

# TAVI in ZAS

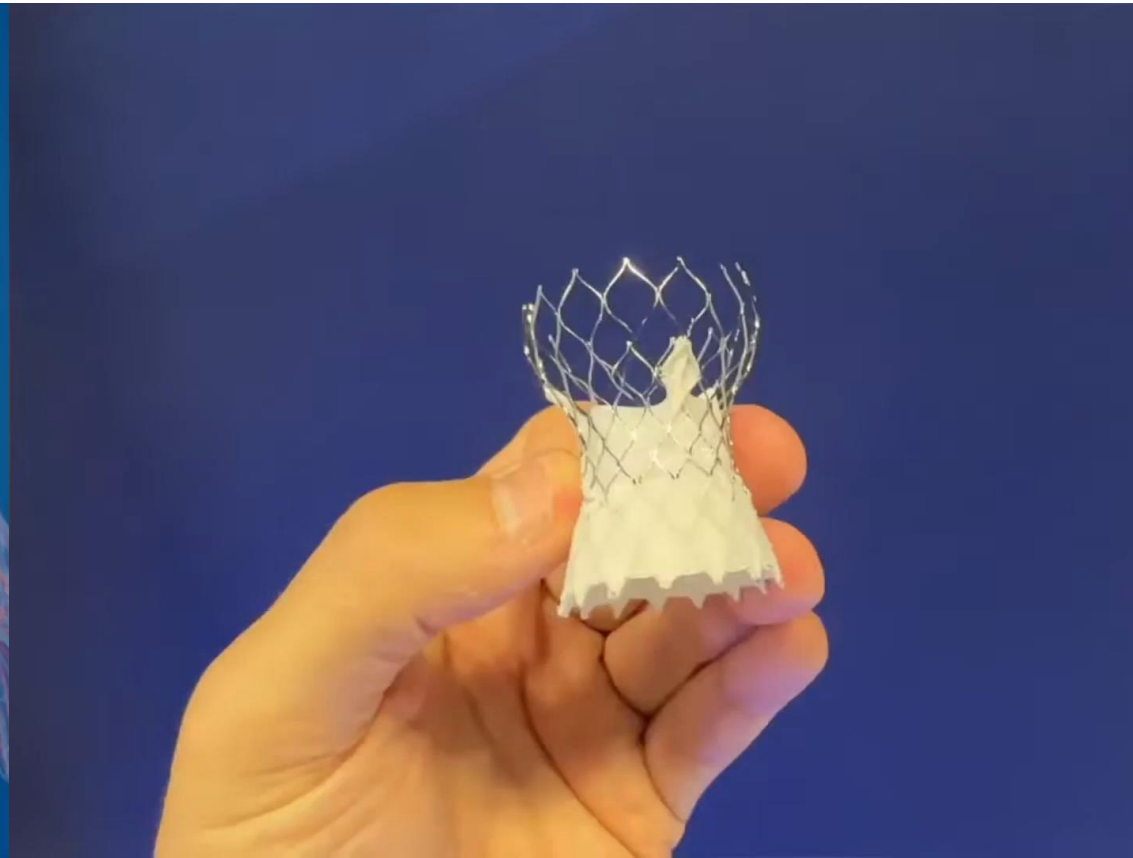
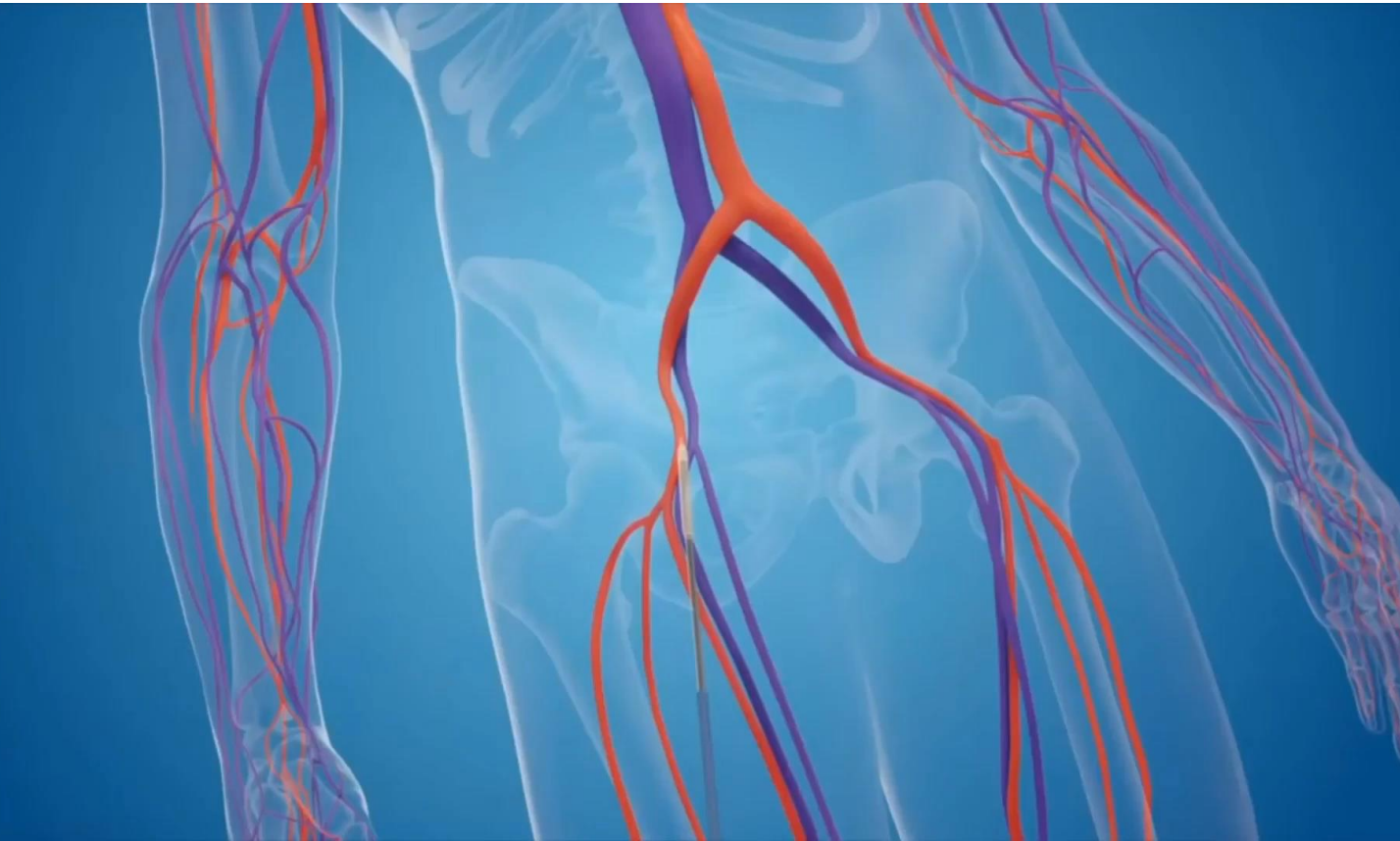
## Onze evoluties in beeld gebracht



