

EuroValve

March 27 - 28, 2015

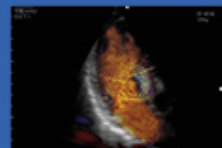
CHALLENGES IN HEART VALVE DISEASE

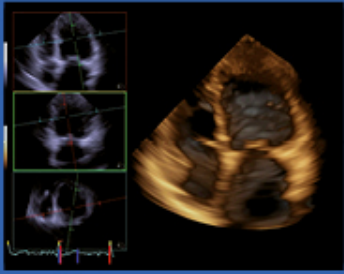
*A High Risk Patient with Aortic Stenosis:
How Far Should We Go?*

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London UK





EuroValve

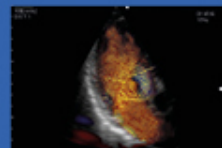
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Faculty disclosure

Bernard Prendergast

I disclose the following financial relationships:

Paid speaker for Edwards Lifesciences



The Patient

- 81 year old male
 - HTN
 - CABGx3 1999 (LIMA-LAD, SVG-Cx, SVG-PDA)
 - Myasthaenia gravis (on pyridostigmine)
 - Recent DVT (warfarin)
 - Spinal stenosis – some limitation of mobility
 - Residential home – independent care
- Known aortic stenosis – clinic review
 - 6/12 Progressive dyspnoea (NYHA III)
 - Orthopnea, Presyncope
 - No angina

Assessment

- **General** Frail, 70kg, BMI 28.4, Cr 61 (eGFR 83)
- **ECG** SR, PR ~240ms, LAD, narrow QRS
- **Pulmonary function** FEV1 1.3 (68%) FEV1/FEV 93%
- **Carotids** Heavily calcified – no focal stenosis
- **Imaging**
 - Echocardiography: normal LV size and good function, severe AS (PPG 57mmHg, AVA 0.6cm²), discrete heavy calcium, annulus 22x23mm (3D)
 - CT : aortic calcification, confirms annular diameter 23mm
- **Radial angio (INR 2.5)**
 - Native LMS mod; LAD occluded mid-vessel; LCx mod prox; RCA mod proximal
 - Grafts LIMA-LAD patent; SVG-Cx occluded; SVG-rPDA competitive flow
- **Surgical risks**
 - Logistic EuroSCORE 11% (carotid disease, redo surgery)
 - Logistic EuroSCORE II 8%
 - CT surgeon review Frail, prohibitively high risk for surgery, consider TAVI

How Do We Assess Risk?

Operative Risk Assessment

The Logistic Euroscore



Patient-related factors

Age (years)	<input type="text" value="73"/>	<input type="text" value="0"/>
Gender	<input type="text" value="Male"/>	
Chronic pulmonary disease ¹	<input type="text" value="No"/>	
Extracardiac arteriopathy ²	<input type="text" value="No"/>	
Neurological dysfunction ³	<input type="text" value="No"/>	
Previous Cardiac Surgery	<input type="text" value="No"/>	
Creatinine > 200 µmol/ L	<input type="text" value="No"/>	
Active endocarditis ⁴	<input type="text" value="No"/>	
Critical preoperative state ⁵	<input type="text" value="No"/>	

Surge-related factors

No	<input type="text" value="0"/>
Moderate	<input type="text" value=".4191643"/>
No	<input type="text" value="0"/>
No	<input type="text" value="0"/>

Adjusted factors

<input type="text" value="No"/>	<input type="text" value=".7127953"/>
<input type="text" value="No"/>	<input type="text" value=".5420364"/>
<input type="text" value="No"/>	<input type="text" value="0"/>
<input type="text" value="No"/>	<input type="text" value="0"/>

Logistic **EuroSCORE**

Note: Logistic is now default calculator

(C) RAPIDO TELEVISION

The Problem with Scores

- 79yr old lady. Frail. Moderate LV function
 - Logistic Euroscore 10.9%

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Creatinine 189umol/L

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Wheelchair bound

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Weight 42Kg

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The Problem with Scores

- 79yr old lady. Frail. Moderate LV function
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Creatinine 189umol/L	LES 10.9%
Wheelchair bound	LES 10.9%
Weight 42Kg	LES 10.9%
Chronic venous leg ulcers	LES 10.9%

