

Lessons from Pooled Data with Xience Everolimus- Eluting Stents

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15 Randomized Trials of EES (N=20,278)

- **EES vs. PES (n=7,313)**
 - SPIRIT II (n=300); 5-yr FU reported
 - SPIRIT III (n=1,002); 5-yr FU reported
 - SPIRIT IV (n=3,687); 3-yr FU reported
 - SPIRIT V Diabetes (n=324); 1-year FU reported
 - COMPARE (n=1,800); 3-yr FU reported
 - EXECUTIVE (n=200); 9-mo FU reported
- **EES vs. SES (n=7,752)**
 - SORT OUT 4 (n=2,777); 9-mo FU reported
 - ISAR-TEST-4 (n=1,304); 2-yr FU reported
 - EXCELLENT (n=1,372); 1-yr FU reported
 - BASKET-PROVE (n=1,549); 2-yr FU reported
 - ESSENCE-Diabetes (n=300); 1-yr FU reported
 - LONG-DES-III (n=450); 1-yr FU reported
- **EES vs. ZES (Resolute) (n=3,683)**
 - Resolute All-comers (n=2,292); 2-yr FU reported
 - TWENTE (n=1,391); 1-yr FU reported
- **EES vs. Promus Element (n=1,530)**
 - PLATINUM (n=1,530); 2-yr FU reported

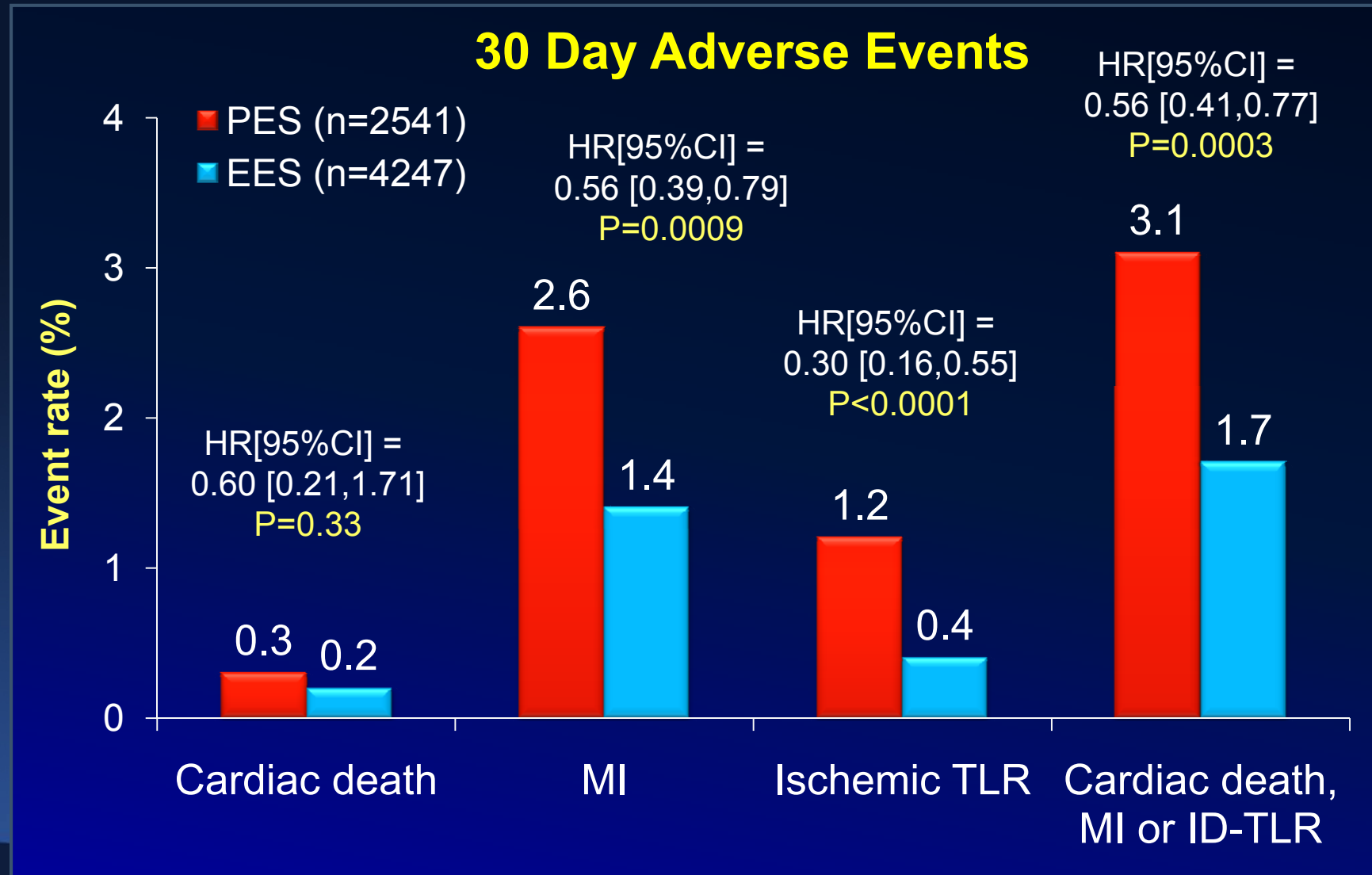
Characteristics of the Prospective, Randomized EES vs. PES Trials

<u>N = 6,789</u>	SPIRIT II	SPIRIT III	SPIRIT IV	COMPARE
Number of ITT patients*	300	1002	3687	1800
Randomization EES:PES	3:1	2:1	2:1	1:1
PES platform	Express	Express	Express	Liberté
Lesion length (mm)	≤28	≤28	≤28	No limit
Maximum lesions/patient	2	2	3	No limit
Major patient and lesion exclusion criteria	Complex or high risk†	Complex or high risk†	Complex or high risk†	None
Routine angio follow-up				
- Timing	6 /24 months	8 months	None	None
- Number completed (%)	275 (91.7%) – 6mo	436 (43.5%)	0	0
DAPT duration (protocol)	6 months	6 months	12 months	12 months

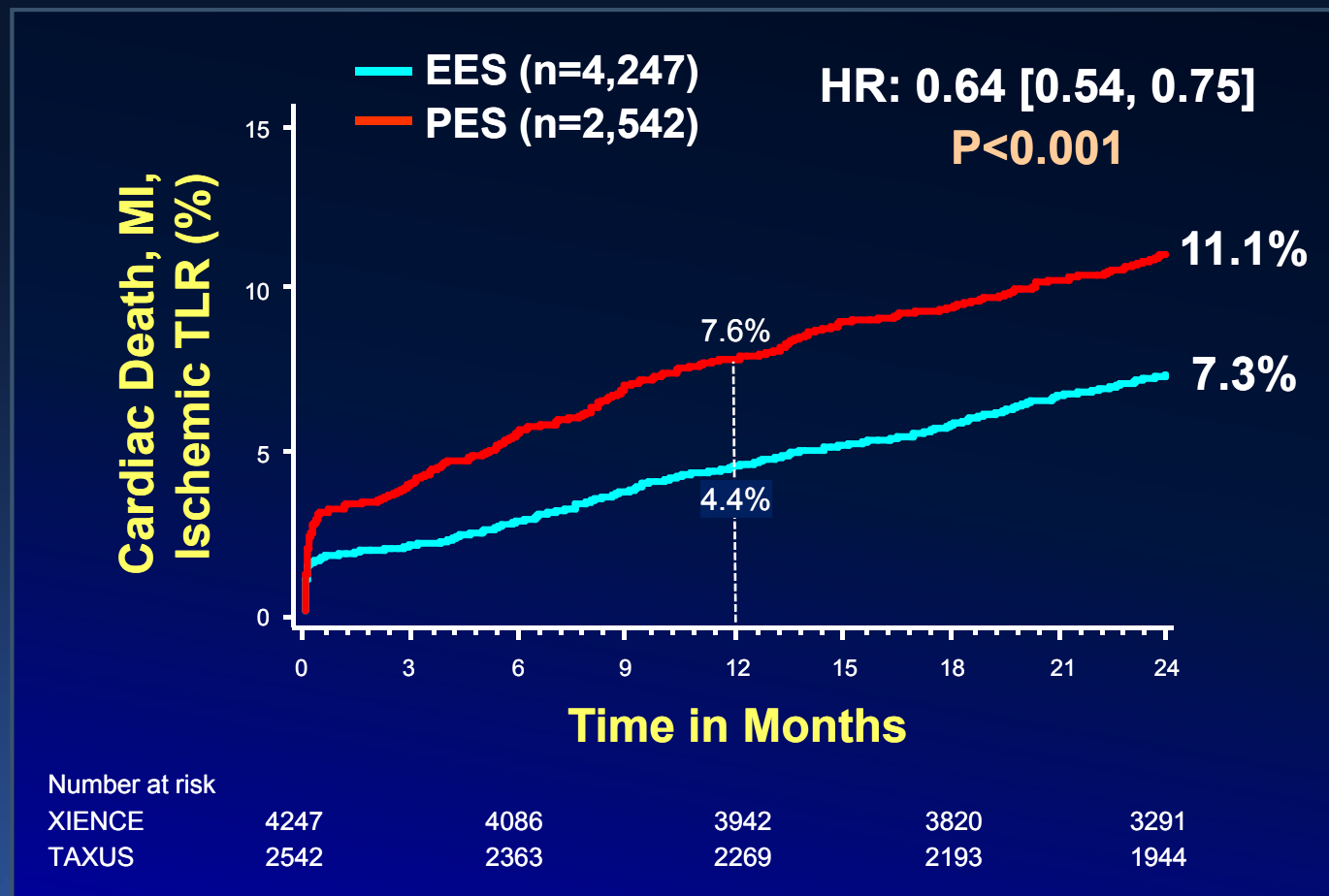
† Including acute or recent MI, LVEF <30%, lesions which were in a bypass graft conduit, occluded, bifurcations (minor bifurcations were included in SPIRIT IV), ostial (ostial RCA lesions were included in SPIRIT IV), severe calcification or tortuosity.

