



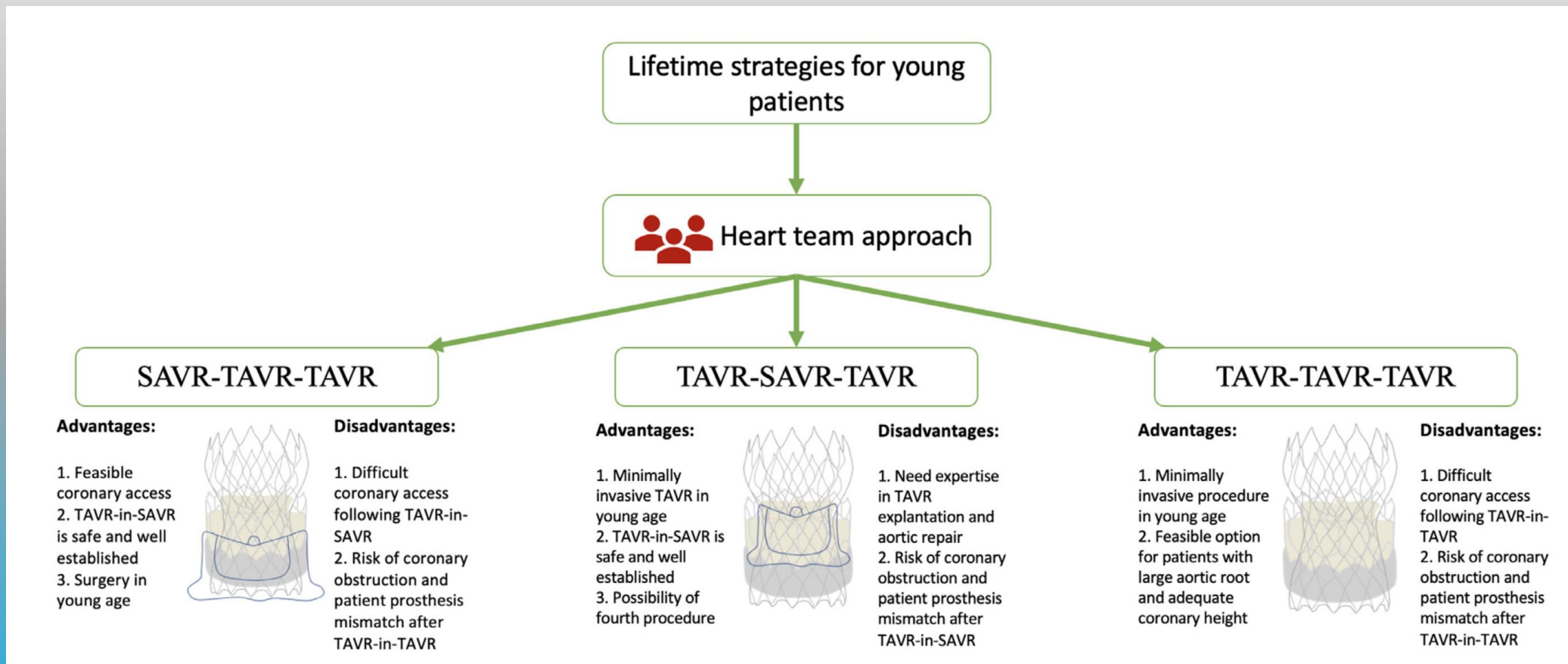
Optimal Planning of Revalving for Failing TAVR

