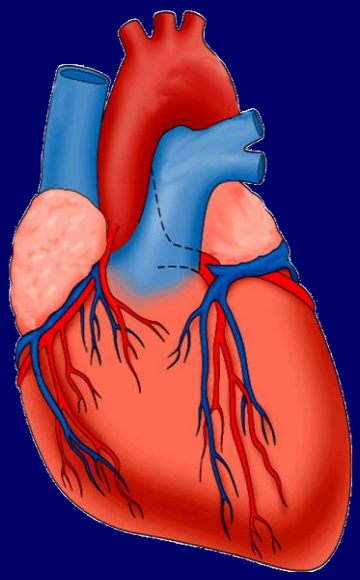

Transcatheter Aortic Valve Implantation (TAVI) QEH Registry – A Multi-disciplinary Team Approach

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Hong Kong SAR

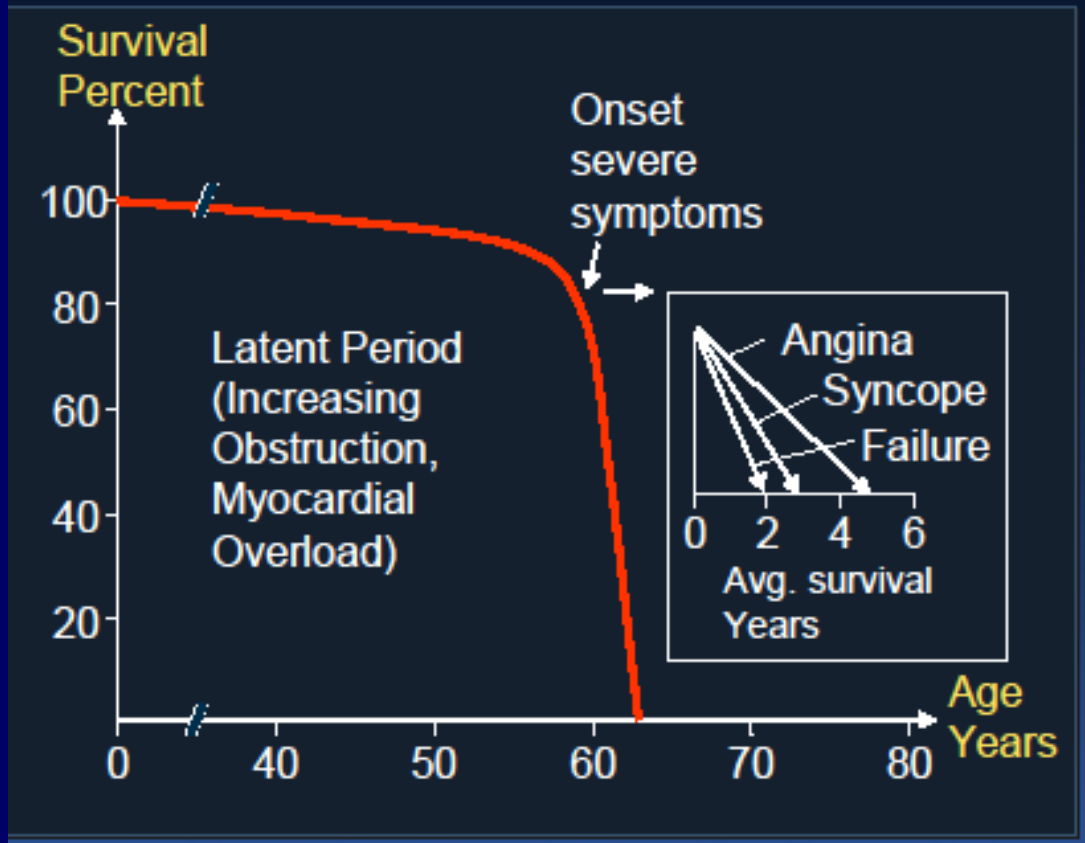
HA Convention 2013

Introduction

- Aortic Stenosis – most common valvular heart disease in the elderly
- 4.6% in adults $\geqq$ 75 years of age
- Once symptomatic, average survival 2-3 years with high risk of sudden death
- Medical treatment is not effective
- Surgical AVR is the gold standard
- TAVI emerges as a viable alternative in inoperable or high risk elderly patients (no open-heart surgery, no cardio-pulmonary bypass)

Aortic Stenosis is Life-Threatening and May Progress Rapidly

Treatment Options and Timing Matters



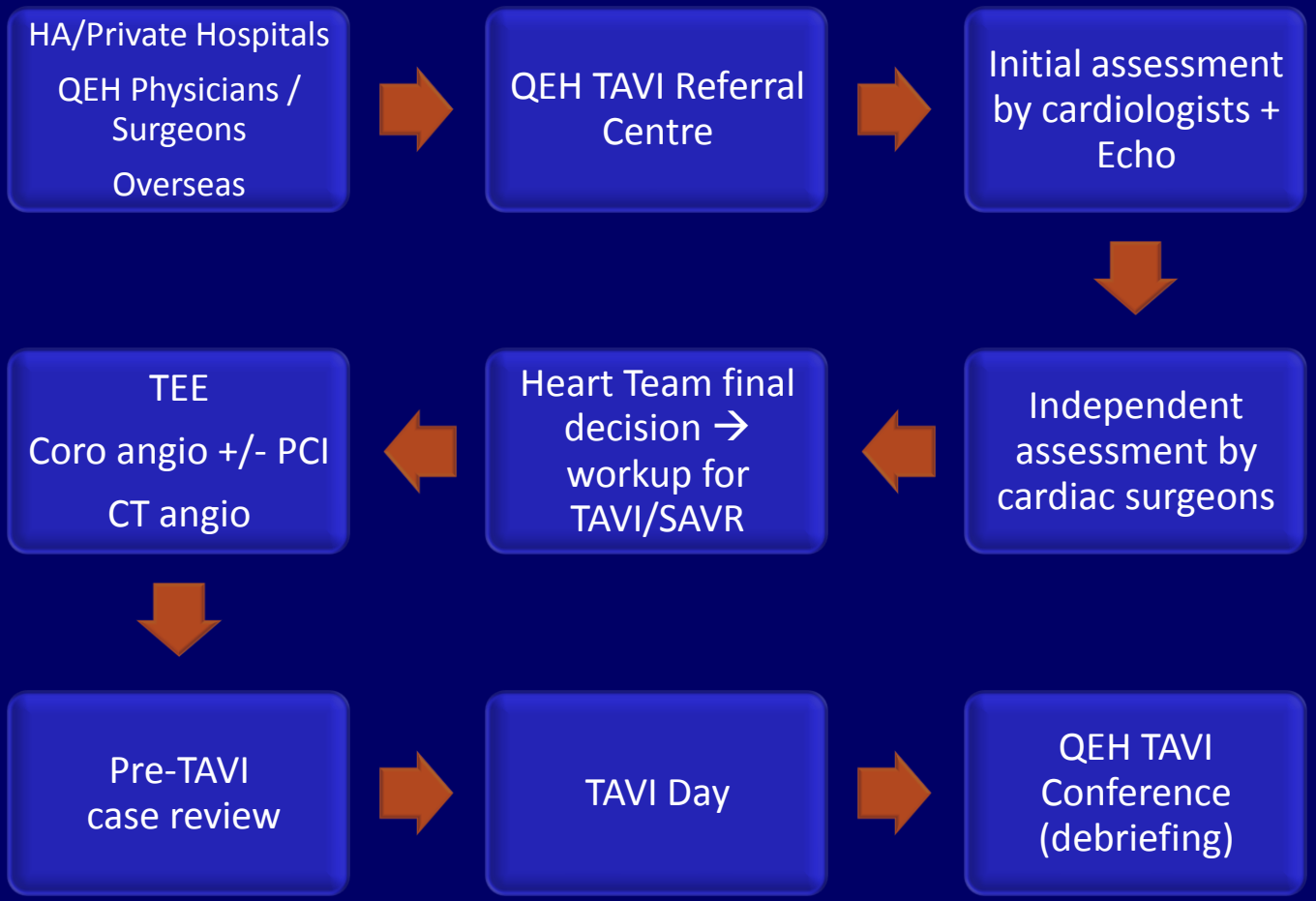
"Survival after onset of symptoms is 50% at two years and 20% at five years."[1]

