

A DIFERENÇA ENTRE O "MUNDO IDEAL" E O "MUNDO REAL"

Revascularização miocárdica em Portugal – Resultados do
Registo Nacional de Intervenção Coronária Percutânea



Hélder Pereira,
Serviço Cardiologia Hospital Garcia Orta,
XXXIII Congresso Português Cardiologia,
Vilamoura, 23 Abril 2012



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Centro Nacional de Coleção
de Dados em Cardiologia

$$s^2 = \frac{1}{n} \times \sum_{i=1}^n (x_i - \bar{x})^2$$
$$\sigma = \frac{1}{n-1} \times \sum_{i=1}^n$$



Sociedade Portuguesa de
CARDIOLOGIA

2002 Objectives

1. To document prospectively and consecutively the characteristics of patients submitted to elective, urgent, and emergent percutaneous coronary interventions.
2. To document the indications for the percutaneous coronary interventions in Portugal.
3. To access the different indications for the use of GP IIb/IIIa inhibitors in coronary interventions in Portugal.



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Sociedade Portuguesa de
CARDIOLOGIA

2002 Objectives

4. To evaluate the implementation of ESC and ACC/AHA guidelines at clinical practice in Portugal
5. To document prospectively the intrahospitalar results, at 30 days and 1 year, after percutaneous coronary interventions and correlate the results with different procedures and co-morbidity
6. To compare the results of clinical practice with the randomized clinical trials.



COORDENAÇÃO DO RNCI:

Manuel Almeida:

Coordenador do Registo Nacional de Cardiologia de Intervenção

Secretário Geral da APIC

Marco Costa:

Coordenador do Registo Nacional de Cardiologia de Intervenção pelo CNCDC

Vogal da Assembleia Geral da APIC



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ASSOCIAÇÃO PORTUGUESA
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sociedade portuguesa de cardiologia

Portuguese Registry of Interventional Cardiology

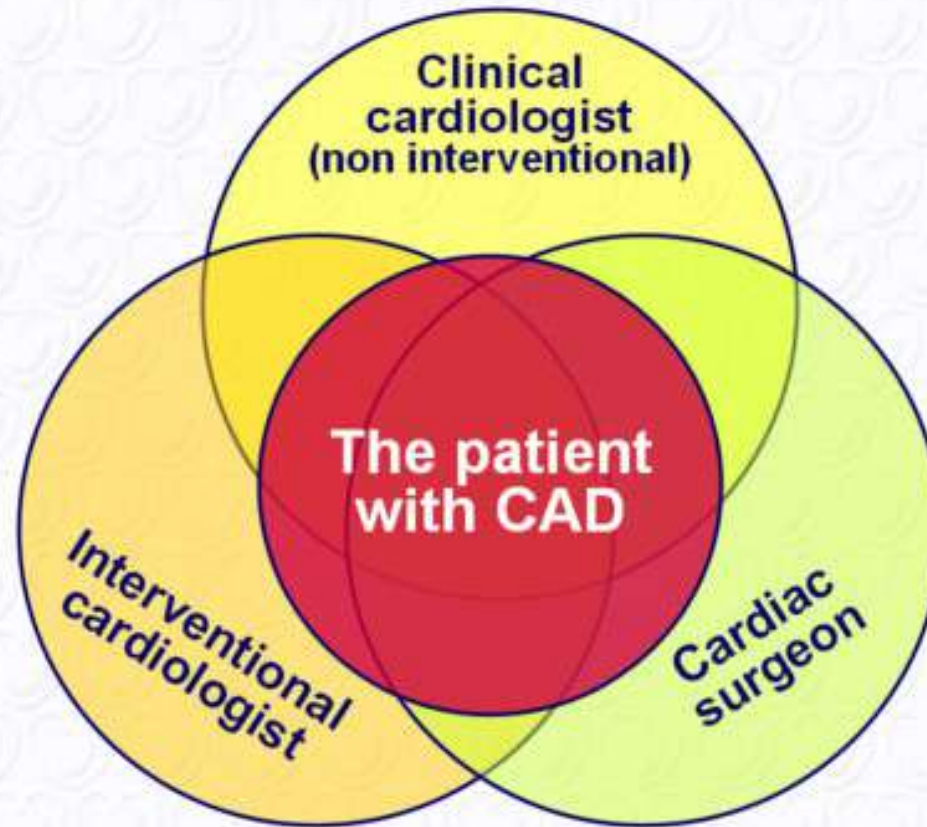
Demographic Data

Indications for PCI

	2002-2011 n= 54.233
STEMI – Primary PCI	19,9%
STEMI – Rescue PCI	1,9%
STEMI – Facilitated PCI	0,7%
NSTEMI	2,4%
Unstable Angina	1,6%
Post STEMI	7,6%
Post NSTEMI	18,3%
Post Unstable Angina	6,8%
Elective PCI	30,2%
Others	10,6%

Heart Team Approach to Revascularization Decisions

The Heart Team



**Task Force composition = 8 clinical cardiologists (non interventional)
+ 9 interventional cardiologists + 8 cardiac surgeons**

European Heart Journal (2010) 31, 2501-2555
European Journal of Cardio-thoracic Surgery (2010) 38, S1-S52

www.escardio.org/guidelines

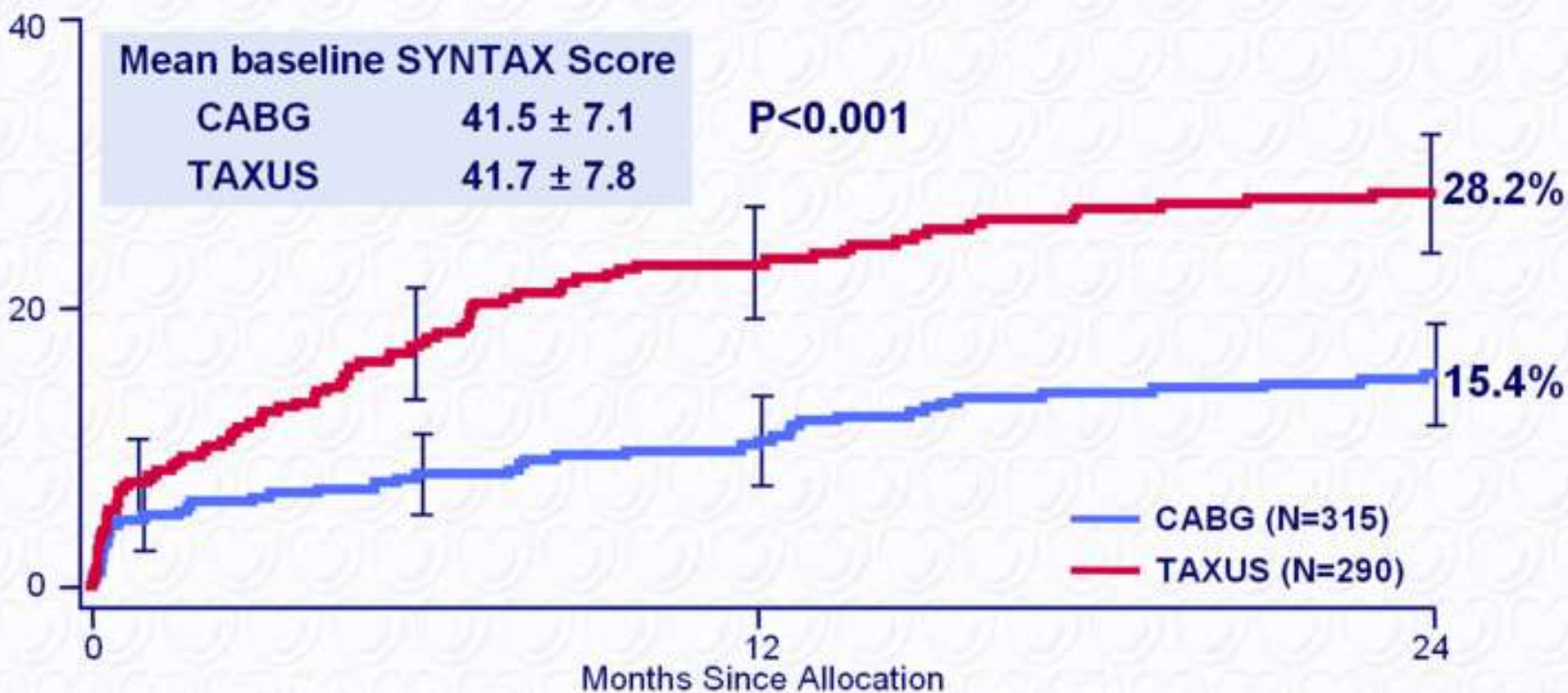
Joint 2010 ESC - EACTS Guidelines
on Myocardial Revascularisation



MACCE to 2 Years by SYNTAX Score Tercile

High Scores (≥ 33)

Cumulative Event Rate (%)



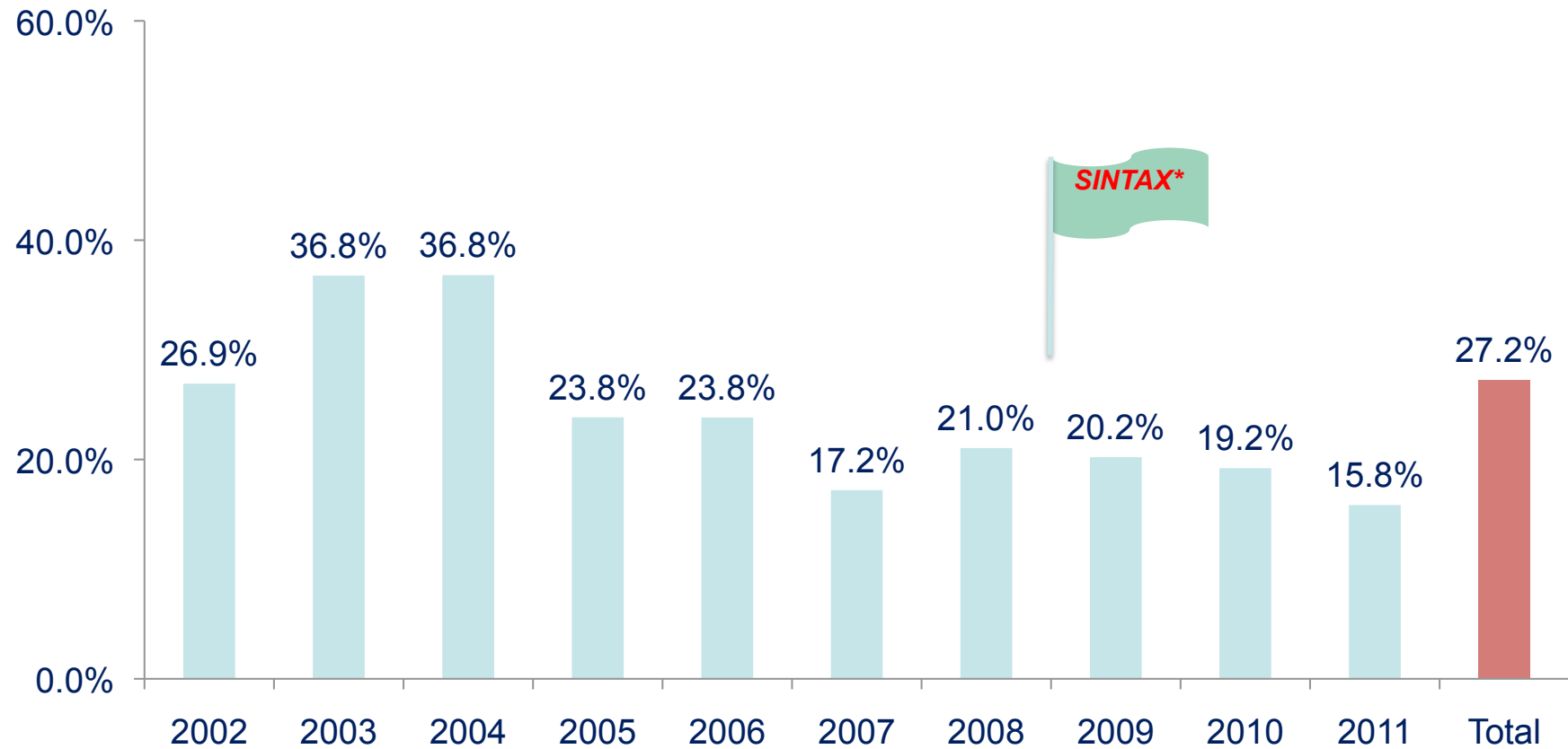
Cumulative KM Event Rate \pm 1.5 SE; log-rank P value

Calculated by core laboratory; ITT population

European Heart Journal (2010) 31, 2501-2555
European Journal of Cardio-thoracic Surgery (2010) 38, S1-S52

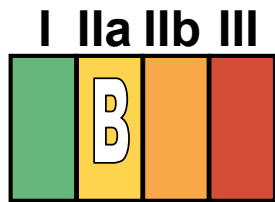
Heart Team Approach to Revascularization Decisions

Multivessel PCI



PCI in Hospitals Without On-Site Surgical Backup

PCI in Hospitals Without On-Site Surgical Backup



Primary PCI is reasonable in hospitals without on-site cardiac surgery, provided that appropriate planning for program development has been accomplished.



Elective PCI might be considered in hospitals without on-site cardiac surgery, provided that appropriate planning for program development has been accomplished and rigorous clinical and angiographic criteria are used for proper patient selection.



