Update of 2017 AHA/ACC and EACTS/ESC guidelines for management of patients with valvular heart disease

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G – Grant and or Research Support E – Equity Interests S – Salary, AB – Advisory Board
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Aortic Stenosis

Aortic Stenosis

- COR updated from IIa to I
- LOE updated from B to A.

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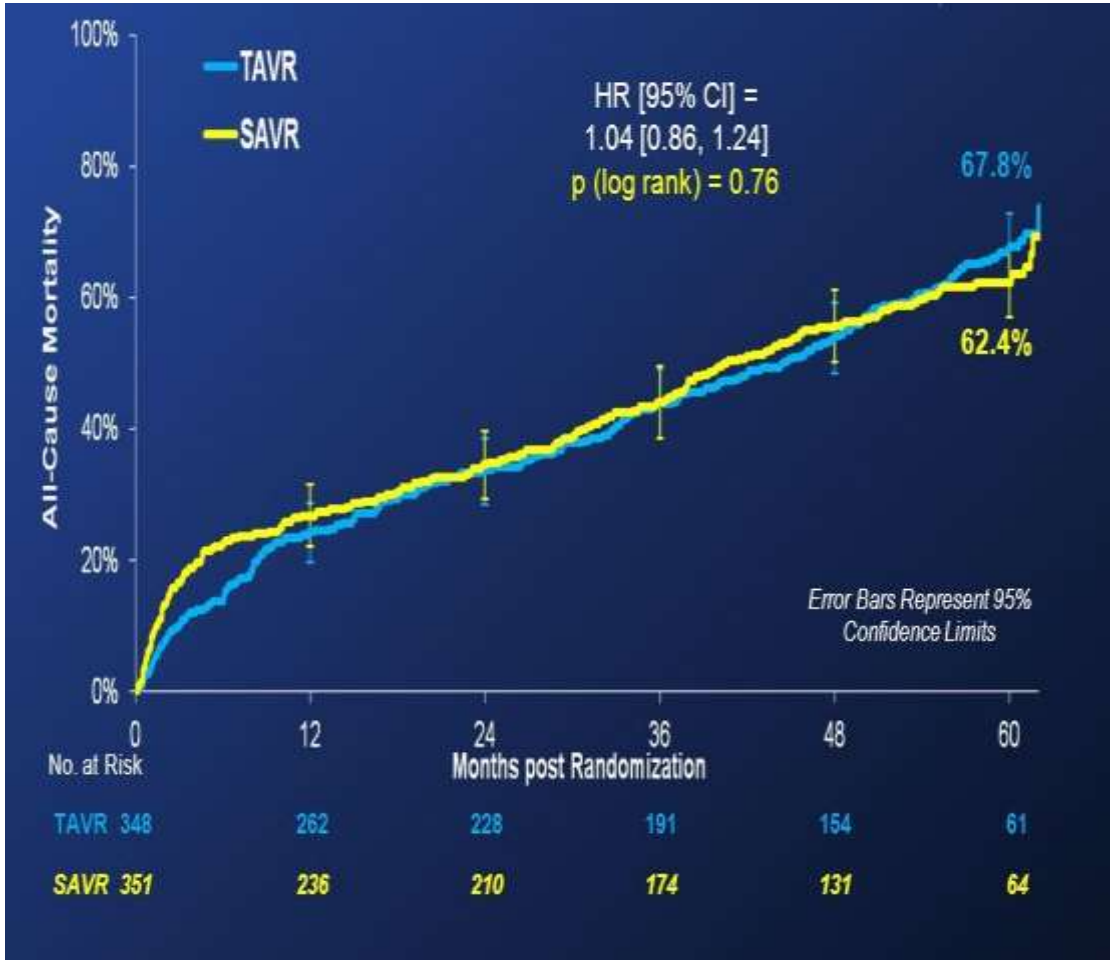
Class I, LOE A

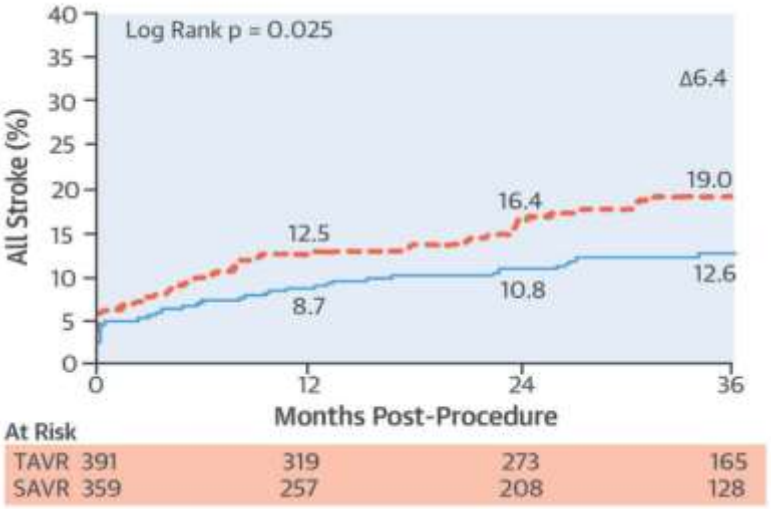
- *SAVR or TAVR* is recommended for symptomatic patients with *severe AS (Stage D) and high risk for surgical AVR*, depending on patient-specific procedural risks, values, and preferences

