

Cost-Effectiveness of Transcatheter vs. Surgical Aortic Valve Replacement in Intermediate Risk Patients

Results From The PARTNER 2A and Sapien 3 Intermediate Risk Trials

David J. Cohen, M.D., M.Sc.

On behalf of the PARTNER 2 Investigators

Saint-Luke's Mid America Heart Institute
University of Missouri-Kansas City
Kansas City, Missouri



Disclosure



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Background



- Previous studies have demonstrated that TAVR is cost-effective (but not cost saving) compared with medical therapy for patients with severe AS and extreme surgical risk and compared with SAVR for patients at high surgical risk
- Recently, based on the results of both the PARTNER 2A and SURTAVI trials, TAVR has been approved for intermediate risk patients as well
- Whether TAVR is cost-effective compared with SAVR for intermediate risk patients is currently unknown

P2A and S3i Study Designs

PARTNER 2A

S3i

Pts with severe AS and intermediate surgical risk (predicted mortality $\geq 4\%$)

Pts with severe AS and intermediate surgical risk (predicted mortality $\geq 4\%$)

Access Assessment

TF Access

Non-TF Access

Stratified Randomization

TAVR with Sapien XT valve
(N= 994)

SAVR
(N=944)

TAVR with SAPIEN 3 valve
(n=1077)

Economic Methods: Overview



Analytic Perspective

- US healthcare system (costs in 2016 US dollars)

General Approach

- In-trial (24 month) economic analysis based on observed data, followed by patient-level lifetime projections of survival, quality-adjusted life expectancy, and costs
- Cost data obtained by linkage of trial population with Medicare claims data to ensure complete capture of all medical costs