"Surgical intervention [for severe AS] should be performed promptly once even …… minor symptoms occur

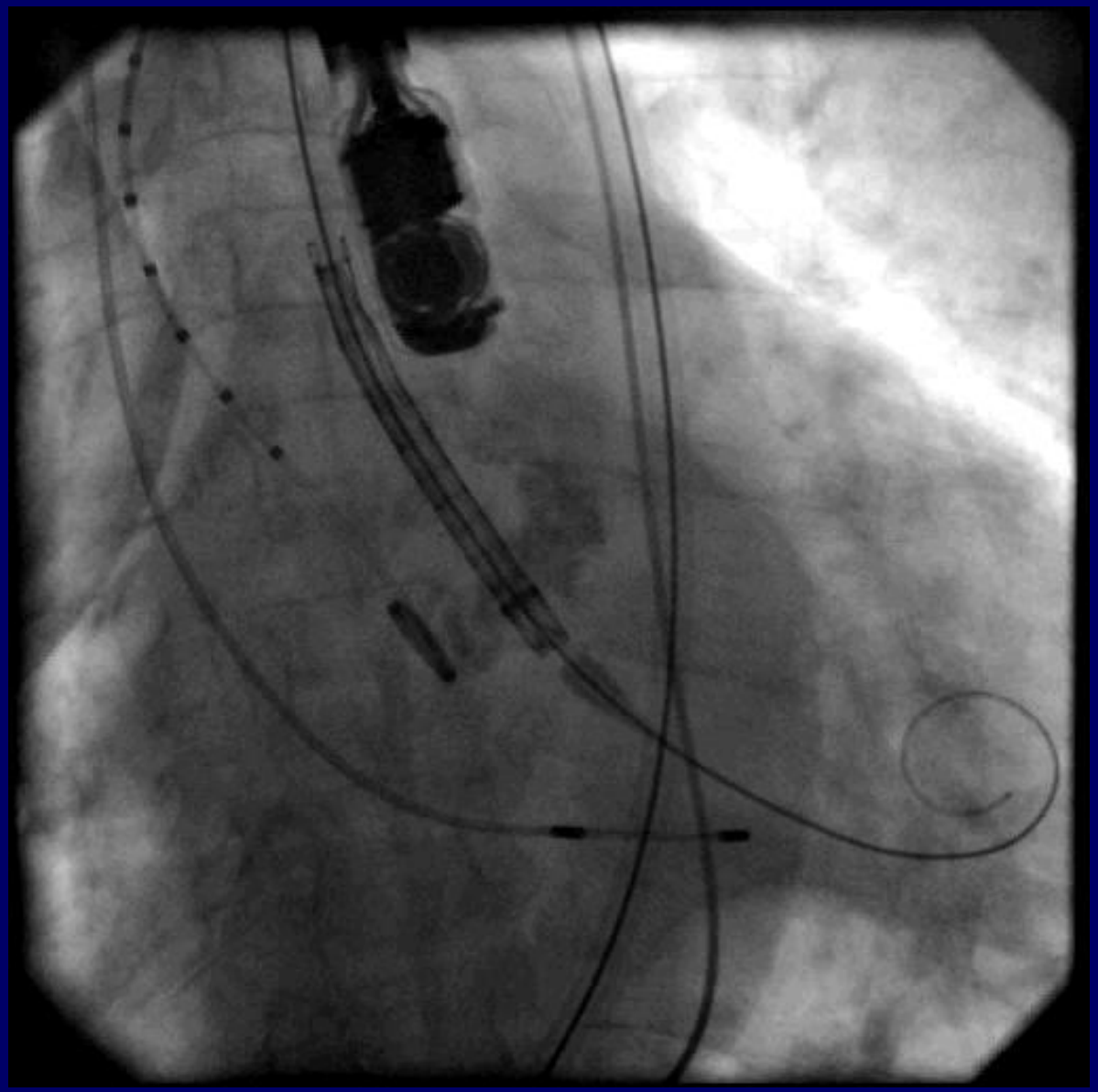
TAVI Program in QEH

- Extremely high-risk procedure
- Multi-disciplinary Heart Team formed in 2009:
  - Interventional Cardiologists
  - Echo Cardiologists
  - Cardiac Surgeons
  - Cardiac Anaesthesiologists
  - Radiologists
  - Cardiac Nurses