The Problem with Scores

- 79yr old lady. Frail. Moderate LV function
 - Logistic Euroscore 10.9%

Creatinine 189umol/L	LES 10.9%
Wheelchair bound	LES 10.9%
Weight 42Kg	LES 10.9%
Chronic venous leg ulcers	LES 10.9%
Primary biliary cirrhosis, plt 46, INR 1.6	LES 10.9%

European Heart Journal Advance Access published March 15, 2011



European Heart Journal
doi:10.1093/eurheartj/ehr061

ESC REPORT

ESC Working Group on Valvular Heart Disease Position Paper: assessing the risk of interventions in patients with valvular heart disease

**Raphael Rosenhek^{1*}, Bernard Lung², Pilar Tornos³, Manuel J. Antunes⁴,
Bernard D. Prendergast⁵, Catherine M. Otto⁶, Arie Pieter Kappetein⁷,
Janina Stepinska⁸, Jens J. Kaden⁹, Christoph K. Naber¹⁰,
Esmeray Acartürk¹¹, and Christa Gohlke-Bärwolf¹²**

www.escardio.org/valvular

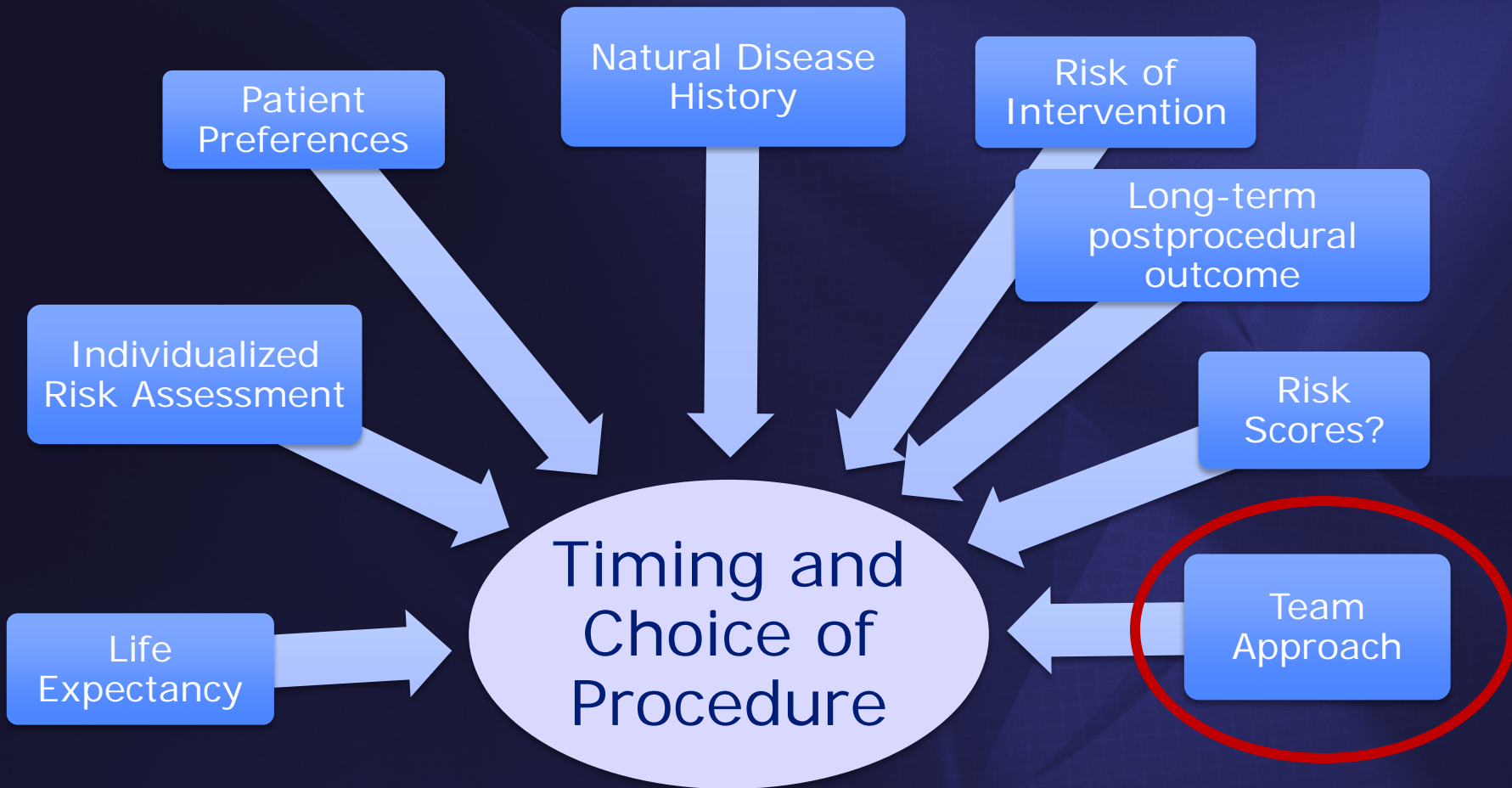
Valve specialists for valve patients

Valvular Heart Disease
ESC Working Group



Risk Assessment

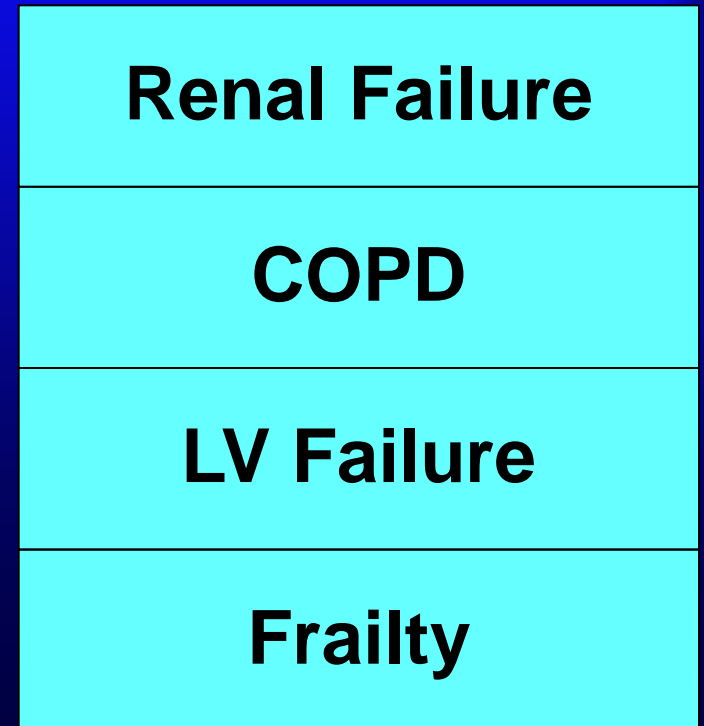
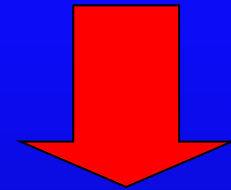
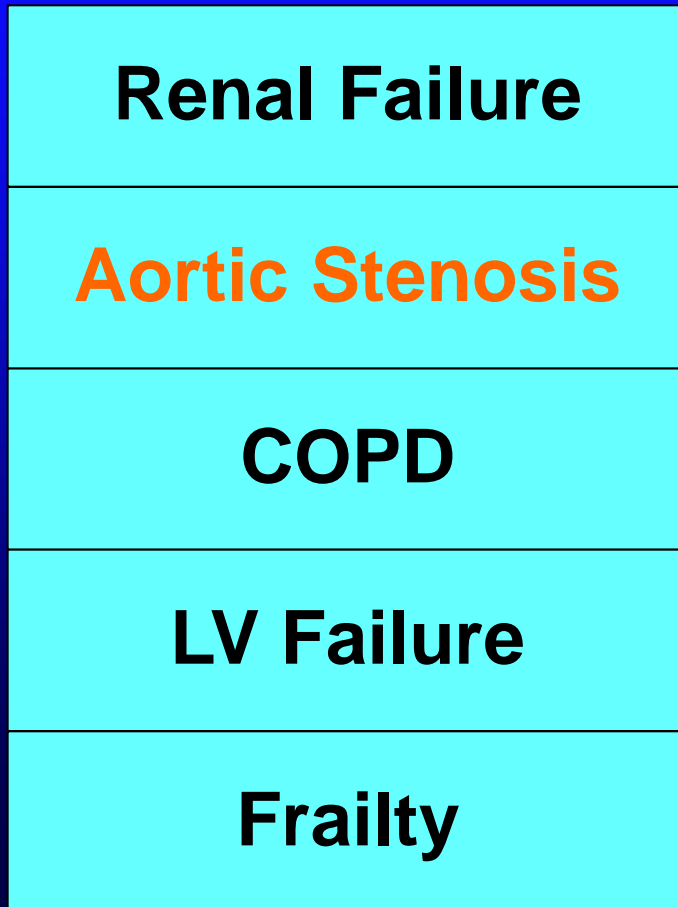
The High-Risk Patient



