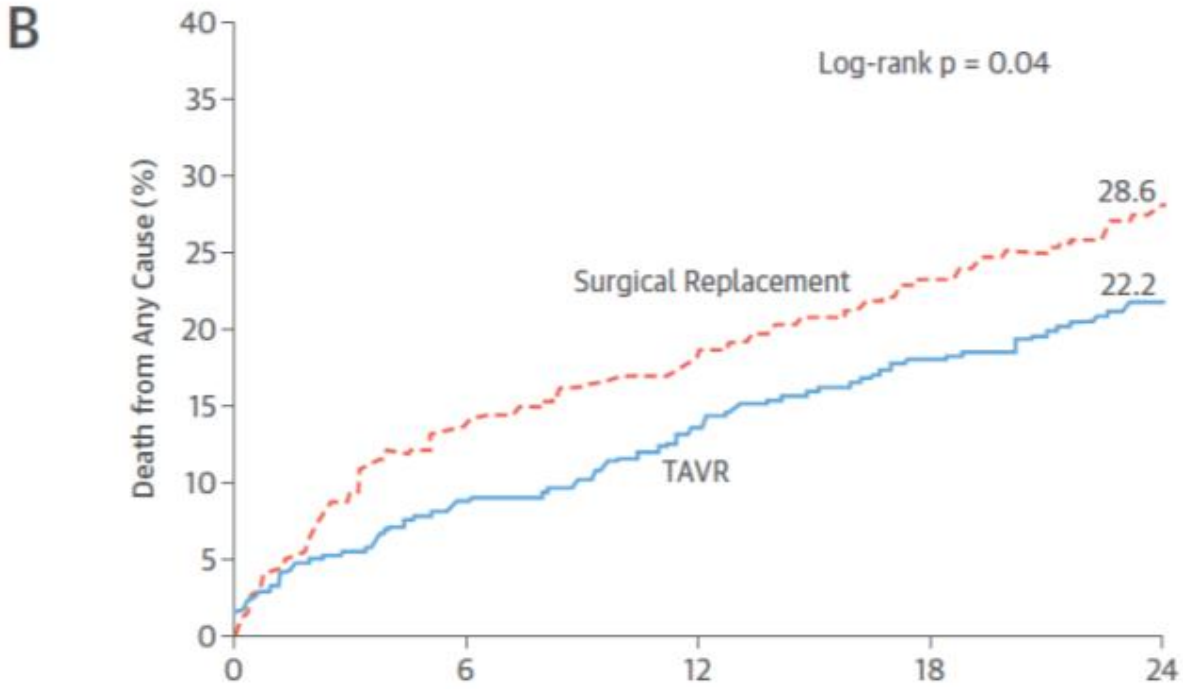


Kaplan-Meier analysis of all-cause mortality for the intention-to-treat population from the PARTNER 1B (Placement of Aortic Transcatheter Valve Trial 1B) cohort, comparing transcatheter aortic valve replacement (TAVR) versus standard therapy over 5 years. CI = confidence interval; HR = hazard ratio.

PARTNER 1A cohort, comparing TAVR vs SAVR over 5 years



TAVR vs SAVR in the CoreValve U.S. Pivotal Trial

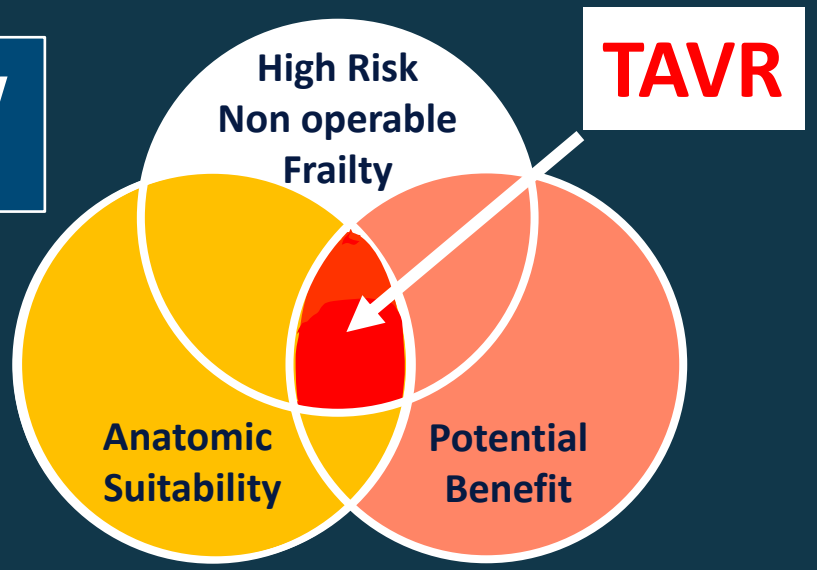


Indications of TAVR are frozen in the past

ESC Guidelines 2012 / ACC/AHA Guidline 2014

Decison confirmed by a « Heart Team »

Cardiac Surgery On-site



Low and Intermediate Risk Patients Are Not Candidates to TAVR

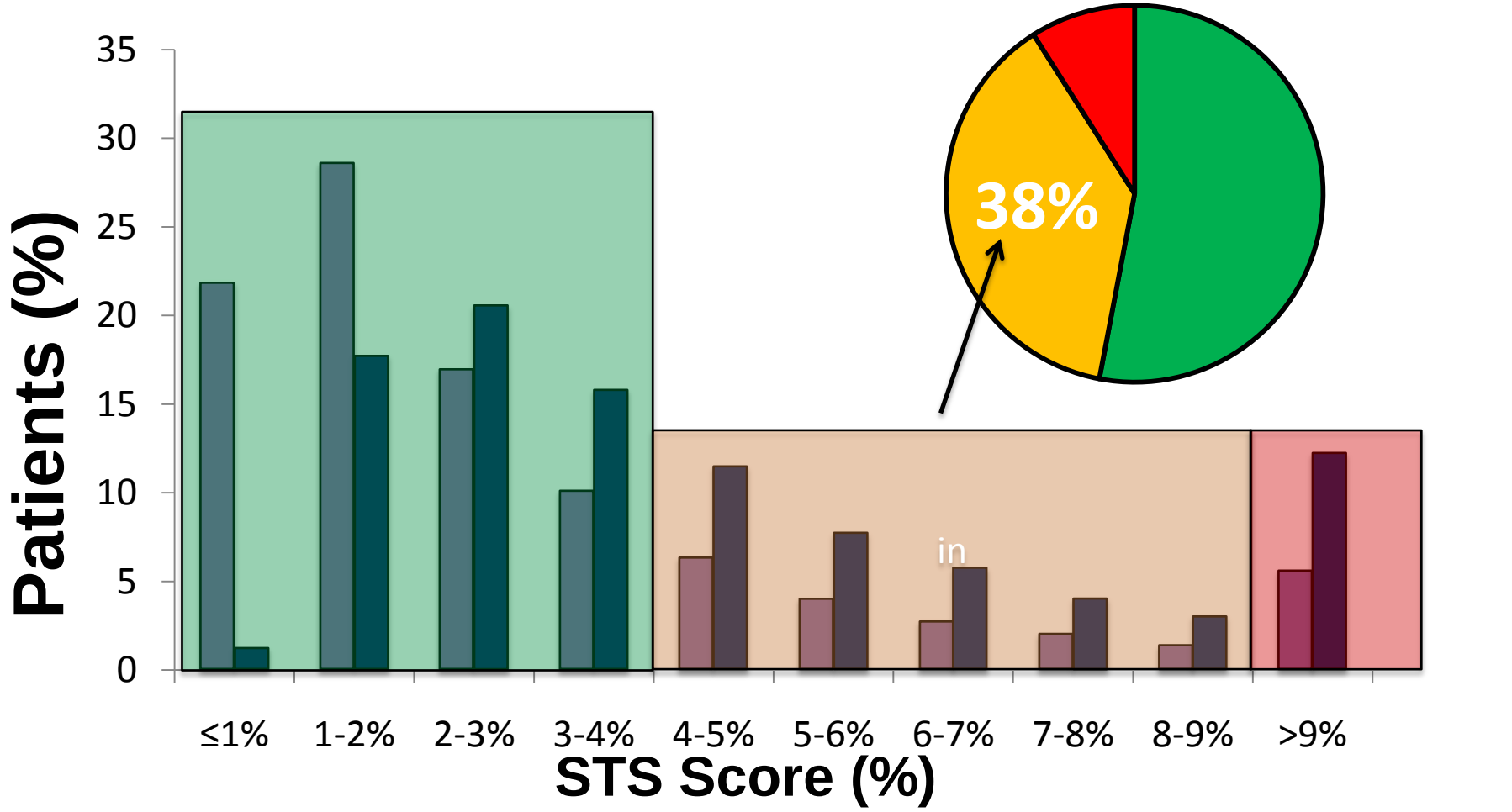
PARTNER US:

TAVR: New technology, Ist generation devices (Edwards SAPIEN)
Early experience of teams

SAVR: Most experienced cardiac surgeons
Well established treatment for 50 years

Estimated operative risk for AVR

180,000 surgical patients in the US



Personal communication with M. Mack

Elements required to expand the indications to lower risk patients

- Improved devices and strategies making TAVR
  - *SAFER, simpler*
  - *Clinical evidences*

ongoing

- Evidence-based trials
  - *PARTNER II: SAPIEN XT*
  - *SURTAVI: CoreValve*
  - *Cost-effectiveness*

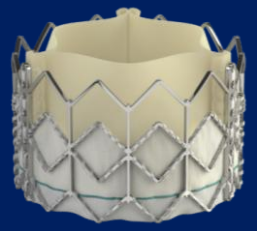
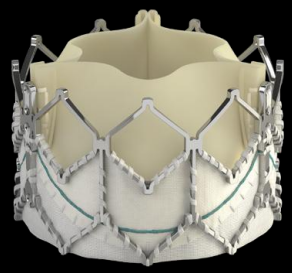
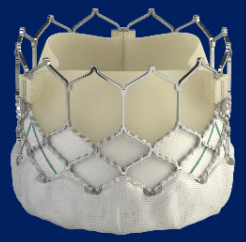
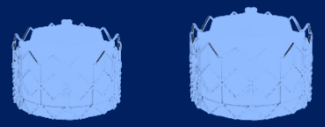
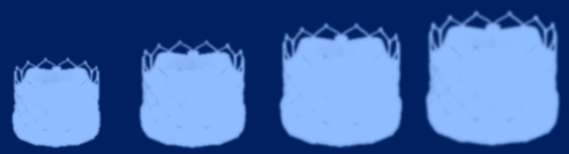
Partially done

Assessment of Valve + Platform durability on longterm

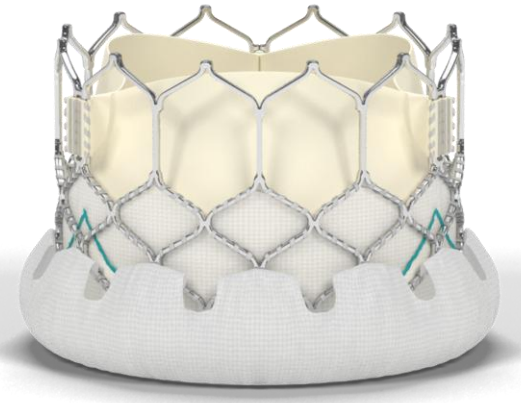
5 years~ upto 9 years

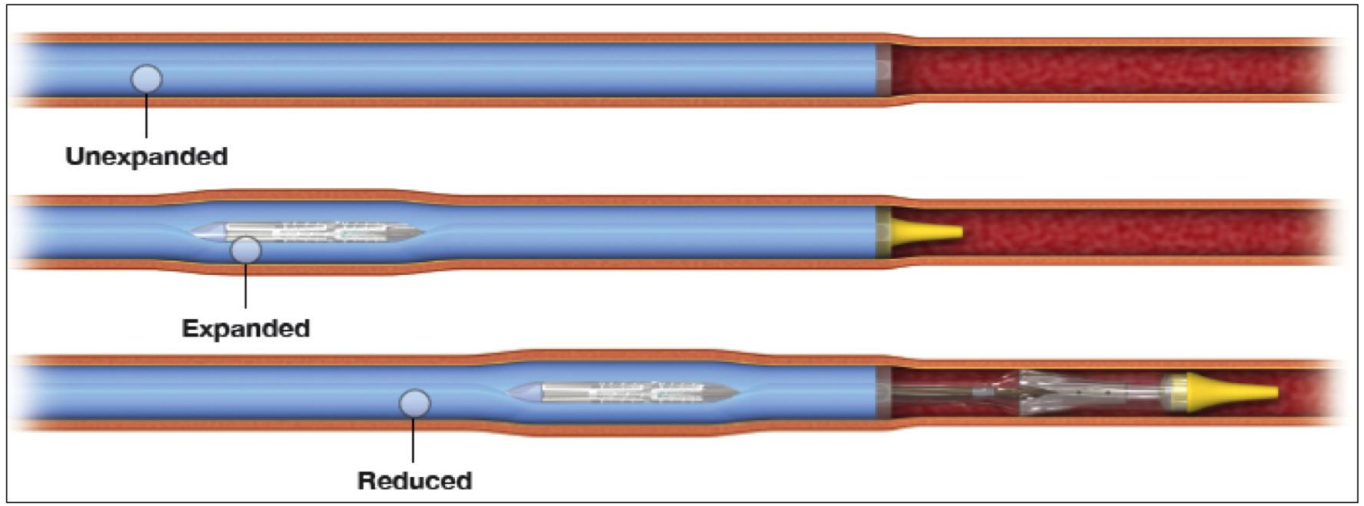
PARTNER SAPIEN Platforms
Device Evolution

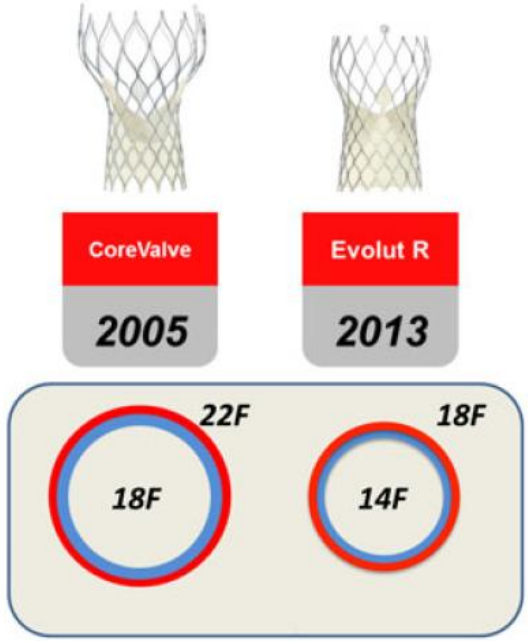
THE PARTNER II TRIAL

	SAPIEN	SAPIEN XT	SAPIEN 3
Valve Technology			
Sheath Compatibility	 22-24F	 16-20F	 14-16F
Available Valve Sizes	 23 mm, 26 mm	 23mm, 26mm, 29mm*	 20 mm, 23 mm, 26 mm, 29 mm