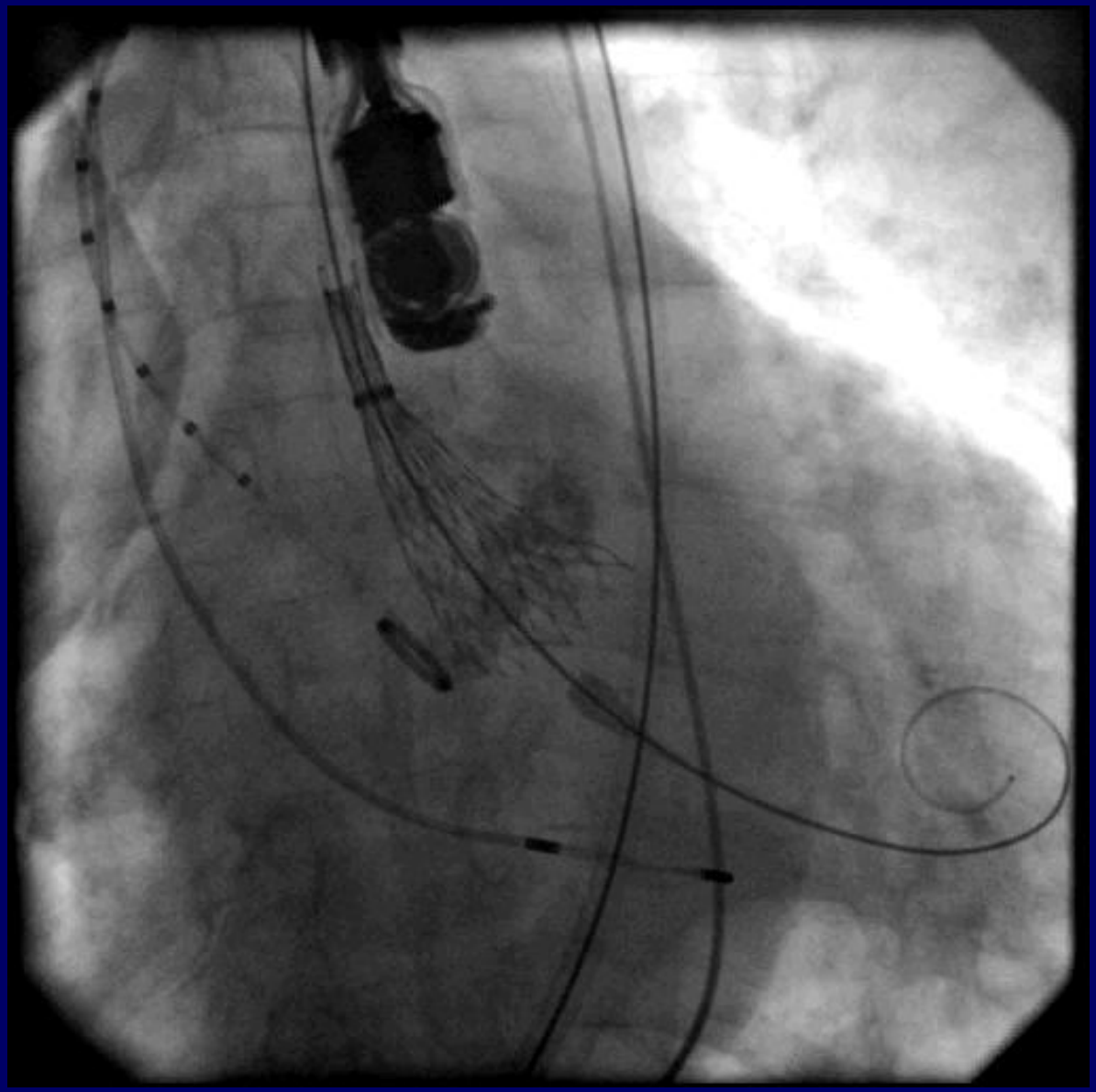
Queen Elizabeth Hospital Patient Flow



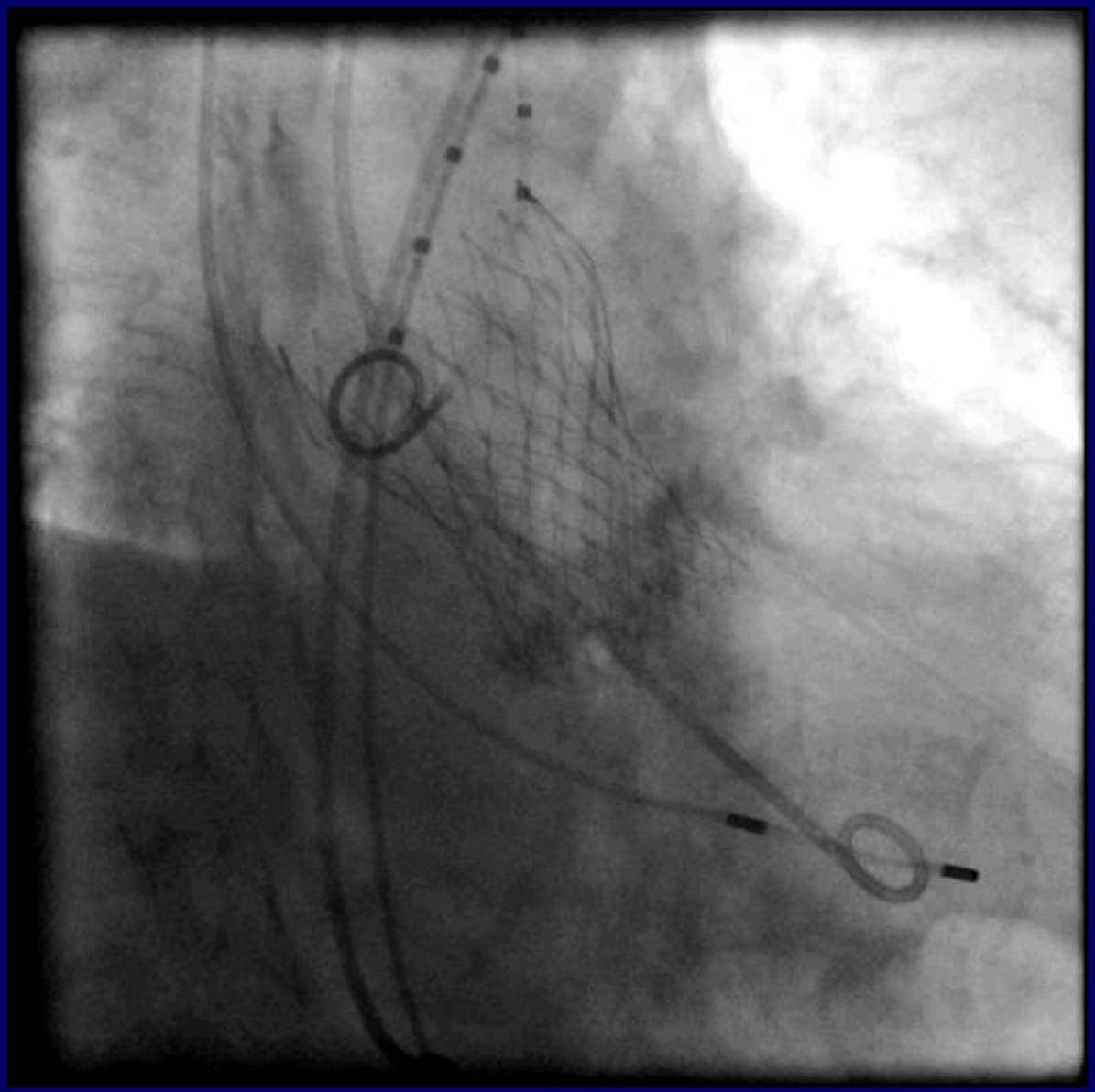
Vascular Access



31mm valve target at high implant



Stepwise deployment of 31mm CoreValve

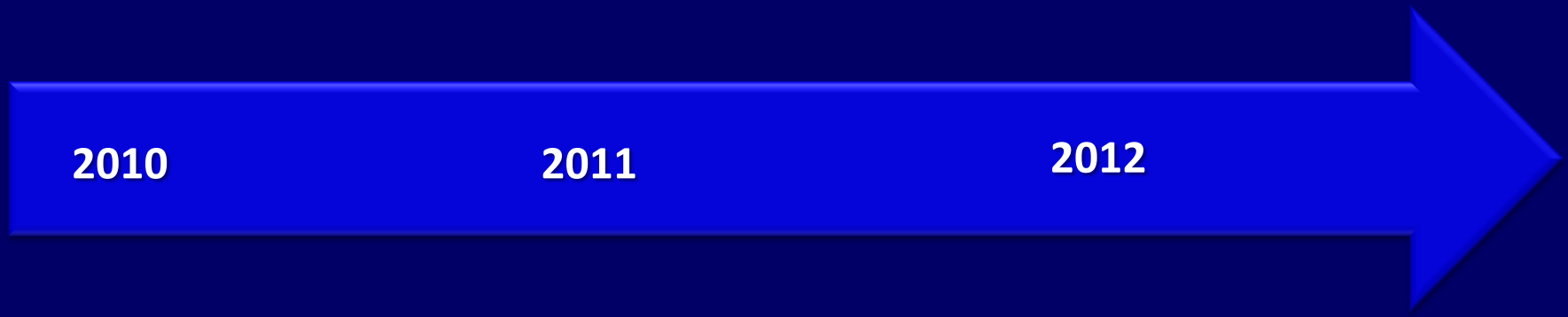


Final position of the CoreValve

Hong Kong Experience

Dec 2010
Queen Elizabeth Hospital

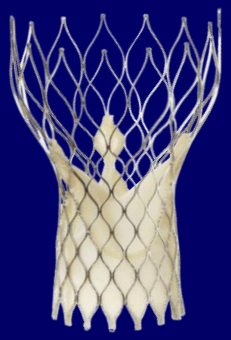
Nov 2011
Prince of Wales Hospital



May 2011
HK Adventist Hospital

Dec 2012
Queen Mary Hospital

Hong Kong Experience



Medtronic CoreValve - 45

Edwards Sapien - 2

- 25 • Queen Elizabeth Hospital
- 5 • HK Adventist Hospital
- 15 • Prince of Wales Hospital
- 2 • Queen Mary Hospital

TOTAL: 47

QEH Registry

Characteristic (N = 25)	Number (%) or Mean ± SD
Age (yrs.)	82.1 ± 4.8 (78 – 98 years old)
Males	16 (64.0%)
Procedural Success	100%
In-hospital Mortality	0%
30-day Mortality	0%

