

TCTAP 2021 Virtual

DES vs. DEB for ISR

What Is the Best Weapon?

Prof. Robert A. Byrne



Disclosure Statement | Robert A. Byrne

Within the past 12 months, I or my spouse/partner have had a financial interest/arrangement or affiliation with the organization(s) listed below

Affiliation/Financial Relationship	Company
Grant/Research Support	Celonova Biosciences* Abbott Vascular, Biosensors, Biotronik, Boston Scientific

RAB reports research funding to the institution of prior employment from Celonova Biosciences and research or educational funding to the institution of current employment from Abbott Vascular, Biosensors, Biotronik and Boston Scientific but has not received personal payments from any pharmaceutical company or device manufacturer

Agenda

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Introduction

2

Principles of Drug-Coated Balloon Therapy

3

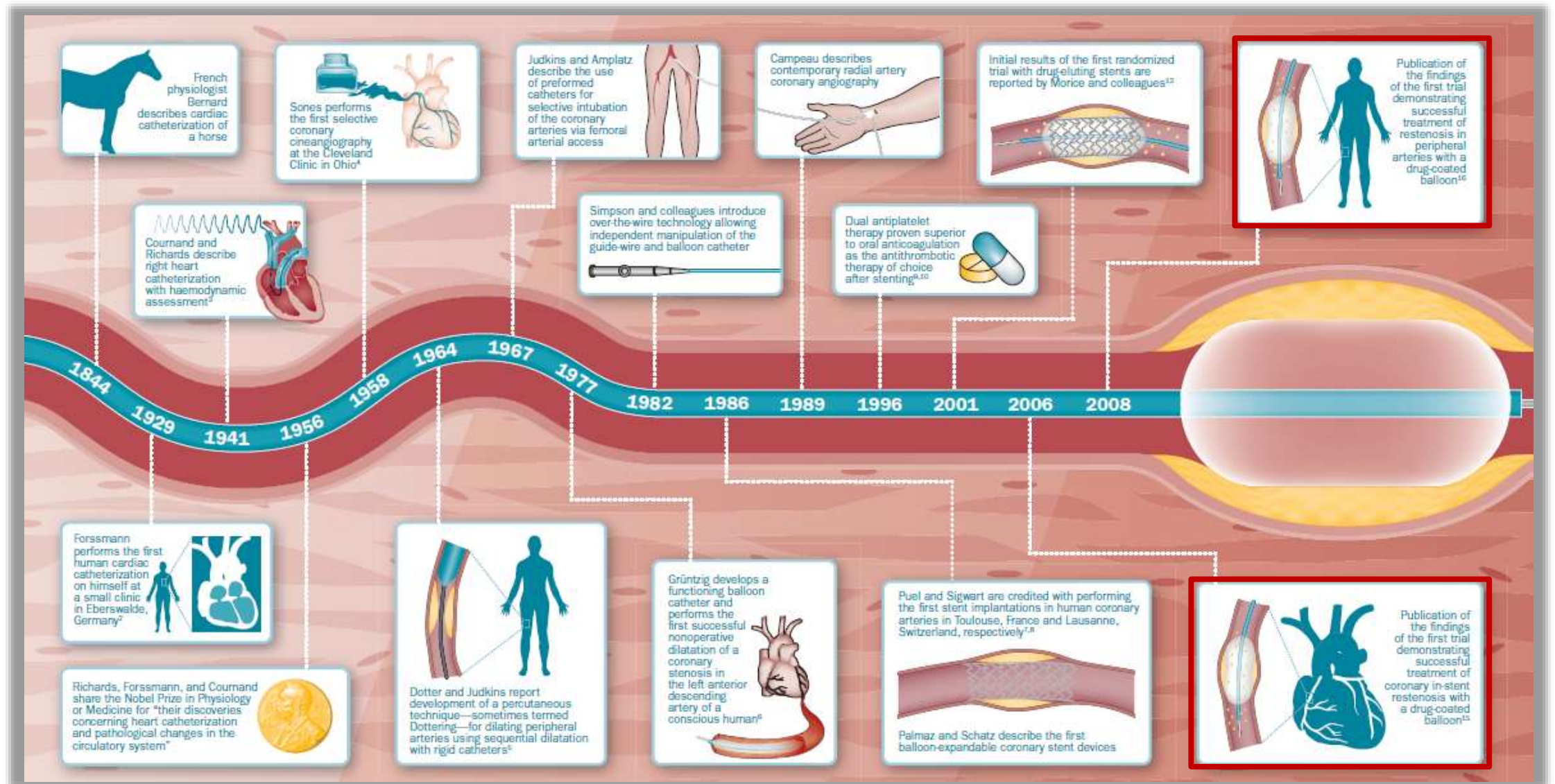
Treatment Algorithm for In-stent Restenosis

4

DAEDALUS | DCB Angioplasty versus Repeat Stenting with DES

5

Take Home Message



A brief history of catheter intervention

Byrne, Kastrati | Nat Rev Cardiol 2015



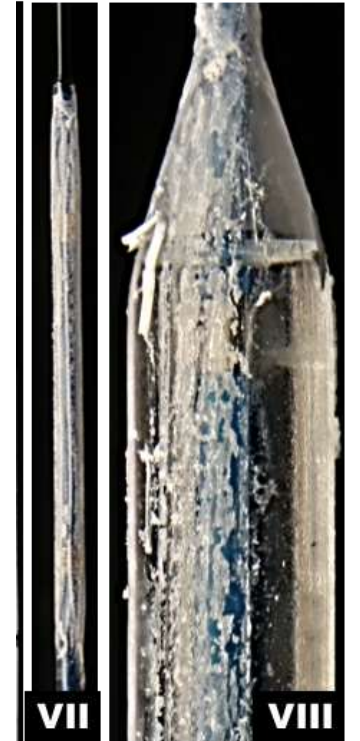
Principles of Drug-Coated Balloon Therapy

