

**Differential Treatment Effects of PCI vs
CABG in Diabetic & Non-diabetic Patients**
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Presenter Disclosure Information

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“Differential Treatment Effects of PCI vs CABG in Diabetic & Non-diabetic Patients”

The following relationships exist related to this presentation:

None



30-Year Trends in In-Hospital and Long-Term Outcome of PCI in Patients with Diabetes Mellitus

A Single Institution Experience

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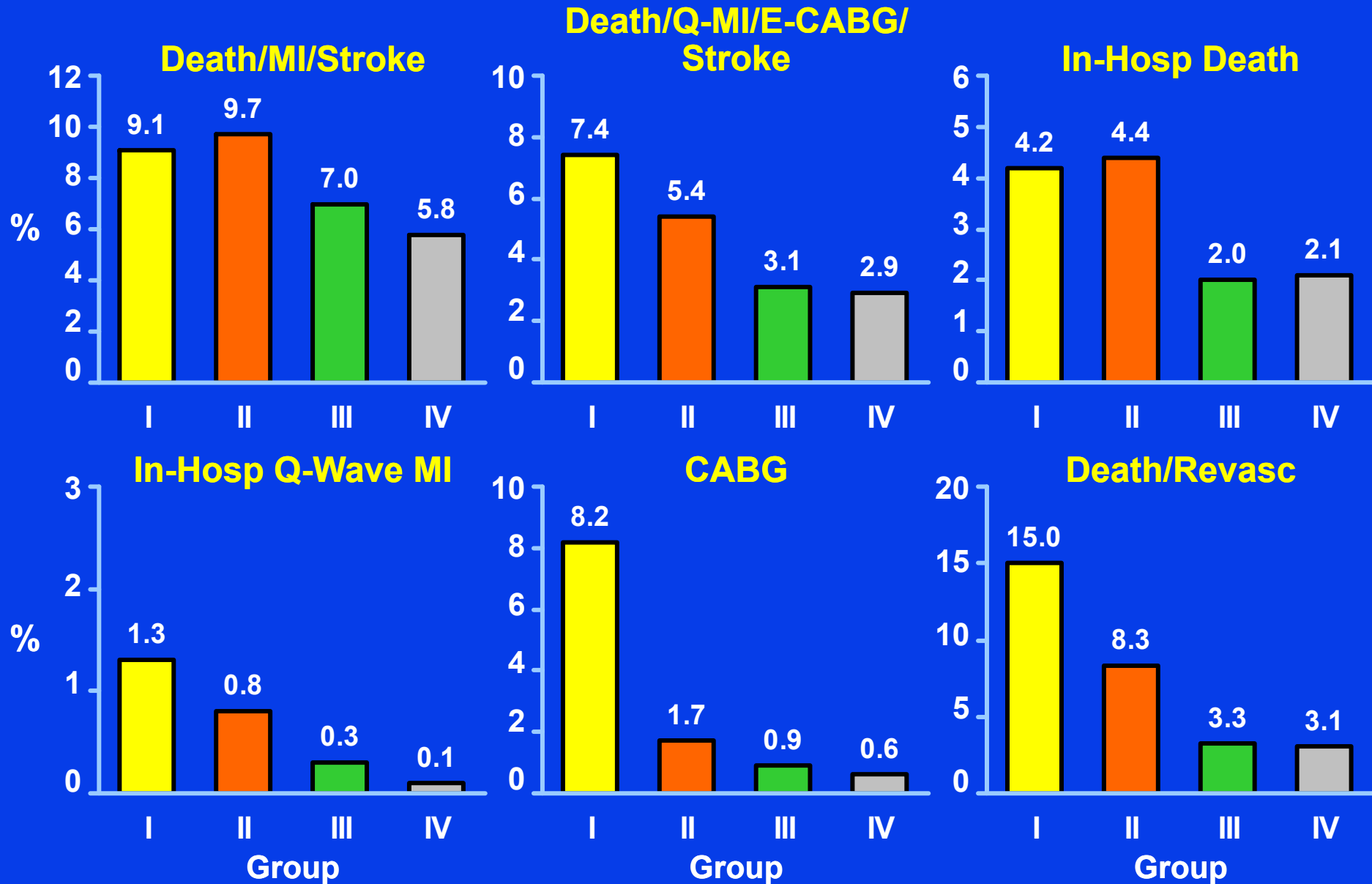
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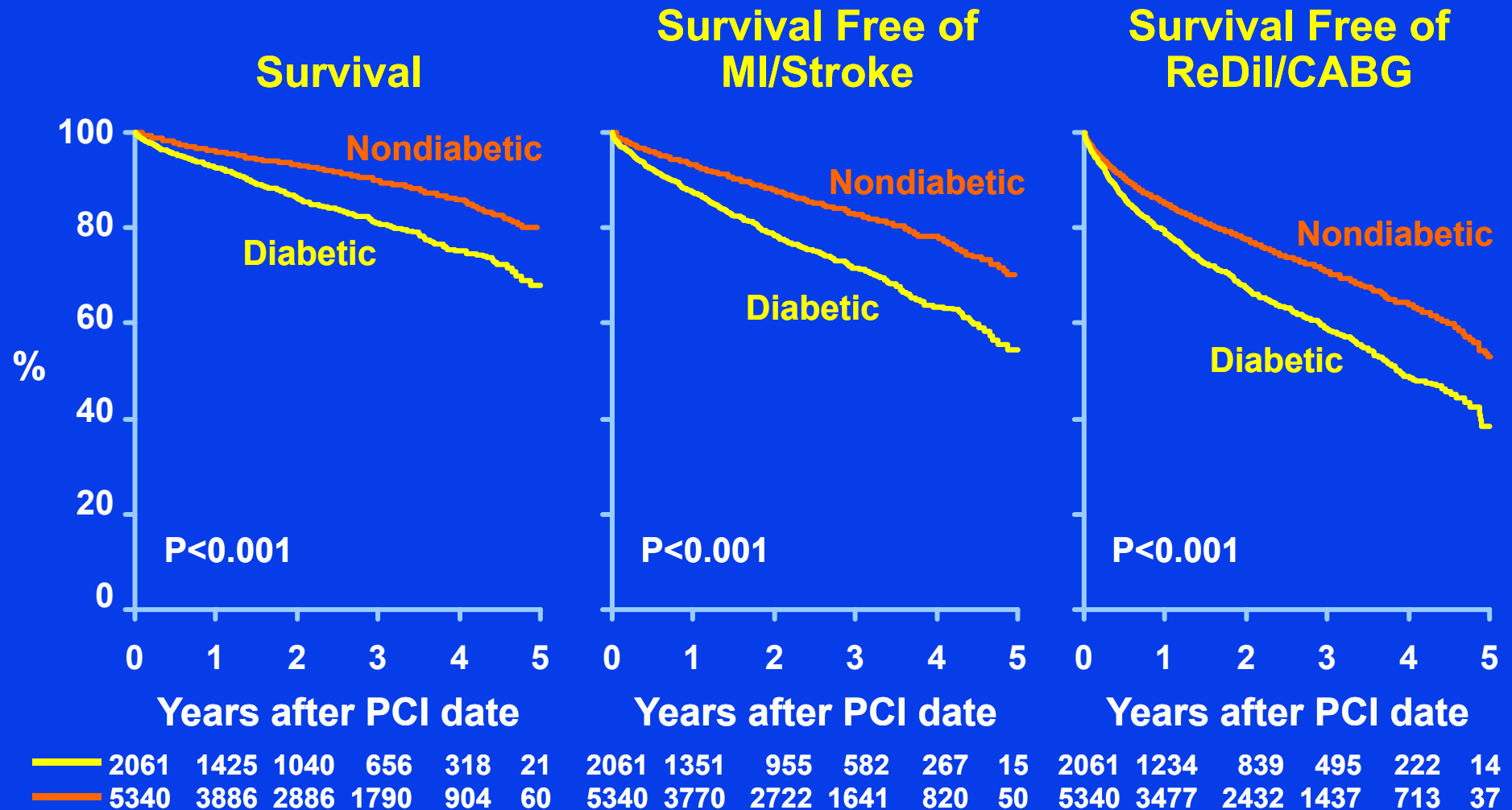
Methods

