GREAT INNOVATIONS IN CARDIOLOGY

JMC 6TH JOINT MEETING WITH MAYO CLINIC

STEMI networking in Europe and Italy

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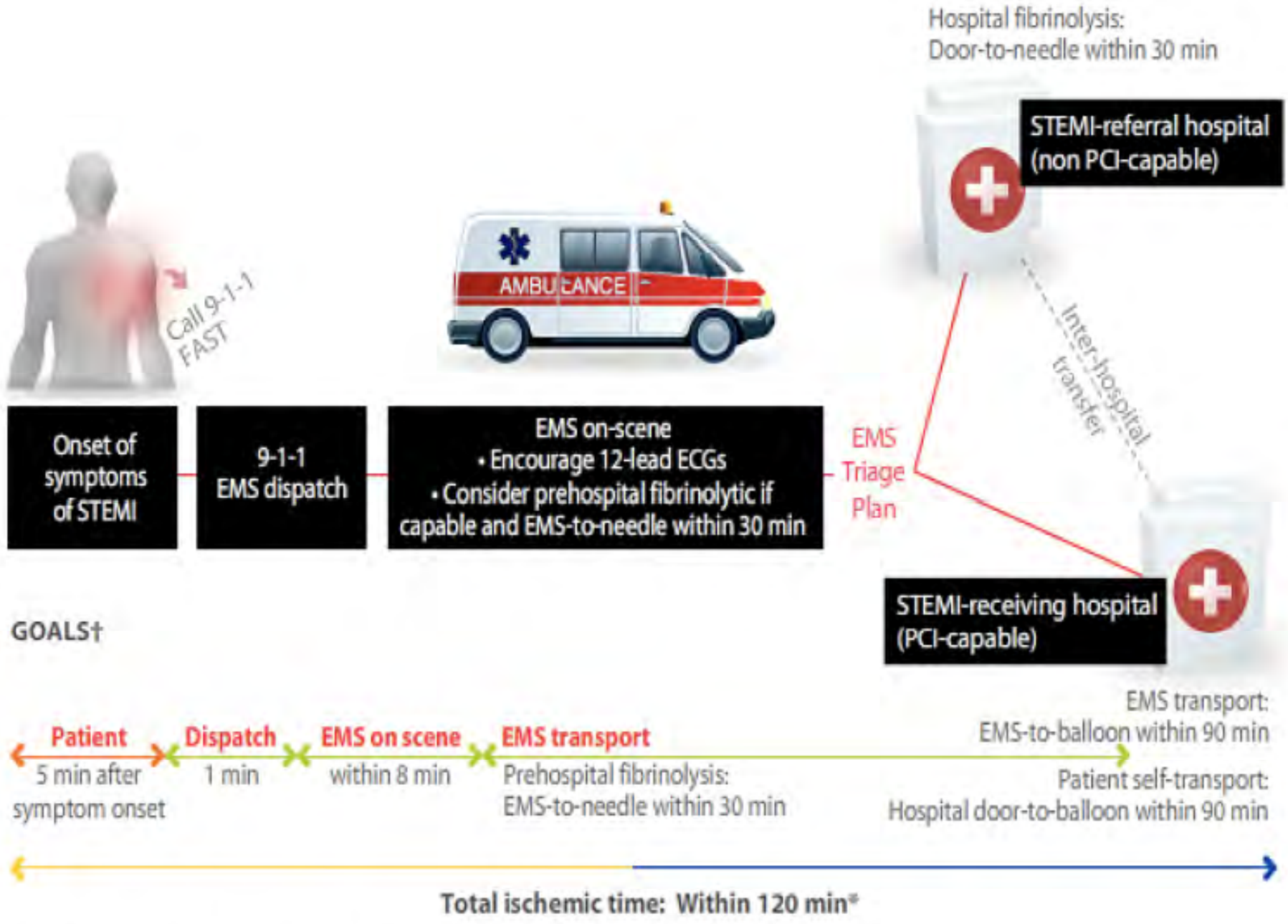
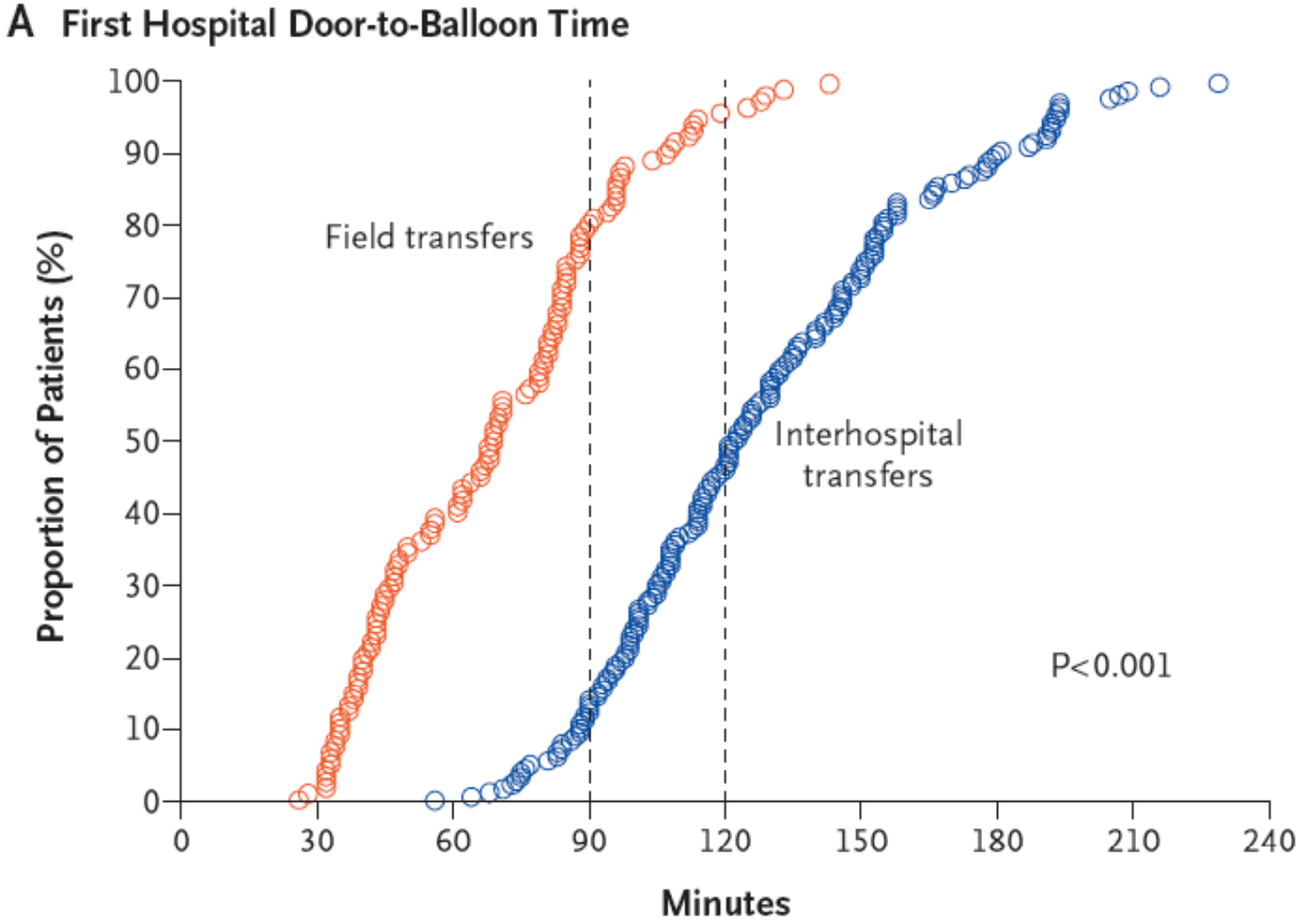


