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ACURATE neo2 Post-Market Clinical Follow-Up Study 30-Day Results

ACURATE neo2™
Aortic Valve System

Late Breaking Presentation at PCR LV 2022 Simultaneous Publication in EuroIntervention

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2022 PCR london valves

30-day Results from the ACURATE *neo2* Post-market Study

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On behalf of the ACURATE neo2 Post-Market Clinical Follow-up Study Investigators

EAPCI European Society of Cardiology

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INTERVENTIONS FOR VALVULAR DISEASE AND HEART FAILURE
CLINICAL RESEARCH

Clinical outcomes of the ACURATE *neo2* transcatheter heart valve: a prospective, multicenter, observational, post-market surveillance study

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This paper also includes supplementary data published online at: https://eurointervention.pcronline.com/doi/10.4244/EIJ-D-22-00914

KEYWORDS
- aortic stenosis
- femoral
- TAVI
- MSCT
- transesophageal echocardiogram

Abstract

Background: The next-generation ACURATE neo2 transcatheter aortic valve was designed for simplified implantation and to mitigate the risk of paravalvular leak (PVL) compared to the earlier device.

Aims: To collect clinical outcomes and device performance data, including echocardiography and 4-dimensional computed tomography (4D-CT) data, with the ACURATE neo2 transcatheter heart valve in patients with severe aortic stenosis (AS).

Methods: ACURATE neo2 PMCF is a single-arm, multicentre study of patients with severe AS treated in routine clinical practice. The primary safety endpoint was all-cause mortality at 30-days. The primary imaging endpoint was hypo-attenuated leaflet thickening (HALT), measured by core laboratory-adjudicated 4D-CT at 30 days. Secondary endpoints included VARC safety endpoints, procedural success, and evaluation of valve performance via core laboratory-adjudicated echocardiography.

Results: The study enrolled 250 patients at 18 European centres (mean age: 80.8 years; 63.6% female; mean STS score: 2.9±2.0%); 246 (98.4%) were successfully treated with ACURATE neo2. The 30-day rates for mortality and disabling stroke were 0.8% and 0%, respectively. The new permanent pacemaker implantation rate was 6.5%. HALT >50% was present in 9.3% of patients at 30 days. Valve haemodynamics improved from baseline to 30 days (mean aortic valve gradient: from 47.6±14.5 mmHg to 8.6±3.9 mmHg; mean aortic valve area: from 0.7±0.2 cm^2 to 1.6±0.4 cm^2). At 30 days, PVL was evaluated as none/trace in 79.2% of patients, mild in 18.9%, moderate in 1.9%, and severe in 0%.

Conclusions: The study results support the safety and efficacy of TAVI with ACURATE neo2 in patients in routine clinical practice.

CAUTION: In Europe, ACURATE *neo2* Aortic Valv e System is CE-marked. In the USA, ACURATE *neo2* is an inv estigational device and restricted under federal law to investigational use only. Not av ailable for sale.

ACURATE neo2 PMCF Study

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Continuing to deliver excellent patient outcomes

ACURATE neo2 PMCF study demonstrated outstanding ACURATE *neo2* Safety and independent core lab adjudicated 30-Day outcomes

98.4%

Procedural success rate

1.9%

Moderate PVL

0% Severe PVL
18.9% Mild PVL

BEST-IN-CLASS

6.5%

Permanent pacemaker rate †

8.6 mmHg

Mean gradient

0.8%

All cause mortality

0.8%

All stroke

0% disabling stroke at 30 days

Echocardiographic and CT imaging Independently core lab adjudicated. † Among pacemaker-naïve patients. Among all patients, implanted pacemaker rate = 6.1%

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ACURATE neo2 PMCF Study
Study Design

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ACURATE *neo2*
Aortic Valve System

ACURATE *neo2* Valve Design Features
- Self-expanding, open-cell Nitinol frame; axial stabilization arches
- Radiopaque positioning markers for placement accuracy
- Porcine pericardium leaflets and skirt
- Supra-annular leaflets
- Inner and outer skirt with active sealing to reduce PVL

ACURATE neo AS Study (N=120)

Demonstrated *neo2* safety and performance through 1 year

Hemodynamics at 1y
Mean AV gradient: **7.6 mmHg**
Mean EOA: **1.7 cm²**

Paravalvular Leak at 1y

≤ Mild	Moderate	Severe
97.5%	2.5%	0%

ACURATE neo2 PMCF (N=250)