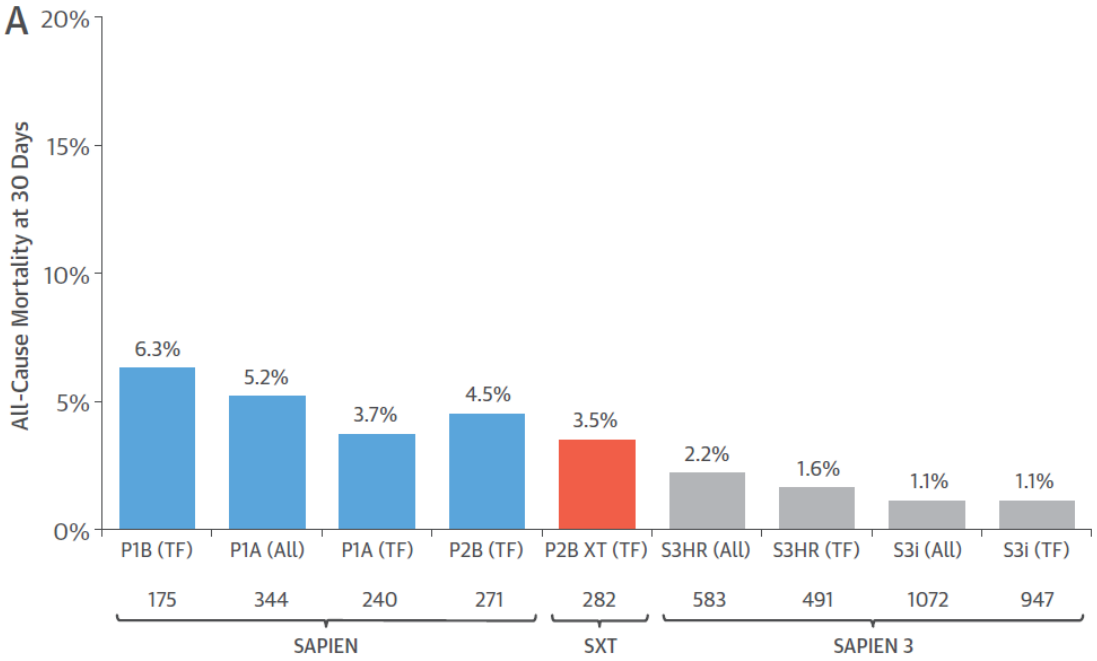
*First Implant Oct 30, 2012

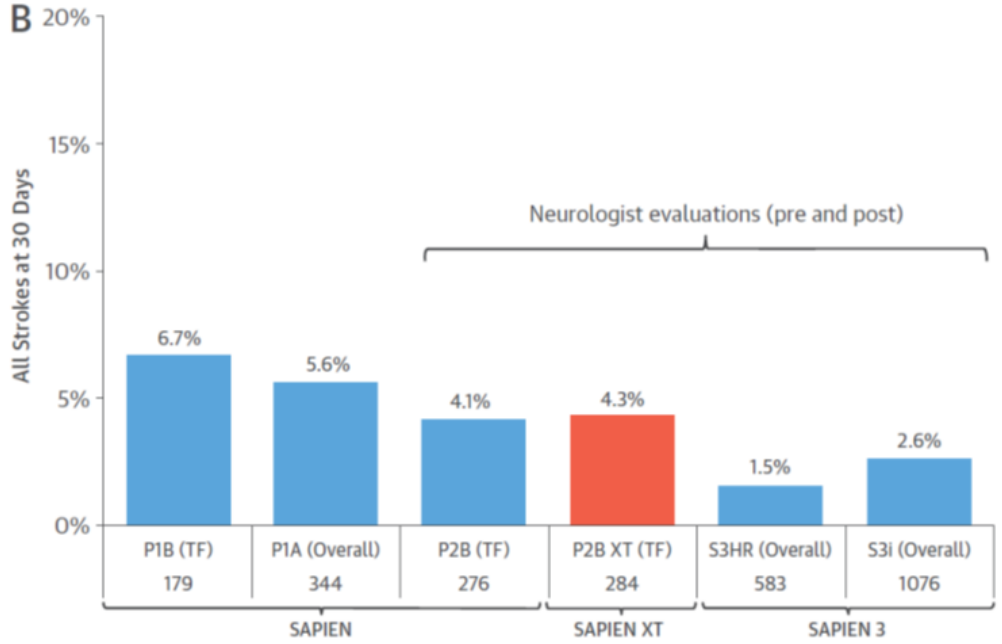



Unexpanded
Expanded
Reduced

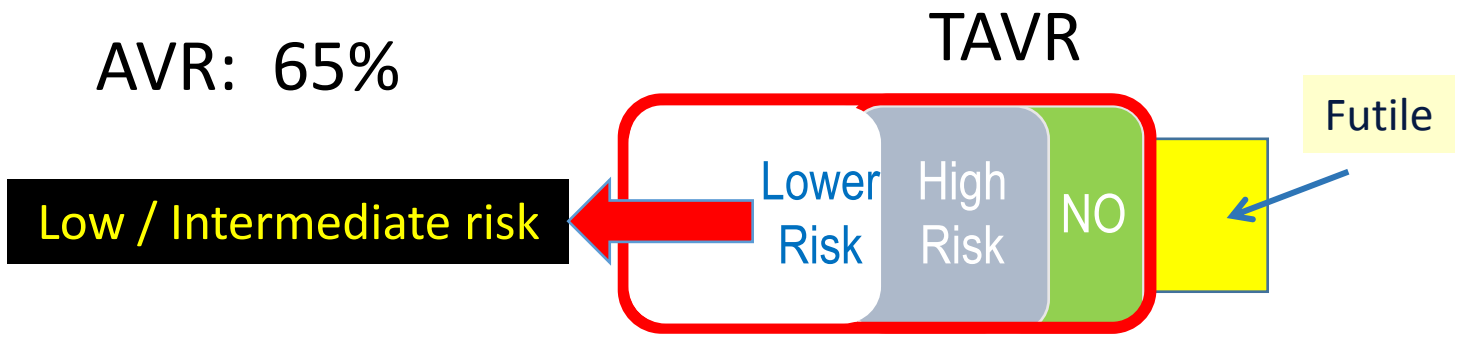

CoreValve
2005
Evolut R
2013
22F
18F
18F
14F

Temporal Trends in Mortality and Stroke After TAVR





Trend to treat lower risk patients in most recent series



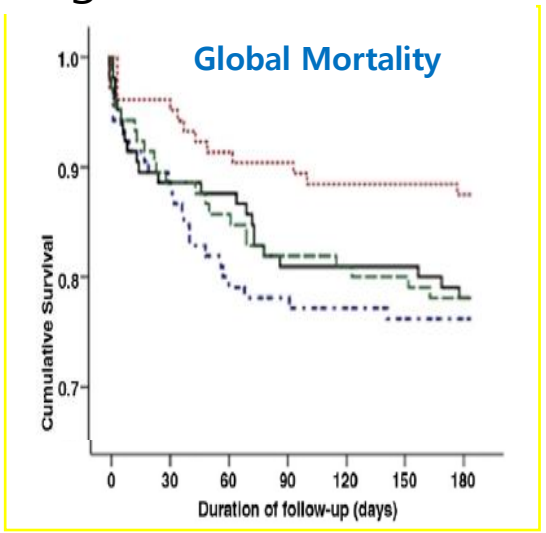
Log EuroScore	2007-2009		2010-2011	
	FRANCE :	25.6%	FRANCE 2 : ↘	21.9%
	SOURCE :	25.8%	SOURCE XT : ↘	20.5%
	ADVANCE :	23.0%	ADVANCE ↘	19.2%
STS	2009	PARTNER 1		11.8%
	2011-13	Post Market US		7.0%
	2013	CHOICE		6.0%
	2013	US CoreValve Pivotal		7.4%

Treating lower risk patients

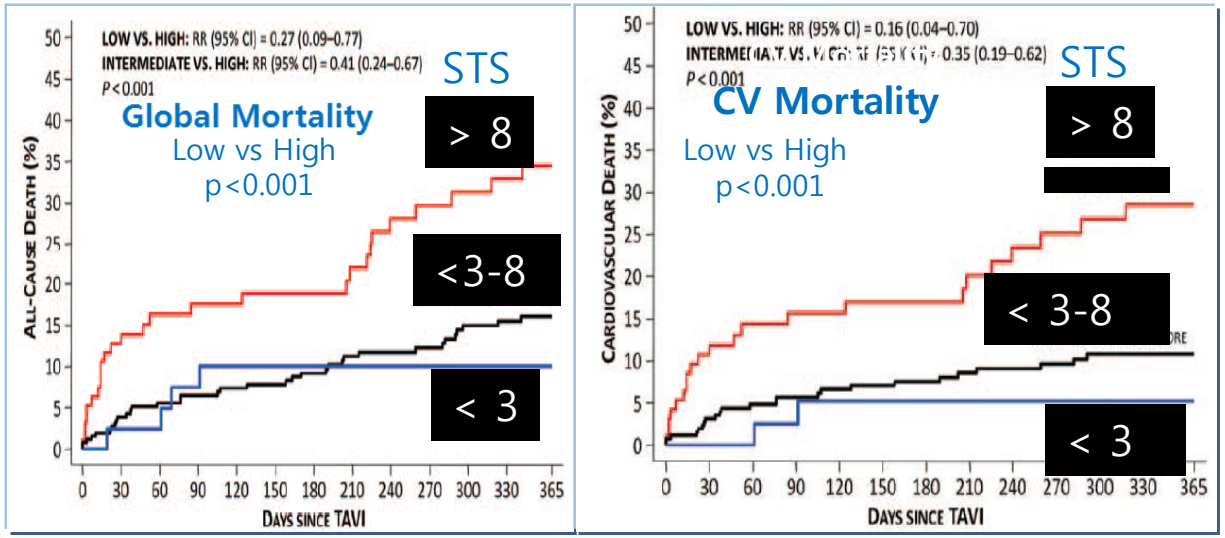
- It happens!
- What is the evidence?
- What is needed?
  - RCT
  - Better risk scores
  - Decrease complications
  - Longer follow-up
  - More data on specific subgroups
  - Better technology

Higher Survival in Lower Risk Patients

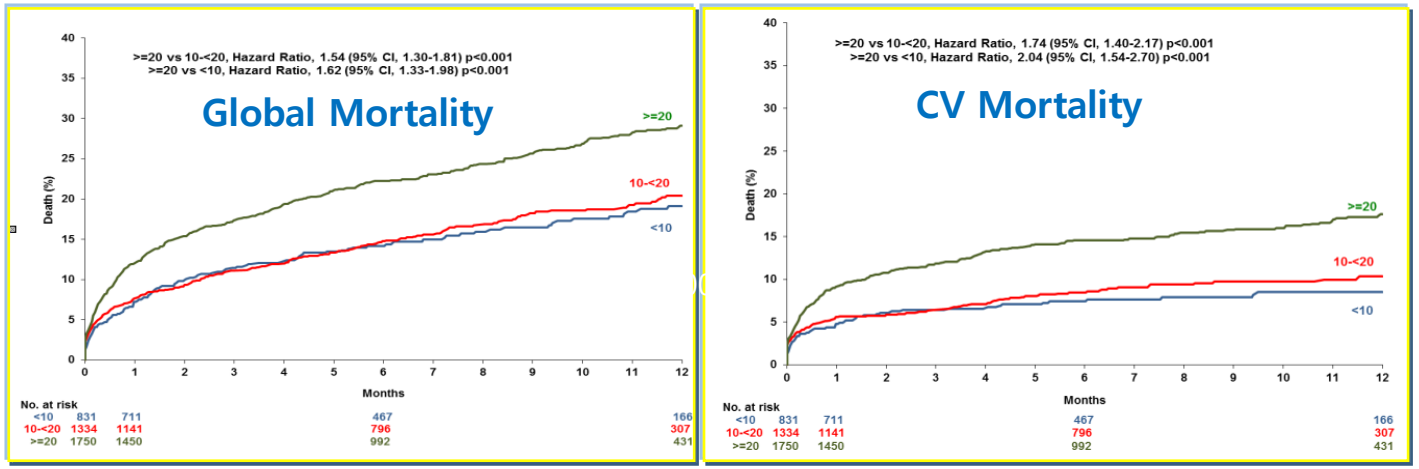
Lange et al, JACC 2012



Wenaweser et al. EHJ 2013 286 Pts 2007-2011

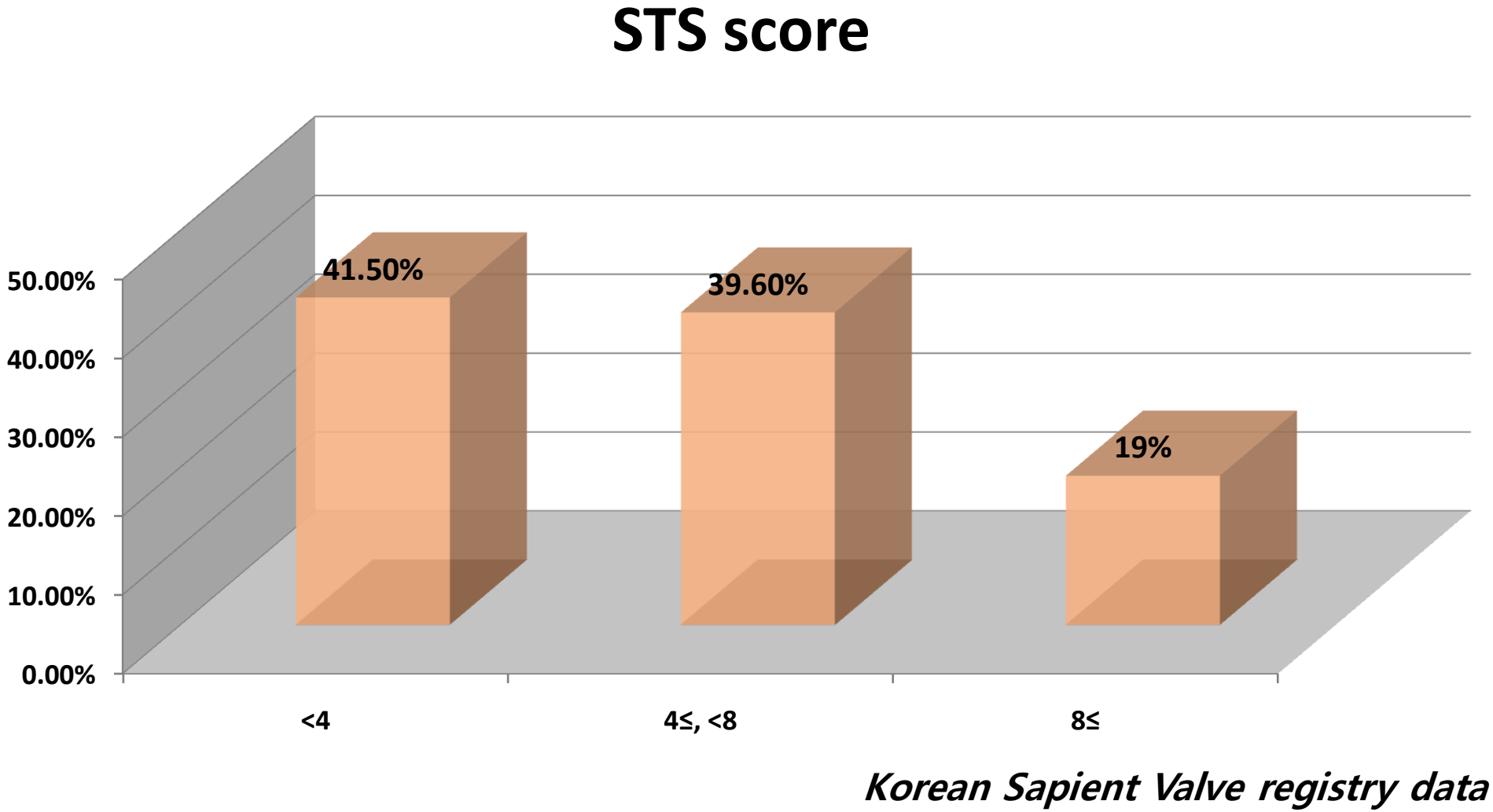


Gilard et al, NEJM 2012 FRANCE 2 3915 Pts 2007 - 2012



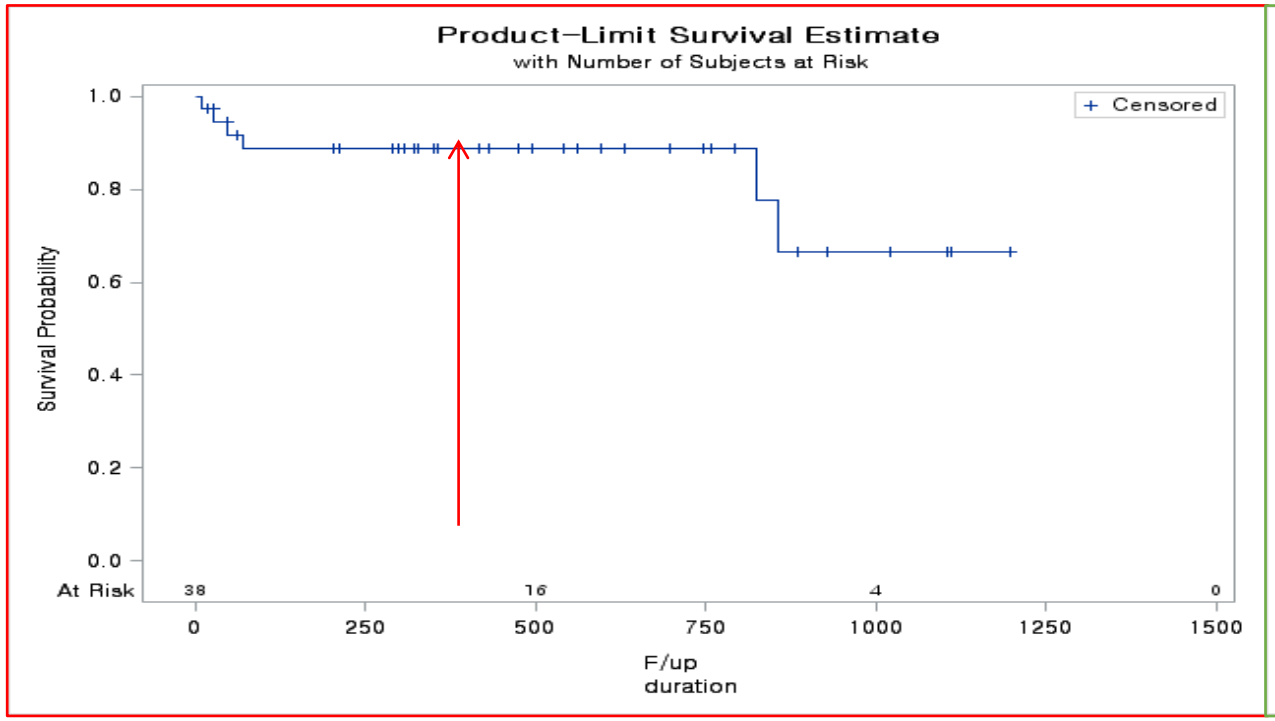
Op risk assessment except for unoperable conditions

