

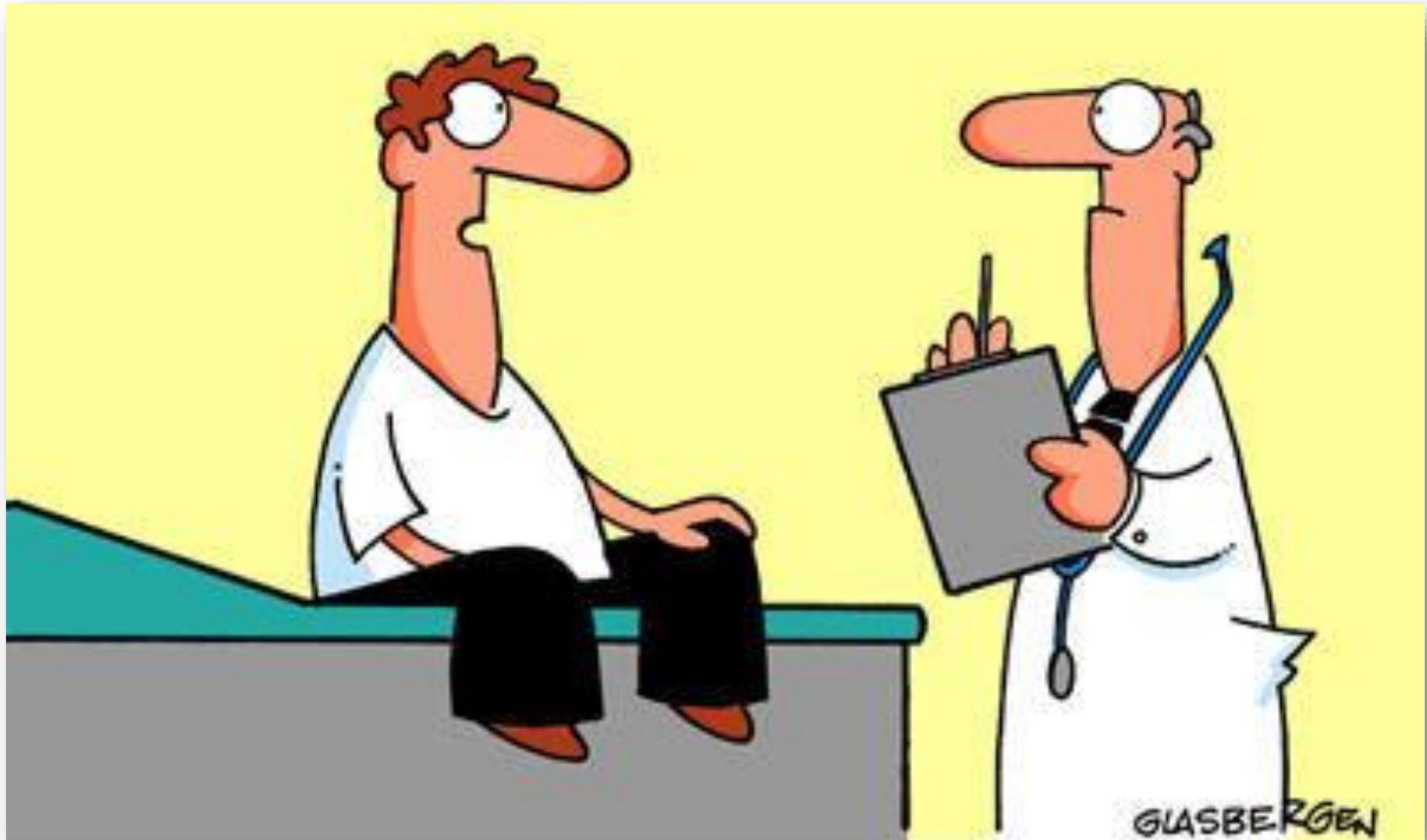
Why and when to repair the aortic valve? 😊

Reconstruction of the Aortic Valve and Root:
A practical approach
Homburg, September 7– 9, 2022

Jan Vojacek, M.D., Ph.D.
Professor of Cardiac Surgery
Department of Cardiac Surgery, Charles University
University Hospital Hradec Kralove
Czech Republic



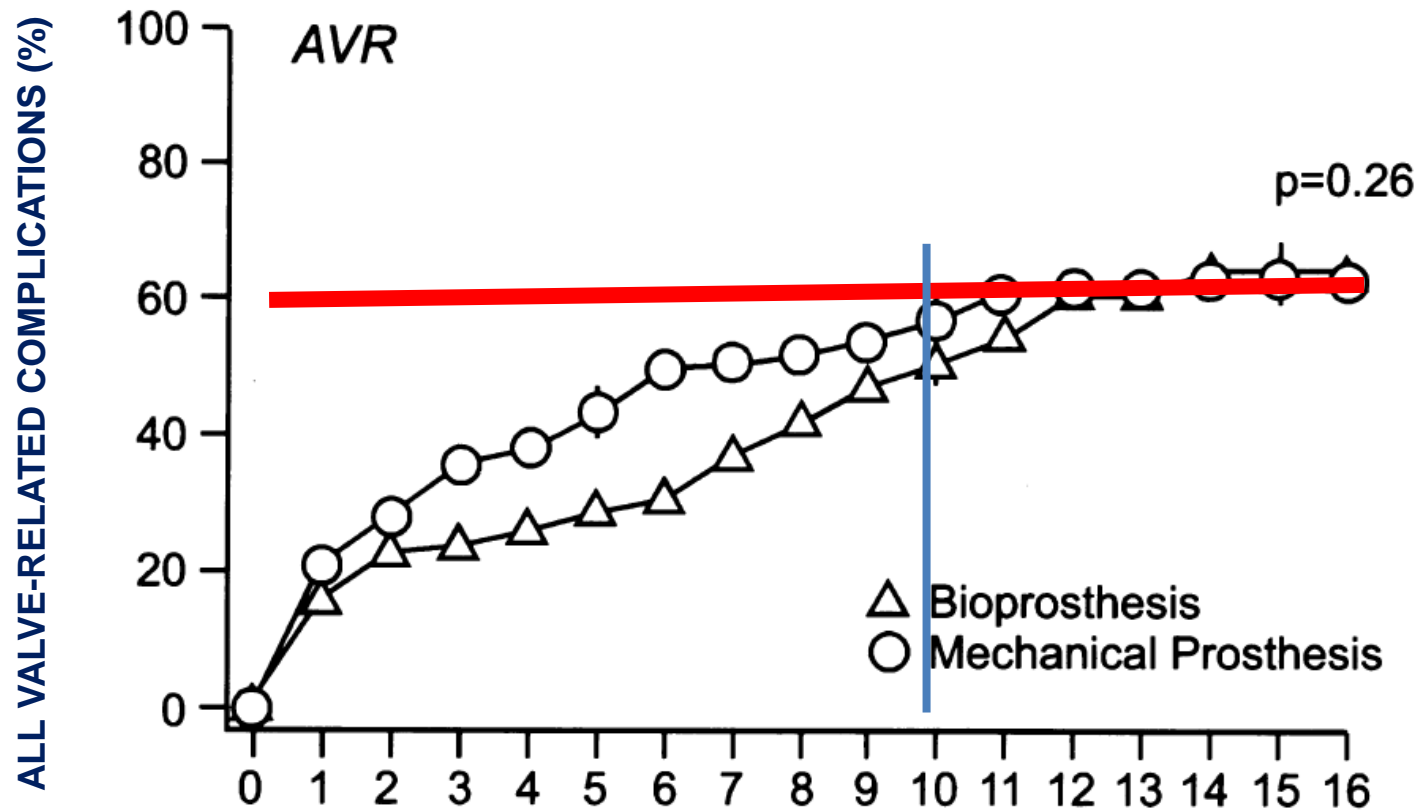
Why???



