29th TCTAP2024

TAVR-in-TAVR: the NEXT Challenging Issue in Lifetime TAVR Management

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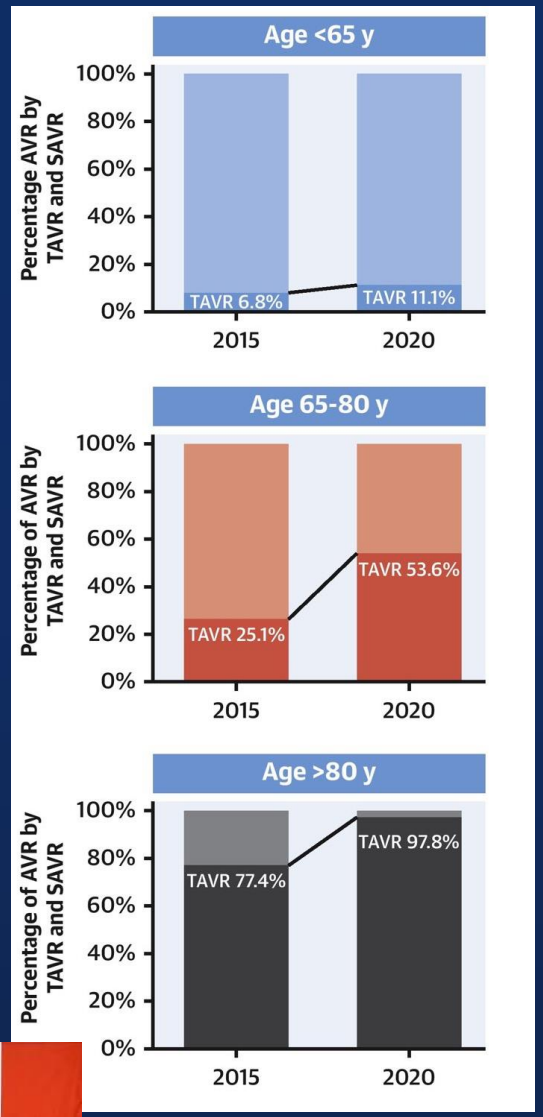
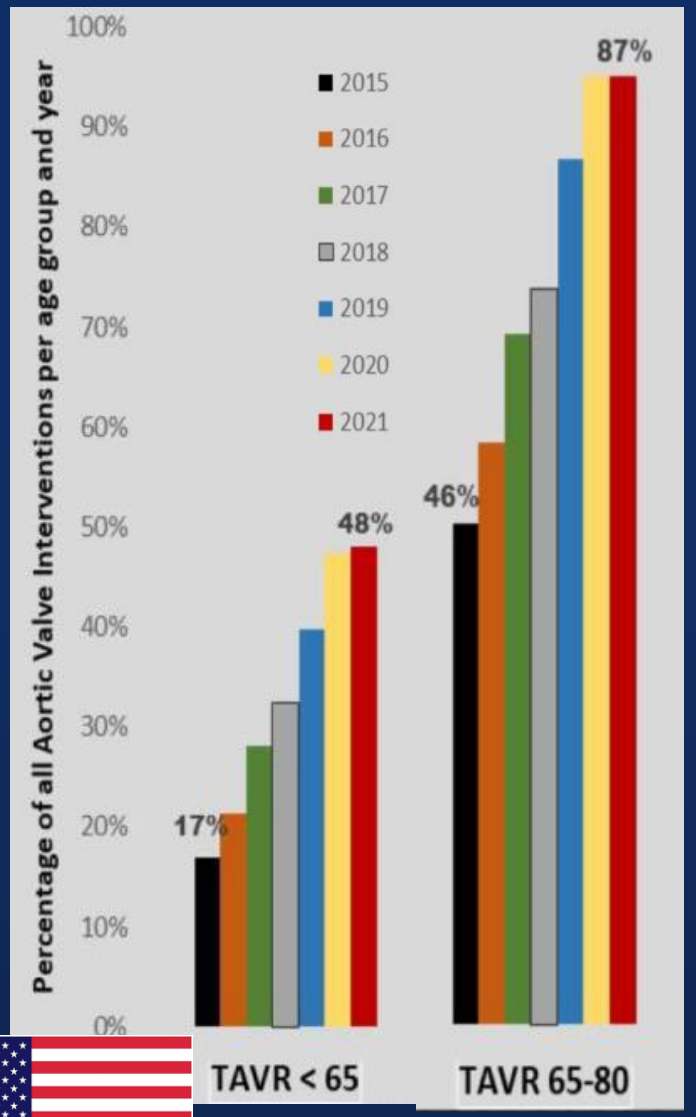
Other Financial Benefit	none

Background



Prosperi-Porta et al. JACC 2023



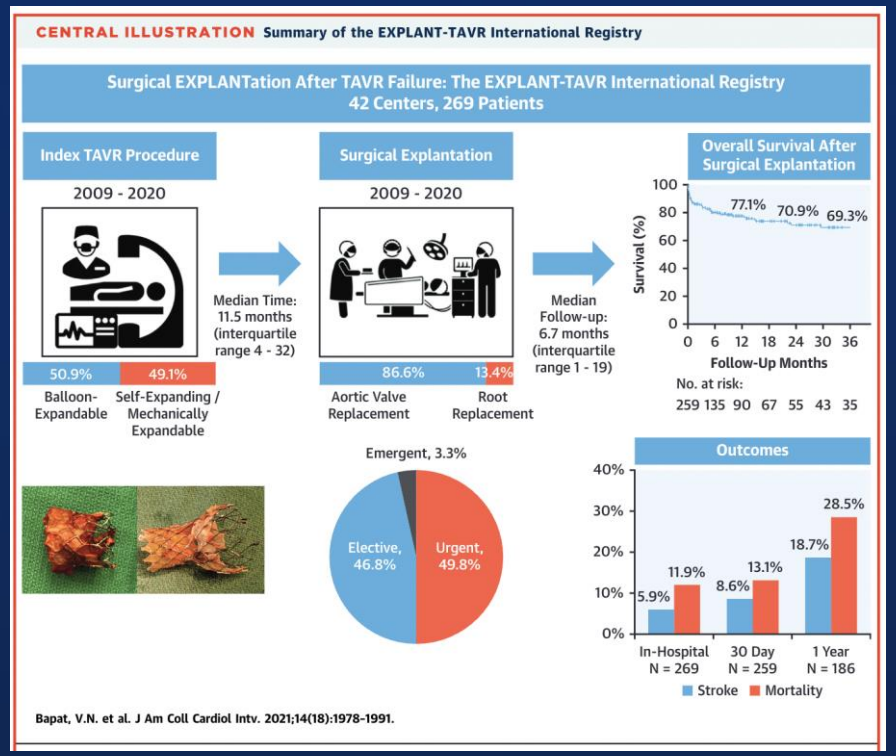
Sharma et al. JACC 2022

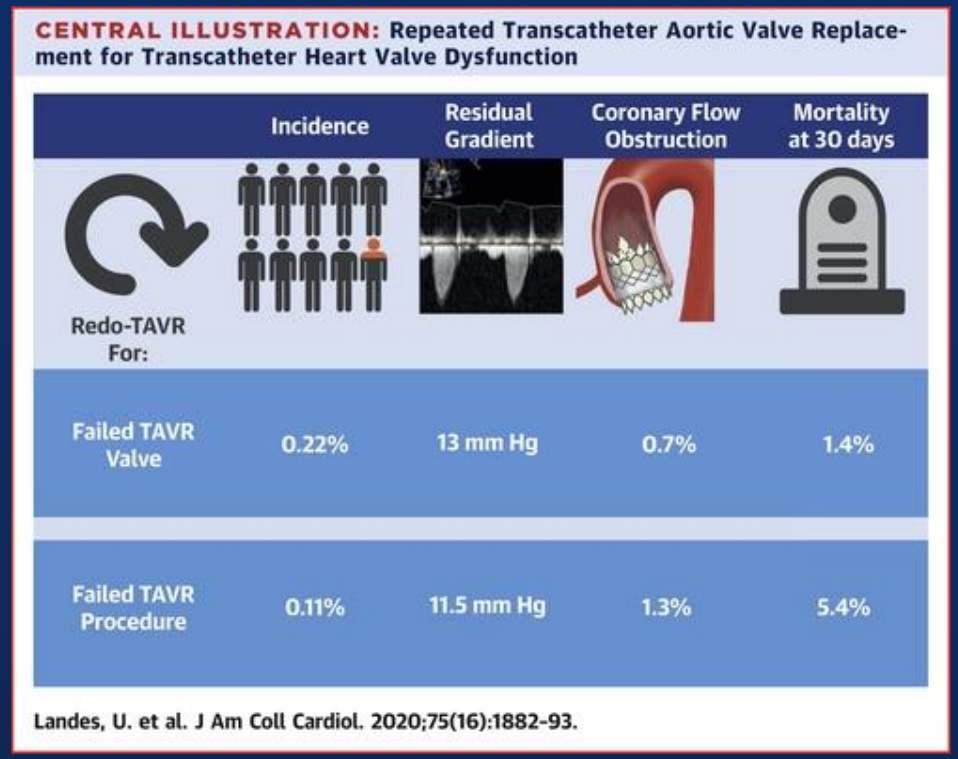
THVs are expected to fail

Considerations

- **Optimal index TAVR procedure/ optimize outcomes and durability**

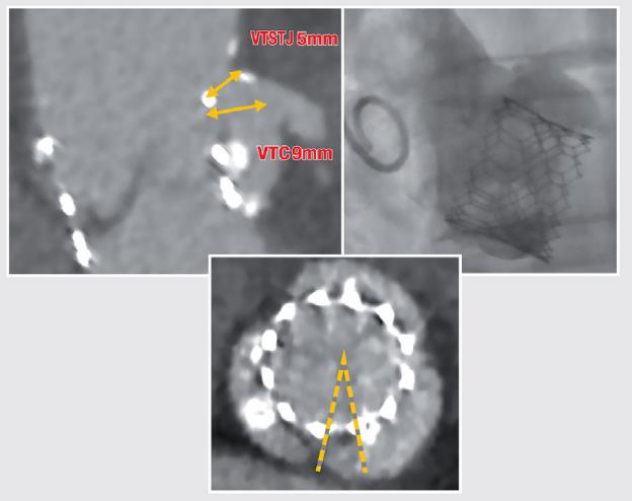
- **Planning for the future: coronary access** and **treatment options in case of THV failure**



