

Cost-Effectiveness of PCI with DES vs. CABG for Patients with Left Main Disease: Insights from the SYNTAX Trial

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Disclosures



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Background



- Recently, the SYNTAX trial has demonstrated that CABG is both clinically superior and economically attractive compared with PCI for most patients with complex 3-vessel CAD.
- However for patients with left main disease, short and long-term results of PCI were generally comparable to those for CABG
- Little is known about the cost-effectiveness of PCI vs. CABG for left main disease- particularly regarding interactions between treatment selection and clinical and angiographic factors

Study Objectives



- To compare, from a US perspective, the cumulative 5-year cost of PCI with drug-eluting TAXUS stents (DES-PCI) versus that of CABG surgery for treatment of patients with left main CAD
- To evaluate the lifetime cost-effectiveness of DES-PCI compared with CABG, measured as cost per quality-adjusted year of life (QALY) gained
- To explore the cost-effectiveness of DES-PCI vs. CABG in clinically relevant patient subsets, as defined by the clinical outcomes in the SYNTAX trial

Economic Study Analysis Plan



Primary Endpoint

- Incremental cost–effectiveness ratio expressed as cost per quality–adjusted life year (QALY) gained

General Approach – 2 Stages

- In–trial analysis based on observed survival, health state utility (EQ–5D), and costs derived from reported health care resource use during the trial period
- Lifetime analysis based on projections of survival, quality–adjusted survival and costs beyond the trial period

Index Procedure Resource Use



	CABG (n=342)	PES (n=352)
PCI procedures		
1		92.3%
2		6.3%
Procedure duration (mins)	201 ± 69	92 ± 50
Contrast volume (ml)	NA	354 ± 192
Drug cost	NA	3.6 ± 2.2
Balloons	NA	3.8 ± 2.9
Guidewires	NA	3.3 ± 2.2
Total Procedure Cost	\$9,524 ± \$2495	\$10,169 ± \$7,640

3 vessel dz

- 5.1 stents/pt
- Procedural cost = \$15,100

* Per protocol population (includes planned staged procedures)