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Drug-Coated Balloon Angioplasty

1. Meticulous attention to angioplasty technique is critical



2. Lesion preparation with cutting/scoring balloons improves efficacy

ISAR-DESIRE 4 Trial

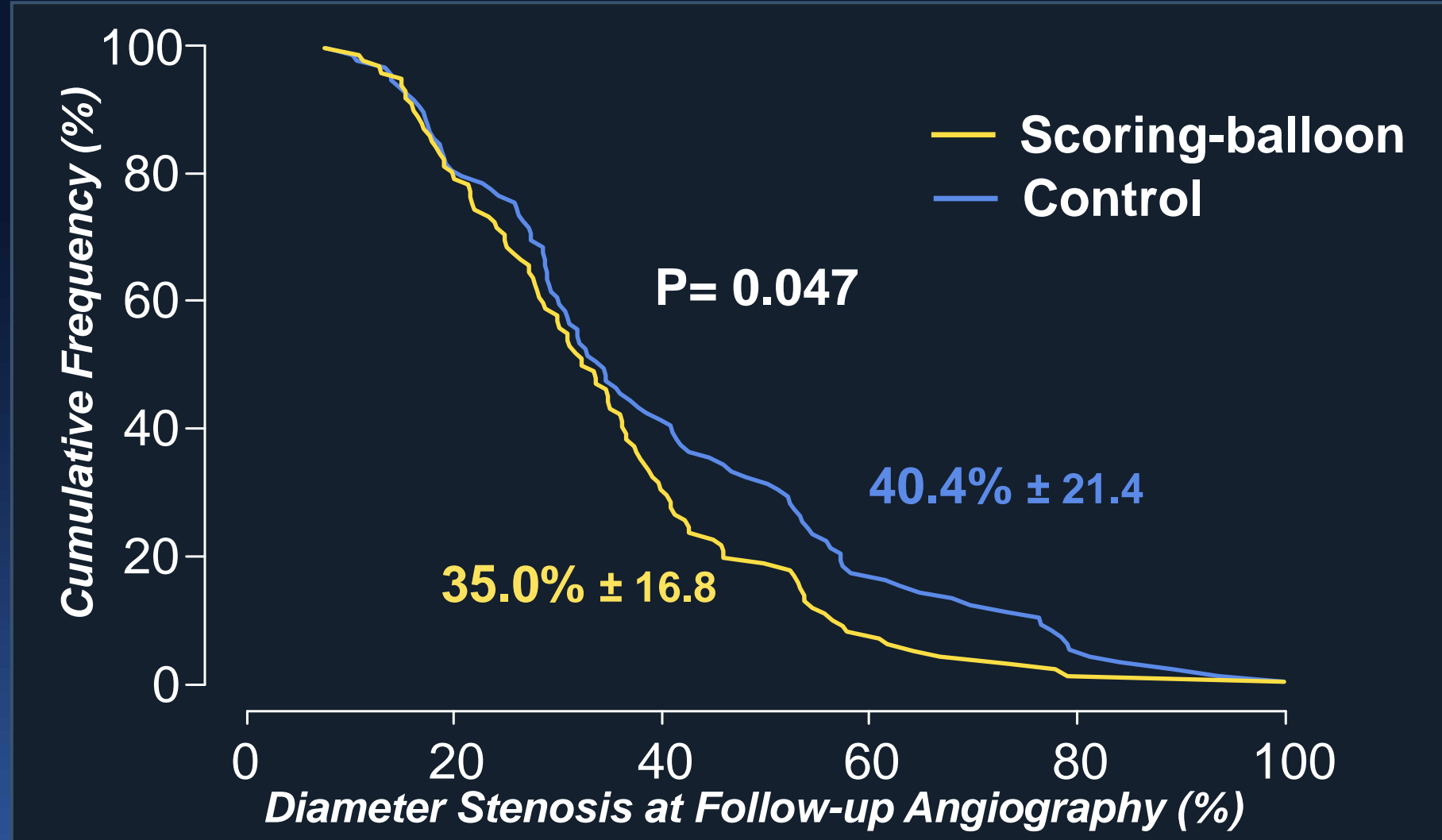
252 patients with DES-restenosis enrolled between June 2012 and December 2014 in 4 centers in Germany

