

ISAR-TEST-4:

Randomized, Non-inferiority Trial of 3 Limus Agent-Eluting Stents With Different Polymer Coatings

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Polymer-based, drug-eluting stent (DES) therapy effectively reduces restenosis in patients with coronary artery disease.

However, their very late safety and efficacy might be compromised by presence of non-erodible coating exposed to the coronary arterial milieu long after its useful function has been served.

Animal and human studies have implicated durable polymer residue as a cause of persistent arterial wall inflammation and delayed vascular healing.

Two randomized trials with a total of 2312 pts have shown favorable 6 to 9-month outcomes with biodegradable polymer DES:
ISAR-TEST 3 and LEADERS trials

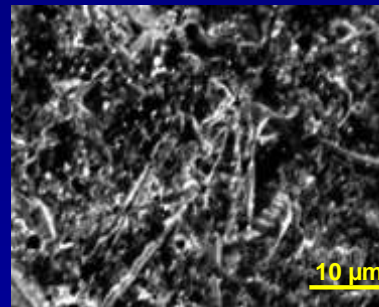
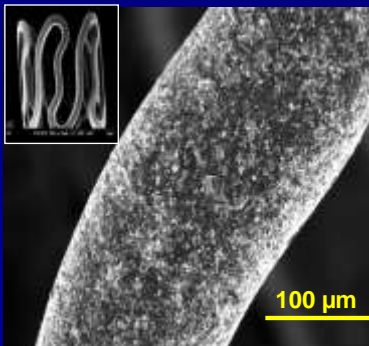
Objective of ISAR-TEST-4



...to compare the efficacy of a rapamycin-eluting biodegradable polymer stent against the 2 leading permanent polymer-based DES platforms – the rapamycin-eluting Cypher stent and the everolimus-eluting Xience stent – in a trial powered for clinical events (non-inferiority hypothesis)

Study DES Types

1-Rapamycin-eluting stent using a mixture of biodegradable polymer and natural resin -> developed in the settings of the ISAR-Project supported by the Bayerische Forschungsstiftung



Microporous Stainless Steel Stent Platform

2-Rapamycin-eluting stent with permanent polymer (Cypher)

3-Everolimus-eluting stent with permanent polymer (Xience)



Inclusion criteria

Patients with ischemic symptoms or evidence of myocardial ischemia in the presence of $\geq 50\%$ *de novo* stenosis located in native coronary arteries