* Golden Hour = First 60 minutes

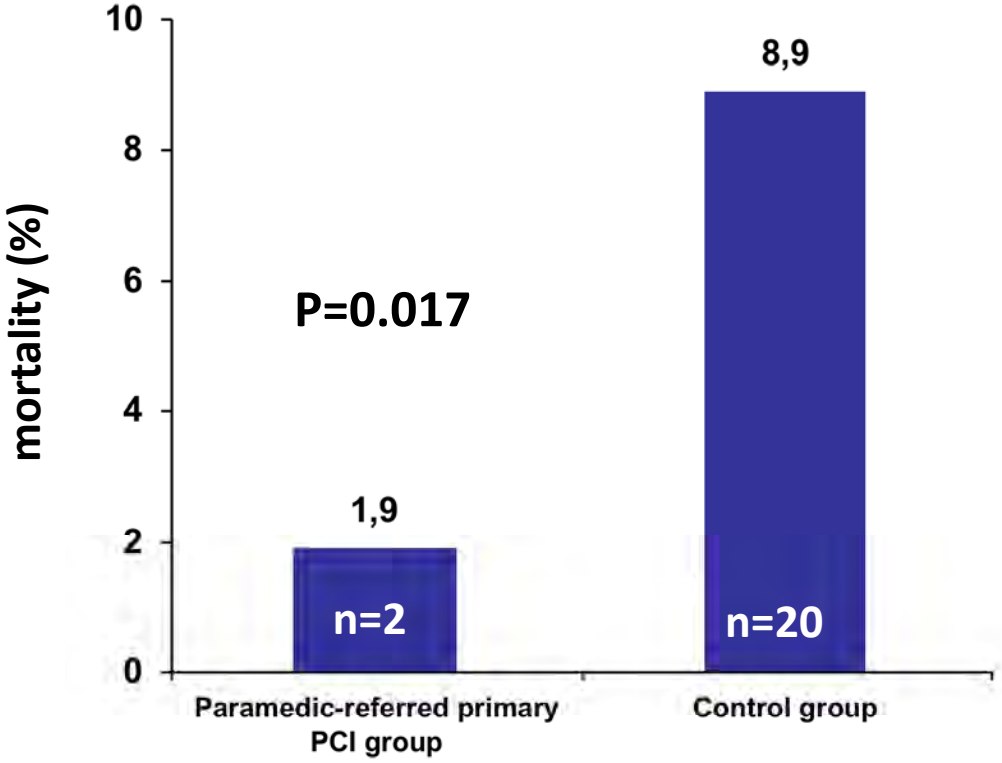
field vs. interhospital transfer

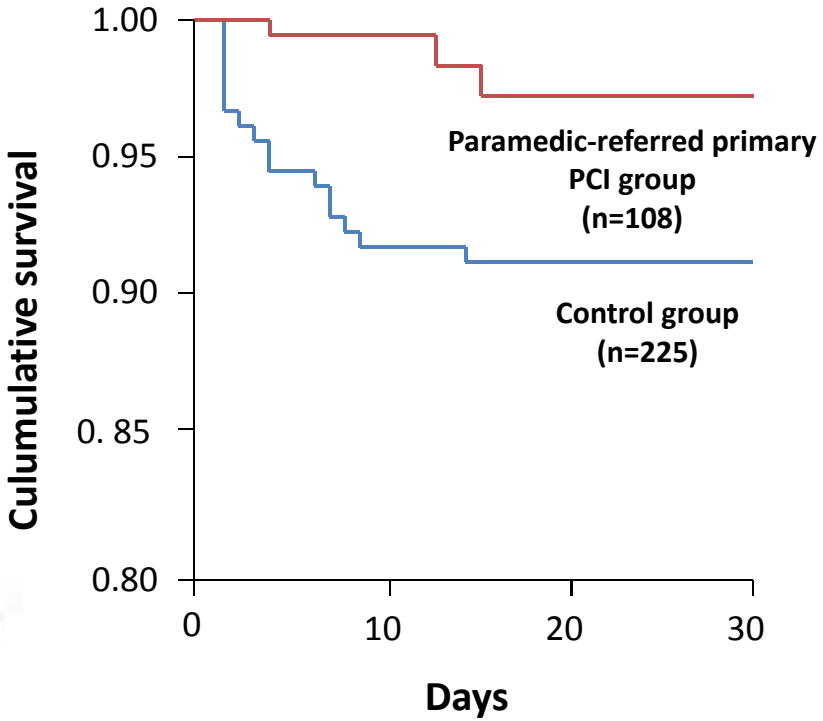


Le May, N Engl J Med 2008

MT

Paramedic-diagnosed STEMI

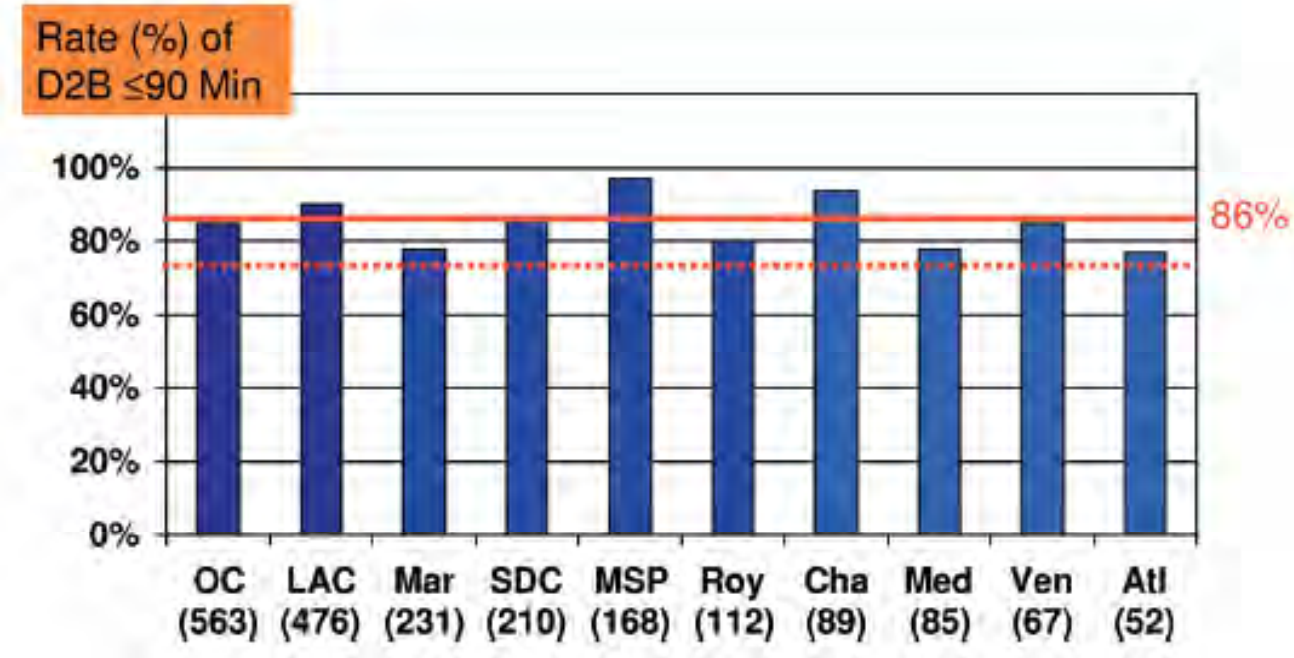




Le May MR. Am J Cardiol 2006;98:1329-1333

MT

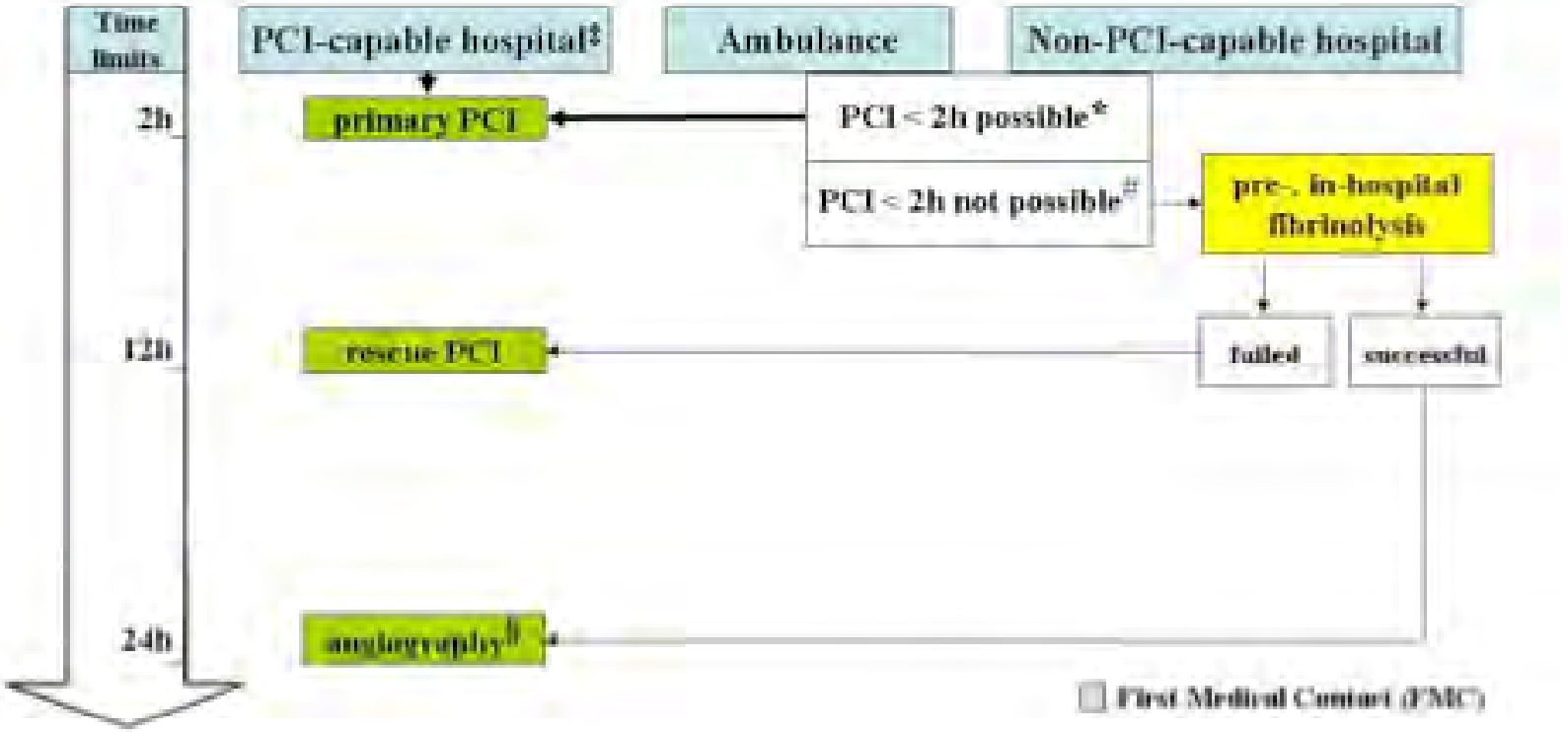
pre-hospital ECG & SRC networks



Rokos IC. JACC Intv 2009

MT

Reperfusion Strategies



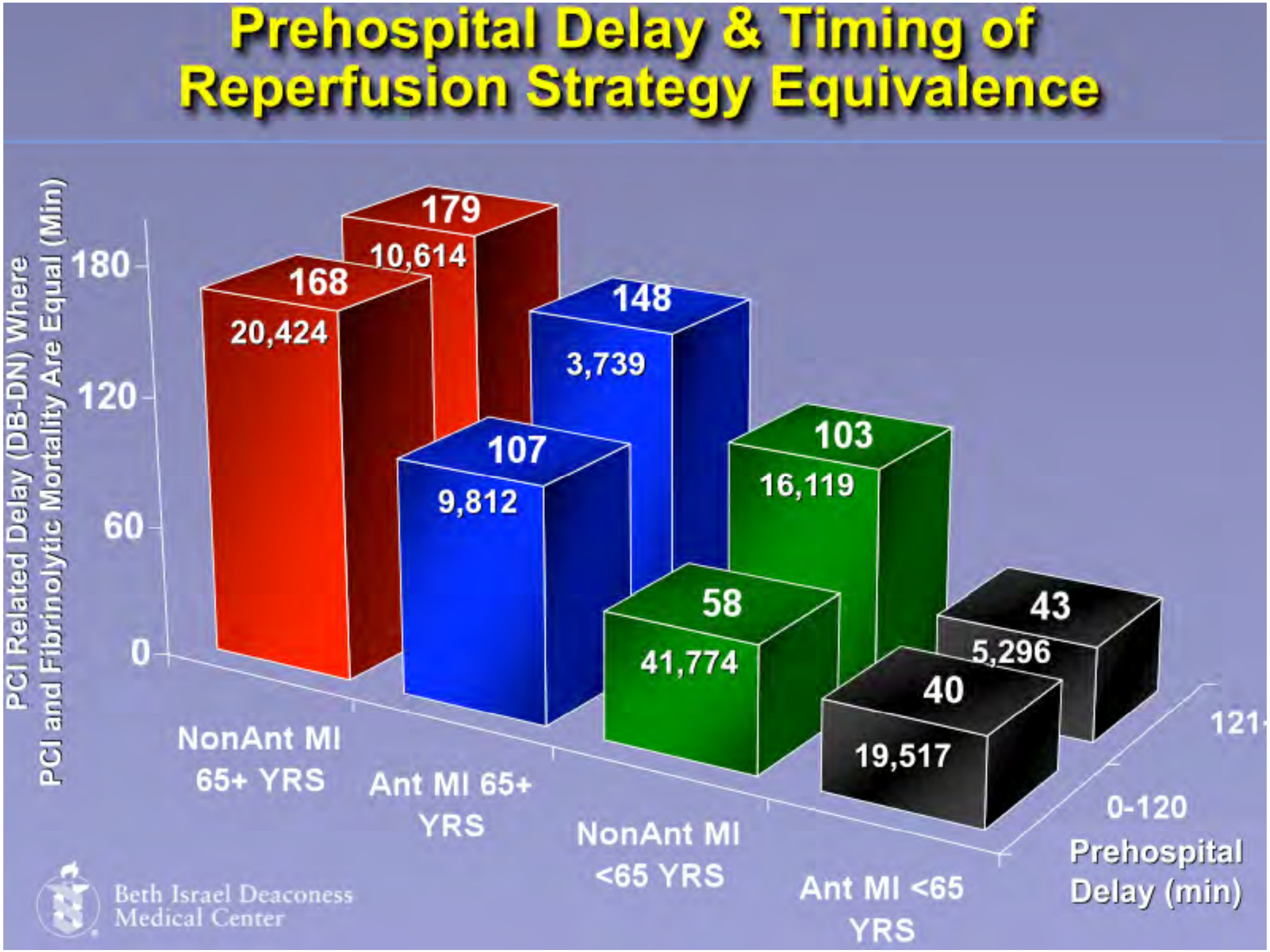
* Time FMC to first balloon inflation must be shorter than 90 min in patients presenting early (< 2 h after symptom onset), with large amount of viable myocardium and low risk of bleeding.