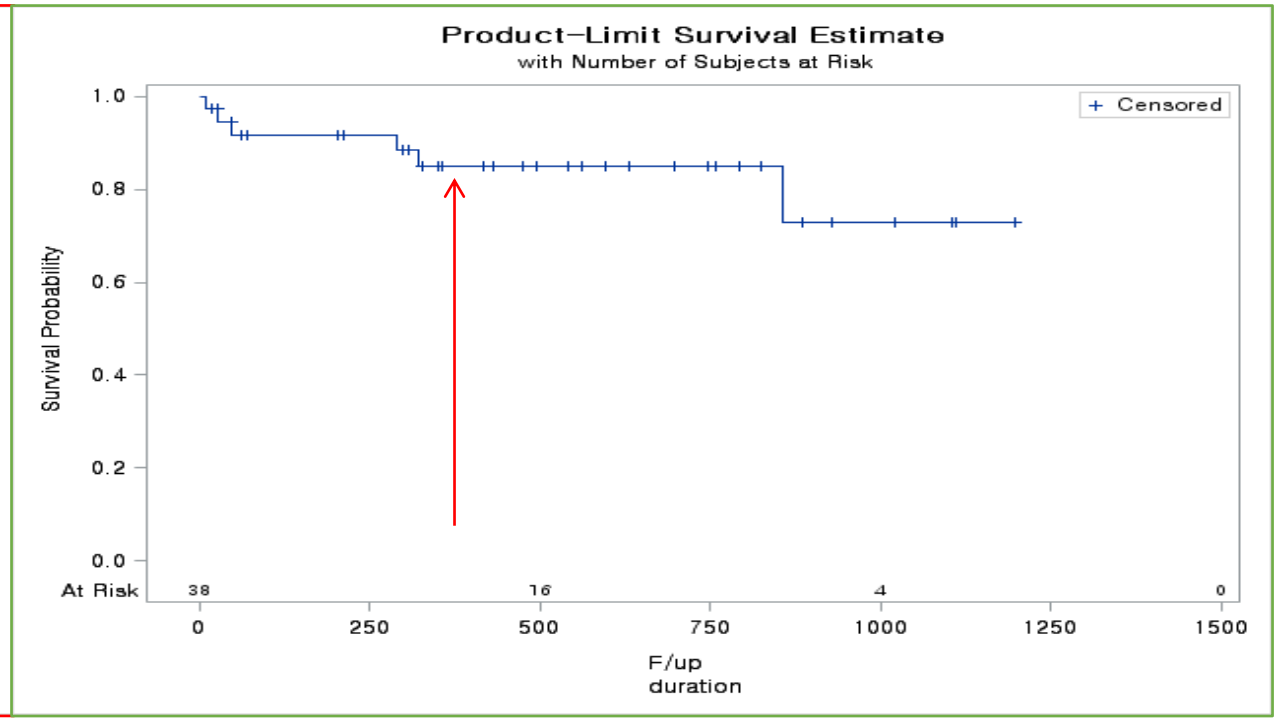
Mean : 5.6 ± 4.1



Korean Sapient Valve registry data

Clinical Outcomes at 12 months
(n=50)





MACCE (n=9/50, 18%)
3 CV death
3 ischemic stroke
1 hemorrhagic stroke

2 infective endocarditis : 6~7 months after TAVR
1 underwent SAVR
1 underwent medical therapy

Mortality (n=7/50, 14%)
3 CV death
4 non-CV death

Korean Sapient Valve registry data

TAVR in Lower Surgical Risk Patients

MINI-FOCUS ON TAVI

CLINICAL RESEARCH

A 3-Center Comparison of 1-Year Mortality Outcomes Between Transcatheter Aortic Valve Implantation and Surgical Aortic Valve Replacement on the Basis of Propensity Score Matching Among Intermediate-Risk Surgical Patients

Nicolo Piazza, MD, PHD,*† Bindu Kalesan, PHD,‡ Nicolas van Mieghem, MD,§ Stuart Head, MSC,‖ Peter Wenaweser, MD,¶ Thierry P. Carrel, MD,# Sabine Bleiziffer, MD,*† Peter P. de Jaegere, MD, PHD,§ Brigitta Gahl,# Robert H. Anderson, MD, PHD,** Arie-Pieter Kappetein, MD, PHD,‖ Ruediger Lange, MD, PHD,*† Patrick W. Serruys, MD, PHD,§ Stephan Windecker, MD,¶ Peter Jüni, MD‡

Munich, Germany; Bern, Switzerland; Rotterdam, the Netherlands; Montreal, Canada; and Newcastle-Upon-Tyne, United Kingdom

STRUCTURAL HEART DISEASE

Acute and Late Outcomes of Transcatheter Aortic Valve Implantation (TAVI) for the Treatment of Severe Symptomatic Aortic Stenosis in Patients at High- and Low-Surgical Risk

GERHARD SCHYMIK, M.D.,[1] HOLGER SCHRÖFEL, M.D.,[2] JAN S. SCHYMIK,[3] RAINER WONDRASCHEK,[1] TIM SÜSELBECK, M.D.,[4] RÜDIGER KIEFER,[2] VERONIKA BALTHASAR, M.D.,[2] ARMIN LUIK, M.D.,[1] HERBERT POSIVAL, M.D.,[2] and CLAUS SCHMITT, M.D.[1]

From the [1]Medical Clinic IV, Municipal Hospital Karlsruhe, Germany; [2]Clinic for Cardiac Surgery Karlsruhe, Germany; [3]University of Munich, Germany; and [4]Department of Medicine, University Medical Centre Mannheim, Germany

Improvements in Transcatheter Aortic Valve Implantation Outcomes in Lower Surgical Risk Patients

A Glimpse Into the Future

Ruediger Lange, MD, PHD, Sabine Bleiziffer, MD, Domenico Mazzitelli, MD, Yacine Elhmidi, MD, Anke Opitz, MD, Marcus Krane, MD, Marcus-Andre Deutsch, MD, Hendrik Ruge, MD, Gernot Brockmann, MD, Bernhard Voss, MD, Christian Schreiber, MD, Peter Tassani, MD, PHD, Nicolo Piazza, MD, PHD

Munich, Germany

Clinical outcomes of patients with estimated low or intermediate surgical risk undergoing transcatheter aortic valve implantation

Peter Wenaweser[1†*], Stefan Stortecky[1†], Sarah Schwander[1], Dik Heg[2], Christoph Huber[3], Thomas Pilgrim[1], Steffen Gloekler[1], Crochan J. O'Sullivan[1], Bernhard Meier[1], Peter Jüni[2], Thierry Carrel[3], and Stephan Windecker[1,2]

Transcatheter vs surgical aortic valve replacement in intermediate-surgical-risk patients with aortic stenosis: A propensity score–matched case-control study

Azeem Latib, MB ChB,[a,b,f] Francesco Maisano, MD,[c,f] Letizia Bertoldi, MD,[b] Andrea Giacomini, MD,[c] Joanne Shannon, MD,[a] Micaela Cioni, MD,[c] Alfonso Ielasi, MD,[b] Filippo Figini, MD,[a,b] Kensuke Tagaki, MD,[a] Annalisa Franco, MD,[d] Remo Daniel Covello, MD,[d] Antonio Grimaldi, MD,[d] Pietro Spagnolo, MD,[c] Gill Louise Buchannan, MD,[b] Mauro Carlino, MD,[b] Alaide Chieffo, MD,[b] Matteo Montorfano, MD,[b] Ottavio Alfieri, MD,[c] and Antonio Colombo, MD[a,b] *Milan, Italy*

Transcatheter aortic valve implantation versus surgical aortic valve replacement for severe aortic stenosis: Results from an intermediate risk propensity-matched population of the Italian OBSERVANT study

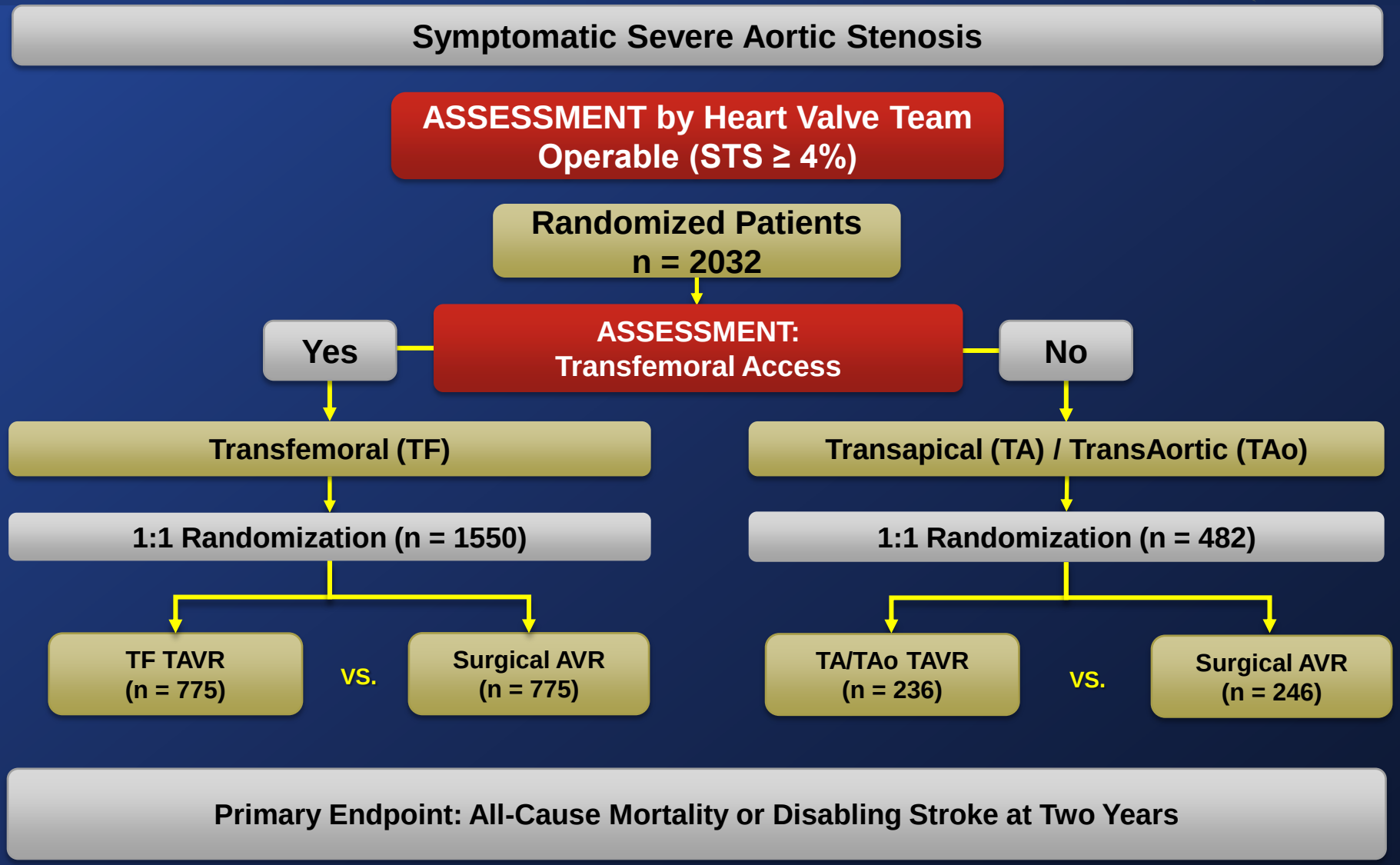
Paola D'Errigo [a], Marco Barbanti [b,c,*], Marco Ranucci [d], Francesco Onorati [e], Remo Daniel Covello [f], Stefano Rosato [a], Corrado Tamburino [b,c], Francesco Santini [e], Gennaro Santoro [g], Fulvia Seccareccia [a] and on behalf of the OBSERVANT Research Group

Intermediate or low risk patients are already being treated.....

What is needed for treating lower risk patients?