- **Single institution retrospective analysis**
- **Study population: PCI from 1979-2008**
- **4 groups (n=30,014)**
 - Group I 1979-1989, n=3,558 (PTCA only)**
 - Group II 1990-1996, n=7,511 (bail-out stent)**
 - Group III 1996-2003, n=11,259 (BMS + dual AP)**
 - Group IV 2004-2008, n=7,538 (DES + dual AP)**

Temporal Trends of In-Hospital Outcomes in DM

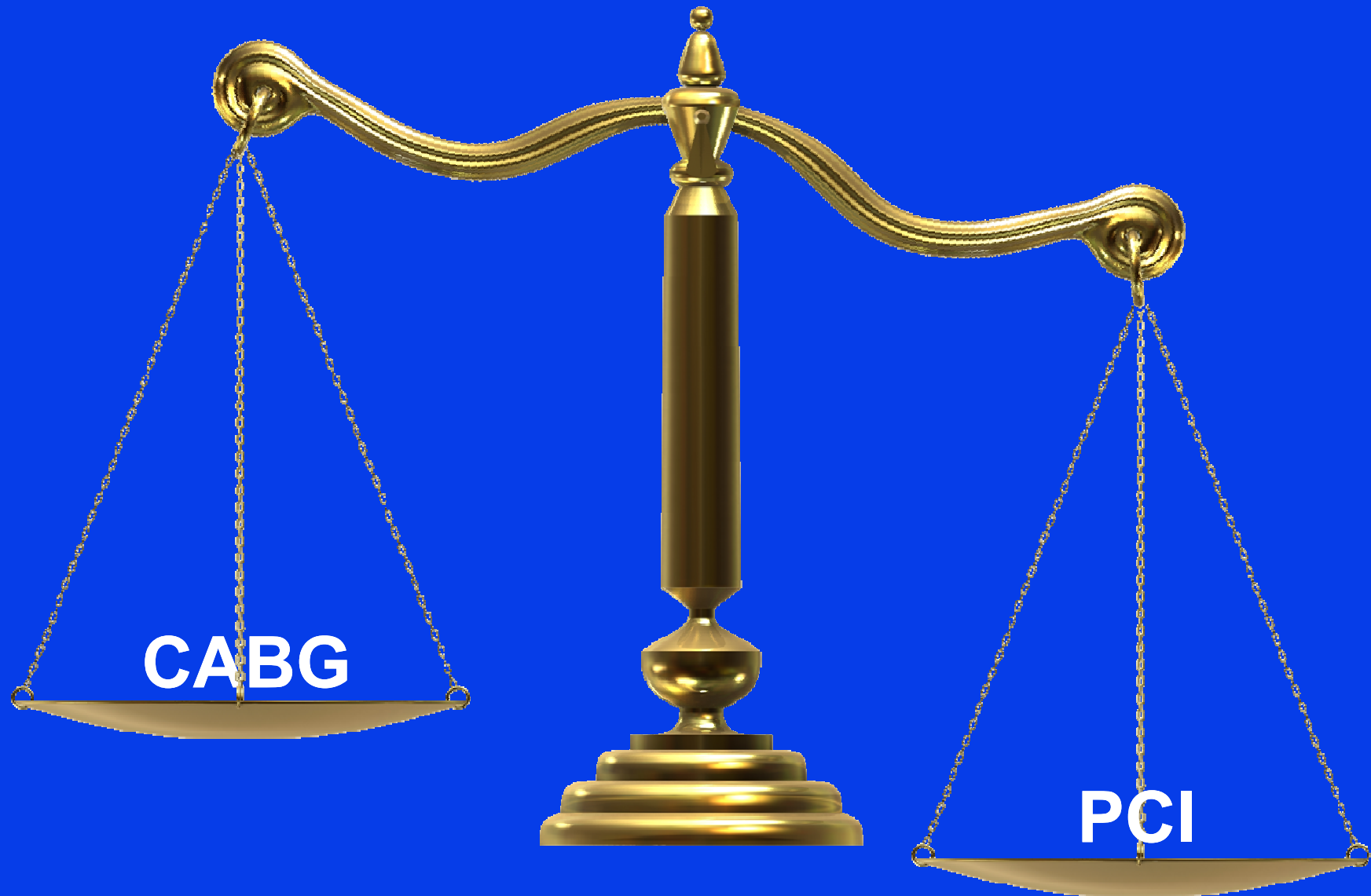


Long-Term Outcomes Following PCI Group IV Patients with and Without DM

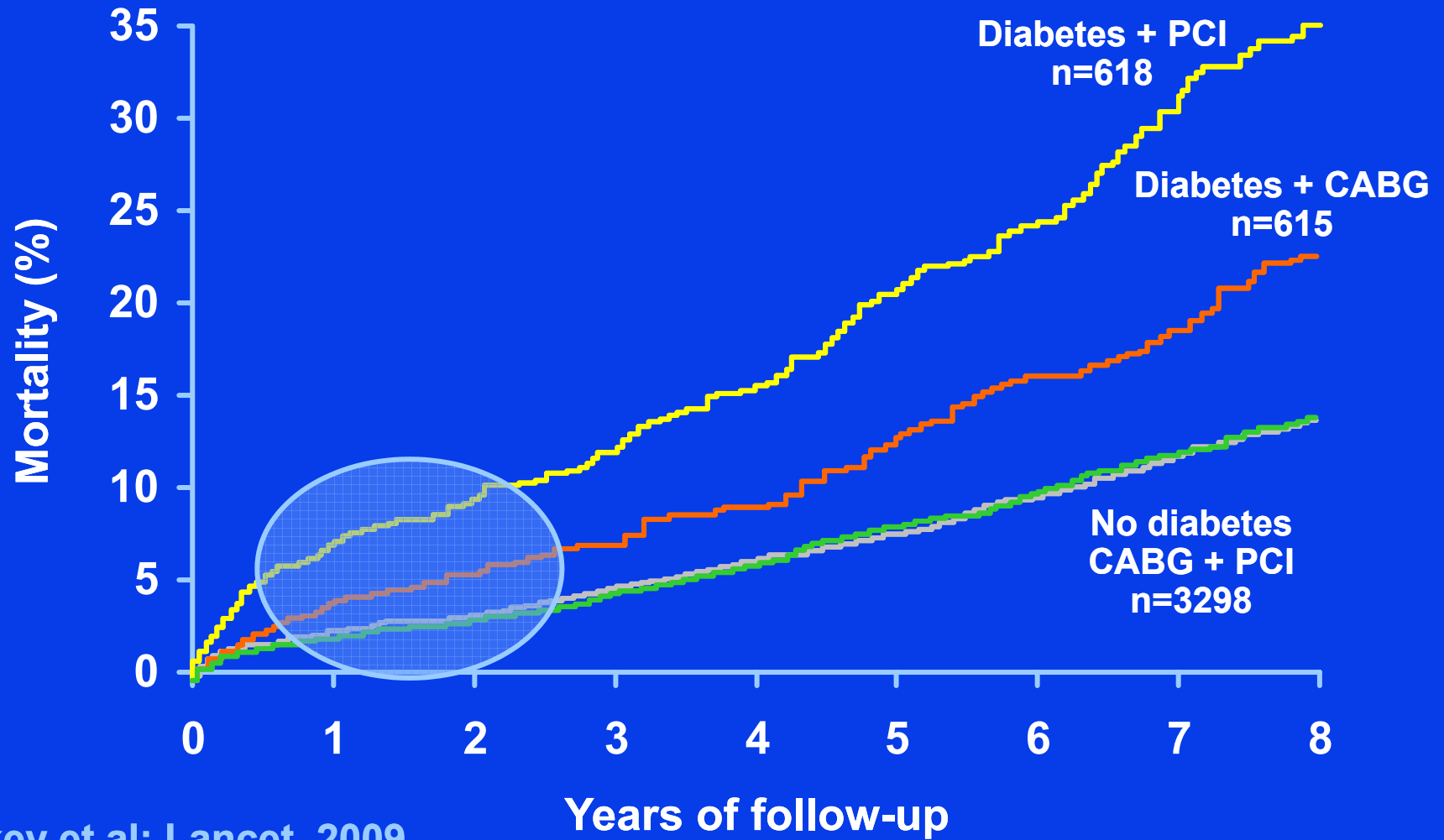


Conclusions

- **In the current era, as compared to nondiabetics, long-term outcomes following PCI are still worse in diabetics**