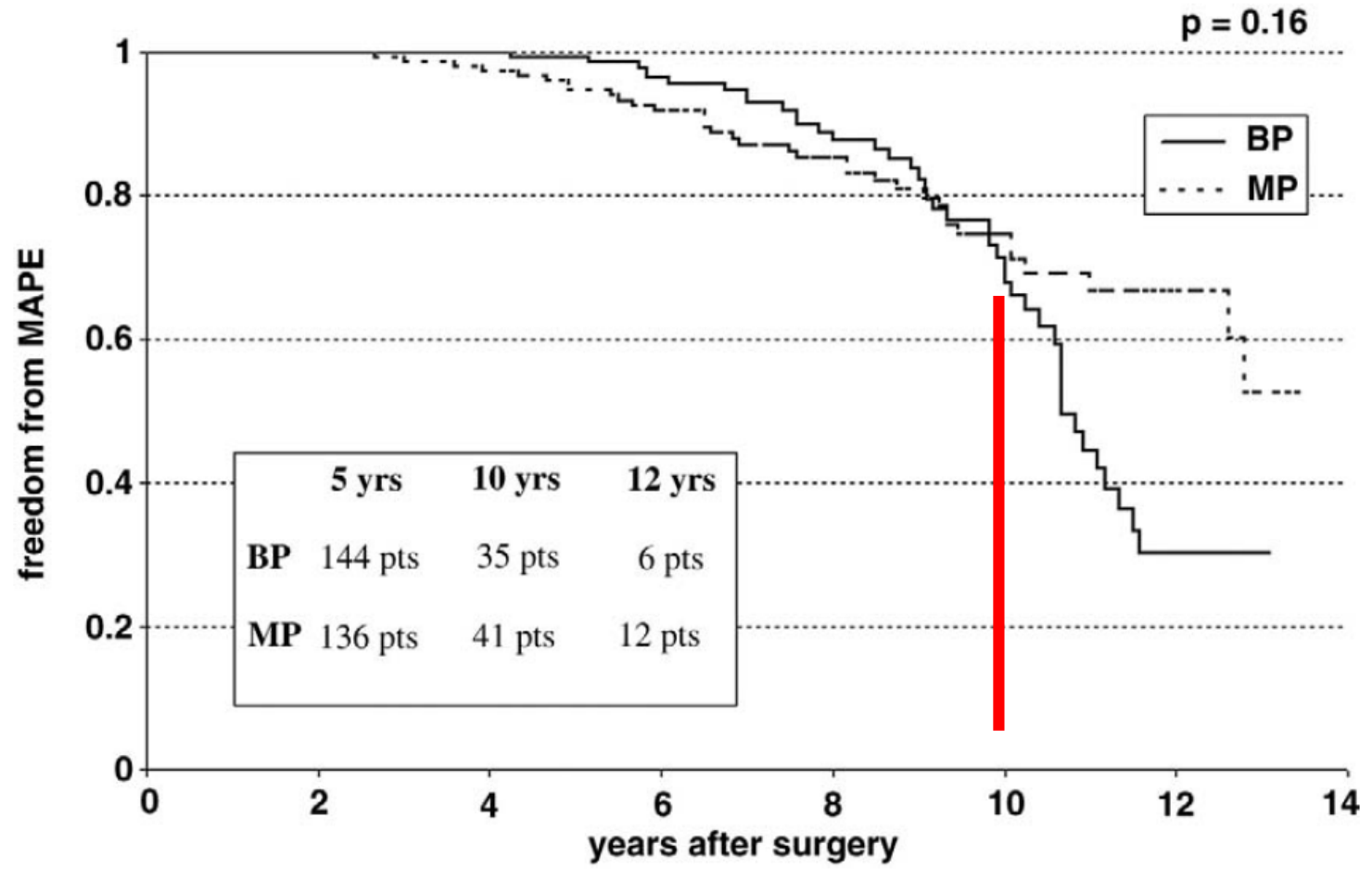


VALVE RELATED COMPLICATIONS ☹️

The long-term results of mechanical and bioprosthetic AVR



The long-term results of mechanical and bioprosthetic AVR



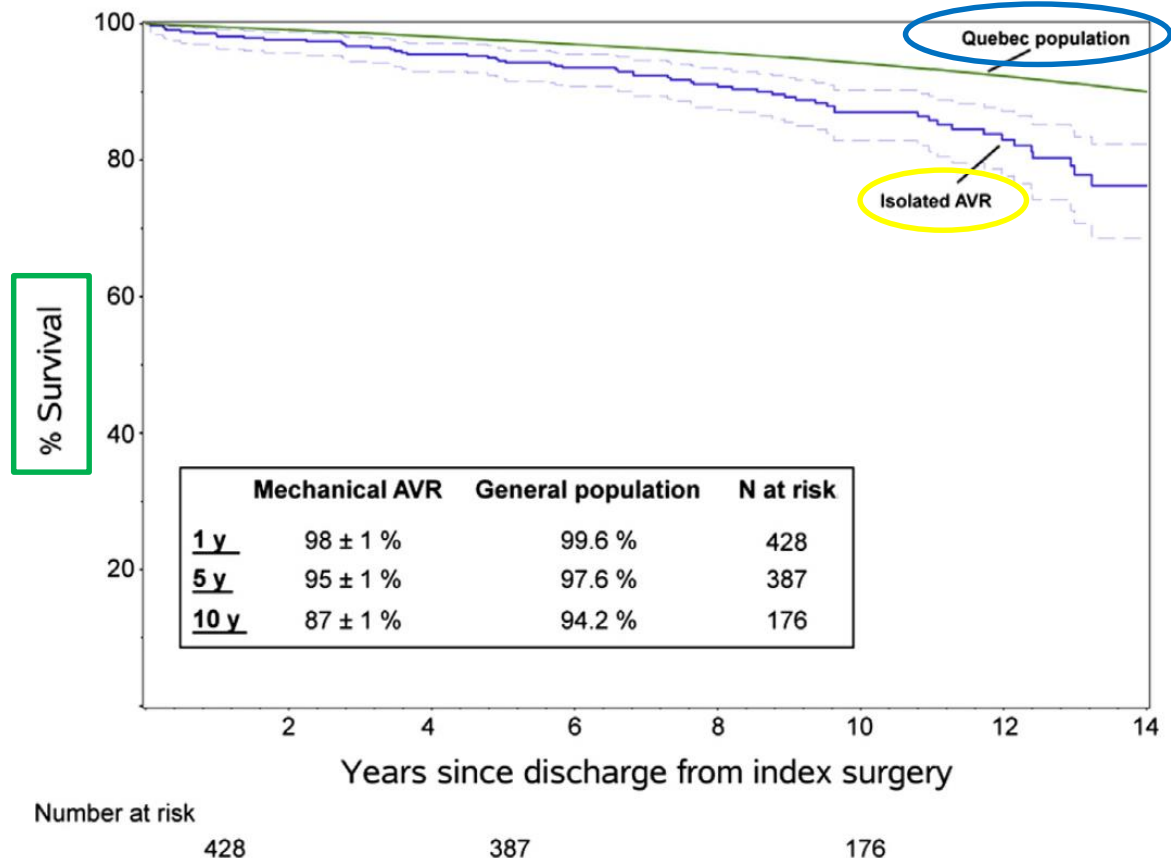
Long-term outcomes after elective isolated mechanical aortic valve replacement in young adults

2014

The Journal of Thoracic and Cardiovascular Surgery • Volume 148, Number 4

Ismail Bouhout, MSc,^a Louis-Mathieu Stevens, MD, PhD,^b Amine Mazine, MSc,^a Nancy Poirier, MD,^a Raymond Cartier, MD,^a Philippe Demers, MD,^a and Ismail El-Hamamsy, MD, PhD^a