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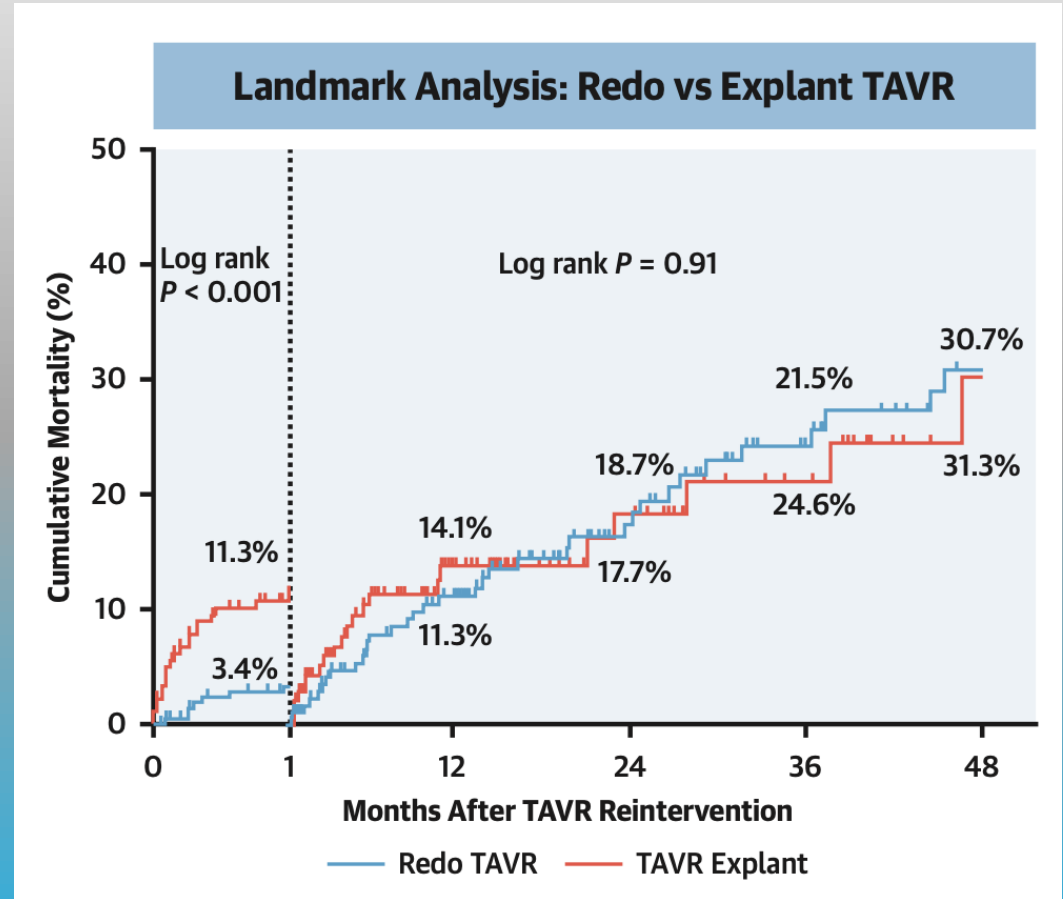
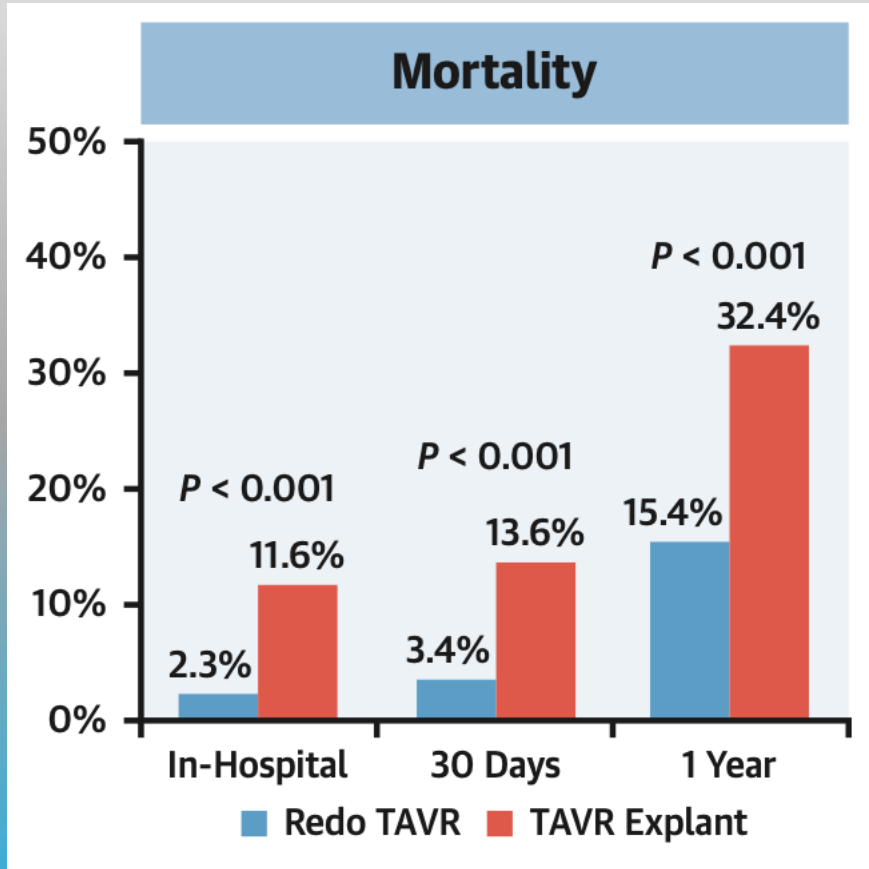
My Conflict of Interest

