

ANNUAL REPORT OF THE NCD-ACS REGISTRY 2014 - 2015

Editor:

Dr Wan Azman Wan Ahmad



**NATIONAL CARDIOVASCULAR DISEASE
DATABASE
(NCVD)**

**Annual Report of the
Acute Coronary Syndrome (ACS) Registry
2014 – 2015**

Editor:

Wan Azman Wan Ahmad

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- National Heart Association of Malaysia (NHAM)
- Health Informatics Centre, Ministry of Health Malaysia
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- The members of various expert panels
- Our source data providers

PREFACE

This is the 5th report of the National Cardiovascular Disease-Acute Coronary Syndrome Registry (NCVD-ACS). The previous reports of 2006, 2007 – 2008, 2009 – 2010, and 2011 – 2013 have given us valuable insight into the nature and impact of acute coronary syndrome (ACS) in Malaysia. Importantly, this report marks the 10th year since the inception of the NCVD-ACS Registry, a registry which is now one of the most important resource on ACS in the country, and indeed for the region. The NCVD-ACS and NCVD-Percutaneous Coronary Intervention (PCI) studies and reports are some of the major undertakings of the National Heart Association of Malaysia in providing the country with accurate and relevant data on these subjects that hopefully will aid the formulation of appropriate treatment strategies to manage coronary heart disease.

This report was made possible primarily due to the many source data providers (SDPs) who have voluntarily contributed valuable information into our secured electronic database. The evolution in diagnostics and therapeutic strategies in the management of ACS has resulted in improved clinical outcomes, and this is reflected in consecutive NCVD-ACS Registry reports. From the use of more sensitive cardiac biomarkers to early invasive strategy, these advances have driven favourable outcomes for patients with ACS. The information obtained from SDPs across the country have not only provided a snapshot of ACS in Malaysia, but more significantly, uninterrupted annual data on the disease since 2006.

We would like to acknowledge the contribution of our peers and colleagues in both the Governance Board of the NCVD and the Steering Committee of the NCVD-ACS Registry. We also commend the efforts of the NCVD Medical Writing Committee for this report, led by Prof Dr Wan Azman Wan Ahmad, who has put in over a decade of work into all the reports of the NCVD-ACS Registry published to date. His leadership and tireless efforts can be reflected in this excellent report which you have today.

We would like to thank the Ministry of Health Malaysia for the initial financial grant for the NCVD Registries and the National Heart Association of Malaysia together with the Health Informatics Centre, MOH Malaysia for the yearly financial support which helped sustain the NCVD-ACS Registry for the last 10 years.

Finally, it is our genuine hope that this report will encourage even greater participation of centres in Malaysia into the NCVD-ACS Registry. This registry should spur more outcome-based research and provide direction so that more basic research can be undertaken. Not only should this registry generate better data to further improve healthcare delivery and patient outcomes locally, but also contribute towards the global scientific pool of knowledge in ACS.

Thank you.

Datuk Dr Rosli Mohd Ali
Chairman
NCVD Governance Board

FOREWORD

After a decade since the inception of the National Cardiovascular Disease, Acute Coronary Syndrome (NCVD-ACS) Registry, it is my great honour and pleasure to present you this 5th Report – a compilation of data involving patients admitted with ACS in Malaysia, between the years of 2014–2015.

Data from 17,771 patients from 23 source data providers (SDPs) was collected and analysed. The volume of data compiled reflects the dedication of all those involved at the SDPs, staff of the National Heart Association of Malaysia (NHAM) and those involved from the Ministry of Health (MOH), who have been consistent in their efforts to ensure the data collected remained of the highest quality. There has been a year-on-year increase in the number of patient notification reports into the NCVD-ACS Registry; In 2015, for the first time, we crossed the 10,000 patients mark!

On behalf of the Steering Committee of the NCVD-ACS Registry, I would like to thank all those who contributed to the writing of this report and the Governance Board of the NCVD for their support. This report also examines the similarities and differences among the patients with ACS admitted between 2014–2015 and those described in the previous report.

Over the last decade, deaths from circulatory diseases including ACS, remains the principal cause of mortality in the country. Data from previous NCVD-ACS Registry reports have been published and have directly contributed to our National Clinical Practice Guidelines (CPGs). Through the NCVD-ACS Registry reports, we have seen the impact of CPGs and the subsequent reduction in in-hospital and 30-day all-cause mortality rates.

Finally, I would like to acknowledge Prof Datuk Paduka Dr Wan Azman and Prof Datuk Dr Sim Kui Hian for their vision and leadership over the last decade and for their direct involvement in this NCVD Registry. Through their efforts, the NCVD-ACS Registry is now one of the largest, prospective, single disease registries of Malaysia. This Registry will provide greater insight into ACS pathophysiology, management and impact on patients in our nation. It will also serve as the main resource for future research and policy planning to improve health outcomes of such patients.

Thank you.

Dr Alan Fong Yean Yip
Chairman, Steering Committee
NCVD-ACS Registry

NOTE FROM THE WRITING COMMITTEE CHAIRMAN

The NCVD-ACS registry was established in 2006, and we have already published four reports. In the last report (NCVD-ACS registry 2011 – 2013), 14,763 patients from 19 source data providers (SDPs) were analysed. For the present report, 17,771 patients admitted with acute coronary syndrome (ACS) between 2014 and 2015 were obtained from 23 SDPs. Over the last 10 years, the NCVD-ACS had reported on 49,406 ACS patients, making it the biggest database on ACS in Malaysia. Overview of the five chapters in this report:

Cardiac services: In 2015, the number and density of registered cardiologists in the National Specialist Register in Malaysia increased from 219 (7.3 per million populations [pmp]) to 236 (7.5 pmp); however, the density of cardiologists pmp is still low compared to more developed countries. There is still an uneven distribution of cardiologists and cardiac catheterisation labs across the country despite numerous improvement measures by the relevant authorities.

Patient characteristics: The baseline characteristics of patients in this report were generally similar to that of the previous report, with a few notable points to highlight: Patients who presented with ACS remained young, with a significant proportion under the age of 50 years. Of the three major ethnic groups, over a quarter of Malay and Indian patients presenting with ACS was below the age of 50 years. There was a high prevalence of hypertension, dyslipidaemia and diabetes in this report, comparable with previous reports of the NCVD-ACS Registry.

Clinical presentations and investigations: The spectrum of ACS in 2014 – 2015 revealed that the commonest subtype was STEMI (46.1%), similar to previous years. Two-thirds of STEMI had intermediate-high TIMI risk score; whereas, NSTEMI-UA had slightly higher intermediate-high score in 2014 – 2015 compared to 2011 – 2013. The proportion of STEMI remained highest in the young patients. The proportion of NSTEMI-UA amongst elderly ACS patients increased to 62.9%. The proportion of Killip III – IV doubled amongst the elderly population compared to the young. The ratio of male: female remained at 4:1 for ACS. Among men, 50.5% presented with STEMI, whereas among women, 70.8% presented with NSTEMI/UA.

Treatment: Similar length of admission was observed in CCU/ICU for all spectrums of ACS and age groups. The use of DAPT was up to 96% for STEMI and more than 90% for NSTEMI. Statin use exceeded 90% for all spectrums of ACS. Beta-blocker use upon discharge was 69% for STEMI, 67.2% for NSTEMI and 66.9% for UA. ACE inhibitor/ARB use upon discharge was 56.1%, 50.5%, and 54.5% for STEMI, NSTEMI and UA respectively. Majority (81%) of STEMI patients who presented to non-PCI capable centre received fibrinolysis. 16.4% of STEMI patients presenting to a PCI-capable centre underwent primary PCI, which was a significant increase from the previous report. The median door-to-needle (DTN) time was 45 minutes and 35.2% achieved DTN time of less than 30 minutes. The median door-to-device (balloon) (DTB) time was 69 minutes and 63.6% achieved DTB time of less than 90 minutes.

Outcome: The overall in-hospital and 30-day mortality rates remained constant at 7.4% and 9.2% respectively compared to NCVD-ACS 2011 – 2013 (7.6% and 9%). STEMI remained as the highest in-hospital (10.6%) and 30-day (12.3%) risk for mortality post-event. Patients who received fibrinolytic therapy or PCI had better outcome than those who did not. Hospitals with cardiac catheterisation facility registered lower in-hospital and 30-day mortalities. Advanced age, higher Killip classification and TIMI risk score at presentation as well as diabetes were independent risk factors for poor prognosis.

This report provides information of our current medical practices. It provides tremendous opportunities for further improvement and direction for future planning. More STEMI patients are expected to receive primary PCI via STEMI network initiative. It is important to develop a clinical pathway to shorten DTB time and DTN time. Adhering to treatment guidelines, instituting secondary prevention programme and strengthening cardiac rehabilitation services are important measures to prevent the recurrence of ACS-related hospital readmission and to improve long-term outcome.

Last but not least, I would like to thank all those involved for the endless effort and admirable determination in contributing data and for the publication of this report. These efforts and contributions would definitely greatly impact the future management of cardiovascular disease in this nation.

Prof Datuk Paduka Dr Wan Azman Wan Ahmad
Chairman, NCVD Writing Committee

ABBREVIATIONS

ACE	Angiotensin Converting Enzyme
ACS	Acute Coronary Syndrome
BMI	Body Mass Index
CABG	Coronary Artery Bypass Graft
CAD	Coronary Artery Disease
CCU	Coronary Care Unit
CK	Creatinine Kinase
CK-MB	Creatinine Kinase, Muscle and Brain
CRC	Clinical Research Centre
CRF	Case Report Form
CVD	Cardiovascular Disease
DBMS	Database Management System
EDC	Electronic Data Capture
GP	Glycoprotein
HDL	High Density Lipoprotein
HDU	High Dependency Unit
HIC	Health Informatics Centre
ICT	Information and Communication Technology
ICU	Intensive Care Unit
IJN	Institut Jantung Negara
IT/IS	Information Technology and Information System
JPN	Jabatan Pendaftaran Negara
LDL	Low Density Lipoprotein
LVEF	Left Ventricular Ejection Fraction
MOH	Ministry of Health
NCVD	National Cardiovascular Disease Database
NHAM	National Heart Association of Malaysia
NSTEMI	Non-ST-Elevation Myocardial Infarction
PMP	Per Million Population
RCC	Registry Coordinating Centre
SAP	Statistical Analysis Plan
SD	Standard Deviation
SDP	Source Data Provider
STEMI	ST-Elevation Myocardial Infarction
TIMI	Thrombolysis In Myocardial Infarction
TnI	Troponin I
TnT	Troponin T
UA	Unstable Angina

NCVD-ACUTE CORONARY SYNDROME (ACS) REGISTRY

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CHAPTER 1: PROVISION OF CORONARY CARE SERVICES IN MALAYSIA

Omar Ismail¹, Siti Khairani Zainal Abidin², Wan Azman Wan Ahmad³

1 Hospital Pulau Pinang, 2 Hospital Tengku Ampuan Afzan, 3 Pusat Perubatan Universiti Malaya

CHAPTER 1: PROVISION OF CORONARY CARE SERVICES IN MALAYSIAOmar Ismail¹, Siti Khairani Zainal Abidin², Wan Azman Wan Ahmad³*1 Hospital Pulau Pinang, 2 Hospital Tengku Ampuan Afzan, 3 Pusat Perubatan Universiti Malaya***Summary**

1. The number and density of registered cardiologists in the National Specialist Registry, Malaysia had increased from 219 (7.3 pmp) to 236 (7.5 pmp).
2. The density of cardiologist per million populations was still low compared to more developed countries.
3. There was still an uneven distribution of cardiologists and cardiac catheterisation labs across the country despite numerous improvement measures taken by the authority.

Introduction

According to the report from the Department of Statistics Malaysia in 2014, ischaemic heart disease remained as the principal cause of death among Malaysians at 13.5%¹. Men and women across the three main ethnic groups; namely Malay, Chinese and Indian between the age 15 – 64 years old were equally affected.

Over the last decades, we have seen tremendous progress in coronary care services in Malaysia to fulfill the requirement of our population. Significant numbers of new government and private hospitals are now offering cardiac services, although there is still no homogenous distribution. Based on the last report of the Malaysian National Cardiovascular Disease Database-Acute Coronary Syndrome (NCVD-ACS) registry 2011 – 2013, the all-cause in-hospital and 30-day mortality rates were 7.6% and 9% respectively². Following STEMI, 75% of patients were treated with fibrinolytic therapy and only 9.4% received primary angioplasty. To improve outcome and timely care, prompt effective treatment for patients with ACS is considered a high priority key performance indicator for government hospitals.

Number and density of cardiologists in Malaysia

In 2015, the total number of registered cardiologists in Malaysia was 236 (Table 1.1), an increase from the previous report. Most cardiologists (83%) were employed by the private sector while only 17% were attached to the public sector (Ministry of Health [MOH] and Ministry of Higher Education [MOHE]). Nearly half of the total number of cardiologists in the country were working in the Klang Valley (Selangor, Wilayah Persekutuan (WP) Kuala Lumpur and Putrajaya).

The cardiologist density ratio in Malaysia was 0.075 per 10,000 population or 7.5 per million population (pmp). WP Kuala Lumpur had the highest density ratio of 41.5 pmp, followed by Selangor and WP Putrajaya with 6.7 pmp and Sarawak with 6.2 pmp. Similar to the previous report, there was no registered cardiologists in Perlis. Terengganu had the lowest density of cardiologist per population (0.8 pmp) followed by Sabah and WP Labuan (2 pmp).

In China, the ratio of cardiologist to population was 19 pmp in 2011³. And Europe has long surpassed Asian countries with the reported mean ratio of 58 cardiologists pmp across EU countries in the year 2000⁴. A study done by MedAxiom in 2013 on the cardiology workforce across United States revealed between 180.8 and 421.5 cardiologists for 100,000 populations⁵. This figure far exceeds our numbers where the target rate was 100 per million. Having said that, the Global Health Observatory data of World Health Organization reported that Malaysia had among the highest ratio of physician to population ratio in Southeast Asian⁶.

Number and density of cardiac catheterisation labs in Malaysia

In comparison to the previous report in 2014, there was an addition of four hospitals with cardiac catheterisation lab facilities in Malaysia (from 69 to 73) (Table 1.2). Of the total number of hospitals, 15 were public hospitals while 58 were private hospitals; and the total number of cardiac catheterisation labs was 87 (Table 1.2 and Table 1.3). This translates into 2.7 cardiac catheterisation labs pmp in Malaysia in 2015. Pulau Pinang had the highest density (8.2 pmp) while Sabah and WP Labuan had the lowest (0.7 pmp). Generally across the nation, there were more cardiac catheterisation labs in the private sector compared to the government except in Kelantan and Terengganu.