SPIRIT/COMPARE Pooled Patient Level Analysis

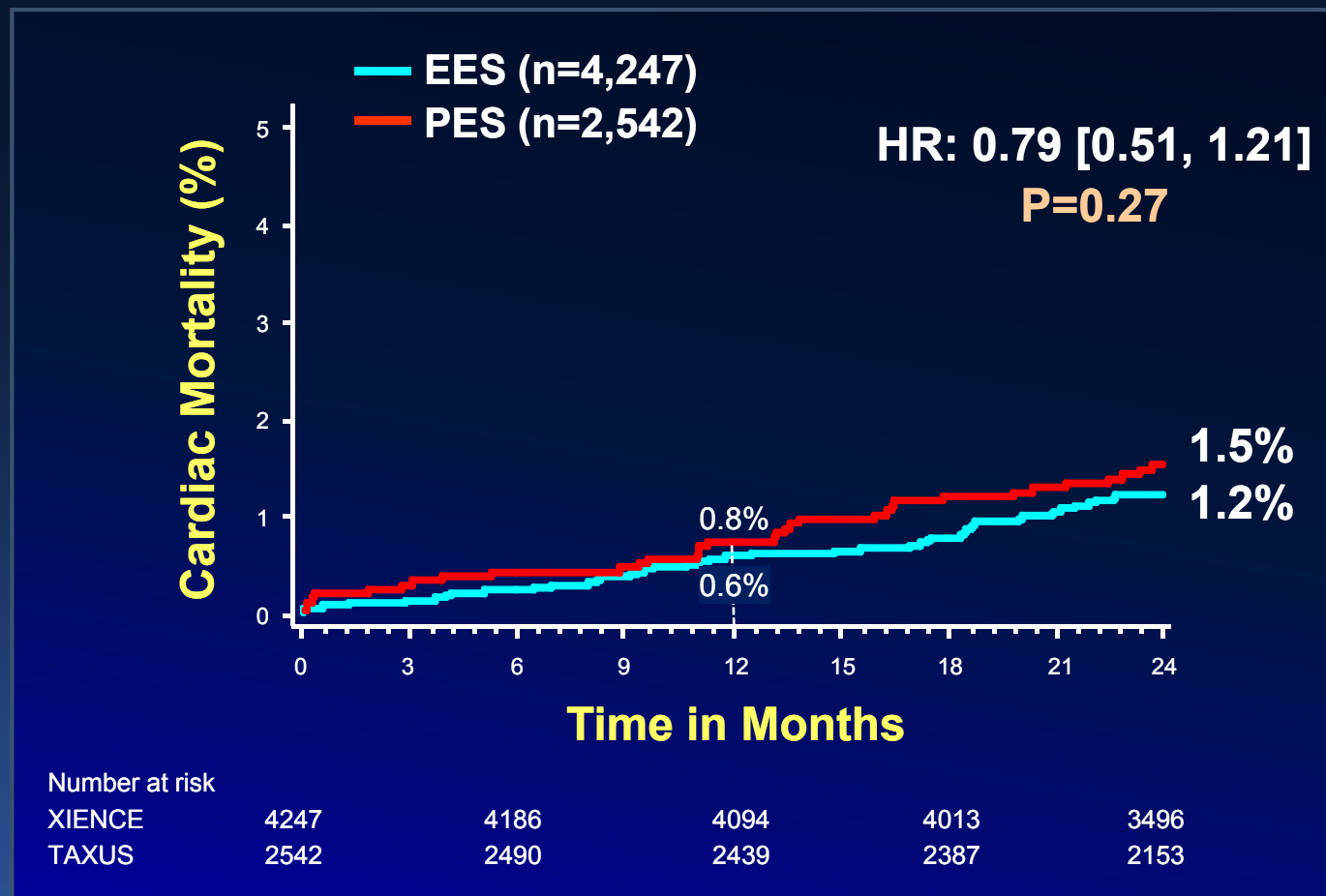
SPIRIT II, SPIRIT III, SPIRIT IV, COMPARE (N=6,789)



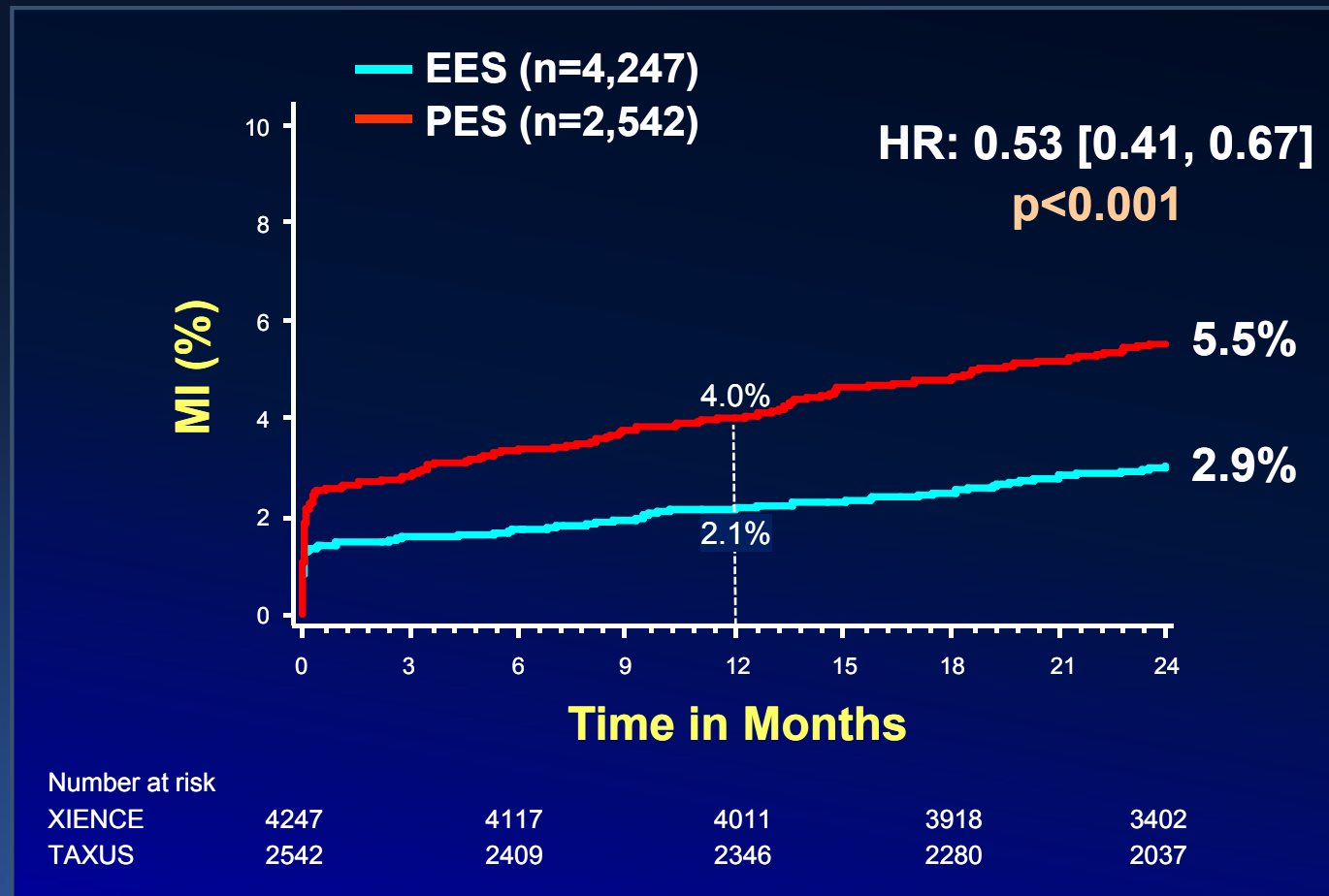
SPIRIT II, III, IV and COMPARE trials Pooled database analysis (n=6,789) MACE (Cardiac Death, MI, ID-TLR)



