CARDIOVASCULAR SUMMIT

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New DES Lower DES Failure ?
In-Stent Restenosis and Stent Thrombosis in New DES

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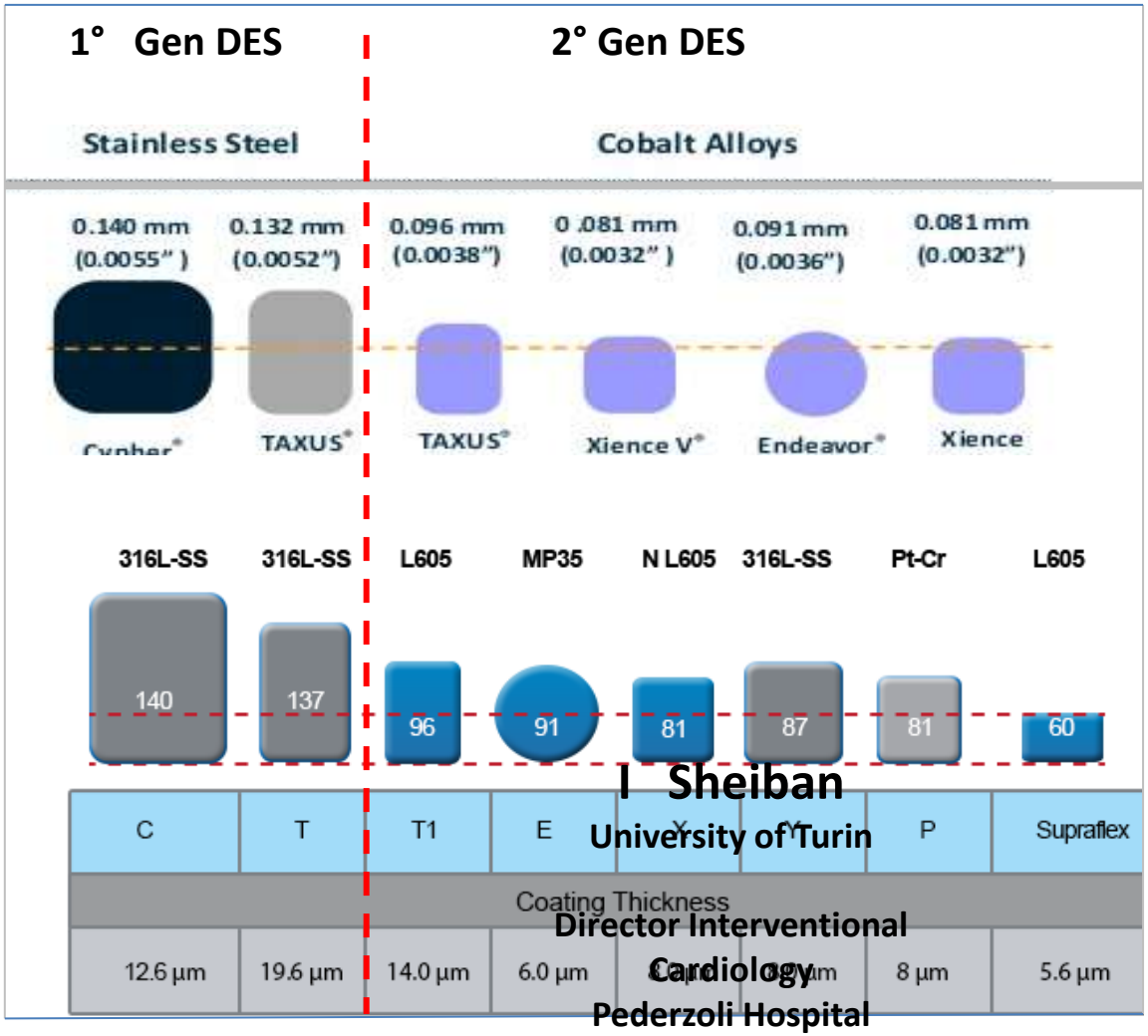
EVOLUTION WITH METALLIC DRUG-ELUTING STENTS



Anti-proliferative Drugs

- Everolimus
- Biolimus
- Zatrolimus
- Tacrolimus
- ……..

Polymer Mterial

- Durable
- Biodegradable

Platform material & strut thickness

- Co-Cr
- Pt-Cr

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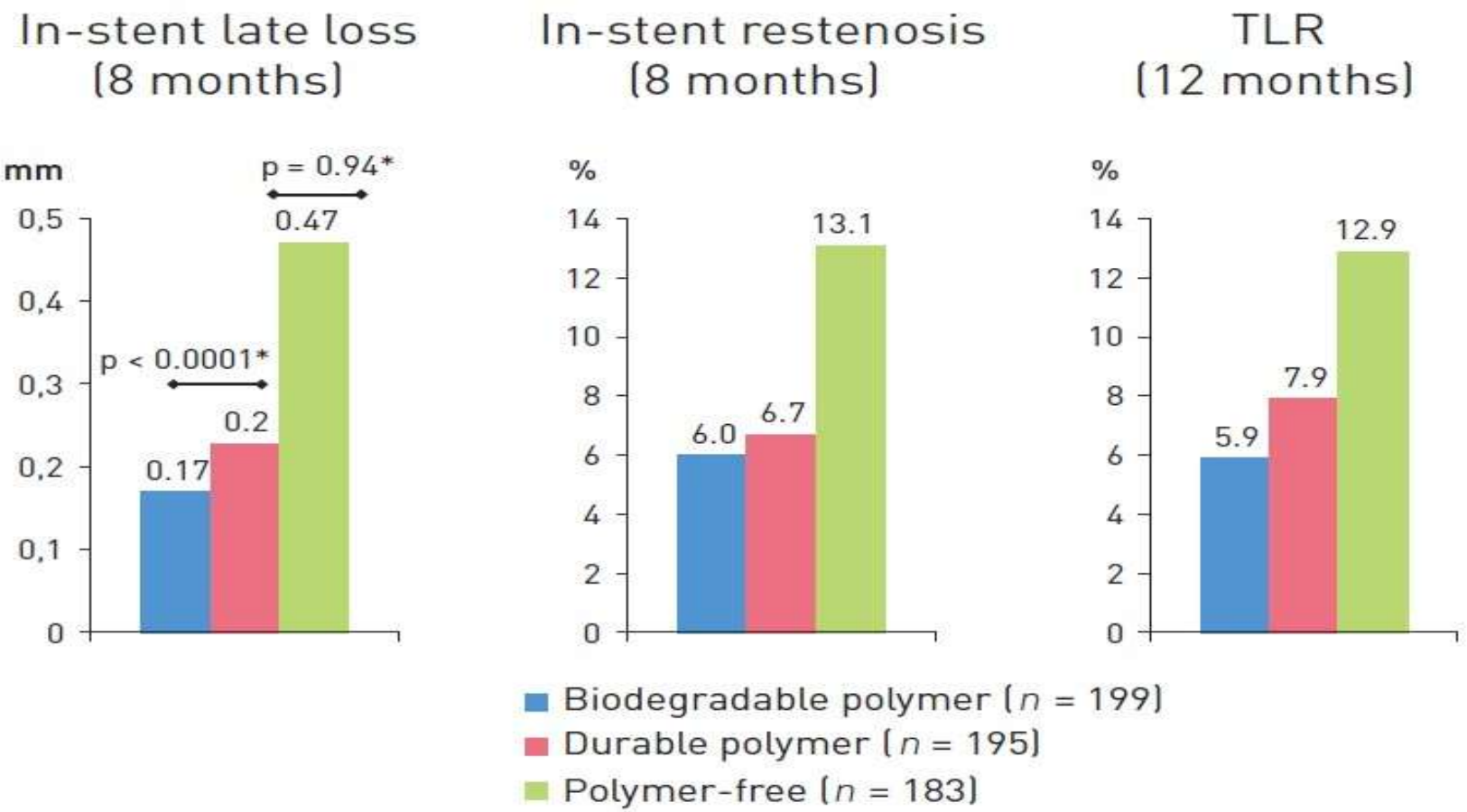
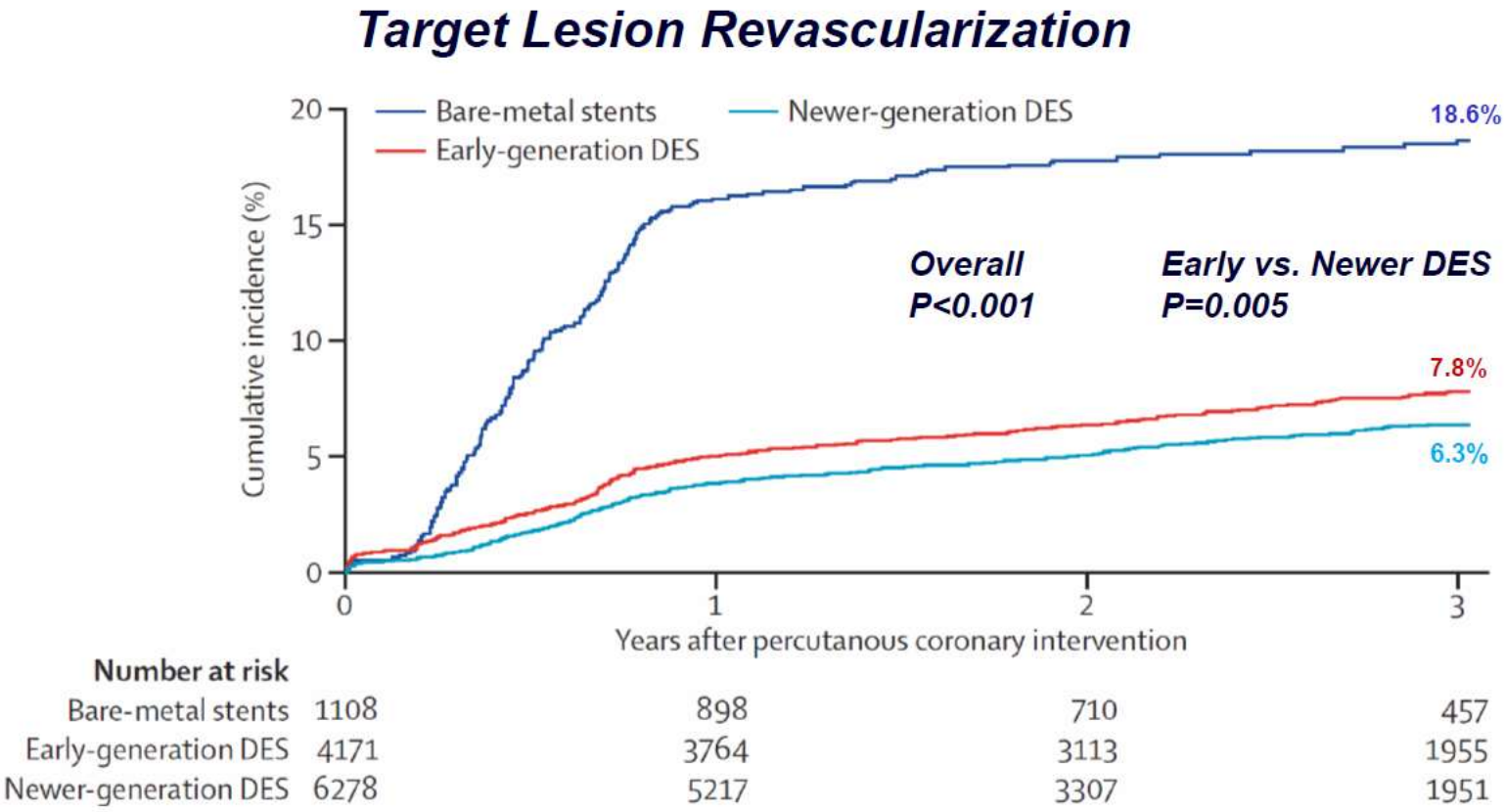
Different types of polymer