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ZAS Hartcentrum Nieuwjaarsymposium  
25 januari 2025  
Vestar Antwerpen

# What is TAVI?

Transkatheter Aortaklepipplantatie





# What is TAVI?

Transkatheter Aortaklepimplantatie

**TAVI is the most exciting advancement  
in the field of interventional cardiology  
in the last 20 years**

# Advantages of TAVI vs classic surgery

**TAVR**  
Transfemoral



- Less trauma
- “needle puncture in the groin”
- No incision
- Do not stop the heart
- Short recovery time (2-3days vs 3 months)

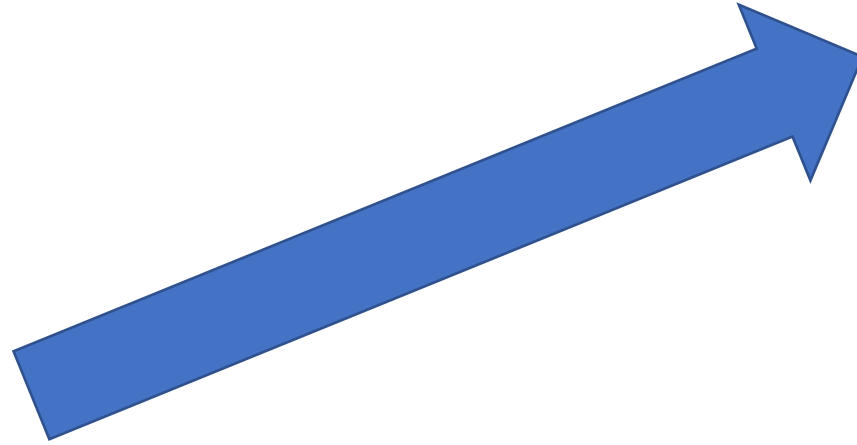
**Open Heart  
Surgery (AVR)**





# Evolution TAVI in USA

100000 in 2023



4600 in 2012

Source: STS National database & Cardiovascular Business  
HeartValveSurgery.com



# Pills of History...

- First transcatheter valvular interventions - exciting area for research since **1960s**.
- Initial animal investigations:

*Hywel Davies in 1965.*

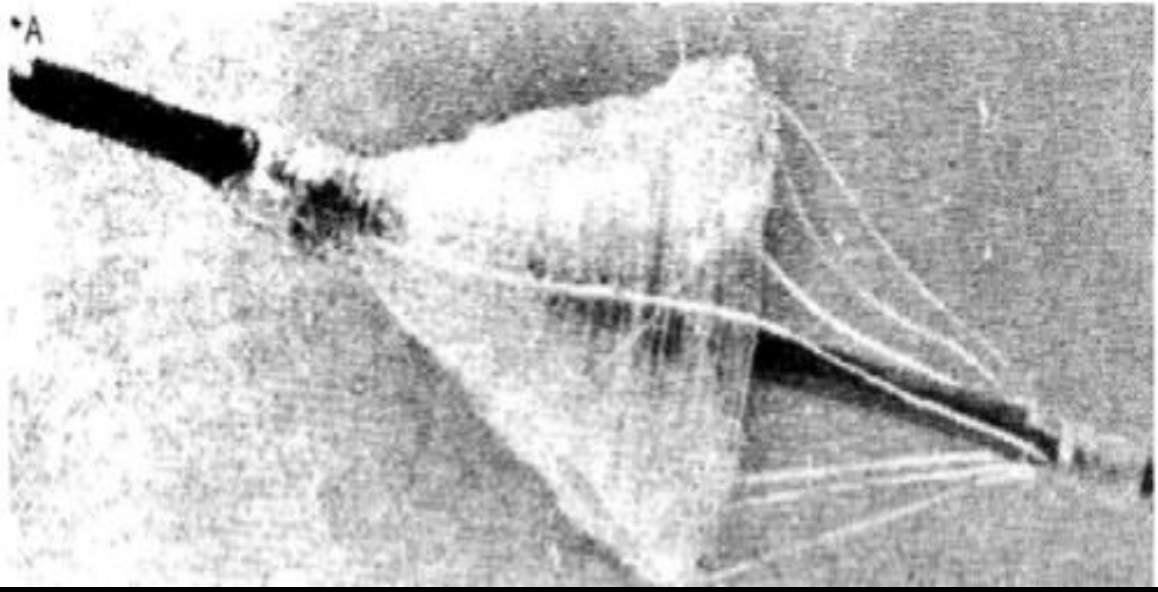
*Moulopoulos in 1971*

*Phillips in 1976*

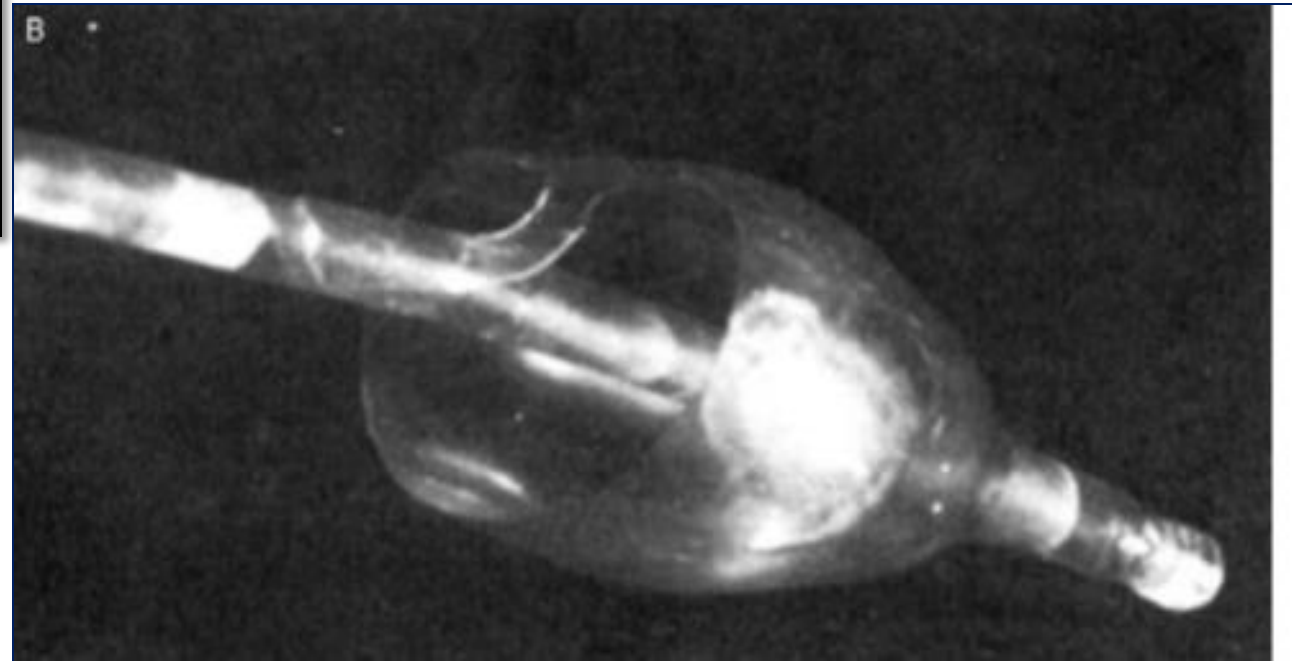
*Matsubara in 1992.*

***Temporary relief of aortic regurgitation***

# Pills of History...



**Figure 1.** Early catheter-mounted valves. Parachute-like valves offered little resistance to the flow of blood in one direction, but obstructed the flow in the other. Animal studies suggested benefit in the setting of aortic regurgitation. Reprinted with permission from Davies. 1965 [1] (A) and Phillips et al., 1976 [4] (B).