Patients with severe calcific AS treated with ACURATE *neo2* in routine clinical practice

Clinical performance and outcomes through 1 year

Core laboratories for echocardiography & CT, Independent CEC adjudication

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ACURATE neo2 PMCF Study
Study Design and Endpoints

Single arm, prospective, post-market surveillance study

- Enrolled 250 patients at 18 European sites

Safety assessments

- **Primary safety endpoint: 30-day all-cause mortality**
- Additional endpoints with independent CEC adjudication: death, stroke, bleeding, major vascular complications, hospitalization for valve-related symptoms

Imaging assessments

- Echocardiography: evaluated at discharge, 30 days, and 1 year by an independent core lab
- **Primary imaging endpoint: hypo-attenuated leaflet thickening (HALT) at 30 days as measured by 4D-CT**

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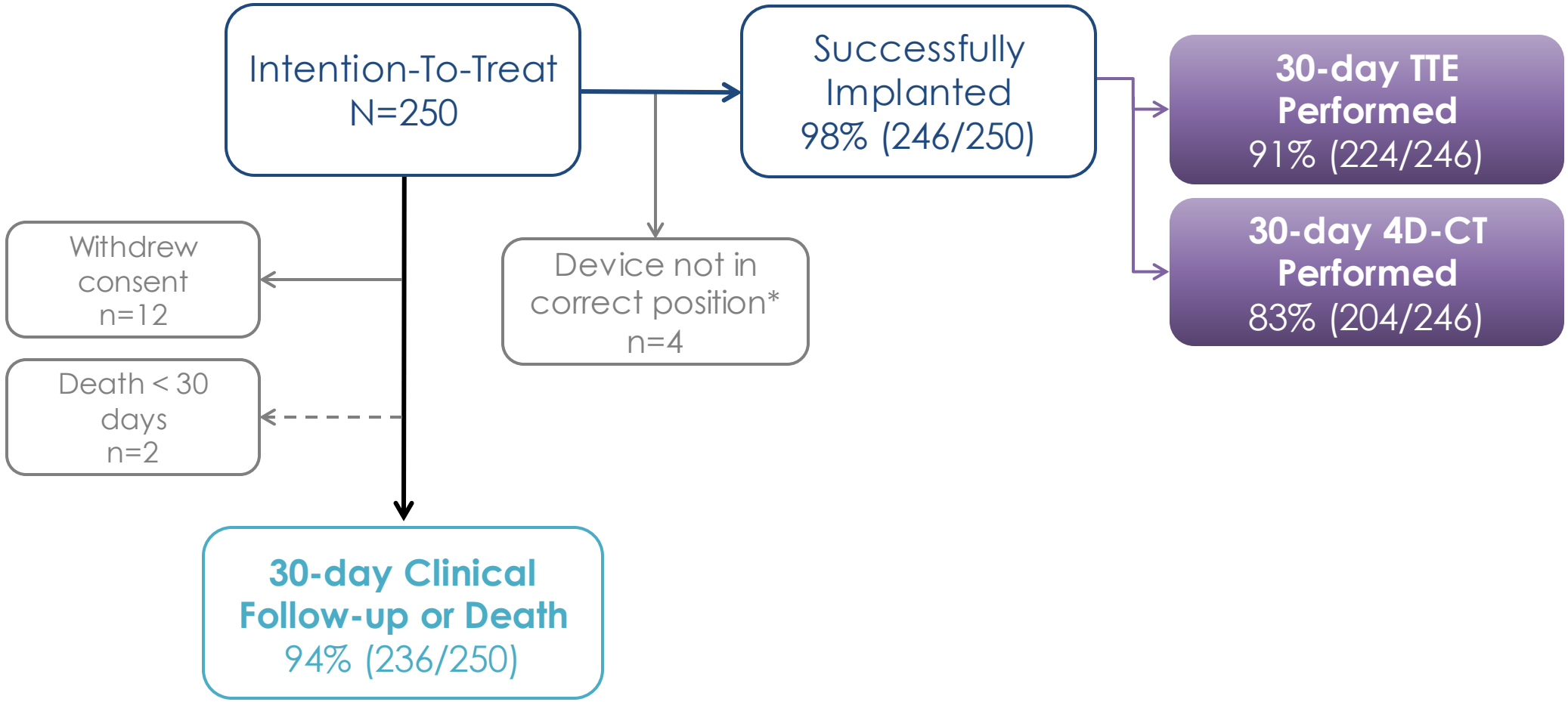
ACURATE neo2 PMCF Study
Study Execution



*In 4 patients, ACURATE *neo2* embolized and patients were implanted with a non-study valve; these patients were followed for safety only through 30 days, as per protocol requirement.