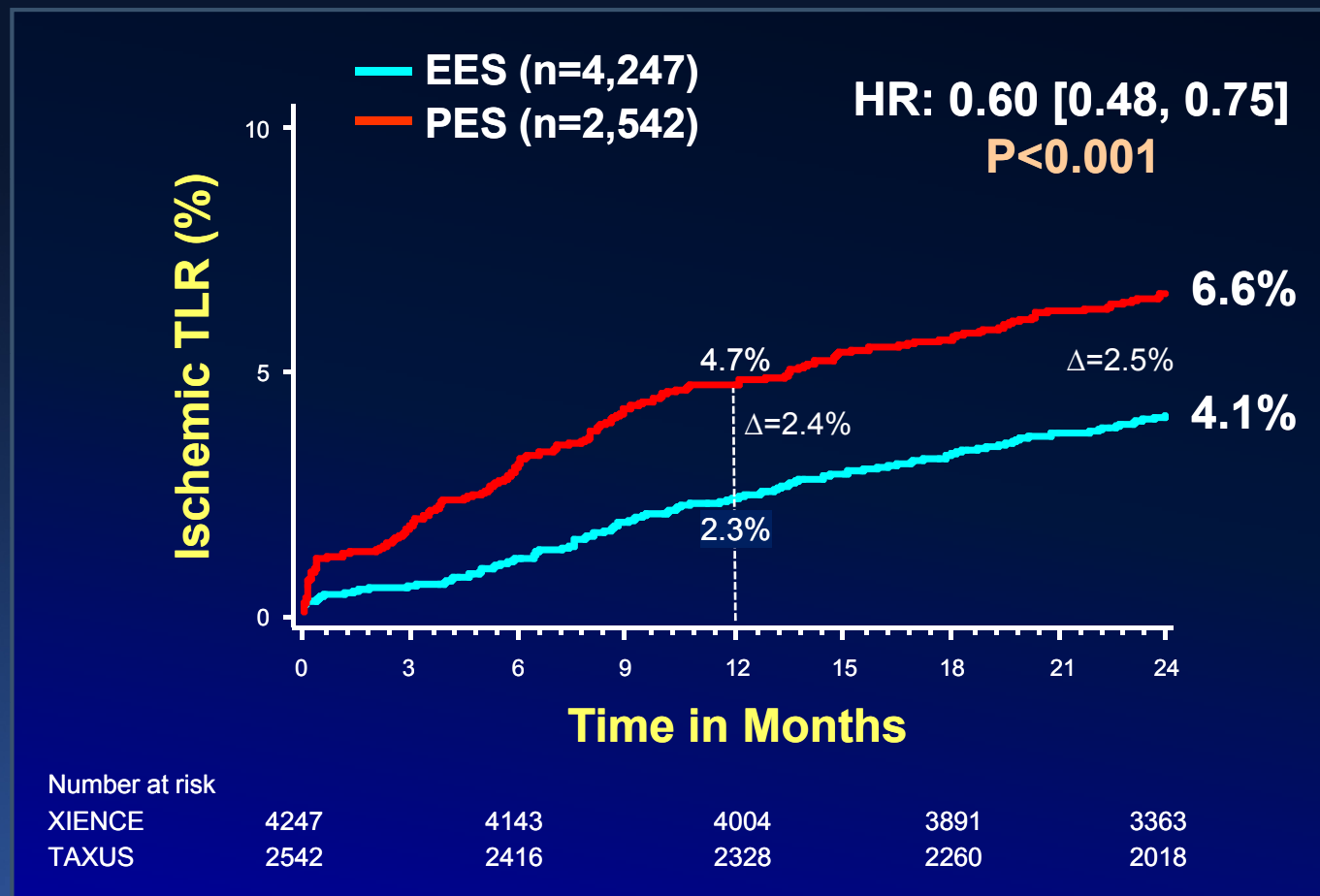
SPIRIT II, III, IV and COMPARE trials Pooled database analysis (n=6,789) Cardiac mortality



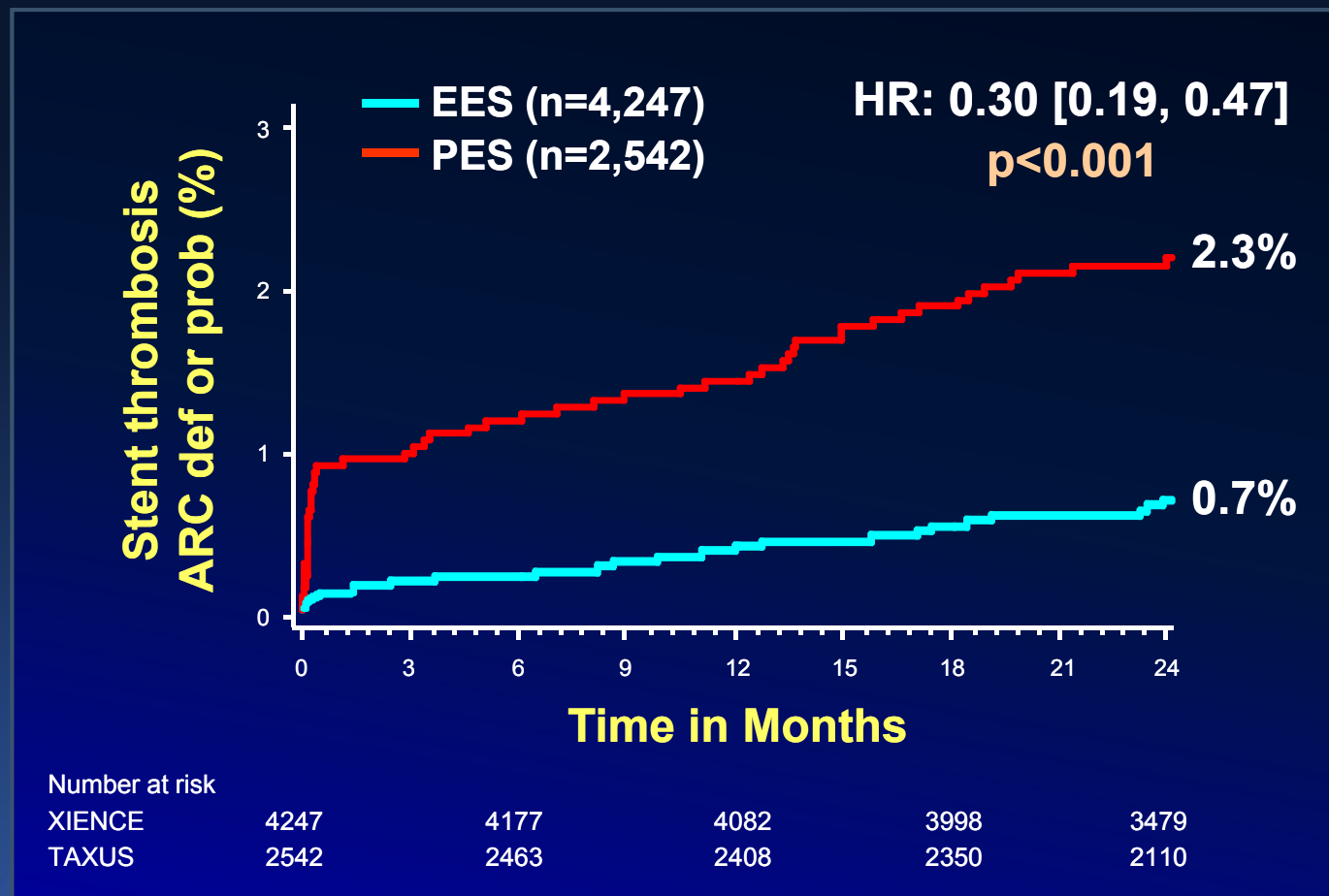
SPIRIT II, III, IV and COMPARE trials Pooled database analysis (n=6,789) Myocardial infarction