Initial Hospitalization Costs



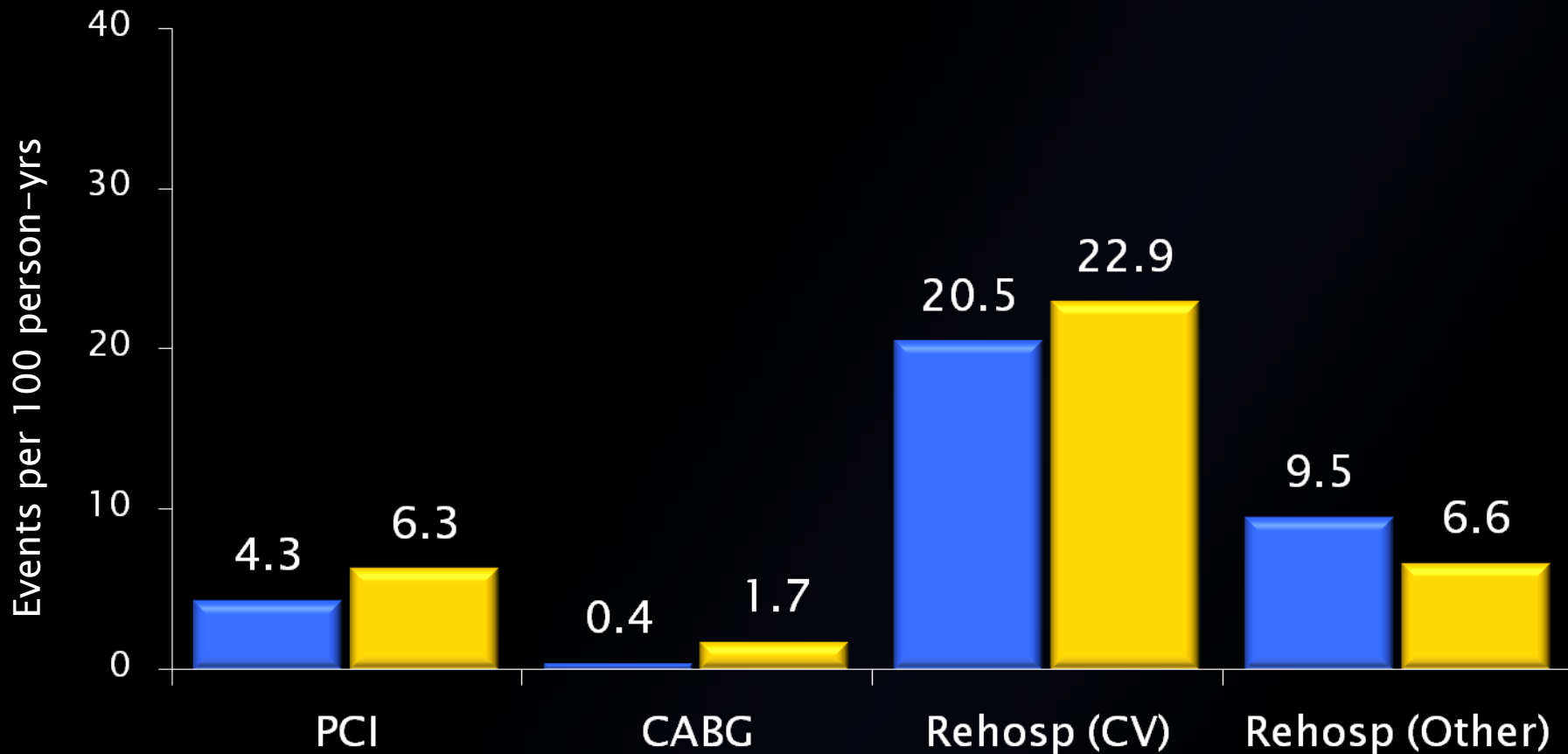
Follow-up Resource Utilization

Number of Events (per 100 person years)



