Acute Coronary Syndrome Israeli Survey

ACSIS 2013

April- May 2013

SURVEY FINDINGS AND TEMPORAL TRENDS 2000-2013

Israel Heart Society

The Israel Working Group On Intensive Cardiac Care

The Israel Center for Disease Control (ICDC) Ministry of Health

The Israeli Association for Cardiovascular Trials

April 2015

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Introduction

We are proud to present in this brochure selected data from the ACSIS 2013 survey, an annual tradition since it was launched in 1992 by Prof. Shlomo Behar.

The ACSIS survey provides a state-of-the-art representation of the characteristics, management and outcome of ACS patients in Israel, and is a source of pride for the Israeli cardiology community.

ACSIS 2013 was carried out during April-May 2013 by the Israeli working group for intensive cardiac care and the Israeli Association for Cardiovascular Trials (IACT) in cooperation with the Israel Center for Disease Control (ICDC).

During the 2-month period of March-April, 2013, detailed data was collected in all 25 ICCU and cardiology wards in all public hospitals in Israel, and included 1896 consecutive patients admitted and diagnosed with ACS.

ACSIS 2013 comprised a comprehensive evaluation of . anti-platelet therapy in ACS patients, emphasizing the dramatic changes in anti-platelet therapy in recent years.

Moreover, ACSIS 2013 investigated, for the first time, out of hospital sudden death among ACS patients, as well as a detailed analysis of MTH, smoking cessation, and medical treatment for ED.

ACSIS 2013 findings expand on prior surveys by showing a continuous improvement in in-hospital, 1 month as well as 1 year mortality throughout the last decade.

We would like to thank the study coordinators and the staff members of all CCU's and Intermediate Wards, for their dedicated time and effort in collecting the data.

We thank the pharmaceutical and industrial companies and the ICDC for their generous support of the survey.

Prof. Shlomi Matetzky **Dr. Zaza Iakobishvili**

Message from the Israel Heart Society

We are delighted to present this summary of the results of ACSIS-2013 performed by the Working Groups on Intensive Cardiac Care and Interventional Cardiology of the Israel Heart Society, and coordinated by the Israeli Association for Cardiovascular Trails.

The ACSIS program, launched in 1992 by Prof. Shlomo Behar, has been the most significant cardiology survey in Israel since 1992. ACSIS surveys are unique by the facr that they represent real world data from all admitting hospitals in Israel. By performing consecutive surveys every 2 years we are able to detect temporal changes in the presentation and management of patients with acute coronary syndromes and use the information to improve the care of cardiac patients, to promote new therapies and technologies, and to publish is the best medical journals.

Careful analysis of the results of the ACSIS surveys demonstrates a significant improvement in outcome of patients hospitalized with ACS over the years, increasing use of revascularization techniques, better adherence to guidelines and an impressive decrease in mortality from acute MI.

The Israel Heart Society is extremely proud of the excellent cooperation between Working Groups and each and every cardiology department in Israel, which yielded this very high and complete level of information, unavailable in most developed countries.

We would like to recognize and thank all those dedicated individuals who worked so hard to make this project a reality. In 26 medical centers in Israel, physicians, nurses and coordinators worked day and night, not only to provide the best medical care for patients with ACS, but also to collect the information that is summarized here. We are grateful to each and every one of them.

The survey could not have materialized without the support of the Israeli Ministry of

Health, represented by the Israel CDC, and without generous support from the pharmaceutical industry, for which we are all very grateful.

We trust that this booklet will provide interesting and exciting information on the management of acute coronary syndromes in Israel.

Prof. Yoseph Rozenman
President, Israel Heart Society

Prof. Amit Segev
Secretary General, Israel Heart Society

Participating centers

Afula - Central Hae'mek; ***Ashkelon*** - Barzilai; ***Be'er Ya'aqov*** - Assaf Harofeh; ***Be'er Sheva*** - Soroka; ***Eilat*** - Josephtal; ***Hadera*** - Hillel Yaffe; ***Haifa*** - B'nei-Zion, Rambam, Carmel; ***Holon*** - Wolfson; ***Jerusalem*** - Sha'arei Zedek, Hadassah Mount Scopus, Hadassah Ein Kerem; ***Kfar Saba*** - Meir; ***Nahariyah*** - Western Galilee; ***Nazareth*** - EMMS Hospital, Holy Family; ***Netanya*** - Laniado; ***Petah Tikva*** - Rabin Beilinson, Rabin Golda, ***Ramat Gan*** - Sheba; ***Rehovot*** - Kaplan; ***Tel Aviv*** - Sourasky; ***Tiberias*** - Poriah; ***Zefat*** - Rebecca Sieff

Foreword

This booklet is the seventh in a series of publications which describe and analyze the results of the biennial National ACS Israeli Surveys. The current survey reported on here (ACSIS 2013) was conducted by the Working Groups on Intensive Cardiac Care of the Israel Heart Society, with the support and collaboration of the Israel Center for Disease Control, Ministry of Health. The conducting of the study, data management and analysis and booklet preparation were carried out at the coordinating center of the Israeli Association for Cardiovascular Trials (IACT). The data in this publication relate to all patients with ACS who were hospitalized in cardiology departments and intensive coronary care units in 25 medical centers operating in Israel, during a two-month period, April-May, 2013. The first chapter presents data comparing characteristics, care and outcome of patients who presented with ST elevation with patients presenting without ST elevation. The second chapter presents an analysis of trends with regard to selected findings of national ACSIS surveys conducted between 2000 and 2013. The third chapter presents specific data on Anti-platelet and anti-coagulation therapy during hospitalization and discharge, with the emphasis on patients underwent PCI.

Study Coordination Center

IACT team

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THERAPEUTIC INDICATIONS:

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Ezetrol co-administered with an HMG-CoA reductase inhibitor (statin) is indicated as adjunctive therapy to diet for use in patients with primary (heterozygous familial and non-familial) hypercholesterolaemia who are not appropriately controlled with a statin alone.

Ezetrol monotherapy is indicated as adjunctive therapy to diet for use in patients with primary (heterozygous familial and non-familial) hypercholesterolaemia in whom a statin is considered inappropriate or is not tolerated.

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Ezetrol co-administered with a statin, is indicated as adjunctive therapy to diet for use in patients with HoFH. Patients may also receive adjunctive treatments (e.g., LDL apheresis).

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Therapy with Ezetrol co-administered with a statin is contraindicated during pregnancy and lactation.

Ezetrol co-administered with a statin is contraindicated in patients with active liver disease or unexplained persistent elevations in serum transaminases.

* Relative Risk Reduction

** Composite Endpoint IMPROVE IT

Reference:

1. AHA Nov 2014 Chicago

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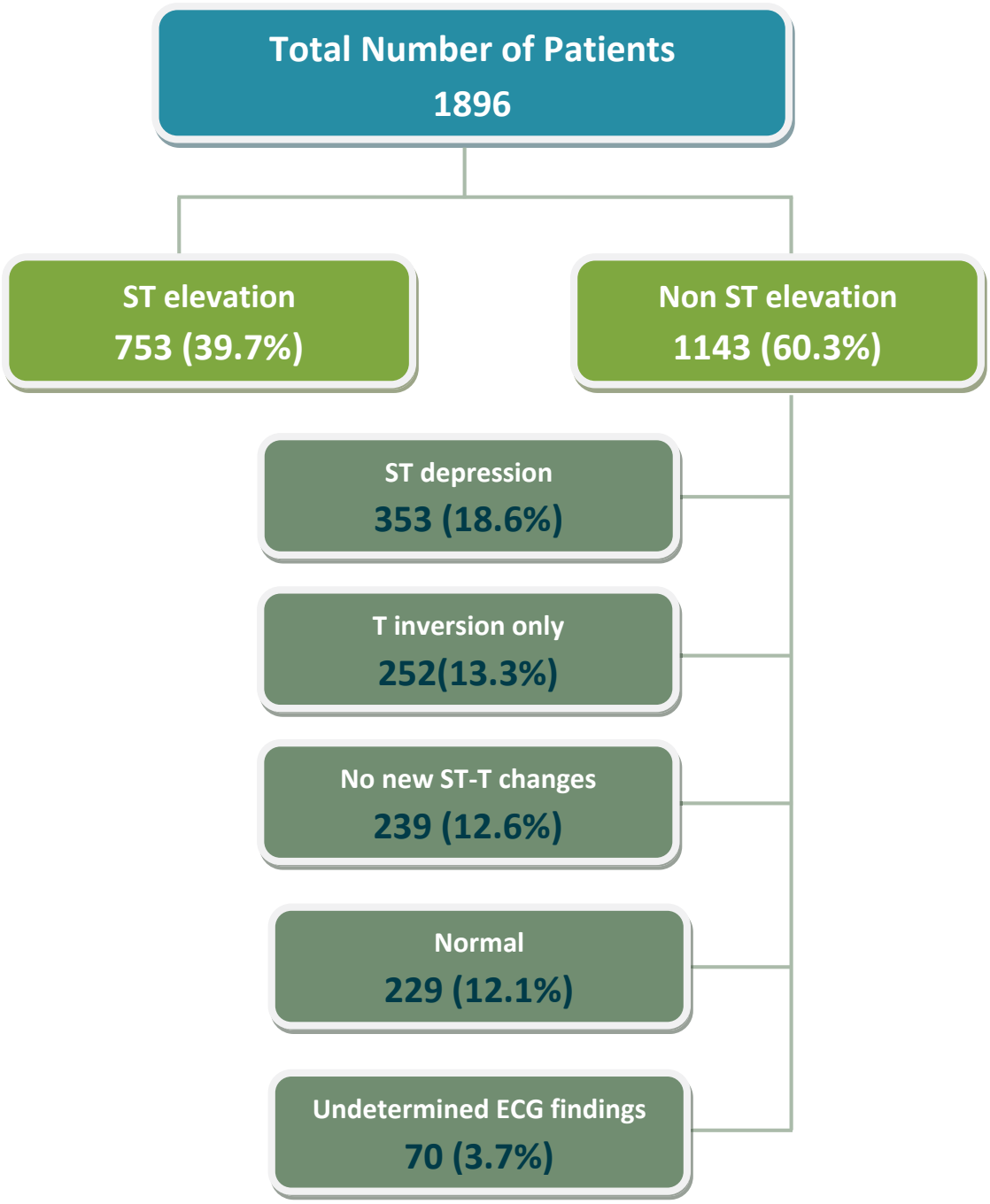
Chapter 1: Acute Coronary Syndrome in Cardiology

1.1 Distribution of Patients with ACS by ECG on Admission

Figure 1.1: Distribution of Patients with ACS by ECG on Admission



1.2 Demographic Characteristics

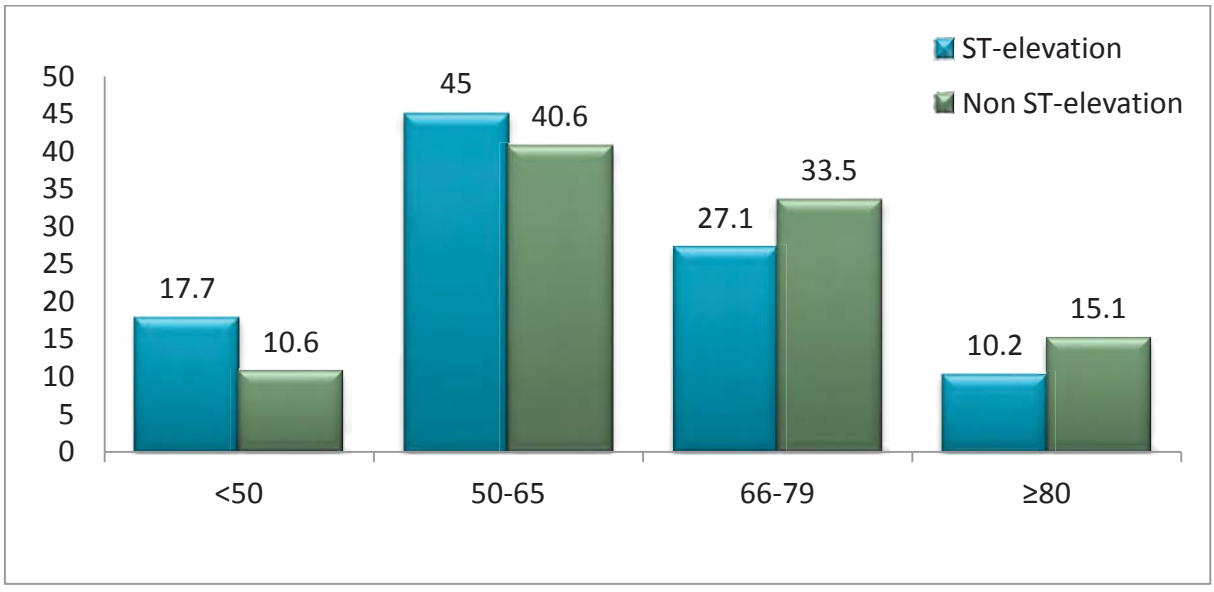
1.2.1 Age Distribution by ECG on Admission

Patients with ST elevation were younger (mean age: 61.6 ± 12.9) than those with non-ST elevation (mean age: 65.3 ± 12.7), and the age distribution of patients with ST elevation indicated a greater proportion of younger patients (62.7% were aged ≤ 65 years) than that of patients with non-ST elevation (50% aged ≤ 65 years).

Table 1.1: Age Distribution by ECG on Admission

Age group (years)	ST ↑ (n=753)		Non ST ↑ (n=1143)		Total (n=1896)		p
	n	%	n	%	n	%	
< 50	133	17.7	122	10.6	255	13.5	<0.0001
50-65	339	45.0	465	40.6	804	42.4	
66-79	204	27.1	383	33.5	587	31.0	
≥ 80	77	10.2	173	15.1	250	13.2	
Mean age ± SD	61.9±12.9		65.3±12.7		64.0±12.9		<0.0001

Figure 1.2: Age Distribution by ECG on Admission



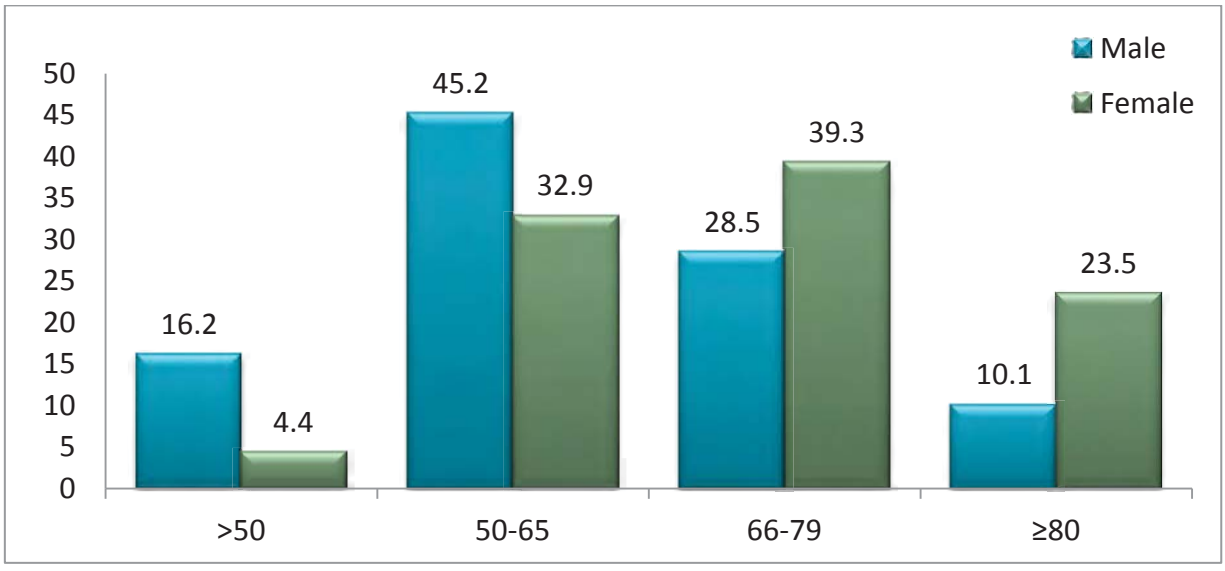
1.2.2 Age Distribution by Gender

The age distribution of male patients was significantly different from that of female patients. The majority of men (61.4%) were in the younger age groups (≤65) and only 10% were aged 80 or above. 16.2 % of men were less than 50 years old. By contrast, the majority of the female patients were in the older age groups ≥ 65 (63%). The number of women under the age of 50 was significantly less than of their male counterparts (13.5%), and 23.5% were aged 80 or above. Only 4.4 % of women were under the age of 50.

Table 1.2: Age Distribution by Gender

Age group* (years)	Men (n=1461)		Women (n=435)		Total (1896)		p
	n	%	N	%	n	%	
< 50	236	16.2	19	4.4	255	13.5	<0.001
50-65	661	45.2	143	32.9	804	42.4	
66-79	416	28.5	171	39.3	587	31.0	
≥ 80	148	10.1	102	23.5	250	13.2	
Mean age ± SD	62.3±12.6		69.7±12.2		64.0±12.9		<0.001

Figure 1.3: Age Distribution by Gender



1.2.3 Gender Distribution

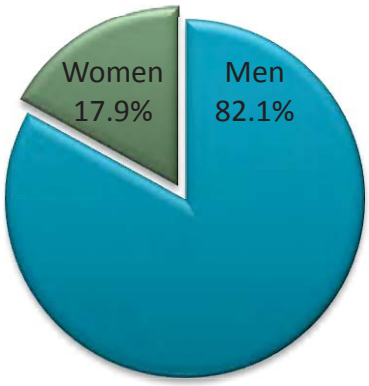
For both ST and non-ST segment elevation ACS we observed clear male predominance, with a slight increase in the proportion of females in non-ST elevation (26.3%) than in those presenting with ST elevation (17.9 %).

Table 1.3: Gender Distribution

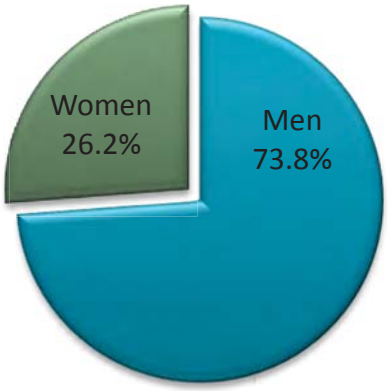
Gender	ST ↑ (n=753)		Non ST ↑ (n=1143)		Total (n=1896)		p
	n	%	N	%	n	%	
Men	618	82.1	843	73.8	1461	77.1	<0.001
Women	135	17.9	300	26.2	435	22.9	

Figure 1.4: Gender Distribution

Patients with ST Elevation



Patients with Non-ST Elevation



1.3 Cardiovascular History

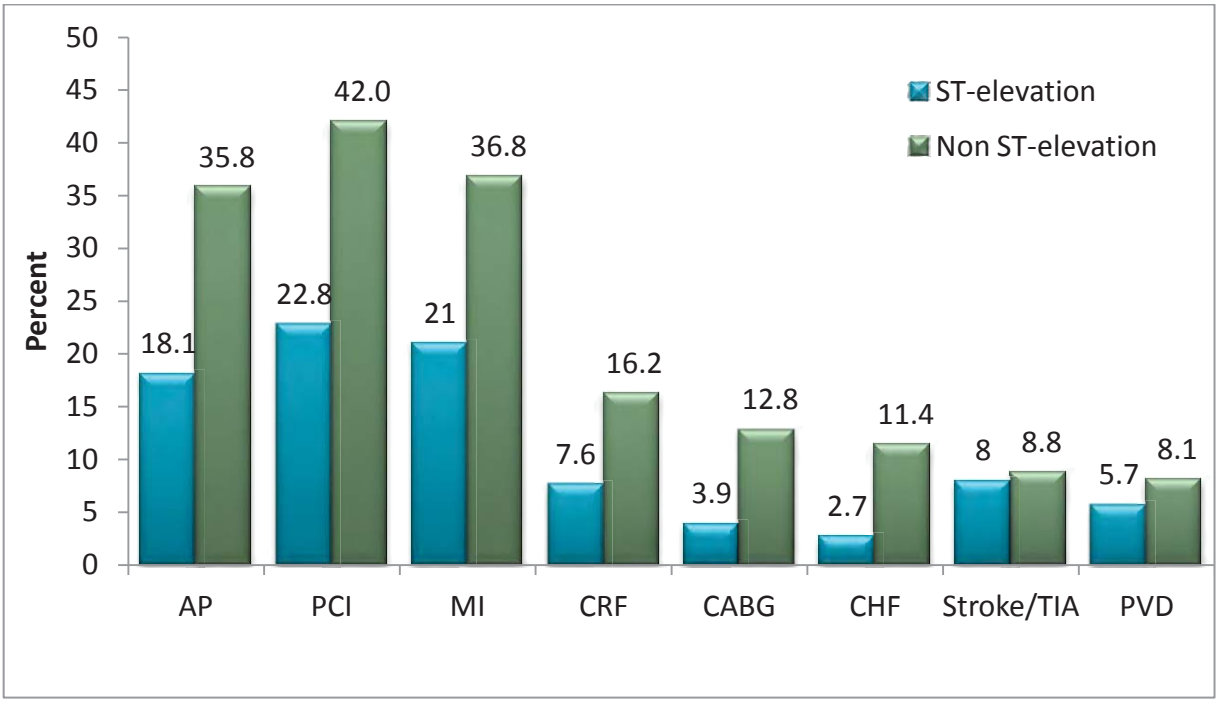
1.3.1 Cardiovascular History

A history of myocardial infarction (MI), unstable (UAP) and stable angina pectoris (SAP), heart failure (HF) and renal failure (RF) was significantly more frequent among patients with non-ST elevation ACS. Similarly, more patients with non-ST elevation MI had undergone percutaneous interventions (PCI) or coronary artery bypass grafting (CABG) prior to hospitalization. Interestingly in this survey we observed no difference for prior cerebrovascular disease (stroke/transient ischemic attack - TIA), or for the presence of peripheral vascular disease (PVD) among the groups.

Table 1.4: Cardiovascular History

CV history	ST ↑ (N=753) %	Non ST ↑ (N=1143) %	Total (N=1896) %	p
MI	21.0	36.8	30.5	<.001
UAP	12.6	26.8	21.2	<.001
SAP	18.1	35.8	28.8	<.001
PCI	22.8	42.0	34.4	<.001
CABG	3.9	12.8	9.2	<.001
HF	2.7	11.4	7.9	<.001
Stroke/TIA	8.0	8.8	8.4	.546
Chronic renal failure (CRF)	7.6	16.2	12.8	<.001
PVD	5.7	8.1	7.1	.053

Figure 1.5: Cardiovascular history



1.3.2 Risk Factors

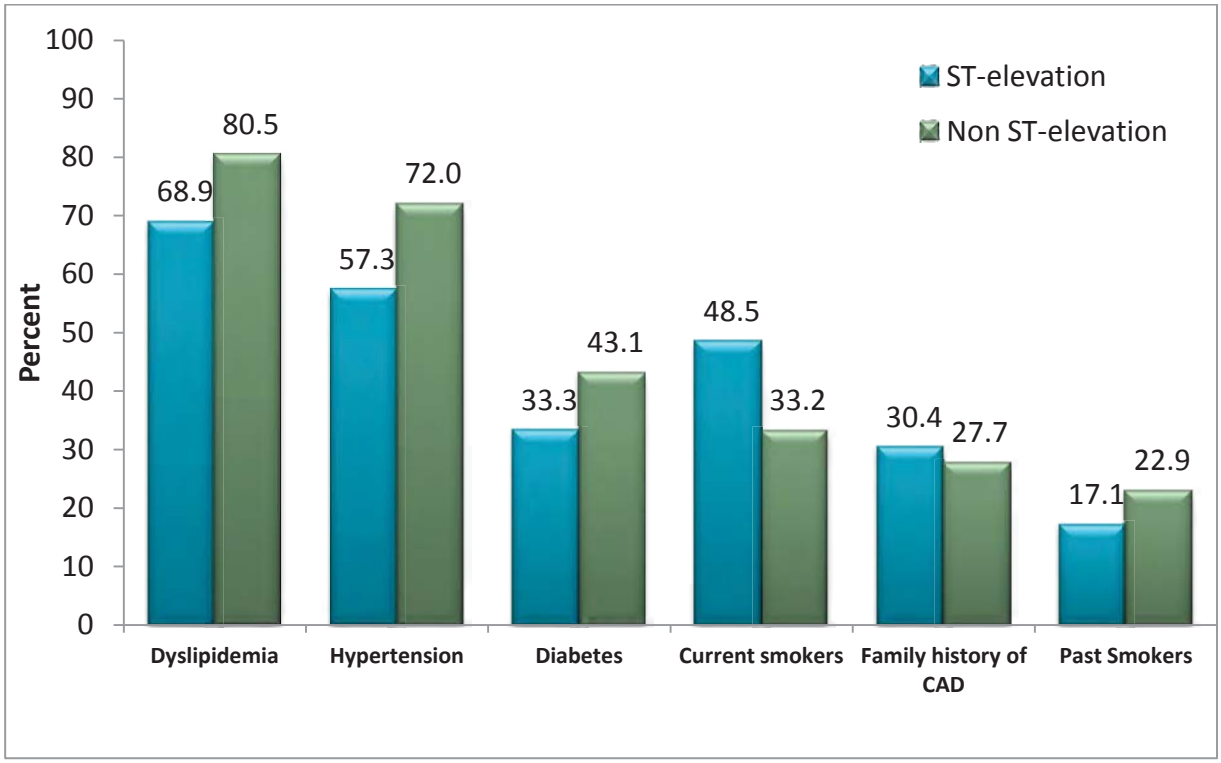
Current smoking was more prevalent among patients presenting with ST-elevation ACS, while other risk factors were generally more prevalent among patients presenting with non-ST elevation ACS. The rates of newly diagnosed hypertension, diabetes and dyslipidemia were higher among those with ST-elevation. No difference was found in the prevalence of family history of coronary artery disease (CAD).