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PCI in Hospitals Without On-Site Surgical Backup

ARTIGOS ORIGINAIS

Angioplastia Coronária Electiva e Primária em Hospitais sem Cirurgia Cardíaca *On-site* [54]

HÉLDER PEREIRA*, PEDRO CANAS DA SILVA**, LINO GONÇALVES***, JOSÉ BAPTISTA****
EM NOME DOS INVESTIGADORES DO REGISTO NACIONAL DE CARDIOLOGIA DE INTERVENÇÃO

* Serviço de Cardiologia do Hospital Garcia de Orta, Almada, Portugal; ** Serviço de Cardiologia do Hospital de Santa Maria, Lisboa, Portugal; Coordenador do Grupo de Estudo de Hemodinâmica e Cardiologia de Intervenção da Sociedade Portuguesa de Cardiologia, Lisboa, Portugal; *** Serviço de Cardiologia dos Hospitais da Universidade de Coimbra, Coimbra, Portugal; ****Hospital Particular do Alvor, Alvor, Portugal

Rev Port Cardiol 2008; 27 (6): 769-782

PCI in Hospitals Without On-Site Surgical Backup

Table II. Population with chronic angina (stable angina, documented ischemia, or prognostic indication)

		Hospitais sem cirurgia <i>Hospitals without surgery</i> (n=3,855)	Hospitais com cirurgia <i>Hospitals with surgery</i> (n=3.613)	p
Demografia e antecedentes	<i>Demographic data and previous history</i>			
Idade (anos)	<i>Age (years)</i>	65 (56-72)	63 (55-71)	NS
Sexo masculino (%)	<i>Male (%)</i>	75	76	NS
Enfarte prévio (%)	<i>Previous infarction (%)</i>	41,8	37,4	<0,05
PCI prévia (%)	<i>Previous PCI (%)</i>	20,8	18,6	<0,05
CABG prévia (%)	<i>Previous CABG (%)</i>	4,8	8,2	<0,005
Diabetes Mellitus (%)	<i>Diabetes (%)</i>	25,6	25,6	NS
Doença multivaso (%)	<i>Multivessel disease (%)</i>	48,8	47,9	NS
Recursos utilizados	<i>Resources employed</i>			
Uso de inibidores IIb/IIIa (%)	<i>Gp IIb/IIIa inhibitors (%)</i>	22,9	32,2	<0,05
Stent directo (%)	<i>Direct stenting (%)</i>	51,8	45,4	<0,05
Stents farmacoeactivos (%)	<i>Drug-eluting stents (%)</i>	42,7	55,5	<0,005
Tratamento de reestenose <i>intra-stent</i> (%)	<i>Treatment of in-stent stenosis (%)</i>	5,6	5,4	NS
Evolução Intra-hospitalar	<i>In-hospital evolution</i>			
Morte (%)	<i>Death (%)</i>	0,3	0,3	NS
Enfarte com onda Q (%)	<i>Q-wave infarction (%)</i>	0,2	0,5	<0,05
AVC/AIT (%)	<i>Stroke/TIA (%)</i>	2,7	0,5	NS
CABG (%)	<i>CABG (%)</i>	2,2	0,5	<0,05

Portuguese Registry of Interventional Cardiology

Vascular Access

Vascular Access



The use of radial artery access can be useful to decrease access site complications.



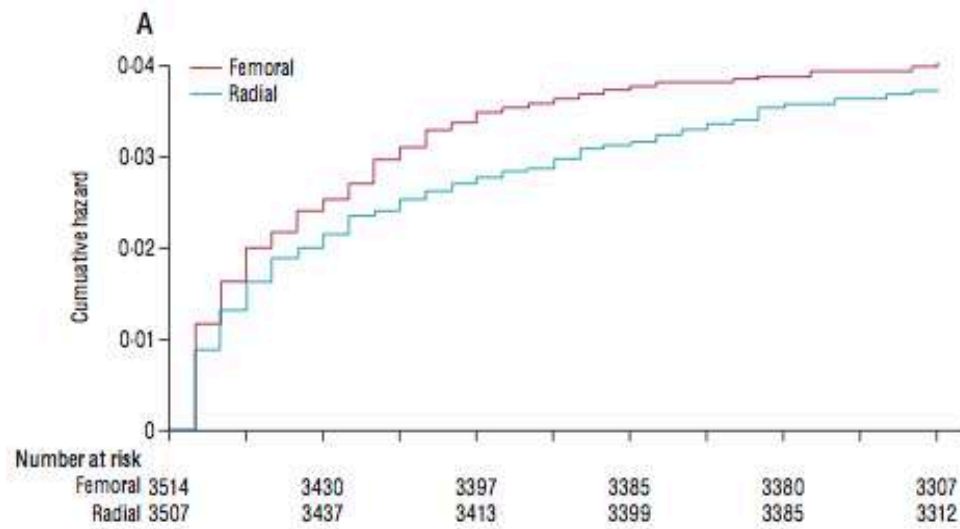
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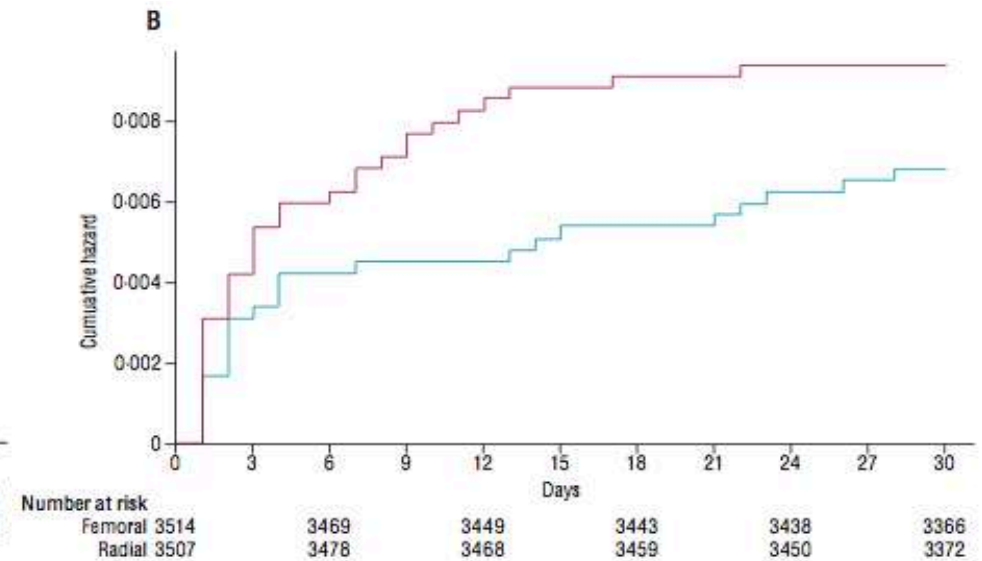
Vascular Access

Radial vs femoral access for patients with ACS
(RIVAL)

Composite primary outcome of death, MI, stroke, or non-CABG related major bleeding:

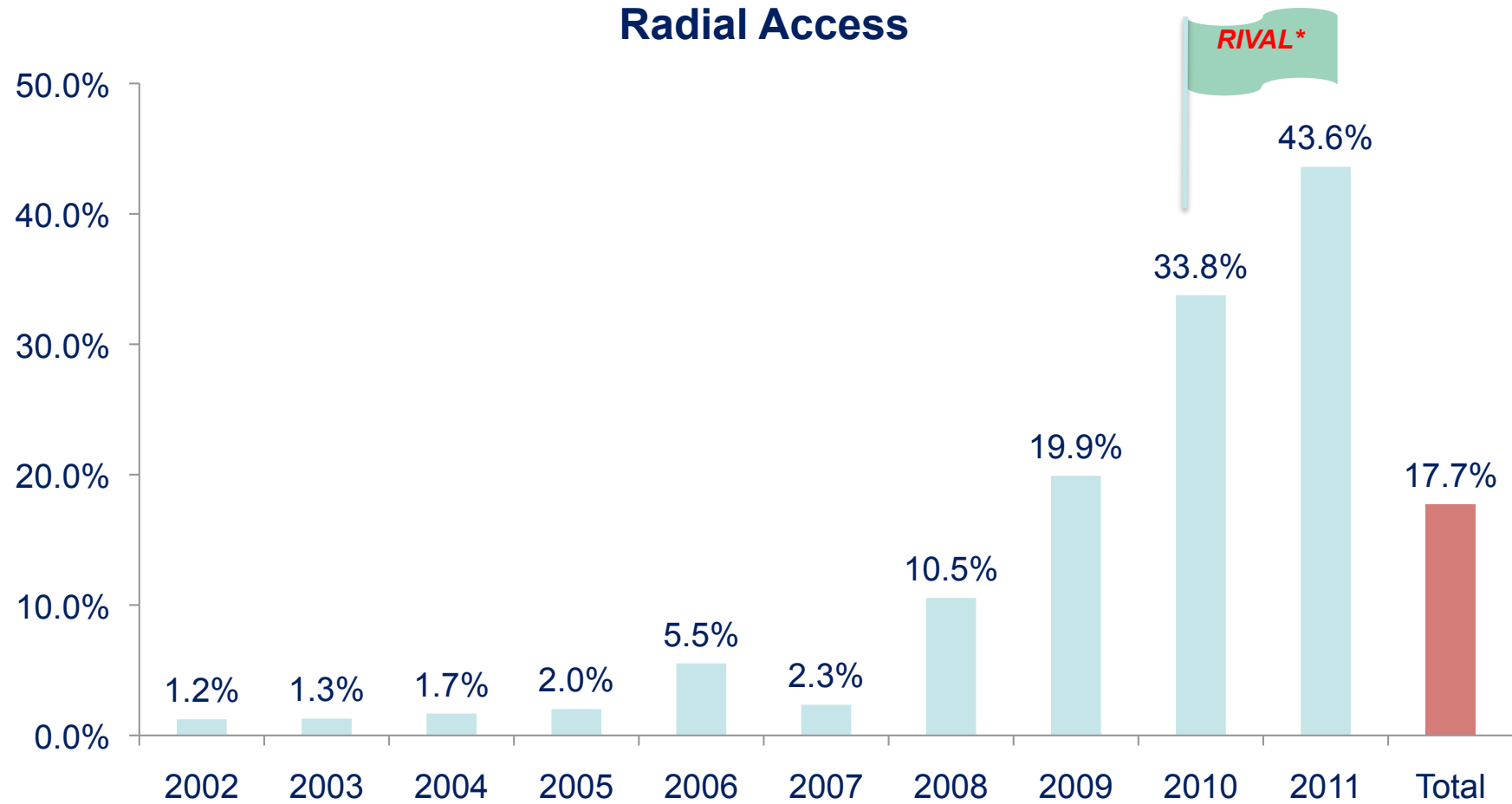


Secondary outcome of non-CABG related major bleeding:



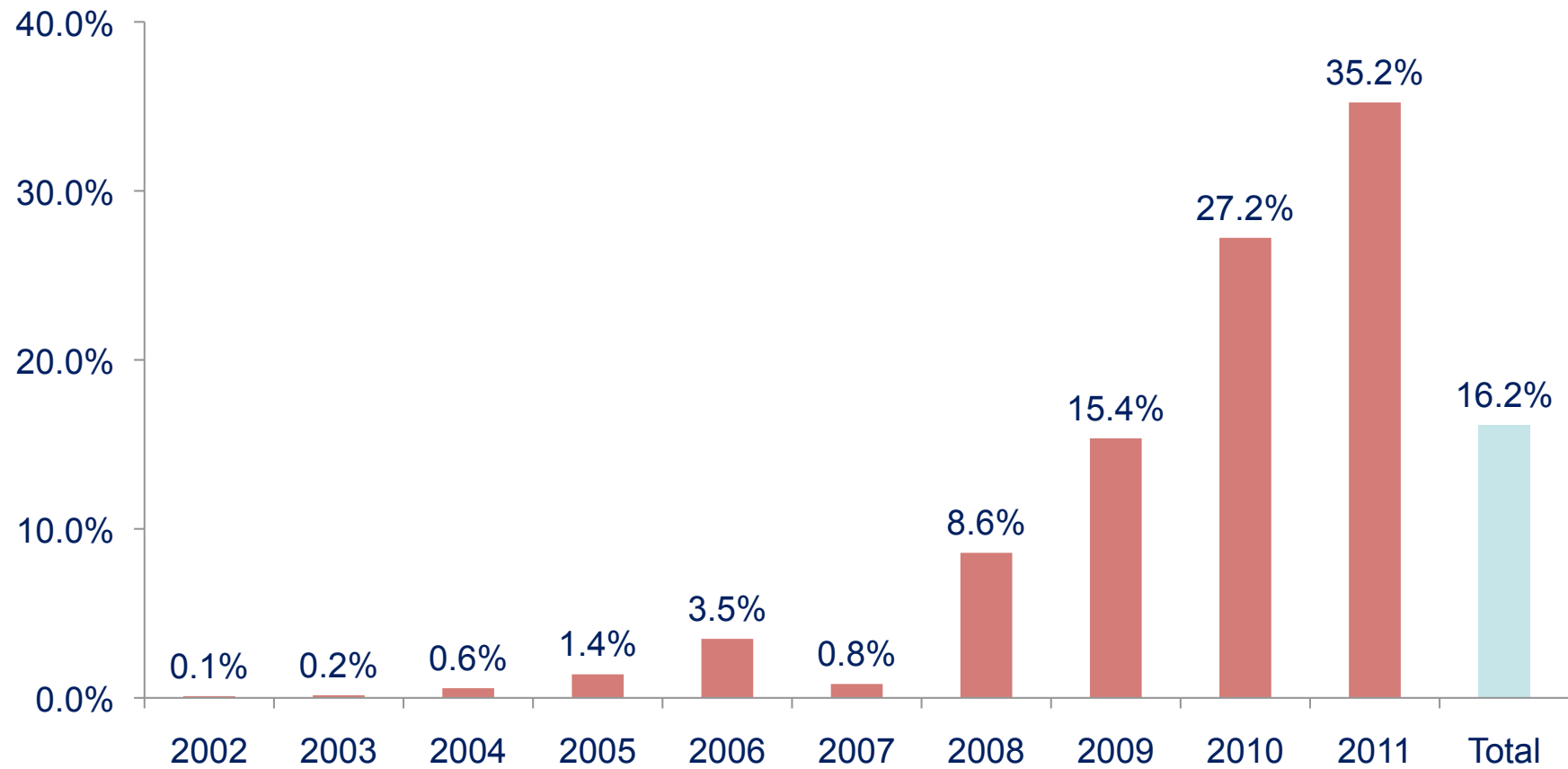
Vascular Access

Radial Access



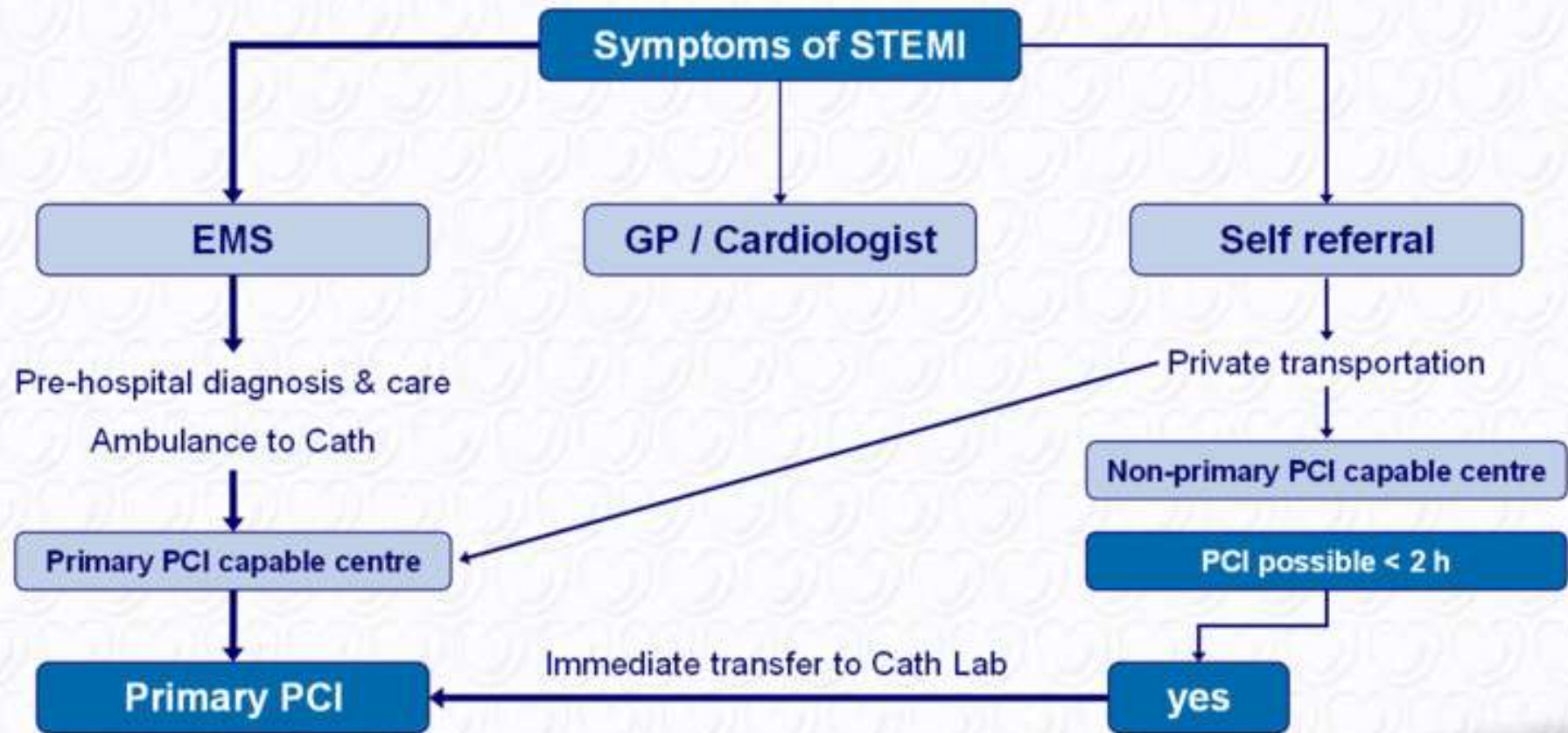
Vascular Access

Radial Access STEMI



PCI in Specific Clinical Situations: STEMI

Organisation of STEMI patient disposal describing pre- and in-hospital management, and reperfusion strategies within 12 h of First Medical Contact (FMC)



PCI in Specific Clinical Situations: STEMI– Primary PCI of the Infarct Artery



Primary PCI should be performed in patients within 12 hours of onset of STEMI.



Primary PCI should be performed in patients with STEMI presenting to a hospital with PCI capability **within 90 minutes of first medical contact** as a systems goal.

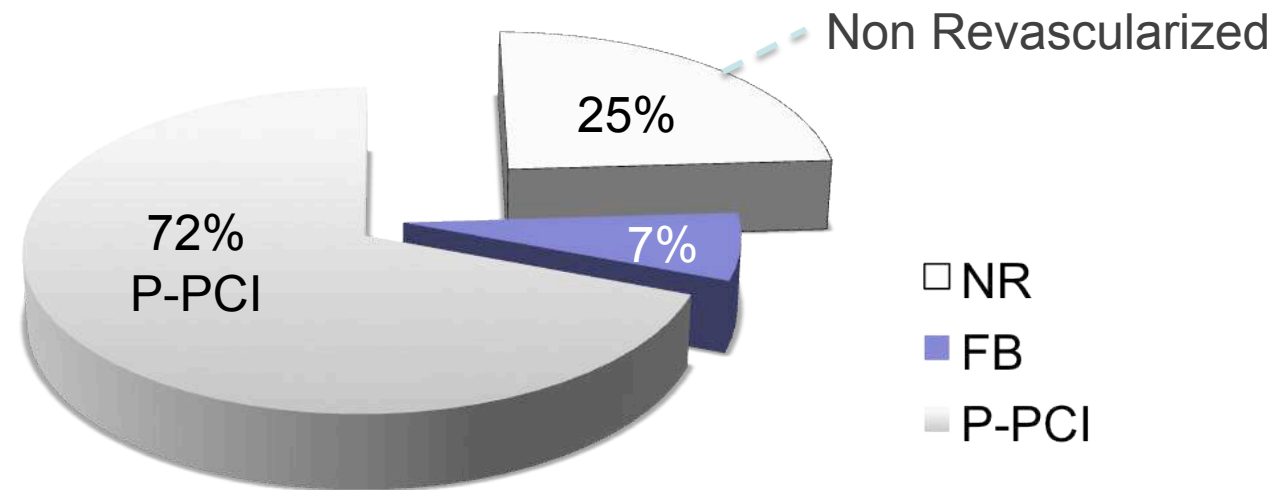


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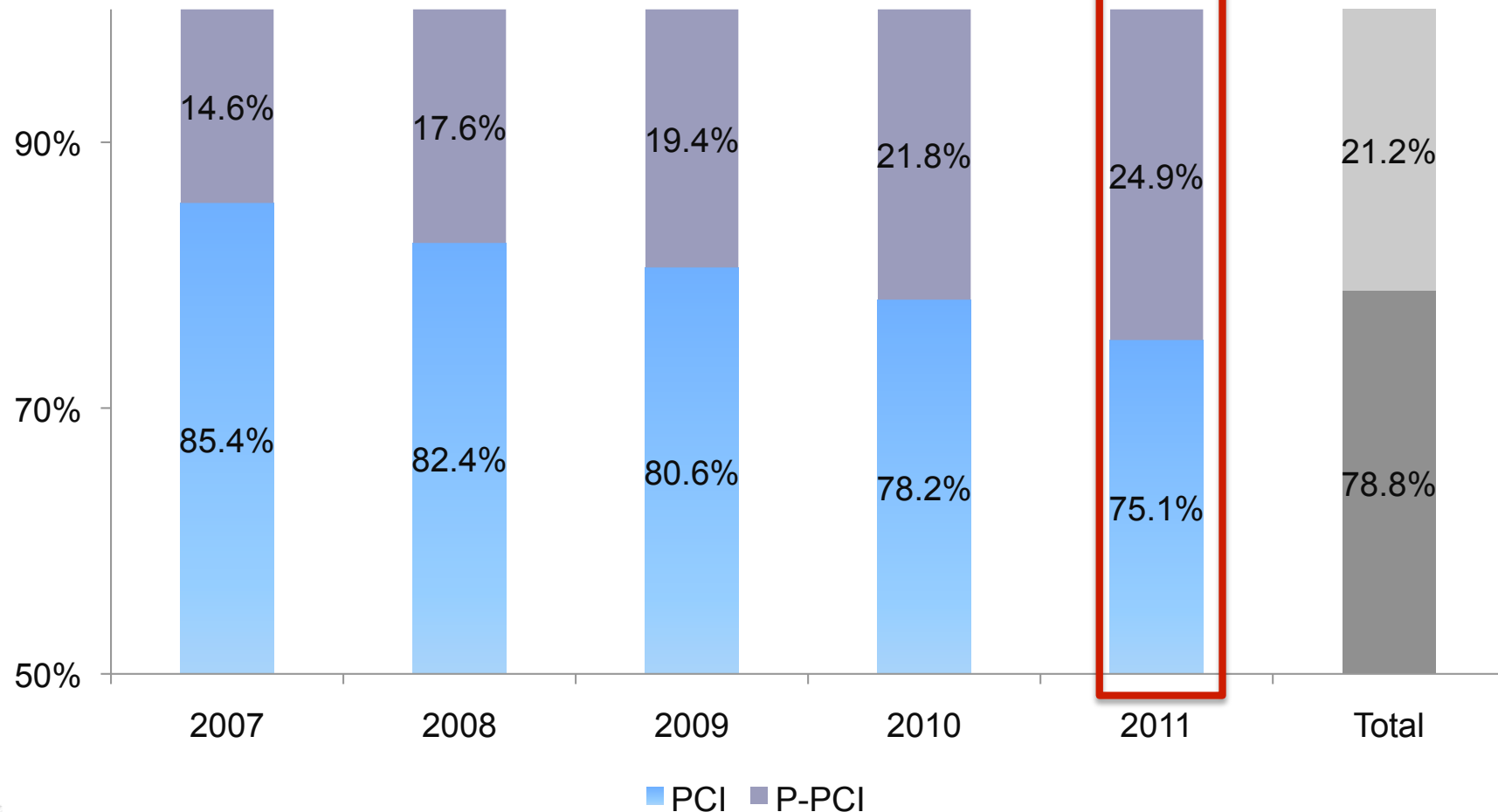
STEMI

Myocardial Revascularization Rate (2011)



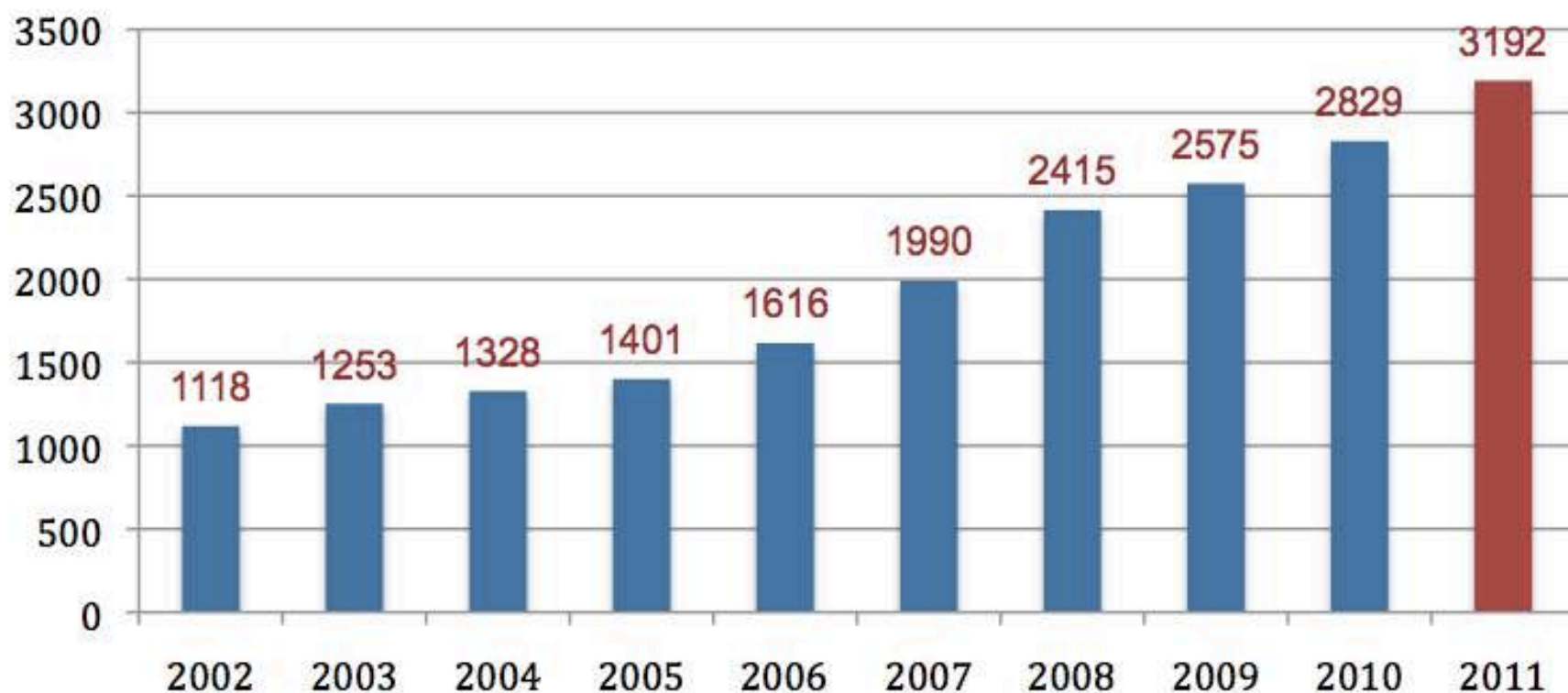
PCI in Specific Clinical Situations: Primary PCI of the Infarct Artery