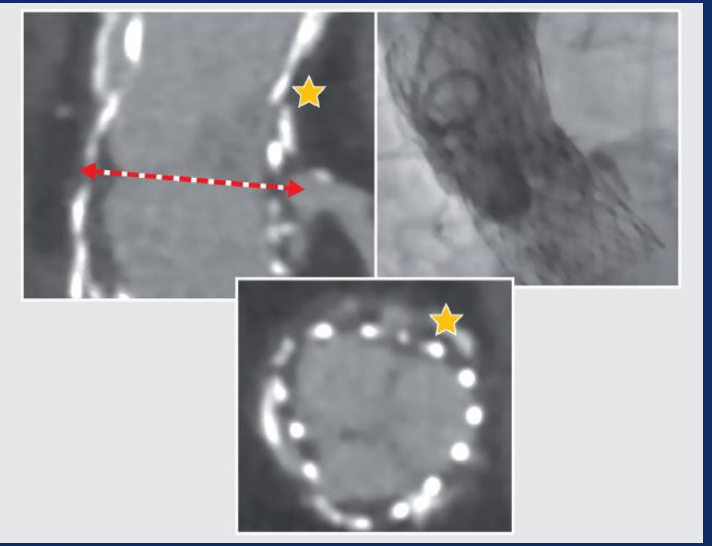


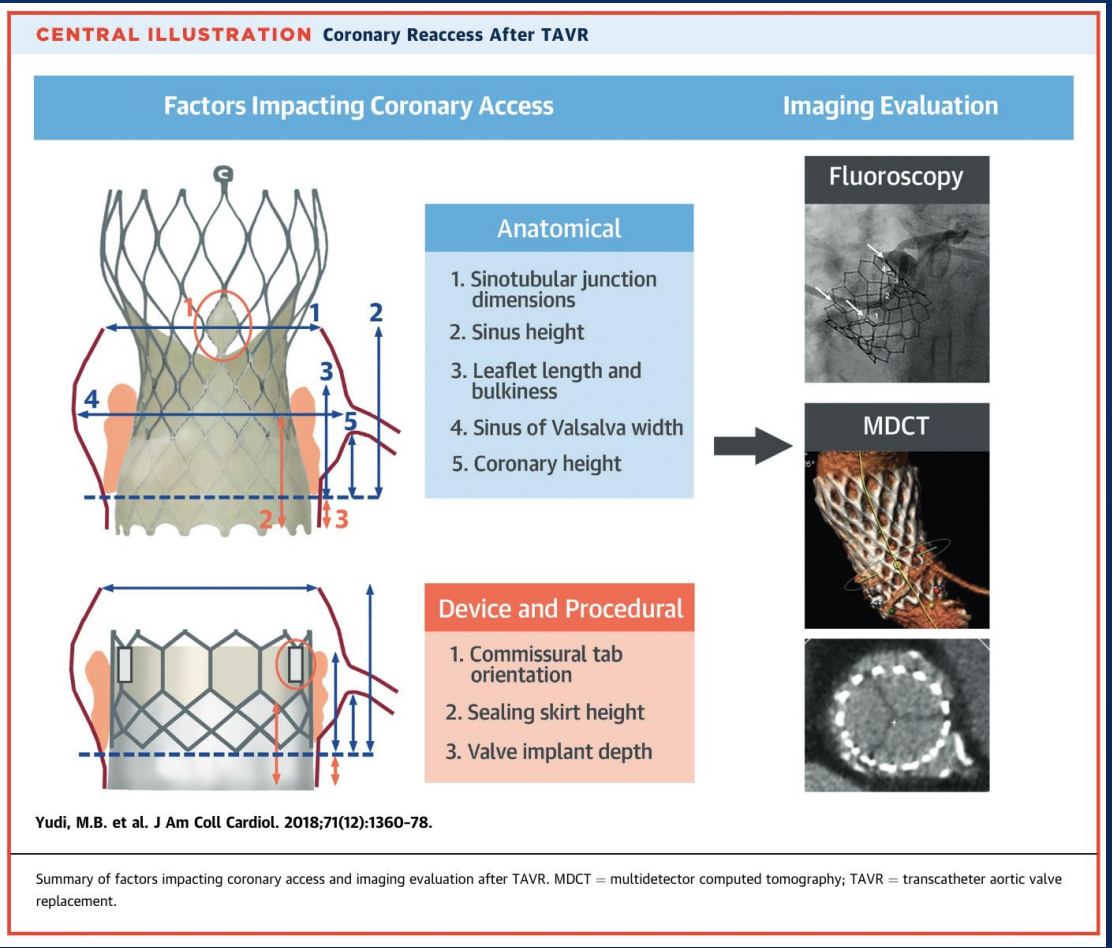
Planning for the future

Redo TAVI faisable



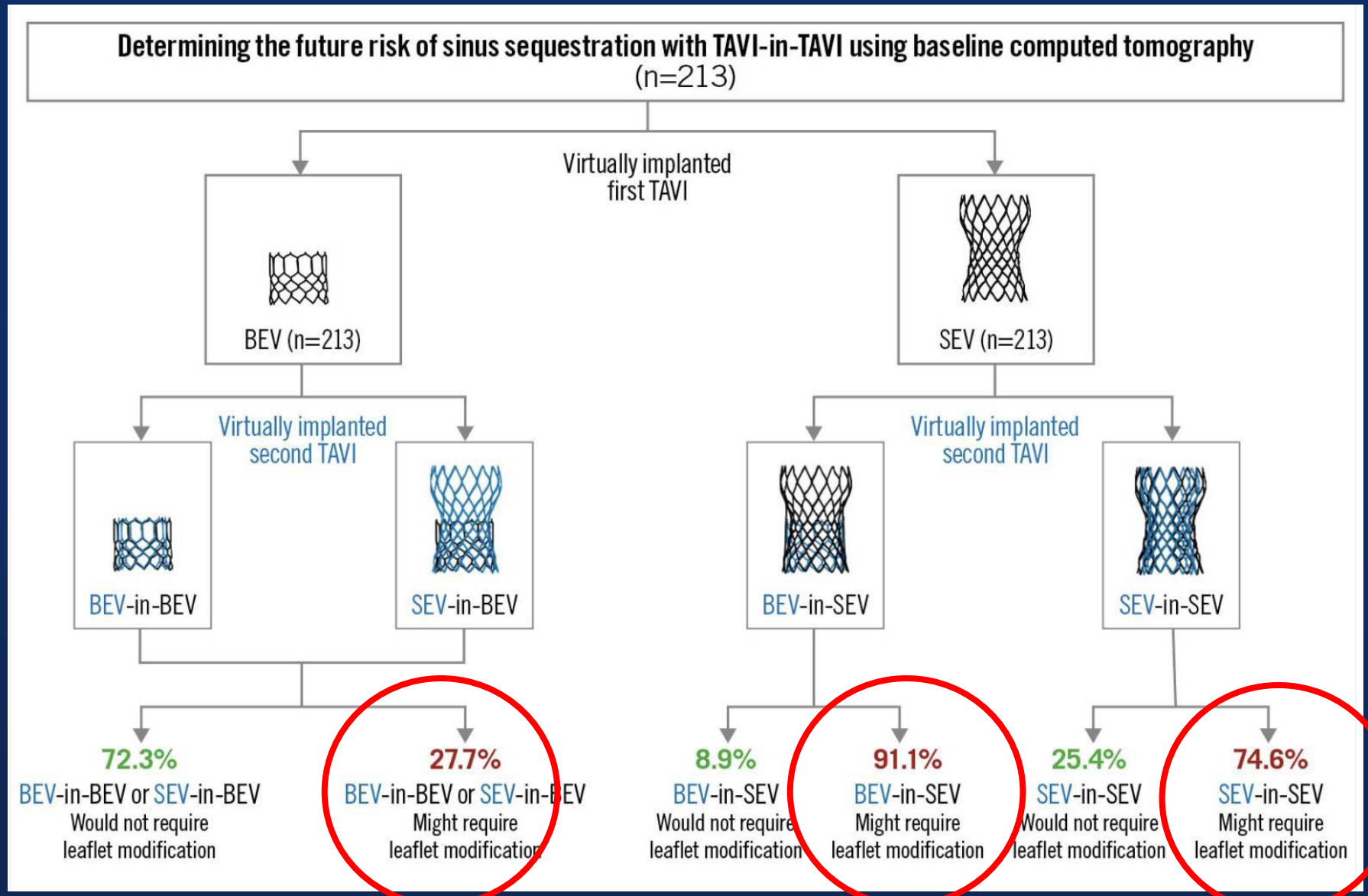
Redo TAVI non faisable





Yudi et al. JACC 2018

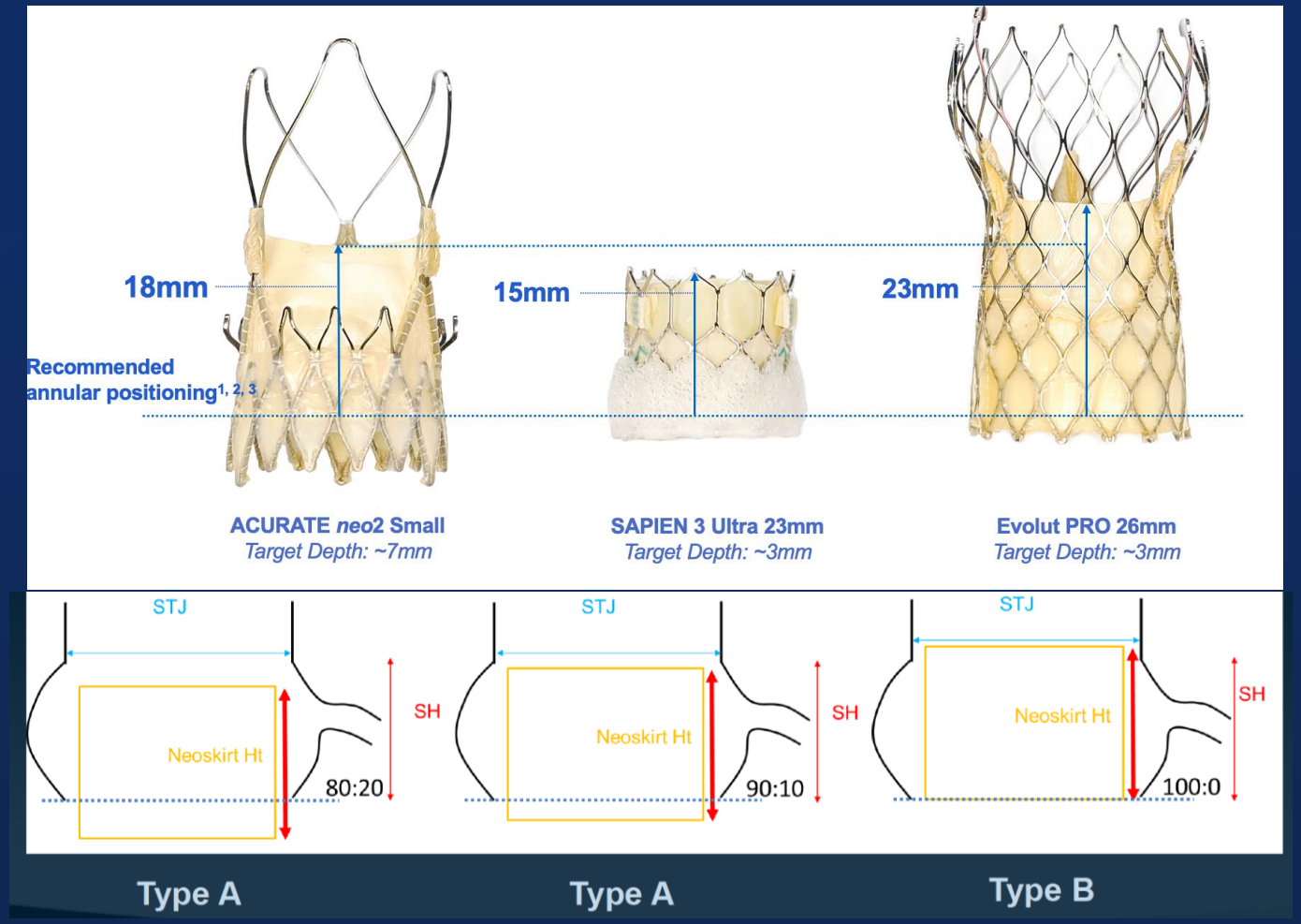
THV design/combination



Medranda et al. Eurointervention 2022

