Conflicts of Interest

- Employee
  - Boston Scientific Corporation

- Stockholder
  - Boston Scientific Corporation

- Boston Scientific Corporation
 - Co-Sponsored the HORIZONS Trial

Background

- No consensus exists regarding the safety and efficacy of drug-eluting stents in patients with STEMI undergoing primary PCI

- TLR and restenosis rates tend to be lower in STEMI *vs.* elective PCI patients because of less plaque burden and non viable myocardium

- The safety of implanting DES in ruptured plaques with thrombus has been questioned

- Outcomes from registry studies of DES *vs.* BMS in STEMI have been conflicting, and no large-scale randomized trials have been performed
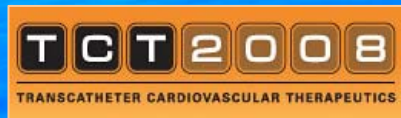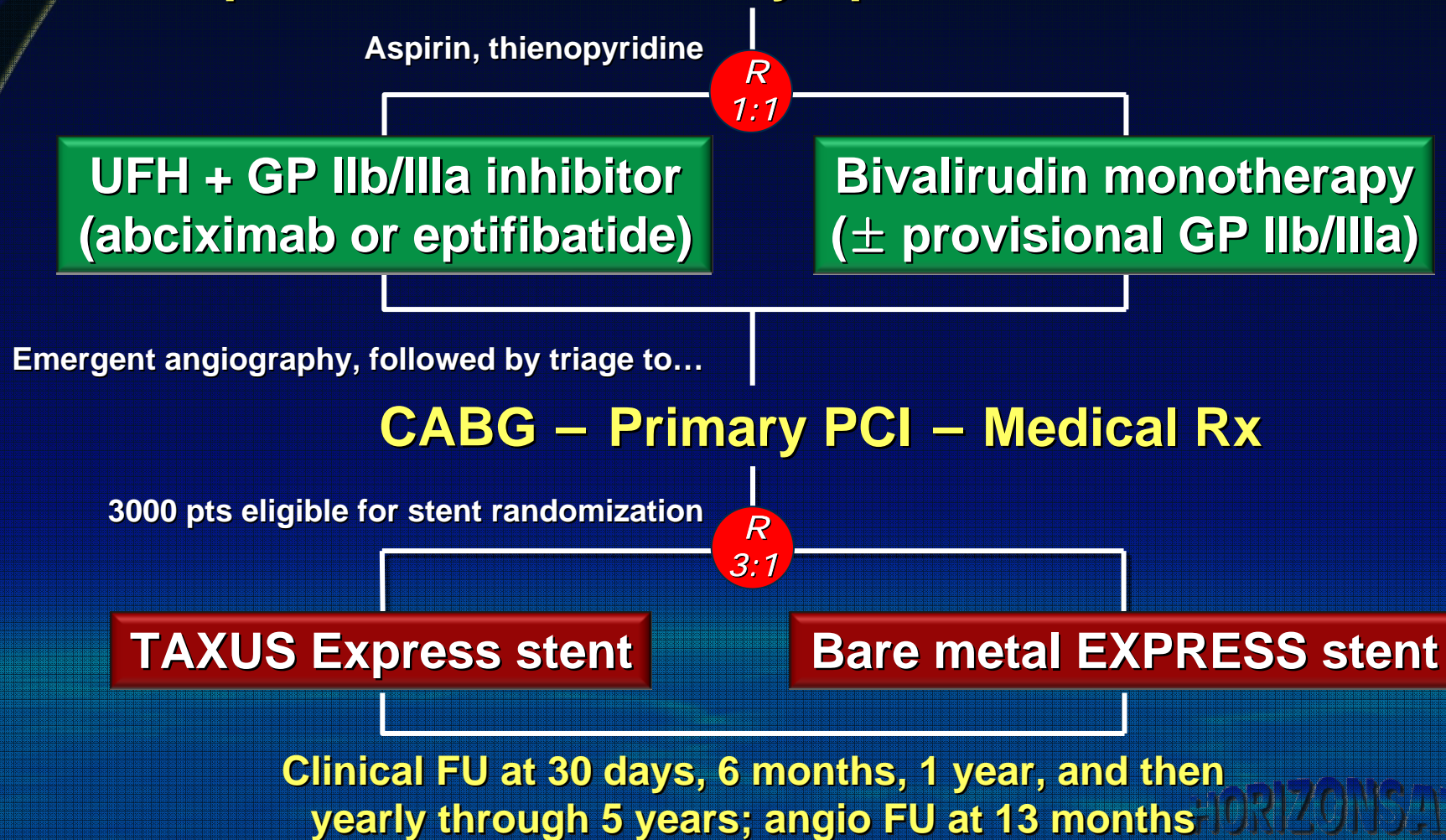
2 Primary Stent Endpoints (at 12 Months)

1) Ischemia-driven TLR*

and

2) Composite Safety MACE =
All cause death, reinfarction, stent thrombosis (ARC definite or probable)**, or stroke

Major Secondary Endpoint (at 13 Months)

Binary angiographic restenosis

* Related to randomized stent lesions (whether study or non study stents were implanted); ** In randomized stent lesions with ≥1 stent implanted (whether study or non study stents)

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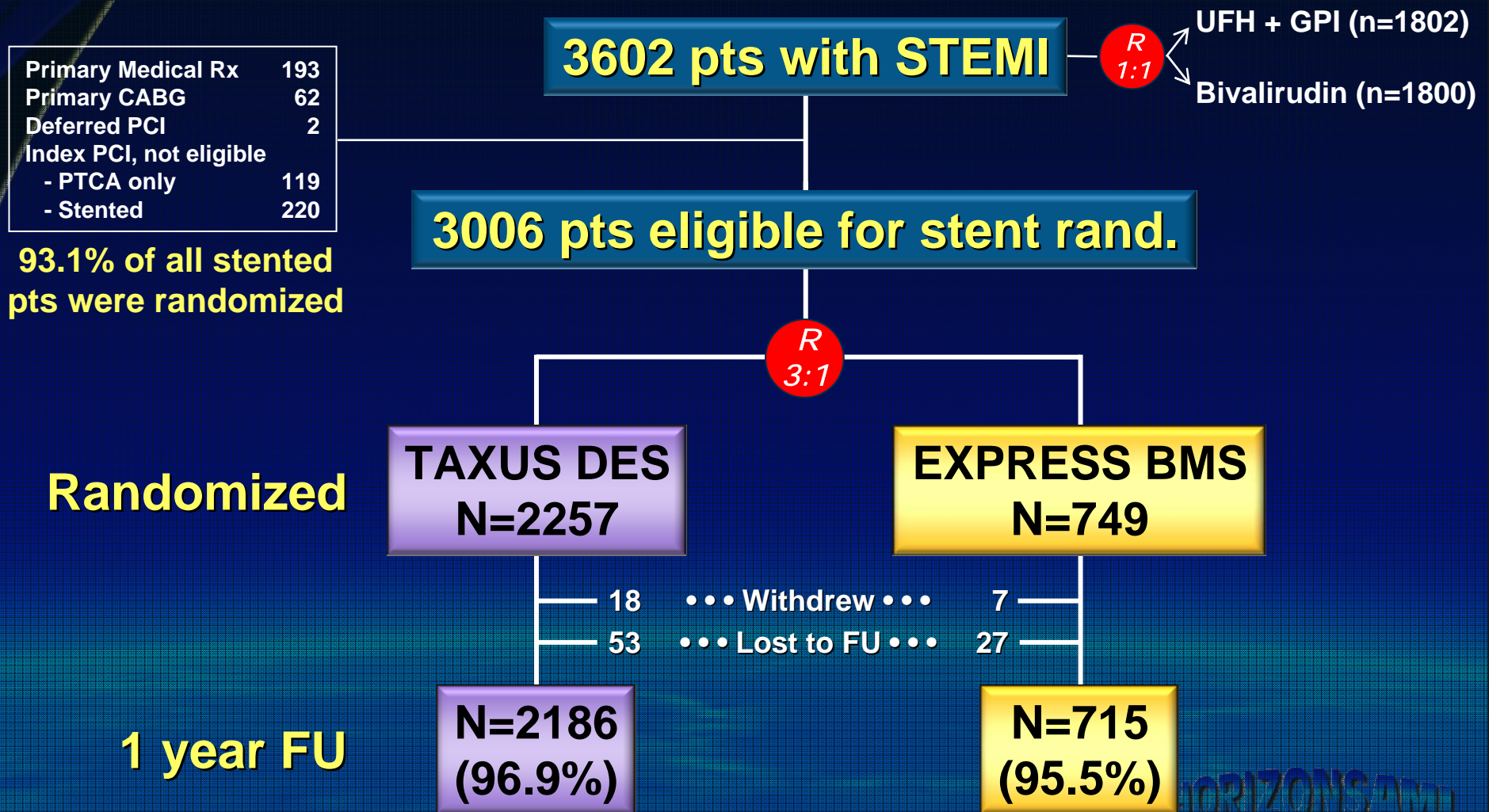
Baseline Characteristics (i)