450 patients
age < 65 years



Loss in Life Expectancy After Surgical Aortic Valve Replacement

JACC 2019

SWEDHEART Study

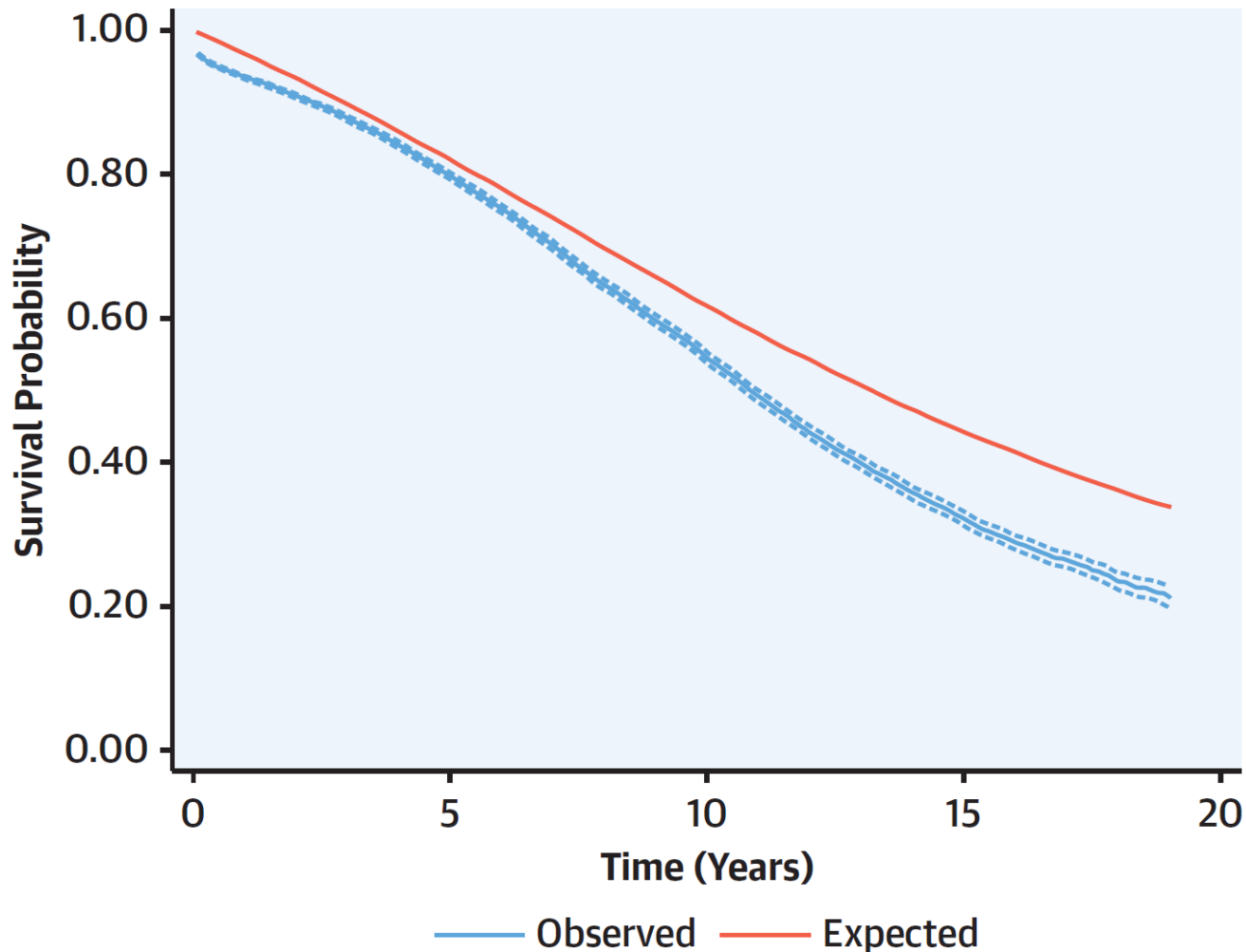
23 528 patients after AVR



Loss in Life Expectancy After Surgical Aortic Valve Replacement

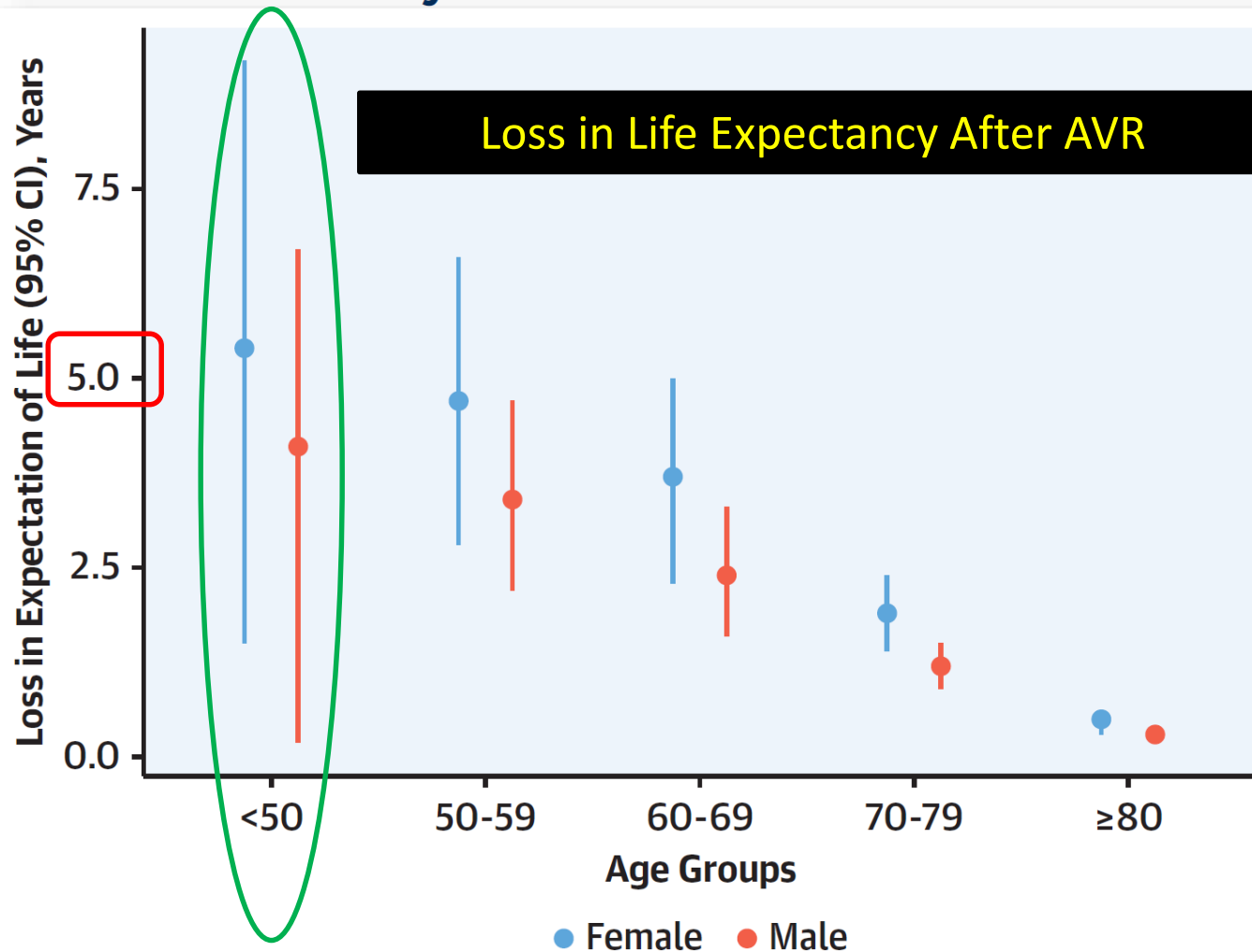
JACC 2019

SWEDHEART Study



Loss in Life Expectancy After Surgical Aortic Valve Replacement

SWEDHEART Study

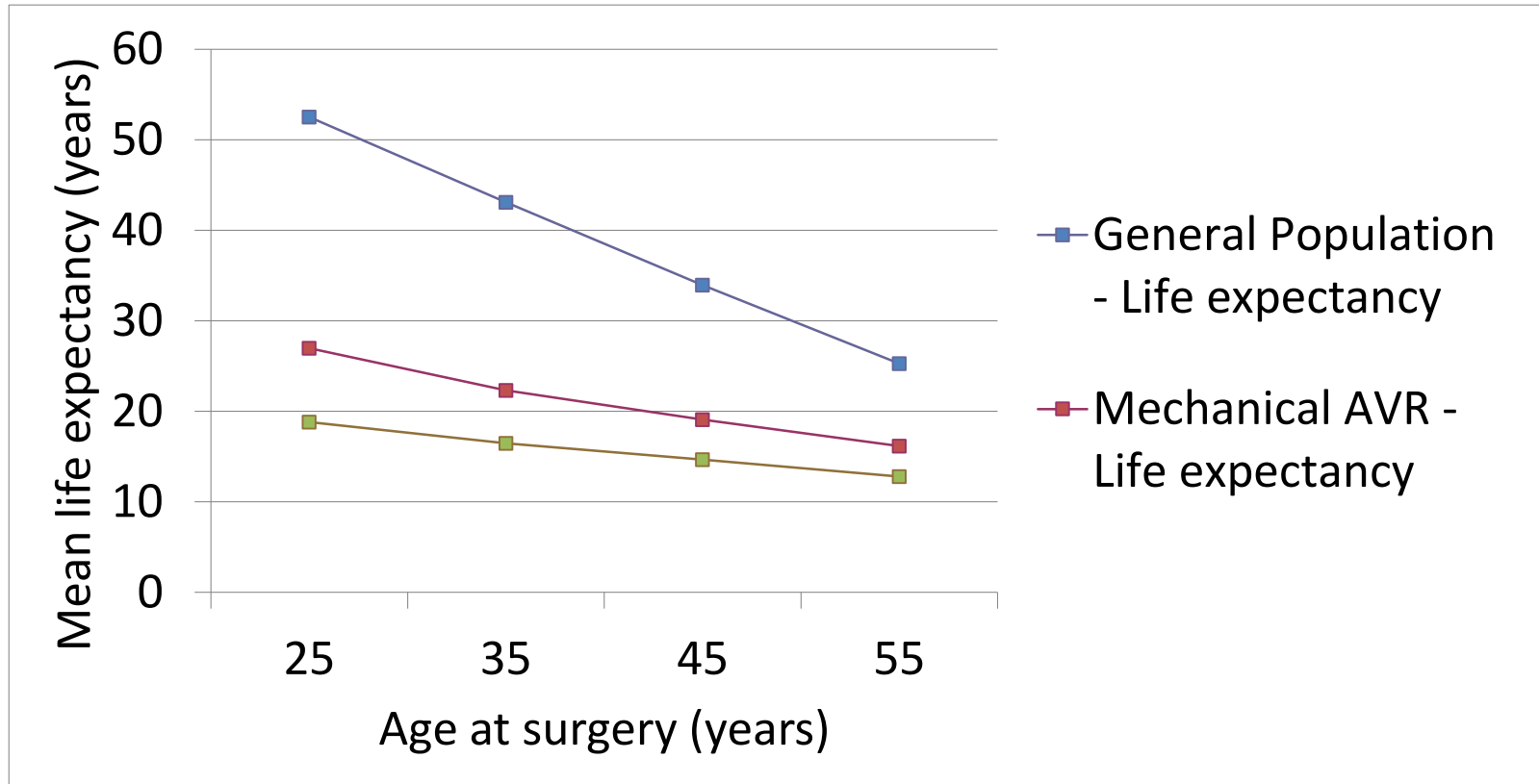


Mechanical aortic valve replacement in non-elderly adults: meta-analysis and microsimulation