The PCR-EAPCI Textbook – Percutaneous interventional cardiovascular medicine
Coronary artery stents
Scot Garg, Ernest Spitzer, Patrick W. Serruys, Stephan Windecker

SAFETY AND EFFICACY OF DES vs BMS IN RANDOMIZED TRIALS

11,557 Women enrolledinto26 RandomizedTrials between2000 and20 13



Stefanini G et al. *The Lancet* 2013

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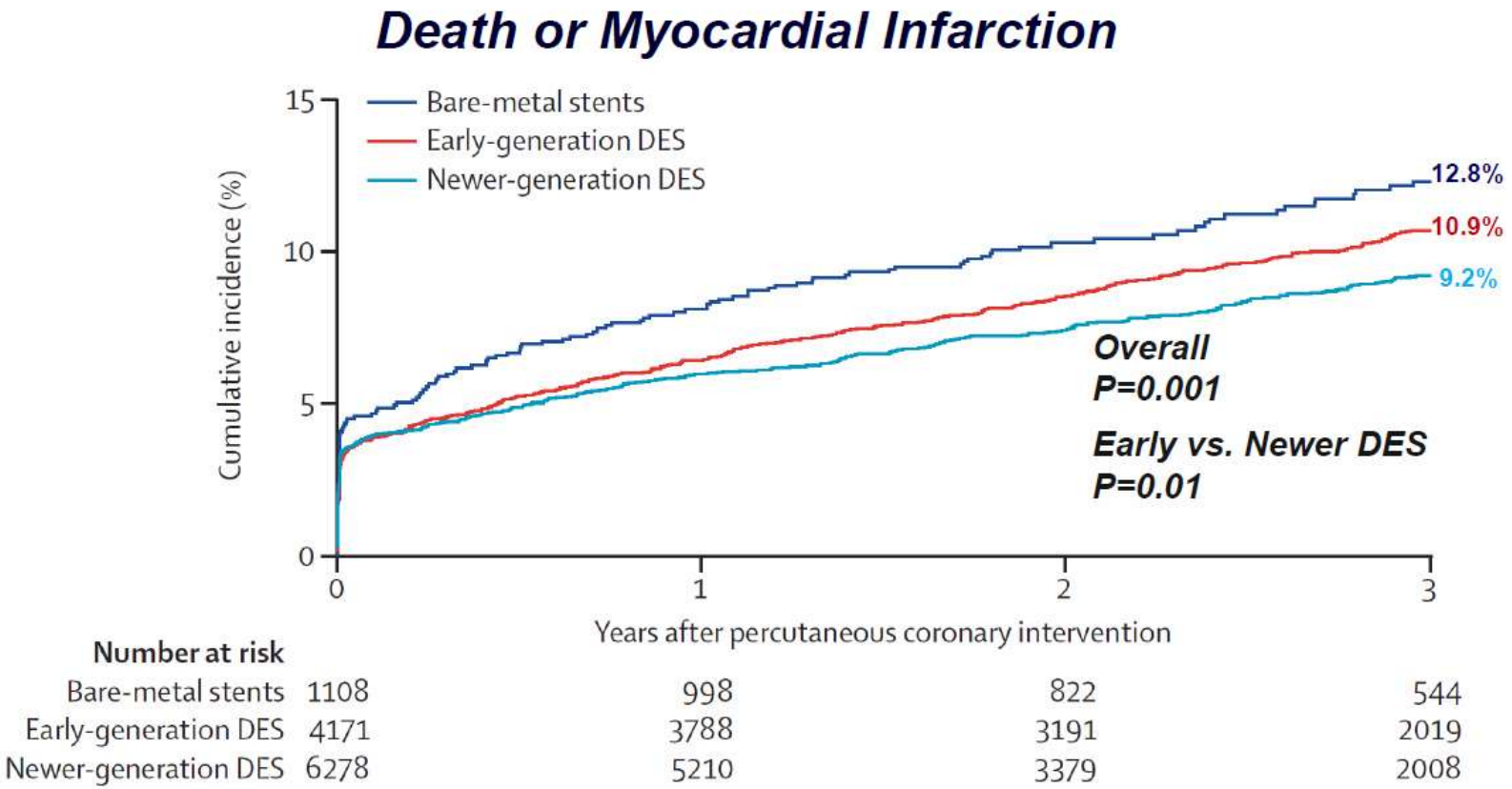


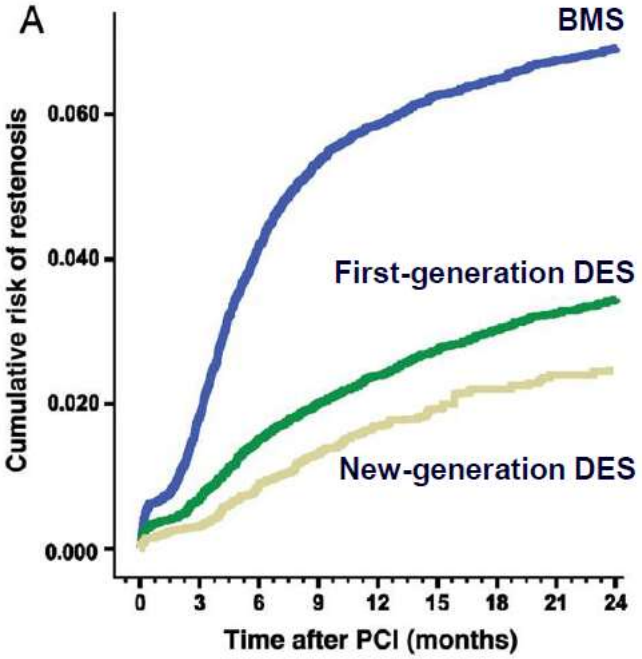
Stefanini G et al. *The Lancet* 2013

SAFETY AND EFFICACY OF DES VS BMS THE SCAAR REGISTRY

BMS (n =64,631), early-generation DES (n =19,202), new-generation DES (n =10,551)

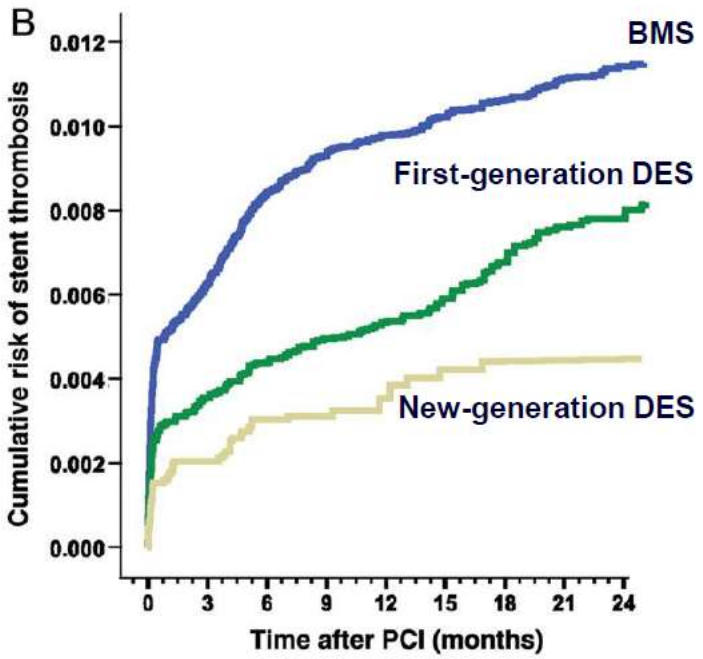
Clinically driven restenosis

New- vs. early-generation DES: HR[95% CI] =0.62 [0.53-0.72]
New-generation DES vs. BMS: HR[95% CI] =0.29 [0.25-0.33]



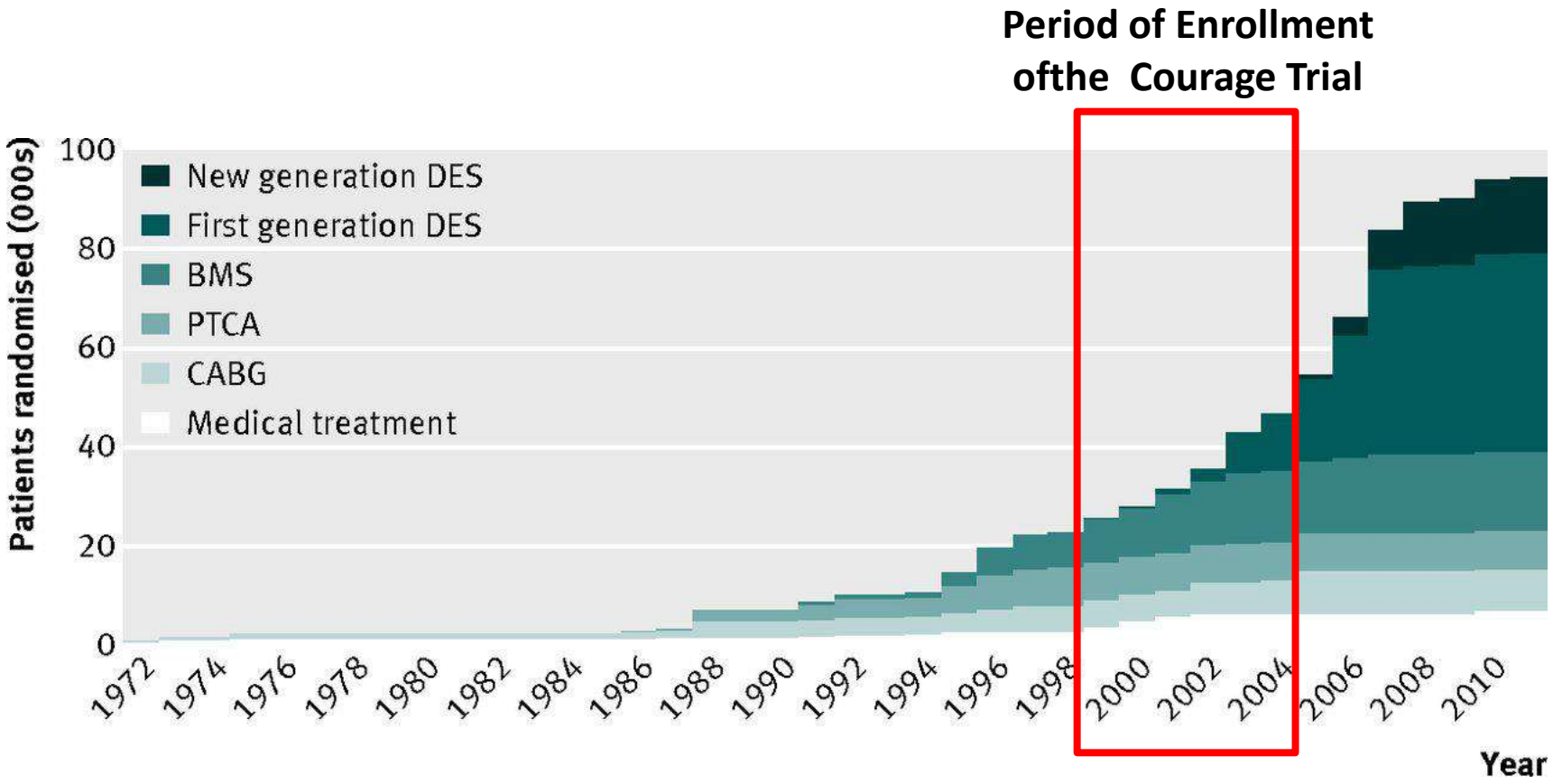
Definite stent thrombosis

New- vs. early-generation DES: HR[95% CI] =0.57 [0.41-0.79]
New-generation DES vs. BMS: HR[95% CI] =0.38 [0.28-0.52]



