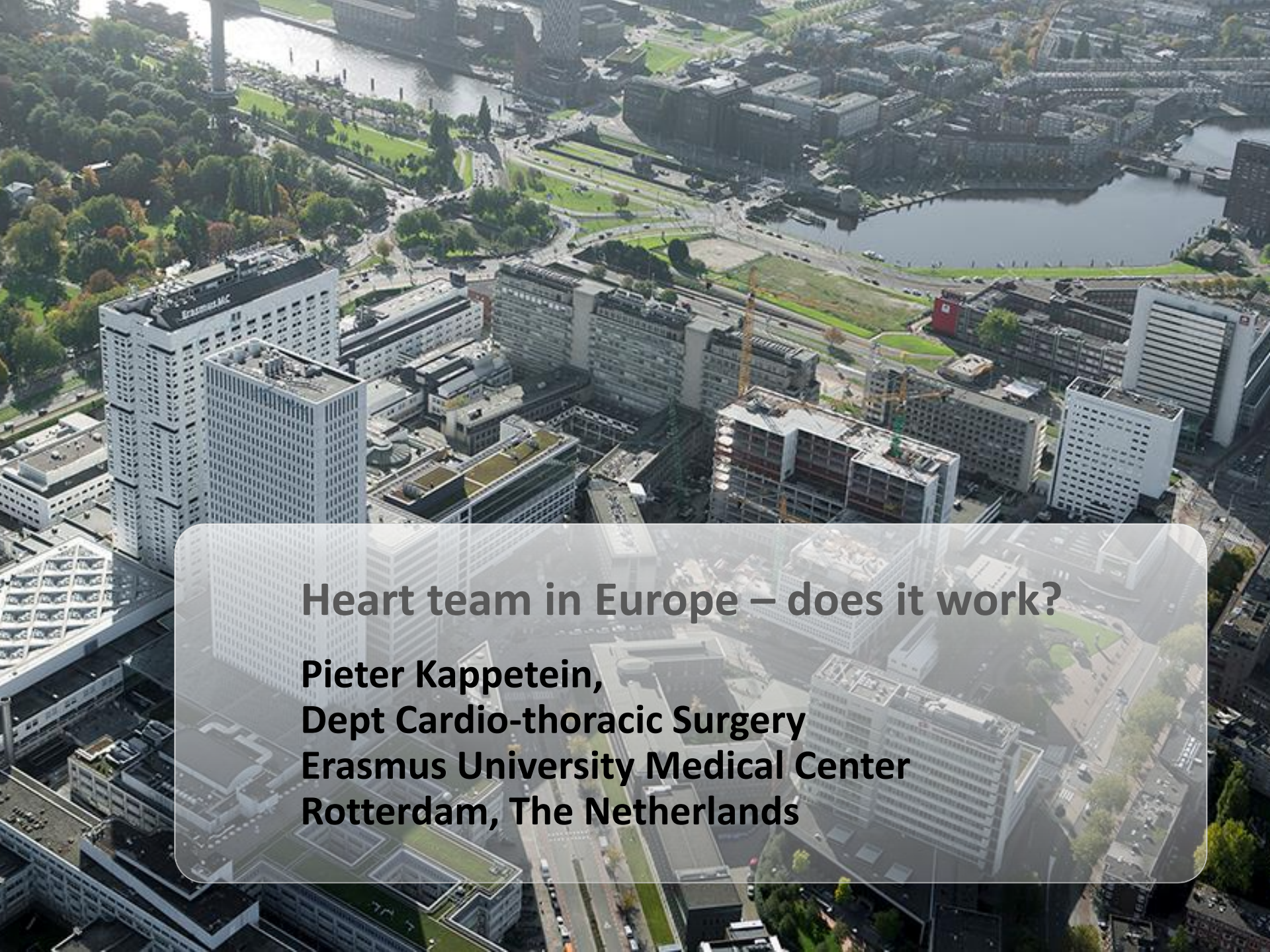
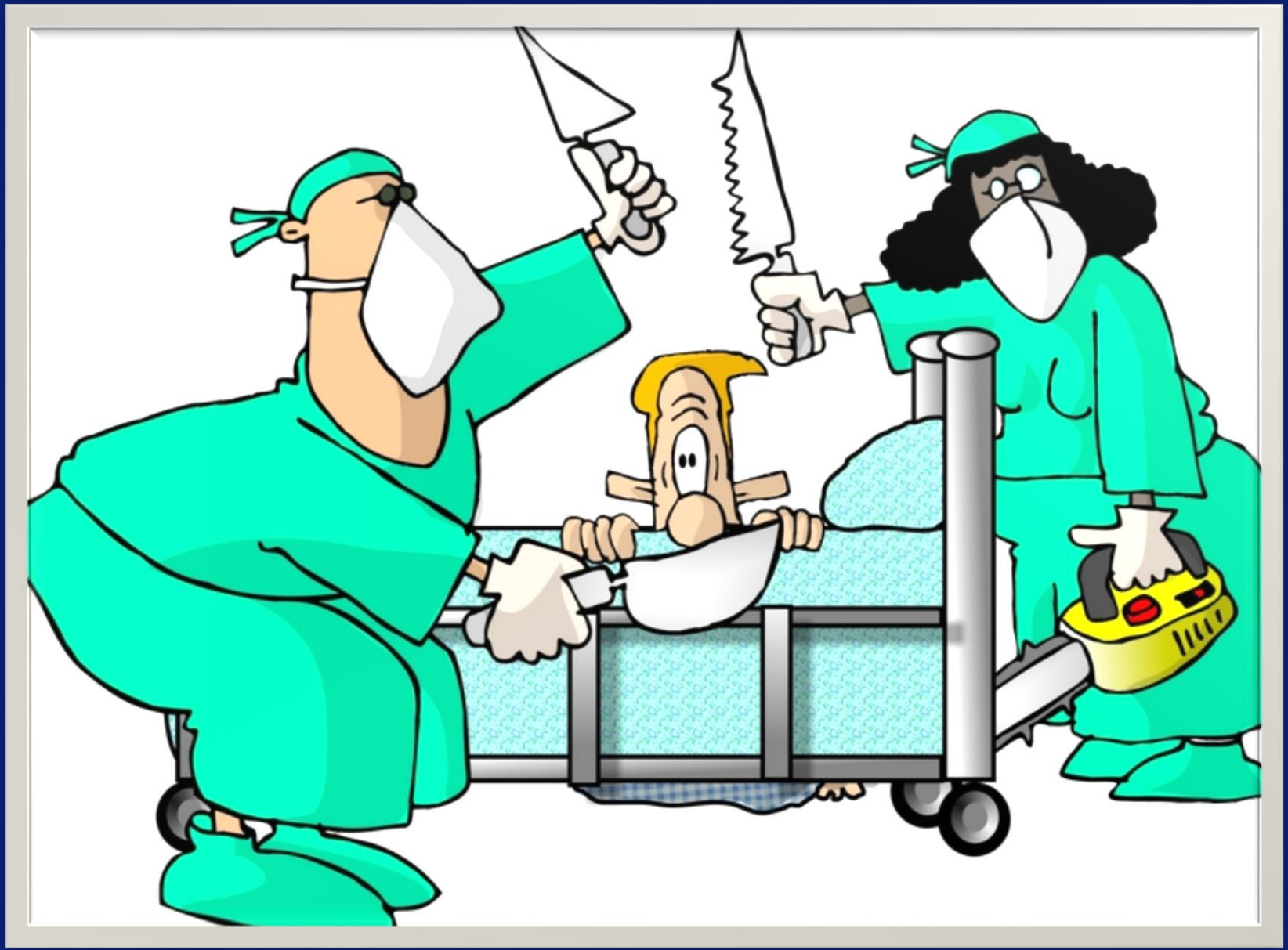
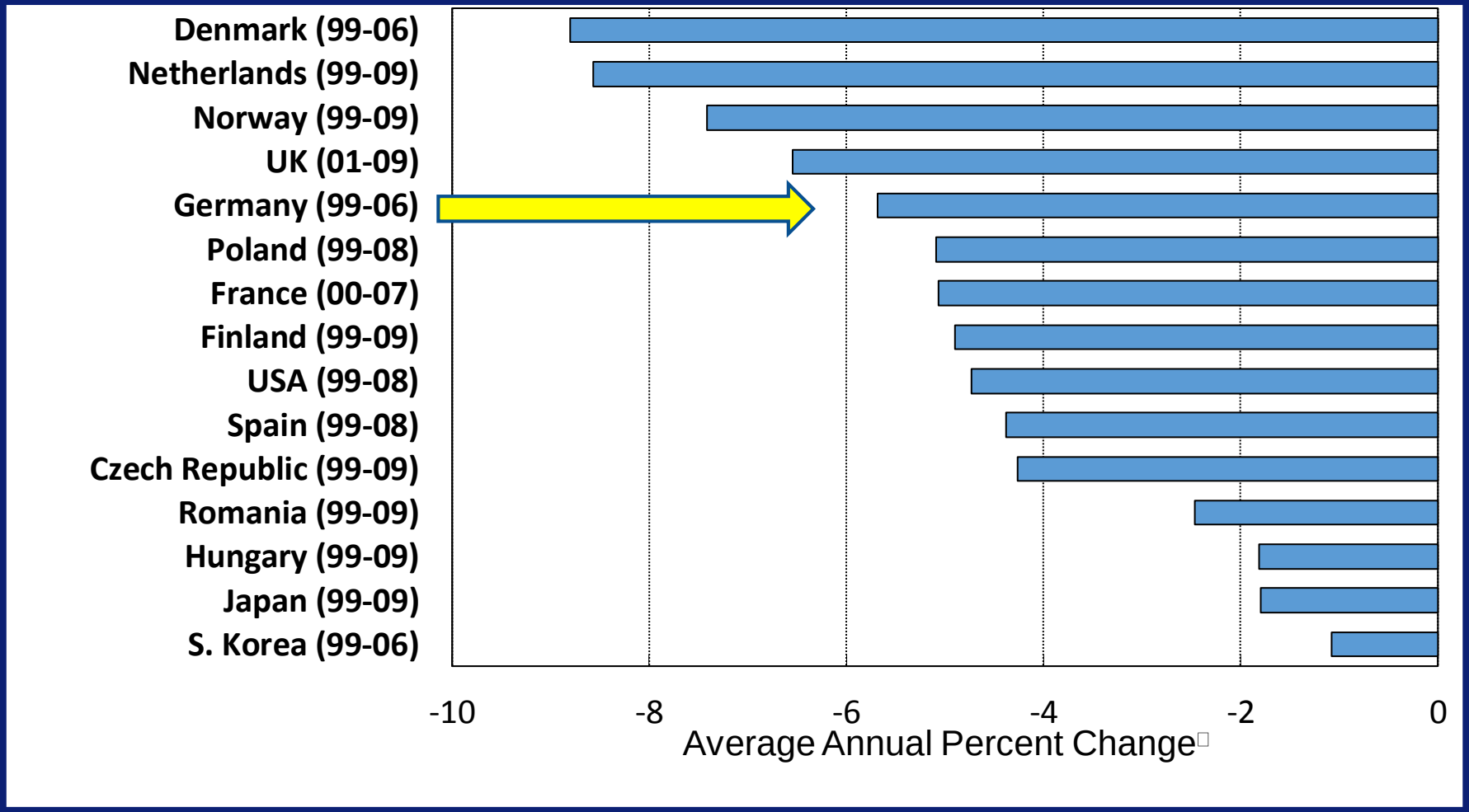


Heart team in Europe – does it work?