Five Year Outcomes
PARTNER I



- TAVR (N=)348 vs. SAVR (N=351)
  - Mean Age: 84.1 yr
  - Mean STS: 11.7%
  - Device Type: SAPEIN
- All-Cause Mortality (p=0.76)
  - TAVR 67.8%
  - SAVR 62.4%
- Stroke (p=0.35)
  - TAVR 14.7%
  - SAVR 15.9%
- PPM Rate
  - TAVR 9.7%
  - SAVR 9.1%

Three Year Outcomes



- Multi-center, 1:1 Randomized
- SAVR (n=359)vs TAVR (n=391)
  - Mean age 83 yr
  - STS score 7.3%
  - Device Type: CoreValve Self Expanding
- All-cause Mortality
  - TAVR 32.9%
  - SAVR 39.1%
- Stroke
  - TAVR 12.6%
  - SAVR 19.0%
- PPM rate
  - TAVR 28%
  - SAVR 14.5%

Aortic Stenosis

New Addition to Guidelines

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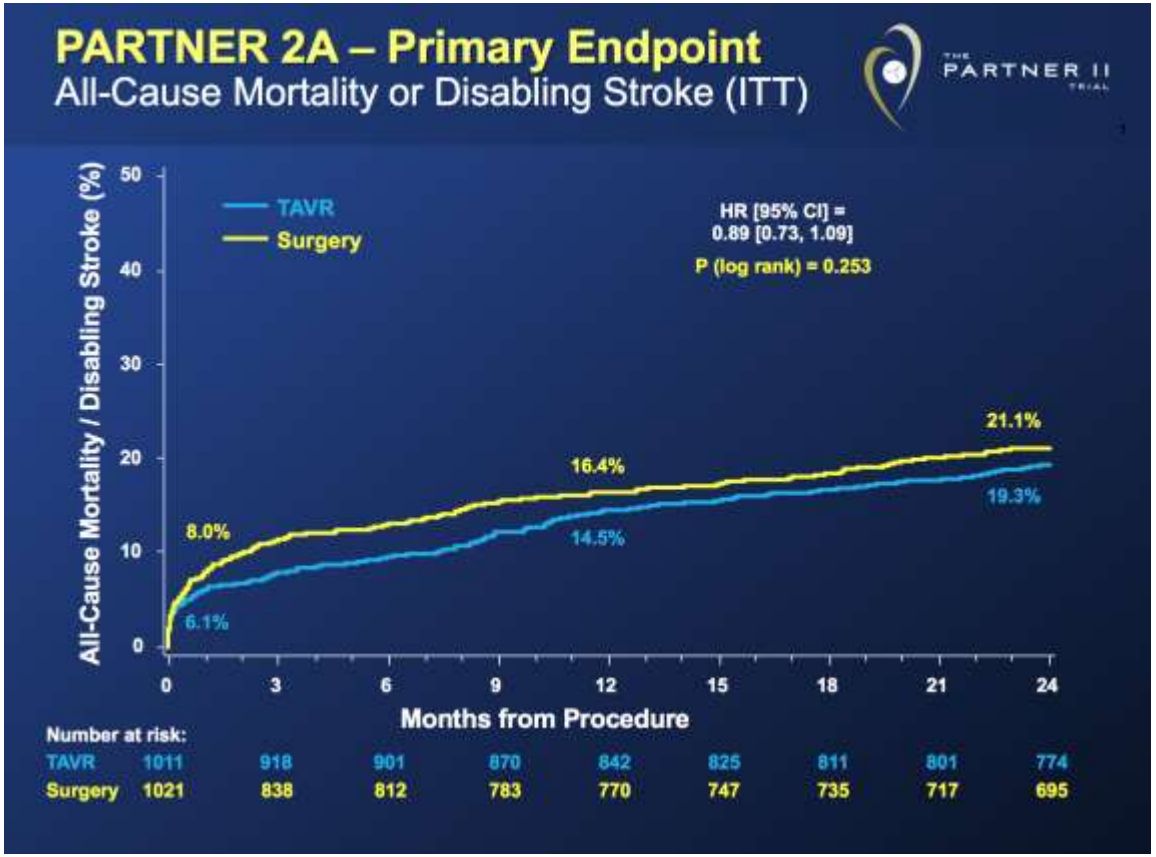
Class IIa, LOE B-R

- TAVR is a reasonable *alternative* to surgical AVR for symptomatic patients with *severe AS (Stage D) and at intermediate surgical risk*, depending on patient-specific procedural risks, values, and preferences

