APPAC 14ème EDITION

ACTUALISATIONS ET PERSPECTIVES EN PATHOLOGIE CARDIOVASCULAIRE

LA THROMBOSE DE STENT EST-ELLE TOUJOURS D'ACTUALITE ?

Les thromboses de stent sont-elles toutes identiques ?

Mercredi 06 juin 2012

14h40 – 15h20

Hôpitaux de Toulouse

Pôle Cardiovasculaire et Métabolique

Dr N. Dumonteil

Fédération de Cardiologie

CHU Rangueil, TOULOUSE

APPAC 14ème EDITION

ACTUALISATIONS ET PERSPECTIVES EN PATHOLOGIE CARDIOVASCULAIRE

Nicolas DUMONTEIL
CHU Rangueil
TOULOUSE

déclare n'avoir aucun conflit d'intérêt concernant les données de sa communication

Definition of Stent Thrombosis

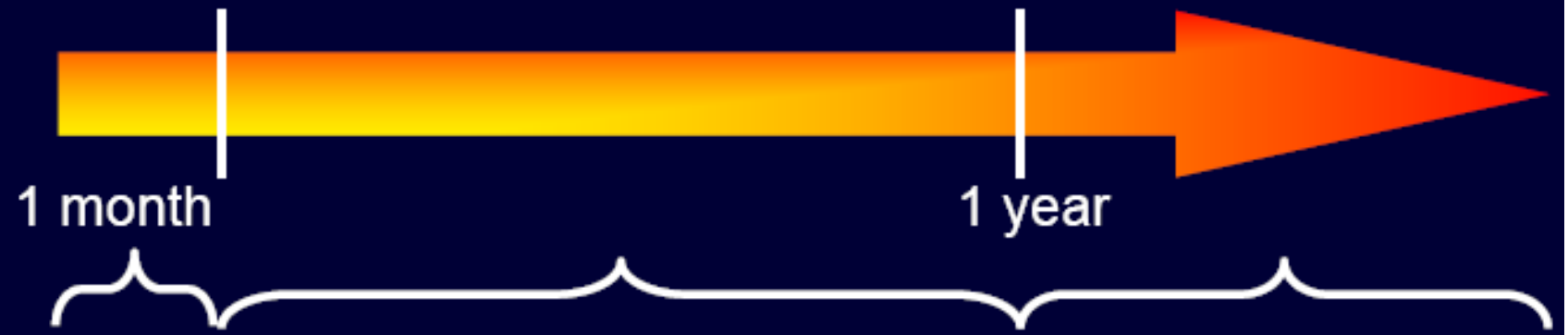
Cutlip D et al. *Circulation* 2007, in press

- **Definite Stent Thrombosis**
  - Angiographic or pathologic confirmation of partial or total thrombotic occlusion within the peri-stent region

  AND at least ONE of the following, additional criteria:
  - Acute ischemic symptoms
  - Ischemic ECG changes
  - Elevated cardiac biomarkers
- **Probable Stent Thrombosis**
  - Any unexplained death within 30 days of stent implantation
  - Any myocardial infarction, which is related to documented acute ischemia in the territory of the implanted stent without angiographic confirmation of stent thrombosis and in the absence of any other obvious cause
- **Possible Stent Thrombosis**
  - Any unexplained death beyond 30 days

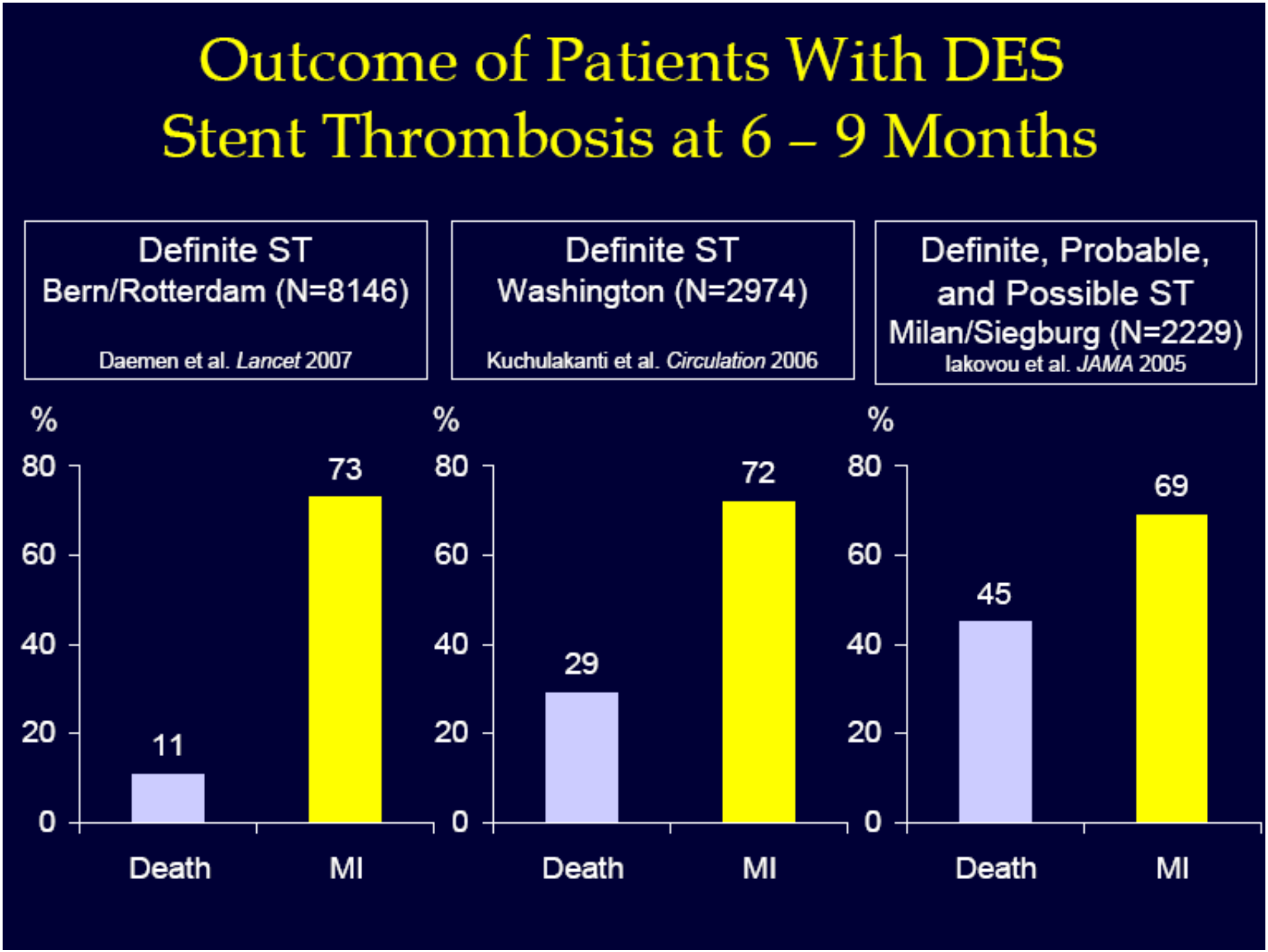
Time Frame of Stent Thrombosis

Cutlip D et al. *Circulation* 2007, in press

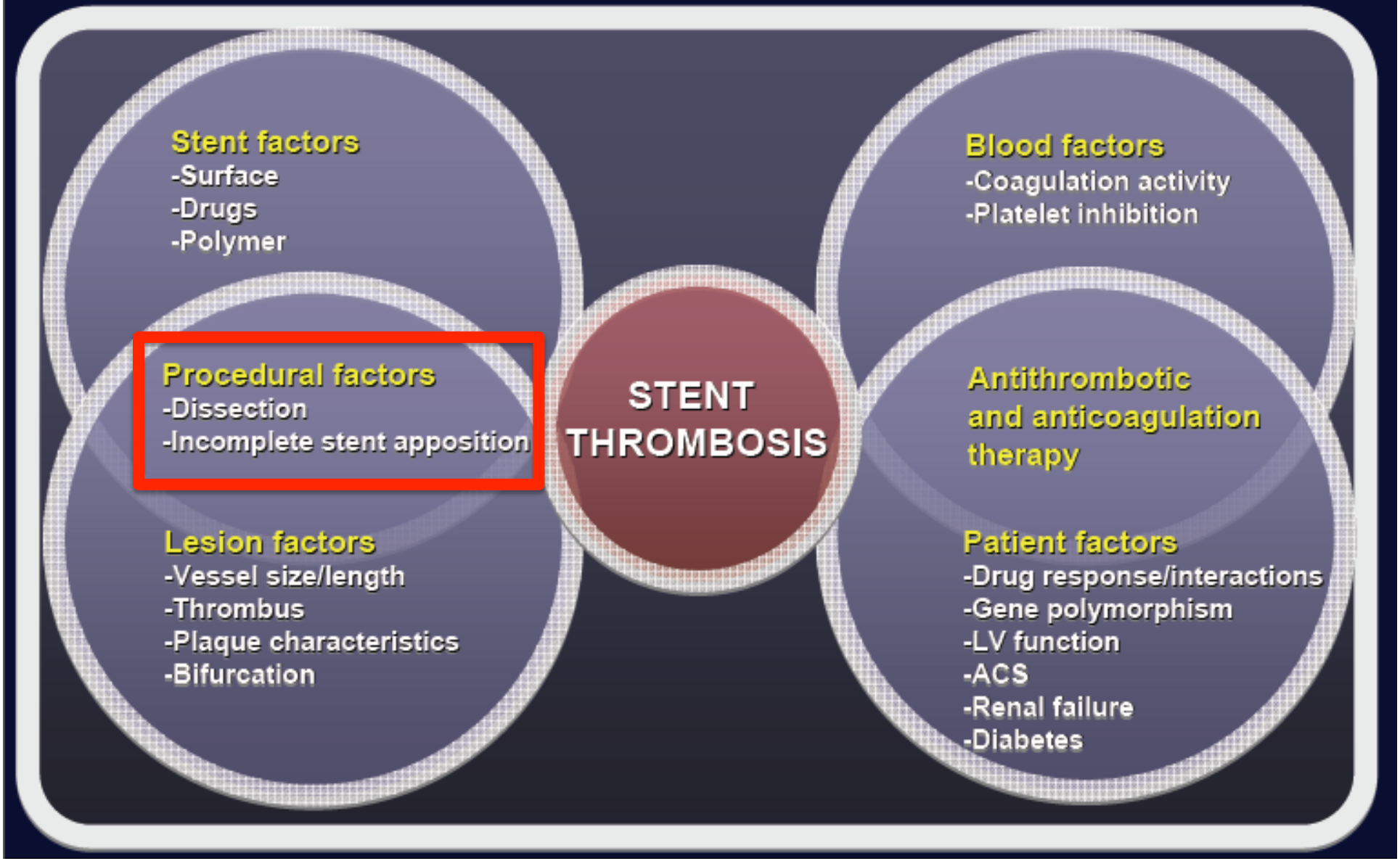


0 day	to 1 day	Acute stent thrombosis
>1 day	to 1 month	Subacute stent thrombosis
>1 month	to 1 year	Late stent thrombosis
	> 1 year	Very late stent thrombosis