Number of CCU beds in government hospitals in Malaysia

There was a total of 274 allocated CCU beds in all the government hospitals in 2015; 225 beds in MOH hospitals and the remaining 49 beds in MOHE hospitals (Table 1.4). As expected, the number of CCU beds was highest in Selangor, WP Putrajaya and WP Kuala Lumpur. By region, the northern part of the country (Penang, Kedah and Perlis) had 32 CCU beds for 4.05 million population, the central region (Perak, Selangor, WP Putrajaya, WP Kuala Lumpur and Negeri Sembilan) had 131 CCU beds for 11.6 million population, the southern region (Johor and Melaka) had 38 CCU beds for 4.5 million population, the East Coast (Kelantan, Terengganu and Pahang) had 44 CCU beds for 4.53 million population, Sabah and WP Labuan had 14 CCU beds for 3.82 million population, and Sarawak had 15 CCU beds for 2.7 million population. Although most of the cardiac patients were cared for in the CCU, many were treated in high dependency units or the general medical wards as there was a limited number of CCU beds available.

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Table 1.1 Number and density of cardiologists in Malaysia by state and sector, 2015

State	Public sector	Private sector	Total	*Population in Malaysia (2015)	Per 10,000 population	Per million population
Perlis	0	0	0	250,000	0	0
Kedah	2	8	10	2,100,000	0.047	4.7
Pulau Pinang	6	28	34	1,700,000	0.2	20
Perak	1	13	14	2,470,000	0.056	5.6
Selangor & WP Putrajaya	4	38	42	6,260,000	0.067	6.7
WP Kuala Lumpur	11	63	74	1,780,000	0.415	41.5
Negeri Sembilan	0	4	4	1,090,000	0.036	3.6
Melaka	0	9	9	890,000	0.101	10.1
Johor	2	8	10	3,610,000	0.027	2.7
Pahang	3	5	8	1,610,000	0.049	4.9
Kelantan	3	2	5	1,760,000	0.028	2.8
Terengganu	0	1	1	1,160,000	0.008	0.8
Sabah & WP Labuan	1	7	8	3,820,000	0.02	2
Sarawak	8	9	17	2,700,000	0.062	6.2
Malaysia	41	195	236	31,200,000	0.075	7.5

* From Department of Statistics, Malaysia (www.dosm.gov.my)

Table 1.2 Number and density of hospital with catheterisation laboratory in Malaysia by state and sector, 2015

State	Public sector	Private sector	Total	*Population in Malaysia (2015)	Per 10,000 population	Per million population
Perlis	0	0	0	250,000	0	0
Kedah	1	5	6	2,100,000	0.028	2.8
Pulau Pinang	1	9	10	1,700,000	0.058	5.8
Perak	1	3	4	2,470,000	0.016	1.6
Selangor & WP Putrajaya	2	14	16	6,260,000	0.025	2.5
WP Kuala Lumpur	3	9	12	1,780,000	0.067	6.7
Negeri Sembilan	0	2	2	1,090,000	0.018	1.8
Melaka	0	4	4	890,000	0.044	4.4
Johor	1	4	5	3,610,000	0.013	1.3
Pahang	1	1	2	1,610,000	0.012	1.2
Kelantan	2	1	3	1,760,000	0.017	1.7
Terengganu	1	0	1	1,160,000	0.008	0.8
Sabah & WP Labuan	1	2	3	3,820,000	0.007	0.7
Sarawak	1	4	5	2,700,000	0.018	1.8
Malaysia	15	58	73	31,200,000	0.023	2.3

* From Department of Statistics, Malaysia (www.dosm.gov.my)

Table 1.3 Number and density of catheterisation laboratories in Malaysia by state and sector, 2015

State	Public sector	Private sector	Total	*Population in Malaysia (2015)	Per 10,000 population	Per million population
Perlis	0	0	0	250,000	0	0
Kedah	1	5	6	2,100,000	0.028	2.8
Pulau Pinang	2	12	14	1,700,000	0.082	8.2
Perak	1	3	4	2,470,000	0.016	1.6
Selangor & WP Putrajaya	3	15	18	6,260,000	0.028	2.8
WP Kuala Lumpur	5	15	20	1,780,000	0.112	11.2
Negeri Sembilan	0	2	2	1,090,000	0.018	1.5
Melaka	0	4	4	890,000	0.044	4.4
Johor	1	4	5	3,610,000	0.013	1.3
Pahang	1	1	2	1,610,000	0.012	1.2
Kelantan	2	1	3	1,760,000	0.017	1.7
Terengganu	1	0	1	1,160,000	0.008	0.8
Sabah & WP Labuan	1	2	3	3,820,000	0.007	0.7
Sarawak	1	4	5	2,700,000	0.018	1.8
Malaysia	19	68	87	31,200,000	0.027	2.7

* From Department of Statistics, Malaysia (www.dosm.gov.my)

Table 1.4 Number of CCU beds in MOH and MOHE hospitals by state, 2015

State	Number of CCU beds in MOH hospitals	Number of CCU beds in MOE hospitals	Total CCU beds	*Population in Malaysia (2015)	Number of CCU beds per 10,000 population	Number of CCU beds per one million population
Perlis	4	-	4	250,000	0.16	16
Kedah	17	-	17	2,100,000	0.08	8
Pulau Pinang	11	-	11	1,700,000	0.06	6
Perak	17	-	17	2,470,000	0.07	7
Selangor & WP Putrajaya	46	6	52	6,260,000	0.08	8
WP Kuala Lumpur	8	37	45	1,780,000	0.25	25
Negeri Sembilan	17	-	17	1,090,000	0.15	15
Melaka	6	-	6	890,000	0.07	7
Johor	32	-	32	3,610,000	0.09	9
Pahang	12	-	12	1,610,000	0.07	7
Kelantan	20	6	26	1,760,000	0.15	15
Terengganu	6	-	6	1,160,000	0.05	5
Sabah & WP Labuan	14	-	14	3,820,000	0.04	4
Sarawak	15	-	15	2,700,000	0.05	5
Malaysia	225	49	274	31,200,000	0.09	9

* From Department of Statistics, Malaysia (www.dosm.gov.my)

CHAPTER 2: PATIENT CHARACTERISTICS

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Summary

The baseline characteristics of patients in this report were generally similar to that of the previous report. There are two notable points from this report:

1. Patients who presented with ACS remained young, with a significant proportion under the age of 50 years. Of the three major ethnic groups, over a quarter of Malay and Indian patients presenting with ACS were below the age of 50 years.
2. There was a high prevalence of hypertension, dyslipidaemia and diabetes in this report, comparable with previous reports of the NCDV-ACS Registry.

Introduction

Baseline characteristics from 17,771 patients admitted with acute coronary syndrome (ACS) between 2014 and 2015 were obtained from 23 source data providers (SDP). Comparisons were made with data published from the previous NCDV-ACS annual report¹.

Of all the patients admitted with ACS in 2014 – 2015, 46.1% were ST-elevation myocardial infarction (STEMI), 25.2% were non-STEMI (NSTEMI) and 28.7% were unstable angina (UA). Compared to the previous report, there was a small decrease in the proportion of patients presenting with STEMI (50.8% in the previous report), while there was an increase in the proportion of patients with UA (29.4% in the previous report). The proportion of patients presenting with NSTEMI was similar (26.0% in the previous report).

In the previous report, patients presenting with ACS were primarily young and male (mean age of 58.5 years, 24.2% under the age of 50 years, and 78.8% were male).

Age and gender

The mean (SD) age at admission was 58.6 (12.2) years, with 23.8% of patients under the age of 50 years and 79.3% of the male gender. Among the males, 27.1% were under the age of 50 years; among the female patients, 11.8% were under the age of 50 years.

In the STEMI subgroup of 8,274 patients, the mean (SD) age at presentation was 56.0 (12.0) years, 86.9% were male, and 30.7% were under the age of 50 years. In the NSTEMI subgroup of 4,614 patients, the mean age (SD) at presentation was 61.1 (12.1) years, 75.7% were male, and 17.6% were under the age of 50 years. In the UA subgroup of 5,365 patients, the mean (SD) age of patients at presentation was 60.2 (12.1) years, 69.3% were male, and 19.4% were under the age of 50 years.

Compared to the previous report, the mean age at presentation for ACS and its subgroups, the gender distribution and proportion of young patients (under the age of 50 years), were similar. Malaysians tend to have ACS at a younger age compared to patients from the well-established GRACE registry and Euro Heart Survey^{1,2}.

In the even younger age group (those under the age of 40 years who presented with ACS), there was a small increase in the number of patients compared to the previous report (7.1% versus 6.1%).

Cardiovascular risk factors

Between 2014 and 2015, 95.0% of patients presenting with ACS had at least one of the common cardiovascular risk factors (CVRF), with 20.2% having one, 28.6% having two, 26.9% having three, and 19.4% having four or more risk factors. Of these CVRF, 46.2% had diabetes, 64.7% had hypertension, 38.6% had dyslipidaemia, 36.9% were current smokers, 13.2% had a positive family history of premature coronary artery disease, 16.5%

had a previous history of myocardial infarction, 25.4% had a previously documented coronary artery disease (> 50% stenosis), 9.2% had a history of chronic stable angina, 62.1% had new onset angina (within 2 weeks to index presentation with ACS), 5.8% had a known history of heart failure, 3.9% had chronic lung disease, 8.3% had a history of renal disease, 4.3% a history of cerebrovascular disease and 0.6% a history of peripheral vascular disease.

Compared to the previous report, the profile of patients presenting with ACS were similar, except that there were more patients with a previous documented history of coronary artery disease and more patients with new onset angina. However, there were now proportionately fewer patients who were current smokers, had previous history of myocardial infarction and had a known history of heart failure.

Ethnic differences

The NCVD Registries provide insight into the baseline characteristics of the different ethnic groups presenting with ACS, and the subsequent management and outcome. The three major ethnic groups (Malay, Chinese and Indian) form the majority of the Malaysian population who present to the SDPs that contribute information into this ACS report.

Between 2014 and 2015, the Malays formed 49.2%, Chinese formed 20.6% and Indians 18.4% of the patients who presented with ACS. In the STEMI subgroup, the proportion was 54.6% Malay, 16.4% Chinese and 15.7% Indian. In the NSTEMI subgroup, the proportion was 45.0% Malay, 23% Chinese and 20.5% Indian. In the UA subgroup, the proportion was 44.4% Malay, 25.0% Chinese and 21.0% Indian. These proportions in the different ACS subgroups were similar to that of the previous report and consistent in that the Malays were more likely to present with STEMI.

For Malay males who presented with ACS between 2014 and 2015, 27.2% were under the age of 50, compared to 14.4% of Malay females. For Chinese males who presented with ACS between 2014 and 2015, 17.0% were under the age of 50, compared to 4.1% of Chinese females. For Indian males who presented with ACS between 2014 and 2015, 28.0% were under the age of 50, compared to 13.8% of Indian females.

Within each major ethnic group, the proportions of young patients from each gender presenting with ACS were similar to that of the previous report. Therefore, while the Malays formed the majority of patients presenting with ACS, the proportion of those who were under the age of 50 at presentation were similar to the Indians and both substantially higher than the Chinese patients. This could be due to a variety of factors, for example, the location of the SDPs, which were mainly in urban areas where a larger proportion of the local population were Malays.

References

1. WA Wan Ahmad, KH Sim. (Eds). Annual report of the NCVD-ACS Registry, 2011 – 2013. Kuala Lumpur, Malaysia: National Cardiovascular Disease Database, 2015.
2. Mandelzweig L, Battler A, Boyko V, Bueno H, Danchin N, Filippatos G, et al. on behalf of the Euro Heart Survey Investigators. The second Euro Heart Survey on acute coronary syndromes: characteristics, treatment, and outcome of patients with ACS in Europe and the Mediterranean Basin in 2004. *Eur Heart J.* 2006; 19 (27): 2285–2293.

Table 2.1 Characteristics of patients with ACS, NCVD-ACS Registry, 2014 – 2015

Year	2011 – 2013	2014	2015	2014 – 2015
Total	14,763	8,458	9,313	17,771
DEMOGRAPHICS				
Age, years				
N	14,763	8,458	9,313	17,771
Mean (SD)	58.5 (12.2)	58.6 (12.2)	58.5 (12.3)	58.6 (12.2)
Median (min, max)	58.2 (20.0, 101.9)	58.5 (20.0, 101.1)	58.5 (20.5, 100.1)	58.5 (20.0, 101.1)
IQR	16.6	16.2	16.6	16.4
Missing (%)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Age group, No. (%)				
20 – < 30	141 (1.0)	78 (0.9)	73 (0.8)	151 (0.8)
30 – < 40	817 (5.5)	480 (5.7)	594 (6.4)	1,074 (6.0)
40 – < 50	2,606 (17.7)	1,444 (17.1)	1,585 (17.0)	3,029 (17.0)
50 – < 60	4,648 (31.5)	2,640 (31.2)	2,893 (31.1)	5,533 (31.1)
60 – < 70	3,764 (25.5)	2,259 (26.7)	2,461 (26.4)	4,720 (26.6)
70 – < 80	2,260 (15.3)	1,211 (14.3)	1,364 (14.6)	2,575 (14.5)
≥ 80	527 (3.6)	346 (4.1)	343 (3.7)	689 (3.9)
Missing	0	0	0	0
Gender, No. (%)				
Male	11,638 (78.8)	6,705 (79.3)	7,384 (79.3)	14,089 (79.3)
Female	3,125 (21.2)	1,753 (20.7)	1,929 (20.7)	3,682 (20.7)
Missing	0	0	0	0
Ethnic group, No. (%)				
Malay	7,459 (50.5)	4,190 (49.5)	4,568 (49.0)	8,758 (49.3)
Chinese	3,174 (21.5)	1,767 (20.9)	1,888 (20.3)	3,655 (20.6)
Indian	2,904 (19.7)	1,580 (18.7)	1,716 (18.4)	3,296 (18.5)
Orang Asli	8 (0.1)	11 (0.1)	5 (0.1)	16 (0.1)
Kadazan Dusun	135 (0.9)	134 (1.6)	193 (2.1)	327 (1.8)
Melanau	10 (0.1)	3 (0.0)	1 (0.0)	4 (0.0)
Murut	11 (0.1)	8 (0.1)	12 (0.1)	20 (0.1)
Bajau	113 (0.8)	102 (1.2)	131 (1.4)	233 (1.3)
Bidayuh	80 (0.5)	32 (0.4)	67 (0.7)	99 (0.6)
Iban	184 (1.2)	111 (1.3)	131 (1.4)	242 (1.4)
Punjabi	49 (0.3)	34 (0.4)	35 (0.4)	69 (0.4)
Other Malaysian	255 (1.7)	206 (2.4)	246 (2.6)	452 (2.5)
Foreigner	381 (2.6)	280 (3.3)	320 (3.4)	600 (3.4)
Not available	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Missing	0	0	0	0