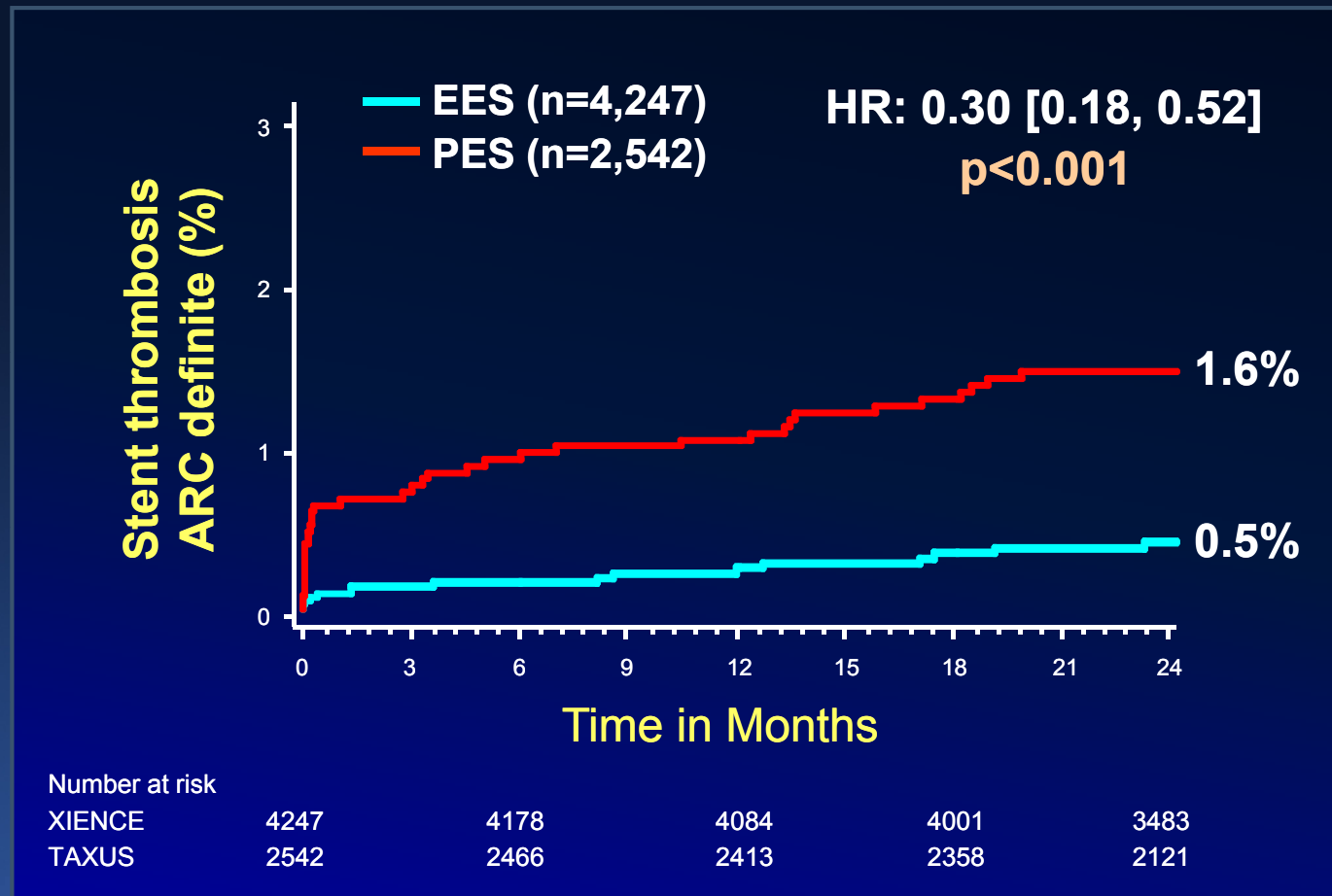
SPIRIT II, III, IV and COMPARE trials Pooled database analysis (n=6,789) Ischemic TLR



SPIRIT II, III, IV and COMPARE trials Pooled database analysis (n=6,789) Stent thrombosis (ARC definite/probable)



SPIRIT II, III, IV and COMPARE trials Pooled database analysis (n=6,789) Stent thrombosis (ARC definite)



Stent thrombosis with drug-eluting and bare-metal stents: evidence from a comprehensive network meta-analysis



Tullio Palmerini, Giuseppe Biondi-Zoccai, Diego Della Riva, Christoph Stettler, Diego Sangiorgi, Fabrizio D'Ascenzo, Takeshi Kimura, Carlo Briguori, Manel Sabatè, Hyo-Soo Kim, Antoinette De Waha, Elvin Kedhi, Pieter C Smits, Christoph Kaiser, Gennaro Sardella, Antonino Marullo, Ajay J Kirtane, Martin B Leon, Gregg W Stone

Palmerini T et al. *Lancet* 2012:On-line

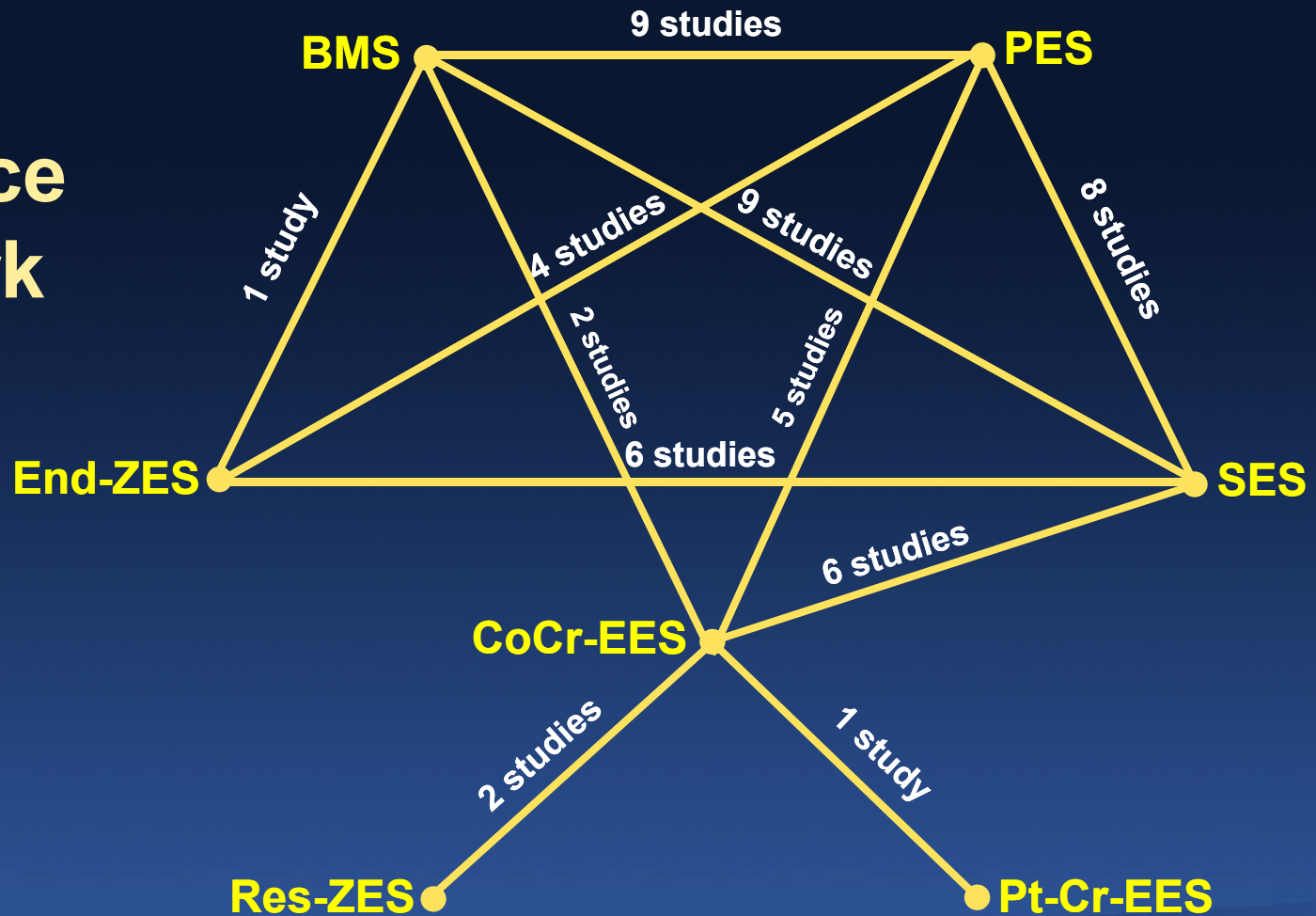
DOI:10.1016/S0140-6736(12)60324-9

Stent Thrombosis Network Meta-analysis

Primary EP: ARC Definite ST (FU through 2 years)