# Pills of History...

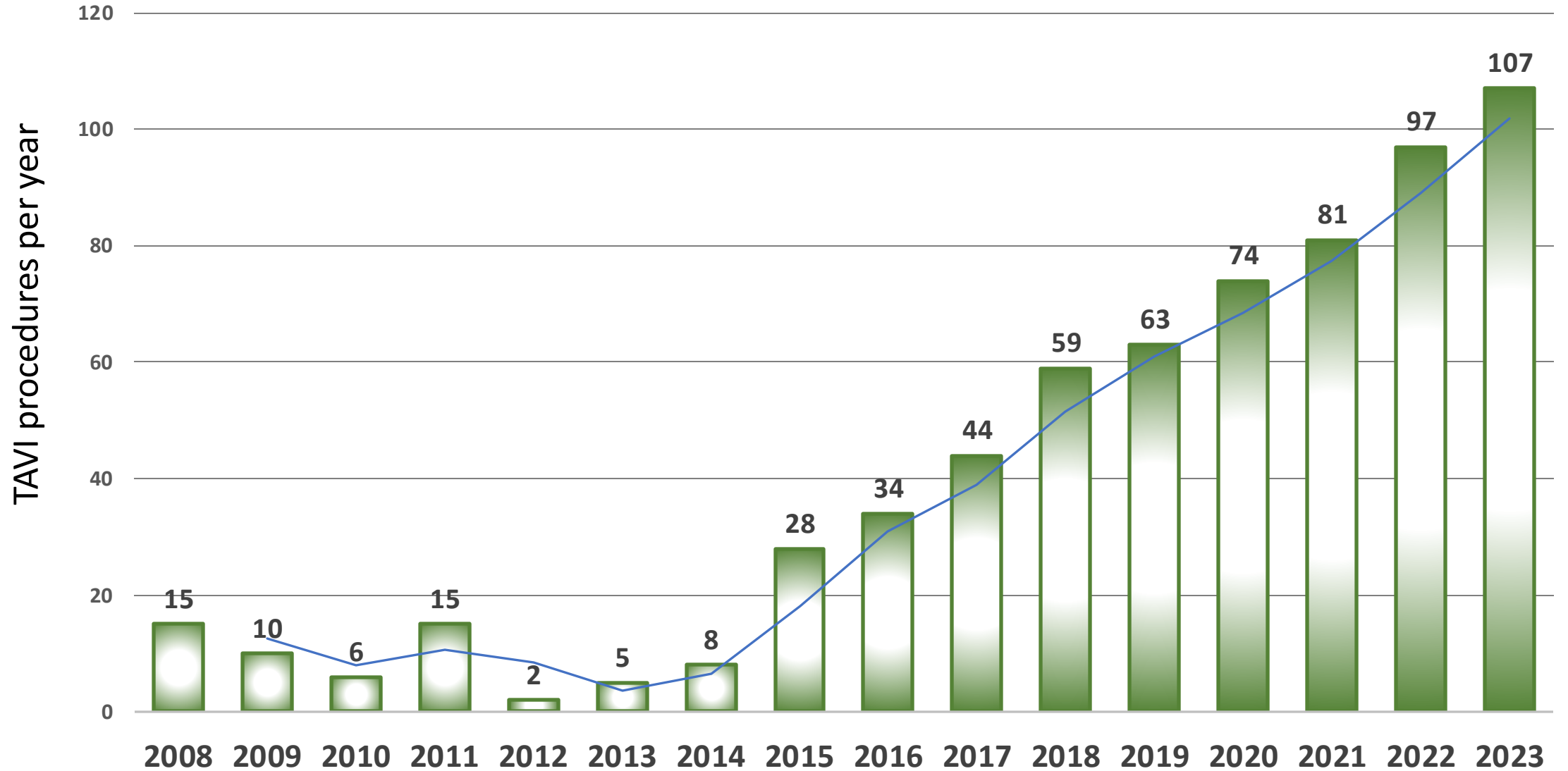
- **First TAVI** in a human was performed in 2002 – *prof Alain Cribier* (1945-2024)
- Feasibility of the TAVI in further studies.
- **Grube et al** - self expanding Core Valve system was reported 2005.
- 2010 – commercially available in Europe.
- 2022: around 1.5 million patients have had TAVI





And ZAS?

# TAVI Growth Trends in the Last 16 Years



	Overall population N=648	2008-2016 N=123	2017 N=44	2018 N=59	2019 N=63	2020 N=74	2021 N=81	2022 N=97	2023 N=107	P-value
<b>Age</b>	83.5 [79.2-86.6]	84.4 [79.6-87.1]	83.5 [80.6-86.2]	85.2 [81.5-87.8]	83.2 [79.0-87.18]	82.9 [78.9-85.7]	83.1 [79.4- 85.9]	83.6 [79.7, 86.2]	82.6 [78.2-86.9]	0.450
<b>Male Sex</b>	340 [52.5%]	60 [48.8%]	18 [40.9%]	31 [52.5%]	29 [46.0%]	41 [55.4%]	50 [61.7%]	53 [54.6%]	58 [54.2%]	0.386
<b>STS score</b>	3.13 [2.25-4.56]	3.52 [2.60-4.63]	4.24 [2.59-5.72]	3.42 [2.86-4.52]	3.18 [2.16-4.11]	2.74 [2.19-3.76]	2.47 [1.72-3.33]	2.55 [1.89-3.52]	4.27 [2.90-6.94]	<0.001
<b>Euroscore II</b>	3.11 [2.01-4.92]	3.19 [2.11, 4.66]	3.83 [2.75-7.80]	3.91 [2.76-6.34]	3.86 [2.68-5.38]	3.00 [1.82-4.83]	2.76 [1.74-4.91]	2.88 [2.06-4.35]	2.49 [1.57-4.05]	<0.001