Outcome of Patients With DES Stent Thrombosis at 6 – 9 Months

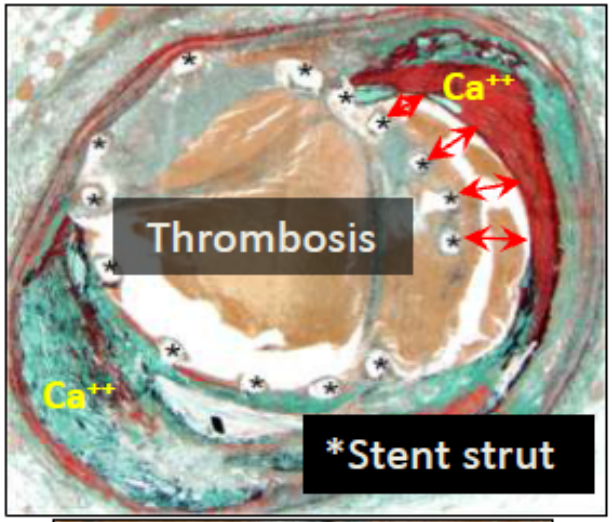


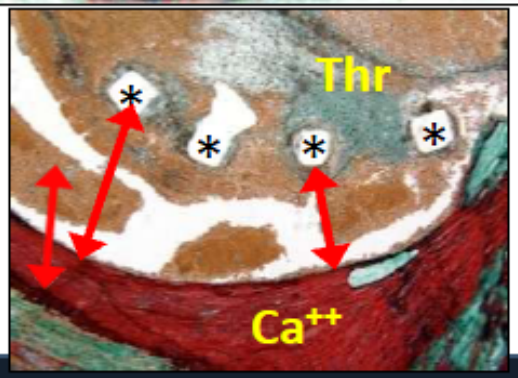
Multifactorial Nature of Stent Thrombosis



Speculative Predictors of Early ST in Histology

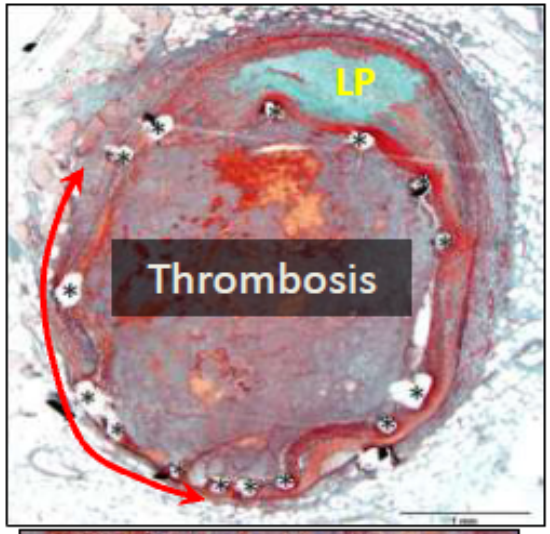
Strut malapposition

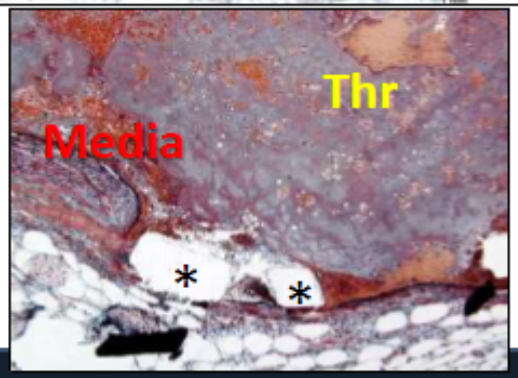




BMS implanted in a heavily calcified plaque (fibrocalcific). Struts are partially malapposed.

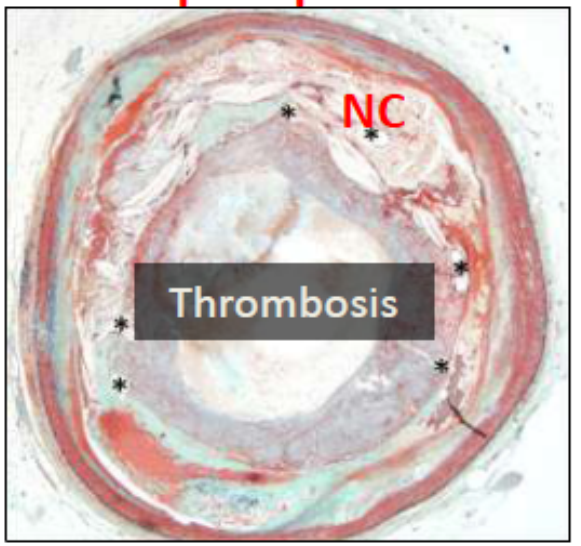
Media disruption

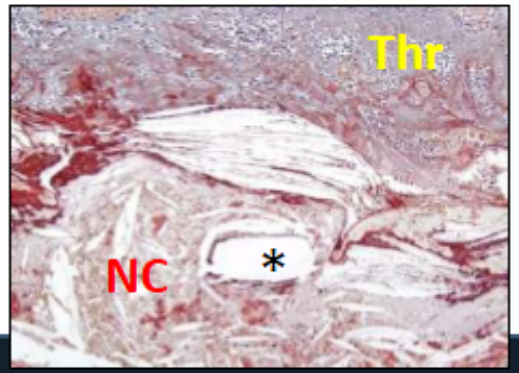




DES implanted in an eccentric pathological intimal thickening plaque (PIT) .
Media is tore at the opposite side of plaque

Necrotic core prolapse





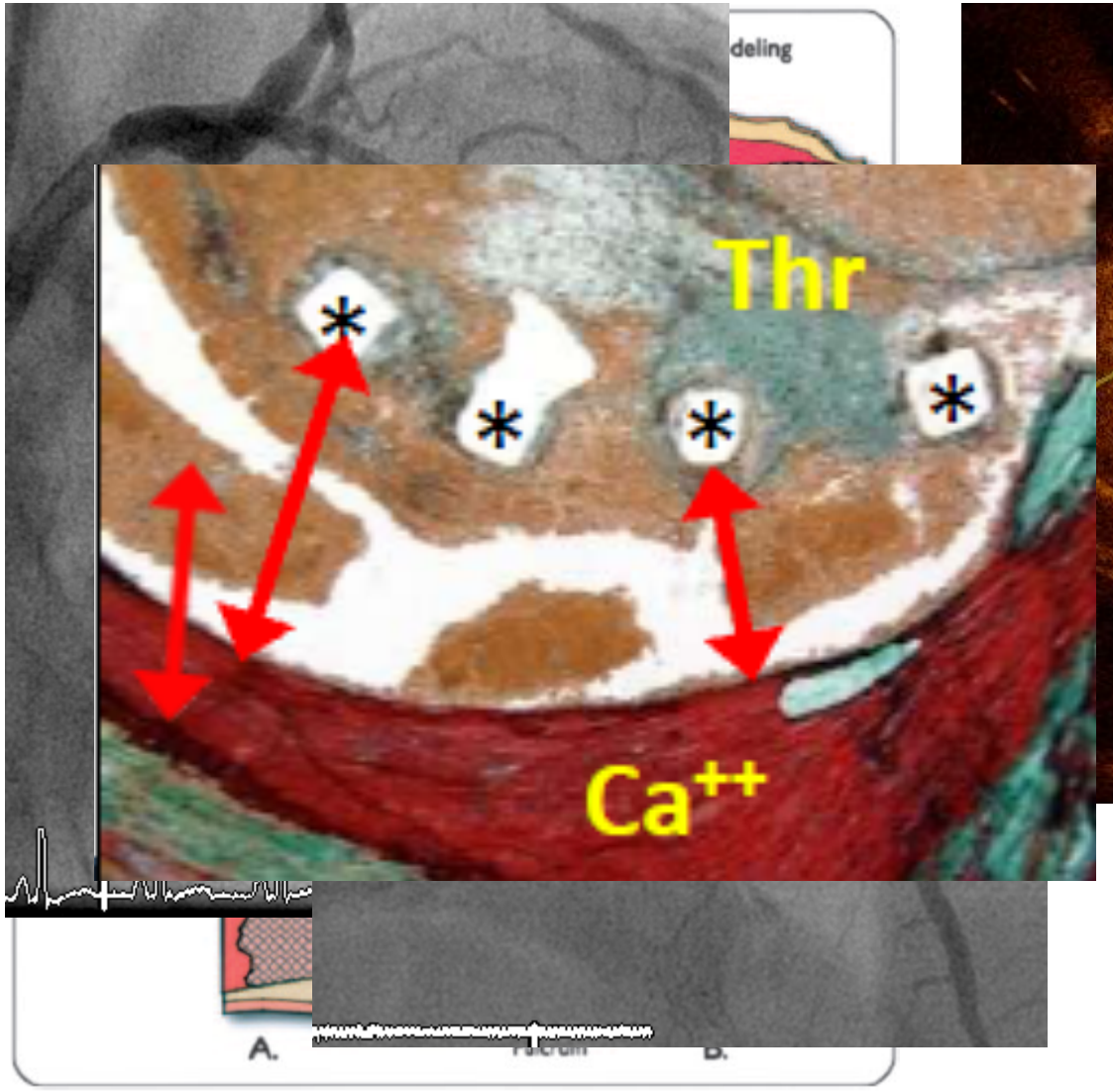
BMS implanted in ruptured plaque.
Struts are penetrating into necrotic core (NC).