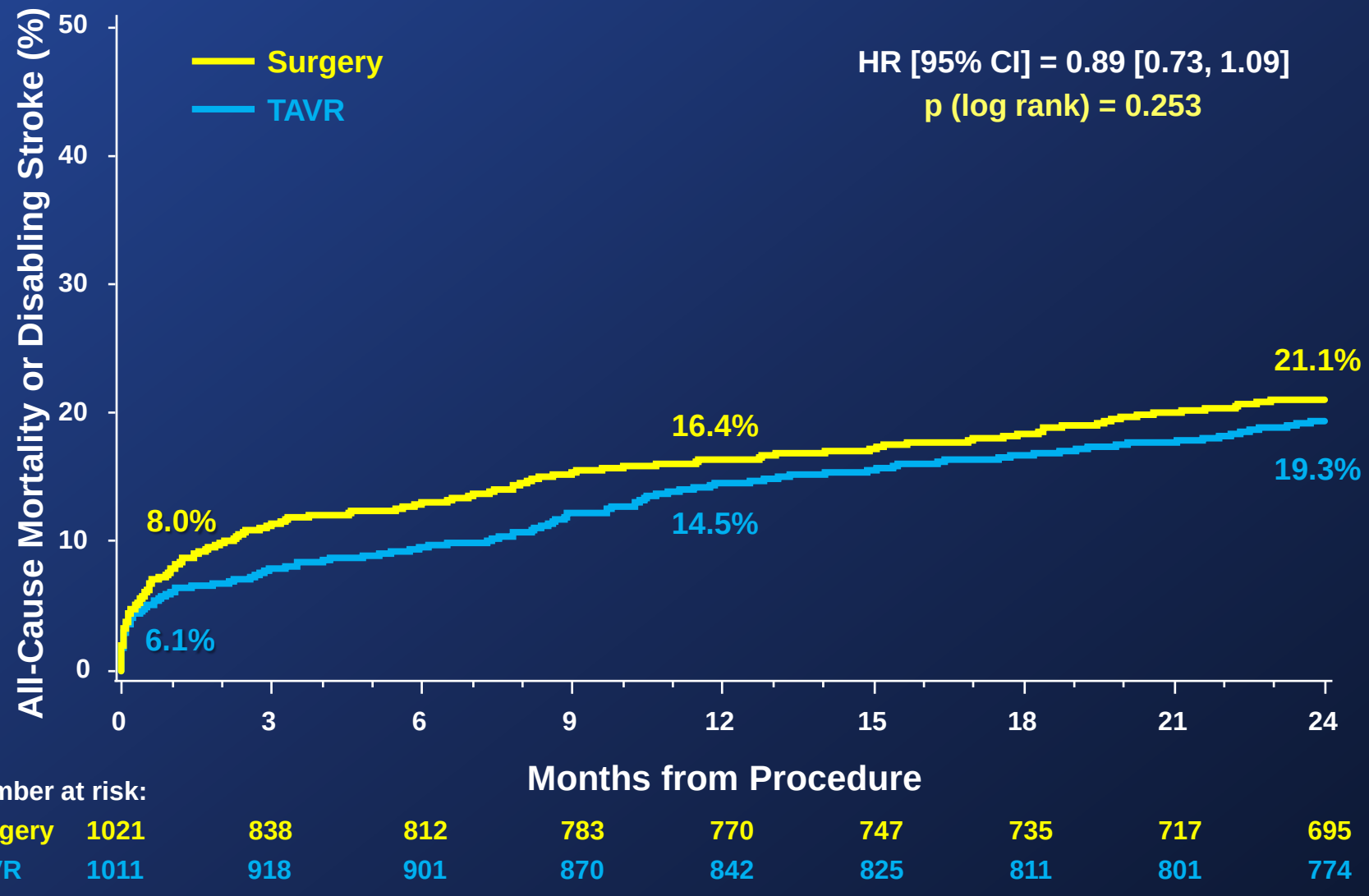
RCT

The PARTNER 2A Trial
Study Design



Primary Endpoint (ITT)
All-Cause Mortality or Disabling Stroke

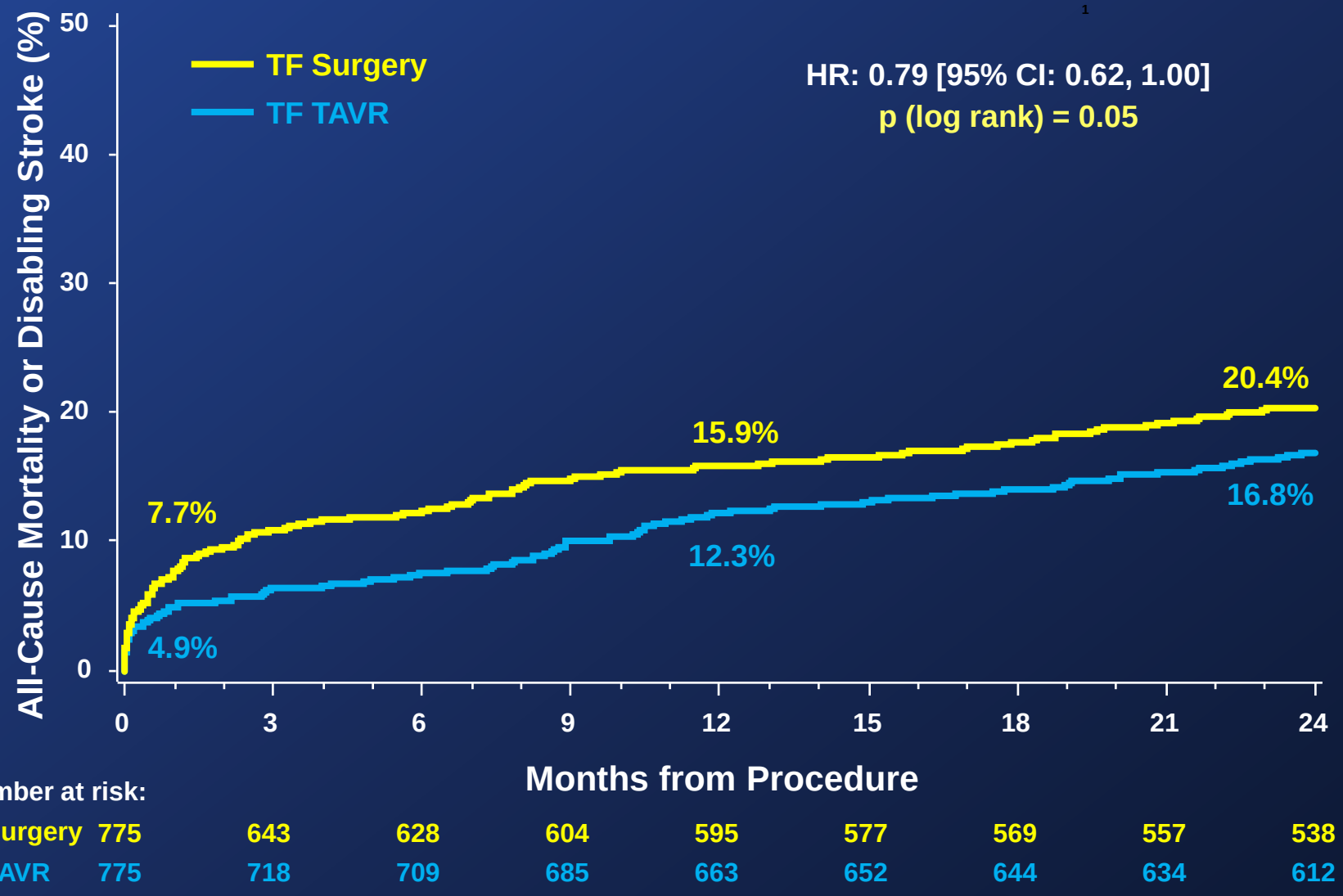
THE PARTNER II TRIAL



Number at risk:									
Surgery	1021	838	812	783	770	747	735	717	695
TAVR	1011	918	901	870	842	825	811	801	774

TF Primary Endpoint (ITT)
All-cause Mortality or Disabling Stroke

THE PARTNER II TRIAL



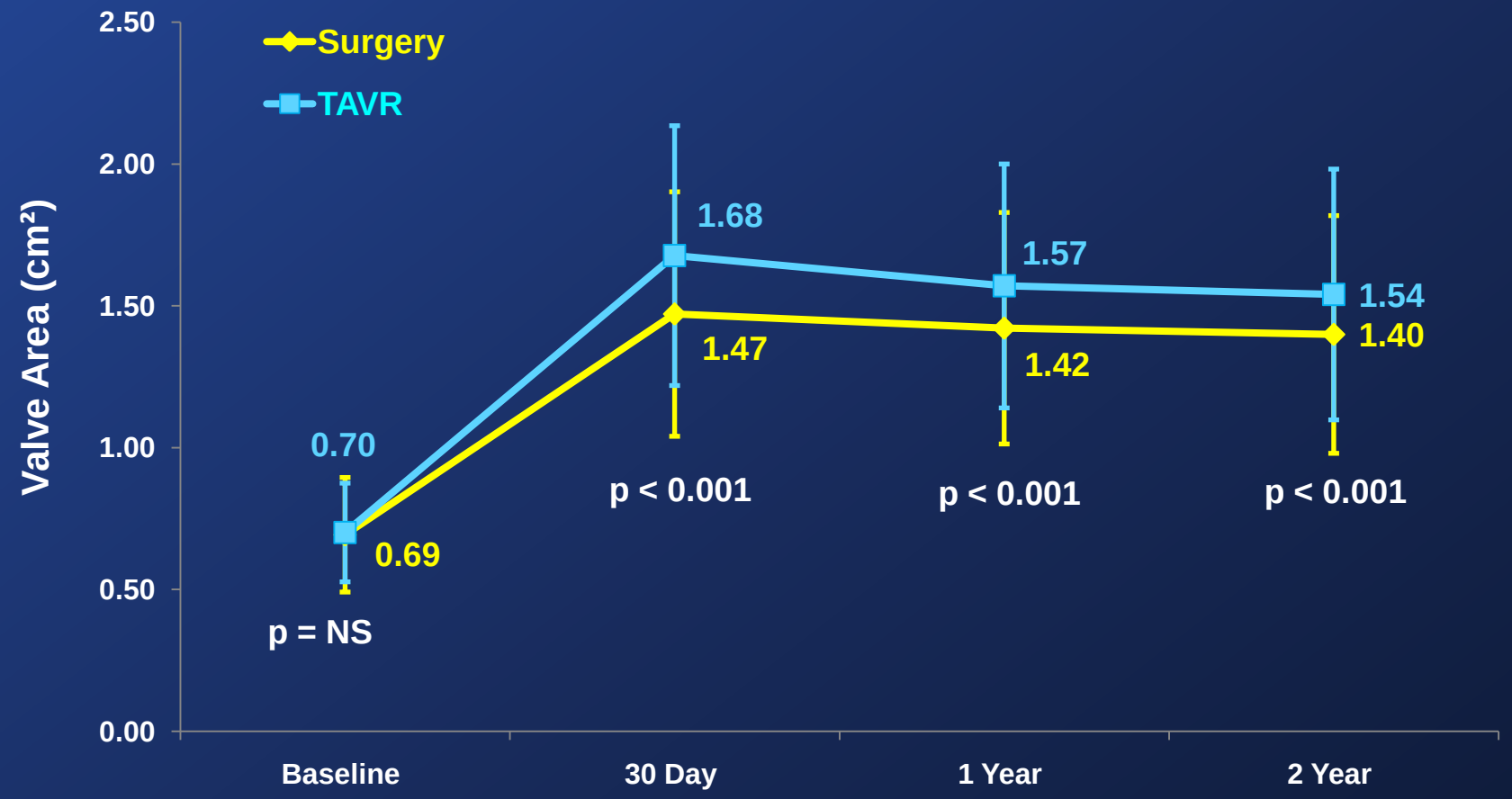
Number at risk:									
TF Surgery	775	643	628	604	595	577	569	557	538
TF TAVR	775	718	709	685	663	652	644	634	612

Other Clinical Endpoints (ITT)
At 30 Days and 2 Years

THE PARTNER II TRIAL

Events (%)	30 Days			2 Years		
	TAVR (n = 1011)	Surgery (n = 1021)	p-value*	TAVR (n = 1011)	Surgery (n = 1021)	p-value*
Rehospitalization	6.5	6.5	0.99	19.6	17.3	0.22
MI	1.2	1.9	0.22	3.6	4.1	0.56
Major Vascular Complications	7.9	5.0	0.008	8.6	5.5	0.006
Life-Threatening / Disabling Bleeding	10.4	43.4	<0.001	17.3	47.0	<0.001
AKI (Stage III)	1.3	3.1	0.006	3.8	6.2	0.02
New Atrial Fibrillation	9.1	26.4	<0.001	11.3	27.3	<0.001
New Permanent Pacemaker	8.5	6.9	0.17	11.8	10.3	0.29
Re-intervention	0.4	0.0	0.05	1.4	0.6	0.09
Endocarditis	0.0	0.0	NA	1.2	0.7	0.22

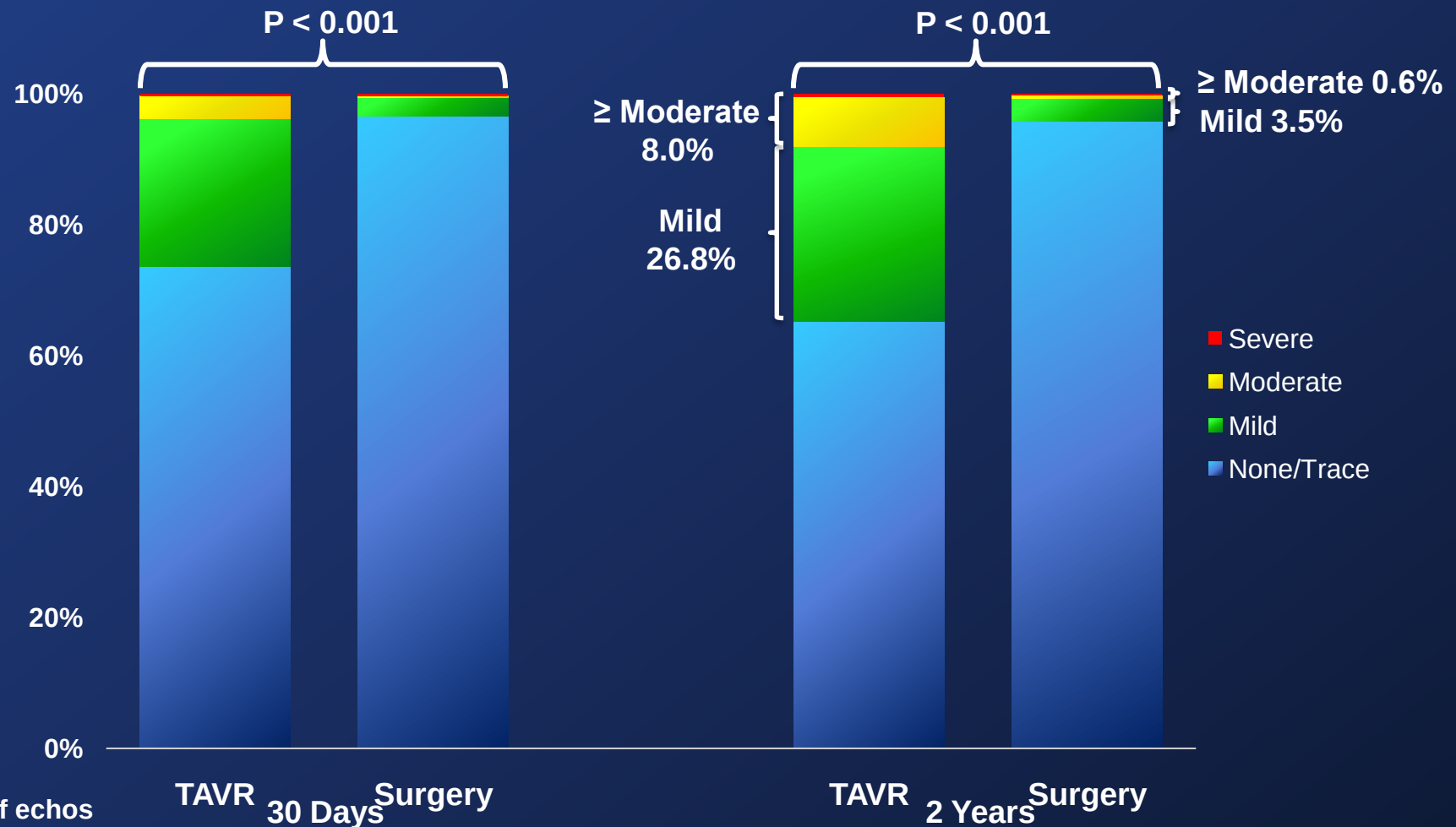
Echocardiography Findings (VI)
Aortic Valve Area



No. of Echos				
Surgery	861	727	590	488
TAVR	899	829	695	567

Paravalvular Regurgitation (VI)
3-Class Grading Scheme

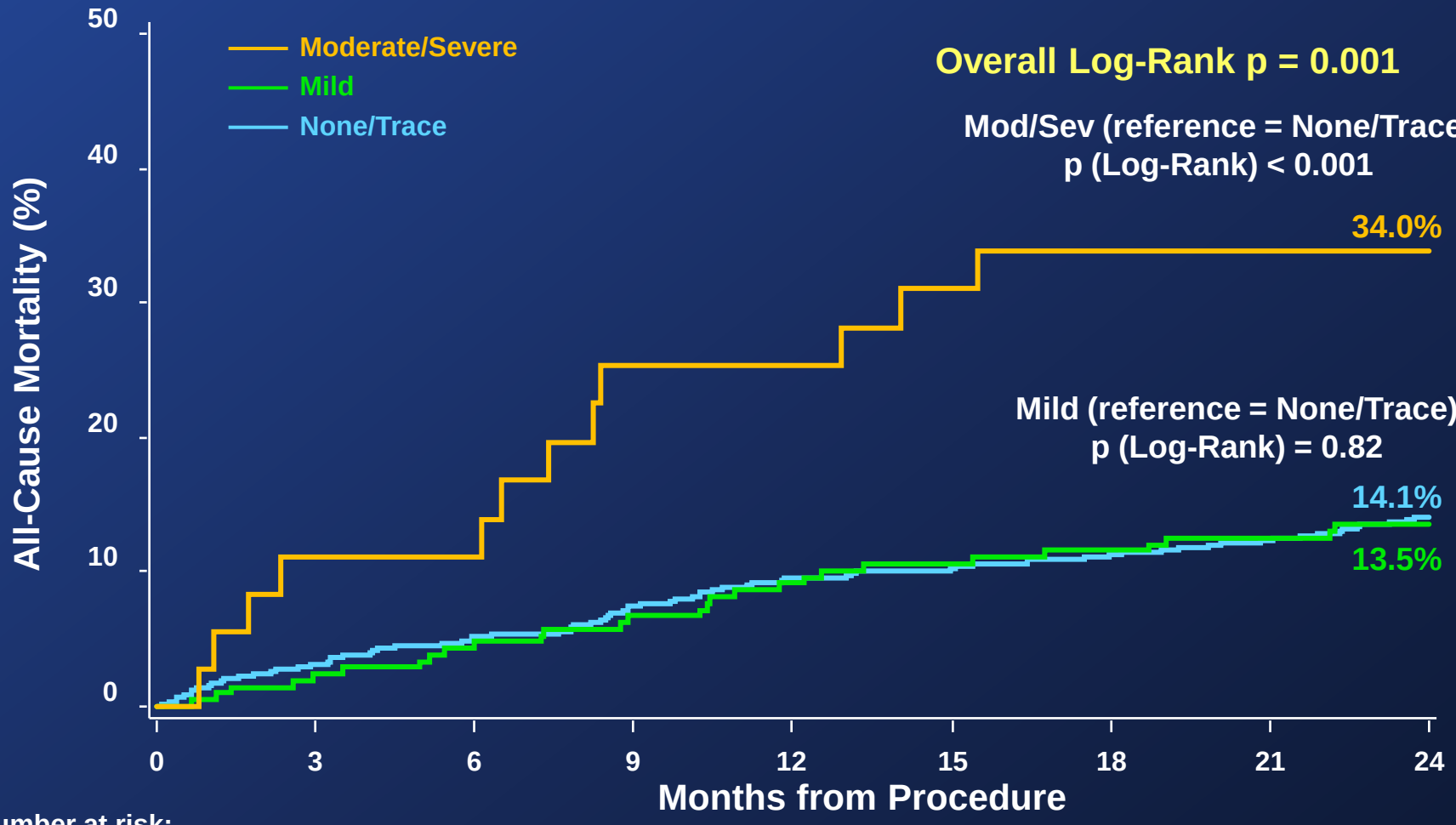
THE PARTNER II TRIAL



No. of echos	30 Days	2 Years
TAVR	872	600
Surgery	757	514

Severity of PVR at 30 Days and All-cause Mortality at 2 Years (VI)

