



“ IL TEMPO E’ MUSCOLO ”
8 anni di esperienza con PCI primaria nel Tigullio

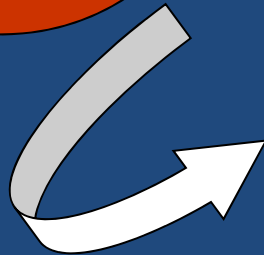
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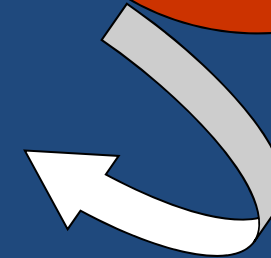


RETE EMERGENZA INFARTO MIOCARDICO

118



TERRITORIO
ASL 4



Primo
Intervento
RAPALLO





118 TIGULLIO SOCCORSO

ORGANIZZAZIONE TERRITORIO

- 2 auto medicalizzate (MSA) monitor-defibrillatore.-ECG 12 derivazioni
- 20 postazioni Pubbliche Assistenze e Croce Rossa con 11 defibrillatori semiautomatici (DAE)
- 5 defibrillatori semiautomatici Carabinieri
- Elisoccorso Medicalizzato Vigili del Fuoco

ALFA ROMEO



MSB



MSB +
DAE



MSA

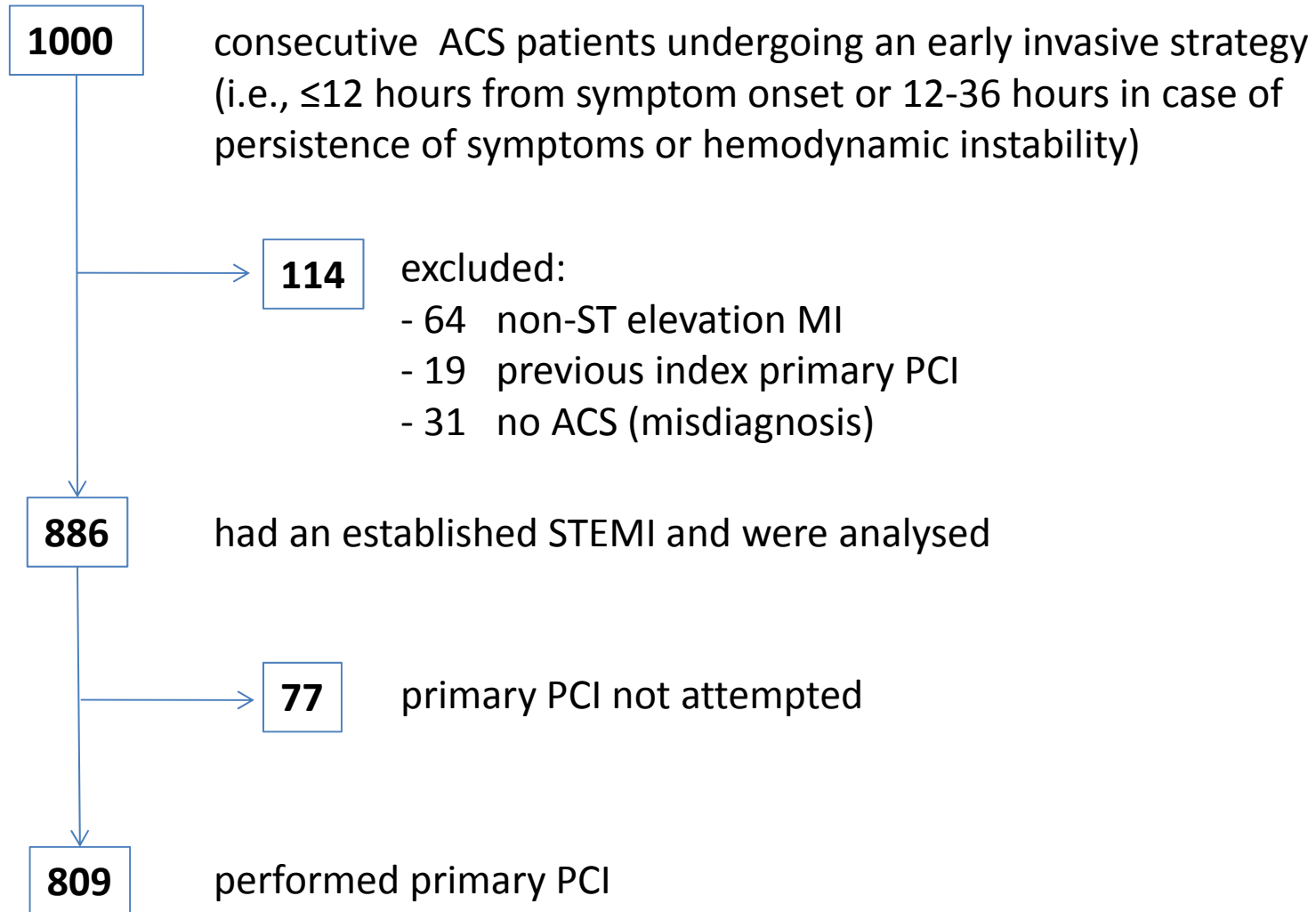




Protocollo concordato 118/Cardiologia Lavagna Percorso IMA

- Arrivo sul luogo dell'evento Equipe 118
- ECG 12 derivazioni
- Se sospetto IMA il medico 118 chiama il cardiologo di guardia
- Invio tramite FAX-GPRS del tracciato
- Conferma telefonica della diagnosi
- Il cardiologo attiva la sala di emodinamica chiamando lo staff
- Il medico 118 tratta il paziente (MONA) e lo informa sulla procedura di angioplastica in programma
- Il paziente con diagnosi di STEMI viene accompagnato dall'equipe 118 direttamente in sala di emodinamica