Table 1.5: Risk Factors

Risk factors	ST ↑ (N=753) %	Non ST ↑ (N=1,143) %	Total (N=1,896) %	p
Hypertension	57.3	72.0	66.1	<.001
% Newly diagnosed*	7.4	4	5.2	
Diabetes	33.3	43.1	39.2	<.001
% Newly diagnosed*	6.9	5.3	5.8	
Dyslipidemia	68.9	80.5	75.9	<.001
% Newly diagnosed*	13.4	4.3	7.6	
Current smokers	48.5	33.2	39.2	<.001
Past smokers	17.1	22.9	20.6	.002
Family history of CAD	30.4	27.7	28.8	.240

* Newly diagnosed expressed as percentage of total patients with specific risk factor

Figure 1.6: Risk Factors



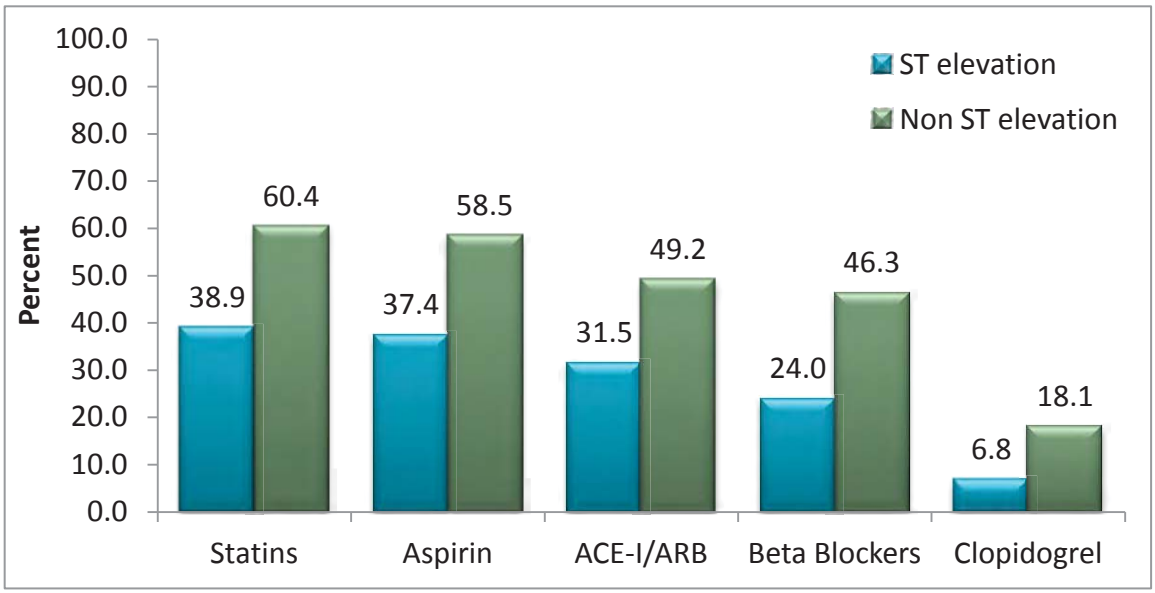
1.4 Prior Chronic Treatment

Prior to the index hospitalization, a higher proportion of patients with a non-ST elevation ACS (58.5%) were being treated with aspirin compared to those with ST-elevation (37.4%). Other drugs in common use were ACE Inhibitors and ARB's, beta-blockers, aldosterone receptor blockers, lipid-lowering drugs (primarily statins), hypoglycemic drugs, diuretics, calcium channel blockers and PPI, all of which were in use more frequently among patients presenting with non-ST elevation ACS. 18% of patients with non-ST elevation and 6.8% of those with ST elevation were being treated with clopidogrel.

Table 1.6: Prior Chronic Treatment

Prior chronic treatment	ST ↑ (N=753) %	Non ST ↑ (N=1146) %	Total (N=1896) %	p
Aspirin	37.4	58.5	50.1	<.001
Clopidogrel	6.8	18.1	13.6	<.001
Prasugrel	0.5	1.1	0.9	.174
Ticagrelor	0.3	0.7	0.5	.203
Warfarin	1.9	3.9	3.1	.014
Dabigatran	0.4	0.5	0.5	.700
Rivaroxaban	0	0.1	0.1	.251
LMWH	0.4	0.6	0.5	.533
ACE inhibitor	24.5	33.4	29.9	<.001
ARB	7.5	16.4	12.9	<.001
ACE-I/ARB	31.5	49.2	42.2	<.001
Aldosterone receptor blockers	1.5	3.7	2.8	.004
Beta blockers	24.0	46.3	37.4	<.001
Diuretics	9.4	20	15.8	<.001
Insulin	6.4	12.7	10.2	<.001
Hypoglycemic drugs (Oral)	21.1	29.1	25.9	<.001
LLD	39.5	61	52.4	<.001
Statins	38.9	60.4	51.9	<.001
Fibrate	2.3	4.4	3.6	.015
Ezetimibe	1.3	2.6	2.1	.056
Calcium channel blockers	14.4	21.8	18.8	<.001
Nitrates	2.5	7.7	5.6	<.001
PPI	7.6	19.9	15.1	<.001
Other drugs	26.7	38.4	33.8	<.001

Figure 1.7: Prior Chronic Treatment



1.5 Transportation, Pre-Admission and Admission Information

1.5.1 Mode of Transportation by ECG on Admission

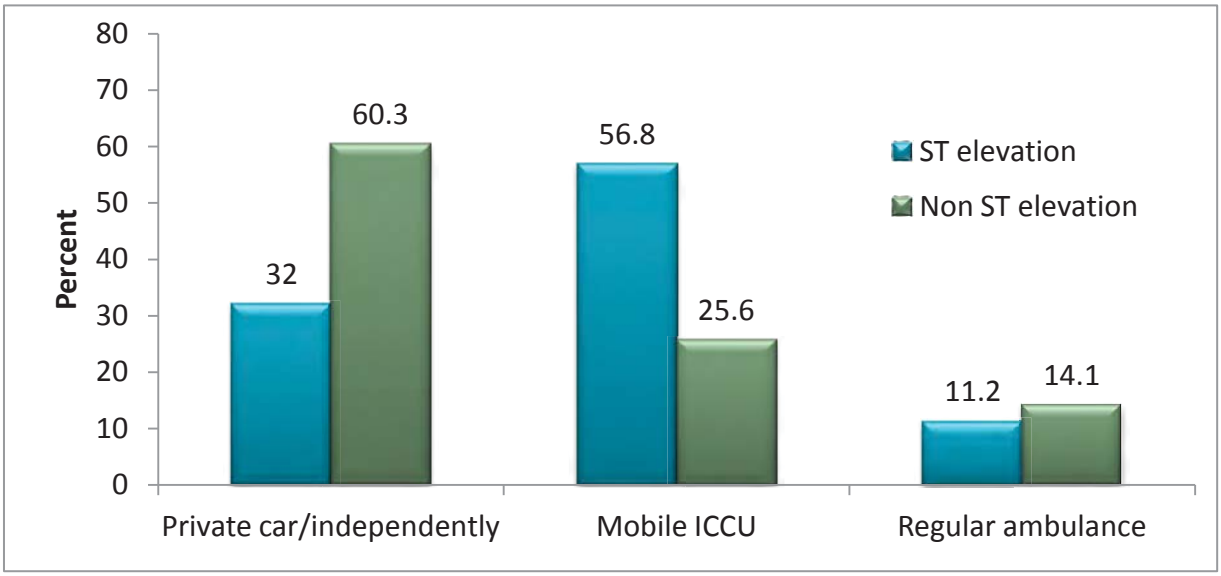
Nearly 50% of all patients arrived at the hospital by means of private transportation. Patients with ST elevation were more frequently transported to hospital with mobile CCU, and patients with non-ST elevation arrived more frequently by means of private transportation.

Table 1.7: Mode of Transportation by ECG on Admission

Transport to hospital*	ST ↑ (N=723**)		Non ST ↑ (N=1077**)		Total (N=1800**)	
	N	%	N	%	N	%
Mobile ICCU	411	56.8	276	25.6	687	38.2
Regular ambulance	81	11.2	152	14.1	233	12.9
Private car/ independently	231	32.0	649	60.3	880	48.9

* p<.0001 ** excludes in-patients

Figure 1.8: Mode of Transportation by ECG on Admission



1.5.2 Mode of Transportation by Gender

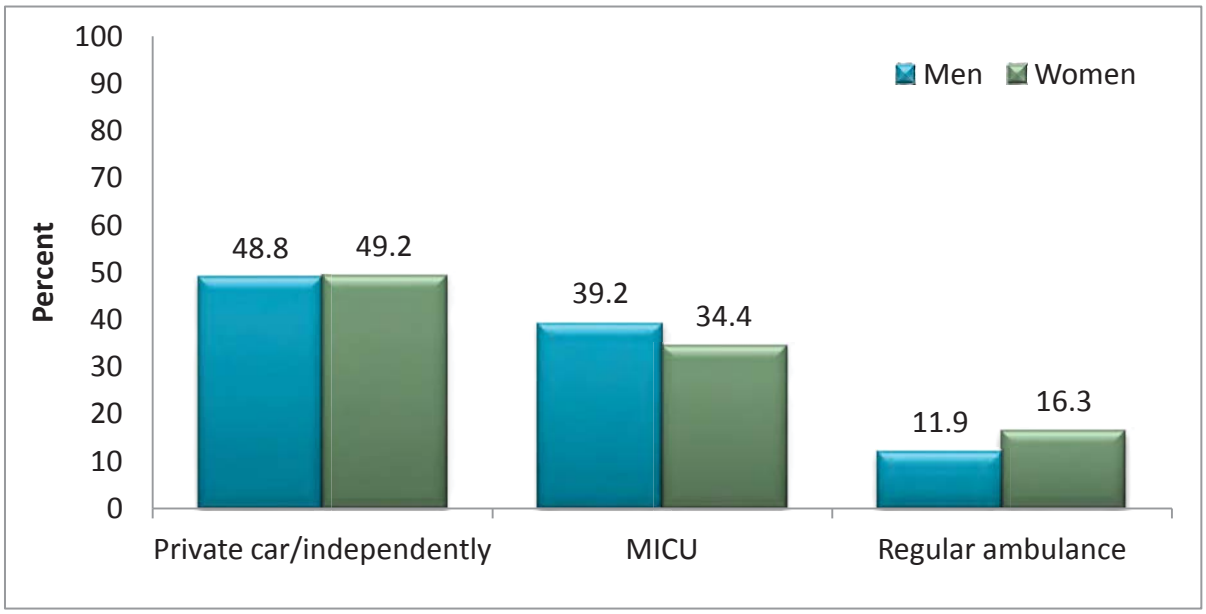
About half of all patients reached the hospital by private transportation. Less than 40% of patients, both men and women, arrived by means of a mobile intensive care units (MICU).

Table 1.8: Mode of Transportation by Gender

Transport to hospital*	Men (N=1390)		Women (N=410)		Total** (N=1800)	
	N	%	N	%	N	%
MICU	546	39.2	141	34.4	687	38.2
Regular ambulance	166	11.9	67	16.3	233	12.9
Private car/ independently	678	48.8	202	49.2	880	48.9

* p =.094 ** excludes in-patients

Figure 1.9: Mode of Transportation by gender



1.5.3 Patient Location on Onset

The most frequent location of occurrence of ACS onset was a private residence (78.7% of all patients). Patients with non-ST elevation were more likely to experience onset of ACS at a private residence, while ST-elevation occurred slightly more frequent at work.

Table 1.9: Location on Onset

Location*	ST ↑ (N=753) (%)	Non ST ↑ (N=1143) (%)	Total (N=1896) (%)
Private residence	38.71	61.29	78.74
Public place	38.64	61.36	9.28
Medical facility	35.09	64.91	3.01
Work	58.16	41.84	5.17
Other	46.34	53.66	2.16

1.5.4 Ward of First Arrival

Most patients with ACS present to the emergency room (ER). However, a higher number of patients with an ST elevation ACS present directly to the cardiac care unit (CCU) and the catheterization laboratory than those with non-ST elevation ACS.

Table 1.10: Ward of First Arrival by ECG on Admission

First arrival*	ST ↑ (N=753**) (%)	Non ST ↑ (N=1143**) (%)	Total (N=1896**) (%)
ER	66.1	96.6	84.4
CCU	20.2	2.5	9.6
Catheterization laboratory	13.7	0.9	6

* difference in ward of first arrival, ST elevation vs. non-ST elevation, p<0.0001 ** excludes in-patients

1.5.5 Ward of First Arrival by Gender

For the greater majority of both male (84%) and female patients (91%), the ward of first arrival was the emergency room (ER). For the remainder of patients, men were more likely to be transferred directly to the cardiac care unit (CCU) or the catheterization laboratory than women.

Table 1.11: Ward of First Arrival by Gender

First arrival*	Men (N=1382)	Women (N=408)	Total (N=1790)
ER	83.9	90.7	85.5
CCU	9.5	5.9	8.6
Catheterization laboratory	6.6	3.4	5.9

*difference in ward of first arrival, men vs. women, p=0.0028

1.5.6 First Ward of Hospitalization

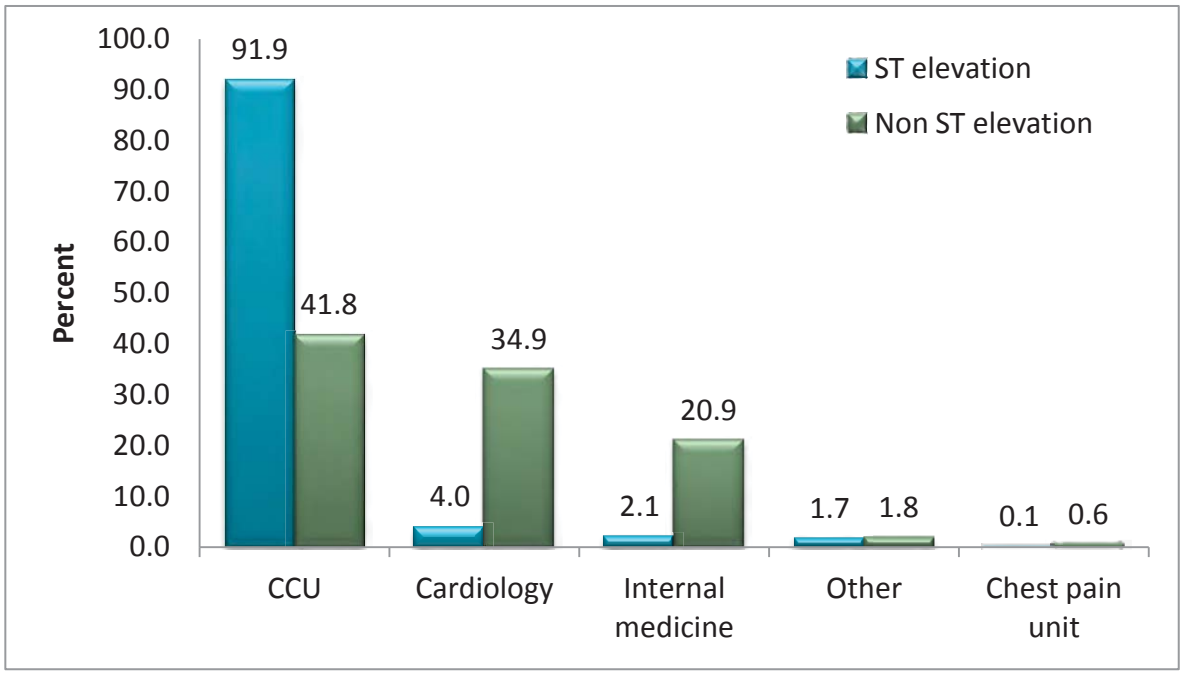
As expected, the majority of patients presenting with ST elevation were hospitalized in the cardiac care unit (CCU) (91.9%). More than 40% of the patients who presented with non-ST elevation were admitted to the CCU and an additional 34.9% to a cardiology department, with the remaining 20.9% being admitted to internal medicine departments.

Table 1.12: First Ward of Hospitalization

First ward of hospitalization*	ST ↑ (N=749) (%)	Non ST ↑ (N=1137) (%)	Total (N=1886) (%)
CCU	91.9	41.8	61.7
Cardiology	4.0	34.9	22.6
Chest pain unit	0.1	0.6	0.42
Internal medicine	2.3	20.9	13.5
Other	1.7	1.8	1.7

*difference in first ward of hospitalization, ST elevation vs. non-ST elevation, p<0.0001

Figure 1.10: First Ward of Hospitalization



1.5.7 Time from Symptom Onset to Admission, by ECG on Admission

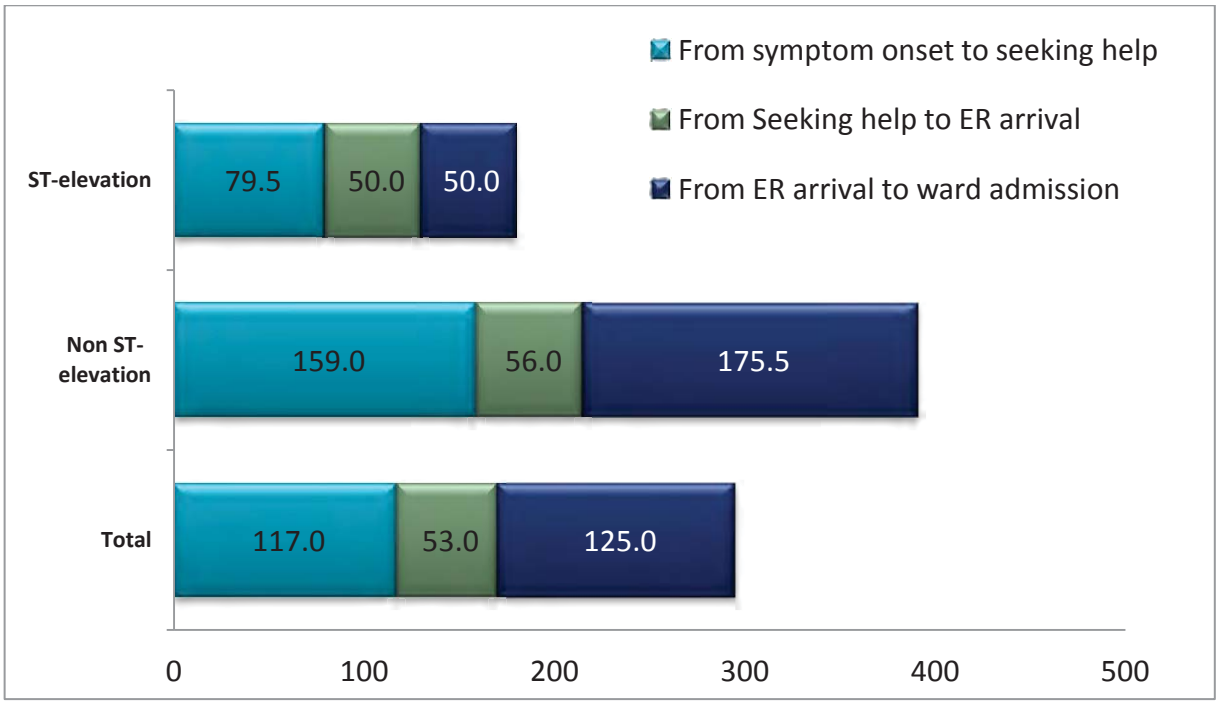
All time frames were significantly shorter for patients with ST elevation. Patients with ST elevation sought help more rapidly when compared to patients with non-ST elevation. Time elapsing between emergency room (ER) arrival and first ward of admission was x 1.5 for patients with non-ST elevation when compared to patients with ST elevation.

Table 1.13: Time (minutes) from Symptom Onset to Admission, by ECG on Admission

Time elapsing from:	Length of time (minutes)									
	ST ↑			Non ST ↑			Total			p
	N	Median	(25%- 75%)	N	Median	(25%75%)	N*	Median	(25-75%)	
Onset to seeking help	550	79.5	(37-223)	589	159	(54-622)	1139	117	(42-360)	<.001
Seeking help to ER arrival*	463	50	(35-76)	563	56	(37-116)	1026	53	(36-90)	<.001
ER arrival to first ward of admission	642	50	(0-110)	978	175.5	(105-319)	1620	125	(43.5-233.5)	<.001
Onset to ER arrival	609	133	(75-290)	624	222	(90.5-725)	1233	165	(80-480)	<.001
Onset to first ward of admission	570	200	(120-374)	600	520.50	(259.5-1040)	1170	317.5	(167-735)	<.001

* excludes patients whose first medical contact was in ER

Figure 1.11: Median Length of Time from Symptom Onset to Admission (minutes)



1.5.8 Time from Symptom Onset to Admission, by gender

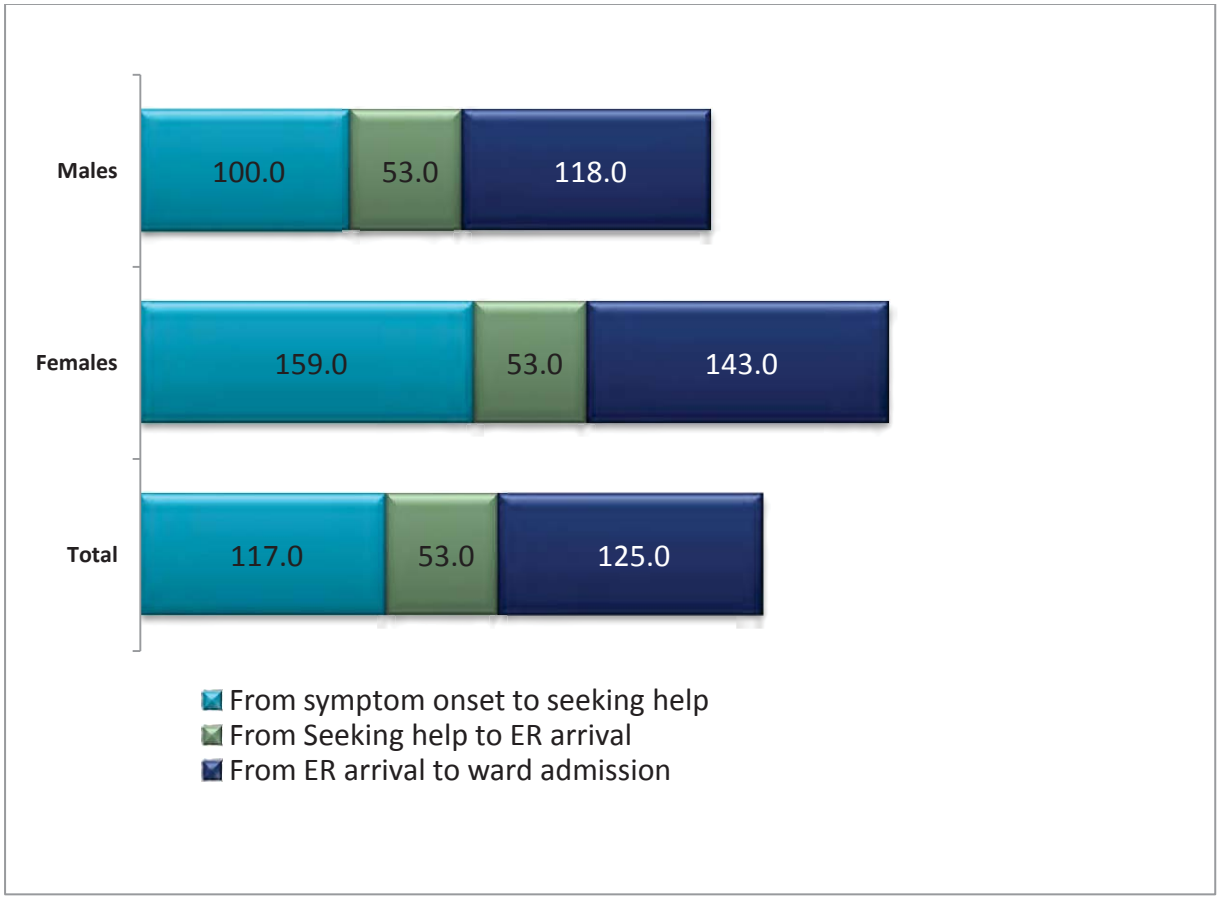
Men were more likely to seek help earlier than women. After seeking for help arrival time to the emergency room (ER) were similar for men and women. However, men had a significantly shorter duration from arrival at the ER to admission when compared to women.

Table 1.14: Time (minutes) from Symptom Onset to Admission by gender

Time elapsing from:	Length of time (minutes)									p
	Men			Women			Total			
	N	Median	(25%-75%)	N	Median	(25%-75%)	N	Median	(25%75%)	
Onset to seeking help	904	100	(40-304)	235	159	(50-600)	1139	117	(42-360)	.005
Seeking help to ER arrival*	804	53	(36-91.5)	222	53	(35-88)	1026	53	(36-90)	.908
ER arrival to first ward of admission	1257	118	(40-223)	363	143	(67-271)	1620	125	(43.5-233.5)	<.001
Onset to ER arrival	978	150	(79-418)	255	237	(91-720)	1233	165	(80-480)	<.001
Onset to first ward of admission	928	299.5	(160-67.5)	242	415.5	(210-900)	1170	317.5	(167-735)	<.001

* excludes patients whose first contact was in ER

Figure 1.12: Median Length of Time from Symptom Onset to Admission (minutes)



1.5.9 First Medical Contact

About 30% of patients had the first medical contact either at the emergency room (ER) or at a primary clinic. For an additional 20% the primary medical contact was with a mobile intensive care unit (MICU). Patients with ST elevation were more likely to have their first medical contact with an MICU (29.1%) than those with non-ST elevation (13.0%).

Table 1.15: First Medical Contact

First medical contact*	ST ↑ (N=749) (%)	Non ST ↑ (N=1137) (%)	Total (N=1886) (%)
Home	2.8	3.1	3.0
HMO/Primary Clinic	27.8	36.1	32.8
Regular Ambulance	11.2	7.4	8.9
MICU	29.1	13.0	19.4
ER	26.4	36.4	32.5
In-patient	2.7	4.0	3.4

*difference in location of first medical contact, ST elevation vs. non-ST elevation, $p<0.0001$

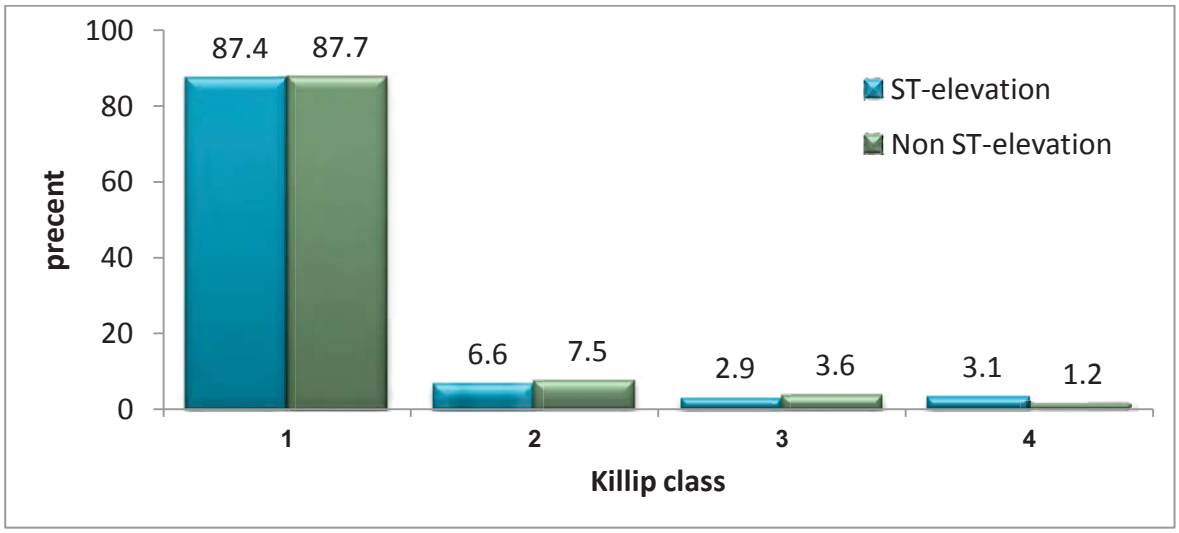
1.5.10 Presenting Symptoms and Killip Class

Chest pain was significantly more frequent in patients presenting with ST elevation (93.7%) than in those presenting with non-ST elevation (88.0%). However, dyspnea was significantly more common in patients with non-ST elevation (28.5%) than in those with ST elevation (20.4%).