- **Research Grant Support: Abbott, Boston Scientific, Edwards Lifesciences, Medtronic, PulseCath BV, Daiichi Sankyo , Teleflex, Astra Zeneca, HeartFlow**
- **Advisory board: Abbott, Ancora, Boston Scientific, Medtronic, PulseCath BV, Daiichi Sankyo, Abiomed, JenaValve, Anteris, Bolt Medical, Siemens, Pie Medical, Luma Vision, FEops, Materialise**

AS Lifetime Management

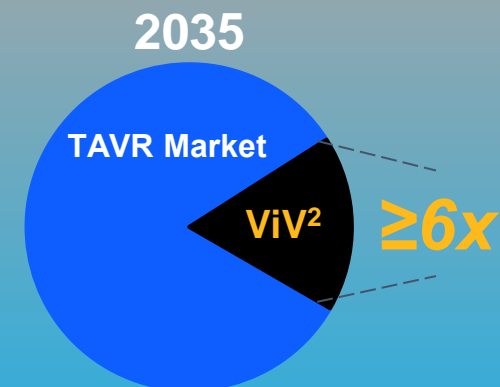
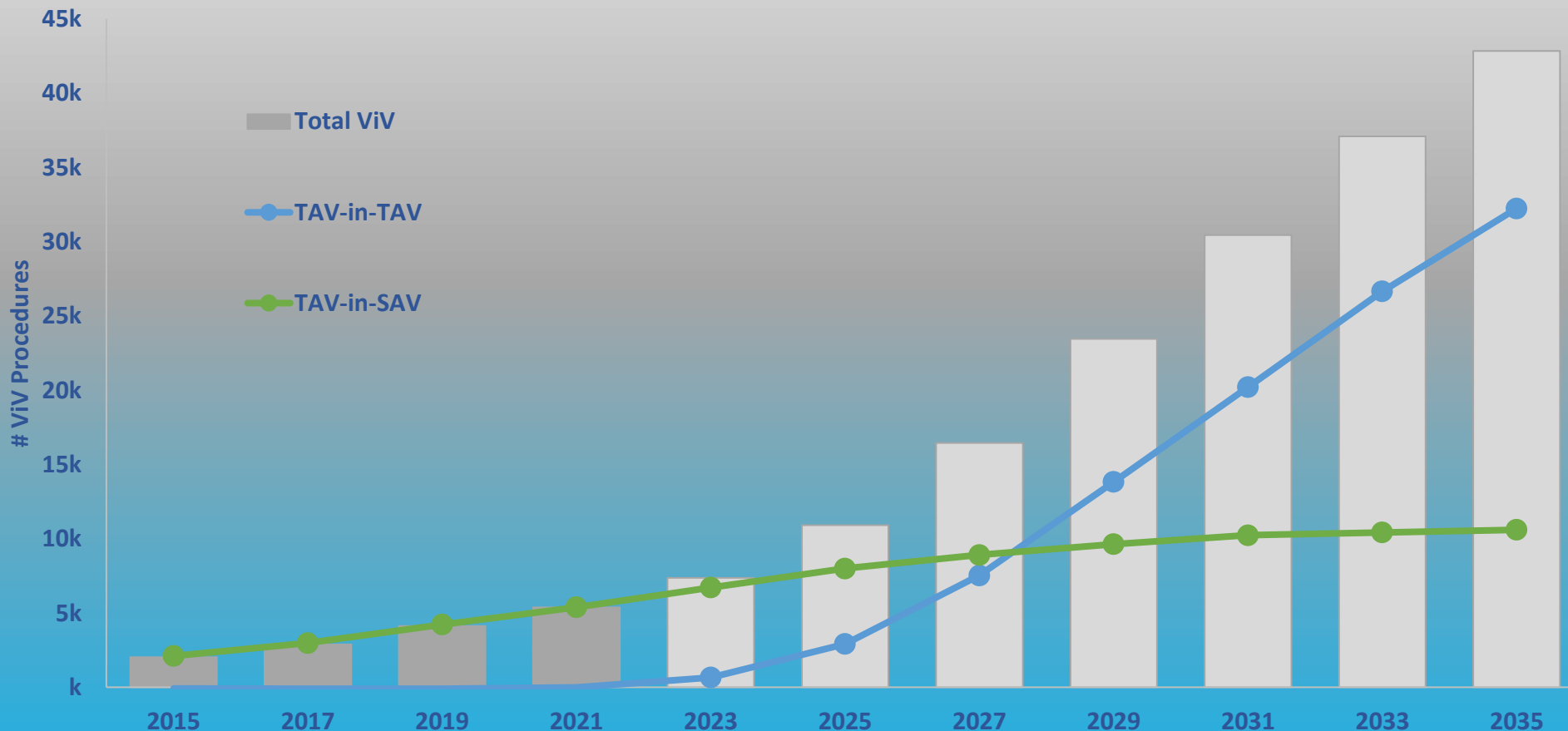


