TAVI: Standard of care for intermediate-risk, high-risk and inoperable patients
Expanded indication studies underway

Dr. B. Prendergast
Consultant Cardiologist, Guys & St Thomas’ Hospitals
Course Director/Board Member of PCR London Valves
PERCUTANEOUS VALVE INTERVENTION

Unmet clinical need
Major engineering advances
Unprecedented clinical evidence
>65 years with moderate or severe VHD (millions)

Today's Random Medical News

According to a report released today...

- Smoking
- Fatty foods
- Stress
- Coffee
- Computer terminals
- Exercise
- Alcohol
- Red wine
- Exercise
- Hypertension
- Heart disease
- Stroke
- Spontaneous abortion
- Depression
- Type 2 diabetes
- Breast cancer
- Diabetes
- Rheumatoid arthritis
- Glaucoma
- Chronic fatigue syndrome
- Diabetes
- Schizophrenia

According to the New England Journal of Medicine, in 7 out of 10 women, stress causes panic attacks.

According to a report released today...
Recent and Ongoing TAVI Trials

<table>
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<tr>
<th>Published</th>
<th>Low</th>
<th>Intermediate</th>
<th>High</th>
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Investigational devices:
- **Edwards** Sapien/Sapien XT/Sapien 3
- **Medtronic** CoreValve/Evolut R
- **Boston** Lotus
- **Direct Flow Medical** Direct Flow
- **St. Jude** Portico
- Any available TAVR system

PARTNER 3 Trial: Study Flowchart

PARTNER 3
Up to 65 global sites (US/Canada/ANZ/Japan)

Severe Calcific Aortic Stenosis

Low Risk Assessment by Heart Team AND STS < 4

Alternative Access (TA/TAo/Subclavian) N=100

1:1 Randomization (N=1228)

TF - TAVR (SAPIEN 3)

SAVR (Surgical Bioprosthetic Valve)

CT Imaging Sub-study (N=200)

Actigraphy/QoL Sub-study (N=200)

CT Imaging Sub-study (N=200)

Actigraphy/QoL Sub-study (N=200)

Follow-up: 30-day, 6 month, 1 year and annually through 10 years

PRIMARY ENDPOINT: Composite of all-cause mortality, all stroke, or rehospitalization at 1 year post procedure

PARTNER 3 Registries

Aortic ViV N=125
Failing surgical valve
Failing THV

Mitral ViV N=50

Mitral ViV N=50

Aortic ViV N=125
Failing surgical valve
Failing THV

Actigraphy/QoL Sub-study (N=200)
PARTNER 3 Actigraphy/QOL Trial Overview

**Study Objective:** To investigate the feasibility of assessing change in QOL and activity levels using electronic patient-reported outcome (ePRO) applications and wearable activity trackers.

**Study Design:** A sub-set of eligible patients from each study arm (TAVR vs SAVR) will be enrolled in the sub-study.

**Sample Size:** 125 patients

**Study Sites:** Sites actively participating in PARTNER 3 Low-Risk Trial

**Principal Investigators:**
- Amy Simone, PA-C
- Patricia Keegan, RN
- Emory Healthcare, Atlanta, Georgia
PARTNER 3 Aortic ViV Trial Overview

Study Objective: To assess the safety and effectiveness of the Edwards SAPIEN 3 Transcatheter Heart Valve (THV) in patients with a failing aortic bioprosthetic valve.

Study Design: Prospective, single arm, multi-center study

Sample Size: 125 patients

Study Sites: Sites actively participating in PARTNER 3 Low-Risk Trial

NCT Number: NCT03003299

Principal Investigator: Chris S Malaisrie, MD, Northwestern University Feinberg School of Medicine
Alan Zajarias, MD, Washington University School of Medicine

Primary Endpoint: One-Year All-cause Mortality and Stroke

Follow-up: 30 days, 6 mos, 1 year and annually through 10 years
**EARLY TAVR Trial Overview**

**Study Objective:** To establish the safety and effectiveness of the Edwards SAPIEN 3 Transcatheter Heart Valve (THV) compared with clinical surveillance (CS) in asymptomatic patients with severe, calcific aortic stenosis.