THE PARTNER II TRIAL

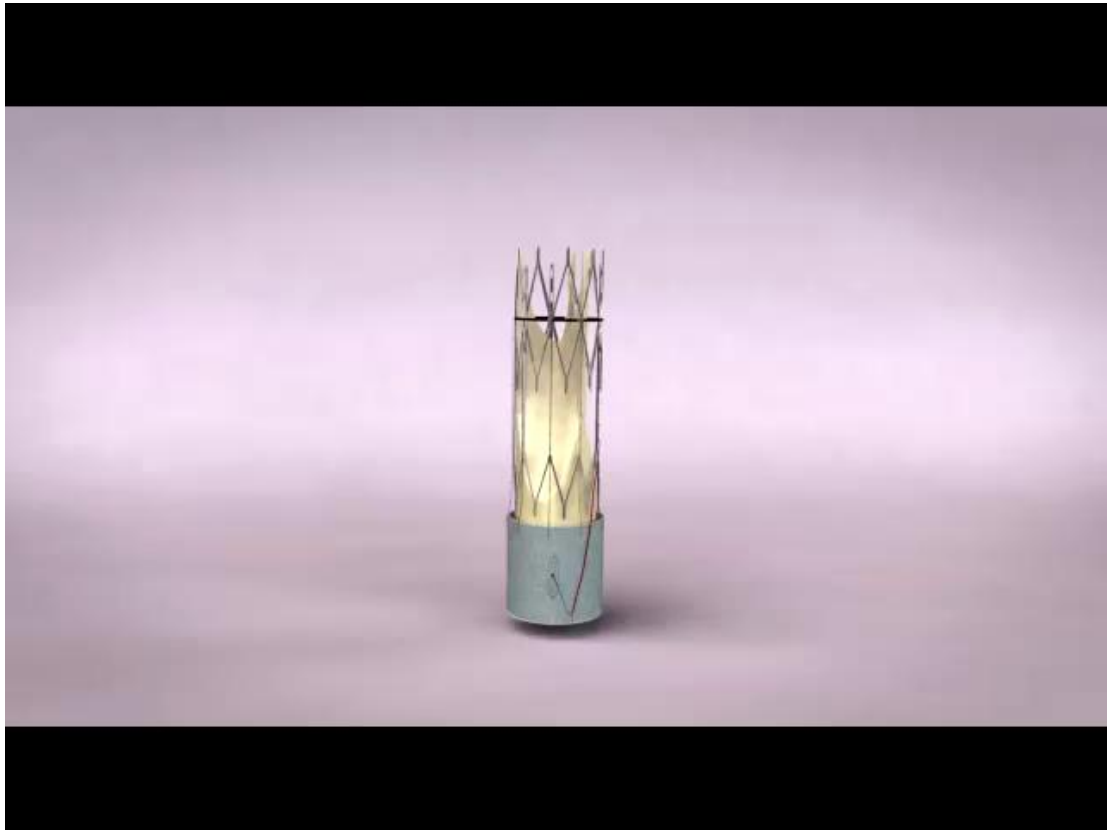


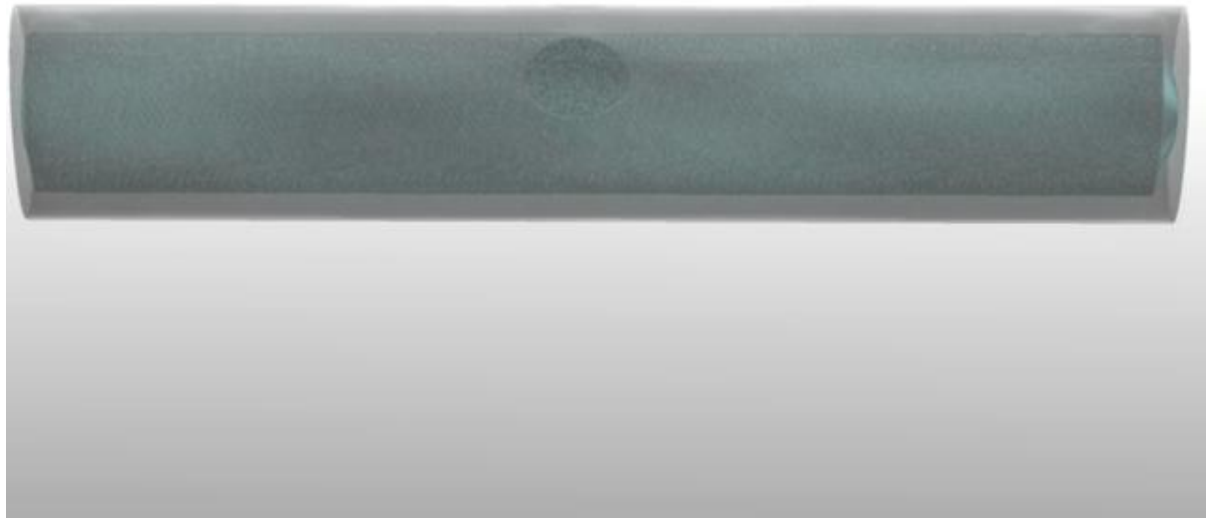
Number at risk:

Moderate/Sev	36	32	32	26	26	24	22	22	21
Mild	210	204	199	194	188	184	182	180	175
None/Trace	701	678	664	647	628	621	612	605	585

Expandable Skirt Technology

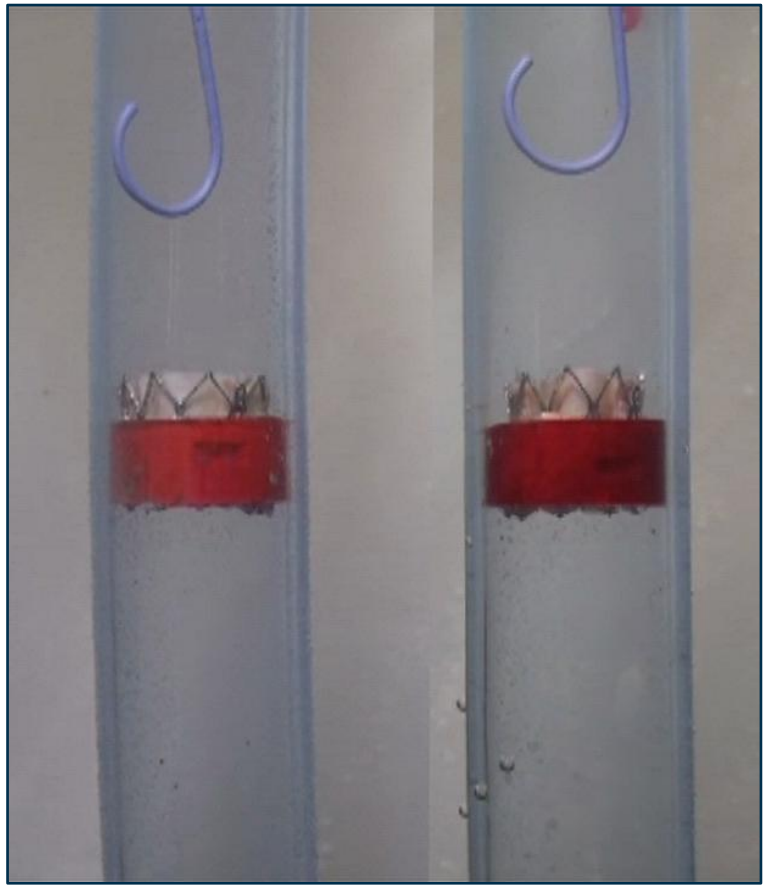
Highly-conformable, on-demand seal technology

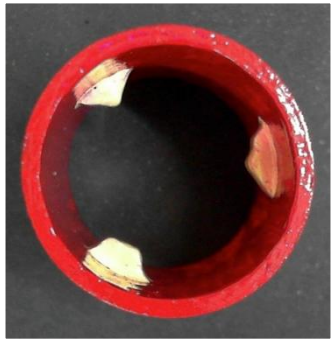




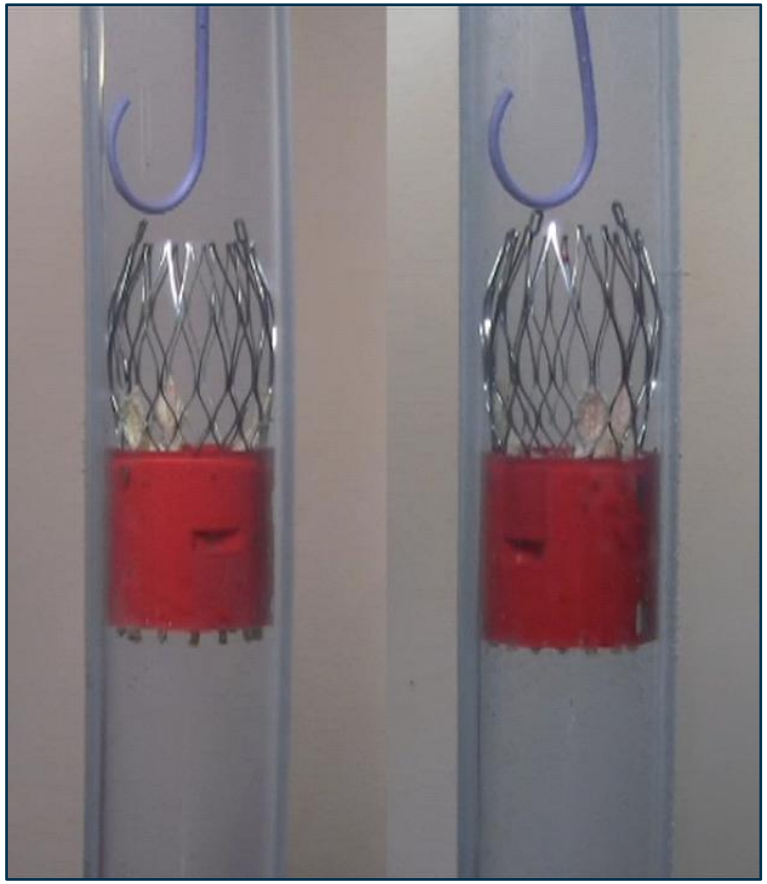
Elimination of paravalvular regurgitation

In vitro testing





Test Model



Expandable Skirt Technology

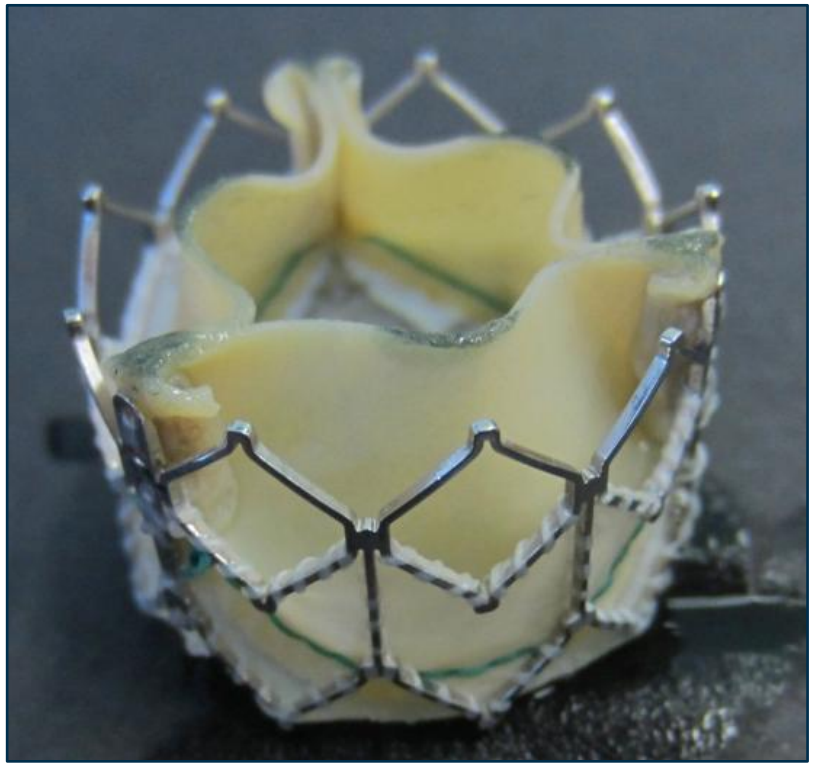
No change in device profile

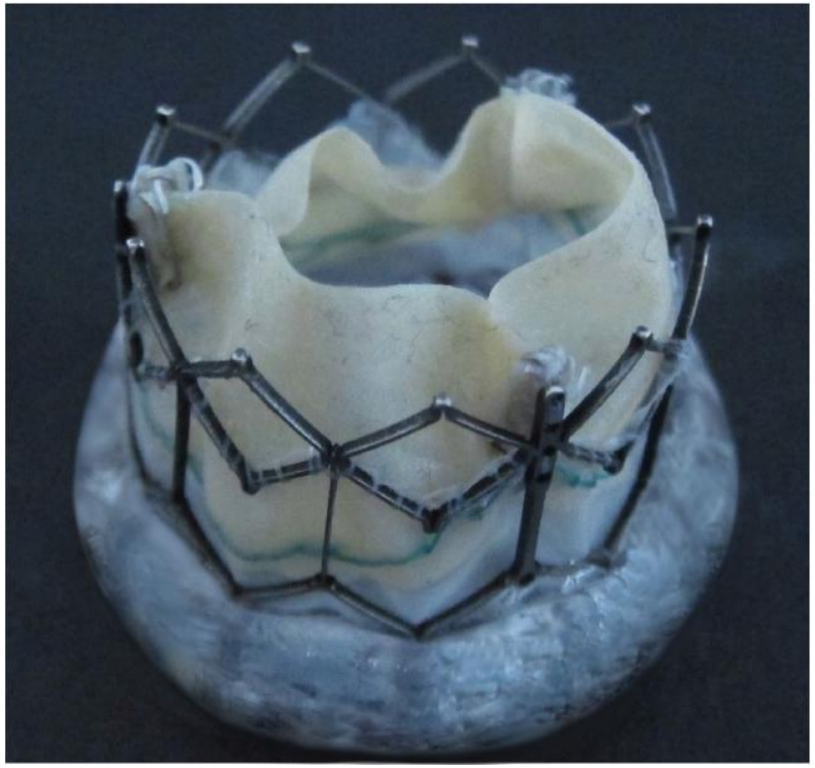
Unexpanded state ***Expanded state***

EXPANDABLE Skirt

Expandable Skirt Technology

No change in device profile

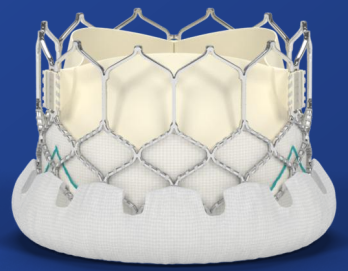




EXPANDABLE Skirt

The PARTNER 2A and S3i Trials
Study Design

THE PARTNER II TRIAL



Intermediate Risk Symptomatic Severe Aortic Stenosis

Intermediate Risk ASSESSMENT by Heart Valve Team

P2 S3i
n = 1078

ASSESSMENT: Optimal Valve Delivery Access

- **Transfemoral (TF)** → **TF TAVR SAPIEN 3**
- **Transapical / Transaortic (TA/TAo)** → **TA/TAo TAVR SAPIEN 3**