	TAXUS (N=2257)	EXPRESS (N=749)
Age (years)	59.9 [52.4, 69.4]	59.3 [51.8, 69.2]
Male	77.0%	76.0%
Diabetes	16.1%	15.2%
Hypertension	51.2%	51.9%
Hyperlipidemia	42.2%	41.1%
Current smoking	46.3% *	51.9%
Prior MI	9.1%	10.9%
Prior PCI	9.5%	7.7%
Prior CABG	2.2%	1.9%

*P=0.009

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Baseline Characteristics (ii)

	TAXUS (N=2257)	EXPRESS (N=749)
Weight (kg)	80 [71, 90]	80 [71, 90]
Killip class 2-4	8.8%	8.0%
Anterior MI	42.2%	44.7%
LVEF (%), site	50 [44, 59]	50 [43, 58]
Symptoms – PCI, hrs	3.7 [2.7, 5.5]	3.8 [2.7, 5.8]
Femoral a. access	93.6%	92.9%
Venous access	8.5%	8.0%
Closure device	30.1%	28.8%
Aspiration catheter	11.4%	10.7%

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Study Drugs

	TAXUS (N=2257)	EXPRESS (N=749)
Aspirin at home	22.7%	20.5%
Aspirin load pre PCI	97.0%	97.2%
Thienopyridine at home	2.1%	2.5%
Thienopyridine loading dose	98.9%	98.3%
- clopidogrel 300 mg	34.2%	35.5%
- clopidogrel 600 mg	63.3%	61.3%
- clopidogrel other	1.2%	1.3%
- ticlopidine	0.5%	0.3%
UFH pre randomization	65.2%	65.8%
UFH as the procedural antithrombin	49.8%	50.1%
Bivalirudin administered	50.7%	50.9%
GP IIb/IIIa inhibitor administered	52.0%	51.5%

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Procedural Data (Site Reported)

	TAXUS (N=2257, L=2495)	EXPRESS (N=749, L=815)
N lesions treated	1.1 ± 0.4	1.1 ± 0.4
- ≥ 2 lesions treated	11.1%	9.0%
- ≥ 2 vessels treated	4.5%	3.1%
Direct stenting attempted	30.4%	33.7%
Stent target lesion: LAD, LCX, RCA, LM, SVG	40.1%, 14.6%, 45.1%, 0.3%, 0.3%	42.4%, 15.9%, 41.3%, 0.4%, 0.4%
N stents implanted	1.5 ± 0.9 *	1.4 ± 0.7
Total stent length**	30.8 ± 17.8 **	27.3 ± 14.9
Max balloon dia. (mm)	3.00 [2.75, 3.50]	3.00 [2.90, 3.50]
Max pressure (atm.)	14.0 [12.0, 16.0]	14.0 [12.0, 16.0]