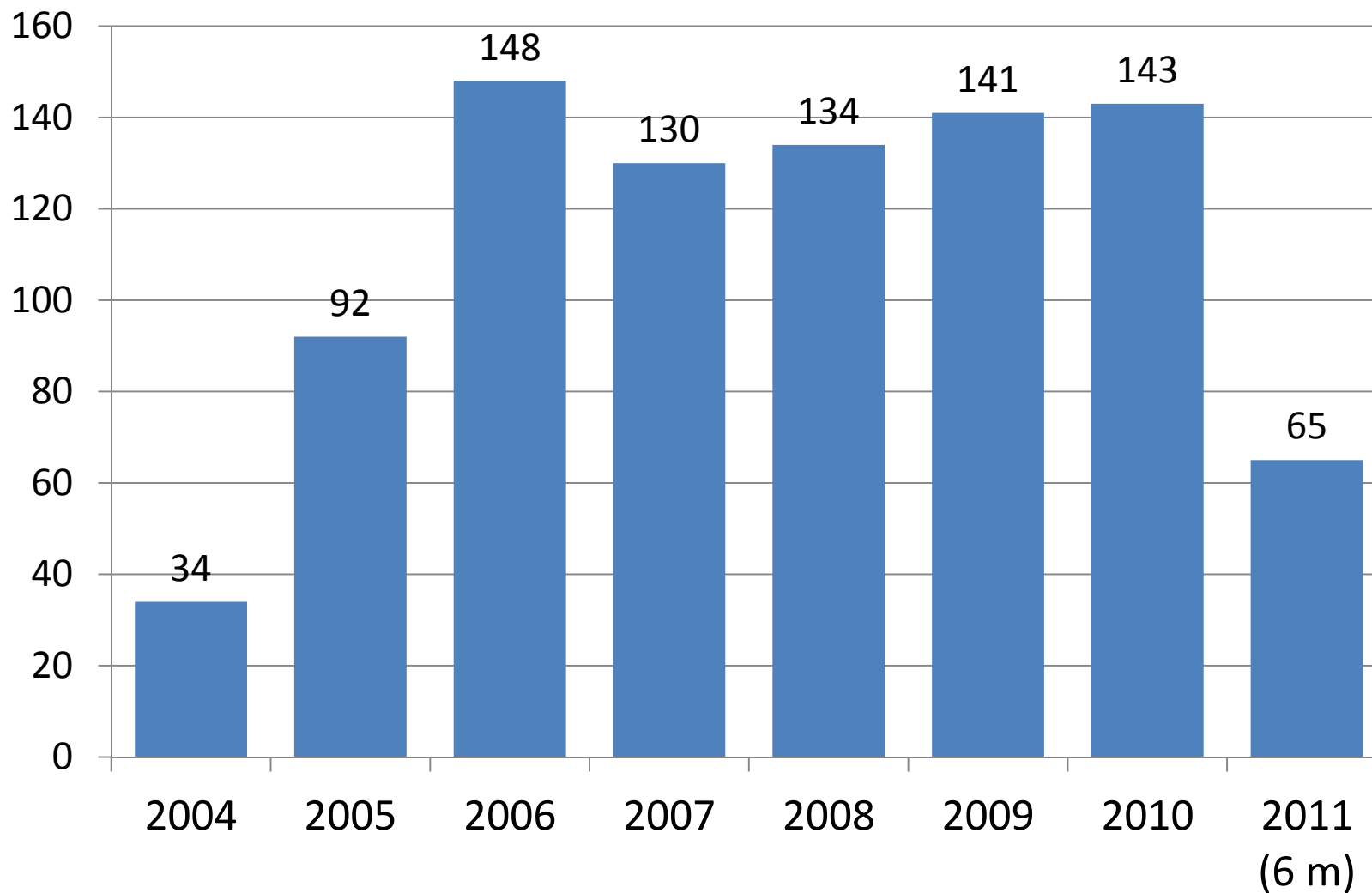
Patients' flow



PCI primaria nella ASL 4 (periodo 2004 – 2011)

Totale pazienti	886
Età media, anni	68±13
Maschi	620 (70%)
Accesso in sala diretto da 118	499 (56%)
IMA anteriore	402 (45%)
Vaso “culprit”:	809
- tronco comune	18 (2%)
- arteria discendente anteriore	380 (43%)
- arteria circonflessa	148 (18%)
- arteria coronaria destra	283 (35%)
- malattia multivasale	70 (9%)
- vaso “culprit” occluso	530 (60%)
Decesso peri-procedurale (in sala)	29 (3.3%)
Shock cardiogeno	56 (6.3%)
Stent	715 (81%)
TIMI 3 fine procedura	727 (82%)

PCI primaria nella ASL 4 (tot=886)



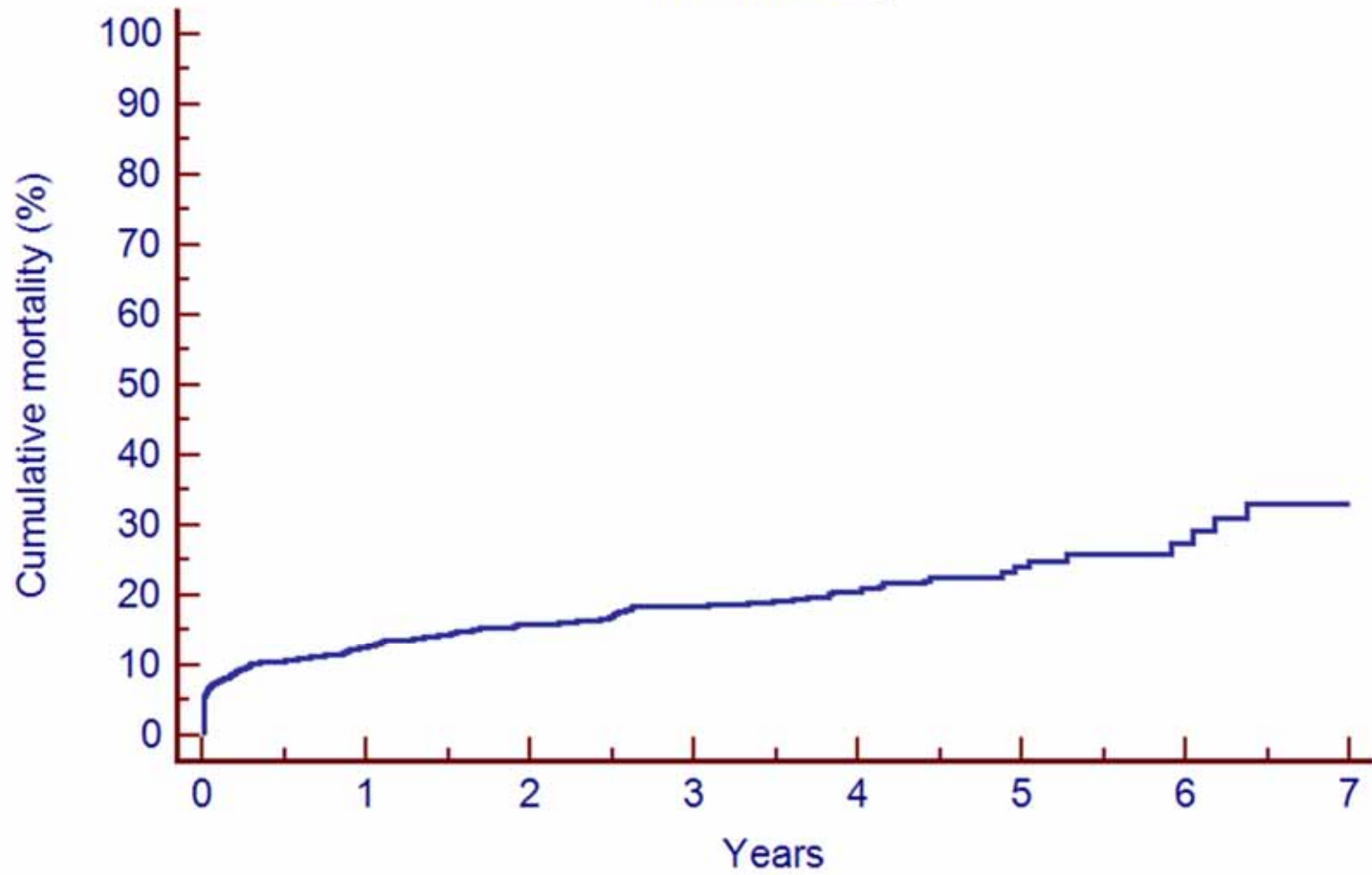


Incidenza PCI primaria ASL 4

	Anni 2006-2010
PCI primarie (dati osservati)	695
Incidenza/100.000 abitanti	93

Standard Nazionale (Documento di Consenso FIC):
70 PCI primarie per 100.000 abitanti