TAVR vs SAVR

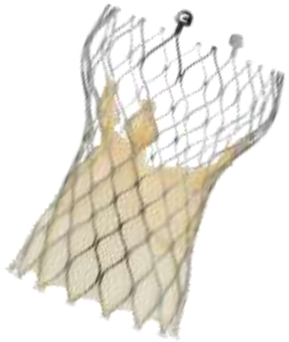
Intermediate Surgical Risk – PARTNER IIA Trial



- TAVR (n=1011) with SAPIEN XT vs. SAVR (n=1021)
  - Mean age: 82 years
  - STS Score: 5.8
- All-cause mortality
  - TAVR 19.3%
  - SAVR 21.1%
- Disabling Stroke
  - TAVR 6.2%
  - SAVR 6.4%
- PPM Rate
  - TAVR 11.8%
  - SAVR 10.3%

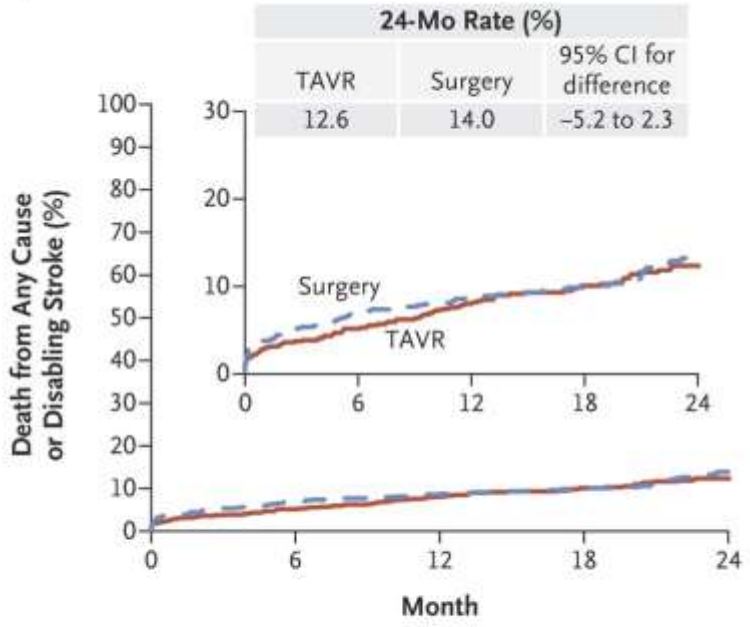
TAVR vs SAVR

Intermediate Risk - SURTAVI Trial



B Primary Outcome

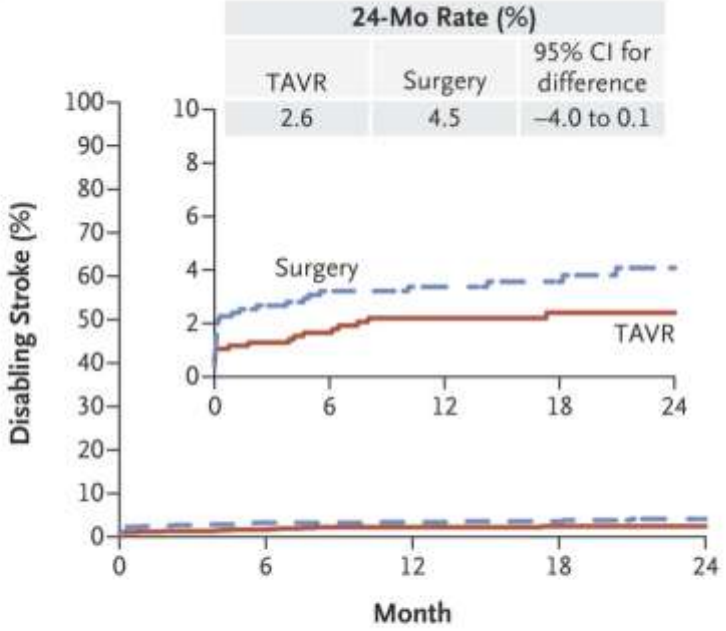
24-Mo Rate (%)		
TAVR	Surgery	95% CI for difference
12.6	14.0	−5.2 to 2.3