*P=0.002; **P<0.0001

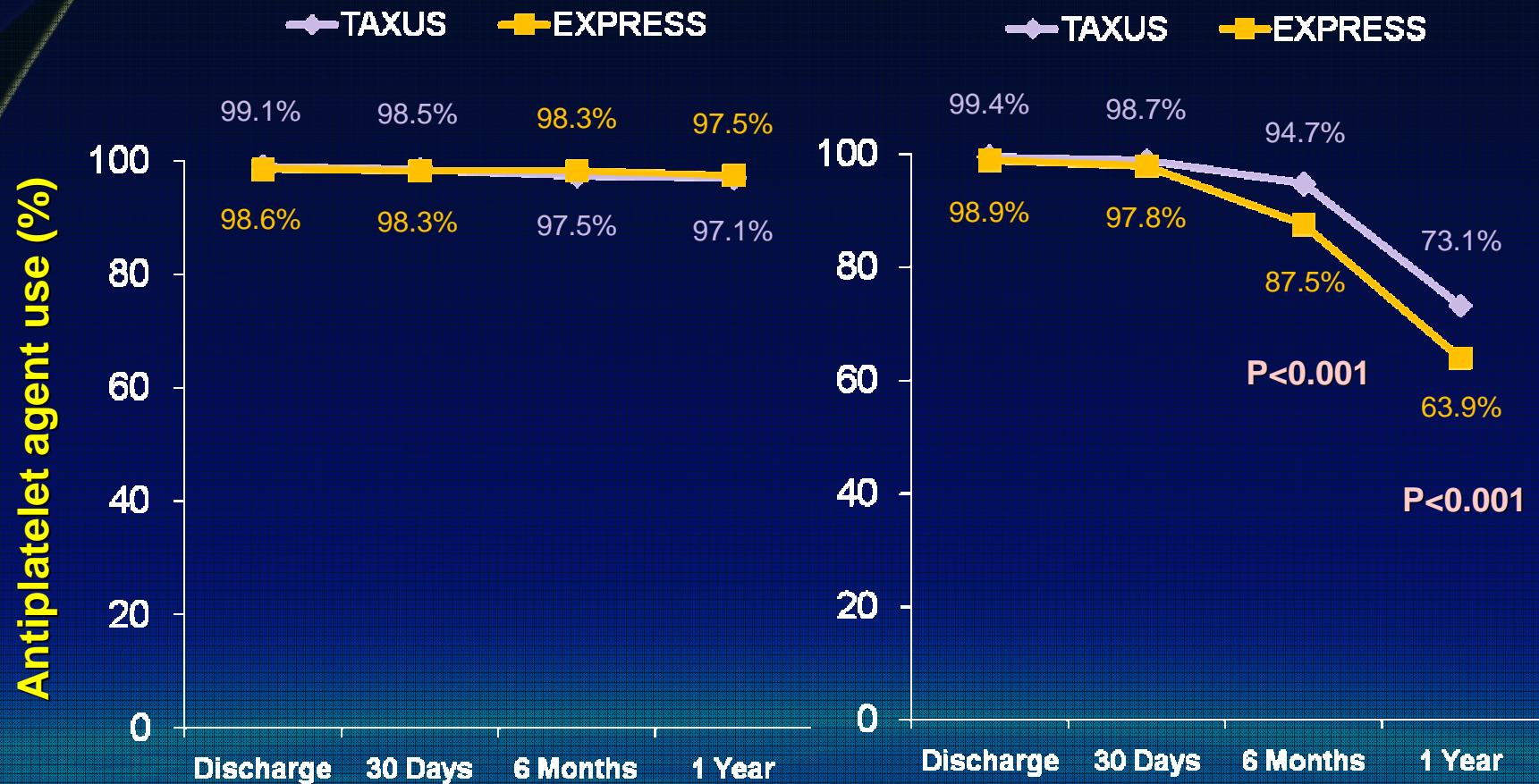HORIZONS AMI

Quantitative Coronary Angiography

	TAXUS (L=2642, V=2353)	EXPRESS (L=857, V=771)
Pre RVD (mm)	2.89 $\pm$ 0.51	2.90 $\pm$ 0.50
Pre MLD (mm)	0.35 $\pm$ 0.45	0.35 $\pm$ 0.45
Pre %DS	87.6 $\pm$ 15.4	87.4 $\pm$ 15.4
Pre lesion length (mm)	17.5 $\pm$ 10.1 †	16.2 $\pm$ 8.8
Pre TIMI 0/1, 2, 3	60.6%, 13.6%, 25.7%	57.4%, 15.2%, 27.4%
Post RVD (mm)	2.93 $\pm$ 0.51	2.95 $\pm$ 0.50
Post MLD (mm)*	2.36 $\pm$ 0.55	2.37 $\pm$ 0.52
Post %DS*	19.9 $\pm$ 11.6	19.5 $\pm$ 11.1
Acute gain (mm)**	2.04 $\pm$ 0.64	2.05 $\pm$ 0.62
Post TIMI 0/1, 2, 3	1.7%, 10.7%, 87.6%	0.9%, 9.3%, 89.8%

*Analysis segment, all lesions, whether stented or not; **stented lesions only; †P=0.006

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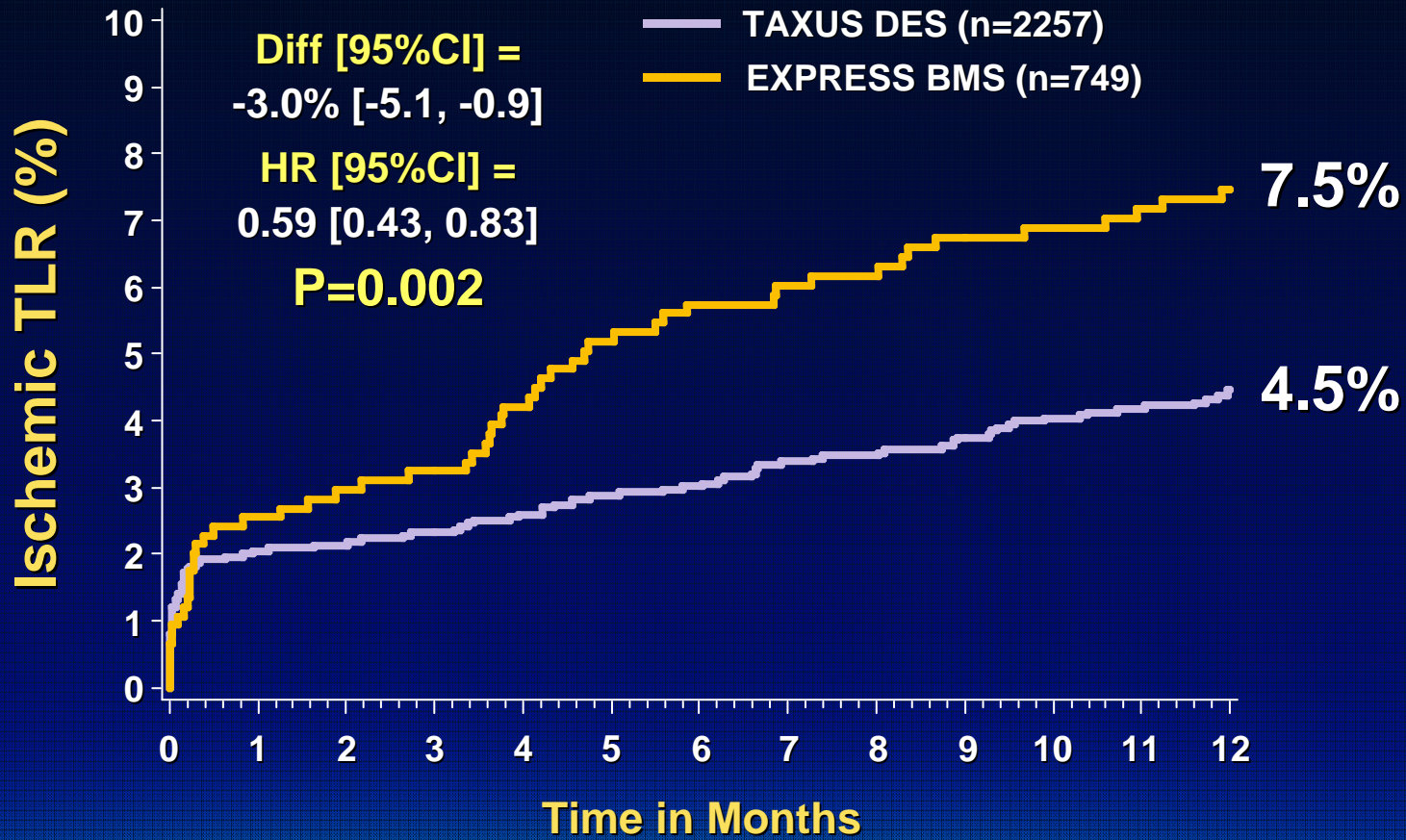# Aspirin and Thienopyridine Use

Regular* aspirin use (%)   **Regular* thieno. use (%)**

*Taken >50% of days since last visit

Primary Efficacy Endpoint: Ischemic TLR

Secondary Efficacy Endpoint: Ischemic TVR

TAXUS DES (n=2257)
EXPRESS BMS (n=749)

Diff [95%CI] = -3.0% [-5.2, -0.7]
HR [95%CI] = 0.65 [0.48, 0.89]
P=0.006

8.7%

5.8%

Ischemic TVR (%)