Sarno G et al. *EHJ* 2012

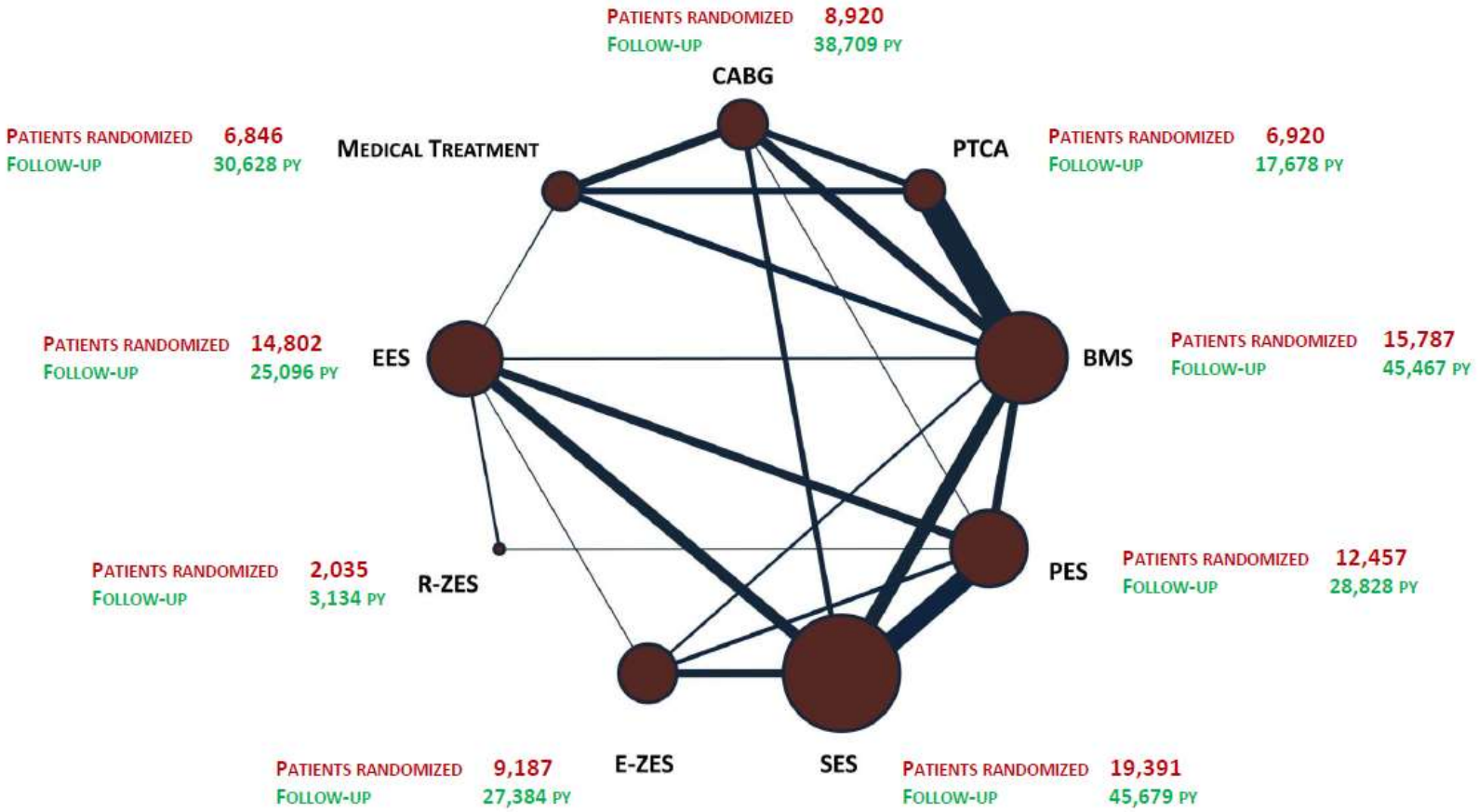
ACCUMULATION OF DATA FROM RANDOMIZED TRIALS USING DIFFERENT PCI TECHNOLOGIES OVER TIME



Windecker S et al. *BMJ* 2014

REVASCULARIZATION VERSUS MEDICAL THERAPY IN STABLE CAD: A NETWORK META-ANALYSIS

100 RCTs - 93'553 PATIENTS RANDOMIZED
FOLLOW-UP OF 262'090 PATIENT-YEARS

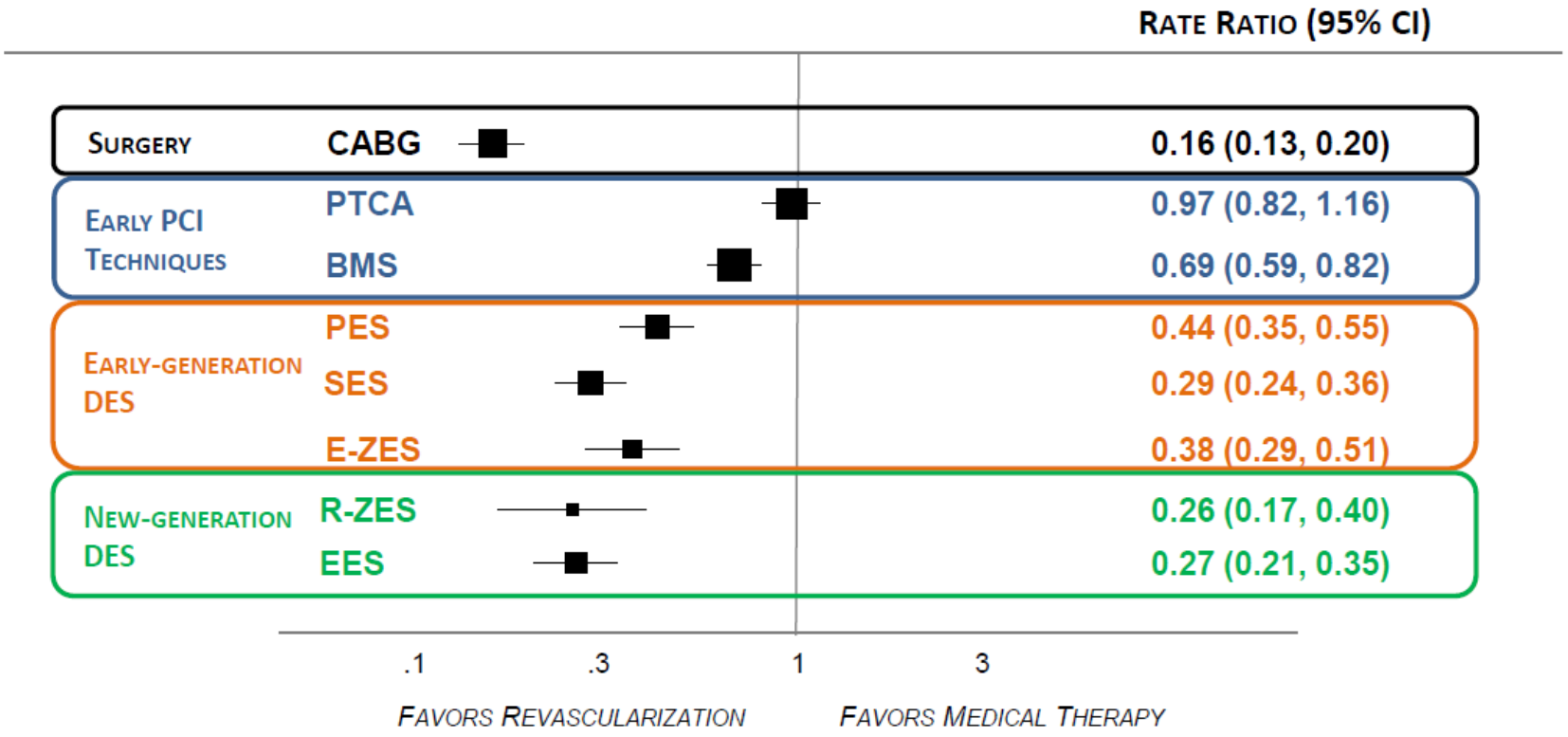


The European Myocardial Revascularization Collaboration (EMRC). *BMJ* 2014

REVASCULARIZATION vs MEDICAL THERAPY IN STABLE CAD: A NETWORK META-ANALYSIS

PRIMARY ENDPOINT : ALL-CAUSE MORTALITY

90'282 Randomized Patients, 234'693 patient-years of Follow-up 11'619 Events for the Analysis