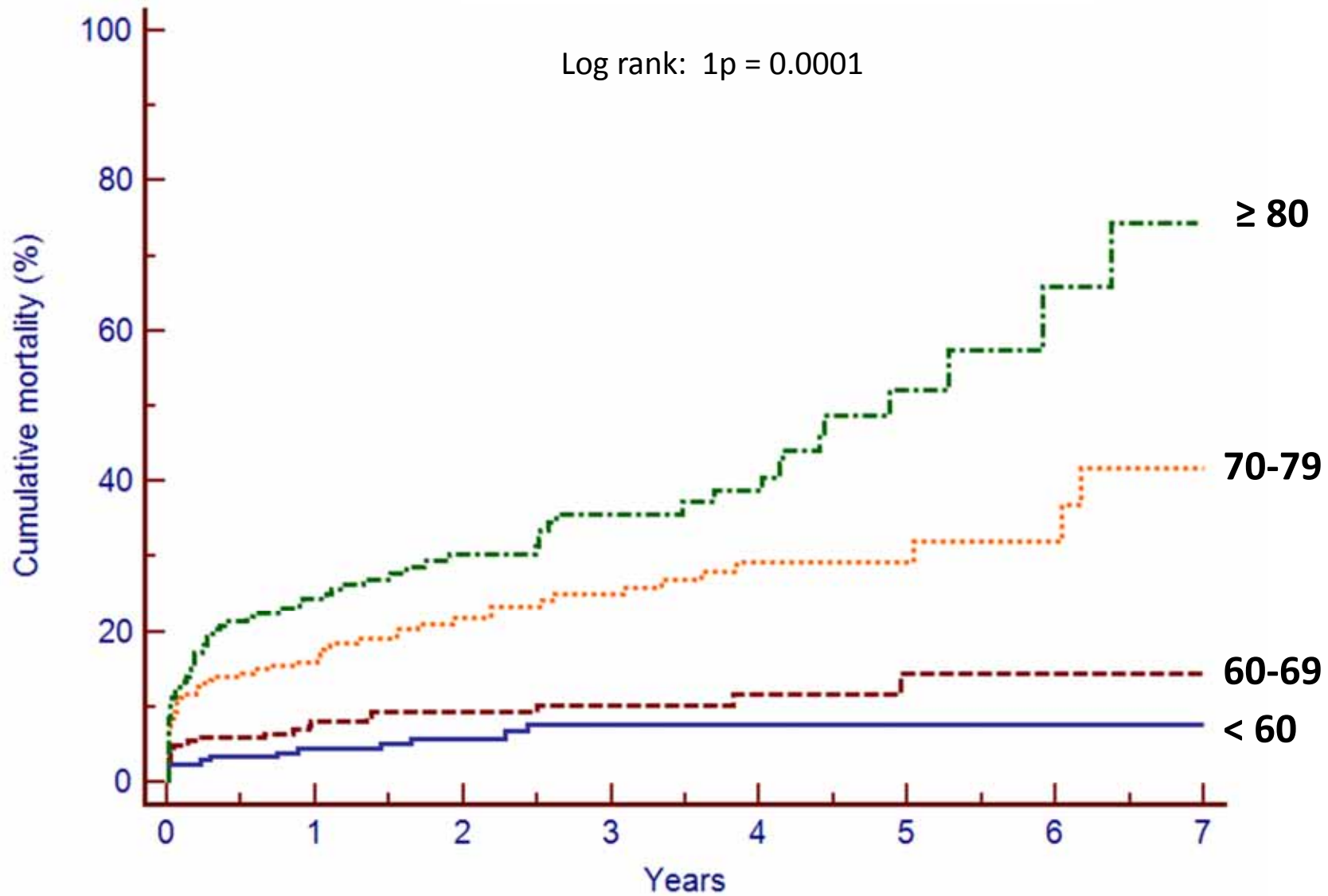
Total mortality



Number at risk

886 702 455 331 220 95 40 7

Mortality per age subgroups



Comparative mortality

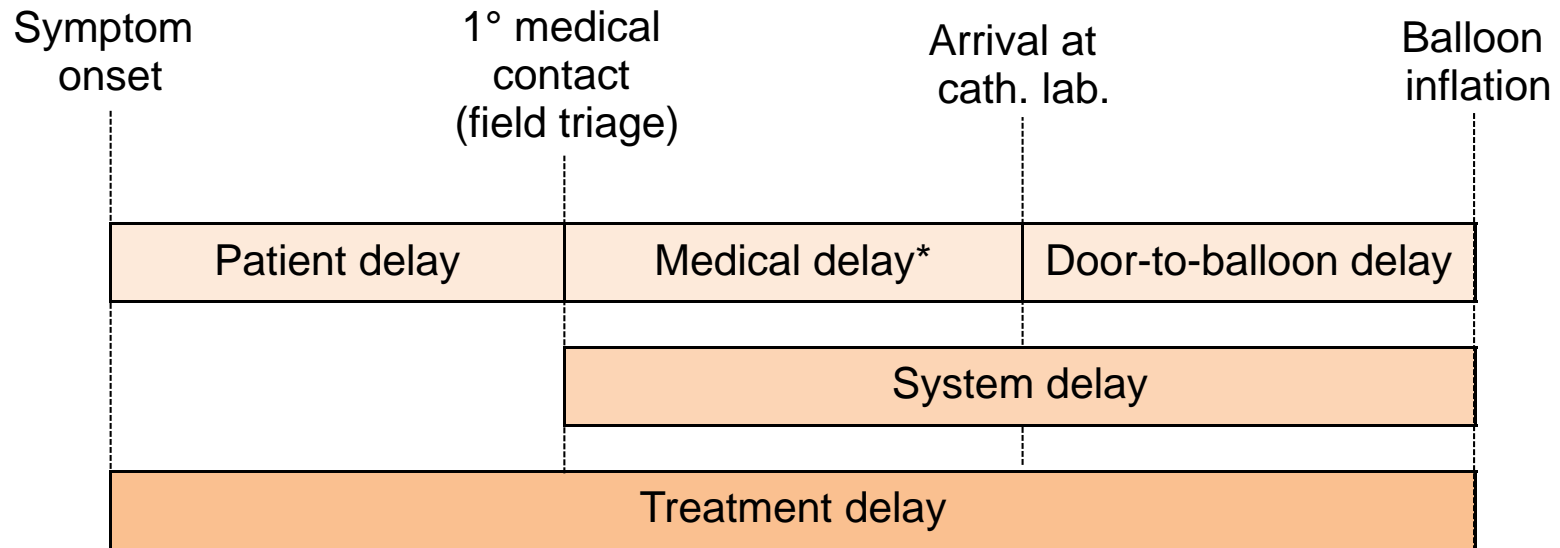
			Mortality
Trial	Pts no.	Mean age	In-hospital
ASL 4	886	68	6.3%
	324	<65	2.5%
	386	65-80	6.9%
	176	>80	10.7%
NRMI 3-4 (*)	29222	66	4.6%
	17314	<65	2.1%
	9425	65-80	6.6%
	2483	>80	14.1%

(*) Effect of Door-to-Balloon Time on Mortality in Patients With ST-Segment Elevation Myocardial Infarction. NRMI investigators. J Am Coll Cardiol 2006;47:2180–6

Mortality

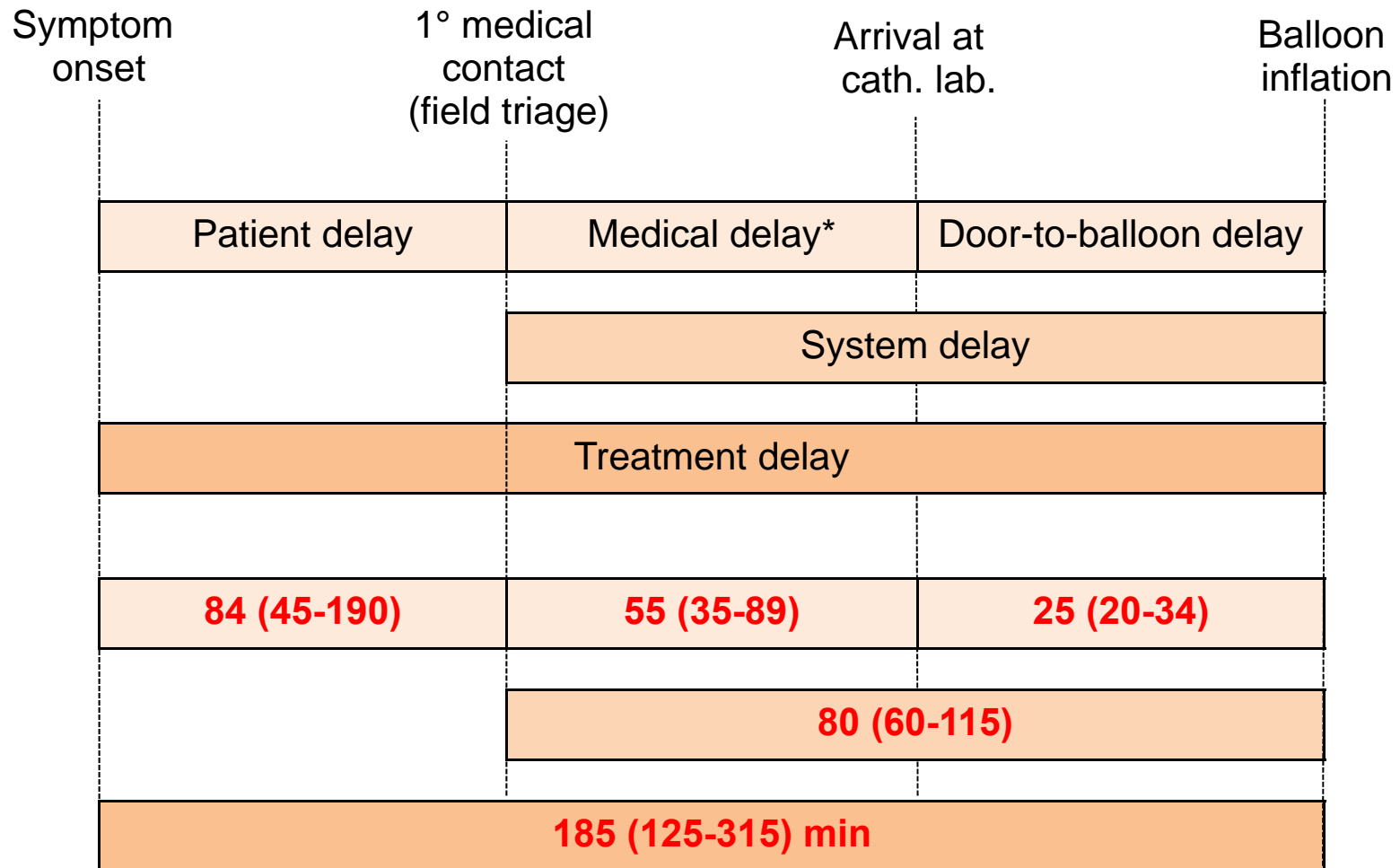
			Mortality			
Trial	Pts no.	Mean age	In-hospital	Day 30	Day 90	Day 180
ASL 4	886	68	6.3%	7.6%	9.5%	10.6%
	223	<60	2.2%	2.2%	2.6%	3.1%
	219	60-69	4.1%	5.0%	5.9%	5.9%
	241	70-79	7.8%	10.8%	12.5%	13.7%
	203	≥80	10.3%	12.3%	12.5%	13.7%