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ACURATE neo2 PMCF Study
Baseline and Procedural Characteristics

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Patient Demographics

Mean Age
80.8 ± 6.2 yrs

63.6% Female
36.4% Male

Medical History

Diabetes, medically treated	24.0% (60)
Hypertension	80.8% (202)
Coronary artery disease	40.8% (102)
History of atrial fibrillation	4.4% (11)
History of stroke	5.2% (13)
Prior pacemaker	6.0% (15)
Preexisting conduction abnormality	13.3% (33/248)

Baseline TTE; Site-reported

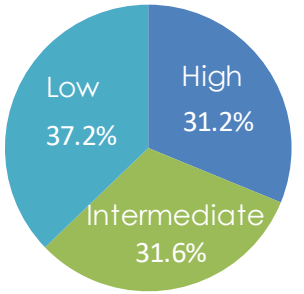
Mean AV gradient
47.6 ± 14.5 mmHg

Mean EOA
0.7 ± 0.2 cm^2

Risk Scores

EuroSCORE II	3.3%± 2.8%
STS Score	2.9% ± 2.0%
NYHA Class III or IV	52.4%

Operative Risk
(per Heart Team)



Procedural Characteristics

Successful vascular access, delivery, and deployment of valve	98.4% (246)
Total procedure time (min)	63.2 ± 32.3
Pre-dilation BAV	96.8% (242)
Rapid pacing used during valve deployment	46.0% (115)
Embolic protection device used	10.4% (26)
Post-dilation balloon performed	26.0% (65)

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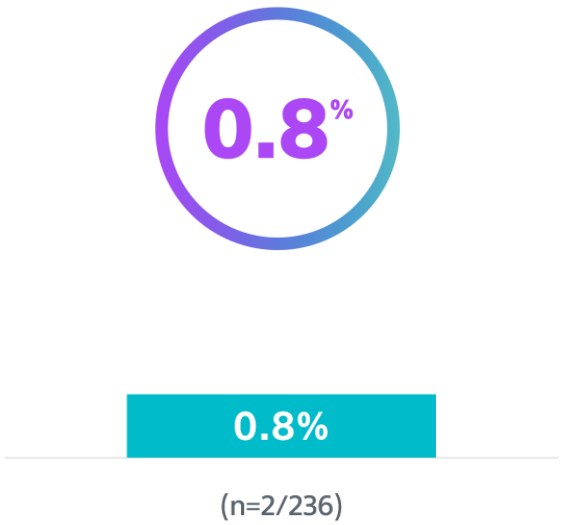
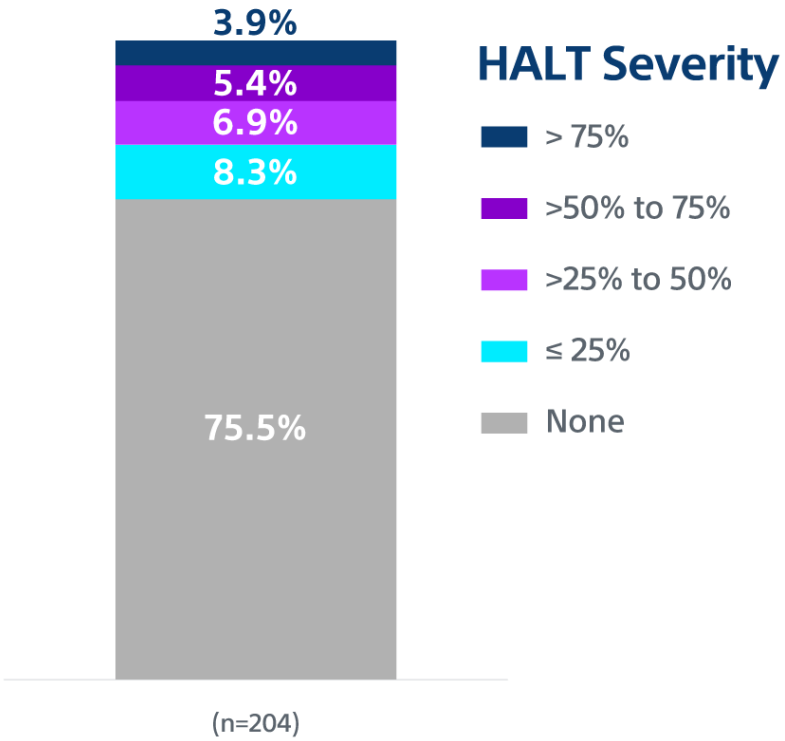
ACURATE neo2 PMCF Study
Primary Endpoints Outcomes