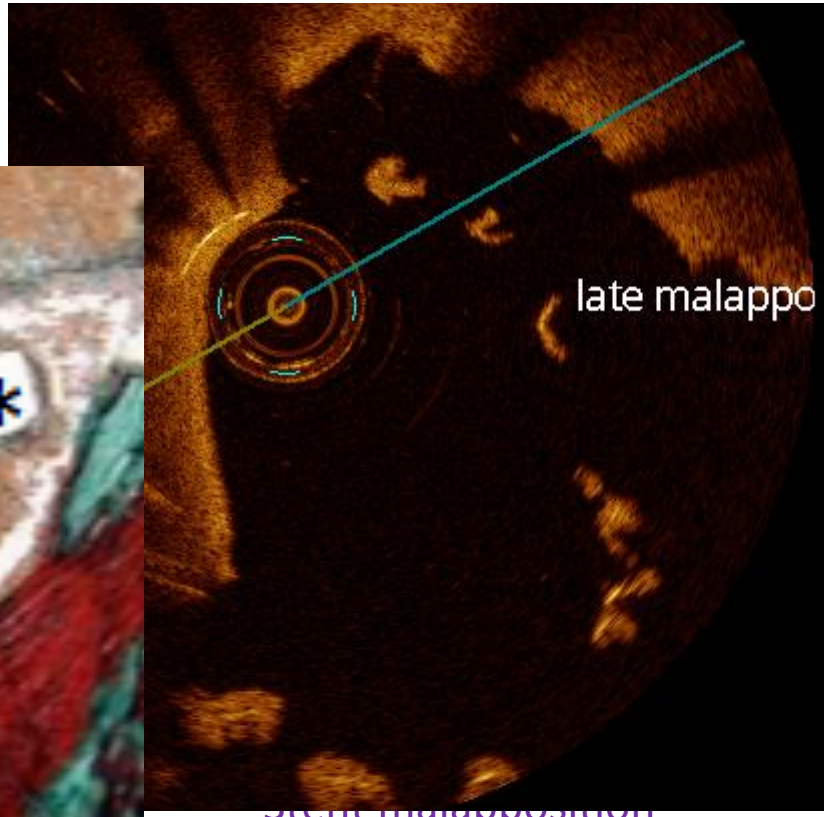
Virmani R. ***EuroPCR 2012***

Causes mécaniques, évitables ?

Hôpitaux de Toulouse

Pôle Cardiovasculaire et Métabolique





Stent malapposition
@ time of VLST (%)

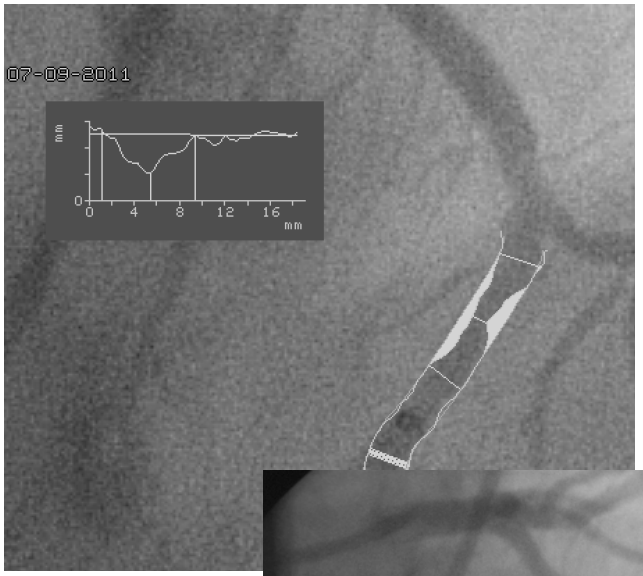
- Very Late DES Thrombosis (n=13)
- DES Controls (n=175)

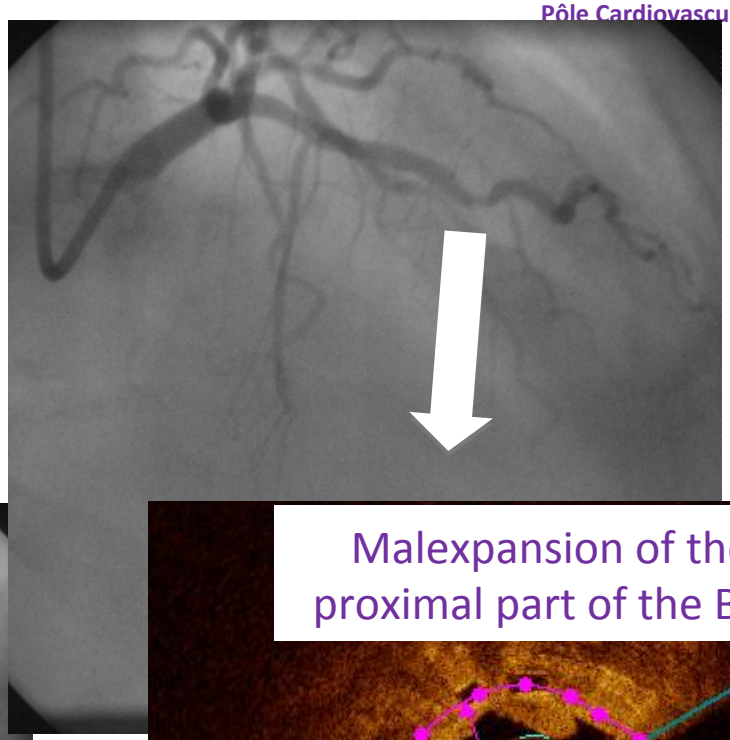
Cook et al. ***Circulation*** 2007;115:2426-34

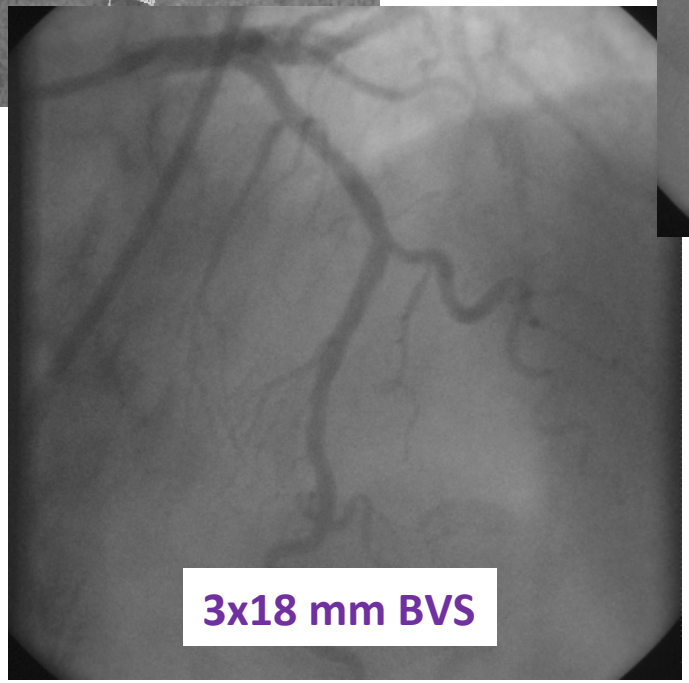
Causes mécaniques, évitables ?

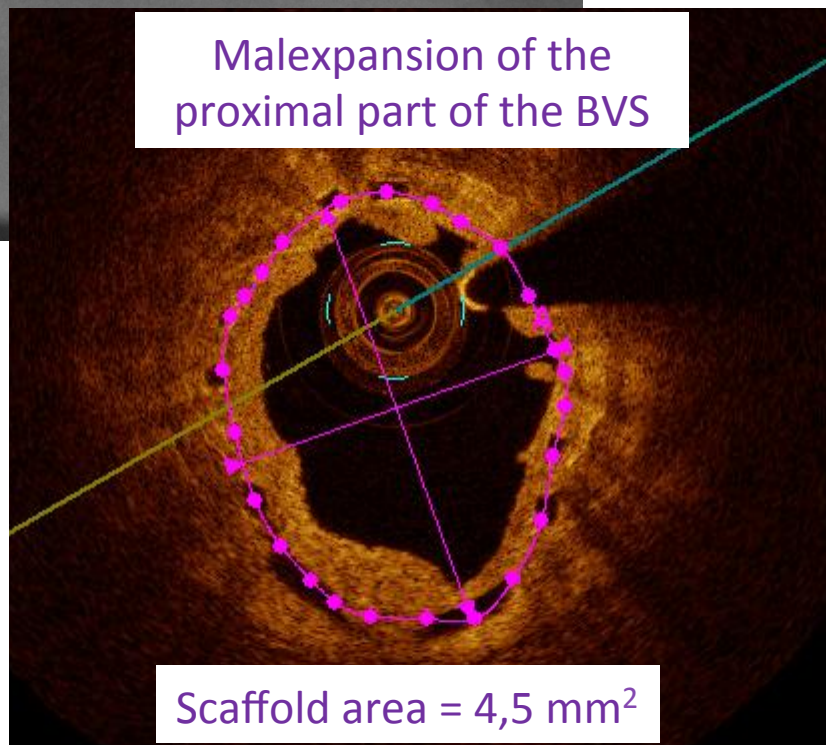
Hôpitaux de Toulouse

Pôle Cardiovasculaire et Métabolique









Iconographie : T Lhermusier

Les TS sont-elles toutes identiques ?

Hôpitaux de Toulouse

Pôle Cardiovasculaire et Métabolique

- Il existe bien certains facteurs, pour certains évitables (mécaniques, pharmacologiques) permettant d'individualiser certaines TS.

- Une fois éliminés ces différents facteurs, y-a-t-il des différences de TS entre les différents stents à notre disposition, utilisés à large échelle ?

- BMS vs DES 1ère vs DES 2ème génération ?

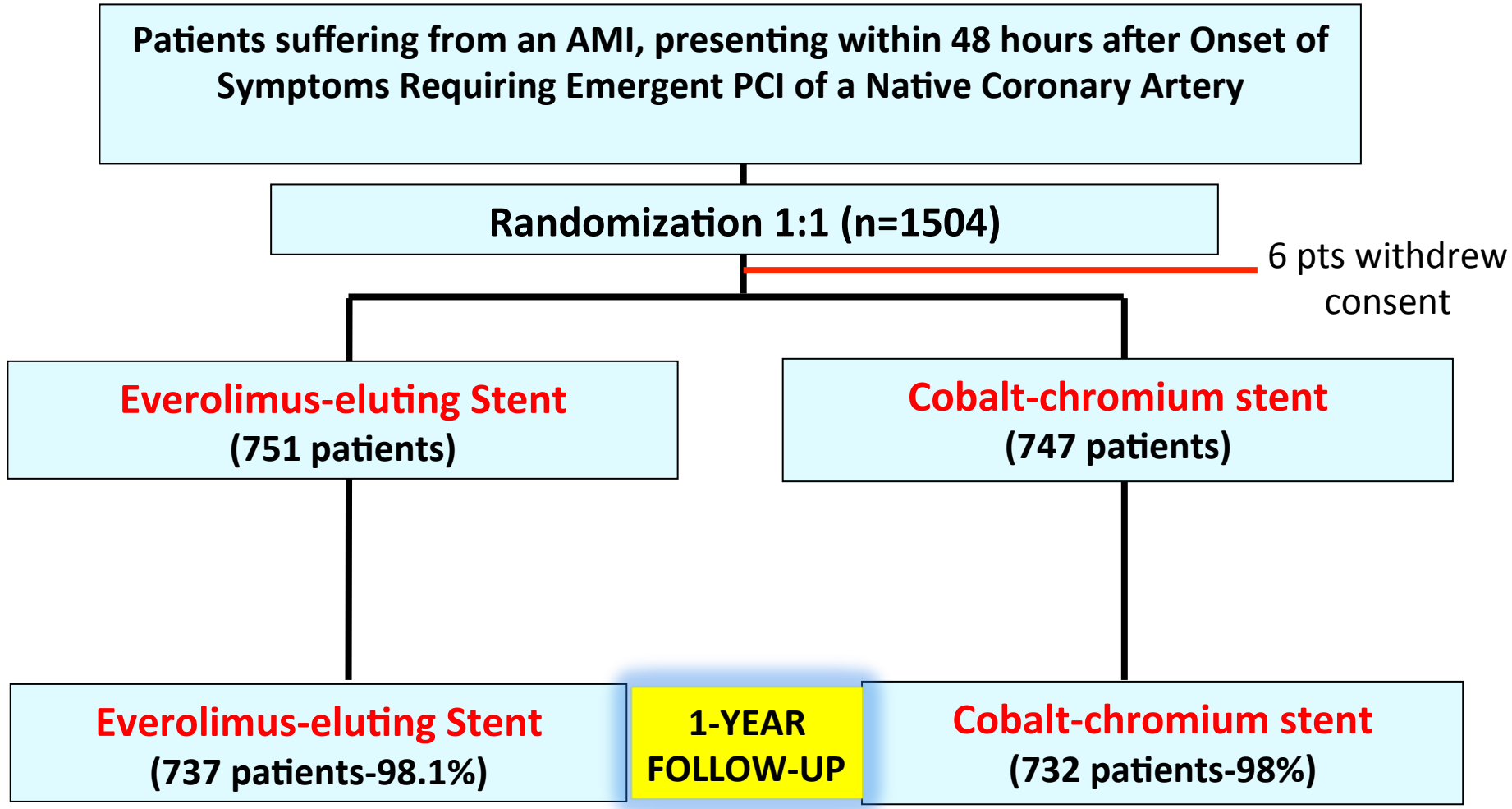
The EXAMINATION (a clinical Evaluation of Xience-V stent in Acute Myocardial INfArcTION) trial