Stent for Life
Survey 2011



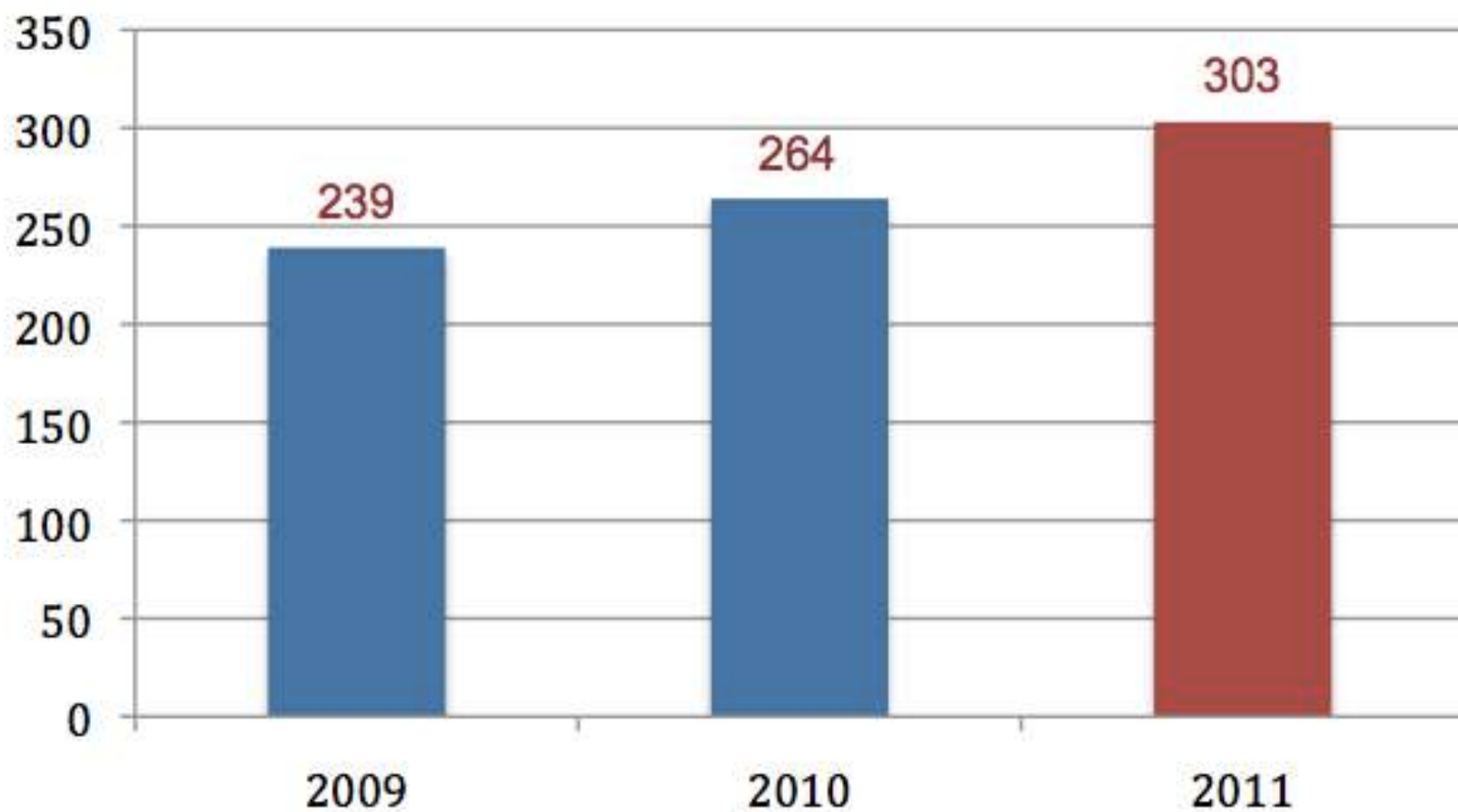


Primary-PCI Evolution





Primary-PCI/Million

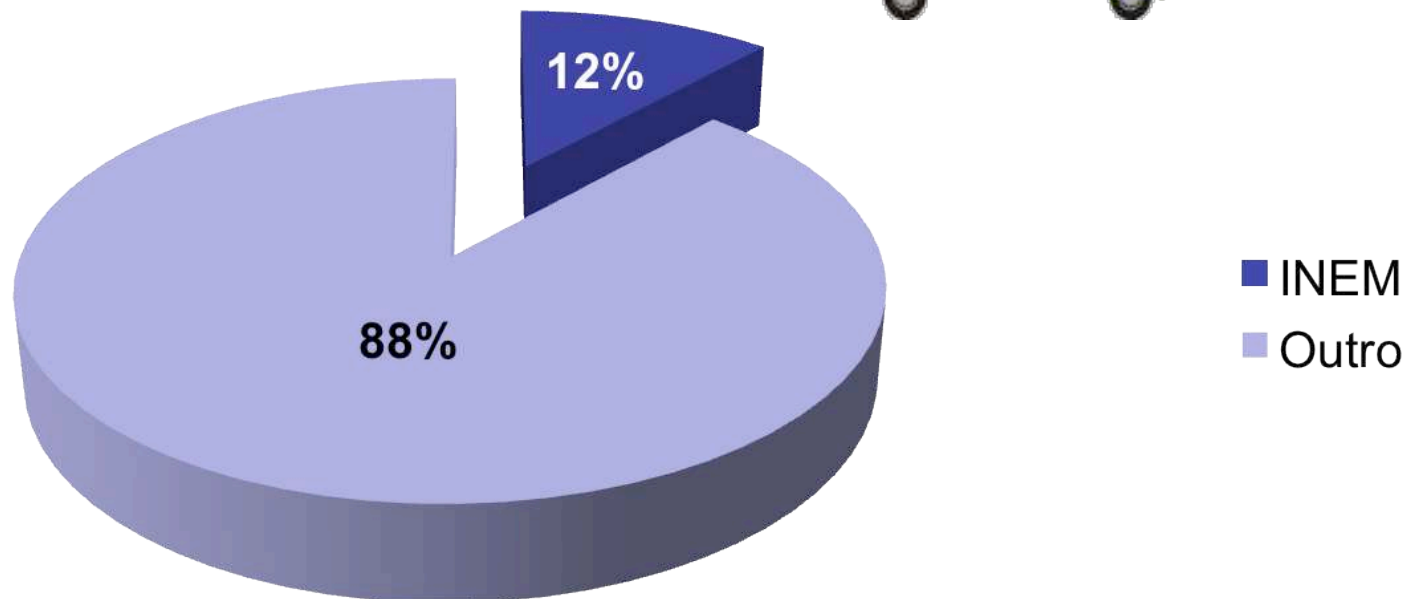




“Momento Zero”

Arrival to P-PCI Centre by EMS

29% (112) > 12%





Summary Current Situation Analysis

Barriers Identification

E.M.S. network

Long communication process from emergency call to the hospital

Secondary transport cannot be made W/O a MD

Hospital

Not all 24/7 cath labs

Long time door to balloon

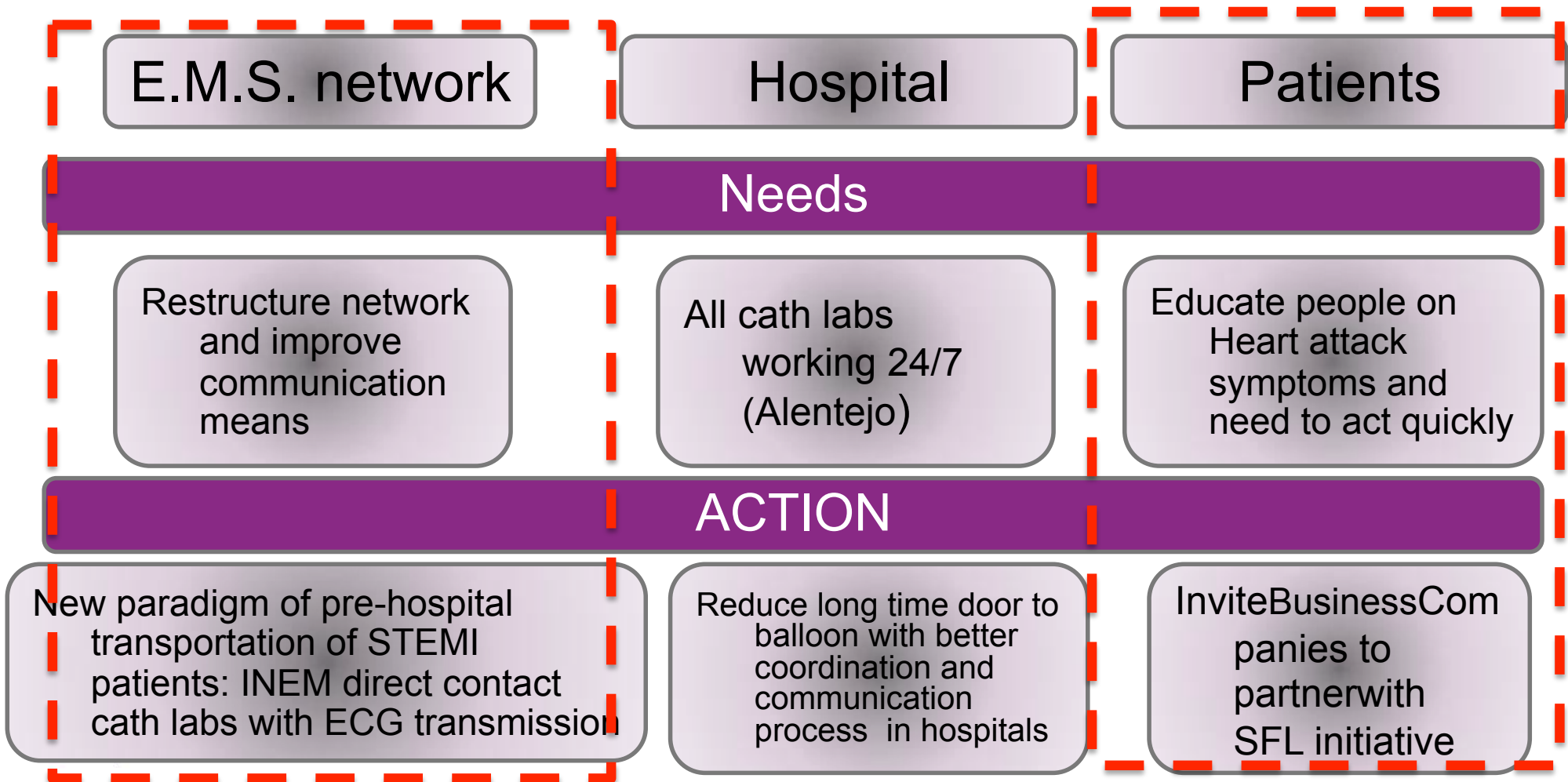
Patients

Only 23% of STEMI patients call 112

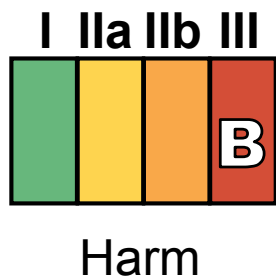


Strategic Plan for next 3 years

Strategic Plan



PCI in Specific Clinical Situations: STEMI– Primary PCI of the Infarct Artery (cont.)



PCI **should not be performed** in a noninfarct artery at the time of primary PCI in patients with STEMI without hemodynamic compromise.

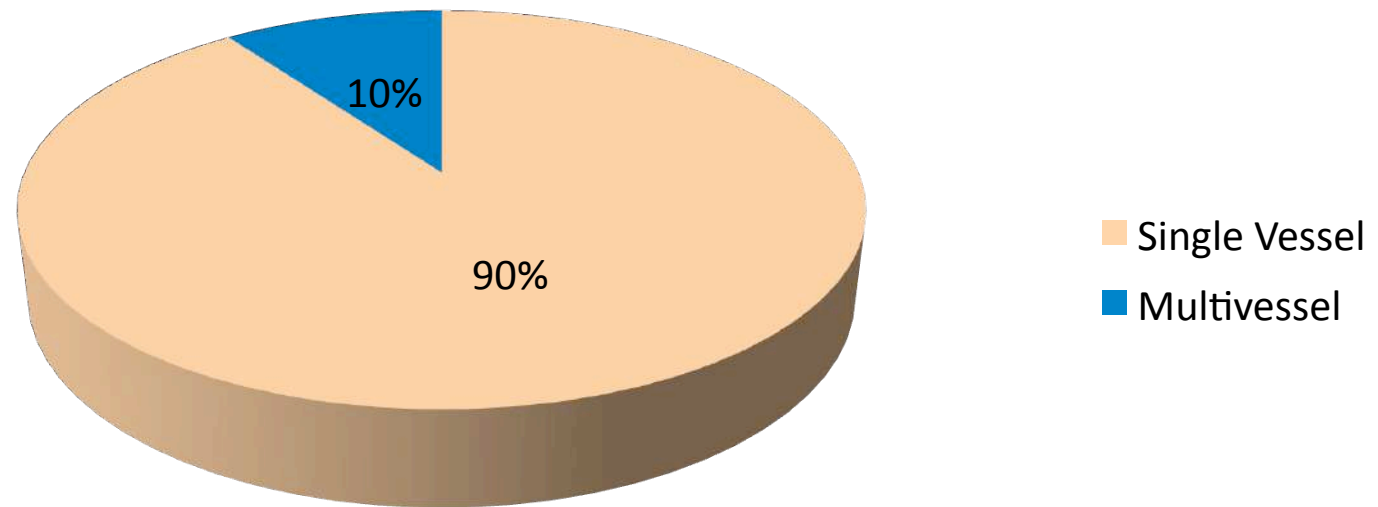


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PCI in Specific Clinical Situations: Primary PCI of the Infarct Artery

Multivessel PCI - STEMI (Shock excluded)



PCI in Specific Clinical Situations: STEMI–Primary PCI of the Infarct Artery (cont.)



Primary PCI should be performed in patients with STEMI presenting to a **hospital without PCI capability within 120 minutes of first medical contact** as a systems goal.

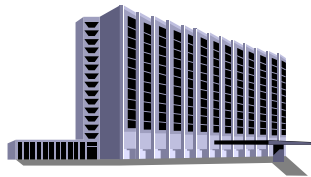


Primary PCI should be performed in patients with STEMI who develop **severe heart failure** or **cardiogenic shock** and are suitable candidates for revascularization as soon as possible, irrespective of time delay.