- 1995 – 2015
- Age: 18 – 55 (mean age: 48 years)
- 5728 patients from 29 publications
- Life expectancy and lifetime event risk

Life expectancy after mechanical AVR??





45 years

Life expectancy: 34 years



Life expectancy = **19 years** (instead of 34 years)

Lifetime risk of:

TEC	18%
Bleeding	15%
ReDo	10%

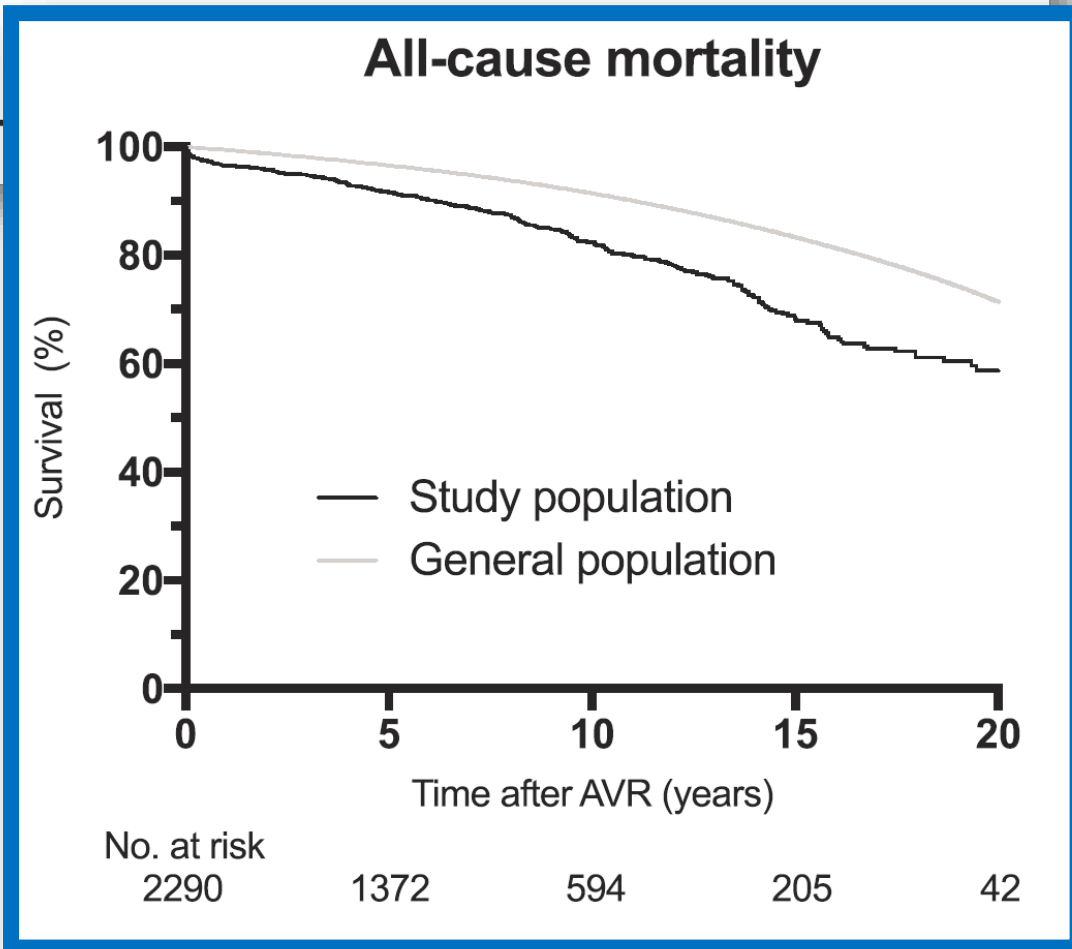
Life expectancy after biological AVR



ORIGINAL ARTICLE

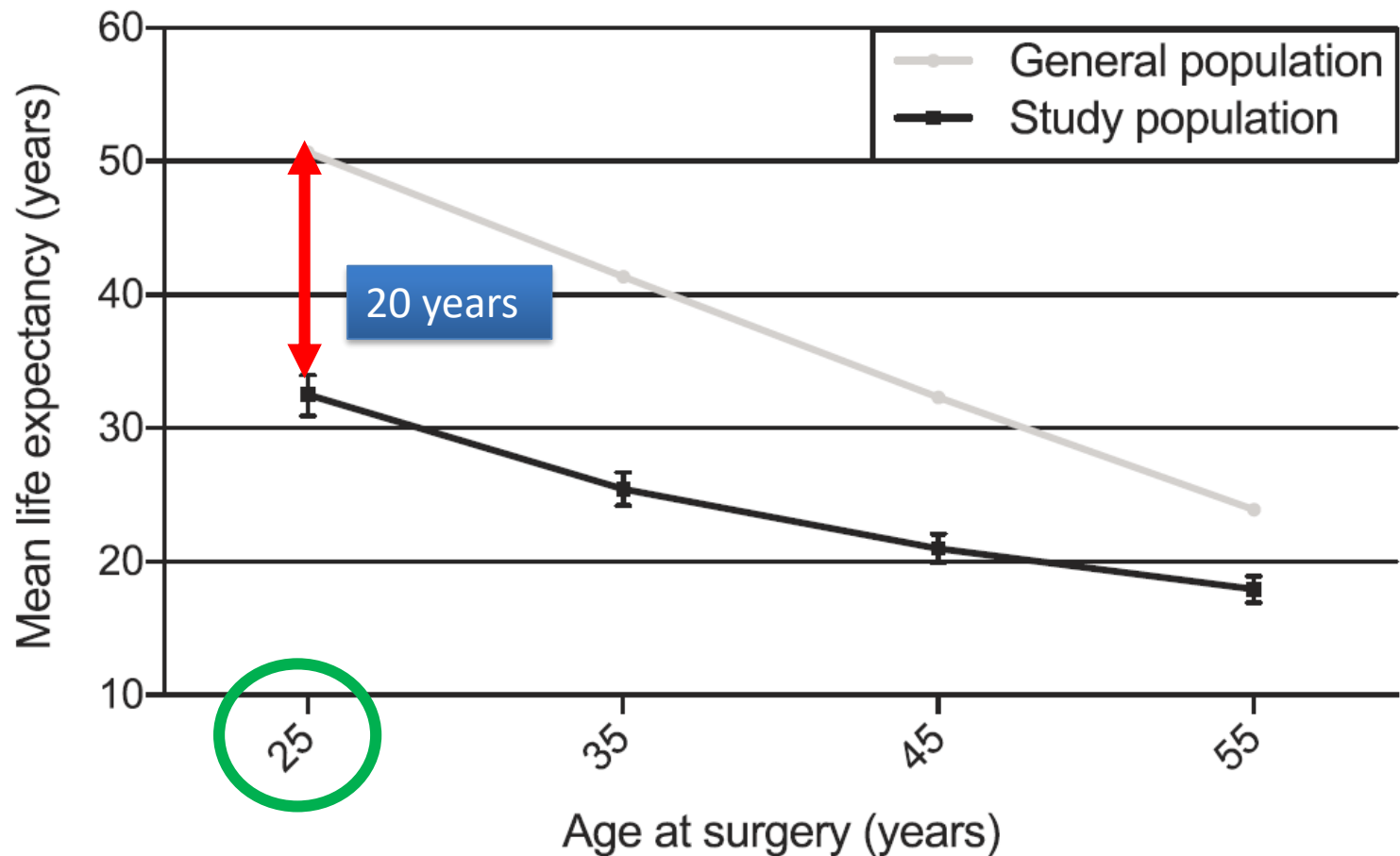
Bioprosthetic Aortic Valve Replacement in Nonelderly Adults