Pieter Kappetein,
Dept Cardio-thoracic Surgery
Erasmus University Medical Center
Rotterdam, The Netherlands

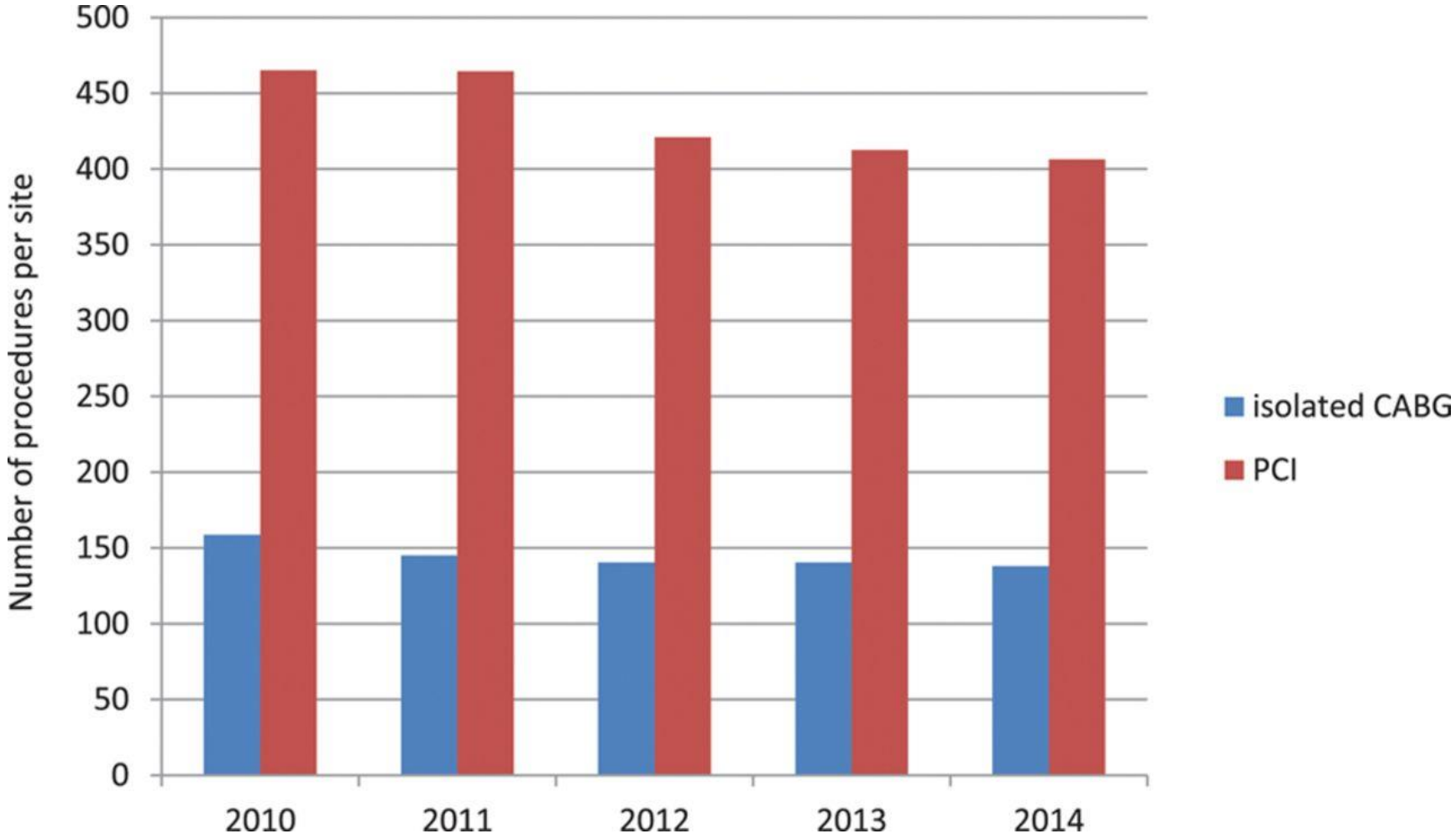


Change in Death Rates for Coronary Disease 1999–2009



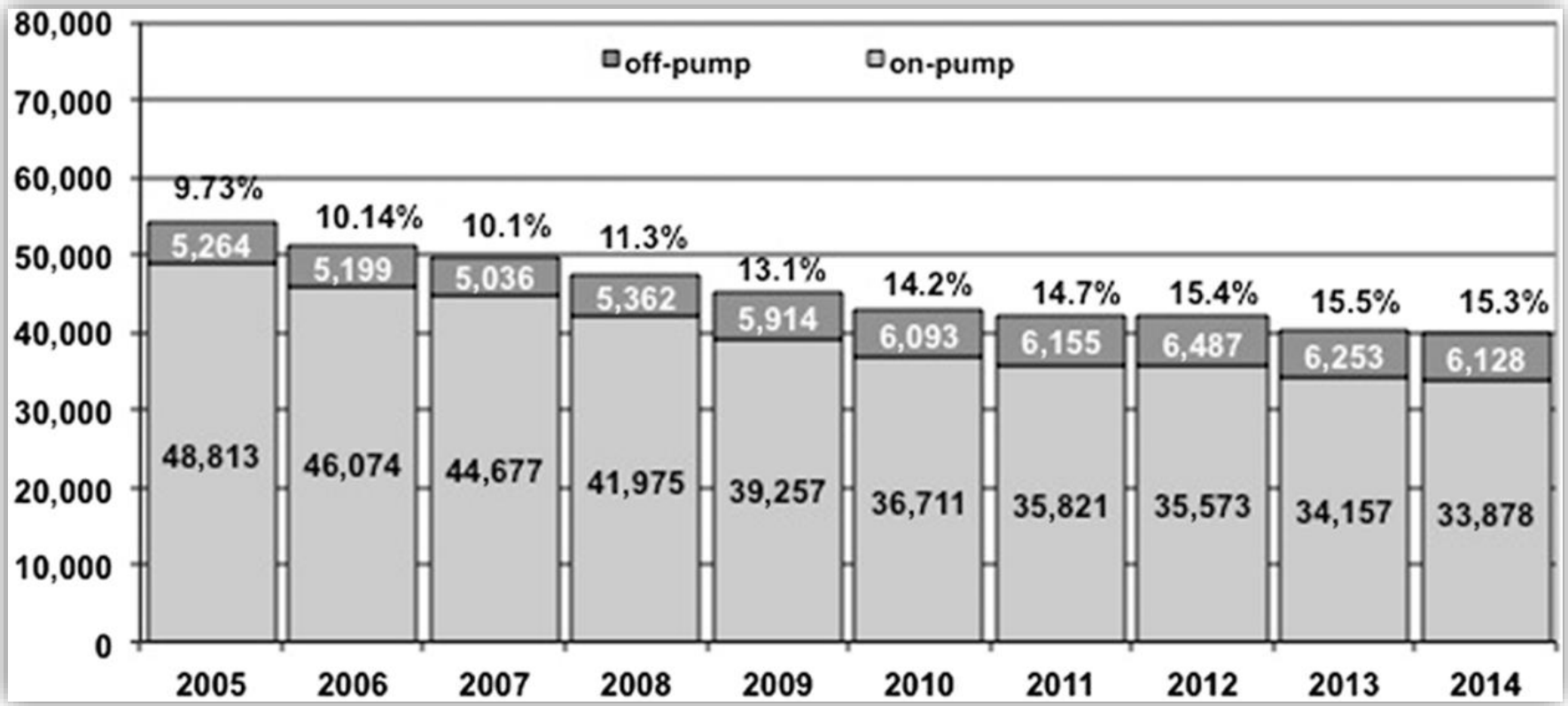
* Age-adjusted to European standard. Data for years indicated in parentheses.
‡ CHD: Coronary heart disease.
† Based on log-linear regression of actual rates.

PCI and CABG in the United States for the past 5 years



Mani Arsalan, and Michael J. Mack Circulation. 2016;133:1036-1045

Germany
Isolated CABG (2005–2014)



Beckmann A, Funkat A-K, Lewandowski J, Frie M, Ernst M, Hekmat K, et al. Cardiac Surgery in Germany during 2014:
A Report on Behalf of the German Society for Thoracic and Cardiovascular Surgery. Thorac Cardiovasc Surg. 2015 May 26;63(04):258–69.