Table 1.16: Presenting Symptoms at First Medical Contact

Symptoms	ST ↑ (N=749) (%)	Non ST ↑ (N=1137) (%)	Total (N=1886) (%)	p
CHF	1.3	4.6	3.3	<.001
Chest pain	93.7	88.0	90.3	<.001
Syncope	4.7	3.1	3.7	.073
Aborted SCD	2.5	1.5	1.9	.105
Arrhythmia	3.3	4.3	3.9	.287
Dyspnea	20.4	28.5	25.3	<.001
Other	16.6	14.8	15.6	.252

Figure 1.13: Killip Class on Admission



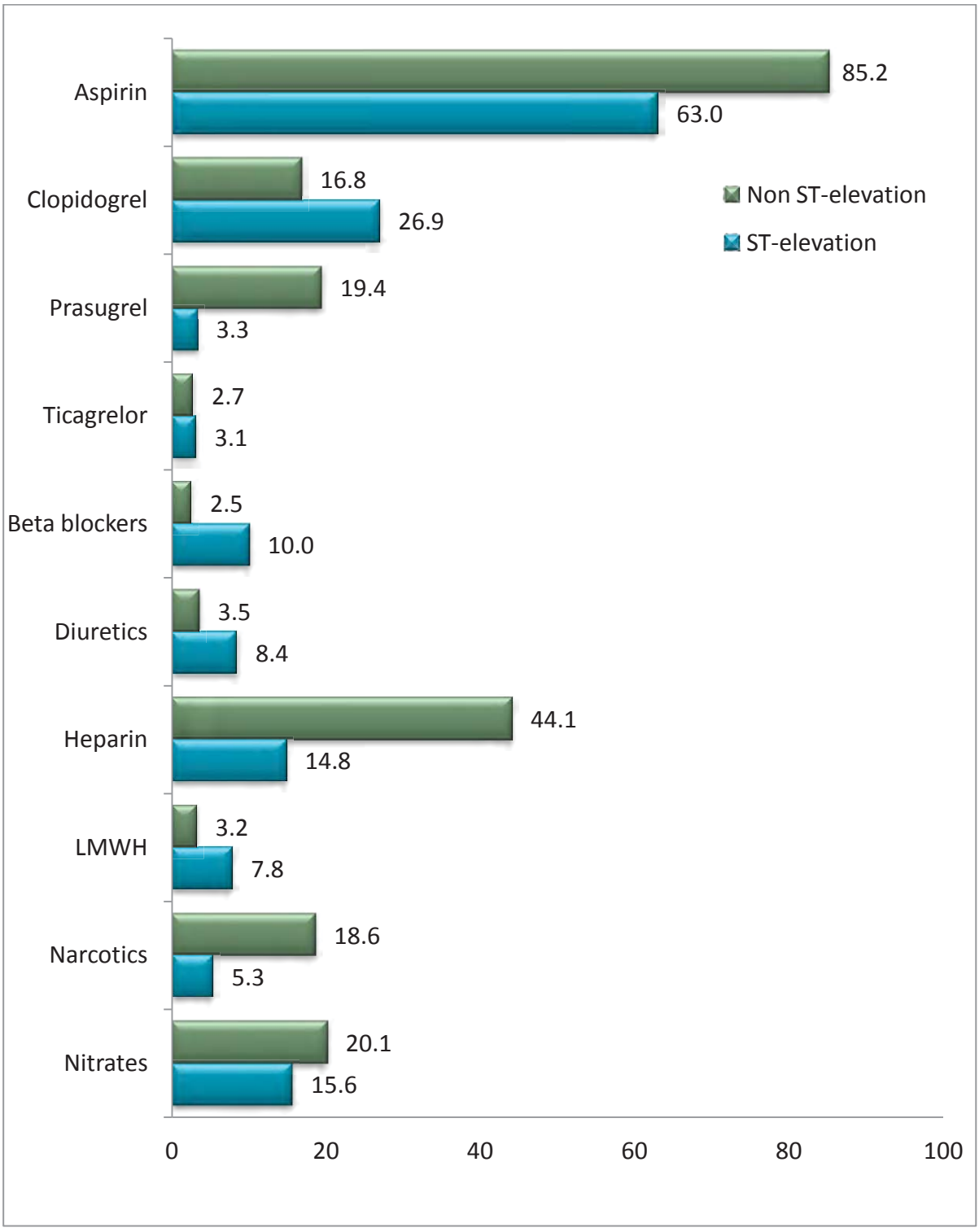
1.5.11 Treatment at First Contact

At first medical contact, patients with ST elevation were significantly more likely to receive therapy with: aspirin, prasugrel, heparin, nitrates, and narcotics than patients with non-ST elevation which were more likely to receive clopidogrel, beta blockers, and low molecular weight heparin (LMWH).

Table 1.17 Treatment at First Contact

Medication	ST ↑ (N=749) (%)	Non ST ↑ (N=1137) (%)	Total (N=1886) (%)	p
Aspirin	85.2	63.0	71.8	<.001
Clopidogrel	16.8	26.9	22.9	<.001
Prasugrel	19.4	3.3	9.7	<.001
Ticagrelor	2.7	3.1	2.9	.606
Anti Platelets	38.9	33.3	35.1	.015
Beta blockers	2.5	10.0	7.1	<.001
Diuretics	3.5	8.4	6.4	<.001
Heparin	69.0	22.8	41.1	<.001
LMWH	3.7	21.2	14.3	<.001
Nitrates	31.0	21.0	25.0	<.001
Narcotics	29.0	5.4	14.7	<.001

Figure 1.14: Treatment at First Medical Contact

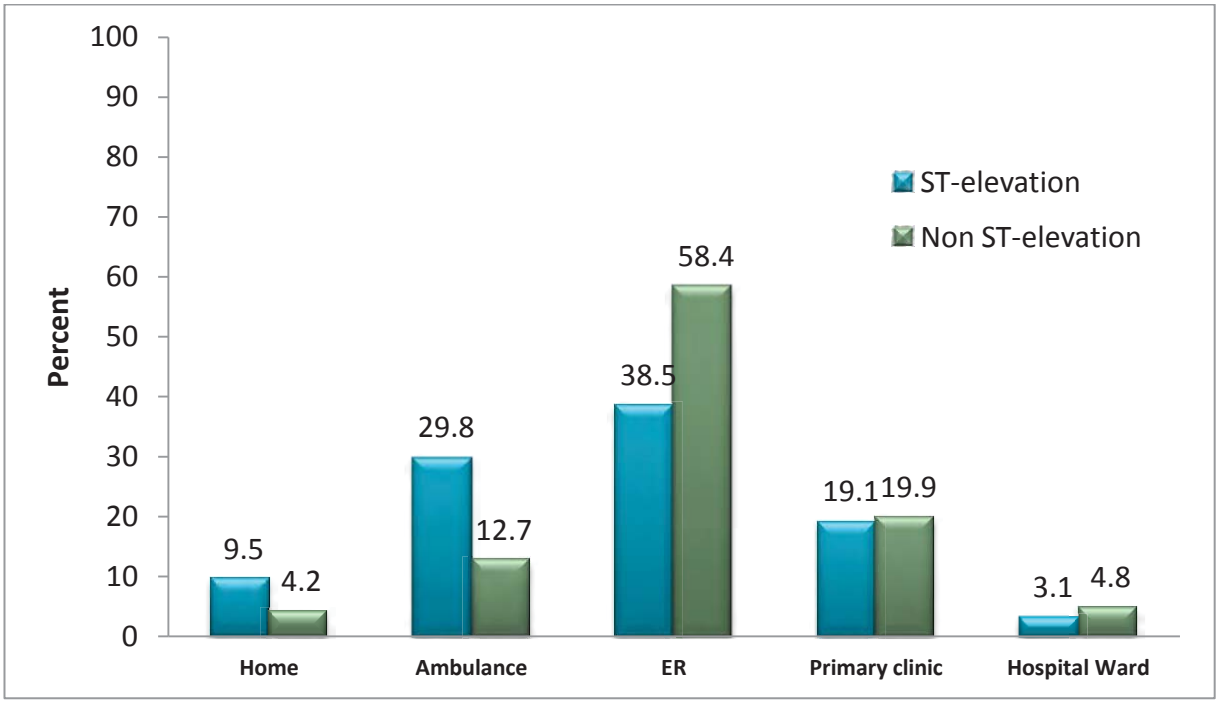


1.6 First Recorded ECG

1.6.1 Location of First ECG Recording

Nearly 60% of patients presenting with non-ST elevation and 40% of patients presenting with ST elevation had their first ECG recorded in the emergency room (ER). With respect to the remaining patients, almost 40% of patients with ST elevation and 17% of those with non-ST elevation had the first ECG performed either at home or in an ambulance, and about 20% in both groups had it performed in a primary clinic.

Figure 1.15: Location of First ECG Recording



1.6.2 First ECG Rhythm

About 85% of patients, both with and without ST elevation, presented with a normal sinus rhythm. 1.9% of patients with ST elevation and 4.8% of those without ST elevation, presented with atrial fibrillation.

Table 1.18: First ECG Rhythm

Rhythm*	ST ↑ (N=753) (%)	Non ST ↑ (N=1143) (%)	Total (N=1896) (%)
NSR	85.5	84.6	85.0
AF	1.9	4.8	3.6
S. Tachycardia	4.5	4.5	4.5
S. Bradycardia	2.5	1.2	1.7
VT/VF	2.4	1.7	2.0
II/III AV Block	1.2	0.4	0.7
Other	3.9	2.8	2.5

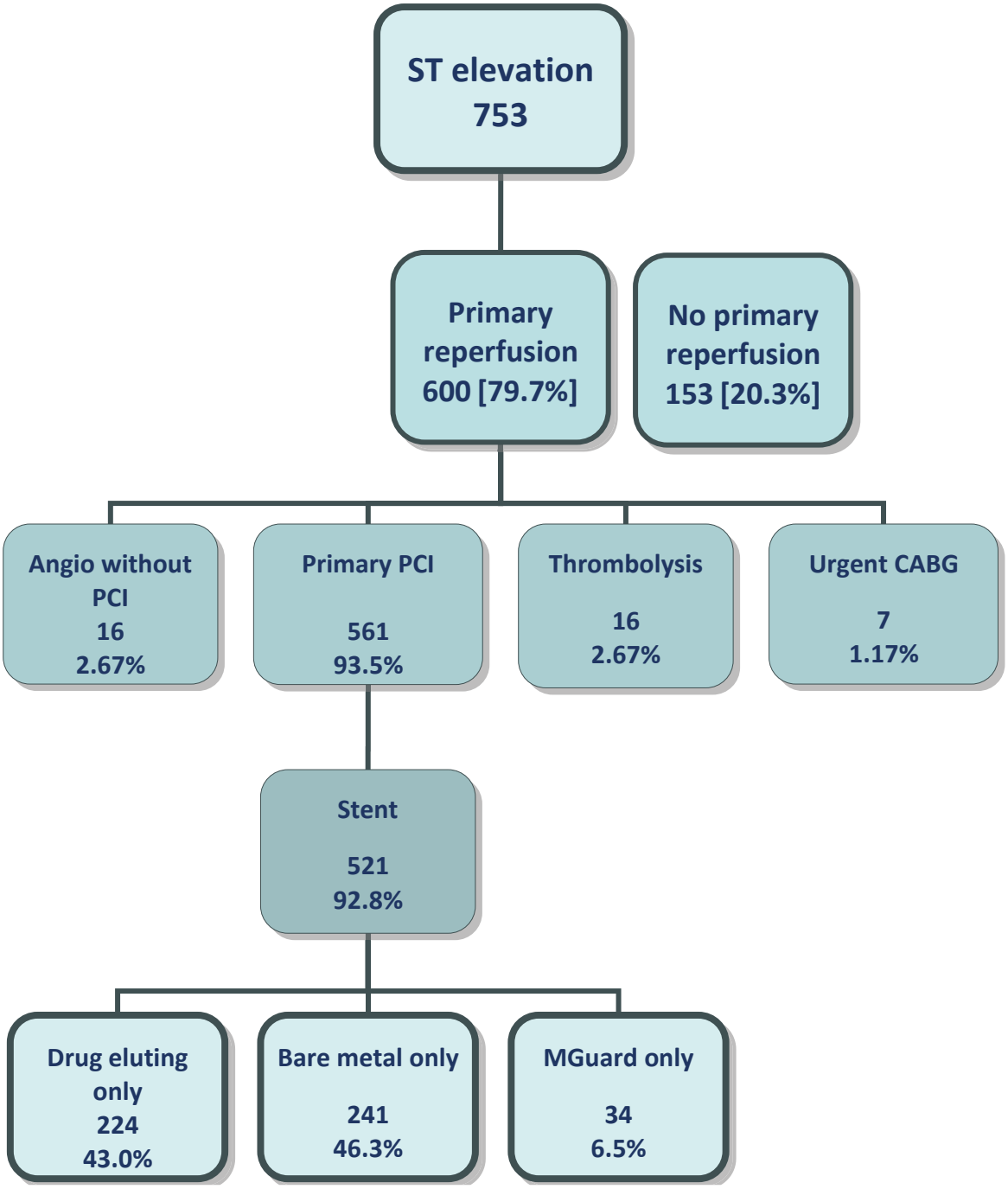
*difference in first ECG rhythm, ST elevation vs. non-ST elevation, $p<0.0043$

1.7 Primary Reperfusion

1.7.1 Primary Reperfusion Therapy in Patients with ST Elevation

About 80% of patients with ST elevation underwent primary reperfusion within 12 hours from onset of symptoms, mainly primary PCI. In 92.8% of these cases, stents were deployed, with an equal distribution between bare metal and drug eluting stents.

Figure 1.16: Primary Reperfusion in Patients with ST Elevation



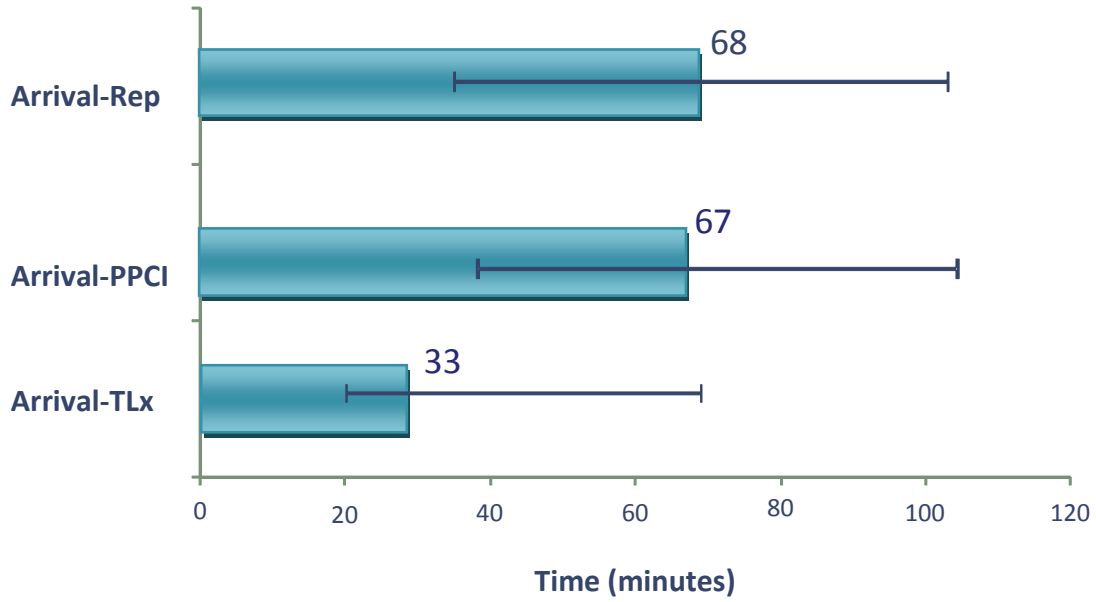
1.7.2 Length of Time from Arrival to Primary Reperfusion

The median time from arrival to primary reperfusion was a little more than one hour. The median length of time for thrombolysis was shorter (33 minutes) than for primary PCI (67 minutes).

Table 1.19: Length of Time (minutes) from Arrival to Reperfusion

	Length of time for ST ↑ patients (minutes)	
	Median	(25%-75%)
From arrival to reperfusion (n=486)	68	39-105
From arrival to thrombolysis (n=15)	33	20-70
From arrival to primary PCI (n=508)	67	35.5-106

Figure 1.17: Length of Time from Arrival to Reperfusion (Median, 25%-75%)



1.7.3 Length of Time from Arrival to Primary Reperfusion, by Gender

The time delay from arrival to primary reperfusion was nearly identical between men and women.

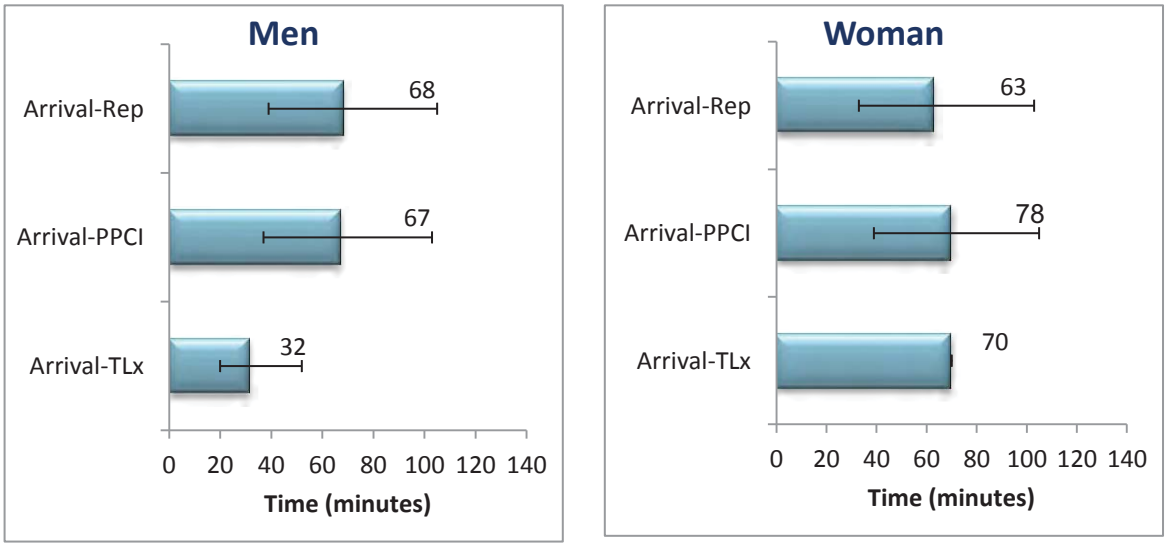
Table 1.20: Length of Time (minutes) from Arrival to Reperfusion, by gender

Men		Length of time for ST ↑ patients (minutes)	
		Median	(25%-75%)
From arrival to reperfusion	(n=411)	68	39-105
From arrival to thrombolysis	(n=14)	31.5	20-52
From arrival to primary PCI	(n=427)	67	37-106

Women		Length of time for ST ↑ patients (minutes)	
		Median	(25%-75%)
From arrival to reperfusion*	(n=75)	63	33-103
From arrival to thrombolysis**	(n=1)	70	70-70
From arrival to primary PCI***	(n=81)	70	39-105

p= *0.97, **0.42, ***0.65, for differences between men and women, respectively

Figure 1.18: Length of Time from Arrival to Reperfusion by gender
(Median, 25%-75%)



1.7.4 Use of drugs and protective devices during Primary PCI

98% of patients received a P_2Y_{12} inhibitor during primary PCI, about 40% received IIb/IIIa antagonists, and angiomax was given in 16% of cases. Protective/aspiration devices were used in 35.6% of cases.

Table 1.21: Drugs and Protective Devices during Primary Reperfusion

Drugs and protective devices	N= 600	
	N	%
Clopidogrel	158	26.7
Prasugrel	355	60.0
Ticagrelor	76	12.9
IIb/IIIa antagonists	243	41.0
Angiomax	94	16.2
Protective/Aspiration devices	208	35.6

1.7.5 TIMI Grade Flow of IRA

In 58.1% of cases, a TIMI flow grade of zero was observed on first injection to the infarct related artery. Following revascularization, a TIMI grade flow of 3 was achieved in the majority of patients (88.2%).

Table 1.22: TIMI Grade Flow of IRA before and after revascularization

TIMI grade flow	Before revascularization (%) N=549**	After revascularization (%) N=584
0	58.1	6.2
1	10.7	1.4
2	10.6	4.2
3	20.6	88.2

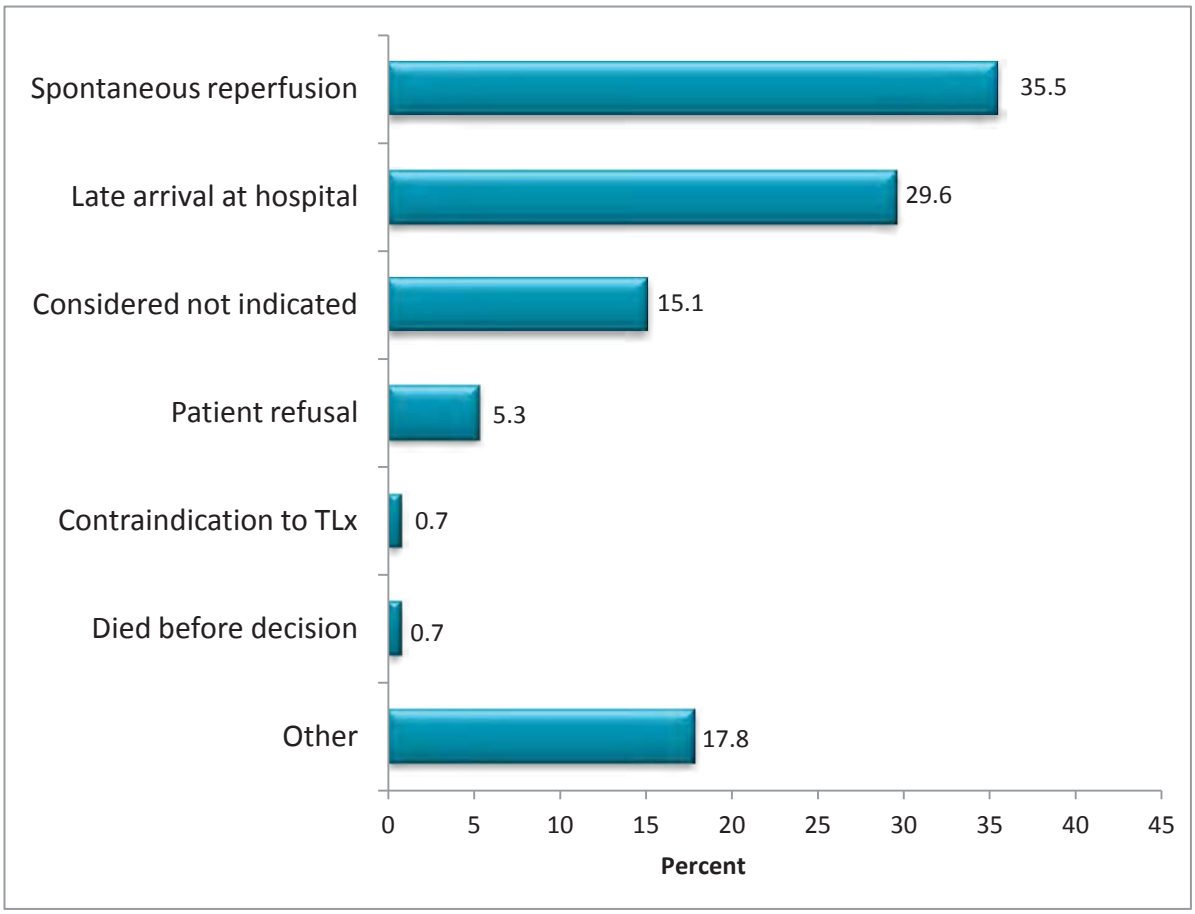
**Missing data in 35 patients

1.7.6 Reasons for Not Performing Primary Reperfusion

20% of patients presenting with ST elevation did not receive primary reperfusion therapy. In more than one-third of the cases (35.5%) the reason was spontaneous reperfusion, in 29.6% the reason was late arrival at the hospital, and in 15% of cases primary reperfusion was considered not indicated.

Figure 1.19: Reasons for Not Performing Primary Reperfusion

Number of Patients=153

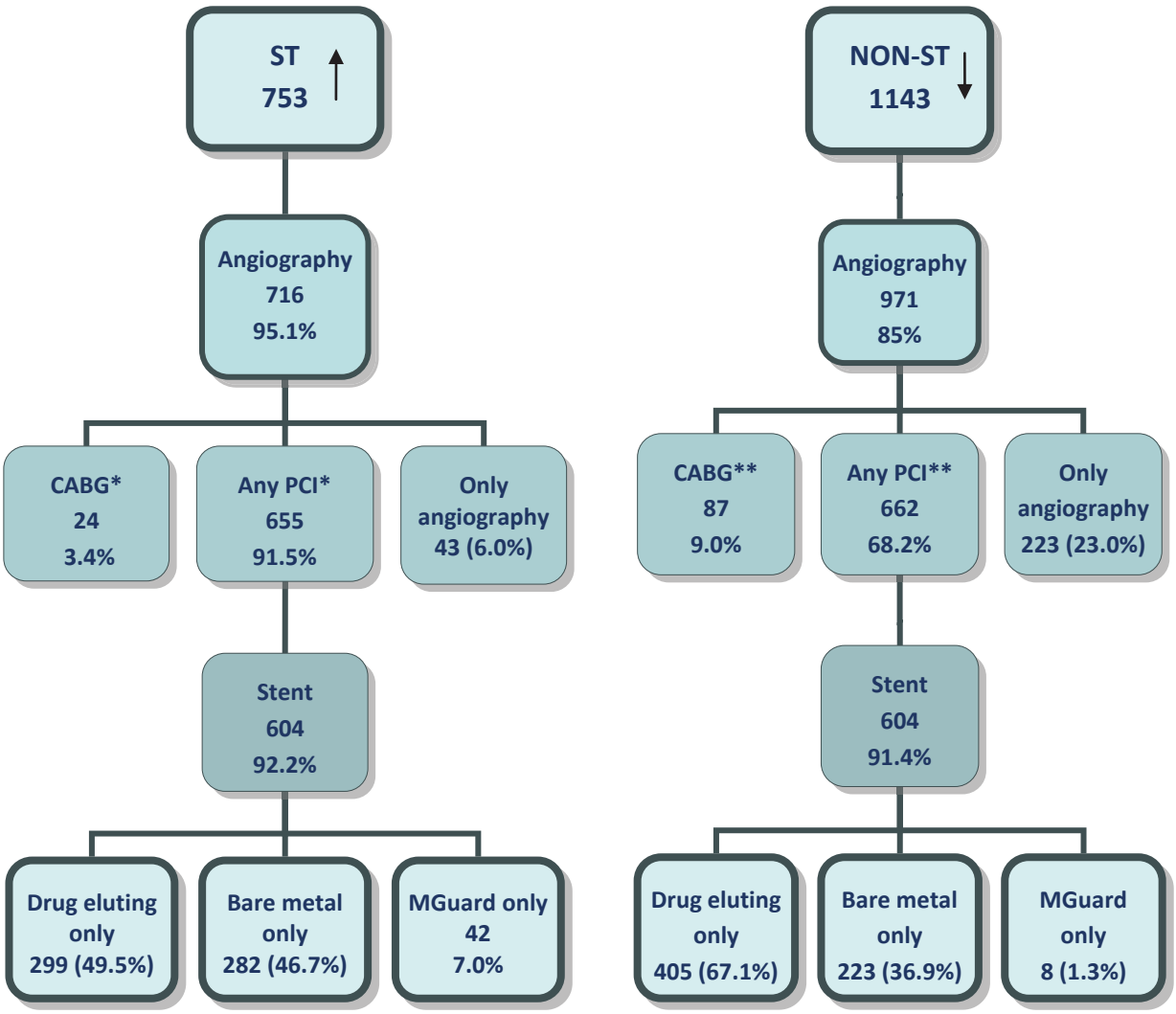


1.8 Coronary Interventions and Procedures during Hospitalization

1.8.1 Coronary Angiography and Interventions

Patients with ST elevation were more likely than those with non-ST elevation to undergo coronary angiography and PCI. CABG during hospitalization was performed more frequently in patients with non-ST elevation. Stents were deployed with equal frequency in both groups, however drug-eluting stents were used more frequently in patients without ST elevation than in patients with ST elevation. MGuard stents were more likely to be used in patients with ST elevation.