Time in Months
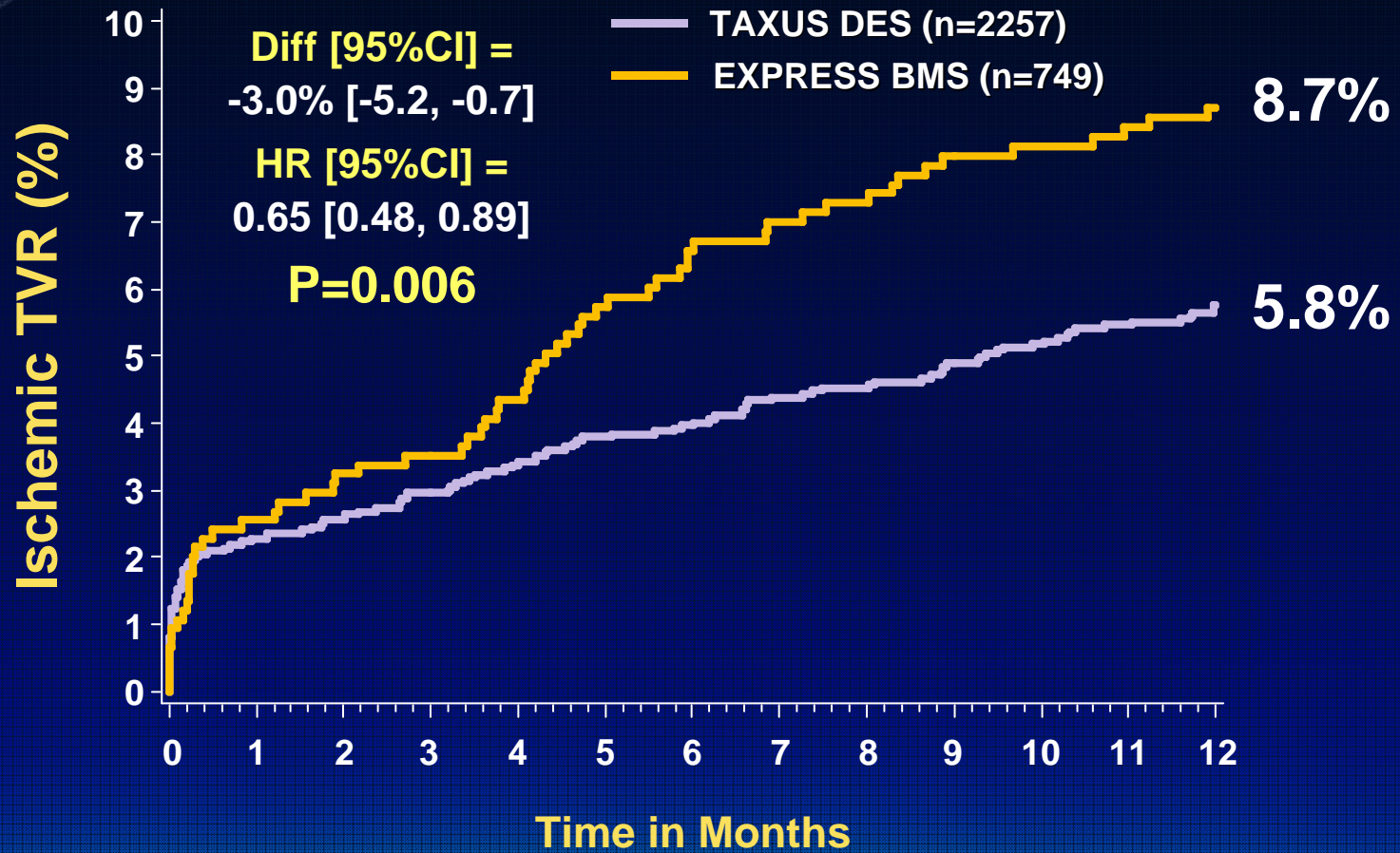
Number at risk

TAXUS DES	2257	2119	2078	2045	1848
EXPRESS BMS	749	695	669	650	598

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Primary Safety Endpoint: Safety MACE*

TAXUS DES (n=2257)
EXPRESS BMS (n=749)

8.1%
8.0%

Diff [95%CI] = 0.1% [-2.1, 2.4]
HR [95%CI] = 1.02 [0.76, 1.36]
P_{NI}=0.01
P_{Sup}=0.92

Safety MACE (%) (y-axis: 0–10)

Time in Months (x-axis: 0–12)
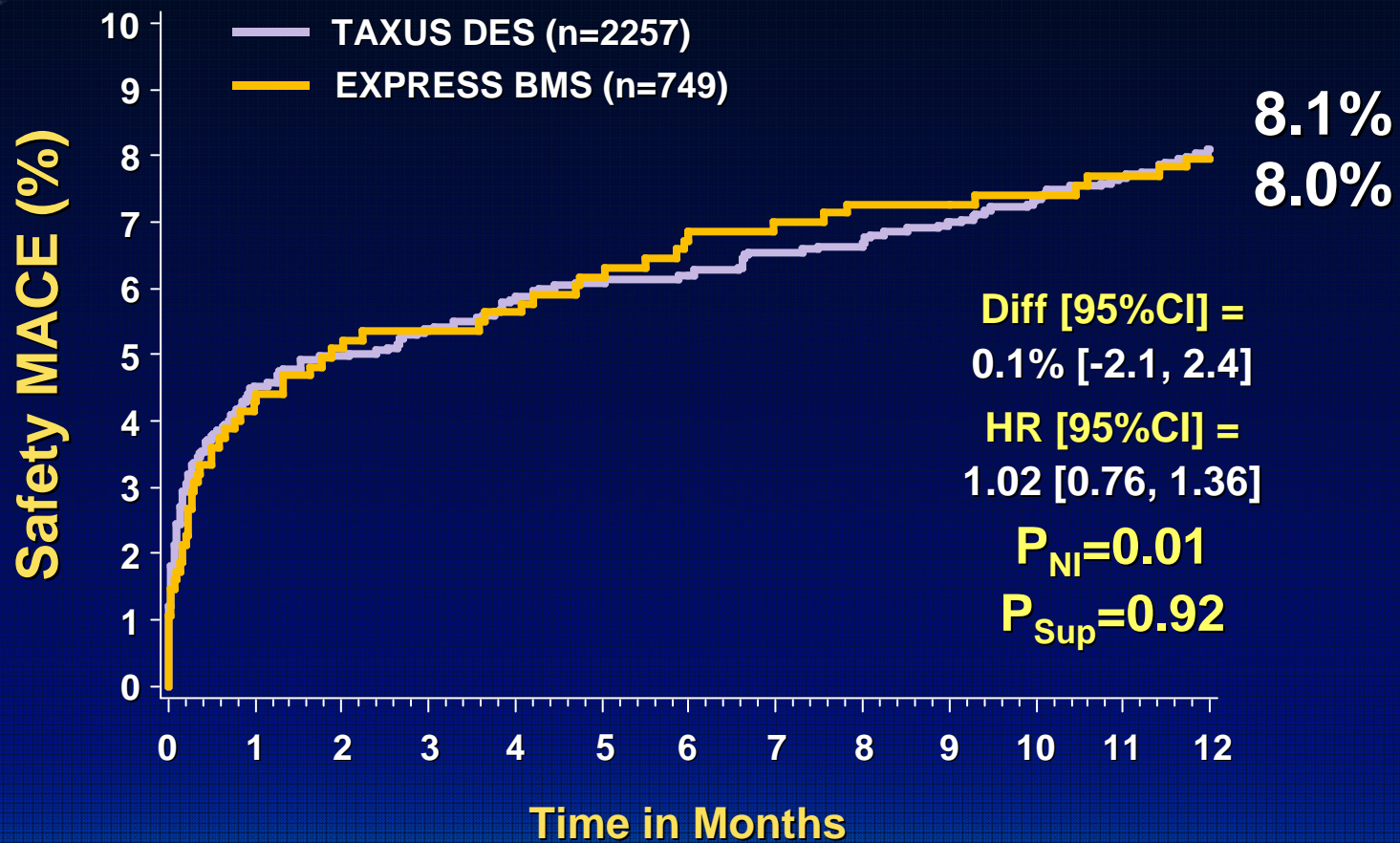
Number at risk					
TAXUS DES	2257	2115	2086	2057	1856
EXPRESS BMS	749	697	683	672	619