- **Further efforts are needed to improve the utilization of statins and angiotensin converting enzyme inhibitors**
- **Significant temporal improvement in the in-hospital and long-term outcomes over time are noted among patients with DM undergoing PCI**



Pooled Analysis from 10 Randomized Trials Comparing CABG and PCI in Multivessel Disease



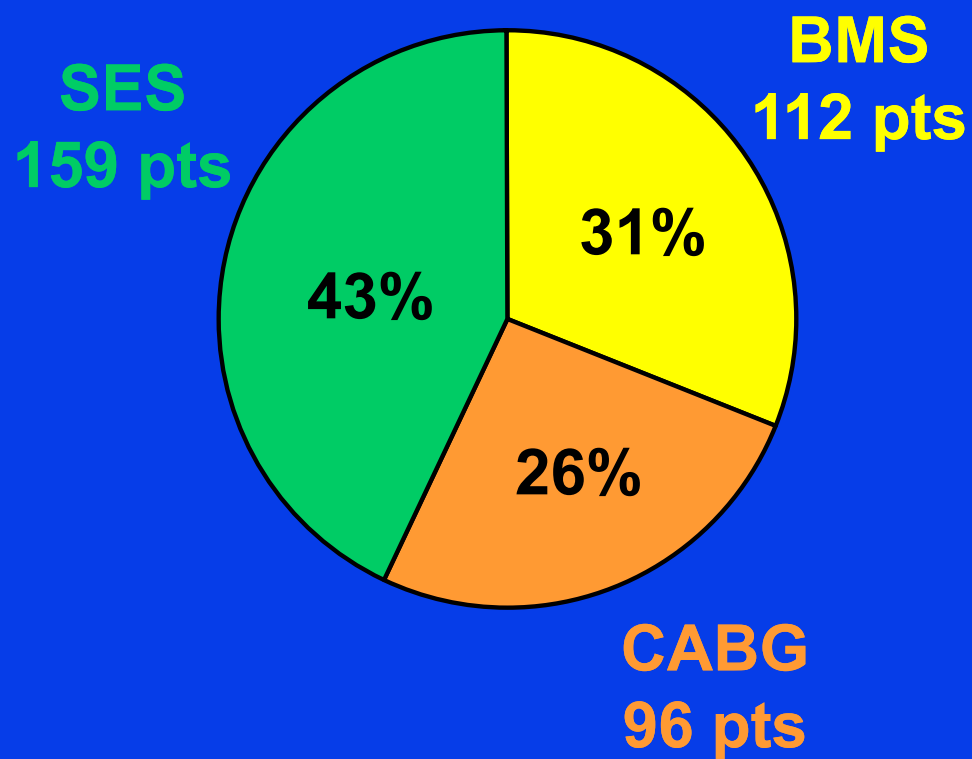
Haltkey et al: Lancet, 2009



5 Year F/U Diabetes and MVD

ARTS I and ARTS II

- ARTS I and II: 367 diabetic patients

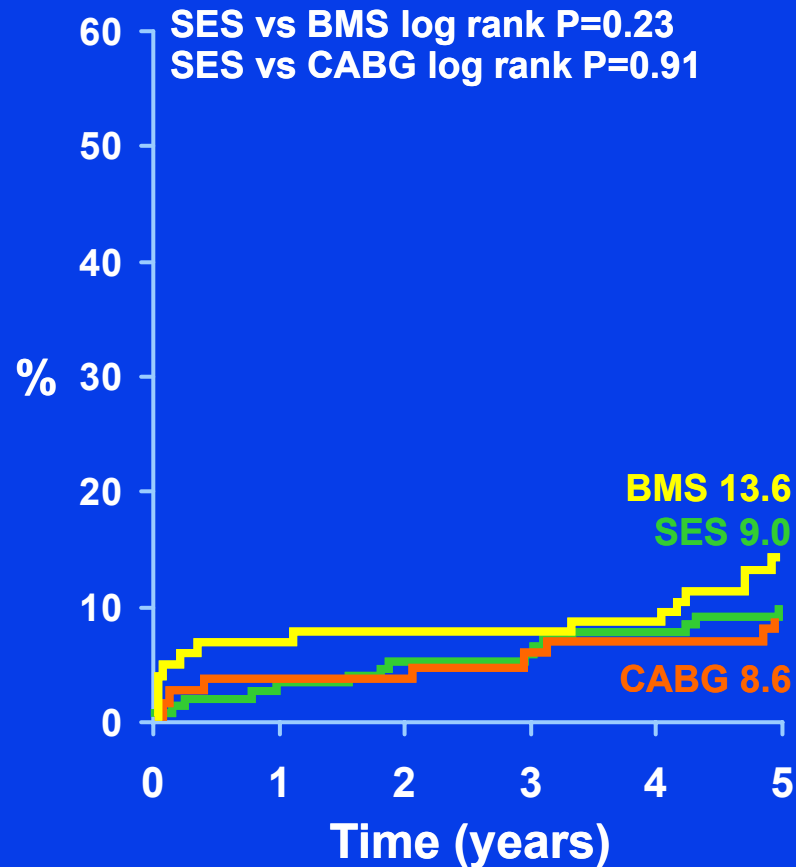


Primary endpoint:
5 year MACCE
(D, stroke, MI,
re-revasc)