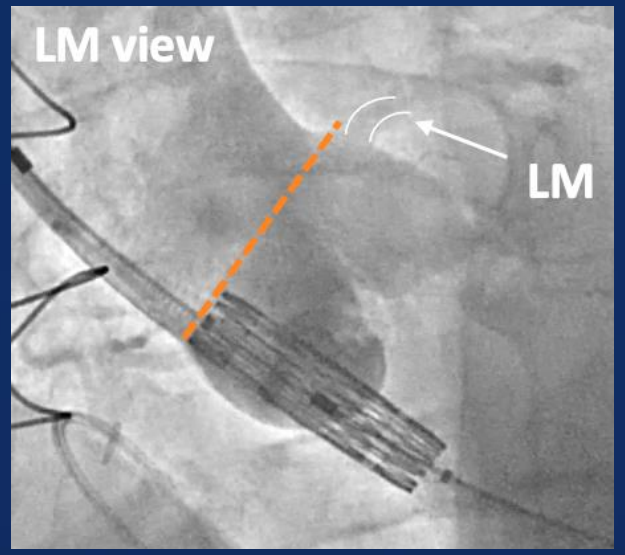
Implant depth and Neoskirt

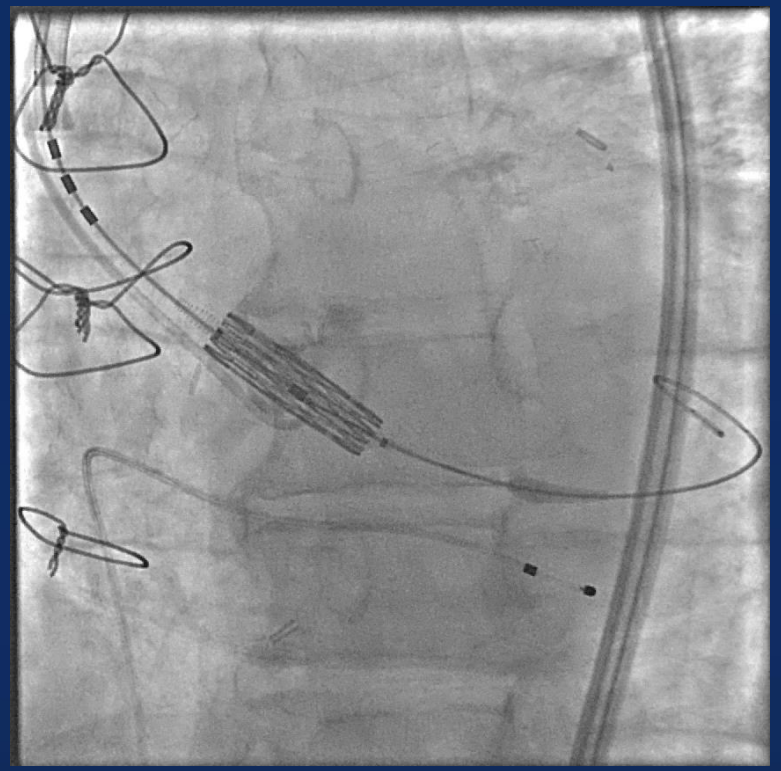
Neoskirt and Functional Neoskirt

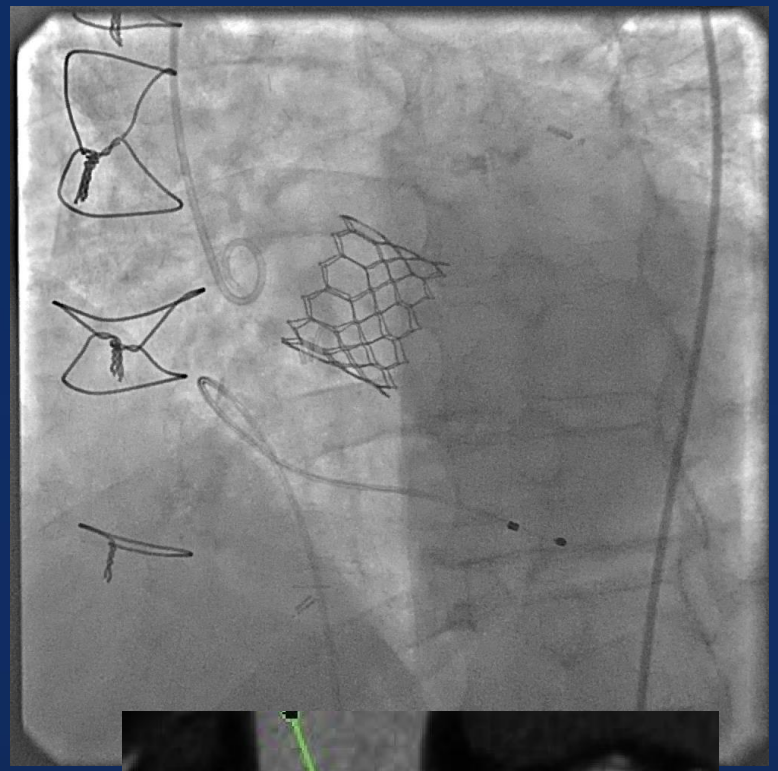


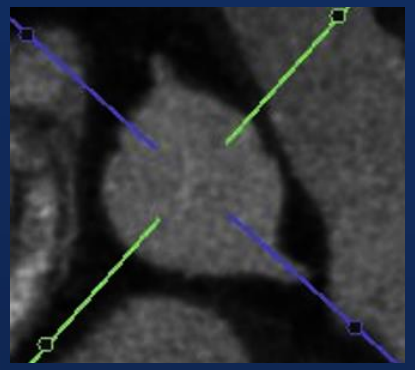
Akodad M., J. Sathananthan et al. JACC Cardiovasc Interv 2022;15(4):368–77.