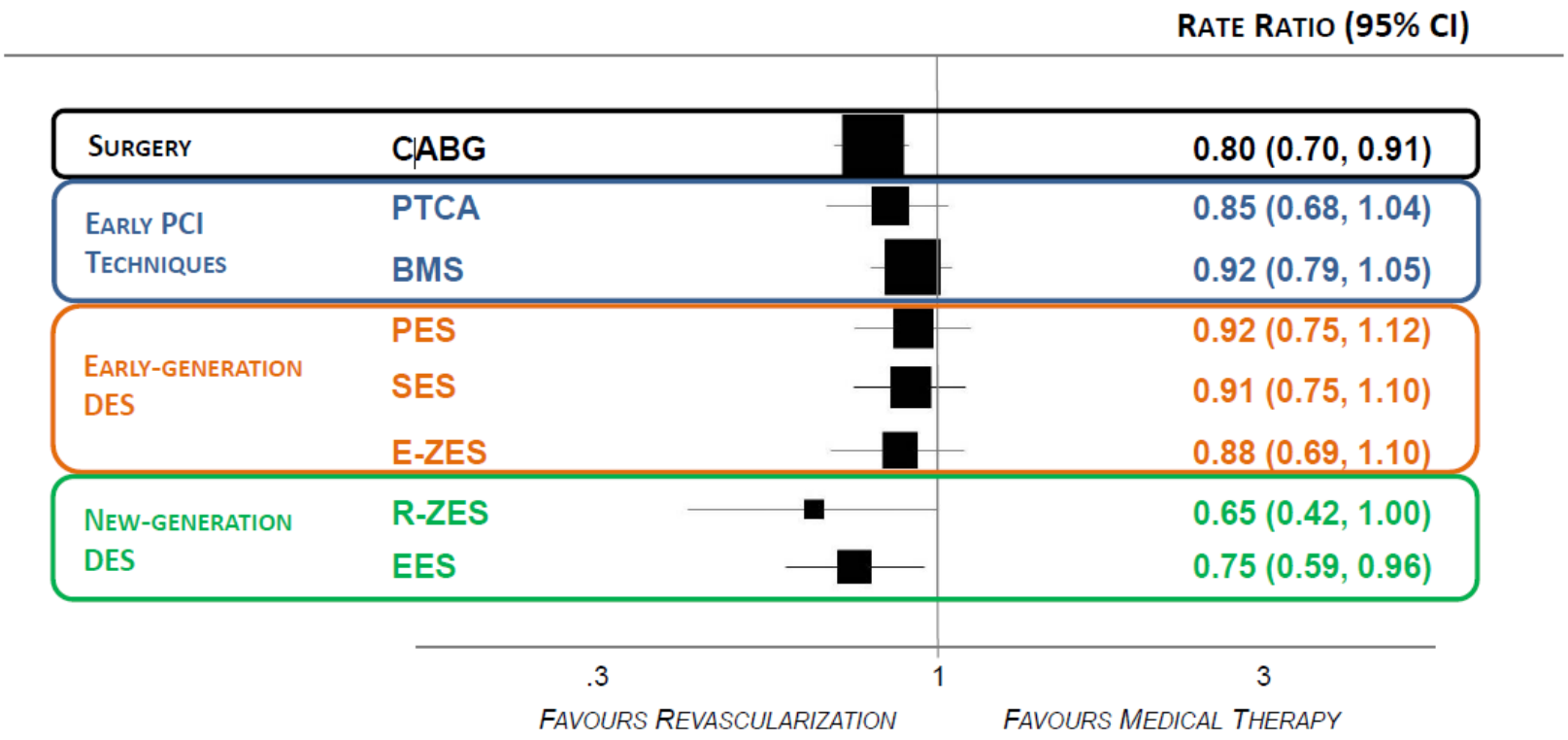


Windecker et al. *BMJ* 2014

REVASCULARIZATION vs MEDICAL THERAPY IN STABLE CAD: A NETWORKMETA-ANALYSIS

SSECONDARY ENDPOINT : REPEAT REVASCULARIZATION

100 RCTs, 93'553 RANDOMIZED PATIENTS, 262'090 PATIENT-YEARS OF FOLLOW-UP, 5'346 EVENTS FOR THE ANALYSIS



Windecker S et al. *BMJ* 2014

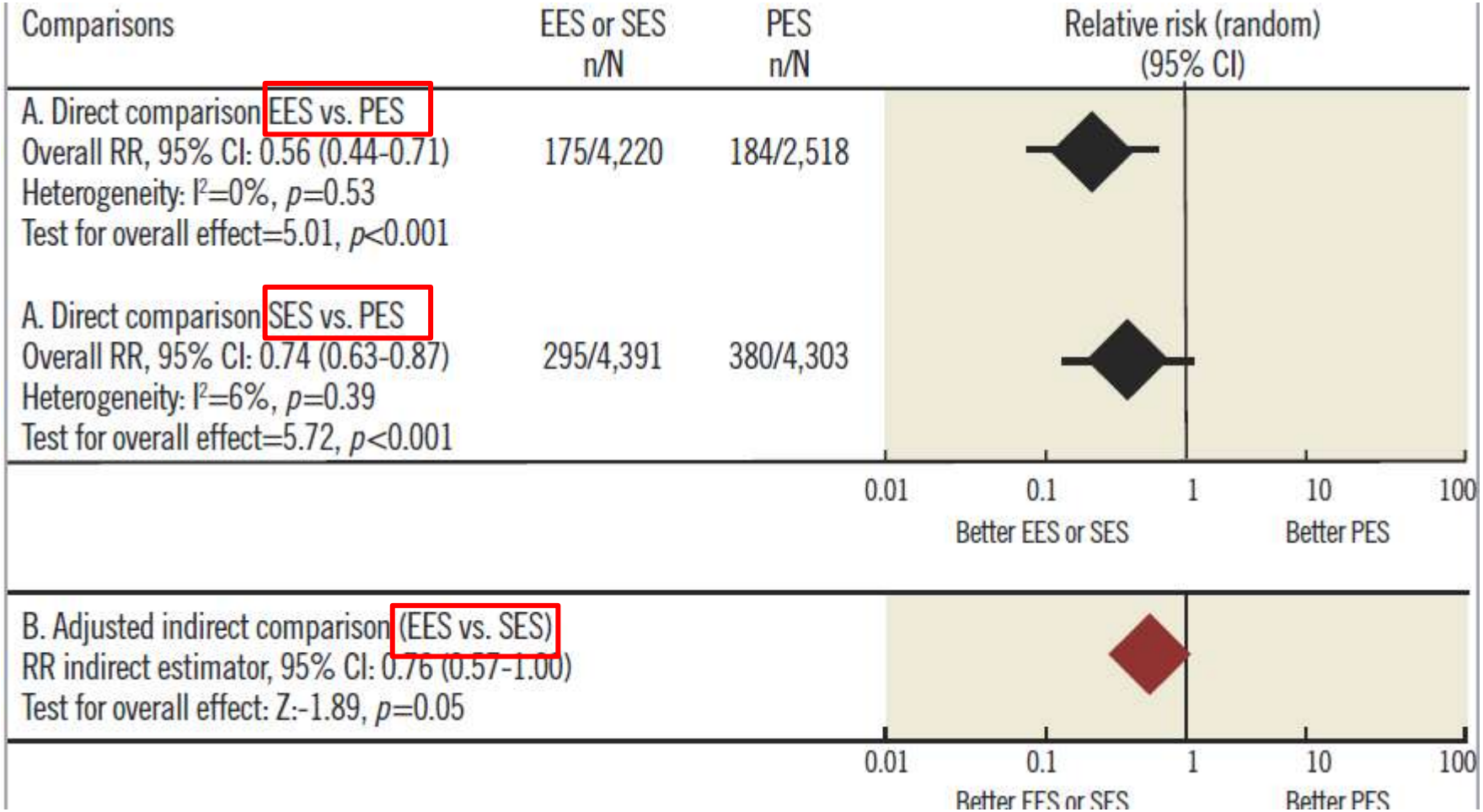
Impact of technological developments in drug-eluting stents on patient-focused outcomes: a pooled direct and indirect comparison of randomised trials comparing first- and second-generation drug-eluting stents

H. Colmenarez et al ; EuroInternetion 2013

Total of trials included n=16
Pts Included n = 25,427

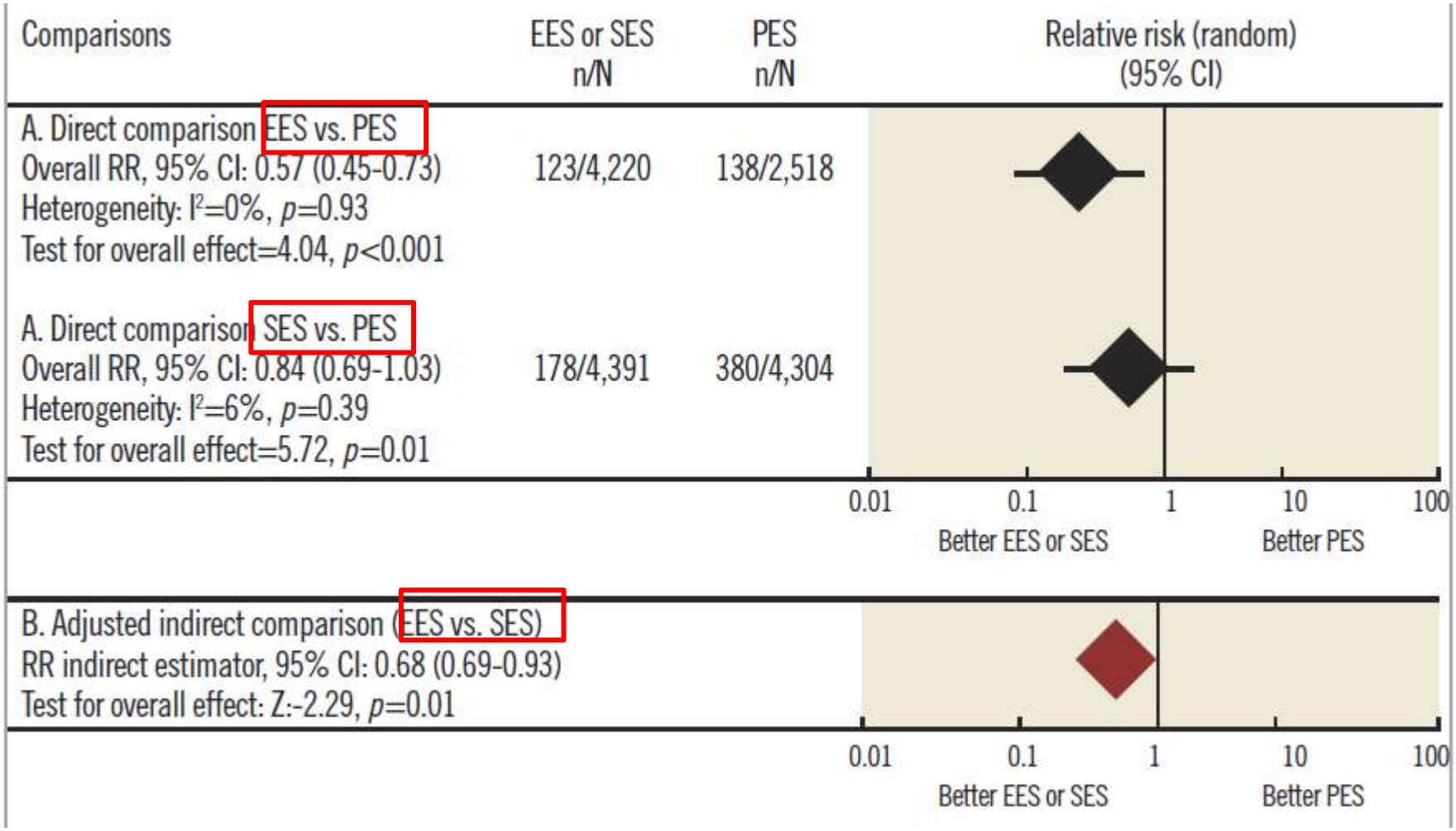
RCTs comparing PES vs. EES, ZES or BES
RCTs comparing PES or SES vs. ZES
RCTs comparing SES vs. ZES, EES or BES

