

A photograph of a modern hospital building with a courtyard. The building has a facade of large glass windows and dark panels. The courtyard in the foreground has several concrete benches and young trees. A red banner with white text is overlaid on the image.

**ANGINA INSTABILE ED NSTEMI:
UNA PATOLOGIA CORONARICA “MINORE”?**

**Francesco Bellandi
U.O. Cardiologia
Ospedale di Prato**



CONCLUSIONI

NO!

NSTEMI

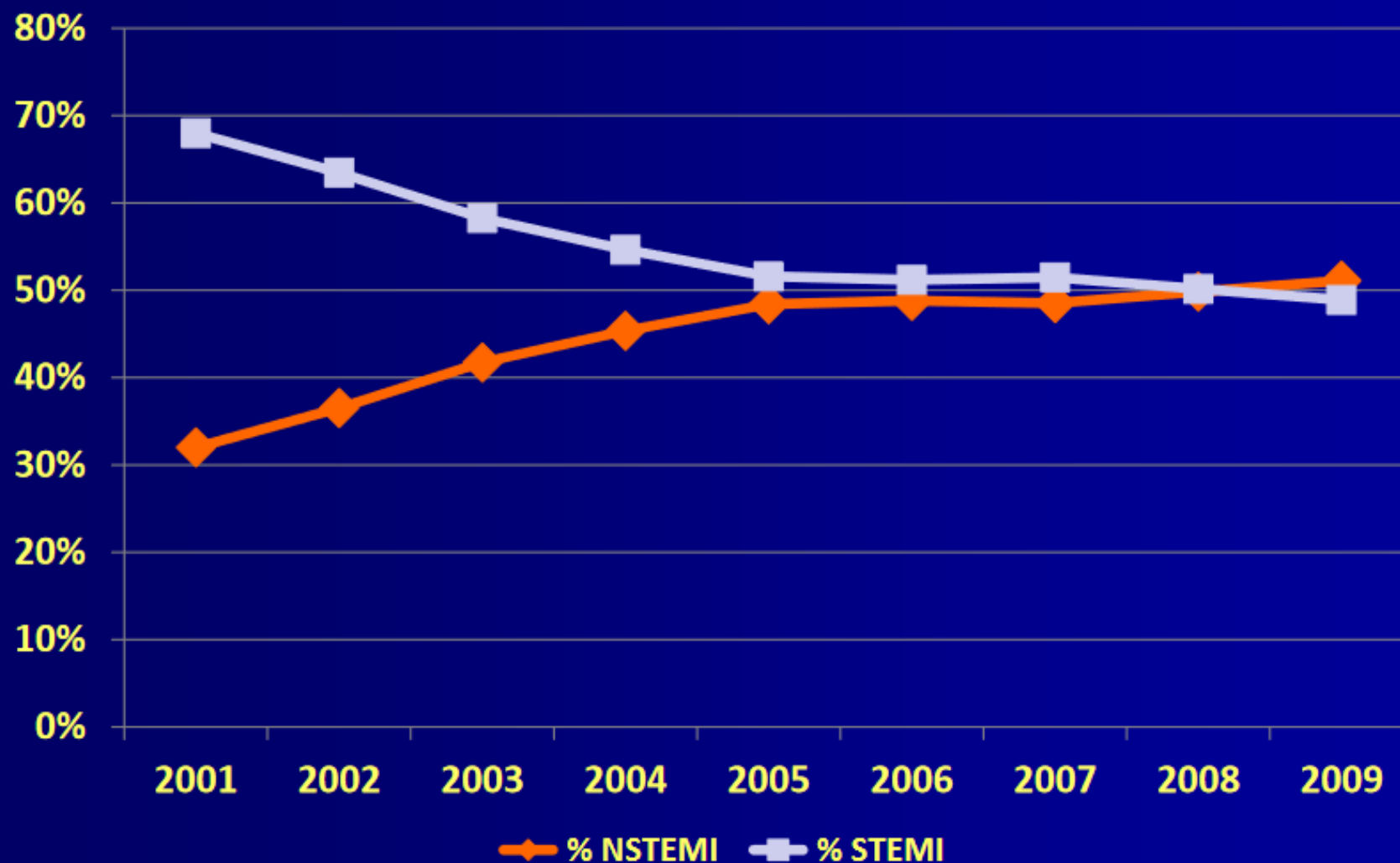
- **EPIDEMOLOGIA**
- **PROGNOSI**
- **PECULIARITA' TERAPEUTICHE**

NSTEMI

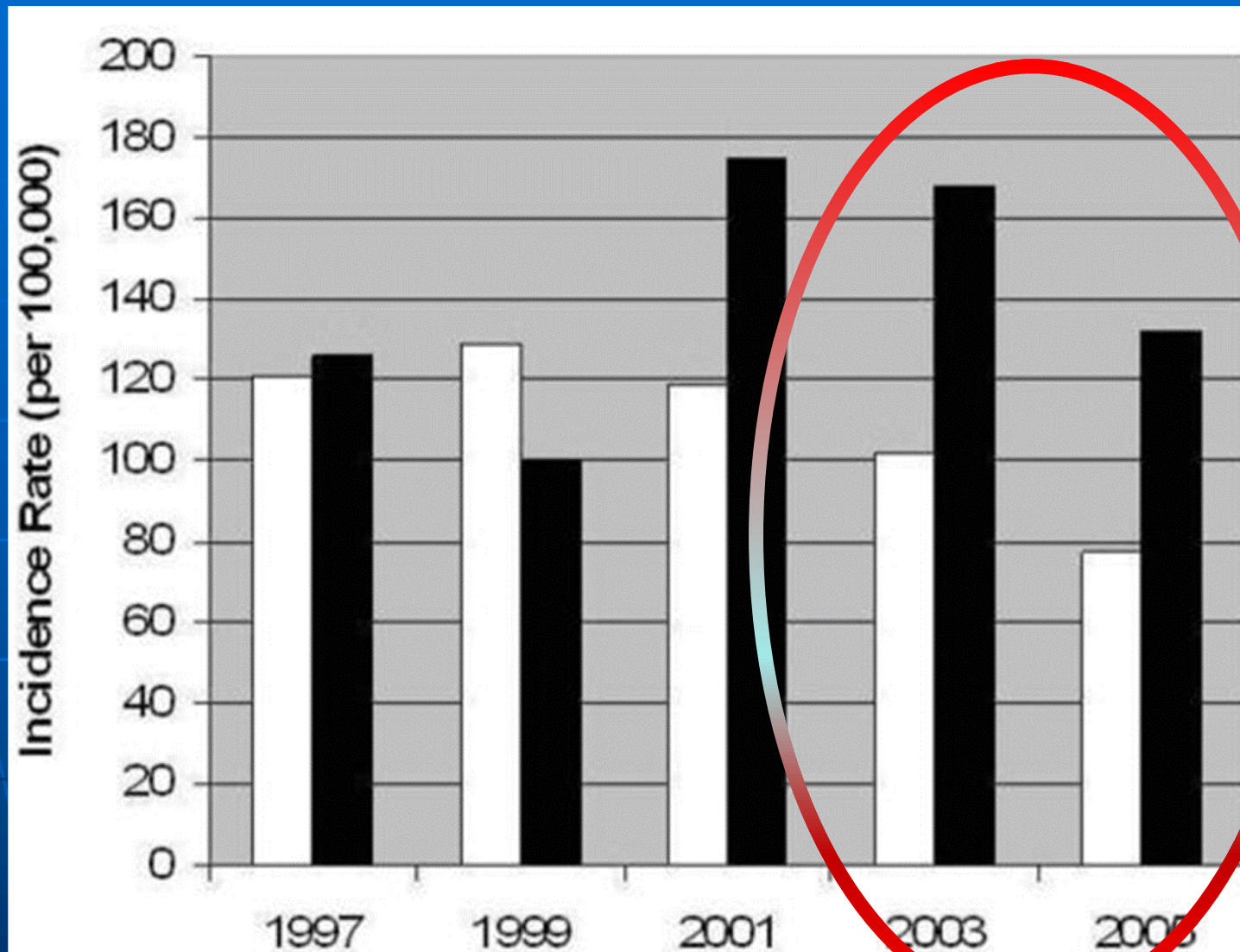
- **EPIDEMOLOGIA**
- **PROGNOSI**
- **PECULIARITA' TERAPEUTICHE**

SDO nazionali 2001-2009

Proporzione di IMA STEMI e NSTEMI



Incidence Rates for STEMI and NSTEMI by Study Year