No. at Risk					
TAVR	864	755	612	456	272
Surgery	796	674	555	407	241

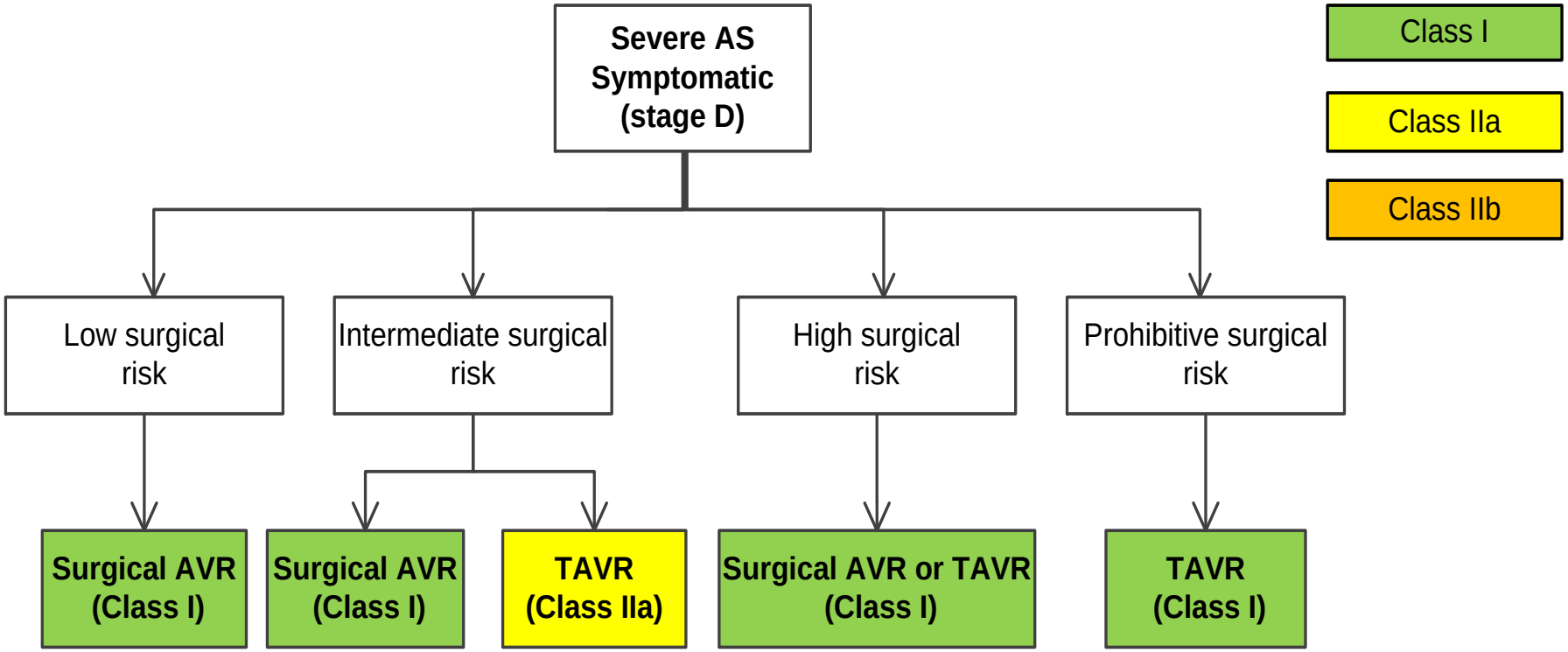
D Disabling Stroke

24-Mo Rate (%)		
TAVR	Surgery	95% CI for difference
2.6	4.5	−4.0 to 0.1



No. at Risk					
TAVR	864	755	612	456	272
Surgery	796	674	555	407	241

Choice of TAVR Versus Surgical AVR in the Patient With Severe Symptomatic AS (Modified)



Indications for intervention in aortic stenosis and recommendations for the choice of intervention mode *(continued)*

Recommendations	Class	Level
The choice for intervention must be based on careful individual evaluation of technical suitability and weighing of risks and benefits of each modality (aspects to be considered are listed in the according table). In addition, the local expertise and outcomes data for the given intervention must be taken into account.	I	C
SAVR is recommended in patients at low surgical risk (STS or EuroSCORE II <4% or logistic EuroSCORE I <10% and no other risk factors not included in these scores, such as frailty, porcelain aorta, sequelae of chest radiation).	I	B
TAVI is recommended in patients who are not suitable for SAVR as assessed by the Heart Team.	I	B

Aspects to be considered by the Heart Team for the decision between SAVR and TAVI in patients at increased surgical risk

	Favours TAVI	Favours SAVR
Clinical characteristics		
STS/EuroSCORE II <4% (logistic EuroSCORE I<10%)		+
STS/EuroSCORE II ≥4% (logistic EuroSCORE I ≥10%)	+	
Presence of severe comorbidity (not adequately reflected by scores)	+	
Age <75 years		+
Age ≥75 years	+	
Previous cardiac surgery	+	

2017 ESC/EACTS Guidelines for the Management of Valvular Heart Disease (European Heart Journal 2017 - doi:10.1093/eurheartj/ehx391)

Aspects to be considered by the Heart Team for the decision between SAVR and TAVI in patients at increased surgical risk *(continued)*

	Favours TAVI	Favours SAVR
Clinical characteristics *(continued)*		
Frailty	+	
Restricted mobility and conditions that may affect the rehabilitation process after the procedure	+	
Suspicion of endocarditis		+
Anatomical and technical aspects		
Favourable access for transfemoral TAVI	+	
Unfavourable access (any) for TAVI		+