P2A
n = 2032

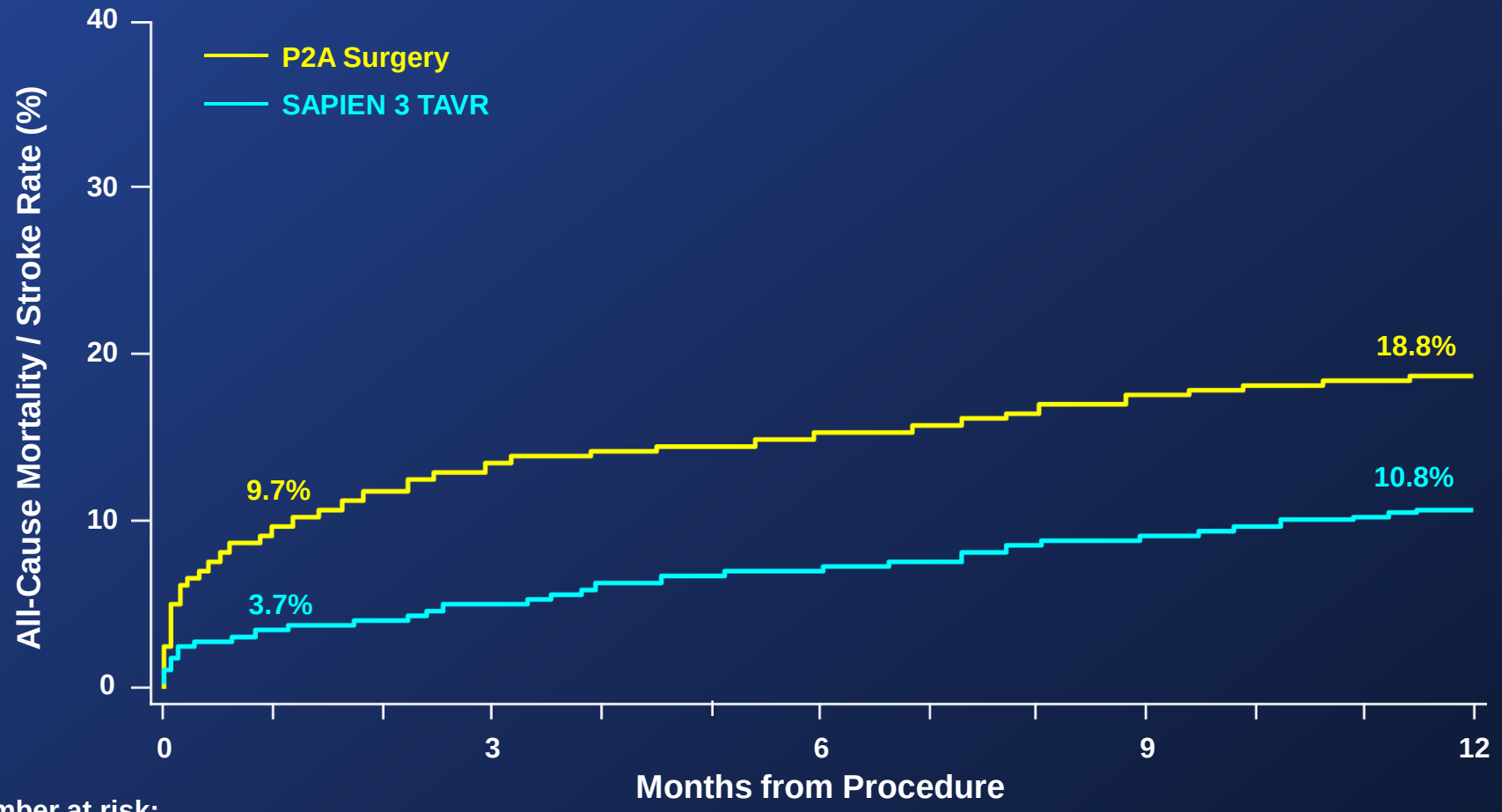
ASSESSMENT: Transfemoral Access

- **Yes** → **Transfemoral (TF)** → **1:1 Randomization** → **TF TAVR SAPIEN XT** vs **Surgical AVR**
- **No** → **Transapical / TransAortic (TA/TAo)** → **1:1 Randomization** → **TA/Tao TAVR SAPIEN 3** vs **Surgical AVR**

Primary Endpoint: All-Cause Mortality, All Stroke, or Mod/Sev AR at One Year
(Non-inferiority Propensity Score Analysis)

Unadjusted Time-to-Event Analysis
All-Cause Mortality and All Stroke (AT)

THE PARTNER II TRIAL



Number at risk:

P2A Surgery	944	805	786	757	743
S3 TAVR	1077	1012	987	962	930

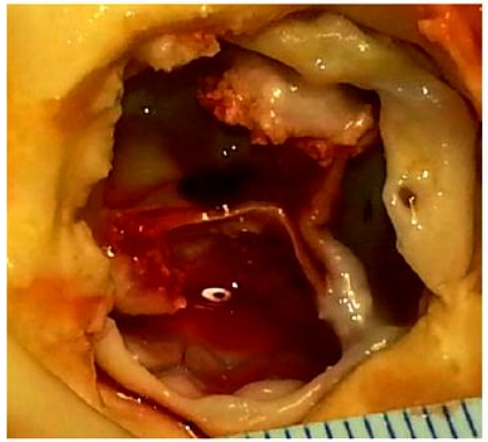
The PARTNER 2A Trial
Clinical Implications

THE PARTNER II TRIAL

- *The results from PARTNER 2A support the use of TAVR as an alternative to surgery in intermediate risk patients, similar to those included in this trial.*
- In patients who are candidates for transfemoral access, TAVR may result in additional clinical advantages.
- Long-term durability assessments of transcatheter bioprosthetic valves are still lacking and extrapolation of these findings to low-risk patients requires further clinical trial validation.

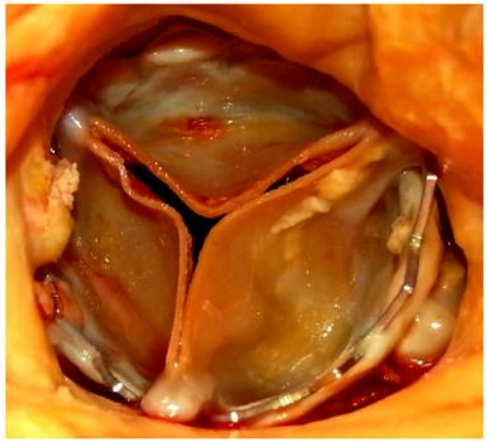
SAPIEN Platform Has Now Demonstrated Durability to 9 Years

1st generation



Horse pericardium
Untreated

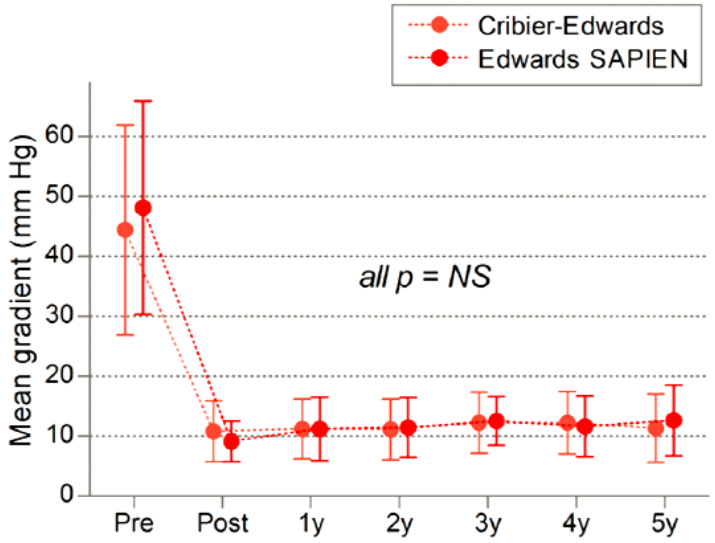
2nd generation SAPIEN



Bovine pericardium
Anticalcification treatment

Valves explanted after 7 years

Vancouver 9 year durability experience



Vancouver

- 9 year experience
- >1,000 implants
- 5 failed valves

Webb at ACC 2014: New Balloon Expandable Aortic Valves

Minimalism :Procedural Considerations for TAVR

Strong trend to maximally simplify TAVR procedures in real world practice

- Preferential percutaneous transfemoral access,
- Reduced use of general anesthesia,
- Less intra-procedural TEE,
- Eliminating pre-dilatation,
- Decreased use of complex and costly hybrid cath lab/OR
- Early discharge programs.

Change in Strategy: Minimalist TF-TAVR approach
SAPIEN XT – Edwards SAPIEN

- **Conscious sedation**
- **No TEE**
- **Percutaneous access**
- **Preclosing**
- **Procedure: 60 min**
- **Discharge: Day 1 to 3**
- **Back home**

TF > 80%

Durand et al, JACC Cardiovasc Interv 2012.

Conversion to G.A.,
Heart Surgery,
Vascular surgical repair
< 1%

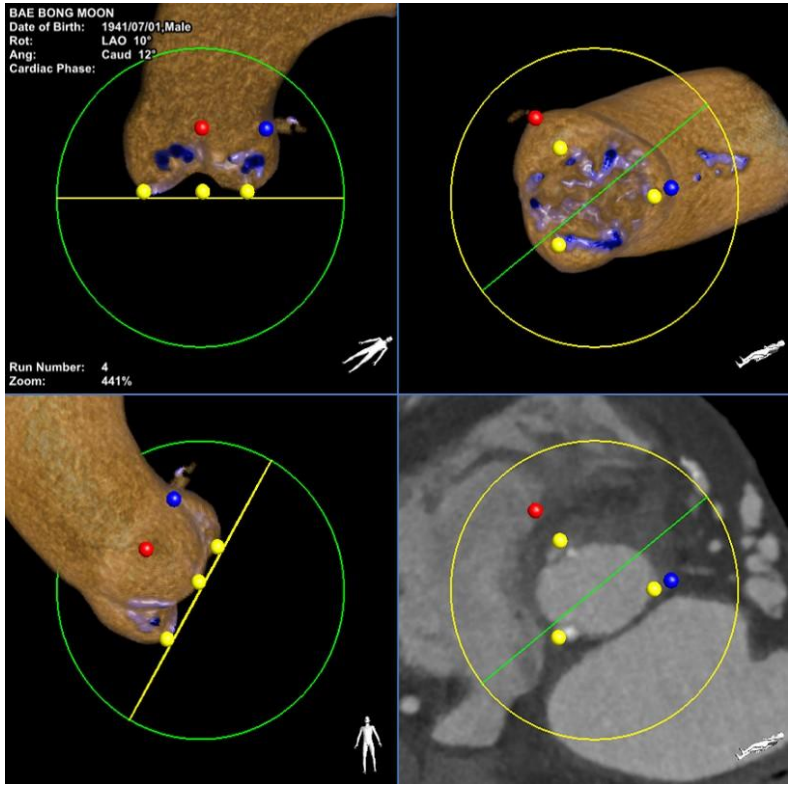
The 3MM strategy in Vancouver

- Multidisciplinary
- Multimodality
- Minimalist
  - ✓ TF access
  - ✓ next day discharge

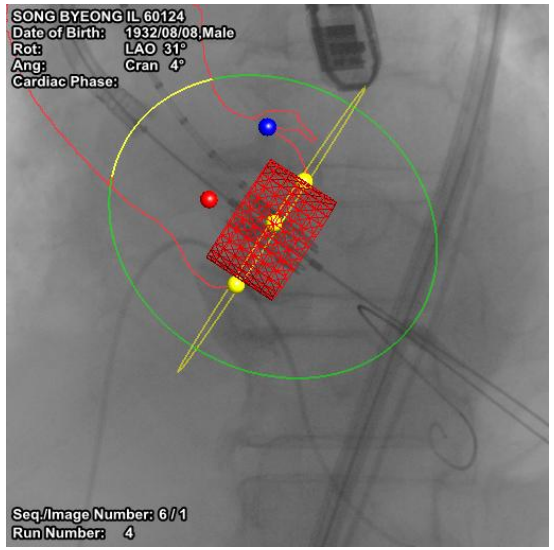
- Carefully selected TF pts
- 60% (31/52) discharged in 1 d (mean LOS 1.8 d)
- Final 17 cases wo GA
- 30-day mortality 1.9%
- 2 pts (3.8%) readmitted within 30 days

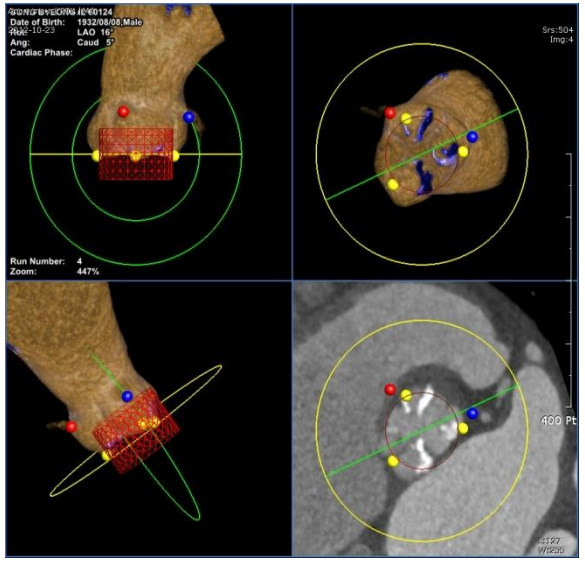
A 97 years old women discharged the sam e day after a TAVR procedure stretching while waiting for the bus to get home… rea d more on page 3.

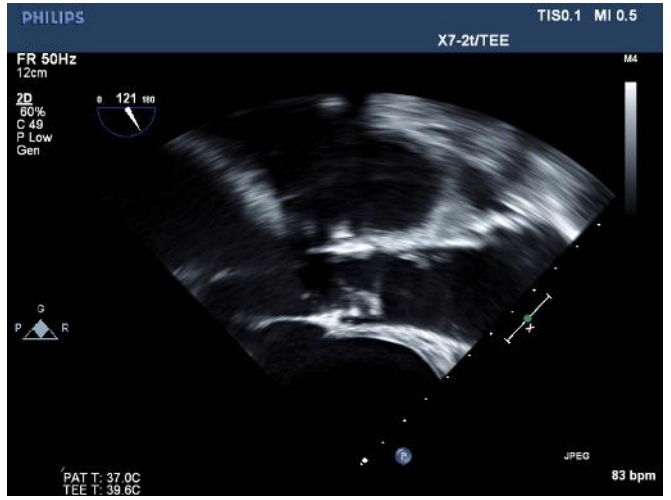
Under the only sedation

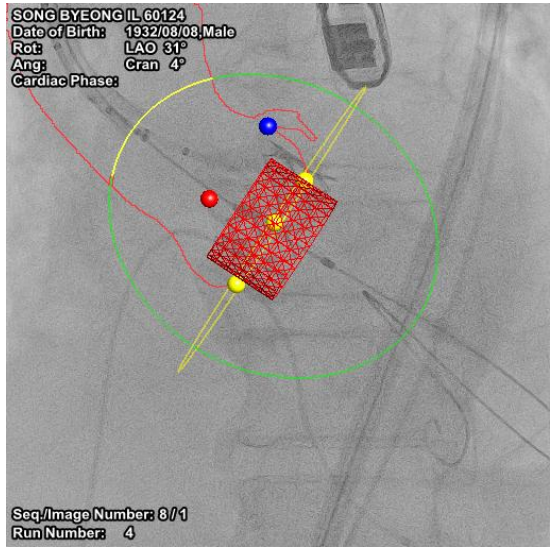


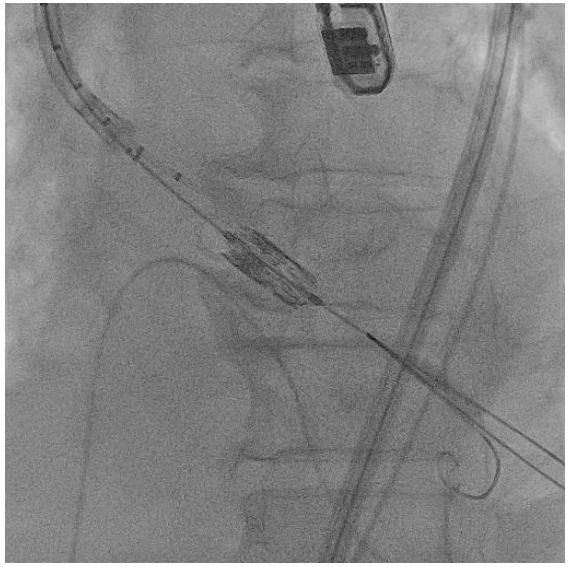
Valve deployment using Heart Navigating system for Quadircuspid aortic valve stenosis