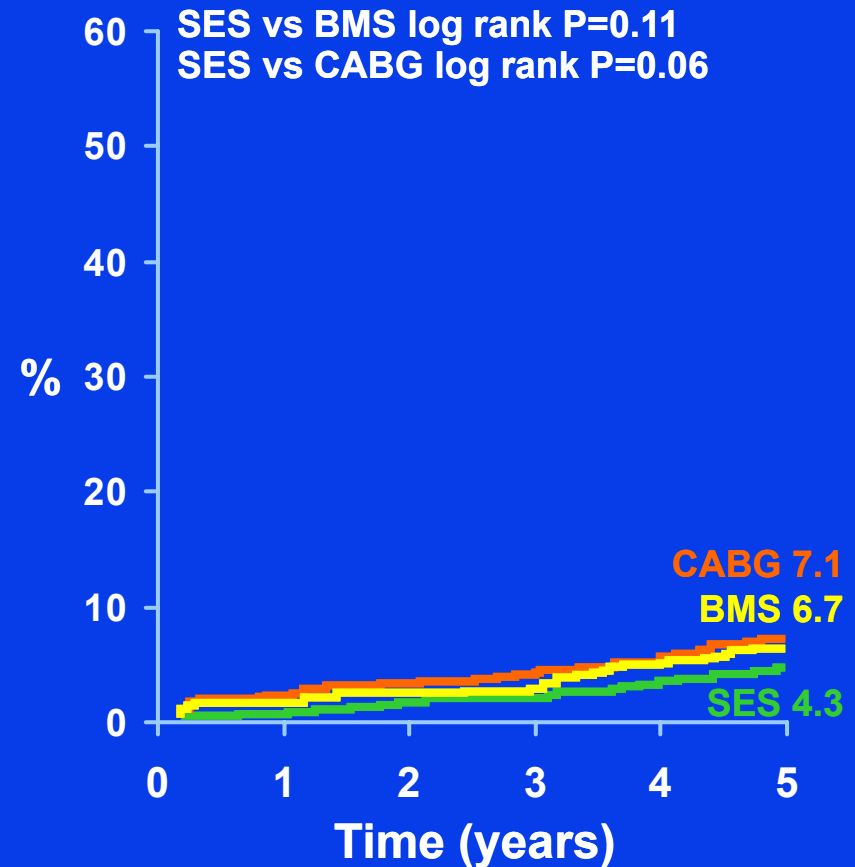
Onuma Y: J Am Coll
Cardiol Intv 4:317-23, 2011

All Cause Mortality

Diabetics



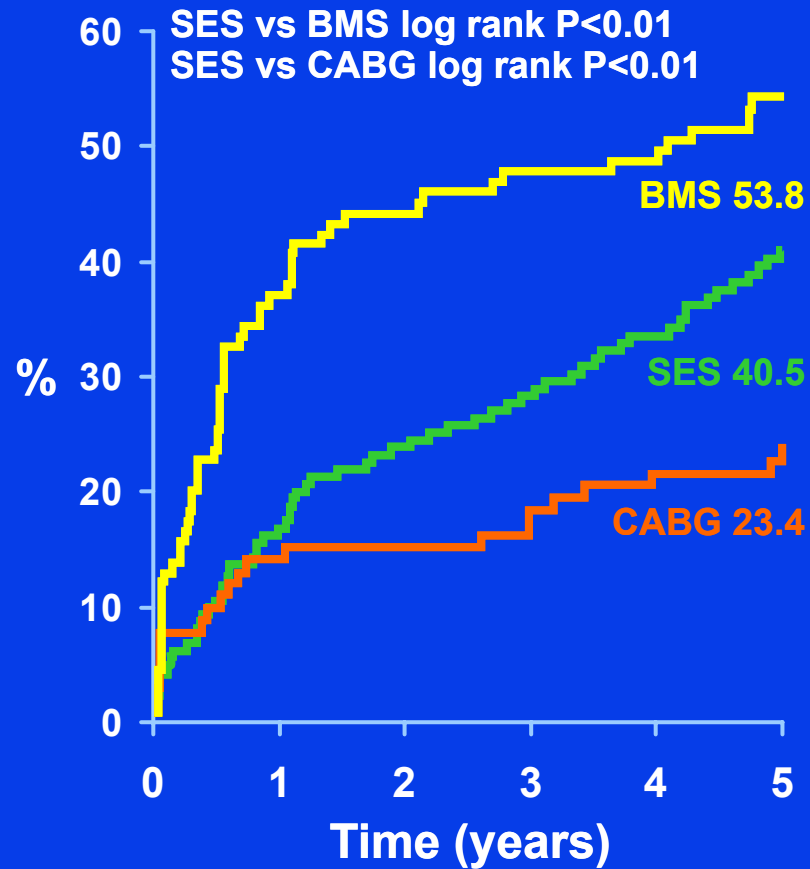
Non-Diabetics



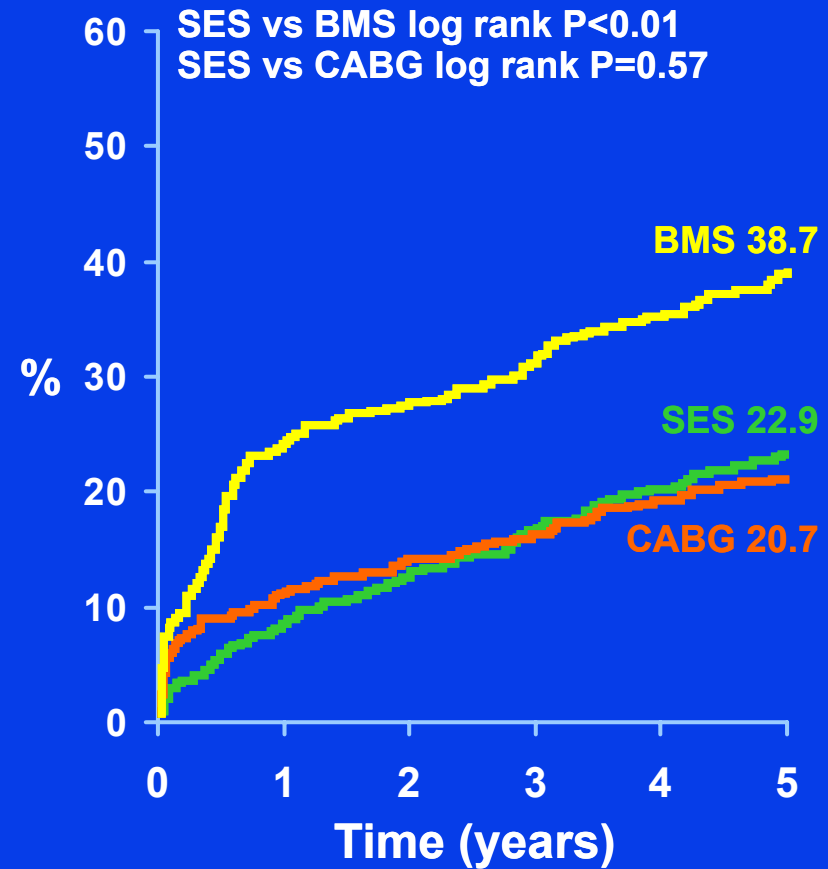
Onuma et al: J Am Coll Cardiol Interv 4:317, 2011