Treatment of a Failing TAVR



TAV-in-TAV Market Estimation

US ViV Market Forecast



2 Prospective European Trials on TAV-in-TAV



PI	G Tarantini & R Parma	D Blackman
Sponsor	Edwards Lifesciences	Medtronic
Inclusion	Any failing transcatheter heart valve	
Treatment	Sapien balloon expandable valve	Any transcatheter valve
Corelab	TTE & MSCT	
N	150	300
Primary objective	Early device success & safety	

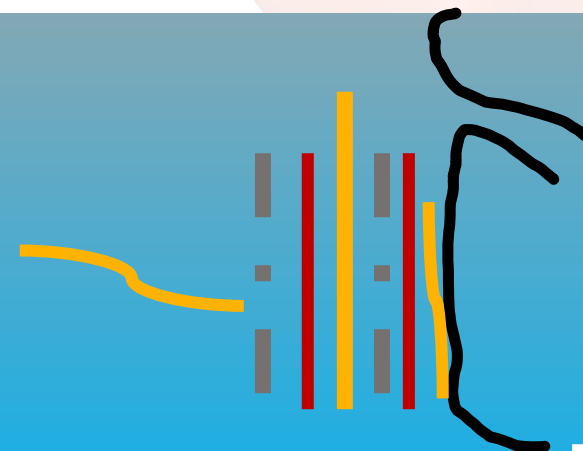
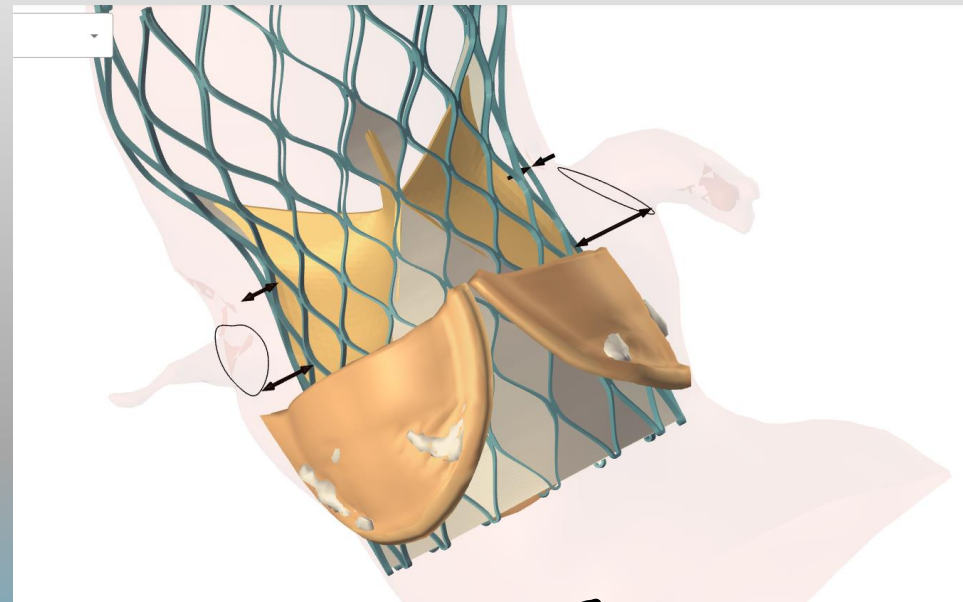
* REVALVE has a Feops CT derived procedure simulation substudy n=100