Primary Safety Endpoint
Mortality at 30 days



Primary Imaging Endpoint
HALT at 30 days



Deaths:
1 patient experienced life-threatening bleeding (admitted to secondary hospital, source of bleeding not recorded) and hemodynamic instability leading to circulatory arrest and death
1 patient died post index procedure following valve embolization and unsuccessful TAV-in-TAV with non-study valve leading to coronary obstruction and procedural myocardial infarction.

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ACURATE neo2 PMCF Study
Essential Outcomes

Key Safety Events	Discharge N=250	30 Days N=245	
All-cause mortality	0.4% (1)	0.8% (2)*	Primary Safety Endpoint
Cardiovascular mortality	0.4% (1)	0.8% (2)	
All stroke	0.4% (1)	0.8% (2)	
Disabling stroke	0.0% (0)	0.0% (0)	
Non-disabling stroke	0.4% (1)	0.8% (2)	
Major vascular complication	3.2% (8)	--	
Bleeding			
Life-threatening or disabling	2.0% (5)	2.9% (7)	
Major	2.4% (6)	2.4% (6)	

Note: 245 patients were evaluable for safety at 30 days (defined as subjects who experience a CEC-adjudicated event through 30 days post-procedure or who were event-free with last follow-up at least 23 days post-procedure)
*Deaths: 1 patient experienced life-threatening bleeding (admitted to secondary hospital, source of bleeding not recorded) and hemodynamic instability leading to circulatory arrest and death; 1 patient died post index procedure following valve embolization and unsuccessful TAV-in-TAV with non-study valve leading to coronary obstruction and procedural myocardial infarction.

ACURATE neo2 PMCF Study
Essential Outcomes

Additional Safety Events	Discharge	30 Days
Myocardial infarction	0.8% (2)	0.8% (2)
Acute kidney injury (Stage 2 or 3)	0.0% (0)	--
Valve malpositioning	1.6% (4)	--
Repeat procedure for valve-related dysfunction†	0.4% (1)	0.4% (1)
Prosthetic aortic valve thrombosis‡	0.4% (1)	0.4% (1)
Prosthetic aortic valve endocarditis	0.0% (0)	0.4% (1)
Newly implanted permanent pacemaker		
Among all patients	5.2% (13)	6.1% (15)
Among pacemaker-naïve patients (N=231)	5.5% (13)	6.5% (15)

Note: 245 patients were evaluable for safety at 30 days (defined as subjects who experience a CEC-adjudicated event through 30 days post-procedure or who were event-free with last follow-up at least 23 days post-procedure)
†ACURATE *neo2* embolization, followed by implantation of a non-study valve; surgery was later performed to remove the embolized valve.
‡Occurred in non-study valve, which was implanted subsequent to ACURATE *neo2* embolization