- 1 subclavian vascular complication treated with stent graft
- No iliac/femoral vascular complication
- All femoral wounds closed with Prostar/Proglide x 2
- One patient had PCI to LAD done before TAVI, returned for NSTEMI and with redo-PCI done, died 3 months after TAVI because of acute coronary stent thrombosis
- All 25 patients have functionally normal CoreValve with trivial to mild AR, only 1 mild to mod AR

Procedure

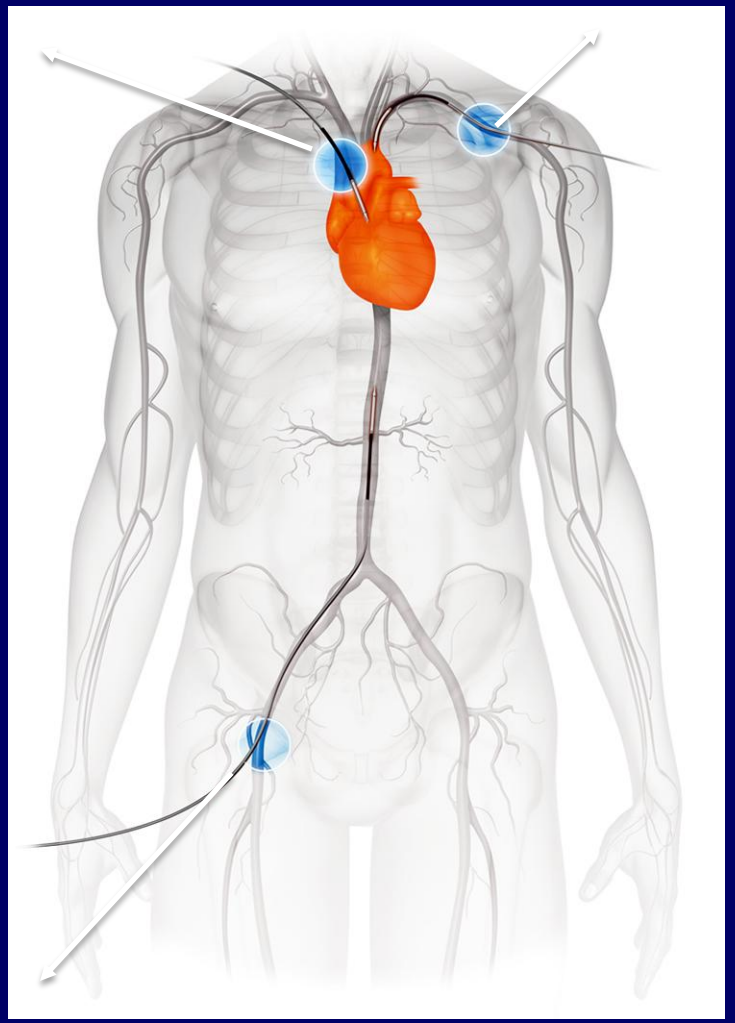
Subclavian
4.0%

Direct Aortic
0%

26mm
56.0%

31mm
4.0%

29mm
40.0%



Transfemoral
96.0%

Procedure & Hemodynamics

Comparison of QEH Registry – Asia Registry – ADVANCE

Variables	QEH Registry N = 25	Asia Registry N=140	ADVANCE N=996
Procedural success	100%	98.6%	97.8%
Serious vascular complications	4%	3.6%	NR
Hemodynamics			
≤ Mild PVL	96%	84.3%	87%
LVEF	59.8%	61 ± 10%	NR
AVA (cm^2)	2.0	1.7 ± 0.7	1.7
MPG (mmHg)	9.0	9 ± 6	9.3