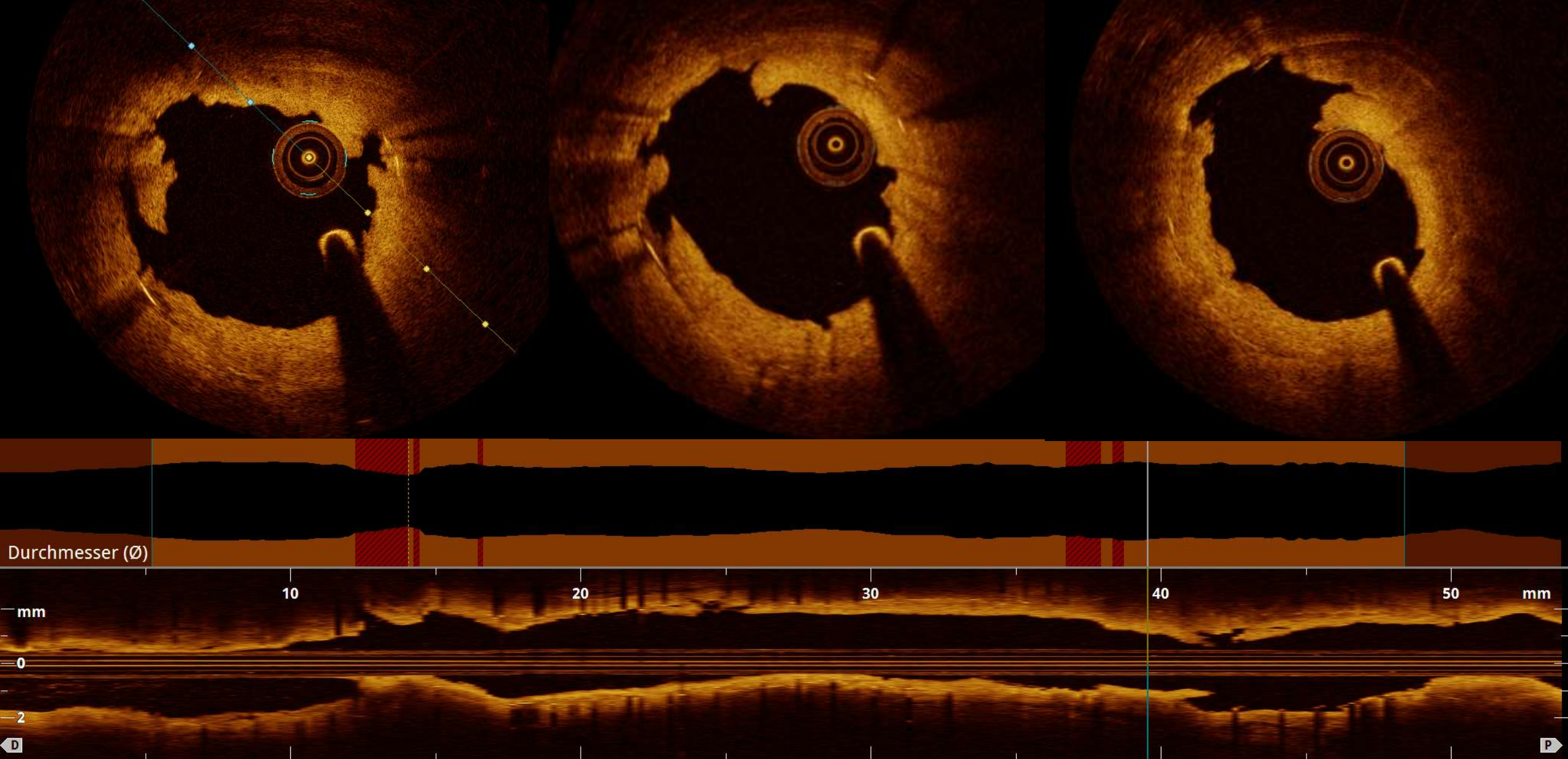
Scoring balloon plus paclitaxel-coated balloon (N=125)

Standard balloon plus paclitaxel-coated balloon (N=127)