\# If PCI is not possible < 2 h of FMC, start fibrinolytic therapy as soon as possible.

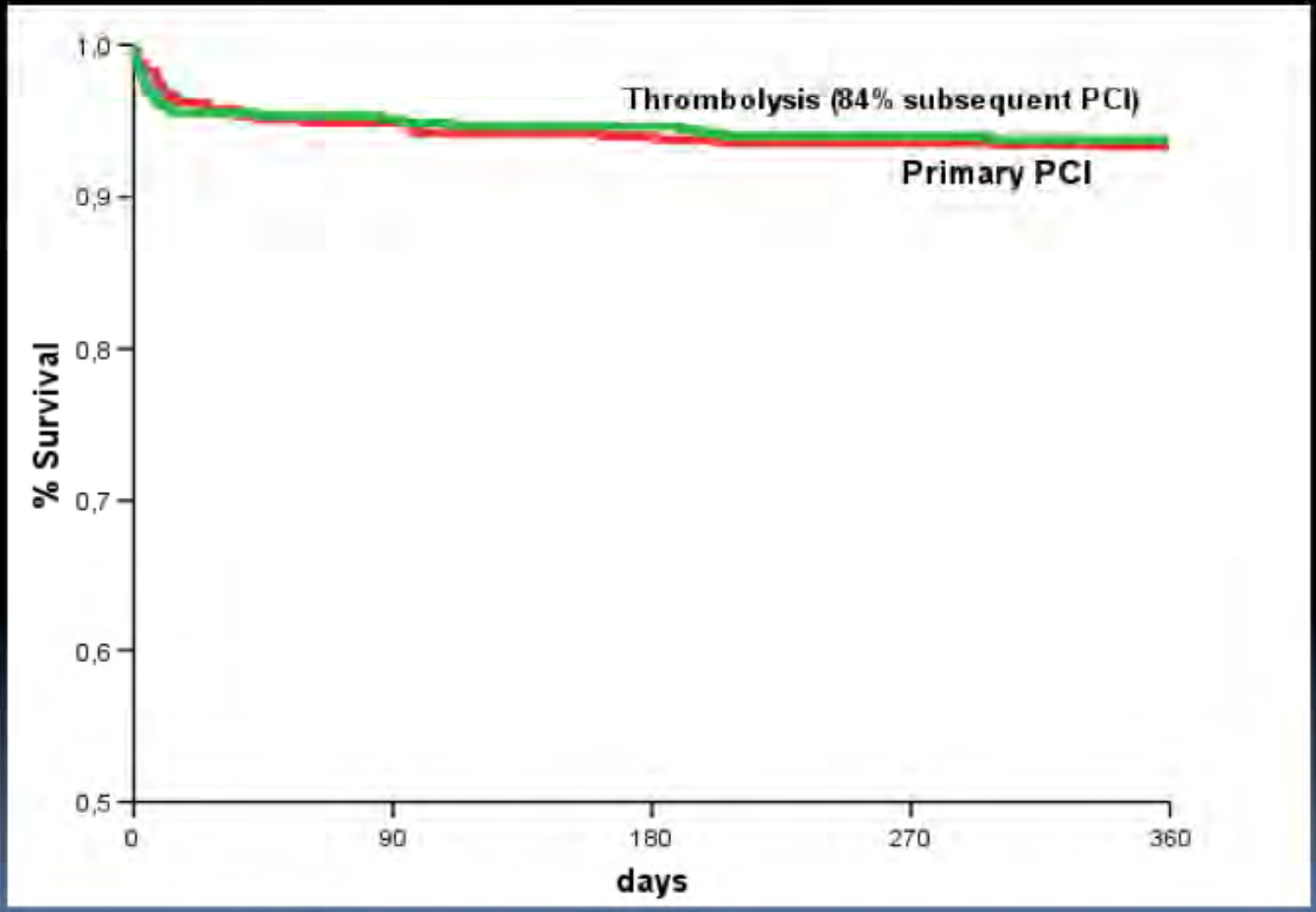
§ Not earlier than 3 h after start fibrinolysis

‡ 24/7 service

Prehospital Delay & Timing of Reperfusion Strategy Equivalence

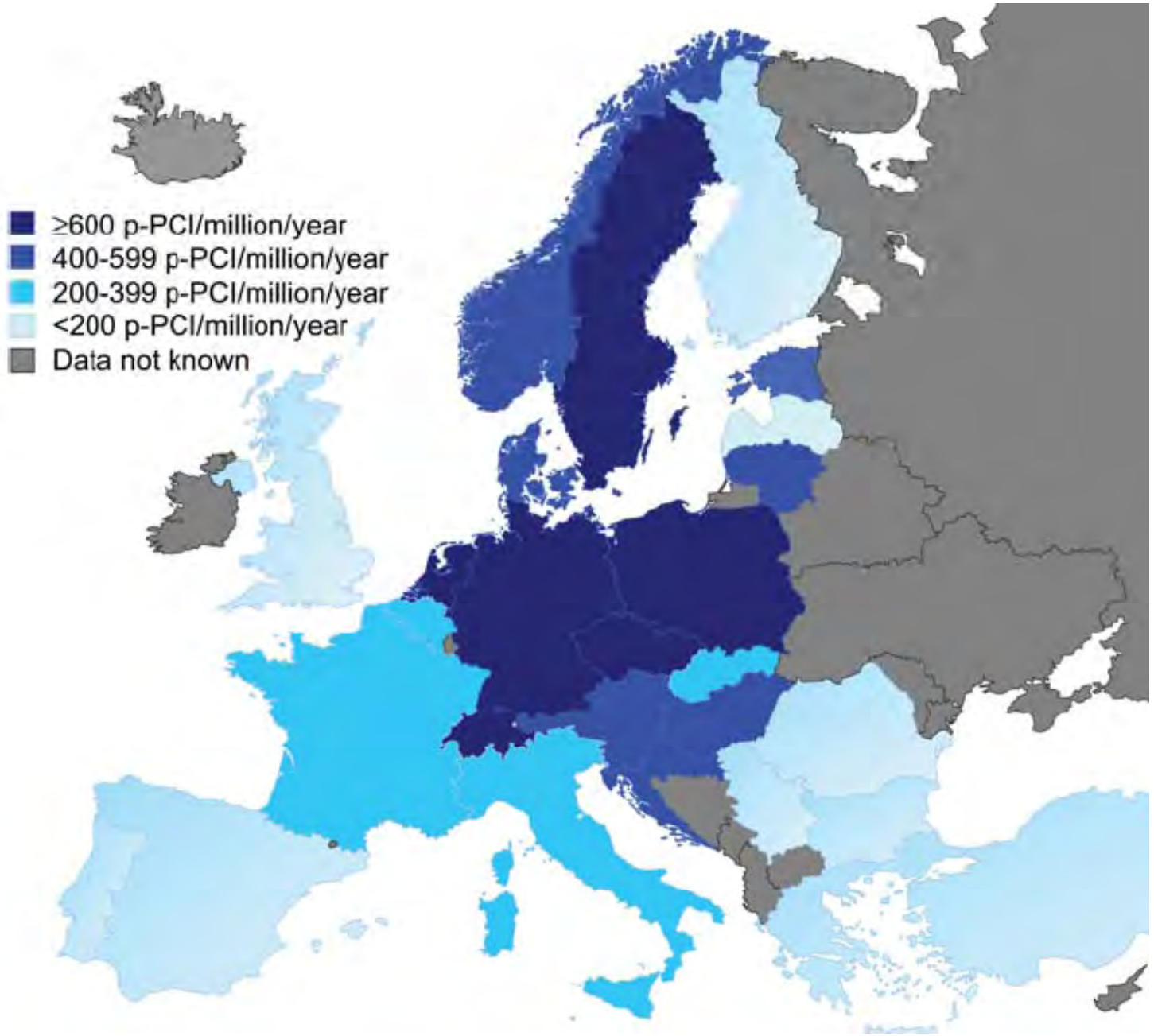


One-year survival in cohorts matched on the propensity score for getting lysis vs PPCI