Manel Sabaté

Hospital Clínic, Barcelona

(On behalf of the Examination Investigators)

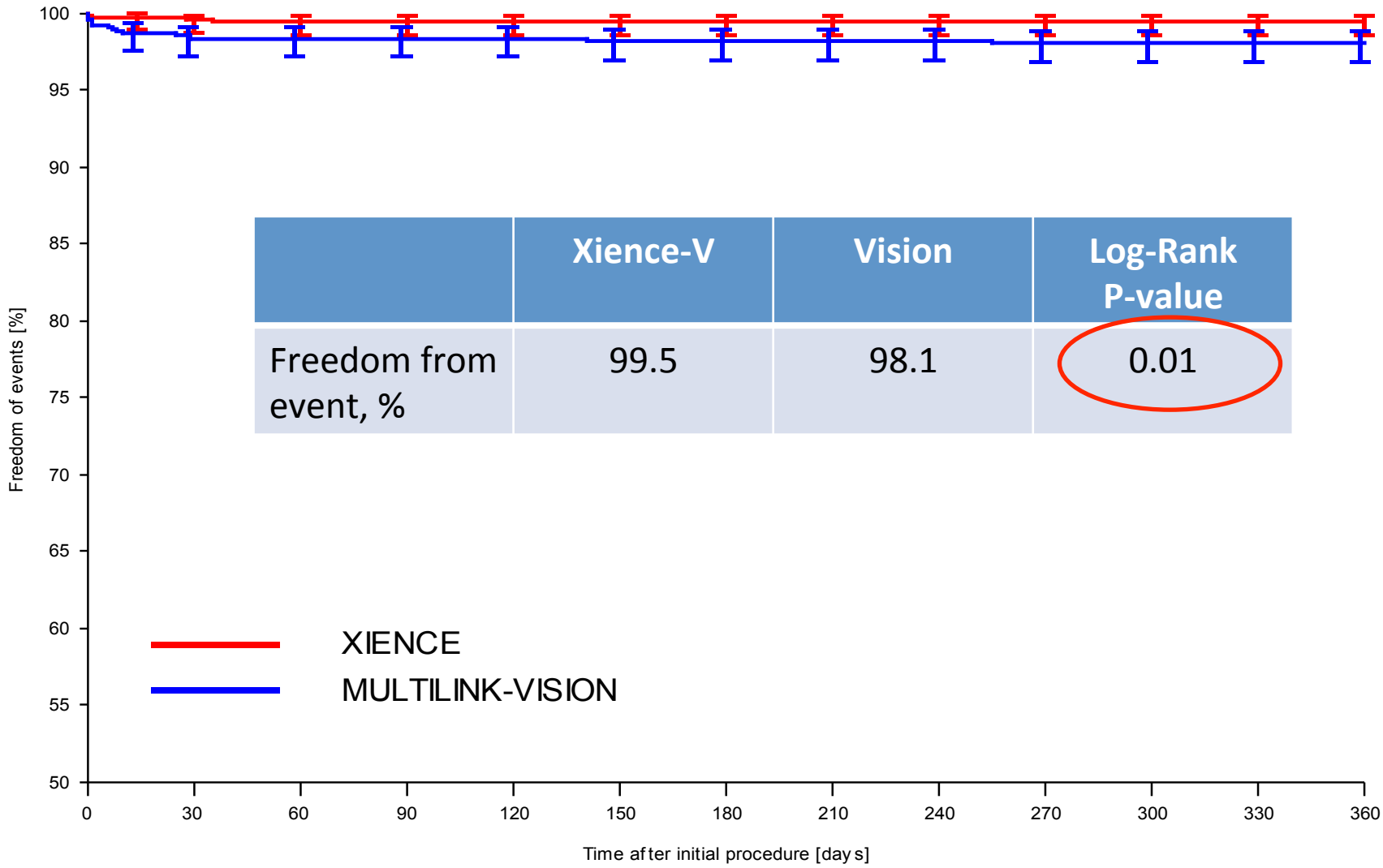
Study Design = All-comer RCT



EXAMINATION trial

Secondary Endpoints:

Definite Stent Thrombosis

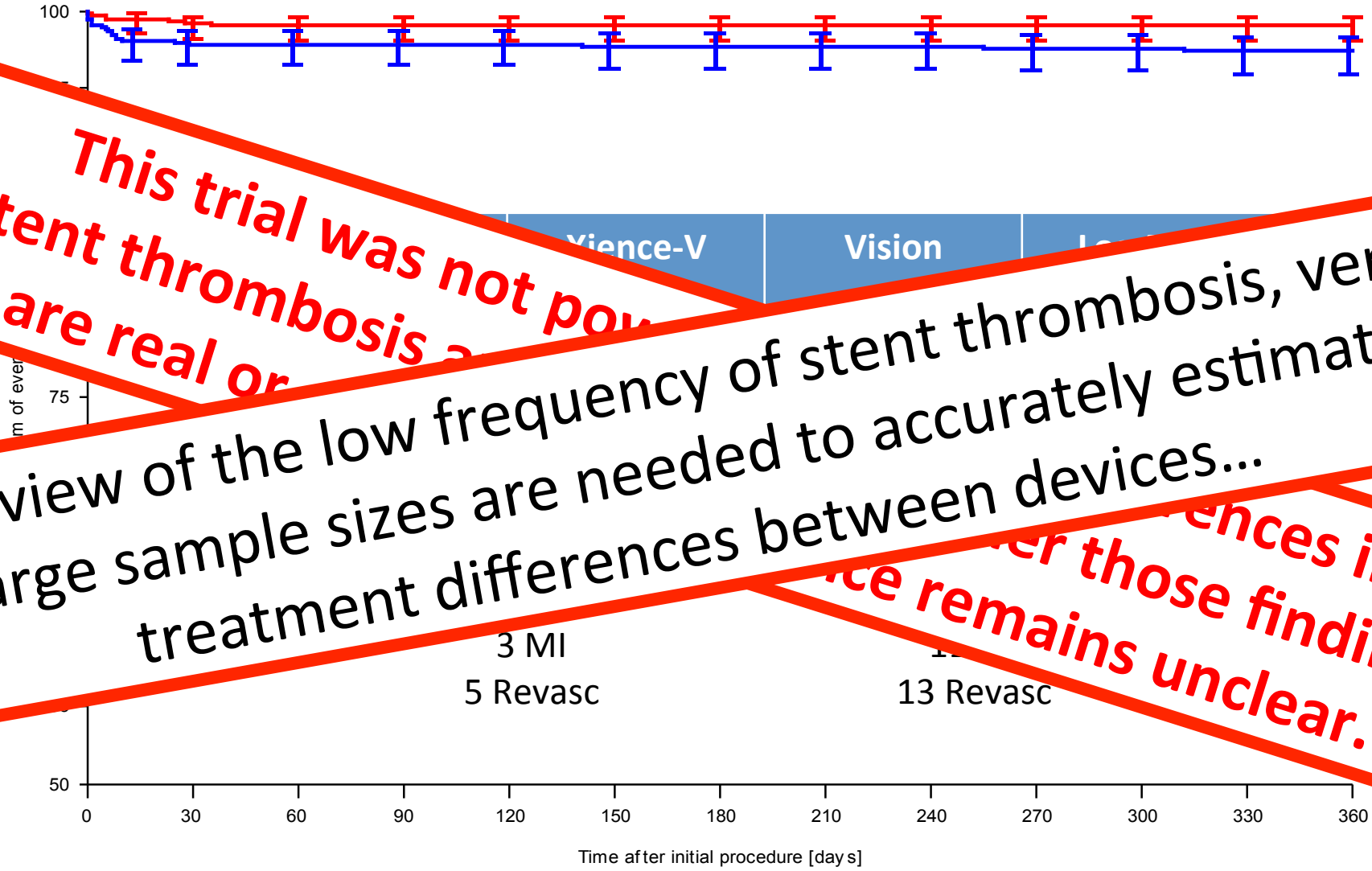


	Xience-V	Vision	Log-Rank P-value
Freedom from event, %	99.5	98.1	0.01

EXAMINATION trial

Secondary Endpoints:

Definite/Probable Stent Thrombosis



This trial was not pow
stent thrombosis a
are real or

In view of the low frequency of stent thrombosis, very large sample sizes are needed to accurately estimate treatment differences between devices…

ences in
er those findings
ce remains unclear.