"No off course no Heart team"

Because:

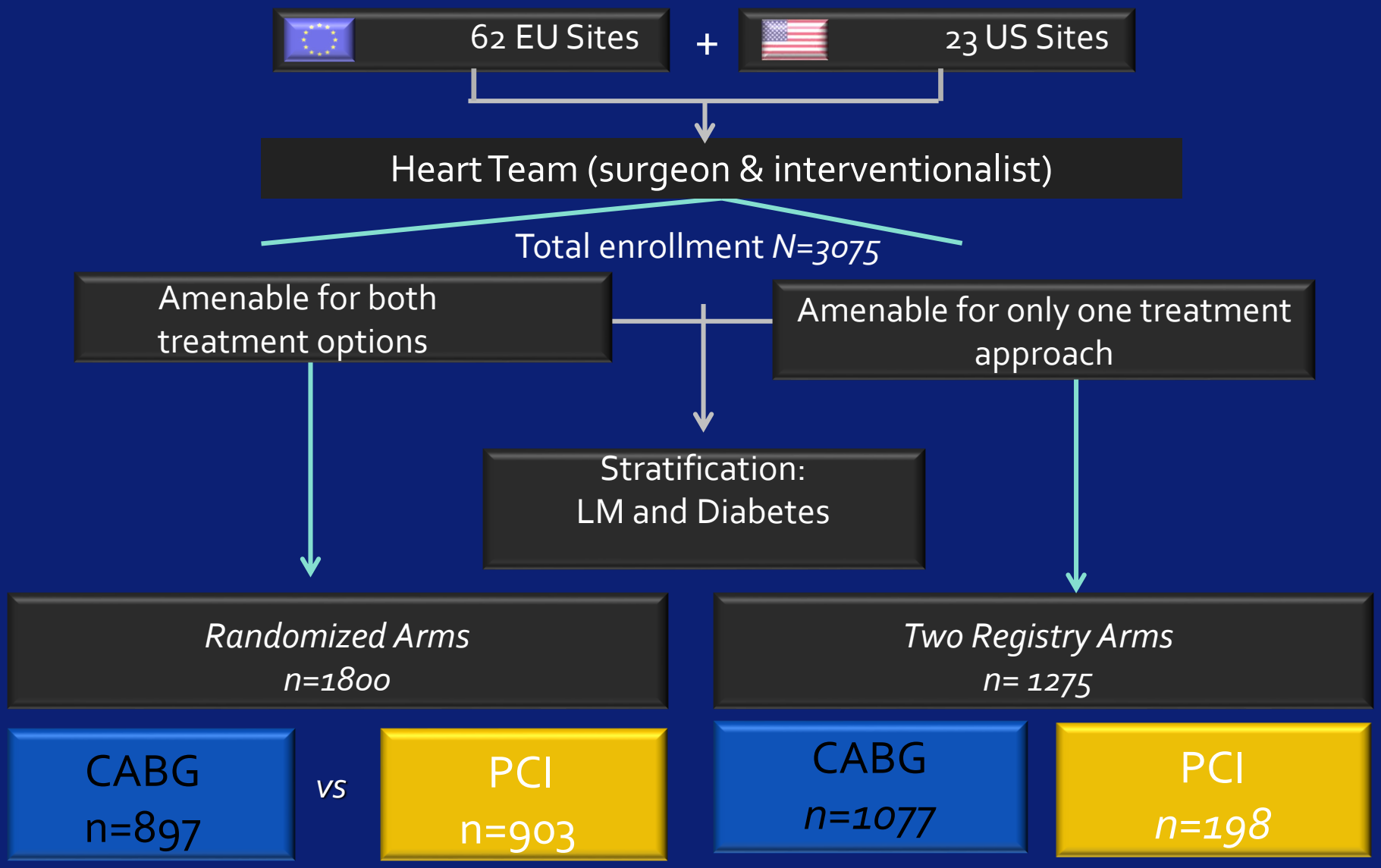
Time consuming: money!

We have trials / guidelines

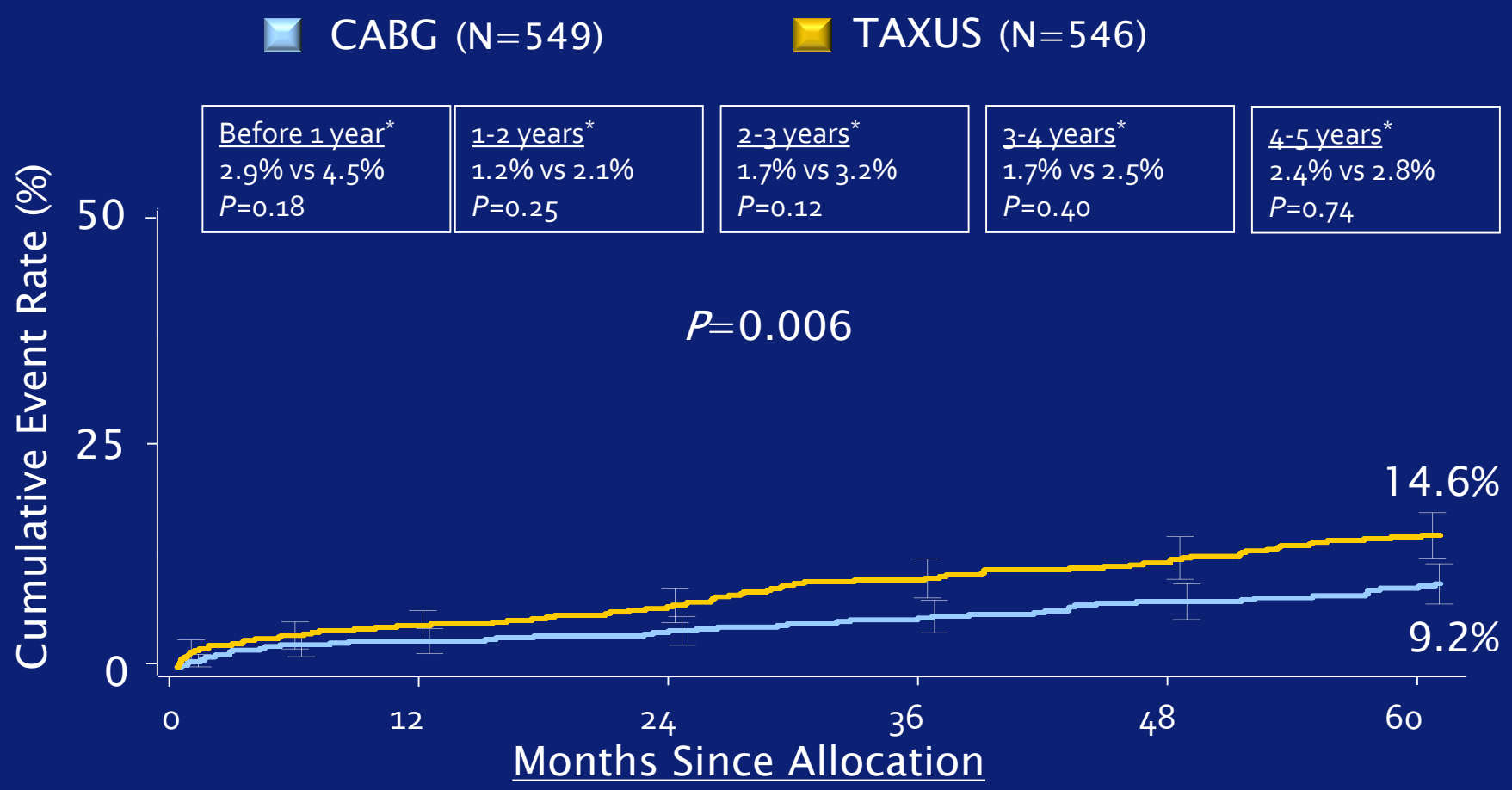
Heart-team → Delay in treatment

Why do we need a Heart team?

SYNTAX Trial Design



All-Cause Death to 5 Years
3VD cohort



European Heart Journal

Coronary artery bypass grafting vs. percutaneous coronary intervention for patients with three-vessel disease: final five-year follow-up of the SYNTAX trial.Head SJ, Eur Heart J. 2014