Difficult Decisions for the Heart Team



Strategic Considerations



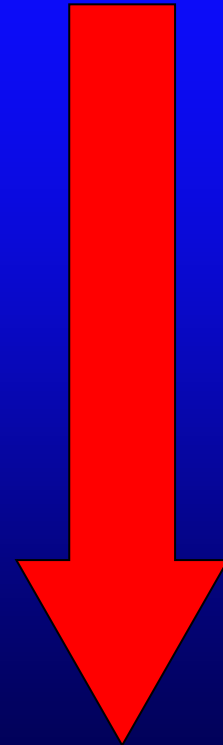
Strategic Considerations

Aortic Stenosis

Frailty

Risk

Frailty





- First 88 patients undergoing Sapien Edwards TAVI
- Death within 30 days excluded
- Incorporated:
 - Procedural learning curve
 - Early attempts at best case selection
- Moderate prosthetic valve dysfunction in 3/88 (3.5%)
 - AS, AR, mixed AS/AR (all n=1)
- Median survival 3.4 (2.6-4.3) yrs



VALVE FUNCTION

PREDICTORS OF ADVERSE OUTCOME

Oxygen Dependent COPD

2+/4 Paravalvular AR



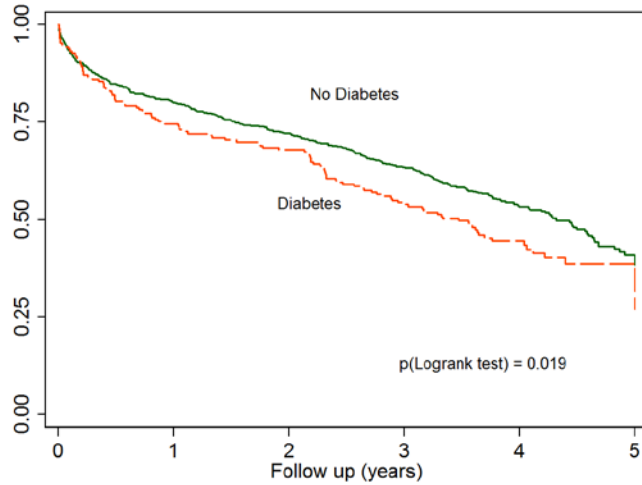
Three- and Five-Year Outcomes After Transcatheter Aortic Valve Implantation in High-Risk Patients With Severe Aortic Stenosis

The U.K. TAVI (United Kingdom Transcatheter Aortic Valve Implantation) Registry

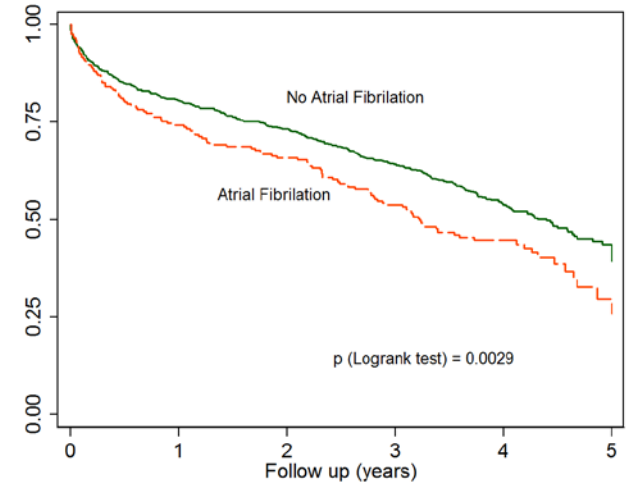
Alison Duncan¹, Peter Ludman², Winston Banya¹, David Cunningham³, Damien Marlee³, Simon Davies¹, Jan Kovac⁴, Thomas Spyt⁴, Neil Moat¹