ACURATE neo2 PMCF Study
Essential Outcomes

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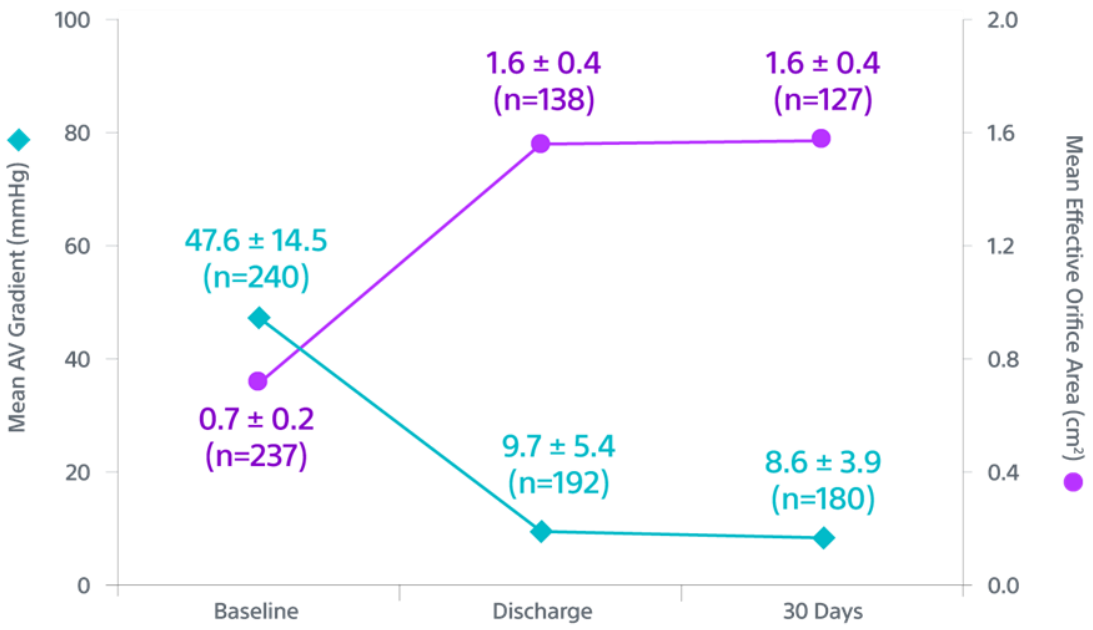
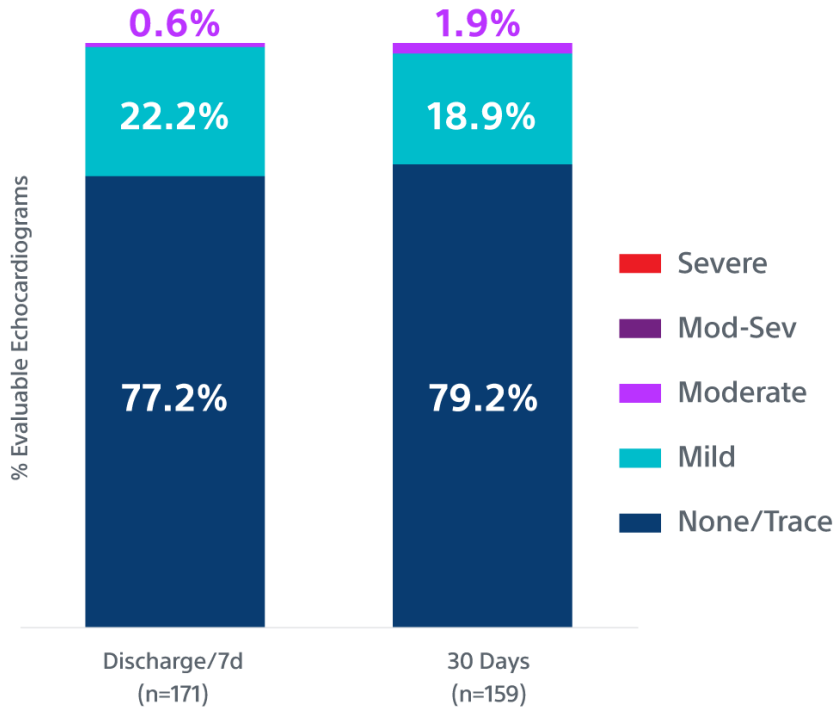
Independent Echocardiographic Analyses (Central Core Laboratory)

Valve Hemodynamics



Paravalvular Leak



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ACURATE neo2 PMCF Study
Key Take Aways

- The ACURATE neo2 PMCF study reinforces the competitive enhancement of ACURATE *neo2*, delivering differentiated benefits to physicians for the lifetime management of their patients.