MACCE

Diabetics



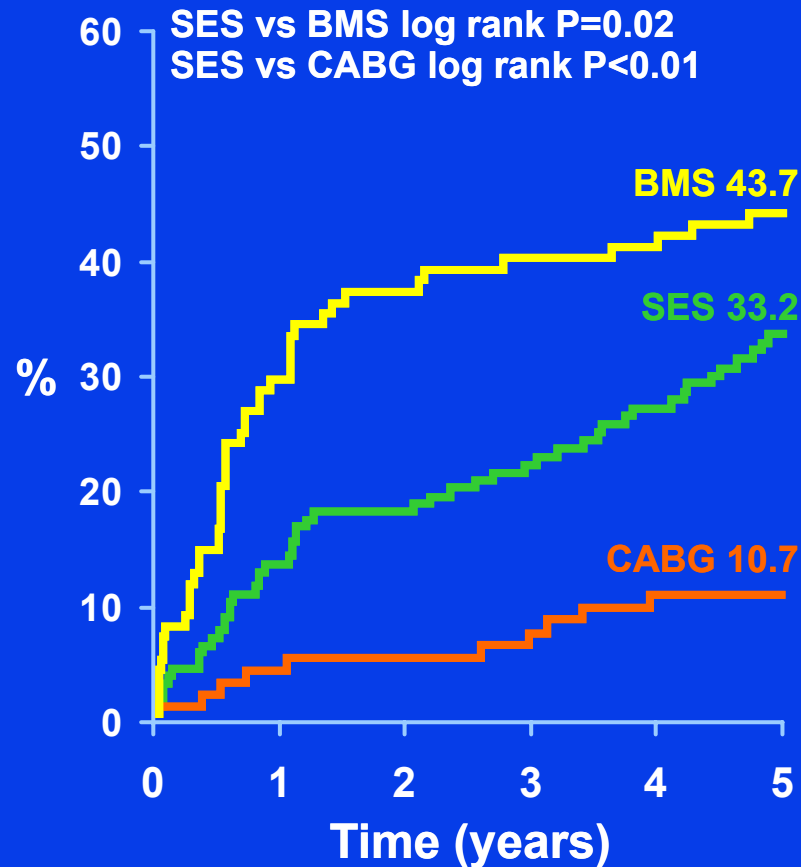
Non-Diabetics



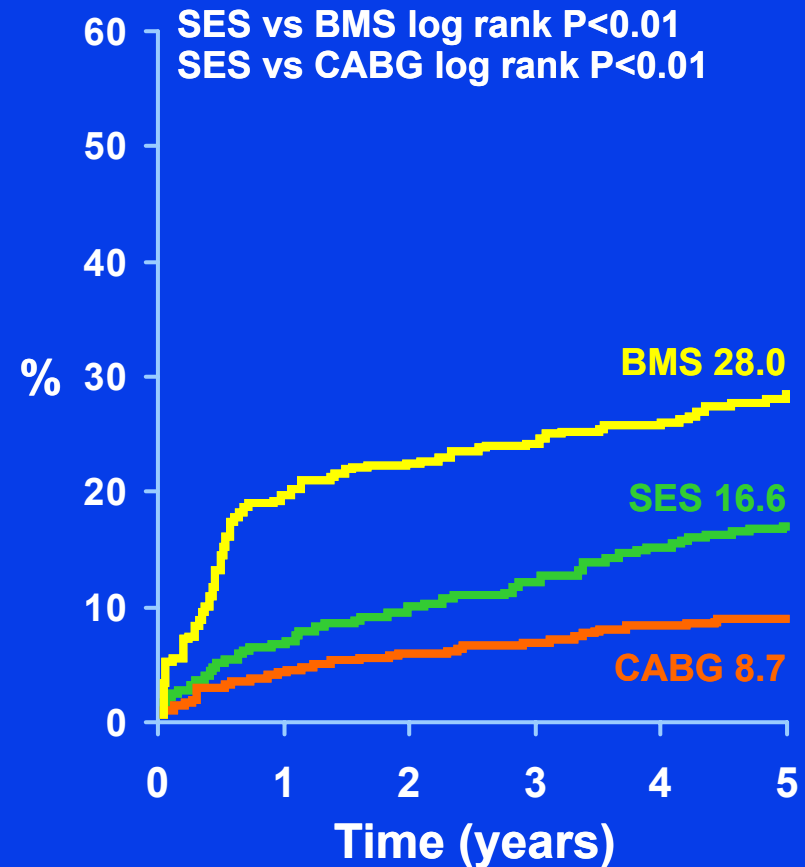
Onuma et al: J Am Coll Cardiol Intv 4:317, 2011

Any Revascularization

Diabetics



Non-Diabetics



Onuma et al: J Am Coll Cardiol Intv 4:317, 2011

5-Year Follow-Up of Coronary Revascularization in Diabetic Patients With Multivessel Coronary Artery Disease

Insights From ARTS (Arterial Revascularization Therapy Study)-II and ARTS-I Trials

Yoshinobu Onuma, MD, Joanna J. Wykrzykowska, MD, Scot Garg, MChB,
Pascal Vranckx, MD, Patrick W. Serruys, MD, PhD, on behalf of ARTS I and II Investigators

Conclusions – At 5-year follow-up CABG has comparable safety and superior efficacy compared with BMS and SES in the treatment of diabetic patients with multivessel disease.

groups. There was, however, a statistically significant difference in the myocardial infarction rate between BMS and CABG arms (BMS 11.0%, CABG 5.2%, SES 4.8%, $p = 0.04$ for SES vs. BMS and $p = 0.76$ for SES vs. CABG). The rate of repeat revascularization was significantly lower in patients treated with CABG compared with SES (SES 33.2% vs. CABG 10.7%, $p < 0.001$). Revascularization rate of patients treated with SES at 5 years approached that of patients treated with BMS although remained significantly lower. This “catch-up” phenomenon was not apparent in the nondiabetic population.