CABG

PES

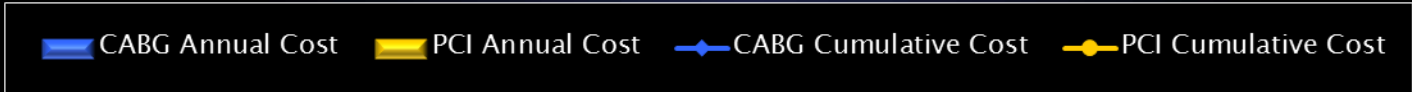
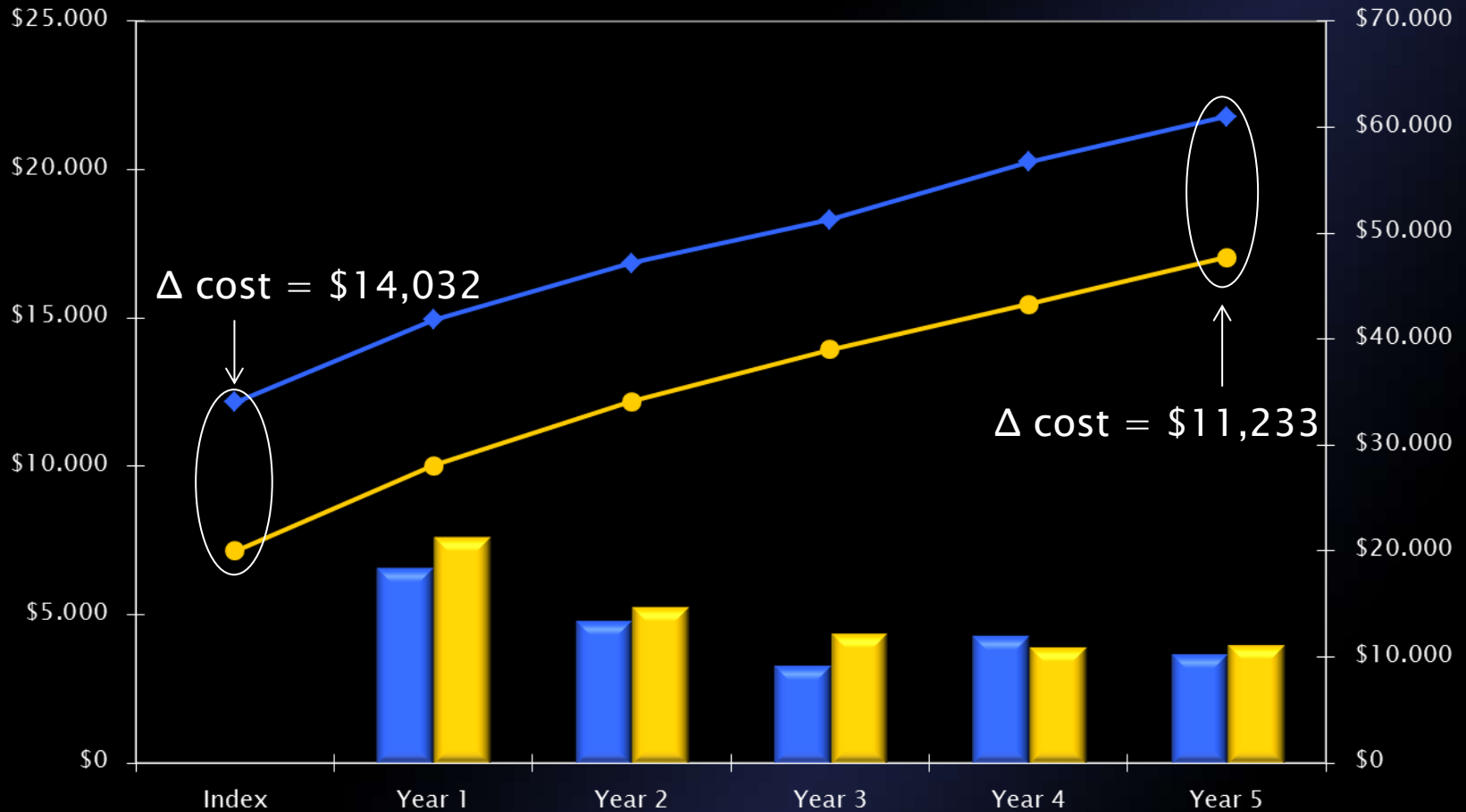