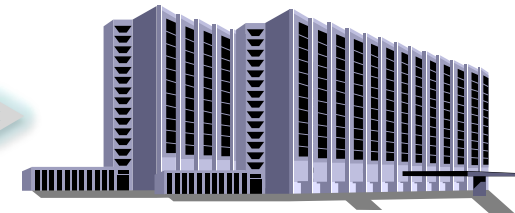




Secondary Transport



**LOCAL
HOSPITAL**



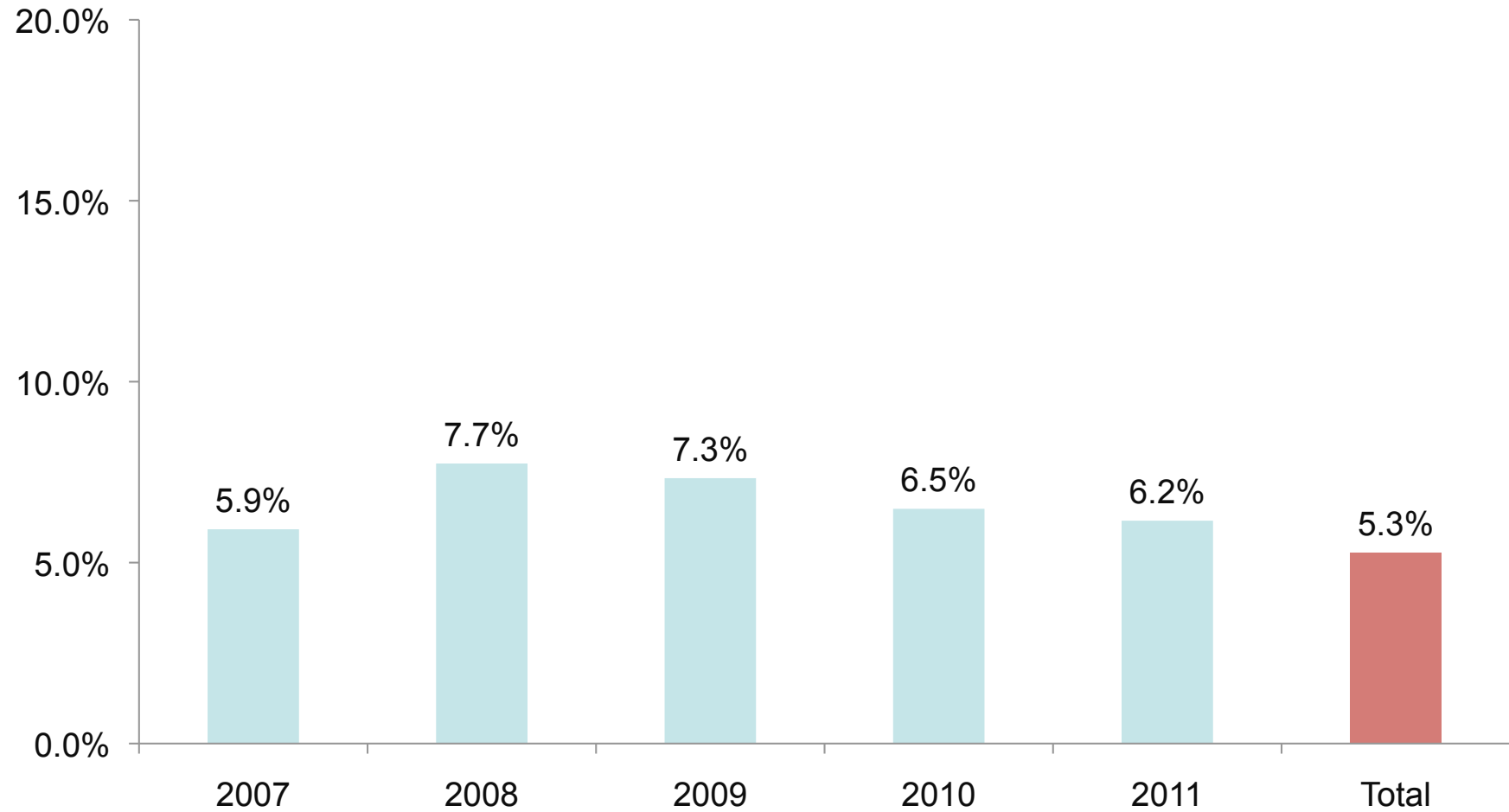
**P-PCI
HOSPITAL**



Time from Non-PCI Hospital to P-PCI Hospital: 120 min

PCI in Specific Clinical Situations: Cardiogenic Shock

PCI in Specific Clinical Situations: Cardiogenic Shock



PCI in Specific Clinical Situations: Cardiogenic Shock



A **hemodynamic support device** is recommended for patients with cardiogenic shock after STEMI who do not quickly stabilize with pharmacologic therapy.

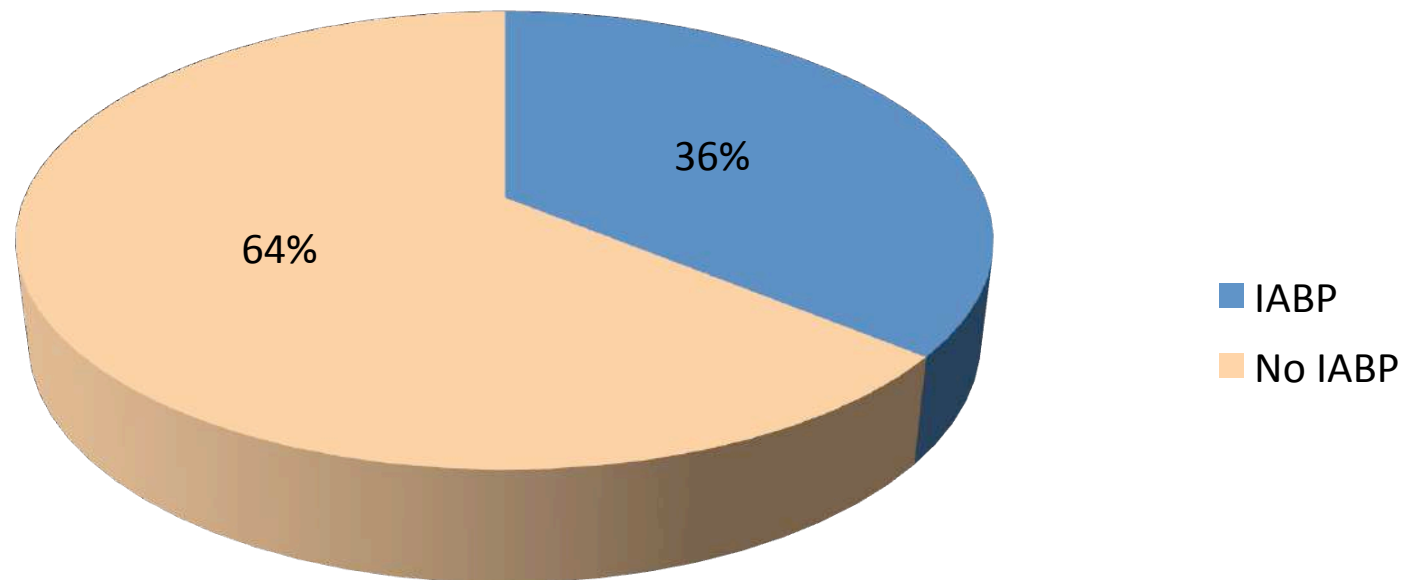


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Percutaneous Hemodynamic Support Devices

IABP Cardiogenic Shock



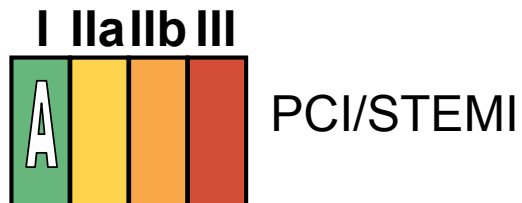
Portuguese Registry of Interventional Cardiology

Coronary Stents

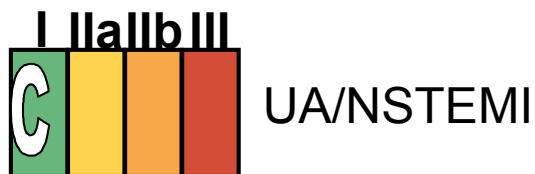
Coronary Stents



Before implantation of DES, the interventional cardiologist should discuss with the patient the need for and duration of DAPT and the ability of the patient to comply with and tolerate DAPT.



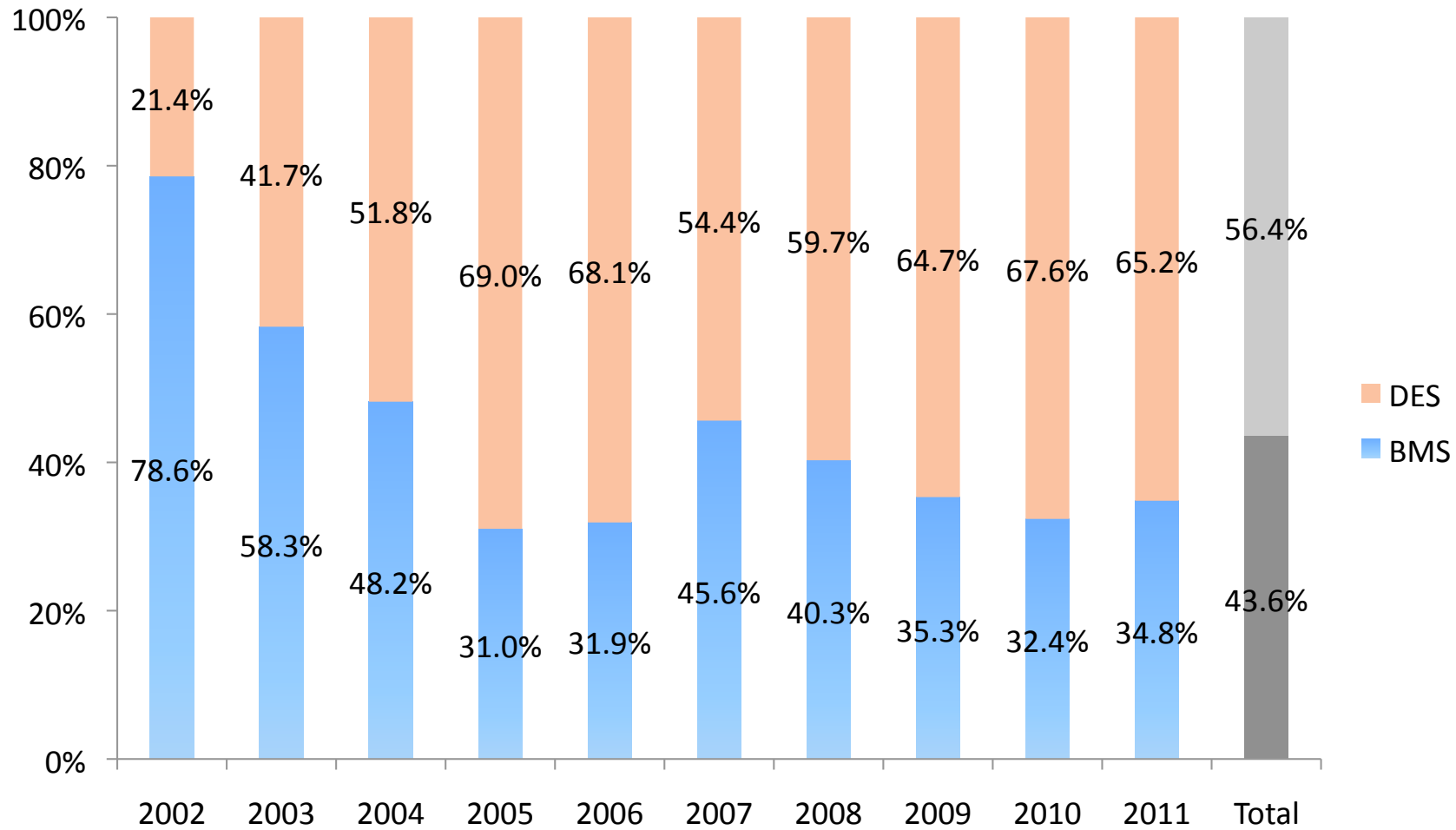
DES is useful as an alternative to BMS to reduce the risk of restenosis in cases in which the risk of restenosis is increased and the patient is likely to be able to tolerate and comply with prolonged DAPT.



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Coronary Stents



Portuguese Registry of Interventional Cardiology

Adjunctive Diagnostic Devices

Fractional Flow Reserve



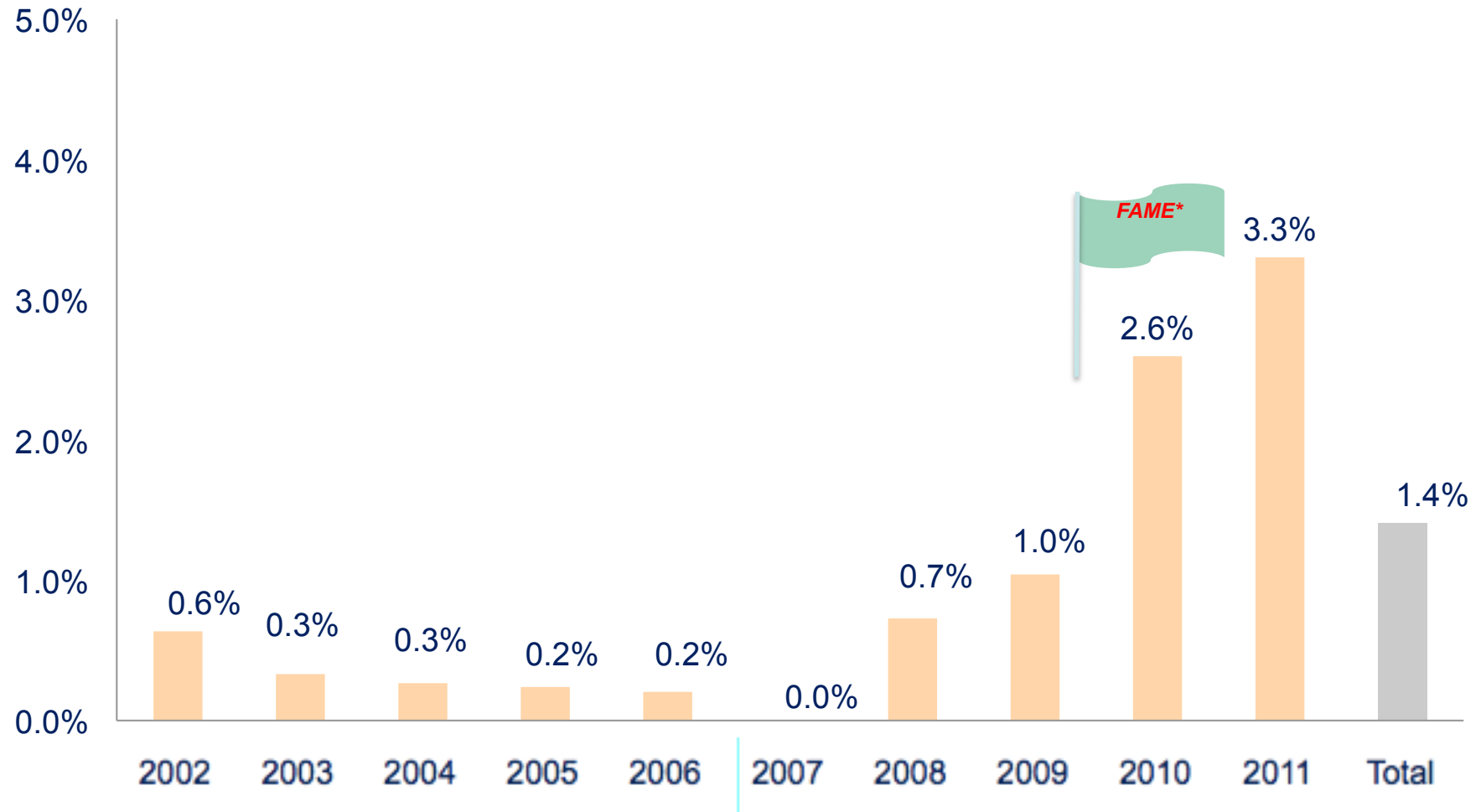
FFR is reasonable to assess angiographic intermediate coronary lesions (50% to 70% diameter stenosis) and can be useful in guiding revascularization decisions in patients with SIHD.