A Systematic Review, Meta-



Circulation: Cardiovascular Quality and Outcomes

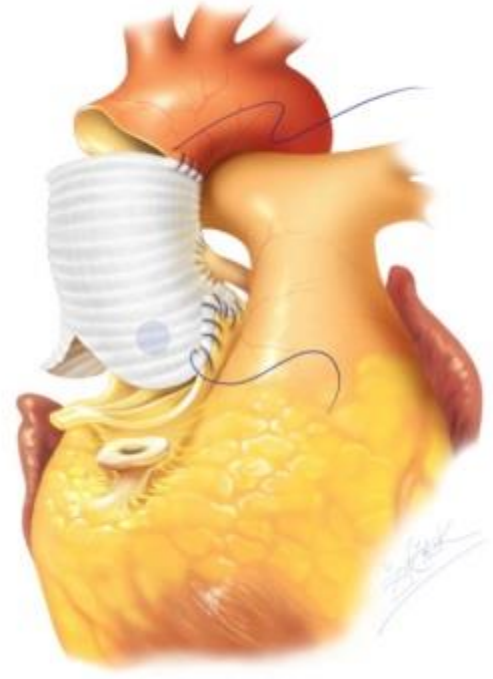
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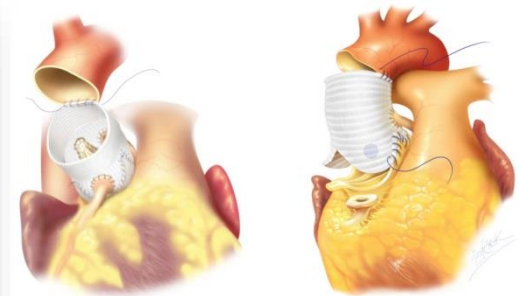
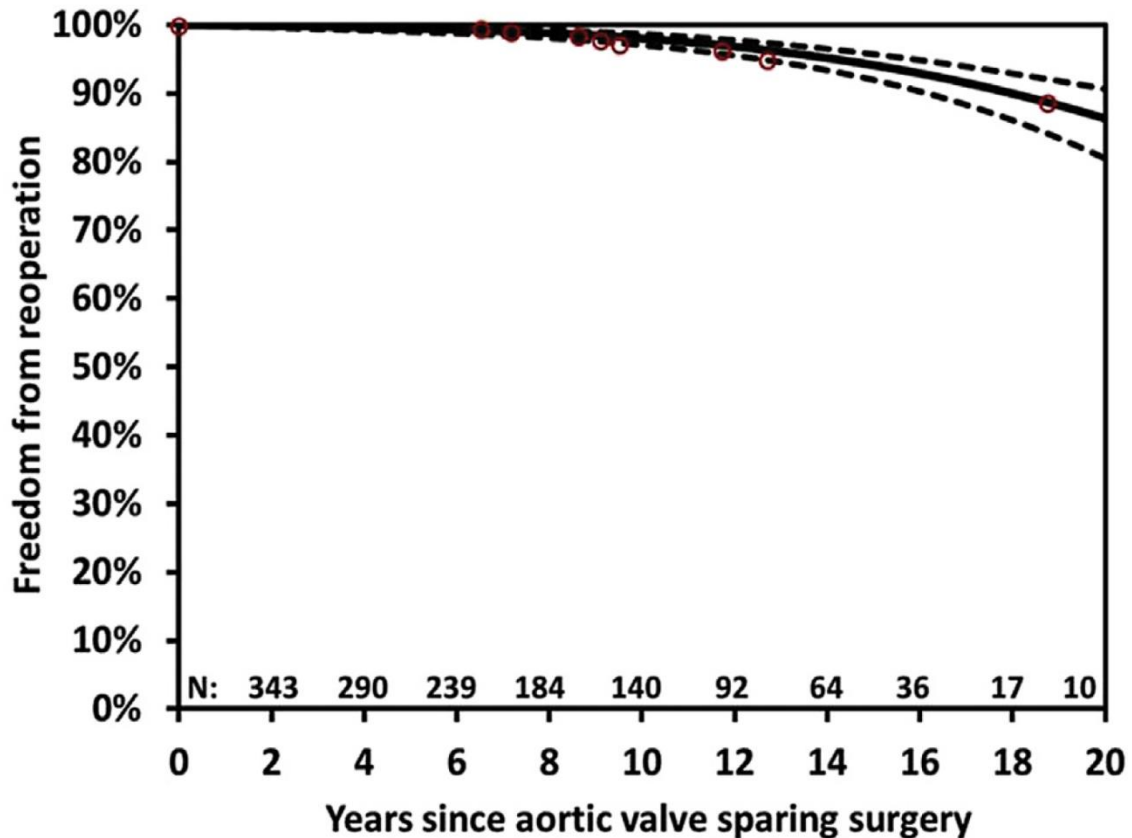
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Microsimulation-based age-specific **mean life expectancy after bioAVR** compared with the age- and sex-matched general population



The long-term results of VSARR



371 patients

In Hospital mortality: 1%

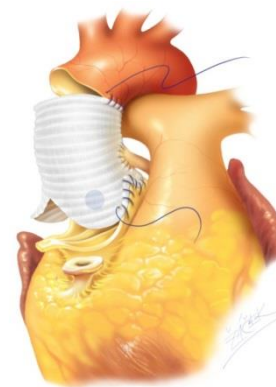
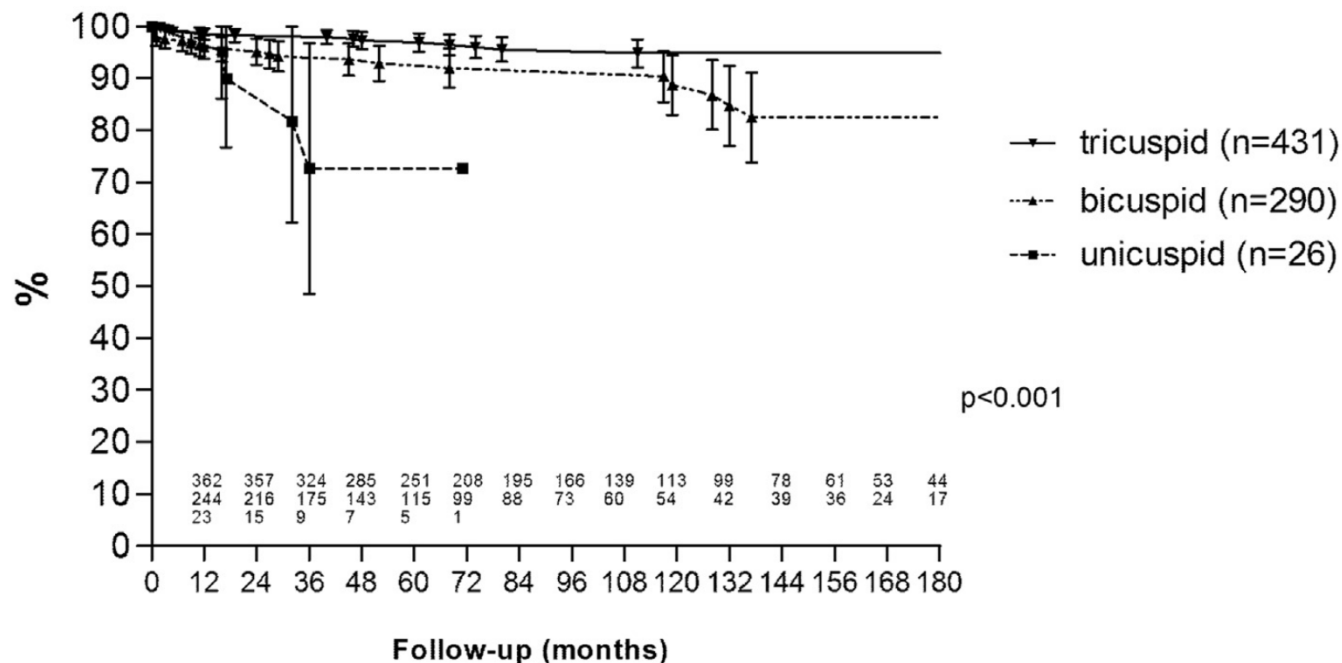
Freedom from ReDo at
18 years: **94.8%**

David TE et al. A quarter of a century of experience with aortic valve-sparing operations.