Informed, written consent

Exclusion criteria

Age < 18 years

Cardiogenic shock

Target lesion located in the left main stem

Malignancies with life expectancy < 1 year

Allergies to study medication

Pregnancy

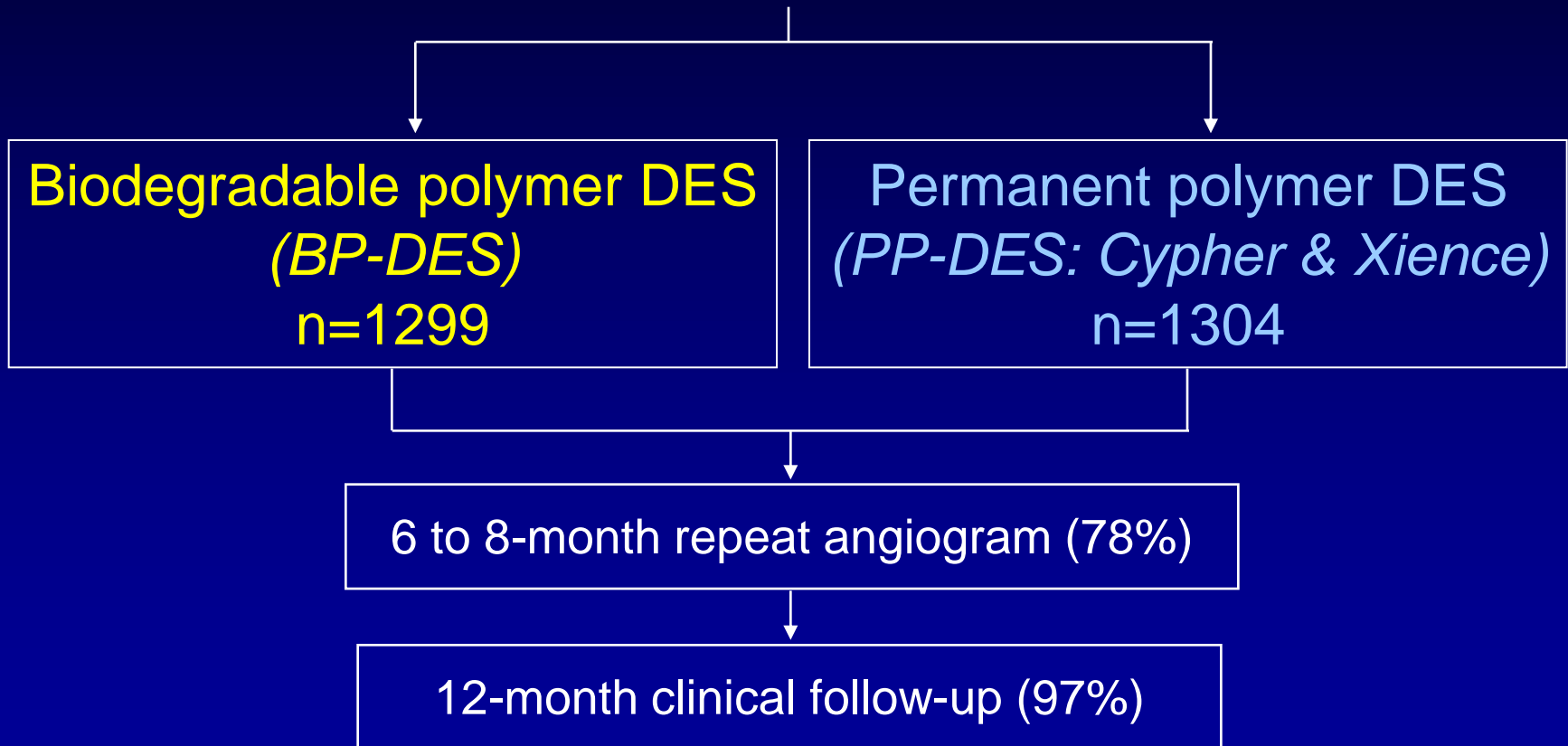
ISAR-TEST-4

Intracoronary Stenting and Angiographic Results:
Test Efficacy of 3 Limus-Eluting STents - 4



2603 patients with *de novo* lesions

600 mg Clopidogrel at least 2 hours before index PCI + 500 mg ASS



Clopidogrel 2x75 mg/day until discharge
75 mg at least 6 months after index PCI
Aspirin 200 mg/d indefinitely