Angiographic follow-up at 6-8 months in 80.4% (N=203)*

Diameter Stenosis at Follow-up Angiography





3. After DCB angioplasty accept a result that is not “stent-like”





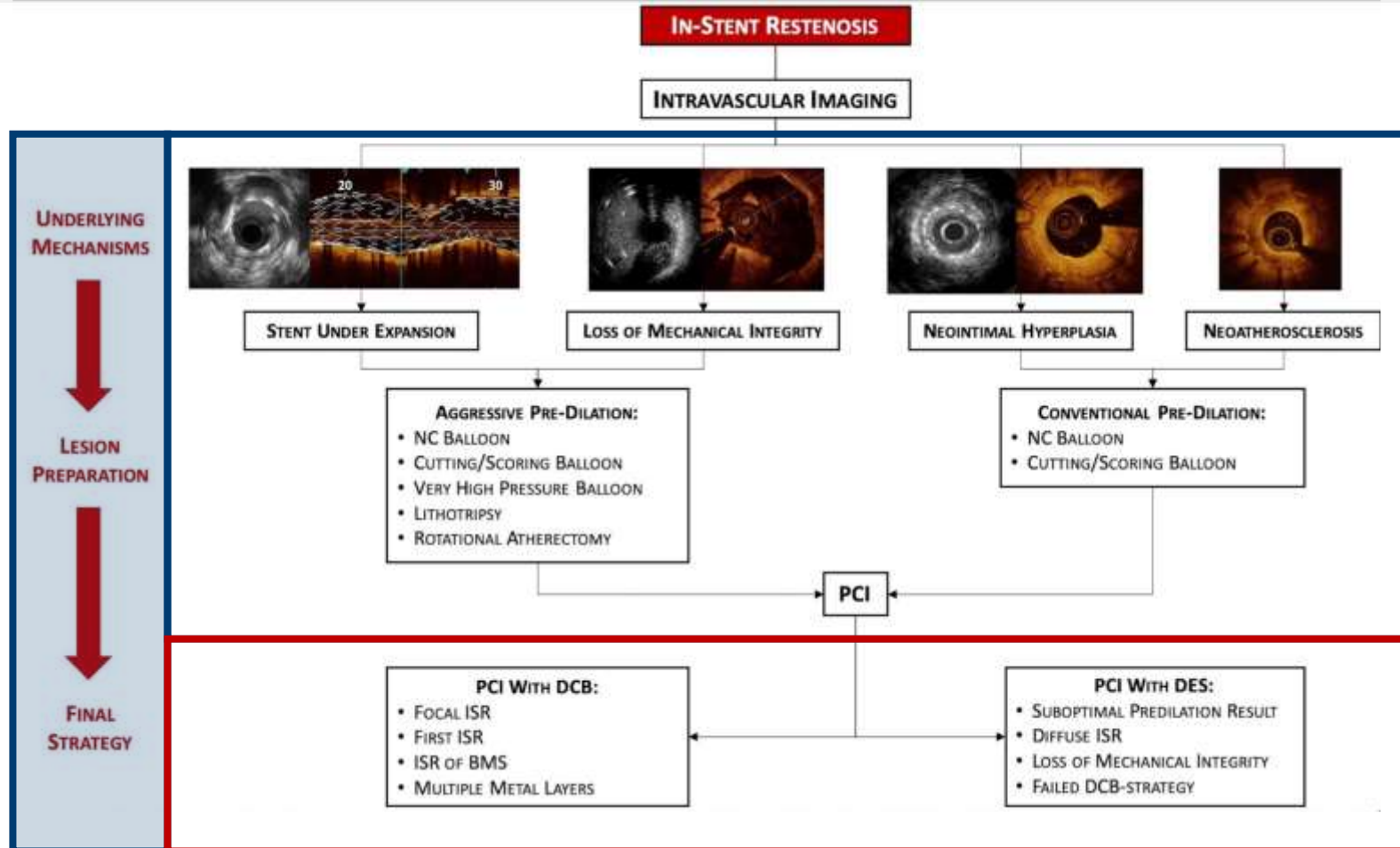
Treatment Algorithm for In-stent Restenosis

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In-stent Restenosis | Management Algorithm

Management of Myocardial Revascularization Failure: An Expert Consensus Document of the EAPCI



Preparatory Work

Destination Therapy






DAEDALUS | DCB Angioplasty vs Repeat Stenting with DES

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Paclitaxel-coated balloon angioplasty vs. drug-eluting stenting for the treatment of coronary in-stent restenosis: a comprehensive, collaborative, individual patient data meta-analysis of 10 randomized clinical trials (DAEDALUS study)

Daniele Giacoppo ¹, Fernando Alfonso², Bo Xu ³, Bimmer E.P.M. Claessen⁴, Tom Adriaenssens⁵, Christoph Jensen⁶, María J. Pérez-Vizcayno⁷, Do-Yoon Kang⁸, Ralf Degenhardt⁹, Leos Pleva¹⁰, Jan Baan¹¹, Javier Cuesta², Duk-Woo Park⁸, Heribert Schunkert^{1,12}, Roisin Colleran¹, Pavel Kukla¹⁰, Pilar Jiménez-Quevedo ⁷, Martin Unverdorben^{9,13}, Runlin Gao³, Christoph K. Naber⁶, Seung-Jung Park⁸, José P.S. Henriques¹¹, Adnan Kastrati^{1,12}, and Robert A. Byrne ^{1,12*}