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Fractional Flow Reserve



Intravascular Ultrasound



IVUS is reasonable for the assessment of **angiographically indeterminate left main CAD.**

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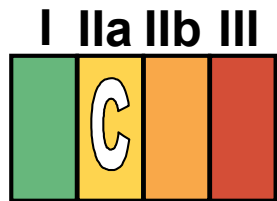


American
Heart
Association.



The Society for Cardiovascular
Angiography and Interventions

Intravascular Ultrasound (cont.)



IVUS is reasonable to determine the mechanism of stent restenosis.



IVUS may be reasonable for the assessment of non-left main coronary arteries with angiographically intermediate coronary stenoses (50% to 70% diameter stenosis).



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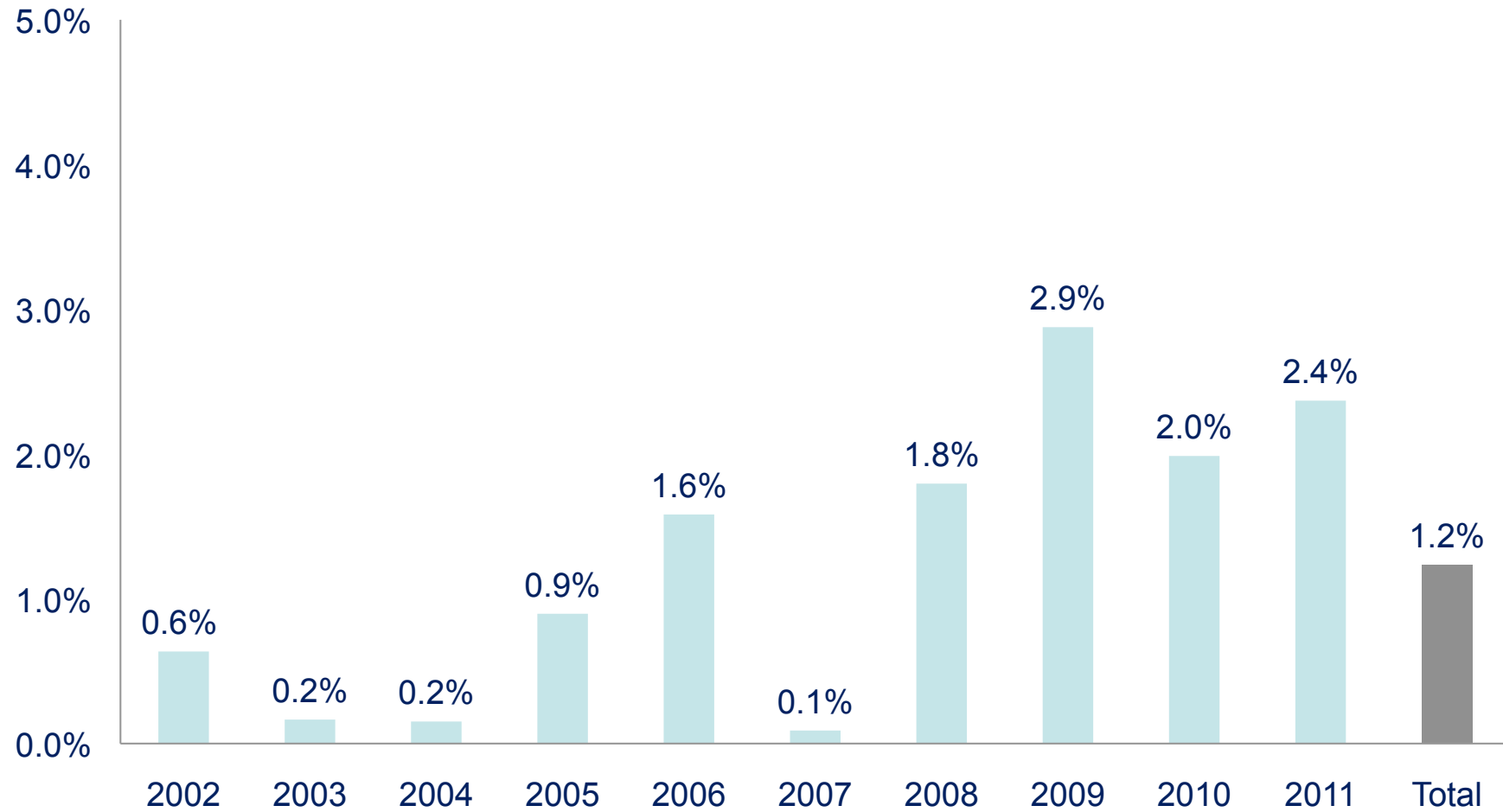


American
Heart
Association.



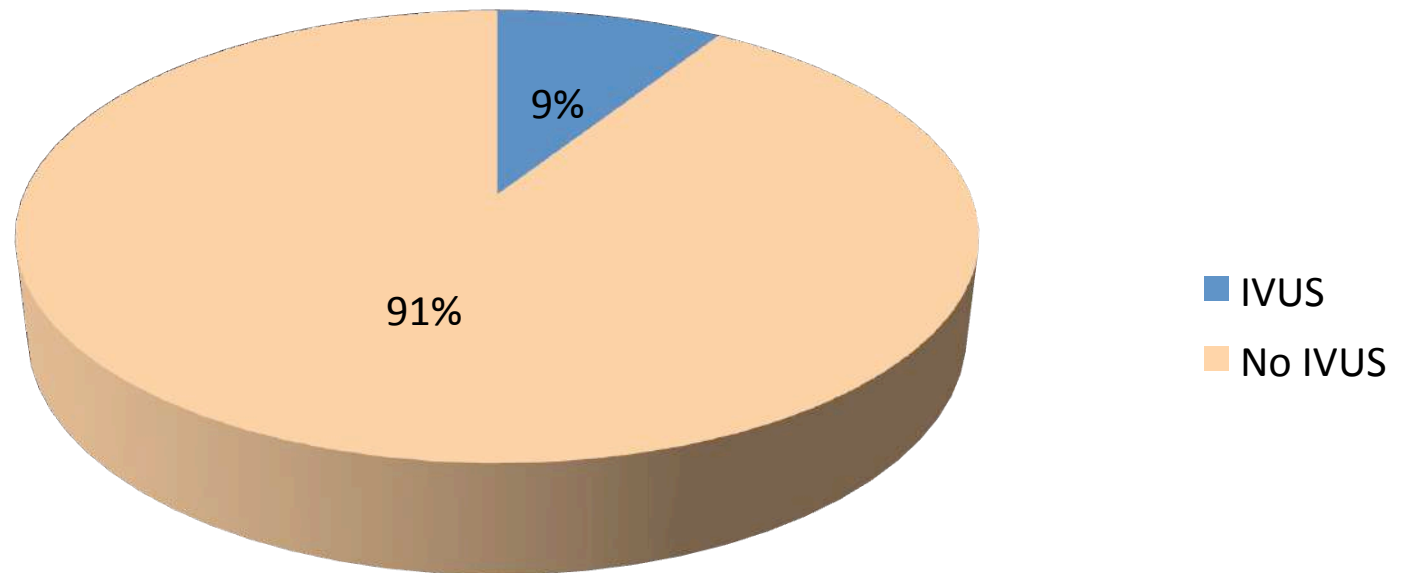
The Society for Cardiovascular
Angiography and Interventions

Intravascular Ultrasound



Intravascular Ultrasound

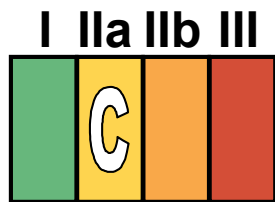
IVUS Left Main PCI (STEMI excluded)



Portuguese Registry of Interventional Cardiology

Adjunctive Therapeutic Devices

Coronary Atherectomy



Rotational atherectomy is reasonable for fibrotic or heavily calcified lesions that might not be crossed by a balloon catheter or adequately dilated before stent implantation.



No Benefit

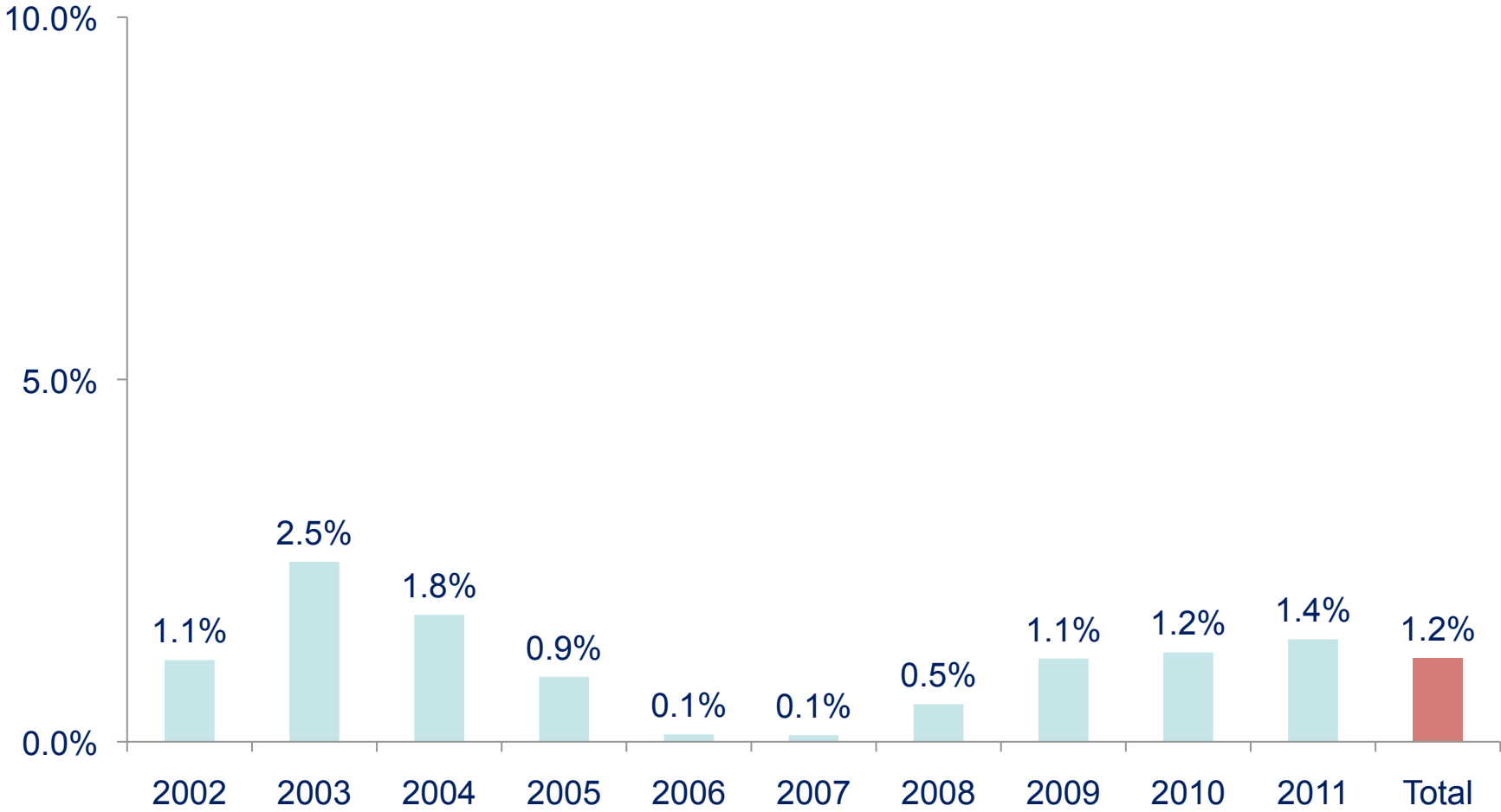
Rotational atherectomy should not be performed routinely for de novo or in-stent restenosis.