Key Baseline Characteristics



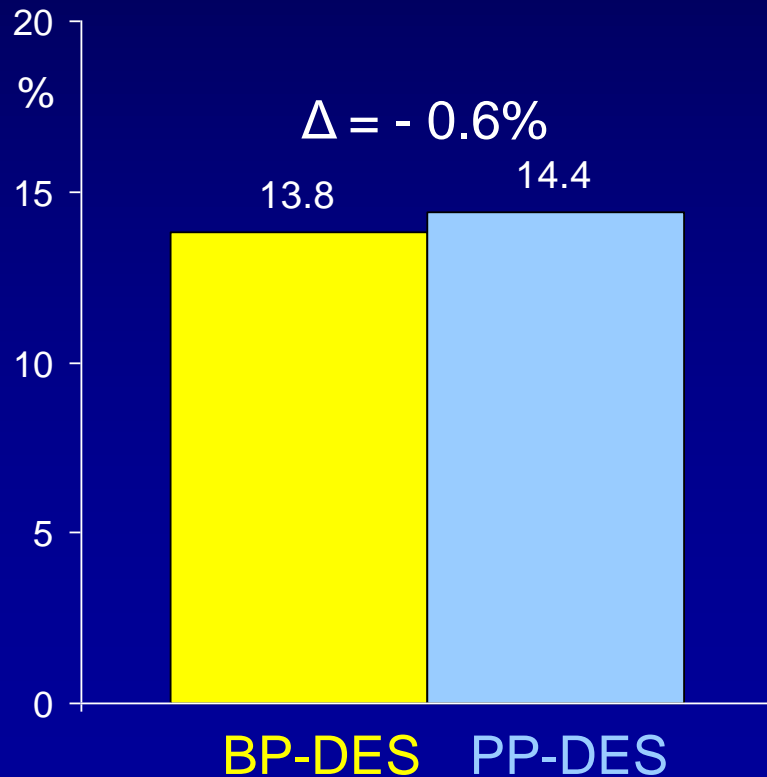
	BP-DES n=1299	PP-DES n=1304
Age, years	66.7±10.7	66.8±11.1
Male, %	75	77
Diabetes, %	29	29
ACS, %	42	40
Multivessel disease, %	87	86
Complex morphology, %	73	72
Lesion length, mm	14.8±8.6	15.0±8.8
Vessel size, mm	2.79±0.47	2.80±0.52

Primary Endpoint

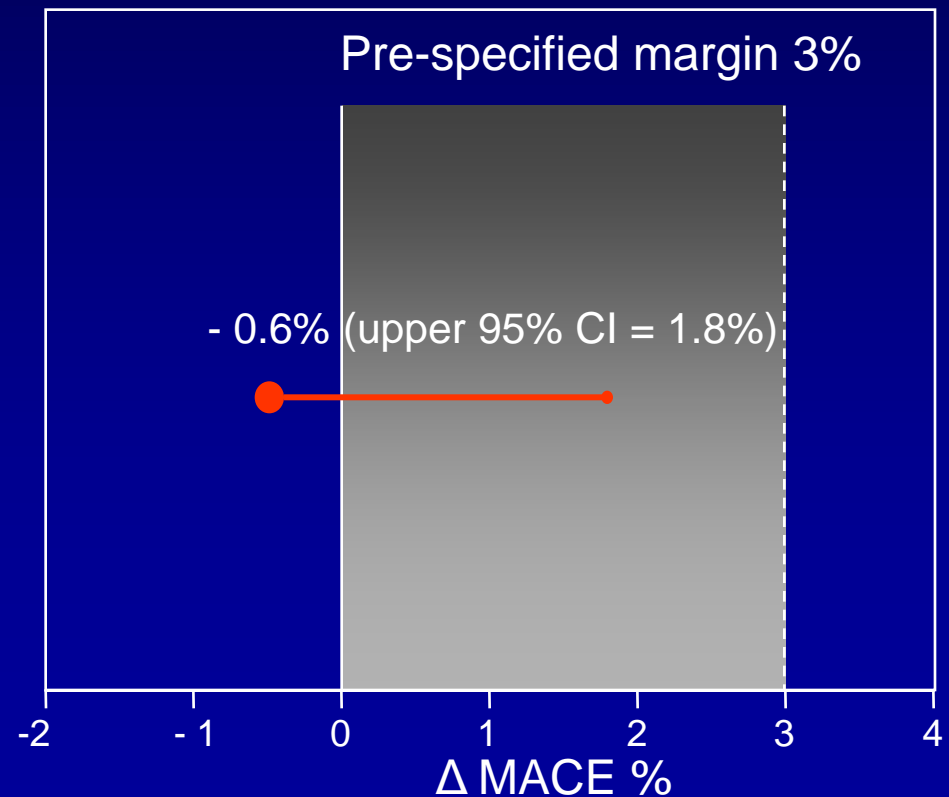


Composite of cardiac death, myocardial infarction related to the target vessel or target lesion revascularization at 1-year