J Thorac Cardiovasc Surg 2014;148:872-80

The long-term results of VSARR

Freedom from reoperation (remodeling)



747 patients

In-Hospital mortality: 2%

Freedom from ReDo in tricuspid aortic valve at 15 years: **95%**

Long-term experience with valve-sparing reimplantation technique for the treatment of aortic aneurysm and aortic regurgitation

Stefano Mastrobuoni, MD, MPH,^a Laurent de Kerchove, MD, PhD,^a Emiliano Navarra, MD
Christine Watremez, MD, PhD,^b David Vancraeynest, MD,^c Jean Rubay, MD, PhD,^a
Philippe Noirhomme, MD,^a and Gebrine El Khoury, MD^a

The long-term results of VSARR

Table 2. Linearized Occurrence Rates of Late Outcome Events

Pooled Late Outcome Events	LOR + 95% CI	Heterogeneity (I ²)	Included Studies (n)
Late mortality	1.53 (1.19–1.96)	82.6	31
Reoperation on aortic valve	1.32 (1.0–1.74)	72.3	31
Hemorrhage	0.23 (0.13–0.42)	78.7	26
Thromboembolism	0.41 (0.22–0.77)	27.6	26
Endocarditis	0.23 (0.11–0.51)	0.00	30
MAVRE	1.66 (1.24–2.23)	100	20

Cumulative risk of hemorrhage, TE = **0,64** (6% at 10 years)

Arabkhani et al. **Reported Outcome After Valve-Sparing Aortic Root Replacement for Aortic Root Aneurysm: A Systematic Review and Meta-Analysis.** Ann Thorac Surg 2015 Sep;100(3):1126-31.

The long-term results of VSARR

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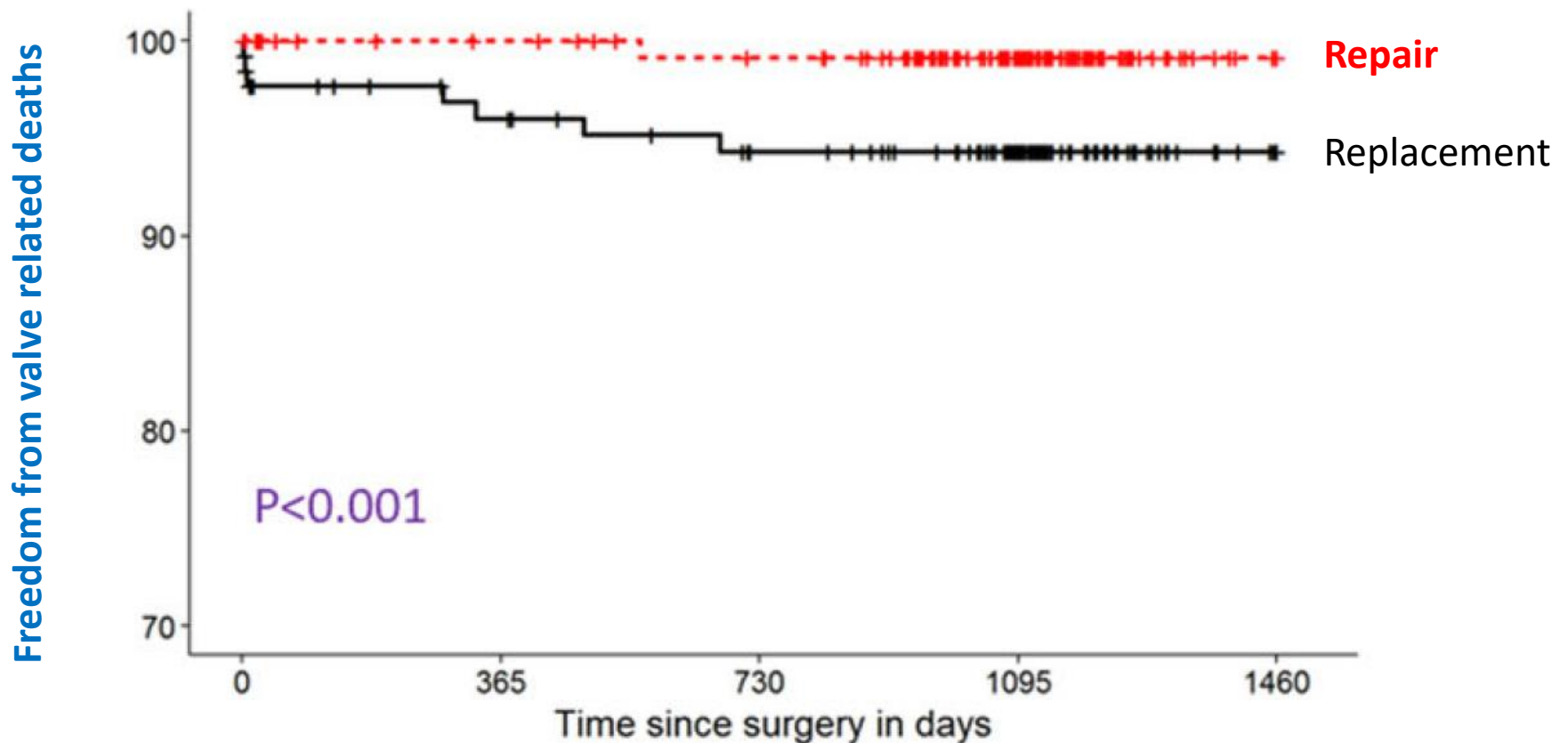
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Risk of ReDo: **13% at 10 years**

Arabkhani et al. **Reported Outcome After Valve-Sparing Aortic Root Replacement for Aortic Root Aneurysm: A Systematic Review and Meta-Analysis.** Ann Thorac Surg 2015 Sep;100(3):1126-31.

How about the survival.....??

Aortic valve repair versus mechanical valve replacement for root aneurysm: the CAVIAAR multicentric study



Quality of life after aortic valve surgery: Replacement versus reconstruction

Diana Aicher, MD,^a Annika Holz,^a Susanne Feldner, MD,^a Volker Köllner, MD,^b and Hans-Joachim Schäfers, MD^a

The Journal of Thoracic and Cardiovascular Surgery • August 2011

Zacek et al. *BMC Cardiovascular Disorders* (2016) 16:63
DOI 10.1186/s12872-016-0236-0

BMC Cardiovascular Disorders

RESEARCH ARTICLE

Open Access



Quality of life after aortic valve repair is similar to Ross patients and superior to mechanical valve replacement: a cross-sectional study

Pavel Zacek^{1*†}, T. Holubec^{2†}, M. Vobornik¹, J. Dominik¹, J. Takkenberg³, J. Harrer¹ and J. Vojacek¹



ESC

European Society
of Cardiology

European Heart Journal (2022) **43**, 561–632

<https://doi.org/10.1093/eurheartj/ehab395>

ESC/EACTS GUIDELINES

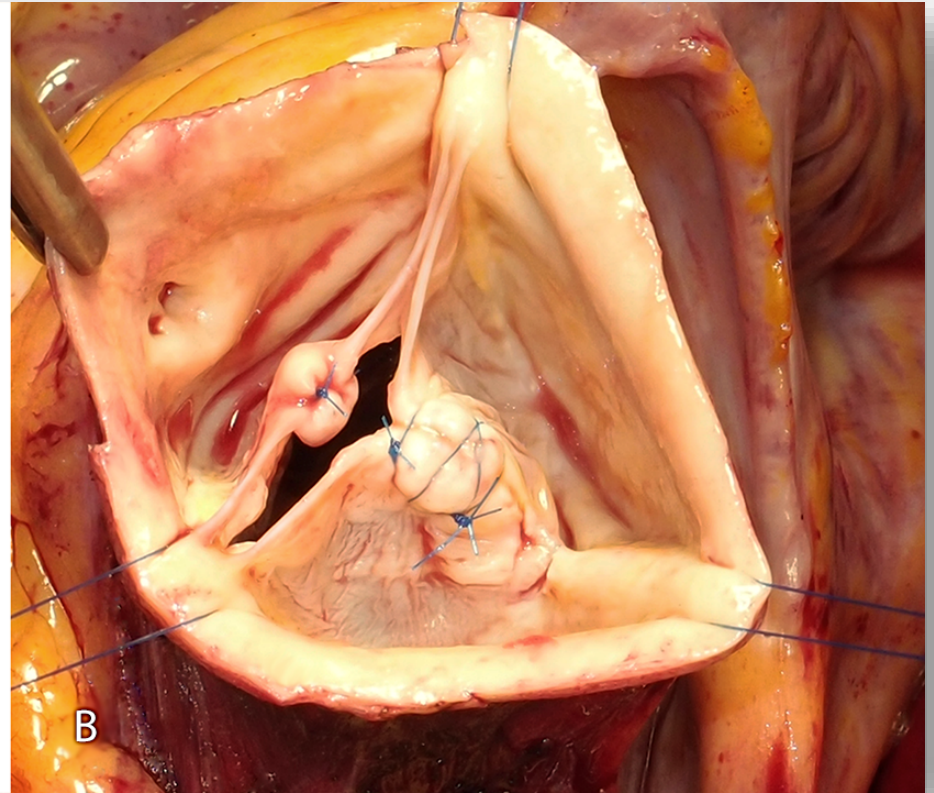
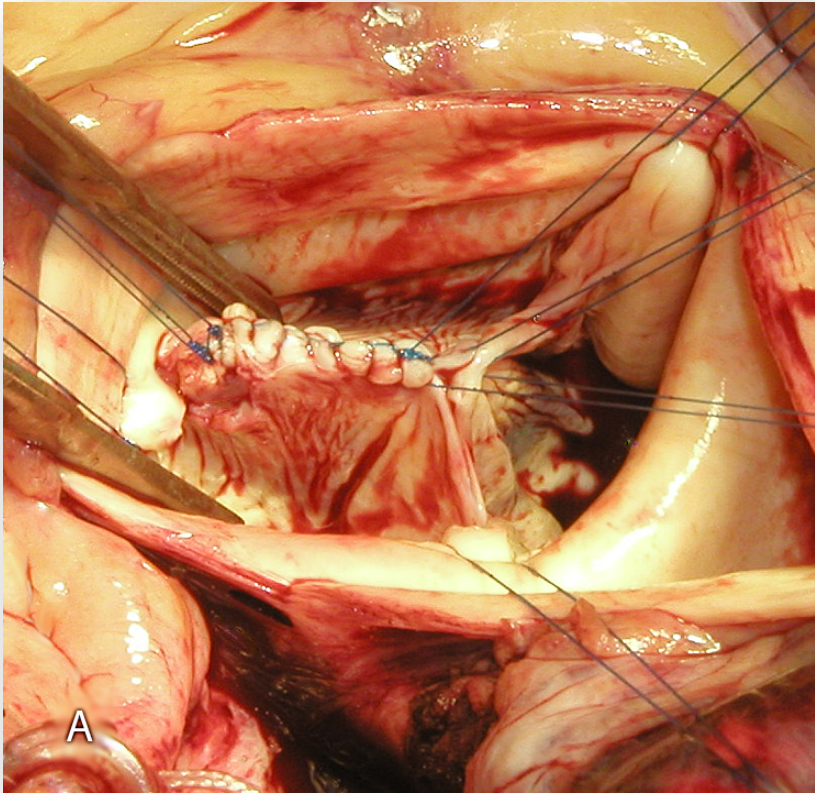
2021 ESC/EACTS Guidelines for the management of valvular heart disease