83.5 [79.2-86.6] years

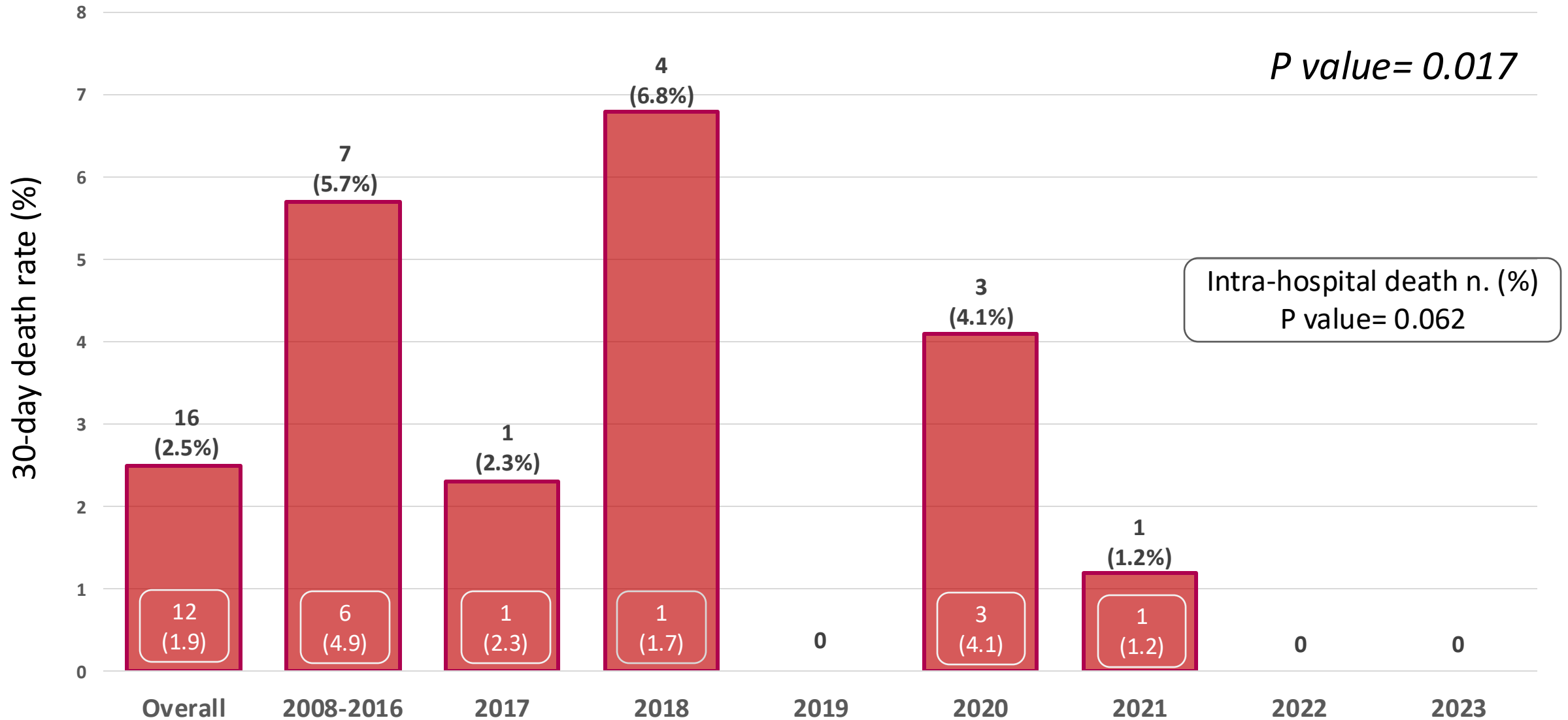


52.5%



STS score: 4.27  
Euroscore II: 2.49

# All-cause Mortality at 30 days





Variable	Hazard ratio (95% CI)	P-value
Sex	0.70 (0.26- 1.88)	0.481
Age	1.01(0.93- 1.09)	0.793
STS score	1.06 (0.95-1.18)	0.279
Euroscore II	0.99 (0.84-1.15)	0.870
PM30	0.93 (0.22-4.10)	0.926
LBBB after TAVI	0.89 (0.24- 3.37)	0.868
<b>Major bleedings</b>	<b>7.01 (2.23-22.0)</b>	<b>&lt;0.001</b>

# Cardiovascular death at 30 days

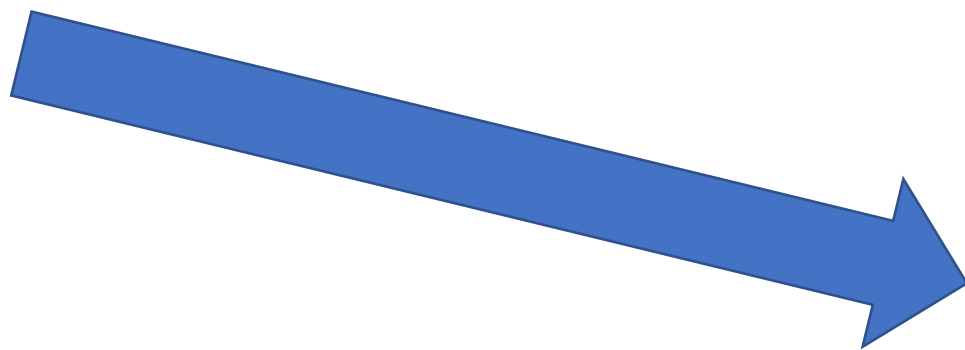


	<b>Overall population N=648</b>	<b>2008-2016 N=123</b>	<b>2017 N=44</b>	<b>2018 N=59</b>	<b>2019 N=63</b>	<b>2020 N=74</b>	<b>2021 N=81</b>	<b>2022 N=97</b>	<b>2023 N=107</b>
<b>CV death</b>	10 [1.54%]	5 [4.1%]	0	2 [3.4%]	0	2 [2.7%]	1 [1.2%]	0	0

# Hospital stay

➤ *Significantly reduced median hospital stay over the years [P value <0.001]*

8 days



3 days

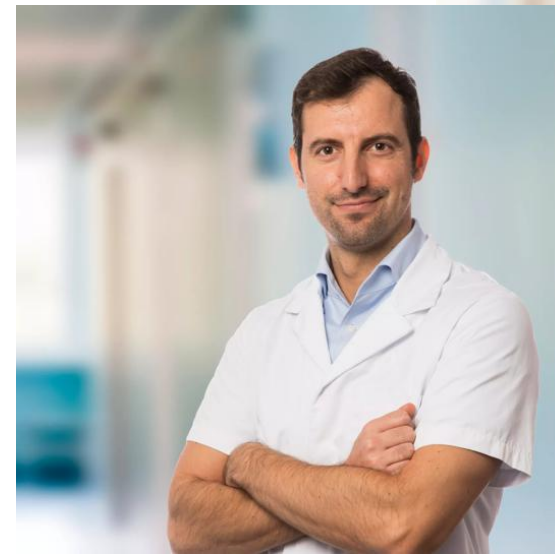
	2008-2016 N=123	2017 N=44	2018 N=59	2019 N=63	2020 N=74	2021 N=81	2022 N=97	2023 N=107
<b>Hospital stay</b>	8.00 [5.00-10.00]	7.00 [4.00-9.25]	7.00 [5.00-9.00]	6.00 [5.00-9.00]	6.00 [5.00-8.75]	5.00 [4.00-6.00]	4.00 [3.00-5.00]	3.00 [2.00-3.00]