- The ACURATE neo2 PMCF study demonstrated outstanding ACURATE *neo2* Safety and 30-day outcomes:

  - Very high procedural success rate; **98.4%**
  - **No patients with >moderate PVL, 98.1% of patients had mild (18.9%) or no/trace (79.2%) PVL.***
  - Best-in-class permanent pacemaker implantation rate; **6.5%*†**
  - Single-digit mean gradient; **8.6mmHg***
  - Low mortality rate; **0.8% ***

†

ACURATE neo2 PMCF PVL data is independent core lab adjudicated.
*At 30-Days
† Among pacemaker-naïve patients. Among all patients, implanted pacemaker rate = 6.1%

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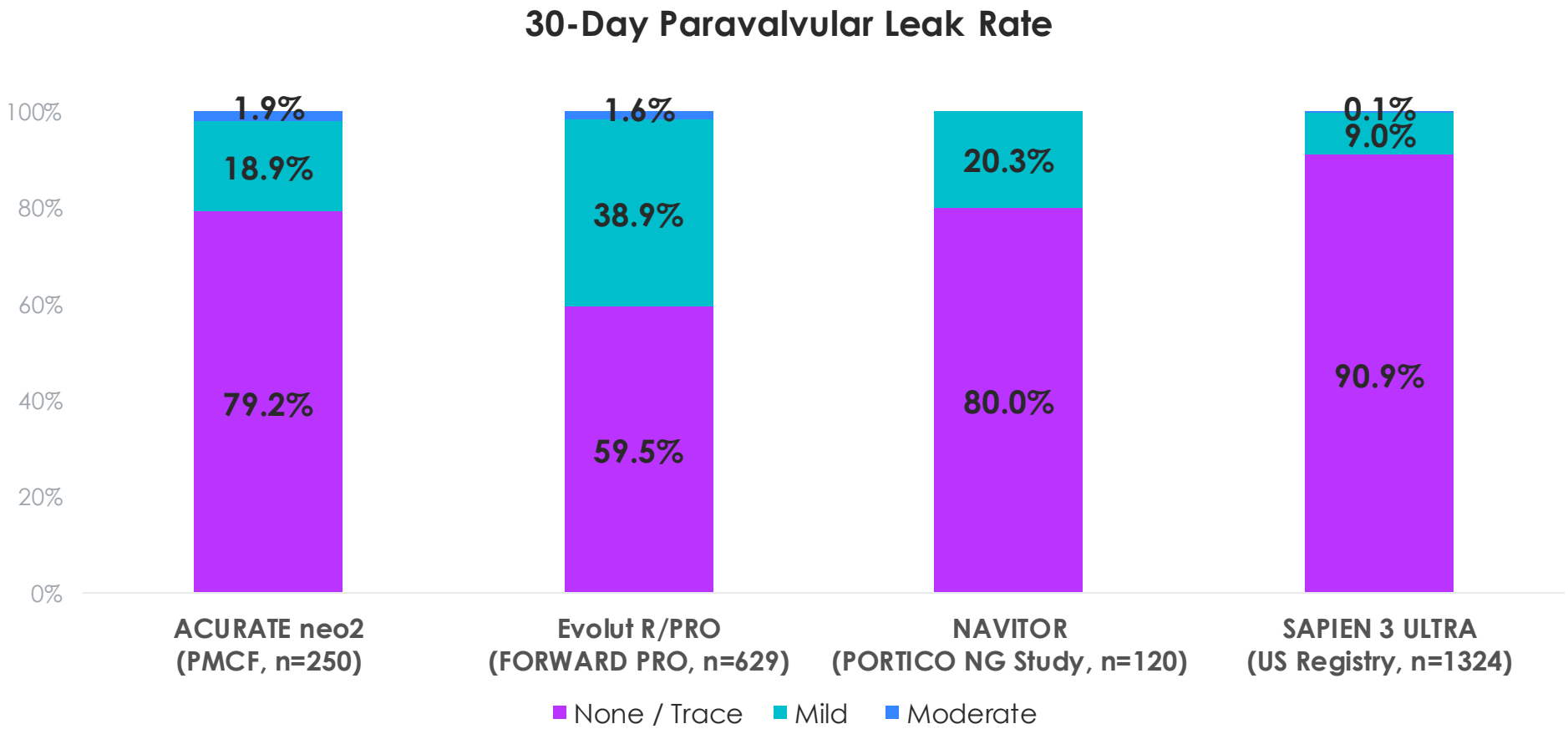
Competitive TAVI Trial Outcomes

Paravalvular Leak Rates at 30 Days



NOTE: Data not from head-to-head studies. Data differences depicted between these trials may not be directly comparable, statistically significant, or clinically meaningful due to differences in trial protocols, endpoints, and/or patient populations. Data provided for informational purposes only.