Circulation 2008; 118: 268

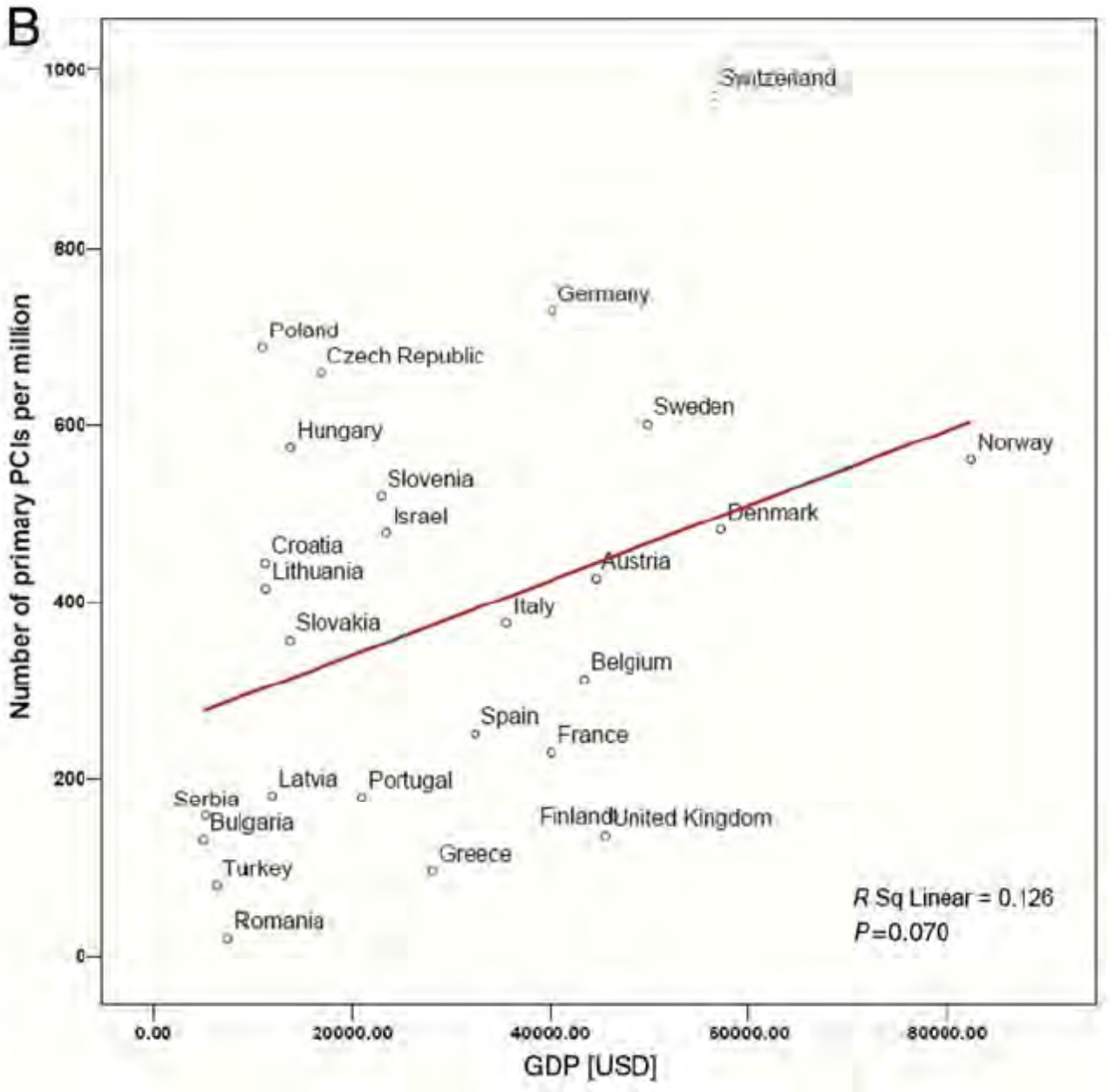
primary PCI in Europe



Widimski P, EHJ 2010

MT

primary PCI in Europe



Widimski P, EHJ 2010

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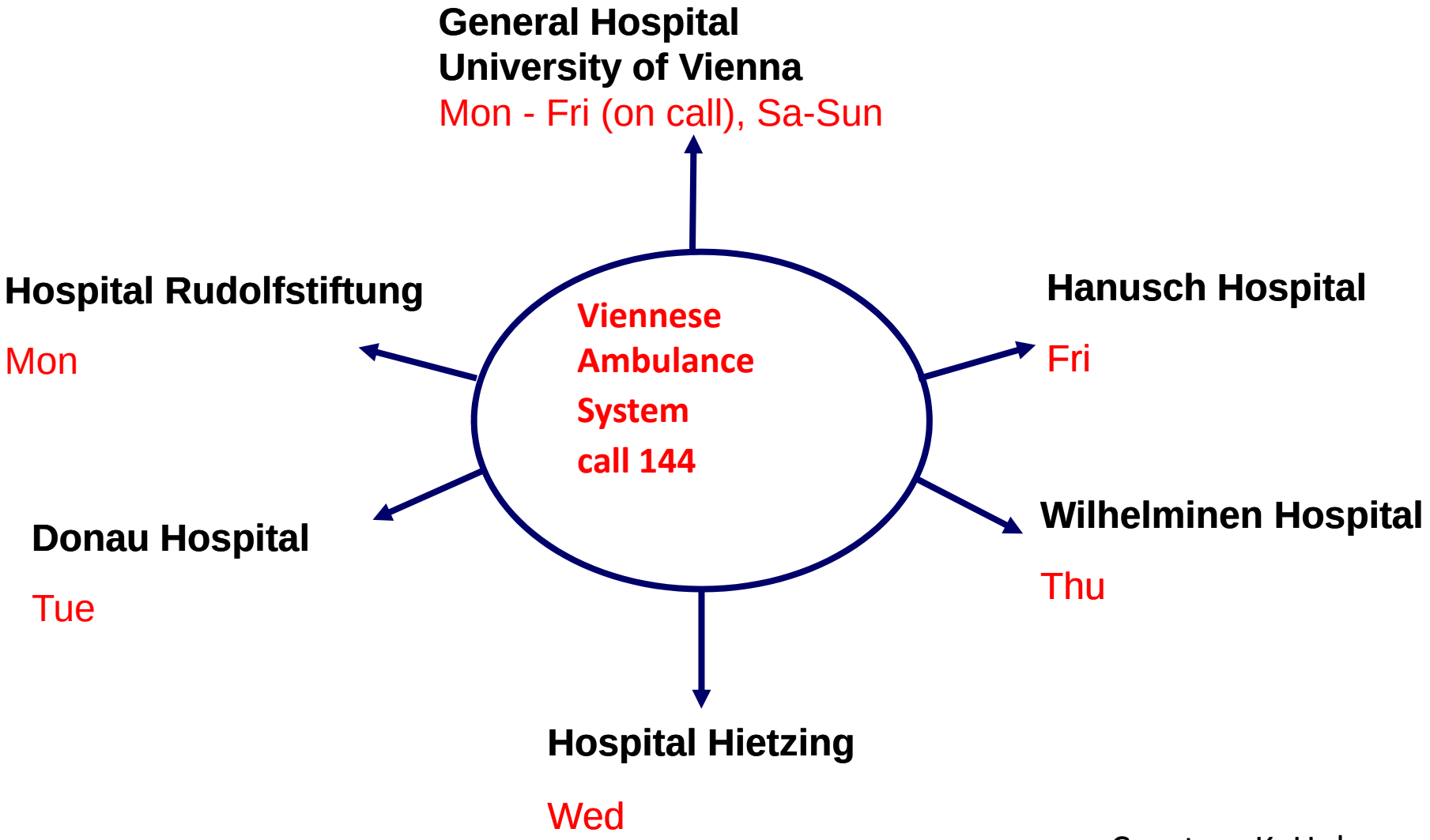
Local System of Care: The Vienna model

all cath labs active between 7.00 and 16:00 h

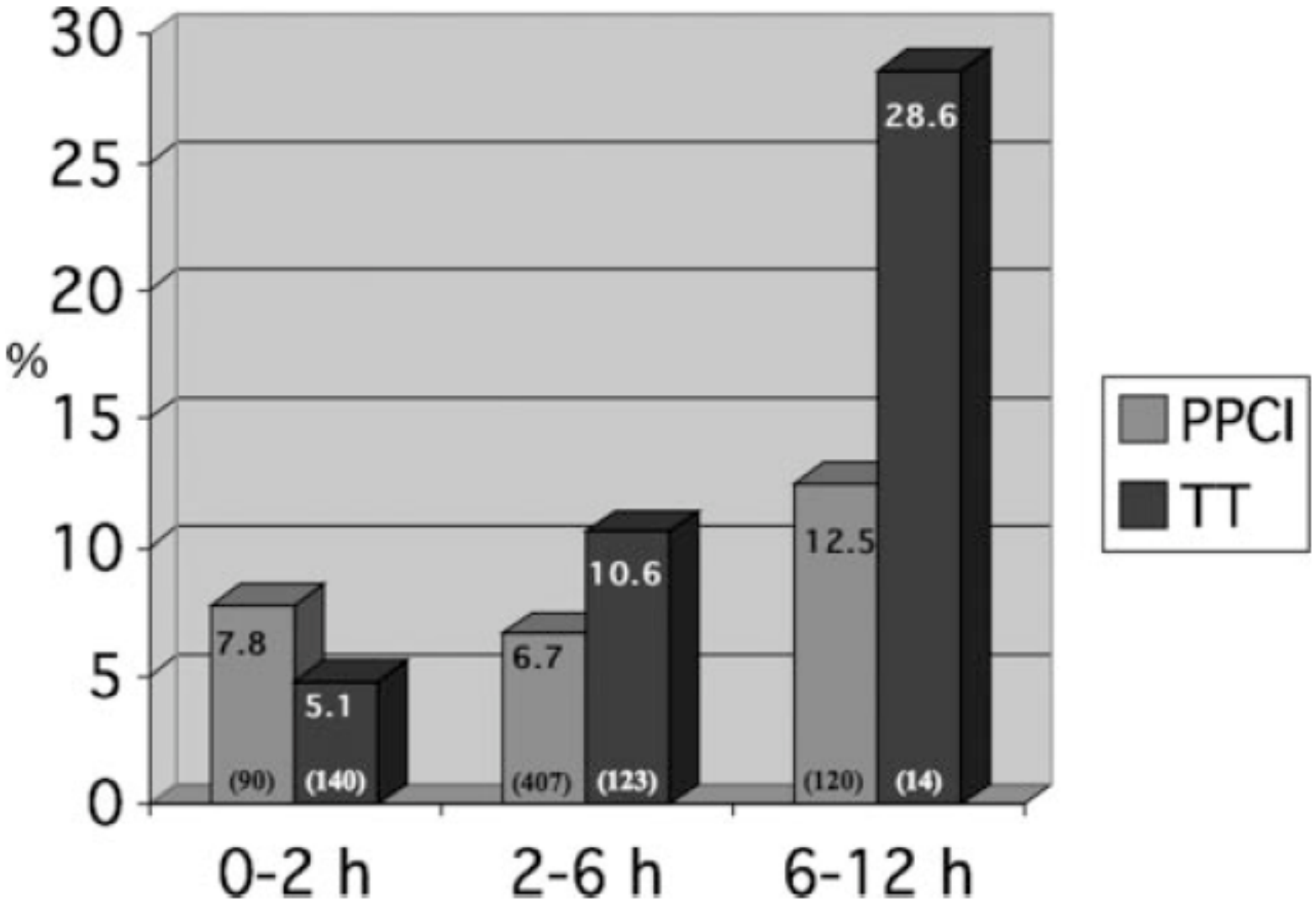
permanent availability of cath labs and teams during non-official catheter times