PARTNER 2A Randomized Trial

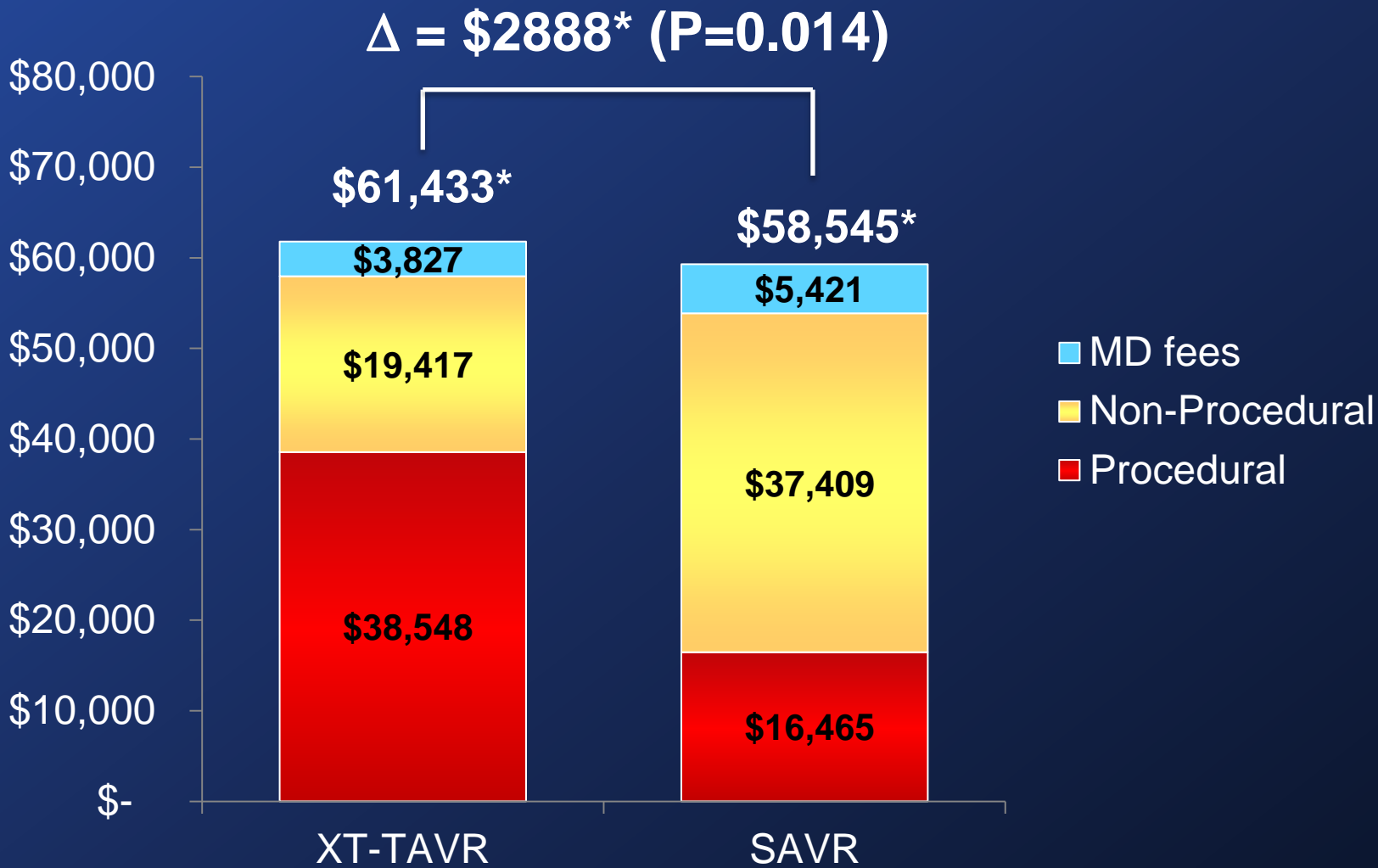
XT-TAVR vs. SAVR

Index Hospitalization: Resource Use

	<i>XT-TAVR</i> (<i>n</i> = 994)	<i>SAVR</i> (<i>n</i> = 944)	<i>P-Value</i>
Proc. duration, mins	102 ± 46 [94]	236 ± 83 [219]	<0.001
LOS, days	6.4 ± 5.5 [5]	10.9 ± 7.6 [8]	<0.001
ICU	2.4 ± 3.4 [1]	4.6 ± 6.1 [3]	<0.001
Non-ICU	4.0 ± 4.0 [3]	6.2 ± 4.7 [5]	<0.001
New PPM	7.2%	7.0%	NS