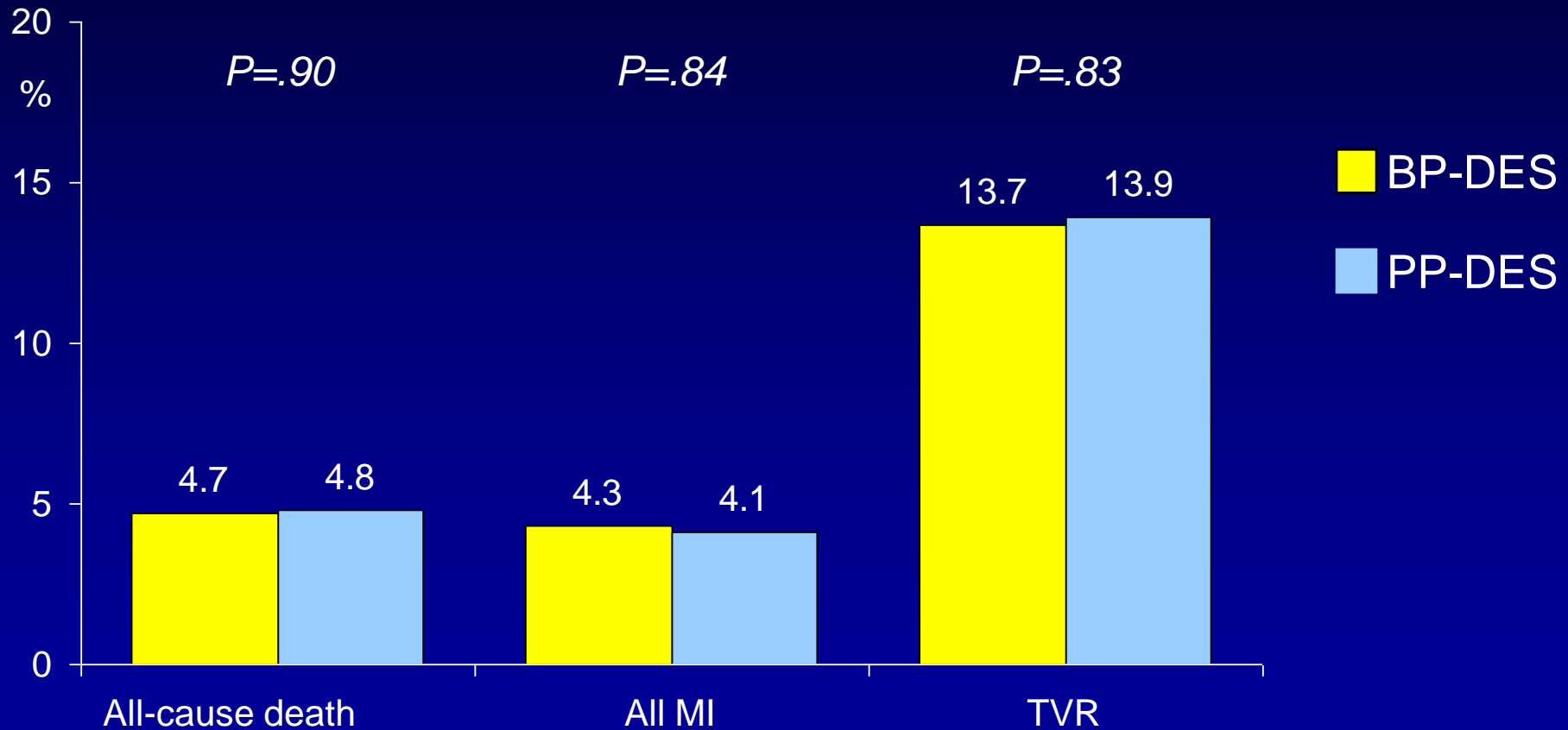
MACE



$P_{\text{noninferiority BP-DES vs. PP-DES}} = 0.005$