Figure 1.20: In-Hospital Cardiac Interventions and Procedures



* 6 patients underwent both CABG and PCI; ** 1 patient underwent both CABG and PCI.

1.8.2 Other Procedures

90% of patients with ST elevation and 73.5% of those with non-ST elevation underwent echocardiography. Patients with ST elevation were more likely to receive CPR, DC shocks, mechanical ventilation, intra-aortic (IA) balloon and temporary pacemakers than those with non-ST elevation.

Table 1.23: Other Procedures

Procedure	ST ↑ (N=753) (%)	Non ST ↑ (N=1143) (%)	Total (N=1896) (%)	p
ECHO	89.2	73.5	79.8	<.001
DC shock	2.9	1.5	2.1	.031
Resuscitation (CPR)	2.8	1.3	4.4	.021
Mechanical ventilation	5.6	3.6	1.9	.038
IA Balloon	4.2	1.0	2.3	<.001
EPS	0	0.1	0.1	.416
Stress test/SPECT	1.3	2.4	2.0	.088
Permanent pacemaker	0.5	0.4	0.5	.771
Temporary pacemaker	2.1	0.9	1.4	.022
Hypothermia for anoxic brain damage	0.8	1.0	0.9	.708

1.9 Ejection Fraction

Ejection fraction (EF) was determined in 76.4% of patients with ST elevation and in 68.5% of those with non-ST elevation. EF was normal in a larger proportion of patients with non-ST elevation (58.2%) than in patients with ST elevation (39.7%). 28.4% of patients with ST elevation and 16.9% of patients with non-ST elevation presented with an EF <40%.

Table 1.24: Ejection Fraction

Ejection fraction	ST ↑ (N=742) (%)	Non ST ↑ (N=1130) (%)	Total (N=1872) (%)	P
EF determined	76.4	68.5	71.6	<.001
Normal (≥50%)	39.7	58.2	50.3	<.001
Mild (40-49%)	31.9	24.9	27.9	
Moderate (30-39%)	22.8	11.5	16.3	
Severe (<30%)	5.6	5.4	5.5	

1.10 In-Hospital Complications

Hemodynamic complications, ventricular fibrillation (VF) and sub-acute stent thrombosis were more frequent in patients with ST elevation.

Table 1.25: In-Hospital Complications

Complications	ST ↑ (N=753) (%)	Non ST ↑ (N=1143) (%)	Total (N=1896) (%)	p
CHF mild-moderate (Killip 2)	6.1	6.2	6.2	.931
Pulmonary edema (Killip 3)	3.2	5.1	4.3	.048
Cardiogenic shock (Killip 4)	6.1	1.4	3.3	<.001
Hemodynamically significant right ventricular infarction	0.8	0.3	0.5	.096
Re-MI	0.8	1.0	0.9	.580
Post MI angina / re-ischemia	2.0	1.9	2.0	.916
Sub-acute stent thrombosis	1.6	0.3	0.8	.003
Free wall rupture	0.1	0	0.1	.217
Pericarditis	1.1	0.1	0.5	.002
Tamponade	0	0	0	-
VSD	0.1	0	0.1	.217
Moderate-severe MR	2.0	2.2	2.1	.773
High degree AVB	1.9	1.4	1.6	.430
Sustained VT	1.5	1.2	1.3	.656
Primary VF	2.3	0.4	1.2	<.001
Secondary VF	0.5	0.5	0.5	.983
AF	4.8	3.7	4.1	.235
Asystole	2.4	1.5	1.8	.151
TIA	0.3	0.2	0.2	.673
Stroke	0.7	0.5	0.6	.694
CVA/TIA in hospital	0.9	0.7	0.8	.580
Acute renal failure	5.1	4.4	4.6	.494
Major bleeding	0.5	1.1	0.9	.171
Infection	3.3	2.3	2.7	.168

1.11 In-Hospital Medical Treatment

Unfractionated heparin, novel P_2Y_{12} inhibitors (prasugrel and ticagrelor), Bivalirudin, and IIb/IIIa antagonists were more frequently used in patients with ST elevation. Clopidogrel, low molecular weight heparin (LMWH), and fondaparinux were more frequently used among patients with non ST elevation. ACE inhibitor or angiotensin receptor blocker therapy, as well as aldosterone antagonists were more commonly used in patients with ST elevation. Both groups of patients were equally treated with aspirin, beta-blockers, and lipid-lowering drugs.

Table 1.26: In-Hospital Medical Treatment

Treatment	ST ↑ (N=753) (%)	Non ST ↑ (N=1143) (%)	Total (N=1896) (%)	P value
Aspirin	97.1	95.7	96.3	.124
Clopidogrel	36.8	74.1	59.3	<.001
Prasugrel	59.1	13.3	31.5	<.001
Ticagrelor	17.1	22.2	20.1	.006
Warfarin	3.7	5.3	4.7	.102
Heparin	60.6	48.6	53.4	<.001
LMWH	22.0	54.9	41.8	<.001
Bivalirudin	12.0	2.7	6.4	<.001
Fondaparinux	0.5	3.6	2.4	<.001
IIb/IIIa antagonists	36.0	7.6	19.0	<.001
ACE-I	78.6	60.4	67.6	<.001
ARB	7.7	17.0	13.3	<.001
ACE-I/ARB	84.3	75.9	79.3	<.001
Beta Blockers	82.3	80.4	81.2	.291
IV inotropic agent	8.2	3.2	5.2	<.001
Digoxin	0.8	1.3	1.1	.293
Diuretics	20.5	27.7	24.8	<.001
Aldosterone receptor antagonist	13.1	8.3	10.2	<.001
Insulin	17.7	21.9	20.2	.024
Hypoglycemic drugs (Oral)	17.4	21.2	19.7	.045
Statins	92.8	93.3	93.1	.657
Fibrate	2.3	4.0	3.3	.035
Ezetimibe	1.1	3.1	2.3	.003
Calcium antagonists	14.1	29.1	23.2	<.001
Nitrates	12.7	19.3	16.7	<.001
PPI	41.1	50.2	46.6	<.001
H2 Blockers	9.4	8.0	8.6	.294

1.12 Duration of Hospitalization

The median length of stay in CCU was longer for patients with ST elevation (4 days) than with non ST elevation (3 days). Overall total hospital stay did not differ between the 2 groups, with a median length of hospitalization of 4 days

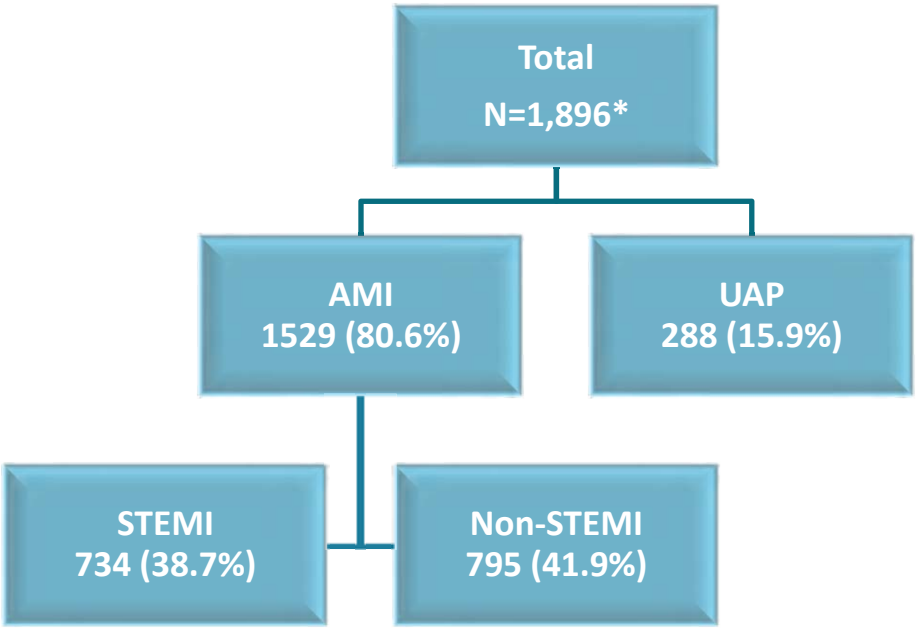
Table 1.27: Length of Stay in CCU and Total Hospital Stay

Length of stay (days)	ST ↑ (N=728) Median	(25%-75%)	Non ST ↑ (N=1105) Median	(25%-75%)	Total (N=1833) Median	(25%-75%)
No. of days in CCU	4.0	(3-5)	3.0	(2-5)	4.0	(2-5)
Total hospital days	4.0	(3-6)	4.0	(3-6)	4.0	(3-6)

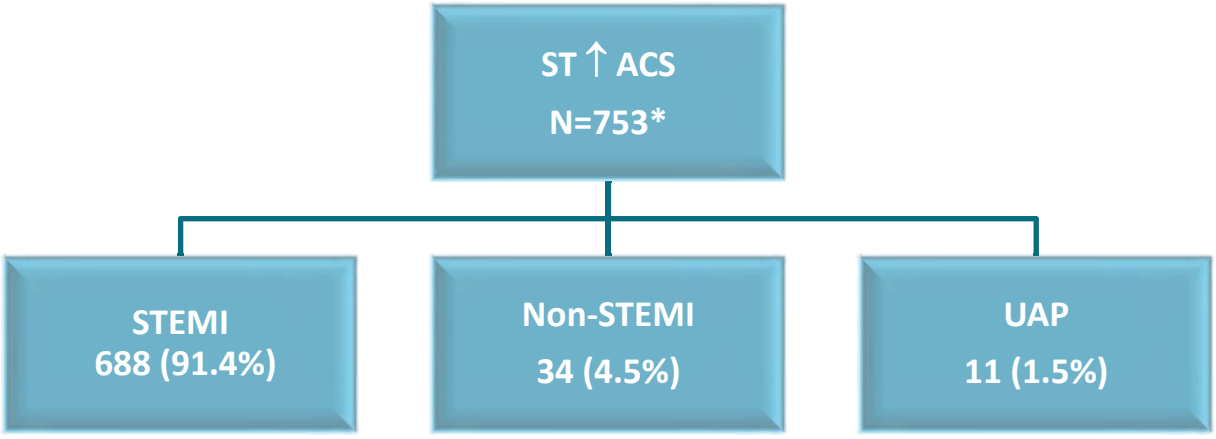
1.13 Discharge Diagnosis

Approximately 80% of patients were discharged with a diagnosis of an acute myocardial infarction (AMI), and 20% with a diagnosis of unstable angina pectoris (UAP). Among patients presenting with ST elevation, 91% were diagnosed on discharge with STEMI. Among patients presenting with non-ST elevation, the most frequent diagnosis on discharge (67%) was non-STEMI.

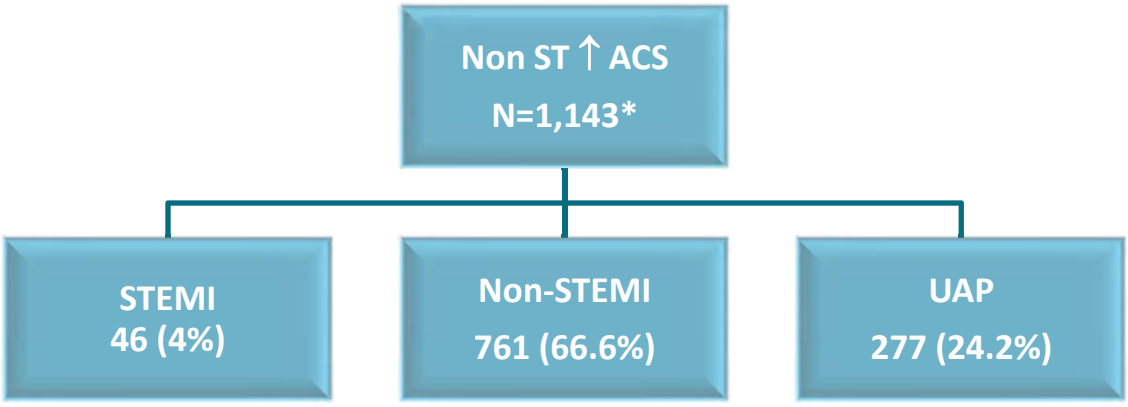
Figure 1.21 Discharge Diagnosis



*79 Patients Diagnosed as "Other"



*20 Patients Diagnosed as "Other"



*59 Patients Diagnosed as "Other"

1.13.2 Type of MI

A greater proportion of patients with ST elevation (95.8%) than those with non-ST elevation (91%) were diagnosed with Type 1 MI, and a greater proportion of patients with non-ST elevation (7%) than those with ST elevation (1.8%) were diagnosed with Type 2 MI.

Table 1.28: Type of MI

Type	ST ↑ (N=709) (%)	Non ST ↑ (N=743) (%)	Total (N=1452) (%)
1	95.8	91.0	93.3
2	1.8	7.0	4.5
3	0.3	0.3	0.3
4	0.3	1.3	0.8
5	1.8	0.4	1.1

New Universal Definition of MI[(1)]

Classification	Description
1	Spontaneous MI related to ischemia due to a primary coronary event such as plaque erosion and/or rupture, fissuring or dissection
2	MI secondary to ischemia due to an imbalance of oxygen supply and demand, as from coronary spasm or embolism, anemia, arrhythmias, hypertension or hypotension
3	Sudden unexpected cardiac death, including cardiac arrest, often with symptoms suggesting ischemia with new ST-segment elevation; new left bundle branch block; or pathologic or angiographic evidence of fresh coronary thrombus, in the absence of reliable biomarker findings
4	MI associated with PCI / Stent thrombosis
5	MI associated with CABG surgery

[(1)] Thygesen K et al. *Circulation* 2007;116(22):2634-53. Epub 2007 Oct 19.

1.14 Medical Treatment on Discharge

Aspirin, novel P_2Y_{12} inhibitors, beta blockers, ACE-I/ARB, and aldosterone receptor antagonists were more often prescribed for patients with ST elevation. Clopidogrel, LMWH, diuretics, insulin, oral hypoglycemics, calcium channel blockers, ezetimibe, proton pump inhibitors (PPI's), and nitrates were prescribed more often for patients with non-ST elevation. All other recommended drugs were similarly given to both groups.

Table 1.29: Medical Treatment on Discharge among Hospital Survivors

Recommended treatment	ST ↑ (N=727) (%)	Non ST ↑ (N=1128) (%)	Total (N=1853) (%)	P
Aspirin	97.5	94.8	95.8	.003
Clopidogrel	25.9	54.9	43.5	<.001
Prasugrel	53.2	11.4	27.8	<.001
Ticagrelor	14.9	16.7	16.0	.292
Warfarin	4.1	5.7	5.1	.138
LMWH	6.9	11	9.4	.003
ACE-inhibitors	74.9	57.3	64.2	<.001
ARB	8.8	17.2	13.9	<.001
ACE-I/ARB	83.0	73.5	64.2	<.001
Beta blockers	81.0	77.1	78.6	.043
Digoxin	0.7	1.2	1.0	.316
Amiodarone	2.8	5.1	4.2	.015
Diuretics	13.1	24.1	19.8	<.001
Aldosterone receptor antagonist	12	8.2	9.7	.007
Insulin	9.6	16.0	13.5	.000
Hypoglycemic drugs	18.2	23.5	21.4	.006
Statins	94.1	93.4	93.7	.578
Fibrate	2.5	3.9	3.3	.095
Ezetimibe	1.1	3.3	2.4	.002
Calcium channel blockers	10.2	26	19.8	<.001
Nitrates	4.1	9.8	7.6	<.001
PPI	39.8	47.6	44.6	<.001
H2 Blockers	7.2	6.6	6.9	.669
Smoking Cessation medication	0.5	0.2	0.3	.354

1.15 Re-Hospitalization within 30 Days of Admission

Re-hospitalization rates for patients with and without ST elevation were similar. Differences in reasons for re-hospitalization were not statistically significant.

Table 1.30: Re-Hospitalization* within 30 Days of Admission

	ST ↑ (N=557) (%)	Non ST ↑ (N=835) (%)	Total (N=1392) (%)	P
Re-hospitalization % (n)	15.5	17.1	16.5	.458
Reason for Re-hospitalization				
Scheduled	36.0	44.0	41.2	.283
Cardiac event driven	62.8	62.0	62.2	.991
Non-cardiac hospitalization	6.3	5.9	6	.695

* Rehospitalization among hospital survivors

1.16 Mortality and Major Adverse Coronary Event (MACE)

1.16.1 Rates of Mortality and MACE by ECG on Admission

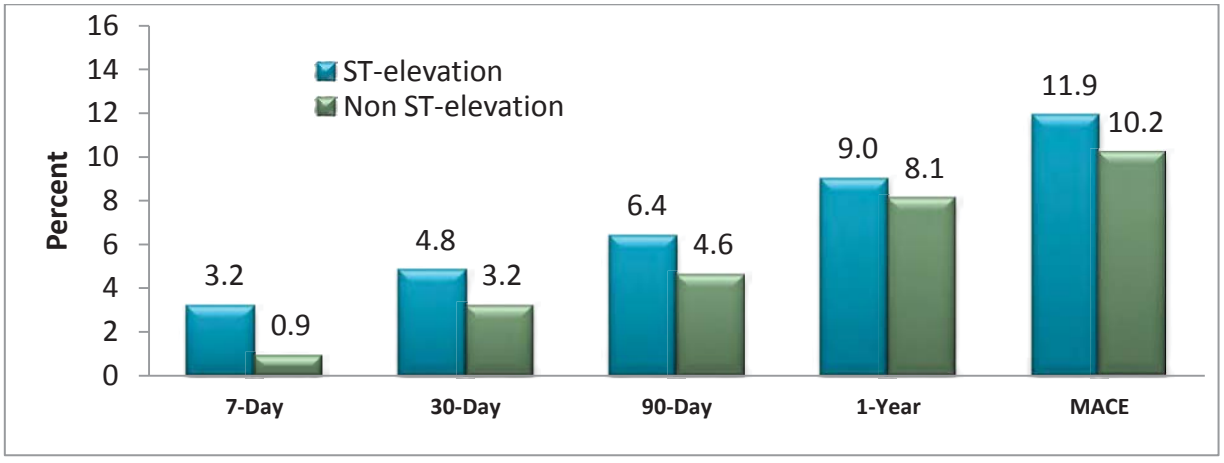
Unadjusted rates of 7-day mortality were higher in patients with ST elevation (3.2%) compared to those with non-ST elevation (0.9%). However, 30-day mortality and MACE (Major Adverse Cardiac Events), which included recurrent MI or UAP, recurrent ischemia, stent thrombosis, ischemic stroke, urgent revascularization (follow-up) or death occurring within 30 days from hospitalization) were not significantly different for patients with and without ST elevation.

Table 1.31: Unadjusted Rates of 7-Day, 30-Day, 90-Day & 1 Year Mortality and MACE

Mortality	ST ↑ (N=719) (%)	Non ST ↑ (N=1137) (%)	Total (N=1856) (%)	p
7-day	3.2	0.9	1.8	<.001
30-day	4.8	3.2	3.8	.091
90-day	6.4	4.6	5.3	.090
1 year	9.0	8.1	8.4	.519
MACE*	11.9	10.2	10.8	.328

*definition includes: recurrent MI, recurrent ischemia, stent thrombosis, ischemic stroke, urgent revascularization (follow-up) or death occurring within 30 days from hospitalization.

Figure 1.22: Unadjusted Rates of 7-Day Mortality, 30-Day Mortality and MACE



After adjustment for age and other risk factors, 7-day, 30-day, and 90-day mortality rates were significantly higher for patients with ST elevation compared to those with non-ST elevation. Rates of MACE were 33% higher for patients with ST elevation than those with non-ST elevation, however this did not reach statistical significance.

Table 1.32: Mortality Rates by ECG on Admission

Adjusted for Age and Other Risk Factors

	ST ↑ (N=719) (%)*	Non ST ↑ (N=1173) (%)*	Age-Adjusted OR (95% CI)	OR** (95% CI)
7-day	3.6	0.9	4.43 (2.08-9.46)	9.78 (3.81-25.17)
30-day	5.1	2.9	1.84 (1.12-3.00)	2.78 (1.56-4.96)
90-day	6.7	4.0	1.75 (1.14-2.69)	2.59 (1.55-4.30)
1 year	9.5	7.1	1.4 (0.98-2.00)	1.87 (1.23-2.82)
MACE* **	12.2	9.7	1.26 (0.91-1.75)	1.33 (0.94-1.9)

* age adjusted

** adjusted for age, gender, past MI, diabetes, hypertension, Killip class≥2, any angiography

*** definition includes: recurrent MI, recurrent ischemia, stent thrombosis, ischemic stroke, urgent revascularization (follow-up) or death occurring within 30 days from hospitalization.

1.16.2 Rates of Mortality and MACE by Gender

Unadjusted 7-day, 30-day, 90-day, and 1 year mortality rates were higher for women than for men. Rates of MACE were significantly higher for women (15%) than for men (9.6%). Following adjustment for age and for other risk factors, there was still a significant difference between men and women with respect to risk of 30-day, 90-day, and 1 year mortality.

Table 1.33: Unadjusted Rates of 7-Day Mortality, 30-Day Mortality and MACE, by Gender

Outcome	Men (N=1407) (%)	Women (N=414) (%)	Total (N=1821) (%)	p
7-day mortality	1.4	3.4	1.8	.006
30-day mortality	2.8	7.3	3.8	<.001
90-day	4.2	9.1	5.3	<.001
1 year	7.0	13.3	8.4	<.001
MACE*	9.6	15.1	10.9	.002

*see definition above

Table 1.34: Rates of Mortality and MACE by Gender, Adjusted for Age and Other Risk Factors

Outcome	Men (n=1407) (%)*	Women (n=414) (%)*	Age-Adjusted OR (95% CI) (Women vs Men)	Risk factor Adjusted OR** (95% CI)
7-day mortality	1.4	3.1	1.85 (0.89-3.81)	1.95 (0.84-4.55)
30-day	2.9	5.8	1.97 (1.19-3.28)	2.28 (1.29-4.03)
90-day	4.3	6.9	1.62 (1.03-2.53)	1.79 (1.09-2.94)
1 year	7.3	9.8	1.35 (0.93-1.97)	1.53 (1.01-2.33)
MACE***	9.6	12.5	1.45 (1.02-2.08)	1.43 (0.98-2.09)

* age adjusted

** adjusted for age, past MI, diabetes, hypertension, Killip class≥2, any angiography

*** see definition above.

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Effient, co-administered with acetylsalicylic acid (ASA), is indicated for the prevention of atherothrombotic events in patients with acute coronary syndrome (i.e. unstable angina, non-ST segment elevation myocardial infarction [UA/NSTEMI] or ST segment elevation myocardial infarction [STEMI]) undergoing primary or delayed percutaneous coronary intervention (PCI).

The increased efficacy should be balanced with the increased risk in patients with bleeding tendency in those who had TIA/CVA in the past and in those above the age of 75 and a weight below 60 kg.

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Chapter 2: Temporal Trends in Characteristics, Management, and Outcome of Patients with ACS in Cardiology: 2000-2013

2.1 Introduction

In this chapter, we present trends in the characteristics and management of patients with ACS hospitalized in Cardiology Departments and ICCU's in Israel since 2000, and evaluate the impact of these changes on clinical outcomes and mortality. The data are derived from the ACSIS national surveys which have been performed since 1992 in all 26 cardiac departments in Israel, by the Working Group of Intensive Cardiac Care of the Israel Heart Society, the Israel Center for Disease Control and the Israel Society for the Prevention of Heart Attacks. In each survey, the study population included all patients with ACS hospitalized in cardiology and intensive care wards during a two-month period (generally February and March).

2.2 Patient Characteristics

The number of patients hospitalized with ACS in Cardiology and Cardiac Intensive Care Units increased between the ACSIS surveys 2000-2006. In ACSIS 2008 and 2010, there was a 15% decrease in the number of patients compared to 2000-2006, with a gradual increase of 8% in 2013. Over this time period of 13 years, the proportion of males increased. The mean age of the patients has not changed, however, while the proportion of young patients (<50) and of elderly patients (>75) decreased slightly, and that of middle-aged patients (51-75) increased.

Table 2.1: Patient Characteristics

Year	2000	2002	2004	2006	2008	2010	2013	p for trend
No. of patients	1,794	2,048	2,094	2,075	1,746	1,781	1,896	
Gender (%)								
Men	75.0	76.2	74	77.4	79.4	77.5	77.1	.002
Women	25	23.8	26.0	22.6	20.6	22.5	22.9	
Age (%)								
<50	15.1	13.7	14.3	15.1	14.6	13.4	13.45	.051
51-75	62.4	64.5	62.4	64.4	66	66.9	65.66	
>75	22.5	21.8	23.3	20.5	19.4	19.7	20.89	
Mean age ±SD	63.9±13.2	64.1±13.0	64.2±13.3	63.5±13.1	63.3±13.2	63.6±12.7	64.0±12.9	0.373

2.3 Cardiovascular History and Risk Factors

Between the years 2000-2013, there is an increase in the proportion of patients with ACS who had a history of a previous myocardial infarction (MI), chronic renal failure (CRF), a prior percutaneous interventions (PCI), and less peripheral vascular disease (PVD). Additionally the prevalence of risk factors such as hypertension, diabetes, dyslipidemia, family history of CAD, and smoking has also increased.

Table 2.2: Cardiovascular History and Risk Factors

	2000 N=1,794 %	2002 N=2,048 %	2004 N=2,094 %	2006 N=2,075 %	2008 N=1,746 %	2010 N=1,781 %	2013 N=1,896 %	p for trend
CV history								
MI	29.6	27.2	27.7	30.2	30.9	31.9	30.5	.004
AP	40.3	36.6	29.8	42.7	39.0	34.4	28.8	<.001
Prior PCI	18.7	19.1	21.0	28.0	34.0	33.7	34.4	<.001
CABG	8.8	10.1	11.1	11.3	9.8	9.9	9.2	.874
CHF	8.1	7.1	7.4	8.7	8.4	8.4	7.9	.322
CVA/TIA	7.2	8.6	8.1	8.8	6.9	8.1	8.4	.686
CRF	8.2	8.4	9.6	12.8	12.4	12.0	12.8	<.001
PVD	10.3	9.7	7.0	10.4	8.2	8.2	7.1	.001
Risk factors								
Hypertension	48.0	50.4	56.6	60.0	59.2	66.0	66.1	<.001
Diabetes	32.2	31.9	32.4	33.4	37.1	37.9	39.2	<.001
Dyslipidemia	52.0	54.3	49.4	65.8	74.5	75.3	75.9	<.001
Current smokers	35.3	33.3	34.2	38.1	38.9	38.4	39.2	<.001
Past smokers	19.3	15.1	12.9	24.1	20.9	24.7	20.6	<.001
Family history of CAD	21.1	18.5	18.6	26.9	27.0	31.1	28.8	<.001

2.4 Admission Information

2.4.1 First Ward of Hospitalization

The proportion of patients that are admitted directly to cardiology wards continued to increase slightly during the years with concomitant reduction in the percent of patients being admitted to other departments, mainly internal medicine.

Table 2.3: First Ward of Hospitalization

Ward*	2000 N=1,794 %	2002 N=2,048 %	2004 N=2,094 %	2006 N=2,075 %	2008 N=1,746 %	2010 N=1,781 %	2013 N=1,896 %
Cardiology/CCU	83.4	80.6	81.3	80	89.2	89	85
Internal Medicine	15.5	17.2	16.4	18.4	10.2	9.5	13
Other	1.1	2.2	2.3	1.6	0.6	1.5	1.7

*p for trend <.0001

2.4.2 ECG on Admission

The percent of patients being admitted with ST elevation on admission significantly declined during the years, paralleled with an increase in the percent of patients with non-ST elevation.