Valve-sparing aortic root replacement is recommended in young patients with aortic root dilation, if performed in experienced centres and durable results are expected.^{133–136,140}

I

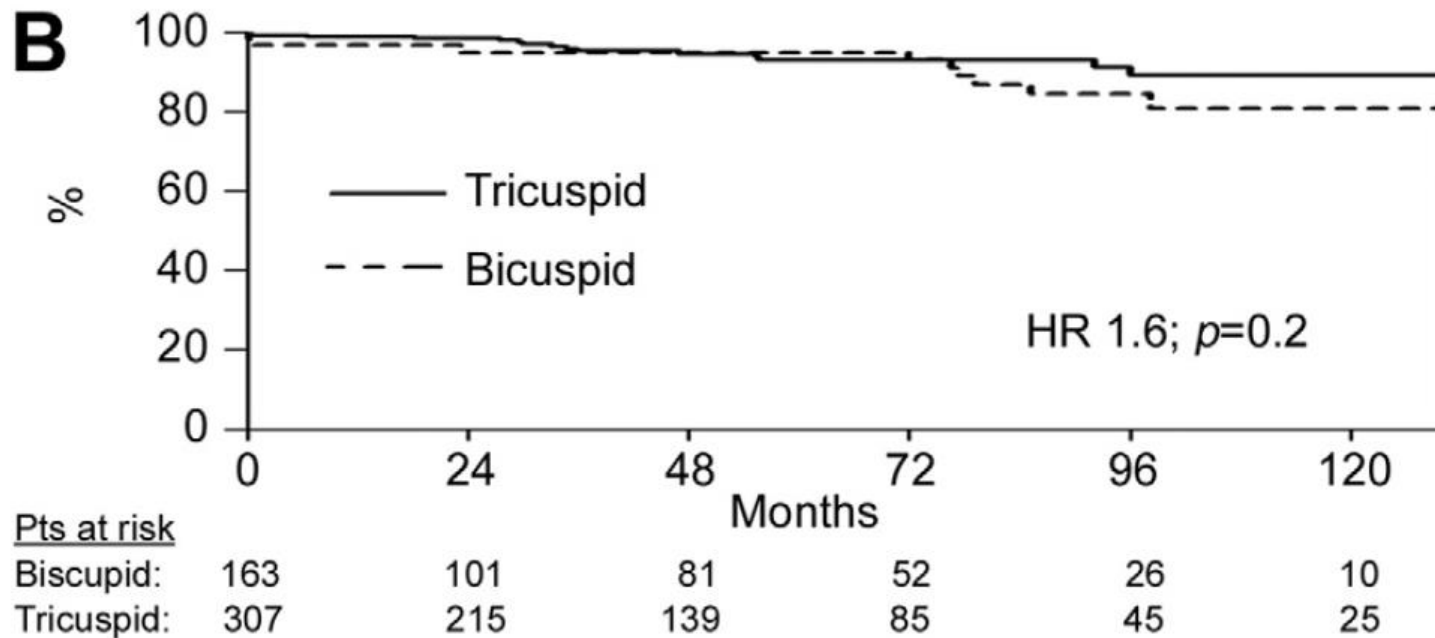
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Bicuspid aortic valve