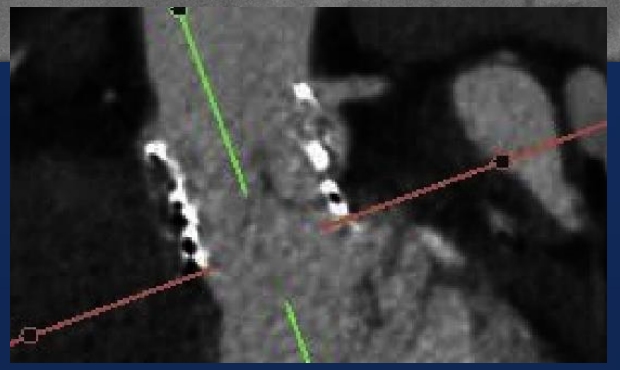
Implant depth and Neoskirt





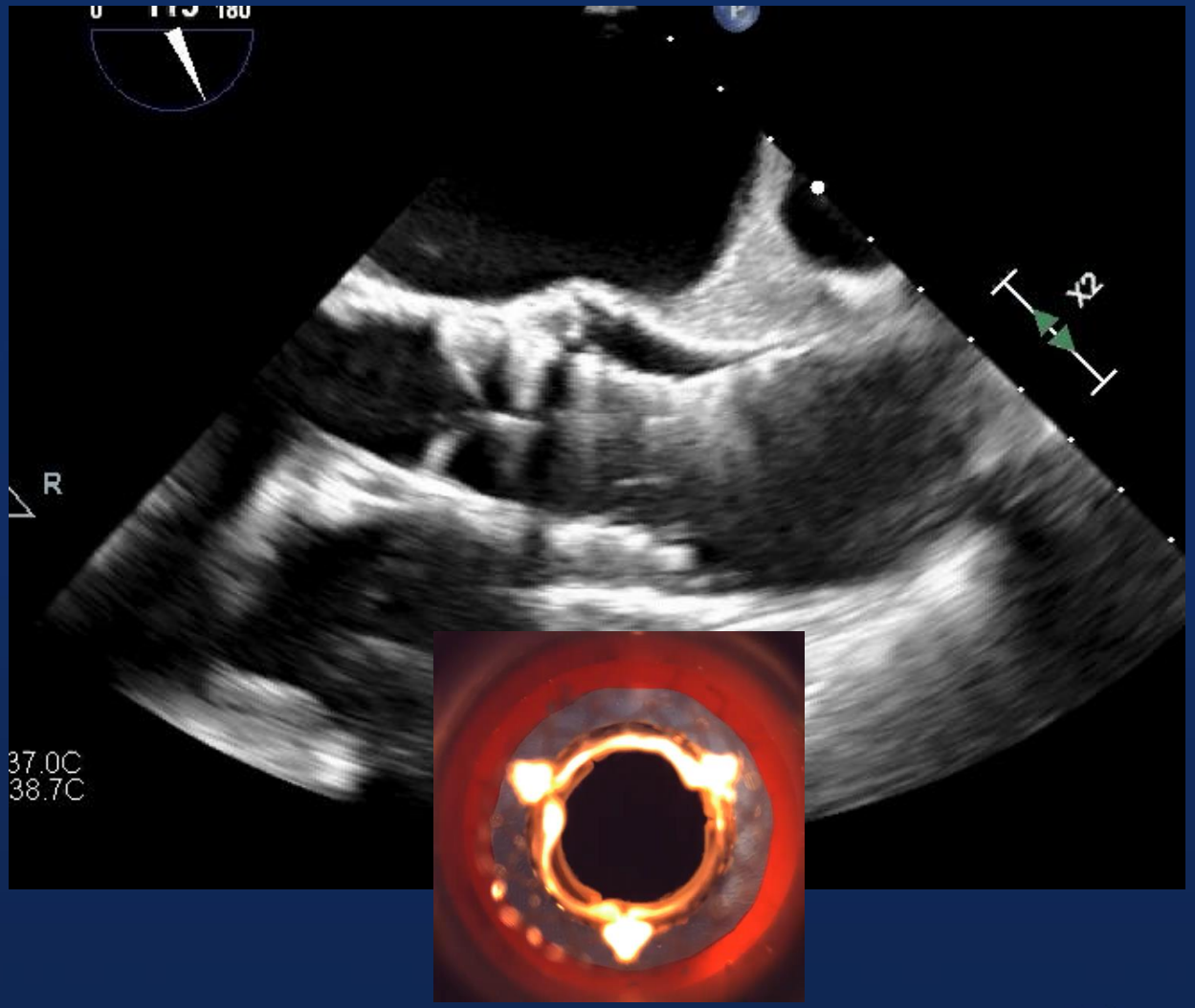




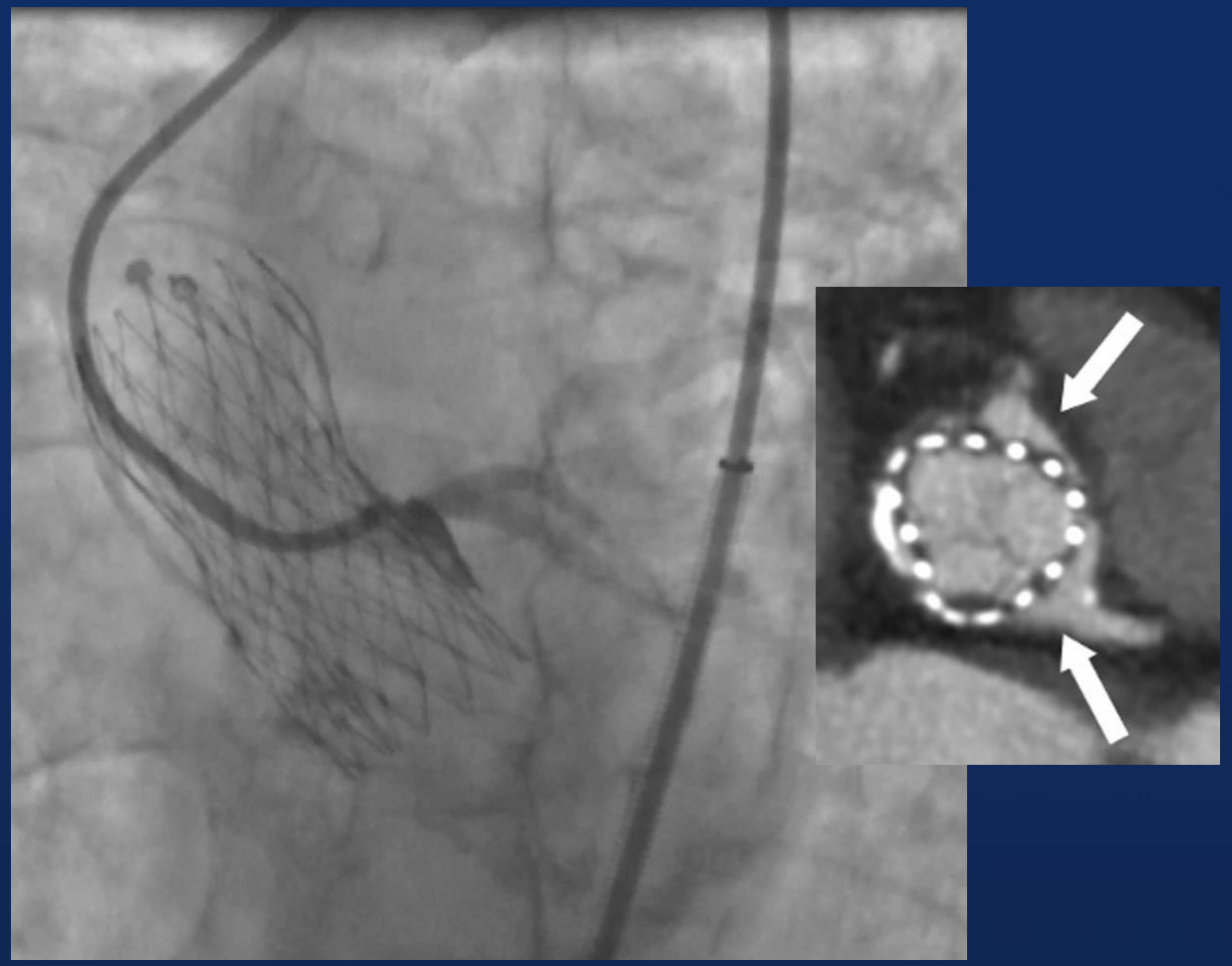


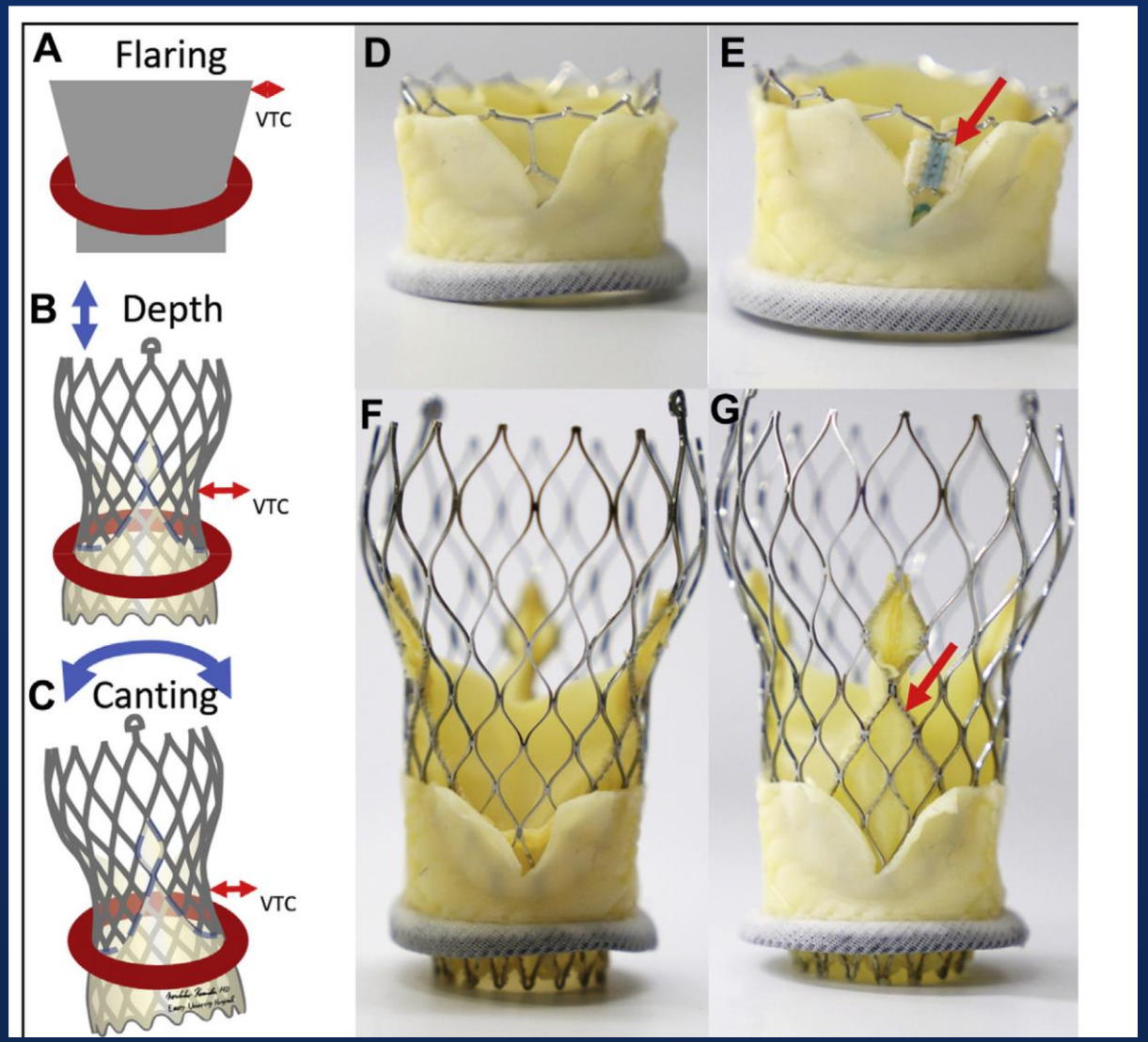
"Reasonably" high implant

Planning for the future



Commissural alignment





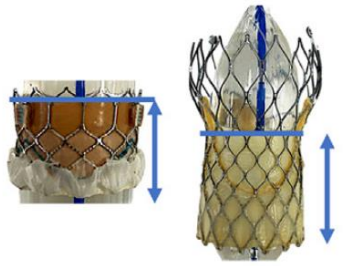
Planning for the future

FIGURE 4 Factors Impacting the Risk of Coronary Obstruction and Coronary Access Impairment After Redo-TAVR

PREDICTING RISK OF CORONARY OBSTRUCTION FOLLOWING REDO-TAVR

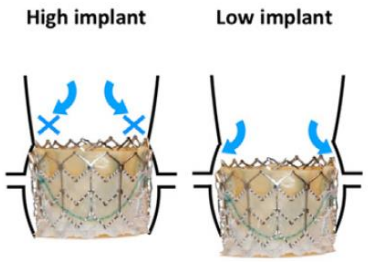
Index procedure

Index THV design



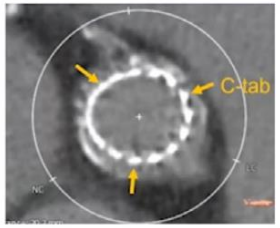
The neoskirt height can vary across different THV designs. The neoskirt height is higher in valves where the leaflets are in a supra annular position.

Implant depth of index THV