49 RCTs, 50,844 pts

Evidence network

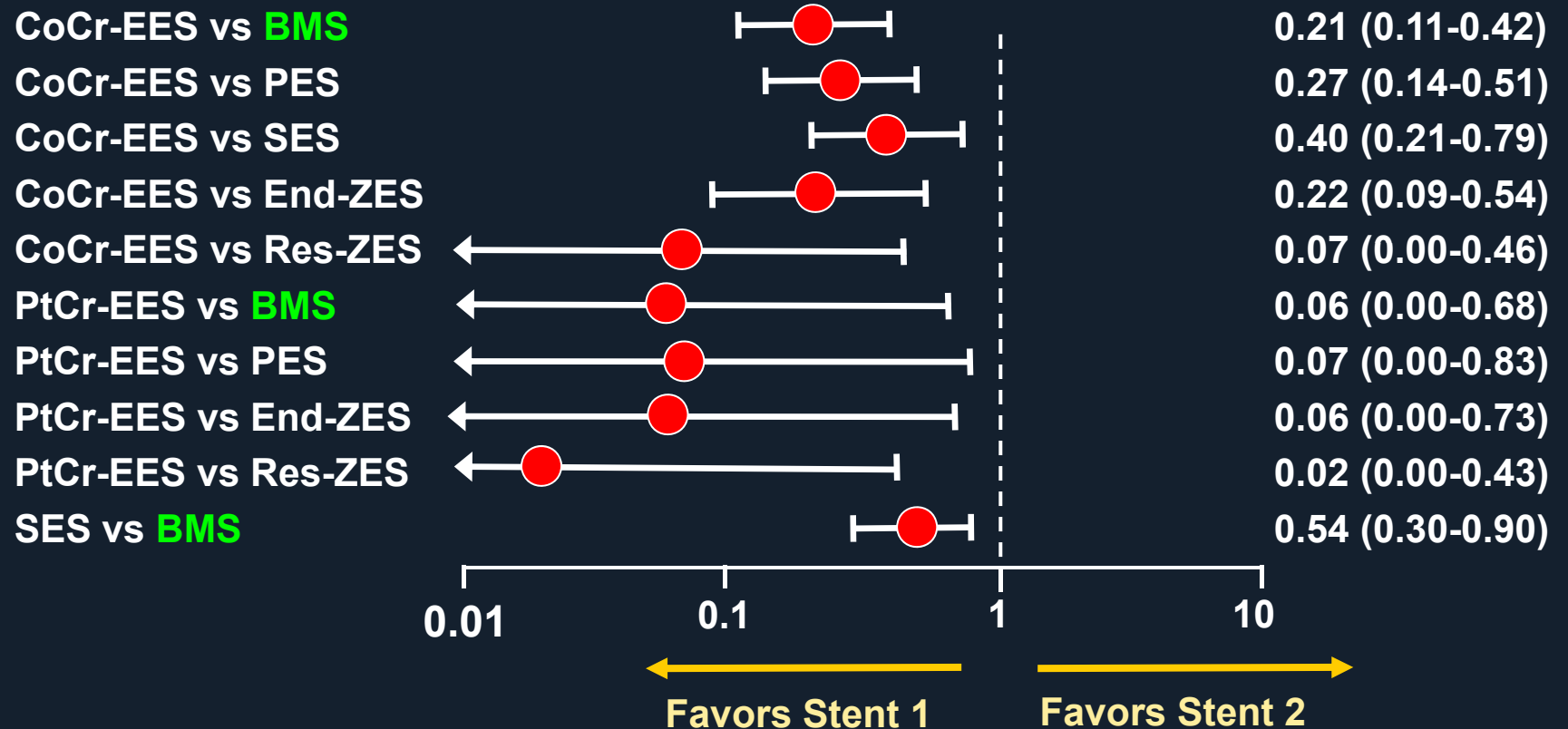


Stent Thrombosis Network Meta-analysis

Primary EP: ARC Definite ST (FU through 2 years)

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30-day definite stent thrombosis*



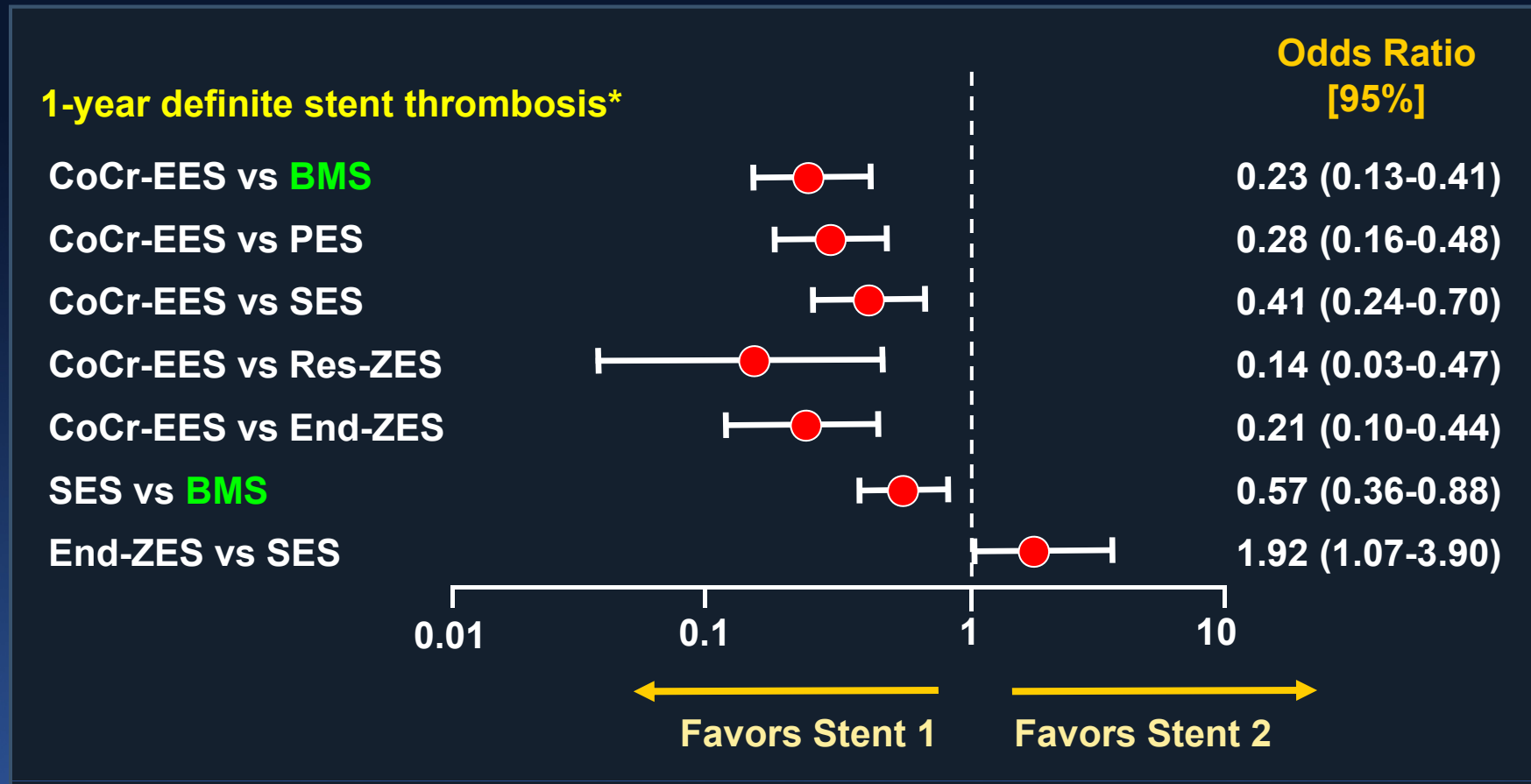
*Only statistically significant results are shown