Annual and Cumulative Costs



Annual

Cumulative



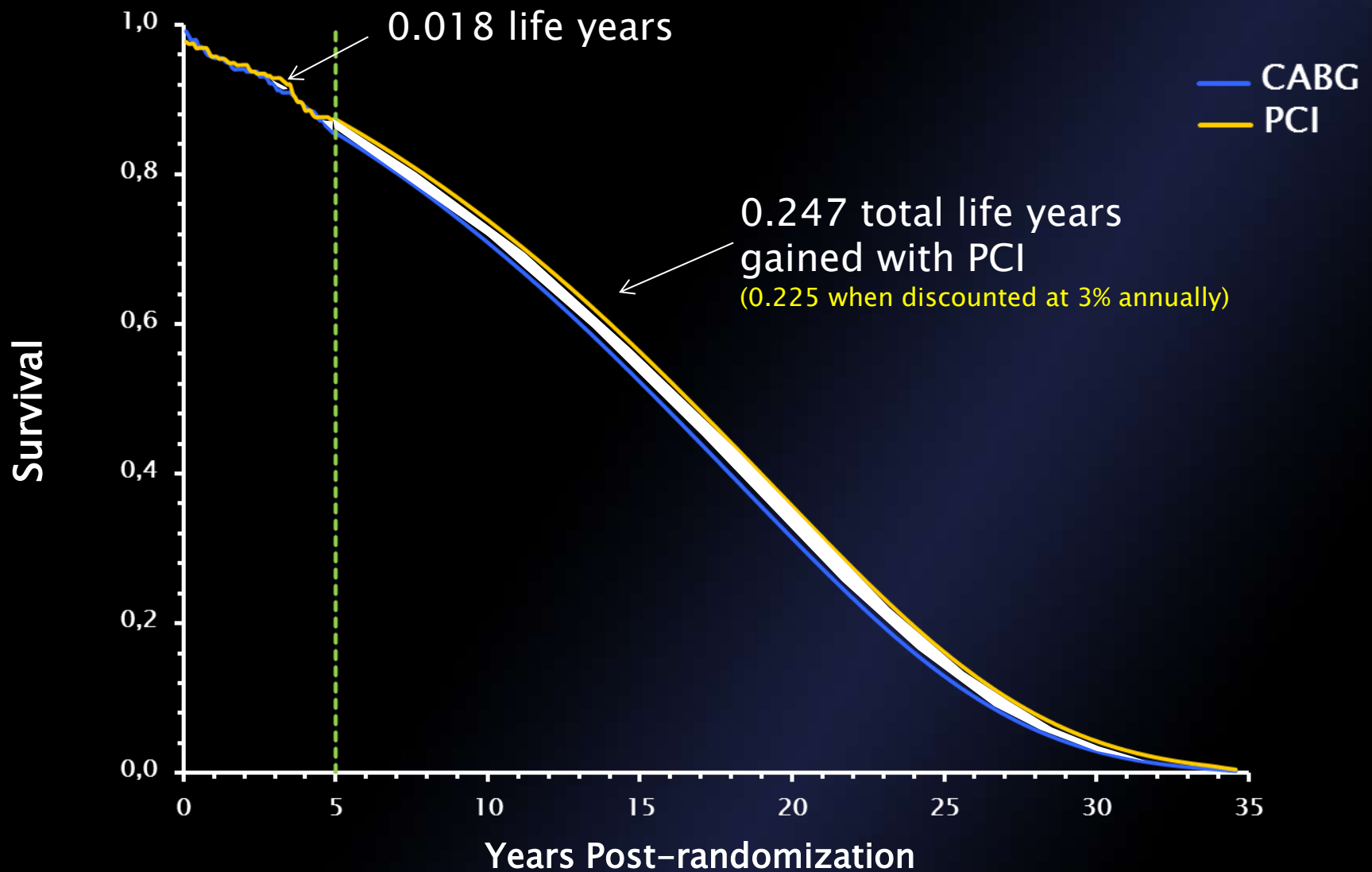
Difference in Quality Adjusted Survival over Time