If the outflow of the index THV extends above the STJ or the THV to STJ distance is <2mm, there is the potential for coronary obstruction. If the index THV was implanted lower avoiding the STJ then this mitigates the risk of obstruction

Commissural alignment



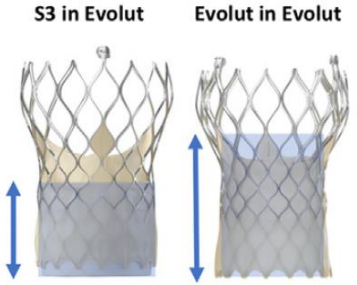
Commissural alignment of both the index THV and redo TAVR can help avoid coronary obstruction and facilitate leaflet modification technique such as BASILICA.

Redo procedure

Expansion of index THV

The index failed THV may expand following redo-TAVR and this should be considered when determining measurements for coronary obstruction risk such as the VTC distance.

Redo-TAVR THV choice



Redo-TAVR with a short frame THV in a tall frame valve can reduce the potential neoskirt and mitigate the risk of coronary obstruction

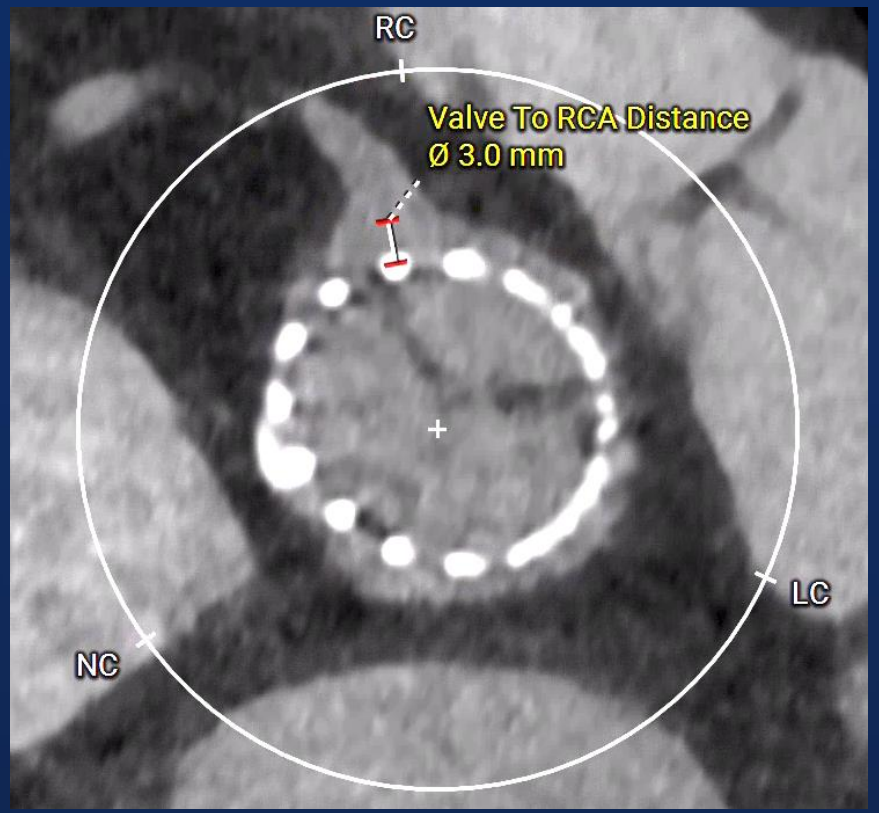
Tarantini G et al. JACC Cardiovasc Interv 2022