NR= Not Reported

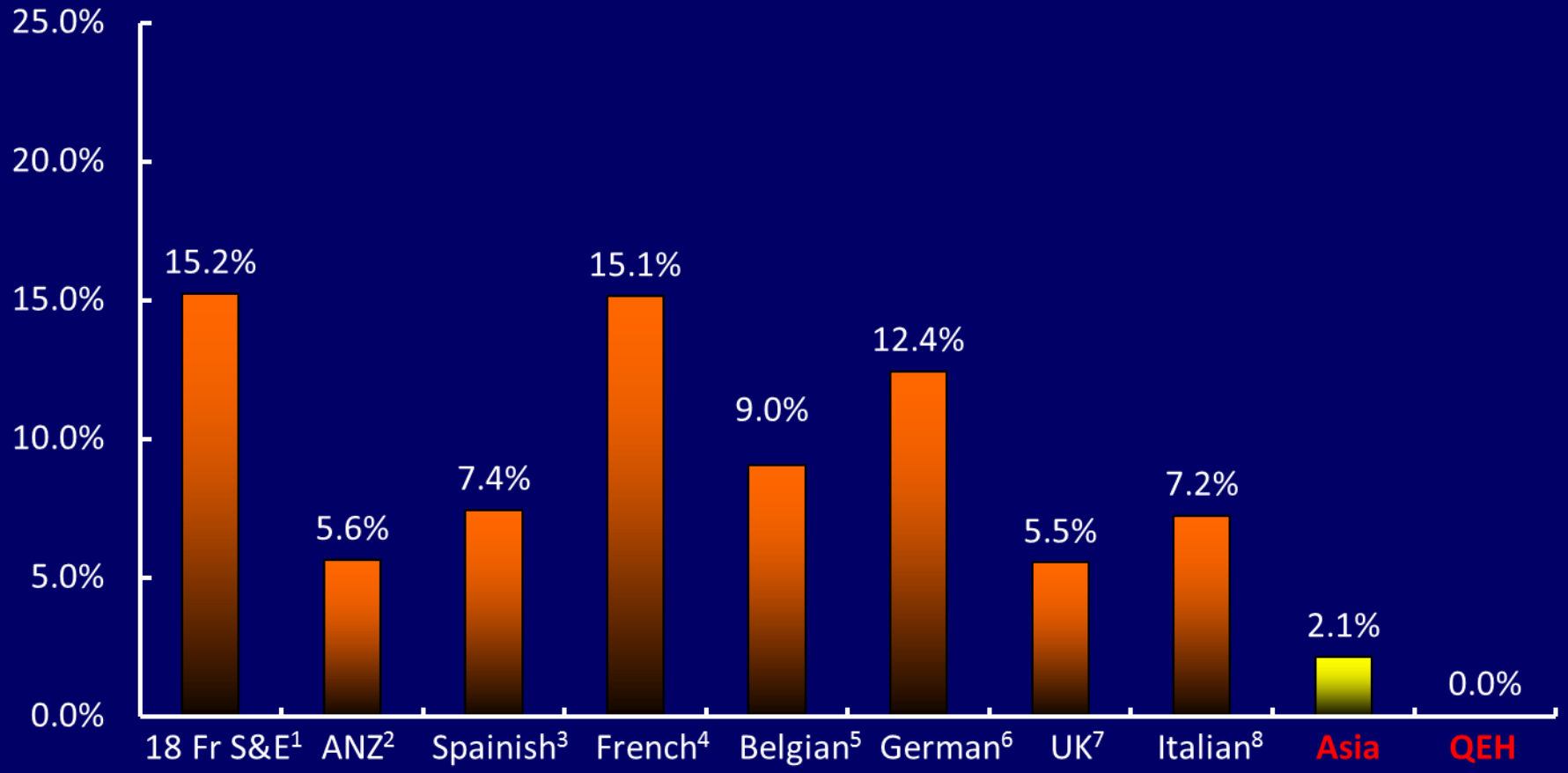
30-day Outcomes

Comparison of QEH Registry – Asia Registry – ADVANCE

Variables	QEH Registry N = 25	Asia Registry N=140	ADVANCE N=996
Mortality	0%	2.1%	4.5%
Stroke	0%	0.7%	2.9%
NYHA	1.4	1.5	NR
Pacemaker Implantation	16%	15.7%	26.3%