Revalving Essentials

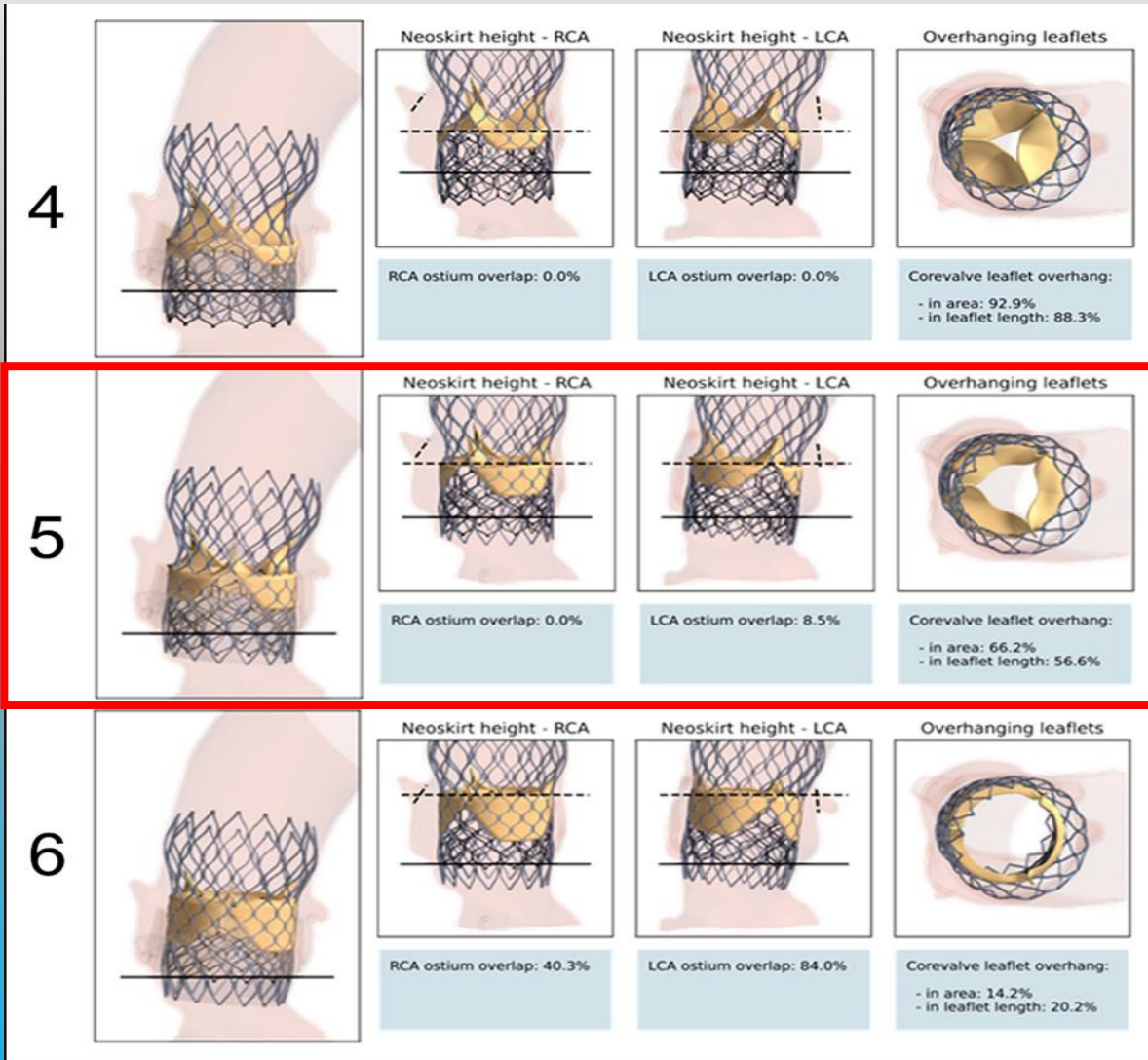
1. VTC = Valve to coronary ostium distance
2. VTSTJ = Valve to Sinotubular junction distance
3. Implant depth of the 2nd transcatheter valve
4. Neo-skirt *
5. Leaflet overhang
6. Transcatheter frame expansion & residual valve area
7. Commissural alignment