Year	2011 – 2013	2014	2015	2014 – 2015
Total	14,763	8,458	9,313	17,771
OTHER CORONARY RISK FACTORS				
Smoking, No. (%)				
Never	5,391 (37.6)	3,259 (39.0)	3,668 (39.9)	6,927 (39.5)
Former (quit > 30 days)	3,059 (21.3)	1,624 (19.5)	1,748 (19.0)	3,372 (19.2)
Current (any tobacco use within last 30 days)	5,443 (38.0)	3,110 (37.3)	3,423 (37.3)	6,533 (37.3)
Not available	445 (3.1)	353 (4.2)	344 (3.7)	697 (4.0)
Missing	425	112	130	242
Family history of premature cardiovascular disease, No. (%)				
Yes	1,775 (13.2)	1,006 (13.0)	1,139 (13.3)	2,145 (13.2)
No	9,328 (69.2)	5,764 (74.3)	6,333 (74.1)	12,097 (74.2)
Unknown	2,384 (17.7)	983 (12.7)	1,072 (12.5)	2,055 (12.6)
Missing	1276	705	769	1474
BMI, kg/m2, No. (%)				
N	5,170	3,761	3,983	7,744
Mean (SD)	26.1 (4.3)	25.8 (4.3)	26.2 (4.4)	26.0 (4.3)
Median (min, max)	25.7 (14.6, 49.8)	25.4 (14.7, 49.5)	25.9 (14.2, 49.9)	25.6 (14.2, 49.9)
IQR	5.2	5.0	5.2	5.1
Not available (%)	7,758 (60.0)	4,197 (52.7)	4,468 (52.9)	8,665 (52.8)
Missing (%)	1,835 (12.4)	500 (5.9)	862 (9.3)	1,362 (7.7)
BMI, kg/m2, No. (%)				
< 18.5	129 (1.0)	96 (1.2)	96 (1.1)	192 (1.2)
18.5 – 22.9	1,086 (8.4)	836 (10.5)	782 (9.3)	1,618 (9.9)
23.0 – 27.4	2,227 (17.2)	1,702 (21.4)	1,737 (20.6)	3,439 (21.0)
> 27.4	1,728 (13.4)	1,127 (14.2)	1,368 (16.2)	2,495 (15.2)
Not available (%)	7,758 (60.0)	4,197 (52.7)	4,468 (52.9)	8,665 (52.8)
Missing	1835	500	862	1362
WHR				
N	2,732	2,001	1,954	3,955
Mean (SD)	1.0 (0.2)	1.0 (0.1)	1.0 (0.1)	1.0 (0.1)
Median (min, max)	1.0 (0.7, 2.9)	1.0 (0.7, 2.5)	1.0 (0.7, 2.5)	1.0 (0.7, 2.5)
IQR	0.1	0.1	0.1	0.1
Not available (%)	9,822 (78.2)	5,841 (74.5)	6,366 (76.5)	12,207 (75.5)
Missing (%)	2,209 (15.0)	616 (7.3)	993 (10.7)	1,609 (9.1)

Year	2011 – 2013	2014	2015	2014 – 2015
Total	14,763	8,458	9,313	17,771
WHR, No. (%)				
Men	2,291	1,630	1,530	3,160
≤ 1.0	1,665 (72.7)	1,092 (67.0)	1,026 (67.1)	2,118 (67.0)
> 1.0	626 (27.3)	538 (33.0)	504 (32.9)	1,042 (33.0)
Not available (%)	7,655	4,573	5,093	9,666
Missing	1,692	502	761	1,263
Women	441	371	424	795
≤ 0.85	55 (12.5)	30 (8.1)	30 (7.1)	60 (7.5)
> 0.85	386 (87.5)	341 (91.9)	394 (92.9)	735 (92.5)
Not available (%)	2,167	1,268	1,273	2,541
Missing	517	114	232	346
Waist circumference, cm				
N	2,468	1,833	1,815	3,648
Mean (SD)	92.7 (10.6)	92.6 (10.8)	92.5 (10.5)	92.6 (10.7)
Median (min, max)	92.0 (70.0, 130.0)	92.0 (70.0, 129.0)	92.0 (70.0, 130.0)	92.0 (70.0, 130.0)
IQR	14.0	15.0	13.0	13.0
Not available (%)	9,781 (79.9)	5,821 (76.1)	6,355 (77.8)	12,176 (76.9)
Missing (%)	2,514 (17.0)	804 (9.5)	1,143 (12.3)	1,947 (11.0)
Waist circumference, cm, No. (%)				
Men	9,704	6,056	6,517	12,573
≤ 90	927 (9.6)	721 (11.9)	646 (9.9)	1,367 (10.9)
> 90	1,152 (11.9)	781 (12.9)	788 (12.1)	1,569 (12.5)
Not available (%)	7,625 (78.6)	4,554 (75.2)	5,083 (78.0)	9,637 (76.6)
Missing	1,934	649	867	1,516
Women	2,545	1,598	1,653	3,251
≤ 80	71 (2.8)	67 (4.2)	73 (4.4)	140 (4.3)
> 80	318 (12.5)	264 (16.5)	308 (18.6)	572 (17.6)
Not available (%)	2,156 (84.7)	1,267 (79.3)	1,272 (77.0)	2,539 (78.1)
Missing	580	155	276	431
CO-MORBIDITY				
Dyslipidaemia, No. (%)				
Yes	5,100 (37.5)	2,965 (38.0)	3,410 (39.2)	6,375 (38.7)
No	6,920 (50.8)	3,997 (51.2)	4,494 (51.7)	8,491 (51.5)
Unknown	1,593 (11.7)	838 (10.7)	788 (9.1)	1,626 (9.9)
Missing	1,150	658	621	1,279

Year	2011 – 2013	2014	2015	2014 – 2015
Total	14,763	8,458	9,313	17,771
Hypertension, No. (%)				
Yes	8,974 (65.0)	5,141 (64.5)	5,671 (64.7)	10,812 (64.6)
No	4,222 (30.6)	2,449 (30.7)	2,658 (30.3)	5,107 (30.5)
Unknown	605 (4.4)	380 (4.8)	439 (5.0)	819 (4.9)
Missing	962	488	545	1,033
Diabetes, No. (%)				
Yes	6,284 (45.8)	3,687 (46.8)	3,991 (45.9)	7,678 (46.3)
No	6,638 (48.4)	3,736 (47.4)	4,202 (48.4)	7,938 (47.9)
Unknown	792 (5.8)	457 (5.8)	497 (5.7)	954 (5.8)
Missing	1,049	578	623	1,201
Type of diabetes treatment, No. (%)	<i>*only for 2013</i>			
OHA	1,213 (64.1)	1,983 (61.7)	2,275 (63.1)	4,258 (62.5)
Insulin	302 (16.0)	594 (18.5)	639 (17.7)	1,233 (18.1)
OHA + Insulin	126 (6.7)	253 (7.9)	286 (7.9)	539 (7.9)
Non-pharmacology therapy	252 (13.3)	383 (11.9)	403 (11.2)	786 (11.5)
Missing (all false)	675	474	388	862
Fasting blood glucose, mmol/L				
N	10,273	6,262	7,188	13,450
Mean (SD)	8.3 (4.2)	8.3 (4.1)	8.2 (4.1)	8.2 (4.1)
Median (min, max)	6.9 (3.0, 49.9)	6.9 (3.0, 48.0)	6.8 (3.0, 47.0)	6.8 (3.0, 48.0)
IQR	3.9	3.9	4.0	4.0
Test not done	3,307 (24.4)	1,739 (21.7)	1,712 (19.2)	3,451 (20.4)
Missing	1,183 (8.0)	457 (5.4)	413 (4.4)	870 (4.9)
Myocardial infarction history, No. (%)				
Yes	2,600 (19.2)	1,314 (16.9)	1,385 (16.2)	2,699 (16.5)
No	9,655 (71.5)	6,016 (77.3)	6,766 (79.1)	12,782 (78.2)
Unknown	1,254 (9.3)	455 (5.8)	408 (4.8)	863 (5.3)
Missing	1,254	673	754	1,427
Documented CAD > 50% stenosis, No. (%)				
Yes	2,852 (21.2)	2,080 (26.6)	2,091 (24.3)	4,171 (25.4)
No	9,011 (66.9)	5,237 (67.1)	6,048 (70.4)	11,285 (68.8)
Unknown	1,614 (12.0)	488 (6.3)	451 (5.3)	939 (5.7)
Missing	1,286	653	723	1,376

Year	2011 – 2013	2014	2015	2014 – 2015
Total	14,763	8,458	9,313	17,771
Chronic angina (onset more than 2 weeks ago), No. (%)				
Yes	1,343 (10.0)	762 (9.9)	737 (8.7)	1,499 (9.3)
No	11,169 (82.9)	6,618 (85.7)	7,458 (88.1)	14,076 (87.0)
Unknown	957 (7.1)	341 (4.4)	269 (3.2)	610 (3.8)
Missing	1,294	737	849	1,586
New onset angina (less than 2 weeks ago), No. (%)				
Yes	7,900 (58.1)	4,492 (57.2)	5,813 (66.6)	10,305 (62.1)
No	5,101 (37.5)	3,106 (39.5)	2,702 (31.0)	5,808 (35.0)
Unknown	589 (4.3)	256 (3.3)	213 (2.4)	469 (2.8)
Missing	1,173	604	585	1,189
Heart failure, No. (%)				
Yes	970 (7.2)	486 (6.3)	452 (5.3)	938 (5.8)
No	11,754 (87.3)	6,926 (89.4)	7,750 (91.6)	14,676 (90.5)
Unknown	746 (5.5)	335 (4.3)	260 (3.1)	595 (3.7)
Missing	1,293	711	851	1,562
Chronic lung disease, No. (%)				
Yes	425 (3.2)	297 (3.8)	293 (3.5)	590 (3.6)
No	12,275 (91.2)	7,112 (92.0)	7,908 (93.5)	15,020 (92.8)
Unknown	761 (5.7)	324 (4.2)	256 (3.0)	580 (3.6)
Missing	1,302	725	856	1,581
Renal disease, No. (%)				
Yes	1,043 (7.7)	624 (8.0)	698 (8.2)	1,322 (8.1)
No	11,725 (86.9)	6,819 (87.8)	7,547 (89.0)	14,366 (88.4)
Unknown	726 (5.4)	320 (4.1)	239 (2.8)	559 (3.4)
Missing	1,269	695	829	1,524
Cerebrovascular disease, No. (%)				
Yes	509 (3.8)	339 (4.4)	352 (4.2)	691 (4.3)
No	12,219 (90.9)	7,111 (91.9)	7,848 (93.1)	14,959 (92.5)
Unknown	716 (5.3)	291 (3.8)	232 (2.8)	523 (3.2)
Missing	1,319	717	881	1,598
Peripheral vascular disease, No. (%)				
Yes	104 (0.8)	27 (0.4)	58 (0.7)	85 (0.5)
No	12,526 (93.5)	7,329 (95.5)	8,074 (96.4)	15,403 (95.9)
Unknown	764 (5.7)	321 (4.2)	247 (2.9)	568 (3.5)
Missing	1,369	781	934	1,715

Year	2011 – 2013	2014	2015	2014 – 2015
Total	14,763	8,458	9,313	17,771
No co-morbidity (none of the above), No. (%)				
Yes	765 (5.2)	376 (4.4)	382 (4.1)	758 (4.3)
No	13,998 (94.8)	8,082 (95.6)	8,931 (95.9)	17,013 (95.7)
**Coronary artery disease, No. (%)				
Yes	10,017 (77.5)	6,068 (78.9)	7,101 (82.7)	13,169 (80.9)
No	2,907 (22.5)	1,674 (21.2)	1,519 (17.2)	3,193 (19.1)

** Coronary artery disease is defined as "Yes" to any of the following co-morbidities: 1) History of myocardial infarction, 2) Documented CAD, 3) Chronic angina (onset more than 2 weeks ago), 4) New onset angina (less than 2 weeks)
 Note: 'Unknown' includes patients who do not know their co-morbidities status

Table 2.2 Distribution of patients with ACS by Source Data Providers, NCVD-ACS Registry, 2014 – 2015

Year	2011 – 2013		2014		2015		2014 – 2015	
N	14,763		8,458		9,313		17,771	
SDP Name	No.	%	No.	%	No.	%	No.	%
Hospital Pulau Pinang	2,574	17.4	1,287	15.2	1,247	13.4	2,534	14.3
Hospital Serdang	1,843	12.5	527	6.2	1,130	12.1	1,657	9.3
Hospital Sultanah Aminah	1,472	10.0	633	7.5	646	6.9	1,279	7.2
Institut Jantung Negara	1,171	7.9	523	6.2	672	7.2	1,195	6.7
Hospital Tengku Ampuan Afzan	1,151	7.8	643	7.6	552	5.9	1,195	6.7
Pusat Jantung Hospital Umum Sarawak	1,052	7.1	579	6.8	737	7.9	1,316	7.4
Hospital Kuala Lumpur	990	6.7	666	7.9	583	6.3	1,249	7.0
Pusat Perubatan Universiti Malaya	846	5.7	1,258	14.9	1,081	11.6	2,339	13.2
Hospital Queen Elizabeth II	703	4.8	623	7.4	741	8.0	1,364	7.7
Hospital Sultanah Bahiyah	695	4.7	386	4.6	345	3.7	731	4.1
Hospital Raja Permaisuri Bainun	626	4.2	387	4.6	373	4.0	760	4.3
Hospital Sultanah Nur Zahirah	367	2.5	306	3.6	293	3.1	599	3.4
Hospital Tengku Ampuan Rahimah	305	2.1	21	0.2	8	0.1	29	0.2
Hospital Melaka	295	2.0	189	2.2	157	1.7	346	1.9
Hospital Tuanku Fauziah	275	1.9	81	1.0	114	1.2	195	1.1
Hospital Ampang	199	1.3	0	0.0	127	1.4	127	0.7
Hospital Raja Perempuan Zainab II	122	0.8	107	1.3	84	0.9	191	1.1
Hospital Tuanku Ja'afar	51	0.3	48	0.6	76	0.8	124	0.7
Hospital Queen Elizabeth I	26	0.2	25	0.3	55	0.6	80	0.5
UKM Medical Centre	0	0.0	0	0.0	53	0.6	53	0.3
CTC UiTM	0	0.0	157	1.9	165	1.8	322	1.8
Hospital Lahad Datu	0	0.0	12	0.1	67	0.7	79	0.4
Oriental Melaka	0	0.0	0	0.0	7	0.1	7	0.0