**Study Design:** Prospective, randomized, controlled, multi-center study

**Sample Size:** 1109 patients

**Study Sites:** Up to 65 US sites

**Randomization:** TAVR arm vs. Clinical Surveillance arm in 1:1 ratio

**Principal Investigator:** Philippe Généreux, MD
Gagnon Cardiovascular Institute
Morristown Medical Center, NJ
Cardiovascular Research Foundation, NY

**Registry:** Patients meet all other criteria in study screening but with a positive result in the treadmill stress test
TAVR-UNLOAD Trial Overview

Heart Failure
LVEF < 50%
NYHA ≥ 2
Optimal HF therapy (OHFT)
Moderate AS

TAVR + OHFT

Follow-up:
1 month
6 months
1 year
Clinical Endpoints
Symptoms
Echo QoL

Primary Endpoint
Hierarchical occurrence of:
- All-cause death
- Disabling stroke
- Hospitalizations for HF, aortic valve disease, or non-disabling stroke
- Change in KCCQ

- Reduced AFTERLOAD
- Improved LV systolic and diastolic function
3M TAVR Study Overview

Feasibility, safety and efficacy of **next day discharge** home in patients undergoing balloon expandable transfemoral TAVR utilizing the Vancouver 3M Clinical Pathway

**3M TAVR**
Investigator Initiated multi-center (14 sites) study
PIs: David Wood and John Webb

Patients with severe symptomatic AS undergoing elective transfemoral TAVR

Considered at increased surgical risk by the Heart Team

**Vancouver 3M Clinical Pathway**
(n = 400)
Meets all general, anatomical, functional, and periprocedural exclusion criteria

**Standard TAVR**
(n = 800)
All remaining patients at all sites
Standard Care

Primary outcomes: All-cause mortality and major stroke at 30 days
AND the proportion of patients who are discharged the next day
Heart Team Decision between SAVR and TAVI

<table>
<thead>
<tr>
<th>Clinical characteristics</th>
<th>Favours TAVI</th>
<th>Favours SAVR</th>
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<tr>
<td>STS/EuroSCORE II &lt; 4% (logistic EuroSCORE I &lt; 10%)</td>
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<td>+</td>
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<tr>
<td>STS/EuroSCORE II ≥ 4% (logistic EuroSCORE I ≥ 10%)</td>
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<tr>
<td>Presence of severe comorbidity (not adequately reflected by scores)</td>
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<tr>
<td>Age &lt; 75 years</td>
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<td>+</td>
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<tr>
<td>Age ≥ 75 years</td>
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Time has come!

IT'S A NO BRAINER

WRITING ON THE WALL
### SAPIEN 3 Valve-in-Valve Positioning

#### Aortic Positioning

<table>
<thead>
<tr>
<th>Surgical Valve Features</th>
<th>SAPIEN 3 Valve Positioning Considerations</th>
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<tbody>
<tr>
<td>Visible stent frame</td>
<td>Align the base of the <strong>central marker 3-5 mm above the base</strong> of the surgical valve stent frame</td>
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<tr>
<td>Visible outflow markers only</td>
<td>Align the outflow of the <strong>crimped SAPIEN 3 valve 2 mm above</strong> the surgical valve outflow markers</td>
</tr>
<tr>
<td>No visible radiopaque markers</td>
<td>Align the <strong>base of the central marker</strong> with the annular plane</td>
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<tr>
<td><strong>Final SAPIEN 3 valve implant depth</strong> should be targeted <strong>no more than 20% (ventricular)</strong> for optimal valve function</td>
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#### Mitral Positioning

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<td>Visible stent frame</td>
<td>Align the base of the <strong>central marker 3-5 mm below the base</strong> (towards ventricle) of the surgical valve stent frame</td>
</tr>
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