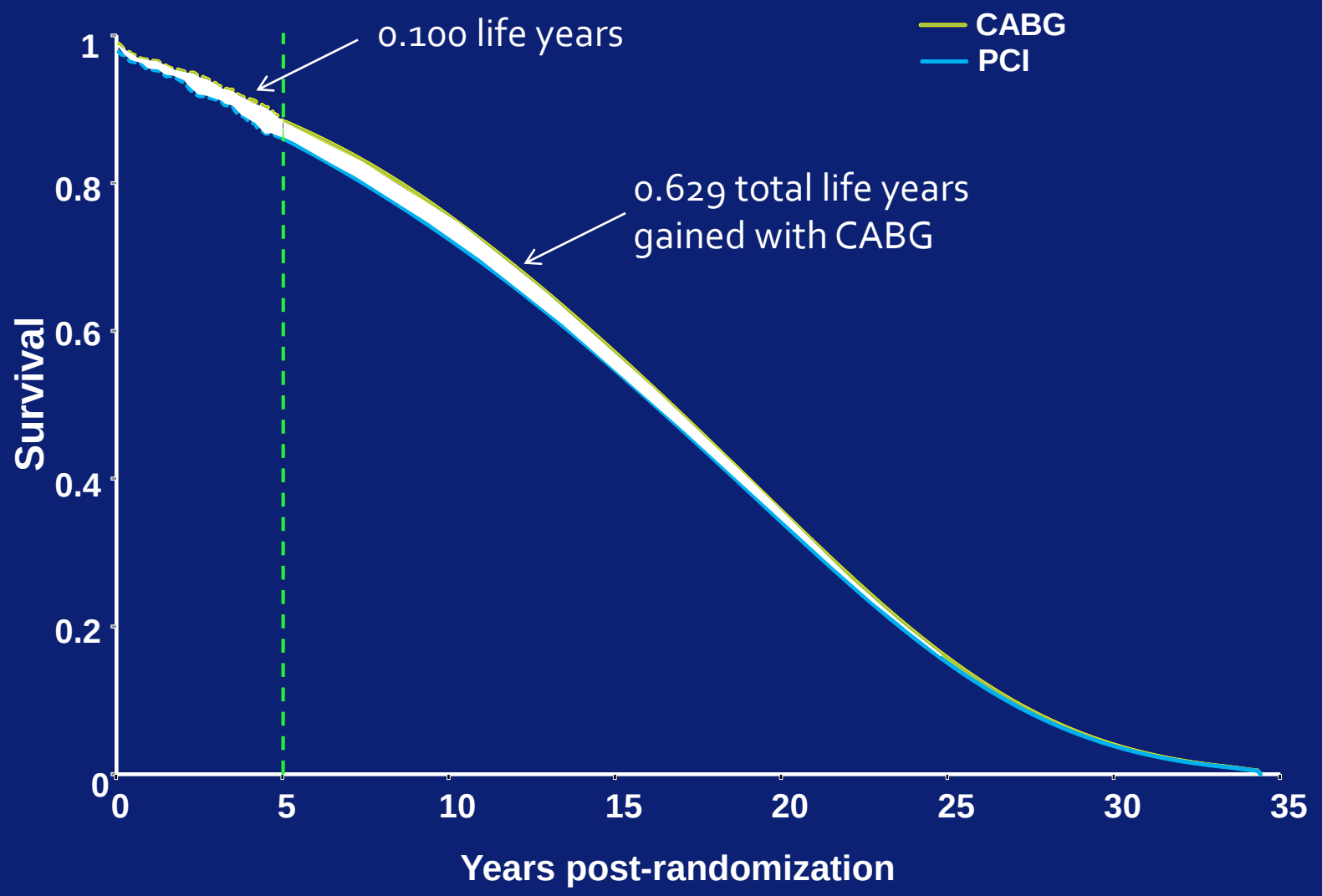
2014 ESC/EACTS Guidelines

Recommendations for the type of revascularization (CABG or PCI) in patients with SCAD with suitable coronary anatomy for both procedures and low predicted surgical mortality

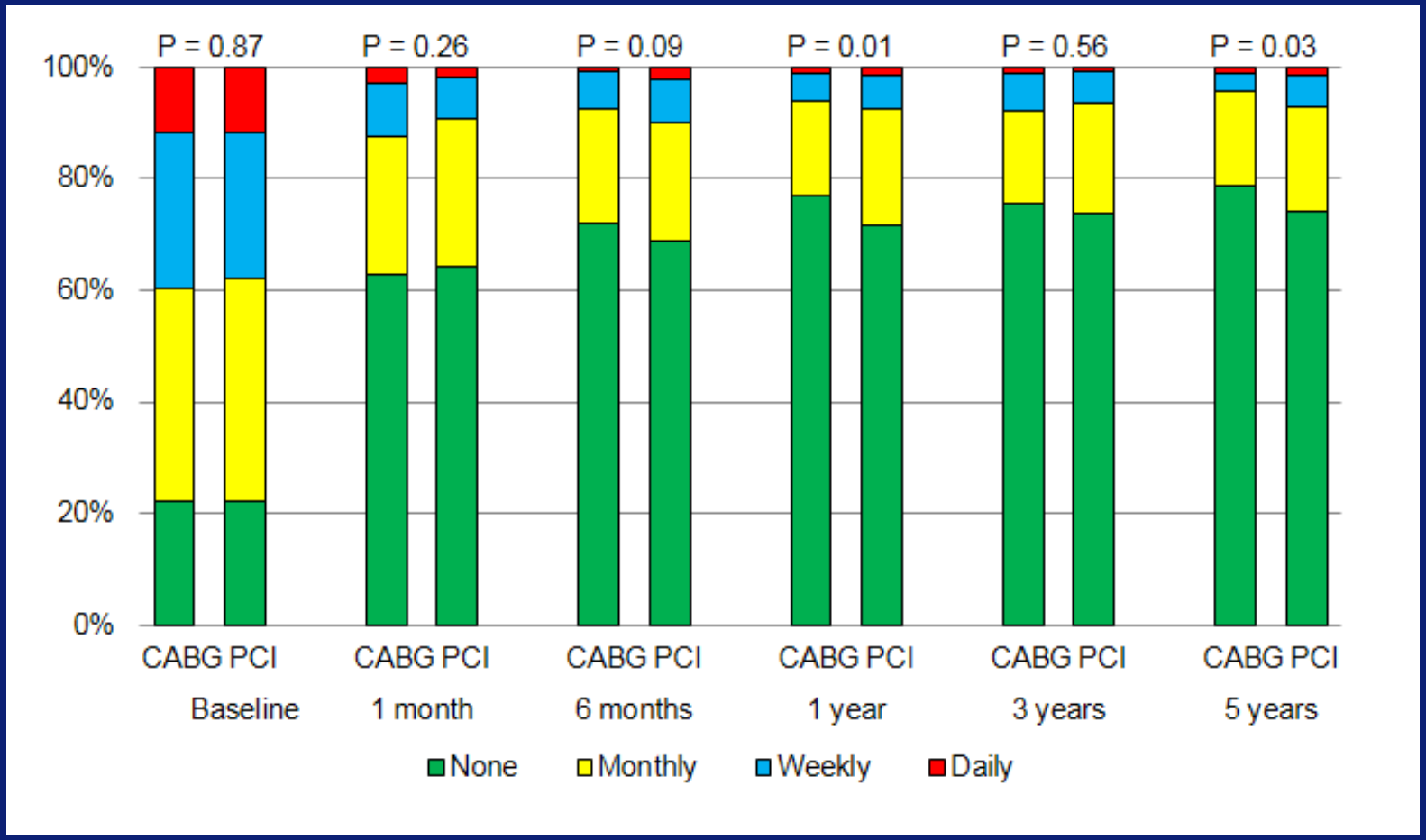
Recommendations according to extent of CAD	CABG		PCI	
	Class[a]	Level[b]	Class[a]	Level[b]
One- or two-vessel disease without proximal LAD stenosis.	IIb	C	I	C
One-vessel disease with proximal LAD stenosis.	I	A	I	A
Two-vessel disease with proximal LAD stenosis.	I	B	I	C
Left main disease with SYNTAX score ≤22.	I	B	I	B
Left main disease with SYNTAX score 23–32.	I	B	IIa	B
Left main disease with SYNTAX score >32.	I	B	III	B
Three-vessel disease with SYNTAX score ≤22.	I	A	I	B
Three-vessel disease with SYNTAX score 23–32.	I	A	III	B
Three-vessel disease with SYNTAX score >32.	I	A	III	B

Kolh P, Windecker S et al. *EJCTS* 2014

In-Trial and Projected Survival



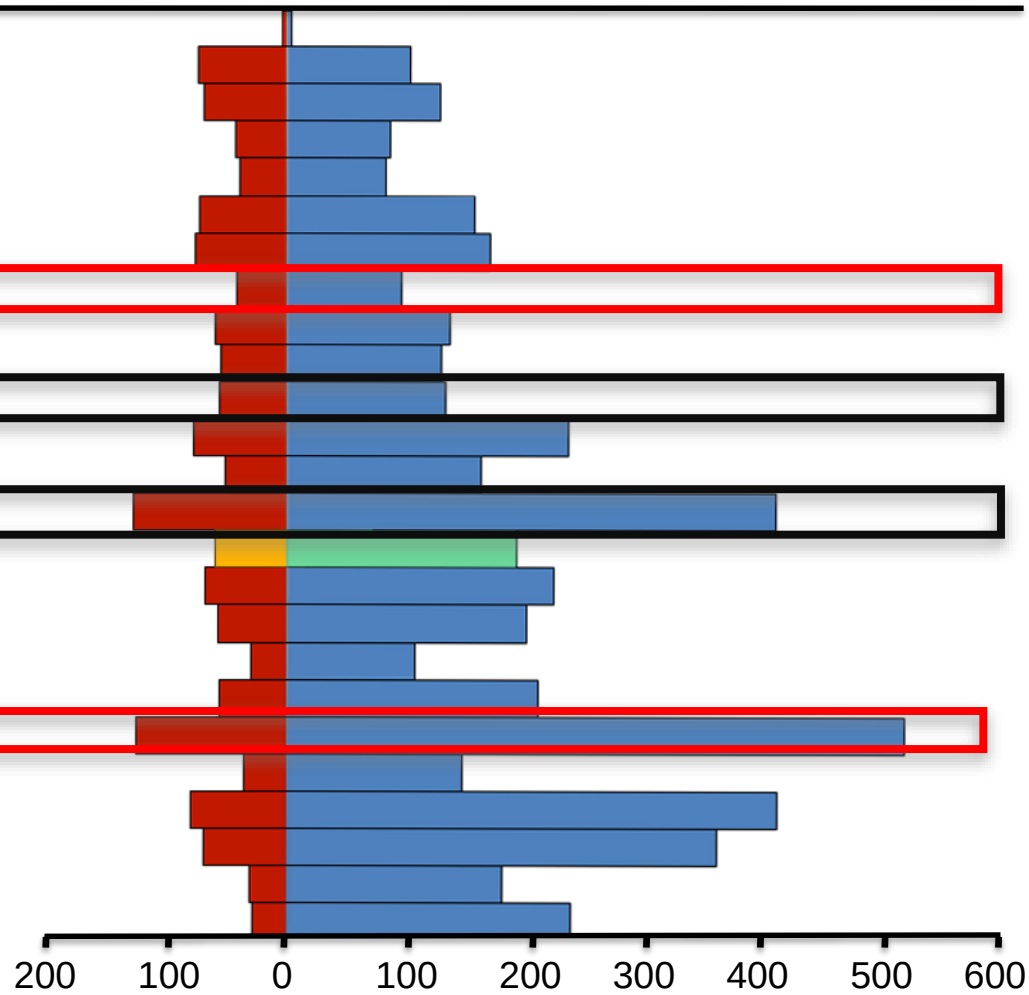
Quality of Life



Variation in PCI/CABG ratios

Country	PCI/CABG
Mexico	0.67
New Zealand	1.40
Canada	1.87
United Kingdom	2.03
Ireland	2.15
Australia	2.19
Denmark	2.24
Portugal	2.33
Luxembourg	2.34
Finland	2.37
Netherlands	2.41
Norway	3.09
Sweden	3.20
Belgium	3.21
OECD	**3.29**
Czech Republic	3.36
Iceland	3.56
Switzerland	3.67
Poland	3.80
Germany	4.18
Hungary	4.30
United States	5.17
Italy	5.26
France	5.98
Spain	8.63