* Safety MACE = death, reinfarction, stroke, or stent thrombosis

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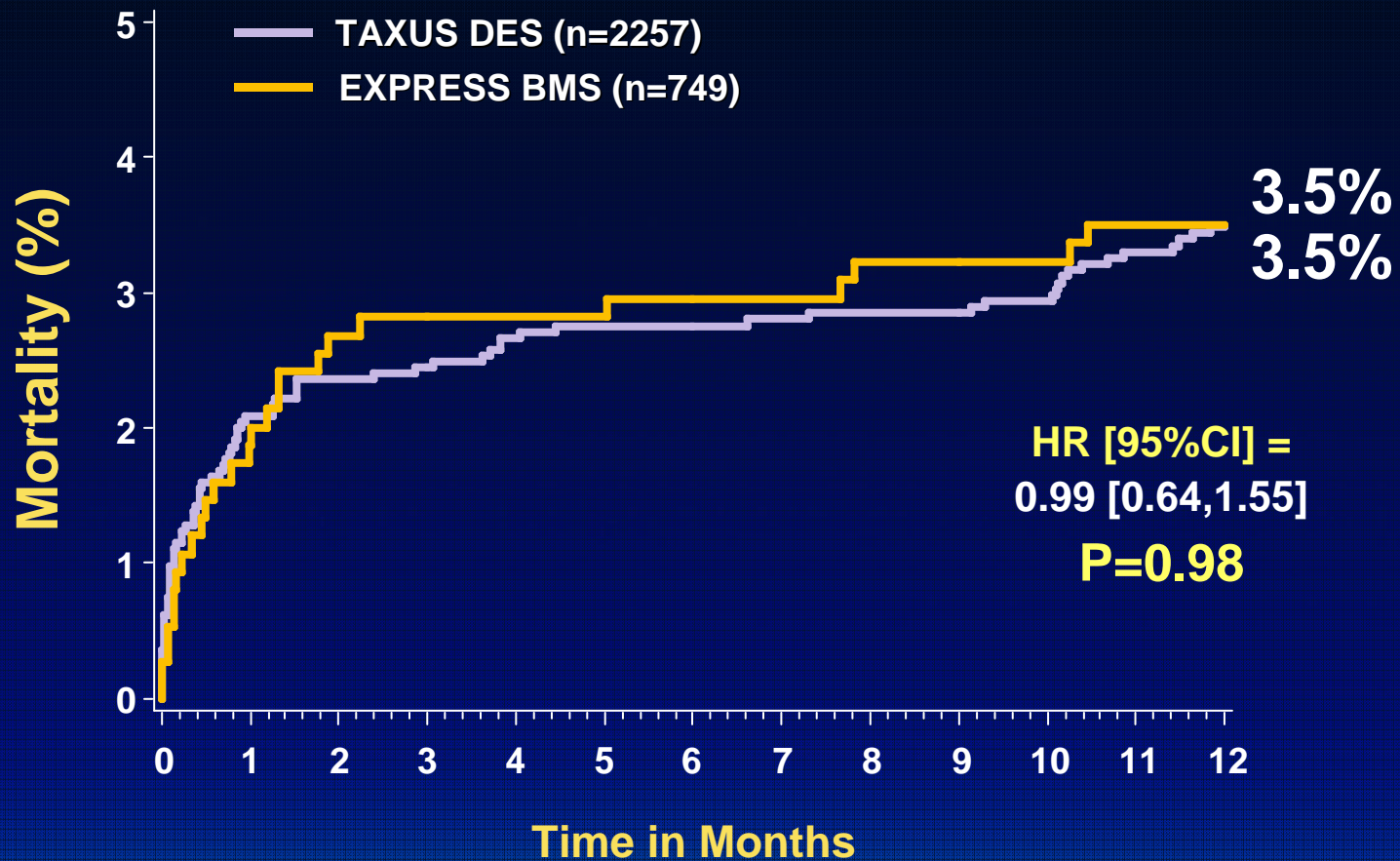
One-Year Death or Reinfarction
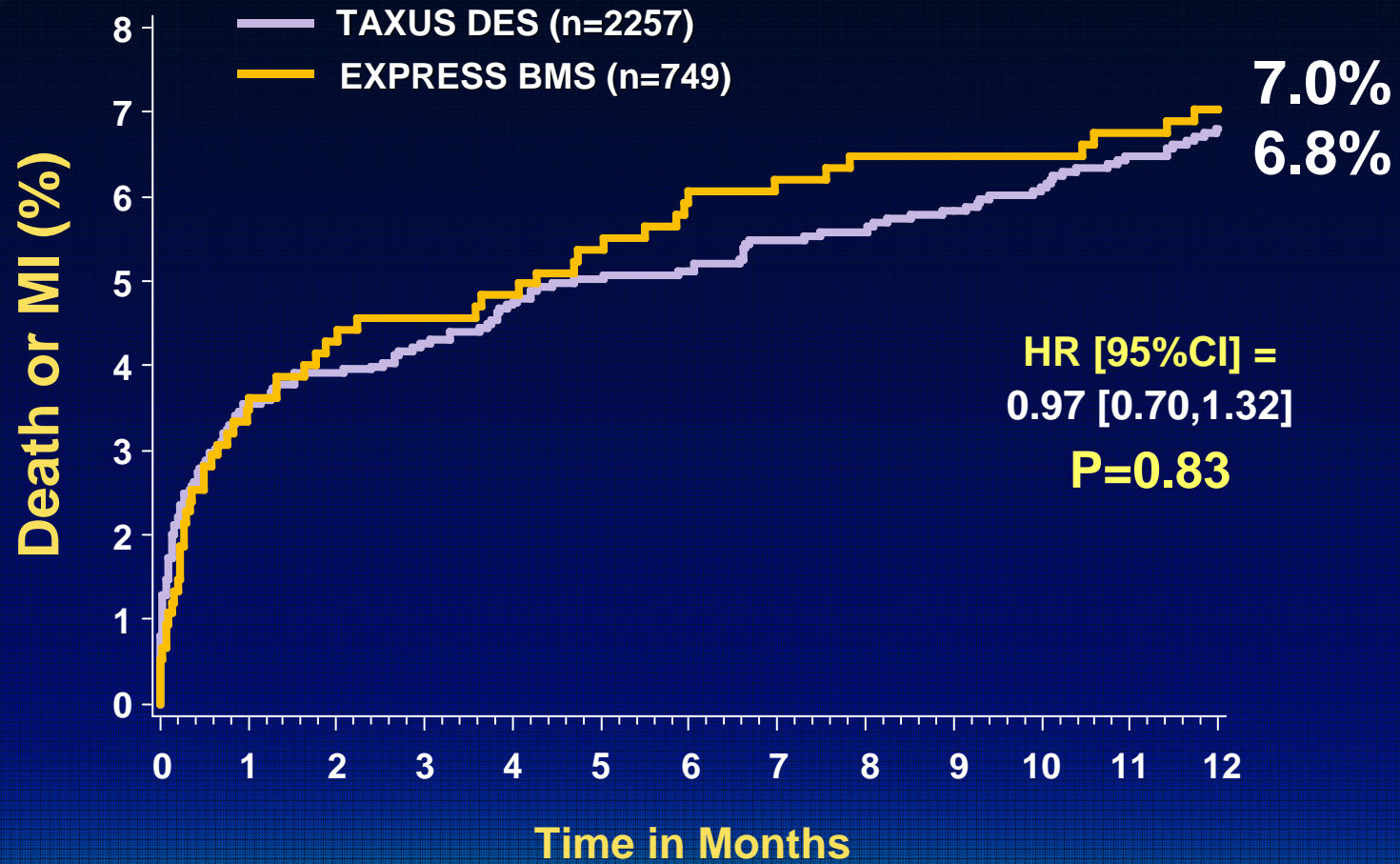
Stent Thrombosis (ARC Definite or Probable)

3.4%
3.1%

HR [95%CI] =
0.92 [0.58,1.45]
P=0.72

Legend:
- TAXUS DES (n=2238)
- EXPRESS BMS (n=744)