Delays from symptom onset to primary PCI in patients with STEMI



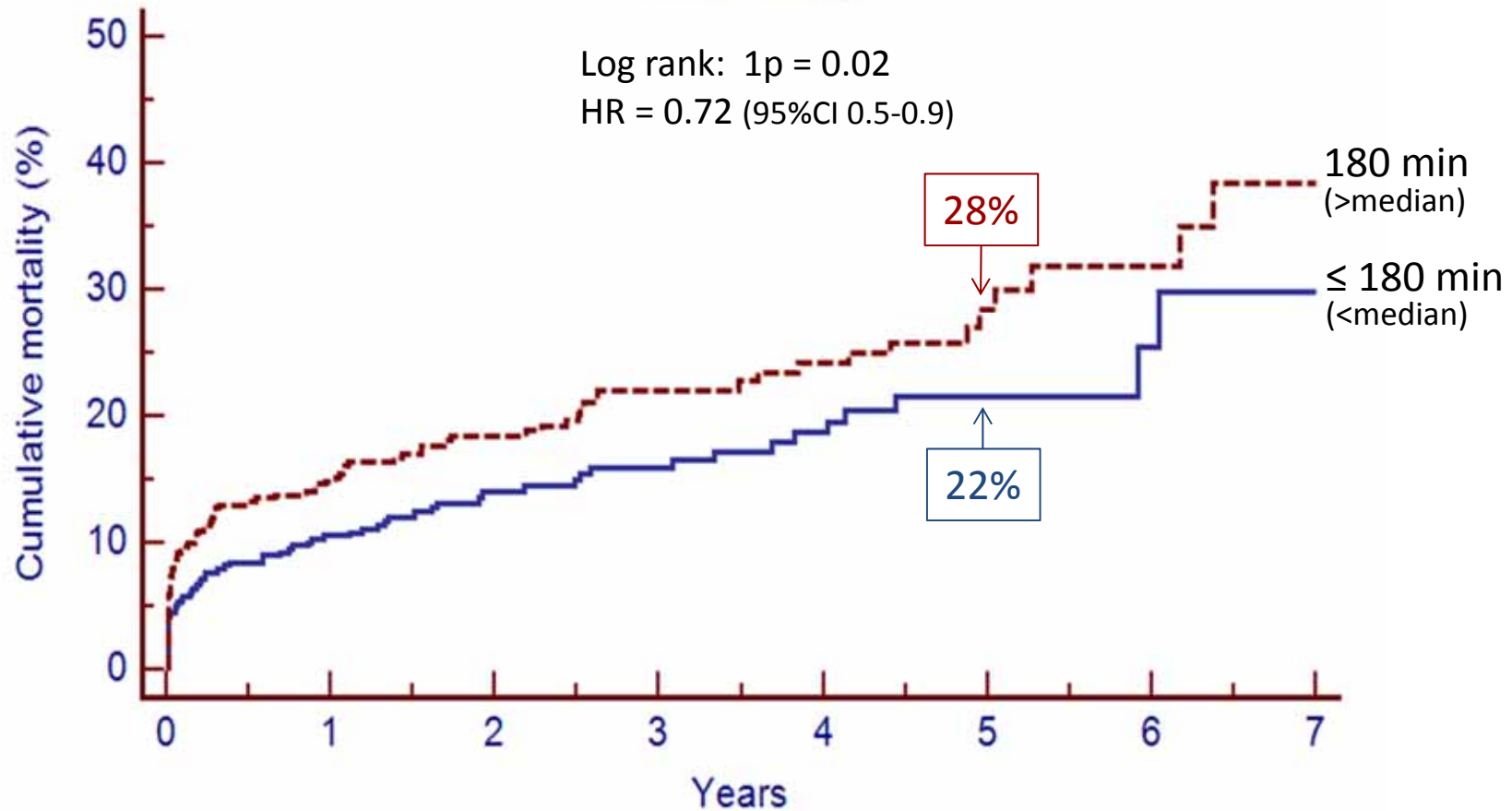
* Includes transportation delay

Delays from symptom onset to primary PCI in patients with STEMI



* Includes transportation delay

Treatment delay



Number at risk

Group: 1

401	328	200	149	97	40	17	4
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Group: 2

392	297	203	145	101	49	22	3
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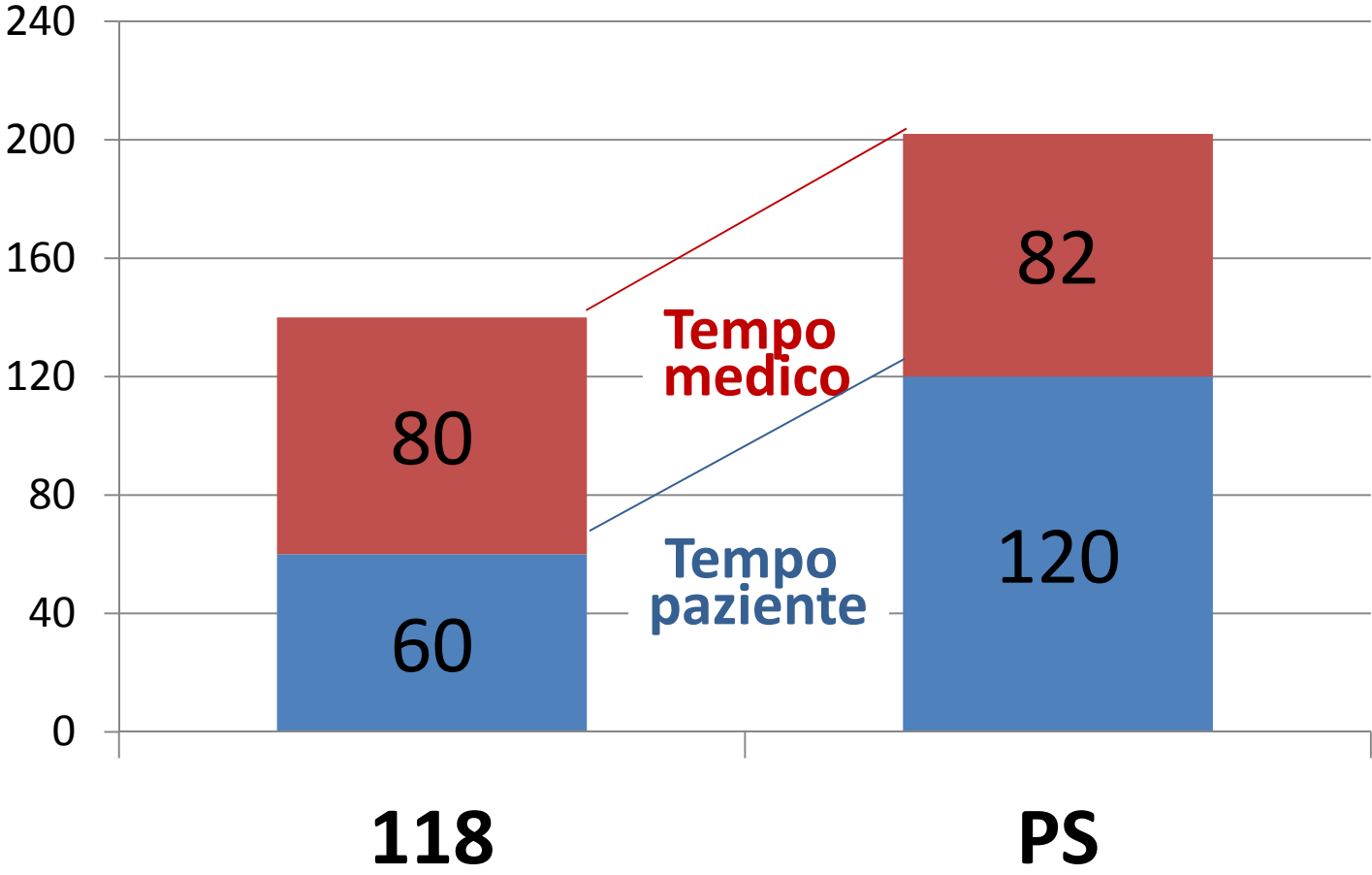
Univariable comparison of factors influencing treatment delay in PCI pts