Note: Each SDP started contributing data at different time periods

Table 2.3 Age-gender distribution of patients with ACS, NCVd-ACS Registry, 2014 – 2015

Age group	2011 – 2013		2014		2015		2014 – 2015	
	Total no. of patients = 14,763		Total no. of patients = 8,458		Total no. of patients = 9,313		Total no. of patients = 17,771	
	Male	Female	Male	Female	Male	Female	Male	Female
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
20 – < 30	132 (1.2)	9 (0.2)	74 (1.1)	4 (0.2)	69 (0.9)	4 (0.2)	143 (1.0)	8 (0.2)
30 – < 40	760 (6.6)	57 (1.8)	447 (6.7)	33 (1.9)	550 (7.4)	44 (2.3)	997 (7.1)	77 (2.1)
40 – < 50	2,307 (19.7)	299 (9.6)	1,288 (19.2)	156 (8.9)	1,390 (18.8)	195 (10.1)	2,678 (19.0)	351 (9.5)
50 – < 60	3,924 (33.7)	724 (23.2)	2,185 (32.6)	455 (26.0)	2,434 (33.0)	459 (23.8)	4,619 (32.8)	914 (24.8)
60 – < 70	2,827 (24.2)	937 (30.0)	1,740 (26.0)	519 (29.6)	1,869 (25.3)	592 (30.7)	3,609 (25.6)	1,111 (30.2)
70 – < 80	1,409 (12.2)	851 (27.2)	787 (11.7)	424 (24.2)	900 (12.2)	464 (24.1)	1,687 (12.0)	888 (24.1)
≥ 80	279 (2.4)	248 (8.0)	184 (2.7)	162 (9.2)	172 (2.3)	171 (8.9)	356 (2.5)	333 (9.0)
Total	11,638 (100.0)	3,125 (100.0)	6,705 (100.0)	1,753 (100.0)	7,384 (100.0)	1,929 (100.0)	14,089 (100.0)	3,682 (100.0)

Table 2.4.1 Age-gender distribution of patients with ACS by ethnic group, NCD-ACS Registry, 2014 – 2015

Gender	Age group	Ethnic group																
		2011 – 2013				2014				2015				2014 – 2015				
		Malay	Chinese	Indian	*Others	Malay	Chinese	Indian	*Others	Malay	Chinese	Indian	*Others	Malay	Chinese	Indian	*Others	
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	
Male	20 – < 30	68 (1.2)	5 (0.2)	29 (1.4)	30 (2.8)	36 (1.1)	7 (0.5)	14 (1.2)	17 (2.2)	31 (0.8)	6 (0.4)	12 (0.9)	20 (2.2)	67 (0.9)	13 (0.5)	26 (1.1)	37 (2.1)	
	30 – < 40	385 (6.4)	86 (3.6)	138 (6.4)	151 (14.6)	226 (6.6)	34 (2.5)	80 (6.8)	107 (14.1)	266 (7.2)	49 (3.4)	94 (7.4)	141 (14.5)	492 (6.9)	83 (3.0)	174 (7.1)	248 (14.3)	
	40 – < 50	1225 (20.1)	353 (14.8)	457 (21.4)	272 (26.2)	653 (19.2)	118 (13.8)	230 (19.5)	217 (28.6)	711 (19.3)	193 (13.3)	257 (20.2)	229 (23.6)	1,364 (19.2)	381 (13.6)	487 (19.9)	446 (25.8)	
	50 – < 60	2130 (35.0)	701 (29.6)	782 (36.5)	311 (29.8)	1,167 (34.2)	378 (27.8)	424 (36.0)	216 (28.4)	1,289 (35.0)	398 (27.4)	452 (35.5)	295 (30.4)	2,456 (34.6)	776 (27.6)	876 (35.7)	511 (29.5)	
	60 – < 70	1487 (24.4)	682 (28.8)	480 (22.4)	178 (17.0)	912 (26.8)	412 (30.3)	281 (23.8)	135 (17.8)	934 (25.3)	452 (31.1)	327 (25.7)	156 (16.1)	1,846 (26.0)	864 (30.7)	608 (24.8)	291 (16.8)	
	70 – < 80	691 (11.3)	434 (18.2)	205 (9.5)	79 (7.6)	357 (10.5)	254 (18.7)	118 (10.0)	58 (7.6)	400 (10.9)	282 (19.4)	109 (8.6)	109 (11.2)	536 (19.1)	757 (10.7)	227 (9.3)	167 (9.6)	
	≥ 80	94 (1.6)	114 (4.8)	51 (2.4)	20 (2.0)	57 (1.7)	85 (6.3)	32 (2.7)	10 (1.3)	55 (1.5)	73 (5.0)	23 (1.8)	21 (2.2)	112 (1.6)	158 (5.6)	55 (2.3)	31 (1.8)	
	Total	6,080 (100.0)	2,375 (100.0)	2,142 (100.0)	1,041 (100.0)	3,408 (100.0)	1,358 (100.0)	1,179 (100.0)	760 (100.0)	3,686 (100.0)	1,453 (100.0)	1,274 (100.0)	444 (100.0)	7,094 (100.0)	2,811 (100.0)	2,453 (100.0)	1,731 (100.0)	
	Female	20 – < 30	6 (0.4)	0 (0.0)	1 (0.2)	2 (1.0)	4 (0.5)	0 (0.0)	0 (0.0)	0 (0.0)	2 (0.2)	0 (0.0)	1 (0.2)	1 (0.6)	6 (0.4)	0 (0.0)	1 (0.1)	1 (0.3)
		30 – < 40	32 (2.4)	3 (0.4)	16 (2.0)	6 (3.3)	13 (1.7)	4 (1.0)	13 (3.2)	3 (1.9)	24 (2.7)	6 (1.4)	9 (2.0)	5 (2.9)	37 (2.2)	10 (1.2)	22 (2.6)	8 (2.4)
40 – < 50		148 (10.8)	44 (5.5)	78 (10.2)	29 (15.6)	83 (10.6)	12 (2.9)	36 (9.0)	25 (15.5)	103 (11.7)	10 (2.3)	56 (12.7)	26 (15.3)	186 (11.2)	22 (2.6)	92 (10.9)	51 (15.4)	
50 – < 60		347 (25.2)	107 (13.4)	216 (28.4)	54 (29.3)	229 (29.3)	62 (15.2)	113 (28.2)	51 (31.7)	230 (26.1)	69 (15.9)	111 (25.1)	49 (28.8)	459 (27.6)	131 (15.5)	224 (26.6)	100 (30.2)	
60 – < 70		434 (31.4)	228 (28.5)	222 (29.2)	53 (28.6)	249 (31.8)	99 (24.2)	129 (32.2)	42 (26.1)	292 (33.1)	120 (27.6)	137 (31.0)	43 (25.3)	541 (32.5)	219 (25.9)	266 (31.6)	85 (25.7)	
70 – < 80		334 (24.2)	296 (37.0)	189 (24.8)	32 (17.3)	163 (20.8)	155 (37.9)	77 (19.2)	29 (18.0)	187 (21.2)	151 (34.7)	92 (20.8)	34 (20.0)	350 (21.0)	306 (36.3)	169 (20.0)	63 (19.0)	
≥ 80		78 (5.6)	121 (15.2)	40 (5.2)	9 (4.9)	41 (5.2)	77 (18.8)	33 (8.2)	11 (6.8)	44 (5.0)	79 (18.2)	36 (8.1)	12 (7.1)	85 (5.1)	156 (18.5)	69 (8.2)	23 (6.9)	
Total	1,379 (100.0)	799 (100.0)	762 (100.0)	185 (100.0)	782 (100.0)	409 (100.0)	401 (100.0)	161 (100.0)	882 (100.0)	435 (100.0)	442 (100.0)	170 (100.0)	1,664 (100.0)	844 (100.0)	843 (100.0)	331 (100.0)		

*Others' includes Orang Asli, Kadazan, Melanau, Murut, Bajau, Bidayuh, Iban, other Malaysian and Foreigner.

Table 2.4.2 Age-gender distribution of patients with ACS by pre-morbid diabetes, NCVd-ACS Registry, 2014 – 2015

Gender	Age group	Diabetes															
		2011 – 2013				2014				2015				2014 – 2015			
		Diabetic	Non-diabetic	Unknown		Diabetic	Non-diabetic	Unknown		Diabetic	Non-diabetic	Unknown		Diabetic	Non-diabetic	Unknown	
No. (%)	No. (%)	No. (%)		No. (%)	No. (%)	No. (%)		No. (%)	No. (%)	No. (%)		No. (%)	No. (%)	No. (%)		No. (%)	
Male	20 – < 30	8 (0.2)	93 (1.6)	16 (2.5)	7 (0.3)	48 (1.5)	5 (1.2)	4 (0.1)	50 (1.4)	7 (1.6)	11 (0.2)	98 (1.5)	12 (1.4)				
	30 – < 40	168 (3.8)	426 (7.6)	66 (9.8)	93 (3.5)	255 (8.1)	39 (9.7)	92 (3.2)	331 (9.3)	66 (15.0)	185 (3.4)	586 (8.7)	105 (12.4)				
	40 – < 50	672 (15.0)	1,231 (22.2)	166 (24.6)	408 (15.4)	684 (21.7)	90 (22.3)	434 (15.2)	746 (21.0)	91 (20.6)	842 (15.3)	1,430 (21.3)	181 (21.4)				
	50 – < 60	1627 (36.2)	1,822 (32.8)	198 (29.2)	920 (34.8)	968 (30.7)	138 (34.2)	1,045 (36.7)	1,076 (30.2)	144 (32.7)	1,965 (35.8)	2,044 (30.5)	282 (33.4)				
	60 – < 70	1332 (29.6)	1,180 (21.2)	137 (20.3)	805 (30.4)	745 (23.6)	86 (21.3)	831 (29.2)	841 (23.6)	80 (18.1)	1,636 (29.8)	1,586 (23.6)	166 (19.6)				
	70 – < 80	575 (12.8)	671 (12.0)	79 (11.6)	344 (13.0)	356 (11.3)	37 (9.2)	378 (13.3)	425 (11.9)	46 (10.4)	722 (13.1)	781 (11.6)	83 (9.8)				
	≥ 80	106 (2.4)	141 (2.6)	14 (2.0)	70 (2.6)	95 (3.0)	9 (2.2)	64 (2.2)	90 (2.5)	7 (1.6)	134 (2.4)	185 (2.8)	16 (1.9)				
	Total	4,488 (100.0)	5,564 (100.0)	676 (100.0)	2,647 (100.0)	3,151 (100.0)	404 (100.0)	2,848 (100.0)	3,559 (100.0)	441 (100.0)	5,495 (100.0)	6,710 (100.0)	845 (100.0)				
	Female	20 – < 30	0 (0)	8 (0.8)	1 (0.8)	1 (0.1)	3 (0.5)	0 (0.0)	0 (0.0)	3 (0.5)	0 (0.0)	1 (0.0)	6 (0.5)	0 (0.0)			
		30 – < 40	22 (1.2)	23 (2.2)	3 (2.6)	18 (1.7)	10 (1.7)	2 (3.8)	15 (1.3)	18 (2.8)	3 (5.4)	33 (1.5)	28 (2.3)	5 (4.6)			
40 – < 50		146 (8.2)	114 (10.6)	16 (13.8)	85 (8.2)	59 (10.1)	7 (13.2)	106 (9.3)	73 (11.4)	4 (7.1)	191 (8.7)	132 (10.7)	11 (10.1)				
50 – < 60		444 (24.7)	224 (20.8)	27 (23.3)	281 (27.0)	142 (24.3)	15 (28.3)	292 (25.5)	142 (22.1)	9 (16.1)	573 (26.2)	284 (23.1)	24 (22.0)				
60 – < 70		599 (33.3)	265 (24.6)	32 (27.6)	337 (32.4)	155 (26.5)	11 (20.8)	369 (32.3)	176 (27.4)	17 (30.4)	706 (32.3)	331 (27.0)	28 (25.7)				
70 – < 80		480 (26.8)	319 (29.8)	26 (22.5)	240 (23.1)	145 (24.8)	15 (28.3)	277 (24.2)	157 (24.4)	18 (32.1)	517 (23.7)	302 (24.6)	33 (30.3)				
≥ 80		105 (5.8)	121 (11.2)	11 (9.4)	78 (7.5)	71 (12.1)	3 (5.7)	84 (7.3)	74 (11.5)	5 (8.9)	162 (7.4)	145 (11.8)	8 (7.3)				
Total		1,796 (100.0)	1,074 (100.0)	116 (100.0)	1,040 (100.0)	585 (100.0)	53 (100.0)	1,143 (100.0)	643 (100.0)	56 (100.0)	2,183 (100.0)	1,228 (100.0)	109 (100.0)				

Table 2.4.3 Age-gender distribution of patients with ACS by pre-morbid hypertension, NCVD-ACS Registry, 2014 – 2015