Table 2.4: ECG on Admission

ST elevation*	2000 N=1,794 %	2002 N=2,048 %	2004 N=2,094 %	2006 N=2,075 %	2008 N=1,746 %	2010 N=1,781 %	2013 N=1,896 %
Yes	56.1	49.4	48.9	43.1	43.6	43.6	39.7
No	43.9	50.6	51.0	56.8	56.4	56.4	60.3

*p for trend<.0001

2.4.3 Killip Class on Admission

In recent years more patients present with Killip class 1. The percent of patients presenting with Killip class 3-4 has dropped by 50% between the year 2000 to 2013.

Table 2.5: Killip Class on Admission

Killip class*	2000 N=1,794 %	2002 N=2,048 %	2004 N=2,094 %	2006 N=2,075 %	2008 N=1,746 %	2010 N=1,781 %	2013 N=1,821 %
1	81.6	79.0	77.9	82.3	87.6	87.2	87.6
2	10.4	11.9	13.9	10.5	7.5	6.7	7.1
3	5.5	7.3	7.0	5.7	3.9	4.3	3.3
4	2.5	1.8	1.2	1.5	1.0	1.8	1.9

*p for trend <.0001

2.5 Primary Reperfusion Therapy in Patients with ST Elevation

Between the years 2000 – 2013 the use of primary reperfusion has increased markedly by 40%. The use of thrombolysis has diminished markedly.

Figure 2.1: Primary Reperfusion among Patients with ST Elevation

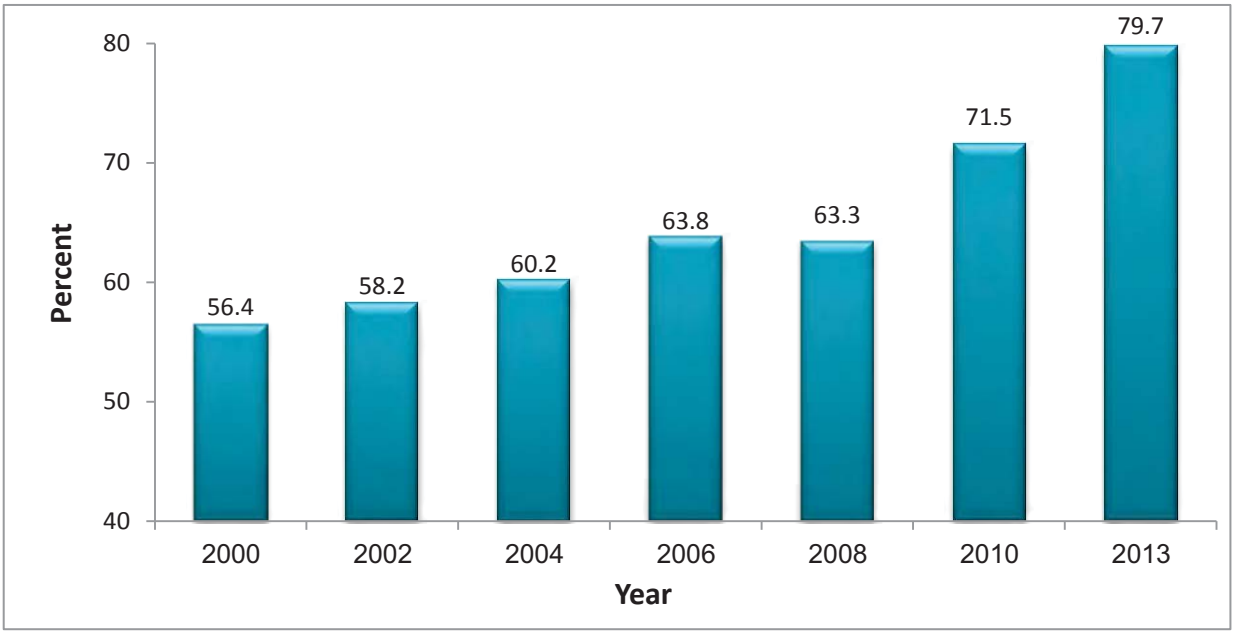
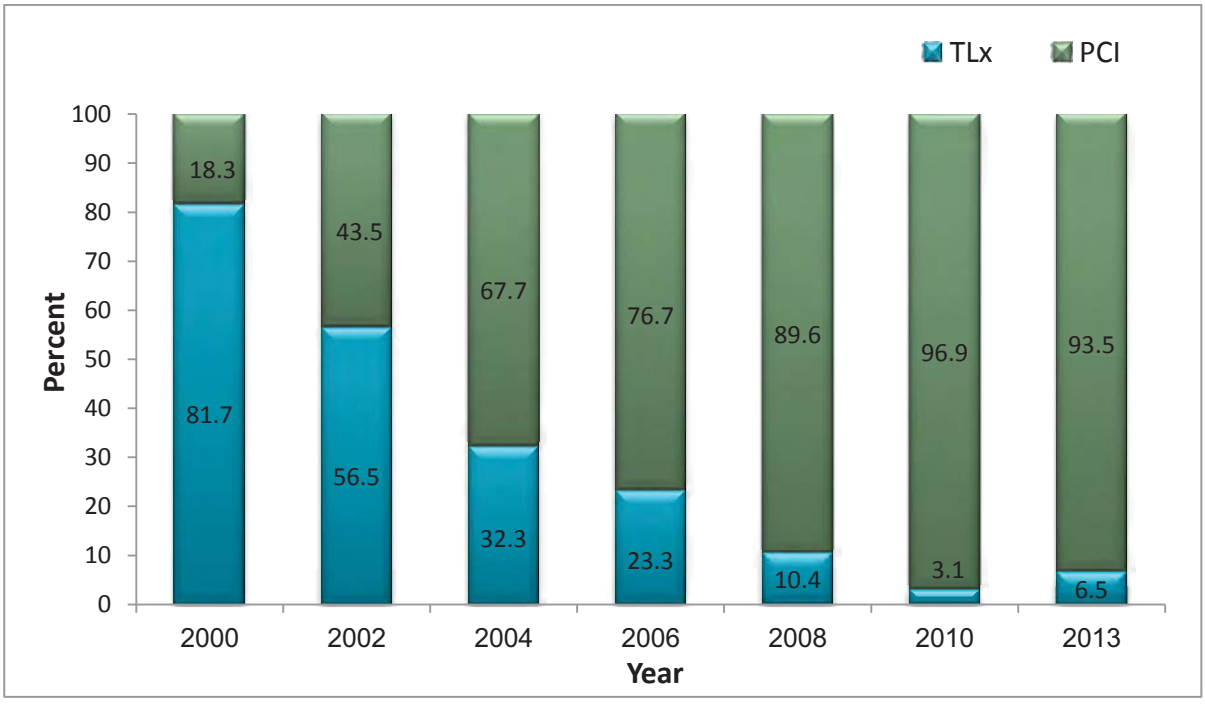


Figure 2.2: Type of Primary Reperfusion among Patients with ST Elevation



2.6 Time Intervals

The median time interval elapsing between symptom onset and ER arrival has not declined between 2000 and 2013. The median time interval elapsing between ER arrival and primary PCI (door to balloon) generally declined, and in 2013 reached 67 minutes. The proportion of patients with door-to-balloon ≤ 90 minutes has not increased in recent years, and was achieved in 69% of primary PCI cases.

Analysis by gender revealed that the decline in door-to-balloon time was significant for men only.

Table 2.6: Time Intervals in reperfused patients (minutes)

Time interval	2000 N=567 Median (25%-75%)	2002 N=588 Median (25%-75%)	2004 N=617 Median (25%-75%)	2006 N=571 Median (25%-75%)	2008 N=482 Median (25%-75%)	2010 N=555 Median (25%-75%)	2013 N=507 Median (25%-75%)	p for trend
Symptom onset to ER arrival	105 (60-192)	107 (65-191)	119.5 (74-210)	118 (71-231)	114 (70-210)	115 (70-213)	129 (74-250)	.272
ER arrival to primary PCI (door to balloon)	75 (37-120)	82.5 (50-138)	70 (40-104)	70 (42-106)	67.5 (40-108)	68 (40-110)	67 (35-106)	<.001
ER arrival to TLx	59 (36-85)	53 (35-72)	51 (34-75)	51 (32-74)	35 (21-50)	50 (31-72)	33 (20-70)	.400
Onset to balloon	--	180 (120-295)	180 (135-300)	190 (130-330)	195 (127-310)	195 (131-330)	200 (140-350)	.021
Door to balloon ≤90 min.	62%	54%	68%	67%	67%	66%	69%	<.001

Table 2.7: Time Intervals (minutes) in reperfused patients, by gender

MEN	2000 N=454 Median (25%-75%)	2002 N=476 Median (25%-75%)	2004 N=487 Median (25%-75%)	2006 N=472 Median (25%-75%)	2008 N=401 Median (25%-75%)	2010 N=455 Median (25%-75%)	2013 N=432 Median (25%-75%)	p for trend
Symptom onset to ER arrival	100 (60-187)	105 (64-184)	119 (70-210)	114.5 (69-214)	111 69-208	110 (67-210)	125 (71-240)	.618
ER arrival to primary PCI (door to balloon)	85 (51-120)	79.5 (49-121)	67 (39-102)	69 (43-104)	67 (40-103)	66 (40-104)	67 (37-106)	<.001
ER arrival to TLx	59 (36-80)	52 (35-71)	49 (32-71)	49.5 (31-73)	37 (20.5-51)	55 (40-72)	31 (20-52)	.479
Onset to balloon	--	180 (120-285)	180 (130-295)	188.5 (130-300)	182 (125-300)	188 (125-329)	196 (135-345)	.552

WOMEN	2000 N=113 Median (25%-75%)	2002 N=112 Median (25%-75%)	2004 N=130 Median (25%-75%)	2006 N=99 Median (25%-75%)	2008 N=81 Median (25%-75%)	2010 N=100 Median (25%-75%)	2013 N=100 Median (25%-75%)	p for trend
Symptom onset to ER arrival	127.5 (81-205)	117 (86-216)	120 (80-230)	141 (79-294)	121 (75-265)	130 (86-240)	147 (83-330)	.219
ER arrival to primary PCI (door to balloon)	54 (28-82)	110 (64-153)	70.5 (41-118)	76 (39-127)	76 (41-132)	78 (40-129)	63 (33-103)	.911
ER arrival to TLx	61 (37-91)	53 (39-80)	64 (40-88)	61 (33-106)	30 (25-41)	23 (15-31)	70 (70-70)	.331
Onset to balloon	--	210 (130-313)	191 (150-310)	255 (135-445)	210 (133-390)	250 (154-357)	212 (150-397)	.041

2.7 Procedures during Hospitalization in CCU

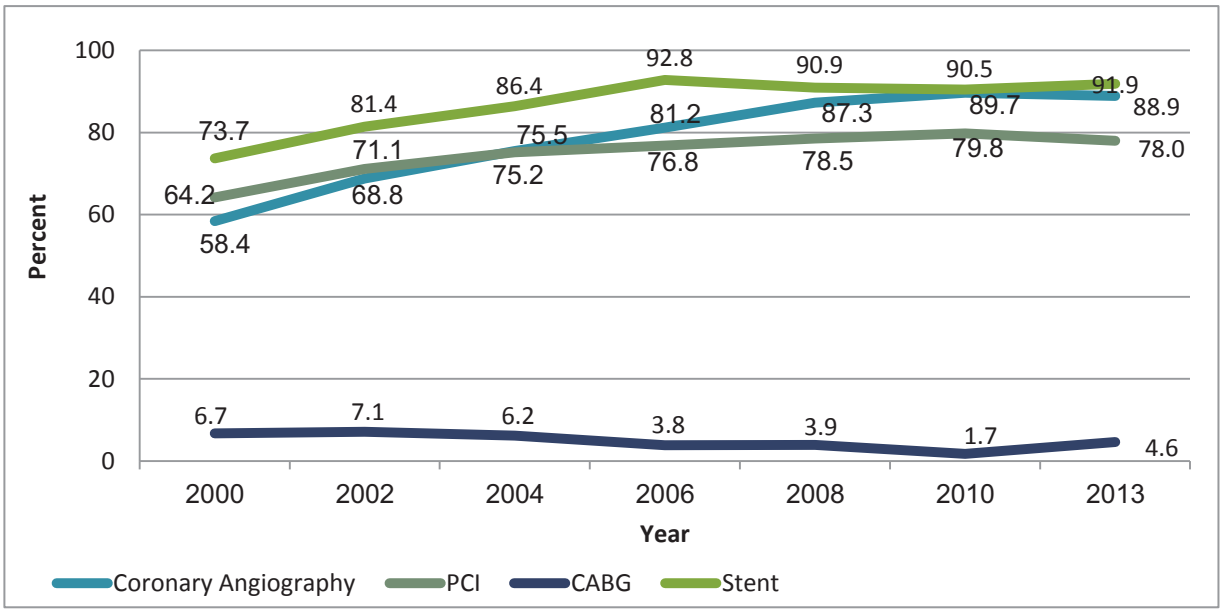
The use of coronary angiography, percutaneous interventions (PCI), and stents has increased during the years, while the use of CABG has been declining, as well as the use of intra-aortic balloon pumps (IABP). The use of echocardiography has also increased.

Table 2.8: In-Hospital Procedures

Procedure	2000 N=1,794 %	2002 N=2,048 %	2004 N=2,094 %	2006 N=2,075 %	2008 N=1,746 %	2010 N=1,781 %	2013 N=1,896 %	p for trend
Coronary Angiography	58.4	68.8	75.5	81.2	87.3	89.7	88.9	<.001
Any PCI (1)	64.2	71.1	75.2	76.8	78.5	79.5	78.0	<.001
Stent (2)	73.7	81.4	86.4	92.8	90.9	90.8	91.9	<.001
CABG	6.7	7.1	6.2	3.8	3.9	1.7	4.6	<.001
IABP	4.8	4.4	3.5	4.8	4.8	4.6	2.3	<.001
Echocard-iography	69.7	68.5	79.0	84.4	79.7	79.8	79.8	<.001

(1) Percent of all patients undergoing angiography (2) Percent of all patients undergoing PCI

Figure 2.3: Trends In-Hospital Procedures



2.8 In-Hospital Complications

Between the years 2000-2013, there has been a significant decline in the frequency of most in-hospital complications, such as re-infarction, post-MI angina, congestive heart failure (CHF) and cardiogenic shock, atrio-ventricular block (AVB), right- and left-bundle branch blocks, primary VF, asystole, and acute renal failure.

Table 2.9: In-Hospital Complications

	2000 N=1,794 %	2002 N=2,048 %	2004 N=2,094 %	2006 N=2,075 %	2008 N=1,746 %	2010 N=1,781 %	2013 N=1,896 %	p for trend
Re-MI	2.5	1.9	1.0	1.8	1.5	1.1	9.0	<.001
Post MI angina / Re-ischemia	13.8	6.7	5.5	6.2	3.6	2.0	2.0	<.001
Sub-Acute Stent Thrombosis	--	--	--	0.7	1.0	0.8	8.0	.887
Mild-moderate CHF (Killip 2)	18.5	10.4	6.8	12.5	7.5	7.8	6.2	<.001
Pulmonary edema (Killip 3)	10.7	8.9	7.3	9.2	6.6	4.9	4.3	<.001
Cardiogenic shock (Killip 4)	5.3	3.8	3.2	4.2	2.7	3.1	3.3	.001
Free wall rupture	0.8	0.4	0.6	0.2	0.6	0.1	1.0	.001
Tamponade	0.6	0.1	0.3	0.2	0.5	0.3	0.0	.046
Moderate-severe MR	3.8	2.3	0.7	3.2	1.6	1.7	1.2	.008
RBBB	6.8	4.0	0.5	1.9	1.3	1.7	-	<.001
LBBB	3.6	2.1	0.3	0.9	0.7	0.5	-	<.001
Sustained VT	2.5	1.6	1.7	2.4	1.5	1.6	3.1	.025
High degree AVB (2-30)	4.2	3.0	2.1	2.5	2.2	2.1	6.1	<.001
Primary VF	3.6	2.6	1.5	2.5	1.5	2.1	2.1	<.001
Secondary VF	1.2	0.5	0.6	1.1	1.4	0.9	5.0	.522
Asystole	4.0	2.0	1.7	2.6	2.1	1.9	8.1	.001
TIA	0.3	0.1	0.1	0.4	0.2	0.1	2.0	.757
Stroke	0.9	0.8	0.7	0.6	0.6	0.5	6.0	.159
Acute renal failure	7.9	8.6	6.8	5.4	4.4	6.1	4.6	<.001
Major bleeding	1.2	1.0	0.5	1.1	1.5	2.4	9.0	.029

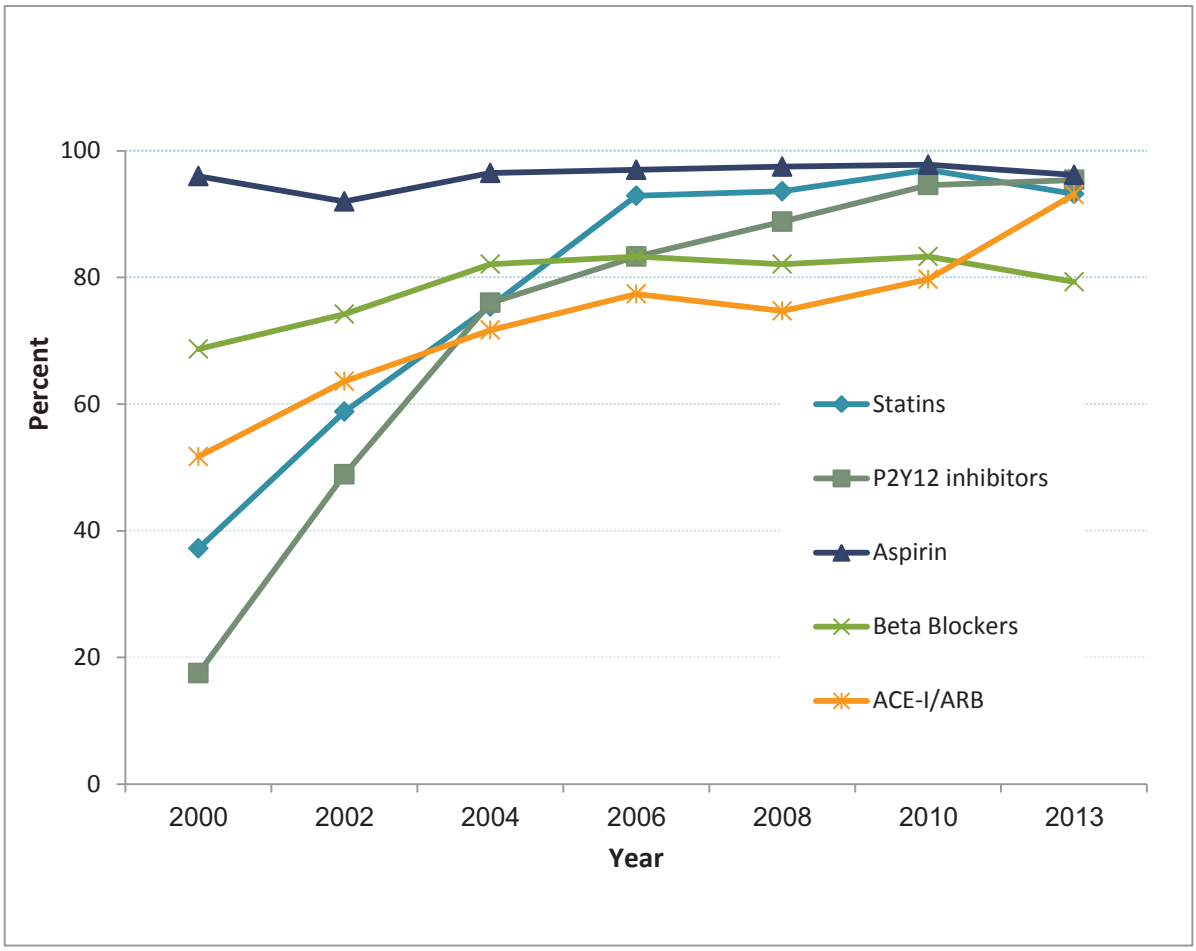
2.9 In-Hospital Treatment

There has been a dramatic increase over the years, from 2000-2013, in the use of P_2Y_{12} inhibitors, mainly clopidogrel (and recently also prasugrel and ticagrelor), lipid-lowering drugs (LLDs), primarily statins, ACE inhibitors, and beta blockers. Oppositely, there has been declining use of digoxin. While there has been an initial increase in the use of low molecular weight heparin (LMWH) and GP IIb/IIIa antagonists, in recent years their use has decreased.

Table 2.10: In-Hospital Treatment

Treatment	2000 N=1,794 %	2002 N=2,048 %	2004 N=2,094 %	2006 N=2,075 %	2008 N=1,746 %	2010 N=1,781 %	2013 N=1,896 %	p for trend
Aspirin	96.0	92.0	96.5	97.0	97.5	97.8	96.2	<.001
Heparin	75.3	53.5	50.2	59.8	59.1	55.4	58.7	<.001
LMWH	25.3	48.1	61.9	58.1	53.8	47.5	46.0	<.001
Clopidogrel	17.5	48.9	76.0	83.3	88.8	94.6	56.9	<.001
Prasugrel	--	--	--	--	--	0.1	25.9	.002
Ticagrelor	--	--	--	--	--	0.3	12.6	<.001
P_2Y_{12} inhibitors	17.5	48.9	76.0	83.3	88.8	95.0	95.4	<.001
IIb/IIIa antagonists	19.1	12.6	20.4	30.9	31.2	24.5	13.7	<.001
Beta Blockers	68.7	74.2	82.1	83.3	82.1	83.3	81.2	<.001
ACE-I/ARB	51.7	63.6	71.7	77.4	74.7	79.7	79.3	<.001
Statins	37.2	58.8	75.4	92.9	93.6	97.0	93.1	<.001
LLDs	39.1	59.3	76.0	93.5	94.7	97.1	93.2	<.001
Digoxin	3.3	2.3	3.4	2.7	2.2	1.4	1.1	<.001
Diuretic	28.3	24.9	30.2	29.9	29.0	27.3	24.8	.231
Nitrates	76.7	60.0	25.4	n/a	27.6	23.7	16.7	<.001

Fig 2.4: Trends in Hospital Treatment



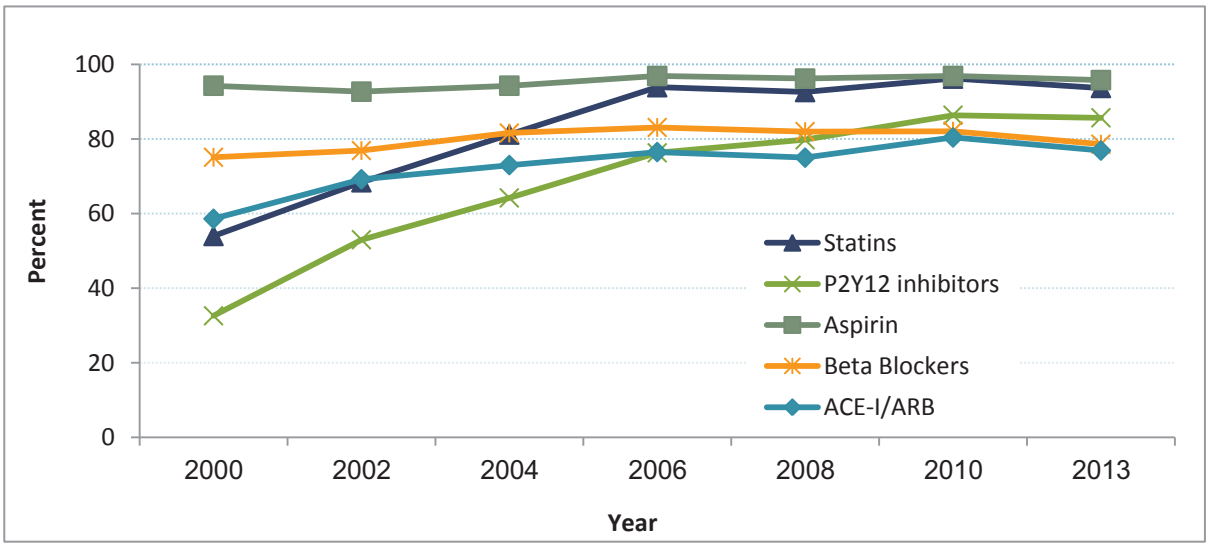
2.10 Medical Treatment on Discharge

The recommended use of aspirin on discharge has reached 96% in recent years. There has been a marked increase in the use of all evidence-based recommended medications. The most dramatic increases have occurred in the use of statins and P_2Y_{12} inhibitors. The use of nitrates has significantly declined.

Table 2.11: Medical Treatment on Discharge among Hospital Survivors

Medical Treatment	2000 N=1,699 %	2002 N=1,976 %	2004 N=2,025 %	2006 N=2,016 %	2008 N=1,702 %	2010 N=1,743 %	2013 N=1,859 %	p for trend
Aspirin	94.3	92.7	94.3	96.9	96.2	96.9	95.8	<.001
Beta Blockers	75.1	76.9	81.6	83.1	82.0	82.1	78.6	<.001
Clopidogrel	32.6	53.0	64.2	76.3	79.8	86.1	43.3	<.001
Prasugrel	--	--	--	--	--	0.3	27.4	<.001
Ticagrelor	--	--	--	--	--	NA	15.5	--
P_2Y_{12} inhibitors	32.6	53.0	64.2	76.3	79.8	86.4	85.7	<.001
ACE-I/ARB	58.6	69.2	73.0	76.5	75.0	80.4	76.9	<.001
Statins	54.0	68.4	81.2	93.9	92.6	96.2	93.7	<.001
Lipid lowering drugs	55.9	69.0	81.7	94.5	93.7	96.4	93.8	<.001
Diuretic	23.0	21.3	23.2	23.0	23.9	22.4	19.7	.182
Digoxin	3.5	2.3	2.5	2.1	1.5	1.0	1	<.001
Nitrates	45.8	31.2	19.6	--	8.6	6.7	7.6	<.001

Figure 2.5: Medical Treatment on Discharge among Hospital Survivors



2.11 Short and Long Term Outcomes

All outcome measures indicate a marked improvement, with the trends observed between 2000 and 2010 somewhat stabilizing in 2013. Between 2000-2013, both 7-day and 30-day mortality rates declined by more than 50%. Rates of 1-year mortality declined by 38% between 2000 and 2013.

Rates of 30-day MACE declined by 65% between 2000 and 2013. Similar trends in mortality and MACE were observed for men and women. Declines in mortality rates and MACE were observed for both patients with ST elevation and non-ST elevation on admission.