THE LANCET

Articles

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

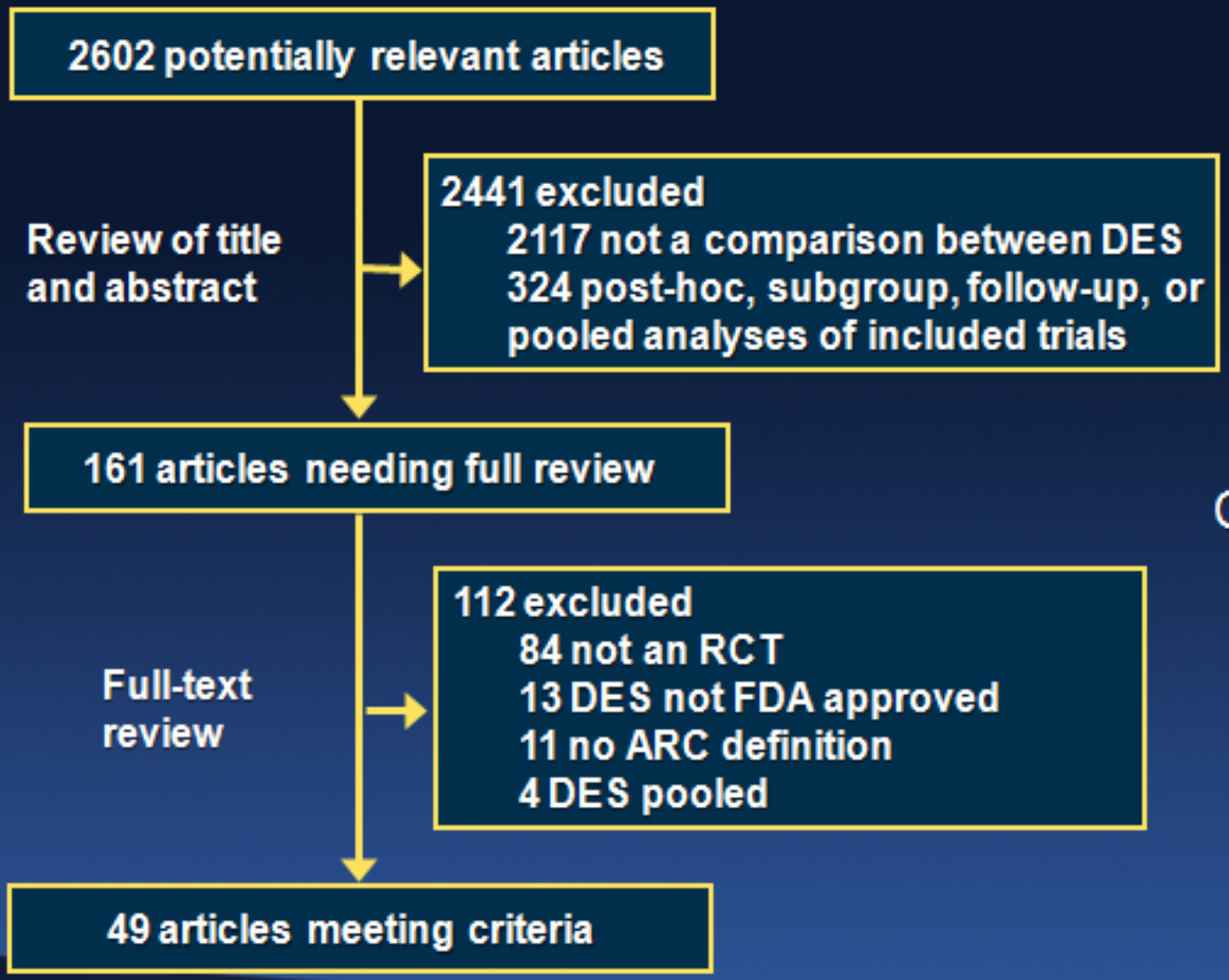
Tullio Palmerini, Giuseppe Biondi-Zoccai, Diego Della Riva, Christoph Stettler, Diego Sangiorgi, Fabrizio D'Ascenzo, Takeshi Kimura, Carlo Briguori, Manel Sabatè, Hyo-Soo Kim, Antoinette De Waha, Elvin Kedhi, Pieter C Smits, Christoph Kaiser, Gennaro Sardella, Antonino Marullo, Ajay J Kirtane, Martin 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 to 2 years)



FDA approved stents

(BMS, SES, PES, End-ZES, Res-ZES, CoCr-EES, PtCr-EES)

49 RCTs

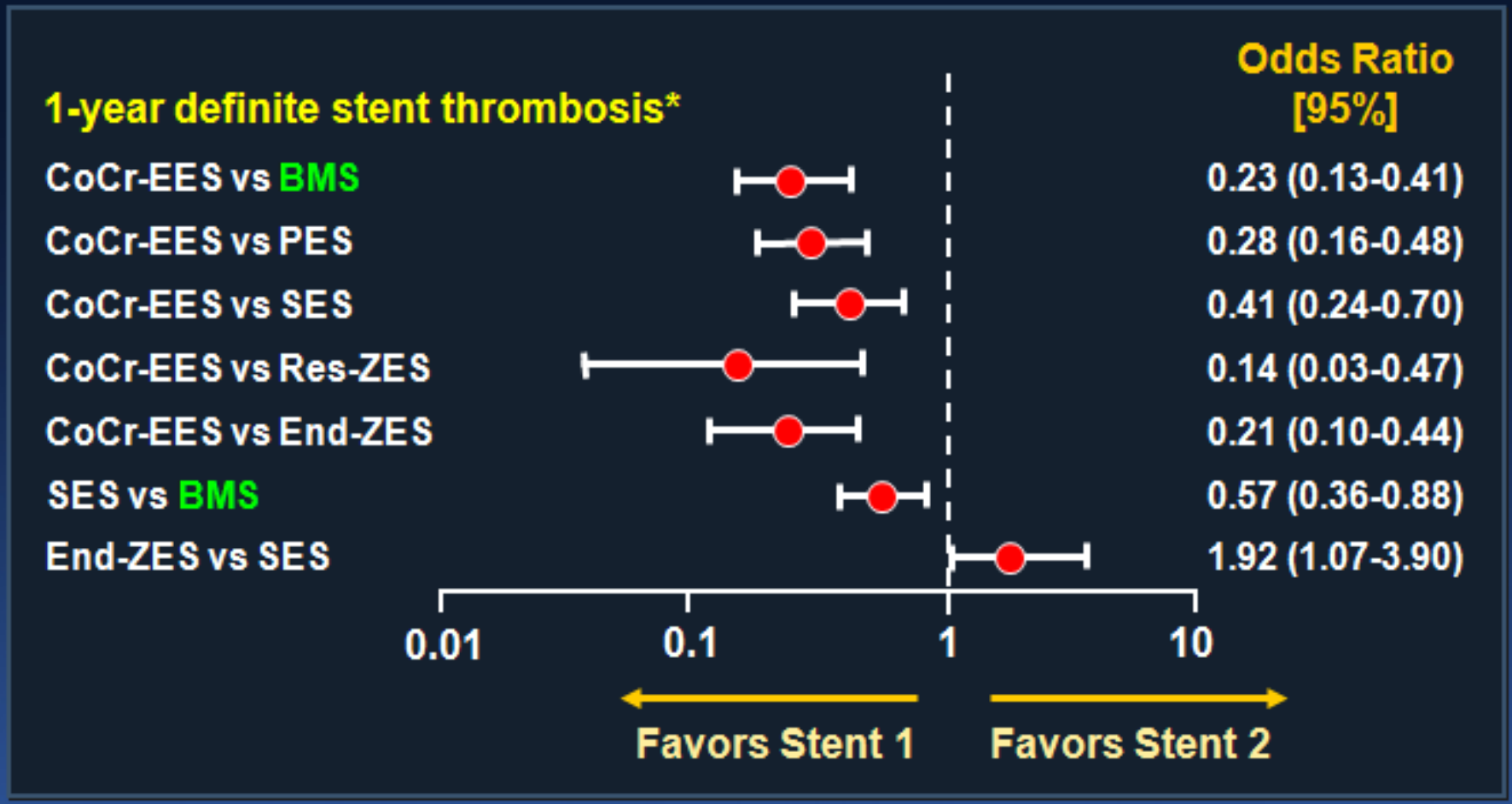
50,844 pts

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

Stent Thrombosis Network Meta-analysis

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

49 RCTs, 50,844 pts



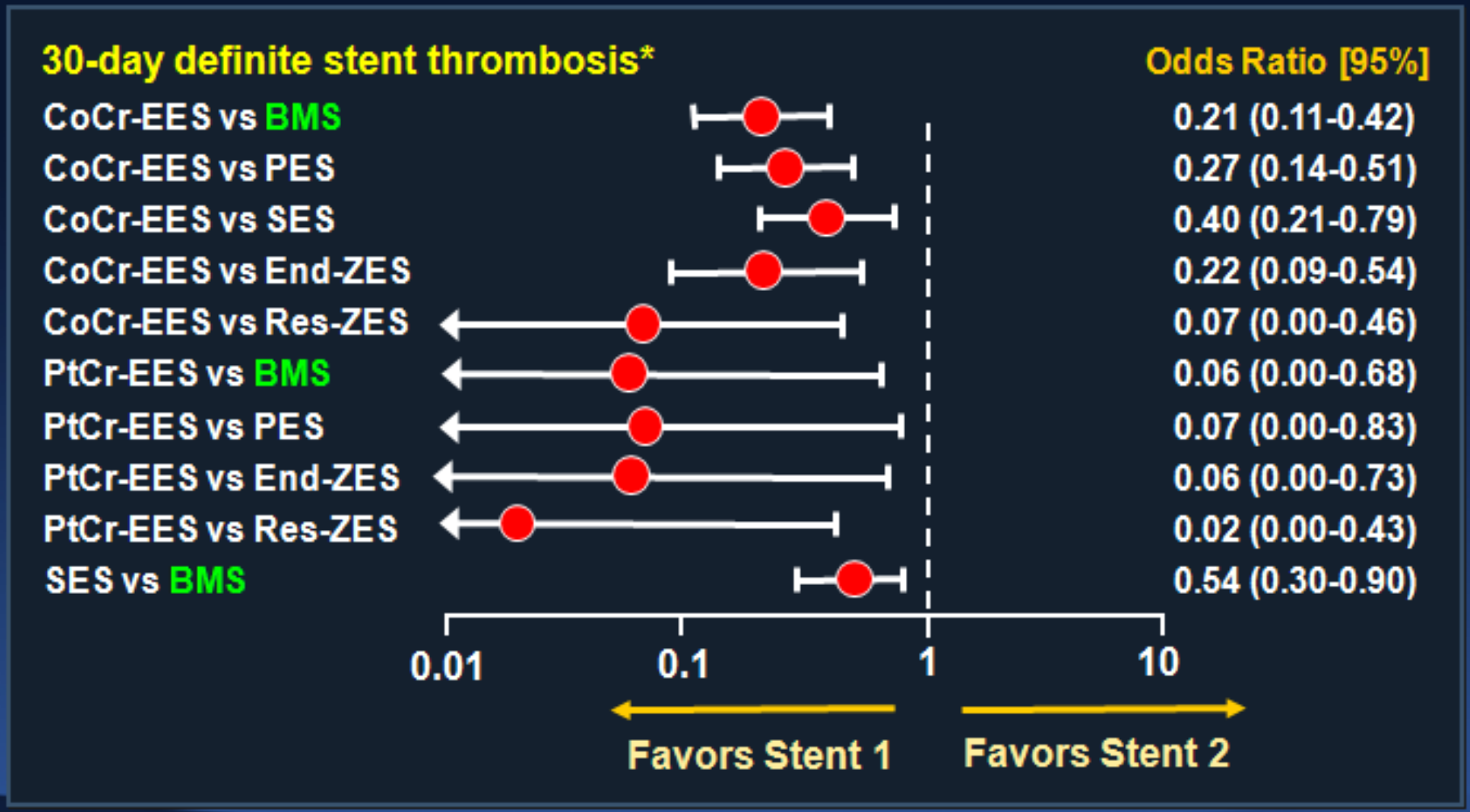
*Only statistically significant results are shown