Gender	Age group	Hypertension															
		2011 – 2013				2014				2015				2014 – 2015			
		Hypertensive	Non-hypertensive	Unknown	No. (%)	Hypertensive	Non-hypertensive	Unknown	No. (%)	Hypertensive	Non-hypertensive	Unknown	No. (%)	Hypertensive	Non-hypertensive	Unknown	No. (%)
Male	20 – < 30	19 (0.3)	81 (2.2)	17 (3.2)	15 (0.4)	42 (2.0)	4 (1.1)	15 (0.4)	41 (1.8)	6 (1.5)	30 (0.4)	83 (1.9)	10 (1.3)				
	30 – < 40	237 (3.7)	368 (10.0)	56 (10.3)	147 (3.9)	206 (9.6)	38 (10.9)	170 (4.0)	264 (11.4)	59 (14.8)	317 (4.0)	470 (10.5)	97 (13.0)				
	40 – < 50	991 (15.0)	953 (25.8)	140 (26.0)	546 (14.5)	549 (25.5)	91 (26.1)	635 (15.1)	567 (24.4)	81 (20.4)	1,181 (14.8)	1,116 (25.0)	172 (23.0)				
	50 – < 60	2232 (34.0)	1,267 (34.4)	179 (33.2)	1,230 (32.6)	708 (32.9)	115 (33.0)	1,371 (32.7)	770 (33.2)	142 (35.7)	2,601 (32.6)	1,478 (33.1)	257 (34.4)				
	60 – < 70	1907 (29.0)	674 (18.2)	89 (16.5)	1,151 (30.5)	441 (20.5)	66 (18.9)	1,235 (29.4)	460 (19.8)	70 (17.6)	2,386 (29.9)	901 (20.1)	136 (18.2)				
	70 – < 80	992 (15.0)	293 (8.0)	48 (9.0)	555 (14.7)	162 (7.5)	33 (9.5)	643 (15.3)	189 (8.1)	34 (8.5)	1,198 (15.0)	351 (7.8)	67 (9.0)				
	≥ 80	199 (3.0)	54 (1.4)	10 (1.8)	133 (3.5)	42 (2.0)	2 (0.6)	129 (3.1)	31 (1.3)	6 (1.5)	262 (3.3)	73 (1.6)	8 (1.1)				
	Total	6,577 (100.0)	3,690 (100.0)	539 (100.0)	3,777 (100.0)	2,150 (100.0)	349 (100.0)	4,198 (100.0)	2,322 (100.0)	398 (100.0)	7,975 (100.0)	4,472 (100.0)	747 (100.0)				
	Female	20 – < 30	3 (0.2)	6 (1.2)	0 (0)	1 (0.1)	3 (1.0)	0 (0.0)	1 (0.1)	2 (0.6)	0 (0.0)	2 (0.1)	5 (0.8)	0 (0.0)			
		30 – < 40	20 (0.8)	24 (4.6)	4 (6.0)	16 (1.2)	14 (4.7)	2 (6.5)	18 (1.2)	16 (4.8)	2 (4.9)	34 (1.2)	30 (4.7)	4 (5.6)			
40 – < 50		178 (7.4)	86 (16.2)	14 (21.3)	105 (7.7)	42 (14.0)	6 (19.4)	122 (8.3)	54 (16.1)	3 (7.3)	227 (8.0)	96 (15.1)	9 (12.5)				
50 – < 60		540 (22.5)	140 (26.3)	13 (19.6)	339 (24.9)	88 (29.4)	10 (32.3)	340 (23.1)	92 (27.4)	8 (19.5)	679 (23.9)	180 (28.3)	18 (25.0)				
60 – < 70		749 (31.1)	133 (25.0)	17 (25.8)	412 (30.2)	79 (26.4)	10 (32.3)	455 (30.9)	97 (28.9)	15 (36.6)	867 (30.6)	176 (27.7)	25 (34.7)				
70 – < 80		708 (29.6)	109 (20.3)	13 (19.7)	361 (26.5)	49 (16.4)	2 (6.5)	391 (26.5)	55 (16.4)	11 (26.8)	752 (26.5)	104 (16.4)	13 (18.1)				
≥ 80		199 (8.4)	34 (6.4)	5 (7.6)	130 (9.5)	24 (8.0)	1 (3.2)	146 (9.9)	20 (6.0)	2 (4.9)	276 (9.7)	44 (6.9)	3 (4.2)				
Total		2,397 (100.0)	532 (100.0)	66 (100.0)	1,364 (100.0)	299 (100.0)	31 (100.0)	1,473 (100.0)	336 (100.0)	41 (100.0)	2,837 (100.0)	635 (100.0)	72 (100.0)				

Table 2.4.4 Age-gender distribution of patients with ACS by pre-morbid dyslipidaemia, NCVd-ACS Registry, 2014 – 2015

Gender	Age group	Dyslipidaemia												
		2011 – 2013			2014			2015			2014 – 2015			
		Yes	No	Unknown	Yes	No	Unknown	Yes	No	Unknown	Yes	No	Unknown	
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	
Male	20 – < 30	18 (0.4)	78 (1.4)	21 (1.6)	7 (0.3)	41 (1.3)	12 (1.7)	6 (0.2)	45 (1.2)	10 (1.5)	13 (0.3)	86 (1.3)	22 (1.6)	
	30 – < 40	162 (4.2)	405 (7.4)	90 (7.0)	87 (3.9)	235 (7.3)	59 (8.3)	99 (3.9)	316 (8.7)	75 (11.2)	186 (3.9)	551 (8.0)	134 (9.7)	
	40 – < 50	631 (16.4)	1,143 (20.6)	288 (22.2)	328 (14.9)	681 (21.1)	156 (21.8)	424 (16.5)	733 (20.2)	125 (18.7)	752 (15.8)	1,414 (20.6)	281 (20.3)	
	50 – < 60	1,323 (34.5)	1,877 (34.0)	428 (33.0)	777 (35.2)	1,004 (31.1)	235 (32.9)	843 (32.9)	1,194 (32.8)	235 (35.1)	1,620 (33.9)	2,198 (32.0)	470 (33.9)	
	60 – < 70	1,072 (27.8)	1,264 (22.8)	299 (23.2)	647 (29.3)	811 (25.2)	163 (22.8)	742 (28.9)	872 (24.0)	136 (20.3)	1,389 (29.1)	1,683 (24.5)	299 (21.6)	
	70 – < 80	554 (14.4)	620 (11.2)	144 (11.2)	298 (13.5)	357 (11.1)	76 (10.6)	391 (15.2)	387 (10.6)	75 (11.2)	689 (14.4)	744 (10.8)	151 (10.9)	
	≥ 80	86 (2.3)	146 (2.6)	24 (1.8)	64 (2.9)	95 (2.9)	14 (2.0)	61 (2.4)	88 (2.4)	14 (2.1)	125 (2.6)	183 (2.7)	28 (2.0)	
	Total	3,846 (100.0)	5,533 (100.0)	1,294 (100.0)	2,208 (100.0)	3,224 (100.0)	715 (100.0)	2,566 (100.0)	3,635 (100.0)	670 (100.0)	4,774 (100.0)	6,859 (100.0)	1,385 (100.0)	
	Female	20 – < 30	1 (0.0)	6 (0.4)	2 (0.6)	1 (0.1)	3 (0.4)	0 (0.0)	2 (0.2)	1 (0.1)	0 (0.0)	3 (0.2)	4 (0.2)	0 (0.0)
		30 – < 40	10 (0.8)	34 (2.5)	4 (1.5)	9 (1.2)	17 (2.2)	1 (0.8)	12 (1.4)	20 (2.3)	5 (4.2)	21 (1.3)	37 (2.3)	6 (2.5)
40 – < 50		109 (8.6)	145 (10.4)	23 (7.6)	56 (7.4)	76 (9.8)	13 (10.6)	74 (8.8)	100 (11.6)	7 (5.9)	130 (8.1)	176 (10.8)	20 (8.3)	
50 – < 60		295 (23.6)	323 (23.3)	61 (20.5)	188 (24.8)	200 (25.9)	35 (28.5)	200 (23.7)	215 (25.0)	25 (21.2)	388 (24.2)	415 (25.4)	60 (24.9)	
60 – < 70		386 (30.8)	395 (28.4)	97 (32.4)	252 (33.3)	210 (27.2)	33 (26.8)	278 (32.9)	235 (27.4)	39 (33.1)	530 (33.1)	445 (27.3)	72 (29.9)	
70 – < 80		355 (28.4)	371 (26.8)	86 (28.8)	187 (24.7)	185 (23.9)	34 (27.6)	195 (23.1)	215 (25.0)	31 (26.3)	382 (23.9)	400 (24.5)	65 (27.0)	
≥ 80		98 (7.8)	113 (8.2)	26 (8.6)	64 (8.5)	82 (10.6)	7 (5.7)	83 (9.8)	73 (8.5)	11 (9.3)	147 (9.2)	155 (9.5)	18 (7.5)	
Total		1,254 (100.0)	1,387 (100.0)	299 (100.0)	757 (100.0)	773 (100.0)	123 (100.0)	844 (100.0)	859 (100.0)	118 (100.0)	1,601 (100.0)	1,632 (100.0)	241 (100.0)	

Table 2.4.5 Age-gender distribution of patients with ACS by family history of premature cardiovascular disease, NCVD-ACS Registry, 2014 – 2015

Gender	Age group	Family history of premature cardiovascular disease																
		2011 – 2013				2014				2015				2014 – 2015				
		Yes	No	Unknown		Yes	No	Unknown		Yes	No	Unknown		Yes	No	Unknown		
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Male	20 – < 30	25 (1.8)	75 (1.0)	16 (0.8)	13 (1.6)	37 (0.8)	10 (1.3)	19 (2.0)	38 (0.8)	4 (0.5)	32 (1.8)	75 (0.8)	14 (0.9)					
	30 – < 40	138 (9.4)	403 (5.6)	112 (6.2)	78 (9.6)	256 (5.7)	54 (6.8)	98 (10.6)	339 (6.8)	53 (6.2)	176 (10.1)	595 (6.3)	107 (6.5)					
	40 – < 50	365 (24.7)	1,377 (19.0)	310 (17.0)	215 (26.4)	792 (17.6)	153 (19.4)	245 (26.4)	850 (17.1)	166 (19.4)	460 (26.4)	1,642 (17.3)	319 (19.4)					
	50 – < 60	550 (37.4)	2,476 (34.0)	569 (31.0)	298 (36.6)	1,439 (32.0)	261 (33.0)	332 (35.8)	1,627 (32.8)	270 (31.6)	630 (36.2)	3,066 (32.4)	531 (32.3)					
	60 – < 70	276 (18.8)	1,827 (25.2)	491 (26.8)	153 (18.8)	1,258 (27.9)	193 (24.4)	171 (18.4)	1,312 (26.4)	228 (26.7)	324 (18.6)	2,570 (27.1)	421 (25.6)					
	70 – < 80	99 (6.7)	930 (12.8)	275 (15.0)	48 (5.9)	580 (12.9)	93 (11.8)	56 (6.0)	667 (13.4)	113 (13.2)	104 (6.0)	1,247 (13.2)	206 (12.5)					
	≥ 80	17 (1.2)	179 (2.4)	58 (3.2)	9 (1.1)	139 (3.1)	26 (3.3)	7 (0.8)	132 (2.7)	21 (2.5)	16 (0.9)	271 (2.9)	47 (2.9)					
	Total	1,470 (100.0)	7,267 (100.0)	1,831 (100.0)	814 (100.0)	4,501 (100.0)	790 (100.0)	928 (100.0)	4,965 (100.0)	855 (100.0)	1,742 (100.0)	9,466 (100.0)	1,645 (100.0)					
Female	20 – < 30	2 (0.6)	6 (0.2)	1 (0.2)	1 (0.5)	3 (0.2)	0 (0.0)	0 (0.0)	3 (0.2)	0 (0.0)	1 (0.2)	6 (0.2)	0 (0.0)					
	30 – < 40	7 (2.3)	35 (1.6)	7 (1.2)	8 (4.2)	18 (1.4)	4 (2.1)	11 (5.2)	22 (1.6)	4 (1.8)	19 (4.7)	40 (1.5)	8 (2.0)					
	40 – < 50	47 (15.4)	190 (9.3)	37 (6.6)	27 (14.1)	99 (7.8)	18 (9.3)	37 (17.5)	64 (15.9)	133 (9.7)	10 (4.6)	232 (8.8)	28 (6.8)					
	50 – < 60	94 (30.8)	476 (23.0)	103 (18.6)	63 (32.8)	322 (25.5)	44 (22.8)	65 (30.8)	311 (22.7)	54 (24.9)	128 (31.8)	633 (24.1)	98 (23.9)					
	60 – < 70	92 (30.3)	609 (29.6)	168 (30.4)	44 (22.9)	379 (30.0)	67 (34.7)	67 (31.8)	410 (30.0)	70 (32.3)	111 (27.5)	789 (30.0)	137 (33.4)					
	70 – < 80	47 (15.4)	580 (28.3)	181 (32.8)	38 (19.8)	313 (24.8)	47 (24.4)	26 (12.3)	359 (26.2)	54 (24.9)	64 (15.9)	672 (25.5)	101 (24.6)					
	≥ 80	16 (5.2)	165 (8.0)	56 (10.2)	11 (5.7)	129 (10.2)	13 (6.7)	5 (2.4)	130 (9.5)	25 (11.5)	16 (4.0)	259 (9.8)	38 (9.3)					
	Total	305 (100.0)	2,061 (100.0)	553 (100.0)	192 (100.0)	1,263 (100.0)	193 (100.0)	211 (100.0)	1,368 (100.0)	217 (100.0)	403 (100.0)	2,631 (100.0)	410 (100.0)					

Table 2.4.6 Age-gender distribution of patients with ACS by smoking status, NCD-ACS Registry, 2014 – 2015