# How do we make this possible?



## TAVI Team





# How do we make this possible?

1. Clinical Evaluation
2. Imaging Evaluation
3. Technical Improvements

How do we make t

# 1. Clinical Evaluation – Heart

a) Symptoms and haemodynamic

b) Age, life expectancy and comorbi

c) Patients expectations and QoL





# How do we make this possible?

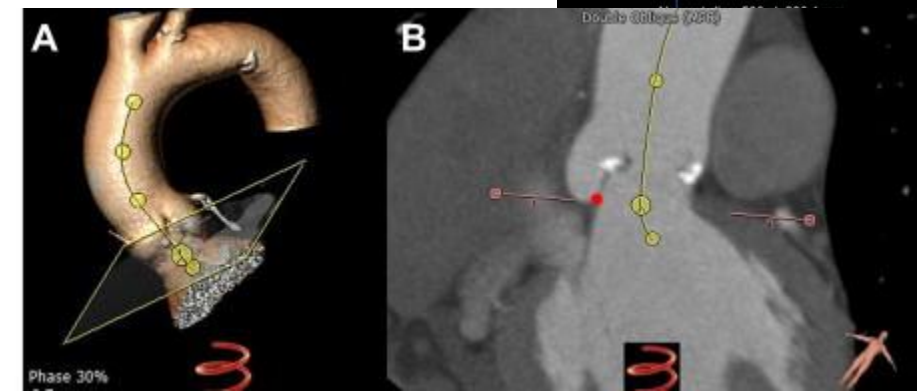
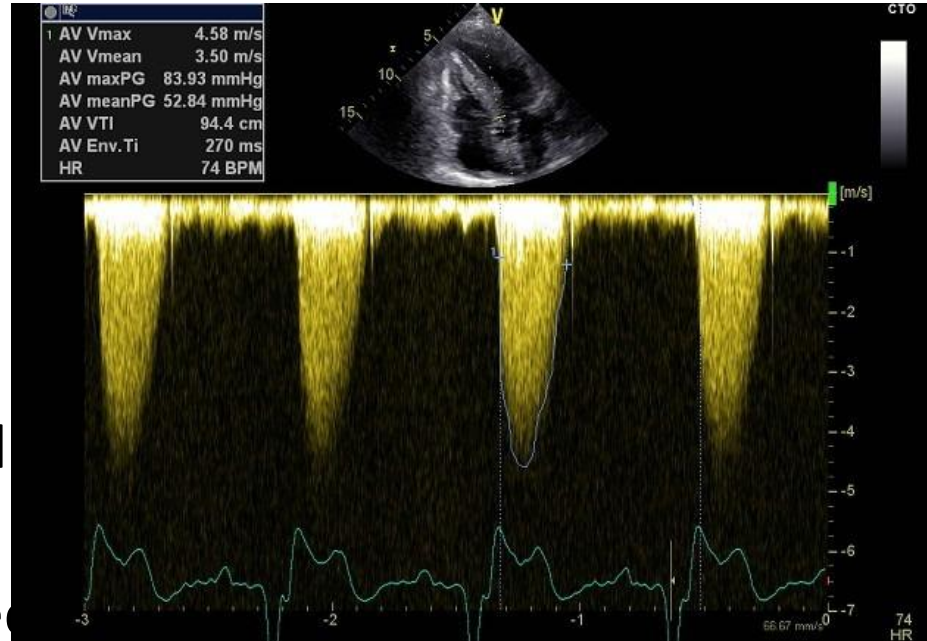
## 1. Clinical Evaluation

## 2. Imaging Evaluation

1. Echocardiography (TTE and TOE)
2. Cardiac CT scan
3. Integrative stress testing (echo, CMR...)

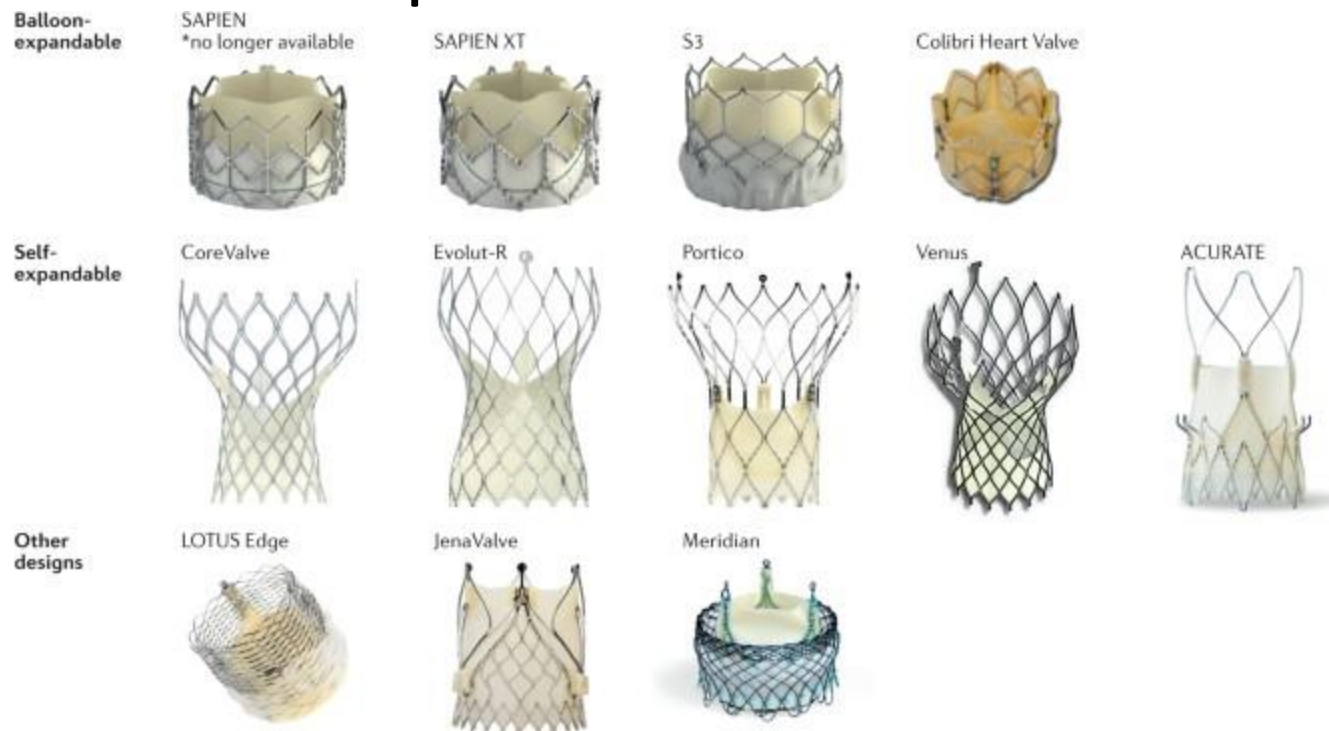
# How do we make this possible?