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DAEDALUS Collaboration

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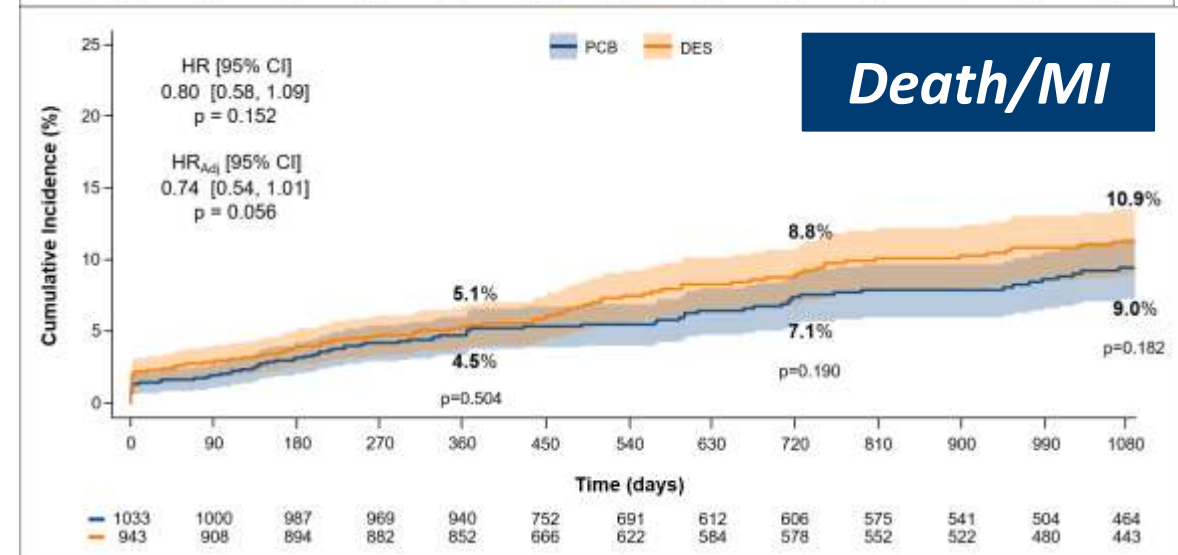
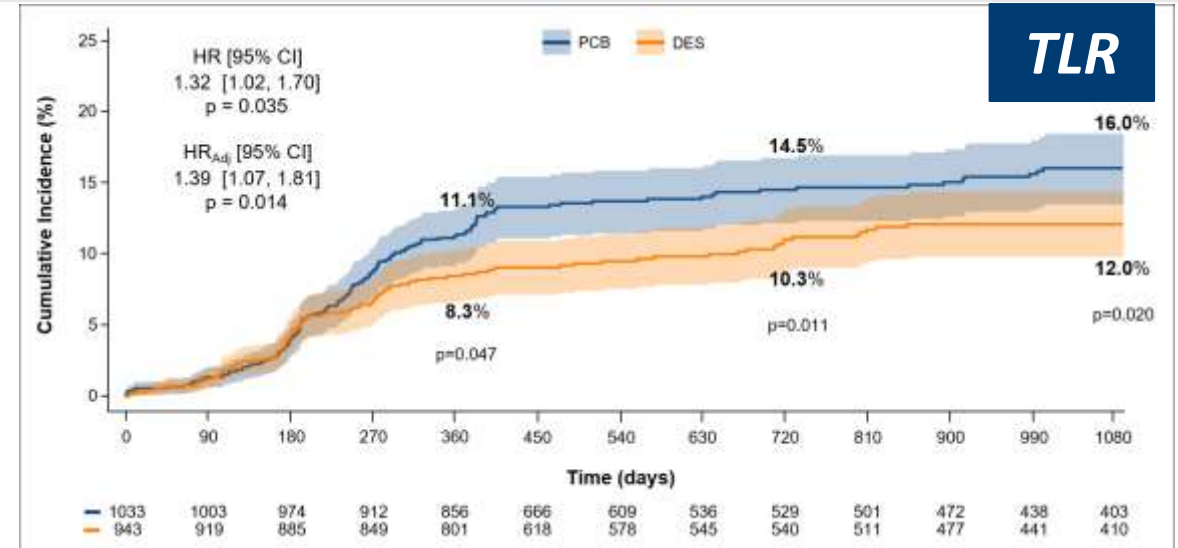
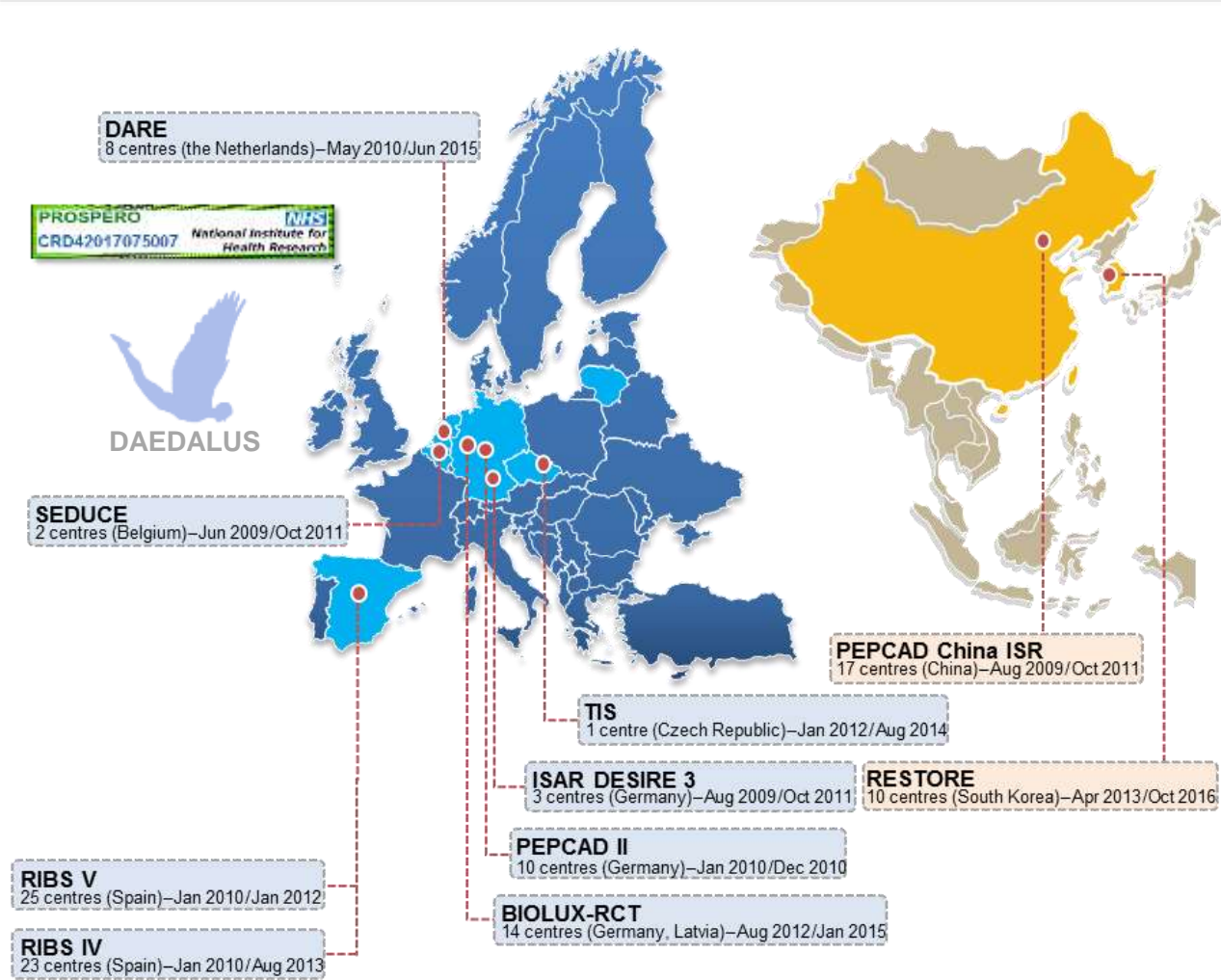
Drug-Coated Balloon Angioplasty Versus Drug-Eluting Stent Implantation in Patients With Coronary Stent Restenosis