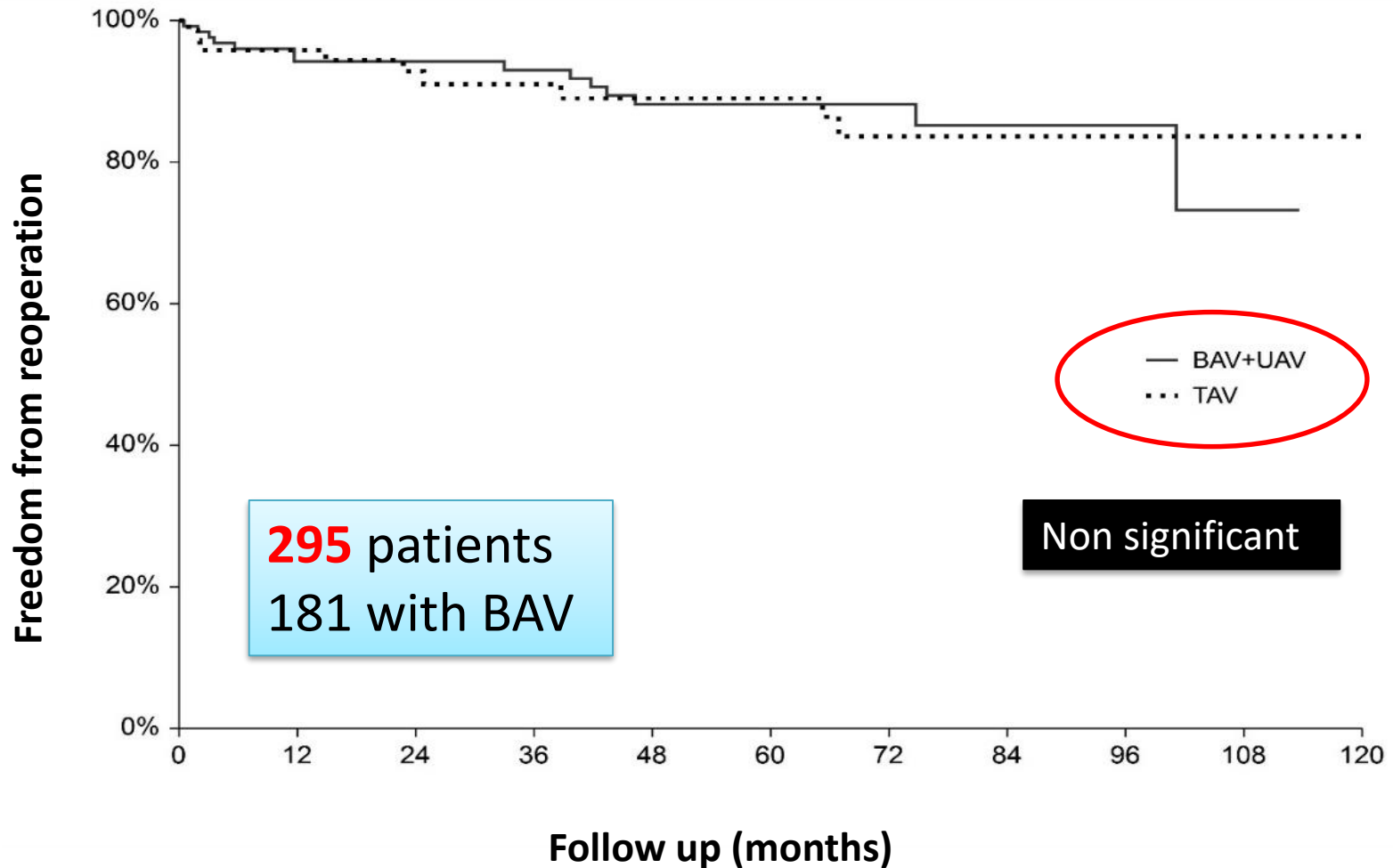


Results of bicuspid aortic valve repair

Freedom from aortic valve reoperation



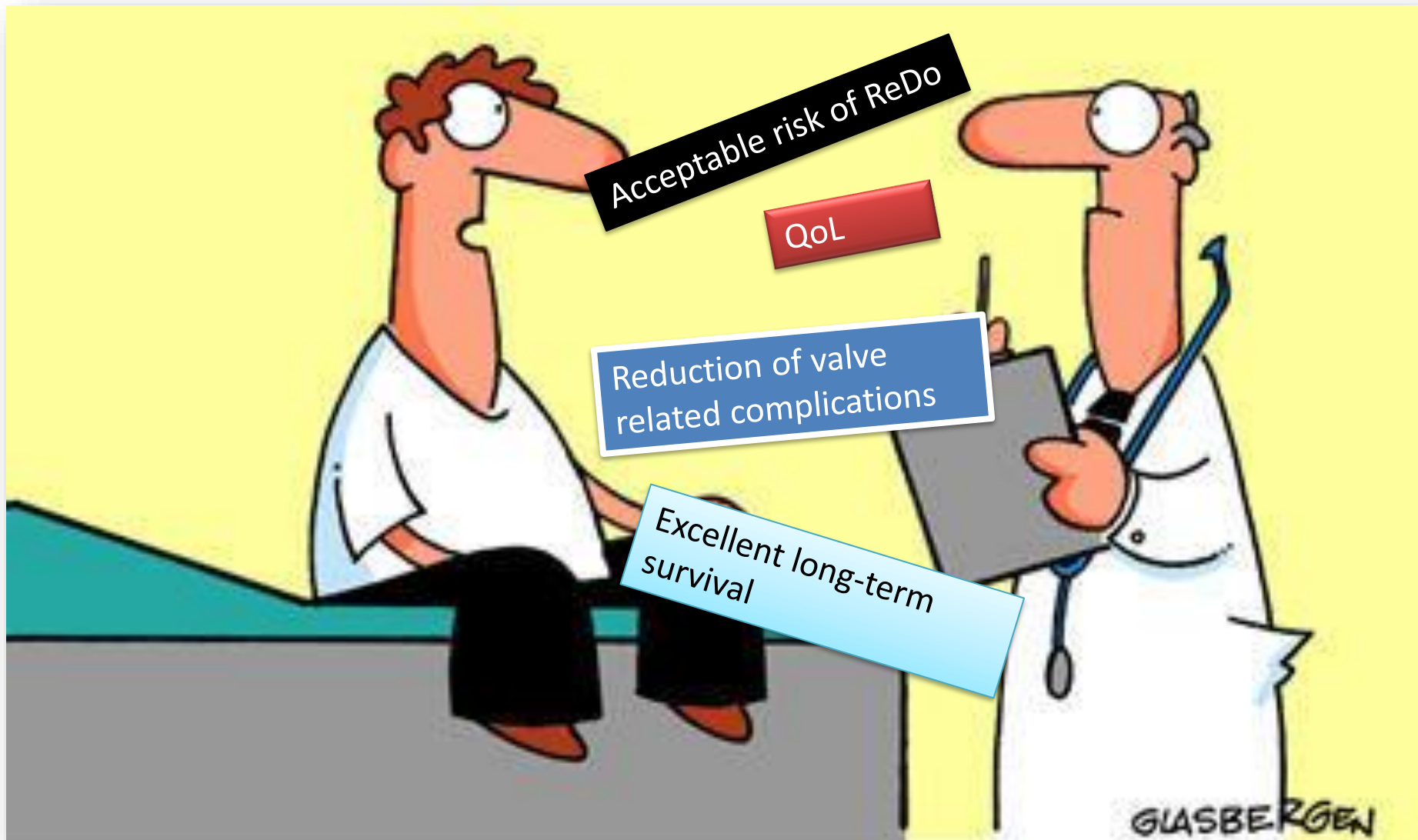
Results of bicuspid aortic valve repair





WHY???

GLASBERGEN



Acceptable risk of ReDo

QoL

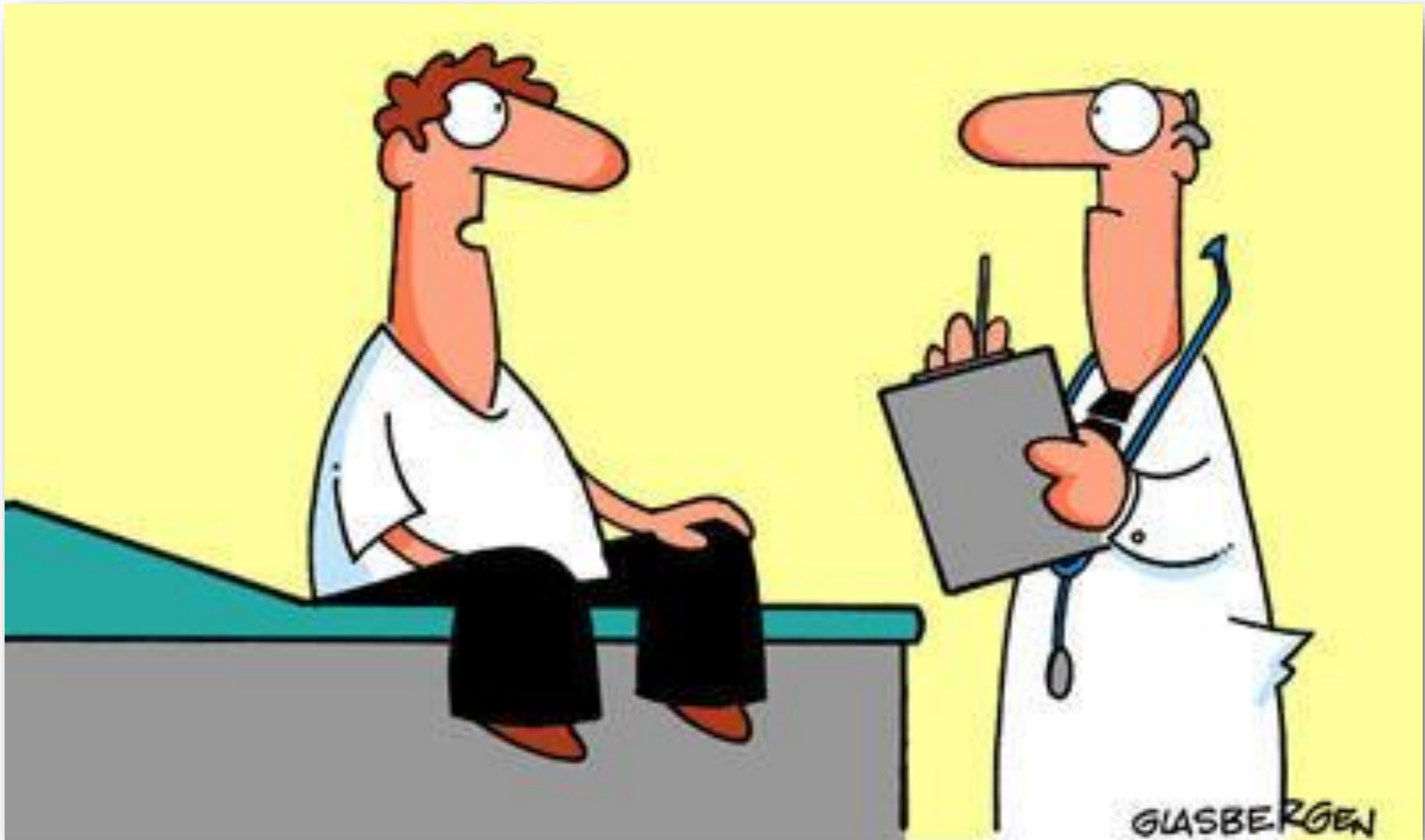
Reduction of valve related complications

Excellent long-term survival

GLASBERGEN

When???

Patient selection



When??? – patient selection

Young or middle-age patient

AR – pure/not mixed lesions

TAV/BAV w/wo aortic dilatation

Only mild degenerative changes
- limited calcification

Not restricted leaflets (gH)

Thank you for your attention 😊



Valve related complications have impact on survival. In other words, these patients have reduced life expectancy comparing to general population

Palliative not radical treatment