Gender	Age group	Smoking																
		2011 – 2013				2014				2015				2014 – 2015				
		Never	Former (quit > 30 days)	Current (any tobacco used within last 30 days)	Not available	Never	Former (quit > 30 days)	Current (any tobacco used within last 30 days)	Not available	Never	Former (quit > 30 days)	Current (any tobacco used within last 30 days)	Not available	Never	Former (quit > 30 days)	Current (any tobacco used within last 30 days)	Not available	
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Male	20 – < 30	25 (1.0)	8 (0.2)	98 (1.8)	1 (0.2)	12 (0.7)	7 (0.4)	53 (1.7)	1 (0.4)	13 (0.7)	6 (0.4)	48 (1.4)	1 (0.4)	25 (0.7)	13 (0.4)	101 (1.6)	2 (0.4)	
	30 – < 40	90 (3.2)	99 (3.4)	532 (10.0)	11 (3.2)	59 (3.4)	65 (4.1)	308 (10.1)	10 (3.6)	96 (4.9)	56 (3.3)	388 (11.5)	7 (2.6)	155 (4.2)	121 (3.7)	696 (10.9)	17 (3.1)	
	40 – < 50	418 (15.2)	388 (13.3)	1,404 (26.4)	40 (11.4)	229 (13.3)	216 (13.7)	804 (26.4)	25 (8.9)	263 (13.4)	229 (13.6)	841 (25.0)	40 (14.6)	492 (13.4)	445 (13.6)	1,645 (25.7)	65 (11.7)	
	50 – < 60	905 (33.0)	923 (31.7)	1,888 (35.6)	109 (31.0)	541 (31.4)	497 (31.6)	1,040 (34.2)	78 (27.9)	598 (30.5)	523 (31.0)	1,205 (35.9)	70 (25.5)	1,139 (30.9)	1,020 (31.3)	2,245 (35.1)	148 (26.7)	
	60 – < 70	768 (28.0)	890 (30.5)	999 (18.8)	99 (28.2)	530 (30.8)	493 (31.3)	605 (19.9)	91 (32.5)	605 (30.9)	521 (30.9)	622 (18.5)	94 (34.3)	1,135 (30.8)	1,014 (31.1)	1,227 (19.2)	185 (33.4)	
	70 – < 80	438 (16.0)	505 (17.3)	344 (6.4)	76 (21.5)	266 (15.5)	240 (15.2)	213 (7.0)	54 (19.3)	325 (16.6)	299 (17.7)	217 (6.5)	48 (17.5)	591 (16.1)	539 (16.5)	430 (6.7)	102 (18.4)	
	≥ 80	99 (3.6)	108 (3.6)	48 (1.0)	16 (4.5)	84 (4.9)	57 (3.6)	21 (0.7)	21 (7.5)	60 (3.1)	54 (3.2)	39 (1.2)	14 (5.1)	144 (3.9)	111 (3.4)	60 (0.9)	35 (6.3)	
	Total	2,743 (100.0)	2,921 (100.0)	5,313 (100.0)	352 (100.0)	1,721 (100.0)	1,575 (100.0)	3,044 (100.0)	280 (100.0)	1,960 (100.0)	1,688 (100.0)	3,360 (100.0)	274 (100.0)	3,681 (100.0)	3,263 (100.0)	6,404 (100.0)	554 (100.0)	
	Female	20 – < 30	6 (0.2)	0 (0)	2 (1.6)	1 (1.0)	2 (0.1)	0 (0.0)	2 (3.0)	0 (0.0)	3 (0.2)	0 (0.0)	1 (1.6)	0 (0.0)	5 (0.2)	0 (0.0)	3 (2.3)	0 (0.0)
		30 – < 40	45 (1.6)	5 (3.6)	3 (2.4)	1 (1.0)	26 (1.7)	2 (4.1)	1 (1.5)	2 (2.7)	35 (2.0)	2 (3.3)	4 (6.3)	1 (1.4)	61 (1.9)	4 (3.7)	5 (3.9)	3 (2.1)
40 – < 50		245 (9.3)	9 (6.5)	22 (17.0)	6 (6.4)	138 (9.0)	4 (8.2)	11 (16.7)	3 (4.1)	173 (10.1)	5 (8.3)	7 (11.1)	5 (7.1)	311 (9.6)	9 (8.3)	18 (14.0)	8 (5.6)	
50 – < 60		617 (23.4)	33 (24.0)	34 (26.2)	20 (21.6)	403 (26.2)	8 (16.3)	14 (21.2)	21 (28.8)	411 (24.1)	13 (21.7)	22 (34.9)	8 (11.4)	814 (25.1)	21 (19.3)	36 (27.9)	29 (20.3)	
60 – < 70		796 (30.0)	39 (28.2)	37 (28.3)	27 (29.0)	464 (30.2)	16 (32.7)	14 (21.2)	17 (23.3)	526 (30.8)	13 (21.7)	19 (30.2)	27 (38.6)	990 (30.5)	29 (26.6)	33 (25.6)	44 (30.8)	
70 – < 80		727 (27.5)	41 (29.7)	24 (18.3)	31 (33.4)	368 (23.9)	10 (20.4)	16 (24.2)	24 (32.9)	409 (23.9)	20 (33.3)	6 (9.5)	22 (31.4)	777 (23.9)	30 (27.5)	22 (17.1)	46 (32.2)	
≥ 80		212 (8.0)	11 (8.0)	8 (6.2)	7 (7.6)	137 (8.9)	9 (18.4)	8 (12.1)	6 (8.2)	151 (8.8)	7 (11.7)	4 (6.3)	7 (10.0)	288 (8.9)	16 (14.7)	12 (9.3)	13 (9.1)	
Total		2,648 (100.0)	138 (100.0)	130 (100.0)	93 (100.0)	1,538 (100.0)	49 (100.0)	66 (100.0)	73 (100.0)	1,708 (100.0)	60 (100.0)	63 (100.0)	70 (100.0)	3,246 (100.0)	109 (100.0)	129 (100.0)	143 (100.0)	

Table 2.5 Presence of cumulative risk factors*, NCVD-ACS Registry, 2014 – 2015

Year	2011 – 2013		2014		2015		2014 – 2015	
Total	14,763		8,458		9,313		17,771	
Presence of cumulative risk factors*	No.	%	No.	%	No.	%	No.	%
None	822	5.6	405	4.8	465	5.0	870	4.9
1 risk factor	3,100	21.0	1,685	19.9	1,901	20.4	3,586	20.2
2 risk factors	4,321	29.2	2,463	29.1	2,593	27.8	5,056	28.5
3 risk factors	3,872	26.2	2,300	27.2	2,486	26.7	4,786	26.9
> 3 risk factors	2,648	18.0	1,605	19.0	1,868	20.1	3,473	19.5

* Risk factors are defined as presence of dyslipidaemia, hypertension, diabetes, family history of premature cardiovascular disease, smoking or obesity

Table 2.6 Summary of type of cardiac presentation for patients with ACS, NCVD-ACS Registry, 2014 – 2015

Year	2011 – 2013		2014		2015		2014 – 2015	
Total	14,763		8,458		9,313		17,771	
Acute coronary syndrome stratum	No.	%	No.	%	No.	%	No.	%
STEMI	7,502	50.8	3,886	45.9	4,304	46.2	8,190	46.1
NSTEMI	3,842	26.0	2,049	24.2	2,430	26.1	4,479	25.2
Unstable angina (UA)	3,419	23.2	2,523	29.8	2,579	27.7	5,102	28.7

Note: Percentage is to the nearest decimal point

Table 2.7 Characteristics of patients with ACS by ACS stratum, NCVD-ACS Registry, 2014 – 2015

Year	2011 – 2013			2014			2015			2014 – 2015		
	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA
ACS stratum												
Total	7,502	3,842	3,419	3,886	2,049	2,523	4,304	2,430	2,579	8,190	4,479	5,102
DEMOGRAPHICS												
Age, years												
N	7,502	3,842	3,419	3,886	2,049	2,523	3,061	1,602	1,464	8,190	4,479	5,102
Mean (SD)	56.2 (12.0)	60.8 (11.8)	60.8 (12.0)	56.0 (11.9)	61.4 (12.1)	60.5 (11.9)	56.0 (11.8)	60.7 (11.8)	60.7 (11.8)	56.0 (12.0)	61.1 (12.1)	60.4 (11.9)
Median (min, max)	55.8 (20.3, 97.6)	60.7 (20.0, 96.0)	60.6 (21.1, 101.9)	55.9 (20.0, 96.0)	61.1 (20.6, 93.8)	60.7 (23.2, 101.1)	55.8 (20.9, 97.6)	60.4 (20.0, 96.0)	60.6 (21.1, 101.9)	55.9 (20.0, 100.1)	61.0 (20.5, 96.8)	60.7 (23.2, 101.1)
IQR	16.1	16.7	17	15.9	16.9	16.0	15.4	16.1	16.7	16.0	16.6	16.3
Age group, No. (%)												
20 – < 30	102 (1.4)	20 (0.6)	19 (0.6)	50 (1.3)	14 (0.7)	14 (0.6)	53 (1.2)	10 (0.4)	10 (0.4)	103 (1.3)	24 (0.5)	24 (0.5)
30 – < 40	553 (7.4)	144 (3.8)	120 (3.5)	303 (7.8)	69 (3.4)	108 (4.3)	375 (8.7)	92 (3.8)	127 (4.9)	678 (8.3)	161 (3.6)	235 (4.6)
40 – < 50	1,609 (21.4)	509 (13.2)	488 (14.2)	843 (21.7)	260 (12.7)	341 (13.5)	886 (20.6)	339 (14.0)	360 (14.0)	1,729 (21.1)	599 (13.4)	701 (13.7)
50 – < 60	2,480 (33.0)	1,158 (30.2)	1,010 (29.5)	1,279 (32.9)	610 (29.8)	751 (29.8)	1,442 (33.5)	706 (29.1)	745 (28.9)	2,721 (33.2)	1,316 (29.4)	1,496 (29.3)
60 – < 70	1,715 (22.8)	1,087 (28.2)	962 (28.2)	930 (23.9)	575 (28.1)	754 (29.9)	983 (22.8)	713 (29.3)	765 (29.7)	1,913 (23.4)	1,288 (28.8)	1,519 (29.8)
70 – < 80	868 (11.6)	741 (19.2)	651 (19.0)	390 (10.0)	394 (19.2)	427 (16.9)	458 (10.6)	450 (18.5)	456 (17.7)	848 (10.4)	844 (18.8)	883 (17.3)
≥ 80	175 (2.4)	183 (4.8)	169 (5.0)	91 (2.3)	127 (6.2)	128 (5.1)	107 (2.5)	120 (4.9)	116 (4.5)	198 (2.4)	247 (5.5)	244 (4.8)
Gender, No. (%)												
Male	6,397 (85.2)	2,882 (75.0)	2,359 (69.0)	3,384 (87.1)	1,554 (75.8)	1,767 (70.0)	3,733 (86.7)	1,856 (76.4)	1,795 (69.6)	7,117 (86.9)	3,410 (76.1)	3,562 (69.8)
Female	1,105 (14.8)	960 (25.0)	1,060 (31.0)	502 (12.9)	495 (24.2)	756 (30.0)	571 (13.3)	574 (23.6)	784 (30.4)	1,073 (13.1)	1,069 (23.9)	1,540 (30.2)

Year	2011 – 2013						2014						2015						2014 – 2015					
	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA			
ACS stratum																								
Total	7,502	3,842	3,419	3,886	2,049	2,523	4,304	2,430	2,579	8,190	4,479	5,102												
Ethnic group, No. (%)																								
Malay	4,318 (57.6)	1,726 (44.9)	1,415 (41.4)	2,128 (54.8)	933 (45.5)	1,129 (44.7)	2,344 (54.5)	1,084 (44.6)	1,140 (44.2)	4,472 (54.6)	2,017 (45.0)	2,269 (44.5)												
Chinese	1,262 (16.8)	958 (24.9)	954 (27.9)	634 (16.3)	500 (24.4)	633 (25.1)	702 (16.3)	537 (22.1)	649 (25.2)	1,336 (16.3)	1,037 (23.2)	1,282 (25.1)												
Indian	1,145 (15.3)	886 (23.1)	873 (25.5)	629 (16.2)	402 (19.6)	549 (21.8)	660 (15.3)	521 (21.4)	535 (20.7)	1,289 (15.7)	923 (20.6)	1,084 (21.2)												
Orang Asli	7 (0.1)	1 (0.0)	0 (0.0)	10 (0.3)	0 (0.0)	1 (0.0)	5 (0.1)	0 (0.0)	0 (0.0)	15 (0.2)	0 (0.0)	1 (0.0)												
Kadazan Dusun	84 (1.1)	32 (0.8)	19 (0.6)	60 (1.5)	32 (1.6)	42 (1.7)	80 (1.9)	54 (2.2)	59 (2.3)	140 (1.7)	86 (1.9)	101 (2.0)												
Melanau	5 (0.1)	4 (0.1)	1 (0.0)	0 (0.0)	1 (0.0)	2 (0.1)	1 (0.0)	0 (0.0)	0 (0.0)	1 (0.0)	1 (0.0)	2 (0.0)												
Murut	7 (0.1)	3 (0.1)	1 (0.0)	3 (0.1)	3 (0.1)	2 (0.1)	6 (0.1)	3 (0.1)	3 (0.1)	9 (0.1)	6 (0.1)	5 (0.1)												
Bajau	83 (1.1)	23 (0.6)	7 (0.2)	57 (1.5)	30 (1.5)	15 (0.6)	72 (1.7)	33 (1.4)	26 (1.0)	129 (1.6)	63 (1.4)	41 (0.8)												
Bidayuh	42 (0.6)	25 (0.7)	13 (0.4)	10 (0.3)	11 (0.5)	11 (0.4)	27 (0.6)	18 (0.7)	22 (0.9)	37 (0.5)	29 (0.6)	33 (0.6)												
Iban	97 (1.3)	48 (1.2)	39 (1.1)	58 (1.5)	26 (1.3)	27 (1.1)	57 (1.3)	30 (1.2)	44 (1.7)	115 (1.4)	56 (1.3)	71 (1.4)												
Punjabi	14 (0.2)	18 (0.5)	17 (0.5)	11 (0.3)	5 (0.2)	18 (0.7)	12 (0.3)	10 (0.4)	13 (0.5)	23 (0.3)	15 (0.3)	31 (0.6)												
Other Malaysian	155 (2.1)	52 (1.4)	48 (1.4)	100 (2.6)	50 (2.4)	56 (2.2)	114 (2.6)	76 (3.1)	56 (2.2)	214 (2.6)	126 (2.8)	112 (2.2)												
Foreigner	283 (3.8)	66 (1.7)	32 (0.9)	186 (4.8)	56 (2.7)	38 (1.5)	224 (5.2)	64 (2.6)	32 (1.2)	410 (5.0)	120 (2.7)	70 (1.4)												
OTHER CORONARY RISK FACTORS																								
Smoking, No. (%)																								
Never	2,191 (29.9)	1,609 (43.4)	1,591 (48.4)	1,132 (29.4)	876 (43.4)	1,251 (50.5)	1,269 (29.8)	1,064 (44.6)	1,335 (52.6)	2,401 (29.6)	1,940 (44.0)	2,586 (51.6)												
Former (quit > 30 days)	1,253 (17.0)	927 (25.0)	879 (26.8)	599 (15.6)	448 (22.2)	577 (23.3)	655 (15.4)	489 (20.5)	604 (23.8)	1,254 (15.5)	937 (21.3)	1,181 (23.5)												
Current (any tobacco use within last 30 days)	3740 (51.0)	1,012 (27.2)	691 (21.0)	1,986 (51.6)	611 (30.2)	513 (20.7)	2,203 (51.7)	719 (30.1)	501 (19.7)	4,189 (51.7)	1,330 (30.2)	1,014 (20.2)												
Unknown	151 (2.1)	167 (4.4)	127 (3.8)	133 (3.5)	85 (4.2)	135 (5.5)	131 (3.1)	114 (4.8)	99 (3.9)	264 (3.3)	199 (4.5)	234 (4.7)												
Missing	167	127	131	36	29	47	46	44	40	82	73	87												