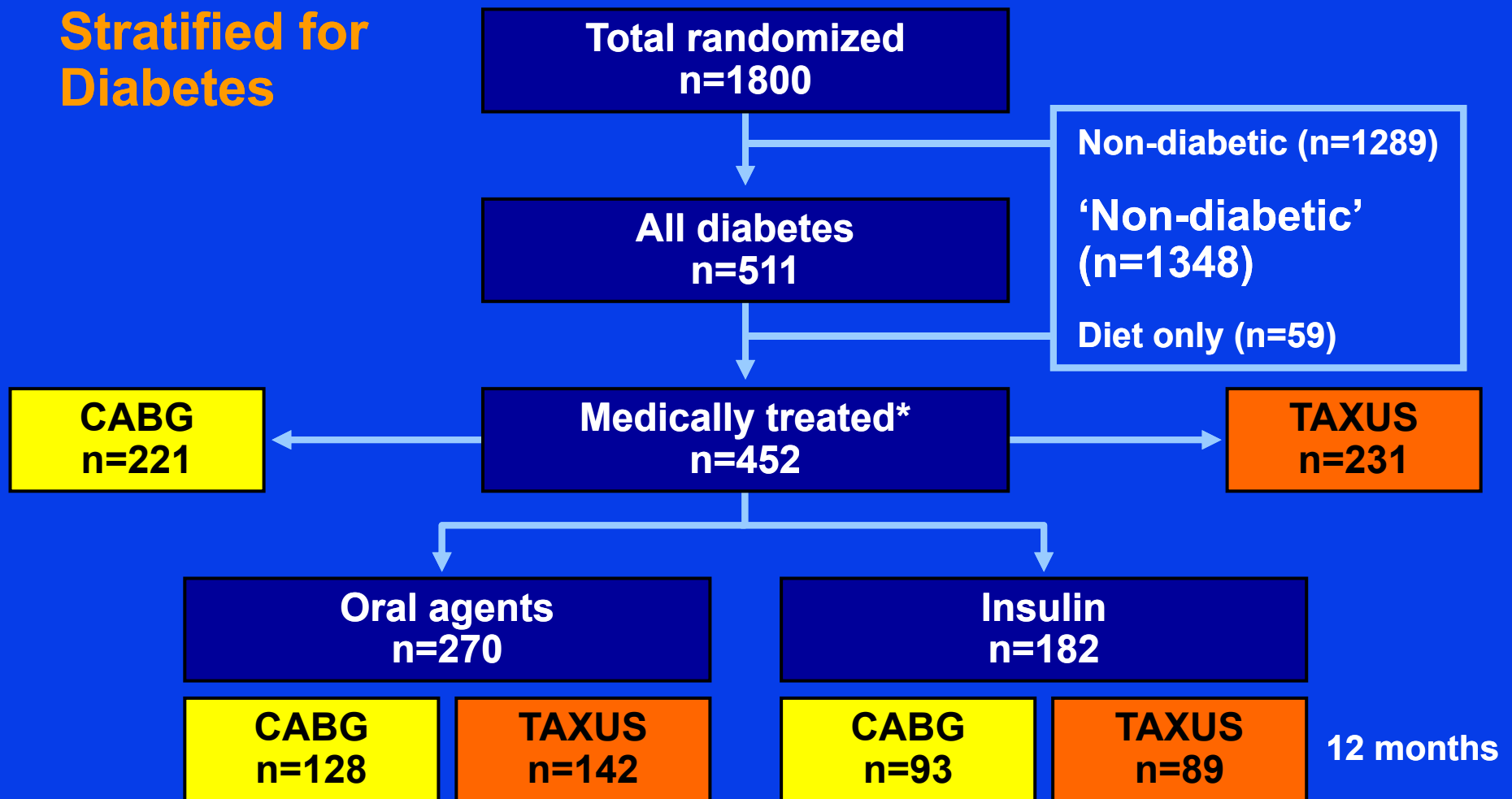
Conclusions At 5-year follow-up, CABG has comparable safety and superior efficacy compared with BMS and SES in the treatment of diabetic patients with multivessel disease. (J Am Coll Cardiol Intv 2011;4:317–23) © 2011 by the American College of Cardiology Foundation

From the Thoraxcenter, Erasmus Medical Center, Rotterdam, the Netherlands. The authors have reported that they have no relationships to disclose. Drs. Onuma and Wykrzykowska contributed equally to this work.

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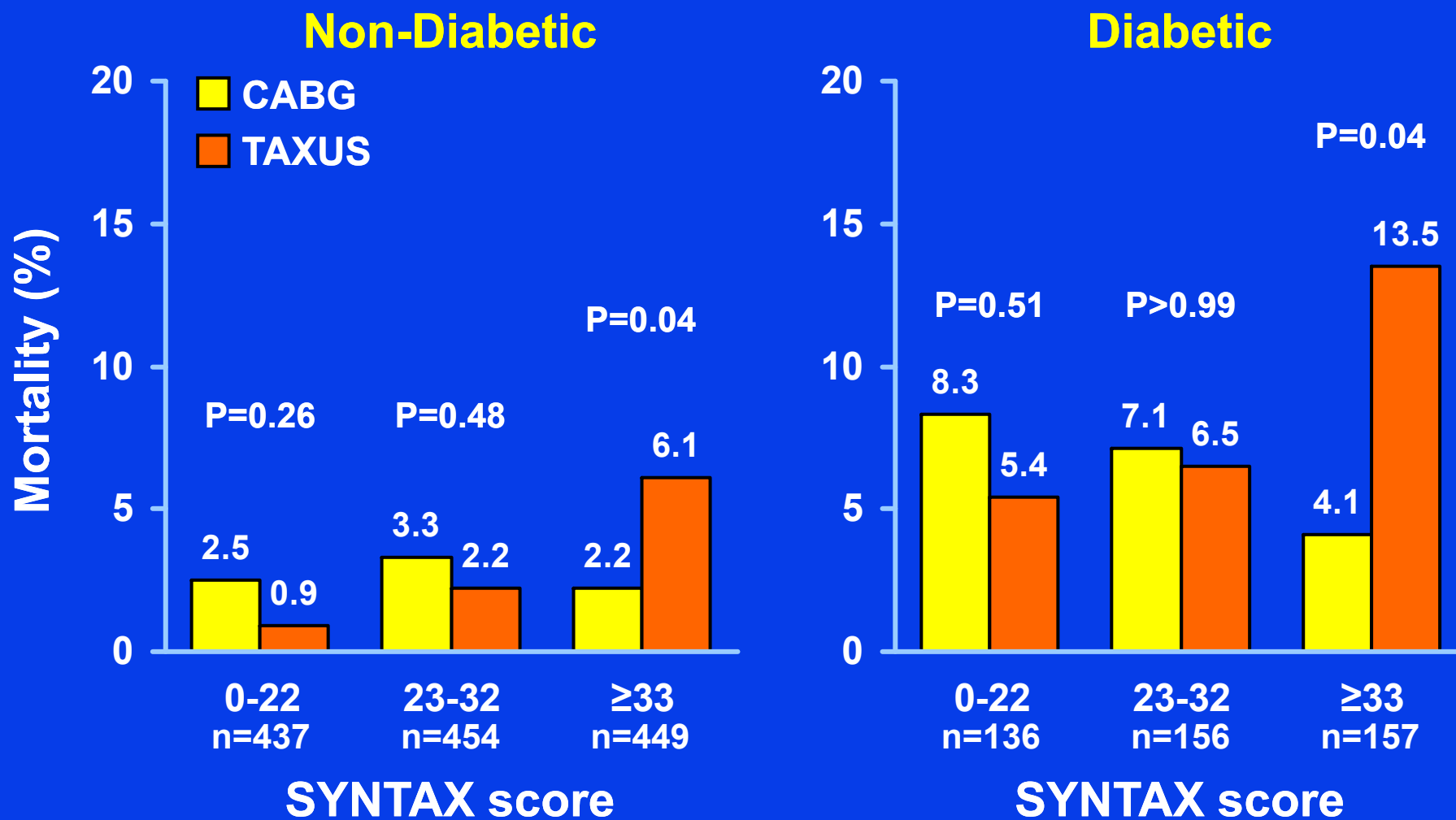
Patients with Diabetes in SYNTAX Randomized Cohort, Intent-to-Treat