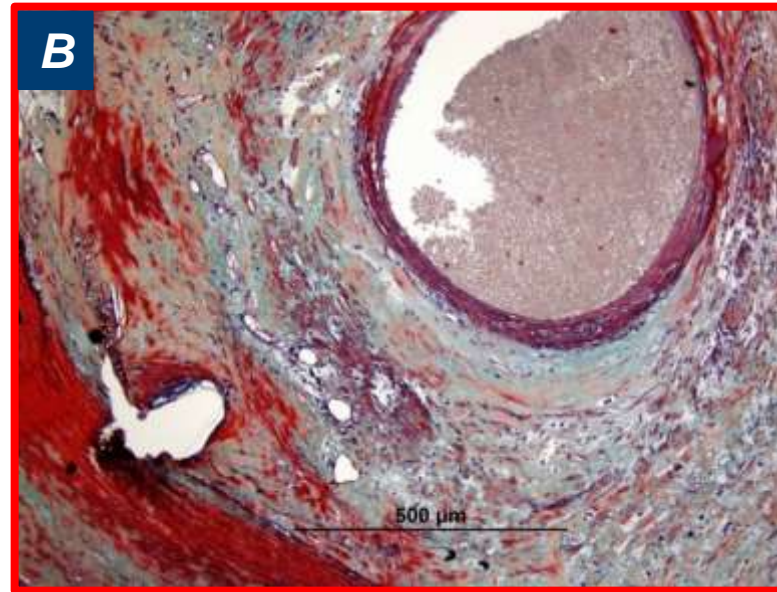
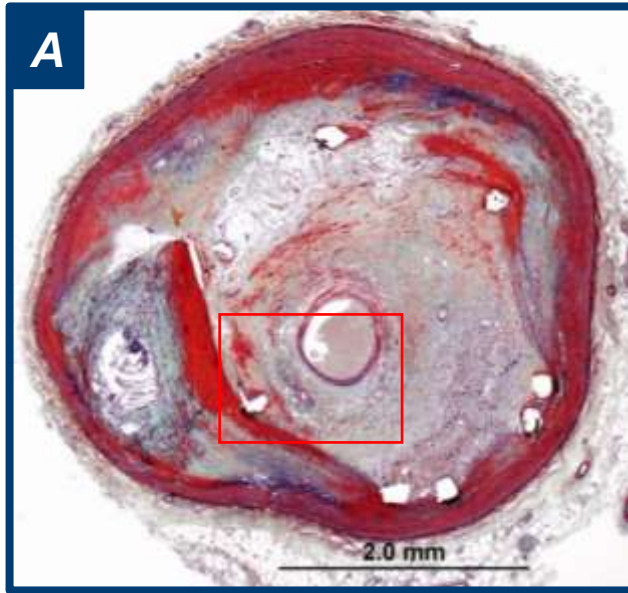
Daniele Giacoppo, MD, MSc,^a Fernando Alfonso, MD, PhD,^b Bo Xu, MBBS, PhD,^c Bimmer E.P.M. Claessen, MD, PhD,^d Tom Adriaenssens, MD, PhD,^e Christoph Jensen, MD,^f María J. Pérez-Vizcayno, MD, PhD,^g Do-Yoon Kang, MD,^h Ralf Degenhardt, MD, PhD,ⁱ Leos Pleva, MD, PhD,^j Jan Baan, MD, PhD,^k Javier Cuesta, MD, PhD,^b Duk-Woo Park, MD, PhD,^h Pavel Kukla, MD,^j Pilar Jiménez-Quevedo, MD, PhD,^g Martin Unverdorben, MD, PhD,^{l,1} Runlin Gao, MD,^c Christoph K. Naber, MD, PhD,^f Seung-Jung Park, MD, PhD,^h José P.S. Henriques, MD, PhD,^k Adnan Kastrati, MD,^{a,m} Robert A. Byrne, MB BCH, PhD^{a,n,o}