Target Lesion Revascularization



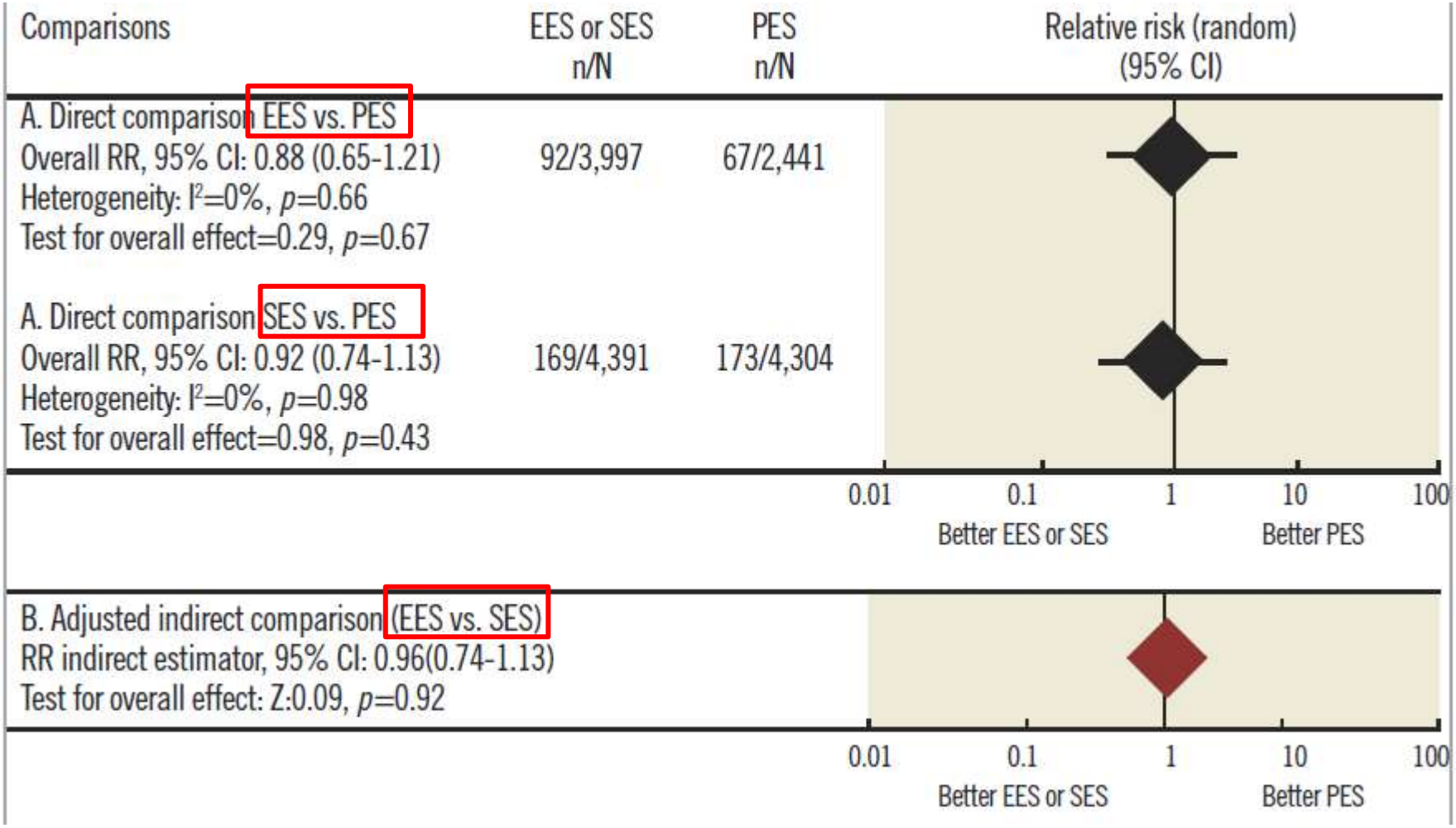
H. Colmenarez et al ; EuroInternetion 2013

Myocardial Infarction



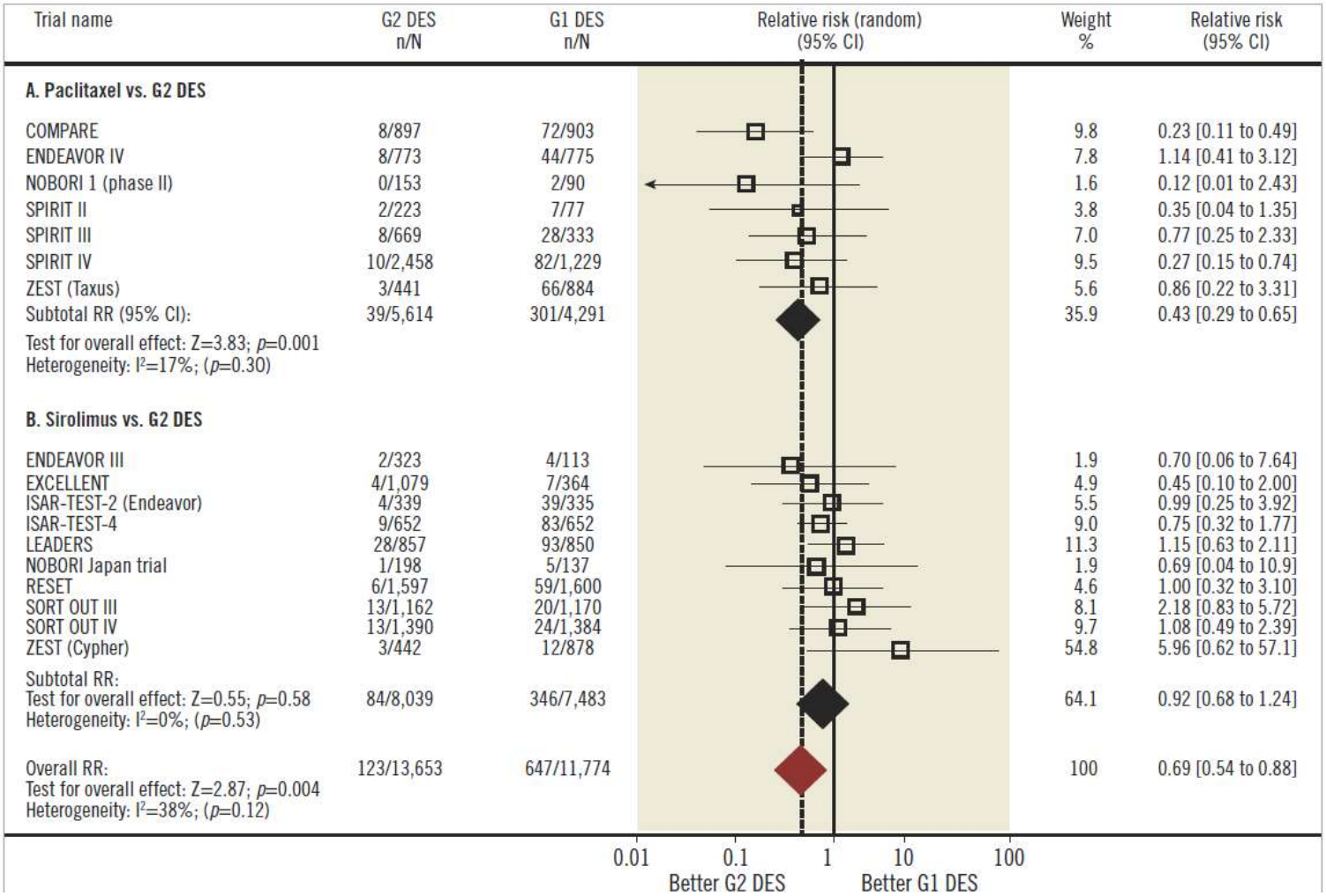
H. Colmenarez et al ; EuroInternetion 2013

Death



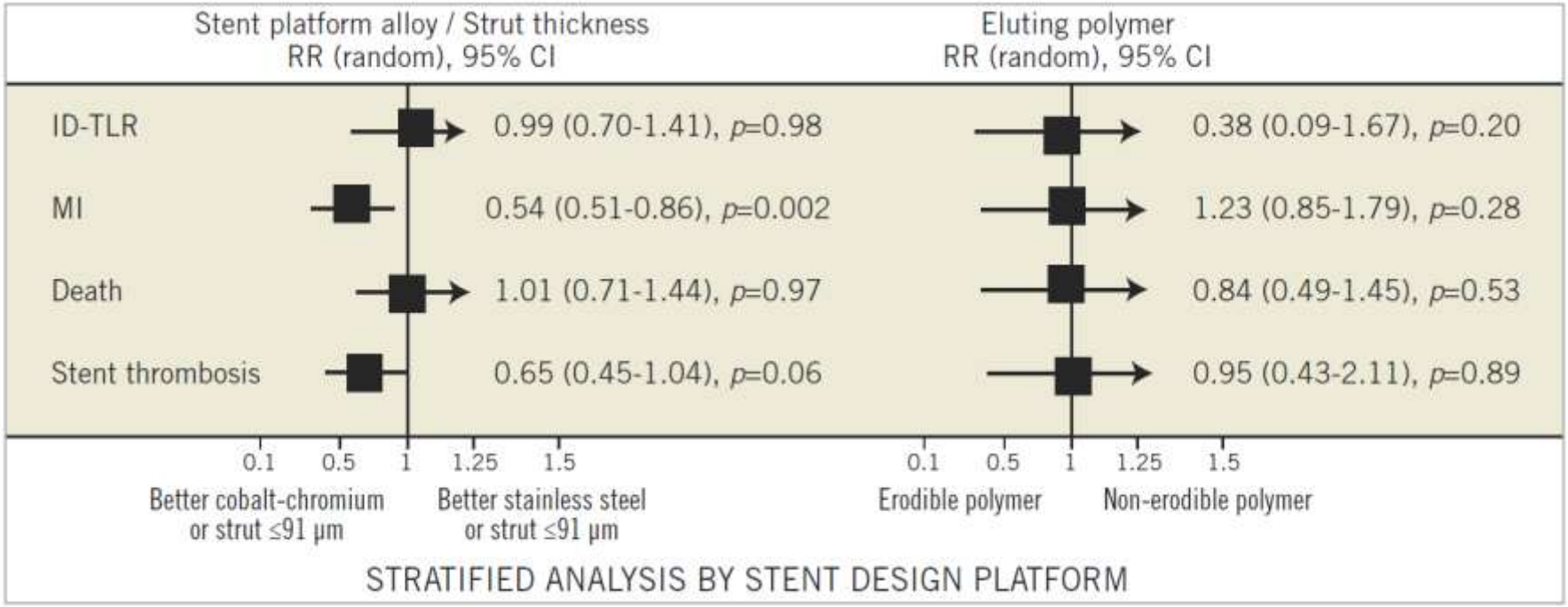
H. Colmenarez et al ; EuroInternetion 2013