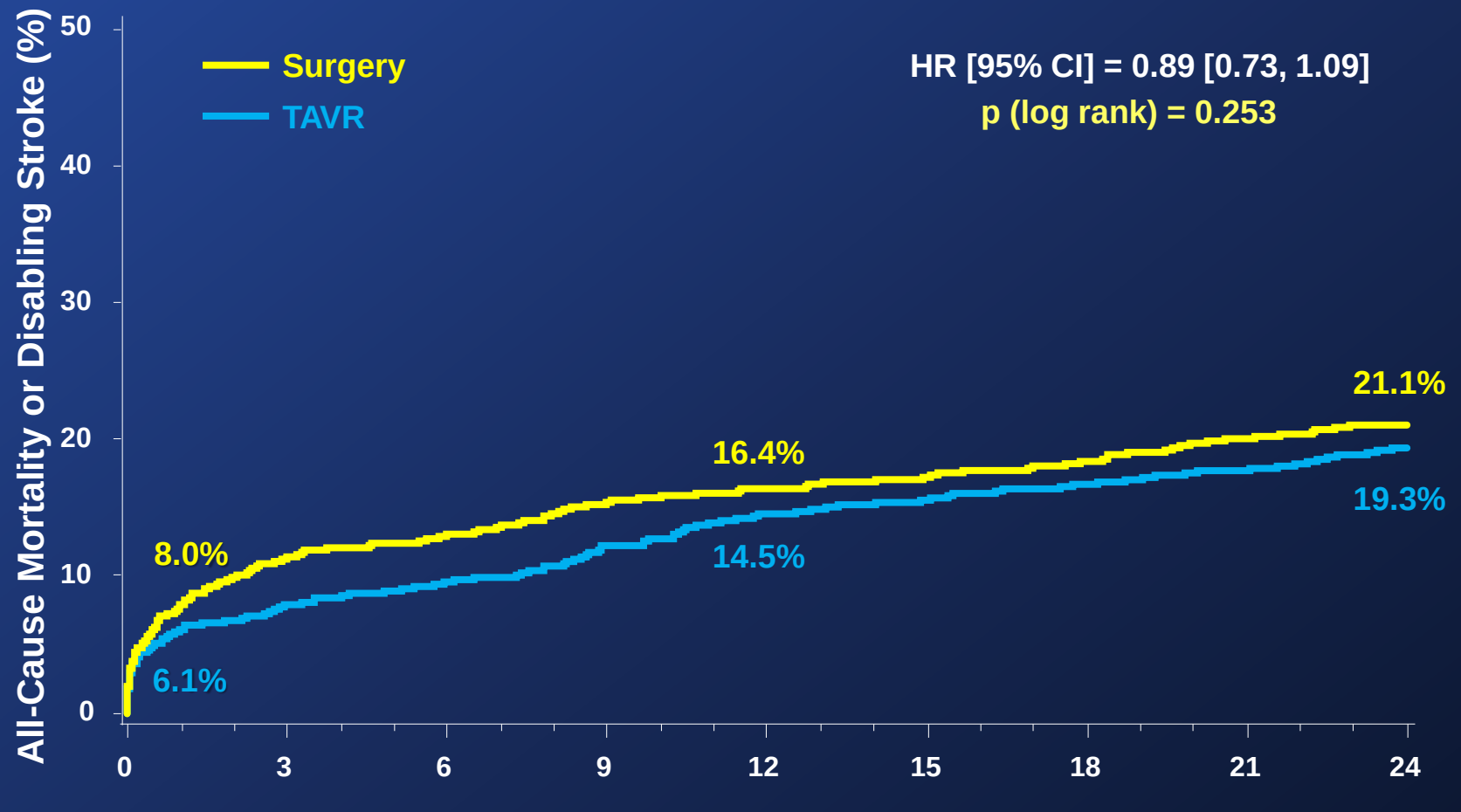
CABG : PCI (per 100,000 of population)



Head SJ et al. *Eur Heart J* 2013;94:1954-60

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

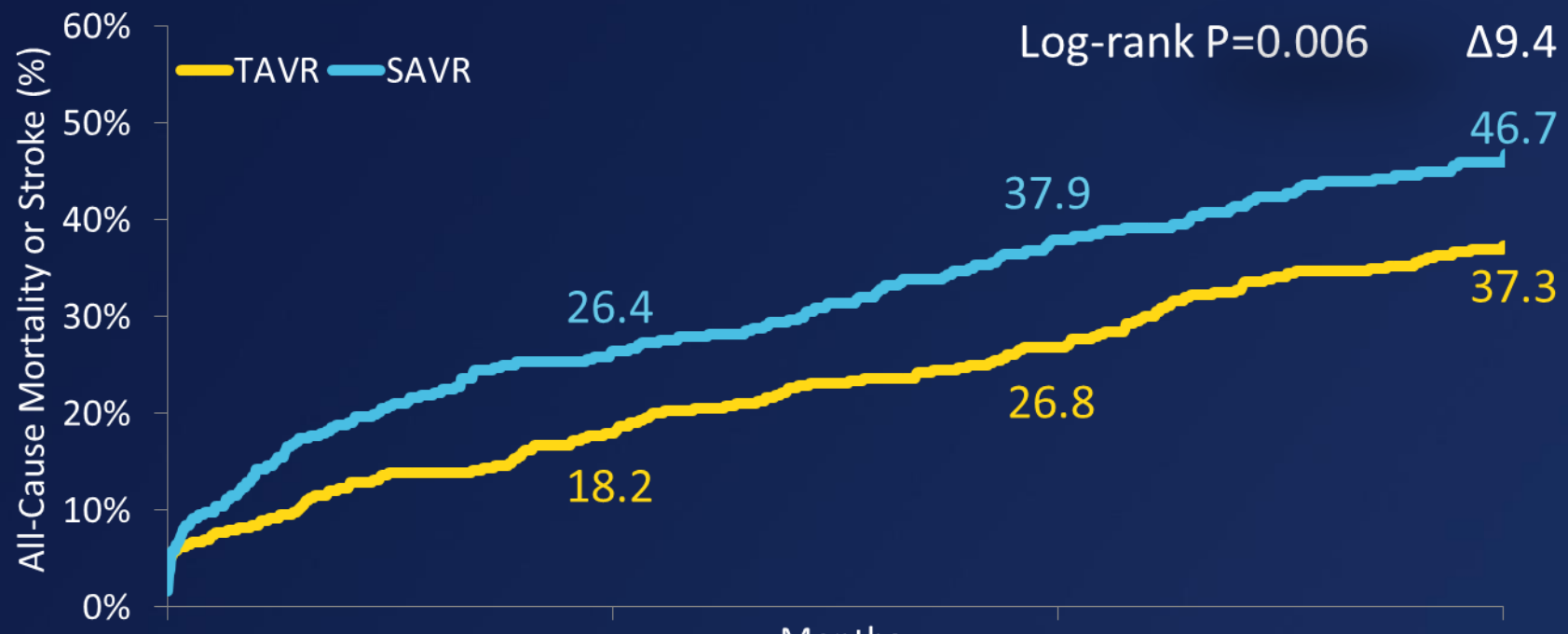
THE PARTNER II TRIAL



Number at risk:

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

All-Cause Mortality or Stroke



No. at Risk	0	12	24	36
TAVR	391	319	273	165
SAVR	359	257	208	128

TAVR in lower risk patients

It's already happened!

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

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]

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

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*

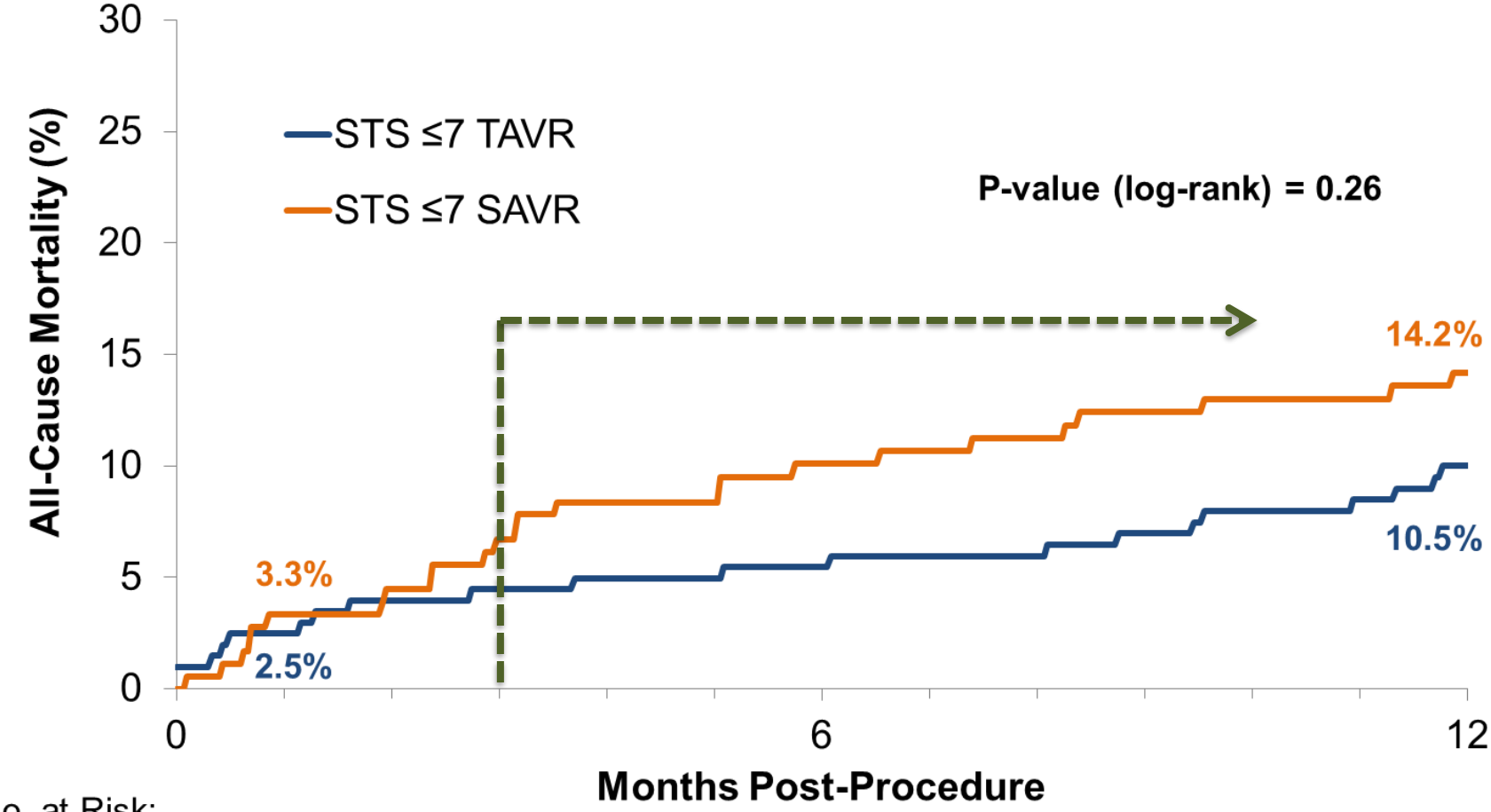
Transcatheter aortic valve implantation versus surgical aortic valve replacement for severe aortic stenosis: Results from an intermediate risk propensity-matched population of the Italian OBSERVANT study