Treatment of ISR | DAEDALUS Collaboration

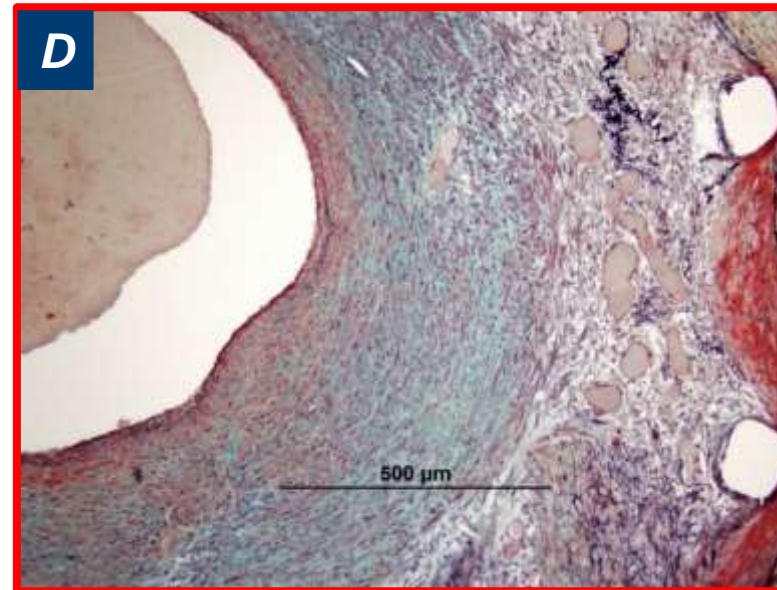
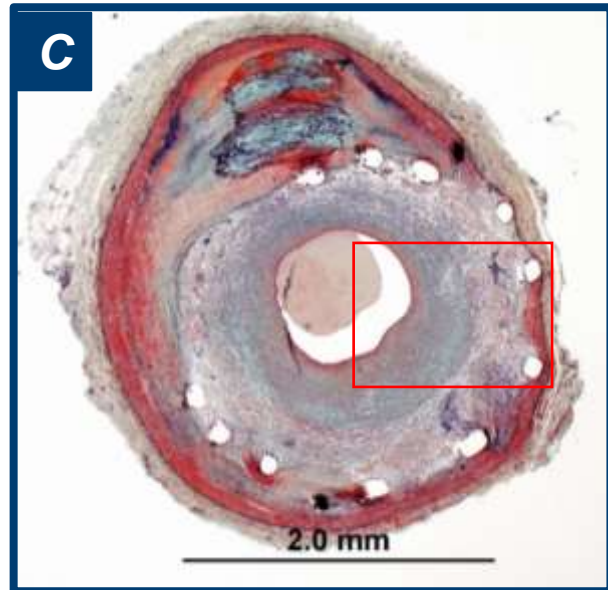
#1: Comprehensive IPD meta-analysis of all 10 RCT of DCB versus DES for ISR reported