Stent Thrombosis



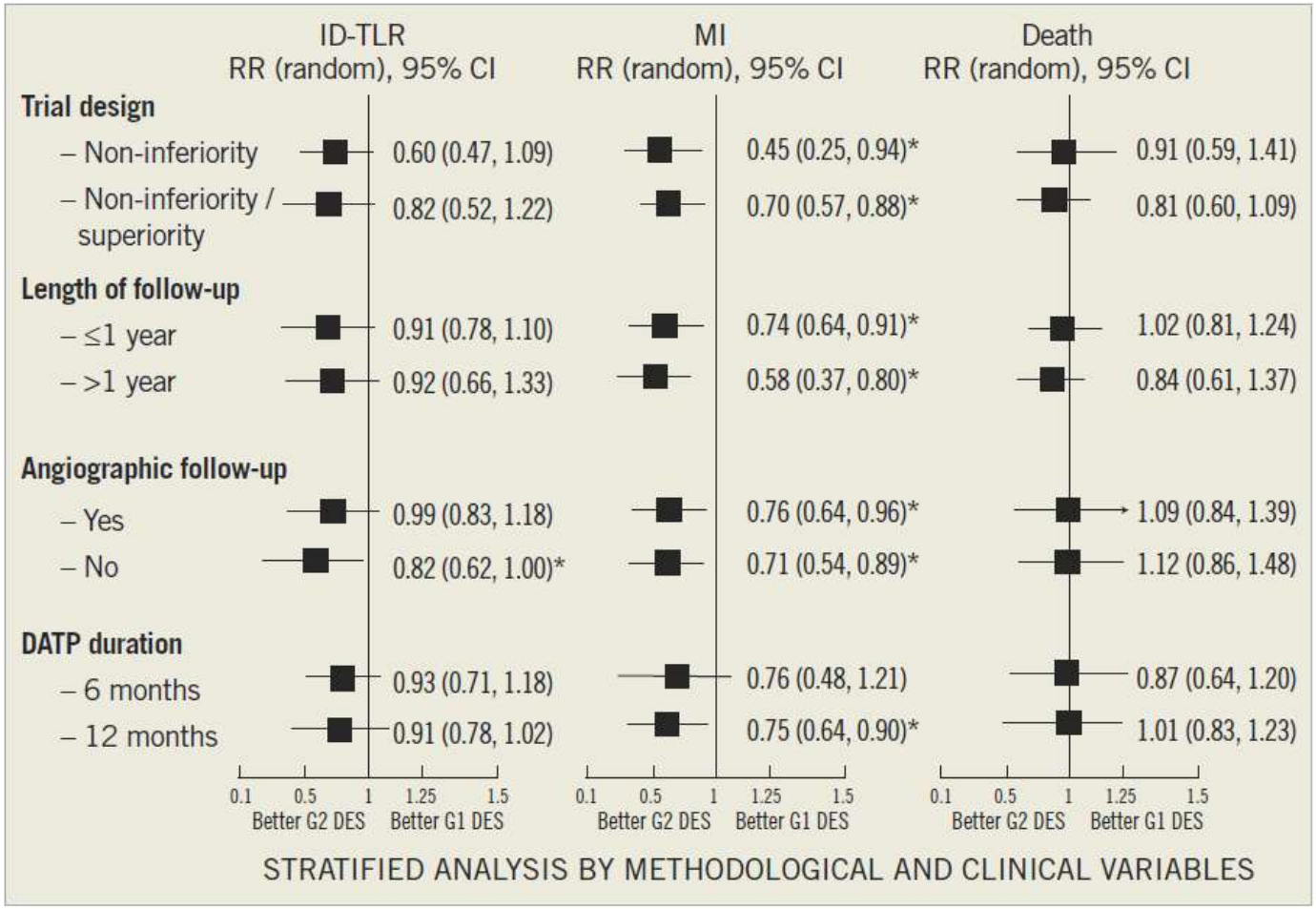
H. Colmenarez et al ; EuroInternetion 2013

Stent Design / Strut thickness and Outcome



H. Colmenarez et al ; EuroInternetion 2013

Methodological and Clinical Variable vs Outcome



H. Colmenarez et al ; EuroInternetion 2013

Research

Open access

Safety and efficacy outcomes of first and second generation durable polymer drug eluting stents and biodegradable polymer biolimus eluting stents in clinical practice: comprehensive network meta-analysis

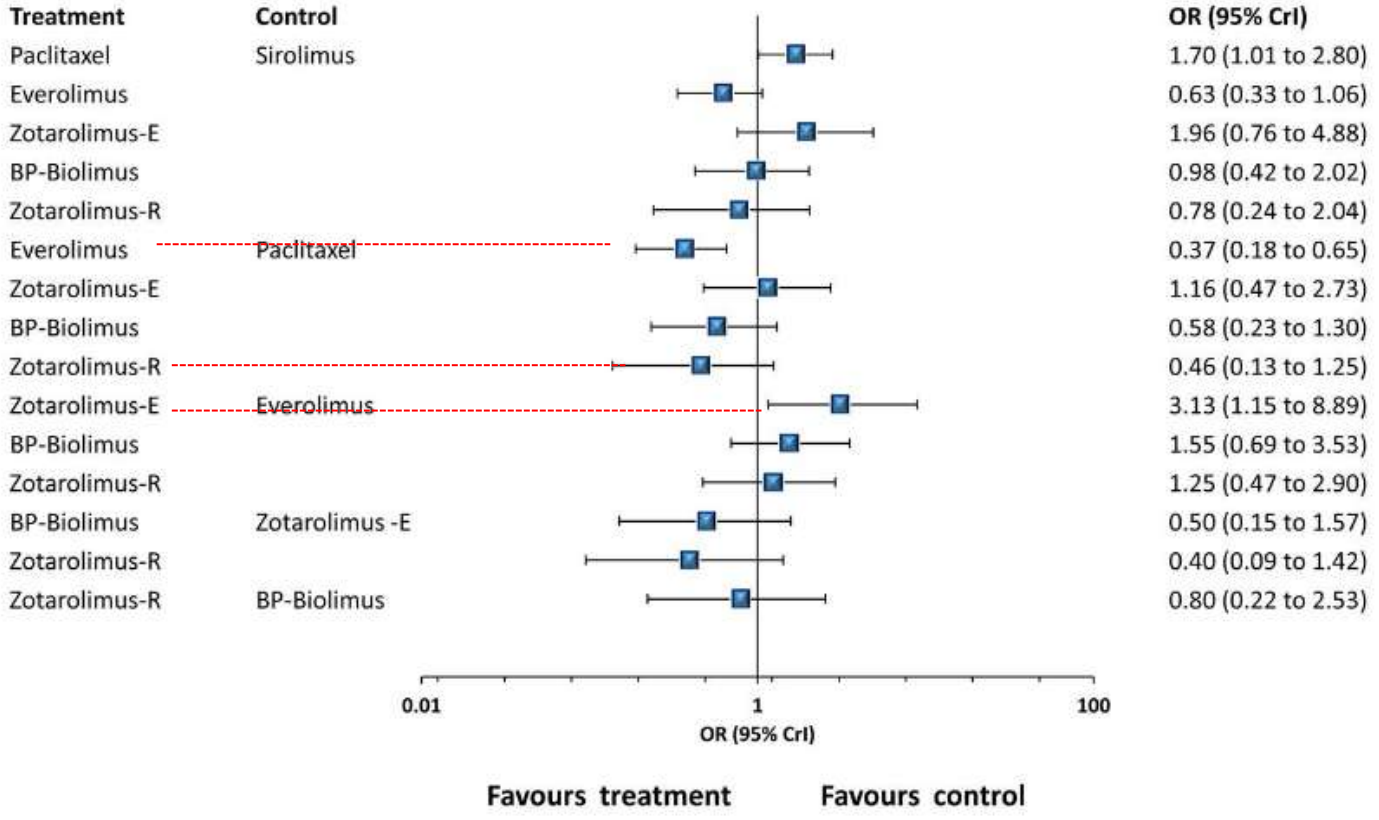
BMJ 2013 ; 347 doi: http://dx.doi.org/10.1136/bmj.f6530 (Published 06 November 2013)
Cite this as: *BMJ* 2013;347:f6530

EP Navarese et al , BMJ 2013 ;347:1-17

60 RCT
Including 63 242 patients

Safety and efficacy outcomes of first abd second generation durabile polimer drug eluting stents and biodegradable polymer biolimus eluting stent in clinical practice : comprehensive network meta-analysis

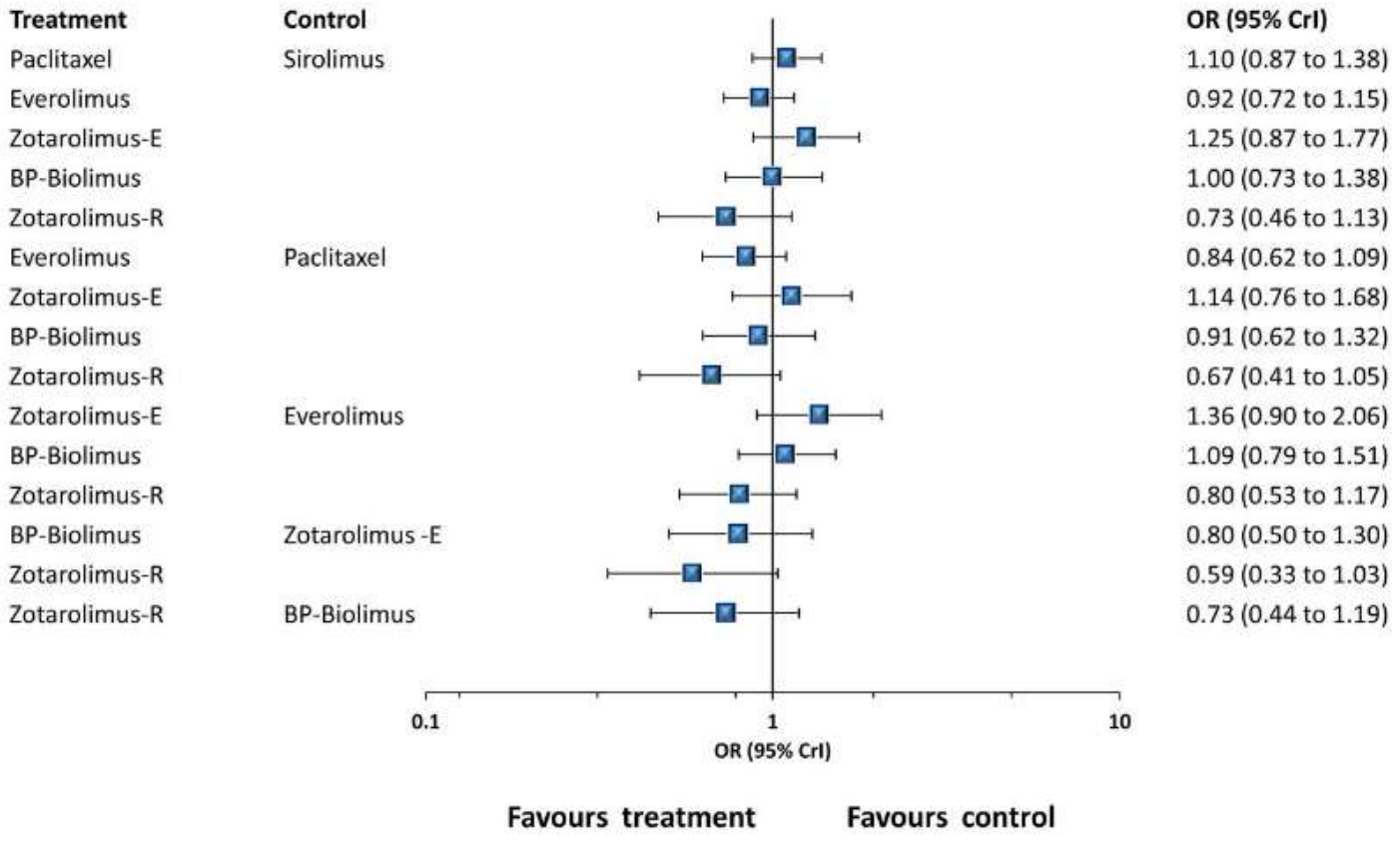
Stent Thrombosis



EP Navarese et al , BMJ 2013 ;347:1-17

Safety and efficacy outcomes of first abd second generation durabile polimer drug eluting stents and biodegradable polymer biolimus eluting stent in clinical practice : comprehensive network meta-analysis