2017 ESC/EACTS Guidelines for the Management of Valvular Heart Disease
(European Heart Journal 2017 - doi:10.1093/eurheartj/ehx391)

Aspects to be considered by the Heart Team for the decision between SAVR and TAVI in patients at increased surgical risk *(continued)*

	Favours TAVI	Favours SAVR
Anatomical and technical aspects *(continued)*		
Sequelae of chest radiation	+	
Porcelain aorta	+	
Presence of intact coronary bypass grafts at risk when sternotomy is performed	+	
Expected patient–prosthesis mismatch	+	
Severe chest deformation or scoliosis	+	
Short distance between coronary ostia and aortic valve annulus		+

2017 ESC/EACTS Guidelines for the Management of Valvular Heart Disease (European Heart Journal 2017 - doi:10.1093/eurheartj/ehx391)


Asymptomatic
Aortic Stenosis

Asymptomatic Aortic Stenosis

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class I

- **Surgical AVR is recommended in asymptomatic patients with LV EF < 50% (Stage C2)**
- **Surgical AVR is recommended in asymptomatic patients undergoing other cardiac surgery**

class IIa

- **AVR is reasonable for asymptomatic patients with very severe AS (stage C1, aortic velocity ≥5 m/s) and low surgical risk**
- **AVR is reasonable in asymptomatic patients (stage C1) with severe AS and decreased exercise tolerance or an exercise fall in BP**

What is new in the 2017 Valvular Heart Disease Guidelines?

2017 New recommendations
Diagnosis of severe aortic stenosis See new recommendations for the diagnosis of severe aortic stenosis (Figure and Table).
Indications for surgery in asymptomatic aortic stenosis
New IIa C recommendation: Severe pulmonary hypertension (systolic pulmonary artery pressure at rest >60 mmHg confirmed by invasive measurement) without other explanation.
Indications for intervention in asymptomatic severe primary mitral regurgitation **New additional statement:** If pulmonary hypertension (SPAP >50 mmHg at rest) is the only indication for surgery, the value should be confirmed by invasive measurement.

What is new in the 2017 Valvular Heart Disease Guidelines?

Changes in recommendations	
2012	**2017**
Indications for surgery in asymptomatic aortic stenosis	
IIb C Markedly elevated BNP levels.	**IIa C** Markedly elevated BNP levels (>threefold age- and sex-corrected normal range) confirmed by repeated measurements without other explanations.
IIb C Increase of mean pressure gradient with exercise by >20 mmHg.	**Taken out**
IIb C Excessive LV hypertrophy in the absence of hypertension.	**Taken out**

Prosthetic Aortic Valve Failure

Prosthetic Aortic Valve Failure

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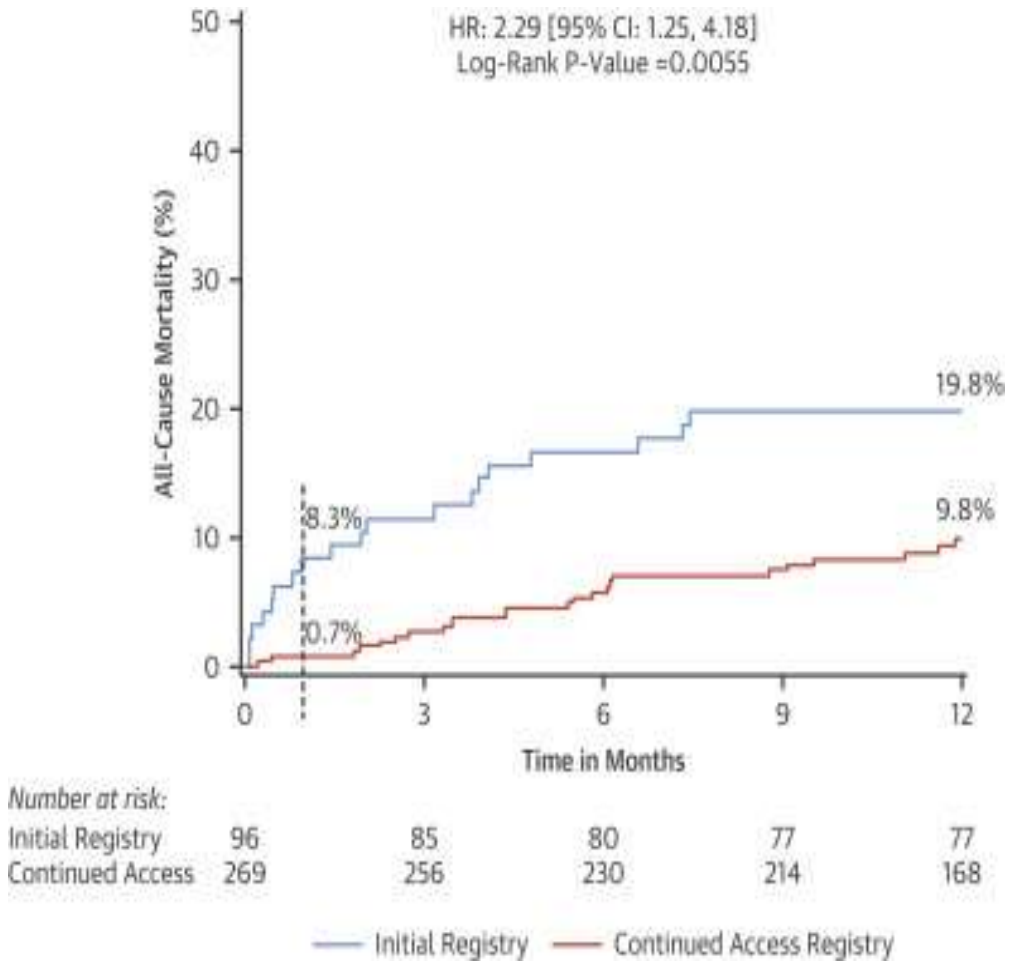
New Addition to Guidelines