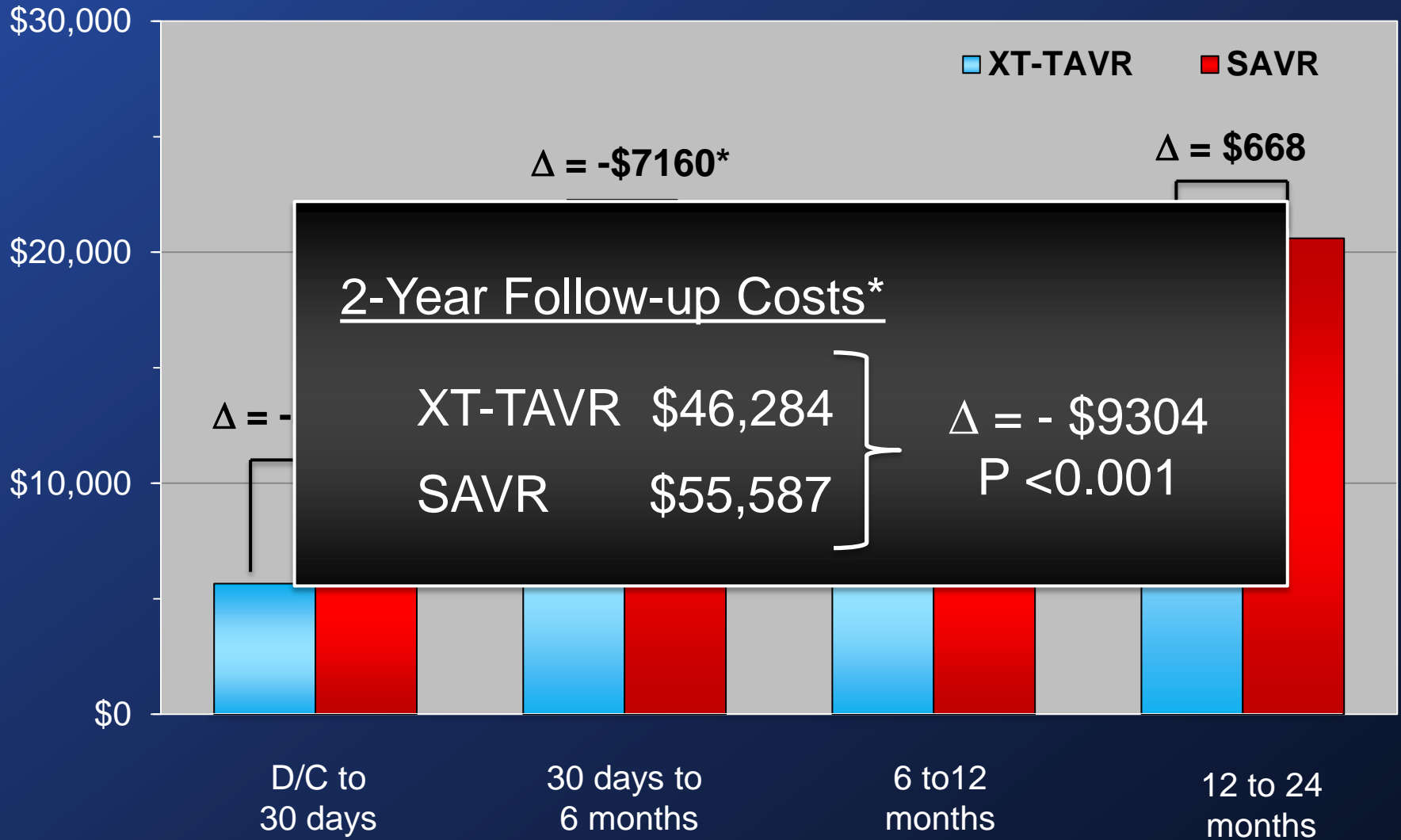
Values in brackets are medians

Index Hospital Costs



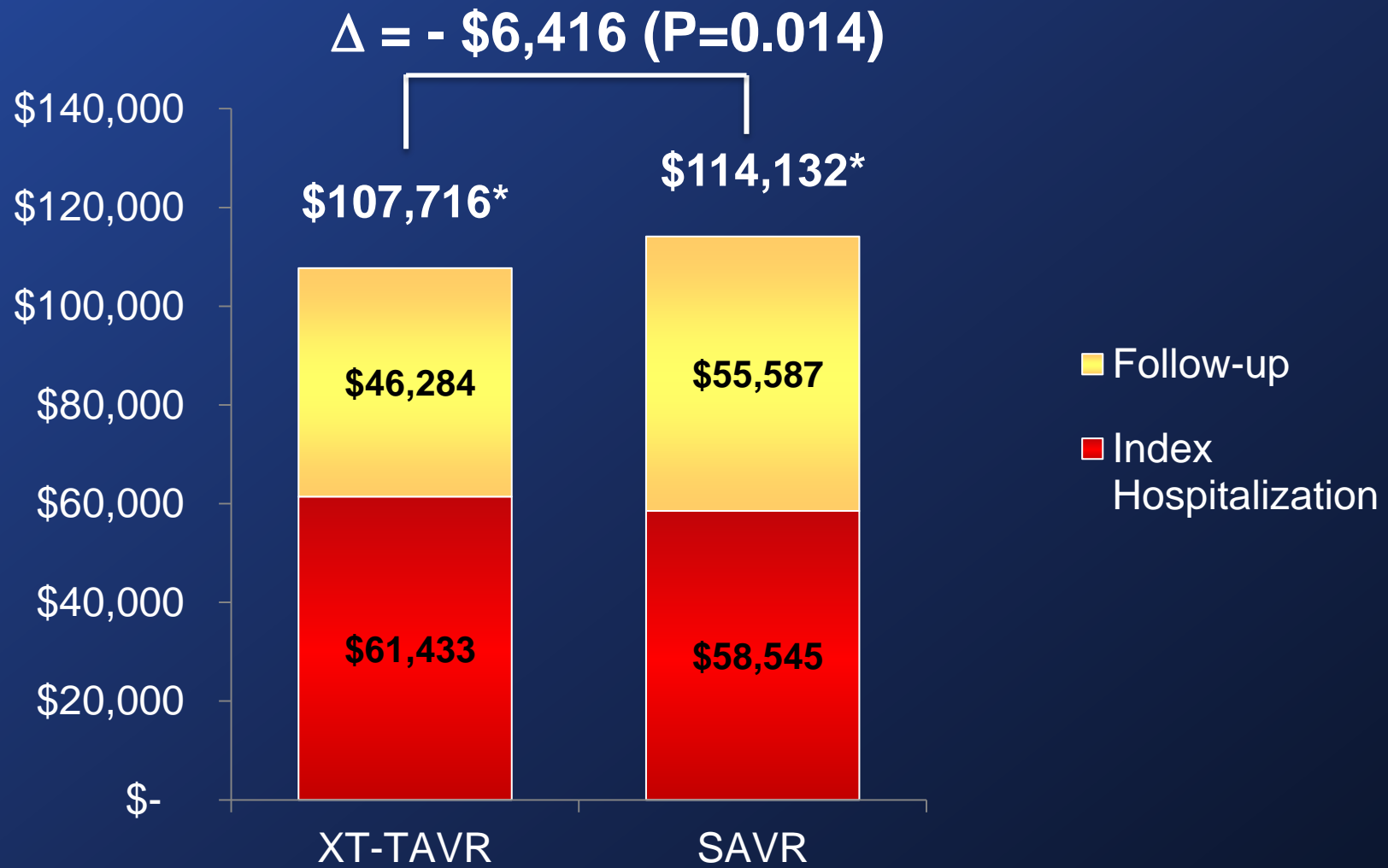
* Trimmed means

Follow-up Costs by Time Interval



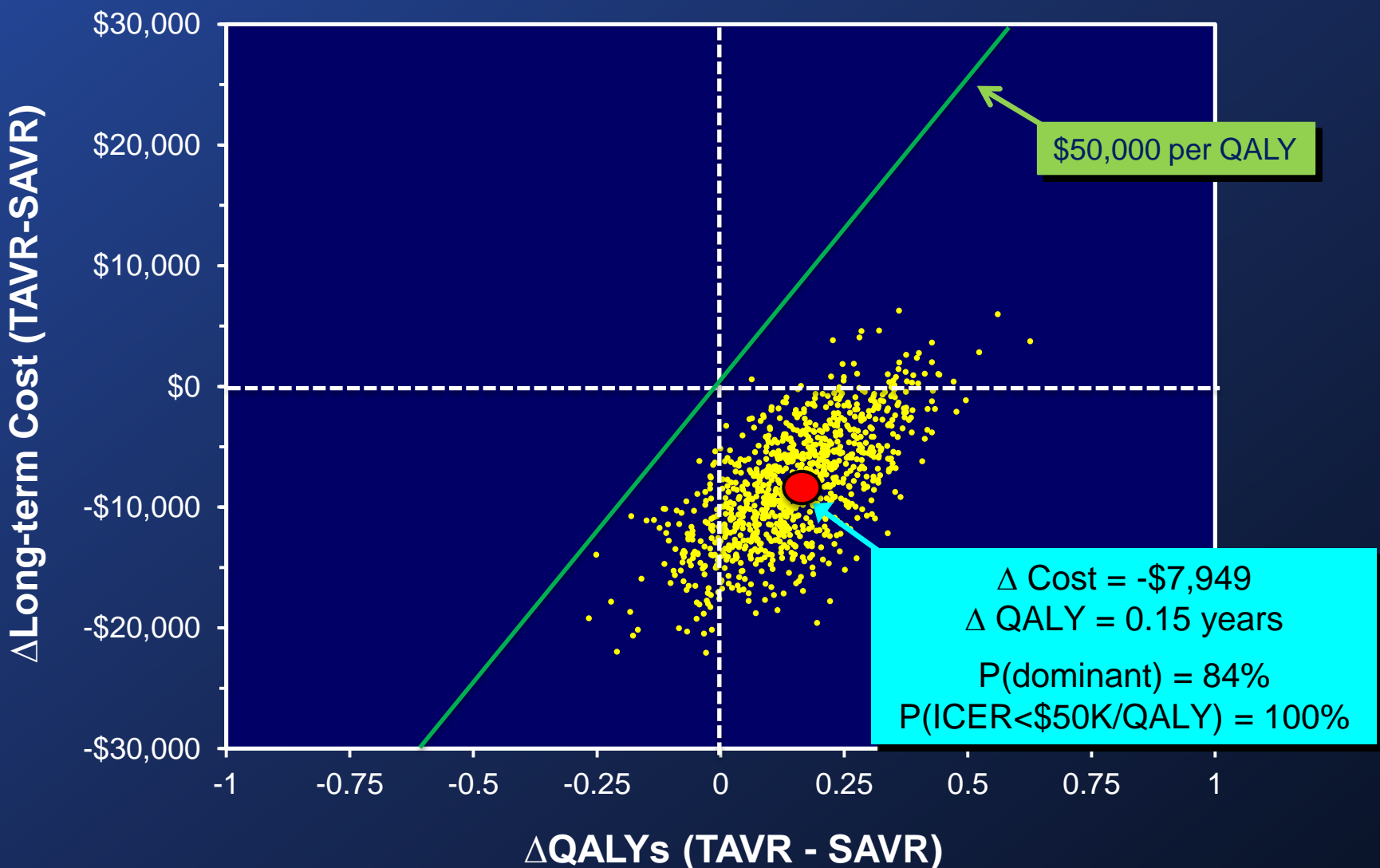
* P<0.05

Total 2 Year Costs