Year	2011 – 2013				2014				2015				2014 – 2015			
	STEMI	NSTEMI	UA		STEMI	NSTEMI	UA		STEMI	NSTEMI	UA		STEMI	NSTEMI	UA	
ACS stratum																
Total	7,502	3,842	3,419		3,886	2,049	2,523		4,304	2,430	2,579		8,190	4,479	5,102	
Family history of premature CVD, No. (%)																
Yes	853 (12.7)	474 (13.2)	448 (14.0)		414 (11.6)	235 (12.0)	357 (15.9)		478 (12.1)	276 (12.1)	385 (16.6)		892 (11.9)	511 (12.1)	742 (16.3)	
No	4,742 (70.7)	2,455 (68.8)	2,131 (66.3)		2,652 (74.5)	1,461 (74.8)	1,651 (73.7)		2,899 (73.5)	1,739 (76.1)	1,695 (73.2)		5,551 (74.0)	3,200 (75.5)	3,346 (73.5)	
Unknown	1,107 (16.6)	644 (18.0)	633 (19.7)		496 (13.9)	256 (13.1)	231 (10.3)		565 (14.3)	271 (11.9)	236 (10.2)		1,061 (14.1)	527 (12.4)	467 (10.3)	
Missing	800	269	207		324	97	284		362	144	263		686	241	547	
ANTHROPOMETRICS																
Body Mass Index (BMI), kgm⁻²																
N	2,729	1,285	1,156		1,660	1,016	1,085		1,670	1,102	1,211		3,330	2,118	2,296	
Mean (SD)	26.1 (4.1)	26.0 (4.4)	26.0 (4.6)		25.8 (4.3)	25.9 (4.4)	25.7 (4.3)		26.3 (4.3)	26.0 (4.5)	26.3 (4.3)		26.0 (4.3)	26.0 (4.4)	26.0 (4.3)	
Median (min, max)	25.8 (14.6, 48.1)	25.7 (15.0, 47.4)	25.5 (14.7, 49.8)		25.5 (14.7, 48.4)	25.4 (15.1, 46.4)	25.1 (15.0, 49.5)		26.0 (14.2, 48.9)	25.5 (15.4, 49.0)	26.0 (14.6, 49.9)		25.7 (14.2, 48.9)	25.5 (15.1, 49.0)	25.6 (14.6, 49.9)	
IQR	4.9	5.5	5.7		5.0	5.1	4.8		5.0	5.2	5.5		5.1	5.2	5.3	
Not available	3,932 (59.0)	1,939 (60.1)	1,887 (62.0)		1,964 (54.2)	914 (47.4)	1,319 (54.9)		2,252 (57.4)	1,128 (50.6)	1,088 (47.3)		4,216 (55.9)	2,042 (49.1)	2,407 (51.2)	
Missing	841 (11.2)	618 (16.1)	376 (11.0)		262 (6.7)	119 (5.8)	119 (4.7)		382 (8.9)	200 (8.2)	280 (10.9)		644 (7.9)	319 (7.1)	399 (7.8)	
BMI, kgm⁻², No. (%)																
< 18.5	48 (0.7)	36 (1.1)	45 (1.5)		45 (1.2)	25 (1.3)	26 (1.1)		42 (1.1)	33 (1.5)	21 (0.9)		87 (1.2)	58 (1.4)	47 (1.0)	
18.5 – 22.9	538 (8.1)	300 (9.3)	248 (8.1)		360 (9.9)	223 (11.6)	253 (10.5)		298 (7.6)	230 (10.3)	254 (11.0)		658 (8.7)	453 (10.9)	507 (10.8)	
23.0 – 27.4	1,237 (18.6)	511 (15.8)	479 (15.7)		735 (20.3)	460 (23.8)	507 (21.1)		749 (19.1)	479 (21.5)	509 (22.1)		1,484 (19.7)	939 (22.6)	1,016 (21.6)	
> 27.4	906 (13.6)	438 (13.6)	384 (12.6)		520 (14.3)	308 (16.0)	299 (12.4)		581 (14.8)	360 (16.1)	427 (18.6)		1,101 (14.6)	668 (16.1)	726 (15.4)	
Not available (%)	3,932 (59.0)	1,939 (60.1)	1,887 (62.0)		1,964 (54.2)	914 (47.4)	1,319 (54.9)		2,252 (57.4)	1,128 (50.6)	1,088 (47.3)		4,216 (55.9)	2,042 (49.1)	2,407 (51.2)	
Missing	841	618	376		262	119	119		382	200	280		644	319	399	

Year	2011 – 2013			2014			2015			2014 – 2015		
	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA
ACS stratum												
Total	7,502	3,842	3,419	3,886	2,049	2,523	4,304	2,430	2,579	8,190	4,479	5,102
Waist Hip Ratio (WHR)												
N	1,771	510	451	1,068	519	414	900	599	455	1,968	1,118	869
Mean (SD)	1.0 (0.1)	1.0 (0.2)	1.0 (0.2)	1.0 (0.1)	1.0 (0.1)	1.0 (0.2)	1.0 (0.1)	1.0 (0.1)	1.0 (0.1)	1.0 (0.1)	1.0 (0.1)	1.0 (0.1)
Median (min, max)	1.0 (0.7, 2.9)	1.0 (0.7, 2.9)	1.0 (0.7, 2.4)	1.0 (0.7, 2.5)	1.0 (0.7, 2.3)	1.0 (0.7, 2.2)	1.0 (0.7, 2.5)	1.0 (0.7, 2.2)	1.0 (0.8, 2.2)	1.0 (0.7, 2.5)	1.0 (0.7, 2.3)	1.0 (0.7, 2.2)
IQR	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Not available	4,705 (72.7)	2,625 (83.7)	2,492 (84.7)	2,507 (70.1)	1,385 (72.7)	1,949 (82.5)	2,983 (76.8)	1,597 (72.7)	1,786 (79.7)	5,490 (73.6)	2,982 (72.7)	3,735 (81.1)
Missing	1,026 (13.7)	707 (18.4)	476 (13.9)	311 (8.0)	145 (7.1)	160 (6.3)	421 (9.8)	234 (9.6)	338 (13.1)	732 (8.9)	379 (8.5)	498 (9.8)
WHR, No. (%)												
Men	1573	394	324	942	393	295	787	438	305	1,729	831	600
≤ 1.0	1,133 (72.0)	278 (70.6)	254 (78.4)	644 (68.4)	254 (64.6)	194 (65.8)	545 (69.3)	268 (61.2)	213 (69.8)	1,189 (68.8)	522 (62.8)	407 (67.8)
> 1.0	440 (28.0)	116 (29.4)	70 (21.6)	298 (31.6)	139 (35.4)	101 (34.2)	242 (30.7)	170 (38.8)	92 (30.2)	540 (31.2)	309 (37.2)	193 (32.2)
Women	198	116	127	126	126	119	113	161	150	239	287	269
≤ 0.85	21 (10.6)	15 (13.0)	19 (15.0)	11 (8.7)	11 (8.7)	8 (6.7)	9 (8.0)	10 (6.2)	11 (7.3)	20 (8.4)	21 (7.3)	19 (7.1)
> 0.85	177 (89.4)	101 (87.0)	108 (85.0)	115 (91.3)	115 (91.3)	111 (93.3)	104 (92.0)	151 (93.8)	139 (92.7)	219 (91.6)	266 (92.7)	250 (92.9)
Waist circumference, cm												
N	1594	467	407	977	476	380	840	557	418	1,817	1,033	798
Mean (SD)	92.7 (10.3)	92.9 (11.3)	92.7 (11.1)	92.3 (10.5)	92.8 (11.1)	93.3 (11.3)	92.8 (10.1)	93.2 (10.9)	90.9 (10.6)	92.5 (10.3)	93.0 (11.0)	92.1 (11.0)
Median (min, max)	92.0 (70.0, 129.0)	92.0 (70.0, 128.0)	90.0 (70.0, 130.0)	91.0 (70.0, 126.0)	91.5 (70.0, 129.0)	92.0 (70.0, 127.0)	92.0 (70.0, 130.0)	92.0 (70.0, 129.0)	90.0 (70.0, 126.0)	92.0 (70.0, 130.0)	92.0 (70.0, 129.0)	90.0 (70.0, 127.0)
IQR	13.0	15.0	15.0	14.0	15.0	14.0	13.0	12.0	13.0	13.0	14.0	15.0
Not available	4,687 (74.6)	2,618 (84.8)	2,476 (85.8)	2,497 (71.9)	1,378 (74.3)	1,946 (83.7)	2,979 (78.0)	1,593 (74.1)	1,783 (81.0)	5,476 (75.1)	2,971 (74.2)	3,729 (82.4)
Missing	1,221 (16.3)	757 (19.7)	536 (15.7)	412 (10.6)	195 (9.5)	197 (7.8)	485 (11.3)	280 (11.5)	378 (14.7)	897 (11.0)	475 (10.6)	575 (11.3)

Year	2011 – 2013			2014			2015			2014 – 2015		
	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA
ACS stratum												
Total	7,502	3,842	3,419	3,886	2,049	2,523	4,304	2,430	2,579	8,190	4,479	5,102
Waist circumference, cm, No. (%)												
Men	5,367	2,322	2,015	3,023	1,412	1,621	3,330	1,650	1,537	6,353	3,062	3,158
≤ 90	610 (11.4)	164 (7.1)	153 (7.6)	417 (13.8)	179 (12.7)	125 (7.7)	325 (9.8)	182 (11.0)	139 (9.0)	742 (11.7)	361 (11.8)	264 (8.4)
> 90	810 (15.1)	200 (8.6)	142 (7.0)	445 (14.7)	190 (13.5)	146 (9.0)	414 (12.4)	233 (14.1)	141 (9.2)	859 (13.5)	423 (13.8)	287 (9.1)
Not available	3,947 (73.5)	1,958 (84.3)	1,720 (85.4)	2,161 (71.5)	1,043 (73.9)	1,350 (83.3)	2,591 (77.8)	1,235 (74.8)	1,257 (81.8)	4,752 (74.8)	2,278 (74.4)	2,607 (82.6)
Missing	1,030	560	344	361	142	146	403	206	258	764	348	404
Women	914	763	868	451	442	705	489	500	664	940	942	1,369
≤ 80	27 (3.0)	24 (3.1)	20 (2.3)	22 (4.9)	20 (4.5)	25 (3.5)	12 (2.5)	30 (6.0)	31 (4.7)	34 (3.6)	50 (5.3)	56 (4.1)
> 80	147 (16.1)	79 (10.4)	92 (10.6)	93 (20.6)	87 (19.7)	84 (11.9)	89 (18.2)	112 (22.4)	107 (16.1)	182 (19.4)	199 (21.1)	191 (14.0)
Not available	740 (81.0)	660 (86.5)	756 (87.1)	336 (74.5)	335 (75.8)	596 (84.5)	388 (79.3)	358 (71.6)	526 (79.2)	724 (77.0)	693 (73.6)	1,122 (82.0)
Missing	191	197	192	51	53	51	82	74	120	133	127	171
CO-MORBIDITY												
Dyslipidaemia, No. (%)												
Yes	1,927 (28.8)	1,552 (42.8)	1,621 (49.4)	856 (24.1)	823 (42.2)	1,286 (55.8)	977 (24.6)	1,061 (45.8)	1,372 (56.9)	1,833 (24.4)	1,884 (44.2)	2,658 (56.3)
No	3,734 (55.6)	1,769 (48.9)	1,417 (43.2)	2,125 (59.9)	969 (49.7)	903 (39.2)	2,418 (61.0)	1,106 (47.8)	970 (40.2)	4,543 (60.5)	2,075 (48.7)	1,873 (39.7)
Unknown	1,053 (15.6)	299 (8.3)	241 (7.4)	564 (15.9)	157 (8.1)	117 (5.1)	569 (14.4)	148 (6.4)	71 (2.9)	1,133 (15.1)	305 (7.2)	188 (4.0)
Missing	788	222	140	341	100	217	340	115	166	681	215	383
Hypertension, No. (%)												
Yes	3,788 (55.6)	2,642 (71.6)	2,544 (77.0)	1,843 (51.3)	1,428 (72.3)	1,870 (77.8)	2,065 (51.8)	1,697 (72.7)	1,909 (78.0)	3,908 (51.6)	3,125 (72.5)	3,779 (77.9)
No	2,582 (38.0)	955 (26.0)	685 (20.7)	1,461 (40.7)	489 (24.8)	499 (20.7)	1,573 (39.5)	572 (24.5)	513 (21.0)	3,034 (40.0)	1,061 (24.6)	1,012 (20.9)
Unknown	440 (6.4)	88 (2.4)	77 (2.3)	286 (8.0)	58 (2.9)	36 (1.5)	349 (8.8)	64 (2.7)	26 (1.1)	635 (8.4)	122 (2.8)	62 (1.3)
Missing	692	157	113	296	74	118	317	97	131	613	171	249