Mr L. 82 YO

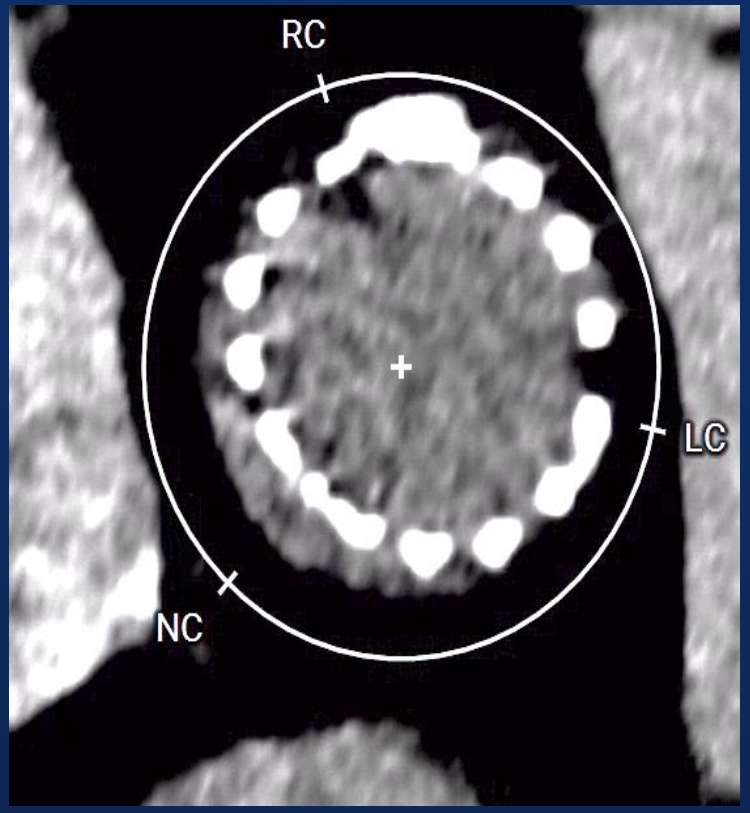
Evolut R 26mm 2018

BVD regurgitation

6 Yrs



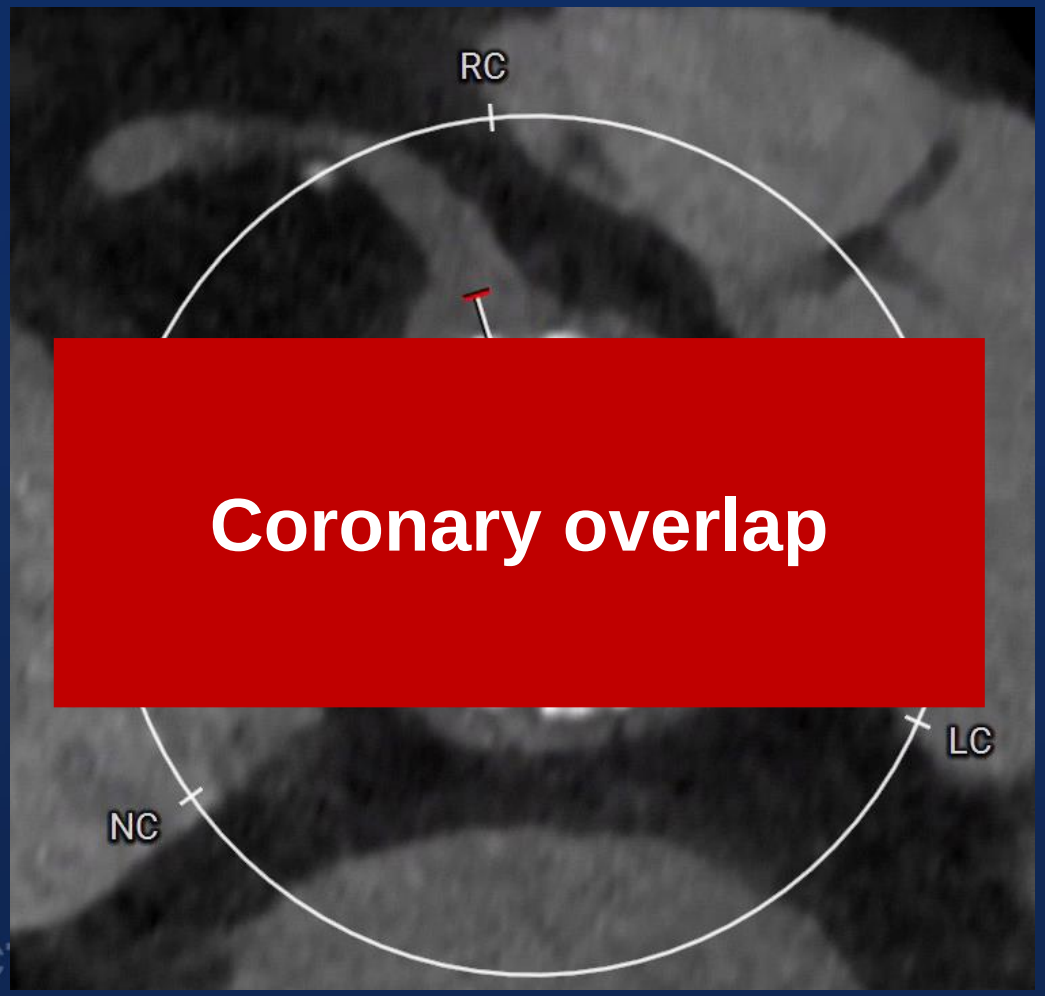
VTC RCA & LM <4mm



Virtual VT STJ

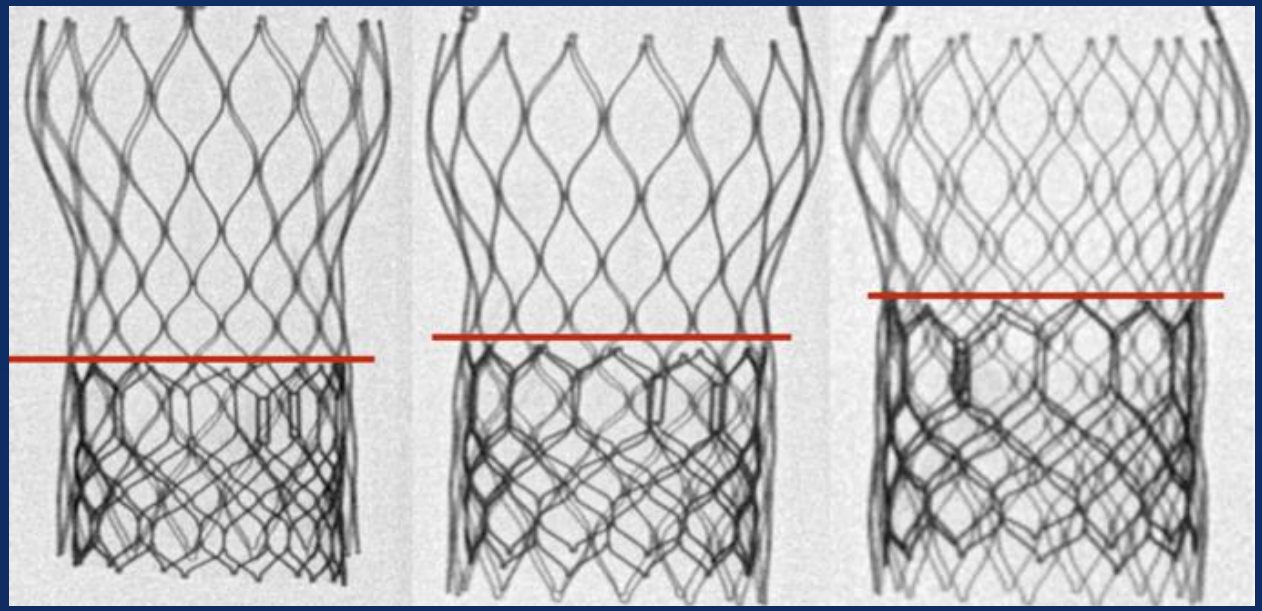
redoTAVI plan

BASILICA ?



Low implant

Neoskirt and leaflet overhang



Node-4 Node-5 Node-6

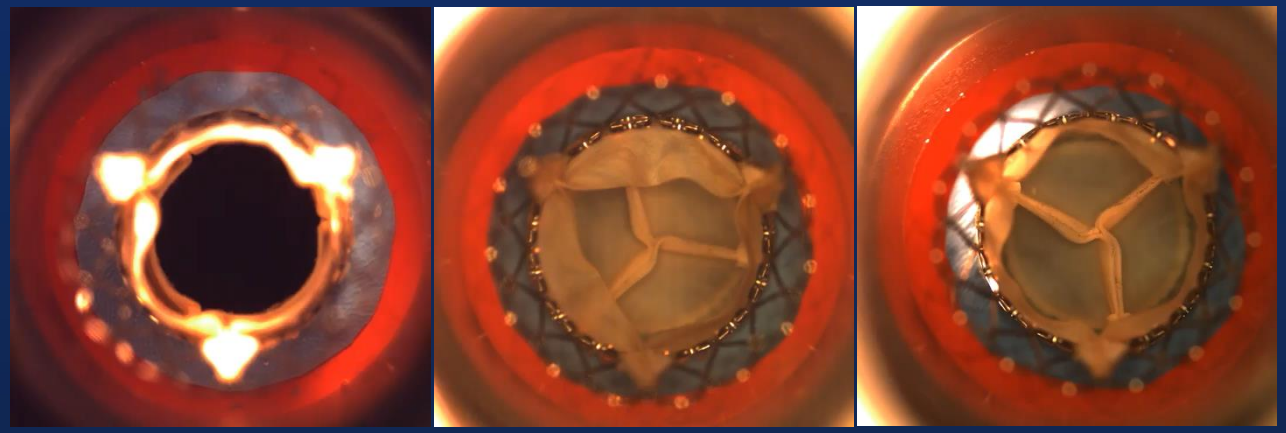


TABLE 1 Neoskirt Height and Leaflet Overhang With Variable Implant Depth

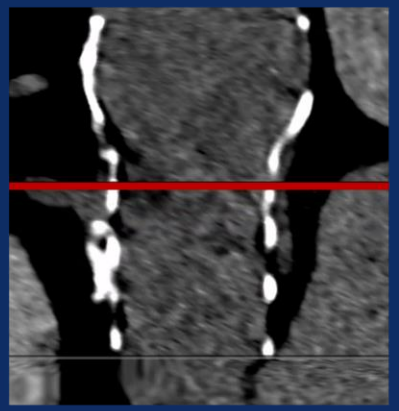
Evolut R	Sapien 3	Implant Depth (S3 Outflow)	Neoskirt Height, mm	Leaflet Overhang, %
23 mm	20 mm	Node 4	16.3	90
		Node 5	20.7	32
		Node 6	23.9	0
26 mm	23 mm	Node 4	17.1	90
		Node 5	21.0	49
		Node 6	23.4	9