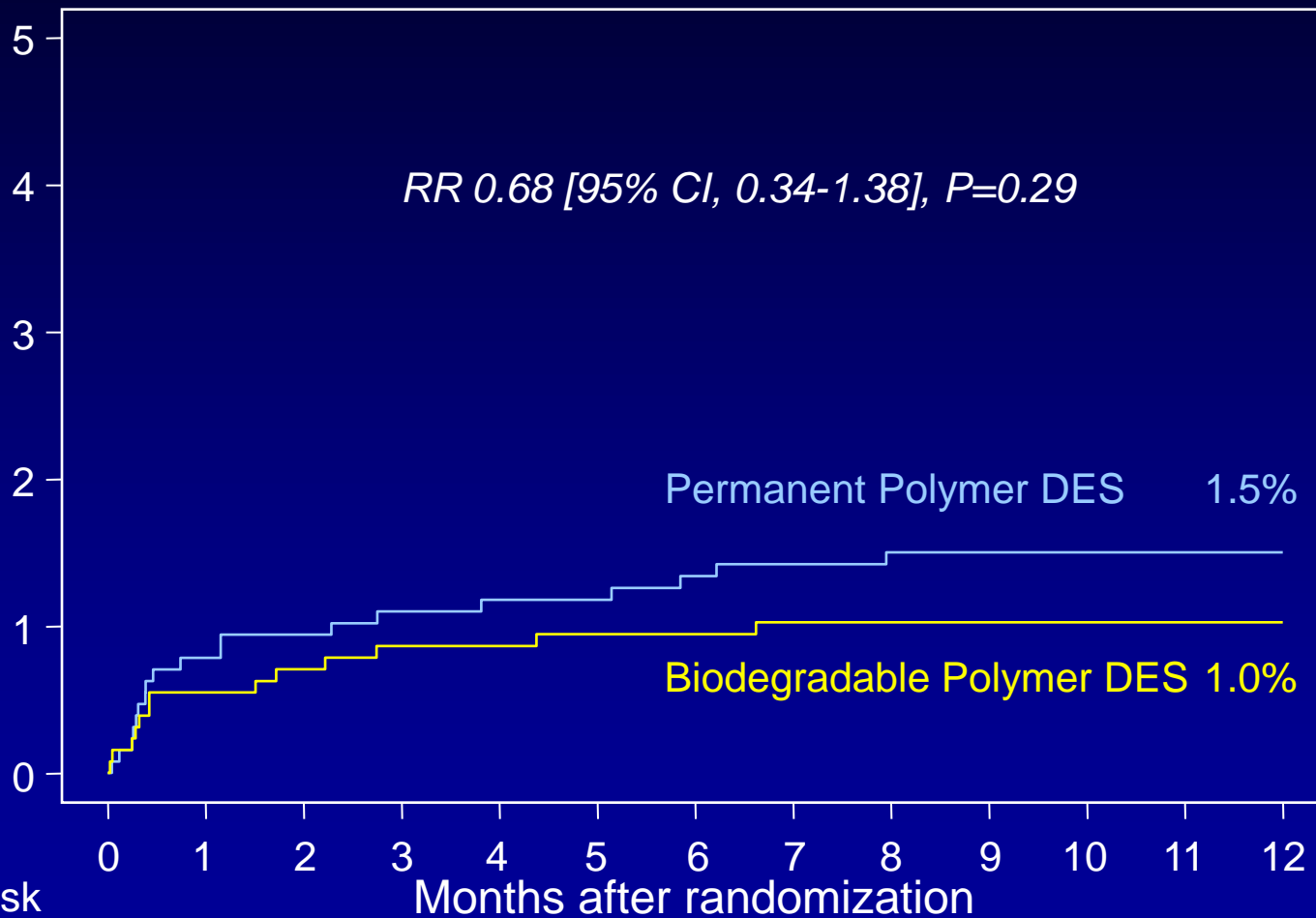
1-Year Clinical Outcomes



Stent thrombosis at 1 Year



Definite or probable stent thrombosis (%)