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

[1]Wenaweser, et al., *Eur Heart J* 2013; 34: 1894-905; [2]Lange, et al., *J Am Coll Cardiol* 2012; 59: 280-7; [3]Piazza, et al. , *J Am Coll Cardiol Intv* 2013; 6: 443-51; [4]D'Errigo, et al., *Int J Cardiol* 2013: 167: 1945-62; epub; [5]Latib, et al., *Am Heart J* 2012; 164: 910-7; Schymik, et al., *J Interv Cardiol* 2012; 25: 364-74

All-cause mortality

CoreValve US Pivotal High Risk



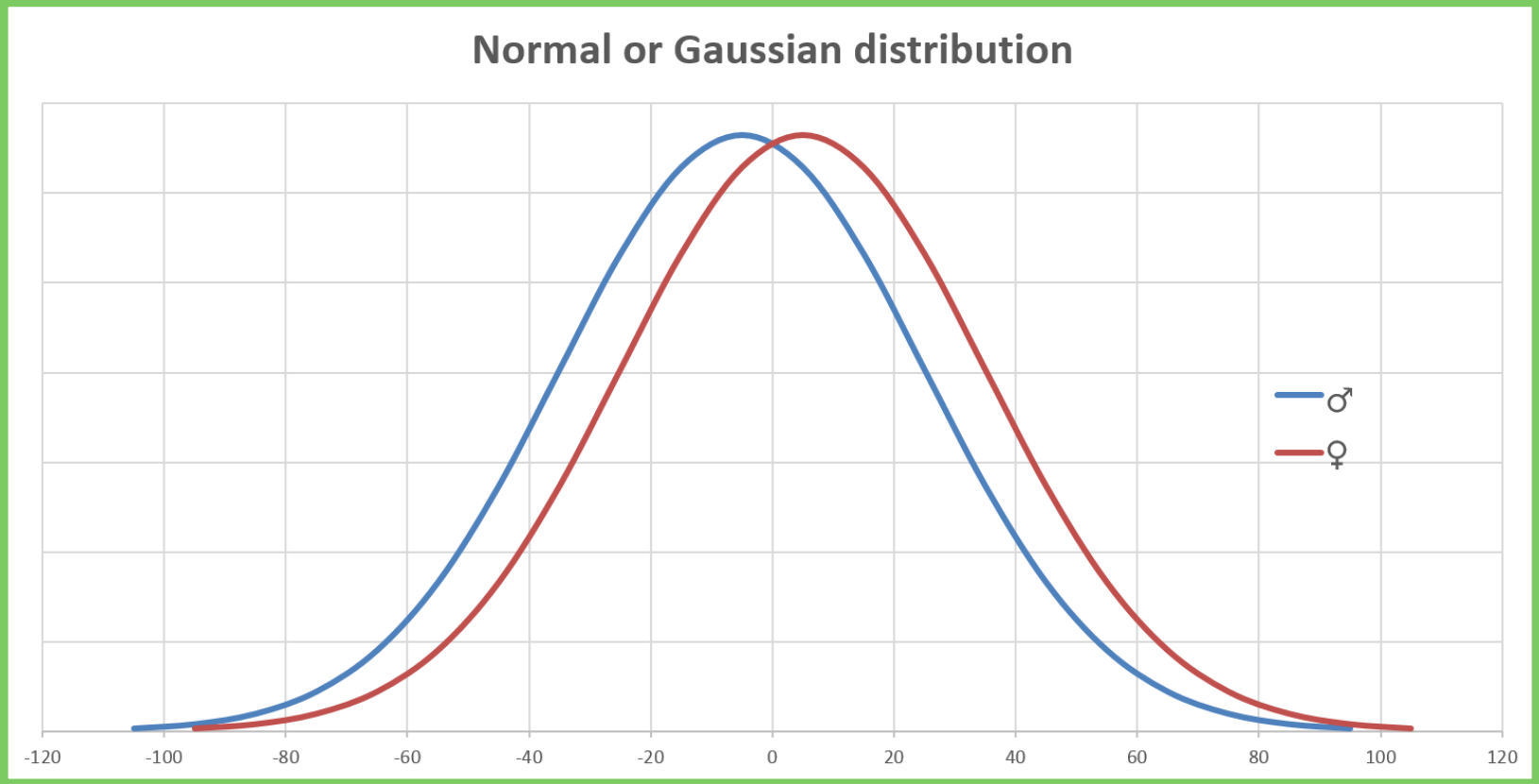
No. at Risk:

TAVR	202	190	178
SAVR	180	157	146

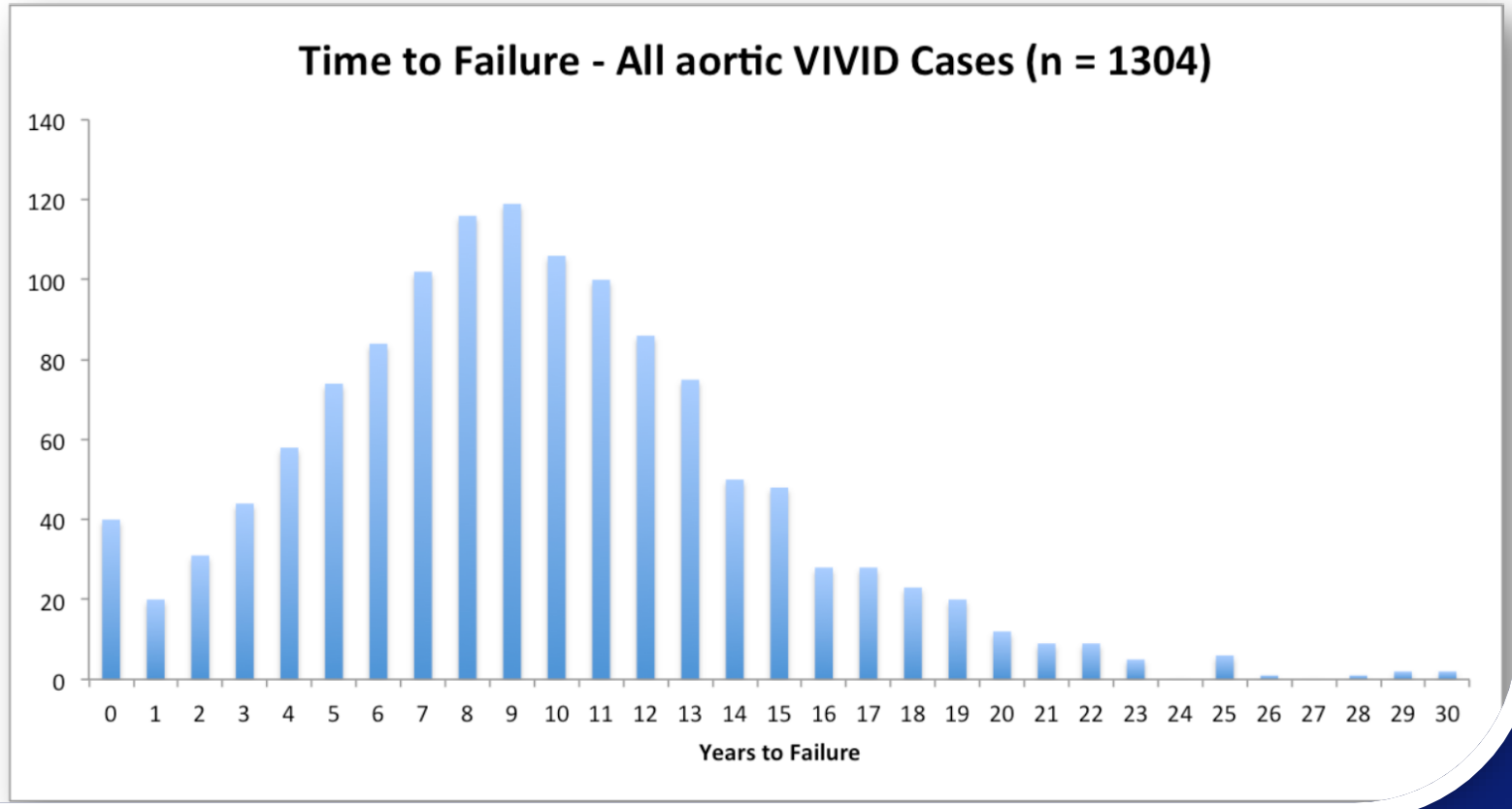
Durability

Normal distribution is a commonly occurring probability distribution

In nature and social sciences, observations very often cluster around an average

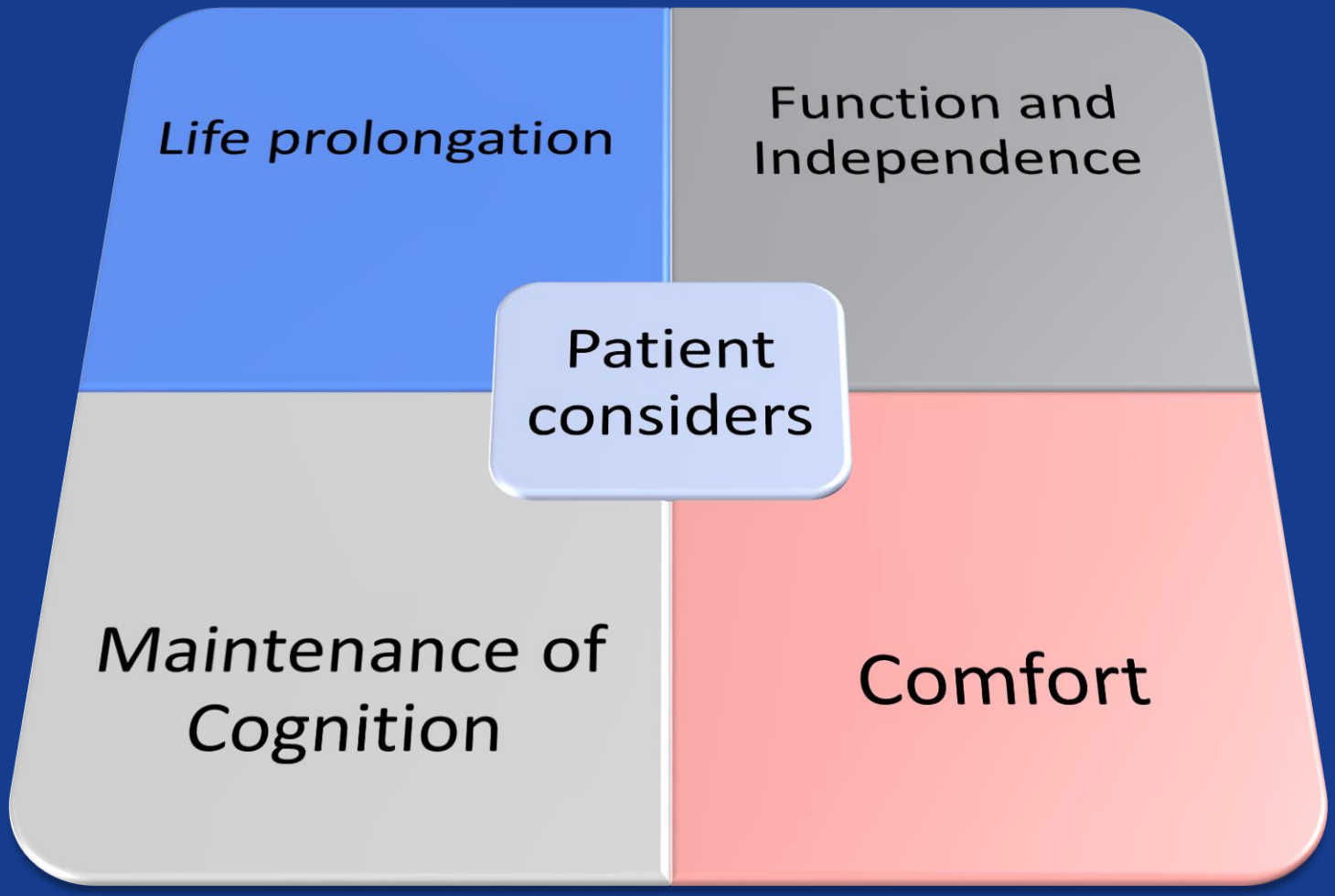


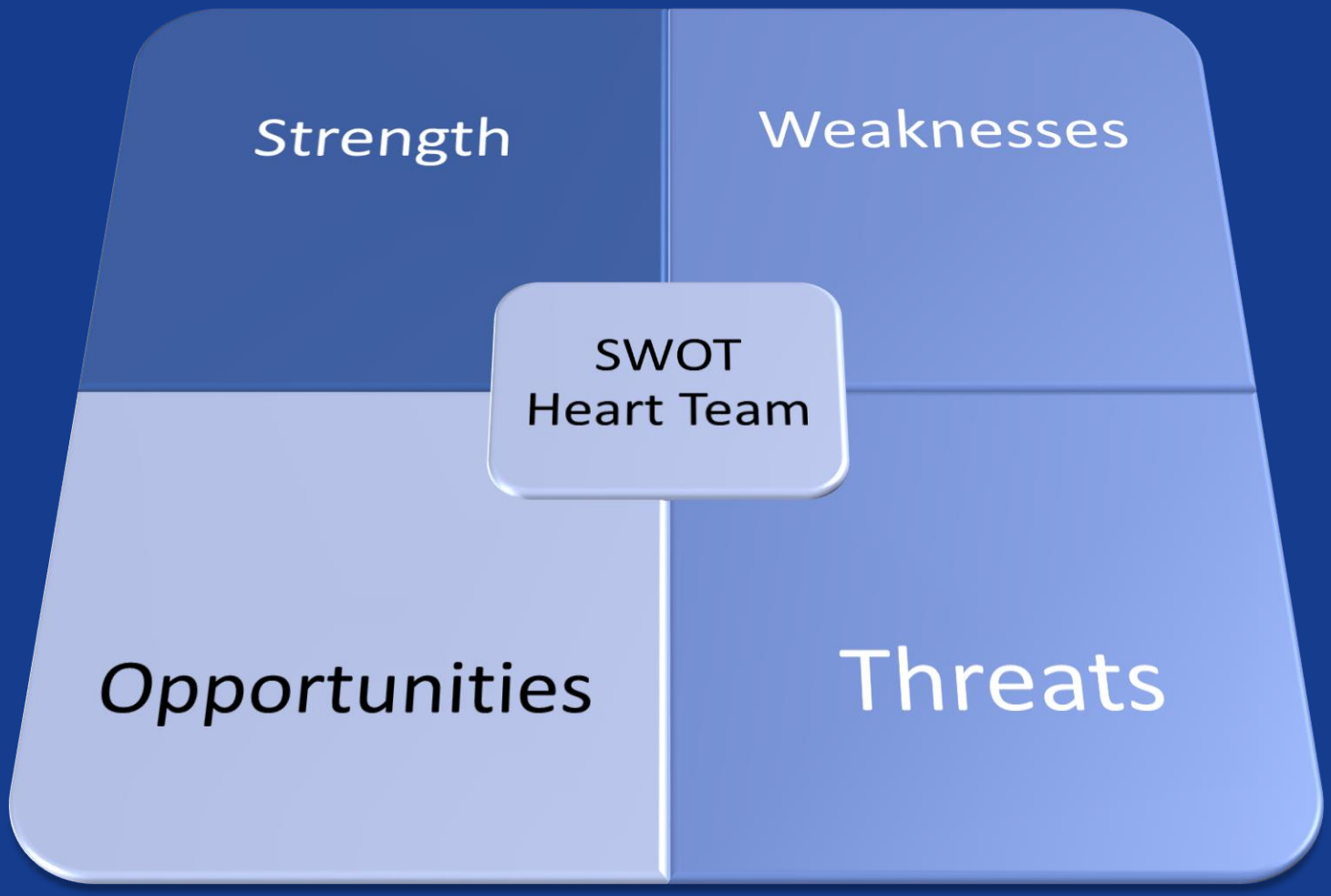
Registry of Valve in valve procedures
Failure of surgical bioprosthesis



Courtesy Danny Dvir

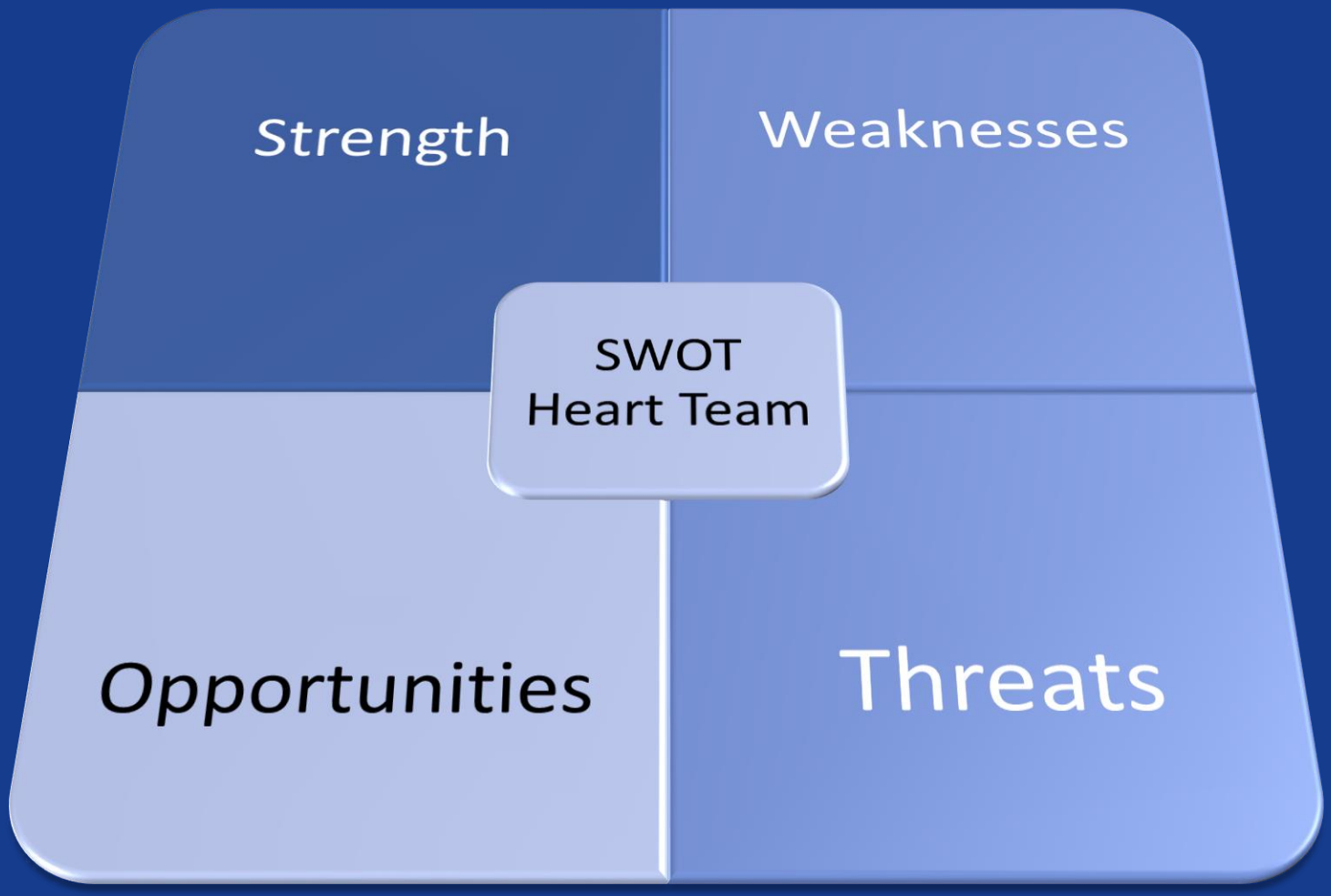
Choice of the patient


Life prolongation
Function and Independence
Patient considers
Maintenance of Cognition
Comfort