Class IIa, LOE B-NR

- For severely symptomatic patients with bioprosthetic aortic valve stenosis or regurgitation judged by the heart team to be at high or prohibitive risk for surgical therapy, in whom improvement in hemodynamics is anticipated, a transcatheter valve-in-valve procedure is reasonable

TAVR for Bioprosthetic Stenosis/Regurgitation

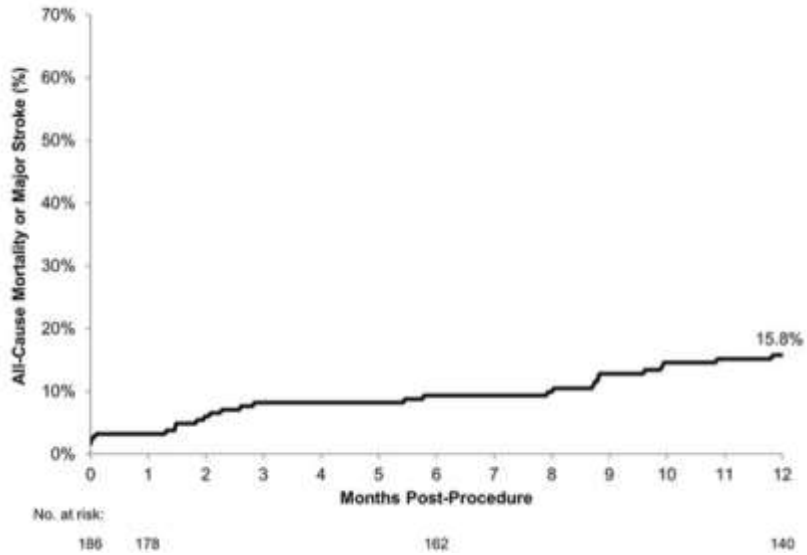
Symptomatic

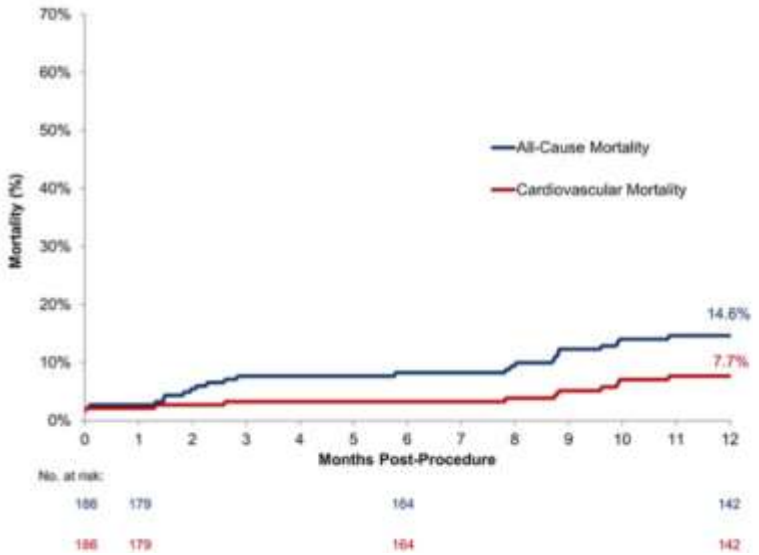


- Failed SAVR (n=365)
  - Initial Registry (n=96)
  - Continued Access (n=269)
  - Mean age: 78.9
  - Mean STS score: 9.1%
  - Device Type: Sapien XT
- Surgical implant>10yr: 66.3%
- All-cause mortality
  - 30 days: 2.7%
  - 1 year: 12.4%
- Major stroke:
  - 30 days: 2.7%
  - 1 year: 4.5%
- New PPM at 30-days: 1.9%