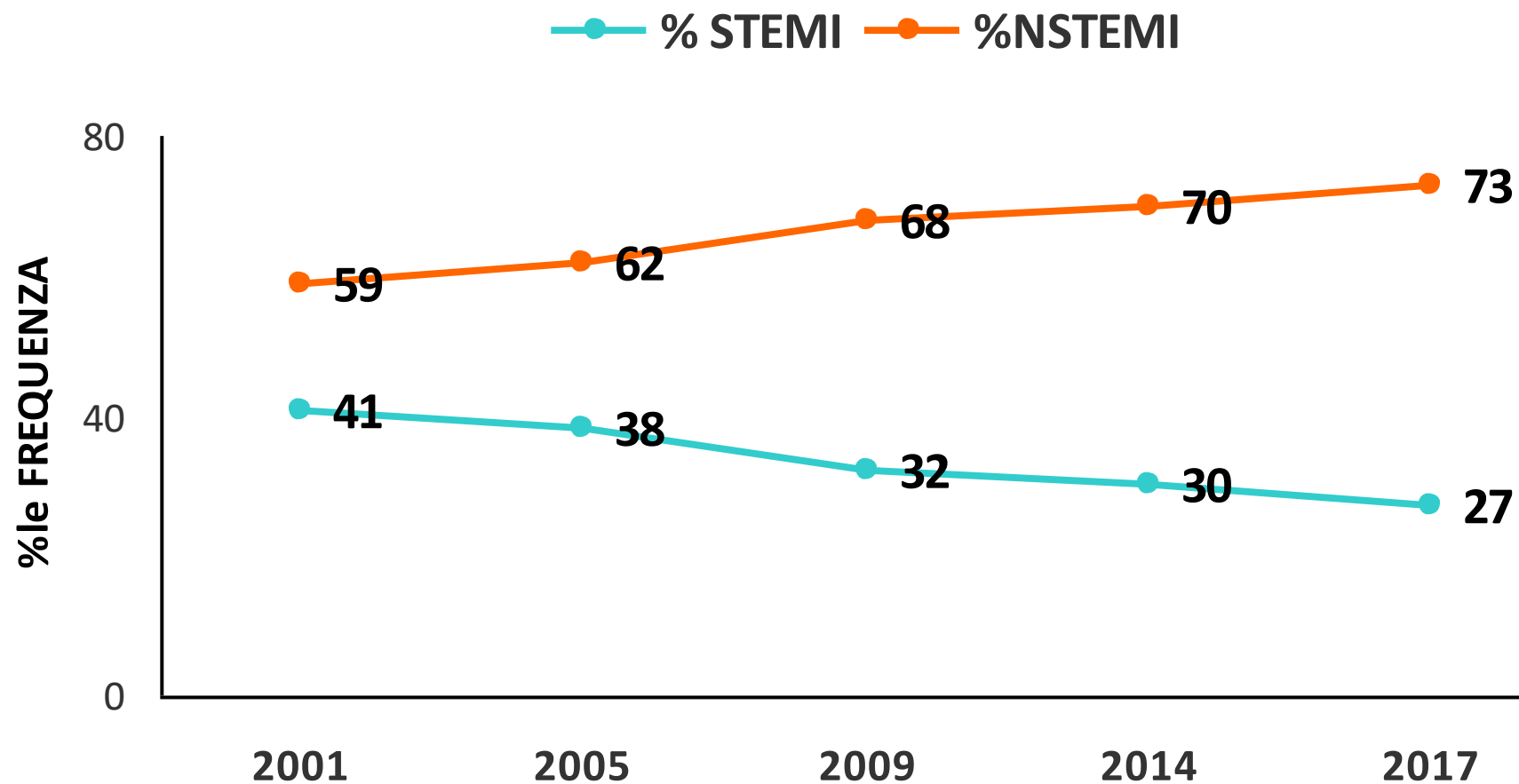


2008 - 2010

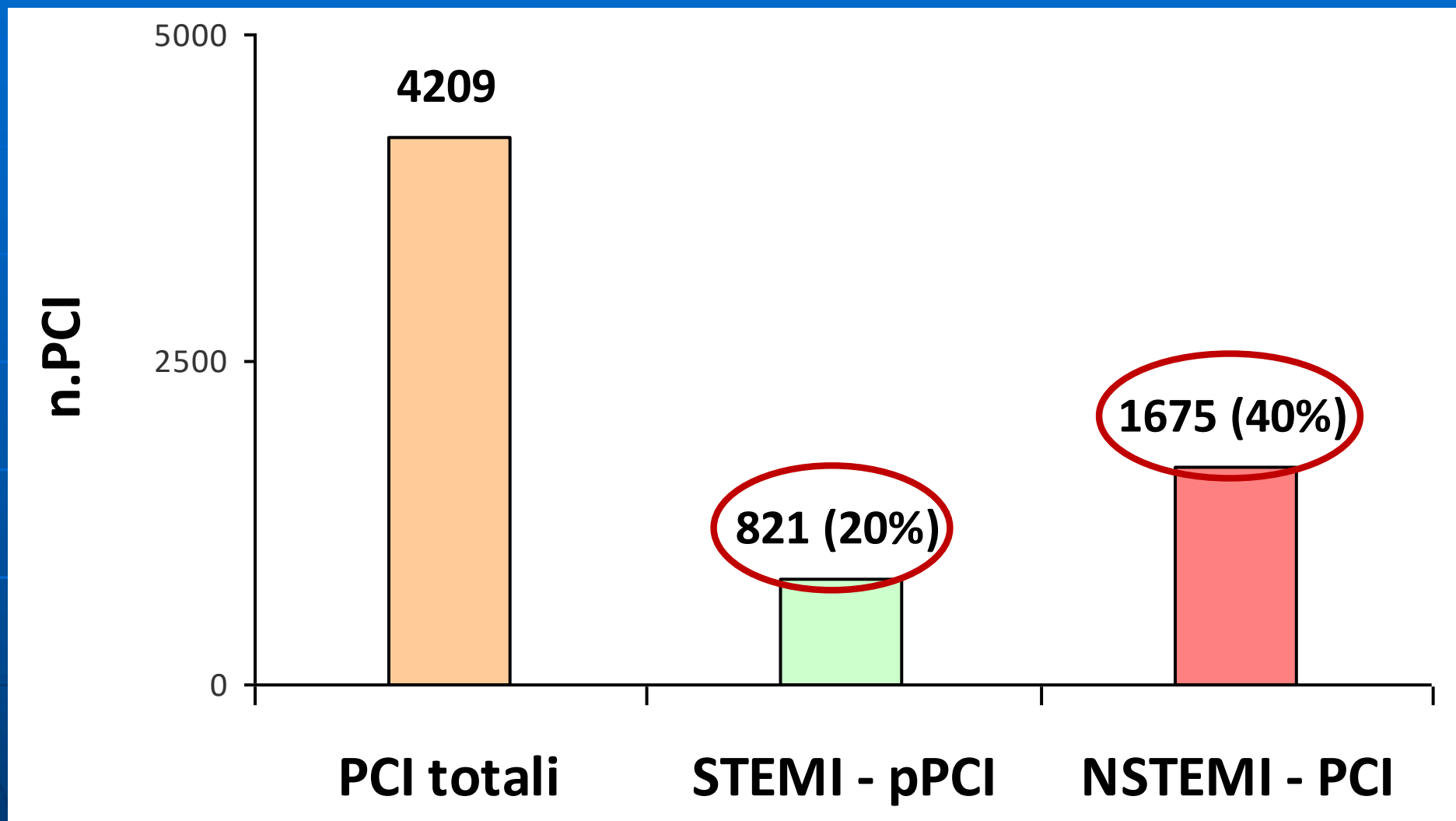
Frequenza STEMI e NSTEMI nei dati AMI-Florence 2 e nei dati SDO

Studio AMI Florence 2				Diagnosi principale SDO [§]		
	N°	%			N°	%
STEMI	1.108	34,5%		<> 410.7	1.522	54,9%
NSTEMI	2.105	74,5%		410.7	1.251	45,1%
Totale	3.213	100%		Totale	2.773	100%