**Drug-Eluting Stent
(Cypher)**

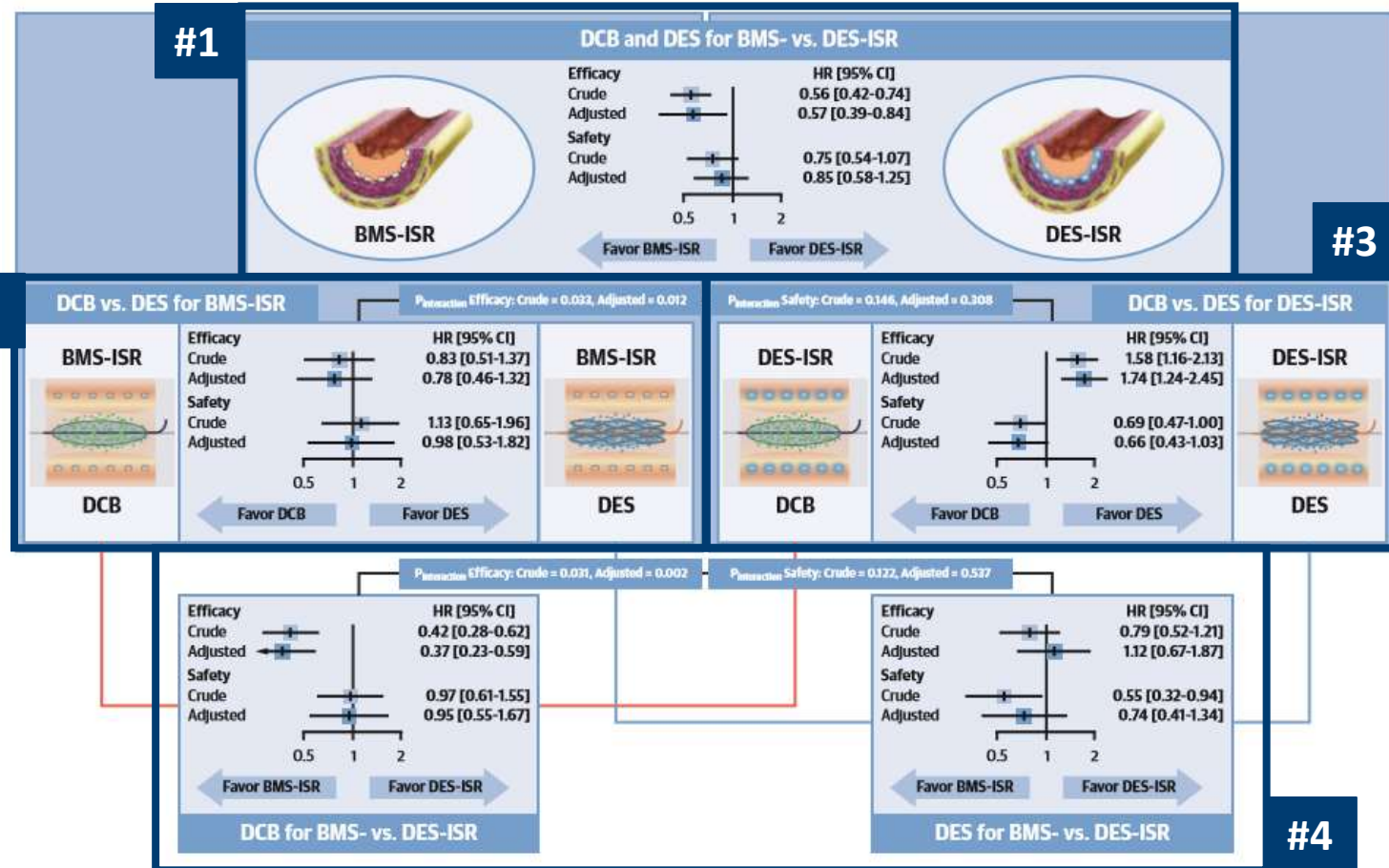
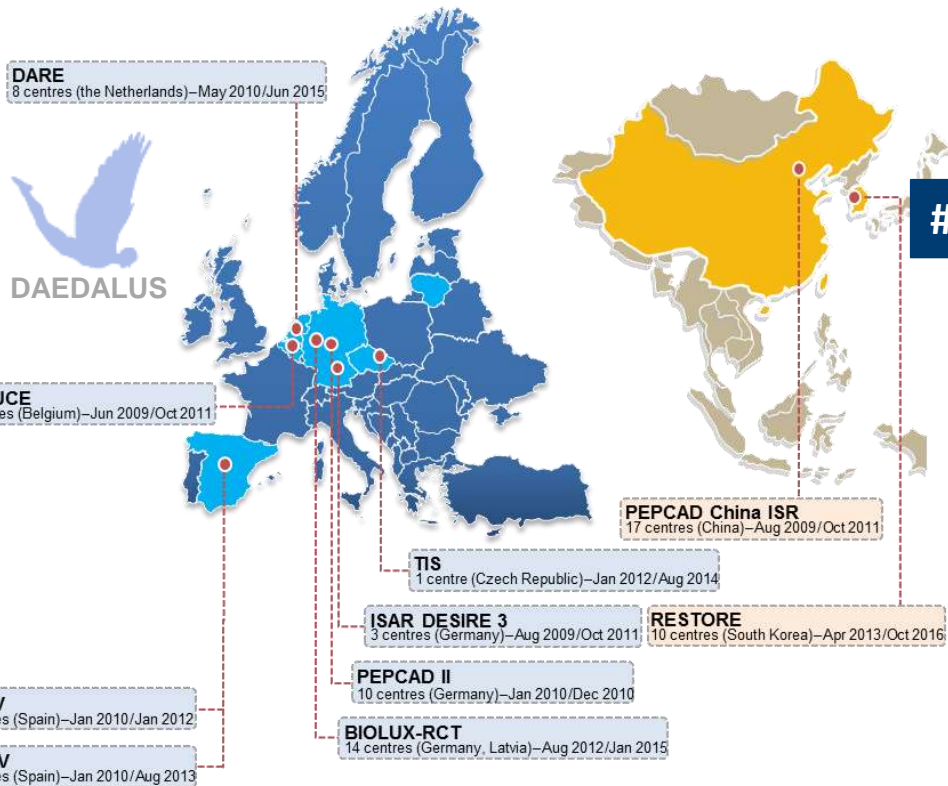


**Bare Metal Stent
(Multilink)**



DAEDALUS Collaboration | Impact of ISR-Type

Comprehensive IPD meta-analysis of all 10 RCT of DCB versus DES for ISR reported



Relative efficacy of DCB versus DES dependent on type of restenosed stent

Recommendations	Class	Level
Restenosis		
DES are recommended for the treatment of in-stent restenosis of BMS or DES.	I	A
Drug-coated balloons are recommended for the treatment of in-stent restenosis of BMS or DES.	I	A
In patients with recurrent episodes of diffuse in-stent restenosis, CABG should be considered by the Heart Team over a new PCI attempt.	IIa	C
IVUS and/or OCT should be considered to detect stent-related mechanical problems leading to restenosis.	IIa	C



Take Home Message

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DES vs. DEB for ISR: What Is the Best Weapon? | Take Home Messages

- In patients with ISR, both angioplasty with DCB and repeat stenting with DES are important components of standard-of-care treatment and recommended by clinical practice guidelines in Europe
- Understanding the principle modality of stent failure and employment of meticulous attention to lesion preparation is prerequisite to choice of destination therapy and critical to treatment success with either modality
- The DAEDALUS individual patient collaborative meta-analysis suggested:
 - an efficacy advantage for repeat stenting with DES over angioplasty with DCB at midterm follow-up
 - residual concern about the impact of multiple DES layers at long-term follow-up
 - lower efficacy and safety with either modality in DES vs BMS restenosis
 - interaction between treatment effect and type of restenosed stent with greater efficacy advantage for repeat stenting with DES in DES restenosis

Thank You For Your Attention

@ robert.byrne@materprivate.ie