**Stratified for
Diabetes**

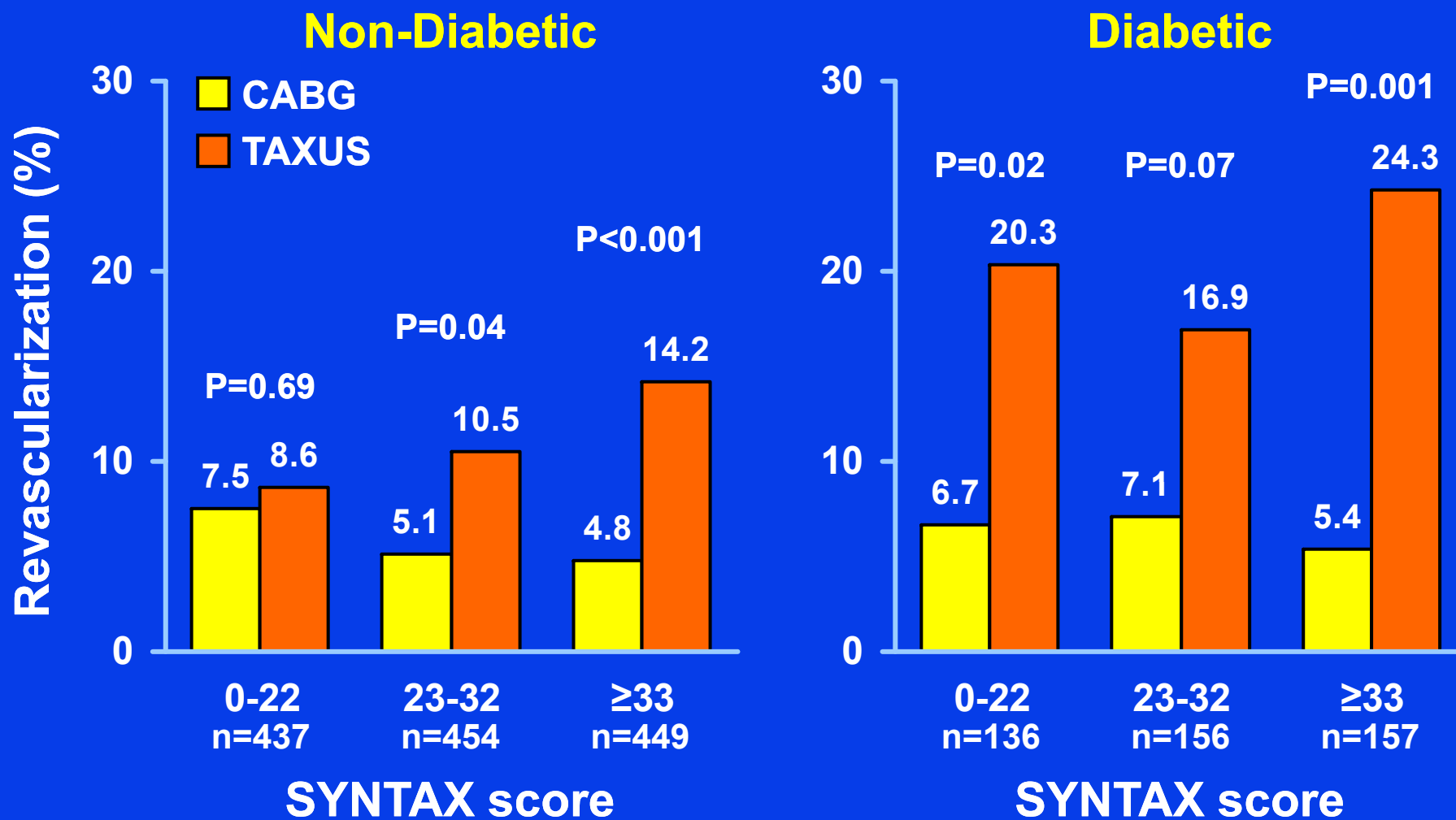


Mortality by SYNTAX Score

3VD/LM Diabetic and Non-Diabetic Patients



Revascularization by SYNTAX Score 3VD/LM Diabetic and Non-Diabetic Patients



Summary

1-Year Observational Subgroup Results

- **In non-insulin requiring diabetic and non-diabetic patients with less complex LM/3VD lesions, TAXUS and CABG have comparable composite safety (death/CVA/MI), however**
 - Diabetes increases mortality risk with both CABG and TAXUS**
 - CABG remains the preferable revascularization option for most insulin-treated diabetic patients**
 - CABG is also preferable for diabetic and non-diabetic patients with SYNTAX scores ≥ 33 due to higher mortality with TAXUS**
- **Repeat revascularization increased with TAXUS overall**
 - However, in non-diabetic 3VD/LM patients with low lesion complexity, efficacy and safety are comparable with TAXUS and CABG**

Why are PCI Outcomes Worse in Diabetes?

- More extensive atherosclerosis and diffuse multivessel disease
- Accelerated disease progression
- Increased comorbidity (prior MI, prior CHF, etc)
- Smaller vessels
- Longer lesions
- More highly stenotic lesions and greater plaque burden
- Higher incidence of left main disease