* Trimmed means

XT-TAVR vs. SAVR: Cost-Effectiveness

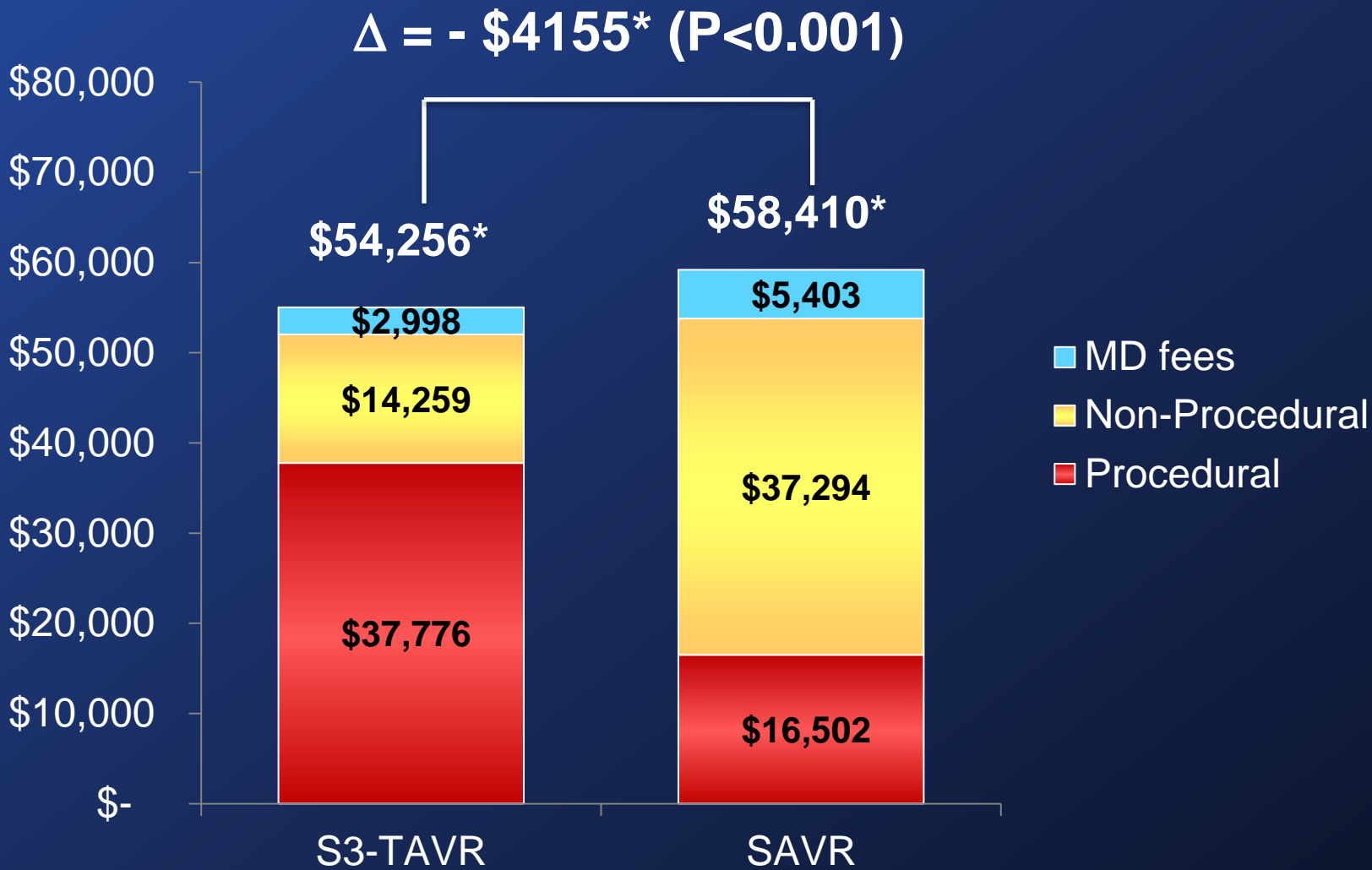


* Costs and benefits discounted at 3%

Sapien-3 Intermediate Risk Trial

S3-TAVR vs. SAVR

Index Hospital Costs



* Trimmed means