CARDIOLOGIA PRATO - %le SCA



AREA VASTA CENTRO – n.PCI – 2016



LABORATORI AZIENDA USL TOSCANA CENTRO

%le di RIVASCOLARIZZAZIONE PERCUTANEA IN CORSO DI NSTEMI

PRATO ACS

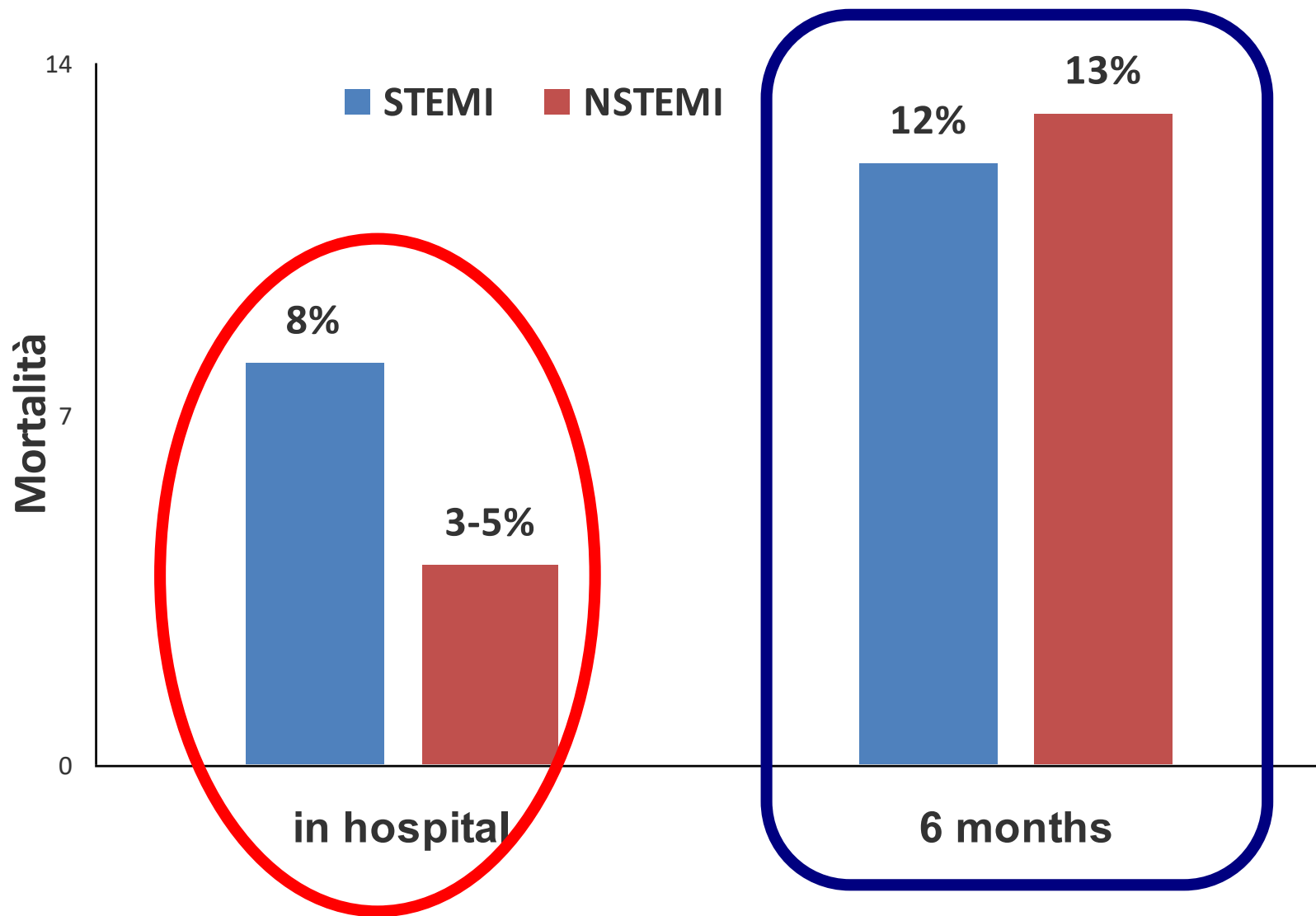
58%

PRATO ACS 2

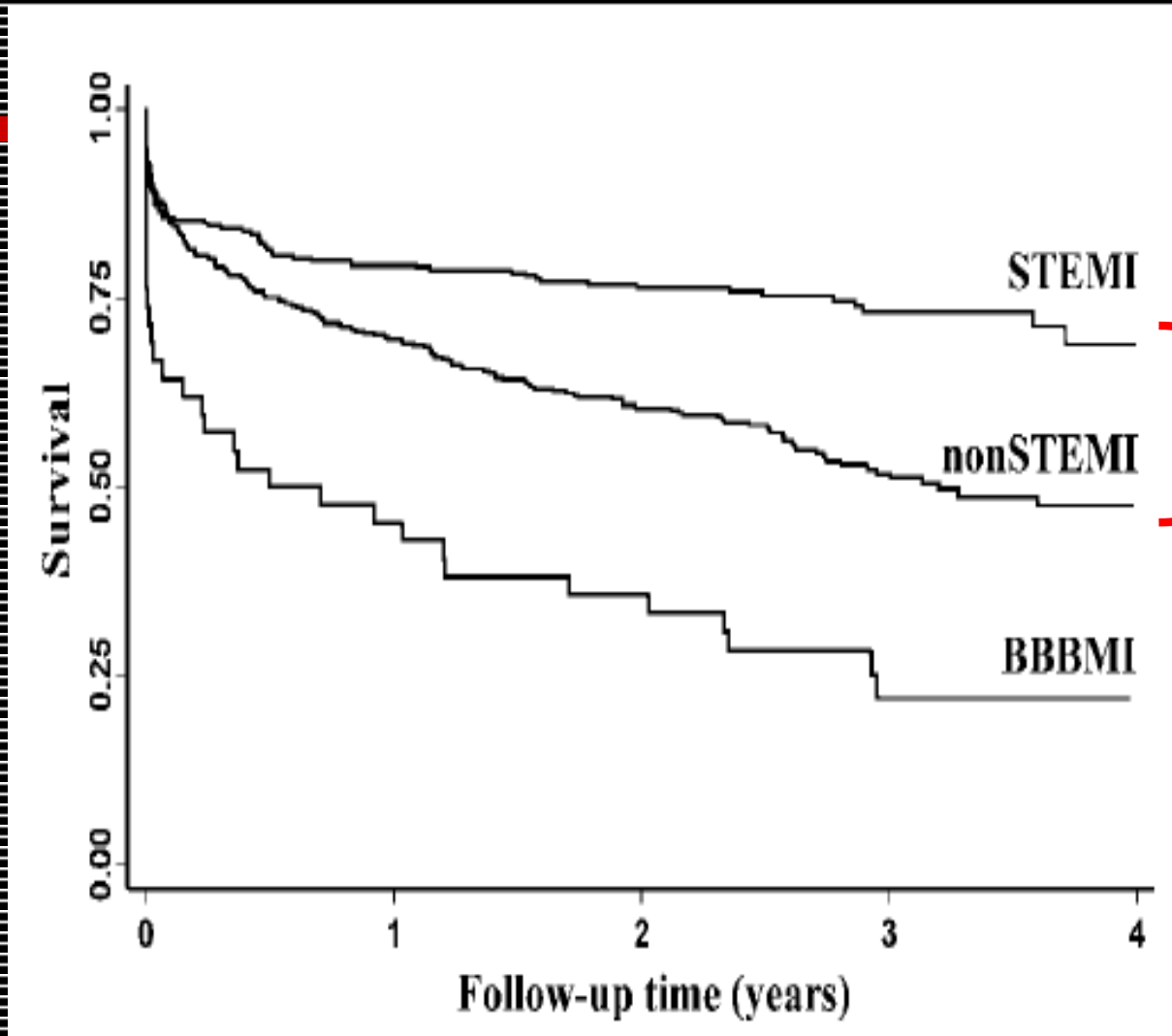
61%

NSTEMI

- EPIDEMIOLOGIA
- **PROGNOSI**
- PECULIARITA'
TERAPEUTICHE



Unadjusted Kaplan-Meier survival curves for different categories of acute myocardial infarction



two-fold increase

BASELINE, DEMOGRAPHIC, AND CLINICAL CHARACTERISTICS

	ST-elevation	
Age (years)	62.5 ± 13.7	
Male gender (%)	74.1	
BMI (mean)	27.0	± 4.8
Prior MI (%)		7.3
Prior PCI/CABG (%)		21.5
Diabetes mellitus (%)		26.7
Current smoker		28.0
Past smokers		29.8
Hypertension		64.6
Hyperlipidemia	51.2	51.9
Family history	29.8	32.6
Prior stroke	5.2	7.3
Renal dysfunction	3.8	7.1
Heart rate (bpm)	78 ± 19	79 ± 20
Killip Class I, II, III, IV (%)	20.4	19.7