1. Søndergaard L., et al; 30-day Results from the ACURATE *neo2* Post-market Study, Presented at PCR LV 2022.
2. Smith, D. One-year clinical trial results with a next-generation aortic transcatheter heart valve. Presented at: EuroPCR conference; May 17-20, 2022
3. Manoharan G, Grube E, et al. Thirty-day clinical outcomes of the Evolut PRO self-expanding transcatheter aortic valve: the international FORWARD PRO study. EuroIntervention. 2020 Nov 20;16(10):850-857. doi: 10.4244/EIJ-D-20-00279. PMID: 32748789.
4. Nazif, M. T et al. Real-World Experience with the SAPIEN 3 Ultra Transcatheter Heart Valve: A Propensity-Matched Analysis From the United States. 26 Aug 2021https://doi.org/10.1161/CIRCINTERVENTIONS.121.010543

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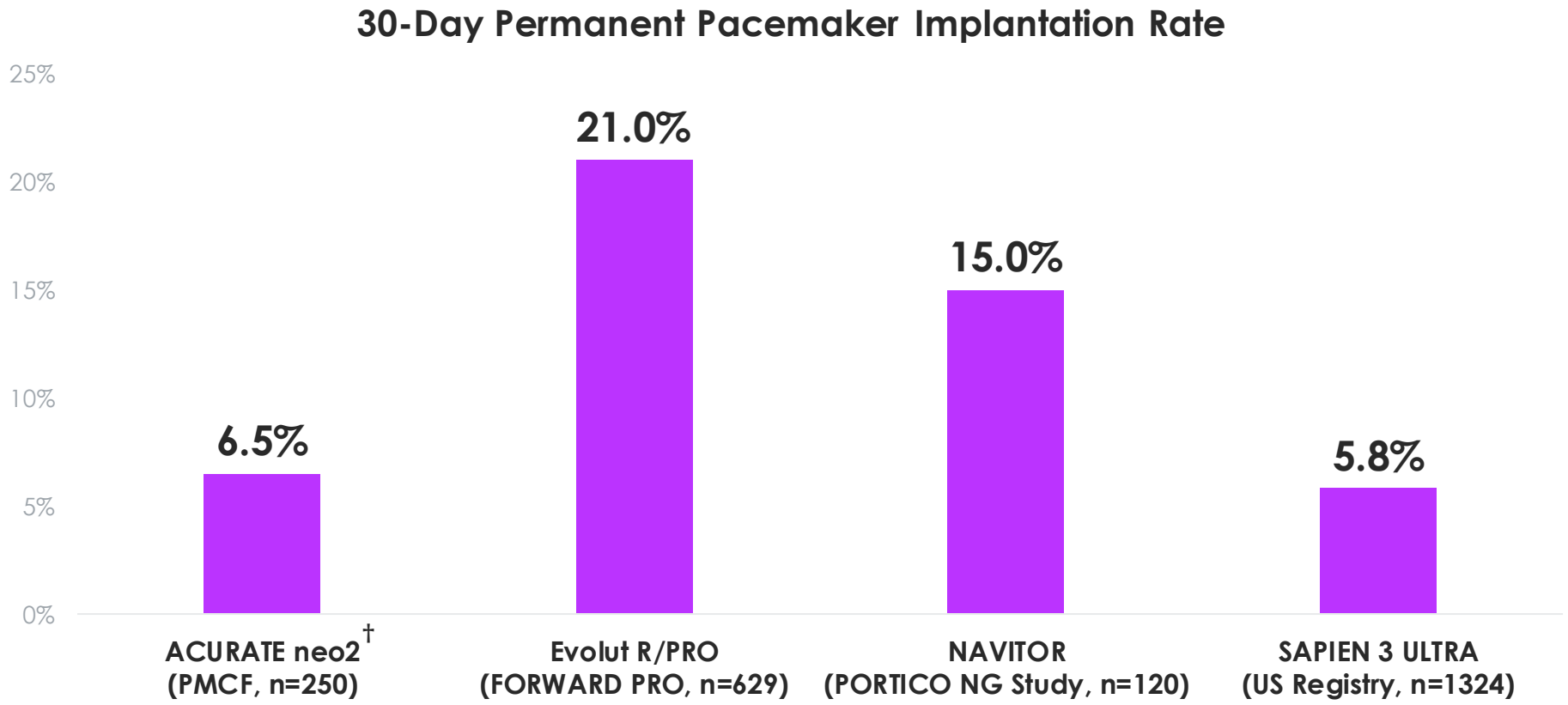
Permanent Pacemaker Rates at 30 Days