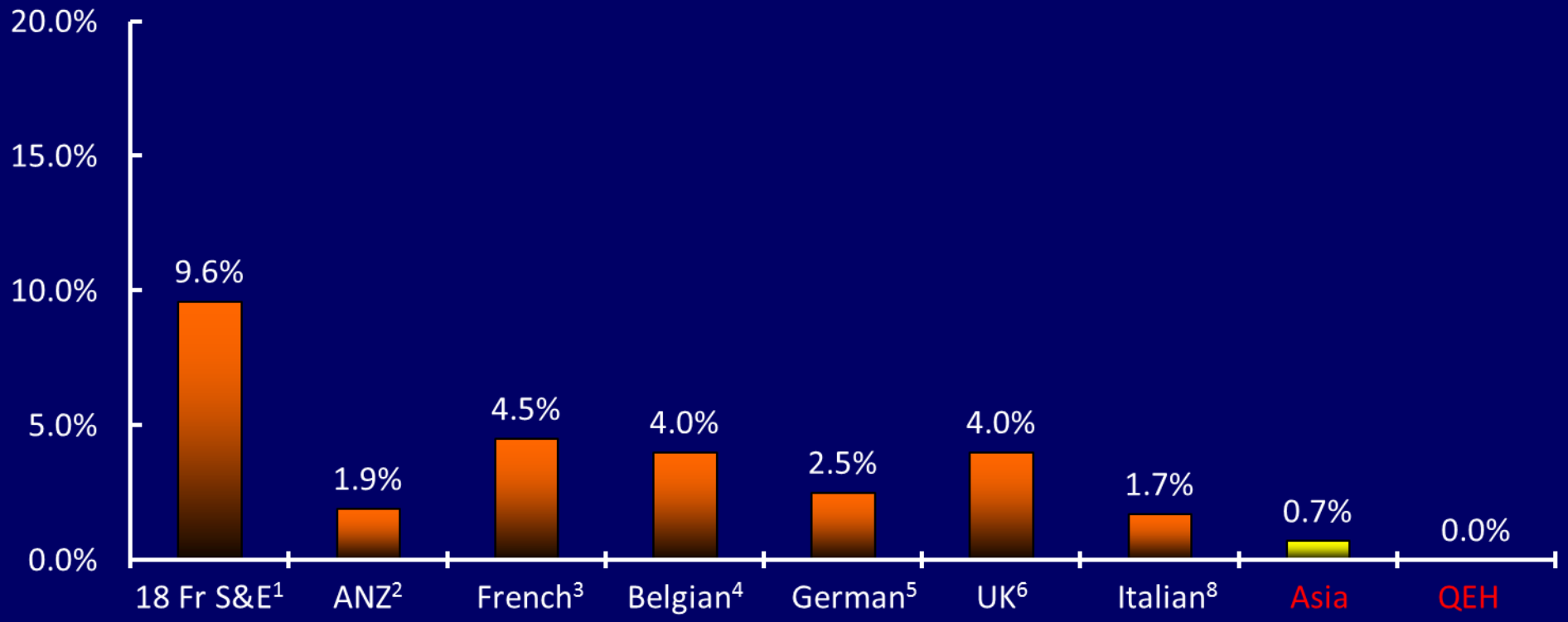
NR= Not Reported

30-Day All-Cause Mortality



1. Medtronic Data on File. COR 2006-02: 18 Fr Safety & Efficacy Study Re-Analysis, August 14, 2009.
2. Meredith. VARC-adjudicated Outcomes in Inoperable and High Risk AS Patients. TCT 2010, Washington, DC.
3. Avanzas P, Munoz-Garcia AJ, Segura J, et al. Percutaneous implantation of the CoreValve® self-expanding aortic valve prosthesis in patients with severe aortic stenosis: early experience in Spain. *Rev Esp Cardiol*. 2010;63:141-148.
4. Eltchaninoff. French Registry, TAVI Facts, Figures and National Registries. EuroPCR 2010, Paris, France.
5. Bosmans. Belgian Registry, TAVI Facts, Figures and National Registries. EuroPCR 2010, Paris, France.
6. Zahn. German Registry, TAVI Facts, Figures and National Registries. EuroPCR 2010, Paris, France.
7. Ludman. UK Registry, TAVI Facts, Figures and National Registries. EuroPCR 2010, Paris, France.
8. Petronio. Italian Registry, TAVI Facts, Figures and National Registries. EuroPCR 2010, Paris, France.

30-Day Stroke Rate



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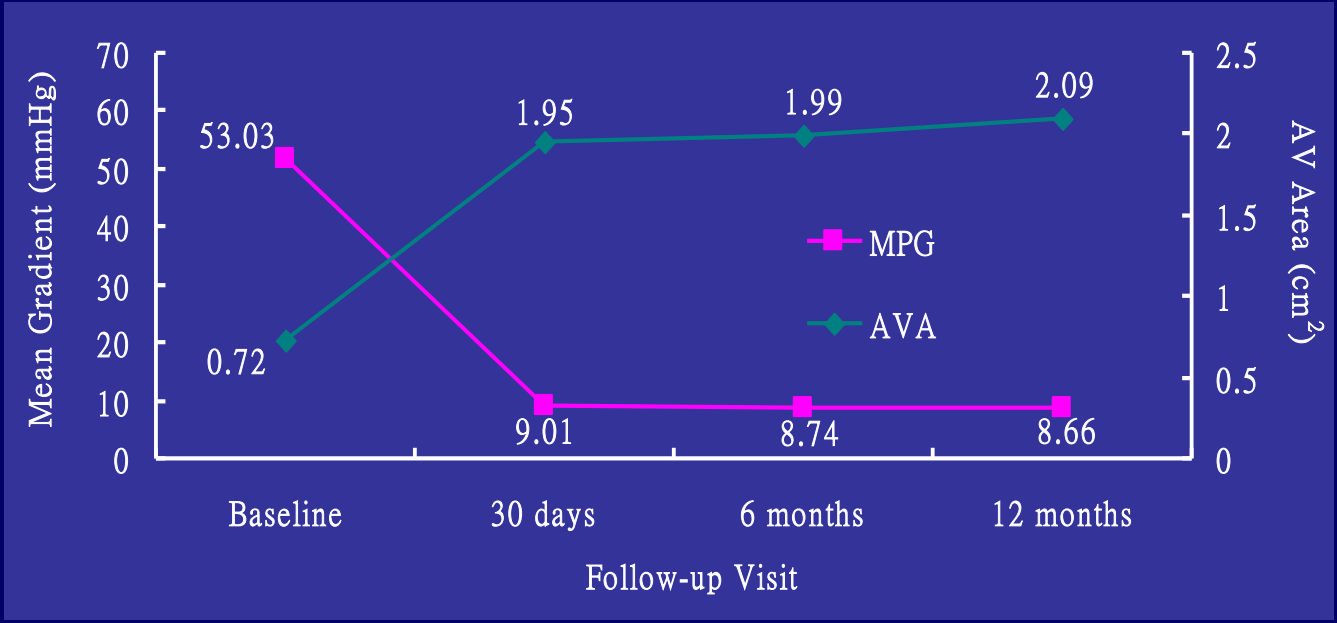
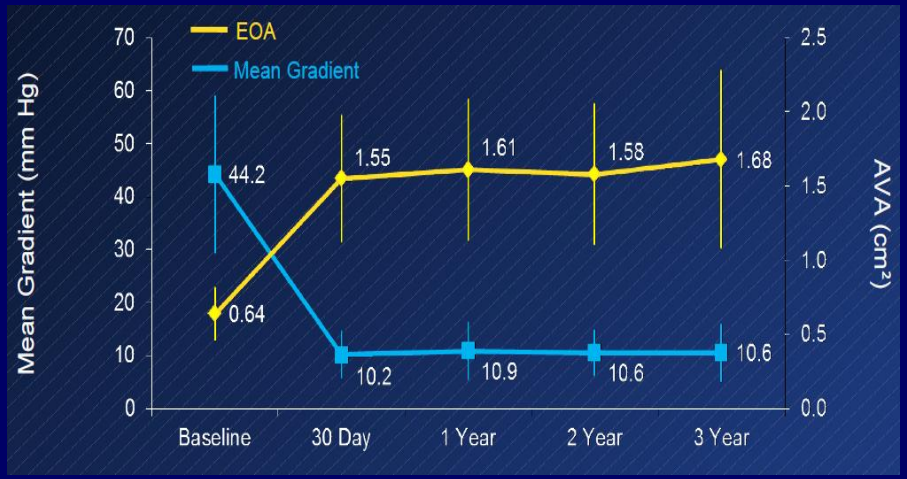
Mean Gradient & Valve Area