	Treatment delay ≤ 180 min	Treatment delay > 180 min	P value
Number of patients	401	392	-
Field triaged and transported directly to Cath. Lab. by 118 system	269 (41%)	208 (53%)	0.0001
Male gender	307 (77%)	271 (69%)	0.048
Mean age	68 \pm 13	69 \pm 13	0.13
Culprit artery:			
- Left main	8 (2.0%)	7 (1.8%)	1.0
- Left anterior descending	185 (46%)	170 (43%)	0.48
Total occlusion of culprit vessel	262 (65%)	260 (66%)	0.82
Cardiogenic shock at presentaton	25 (6.2%)	25 (6.4%)	1.0
TIMI III flow at the end of the procedure	367 (92%)	350 (89%)	0.33
Ejection fraction	51 \pm 8	49 \pm 10	0.10

Stepwise multiple regression analysis of factors influencing treatment delay in PCI pts

	P value
Field triaged and transported directly to Cath. Lab. by 118 system	0.0001
Male gender	0.02

Minuti



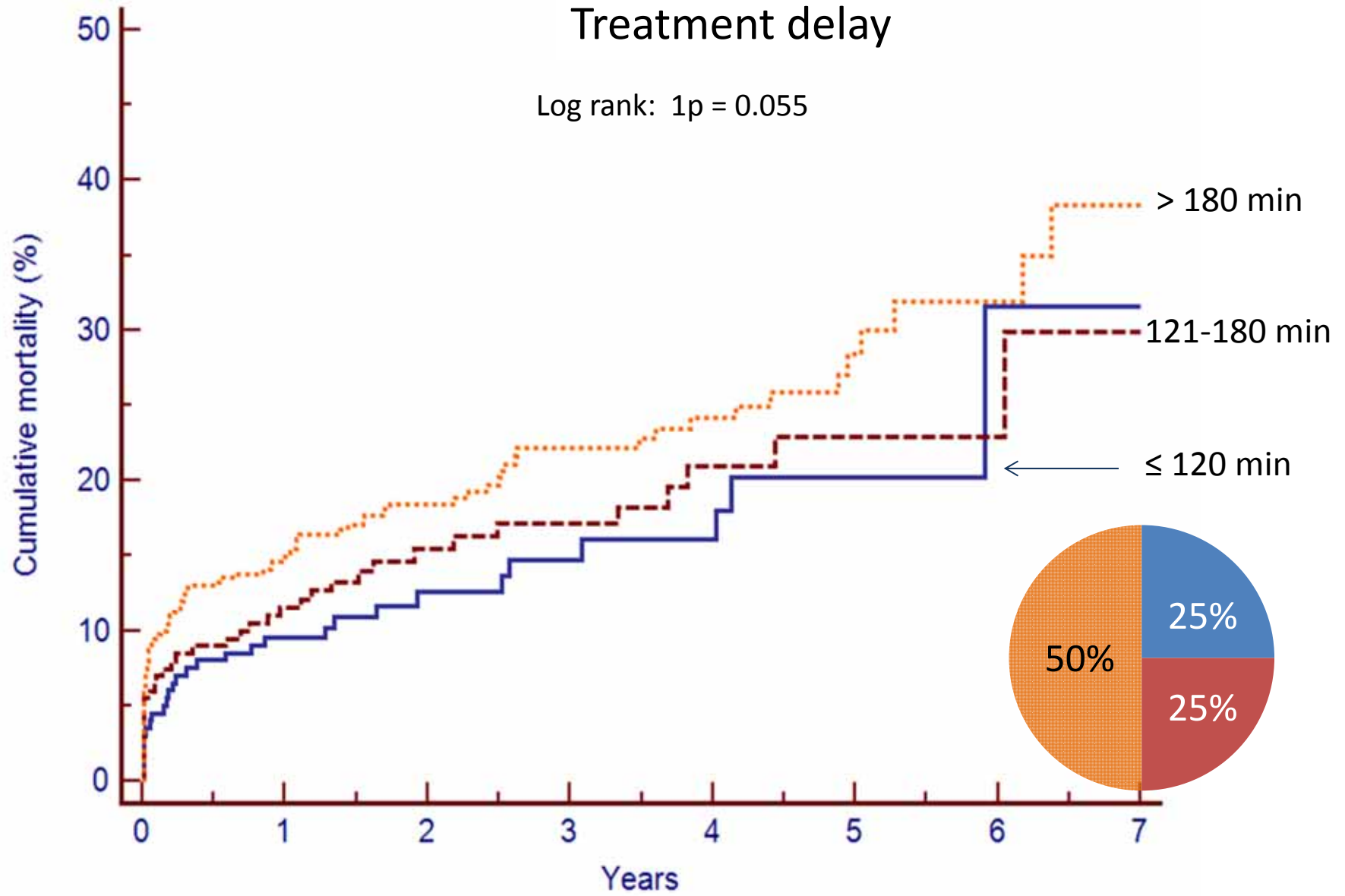
Guidelines on myocardial revascularization

The Task Force on Myocardial Revascularization of the European Society of Cardiology (ESC) and the European Association for Cardio-Thoracic Surgery (EACTS)

- It is essential to make every effort to minimize all time delays, especially **within the first 2 h after onset of symptoms**
- Primary PCI-capable centres should deliver 24 h per day/7 days per week on-call service, be able to start primary PCI as soon as possible and **within 60 min from the initial call.**