* There will be 3 layers of skirt

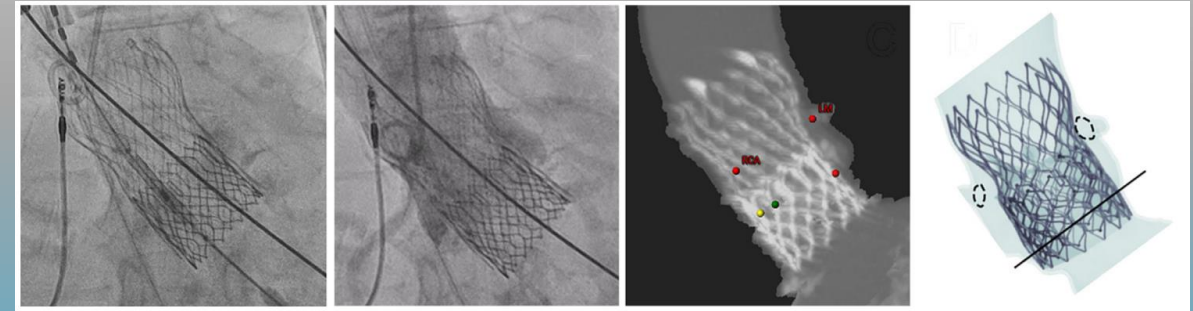
- ✓ Skirt outside the 1st frame
- ✓ Neo-skirt formed by pushing aside the degenerated bioprosthetic leaflets in between the 2 stent frames
- ✓ Skirt of the 2nd transcatheter valve