Table 2.11: Rates of Mortality and MACE

Outcome	2000 N=1,794 %	2002 N=2,048 %	2004 N=2,094 %	2006 N=2,075 %	2008 N=1,746 %	2010 N=1,781 %	2013 N=1,896 %	p for trend
Mortality:								
On discharge	5.2	3.5	3.2	2.8	2.5	2.1	2.0	<.001
7-day	5.1	3.6	3.1	3.0	2.6	2.2	2.2	<.001
30-day	8.5	5.6	5.5	4.6	4.4	4.1	4.0	<.001
1 year	13.5	11.0	11.2	9.8	8.2	8.7	8.4	<.001
MACE:								
30-day	26.5	18.7	14.6	16.6	12.5	10.4	9.5	<.001

Table 2.12: Rates of Mortality and MACE by Gender

Outcome	2000 N=1,794 %	2002 N=2,048 %	2004 N=2,094 %	2006 N=2,075 %	2008 N=1,746 %	2010 N=1,781 %	2013 N=1,896 %	p for trend
MEN								
Mortality:								
on discharge	3.9	2.6	2.8	2.6	1.9	2.0	1.5	<.001
7-day	3.8	2.8	2.7	2.4	2.1	1.9	1.6	<.001
30-day	7.1	4.7	4.6	4.0	3.5	3.4	3.0	<.001
1 year	11.8	9.5	9.3	8.4	7.4	6.7	7.0	<.001
MACE:								
30-day	23.8	17.9	12.8	15.1	10.7	9.3	10.7	<.001
WOMEN								
Mortality:								
on discharge	9.4	6.4	4.6	3.6	5.0	2.5	3.4	<.001
7-day	9.2	5.9	4.2	4.9	4.7	3.3	4.1	.00021
30-day	12.9	8.4	7.9	6.9	7.8	6.3	7.5	.001
1 year	18.6	15.6	16.7	14.6	11.0	11.5	13.4	<.001
MACE:								
30-day	34.8	21.3	19.4	21.7	19.5	14.5	16.7	<.001

Table 2.13: Rates of Mortality and MACE by ECG on Admission

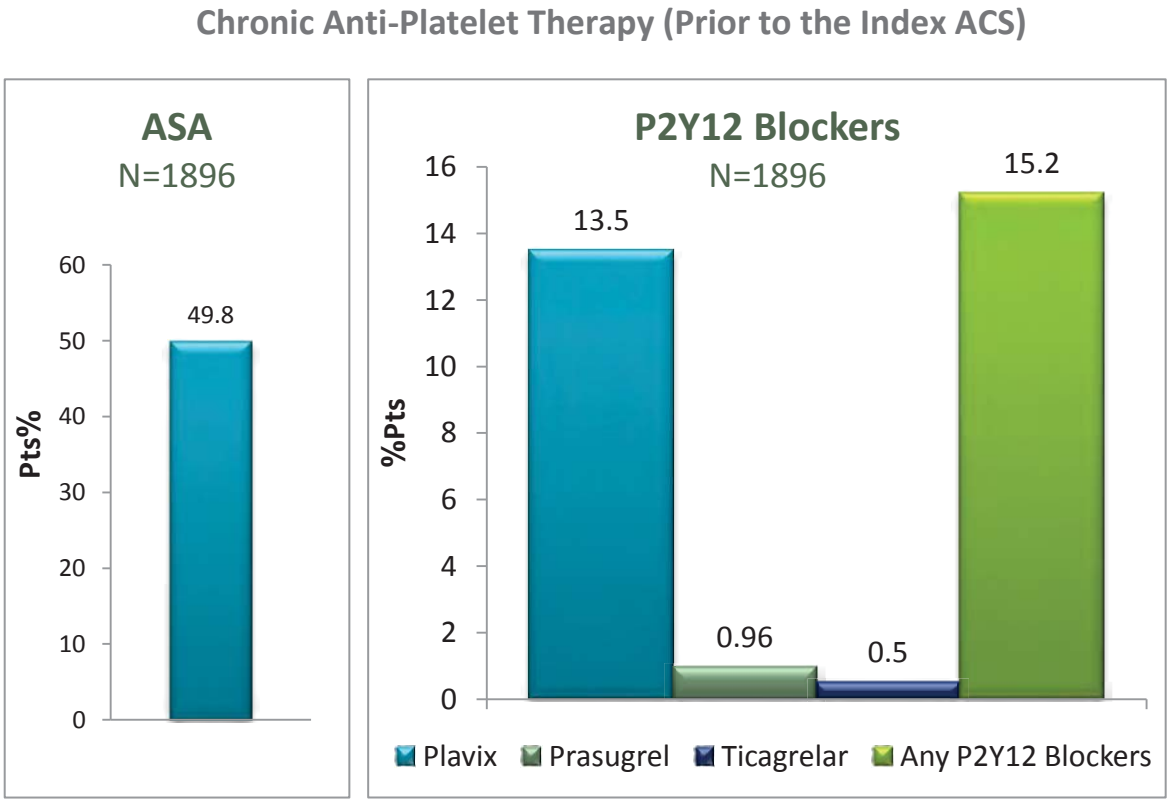
Outcome	2000 N=1,794 %	2002 N=2,048 %	2004 N=2,094 %	2006 N=2,075 %	2008 N=1,746 %	2010 N=1,781 %	2013 N=1,781 %	p for trend
ST ↑								
Mortality:								
on discharge	7.4	4.8	4.3	4.1	3.7	2.7	2.9	<.001
7-day	7.3	5.0	4.3	4.3	4.1	2.7	3.2	<.001
30-day	11.1	7.1	6.7	5.8	6.0	4.8	4.8	<.001
1 year	15.7	10.9	10.6	10.2	8.1	7.9	9.0	<.001
MACE								
30-day	28.0	19.6	14.2	17.1	13.7	10.8	11.2	<.001
Non ST ↑								
Mortality:								
on discharge	2.5	2.2	2.2	1.9	1.6	1.7	1.3	.020
7-day	2.4	2.1	2.0	2.0	1.5	1.8	1.4	.025
30-day	5.2	4.1	4.2	3.8	3.2	3.5	3.4	.0194
1 year	10.7	11.0	11.8	9.5	8.2	7.7	7.6	.001
MACE								
30-day	24.6	17.8	14.9	16.3	11.7	10.1	11.4	<.001

Chapter 3. Antithrombotic therapy in ACSIS 2013.

With the recent studies showing the benefit of novel P_2Y_{12} inhibitors, we see in the current survey that there are notable trends with the use of these medications. Since the approval of novel P_2Y_{12} inhibitors (Prasugrel and Ticagrelor) by the Israeli Ministry of Health for all patients presenting with an acute myocardial infarction and undergoing percutaneous interventions, we now see an increase in their use, coinciding with a decrease in the use with Clopidogrel. Additionally, the (mostly) negative studies regarding the use of GP IIb/IIIa antagonist we see a decline in their routine use as compared to previous surveys.

3.1 Chronic antiplatelet therapy in patients presenting with an acute coronary syndrome.

Prior to the index ACS event, 50% of patients were taking aspirin and 15% were on P_2Y_{12} therapy, mainly clopidogrel.



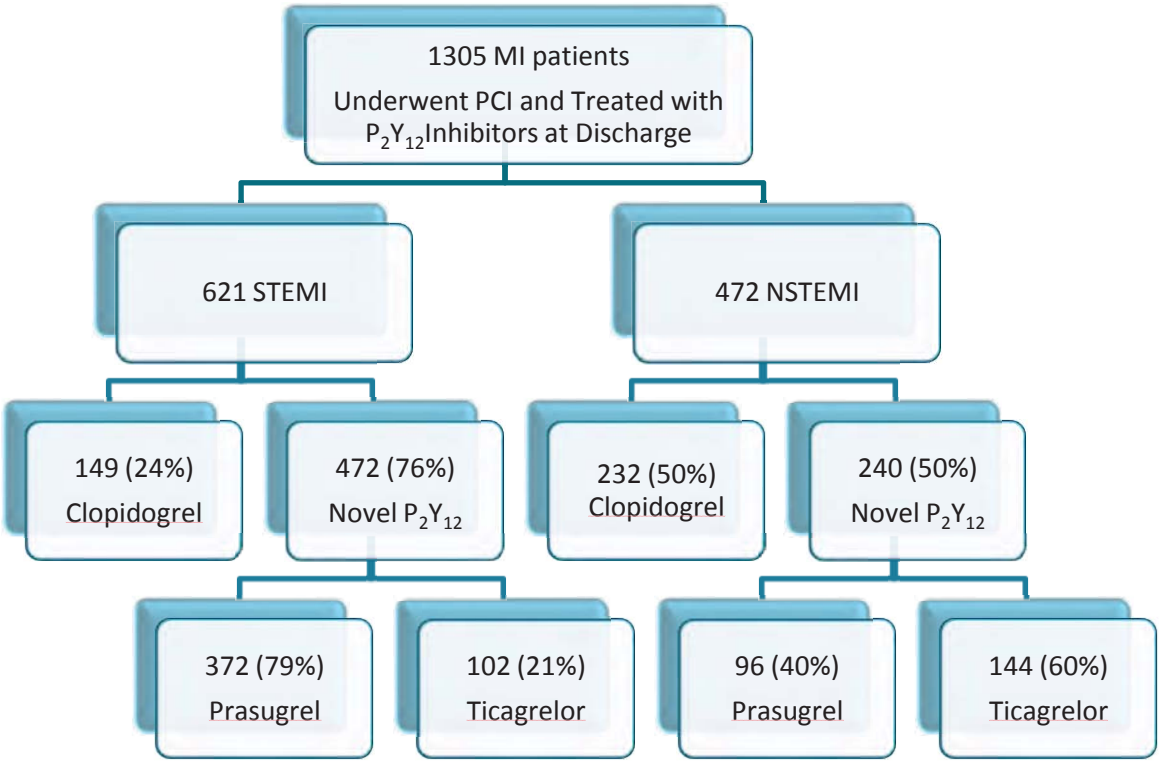
3.2 The use of P_2Y_{12} inhibitors in patients with an acute coronary syndrome.

Since the approval of novel P_2Y_{12} inhibitors (Prasugrel and Ticagrelor) by the Israeli Ministry of Health for all patients presenting with an acute myocardial infarction and undergoing percutaneous interventions, we now see an increase in their use, coinciding with a decrease in the use with Clopidogrel.

3.2.1 Distribution of utilization of the different P_2Y_{12} inhibitors among patients presenting with an acute myocardial infarction, underwent PCI, and treated with a P_2Y_{12} inhibitor.

The diagram is demonstrating the use of the different P_2Y_{12} inhibitors based on whether the patient was admitted with an ST or non-ST elevation myocardial infarction. Overall, patients with ST elevation were more likely to receive a novel P_2Y_{12} inhibitor (mostly prasugrel – 79%). However in patients with non-ST elevation only 50% received a novel P_2Y_{12} inhibitor, and were more likely to receive Ticagrelor (60%) than prasugrel (40%).

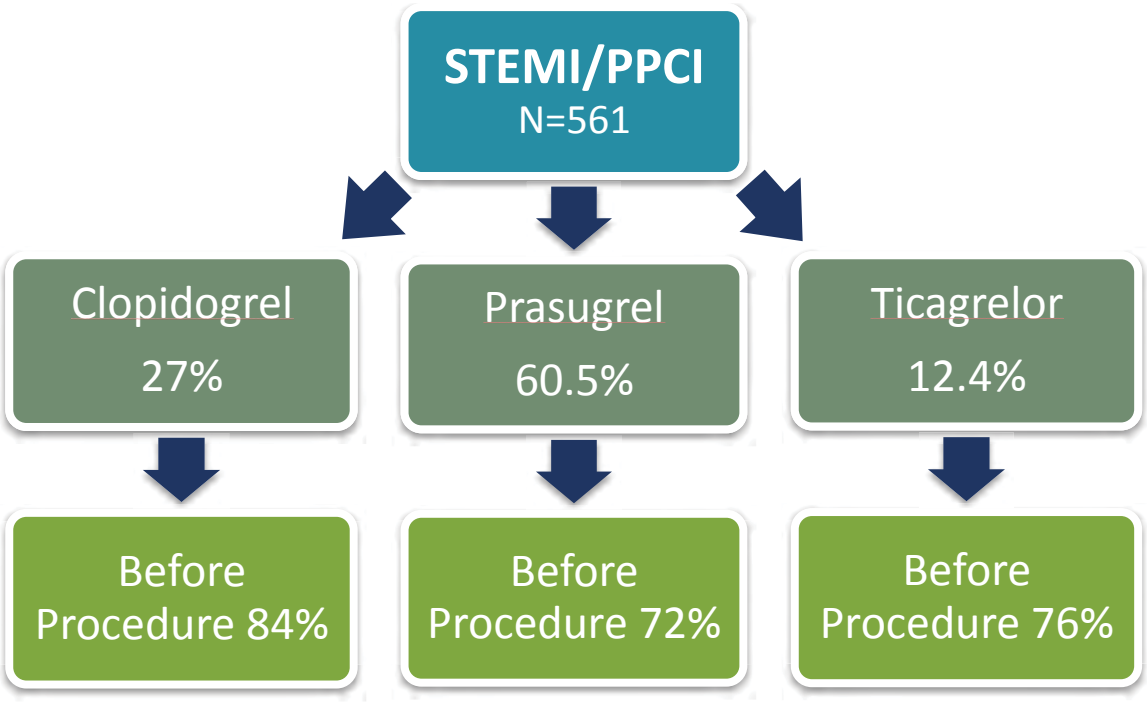
Use of different P_2Y_{12} inhibitors



3.2.2 Distribution of the use of different P_2Y_{12} inhibitors in ST elevation patients undergoing primary percutaneous intervention (PPCI).

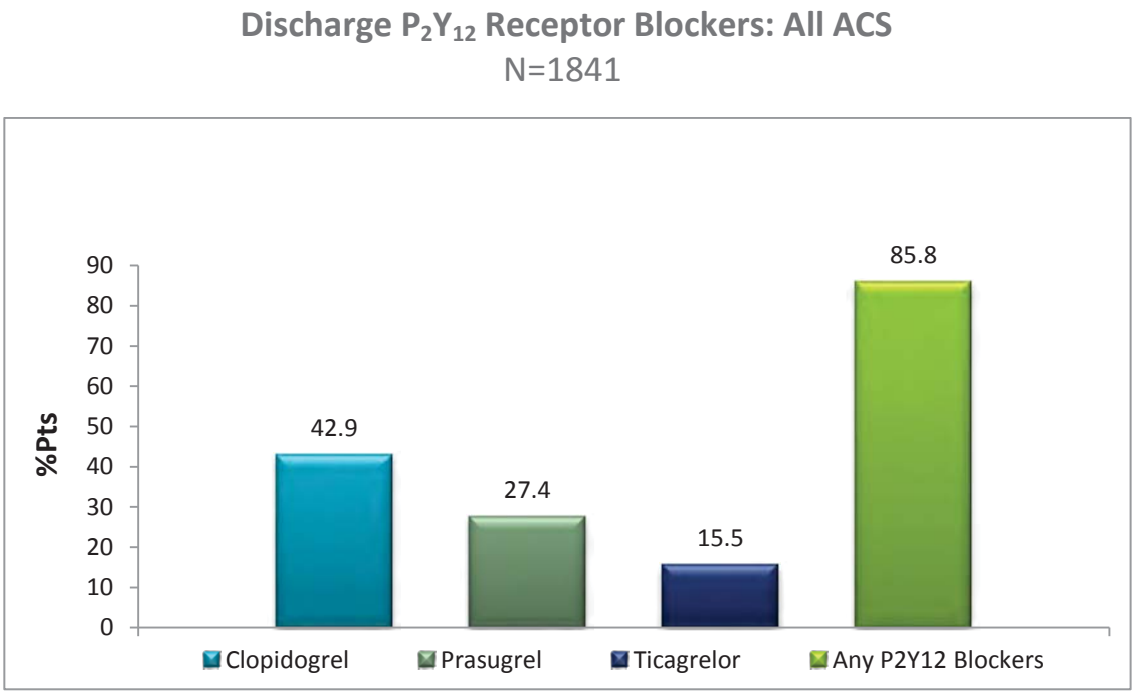
Most patients undergoing PPCI that were given a P_2Y_{12} inhibitor were given Prasugrel.
Most patients undergoing PPCI were given a P_2Y_{12} prior to the procedure.

The Use of P_2Y_{12} Blockers in Patients Undergoing PPCI



3.2.3 Prescribed P_2Y_{12} at discharge for patients with an acute coronary syndrome.

Of the entire ACS population, 86% were discharged with P_2Y_{12} therapy. Most common P_2Y_{12} at discharge was clopidogrel (50% of discharged P_2Y_{12}).



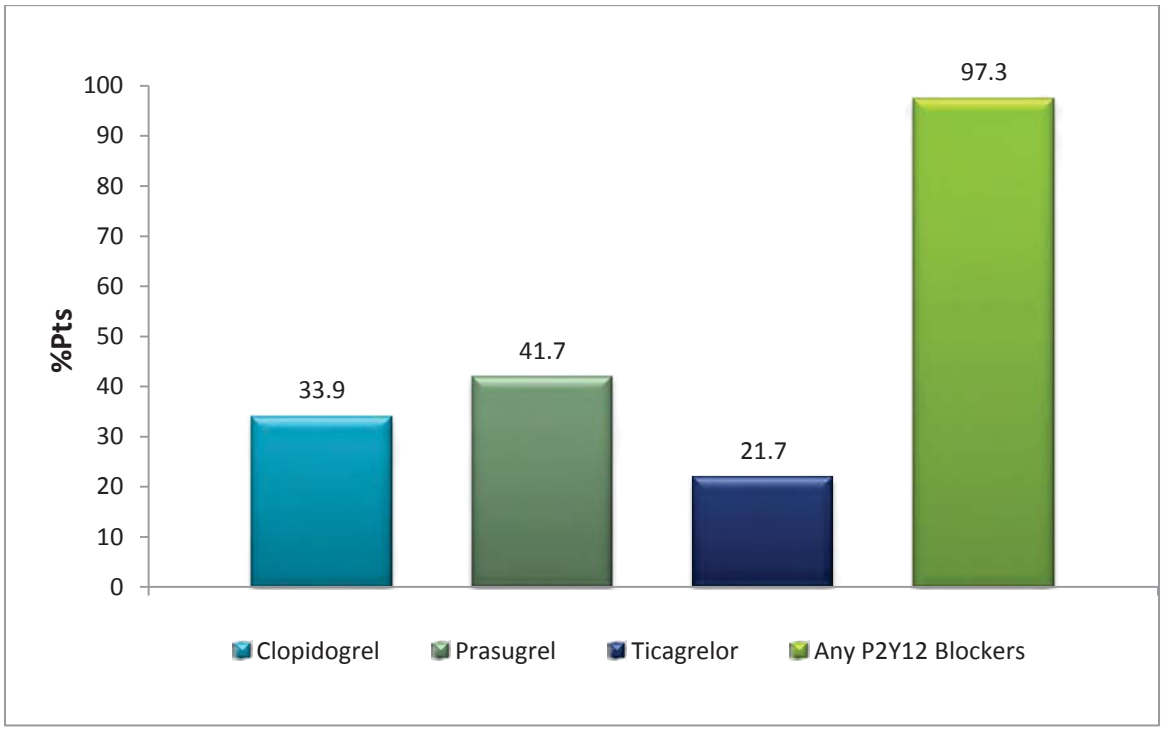
261 Patients (14.2%) discharged without any P_2Y_{12} Treatment

3.2.4 Recommendations for P_2Y_{12} therapy at discharge from hospitalization for patients with an acute myocardial infarction (AMI), undergoing percutaneous intervention (PCI).

Opposed to prior surveys (where novel P_2Y_{12} inhibitors were less commonly used), since 2012 patients presenting with an AMI and undergoing PCI are eligible, through the Israeli Ministry of Health policy, for therapy with a novel P_2Y_{12} for 1 year at no additional cost, just as clopidogrel. As shown, 97% of patients with an AMI which underwent PCI were discharged with a P_2Y_{12} inhibitor. The most common medication in this group was Prasugrel, followed by Clopidogrel, and Ticagrelor.

Discharge P_2Y_{12} Receptor Blockers : AMI Patients Undergoing PCI

N=1123



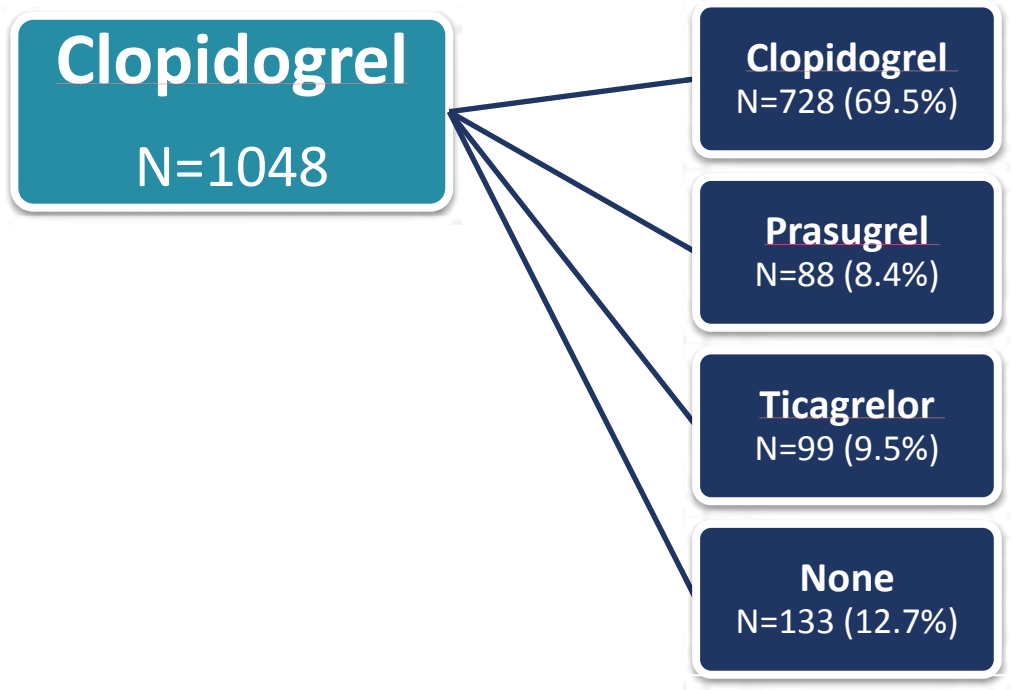
30 Patients (2.7%) discharged without any P_2Y_{12} Treatment

3.2.5 Switching between the different P_2Y_{12} inhibitors

3.2.5.1 Switching between P_2Y_{12} inhibitors throughout hospitalization in ACS patients initially treated with Clopidogrel.

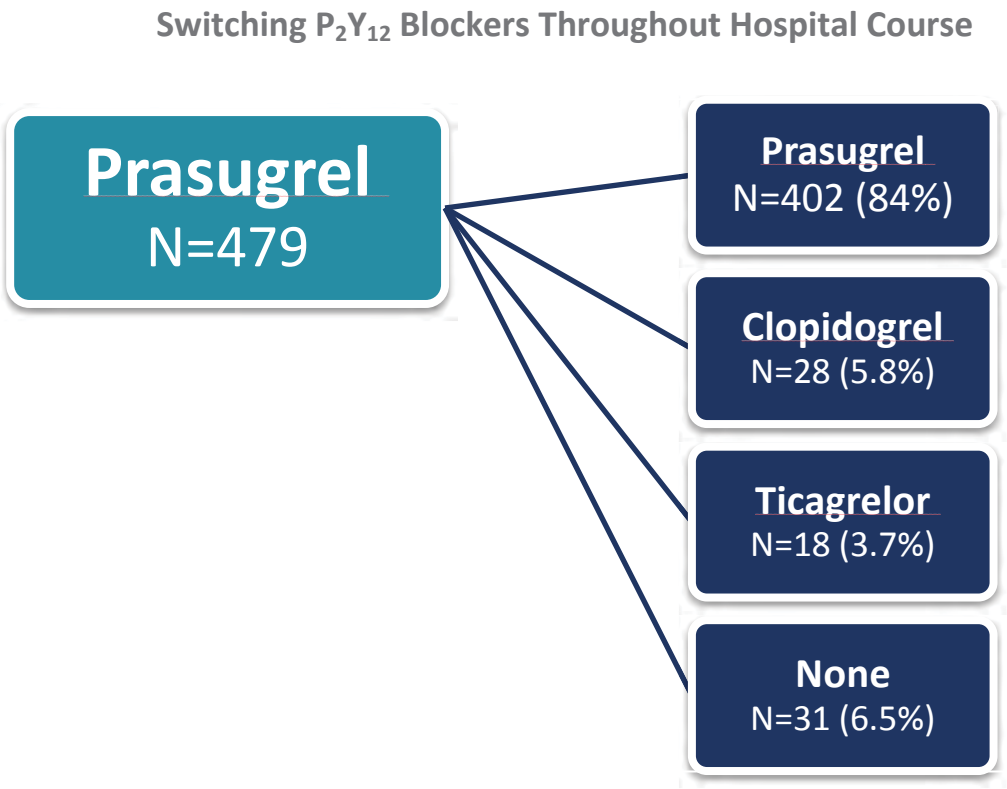
Most patients that were initially treated with Clopidogrel remained on the same therapy (70%) during hospitalization. Around 9.5% were switched to Ticagrelor, and an additional 8.4% to Prasugrel. . In 12.7% of patients initially treated with Clopidogrel, P_2Y_{12} therapy was withdrawn during hospitalization.

Switching P_2Y_{12} Blockers Throughout Hospital Course



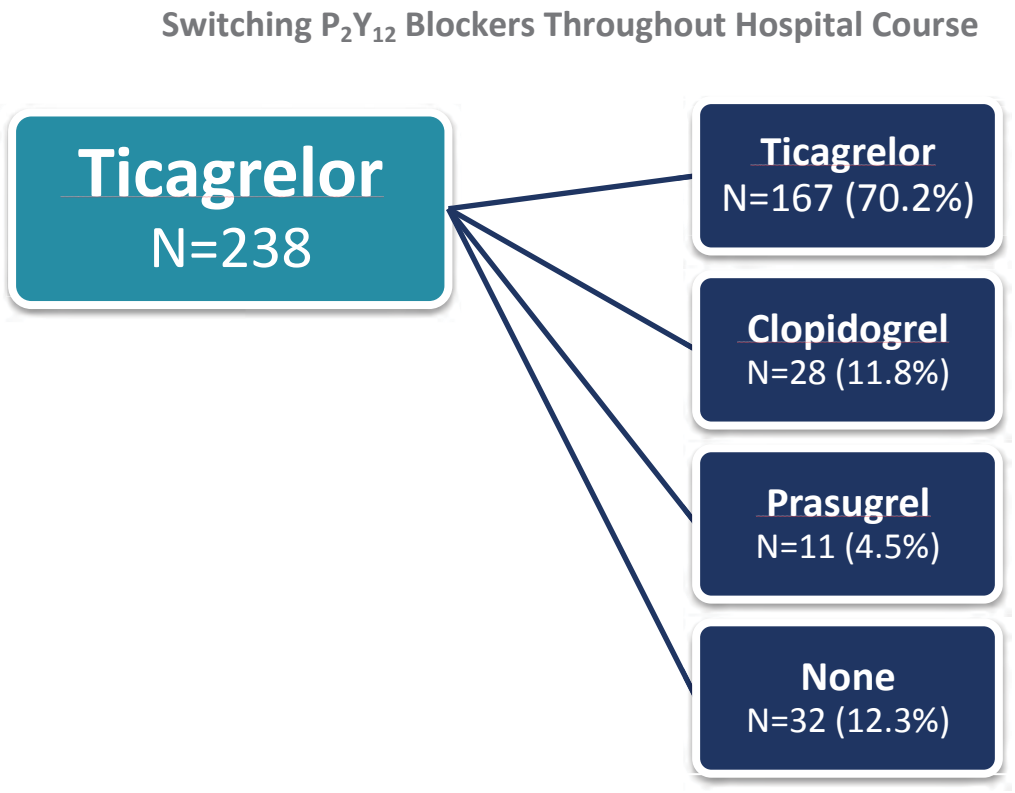
3.2.5.2 Switching between P_2Y_{12} inhibitors throughout hospitalization in ACS patients initially treated with Prasugrel.

Most patients that were initially treated with Prasugrel remained on the same therapy (84%) during hospitalization. Around 6% were switched to Clopidogrel, and an additional 3.7% to Ticagrelor. In 6.5% of patients initially treated with Prasugrel, P_2Y_{12} therapy was withdrawn during hospitalization.