1. Clinical Evaluation
2. Imaging Evaluation
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  2. Cardiac CT scan
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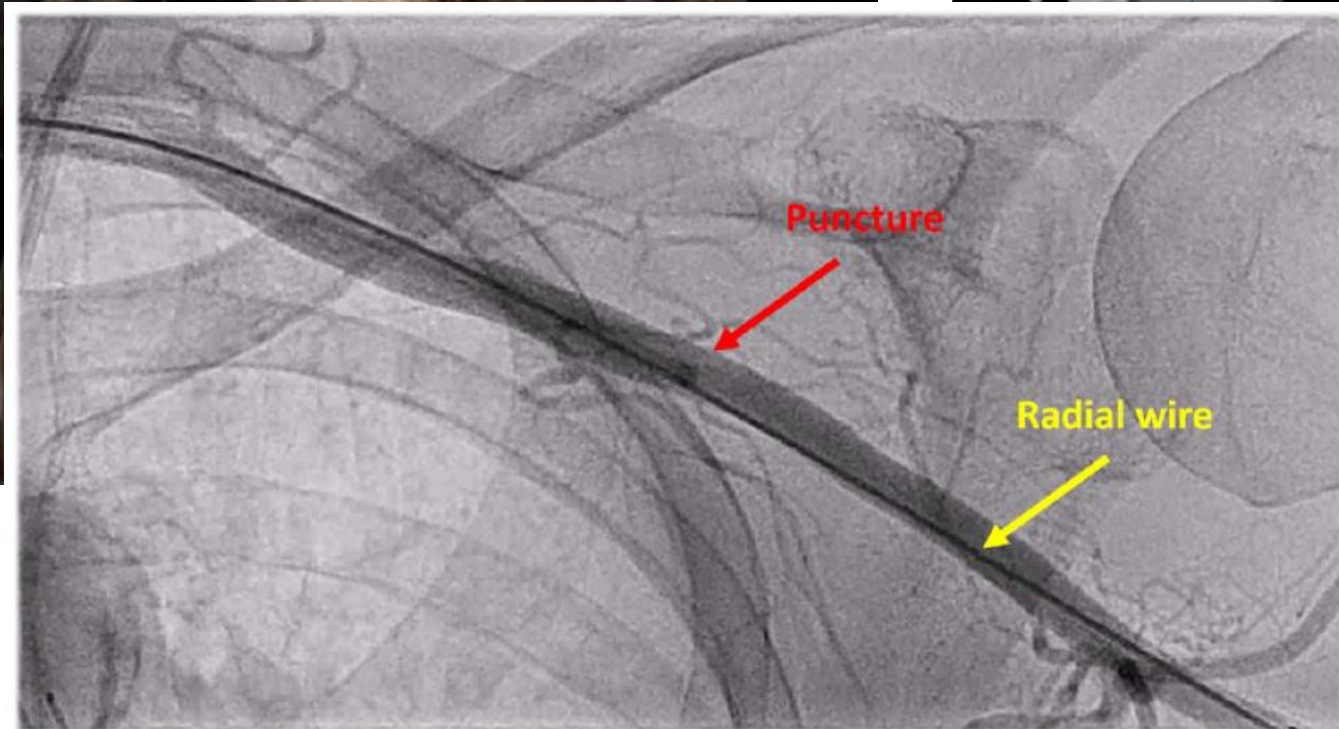
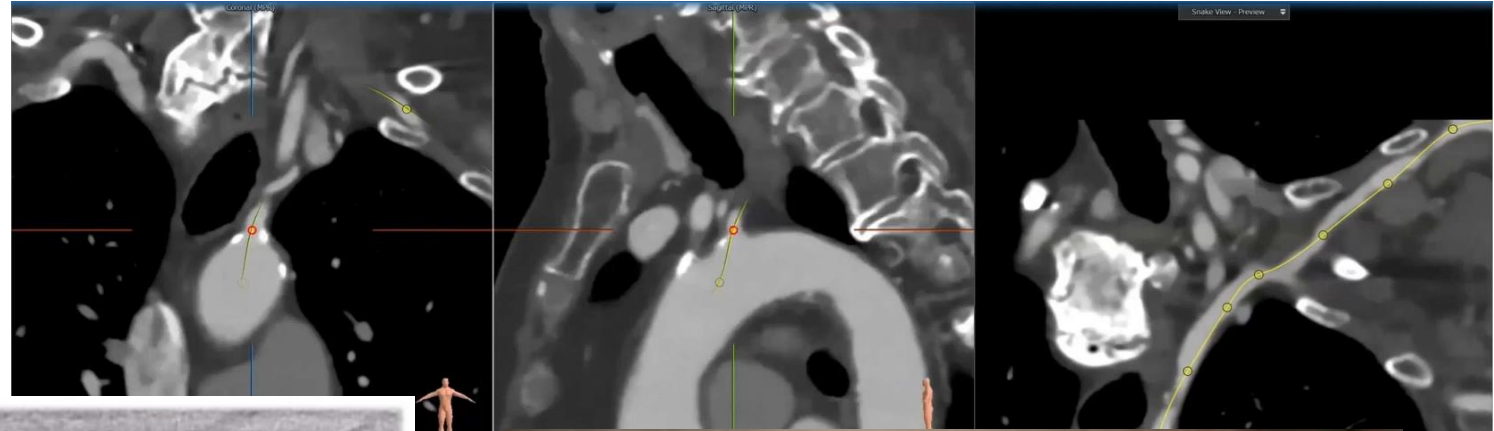