Courtesy K. Huber

time to treatment and mortality

- Vienna STEMI Registry -



Kalla K, Circulation 2006;113:2398

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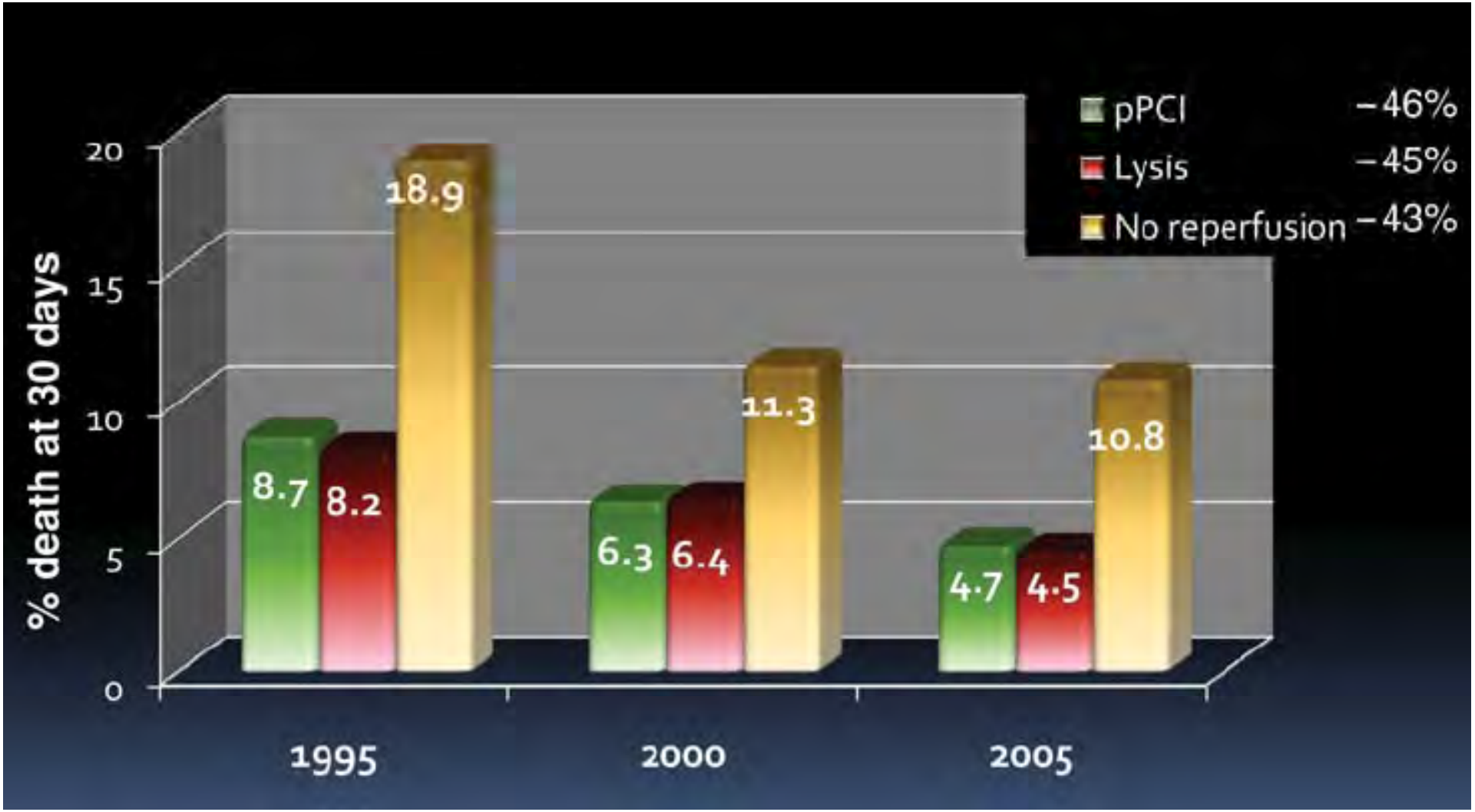
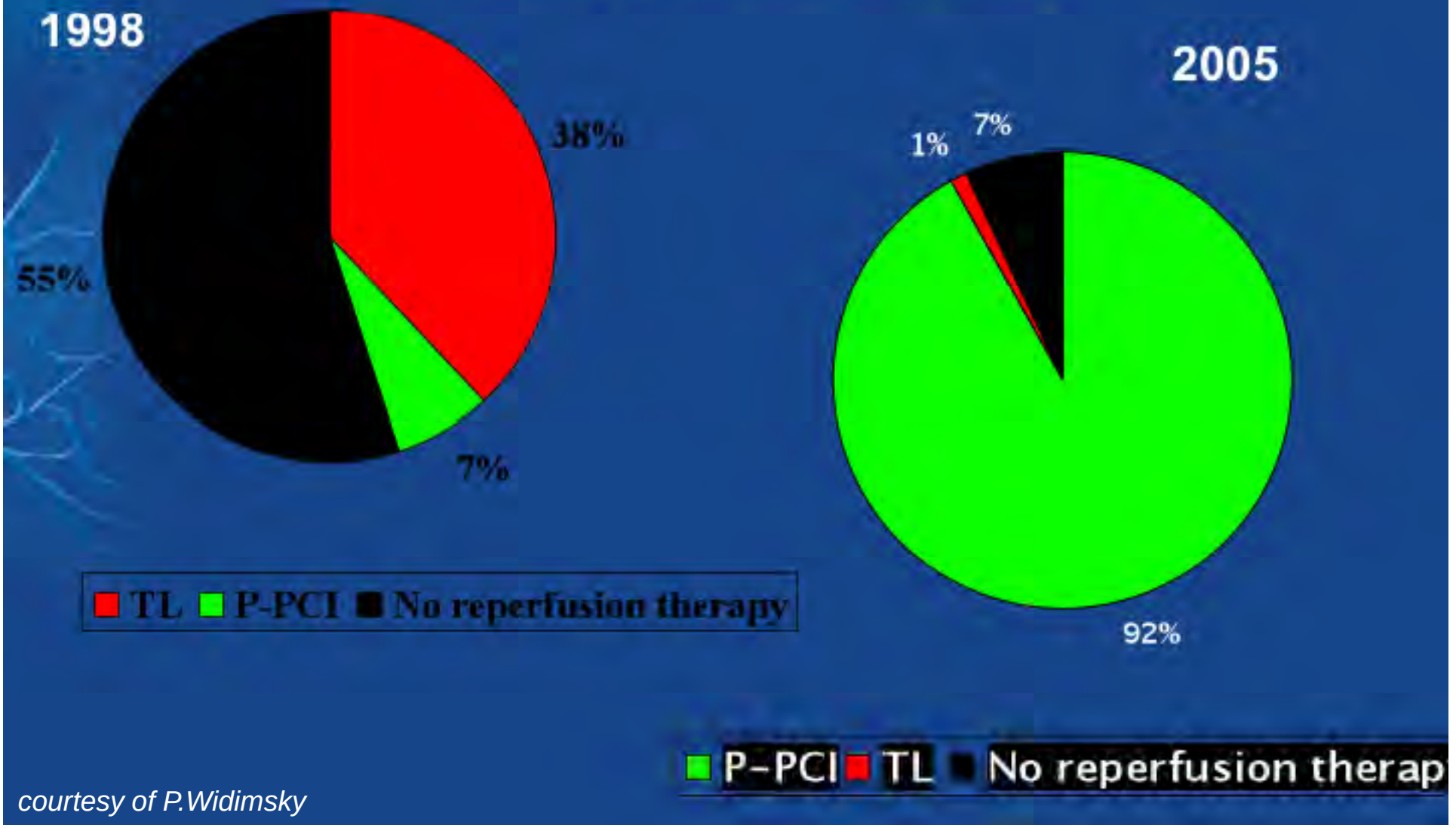
French nationwide surveys on STEMI



Danchin N. Eur Heart J 2010

CZ: The nationwide implementation of P-PCI strategy increased the use of any reperfusion therapy from 45% to 93%