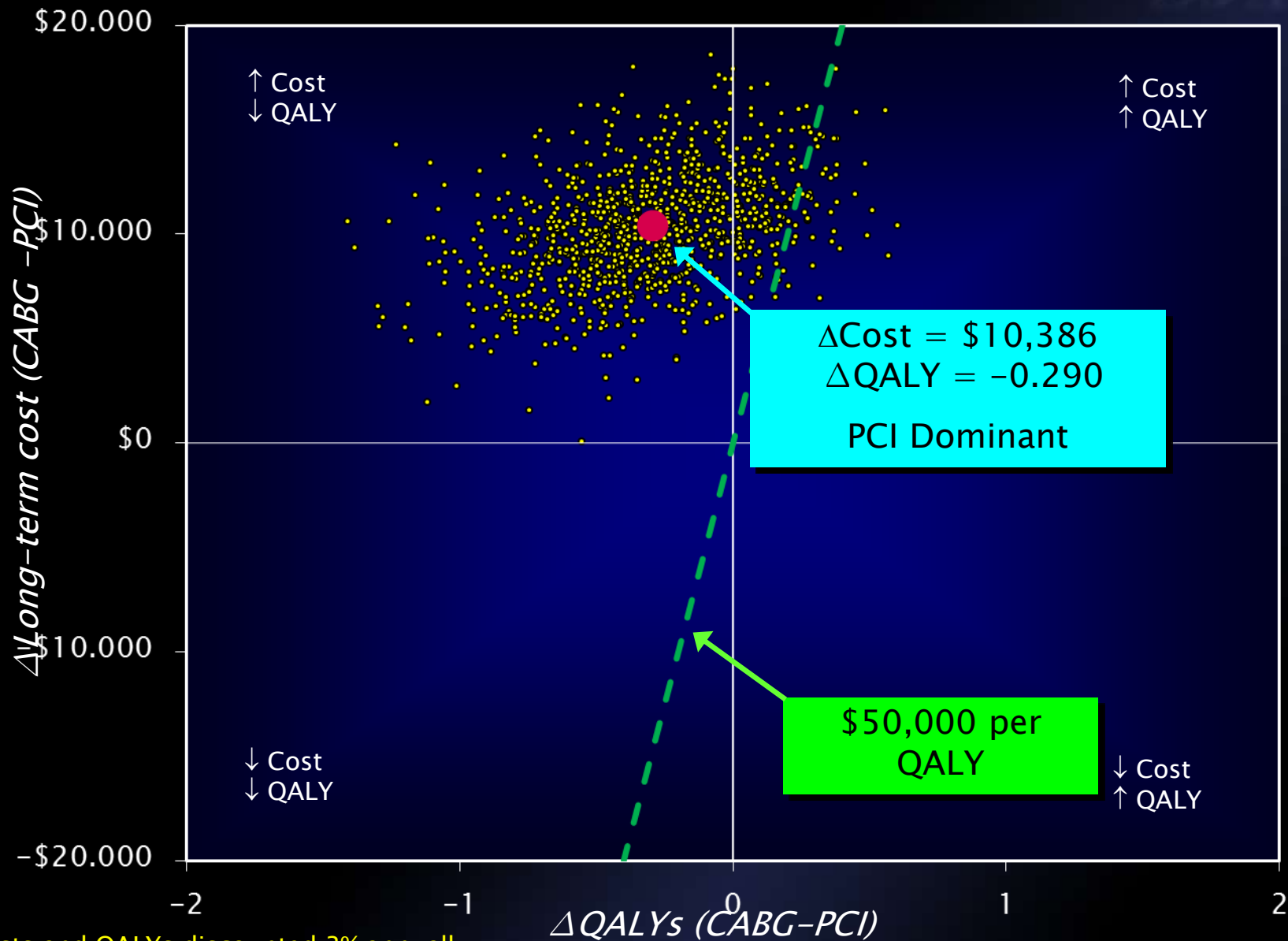
Time Since Randomization (Years)	Δ Life Years (CABG-PCI)	Δ QALYs (CABG-PCI)
1	+0.003	-0.040
2	-0.001	-0.057
3	-0.005	-0.067
4	-0.012	-0.080
5	-0.018	-0.101