Strength
Weaknesses
SWOT
Heart Team
Opportunities
Threats

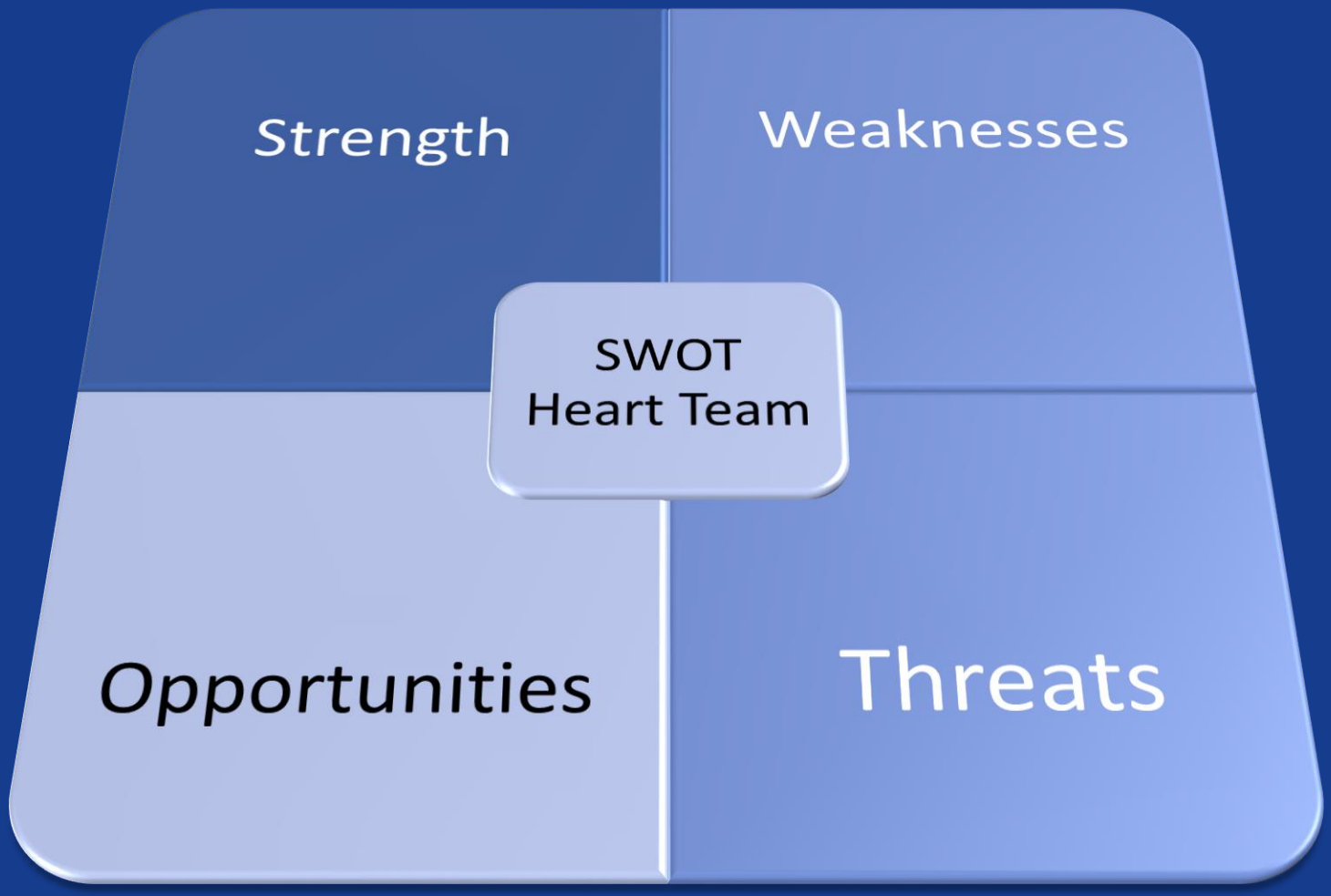
Weakness of the Heart Team

1. Time consuming
2. Difficult to organize
3. Majority of patients the choice is clear
4. Delay in decision
5. Number of experts needed


Strength
Weaknesses
SWOT
Heart Team
Opportunities
Threats

Threats to the Heart Team

1. Costs
2. "Manager culture" in hospitals
3. One operator procedure
4. Salary of the operator depends on number procedures


Strength
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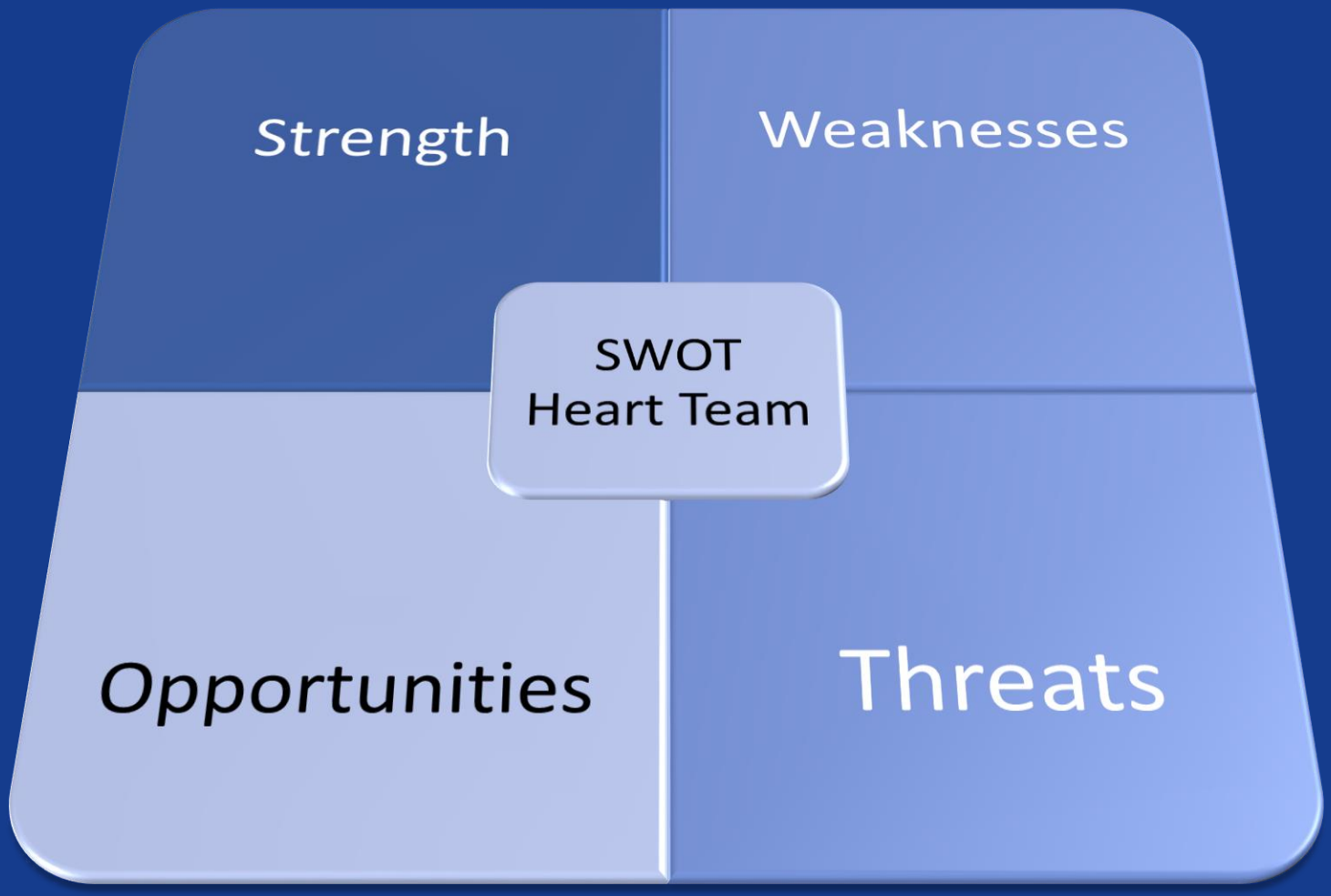
Opportunities of the Heart Team

1. Enroll patients in randomized trial
2. Integrate new imaging modalities
3. Incorporate patient preferences
4. May also save money
5. Enrich Creativity
6. Protocol: Which patients do not need to be discussed?


Strength
Weaknesses
SWOT
Heart Team
Opportunities
Threats

Strength of the Heart Team

1. Knowledge from different disciplines
2. Adjustment of risk scores
3. Optimal selection of access route
4. With better outcome: selection is more complex
5. Adjustment for Hospital / Operator experience
6. Higher ratings of patients' experience of care
7. Liability

Conclusion

- S trengths: 7
- W eakness: 5
- O pportunities: 6
- T hreats:4