courtesy of P.Widimsky

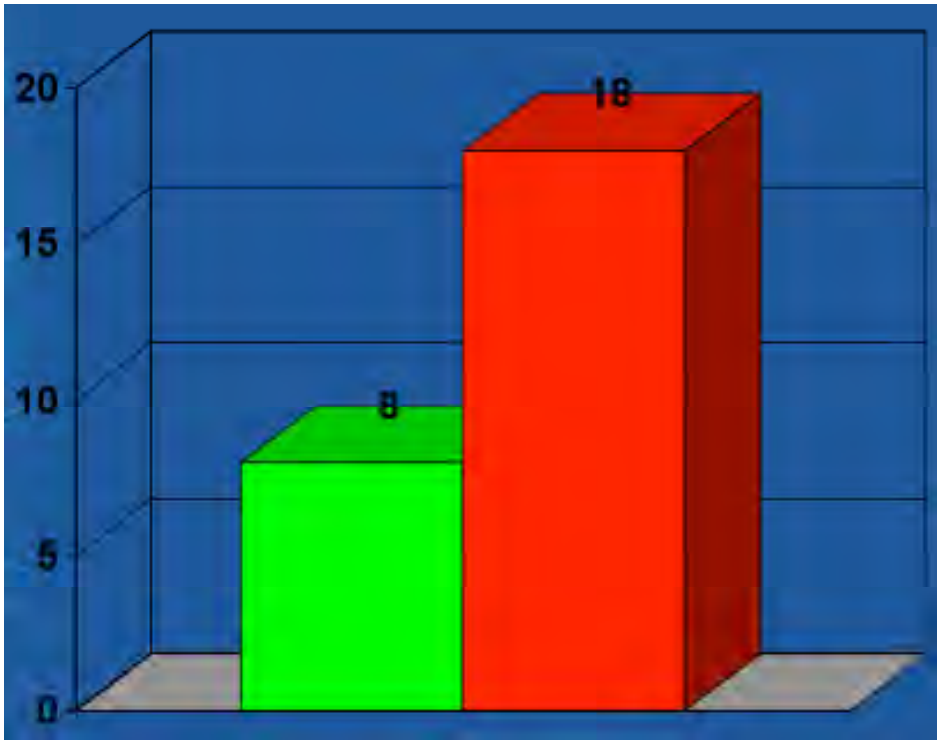
equitable access to care

networking in Czech Republic

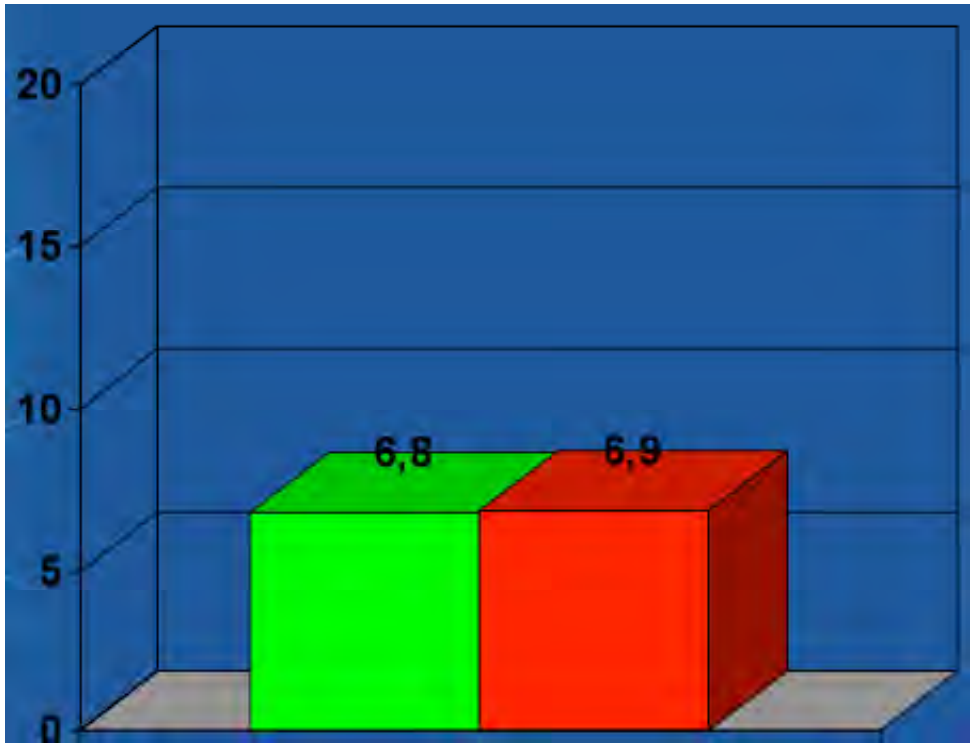
PCI centers

community H
(no cath lab)

1997-99



2005



STEMI in-hospital mortality

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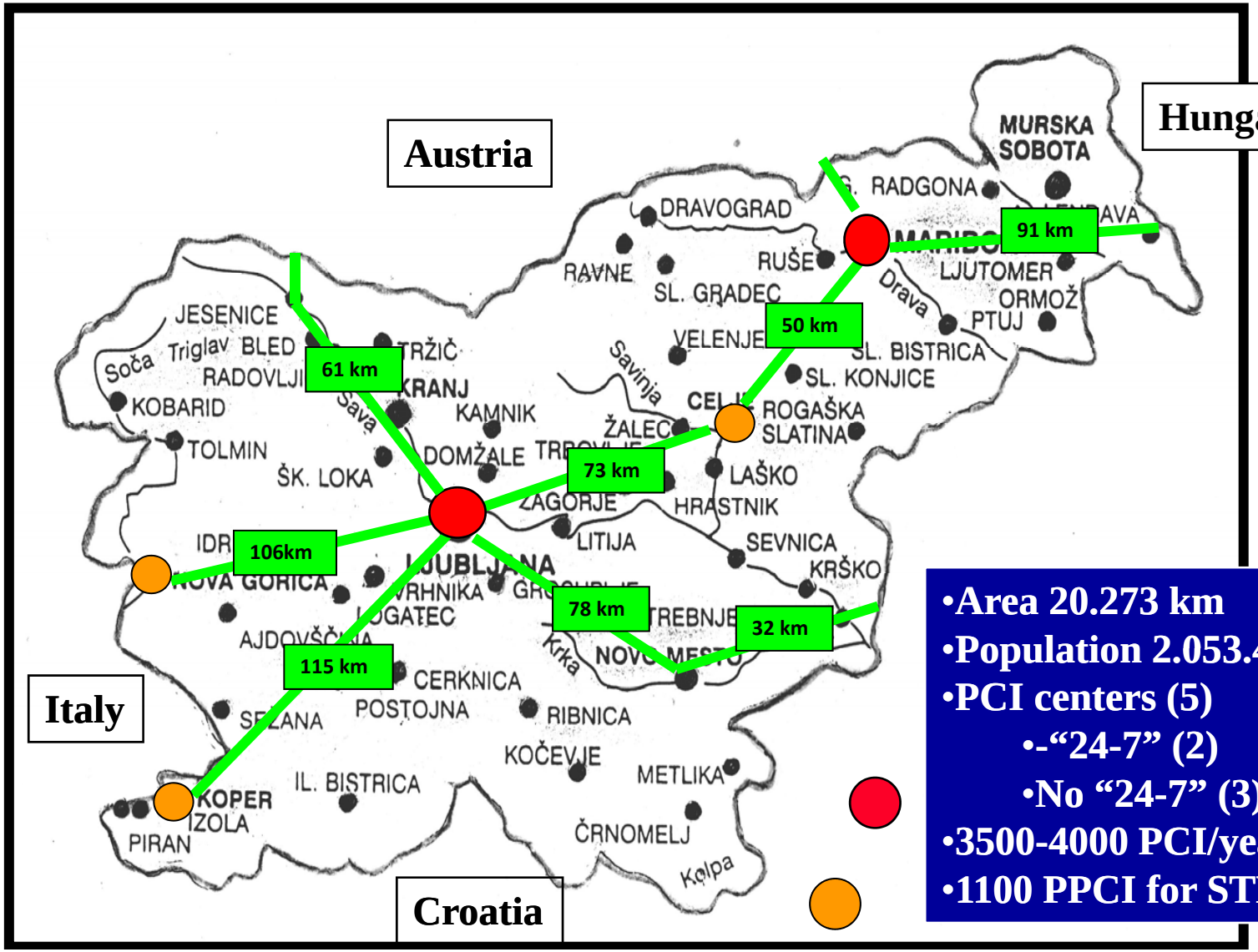
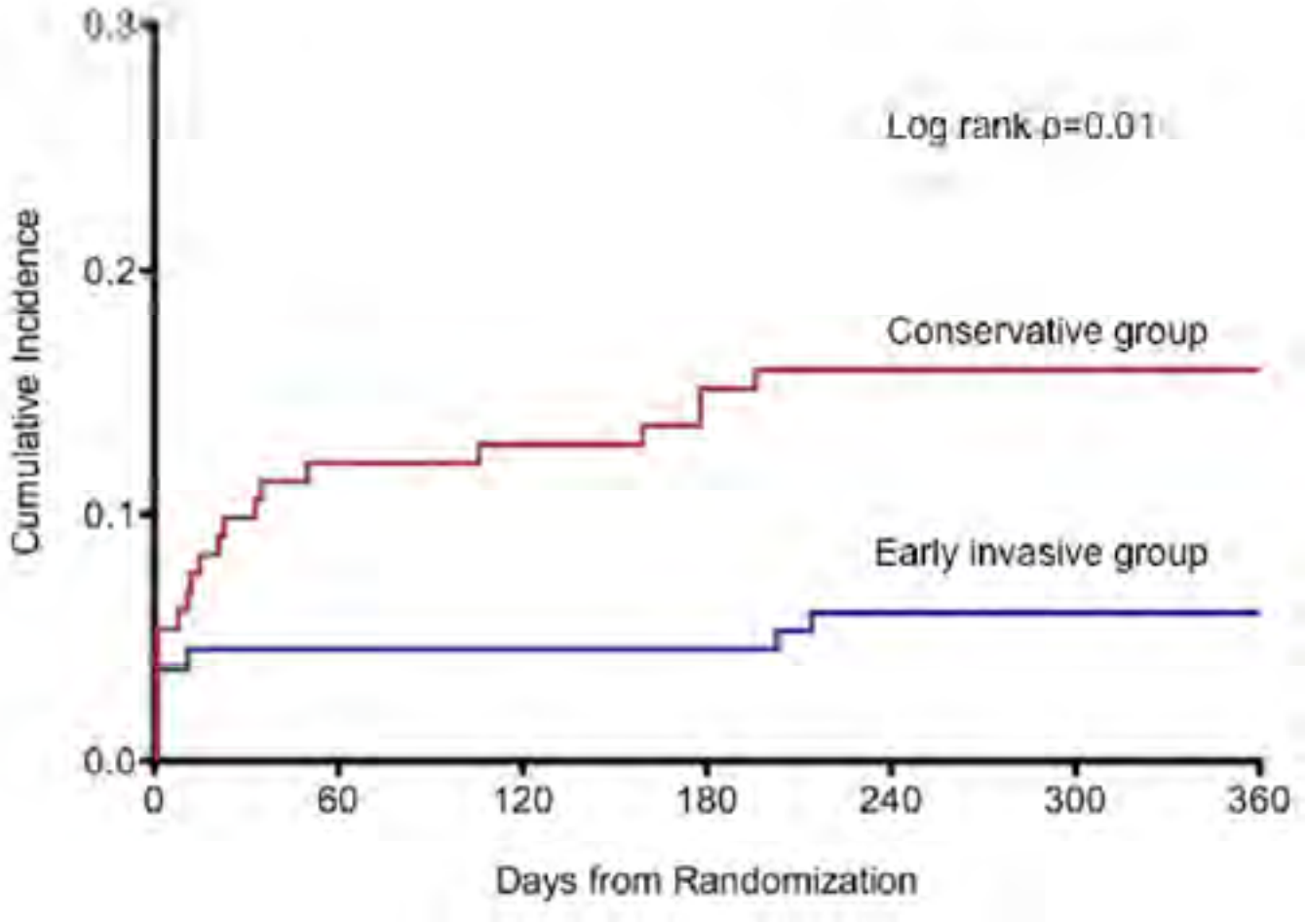
SMALL COUNTRY, HIGHWAYS, ACCEPTABLE TRAFIC, HELICOPTER FOR REMOTE AREAS....