Y-axis: Stent Thrombosis (%), 0 to 4
X-axis: Time in Months, 0 to 12
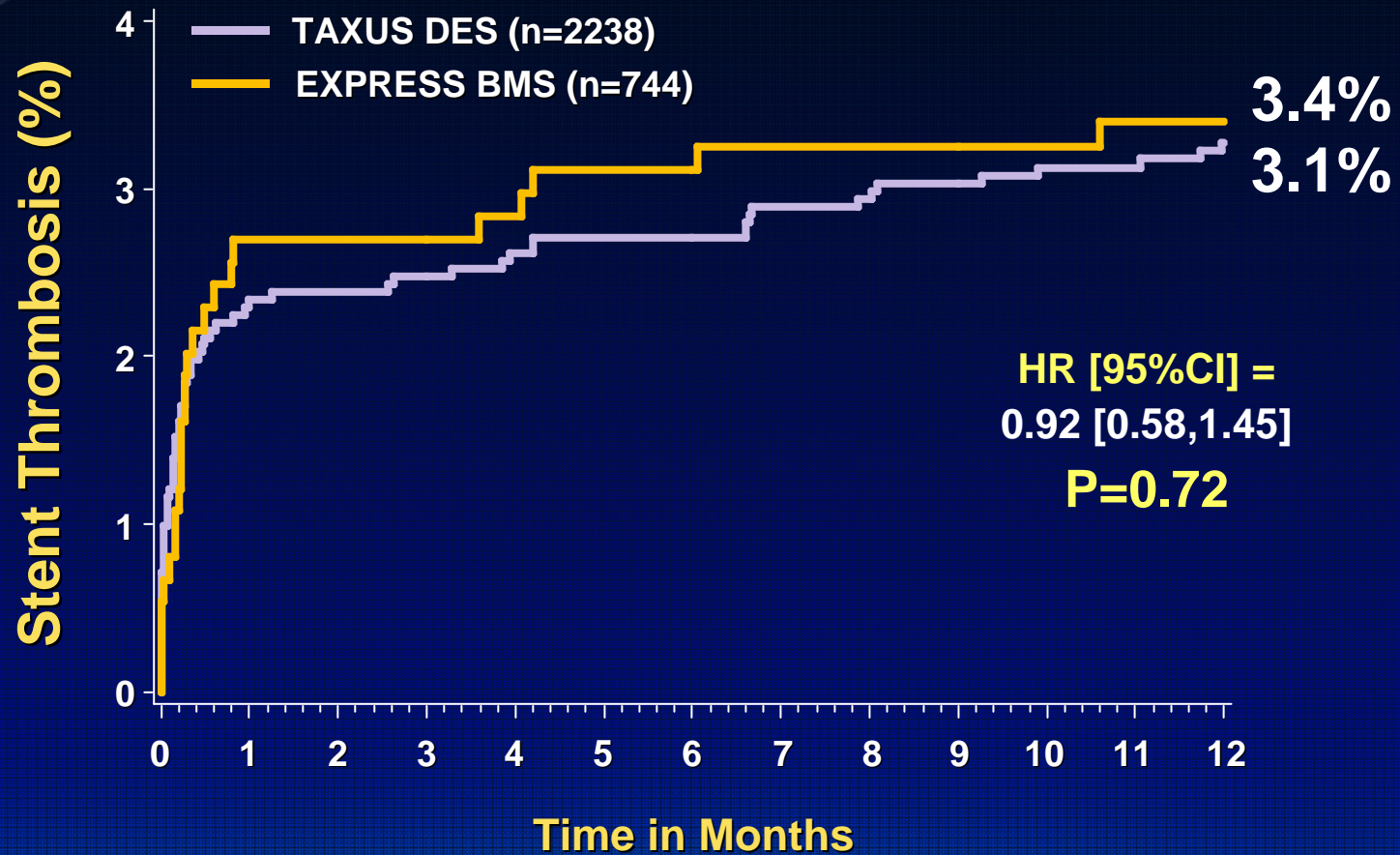
Number at risk					
TAXUS DES	2238	2122	2098	2078	1884
EXPRESS BMS	744	701	694	683	629

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Stent Thrombosis Rates*

	TAXUS (N=2238)	EXPRESS (N=744)	Hazard ratio [95%CI]	P Value
Stent thrombosis, ≤30 days	2.3%	2.7%	0.87 [0.52,1.46]	0.60
- ARC definite	1.9%	2.3%	0.83 [0.47,1.45]	0.51
- ARC probable	0.5%	0.4%	1.11 [0.31,4.05]	0.87
Stent thrombosis, >30d – 1y	1.0%	0.7%	1.39 [0.52,3.68]	0.51
- ARC definite	0.9%	0.7%	1.25 [0.47,3.35]	0.65
- ARC probable	0.1%	0%	-	0.42
Stent thrombosis, ≤1 year	3.1%	3.4%	0.92 [0.58,1.45]	0.72
- ARC definite	2.6%	3.0%	0.86 [0.53,1.41]	0.55
- ARC probable	0.5%	0.4%	1.33 [0.38,4.73]	0.65

*Kaplan-Meier estimates

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One Year Composite Safety Endpoints*

	TAXUS (N=2257)	EXPRESS (N=749)	HR [95%CI]	P Value
Safety MACE**	8.1%	8.0%	1.02 [0.76,1.36]	0.92
Death, all-cause	3.5%	3.5%	0.99 [0.64,1.55]	0.98
- Cardiac	2.4%	2.7%	0.90 [0.54,1.50]	0.68
- Non cardiac	1.1%	0.8%	1.32 [0.54,3.22]	0.55
Reinfarction	3.7%	4.5%	0.81 [0.54,1.21]	0.31
- Q-wave	2.0%	1.9%	1.07 [0.59,1.94]	0.83
- Non Q-wave	1.8%	2.7%	0.68 [0.39,1.17]	0.16
Stent thrombosis†	3.1%	3.4%	0.92 [0.58,1.45]	0.72
- ARC definite	2.6%	3.0%	0.86 [0.53,1.41]	0.55
- ARC probable	0.5%	0.4%	1.33 [0.38,4.73]	0.65
Stroke	1.0%	0.7%	1.52 [0.58,4.00]	0.39

*Kaplan-Meier estimates; **Primary safety endpoint; †ARC definite or probable

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Angiographic Follow-up

1800 consecutive eligible pts assigned to 13 month angiographic FU*

Randomized

TAXUS DES
N=1348

EXPRESS BMS
N=452

40 • • • Died before angio FU • • • 11

Eligible

N=1308

N=441

366 • Angio FU not performed • 134

Completed Angio FU

N=942 (72.0%)

N=307 (69.6%)