3.2.5.3 Switching between P_2Y_{12} inhibitors throughout hospitalization in ACS patients initially treated with Ticagrelor.

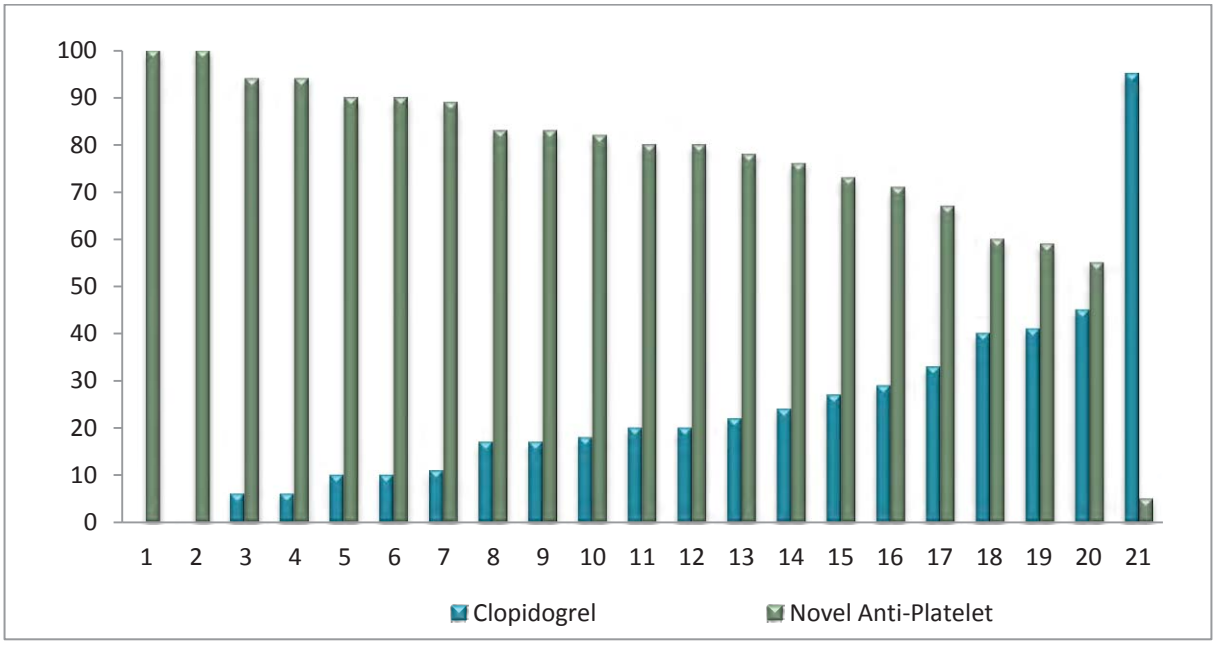
Most patients that were initially treated with Ticagrelor remained on the same therapy (70%) during hospitalization. Around 12% were switched to Clopidogrel, and an additional 4.5% to Prasugrel. In 12.3% of patients initially treated with Ticagrelor, P_2Y_{12} therapy was withdrawn during hospitalization.



3.2.6.1 Inter-Center variation according to the use of Clopidogrel vs. a novel P_2Y_{12} inhibitor in ST elevation patients undergoing PPCI.

There was wide inter-center variability in regard to treatment with different P_2Y_{12} inhibitors in ST elevation patients undergoing primary PCI.

ACSIS - 2013 – Inter-Center Variation According to the Use of Clopidogrel vs. a New Anti-Platelet Agent in Pts with STEMI Undergoing PPCI*

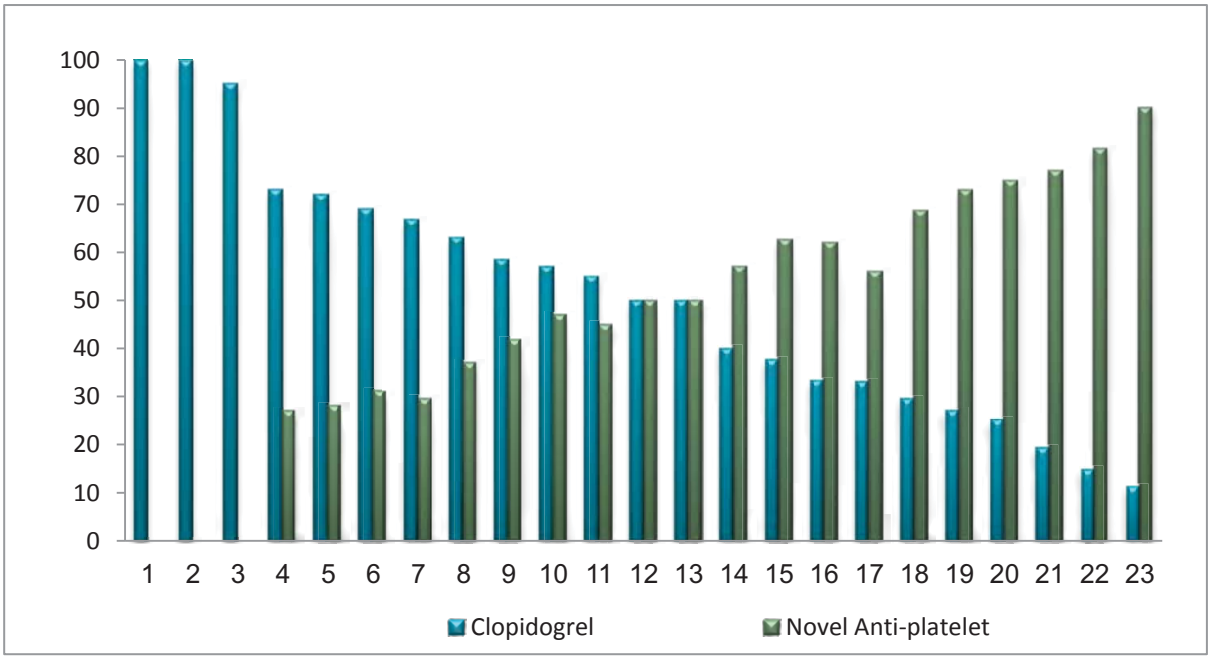


*Data is available for 21 out of 23 centers.

3.2.6.2 Inter-Center variation according to the use of Clopidogrel vs. a novel P_2Y_{12} inhibitor presenting with a non-ST elevation myocardial infarction and undergoing PCI.

There was wide inter-center variability in regard to treatment with different P_2Y_{12} inhibitors in non-ST elevation patients undergoing PCI.

ACSIS - 2013 – Inter-Center Variation According to the Use of Clopidogrel vs. a Novel Anti-Platelet Agent in Pts with NSTEMI Undergoing PCI



3.2.7 Adherence of ACS patients to P_2Y_{12} therapy at 30 days post discharge.

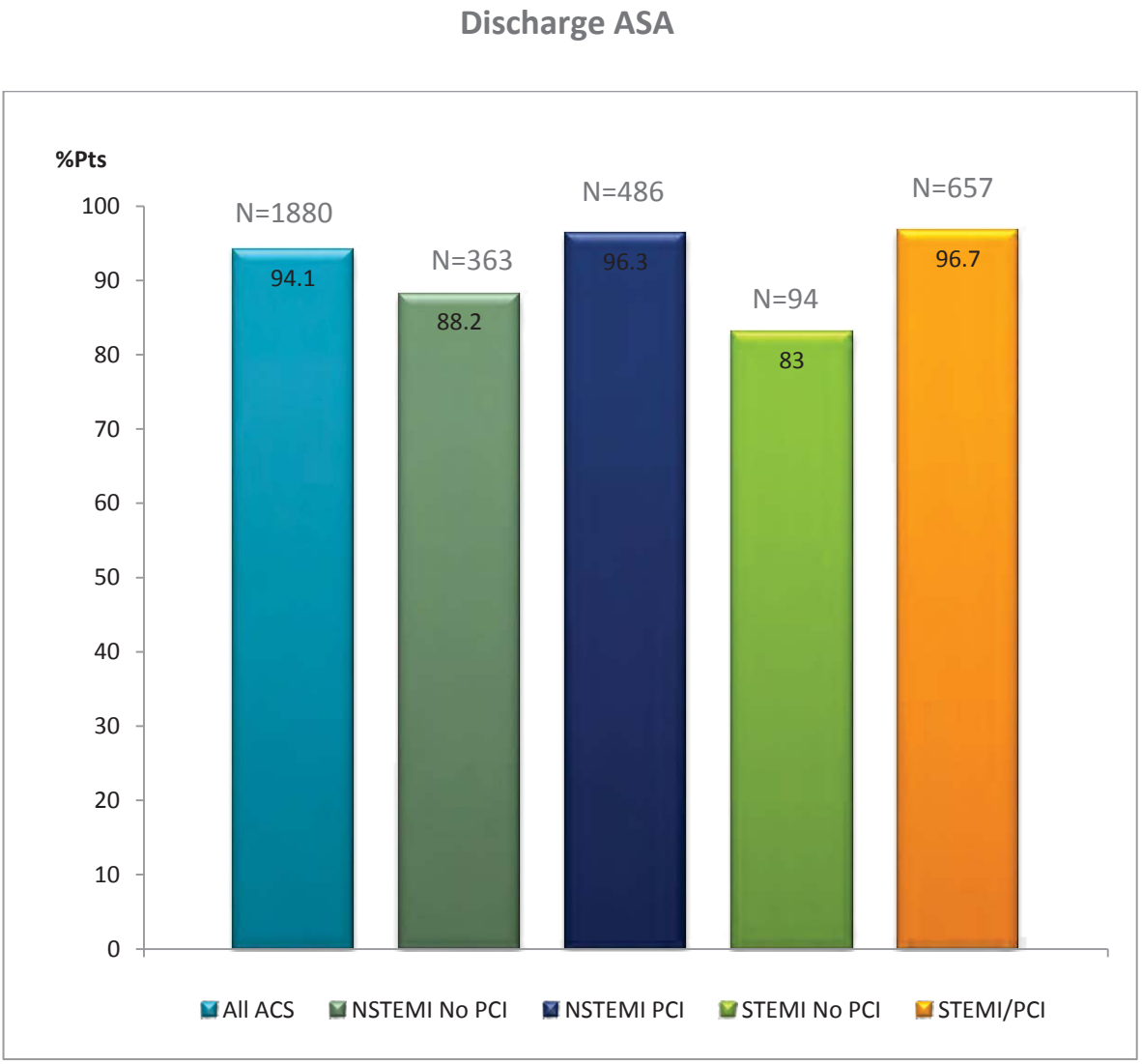
Among patients discharged with P_2Y_{12} inhibitors, adherence at 30-days was highest for Prasugrel with 90% continuing therapy. For patients discharged with Clopidogrel, 88% continued treatment, and adherence was 83% for Ticagrelor. In the clopidogrel group, 7% of patients discontinued therapy, while 3% switched to Prasugrel therapy and 1% switched to Ticagrelor. In the Prasugrel group, 4% discontinued therapy, 4% switched to Clopidogrel, and 2% switched to Ticagrelor. In the Ticagrelor group 5% discontinued therapy, 7% switched to Clopidogrel, and 5% switched to Prasugrel.

Adherence to therapy and exchange rate of P_2Y_{12} inhibitors at 30 days

30-day Follow up / Discharge	Clopidogrel N=379	Prasugrel N=360	Ticagrelor N=183	No P_2Y_{12} N=45
Clopidogrel	88%	3%	1%	8%
Prasugrel	4%	90%	2%	4%
Ticagrelor	7%	5%	83%	5%

3.3 The use of aspirin in the different patient populations according to type of ACS and whether or not undergoing PCI.

A total of 94% of patients were discharged with aspirin. Patients undergoing percutaneous intervention (PCI) were more likely to be discharged with aspirin treatment than those who did no undergo PCI.



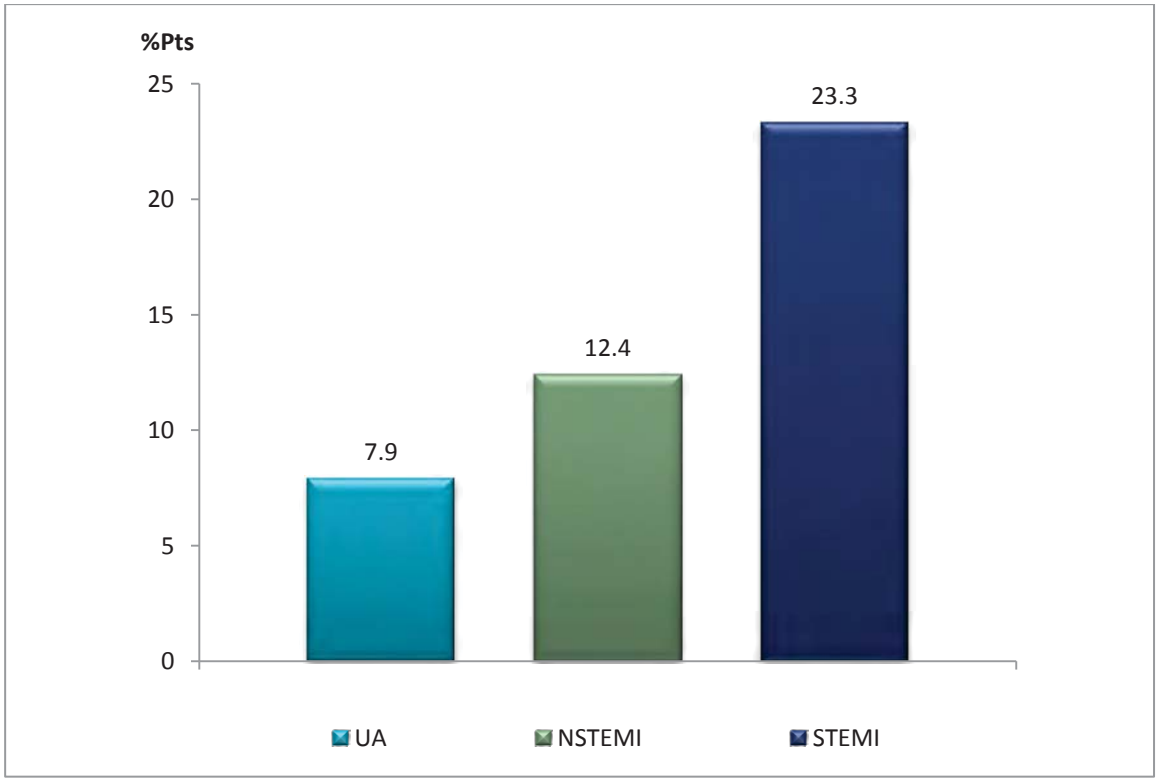
3.4 Use of IIb/IIIa antagonists.

With the (mostly) negative results of studies in recent years regarding the use of GP IIb/IIIa antagonist we see a decline in their routine use as compared to previous surveys.

3.4.1 The use of IIb/IIIa receptor antagonists in all patients undergoing percutaneous interventions (PCI) (Except primary PCI).

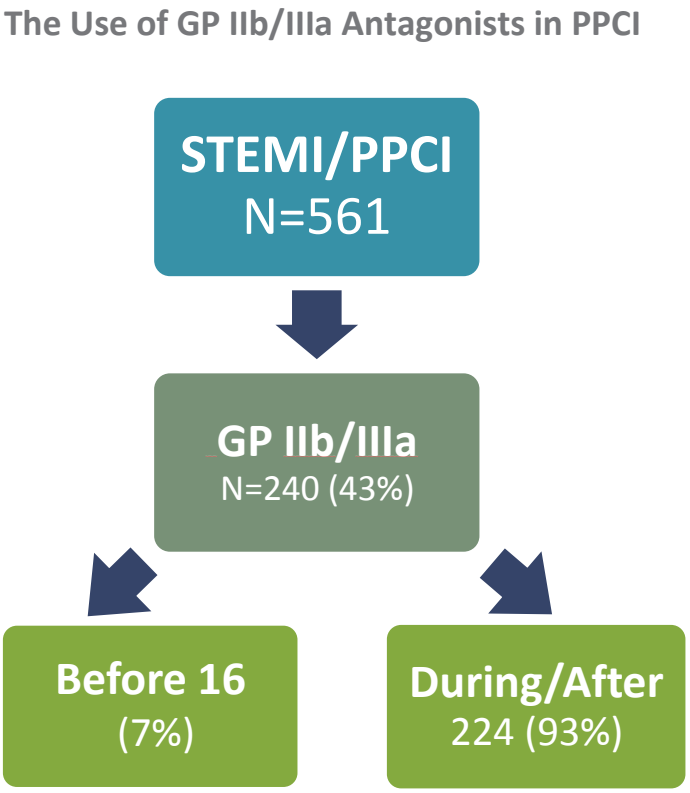
In patients undergoing PCI (not primary PCI) GP IIb/IIIa antagonists were given less frequently and were given only in 23% of patients with STEMI who did not undergo PPCI, to 12% of patients with non-ST elevation myocardial infarction, and to 8% of patients with unstable angina (UA).

The Use of GP IIb/IIIa Antagonists in (non-PPCI) PCI



3.4.2 The use of IIb/IIIa receptor antagonists in patients presenting with ST elevation undergoing primary percutaneous interventions (PPCI).

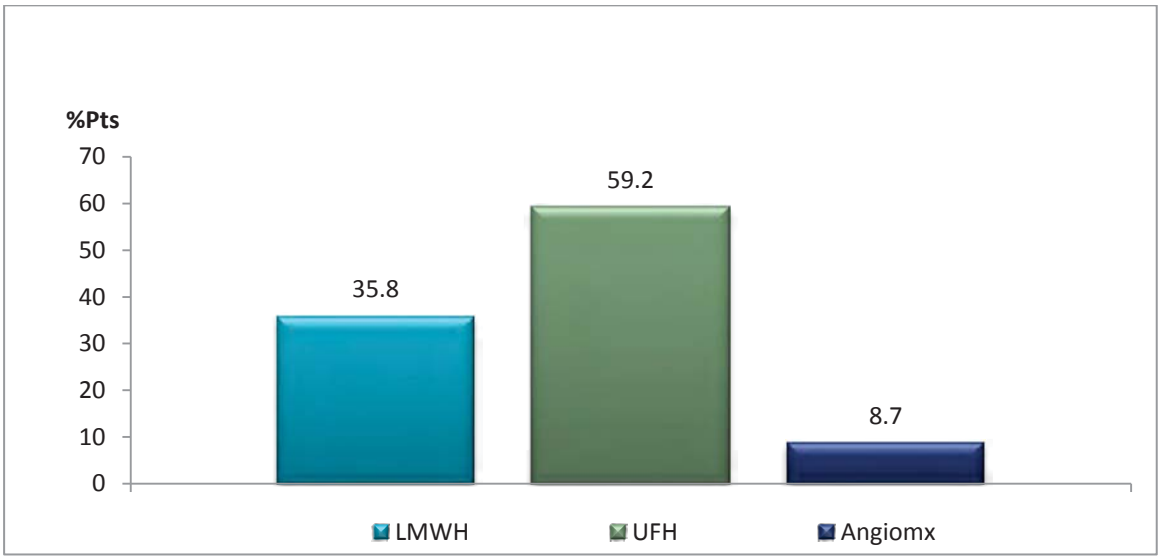
GP IIb/IIIa inhibitors were given in 43% of cases, mostly during or after primary PCI.



3.5 Use of anticoagulants

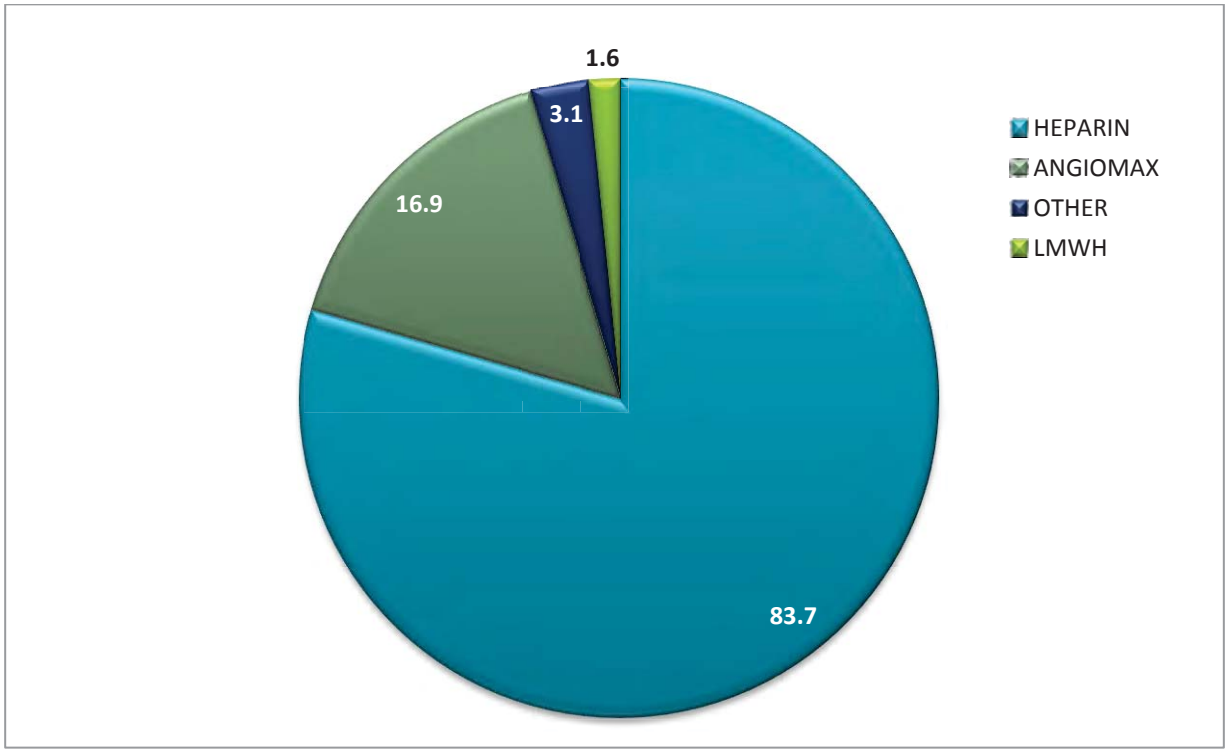
3.5.1 The use of anticoagulants in ACS undergoing PCI.

In patients undergoing percutaneous intervention for ACS 95% of patients were treated with either heparin or low molecular weight heparin (LMWH).



3.5.2 The use of anticoagulants in patients with ST elevation undergoing primary PCI (PPCI).

In patients presenting with ST elevation and undergoing primary PCI (PPCI) most of the patients were treated with heparin (83.7%) than other anticoagulants.

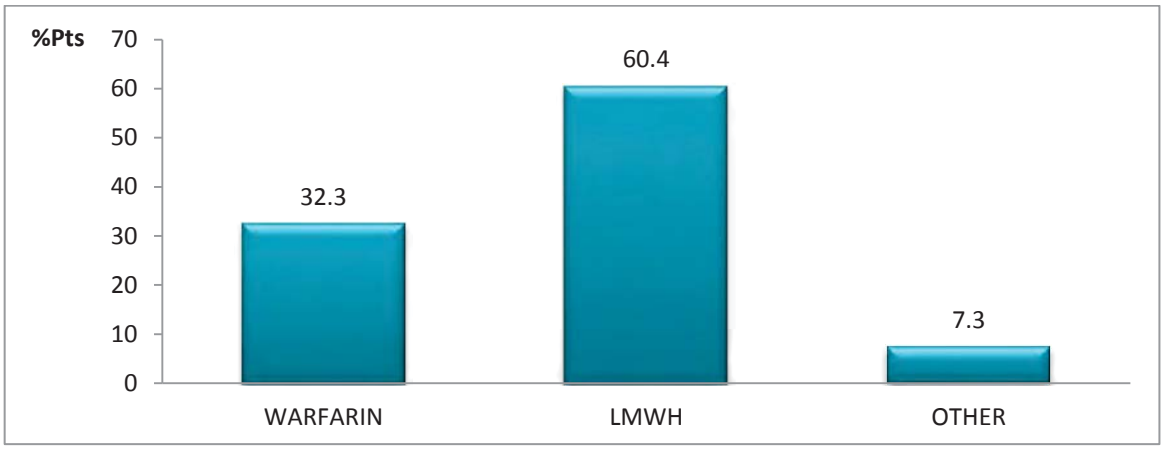


3.5.3.1 Anticoagulant recommendation at discharge.

Recommendations for therapy with anticoagulants at discharge. Most patients in need for chronic anticoagulation were discharged with either low molecular weight heparin (60.4%) or warfarin (32.3%). Others denote: Dabigatran, Rivaroxaban, or Fondaparinux.

Anticoagulation therapy at discharge

N=291 ACS Patients

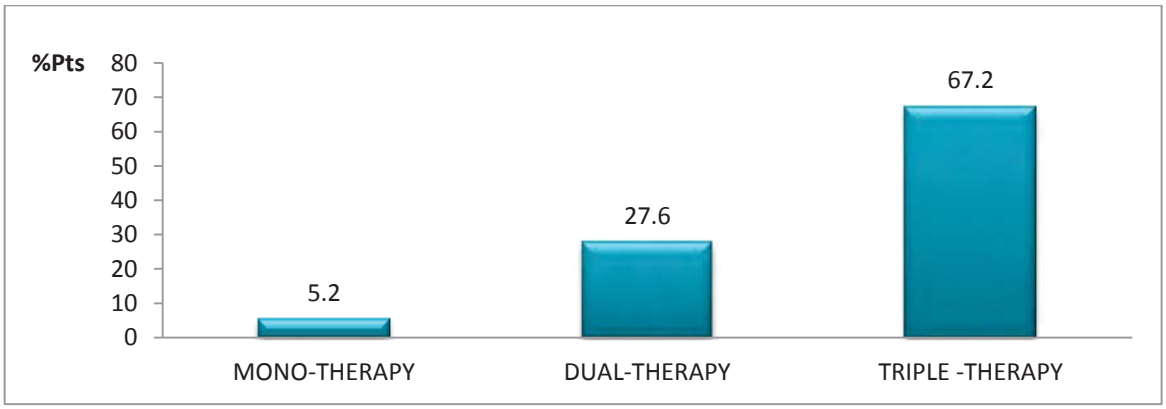


3.5.3.2 Recommendations for the use of anticoagulant and antiplatelet therapy at discharge.

Of those discharged with combined anticoagulation and antiplatelet therapy, 67.2% were discharge with triple therapy (Aspirin + P_2Y_{12} inhibitor + anticoagulation). An additional 27.6% were discharged with recommendations for dual therapy (Anticoagulation + either aspirin or a P_2Y_{12} inhibitor). 5.2% were discharged with anticoagulation therapy alone.