# How do we make this possible?

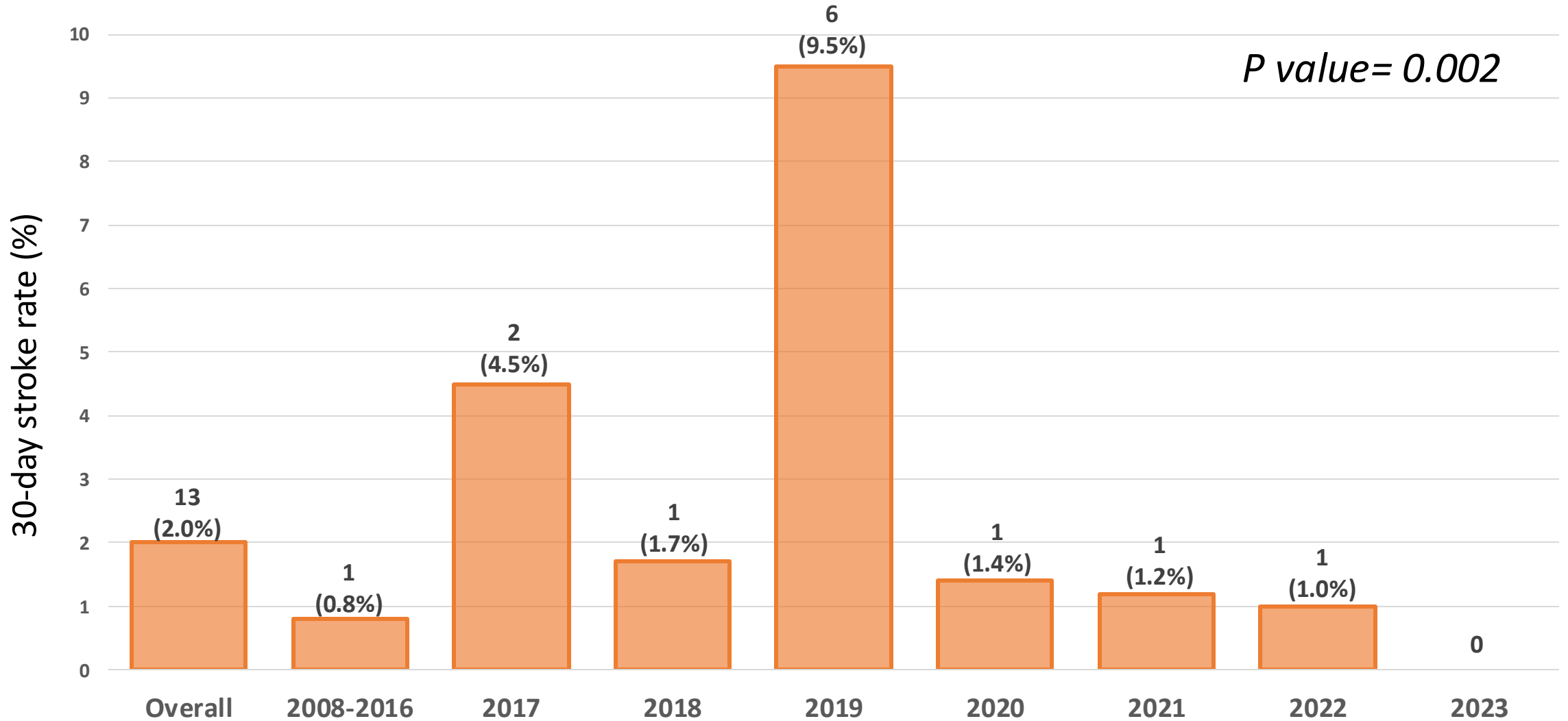
1. Clinical Evaluation
2. Imaging Evaluation
3. Technical Improvements
  1. New Devices
  2. Smaller Delivery Systems
  3. Alternative Access