Treatment delay

Log rank: 1p = 0.055

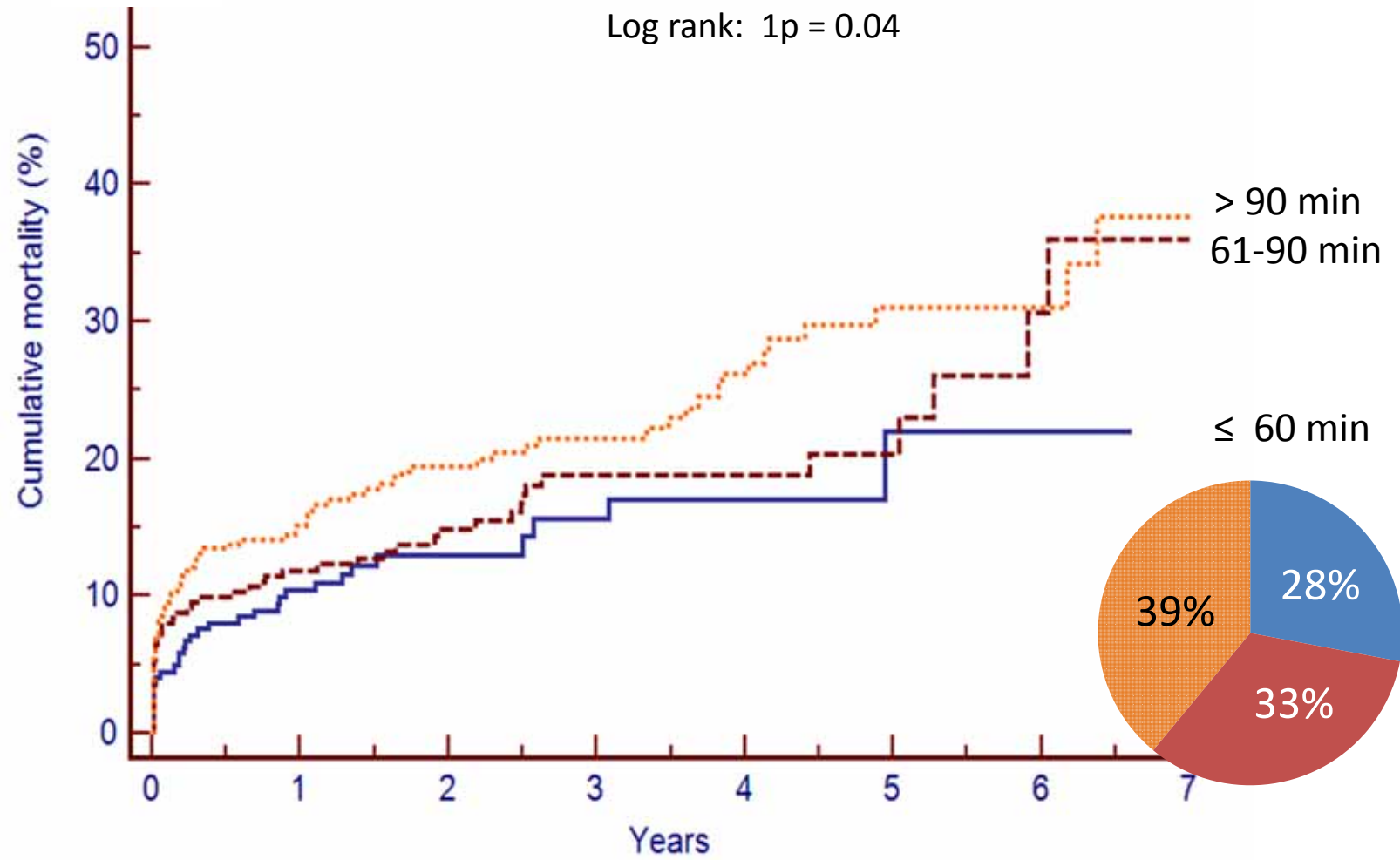


CONCLUSIONS

- Shorter total treatment delay predicts long-term lower mortality among patients with STEMI treated with primary PCI
- Therefore, the immediate mortality benefit is maintained up to 7 years after the procedure
- The goals of ESC guidelines of <120 min treatment delay was achieved in only 25% of patients

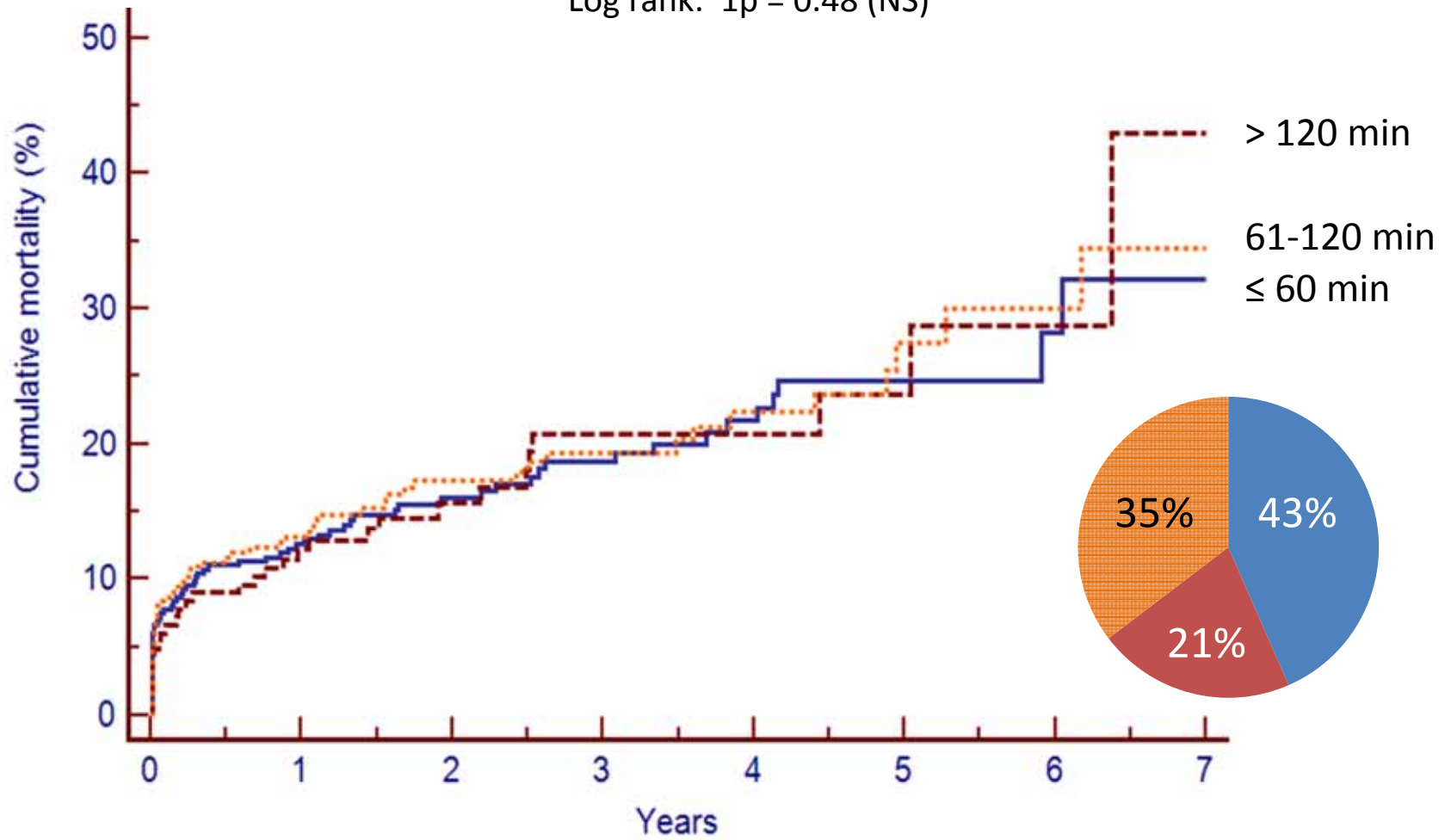
System delay

Log rank: 1p = 0.04



Patient delay

Log rank: 1p = 0.48 (NS)



Univariable predictors of death at Cox regression analysis (n=809 pts PCI)