Mono Dual and Triple Therapy

N=291



BRILINTA™ ticagrelor tablets | redefining antiplatelet performance

* Brilinta & Prasugrel compared to Clopidogrel; Clopidogrel compared to placebo

Reference:
1. Albert Schömig NEJM 2009; 361 (11): 1108-1111
2. Wallentin L, et al. N Engl J Med. 2009; 361:1045-57.
3. NSTE ESC Guidelines - Hamm et al. European Heart Journal 2011.
4. STEMIESC Guidelines - Steg et al. European Heart Journal 2012
5. עלון לרופא כפי שאושר ע"י משרד הבריאות

AstraZeneca
רחוב זרחין 13, ת.ח. 4070, רעננה
4366241, טלפון: 073-2226099

152,925,011

Acute Coronary Syndrome Israeli Survey – 2013

This form should be completed for all patients with ACS (AMI or Unstable AP) admitted between 1/4/2013 and 31/5/2013

|__|__|__| **Center** |__|__|__| **Patient** |__| **Ward** **Hospitalization #:** |__| Initials: |__|__| 1st family

ID *(last 4 digits):* |__|__|__|__|

Informed consent obtained: ○0 No ☐1 Yes

1. Demographics, History and Risk Factors

Year of Birth: 19 |___|___| **Sex:** ☐1 Male ☐2 Female

Origin: ☐1 Israeli Jew ☐2 Israeli Arab ☐3 Other Israeli ☐4 Tourist ☐5 Other

Level of Education: ☐1 Elementary ☐2 High school ☐3 Higher education / Academic

Marital Status: ☐1 Single ☐2 Married/Attached ☐3 Divorced ☐4 Widow

Kupat Holim: ☐1 Clalit ☐2 Maccabi ☐3 Meuhedet ☐4 Leumit ☐5 Other: _____

Emergency/Telemedicine Service Subscription:

○0 No ☐1 Yes *specify*: ☐1 SHAHAL ☐2 NATALI ☐3 Other: _____

Height: |__|__|__| cm **Weight:** |__|__|__| kg

Prior Cardiovascular History:

MI	○0 ☐1
UAP	○0 ☐1
Prior AP ≥24 *hours*	○0 ☐1
CABG	○0 ☐1
PCI	○0 ☐1
Cardiomyopathy	○0 ☐1
If yes, ischemic ☐	
Non-ischemic ☐	
CHF	○0 ☐1
Chronic renal failure	○0 ☐1
COPD	○0 ☐1
PVD	○0 ☐1
Stroke/TIA	○0 ☐1
Mechanical Valve	○0 ☐1
Rheumatic Heart Disease	○0 ☐1
A.Fib	○0 ☐1
If yes, CAF ☐1	
PAF ☐2	
AICD/CRTI implant	○0 ☐1

Risk Factors for CAD:

Smoking:

☐0 Never ☐1 Past ☐2 Current

	No	Yes	Newly diagnosed
Family history of CAD	○0	☐1	
Dyslipidemia	○0	☐1	☐
Hypertension	○0	☐1	☐
Diabetes	○0	☐1	☐
☐1 Type 1 ☐2 Type 2			
Psoriasis	○0	☐1	

Prior Chronic Treatment: *list all drugs administrated during the last month*

	No	Yes
Antiplatelets:		
Aspirin	○0	☐1
Clopidogrel	○0	☐1
Prasugrel	○0	☐1
Ticagrelor	○0	☐1
Anticoagulants:		
Warfarin	○0	☐1
Dabigatran	○0	☐1
Rivaroxaban	○0	☐1
LMWH	○0	☐1

	No	Yes
ACE-I	○0	☐1
ARB	○0	☐1
Beta blockers	○0	☐1
Digoxin	○0	☐1
Amiodarone	○0	☐1
Other antiarrhythmics	○0	☐1
Nitrates	○0	☐1
Diuretic	○0	☐1
Aldosterone receptor antagonist	○0	☐1
Insulin	○0	☐1

	No	Yes
Hypoglycemic drugs (Oral)	○0	☐1
If yes, specify trade name		
1)_____		
2)_____		
3)_____		
Statins	○0	☐1
Fibrate	○0	☐1
Ezetimibe	○0	☐1
Niacinic acid	○0	☐1

	No	Yes
Calcium channel blocker	○0	☐1
Colchicine	○0	☐1
PDE type 5 Inh	○0	☐1
If yes, during last 24h	○0	☐1
Smoking cessation medication	○0	☐1
Other drugs	○0	☐1

2. Onset, 1st Medical Contact Information & Pre-hospital Information

Symptom Onset: |__|__| / |__|__| /2013 (Day / Month) ⏲ |__|__|:|__|__| (Hours / Minutes) △ 2 NA

Presenting Symptoms: ☐ 1 chest pain ☐ 2 Dyspnea ☐ 3 Arrhythmia
☐ 4 Syncope ☐ 5 CHF ☐ 6 Other:_____
☐ 7 Aborted SCD if checked, please fill the Out of Hospital Cardiac Arrest (OHCA) form

Patient location at onset of symptoms: ☐ 1 Private residence ☐ 2 Public place ☐ 3 Work place
☐ 4 Hospital: _____ ☐ 5 Nursing home ☐ 6 Other: _____

First Medical Contact: ☐ 1 Home visit ☐ 2 HMO Out-Pts. clinic/ "Moked" ☐ 3 Regular Ambulance
☐ 4 Mobile ICCU ☐ 5 ER ☐ 6 In-Patient
|__|__| / |__|__| /2013 (Day / Month) ⏲ |__|__|:|__|__| (Hours / Minutes) △ 2 NA

Transport to the hospital:

Mode of Transportation:
☐ 1 Mobile ICCU specify: ☐ 1 MADA ☐ 2 SHAHAL ☐ 3 NATALI
☐ 2 Regular ambulance
☐ 3 Private car / independently
☐ 4 Not relevant (e.g. in-patient)

Reason ambulance not used:
☐ 1 Ambulance not available
☐ 2 Advice from medical staff
☐ 3 Patient's decision
☐ 4 Other

Treatment before hospitalization:
check all drugs given from beginning of symptoms till admission to hospital not including chronic drugs

☐ Aspirin ☐ Beta blockers ☐ Atropine
☐ Clopidogrel ☐ Narcotics ☐ Adrenalin
☐ Prasugrel ☐ Nitrates ☐ Bicarbonate
☐ Ticagrelor ☐ Diuretics ☐ Oxygen
☐ Heparin ☐ Amiodarone
☐ LMWH ☐ Lidocaine

Procedures before hospitalization:
check all procedures before admission to hospital

☐ ECG
☐ CPR (chest compression) *
☐ DC shock – AED*
☐ DC shock – manual*
☐ External pacing
☐ Intubation/Ventilation

*Please fill the *Out of Hospital Cardiac Arrest* (OHCA) form

First Arrival to: ☐ 1 ER ☐ 2 Directly to CCU ☐ 3 Directly to cath laboratory
|__|__| / |__|__| /2013 (Day / Month) ⏲ |__|__|:|__|__| (Hours / Minutes) △ 2 NA

ED Information: *check all drugs administered at ED*

☐ Aspirin ☐ Other Anticoagulants ☐ Amiodarone
☐ Clopidogrel ☐ GP IIb/IIIa antagonists ☐ Lidocaine
☐ Prasugrel ☐ Beta blockers ☐ Atropine
☐ Ticagrelor ☐ Narcotics ☐ Adrenalin
☐ Heparin ☐ Nitrates ☐ Bicarbonate
☐ LMWH ☐ Diuretics ☐ Oxygen

ED procedures: *check all procedures performed at ED*

☐ ECG
☐ CPR (chest compression) *
☐ DC shock*
☐ External pacing
☐ Intubation/Ventilation

1st Hospitalized in: ☐ 1 CCU ☐ 2 Cardiology ☐ 3 Chest pain unit ☐ 4 Internal Medicine ☐ 5 Other
|__|__| / |__|__| /2013 (Day / Month) ⏲ |__|__|:|__|__| (Hours / Minutes) △ 2 NA

If 1st ward was not CCU/Cardiology:
Date Transferred to CCU / Cardiology: |__|__| / |__|__| /2013 (Day / Month) ⏲ |__|__|:|__|__| (Hours / Minutes) △ 2 NA

|__|__|__| |__|__|__|
Center Patient

3. Vital Signs on First Medical Contact

Killip class: ☐1 ☐2 ☐3 ☐4 **Heart Rate** (*beats/minute)*: |__|__|__|

Blood Pressure (*mmHg)*: **Systolic** |__|__|__| **/ Diastolic** |__|__|__| **Saturation room air** (%)|__|__|__|

First ECG recorded: |__|__| / |__|__| /2013 ⊕ |__|__|:|__|__|
Day Month Hours Minutes

Performed at: ☐1 Home ☐2 Ambulance ☐3 ED ☐4 Hosp. Ward ☐5 Primary clinic/"moked"

Rhythm: ☐1 NSR ☐2 AF ☐ S. tachy ☐ S. brady
☐4 VT/VF ☐ Asystole ☐1 2-3° AV block ☐6 Other: _____

ECG Pattern: *tick only one*
☐1 Normal ☐2 No new ST- T changes ☐3 ST-elevation ☐4 ST-depression ☐5 T inversion only
☐5 Undetermined ECG findings *(LBBB, Pacing, Severe LVH)*

4. Primary Reperfusion Therapy in STE-ACS (or new LBBB Patients)

Spontaneous Reperfusion: ☐1 Yes ☐2 No *if Yes*:

|__|__| / |__|__| /2013 ⊕ |__|__|:|__|__| ☐ NA
Day Month Hours Minutes

☐ Early resolution(≥70%) of STE
☐ Early resolution (≥70%) of symptoms

Primary Reperfusion: ○0 No ☐1 Yes *(If YES, specify one below)*

Type of Reperfusion: ☐1 Thrombolysis
☐2 Angiography **Followed by**: ☐1 Primary PCI ☐2 Urgent CABG ☐0 No intervention

Date: |__|__| / |__|__| /2013 ⊕ |__|__|:|__|__|
Day Month Hours Minutes

Reasons for not Performing Primary Reperfusion *(TLx or PCI)* **for ST Elevation or New LBBB** *(check <u>all</u> that apply):*

☐ Spontaneous reperfusion
☐ Late arrival at hospital
☐ Died before decision
☐ Contraindication to TLx
☐ PPCI Considered not indicated\justified
  ☐ Renal failure
  ☐ Bleeding risk
  ☐ Known coronary anatomy
  ☐ Other
☐ Patient refusal
☐ Other specify _____

I. Thrombolytic Therapy (TLx):

TLx Agent : ☐1 STK ☐2 tPA

Was TLx judged to be clinically successful? ○0 No ☐1 Yes

II. Primary PCI/ Angiography: *Performed within 12 hours from symptom onset. If performed later (>12h) enter data on paragraph 5.*

Vascular access: ☐1 Femoral ☐1 Radial

Infarct Related Artery *(check one)*: ☐1 LMCA ☐2 LAD ☐3 LCx ☐4 RCA ☐5 SVG ☐6 Arterial Graft ☐7 Unknown

TIMI grade flow –before revascularization *(First injection)*: 0 1 2 3

PCI for Additional non Infarct Related Artery Lesion(s): ○0 No ☐1 Yes

☐ **IIb/IIIa Antagonist:** ○0 No ☐1 Yes *if yes:*
☐ before ☐ during/after PPCI
☐ Reopro ☐ Integrilin ☐ Aggrestat
☐ Bolus only ☐ Bolus and continues infusion for ___ hours.

Oral Anti-platelet therapy:

☐ Aspirin	☐ before	☐ during/after PPCI	loading dose _____mg	
☐ Clopidogrel	☐ before	☐ during/after PPCI	loading dose _____mg	
☐ Prasugrel	☐ before	☐ during/after PPCI	loading dose _____mg	
☐ Ticagrelor	☐ before	☐ during/after PPCI	loading dose _____mg	

Anticoagulants:
☐ Heparin
☐ LMWH
☐ Bivalirudin (Angiomax)
☐ Other

Stent: ☐ Yes ○0 No *if Yes,* ☐ BMS ☐ DES ☐ MGuard Stent
Aspiration Device: ☐ Yes ○0 No
IABP use: ☐ Yes ○0 No *if Yes,* ☐ before ☐ during/after PPCI

Angiographic Complications: ○0 No ☐1 Yes *if Yes, please mark:(all that apply)*
☐ Perforation
☐ Occlusion of significant side branch
☐ Distal embolization
☐ Dissection
☐ Vascular complication (excluded bleeding)

TIMI grade flow - following the procedure: 0 1 2 3

5. Additional Cardiac Interventions and Procedures in CCU/Cardiology

Coronary Angiography *(**excluding** primary PCI):* ○0 No ☐1Yes
If yes, specify: ☐1 Event Driven ☐2 Ward policy **Date:** |__|__| / |__|__| /2013 ⊕ |__|__|:|__|__|
Day Month Hours Minutes
Number of Diseased Vessels *(according to any angiography)*: |__|__| *(0=None, 1, 2, 3, 99=Unknown)*
Was Coronary Angiography Followed by PCI? ○0 No ☐1Yes *if yes, specify* **Date:** |__|__| / |__|__| / 2013
Was Coronary Angiography Followed by CABG? ○0 No ☐1Yes *if yes, specify* **Date:** |__|__| / |__|__| / 2013
If PCI performed, PCI to *(check all)*: ☐ LM ☐ LAD ☐ LCX ☐ RCA ☐ SVG ☐ Arterial Graft ☐ Unknown

☐ **IIb/IIIa Antagonist:** ○0 No ☐1 Yes *if Yes:*
☐ before ☐ during/after PPCI
☐ Reopro ☐ Integrilin ☐ Aggrestat
☐ Bolus only ☐ Bolus and continues infusion for ___ hours.

Oral Anti-platelet therapy:

☐ Aspirin	☐ before	☐ during/after PCI	loading dose _____	
☐ Clopidogrel	☐ before	☐ during/after PCI	loading dose _____	
☐ Prasugrel	☐ before	☐ during/after PCI	loading dose _____	
☐ Ticagrelor	☐ before	☐ during/after PCI	loading dose _____	

Anticoagulants:
☐ Heparin
☐ LMWH
☐ Bivalirudin (Angiomax)
☐ Other _____

Stent: ☐ Yes ○0 No *if Yes,* ☐ BMS ☐ DES ☐ MGuard Stent
Aspiration Device: ☐ Yes ○0 No
IABP use: ☐ Yes ○0 No *if Yes,* ☐ before ☐ during/after PPCI

Angiographic Complications: ○0 No ☐1 Yes *if Yes, please mark:(all that apply)*
☐ Perforation
☐ Occlusion of significant side branch
☐ Distal embolization
☐ Dissection
☐ Vascular complication (excluded bleeding)

/__/__/__/ /__/__/__/
Center Patient

Other Procedures:

	No	Yes
DC shock	○0	☐1
Resuscitation (chest compression)	○0	☐1
Ventilation	○0	☐1
IA Balloon	○0	☐1
Echo	○0	☐1
Date: |__|__| / |__|__| / 2013		
Dialysis	○0	☐1

	No	Yes
EPS	○0	☐1
Stress test /SPECT	○0	☐1
AICD/CRT	○0	☐1
Permanent pacemaker	○0	☐1
Temporary pacemaker	○0	☐1
Therapeutic Hypothermia	○0	☐1

For Therapeutic Hypothermia
Length of TH: ___ hours
Minimal temp: ___ °c
In patients undergoing PCI, TH initiated:
☐ before PCI
☐ during/ after PCI

EF Determined? ○0 No ☐1 Yes *if Yes, specify*: **Date**: |__|__| / |__|__| / 2013 ⏲ |__|__|:|__|__|
Day Month Hours Minutes

By: ☐1 Echo ☐2 Ventriculography ☐3 Radionuclear scan
EF: |__|__| % ☐1 Normal (≥50%) ☐2 Mild (40-49%) ☐3 Moderate (30-39%) ☐4 Severe (<30%)

6. In Hospital Complications

	No	Yes
CHF mild-moderate*(Killip-2)	○0	☐1
Pulmonary edema*(Killip-3)	○0	☐1
Cardiogenic shock*(Killip-4)	○0	☐1
Hemodynamically significant RVI	○0	☐1
Re-MI	○0	☐1
Post MI angina/re-ischemia	○0	☐1
Stent thrombosis (definite/probable)	○0	☐1
Free wall rupture	○0	☐1
Tamponade	○0	☐1
VSD	○0	☐1
MR Moderate-severe	○0	☐1
Pericarditis	○0	☐1
Sustained VT *(>125 bpm)*	○0	☐1
Primary VF	○0	☐1
Secondary VF	○0	☐1

** Specify worst Killip Class*

	No	Yes
New AF	○0	☐1
☐ PAF		
☐ Chronic/Persistent		
High degree (2-3°) AVB	○0	☐1
Asystole	○0	☐1
TIA	○0	☐1
Stroke	○0	☐1
☐ Hemorrhagic		
☐ Ischemic		
Acute renal failure	○0	☐1
Sepsis	○0	☐1
Major (TIMI) bleeding	○0	☐1
Blood transfusions	○0	☐1
Units: |__|__|		
Bleeding Site:		
☐ Access site ☐ ICH ☐ GIT ☐ Other		
Minor Bleeding	○0	☐1

7. Laboratory Tests

Peak CK:|__|__|__|__|__|__| *IU/L* **Elevated**? ○0 No ☐1 Yes △2 NA ***(Maximal values)***

Peak Troponin I *(max)*:|__|__|__|__|__| *ng/ml* **Elevated**? ○0 No ☐1 Yes △2 NA

Peak Troponin T *(max)*:|__|__|__|__|__| *ng/ml* **Elevated**? ○0 No ☐1 Yes △2 NA

***First Measurements of*:**

For lipid profile: within 1st 24h from admission ○0 No ☐1 Yes *Unit:* ____

Cholesterol: Total |__|__|__| **LDL** |__|__|__| **HDL** |__|__|.|__|

Triglycerides: |__|__|__|

Glucose:|__|__|__| *Unit:* ____ **Hb:**|__|__|.|__| *g/dL* **CRP:**|__|__|__| *Unit:* ___

Creatinine:|__|__|__| *Unit :* ____ **WBC:** |__|__|__|__|__| *Unit:*___ **HbA1c:**|__|__| %

8. Medical Treatment

List all drugs administered in hospital and/or recommended at discharge. Exclude clinical trial drugs.

	In-hospital				At discharge	
	No Yes	**date**			**No Yes**	
Anti-platelet		Start	Stop	Loading (mg)		
Aspirin	O_0 ☐ 1	_____	_____	_____	O_0 ☐ 1	
Clopidogrel	O_0 ☐ 1	_____	_____	_____	O_0 ☐ 1	
Prasugrel	O_0 ☐ 1	_____	_____	_____	O_0 ☐ 1	
Ticagrelor	O_0 ☐ 1	_____	_____	_____	O_0 ☐ 1	
Anticoagulants					O_0 ☐ 1	
Warfarin	O_0 ☐ 1				O_0 ☐ 1	
UF Heparin	O_0 ☐ 1				O_0 ☐ 1	
LMW heparin	O_0 ☐ 1				O_0 ☐ 1	
Bivalirudin (Angiomax)	O_0 ☐ 1				O_0 ☐ 1	
Fondaparinux	O_0 ☐ 1				O_0 ☐ 1	
Dabigatran	O_0 ☐ 1				O_0 ☐ 1	
Rivaroxaban	O_0 ☐ 1				O_0 ☐ 1	
IIbIIIa GP	O_0 ☐ 1					
ACE-I	O_0 ☐ 1				O_0 ☐ 1	
ARB	O_0 ☐ 1				O_0 ☐ 1	
Beta blockers	O_0 ☐ 1				O_0 ☐ 1	
IV inotropic agent	O_0 ☐ 1					
Levosimedan	O_0 ☐ 1					
Digoxin	O_0 ☐ 1				O_0 ☐ 1	
Amiodarone	O_0 ☐ 1				O_0 ☐ 1	
Other antiarrhythmics	O_0 ☐ 1				O_0 ☐ 1	
Diuretic	O_0 ☐ 1				O_0 ☐ 1	
Aldosterone receptor antagonist	O_0 ☐ 1				O_0 ☐ 1	If yes: ☐ Aldactone ☐ Inspra
Insulin	O_0 ☐ 1				O_0 ☐ 1	
Hypoglycemic drugs (Oral)	O_0 ☐ 1				O_0 ☐ 1	
Statins	O_0 ☐ 1				O_0 ☐ 1	
Niaspan/tredaptive	O_0 ☐ 1				O_0 ☐ 1	
Fibrate	O_0 ☐ 1				O_0 ☐ 1	
Ezetimibe	O_0 ☐ 1				O_0 ☐ 1	
Calcium channel blocker	O_0 ☐ 1				O_0 ☐ 1	
Nitrates	O_0 ☐ 1				O_0 ☐ 1	
PPI	O_0 ☐ 1				O_0 ☐ 1	
H_2 blockers	O_0 ☐ 1				O_0 ☐ 1	If yes: ☐ zyban(bupropion) ☐ Chantix (Varenicline) ☐ Nicotine preparation (Nicorette)
Smoking cessation medication	O_0 ☐ 1					

|__|__|__| |__|__|__|
Center Patient

9. Discharge from Reporting Department (CCU/Cardiology)

Status at Discharge from Reporting Department:

☐ 0 Alive →	**Discharge Date:** |__|__| / |__|__| /2013 **Discharged to:** ☐ 1 Home ☐ 2 Internal Medicine ☐ 3 Cardiothoracic Surgery ☐ 4 Other Ward ☐ 5 Convalescence facility/unit ☐ 6 Nursing institute ☐ 7 Other **CPC:** ☐**1** ☐**2** ☐**3** ☐**4** ☐**5**
☐ 1 Deceased →	**Date of Death:** |__|__| / |__|__| /2013 **Cause of Death:** ☐ 0 Non-cardiac ☐ 1 Cardiac **Death was** ☐ 0 Non-sudden ☐ 1 Sudden

Discharge Diagnosis: ☐ 1 STE MI* ☐ 2 NSTEMI ☐ 3 UAP ☐ 4 Other:_____
* Included patient without Troponin elevation

If STEMI:

ECG Findings *(check all that apply)*:

Location: ☐ Anterior ☐ Inferior ☐ Lateral ☐ Posterior ☐ Right ventricle ☐ Undetermined

Q-Waves: ○ 0 No ☐ 1 Yes

If AMI:

Type of AMI: |__|__|

Type 1	**Spontaneous MI** related to ischemia due to primary coronary event such as plaque erosion and /or rupture, fissuring or dissection	**Type 4a**	**MI associated with PCI**
Type 2	**Myocardial infarction secondary to an ischemic imbalance**. e.g. coronary artery spasm, coronary embolism, anemia, arrhythmias, hypertension or hypotension	**Type 4b**	**MI associated with stent thrombosis as documented by angiography or at autopsy**
Type 3	**Myocardial infarction resulting in death when biomarker values are unavailable**	**Type 5**	**MI associated with CABG**

Name of physician: _____ Signature: _____ Date: _____

Center |__|__|__| ***Patient*** |__|__|__|

Acute Coronary Syndrome Israeli Survey – 2013

30-Day Follow-up *(from 1st day of admission)*

Do not record on this form events/ procedures that took place during the index hospitalization and were already recorded on the main form

Date of Contact: |__|__| / |__|__| / 2013
day *month*

At the Time of Contact Patient was:

☐ 1 Still in hospital ☐ 3 Deceased in hospital ☐ 2 Discharged from hospital *(specify below)*

Date hospital Discharge: |__|__| / |__|__| /2013
day *month*

To: ☐ Home ☐ Institution

Re-Hospitalization Within 30 Days from Admission: ○ 0 No ☐ 1 Yes (*specify below)*

Date of First Re-Hospitalization: |__|__| / |__|__| /2013
day *month*

First Re-Hospitalization was: Scheduled ○ 0 No ☐ 1 Yes
Cardiac ○ 0 No ☐ 1 Yes

Events and Procedures after Discharge from the Reporting Department

Events: *(Check all that apply)*

	No	Yes	Day/Month	Re-Hospitalization No	Re-Hospitalization Yes
UAP/NSTEMI	○ 0	☐ 1	|__|__| / |__|__|	○ 0	☐ 1
STEMI	○ 0	☐ 1	|__|__| / |__|__|	○ 0	☐ 1
Stent thrombosis	○ 0	☐ 1	|__|__| / |__|__|	○ 0	☐ 1
Angina	○ 0	☐ 1	|__|__| / |__|__|	○ 0	☐ 1
New onset A.F	○ 0	☐ 1	|__|__| / |__|__|	○ 0	☐ 1
Other Arrhythmia	○ 0	☐ 1	|__|__| / |__|__|	○ 0	☐ 1
Specify : _____					
Syncope	○ 0	☐ 1	|__|__| / |__|__|	○ 0	☐ 1
Aborted SCD	○ 0	☐ 1	|__|__| / |__|__|	○ 0	☐ 1
Major (TIMI) bleeding	○ 0	☐ 1	|__|__| / |__|__|	○ 0	☐ 1
Minor bleeding	○ 0	☐ 1	|__|__| / |__|__|	○ 0	☐ 1

Procedures: *(Check all that apply)*

	No	Yes	Day/Month	Scheduled	Urgent
Cor. Angiography	○ 0	☐ 1	|__|__| / |__|__|	○ 1	☐ 2
PCI	○ 0	☐ 1	|__|__| / |__|__|	○ 1	☐ 2
CABG	○ 0	☐ 1	|__|__| / |__|__|	○ 1	☐ 2
Echo	○ 0	☐ 1	|__|__| / |__|__|	○ 1	☐ 2
EPS	○ 0	☐ 1	|__|__| / |__|__|	○ 1	☐ 2
Pacemaker	○ 0	☐ 1	|__|__| / |__|__|	○ 1	☐ 2
CRTD/AICD	○ 0	☐ 1	|__|__| / |__|__|	○ 1	☐ 2

Rehabilitation

Referral to Rehabilitation Program: ○ 0 No ☐ 1 Yes

Participating in a Rehabilitation Program: ○ 0 No ☐ 1 Yes

Smoking cessation (among smokers only)

Smoking status: ☐ **smoking** ☐ **quit smoking**

Patient received explanation regarding smoking cessation: ○ 0 No ☐ 1 Yes

If yes: ☐ In hospital ☐ post discharged

Patient referred to smoking cessation program: ○ 0 No ☐ 1 Yes

If yes: ☐ In hospital ☐ post discharged

Patient is participating/ participated in a smoking cessation program: ○ 0 No ☐ 1 Yes

If yes: ☐ initiated In hospital ☐ initiated post discharged

Center |__|__|__| *Patient* |__|__|__|

30-Day Follow-up evidence based Treatment

List of drugs used at 30-days:

	No	Yes
Anti-platelet		
Aspirin	0	1
Clopidogrel	0	1
Prasugrel	0	1
Ticagrelor	0	1
ACE-I	0	1
ARB	0	1
Beta blockers	0	1
Digoxin	0	1
Amiodarone	0	1
Other antiarrhythmics	0	1
Diuretic	0	1
Aldosterone receptor antagonist	0	1
Insulin	0	1
Hypoglycemic drugs (oral)	0	1
Statins	0	1
Niaspan/Tredaptive	0	1
Fibrate	0	1
Ezetimibe	0	1
Calcium channel blocker	0	1
Nitrates	0	1
PPI	0	1
H_2 blockers	0	1
Smoking cessation medication	0	1
PDE- type 5 inhibitors (at least one)	0	1

	No	Yes
Anticoagulants		
Warfarin	0	1
LMW heparin	0	1
Dabigatran	0	1
Rivaroxaban	0	1

If yes: ☐ Aldactone ☐ Unknown
☐ Inspra

If stopped, reason for stop*:
☐ adverse event
☐ physician advice
☐ patient will
☐ other:_____

If yes: ☐ zyban (bupropion)
☐ Chantix (Varenicline)
☐ Nicotine preparation (Nicorette)

If yes: ☐ Viagra
☐ Cialis
☐ Lavitra

* Only those patients who were advised to take at discharge.

Status at the End of 30 days from the First Day of Hospitalization*:

***For events that occurred during hospitalization for another reason (in patients) – 30 days from event onset**

☐ 0 Alive
☐ 1 Deceased *specify:* **Date of Death:** |__|__| / |__|__| **/2013**

Cause of Death: ☐ 1 Cardiac ☐ 0 Non-cardiac ☐ Unknown
Death was: ☐ 1 Sudden ☐ 0 Non-sudden ☐ Unknown

Name of physician: _____ **Signature:** _____ **Date:** |__|__| / |__|__| /2013