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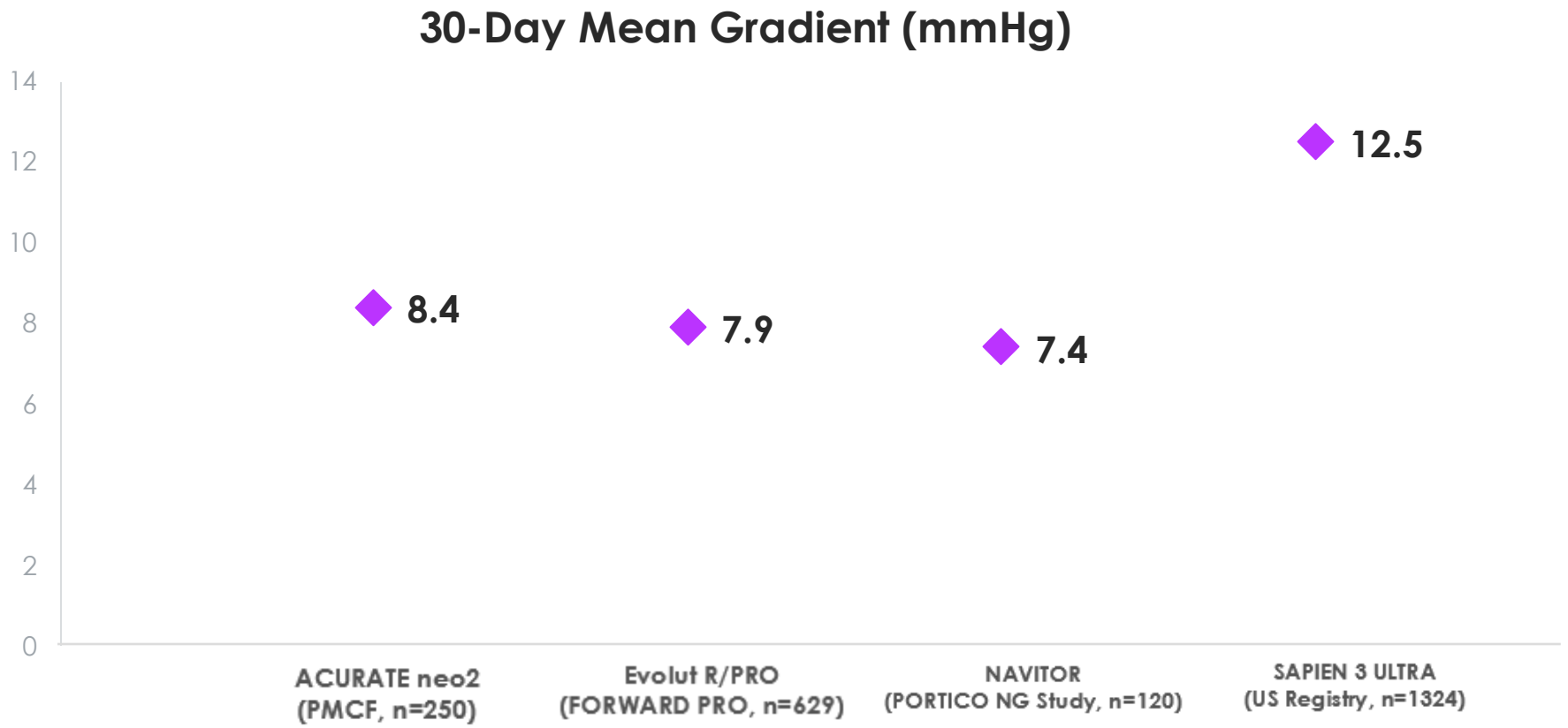
Mean Aortic Gradients Rates at 30 days



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