28 • • Not received/analyzable • • 14

3 • • • • Out of window • • • • 0

Analyzed

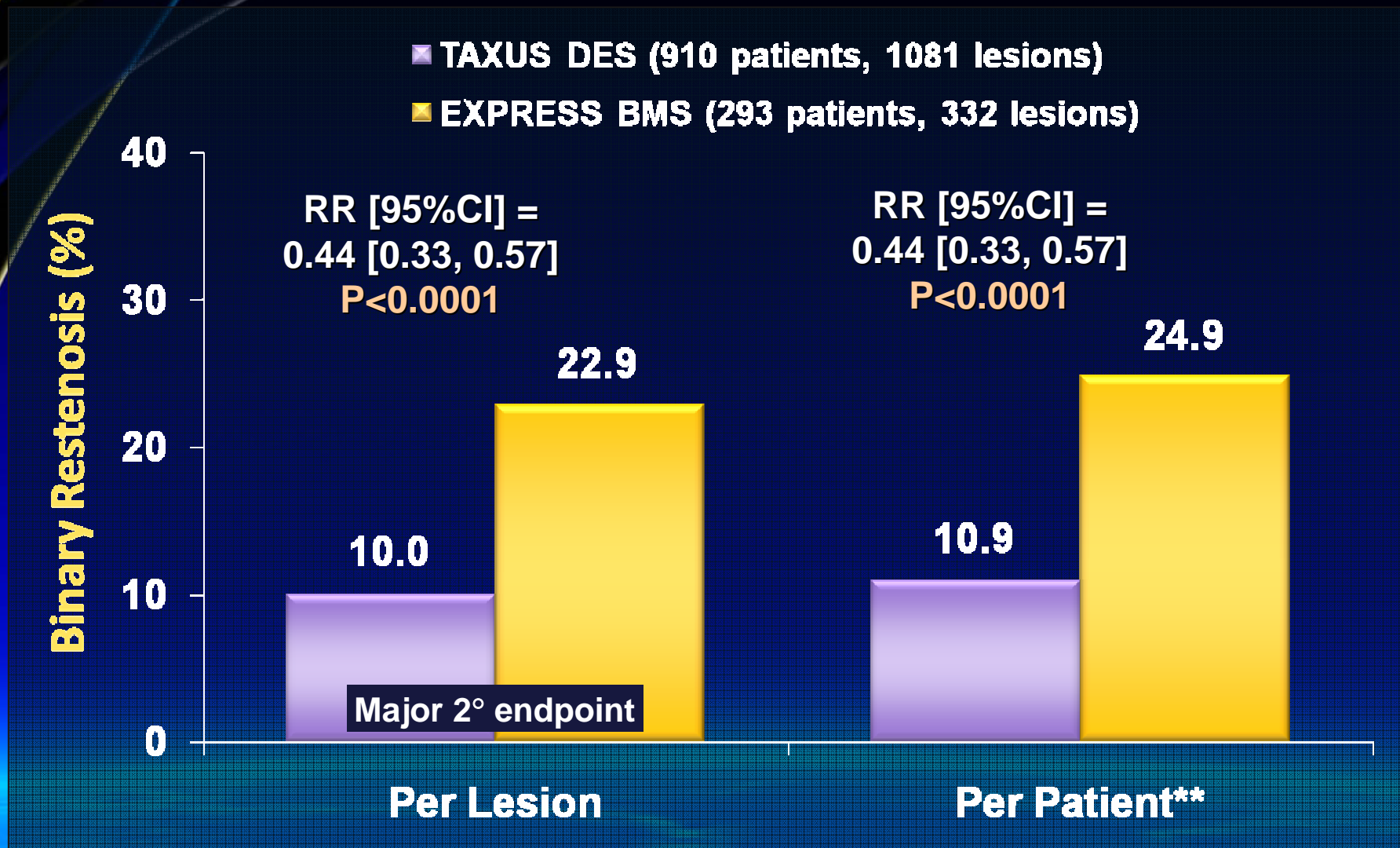**N=911** — 1081 • • • Lesions • • • 332 — **N=293**
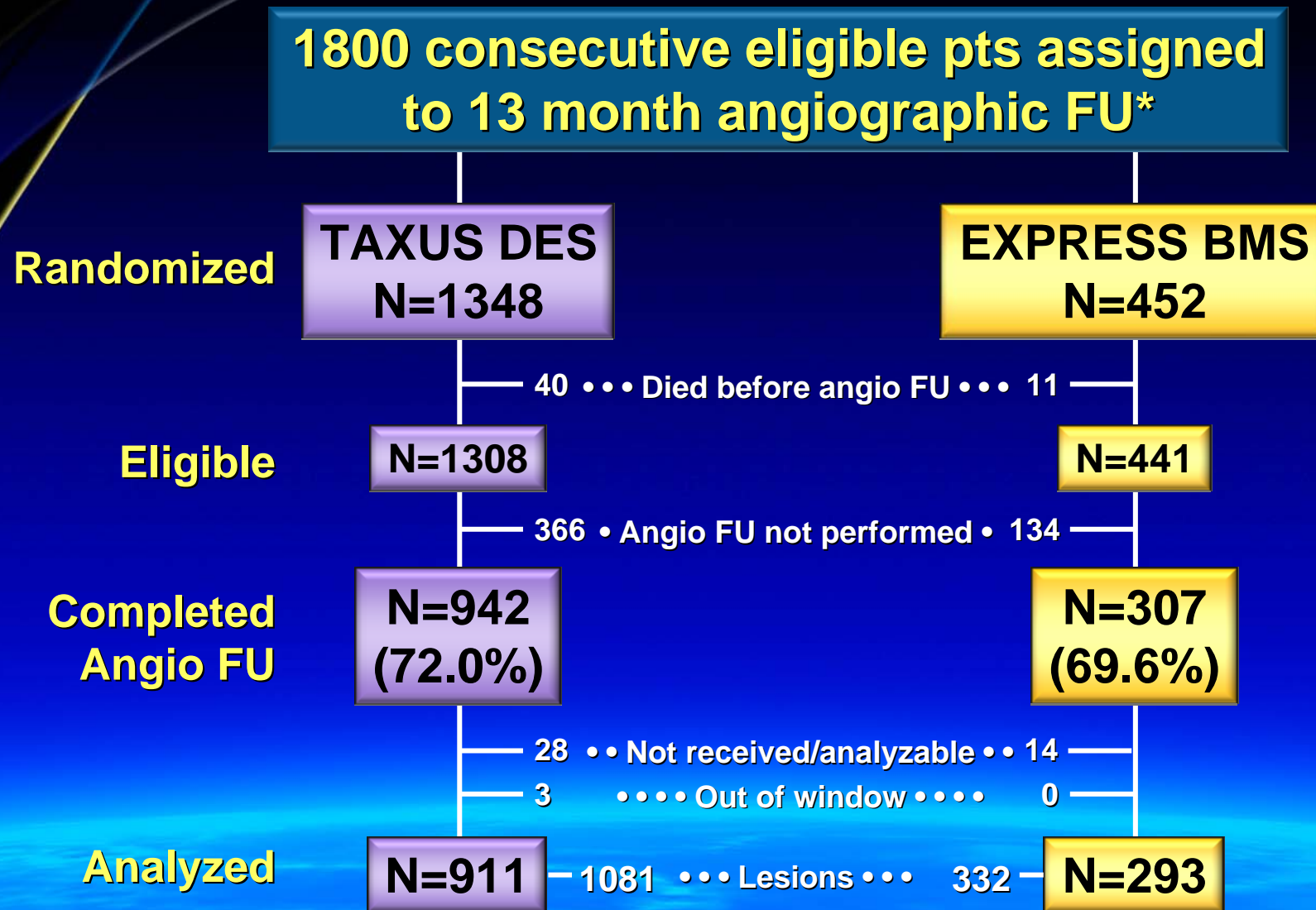
* Randomized in stent arm; stent procedure successful (DS <10%, TIMI-3 flow, ≤NHLBI type A peri-stent dissection); no stent thrombosis or CABG w/i 30

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Follow-up QCA

	TAXUS (L=1081, V=964)	EXPRESS (L=332, V=302)	P value
TIMI flow			
- 0/1	2.8%	3.6%	0.45
- 2	7.0%	5.0%	0.22
- 3	90.2%	91.4%	0.55
FU RVD (mm)	2.91 ± 0.49	2.90 ± 0.48	0.97
FU MLD in-stent (mm)	2.36 ± 0.75	1.98 ± 0.82	<0.0001
FU MLD in-segment (mm)	2.08 ± 0.69	1.84 ± 0.76	<0.0001
FU %DS in-stent	18.8 ± 22.9	32.6 ± 24.9	<0.0001
FU %DS in-segment	28.8 ± 19.6	37.4 ± 22.0	<0.0001
Aneurysm	0.5%	0.9%	0.40
Ulcerated	0.5%	0.6%	0.67
Ectasia	0.7%	0.9%	0.73

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Angiographic Late Loss at 13 Month
Lesions with Stents Implanted

TAXUS DES (n=1062) EXPRESS BMS (n=328)

Late loss (mean, mm)