Different degrees of Leaflet overhang

Akodad et al., JACC interventions, 2022

Plan for RedoTAVI

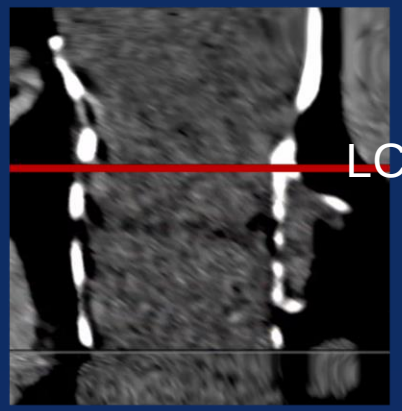
RCA



Risk plane above RCA and LCA

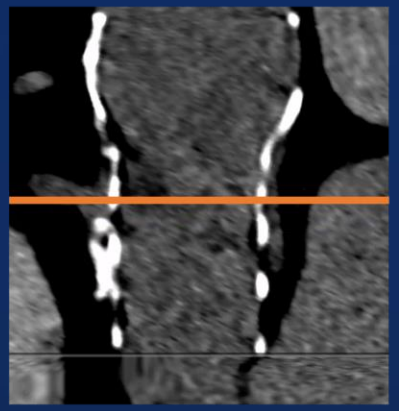
Node-6

23.4 mm

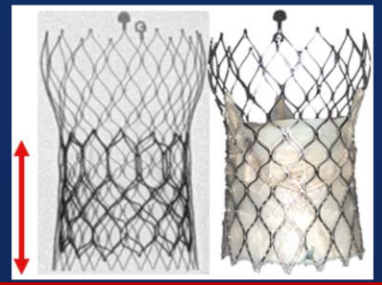


LCA

RCA

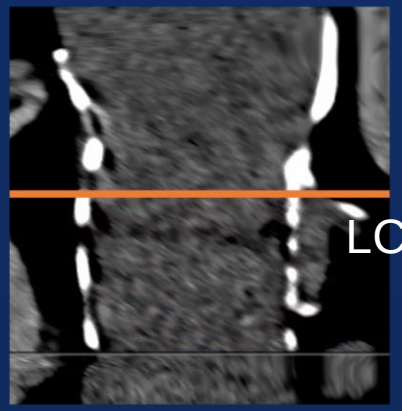


Risk plane above LCA



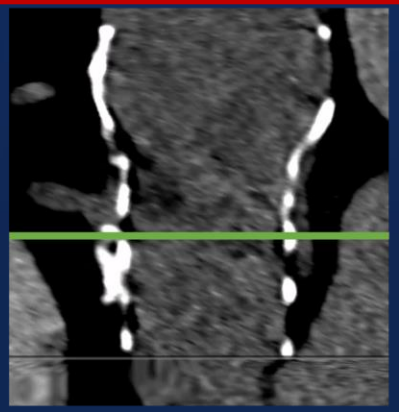
Node-5

21 mm



LCA

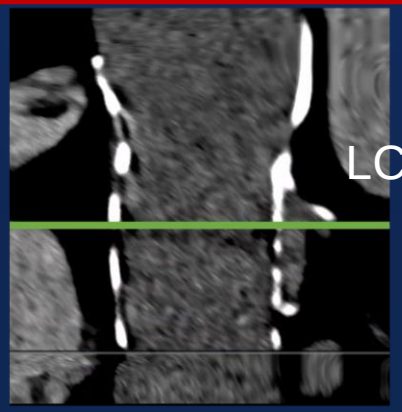
RCA



Risk plane under RCA and LCA

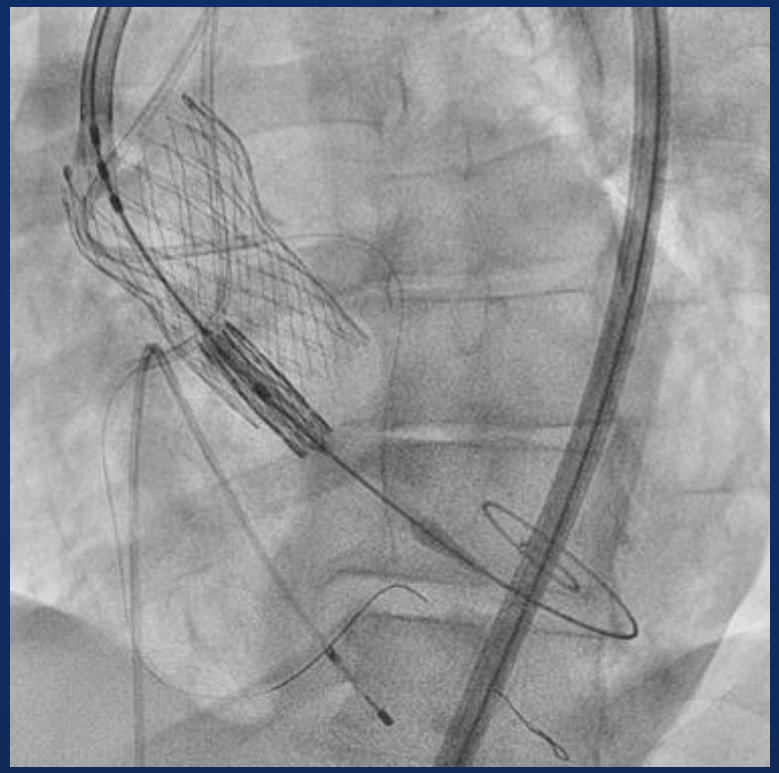
Node-4

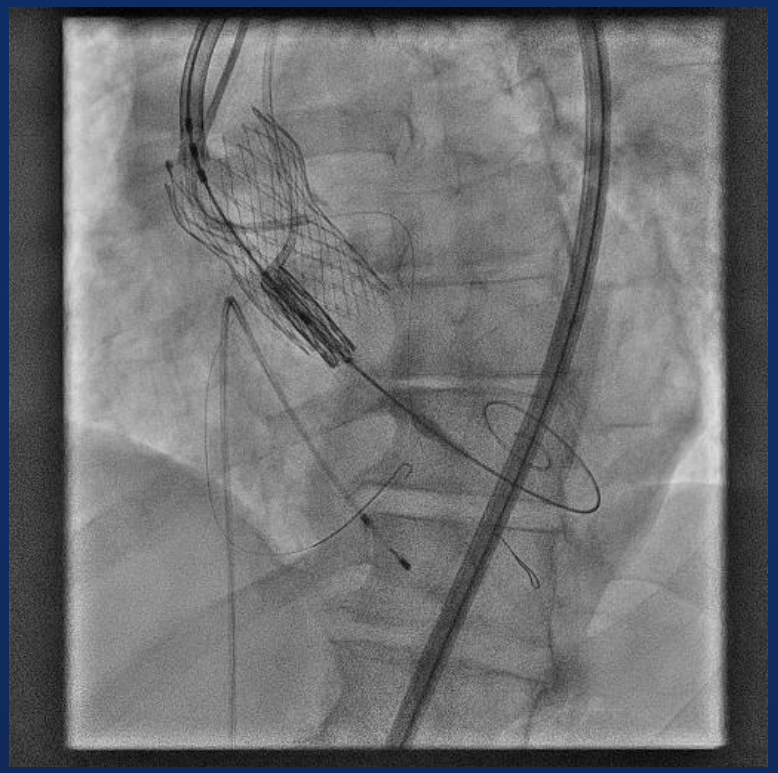
17.1 mm

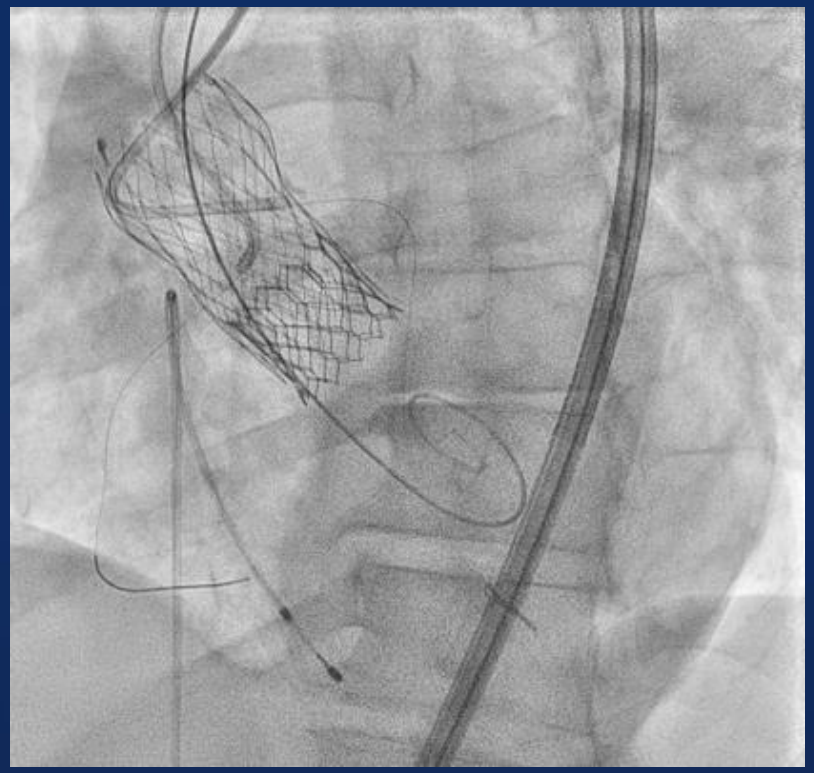


LCA

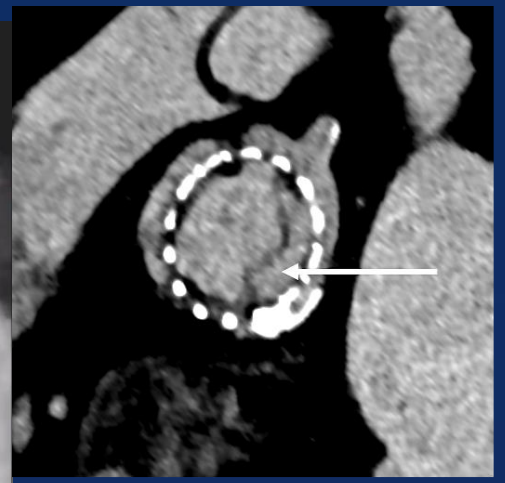
What did we do ?