Revalving Example

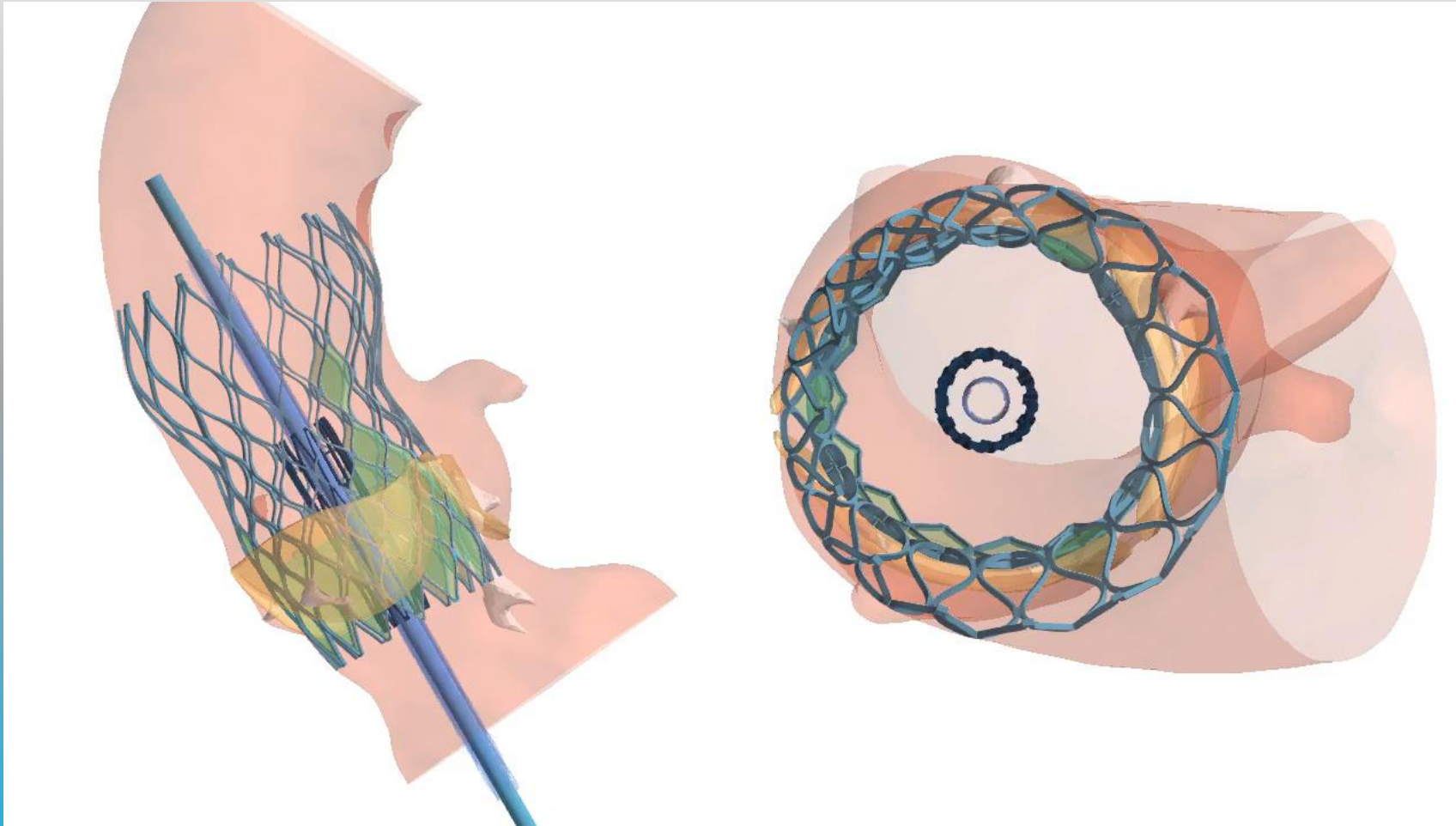


- Deeply implanted & degenerated EVOLUT 29mm
- Revalving with S3 26mm @ node 5



*Revalving implant simulation @ node 4, 5 & 6

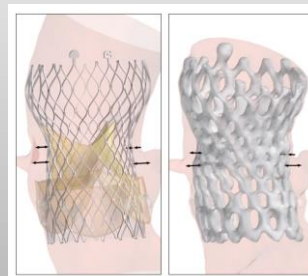
How Simulation looks



Lifetime Simulation

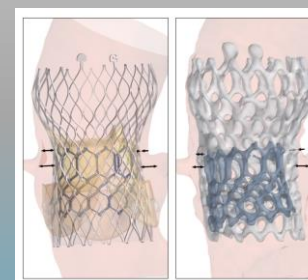
Native annulus dimension:

- **Perimeter: 76.5 mm**
- **Area: 440 mm²**
- **Device sizing: 29mm Evolut**



Dimensions after index TAVR:

- **Perimeter: 72.3 mm**
- **Area: 420 mm² ⇔ ↓5%**
- **Revalving with Sapien3 23mm**



Dimensions after TAV-in-TAV:

- **Perimeter: 64.5 mm**
- **Area: 334 mm² ⇔ ↓20%**
- **Device sizing for TAV-in-TAV-in-TAV**



Dimensions after TAV-in-TAV-in-TAV:

- **Perimeter: 61.3 mm**
- **Area: 302 mm² ⇔ ↓10% ⇔ overall ↓>30%**
- **⊖ Prosthesis Patient Mismatch**

	Simulation	Post-op MSCT
VTC – left [mm]	4,7	4,7
VTC – right [mm]	4,7	4,7
VTSTJ – left [mm]	1,5	1,9
VTSTJ – right [mm]	3,6	3,8

After TAV-inTAV	Simulation	Post-op MSCT
VTC – left [mm]	4,6	4,2
VTC – right [mm]	4,6	3,5
VTSTJ – left [mm]	1,5	1,7
VTSTJ – right [mm]	3,6	2,9

In conclusion

TAVI has surpassed SAVR as preferred Therapy of severe AS

Frequency of Transcatheter Valve Failure is expected to ↑

Revalving is Therapy of choice for Transcatheter Valve Failure

CT modeling & simulation may complement Revalve planning