> MULTIVESSELS DISEASE

NSTEMI

- EPIDEMIOLOGIA
- PROGNOSE
- PECULIARITA'
TERAPEUTICHE

NSTEMI

**PECULIARITA'
TERAPEUTICHE**

PRETRATTAMENTO

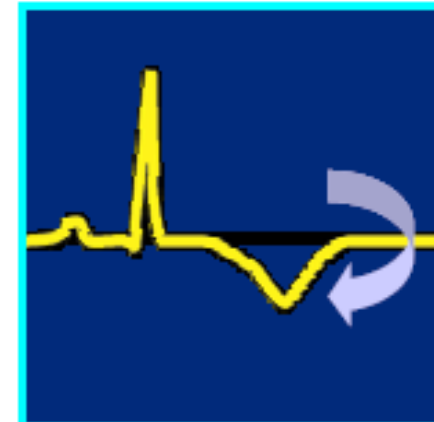
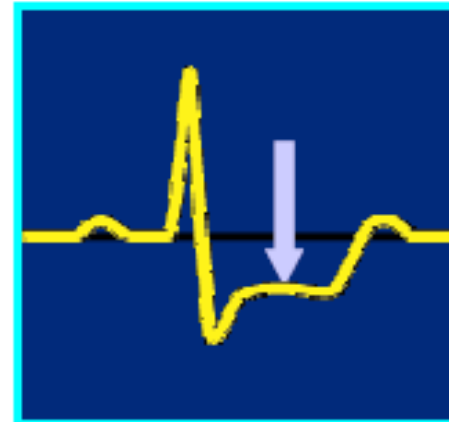
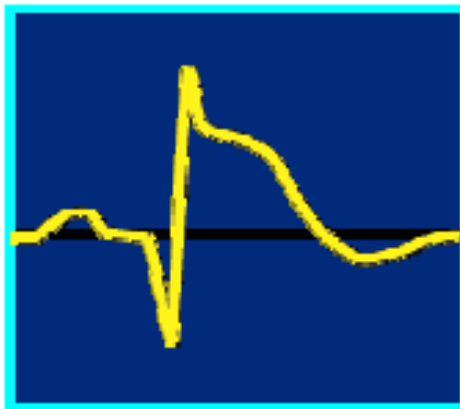
RIVASCOLARIZZAZIONE

Pathophysiology

ACS with persistent ST-segment elevation



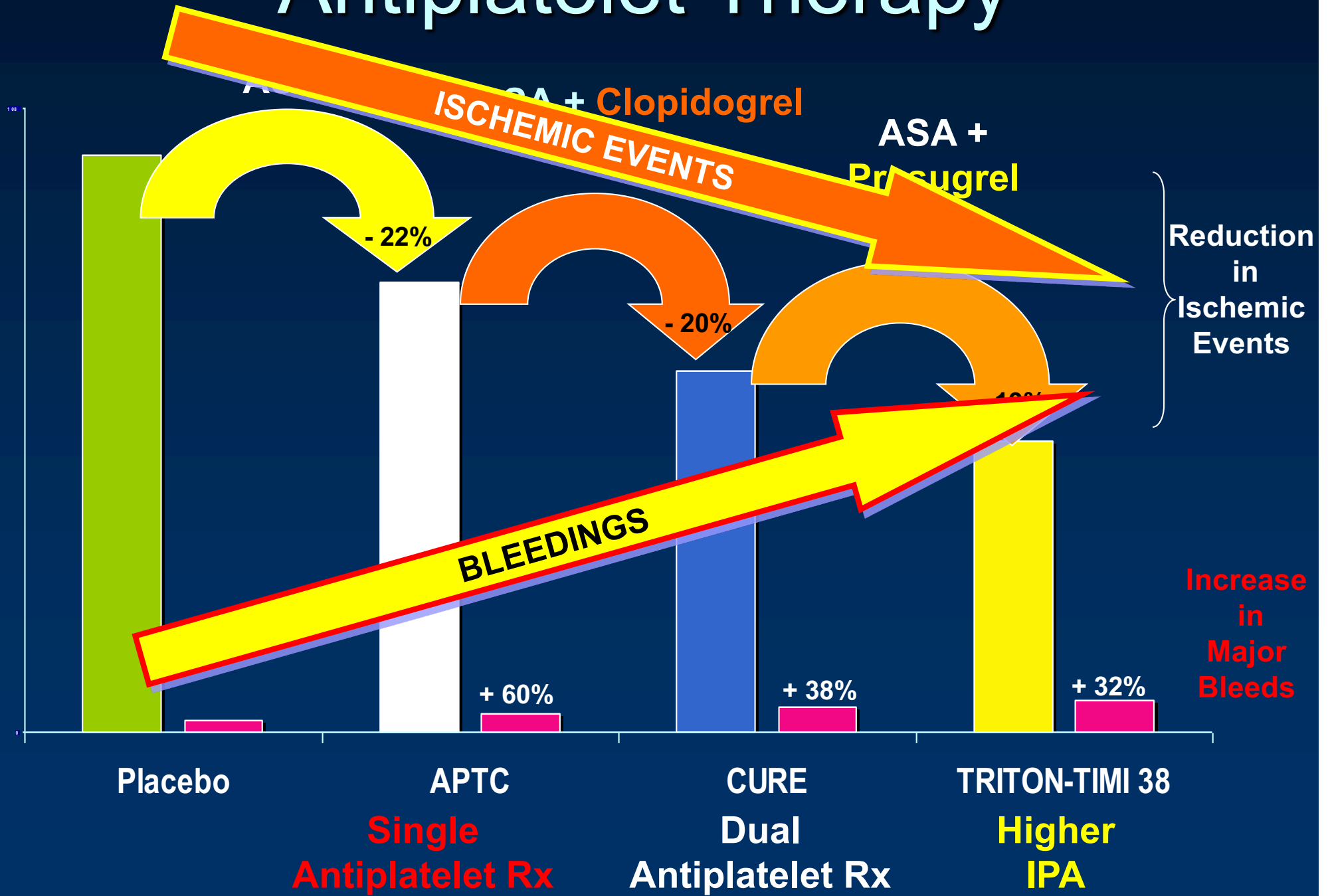
ACS without persistent ST-segment elevation



CARATTERISTICHE FARMACOCINETICHE E FARMACODINAMICHE DEGLI INIBITORI ORALI DEL RECETTORE PIASTRINICO P2Y12

	Clopidogrel	Prasugrel	Ticagrelor
Via di somministrazione	Orale	Orale	Orale
Dosaggio	300-600 mg carico poi 75 mg/die	60 mg carico poi 10 mg/die	180 mg carico poi 90 mg bid
Dosaggio per eGFR <15 ml/ min/1.73 m ²	Usare solo in caso di indicazioni particolari (es. prevenzione della trombosi di stent)	Non raccomandato	Non raccomandato
Legame al recettore	Irreversibile	Irreversibile	Reversibile
Attivazione ^a	Profarmaco con un metabolismo epatico variabile ^b	Profarmaco con un metabolismo epatico prevedibile ^b	Farmaco con un metabolita attivo addizionale ^b
Cinetica di inibizione dell'aggregazione piastrinica	23% ad 1h 40-60% a 4-6h dopo carico di 600 mg	80% ad 1h	79% ad 1h 93% a 2.2h
Comparsa dell'effetto dopo dose di carico	2-6h	30 min	30 min
Durata dell'effetto	3-10 giorni	7-10 giorni	3-5 giorni
Emivita della forma attiva	30-60 min	30-60 min	6-12h
Inibizione del reuptake dell'adenosina	No	No	Sì