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

Stent Thrombosis Network Meta-analysis

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

49 RCTs, 50,844 pts



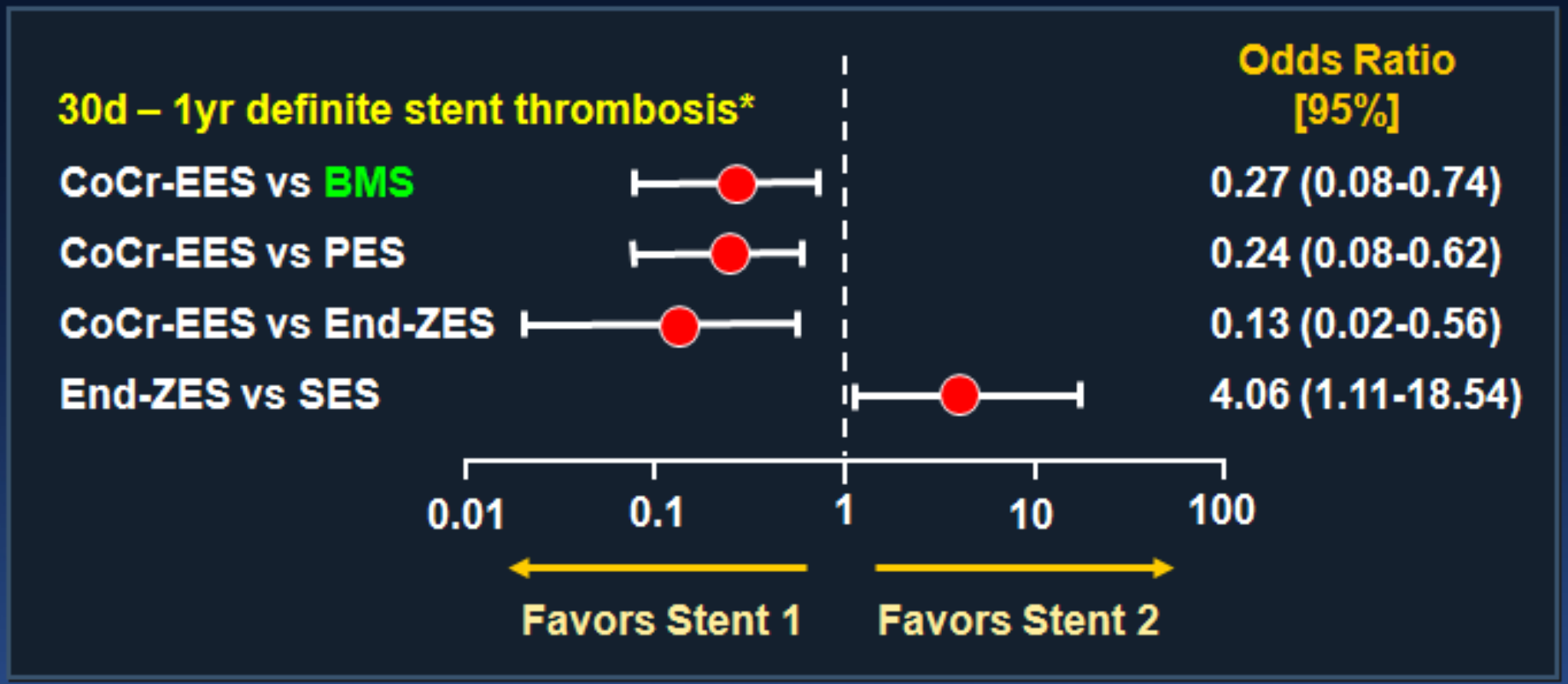
*Only statistically significant results are shown

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

Stent Thrombosis Network Meta-analysis

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

49 RCTs, 50,844 pts



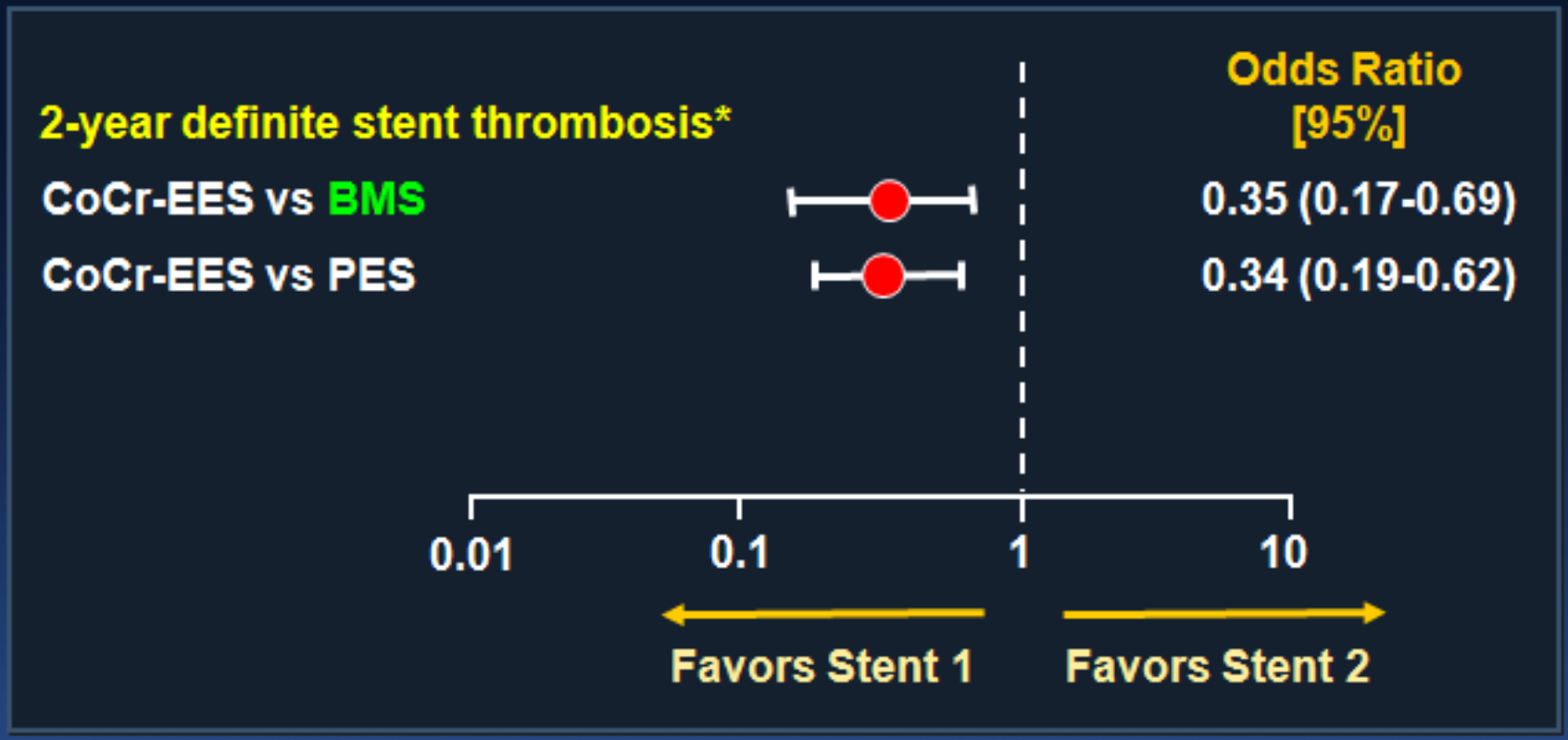
*Only statistically significant results are shown

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

Stent Thrombosis Network Meta-analysis

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

49 RCTs, 50,844 pts



*Only statistically significant results are shown

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

Summary

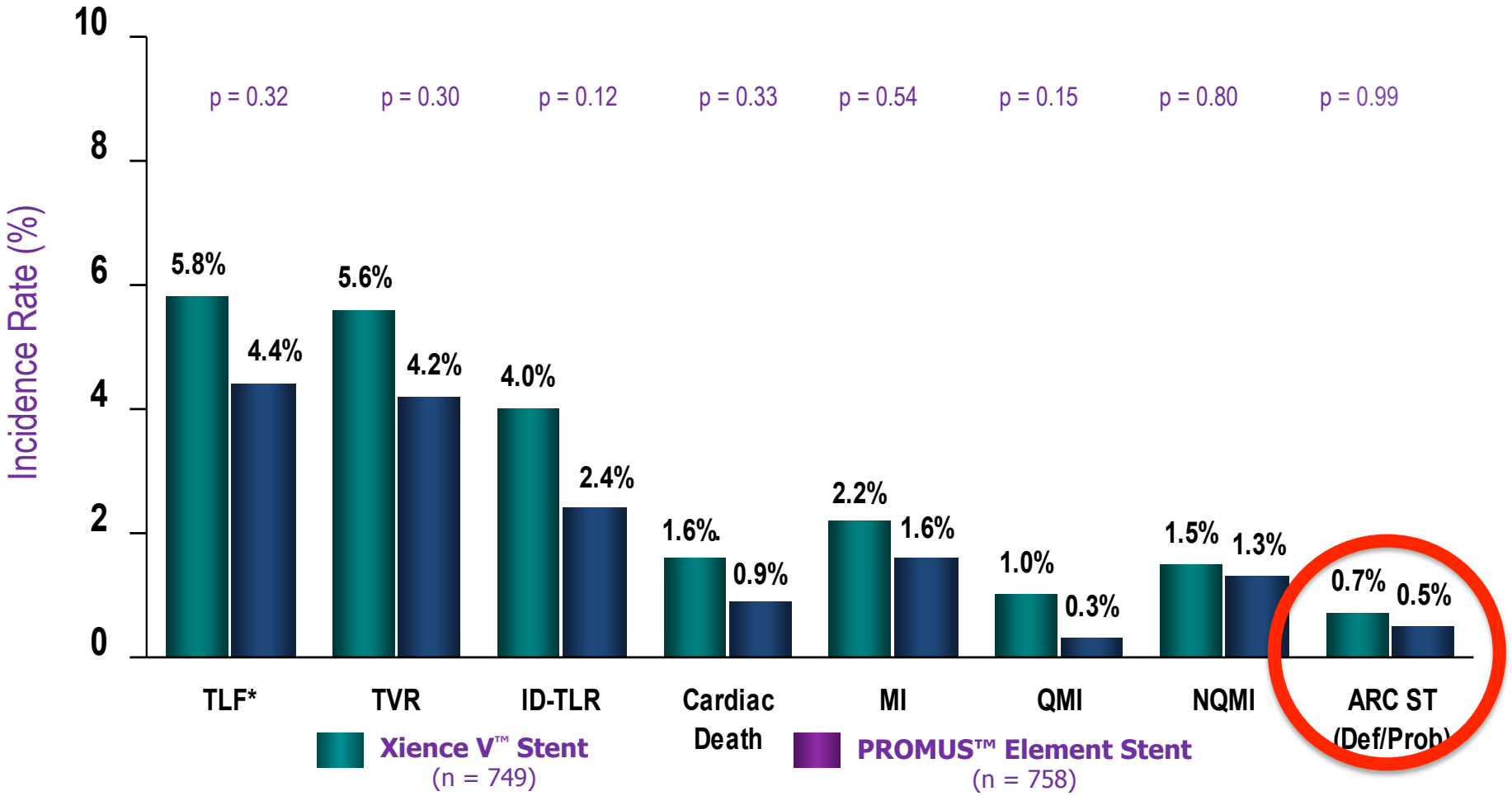
(1) CoCr-EES were associated with significantly lower rates of 1-year and 2-year definite stent thrombosis than were BMS, a result not present with other DES