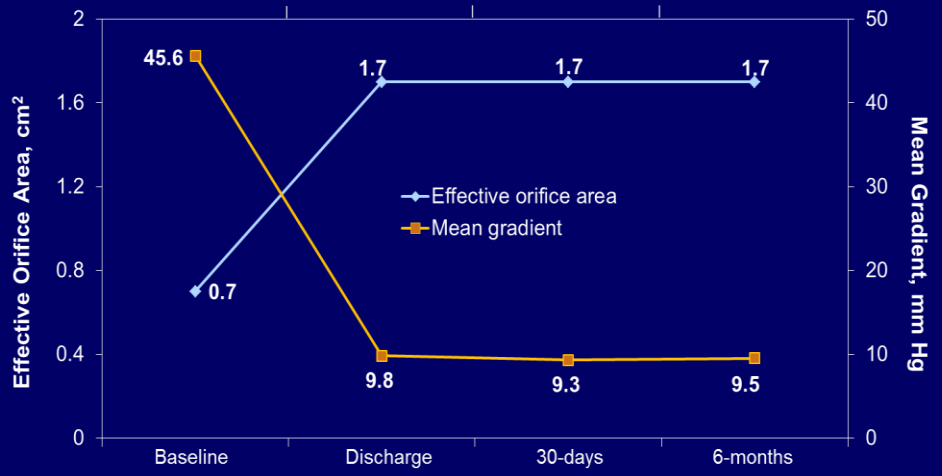
QEH Registry



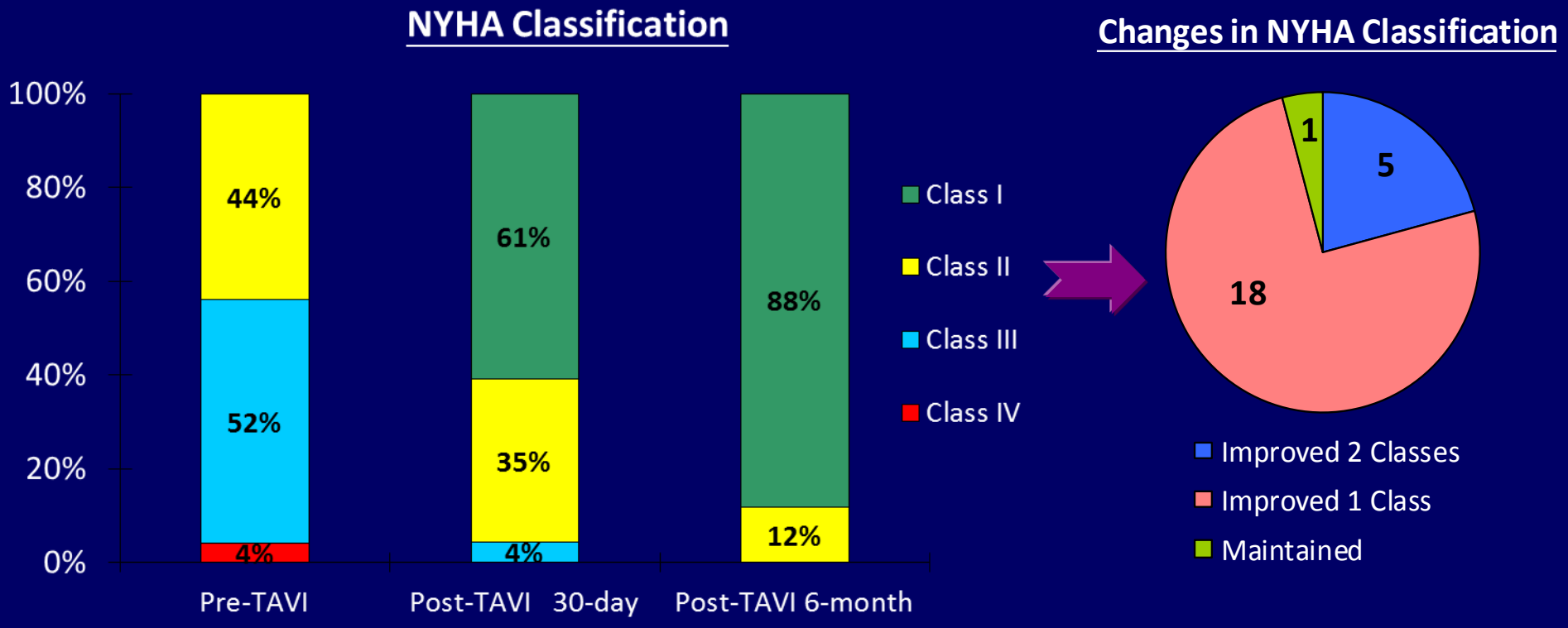
The PARTNER Trial



CoreValve ADVANCE Study



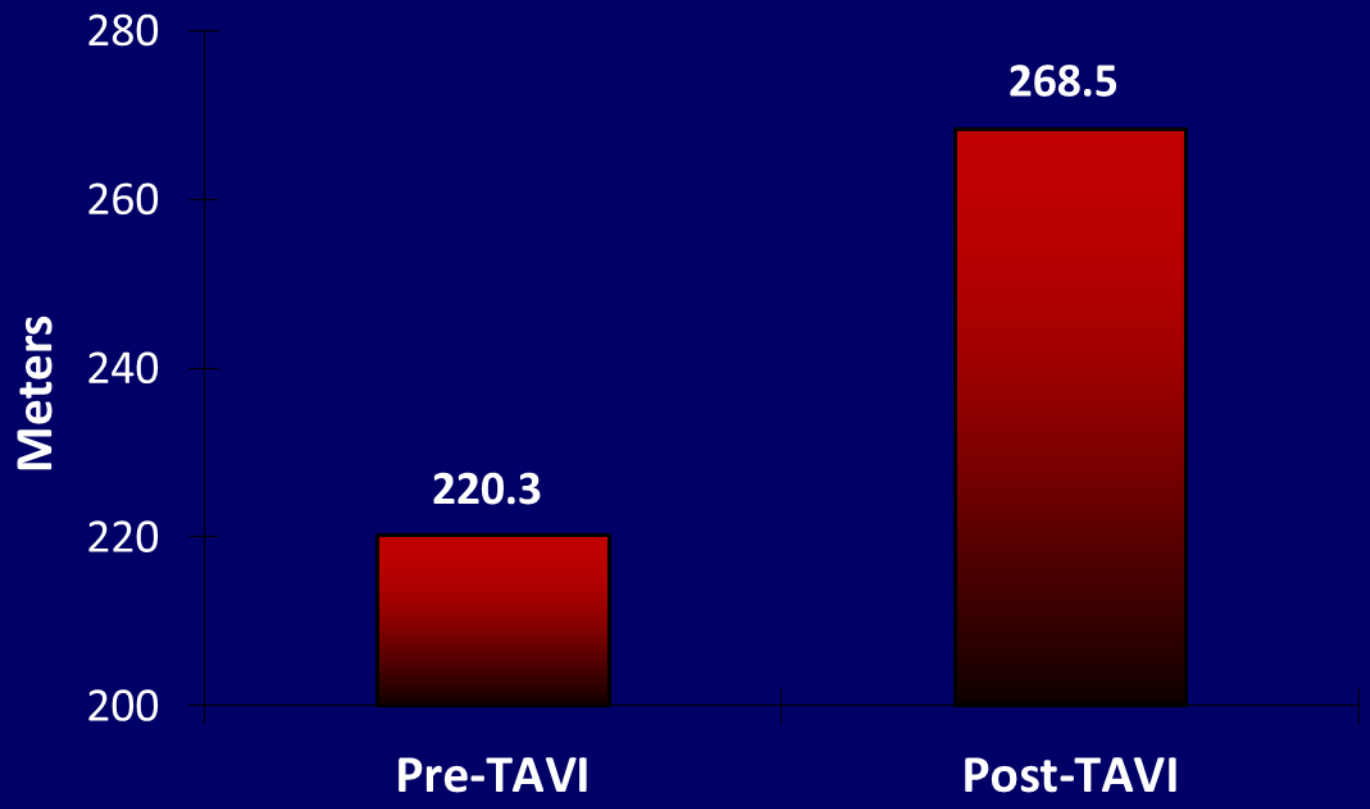
QEH | Symptom Status (NYHA Class)



* NYHA: New York Heart Association Functional Classification for Heart Failure Stages

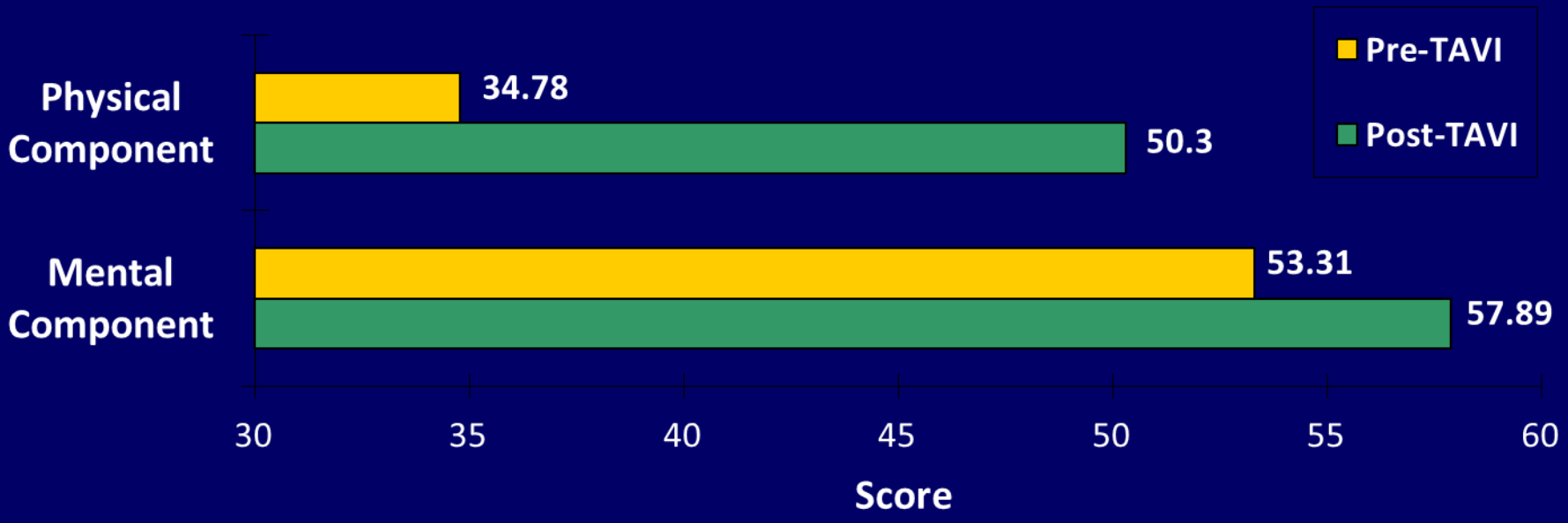
(Class I = Best, Class IV = Worst)

6-Minute Walk Test



Paired-sample t-test: $p<0.05$

Measurement for Quality of Life (SF-12)



Physical Component

Paired-sample t-test: $p<0.05$

Mental Component

Paired-sample t-test: $p<0.05$

Conclusions

- TAVI – rapid adoption worldwide as a viable treatment option for inoperable or high-risk symptomatic severe AS patients
- Improve survival with better quality of life (QoL) and functional capacity
- Multi-disciplinary Heart Team approach
- Promising short- and intermediate-term outcome results in Hong Kong
- Long-term outcomes meticulously monitored

Surgical AVR

The "Past"

TAVI

The "Future"


TAVI 2-YEARS CELEBRATION

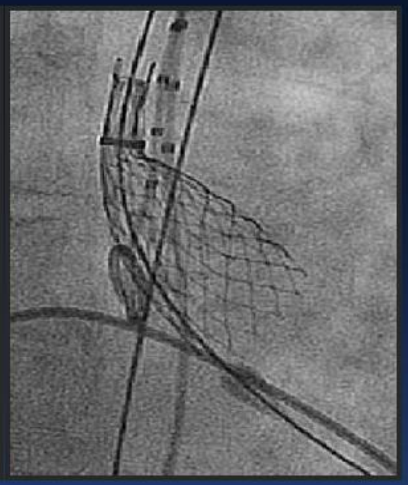

Thank you!

Step-wise Deployment

18Fr delivery

Repositionable prior to annular contact

Gradual release



Conformable at annulus with supra-annular function