Webb JG, et al. J Am Coll Cardiol. 2017 May 9;69(18):2253-2262

TAVR for Bioprosthetic Stenosis/Regurgitation





- N=233
- Mean age: 76.7 yr
- Mean STS: 9.0 ± 6.7%
- Surgical implant>10yr: 55.9%
- CoreValve U.S Study

- All-cause mortality
  - 30 days: 2.2%
  - 1 year: 14.6%
- Major stroke:
  - 30 days: 0.4%
  - 1 year: 1.8%
- PPM rate:
  - 30 days: 8.1%
  - 1 year: 11.0%

Deeb GM, et al. JACC Cardiovasc Interv. 2017 May 22;10(10):1034-1044

Management of prosthetic valve dysfunction *(continued)*

Recommendations	Class	Level
Bioprosthetic failure		
Reoperation is recommended in symptomatic patients with a significant increase in transprosthetic gradient (after exclusion of valve thrombosis) or severe regurgitation.	I	C
Reoperation should be considered in asymptomatic patients with significant prosthetic dysfunction, if reoperation is at low-risk.	IIa	C
Transcatheter valve-in-valve implantation in aortic position should be considered by the Heart Team depending on the risk of reoperation and the type and size of prosthesis.	IIa	C

Prosthetic Aortic Valve Choice

Prosthetic Valve Choice

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Modified

Class I, LOE C-LD

- The choice of type of prosthetic heart valve should be 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 risk associated with reintervention

Prosthetic Valve Choice

Age Range Modified

Class IIa, LOE B-NR

- For patients between 50 and 70 years of age, it is reasonable to individualize the choice of either a mechanical or bioprosthetic valve prosthesis on the basis of individual patient factors and preferences, after full discussion of the trade-offs involved

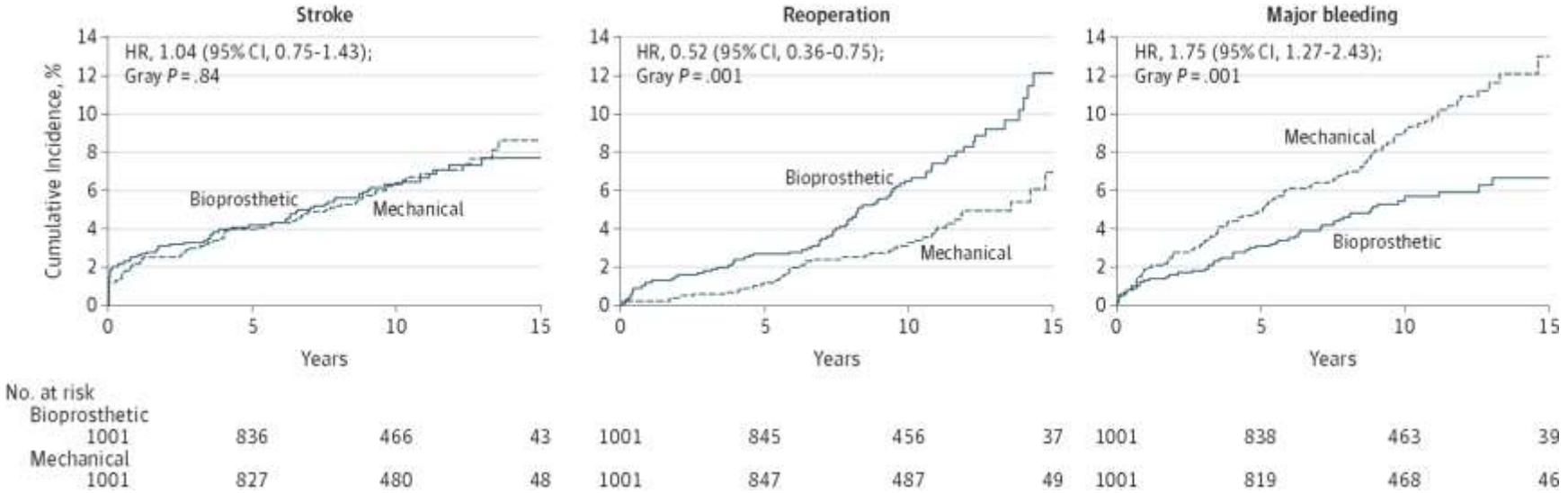
Choice of the aortic/mitral prosthesis in favour of a mechanical prosthesis *(continued)*

Recommendations	Class	Level
A mechanical prosthesis should be considered in patients aged <60 years for prostheses in the aortic position and <65 years for prostheses in the mitral position*.	IIa	C
A mechanical prosthesis should be considered in patients with a reasonable life expectancy, for whom future redo valve surgery would be at high-risk.	IIa	C
A mechanical prosthesis may be considered in patients already on long-term anticoagulation due to high-risk for thrombo-embolism.	IIb	C

** Between 60 and 65 (aortic prosthesis) / 65 and 70 years (mitral prosthesis), both valves are acceptable and the choice requires careful analysis of factors other than age*

Prosthetic Valve Choice

Mechanical vs. Bioprosthetic



- Incidence of Stroke
  - tAVR 7.7%
  - mAVR 8.6%
- Incidence of re-op
  - tAVR 12.1%
  - mAVR 6.9%
- Incidence of Bleed
  - tAVR 6.6%
  - mAVR 13.0%


Anticoagulation

Anticoagulation – Bioprosthetic AVR

Guidelines Modified LOE from C to B-R

Class IIa, LOE B-NR

- Anticoagulation with a VKA to achieve an INR of 2.5 is reasonable for at least 3 months and for as long as 6 months after surgical bioprosthetic AVR in patients at low risk of bleeding.