Antiplatelet Therapy



yes

no

PRETREATMENT



PRETREATMENT

PRETREATMENT IS DEFINED AS ANY
TREATMENT PERFORMED BEFORE THE
CORONARY ANATOMY HAS BEEN
DETERMINED AND A DECISION ABOUT
REPERFUSION THERAPY IS UNDERTAKEN

NSTEMI DIAGNOSIS

UPSTREAM P2Y12 LOADING (PRETREATMENT)

Potential advantages

- ❑ **More ischemic protection while waiting for coronary angiography**
- ❑ **More time for the drug to achieve full antiplatelet effects**
- ❑ **Less acute stent thrombosis**
- ❑ **Less need for bailout glycoprotein IIIb/IIIa inhibitors**

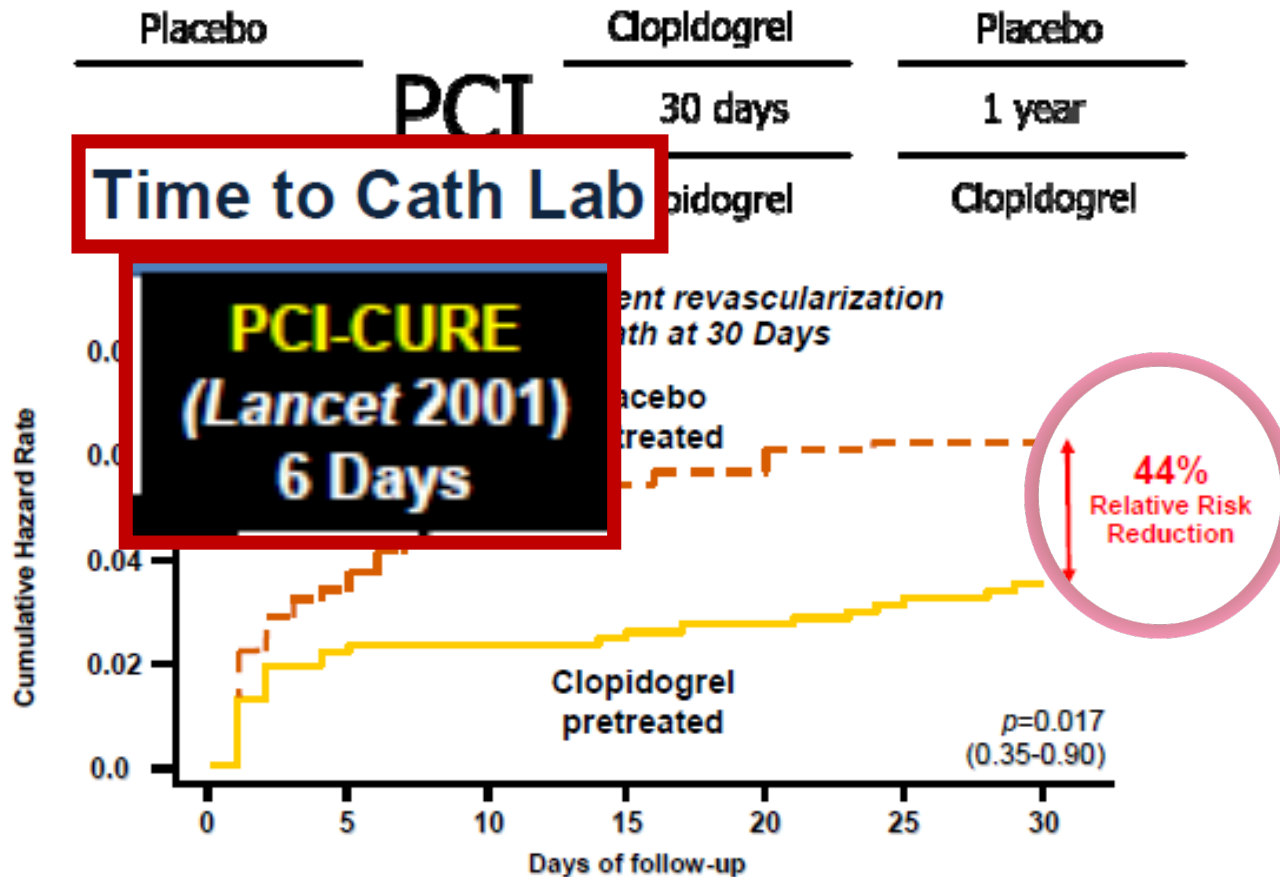
UPSTREAM P2Y12 LOADING (PRETREATMENT)

Potential disadvantages

- Useless for patients who ultimately show no coronary artery disease**
- Increased bleeding**
- Harmful for patients who need immediate coronary artery bypass grafting**
- Increased cost due to prolonged hospitalization if surgical revascularization required**