** All costs propensity-adjusted

F/U Resource Utilization and Costs

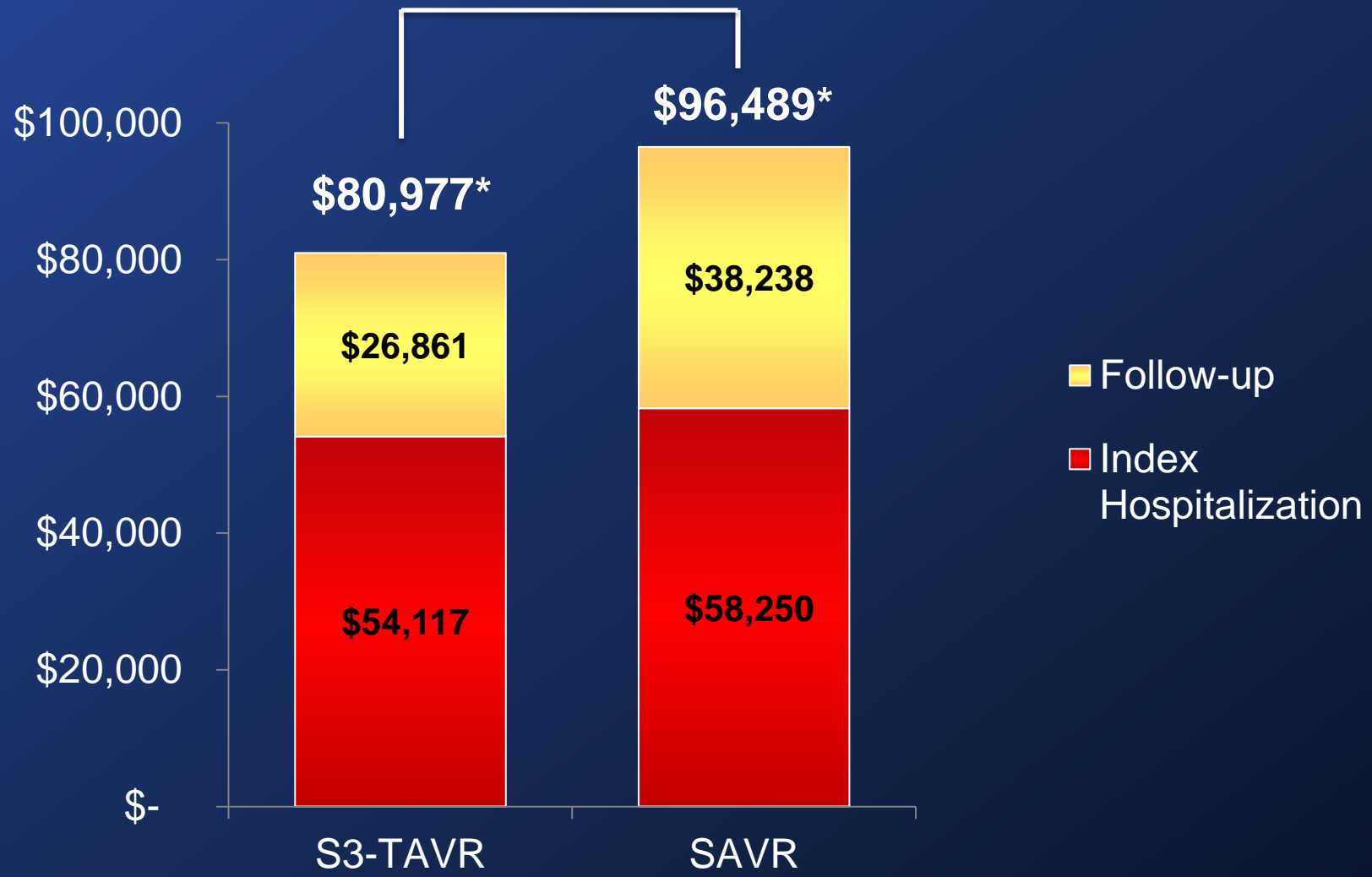
Count per 100 patients

	<i>S3-TAVR</i>	<i>SAVR</i>	<i>Difference</i>	<i>P-Value*</i>
CV Hosp.	22 ± 47	30 ± 55	↓ 27%	0.006
Non-CV Hosp.	47 ± 69	57 ± 75	↓ 18%	0.014