- Area 20.273 km
- Population 2.053.470
- PCI centers (5)
  - -"24-7" (2)
  - No "24-7" (3)
- 3500-4000 PCI/year
- 1100 PPCI for STEMI

NORDISTEMI: thrombolysis and immediate PCI in STEMI

B Death, reinfarction or stroke



Bohmer, JACC 2009

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MINAP: England national average data

April 2009 – March 2010

Patients having thrombolytic treatment within 60 mins of calling for help		Patients having thrombolytic treatment within 60 mins of calling for help	
2008/9		2009/10	
%	n	%	n
72%	5366	69%	3465

Patients having pre-hospital thrombolysis	Patients having pre-hospital thrombolysis
2008/9	2009/10
n	n
2525	1598

Primary angioplasty within 150 mins of calling for help for patients with direct admission to interventional centre		Primary angioplasty within 150 mins of calling for help for patients transferred to interventional centre	
2009/10			
%	n	%	n
87%	7572	46%	1223

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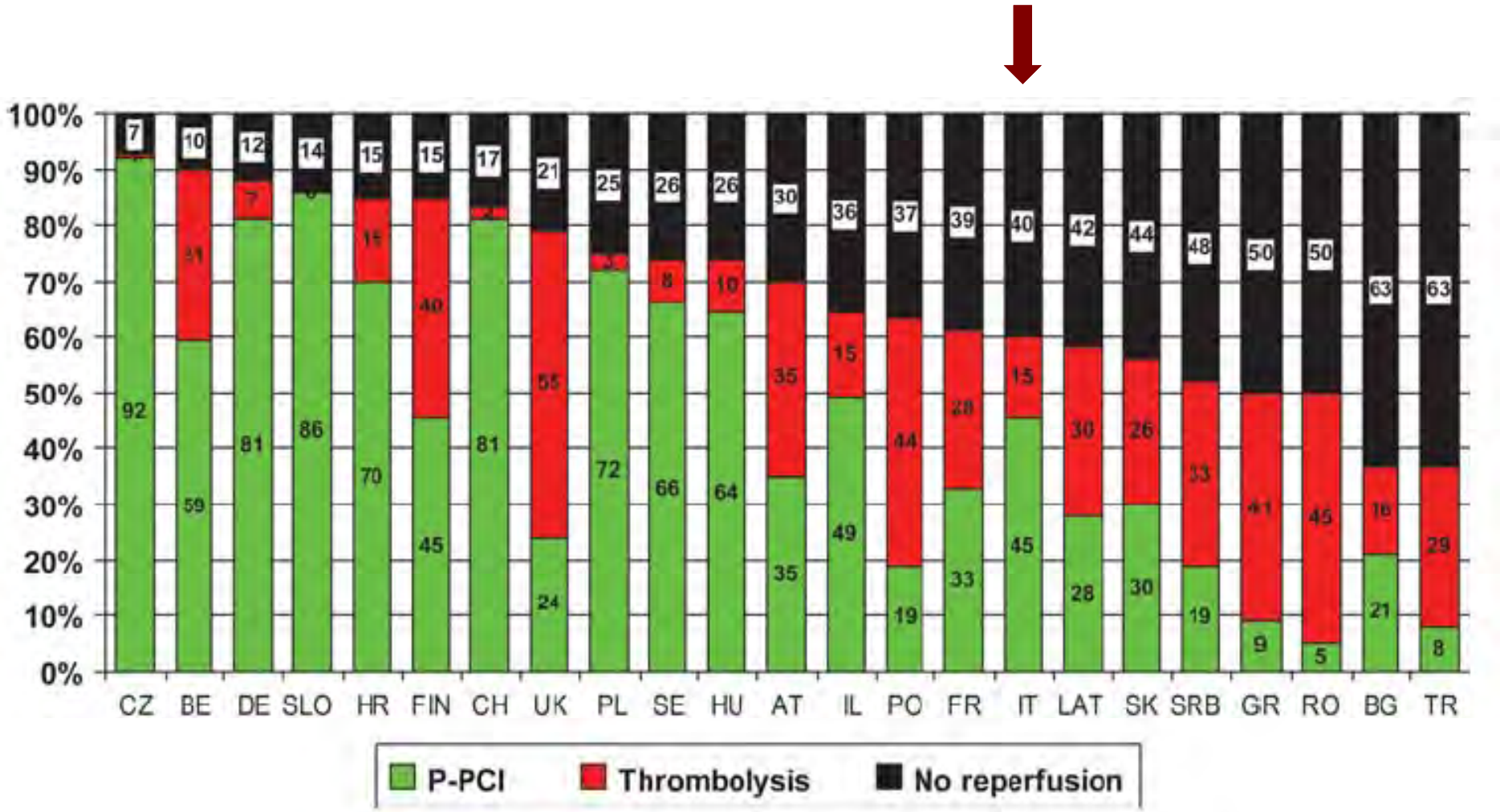
STEMI reperfusion treatment in Europe



Widimski P, EHJ 2010

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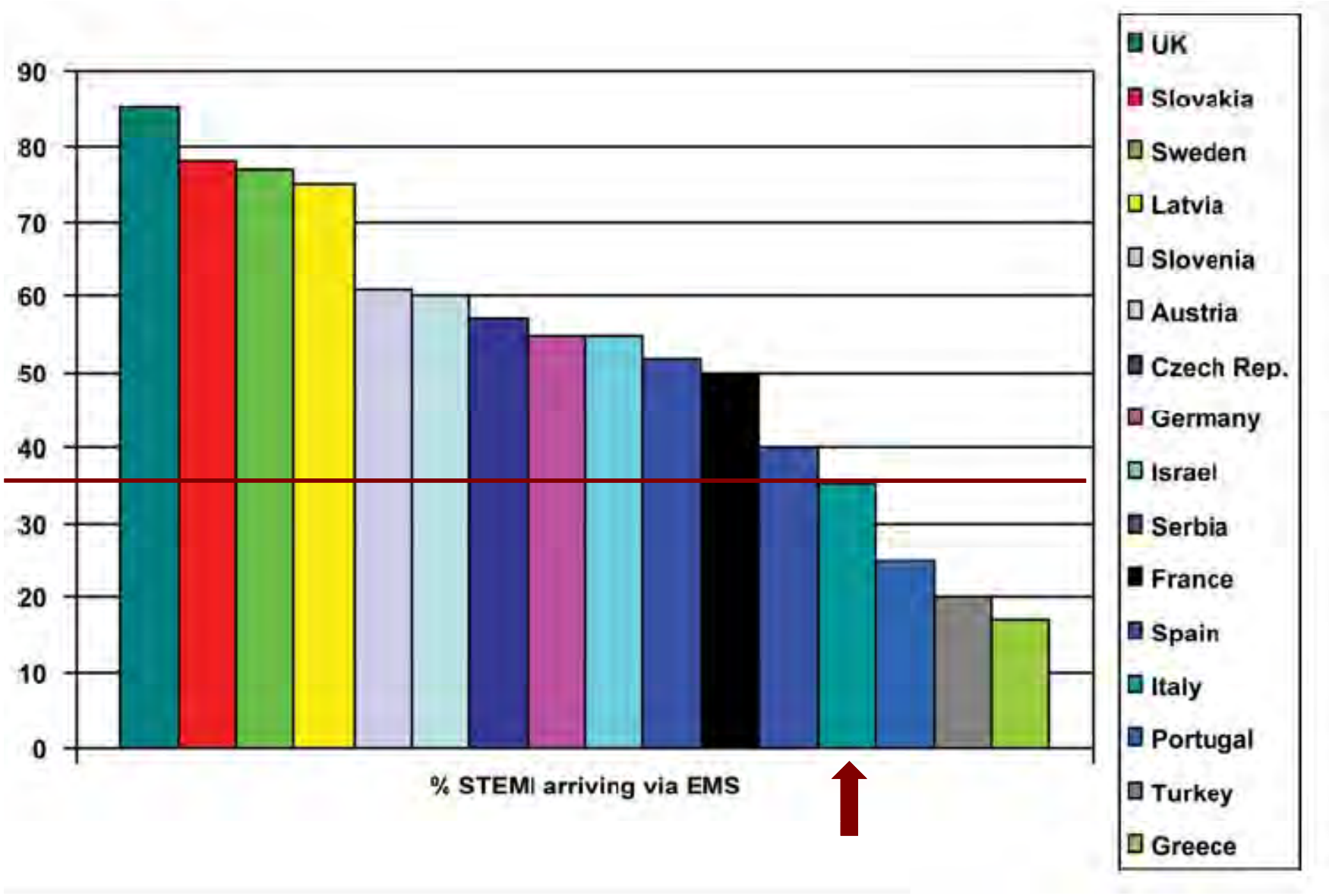
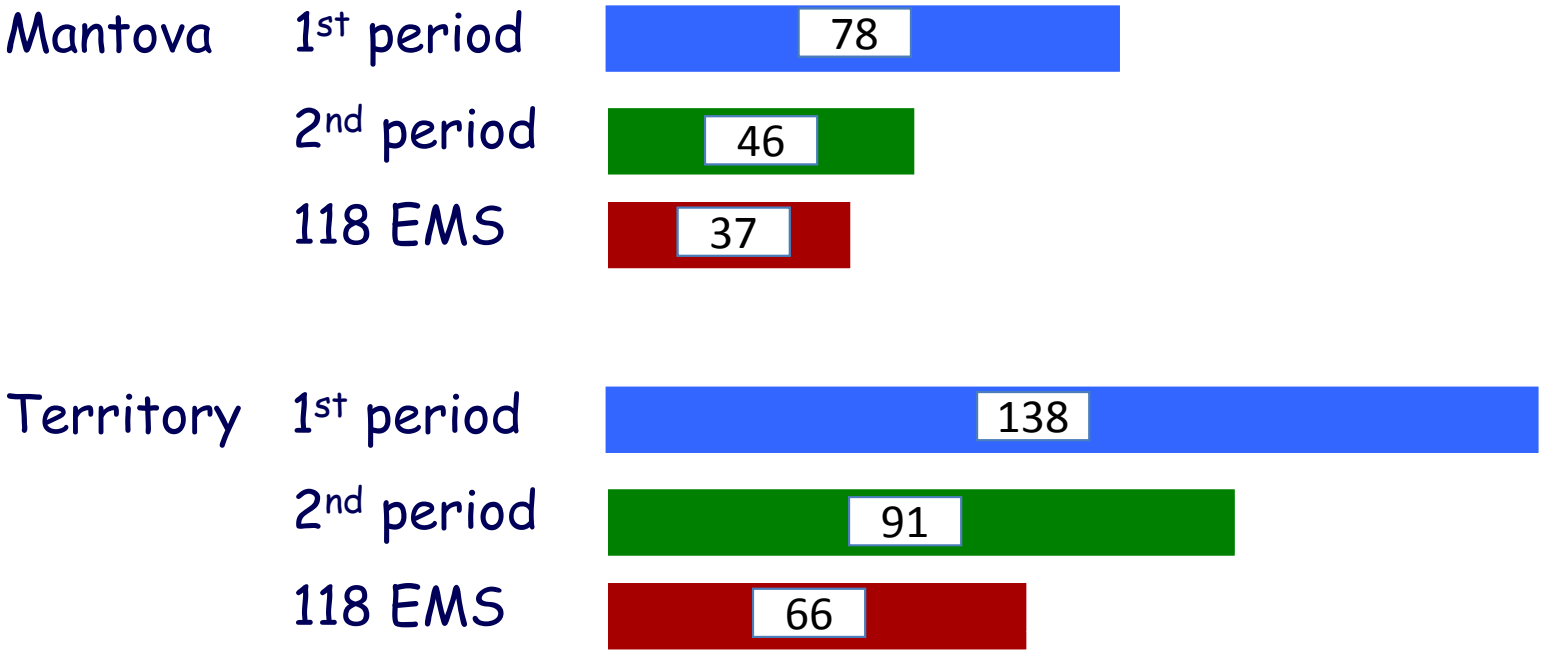
EMS use for STEMI in Europe