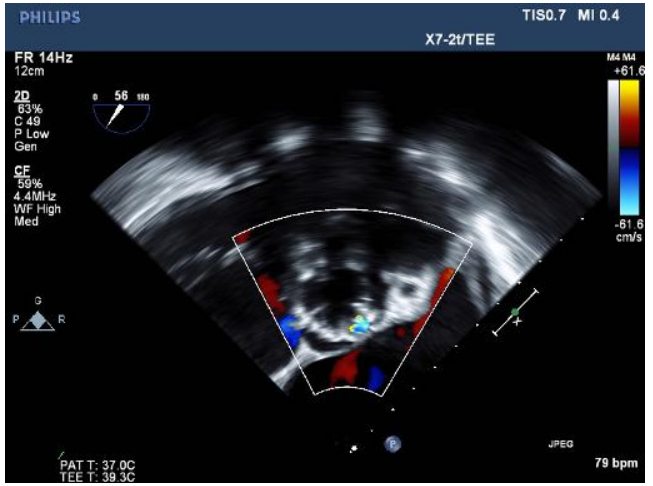




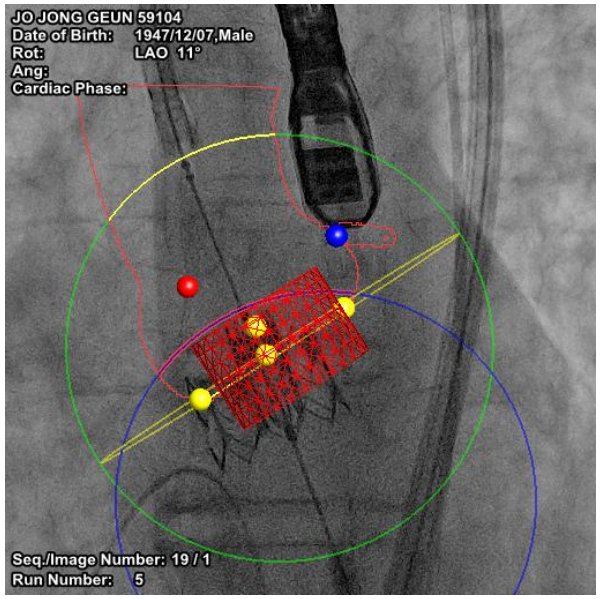


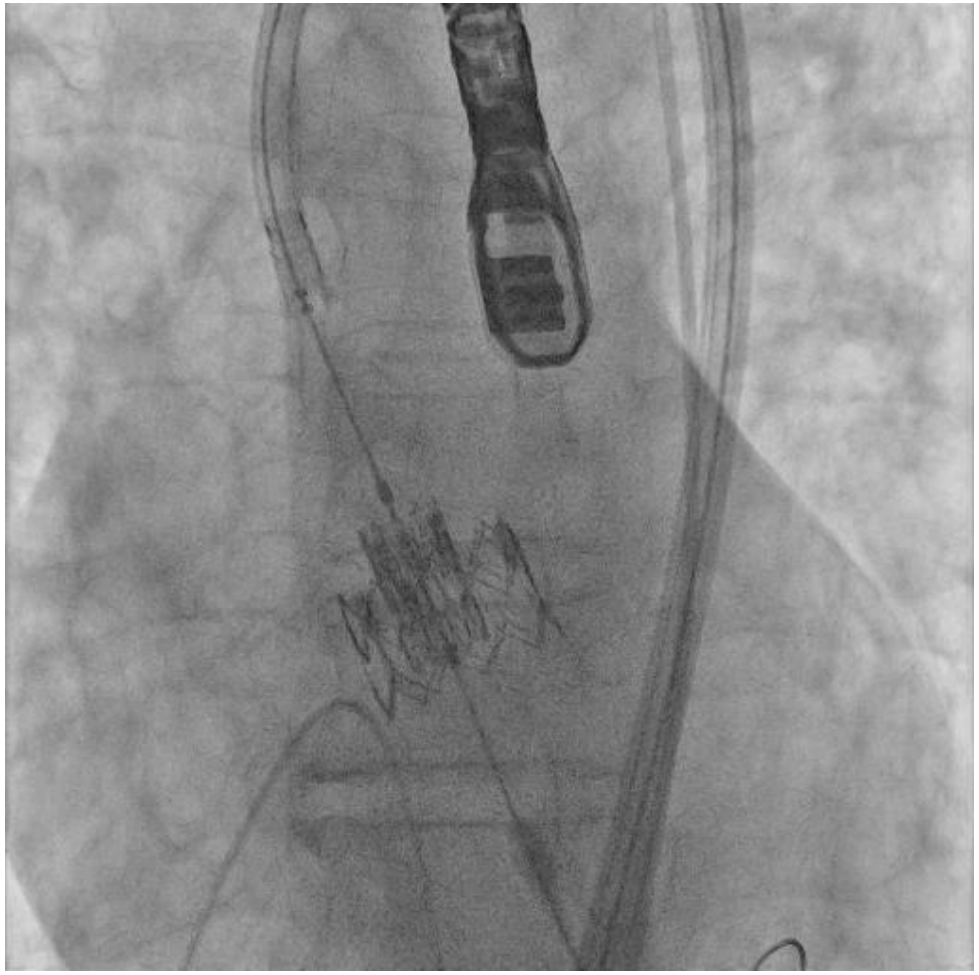


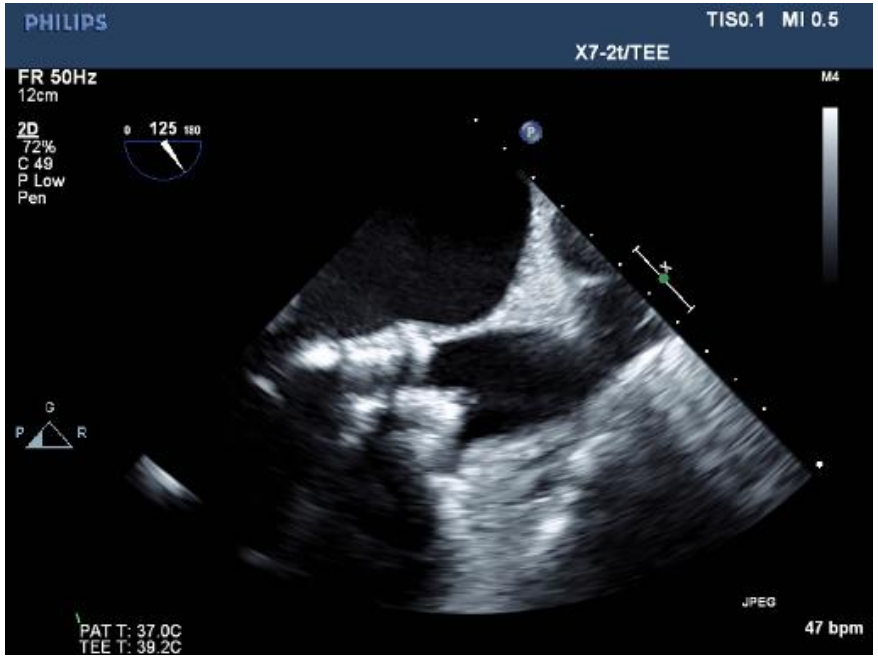




Valve in-valve guided by heart navigation system

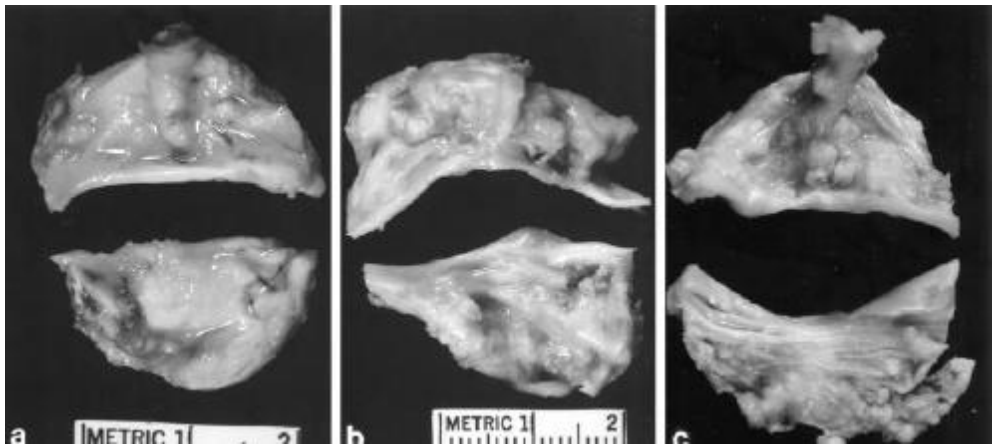


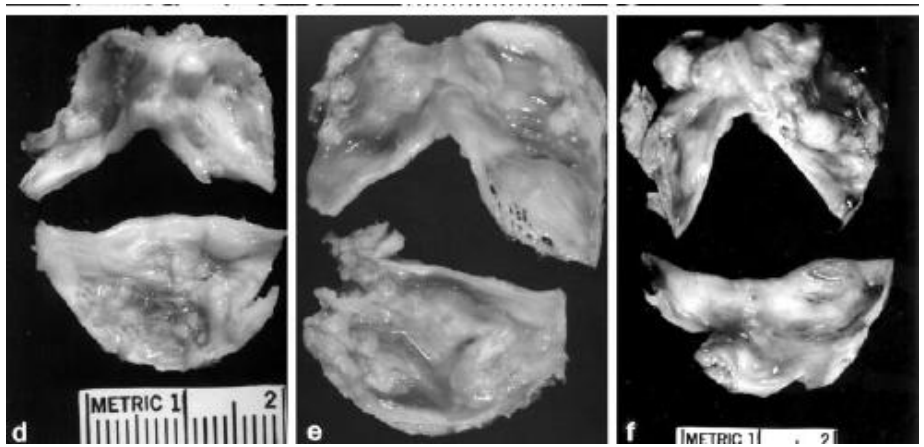




Bicuspid Aortic Valve disease and TAVR

- ✓ Bicuspidy is regarded as a **relative CI to TAVR** due to the risk of uneven expansion of the b ioprosthesis.
- ✓ Exclusion criteria in clinical trials
- ✓ Procedural outcomes were comparable btw bicuspic & tricuspid, in terms of successful im plantation, significant AR after TAVI, 30-day combined safty endpoint





Transcatheter Aortic Valve Implantation for Patients With Severe Bicuspid Aortic Valve Stenosis

Kentaro Hayashida, MD, PhD, FESC; Erik Bouvier, MD; Thierry Lefèvre, MD, FSCAI, FESC; Bernard Chevalier, MD, FSCAI, FESC; Thomas Hovasse, MD; Mauro Romano, MD; Philippe Garot, MD, FESC; Yusuke Watanabe, MD; Arnaud Farge, MD; Patrick Donzeau-Gouge, MD; Bertrand Cormier, MD; Marie-Claude Morice, MD, FESC

Background—Bicuspid aortic valve (BAV) is regarded as a relative contraindication to transcatheter aortic valve implantation attributable to the risk of uneven expansion of the bioprosthesis. The purpose of this study was to evaluate the efficacy and safety of transcatheter aortic valve implantation in patients with BAV.

Methods and Results—Of 470 patients included in our prospective transcatheter aortic valve implantation database (October 2006–January 2012), 229 consecutive patients undergoing both echocardiography and multidetector computed tomography were analyzed. We compared clinical outcomes in patients with vs patients without BAV. In this series of 229 patients, BAV was detected by multidetector computed tomography in 21 patients (9.2%). BAV was identified by transthoracic and transoesophagal echocardiography in only 9 of these 21 patients. Patients were 83.1±6.6 years old, and European system for cardiac operative risk evaluation score was 20.0%±11.4%. The BAV group was similar to the non-BAV group except for diabetes mellitus (4.8% vs 24.0%; P=0.05). The aortic annulus diameter in BAV patients was not significantly larger by multidetector computed tomography (24.7±3.0 vs 23.7±1.9 mm; P=0.07). The CoreValve was used more frequently in the BAV group (47.6% vs 16.3%; P=0.002). There was no significant difference in device success (100% vs 92.8%; P=0.37), risk of annulus rupture (0% vs 1.4%; P=1.00), or valve migration (0% vs 1.4%; P=1.00) in BAV patients compared with non-BAV patients. Postprocedural mean gradient (10.0±3.4 vs 9.7±4.1 mm Hg; P=0.58), aortic regurgitation ≥2 of 4 (19.0% vs 14.9%; P=0.54), 30-day mortality (4.8% vs 8.2%; P=1.00), and 30-day combined safety end point (14.3% vs 13.5%; P=1.00) were also similar in both groups.

Conclusions—In selected BAV patients, transcatheter aortic valve implantation may be associated with low complication rate, efficacy, and acceptable outcomes similar to those in non-BAV patients. (***Circ Cardiovasc Interv*. 2013;6:284-291.**)

Performance of transcatheter aortic valve implantation in patients with bicuspid aortic valve: Systematic review

Altayyeb Yousef [a,1], Trevor Simard [a,1], Ali Pourdjabbar [a], John Webb [b], Derek So [a], Aun-Yeong Chong [a], Christopher Glover [a], Michel Le May [a], Benjamin Hibbert [a], Marino Labinaz [a,*]

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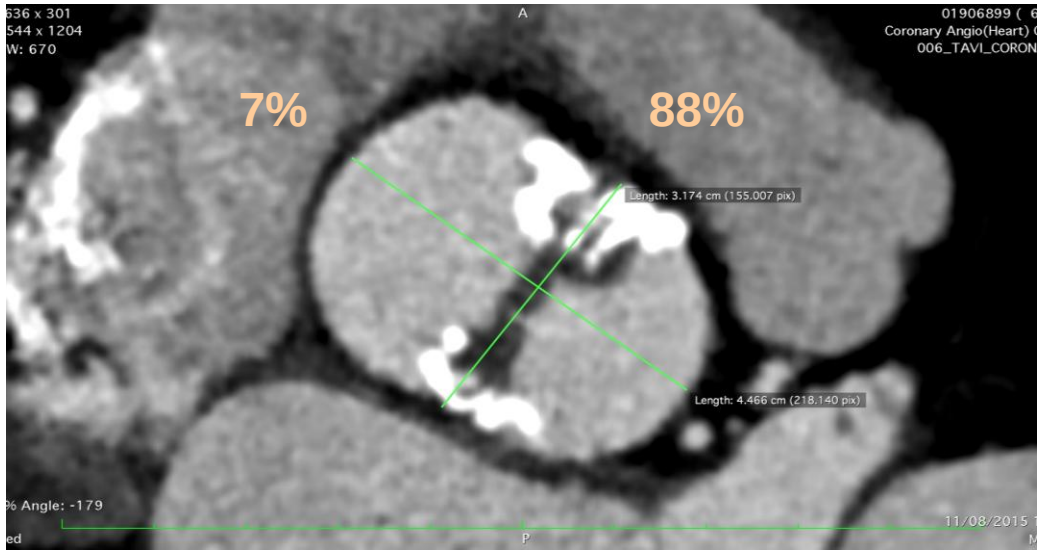
- Literature Review – 92 patients
- 56% self expanding, 77% TF
- 8.6% 30 day mortality
  - 2 from aortic dissections
- **PVL moderate to severe in 31%**
- Long term survival good

Bicuspid Aortic Valve , Type O no Raphe



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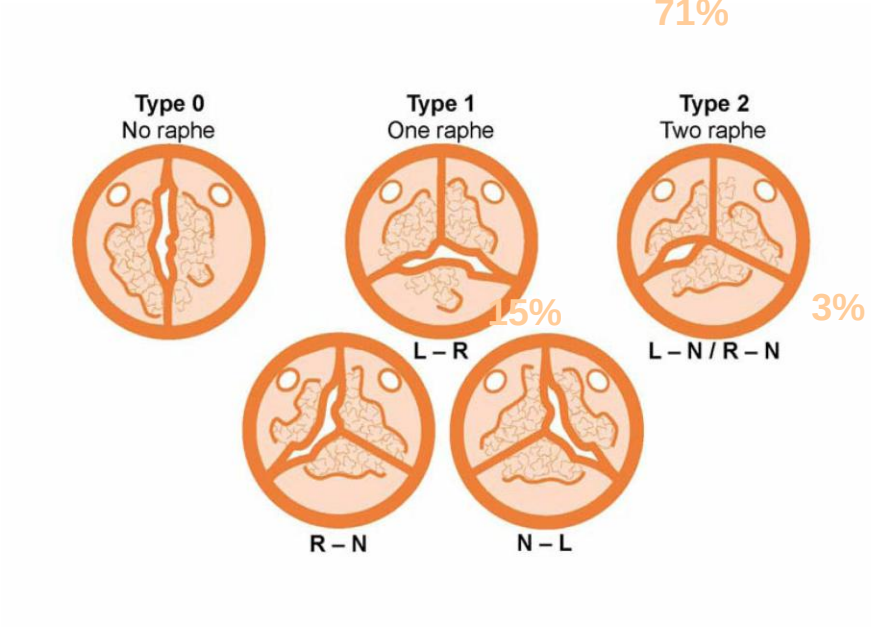