Palmerini T et al. *Lancet* 2012:On-line

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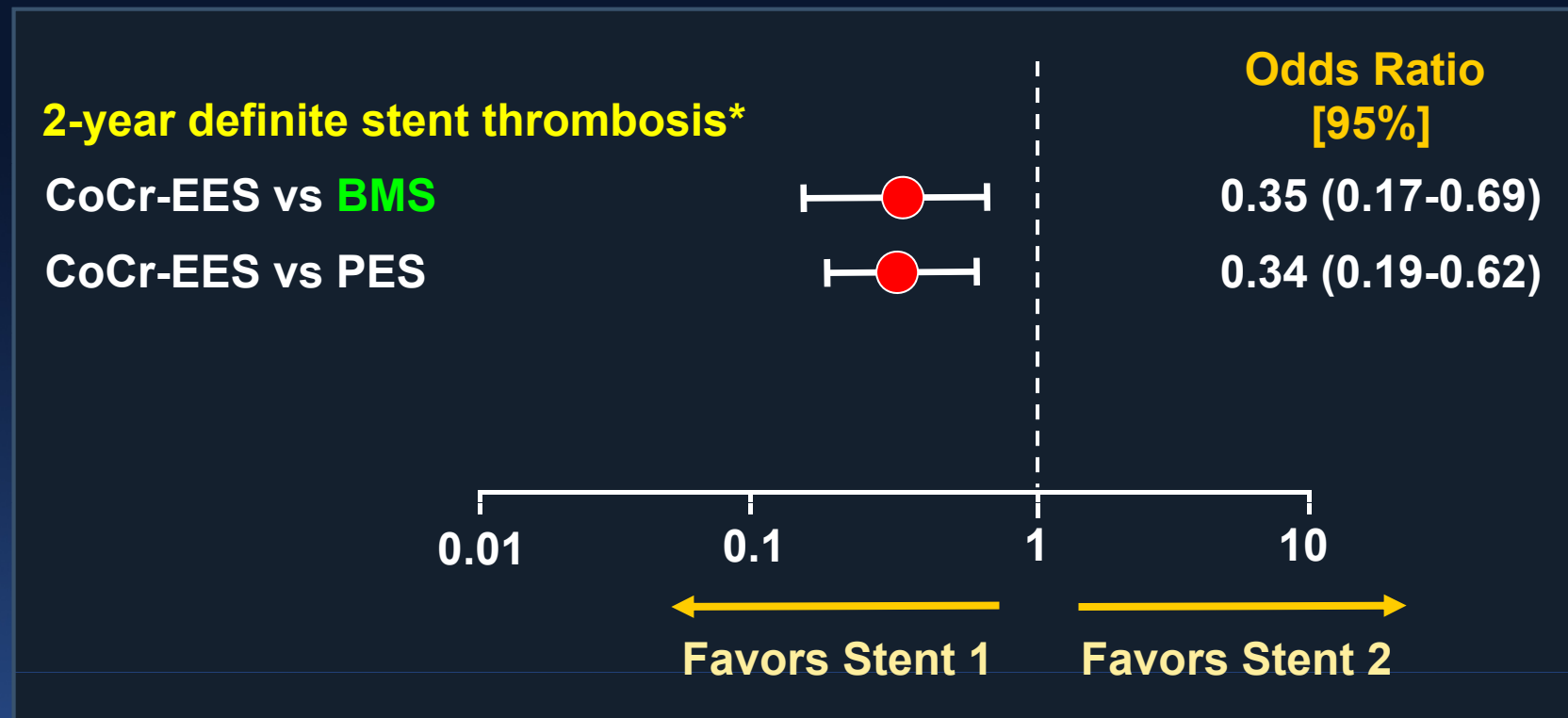
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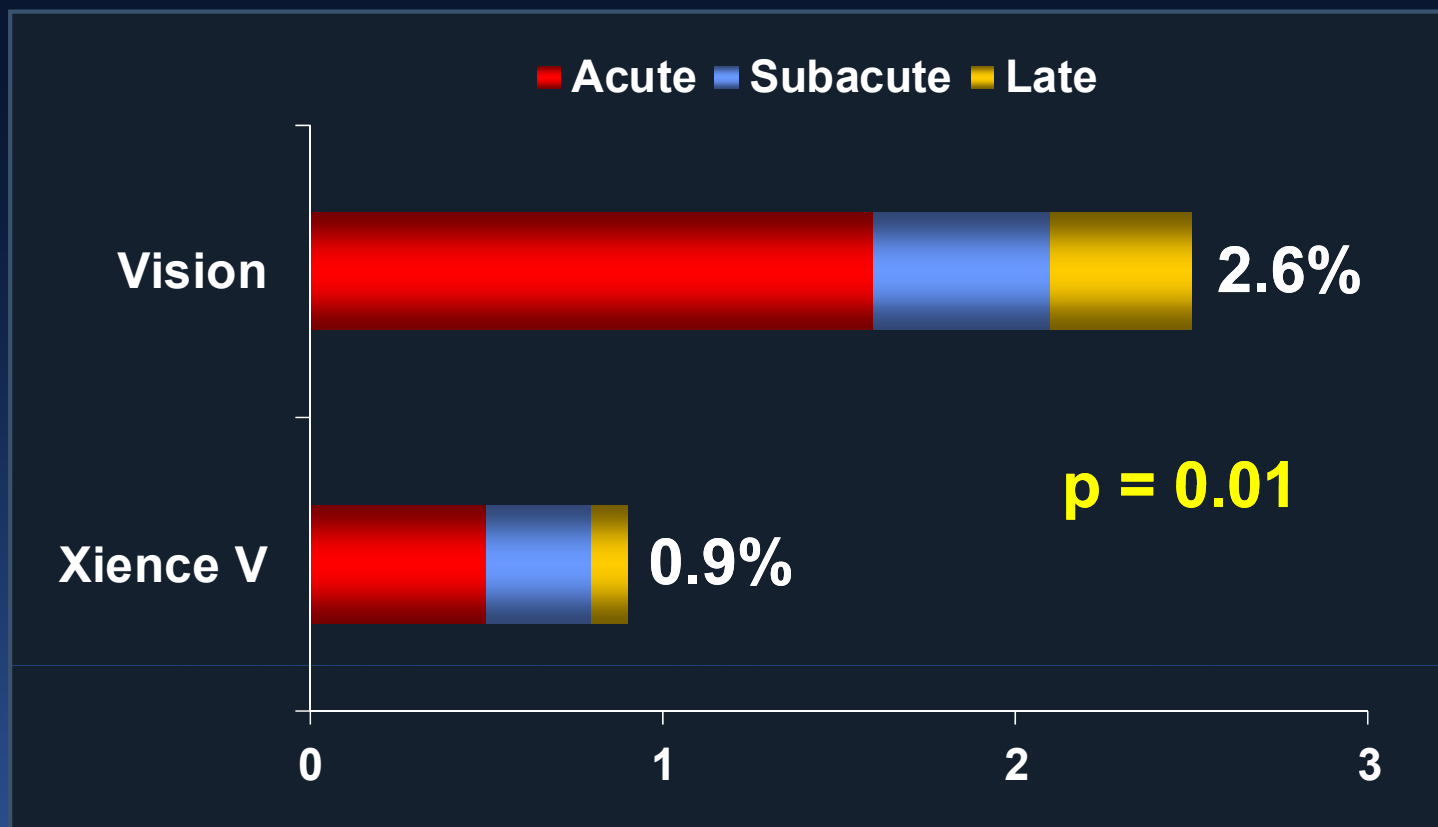
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Palmerini T et al. *Lancet* 2012:On-line

EXAMINATION Trial

1504 pts with STEMI undergoing PCI within 48° (85% primary PCI within 12°) were randomized to Xience V EES vs. Vision BMS