PCI-CURE

Pre-Treatment with Clopidogrel Prior to PCI and Stenting in ACS Patients



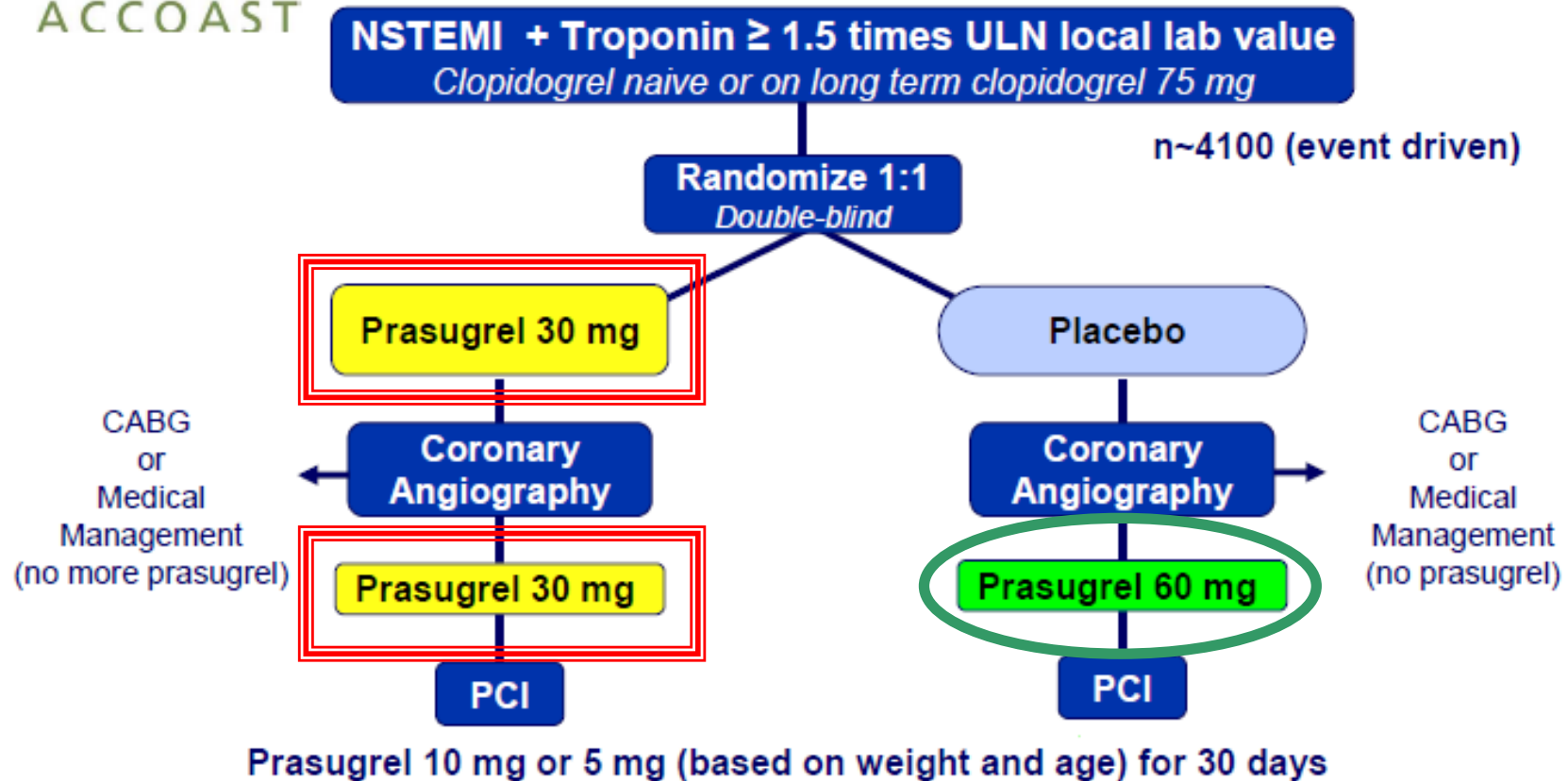
* In addition to other standard therapies.

* Patients did not receive open-label thienopyridine before PCI.

Mehta SR et al for the CURE Investigators. Lancet. 2002



ACCOAST Design Schema

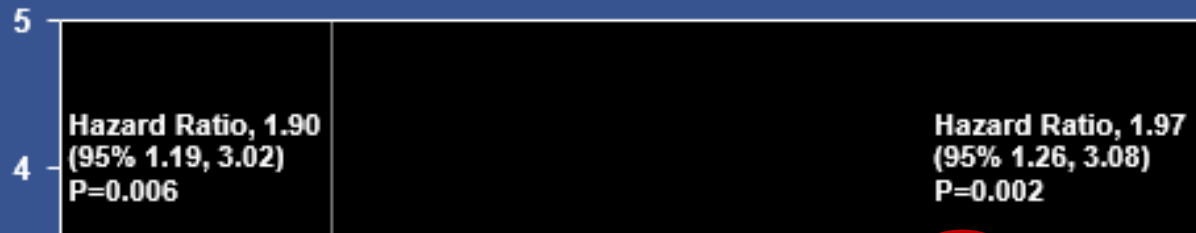


1°Endpoint: CV Death, MI, Stroke, Urg Revasc, GP IIb/IIIa bailout, at 7 days



1° Efficacy End Point @ 7 + 30 days (All Patients)

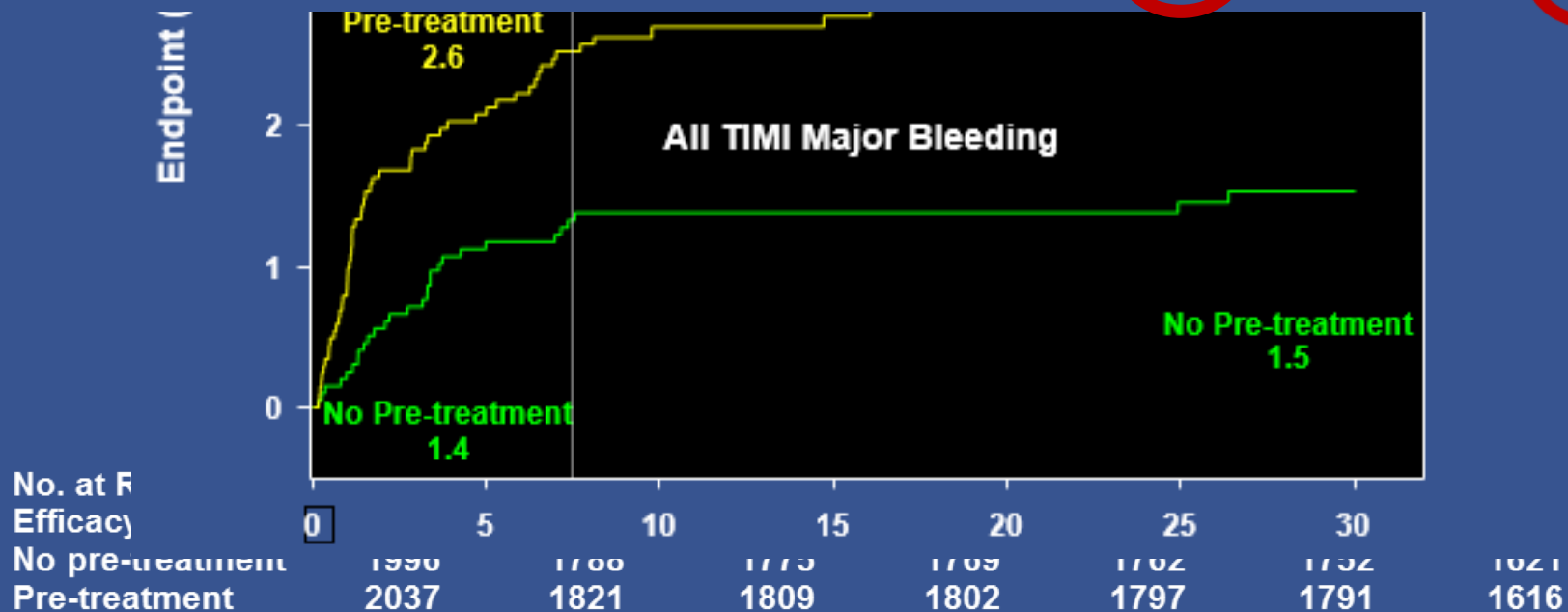
All TIMI (CABG or non-CABG) Major Bleeding (All Treated patients)