Mortality



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Safety and efficacy outcomes of first abd second generation durabile polimer drug eluting stents and biodegradable polymer biolimus eluting stent in clinical practice : comprehensive network meta-analysis

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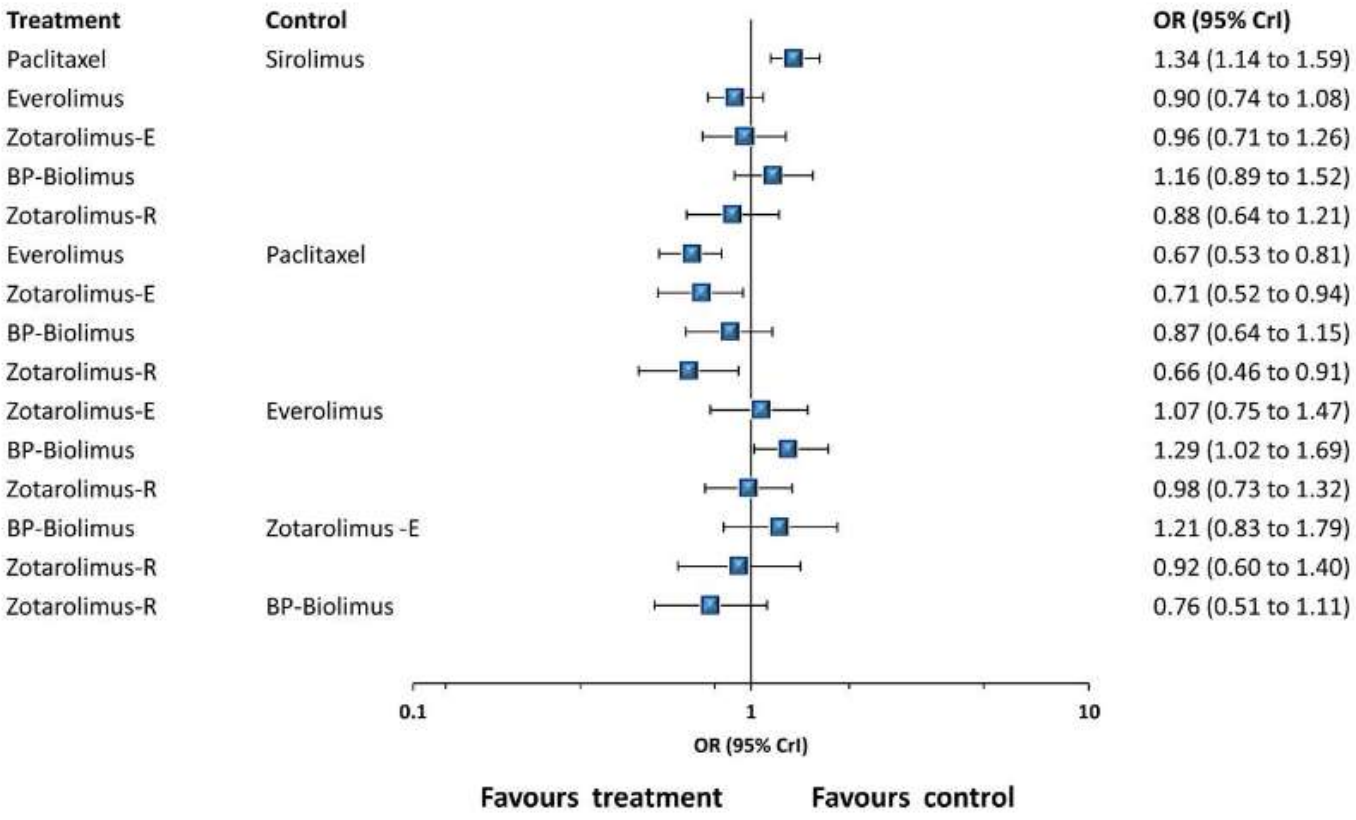

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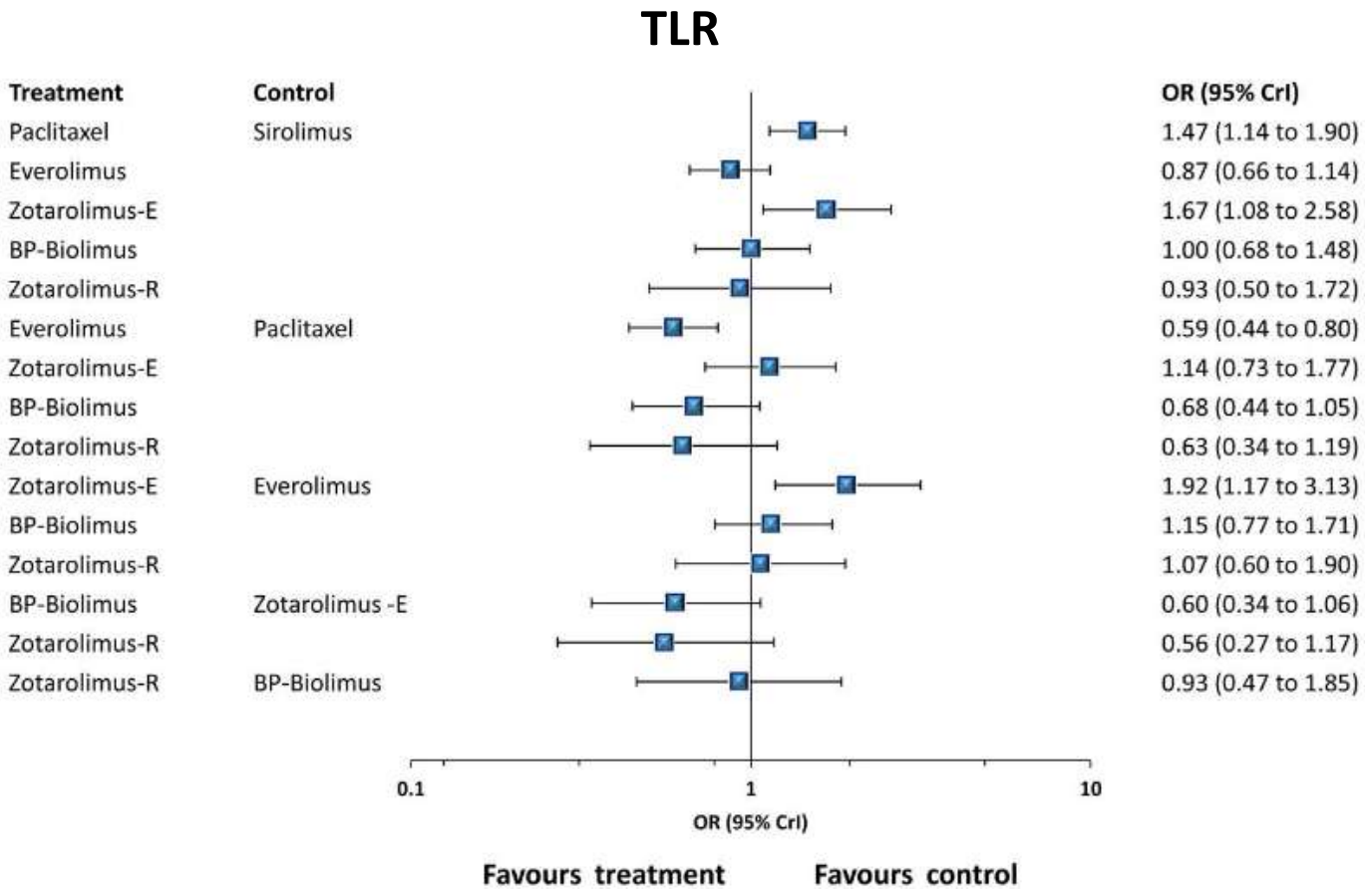
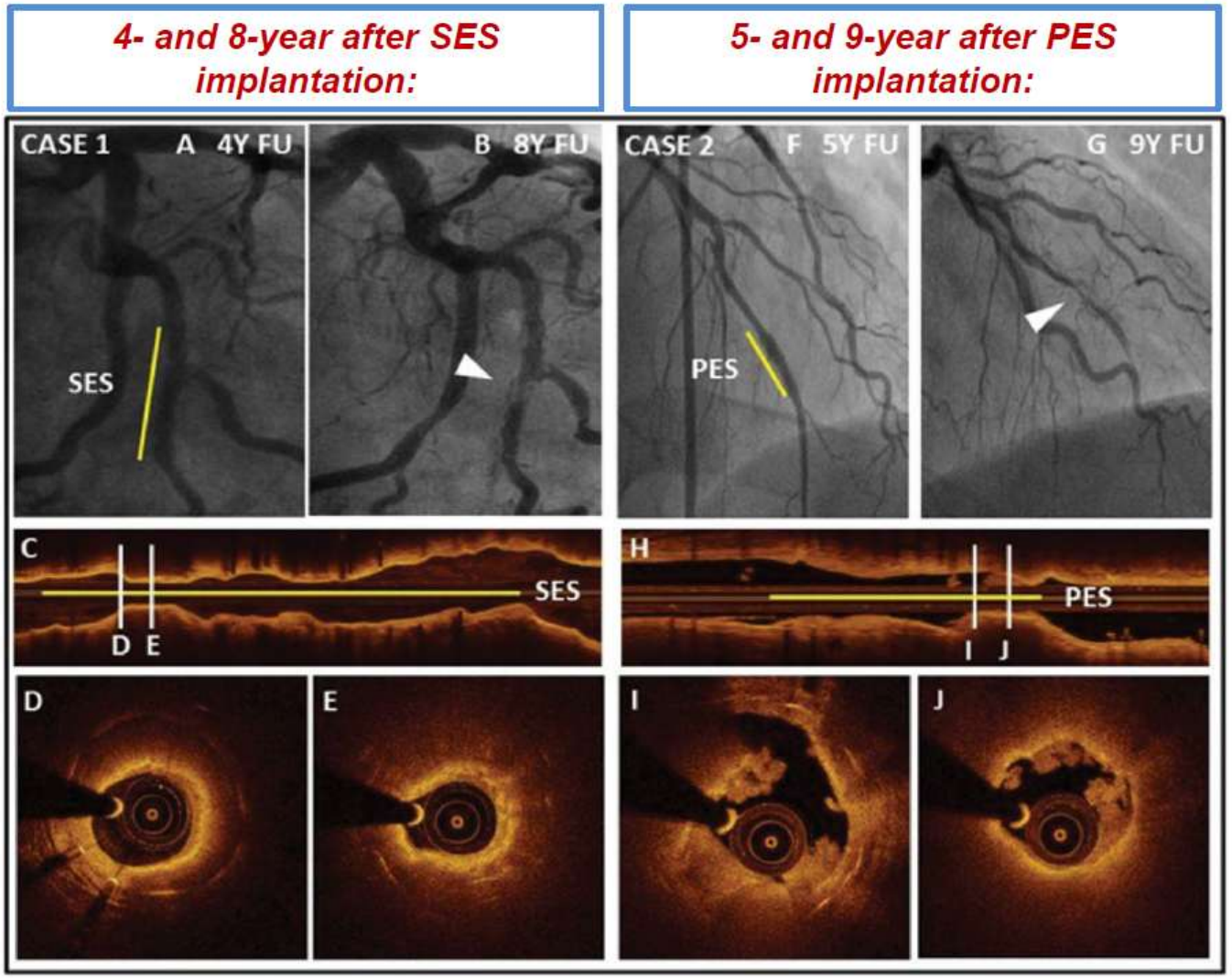
Safety and efficacy outcomes of first abd second generation durabile polimer drug eluting stents and biodegradable polymer biolimus eluting stent in clinical practice : comprehensive network meta-analysis