Stent thrombosis (Def/prob) within 1 year



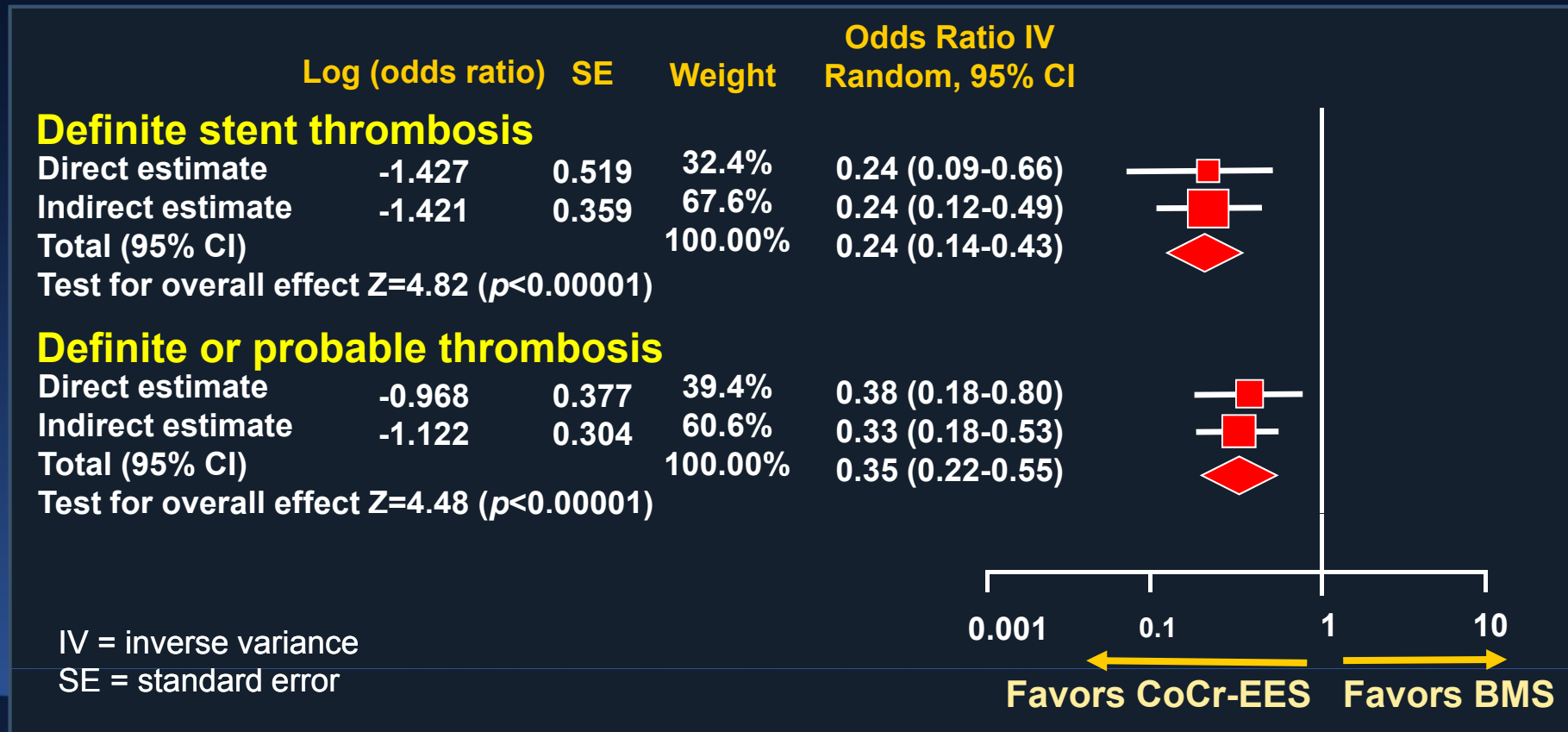
Definite ST was reduced with Xience V from 1.9% to 0.5%, p=0.01

Stent Thrombosis Network Meta-analysis

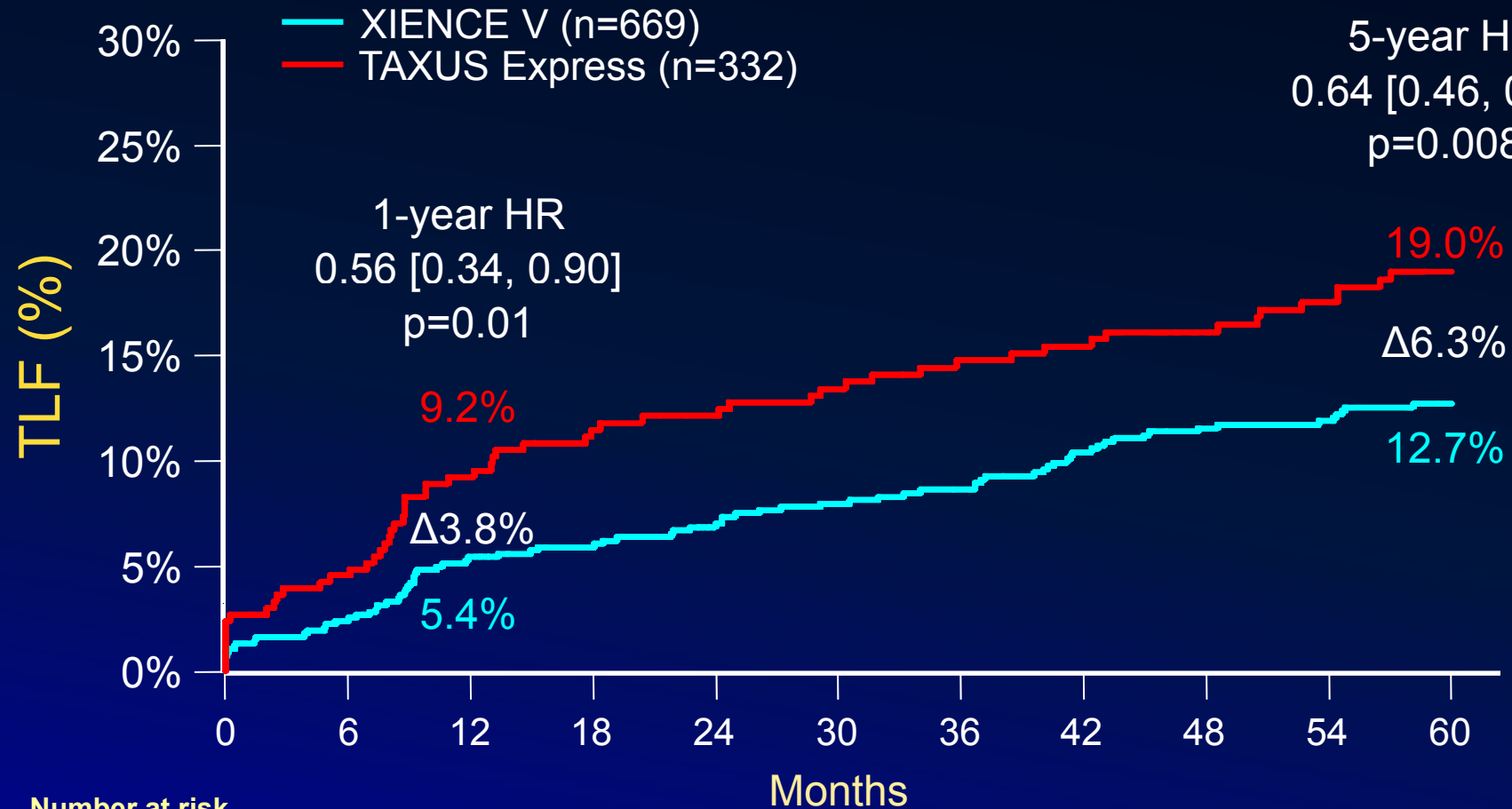
Primary EP: ARC Definite ST (FU through 2 years)

49 RCTs, 50,844 pts

Consistency between direct and indirect estimates of 1-year stent thrombosis for **CoCr-EES vs. BMS**