Anticoagulation for all surgical tissue prostheses was combined into 1 recommendation, with extension of the duration of anticoagulation up to 6 months.

Anticoagulation – TAVR

New Recommendation

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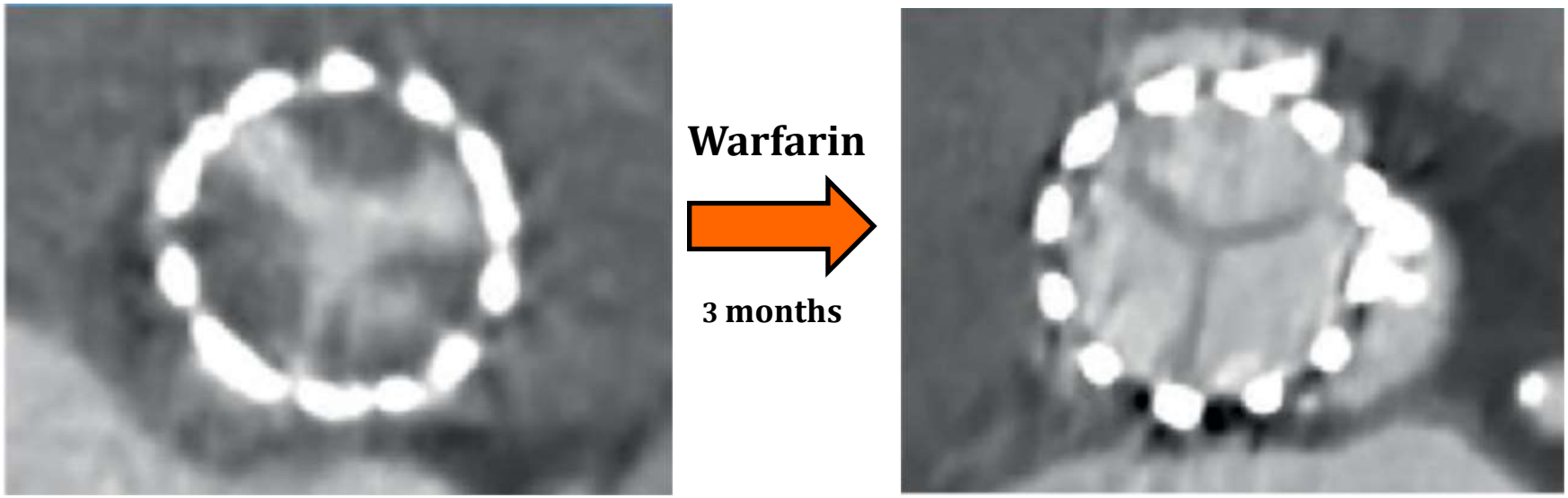
Class IIb, LOE B-NR

- Anticoagulation with a VKA to achieve an INR of 2.5 may be reasonable for at least 3 months after TAVR in patients at low risk of bleeding

Anticoagulation

TAVR (New)



- N=460 TAVR, SAPIEN 3 or XT
- N=405 with MDCT and TEE at 1-3 mon
  - Median Age: 83
  - Median STS: 5.3
- Valve Thrombosis
  - Total: 28 pts (7%)

- Complete Resolution 85%

Hansson N et al. J Am Coll Cardiol. 2016 Nov 8;68(19):2059-2069

Anticoagulation – TAVR

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New Recommendation

Class IIa

- In patients with suspected or confirmed bioprosthetic valve thrombosis who are hemodynamically stable and have no contraindications to anticoagulation, initial treatment with a VKA is reasonable (LOE C-LD)
- For severely symptomatic patients with bioprosthetic aortic valve stenosis judged by the heart team to be at high or prohibitive risk of reoperation, and in whom improvement in hemodynamics is anticipated, a transcatheter valve-in-valve procedure is reasonable (LOE B-NR)

What is new in the 2017 Valvular Heart Disease Guidelines?

2017 New recommendations
Management after valve intervention
New recommendations:
After transcatheter as well as surgical implantation of a bioprosthetic valve, echocardiography – including the measurement of transprosthetic gradients -should be performed within 30 days (preferably around 30 days for surgery) after valve implantation (i.e. baseline imaging), at 1 year after implantation, and annually thereafter.

Thank you!