Hospital Days	380 ± 195	584 ± 241	↓ 35%	<0.001
Rehab Days	751 ± 274	1600 ± 400	↓ 53%	<0.001
F/U Cost	\$26,861	\$38,238	-\$11,377	<0.001

* Propensity-Adjusted

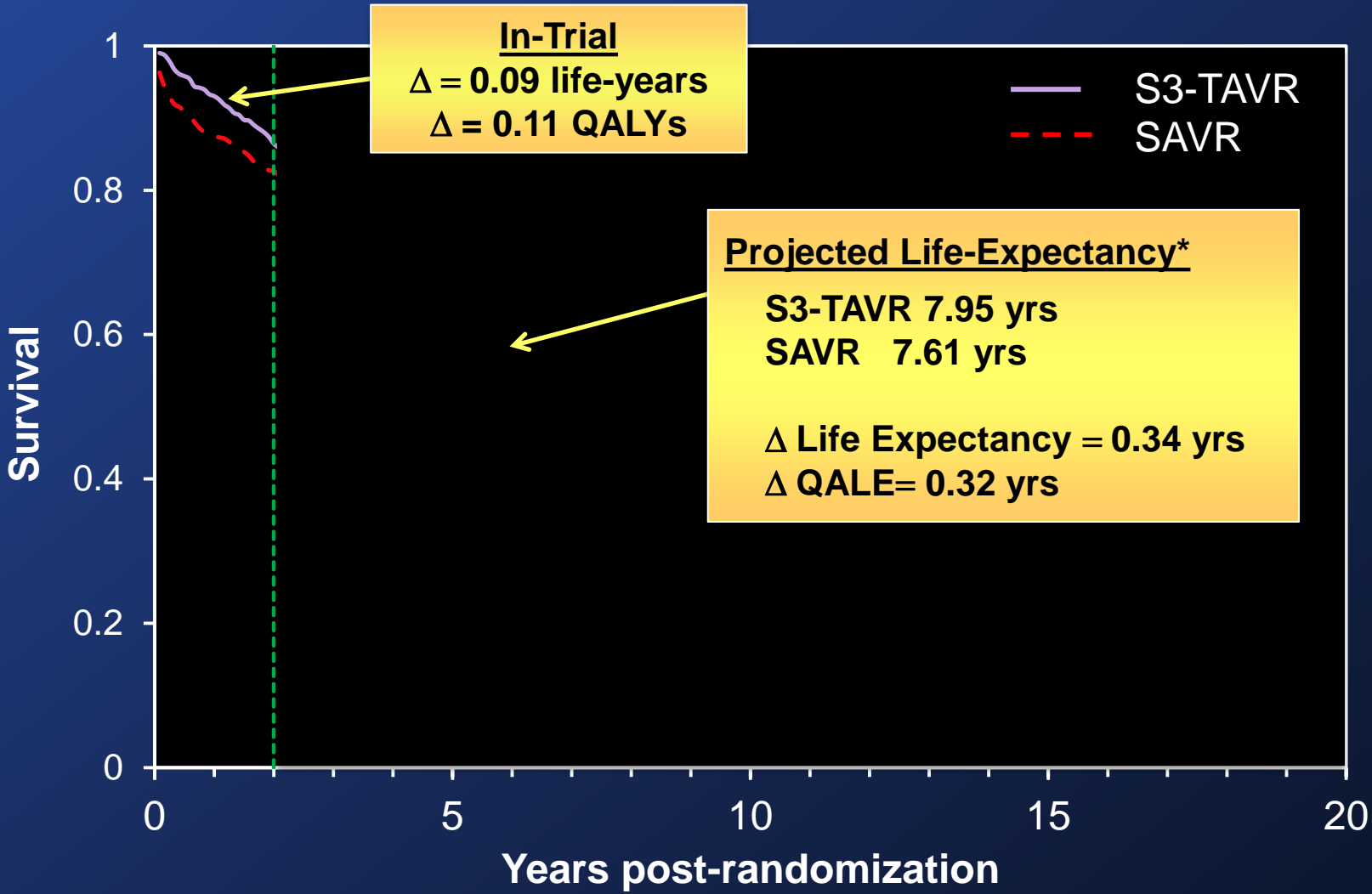
Total 1-Year Costs

$\Delta = - 15,511$ (p<0.001)