	Survived	Died	P value	HR (95%CI)
Number of patients	651	158	-	-
Male gender	485 (74%)	100 (63%)	0.004	0.62 (0.45-0.86)
Mean age (x1 year increase)	66±13	76±10	0.0000	1.06 (1.05-1.08)
Field triaged and transported directly to Cath. Lab. by 118 system	387 (59%)	93 (59%)	0.81	0.96 (0.70-1.32)
Admitted at ED or in-hospital	264 (42%)	65 (41%)	0.81	1.04 (0.76-1.43)
Culprit artery:				
- Left main	10 (1.5%)	7 (4.4%)	0.03	2.28 (1.07-4.85)
- Left anterior descending	283 (43%)	81 (51%)	0.07	1.33 (0.98-1.83)
Total occlusion of culprit vessel	417 (64%)	111 (70%)	0.56	0.96 (0.82-1.11)
Cardiogenic shock at presentaton	19 (0.5%)	35 (22%)	0.0000	7.07 (4.85-10.3)
TIMI III flow at the end of the procedure	600 (92%)	127 (80%)	0.0000	0.56 (0.47-0.66)
Ejection fraction (x 1 point increase)	49±10	46±10	0.0003	0.95 (0.92-0.98)
Treatment delay	175 (120-300)	210 (135-360)	0.04	1.39 (1.01-1.91)
Patient delay	80 (40-180)	86 (45-210)	0.57	1.10 (0.80-1.50)
System delay	80 (60-110)	90 (66-130)	0.04	1.40 (1.02-1.94)
Medical delay	50 (35-80)	60 (40-95)	0.04	1.39 (1.01-1.91)
Door-to-balloon delay	25 (20-35)	27 (20-35)	0.78	0.05 (0.76-1.44)

Multivariable Cox regression analysis of covariates associated with long-term mortality (PCI patients: n=809)

Covariate	1P	HR	95% CI
Age (x1 year increase)	0,0000	1,06	1,04 to 1,07
Cardiogenic shock at presentaton	0,0000	5,13	3,31 to 7,92
TIMI III flow at the end of the procedure	0,03	0,81	0,65 to 1,00
Treatment delay (median)	0,05	1,32	0,95 to 1,84
Total occlusion of culprit vessel	0,33	1,04	0,88 to 1,21
Field triaged by 118 system	0,28	0,90	0,65 to 1,26
Male gender	0,29	1,10	0,77 to 1,56

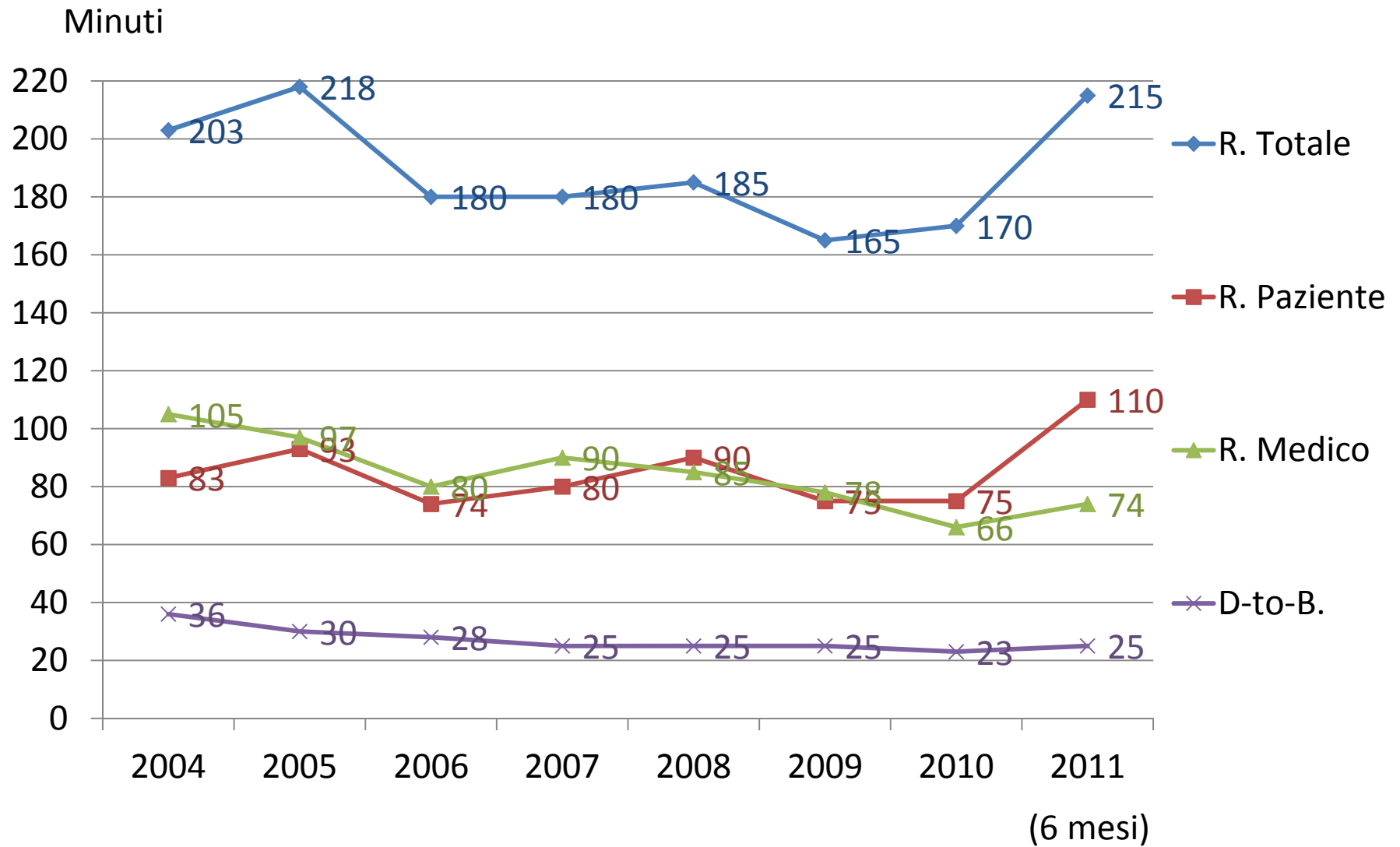
Multivariable Cox regression analysis of covariates associated with long-term mortality (PCI patients: n=809)

Covariate	2P	HR	95% CI
Cardiogenic shock at presentaton	0,0000	6.00	3,92 to 9.17
TIMI III flow at the end of the procedure	0,0000	0,67	0,55 to 0.81
Treatment delay (median)	0,02	1,46	1.06 to 2.02
Total occlusion of culprit vessel	0,37	1,06	0,91 to 1,25

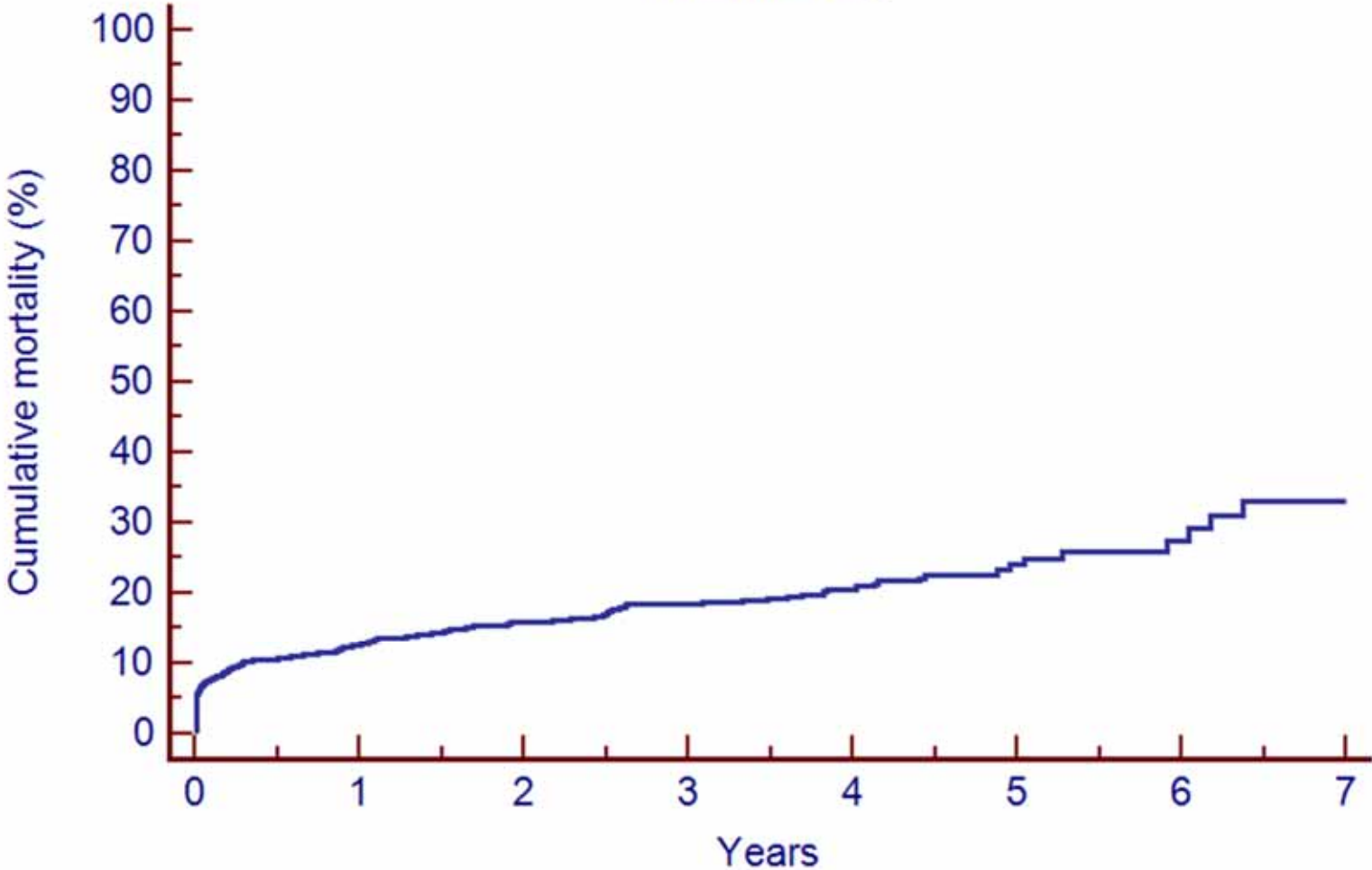
PCI primaria nella ASL 4 (periodo 2004 – 2011): ritardi dall'inizio dei sintomi alla procedura