# How do we make this possible?

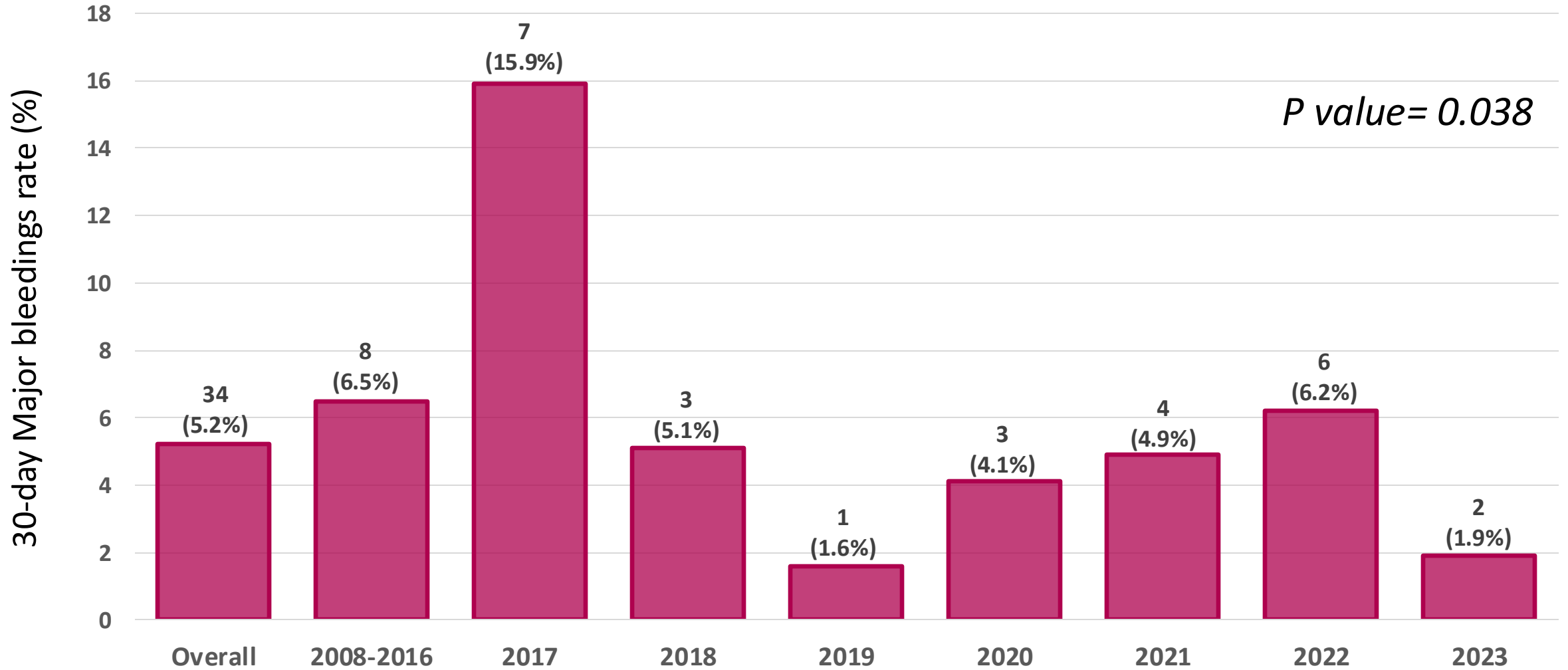


# Stroke at 30 days

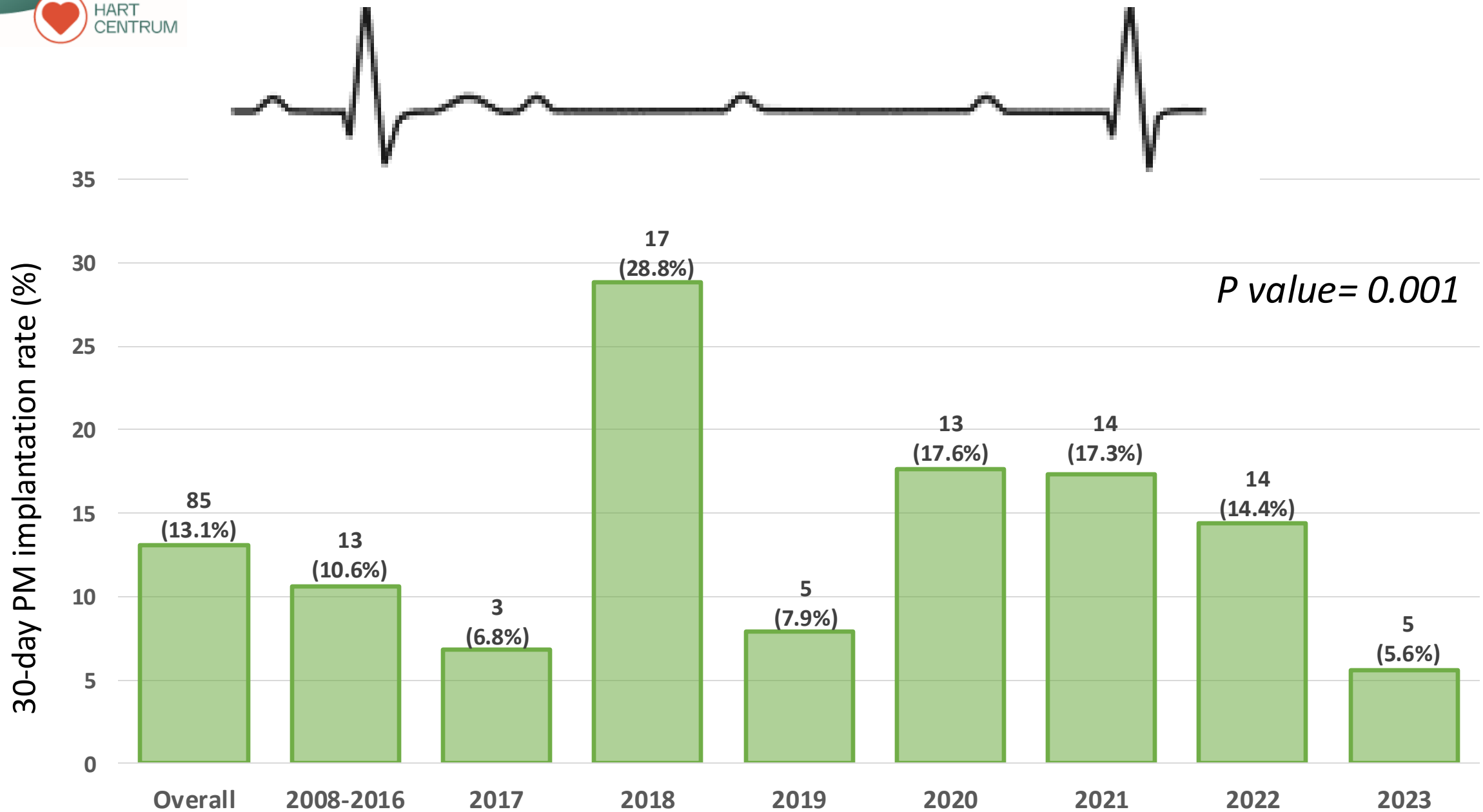




# Major bleedings at 30 days

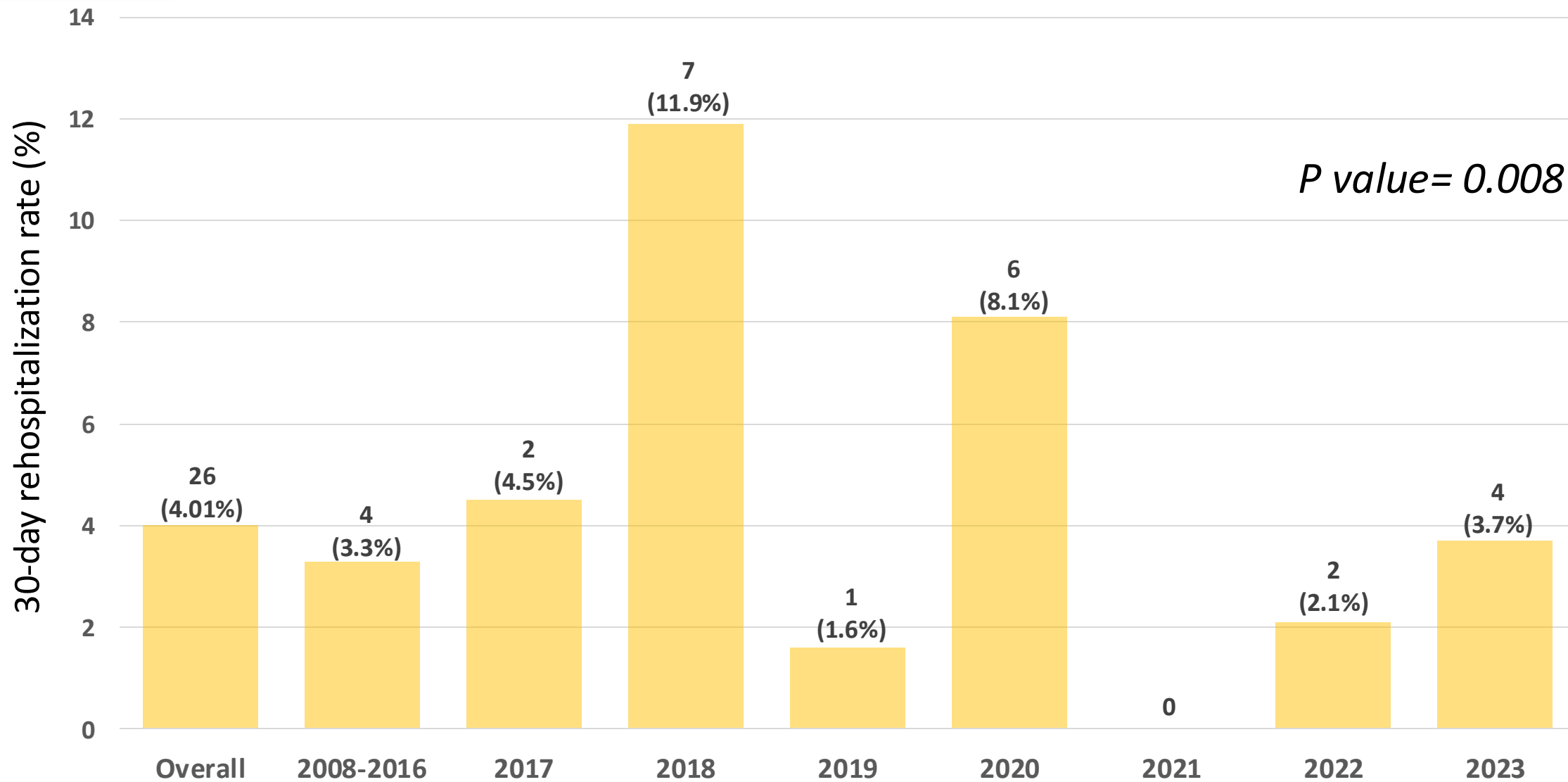


# PM implantation at 30 days





# Rehospitalization at 30 days



## TAVI é VITA

❖ *Since first adoption TAVI saved hundreds of thousands lives*

*With continuous improvements and patients selection we observe:*

❖ *Significantly reduced median hospital stay over the years.*

❖ *No deaths at 30 days over the past two years*

❖ *Significantly reduced vascular complications and major bleeding*

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