* Trimmed means

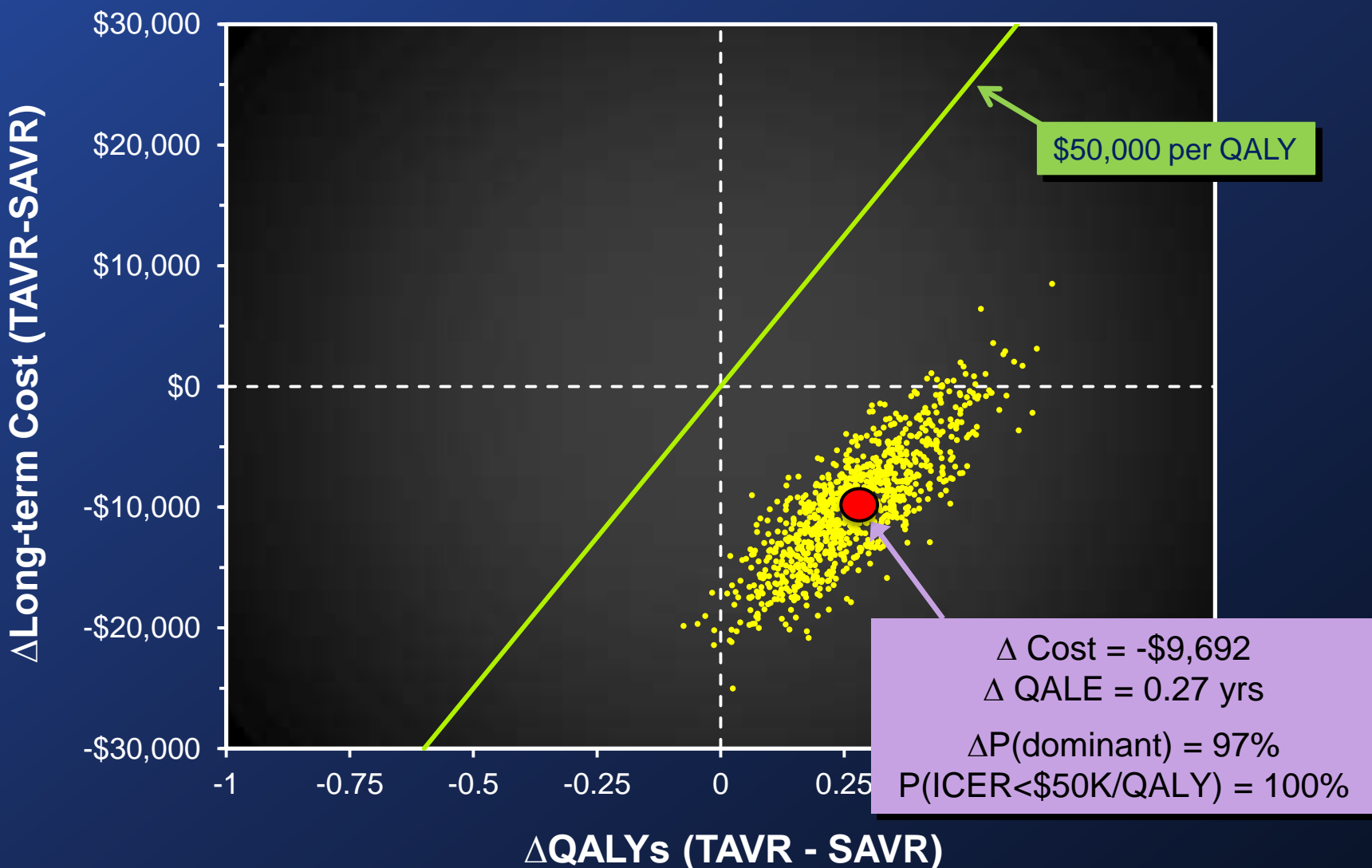
Projected Survival (Risk-Adjusted)



In contrast to the results of PARTNER 2A...