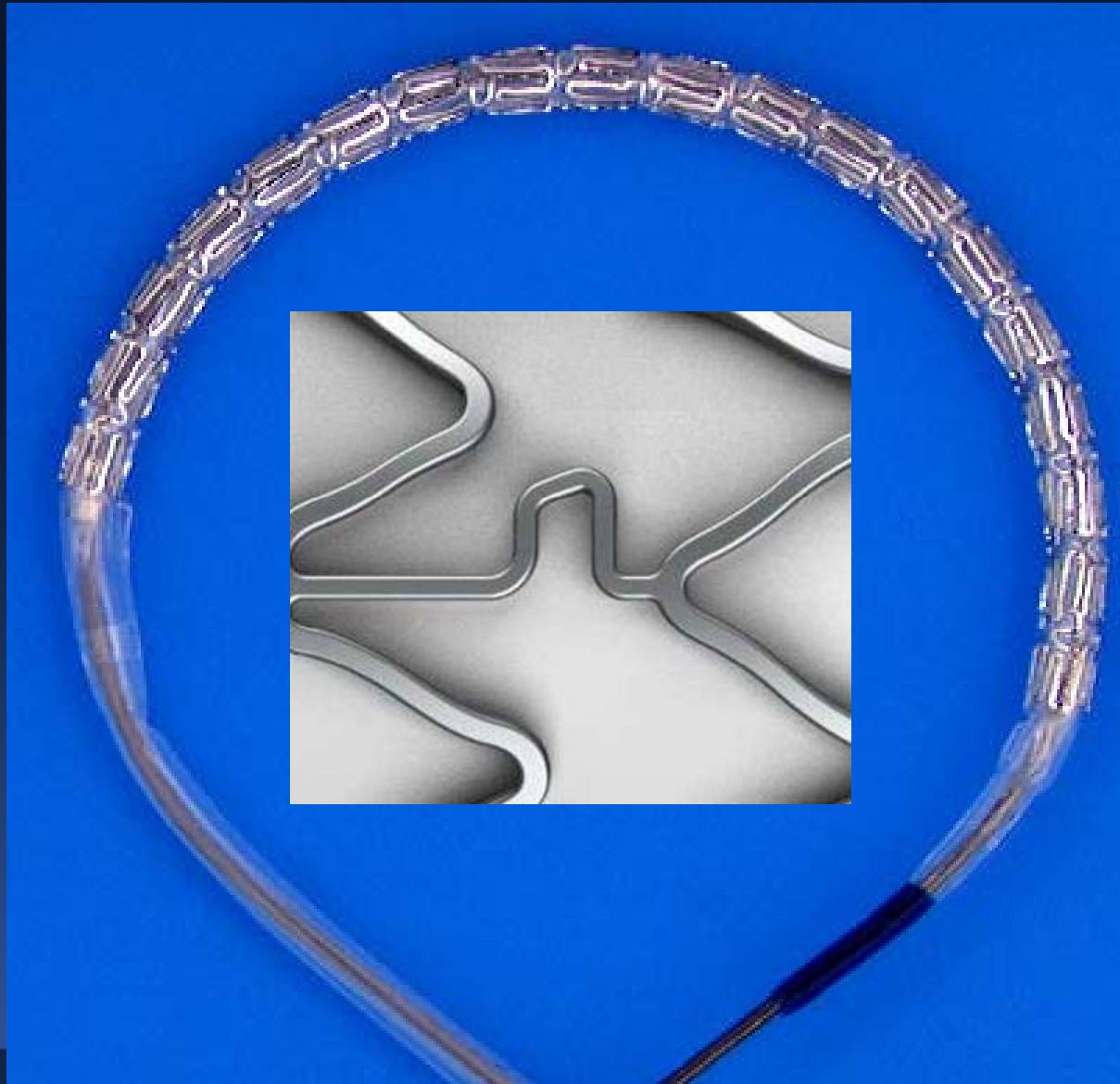


SPIRIT III: Target Lesion Failure Through 5 Years



TLF = cardiac death, target vessel MI, or ischemic-driven TLR

The Xience Prime Stent



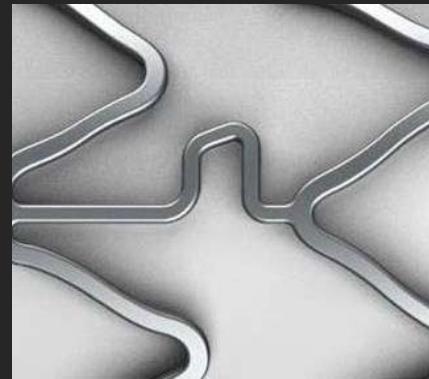
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Xience V vs. Xience Prime

Xience V Xience Prime



Slightly different link configuration

- longer cell length
- taller non-linear link
- symmetric proximal end ring

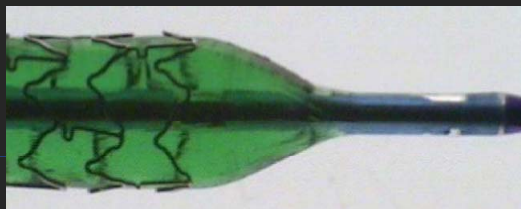
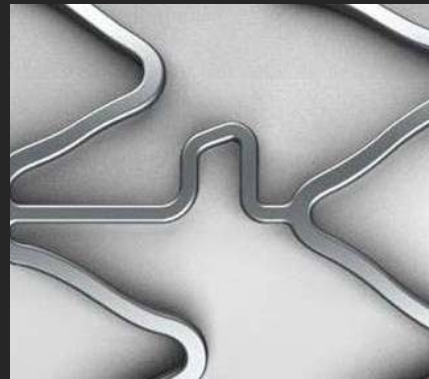
Properties (bench)

- better stent retention
- improved flexibility & deliverability (33 and 38 mm lengths)
- reduced strut interference
- comparable axial and radial strength/recoil and radioopacity

Same alloy (CoCr), strut thickness (81 μm), polymer (PBMA & PVDF-HFP), everolimus dose (100 $\mu\text{g}/\text{cm}^2$) and release kinetics (75% 1 mo, 100% 3 mos)

Xience V vs. Xience Prime

Xience V Xience Prime



Slightly different link configuration

- longer cell length
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Properties (bench)

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Substantially redesigned SDS

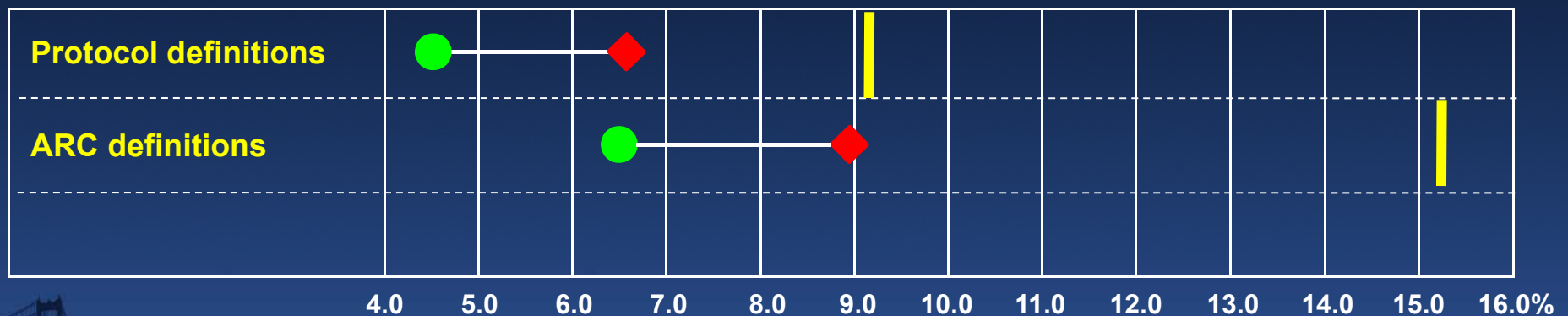
- better force transmission
- shorter balloon tapers
- higher RBP
- more flexible tip
- shorter deflation times

Same alloy (CoCr), strut thickness (81 μm), polymer (PBMA & PVDF-HFP), everolimus dose (100 $\mu\text{g}/\text{cm}^2$) and release kinetics (75% 1 mo, 100% 3 mos)

XIENCE Prime Core Sizes (N=401)

Primary Endpoint Analyses: TLF at 1 Year

Analysis	TLF	Upper limit of one-sided 95%CI	Performance Goal	P-Value
Protocol definitions	4.5%	6.6%	≤9.2%	0.0003
ARC definitions	6.5%	8.9%	≤15.3%	<0.0001



● Rate
 ◆ Upper limit of one-sided 95% CI
 | Performance goal

TLF = cardiac death, target vessel MI, or ischemic-driven TLR

Conclusions: Everolimus-Eluting Stents

- The results with the XIENCE V/PROMUS stent demonstrating enhanced safety and efficacy compared to TAXUS Express and Liberté in the SPIRIT and COMPARE trials set a new standard for event-free survival after DES
- The simultaneous reduction of stent thrombosis, MI and TLR with XIENCE V/Promus demonstrates that “low late loss” may be achieved with DES without sacrificing safety
- Emerging data suggests that fluoropolymer coated EES have lower rates of stent thrombosis than all other DES and possibly even BMS
- Compared to XIENCE V, the XIENCE Prime stent offers improved deliverability, stent retention and shorter cone angles, with as good or better clinical outcomes