* Negative values reflect better outcomes with PCI

In-Trial and Projected Survival



Lifetime Cost-Effectiveness Results

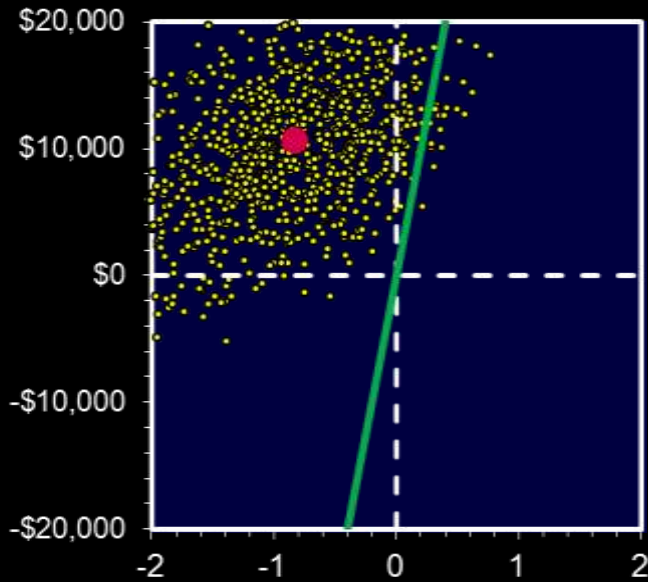


Costs and QALYs discounted 3% annually

Cost-Effectiveness of CABG vs PCI in LM Dz

SYNTAX Score Tertiles

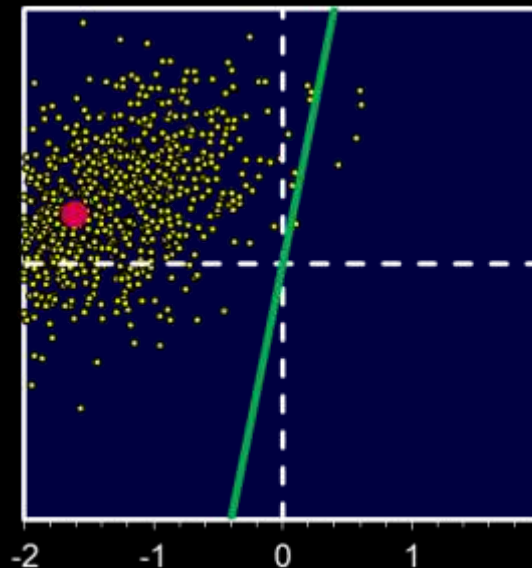
Low (<23)



Δ Costs	\$10,631
Δ QALYs	-0.825
PCI Dominant	

Pr < \$50K/QALY = 2.7%

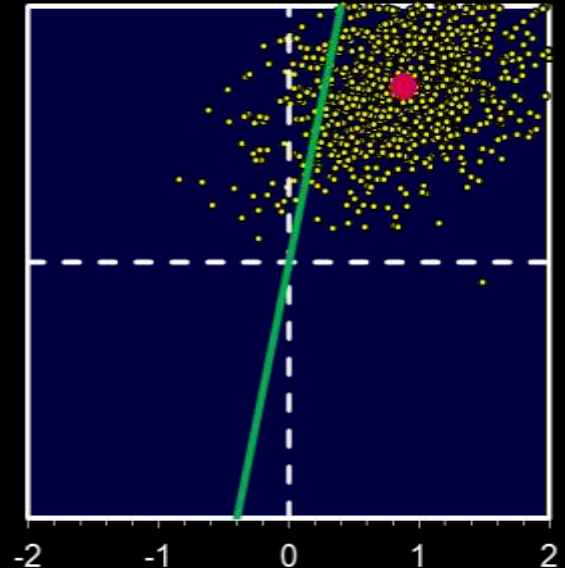
Mid (23-32)



Δ Costs	\$3,875
Δ QALYs	-1.609
PCI Dominant	

Pr < \$50K/QALY = 0.5%

High (>32)



Δ Costs	\$13,749
Δ QALYs	0.885
ICER	

Pr < \$50K/QALY = 89.8%

Conclusions



- For the majority of patients with left main CAD, DES-PCI provides better long-term clinical outcomes than CABG at a lower cost
- On the other hand, for patients with complex left main CAD, CABG provides better long-term health outcomes at cost that represents an attractive use of societal health care resources
- These findings should be viewed as hypothesis generating- will need to be confirmed in the EXCEL trial, which will evaluate the clinical, quality of life, and economic outcomes of 2nd generation DES vs. CABG in a larger and more homogeneous population of patients with LM disease