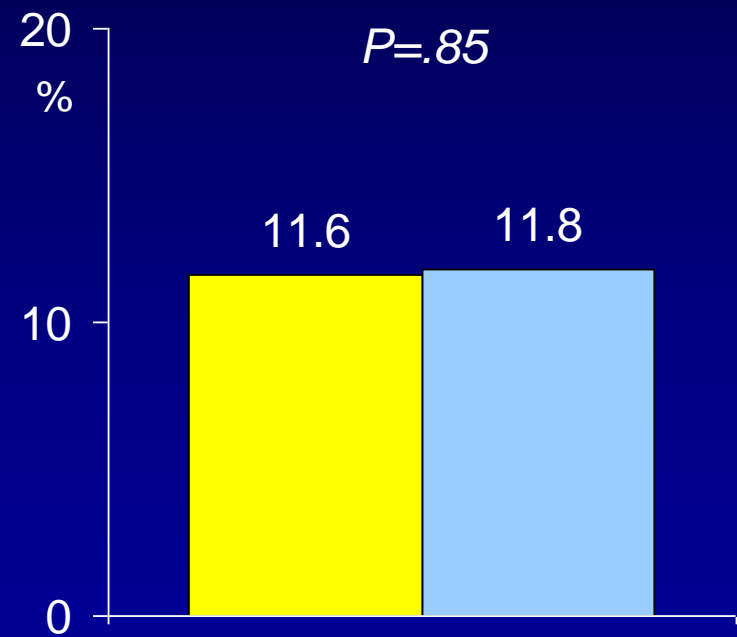
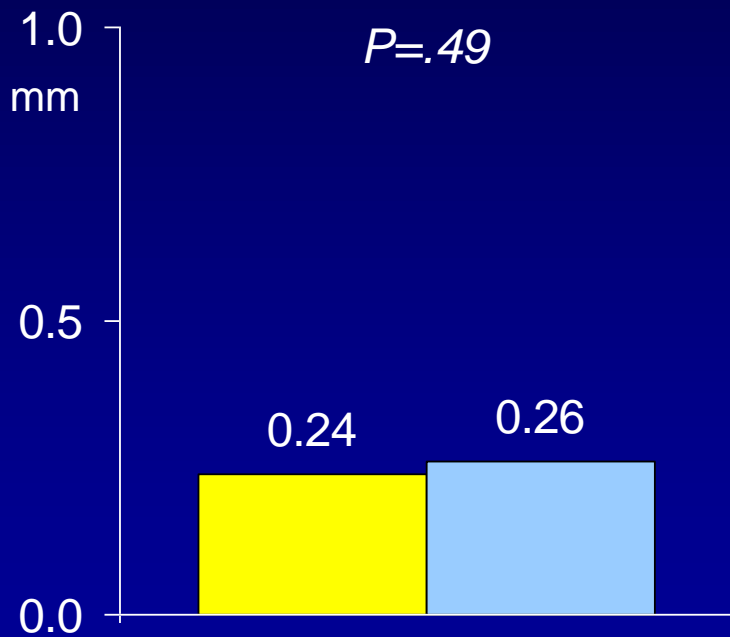