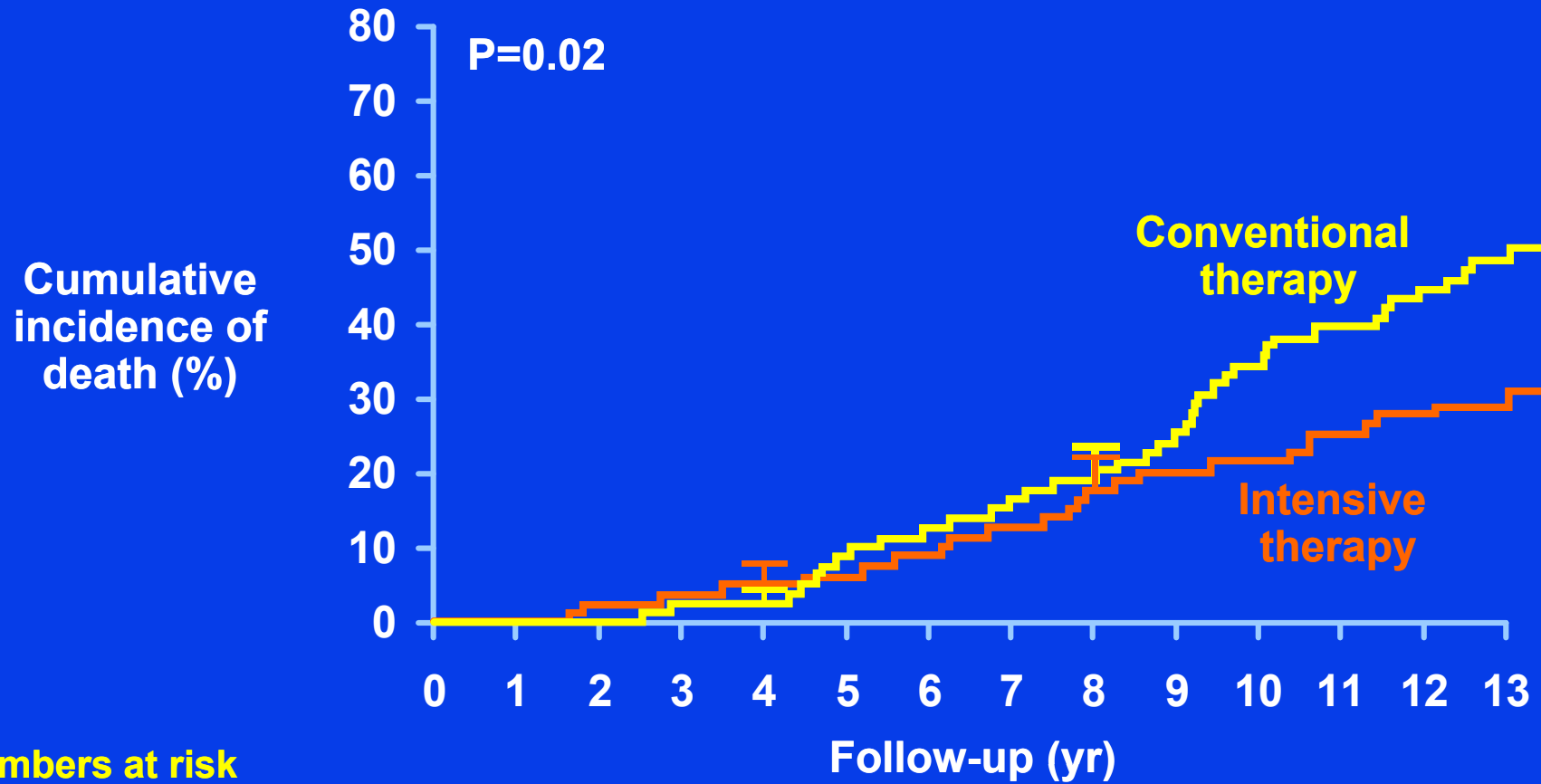


Mortality in Type 2 Diabetes

Multifactorial Intervention

- STENO-2 study randomly assigned 160 patients with type 2 diabetes and micro-albuminuria to conventional therapy or intensive therapy
- Targets:
 - HAIC <6.5%
 - Cholesterol <175
 - Triglycerides <150
 - BP <130/80
- Approach – tight glucose regulation, RAS blockers, ASA, lipid lowering agents
- Primary endpoint all cause mortality at 13.3 yrs

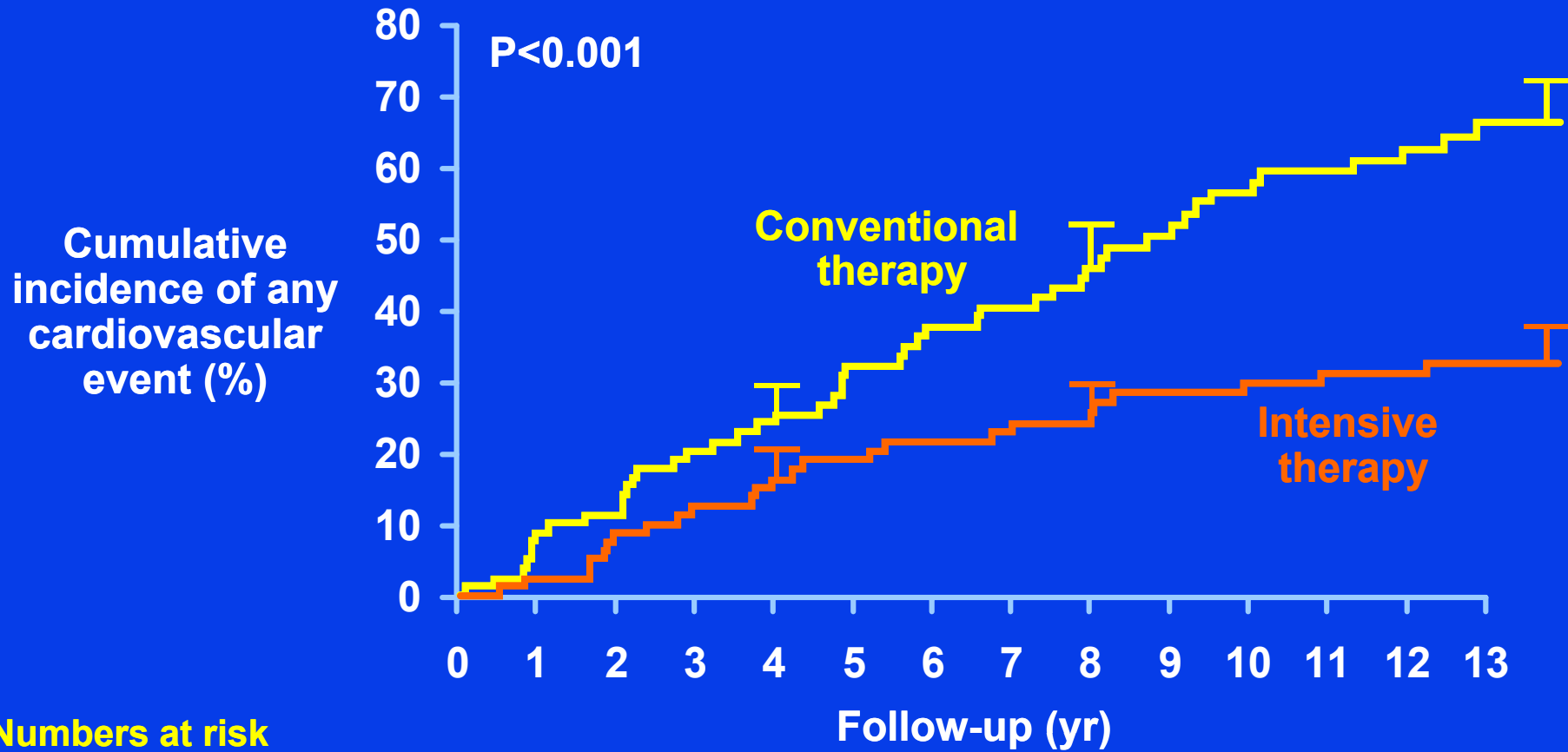
Risk of Death



Numbers at risk

	0	1	2	3	4	5	6	7	8	9	10	11	12	13
Intensive therapy	80	78	75	72	65	62	57	39						
Conventional therapy	80	80	77	69	63	51	43	30						

Risk of any cardiovascular event



Numbers at risk

— Intensive therapy	80	72	65	61	56	50	47	31
— Conventional therapy	80	70	60	46	38	29	25	14

Clinical Implications

- A central approach to optimizing outcome of all diabetic patients is optimal control.
- By optimizing control, we can optimize the results of any revascularization strategy