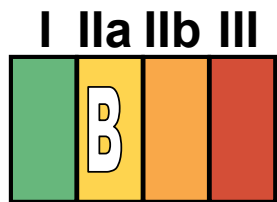
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Coronary Atherectomy



Thrombectomy



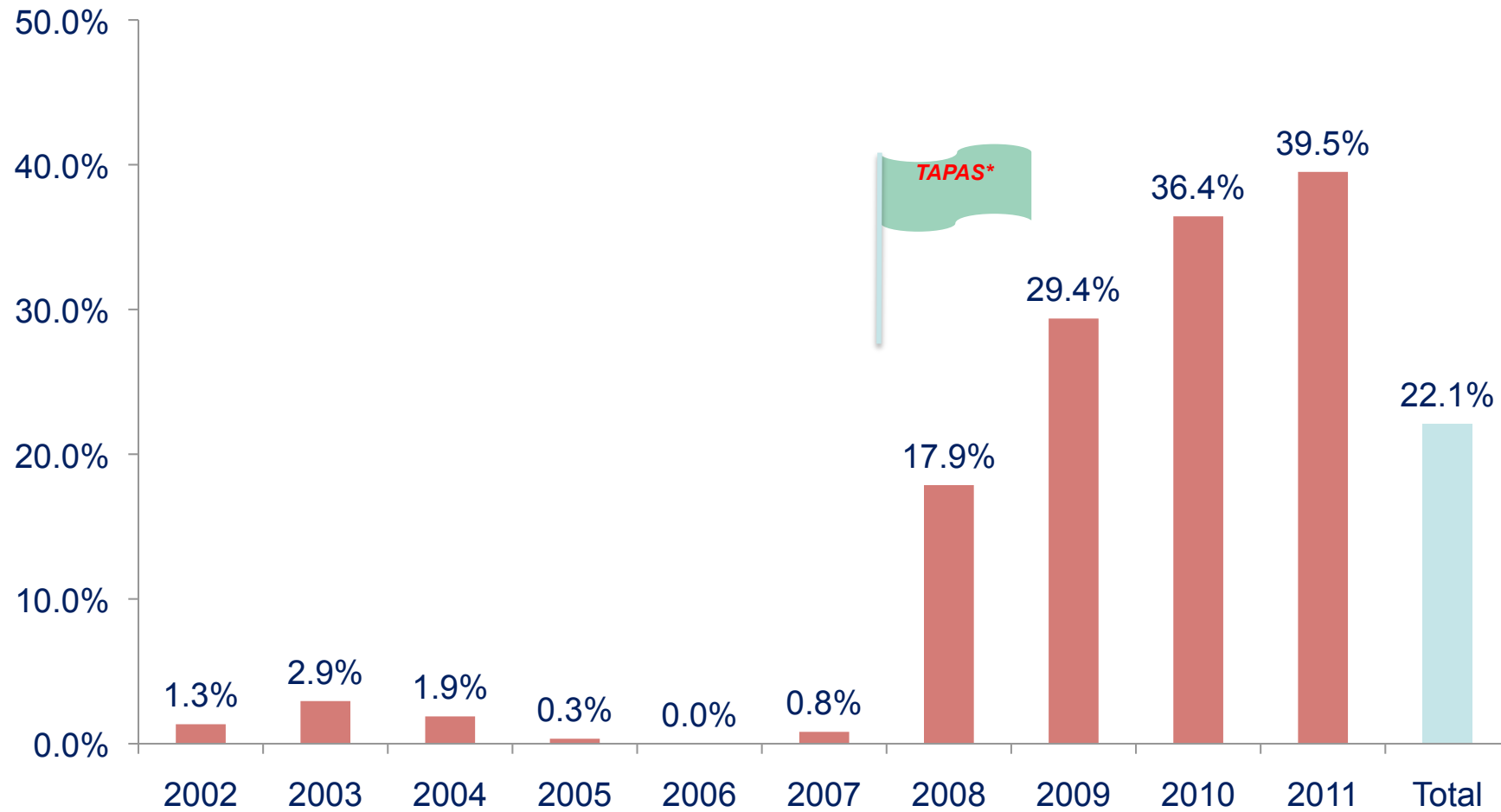
Aspiration thrombectomy is reasonable for patients undergoing primary PCI.



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Thrombectomy



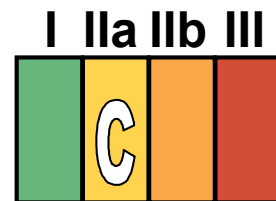
Portuguese Registry of Interventional Cardiology

Percutaneous Hemodynamic Support Devices

Intravenous Antiplatelet Therapy: STEMI



For GP IIb/IIIa inhibitor administration in patients not pretreated with clopidogrel.



For GP IIb/IIIa inhibitor administration in patients who are pretreated with clopidogrel.

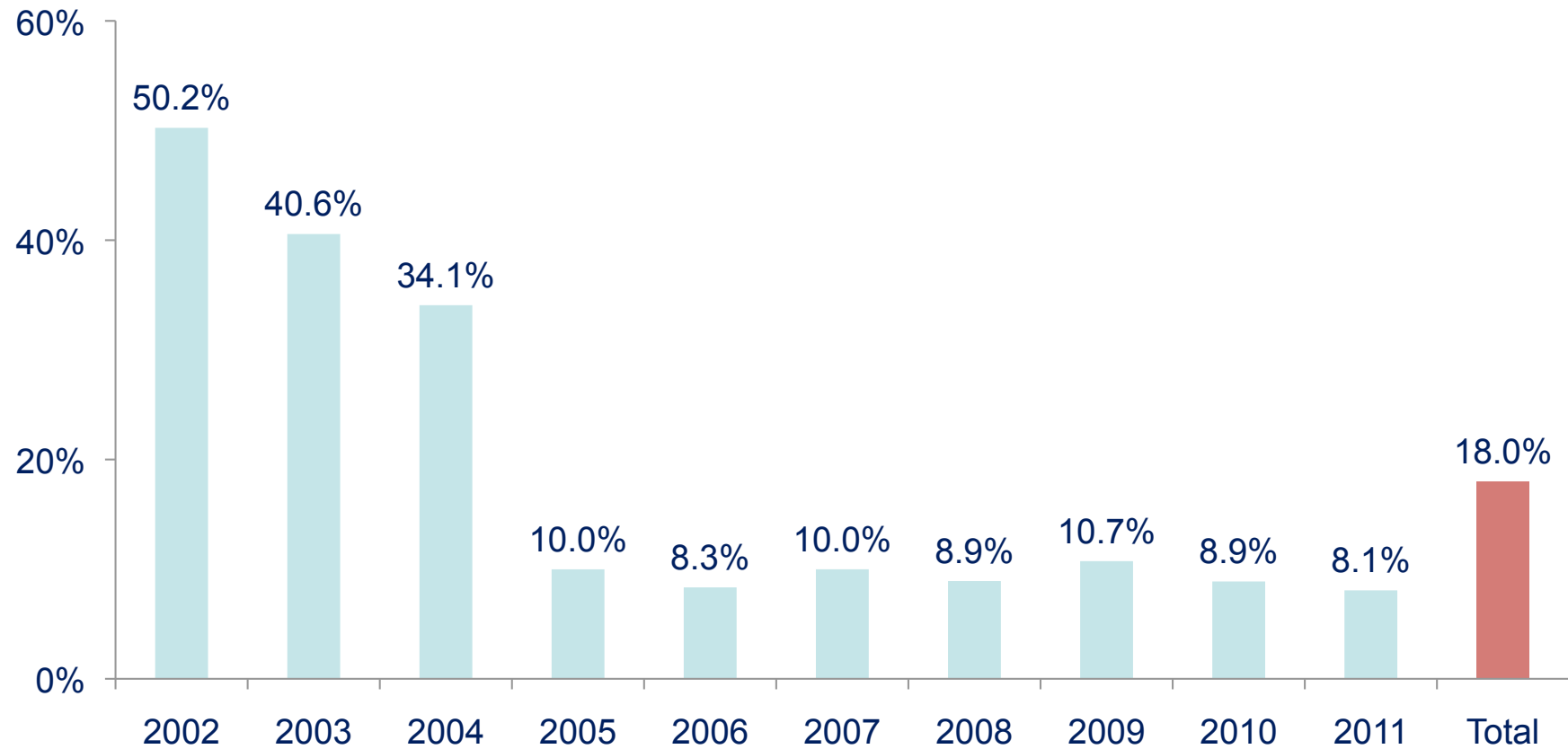


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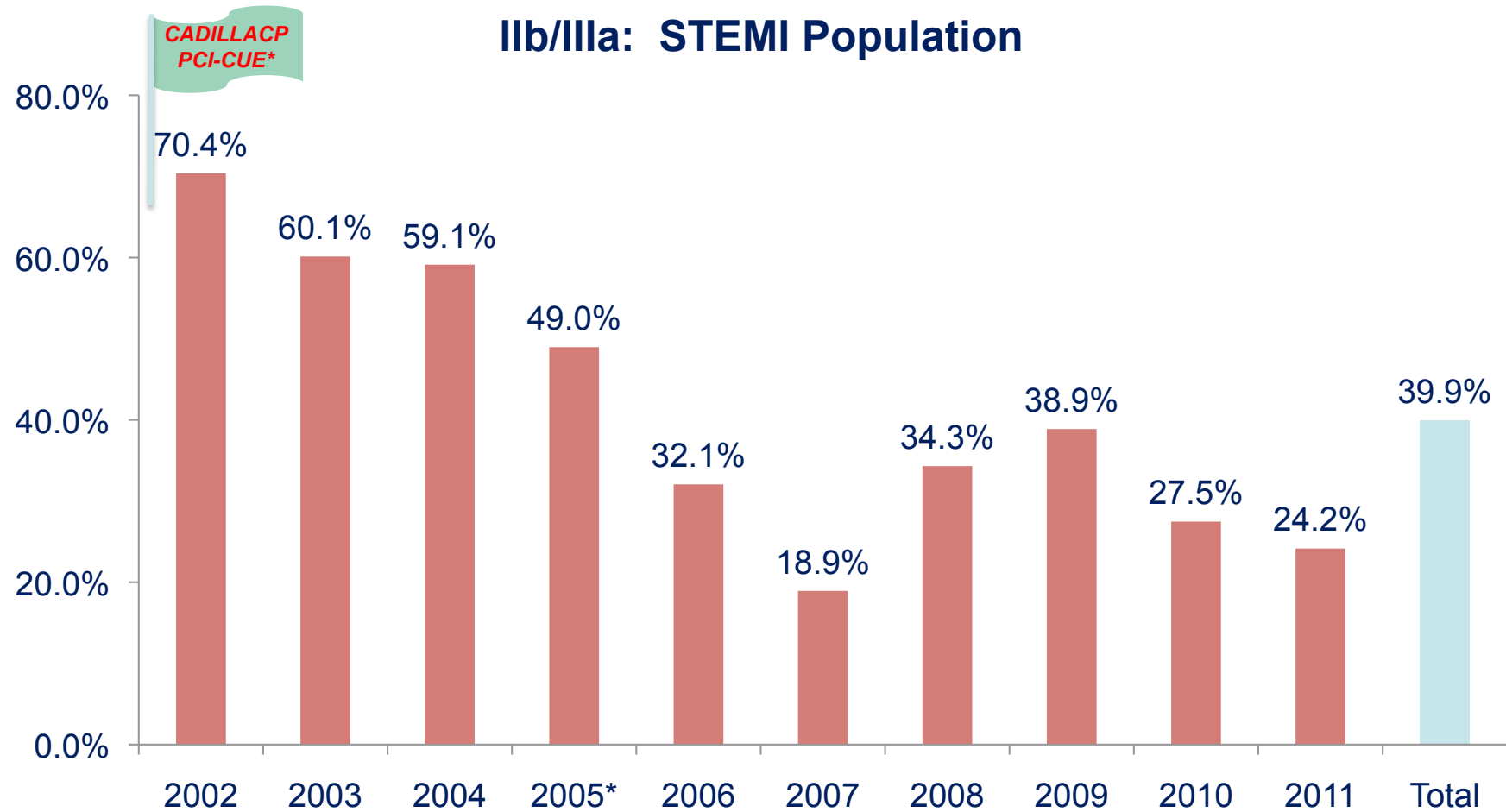


Intravenous Antiplatelet Therapy: STEMI

Iib/IIla: All Population



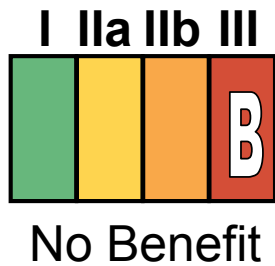
Intravenous Antiplatelet Therapy: STEMI



*PCI-CURE Mehta H et al, Lancet 2001
CADILLAC - N Engl J Med 2002

PCI in Specific Anatomic Situations

Saphenous Vein Grafts



Platelet GP IIb/IIIa inhibitors **are not beneficial** as adjunctive therapy during SVG PCI.