Totale pazienti	886
Tempo totale per il trattamento, dal dolore al pallone (minuti), mediana (IQR)	185 (125-315)
Ritardo paziente (da inizio sintomo a 1° contatto medico, minuti), mediana (IQR)	84 (45-190)
Ritardo medico (da 1° contatto ad gonfiaggio pallone, minuti), mediana (IQR)	80 (60-115)
Ritardo trasporto (da 1° contatto medico a sala minuti), mediana (IQR)	55 (35-89)
Ritardo "door-to balloon" (minuti), mediana (IQR)	25 (20-34)

Trend temporale



Total mortality



Number at risk

886 702 455 331 220 95 40 7

Comparative mortality

Trial	Pts no.	Mean age	Mortality			
			In-hospital	Day 30	Day 90	Day 180
ASL 4	886	68	6.3%	7.6%	9.5%	10.6%
ASSENT-4 RCT	829	60	3%	-	5%	-
Metanalysis, 22 RCT	3380	63	-	5.3%	-	-
French registry	1714	62	5%	-	-	

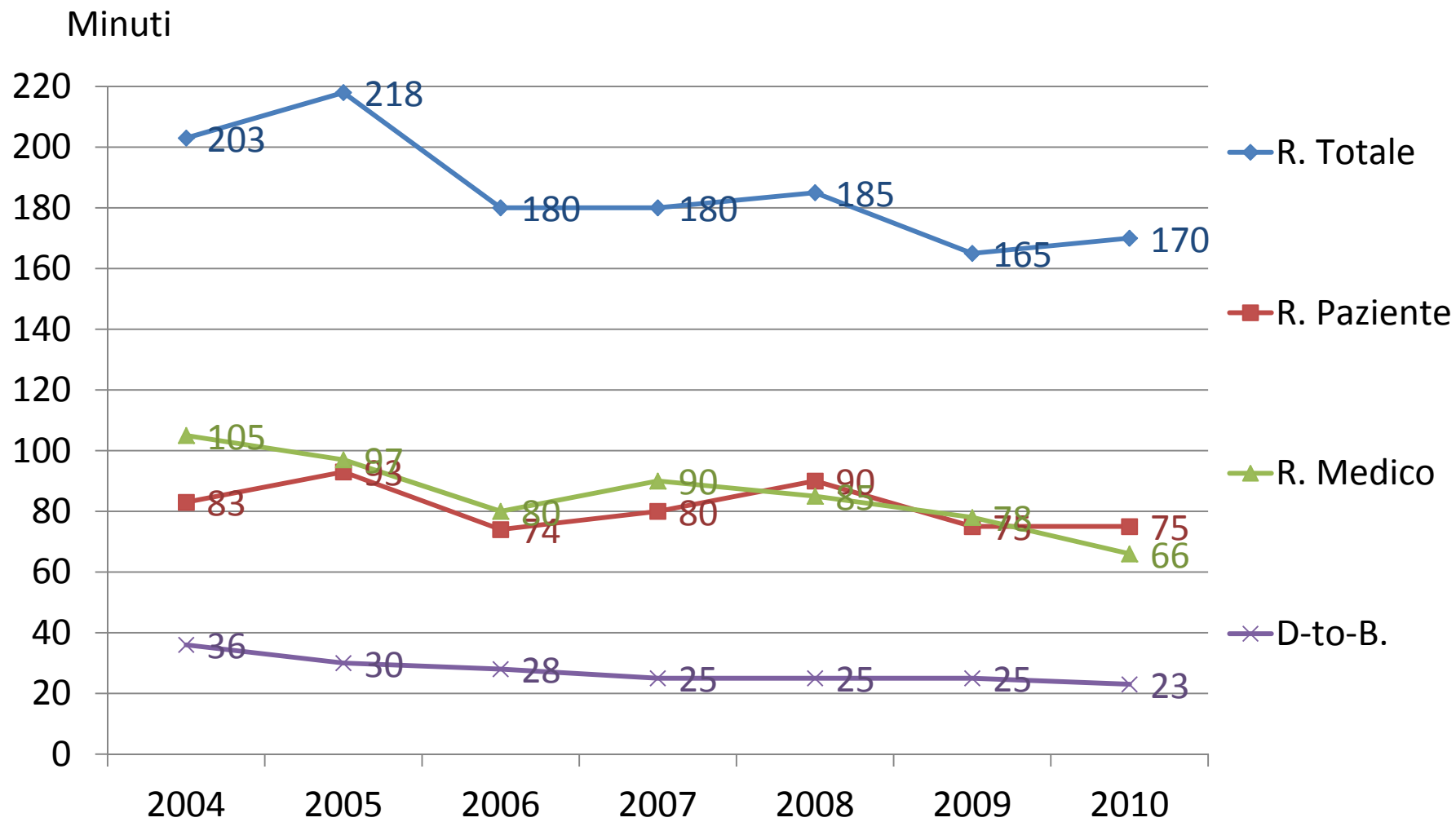
Comparative mortality

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	203	≥80	10.3%	12.3%	12.5%	13.7%
NY registry	2261	50-59	2.8%	-	6.8%	7.9%
		60-69	5.1%	-		
		70-79	10.2%	-		
		80-89	15.6%	-		

Univariate predictors of death (total pts)

	Survived	Died	P value
Number of patients	721	165	
Males	517 (72%)	103 (62%)	
Mean age	67±13	78±10	
Field triaged and transported directly to Cath. Lab. by 118 system	404 (56%)	95 (58%)	
Admitted at ED or in-hospital	317 (44%)	70 (42%)	
Culprit artery:			
- Left main	10 (1.4%)	8 (4.8%)	
- Left anterior descending	296 (41%)	84 (51%)	
PCI not performed (angio only)	70 (10%)	7 (4%)	
Total occlusion of culprit vessel	418 (58%)	112 (68%)	
Cardiogenic shock at presentaton	19 (3%)	37 (22%)	
TIMI III flow at the end of the procedure	600 (83%)	127 (77%)	
Ejection fraction	52±8	45±11	
Treatment delay	180	210	
Patient delay	80	90	
System delay	80	90	
Medical delay	51	60	
Door-to-balloon delay	25	26	

Trend temporale



System Delay and Long Mortality in STEMI Patients