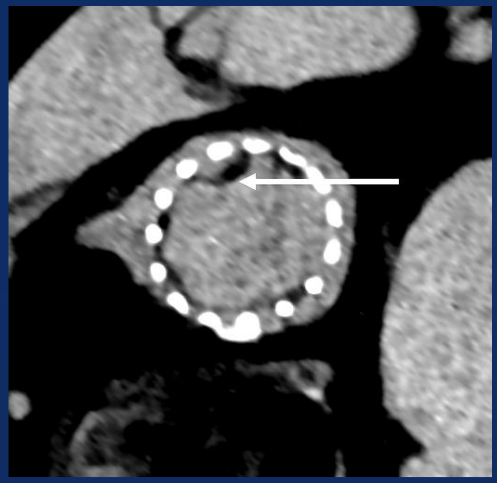


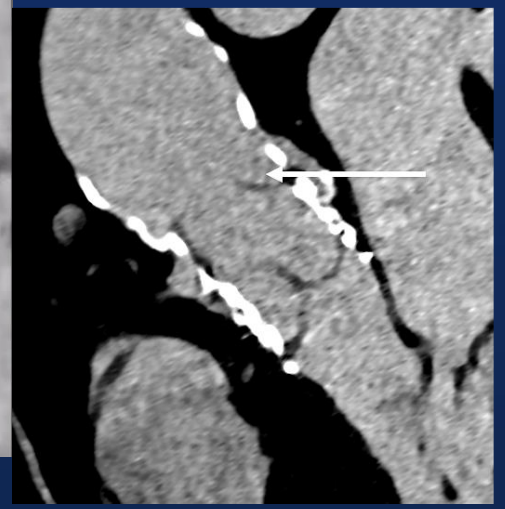




Follow-up CT

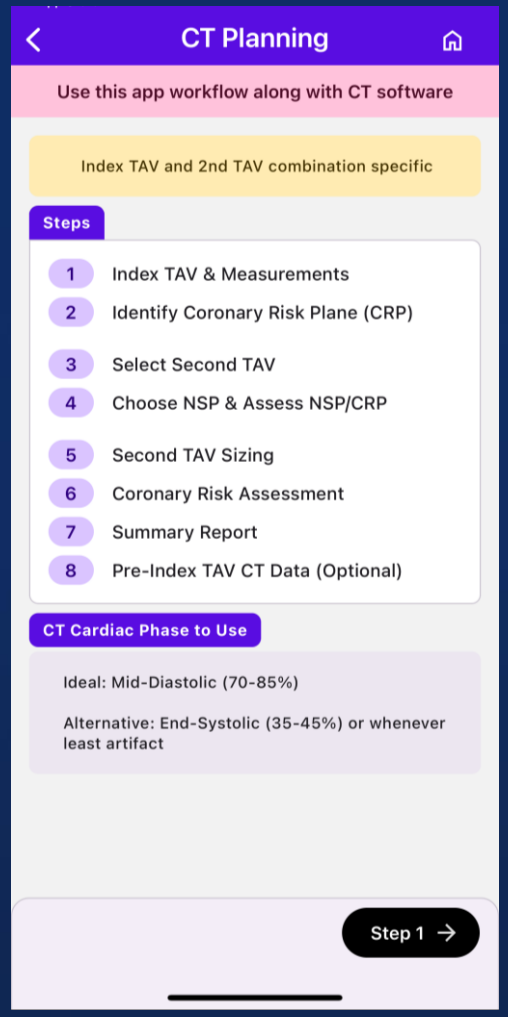


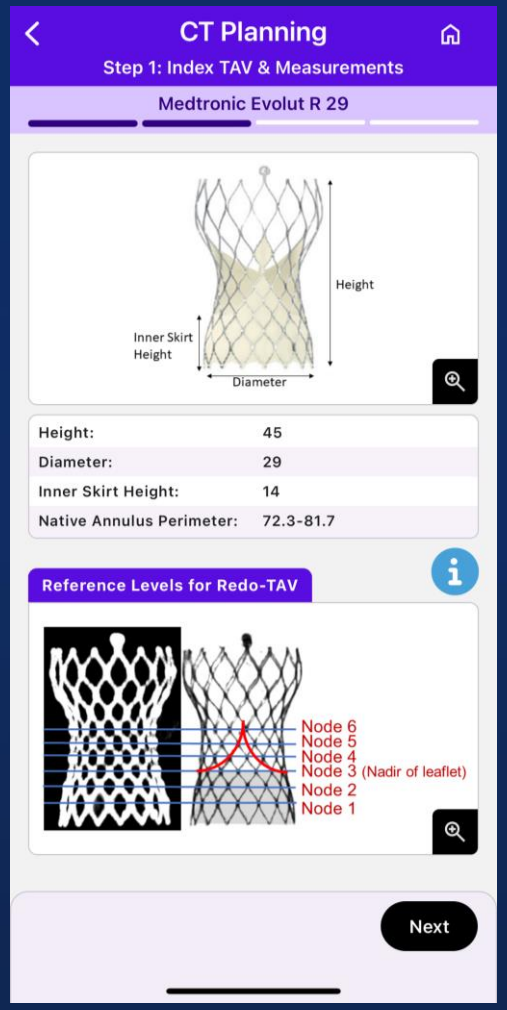


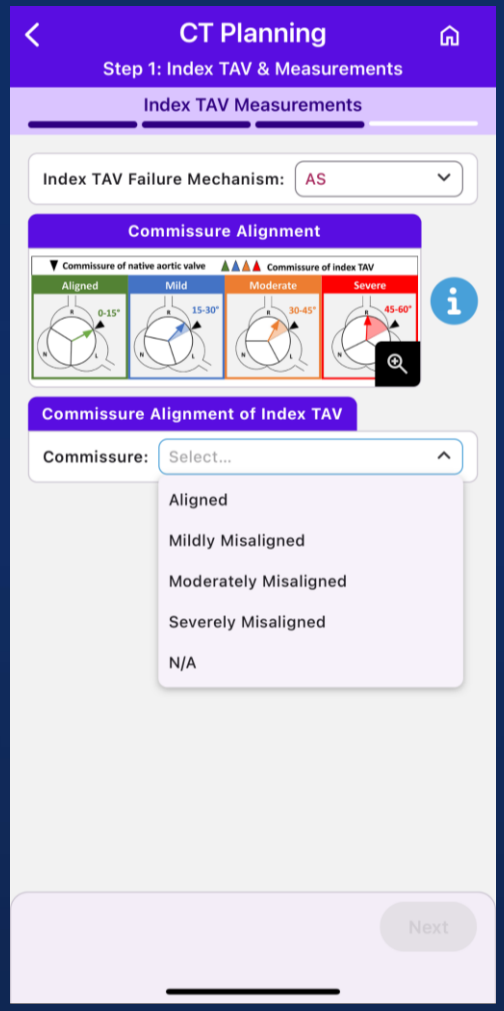


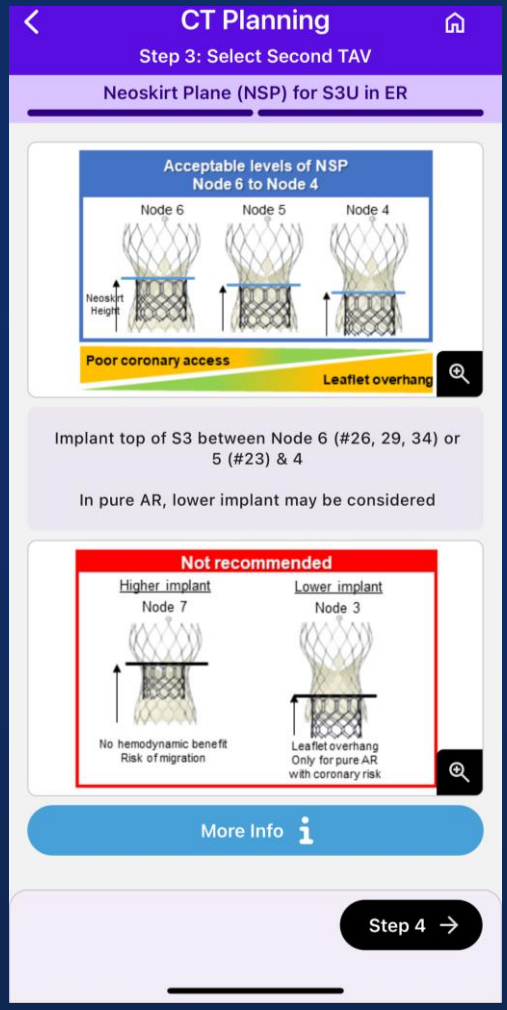
RedoTAV App available*

*April 2024









Take-home message

- Optimizing the index procedure
- Planning for the future before the index TAVR: THV design/implant depth/commissural alignment
- Tailored approach
- More clinical data is needed