* Undiscounted

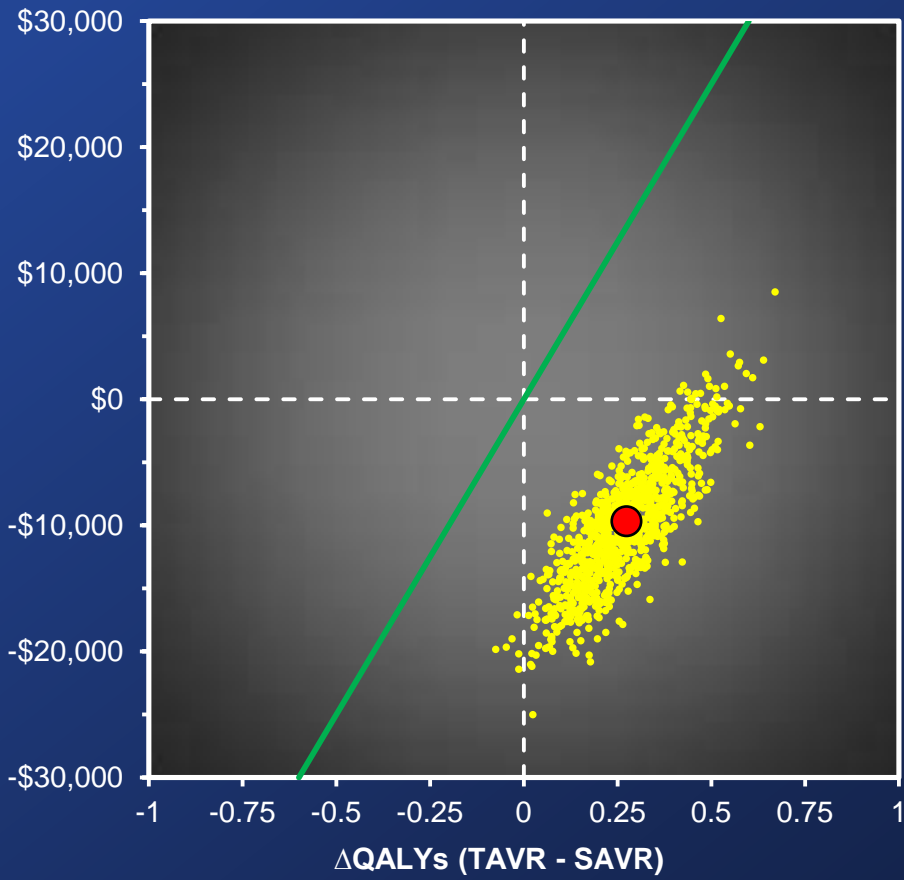
S3-TAVR vs. SAVR: Cost-Effectiveness



* Costs and benefits discounted at 3%

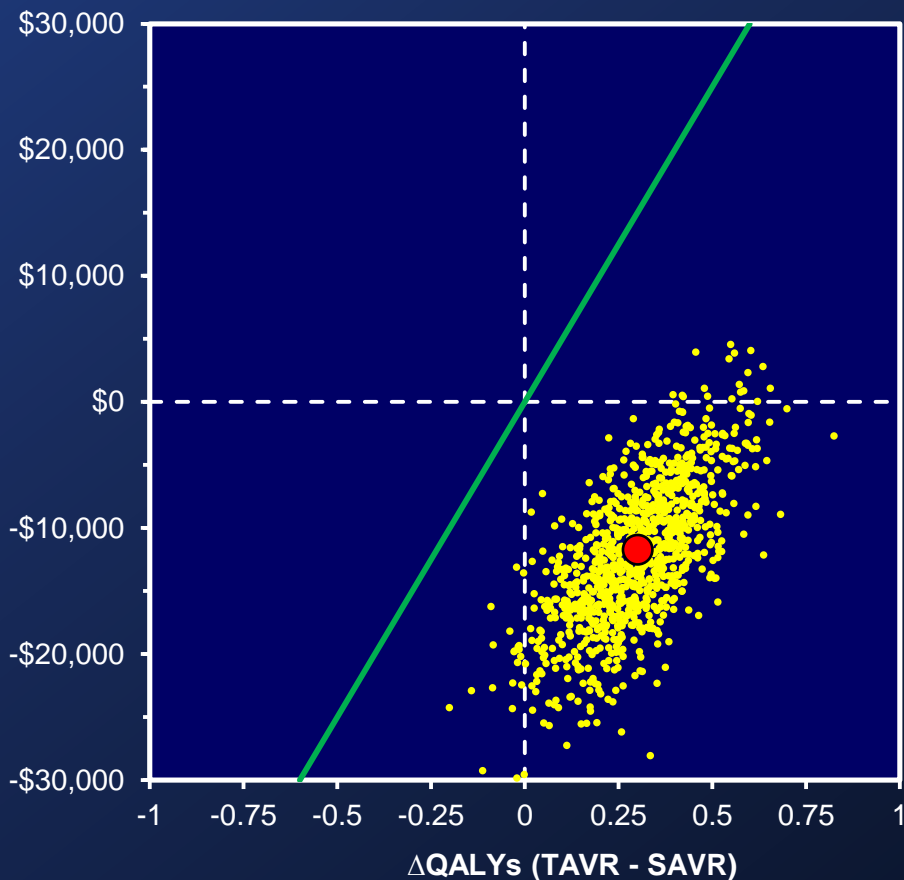
Are the S3 Results Real?

S3 (88% TF) vs. SAVR



Δ Cost = $-\$9,692$
 Δ QALY = 0.27 years

XT vs. SAVR (TF Subgroup)



Δ Cost = $-\$11,738$
 Δ QALY = 0.30 years

Summary/Conclusions



- For patients with severe AS and intermediate surgical risk similar to those enrolled in the PARTNER 2A and S3i trials, TAVR should be the preferred strategy based on both clinical and economic considerations
- Further studies are necessary to extrapolate these results to other countries, which have different care patterns and cost structures