(2) the reduction in stent thrombosis with CoCr-EES compared with BMS was apparent both early and late (occurring before 30 days and between 31 days and 1 year)

(3) CoCr-EES were also associated with significantly lower 1-year rates of definite stent thrombosis than were other first and second generation DES, including PES, SES, PC-ZES, and Re-ZES.

PLATINUM Workhorse Trial

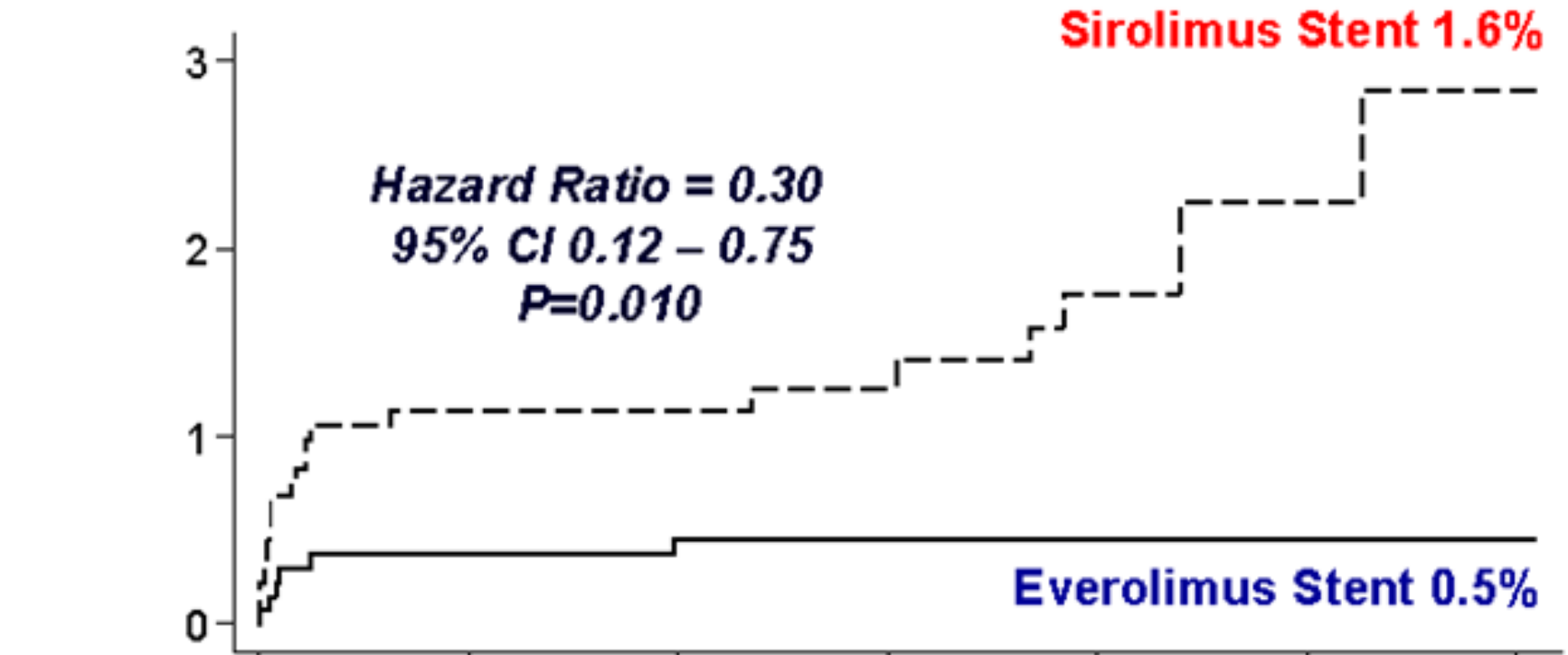
2-Year Clinical Results



*TLF=Ischemia-driven (ID) target lesion revascularization (TLR), cardiac death related to the target vessel (TV) or myocardial infarction (MI) related to the TV.
TVR: target vessel revascularization. ST: stent thrombosis.

Presented by Gregg W. Stone, MD, ACC 2012.

Lesson I – Definite Stent Thrombosis @ 3 Years



No. at risk

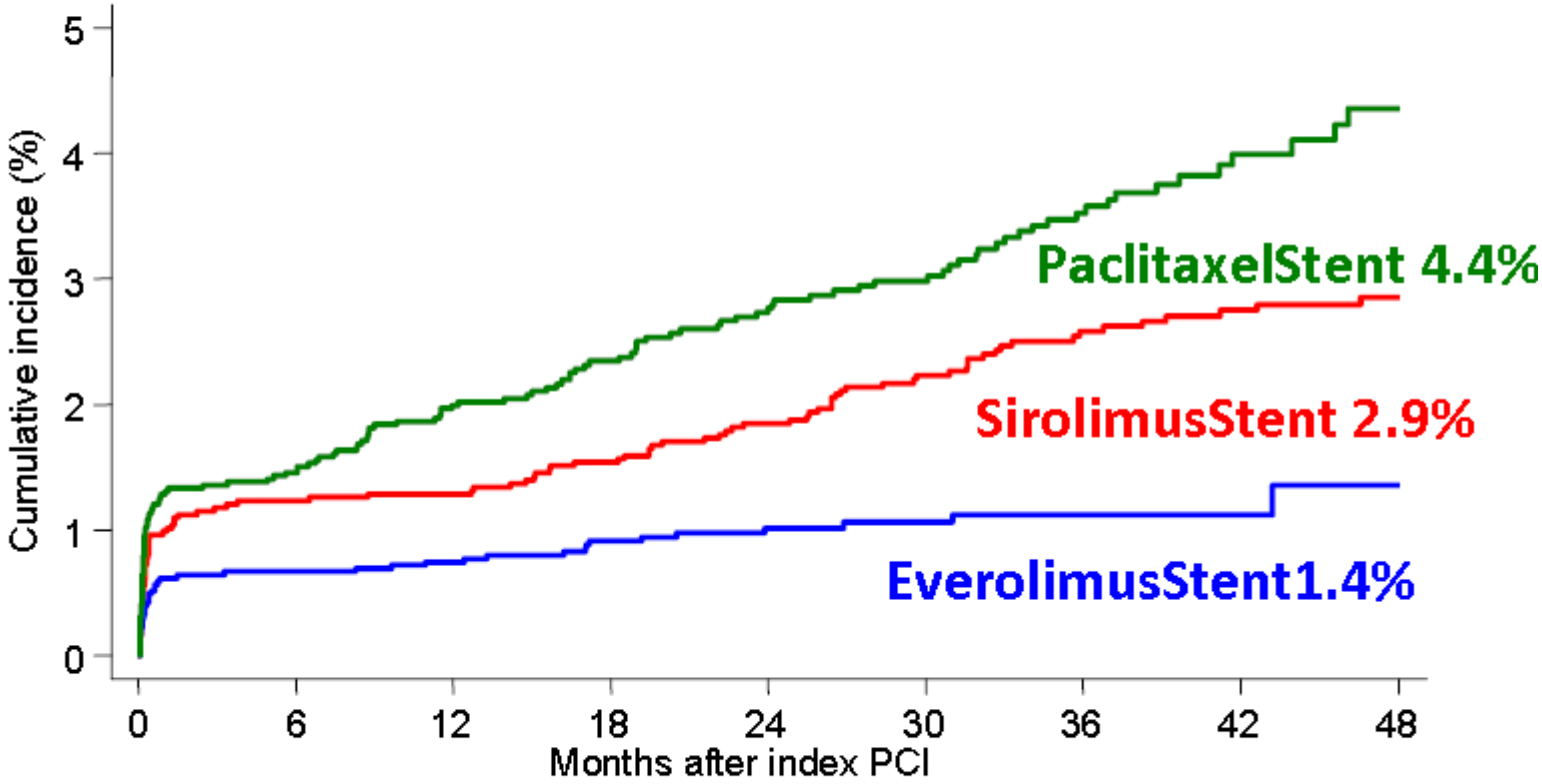
EES	1342	1296	1234	620	543	226	29
SES	1342	1271	1216	619	527	223	28

Räber et al. ***JACC*** 2011;57:2143-51

PrimaryEndpoint
ARC Definite ST @ 4 Years

EES vs. SESHazard Ratio* = 0.41, 95% CI 0.27–0.62, P<0.0001

EES vs. PESHazard Ratio* = 0.33, 95% CI 0.23-0.48, P<0.0001



No. at risk

PES	4214	3916	3797	3176	2905	2344	1880	1077	686
SES	3784	3617	3569	3499	3404	3080	2521	2118	1734
EES	4135	3913	3793	3284	2604	1856	1041	514	208