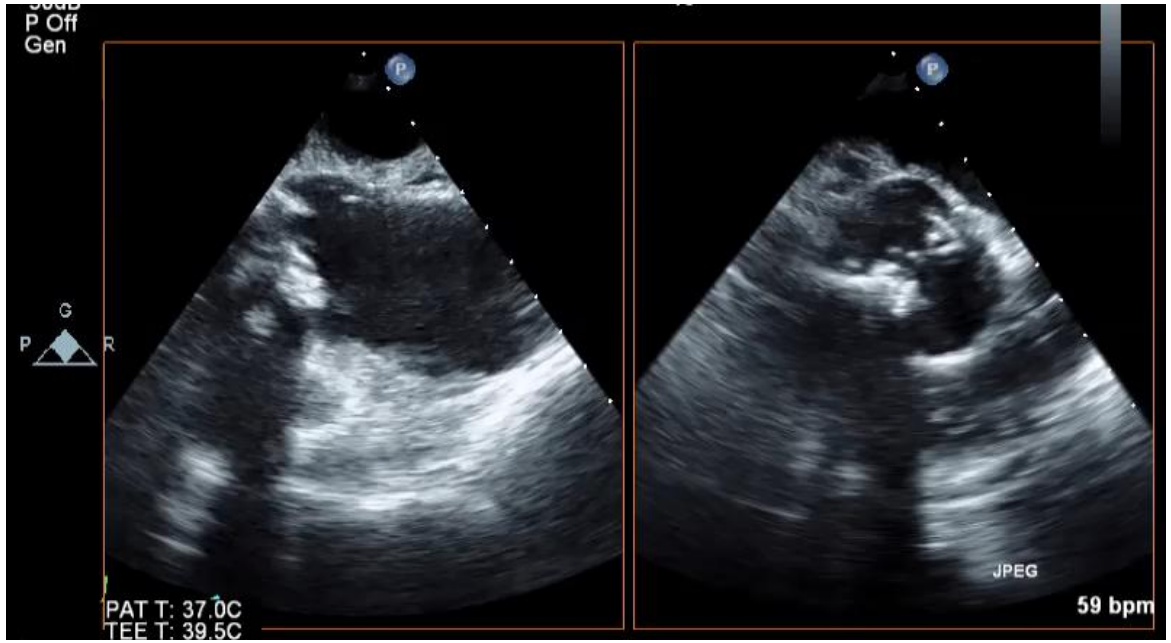

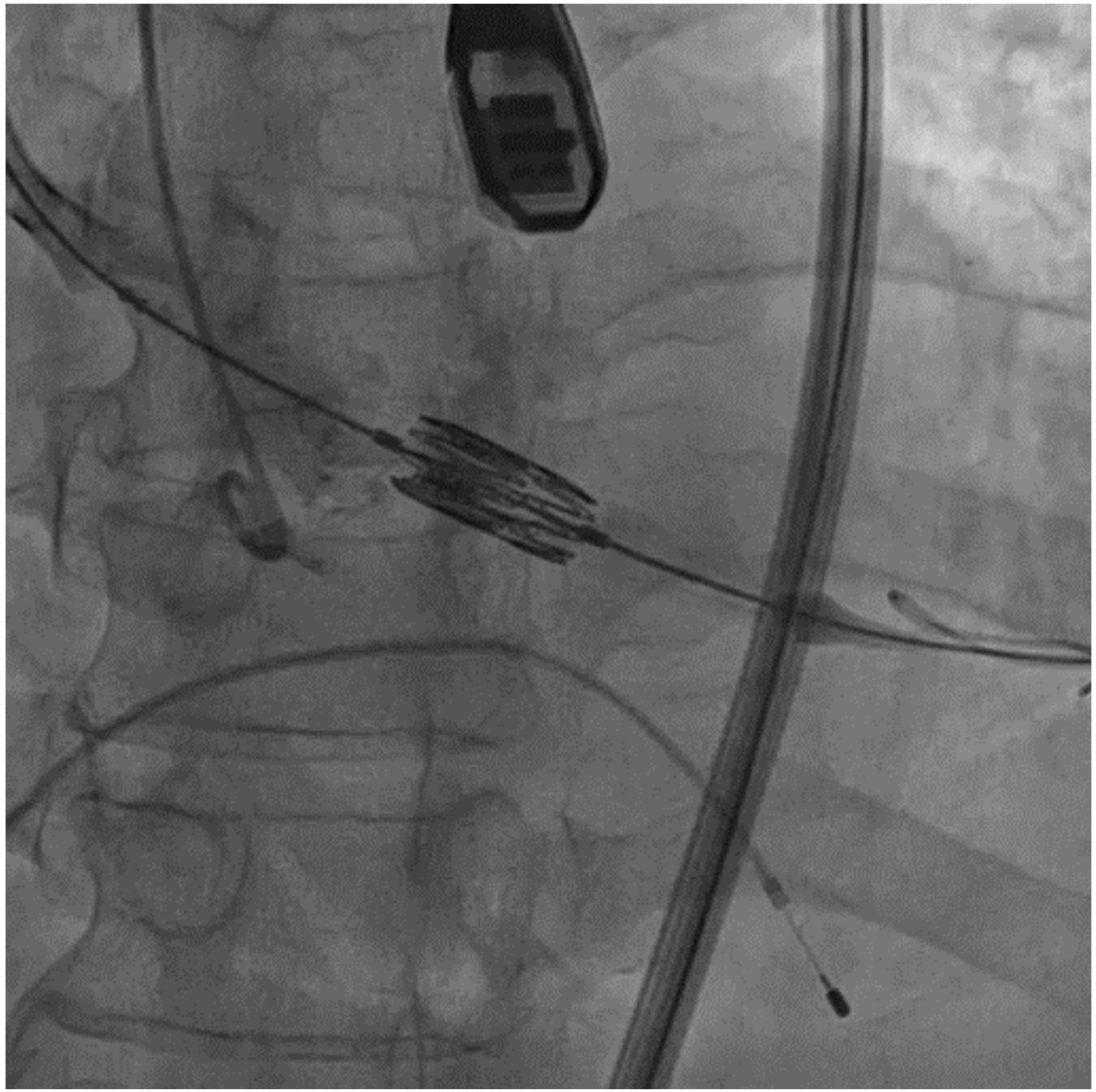

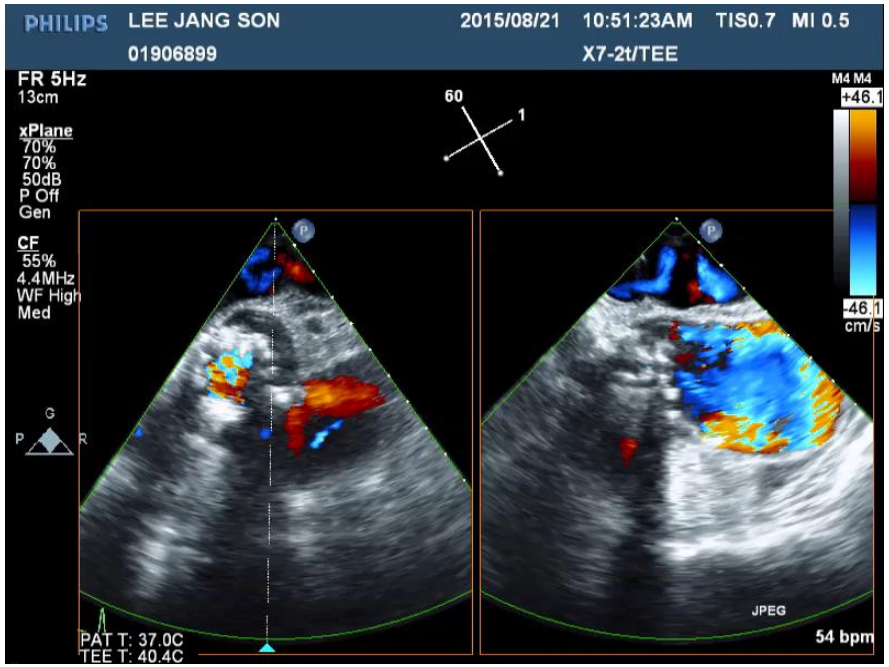
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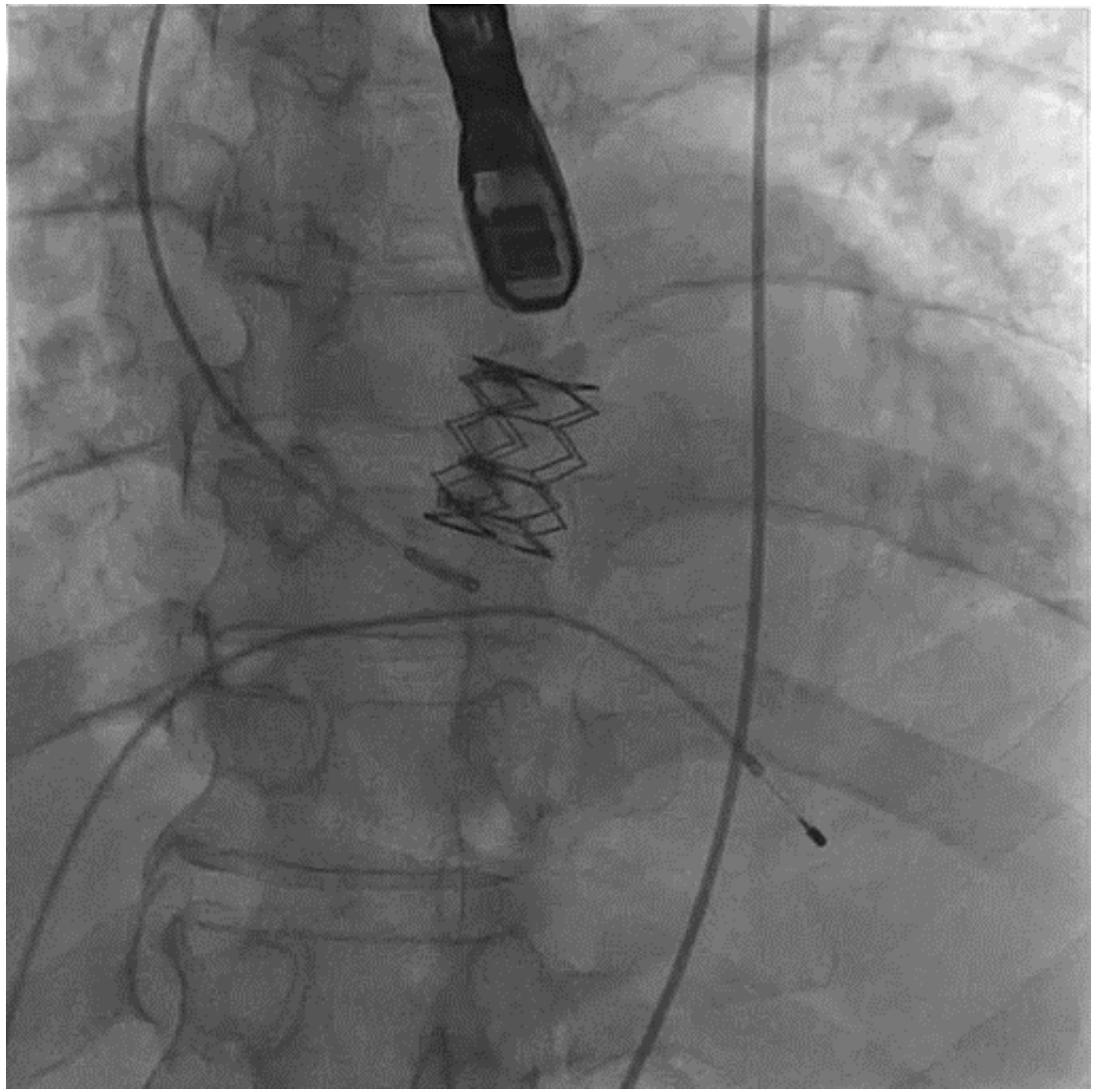

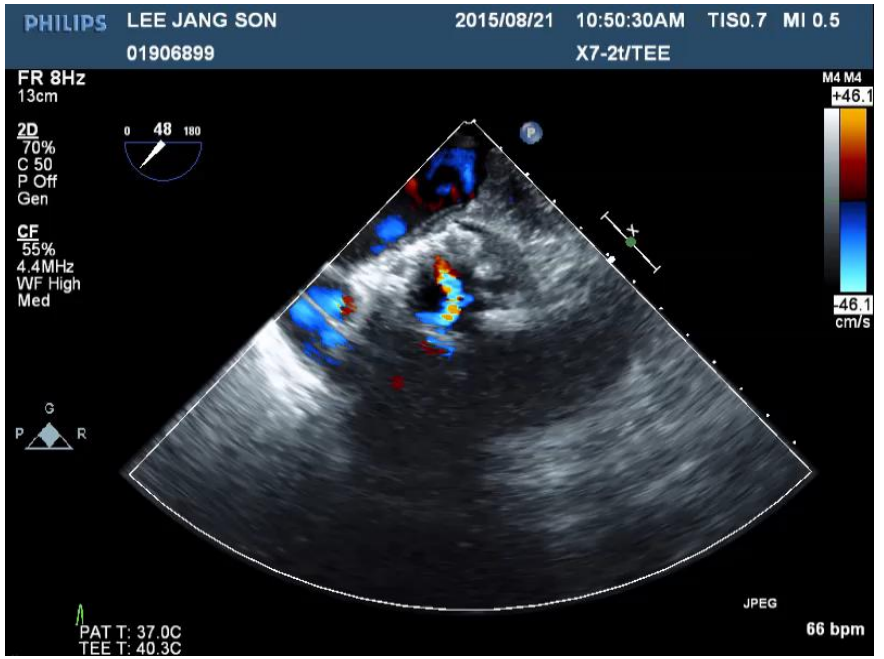
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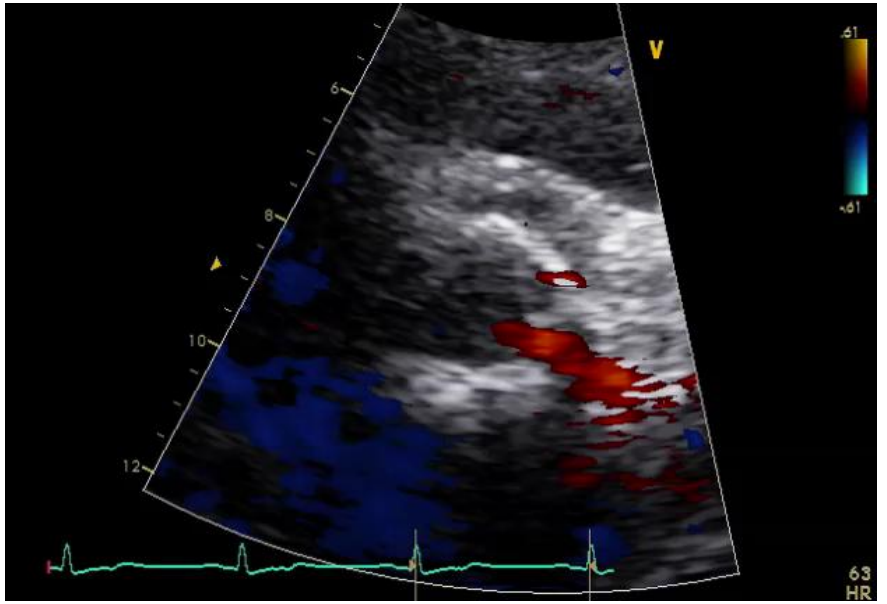
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HR

Heart Valve Team

- The role of the Heart Team cannot be limited to pre-operative assessment and choices regarding valve type and access route

- The Heart Team is essential to the management of intraoperative complications as well as postoperative care

- This includes cross-training—that is a cardiologist performing TA-TAVI (after exposure of the apex by the surgeon) or a cardiac surgeon performing TF-TAVI (assisted by an interventional cardiologist)—further promotes the ideal cooperation and collaboration of the Heart Team.

In Summary

- Less invasive strategy is a general trend not to go against.
- TAVI is already and actively performing for the lower risk patients by virtue of increased experiences, improved device and strategy making TAVI safer and simpler.
- There are increasing data about clinical outcomes of TAVI for the lower risk patients.
- Efforts for Innovation and creation to resolve TAVI-associated problems are still ongoing
- The results from RCT support the use of TAVR as an alternative to surgery in intermediate risk patients.
- Long-term durability assessments of transcatheter bioprosthetic valves are still lacking and and more data is needed to expand TAVI indication to younger patients
- It cannot be emphasized enough that the role of heart valve team is very important for managing the AS patients.
- In the future, TAVI may be a gold standard for AS patients.

Change the topic:
How to collaborate on TAVI very well

Thank you for your attention !!