1: Royal Brompton Hospital, London, 2: Queen Elizabeth Hospital, Birmingham
3: University College Hospital, London, 4: University Hospital Leicester,

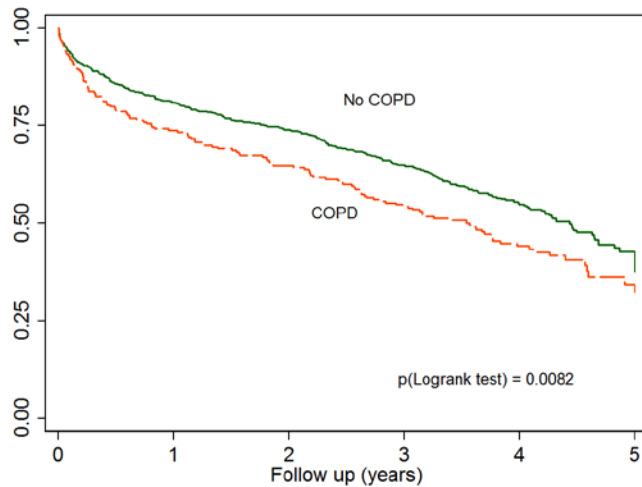
Independent Predictors of Long-Term Survival after TAVI



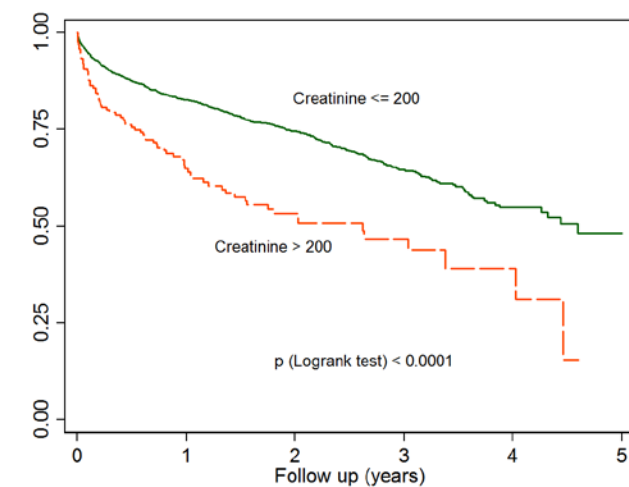
Number at risk		0	1	2	3	4	5
No Diabetes	656	520	465	401	215	47	
Diabetes	195	144	131	105	46	10	



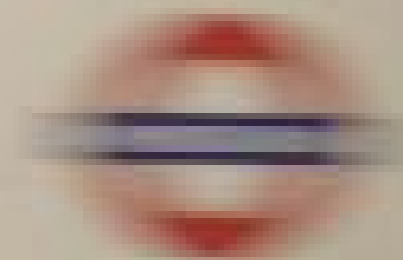
Number at risk		0	1	2	3	4	5
No Atrial Fibrillation	650	518	470	406	217	50	
Atrial Fibrillation	204	150	132	106	46	8	



Number at risk		0	1	2	3	4	5
COPD	589	473	429	369	191	41	
No COPD	236	171	150	125	61	16	



Number at risk		0	1	2	3	4	5
Creatinine <= 200	2336	1499	809	321	76	11	
Creatinine > 200	162	80	42	16	6	0	



MIND THE GAP

Personal Conclusions

- TAVI is no longer an experimental, new wave procedure
- TAVI should be actively considered in all high risk patients with AS
- Risk too high
 - Euroscore >40
 - Severe LV impairment (especially if TF not feasible)
 - Severe RV impairment
 - Severe respiratory disease
 - Severe immobility – eg. stroke, arthritis, Parkinsons Disease
 - Co-morbidity with life expectancy < 1 year
- Risk too low
 - Euroscore <10-15 (?), certainly <10
 - Especially if selection of TAVI driven by patient choice alone
- Comprehensive assessment by the Heart Team is essential