Proximal Edge
P = 0.07
0.18 ± 0.47
0.24 ± 0.50

In-stent
P<0.0001
0.41 ± 0.64
0.82 ± 0.70

Distal Edge
P = 0.18
0.06 ± 0.42
0.14 ± 0.54

Analysis Segment
P<0.0001
0.30 ± 0.56
0.59 ± 0.64

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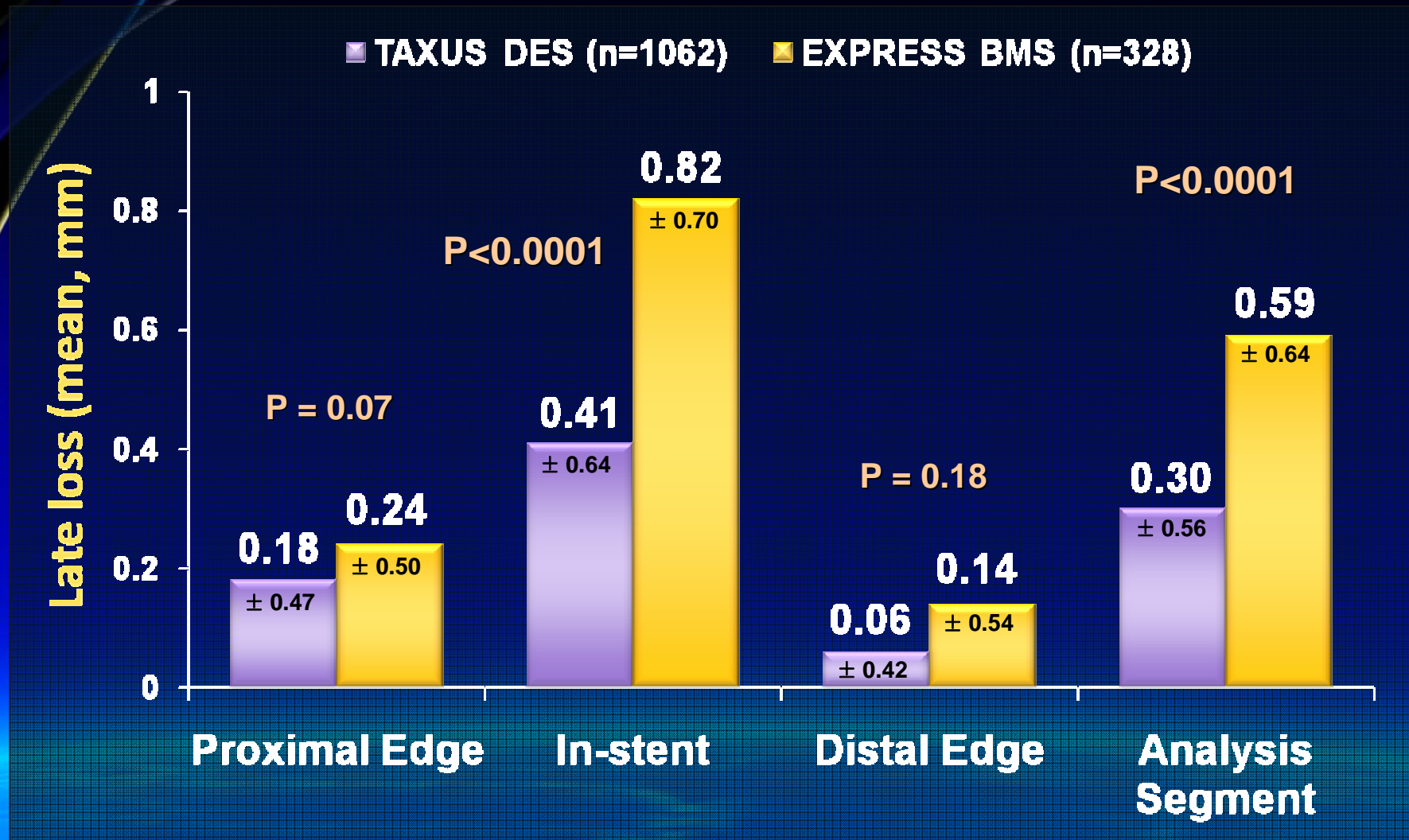
Binary Angiographic Restenosis at 13 Months
Lesions with Stents Implanted
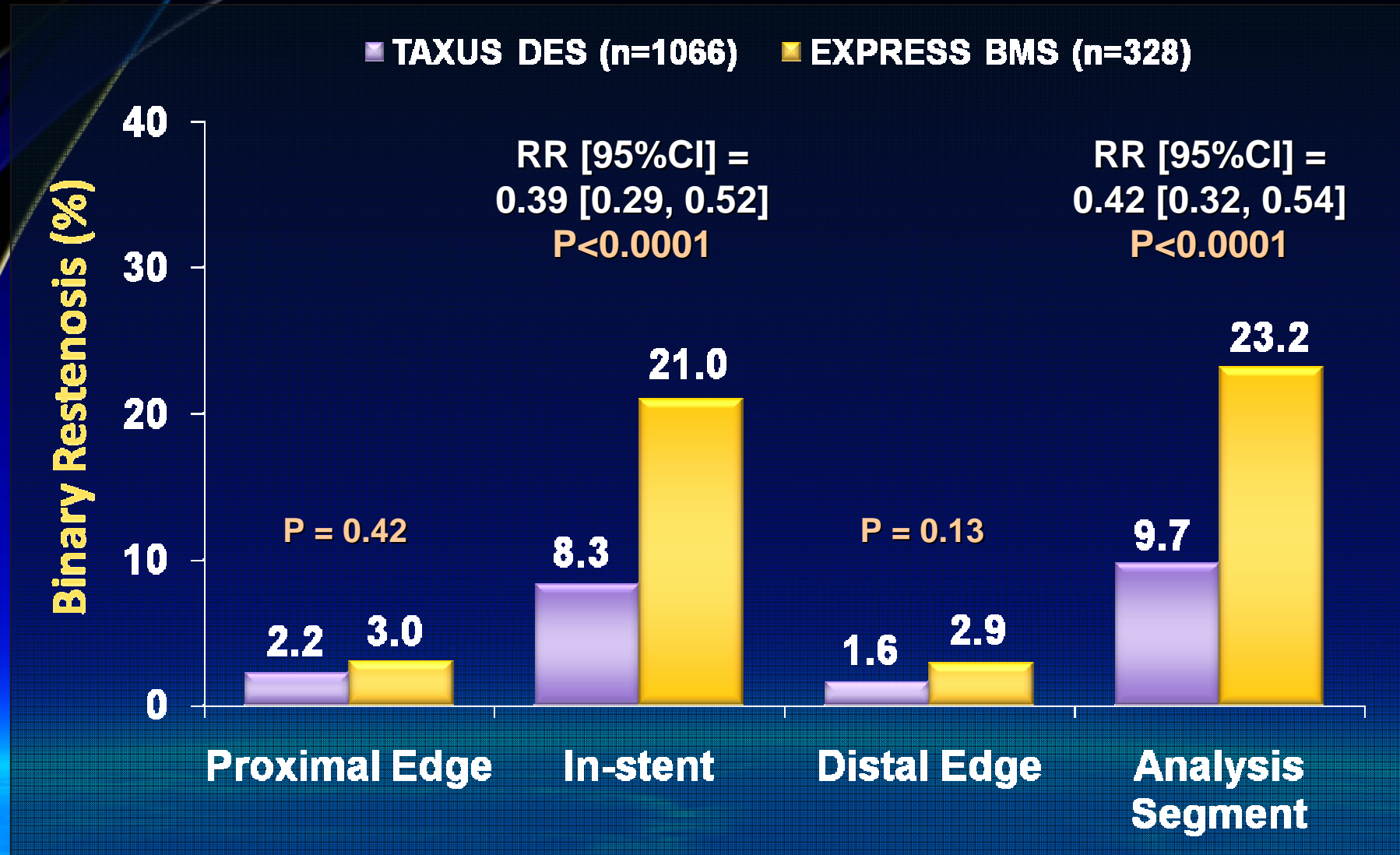
Limitations

- **Open label design**

  - **Potential bias was mitigated by high protocol procedure compliance and use of blinded clinical event adjudication committees and core laboratories**

- **Underpowered for stent thrombosis and death**

  - **The virtually identical rates of MACE in the TAXUS Express and Bare Metal Express groups makes it unlikely that major safety differences exist favoring either stent type at 1-year**

Conclusions

- **In this large-scale, prospective, randomized trial of pts with STEMI undergoing primary stenting, the implantation of paclitaxel-eluting TAXUS Express stents compared to Bare Metal Express stents resulted in:**

  – **A significant 41% reduction in the 1-year primary efficacy endpoint of ischemia-driven TLR, and a significant 56% reduction in the 13 month major secondary efficacy endpoint of binary restenosis**

  – **Non inferior rates of the primary composite safety endpoint of all cause death, reinfarction, stent thrombosis or stroke at 1-year**

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Conclusions

- **The long-term safety and efficacy profile of paclitaxel-eluting TAXUS Express stents compared to Bare Metal Express stents in STEMI will be determined by the ongoing 5 year follow-up of patients randomized in the HORIZONS-AMI trial**