*from Cox proportional hazards model

Räber et al. ***Circulation*** 2012;125:1110-21

COMPARE II trial

Pieter Smits

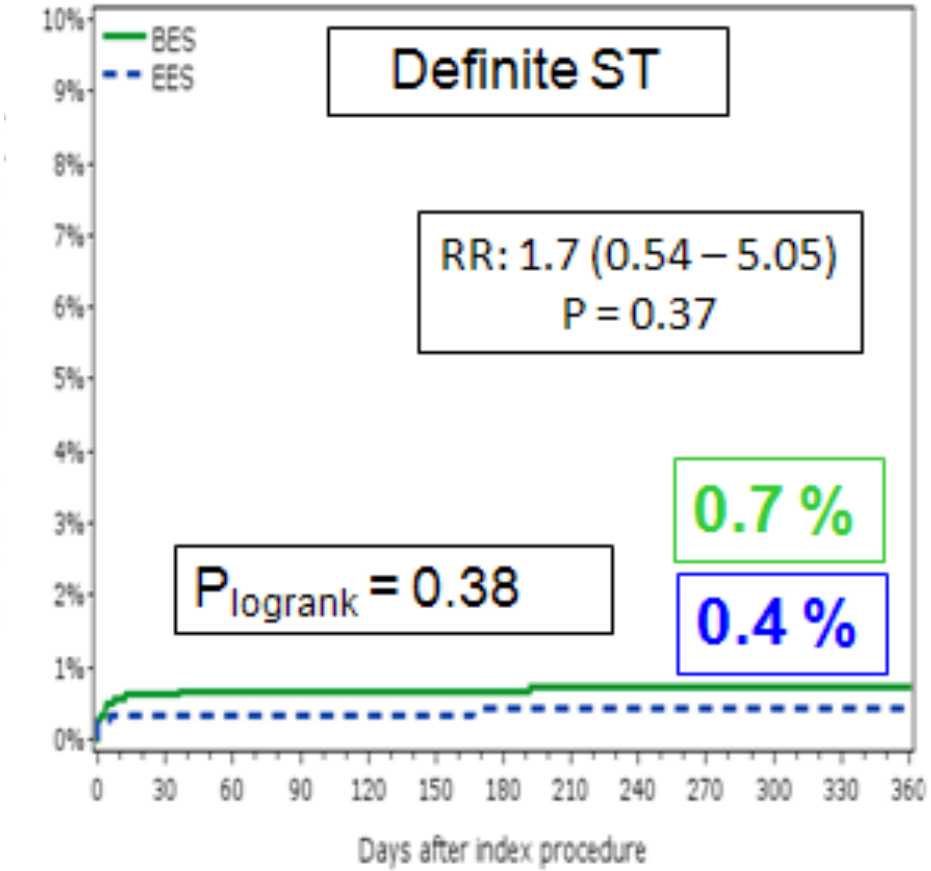
On behalf of all principal COMPARE II investigators:

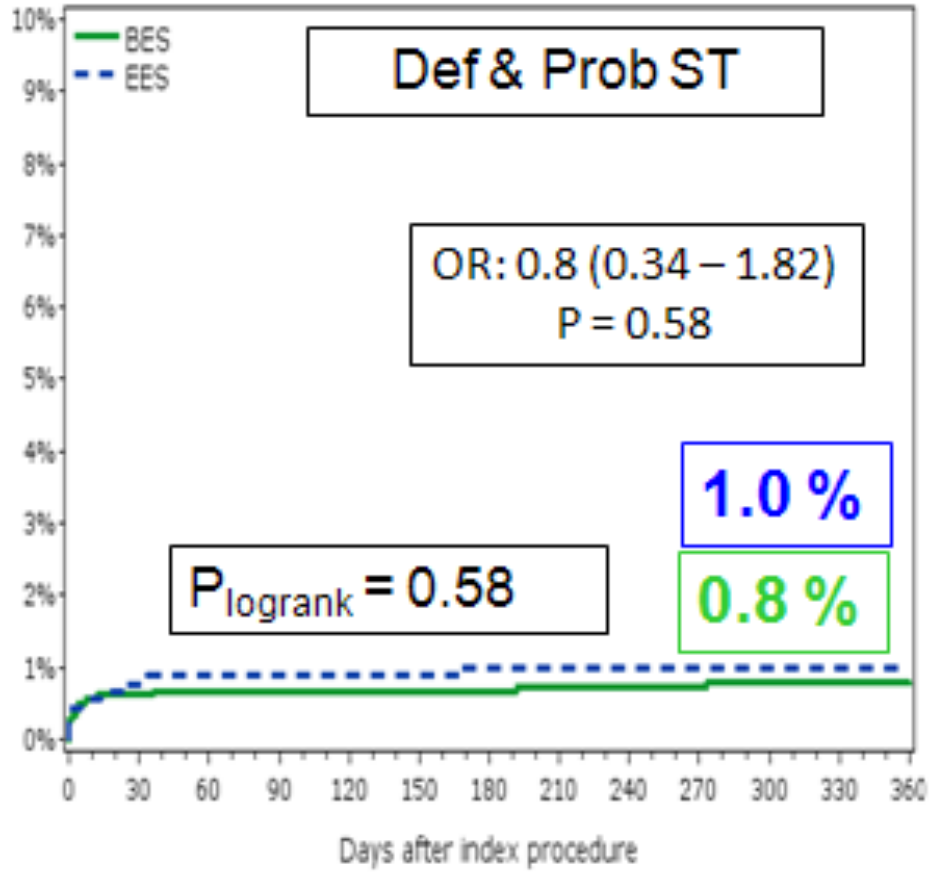
Ad van Boven, Jean-Jaques Goy, Peter den Heyer, Antonio Serra, Ton Slagboom, Mario Togni, Ramiro Trillo Nouche, Mariano Valdés, Andre Vuillomenet, Jose Vázquez, Vassilis Voudris

Purpose

The main objective of the COMPARE II trial is
a head to head comparison of
the everolimus eluting XIENCE-V/PRIME/ PROMUS®(EES)
with
the biolimus eluting NOBORI® stent (BES)
to assess:
whether there is a difference in clinical outcome between both stent types in a real life situation

Stent Thrombosis (ARC)





mber at Risk:

S	1795	1776	1769	1767	1767	1767	1767	1766	1766	1766	1766	1766	1766@ES
S	912	902	900	900	898	898	897	897	897	897	897	897	897EES

Number at Risk:

1795	1776	1769	1767	1767	1767	1767	1766	1766	1766	1765	1765	1765	@ES
912	898	895	895	893	893	892	892	892	892	892	892	892	EES

Les TS sont-elles toutes identiques ?

Hôpitaux de Toulouse

Pôle Cardiovasculaire et Métabolique

- Non, plurifactorielles, certains facteurs potentiellement évitables
- A large échelle, données récentes plaident pour une sécurité supérieure CoCr-EES vs BMS/ DES 1è et 2è génération jusqu'à 2 ans
- Mécanismes: rôle du polymère ?
- Quid des PtCr-EES, polymères biodégradables ?

Effect of drug-eluting stents in patients with acute ST-segment elevation myocardial infarction undergoing percutaneous coronary intervention: a meta-analysis of randomised trials and an adjusted indirect comparison

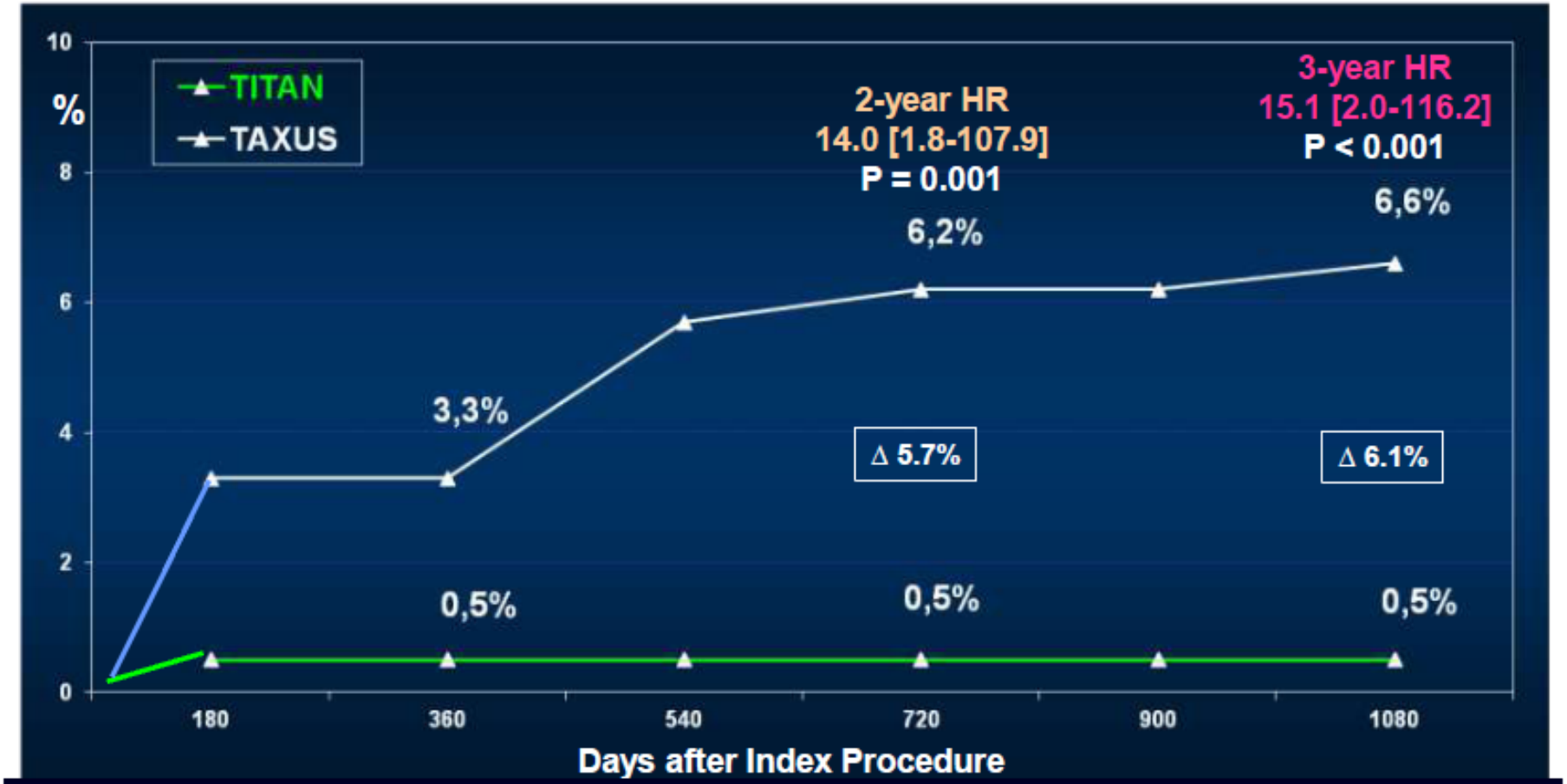
- Until July 2009
- 13 clinical trials
- N=7224
- ***STENT THROMBOSIS*** for BMS (2.76%) and DES (2.65%) were similar

- *EuroIntervention*. 2010 Feb;5(7):853-60

euro PCR 2012 YEAR OF THE TEXTBOOK

TITAX-AMI trial

Definite Stent Thrombosis: 3-Year Follow-Up



Number at Risk

TITAN (214)	209	208	208	203	202	186
TAXUS (211)	202	200	192	186	184	160

TITAX-OCT study

Follow-Up Measurement