→ 1st LD to coronary angiogram, median

2017 (4.4)

1985 (4.2)





NSTE-ACS: Timing to Coro



**Mediana
33.9 hrs**

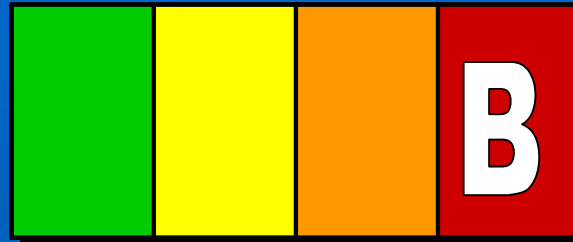


**Mediana
57.5 [28.0-97.2] hrs**

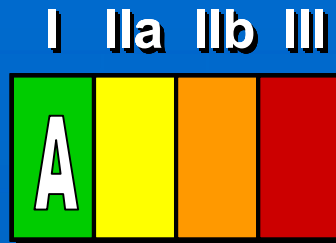


**Mediana
29.4 [15.7-64.8] hrs**

I IIa IIb III



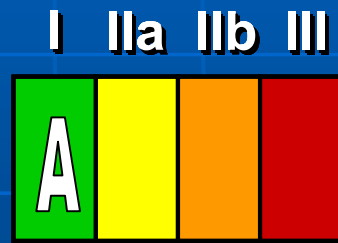
It is not recommended to administer
prasugrel in patients in whom
coronary anatomy is not known



2011 ESC Guidelines

A P2Y12 inhibitor should be added to aspirin as soon as possible and maintained over 12 months, unless there are contraindications such as excessive risk of bleeding

2014 ESC Guidelines on myocardial revascularization

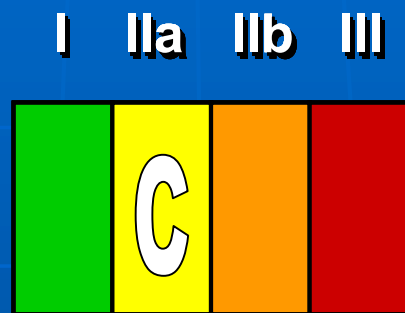


2014 ESC Guidelines on myocardial revascularization

disappeared

A P2Y12 inhibitor is recommended, in addition to aspirin, for 12 months unless there are contraindications such as excessive risk of bleeds

2017 ESC focused update on dual antiplatelet therapy



In patients with NSTEMI-ACS undergoing invasive management, ticagrelor administration (180 mg loading dose, 90 mg twice daily), or clopidogrel (600 mg loading dose, 75 mg daily dose) if ticagrelor is not an option, should be considered as soon as the diagnosis is established.

RISCHIO ISCHEMICO

GRACE
Global Registry of Acute Coronary Events

ACS Risk Model

At Admission (in-hospital/to 6 months) | At Discharge (to 6 months)

Age:

HR:

SBP:

Creat.:

CHF:

Cardiac arrest at admission

ST-segment deviation

Elevated cardiac enzymes/markers

Probability of	Death	Death or MI
In-hospital	<input type="text" value="--"/>	<input type="text" value="--"/>
To 6 months	<input type="text" value="--"/>	<input type="text" value="--"/>

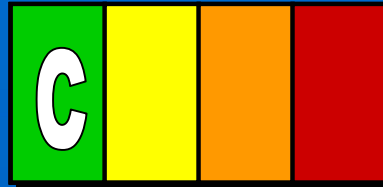
[Calculator](#) | [Instructions](#) | [GRACE Info](#) | [References](#) | [Disclaimer](#)

RISCHIO EMORRAGICO

PRETREATMENT?

	PRECISE-DAPT score ¹⁸
Time of use	At the time of coronary stenting
DAPT duration strategies assessed	Short DAPT (3–6 months) vs. Standard/long DAPT (12–24 months)
Score calculation ^a	<p>HB ≥ 12 11-5 11 10-5 ≤ 10</p> <p>WBC ≤ 5 8 10 12 14 16 18 ≥ 20</p> <p>Age ≤ 50 60 70 80 ≥ 90</p> <p>CrCl ≥ 100 80 60 40 20 0</p> <p>Prior Bleeding No <input type="checkbox"/> Yes <input type="checkbox"/></p> <p>Score Points 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30</p>
Score range	0 to 100 points
Decision making cut-off suggested	Score ≥ 25 → Short DAPT Score < 25 → Standard/long DAPT

I IIa IIb III

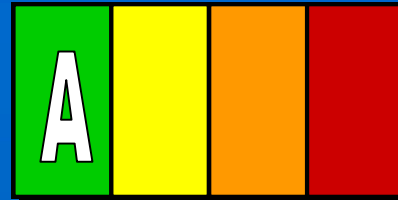


An immediate invasive strategy (<2h) is recommended in patients with at least one of the following very-high-risk criteria

Very-high-risk criteria

- Haemodynamic instability or cardiogenic shock
- Recurrent or ongoing chest pain refractory to medical treatment
- Life-threatening arrhythmias or cardiac arrest
- Mechanical complications of MI
- Acute heart failure
- Recurrent dynamic ST-T wave changes, particularly with intermittent ST-elevation

I IIa IIb III

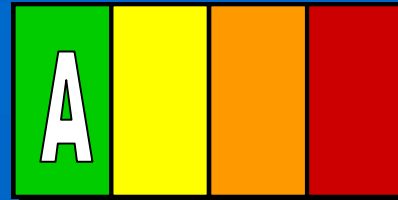


An early invasive strategy (<24 h) is recommended in patients with at least one of the following high-risk criteria

High-risk criteria

- Rise or fall in cardiac troponin compatible with MI
- Dynamic ST- or T-wave changes (symptomatic or silent)
- GRACE score >140

I IIa IIb III

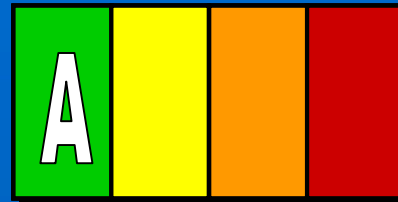


An invasive strategy (<72 h) is recommended in patients with at least one of the following intermediate-risk criteria

Intermediate-risk criteria

- Diabetes mellitus
- Renal insufficiency (eGFR <60 mL/min/1.73 m²)
- LVEF <40% or congestive heart failure
- Early post-infarction angina
- Prior PCI
- Prior CABG
- GRACE risk score >109 and <140

I IIa IIb III



SELECTIVE INVASIVE STRATEGY

In patients with none of the above mentioned risk criteria and no recurrent symptoms, non-invasive testing for ischaemia (preferably with imaging) is recommended before deciding on an invasive evaluation.