EP Navarese et al , BMJ 2013 ;347:1-17

Still some challenge :

VERY LATE STENT FAILURE



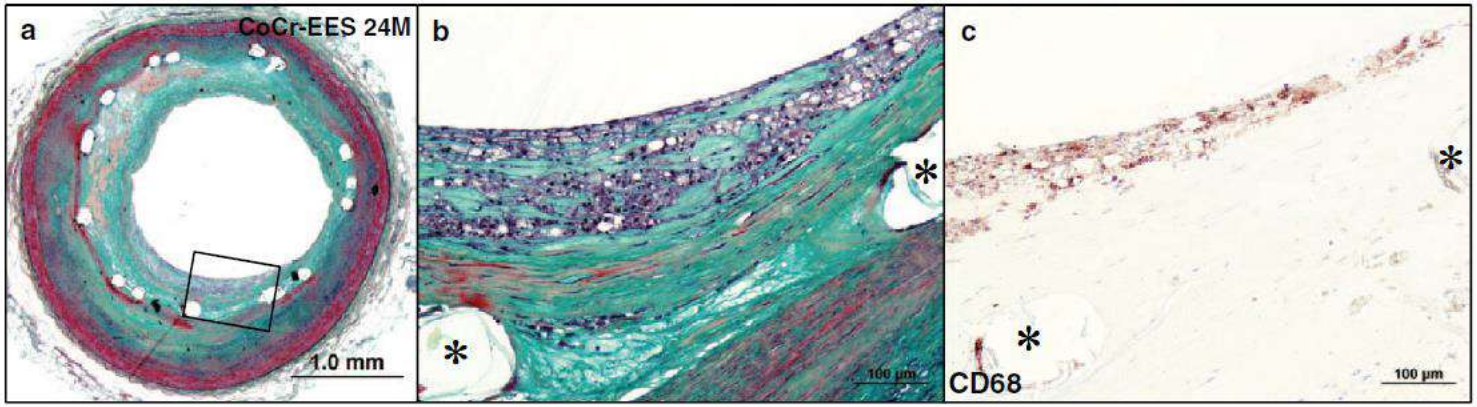
TaniwakiM et al. *EHJ* 2014

PATHOLOGY OF EES vs SES vs PES

Otsuka F.et al. *Circulation* 2014

EES showed

- **Fewer uncovered struts**
- **Lower inflammation score and less fibrin deposition**
- **Similar frequency of neoatherosclerosis**

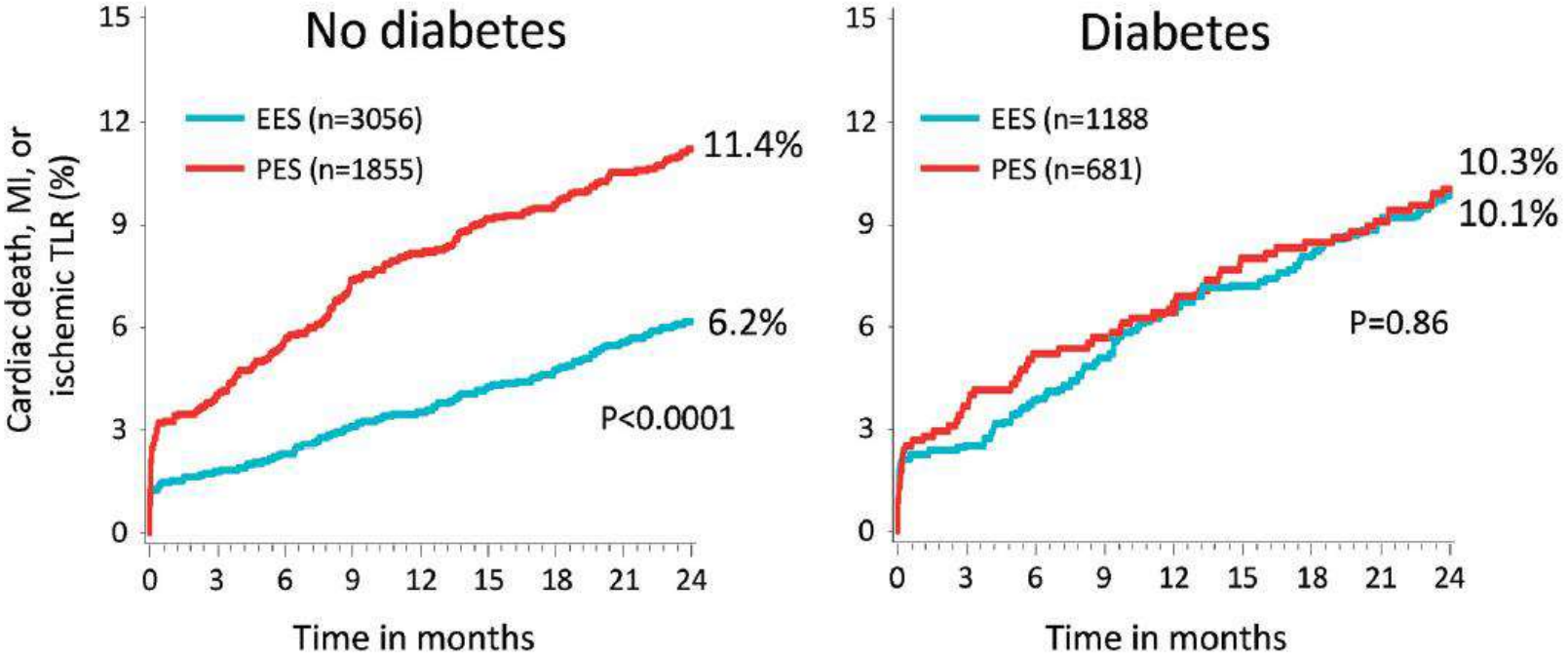


Everolimus-Versus Paclitaxel-Eluting Stents Among Diabetic and Non diabetic Patients

IPD ofSPIRIT II, III, IV, andCOMPARE Trials (N=6,789)

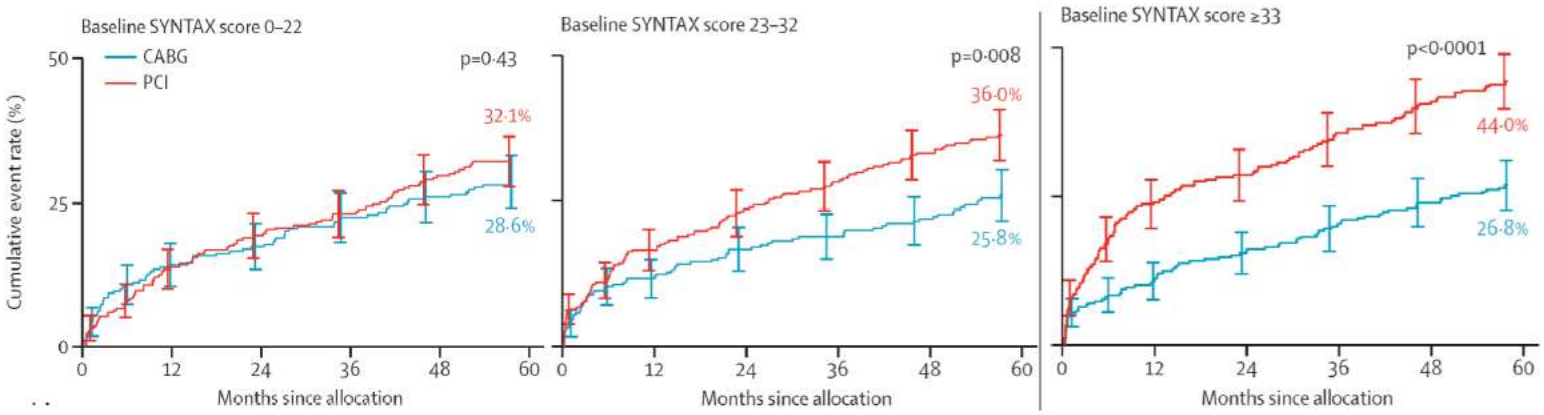
MACE at 2 years

P-inter= 0.0009



Stone G et al. *Circulation*2011; 124:893-900

MACCE TO 5 YEARS BY SYNTAX SCORE



	Death	MI	Death	MI	Death	MI
PCI	8.9	7.8	13.8	11.2	19.2	10.1
CABG	10.1	4.2	12.7	3.6	11.4	3.9
	P=0.64	*P=0.11*	*P=0.68*	*P=0.0009*	*P=0.005*	*P=0.004*

Mohr FW et al. *Lancet* 2013;381:629-38

Recommendations for DES Use *Stable CAD* 2014 Guidelines on Myocardial Revascularization

Stabile Angina	DES is recommended in SCAD patients undegoing stenting if there is no controindication to prologed DAPT	I	A
ACS	New Generation DES aare indicated for percutaneous treatmentof significant coronary lesions in ACS patients	I	A
Myocardial Infarction PCI	New Generation DES are recommended over BMS in Primary PCI	I	A

Final Remarks

- New Generation DES have appreciably improved safety and efficacy profiles in ACS and stable CAD compared to first generation DES
- Further progress in DES technology (utilizing small amounts of a bioabsorbable polymer, polymer-free systems , thiner struts ,new drugs …) future generations of mettalic DES can likely further reduce stent thrombosis and improve late outcomes
- New generation DES reduced tha gap with CABG , however, their efficacy still require improvement in some patients subset (Diabetics, diffuse multivessel disease)