BP-DES	1299	1256	1243	1236	1221	1213	1199
PP-DES	1304	1254	1240	1225	1204	1193	1189



In-stent late lumen loss

In-segment binary restenosis



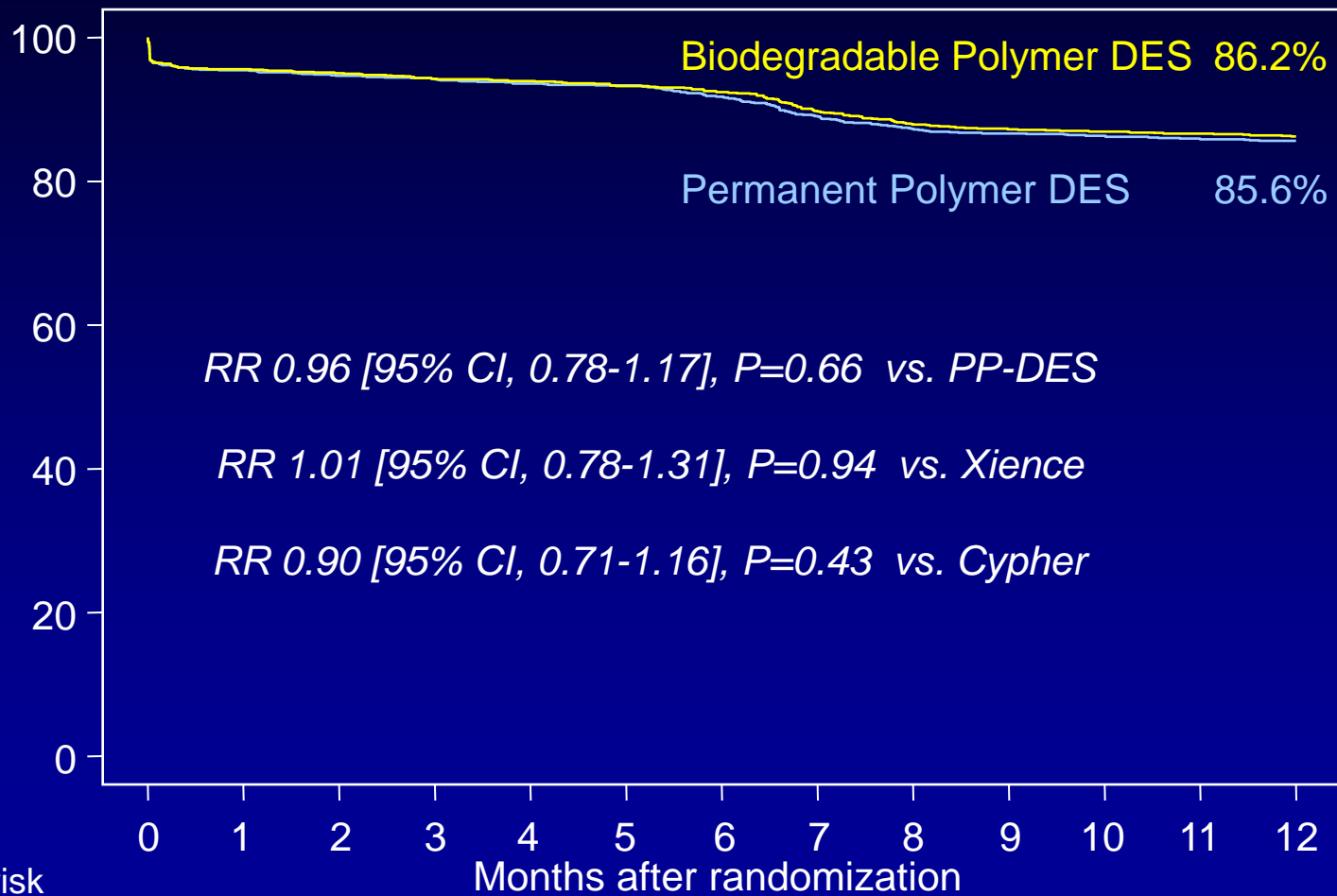
 BP-DES

 PP-DES

Survival-free of Device-Oriented MACE



Survival free of cardiac death, MI related to target vessel or TLR (%)



BP-DES	1299	1217	1197	1173	1107	1090	1073
PP-DES	1304	1214	1193	1161	1088	1069	1057

Summary



Out to 12 months biodegradable polymer DES is non-inferior to two leading permanent polymer-based DES in a large-scale study powered for clinical endpoints.

The ISAR-TEST-4 study represents a framework in which the potential safety and efficacy advantages of biodegradable polymer DES platforms may be tested over the years to come