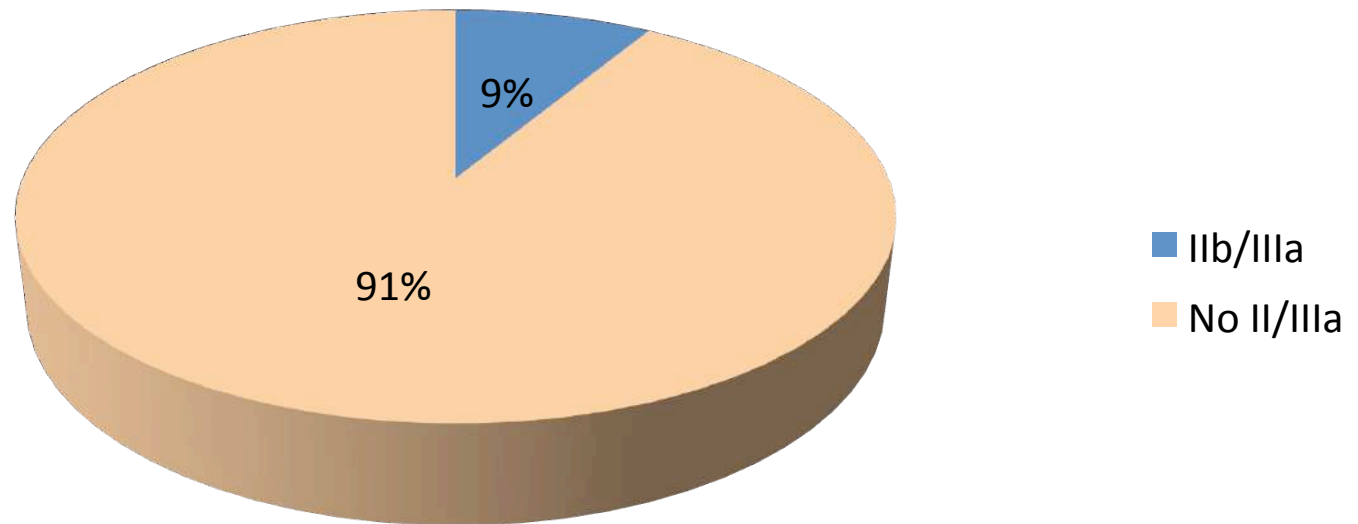


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Saphenous Vein Grafts

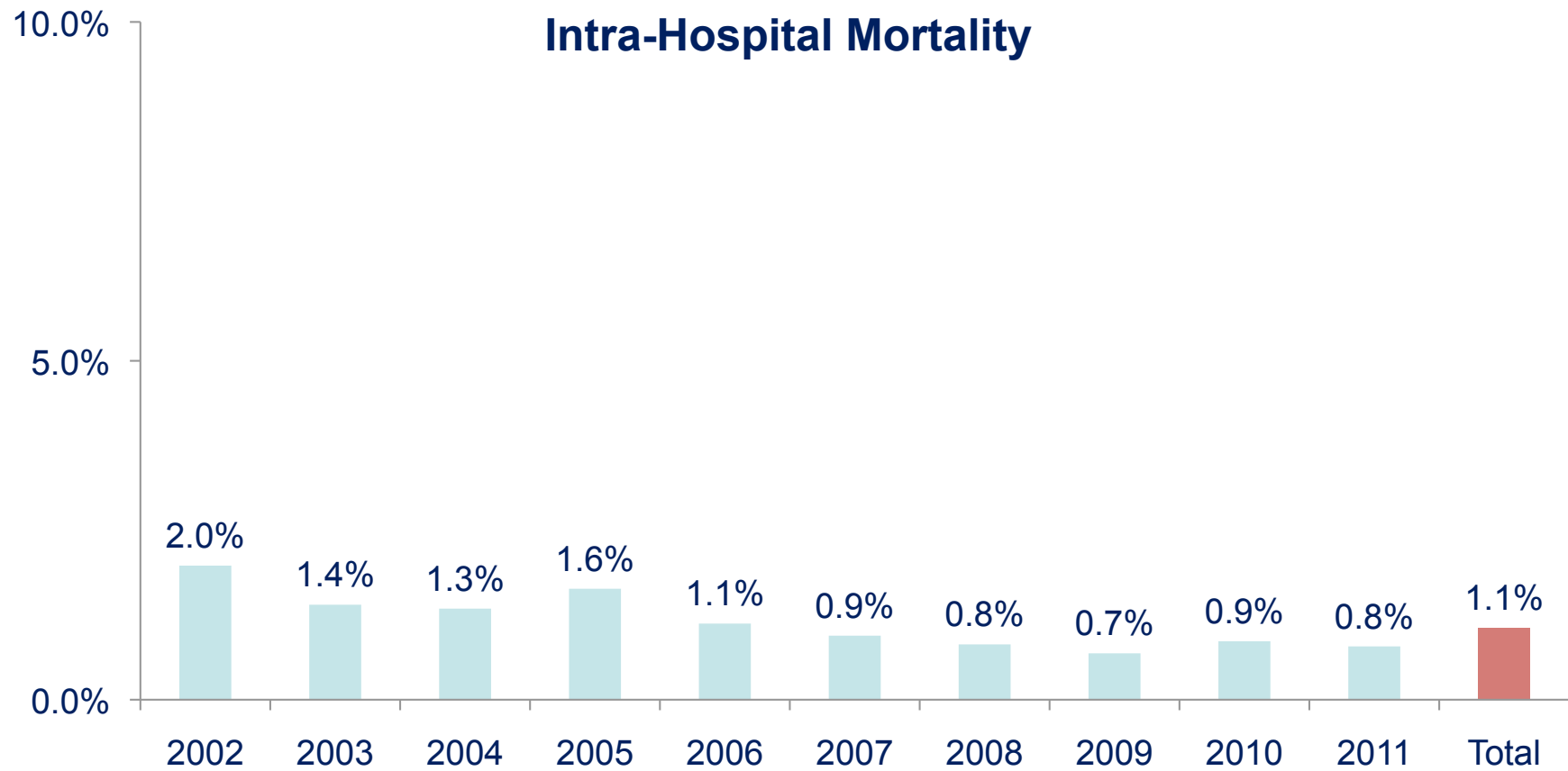
IIb/IIIa Saphena By-pass Grafts (STEMI and Shock excluded)



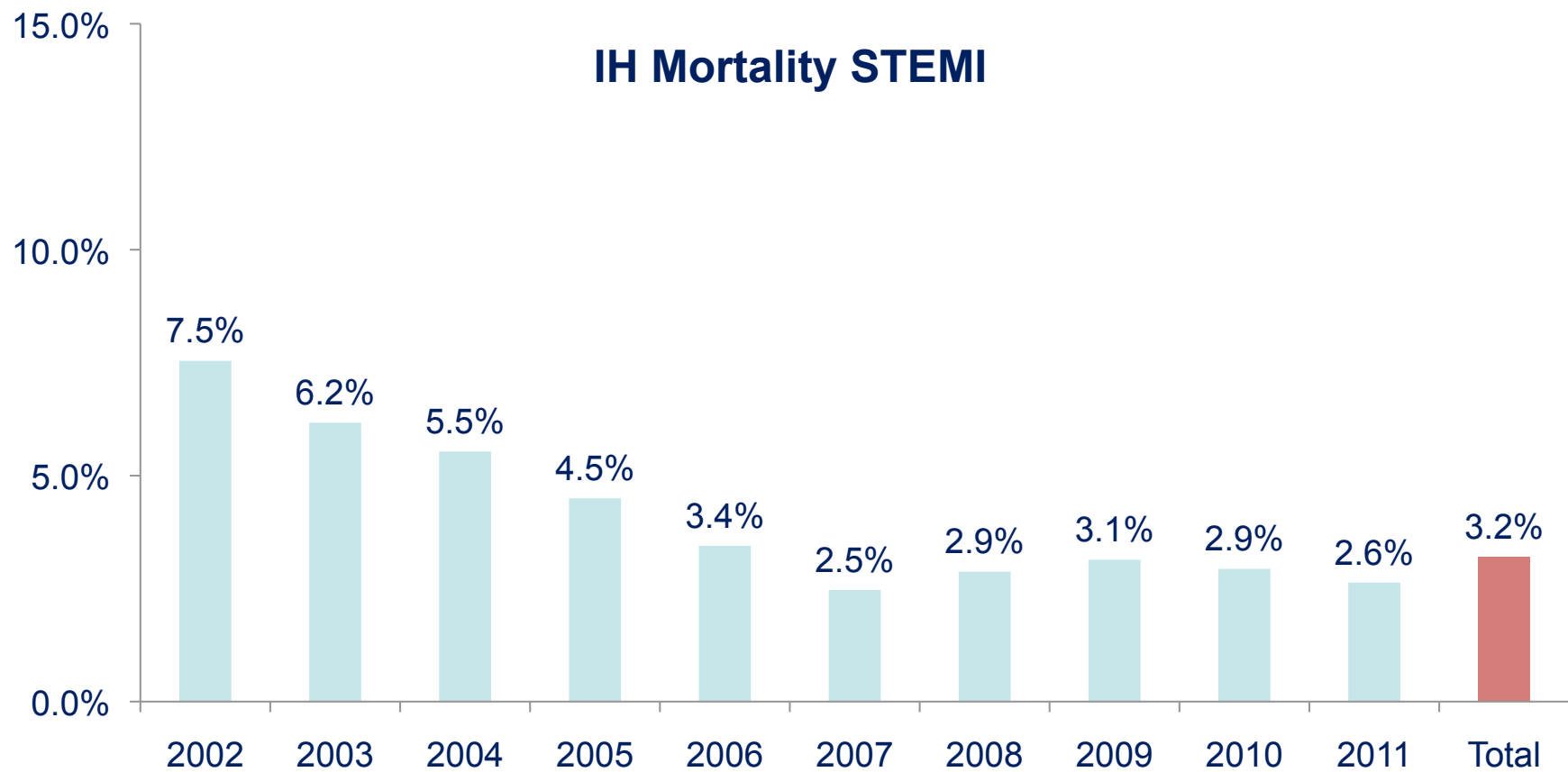
Quality and Performance Considerations

Quality and Performance

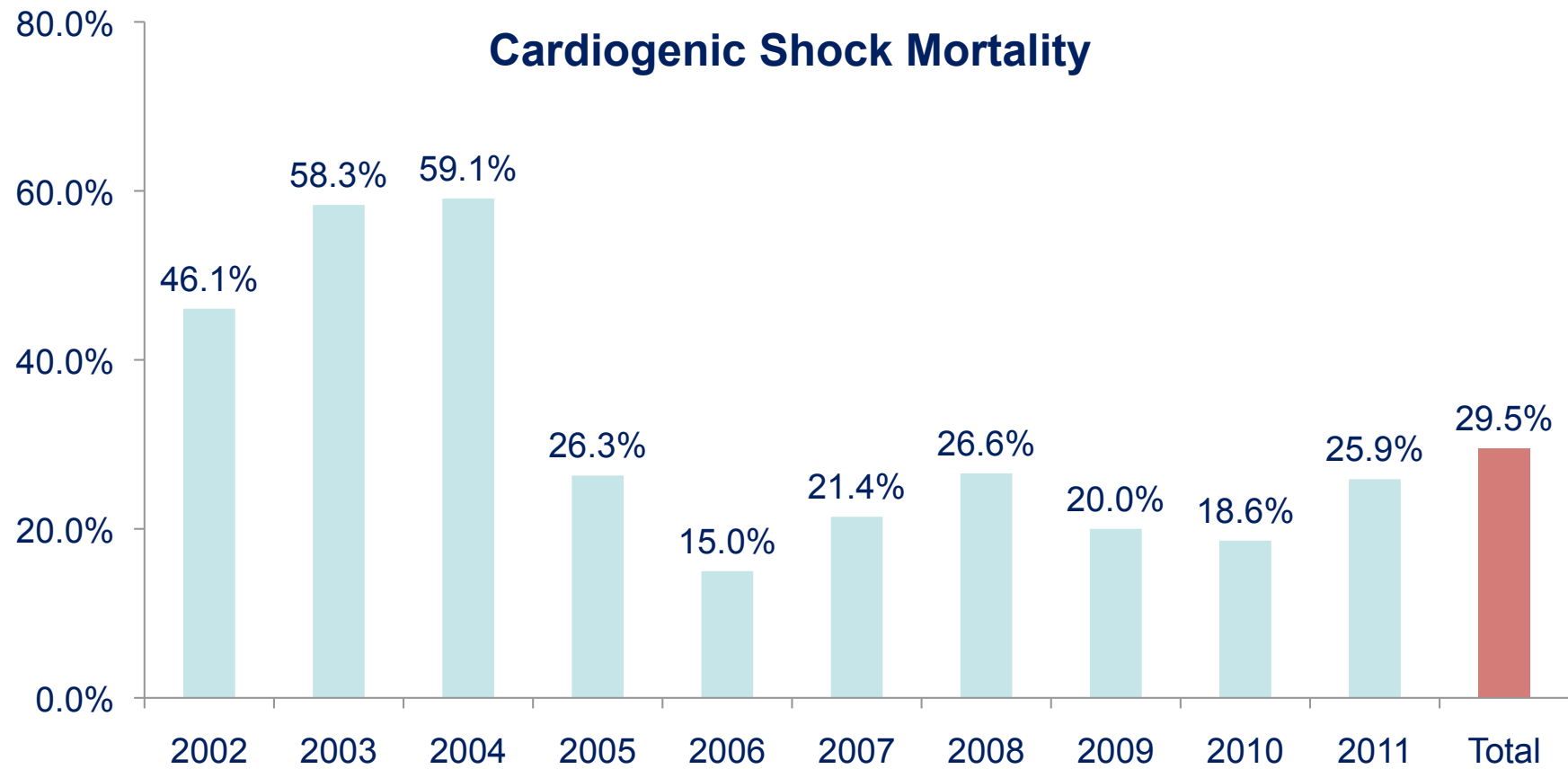
Quality and Performance



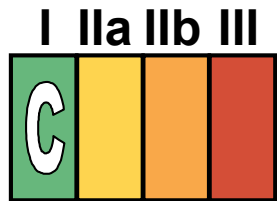
Quality and Performance



Quality and Performance



Operator and Institutional Competency and Volume



Elective/urgent PCI should be performed by operators with acceptable annual volume (≥ 75 procedures) at high-volume centers (>400 procedures) with onsite cardiac surgery.



Elective/urgent PCI should be performed by operators and institutions whose current risk-adjusted outcomes statistics are comparable to those reported in contemporary national data registries.



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Operator and Institutional Competency and Volume (cont.)



Primary PCI for STEMI should be performed by experienced operators who perform more than 75 elective PCI procedures per year and, ideally, **at least 11 PCI procedures for STEMI per year**. Ideally, these procedures should be performed in institutions that perform more than 400 elective PCIs per year and more than 36 primary PCI procedures for STEMI per year.



It is reasonable that operators with acceptable volume (≥ 75 PCI procedures per year) perform elective/urgent PCI at low-volume centers (200 to 400 PCI procedures per year) with onsite cardiac surgery.



Operator and Institutional Competency and Volume

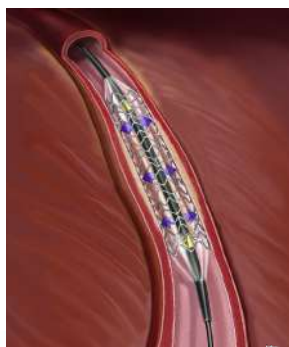
Stent for Life Survey 2011



29 Centres



→ 69
Interventional
Cardiologists



12.830
Total PCI

PCI / Interventional Cardiologist:
186/year

3.192
P-PCI

P-PCI / Interventional Cardiologist:
46/year



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$$s^2 = \frac{1}{n} \times \sum_{i=1}^n (x_i - \bar{x})^2$$
$$\sigma = \frac{1}{n-1} \times \sum_{i=1}^n$$



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CONCLUSIONS

1. To document prospectively and consecutively the characteristics of patients submitted to elective, urgent, and emergent percutaneous coronary interventions.
2. To evaluate the implementation of guidelines at clinical practice in Portugal.
3. To document prospectively the intrahospitalar results and 1 year FU, after percutaneous coronary interventions and benchmark the results with other registries and randomized clinical.



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$$s^2 = \frac{1}{n} \times \sum_{i=1}^n (x_i - \bar{x})^2$$
$$\sigma = \frac{1}{n-1} \times \sum_{i=1}^n$$



Thank you very much
for your attention