Widimski P, EHJ 2010

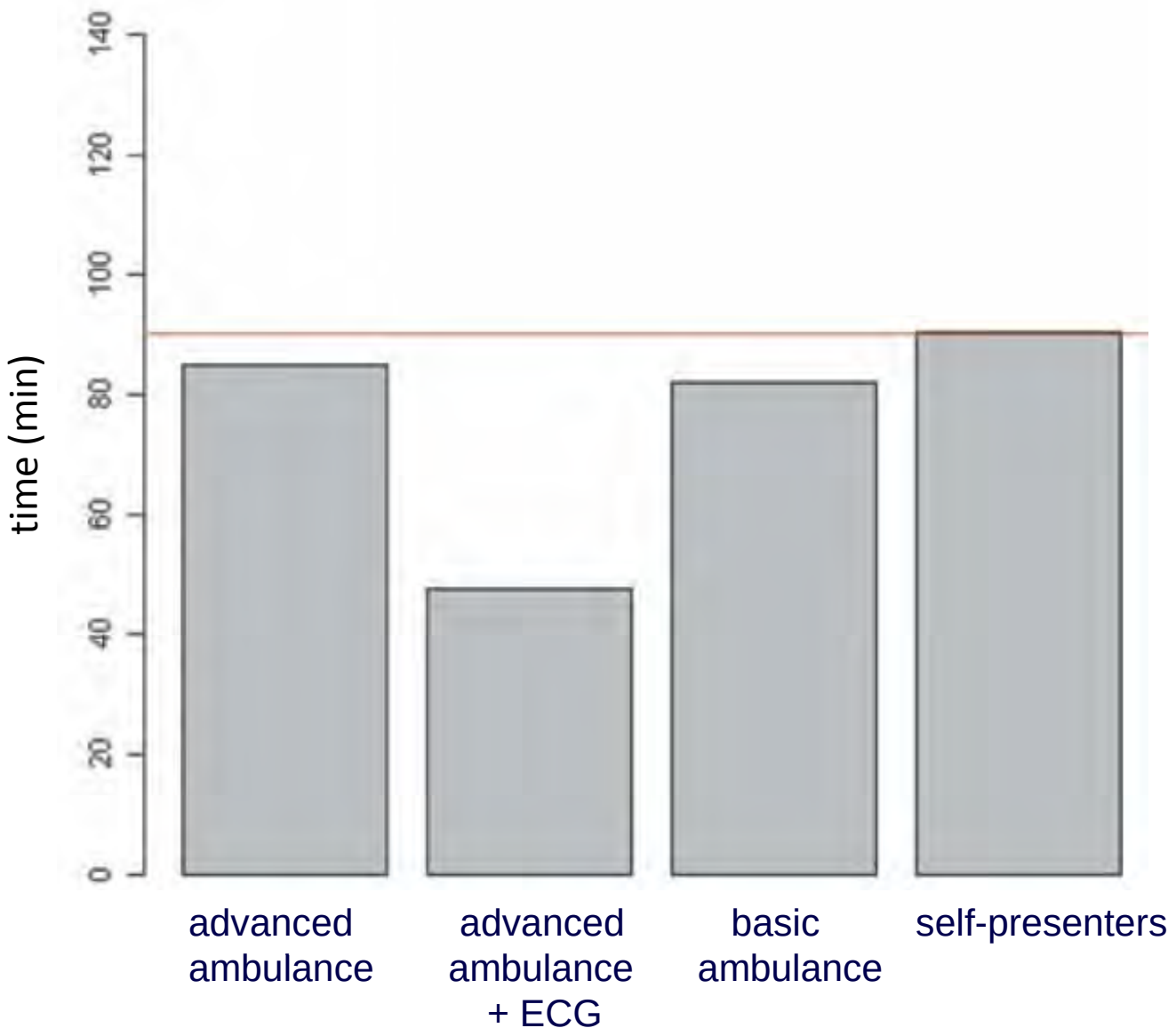
emergency number

D2B times



Zanini R, Ital Heart J Suppl 2003

Milan STEMI network



Marzegalli M. G Ital Cardiol 2008

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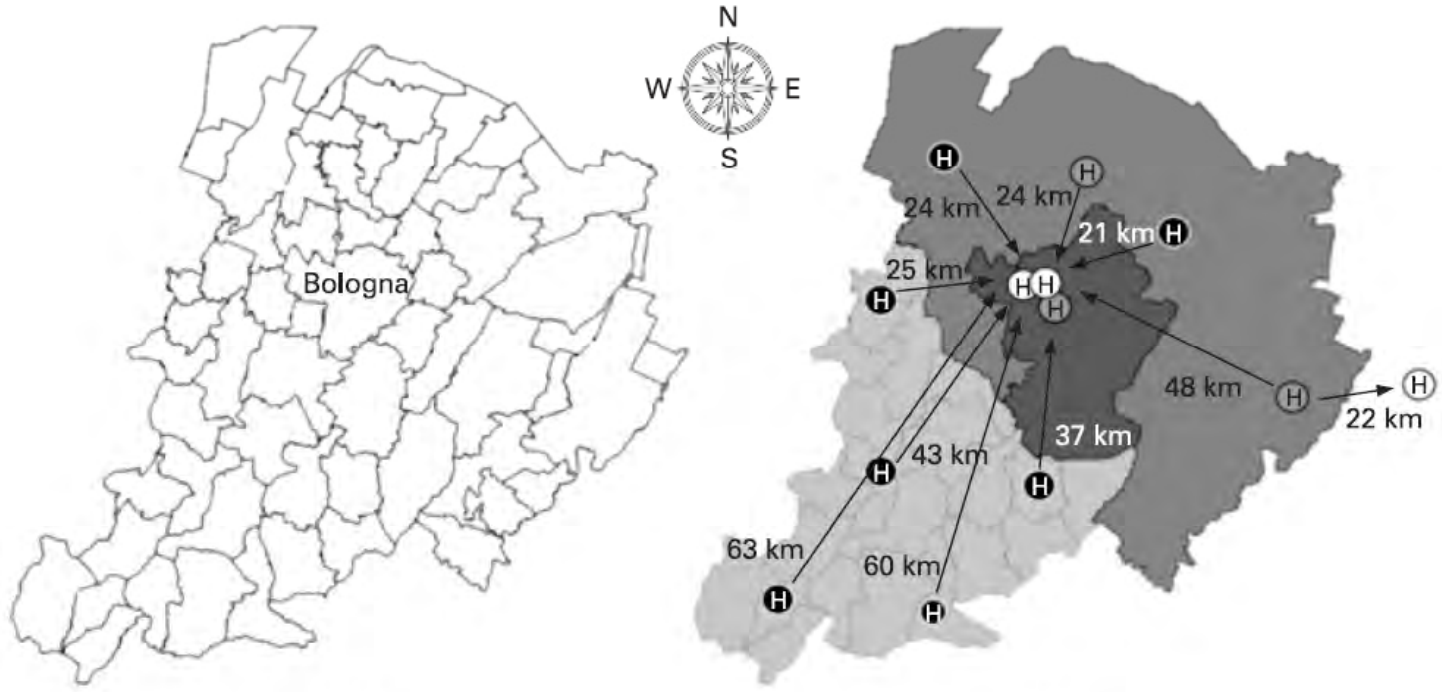
Bologna network

- reperfusion therapy: 58.4% ⟶ 76.3 %
- in-hospital mortality: 17.0% ⟶ 12.3 %



Saia Heart 2009

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strategies to reduce D2B time

6 strategies significantly associated with a reduced D2B time

1. cath lab activation by the EMS physician
2. single call to a central page operator
3. ED activates cath lab while patient is *en route*
4. cath lab staff arrival within 20 min from page
5. attending cardiologists always on site
6. real-time data feedback to ED and cath lab staff

Table 4. Door-to-Balloon Time According to the Number of Key Strategies Used.*

Number of Key Strategies	Hospitals with the Number of Key Strategies (N=362)	Average of Median Door-to-Balloon Times†
	no. (%)	*minutes*
0	137 (37.8)	110
1	130 (35.9)	100
2	56 (15.5)	88
3	31 (8.6)	88
4	8 (2.2)	79

Bradley EH, NEJM 2006

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emergency medical system (EMS)

- clear definition of the areas of interest
- tiered protocols according to risk stratification
- safe transportation with appropriately equipped and staffed ambulances
- strict organization to reduce all delays: ≤ 10 min ECG transmission, ≤ 5 min teleconsultation, ≤ 30 min D2N, ≤ 30 min D2B (in hospital)
- pre-hospital transport protocols bypassing non-PCI-capable hospitals
- bypass ER/ICCU in case of primary PCI
- close cooperation among partecipating centers, physicians and EMS
- perform pre-hospital fibrinolysis, when indicated
- other therapeutic strategies to improve outcome of primary PCI

Rokos IC. Am Heart J 2006;152:55.

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