Year	2011 – 2013			2014			2015			2014 – 2015		
	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA
ACS stratum												
Total	7,502	3,842	3,419	3,886	2,049	2,523	4,304	2,430	2,579	8,190	4,479	5,102
Diabetes, No. (%)												
Yes	2,668 (39.3)	1,930 (52.8)	1,686 (51.4)	1,419 (39.8)	1,007 (51.2)	1,261 (53.8)	1,496 (37.7)	1,227 (52.8)	1,268 (52.9)	2,915 (38.7)	2,234 (52.1)	2,529 (53.4)
No	3,578 (52.7)	1,596 (43.7)	1,464 (44.6)	1,842 (51.6)	868 (44.2)	1,026 (43.8)	2,110 (53.1)	1,008 (43.4)	1,084 (45.3)	3,952 (52.4)	1,876 (43.7)	2,110 (44.5)
Unknown	536 (8.0)	127 (3.5)	129 (4.0)	308 (8.6)	91 (4.6)	58 (2.5)	365 (9.2)	89 (3.8)	43 (1.8)	673 (8.9)	180 (4.2)	101 (2.1)
Missing	720	189	140	317	83	178	333	106	184	650	189	362
Types of diabetes treatment, No. (%)												
		<i>*only for 2013</i>										
OHA	502 (66.8)	387 (65.8)	324 (58.5)	792 (67.2)	500 (56.4)	691 (60.2)	876 (65.0)	655 (59.7)	744 (64.2)	1,668 (66.0)	1,155 (58.2)	1,435 (62.2)
Insulin	115 (15.3)	99 (16.8)	88 (15.9)	163 (13.8)	211 (23.8)	220 (19.2)	196 (14.6)	251 (22.9)	192 (16.6)	359 (14.2)	462 (23.3)	412 (17.9)
OHA + Insulin	27 (3.6)	46 (7.8)	53 (9.6)	48 (4.1)	80 (9.0)	125 (10.9)	80 (5.9)	89 (8.1)	117 (10.1)	128 (5.1)	169 (8.5)	242 (10.5)
Non-pharmacology therapy	107 (14.2)	56 (9.5)	89 (16.1)	176 (14.9)	95 (10.7)	112 (9.8)	195 (14.5)	103 (9.4)	105 (9.1)	371 (14.7)	198 (10.0)	217 (9.4)
Missing (all false)	360	186	129	240	121	113	149	129	110	389	250	223
Fasting blood glucose, mmol/L.												
N	5,803	2,454	2,016	3,078	1,411	1,773	3,525	1,780	1,883	6,603	3,191	3,656
Mean (SD)	8.7 (4.3)	8.1 (4.2)	7.3 (3.5)	8.7 (4.2)	8.2 (4.2)	7.5 (3.7)	8.5 (4.2)	8.2 (3.9)	7.4 (3.8)	8.6 (4.2)	8.2 (4.0)	7.5 (3.7)
Median (min, max)	7.2 (3.0, 49.0)	6.7 (3.0, 43.1)	6.0 (3.0, 49.9)	7.2 (3.1, 48.0)	6.8 (3.0, 45.0)	6.2 (3.0, 48.0)	7.1 (3.1, 45.0)	6.9 (3.0, 31.7)	6.1 (3.1, 47.0)	7.1 (3.1, 48.0)	6.9 (3.0, 45.0)	6.2 (3.0, 48.0)
IQR	4.1	4.0	2.8	4.0	3.9	3.3	4.3	4.1	3.3	4.2	4.1	3.3
Not available (%)	1,144 (16.5)	991 (28.8)	1,172 (36.8)	576 (15.8)	507 (26.4)	656 (27.0)	557 (13.6)	538 (23.2)	617 (24.7)	1,133 (14.6)	1,045 (24.7)	1,273 (25.8)
Missing (%)	555 (7.4)	397 (10.3)	231 (6.8)	232 (6.0)	131 (6.4)	94 (3.7)	222 (5.2)	112 (4.6)	79 (3.1)	454 (5.5)	243 (5.4)	173 (3.4)

Year	2011 – 2013				2014				2015				2014 – 2015			
	STEMI	NSTEMI	UA		STEMI	NSTEMI	UA		STEMI	NSTEMI	UA		STEMI	NSTEMI	UA	
ACS stratum																
Total	7,502	3,842	3,419		3,886	2,049	2,523		4,304	2,430	2,579		8,190	4,479	5,102	
Myocardial infarction history, No. (%)																
Yes	805 (12.0)	860 (24.0)	935 (29.2)		420 (11.8)	364 (18.6)	530 (23.5)		424 (10.7)	435 (19.0)	526 (22.8)		844 (11.2)	799 (18.8)	1,056 (23.2)	
No	5,329 (79.3)	2,390 (66.8)	1,936 (60.3)		2,929 (82.0)	1,464 (74.9)	1,623 (71.9)		3,342 (84.3)	1,738 (75.8)	1,686 (73.2)		6,271 (83.2)	3,202 (75.4)	3,309 (72.6)	
Unknown	585 (8.7)	330 (9.2)	339 (10.5)		225 (6.3)	127 (6.5)	103 (4.6)		198 (5.0)	119 (5.2)	91 (4.0)		423 (5.6)	246 (5.8)	194 (4.3)	
Missing	783	262	209		312	94	267		340	138	276		652	232	543	
*Documented CAD, No. (%)																
Yes	551 (8.2)	1,049 (29.4)	1,252 (38.8)		399 (11.2)	578 (29.5)	1,103 (48.4)		392 (9.9)	636 (27.8)	1,063 (45.3)		791 (10.5)	1,214 (28.6)	2,166 (46.8)	
No	5,239 (78.4)	2,152 (60.2)	1,620 (50.3)		2,886 (80.9)	1,264 (64.6)	1,087 (47.7)		3,294 (83.3)	1,534 (67.0)	1,220 (52.0)		6,180 (82.1)	2,798 (65.9)	2,307 (49.9)	
Unknown	893 (13.4)	370 (10.4)	351 (10.9)		283 (7.9)	116 (5.9)	89 (3.9)		270 (6.8)	118 (5.2)	63 (2.7)		553 (7.3)	234 (5.5)	152 (3.3)	
Missing	819	271	196		318	91	244		348	142	233		666	233	477	
Chronic angina (onset more than 2 weeks ago), No. (%)																
Yes	350 (5.2)	444 (12.4)	549 (17.2)		194 (5.4)	218 (11.2)	350 (15.9)		194 (4.9)	248 (10.9)	295 (13.2)		388 (5.2)	466 (11.0)	645 (14.5)	
No	5,857 (87.6)	2,898 (81.0)	2,414 (75.4)		3,193 (89.4)	1,650 (84.5)	1,775 (80.8)		3,610 (91.1)	1,950 (86.1)	1,898 (84.8)		6,803 (90.3)	3,600 (85.3)	3,673 (82.9)	
Unknown	484 (7.2)	233 (6.6)	240 (7.4)		185 (5.2)	85 (4.4)	71 (3.2)		157 (4.0)	68 (3.0)	44 (2.0)		342 (4.5)	153 (3.6)	115 (2.6)	
Missing	811	267	216		314	96	327		343	164	342		657	260	669	
New onset angina (less than 2 weeks ago), No. (%)																
Yes	3,728 (55.4)	2,146 (59.3)	2,026 (62.6)		2,064 (57.5)	1,063 (54.1)	1,365 (59.4)		2,759 (69.4)	1,489 (63.9)	1,565 (64.6)		4,823 (63.8)	2,552 (59.4)	2,930 (62.1)	
No	2,717 (40.3)	1,342 (37.2)	1,042 (32.2)		1,404 (39.1)	830 (42.2)	872 (37.9)		1,101 (27.7)	778 (33.4)	823 (34.0)		2,505 (33.1)	1,608 (37.4)	1,695 (35.9)	
Unknown	293 (4.3)	127 (3.5)	169 (5.2)		121 (3.4)	73 (3.7)	62 (2.7)		115 (2.9)	64 (2.7)	34 (1.4)		236 (3.1)	137 (3.2)	96 (2.0)	
Missing	764	227	182		297	83	224		329	99	157		626	182	381	

Year	2011 – 2013			2014			2015			2014 – 2015		
	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA
ACS stratum												
Total	7,502	3,842	3,419	3,886	2,049	2,523	4,304	2,430	2,579	8,190	4,479	5,102
Heart failure, No. (%)												
Yes	235 (3.6)	435 (12.2)	300 (9.4)	83 (2.3)	209 (10.7)	194 (8.8)	79 (2.0)	208 (9.2)	165 (7.4)	162 (2.1)	417 (9.9)	359 (8.1)
No	6,066 (90.6)	2,980 (83.2)	2,708 (84.6)	3,316 (92.5)	1,670 (85.2)	1,940 (88.1)	3,739 (94.4)	1,997 (87.9)	2,014 (90.4)	7,055 (93.5)	3,667 (86.6)	3,954 (89.2)
Unknown	387 (5.8)	166 (4.6)	193 (6.0)	184 (5.1)	82 (4.2)	69 (3.1)	144 (3.6)	66 (2.9)	50 (2.2)	328 (4.3)	148 (3.5)	119 (2.7)
Missing	814	261	218	303	88	320	342	159	350	645	247	670
Chronic lung disease, No. (%)												
Yes	142 (2.2)	142 (4.0)	141 (4.4)	68 (1.9)	96 (4.9)	133 (6.0)	76 (1.9)	101 (4.5)	116 (5.2)	144 (1.9)	197 (4.7)	249 (5.6)
No	6,150 (91.8)	3,258 (91.4)	2,867 (89.6)	3,323 (93.0)	1,784 (91.0)	2,005 (91.1)	3,734 (94.3)	2,100 (92.7)	2,074 (93.0)	7,057 (93.7)	3,884 (91.9)	4,079 (92.1)
Unknown	401 (6.0)	167 (4.6)	193 (6.0)	181 (5.1)	81 (4.1)	62 (2.8)	151 (3.8)	64 (2.8)	41 (1.8)	332 (4.4)	145 (3.4)	103 (2.3)
Missing	809	275	218	314	88	323	343	165	348	657	253	671
*Renal disease, No. (%)												
Yes	261 (3.8)	457 (12.8)	325 (10.2)	129 (3.6)	255 (12.9)	240 (10.8)	137 (3.5)	294 (12.9)	267 (11.9)	266 (3.5)	549 (12.9)	507 (11.4)
No	6,039 (90.2)	2,982 (83.2)	2,704 (84.1)	3,272 (91.4)	1,632 (82.8)	1,915 (86.5)	3,684 (92.9)	1,926 (84.6)	1,937 (86.4)	6,956 (92.2)	3,558 (83.8)	3,852 (86.4)
Unknown	398 (6.0)	144 (4.0)	184 (5.7)	178 (5.0)	83 (4.2)	59 (2.7)	143 (3.6)	57 (2.5)	39 (1.7)	321 (4.3)	140 (3.3)	98 (2.2)
Missing	804	259	206	307	79	309	340	153	336	647	232	645
Cerebrovascular disease, No. (%)												
Yes	205 (3.0)	149 (4.2)	155 (4.8)	107 (3.0)	99 (5.0)	133 (6.1)	129 (3.3)	109 (4.8)	114 (5.2)	236 (3.1)	208 (4.9)	247 (5.6)
No	6,112 (91.5)	3,255 (91.2)	2,852 (89.3)	3,302 (92.3)	1,802 (91.7)	2,007 (91.4)	3,694 (93.3)	2,098 (92.9)	2,056 (92.9)	6,996 (92.8)	3,900 (92.3)	4,063 (92.2)
Unknown	367 (5.5)	162 (4.6)	187 (5.9)	170 (4.7)	65 (3.3)	56 (2.6)	137 (3.5)	52 (2.3)	43 (1.9)	307 (4.1)	117 (2.8)	99 (2.2)
Missing	818	276	225	307	83	327	344	171	366	651	254	693

Year	2011 – 2013			2014			2015			2014 – 2015		
	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA
ACS stratum												
Total	7,502	3,842	3,419	3,886	2,049	2,523	4,304	2,430	2,579	8,190	4,479	5,102
Peripheral vascular disease, No. (%)												
Yes	20 (0.4)	43 (1.2)	41 (1.3)	6 (0.2)	9 (0.5)	12 (0.6)	12 (0.3)	23 (1.0)	23 (1.0)	18 (0.2)	32 (0.8)	35 (0.8)
No	6,247 (93.8)	3,330 (93.8)	2,949 (92.4)	3,373 (94.8)	1,871 (95.7)	2,085 (96.4)	3,778 (96.1)	2,163 (96.4)	2,133 (96.9)	7,151 (95.4)	4,034 (96.0)	4,218 (96.7)
Unknown	390 (5.8)	174 (5.0)	200 (6.3)	180 (5.1)	76 (3.9)	65 (3.0)	143 (3.6)	58 (2.6)	46 (2.1)	323 (4.3)	134 (3.2)	111 (2.5)
Missing	845	295	229	327	93	361	371	186	377	698	279	738
None of the above, No. (%)												
Yes	617 (8.2)	99 (2.6)	49 (1.4)	268 (6.9)	61 (3.0)	47 (1.9)	288 (6.7)	53 (2.2)	41 (1.6)	556 (6.8)	114 (2.5)	88 (1.7)
No	6,885 (91.8)	3,743 (97.4)	3,370 (98.6)	3,618 (93.1)	1,988 (97.0)	2,476 (98.1)	4,016 (93.3)	2,377 (97.8)	2,538 (98.4)	7,634 (93.2)	4,365 (97.5)	5,014 (98.3)
**Coronary artery disease, No. (%)												
Yes	4,349 (69.2)	2,862 (81.4)	2,806 (89.8)	2,433 (70.9)	1,517 (79.5)	2,118 (90.2)	3,064 (79.7)	1,901 (83.6)	2,136 (86.7)	5,497 (75.5)	3,418 (81.7)	4,254 (88.4)
No	1,930 (30.8)	656 (18.6)	321 (10.2)	998 (29.1)	392 (20.5)	230 (9.8)	782 (20.3)	374 (16.4)	329 (13.3)	1,780 (24.5)	766 (18.3)	559 (11.6)

* Definition was different in CRF version 2013

** Coronary artery disease is defined as "Yes" to any of the following co-morbidities: 1) History of myocardial infarction, 2) Documented CAD, 3) Chronic angina (onset more than 2 weeks ago), 4) New onset angina (less than 2 weeks)

Note: Percentage is to the nearest decimal point

Table 2.8 Age-gender distribution of patients with ACS by ACS stratum, NCD-ACS Registry, 2014 – 2015

Gender	Age group	2011 – 2013				2014				2015				2014 – 2015			
		STEMI No. (%)	NSTEMI No. (%)	UA No. (%)	STEMI No. (%)	NSTEMI No. (%)	UA No. (%)	STEMI No. (%)	NSTEMI No. (%)	UA No. (%)	STEMI No. (%)	NSTEMI No. (%)	UA No. (%)	STEMI No. (%)	NSTEMI No. (%)	UA No. (%)	
Male	20 – <30	99 (1.5)	18 (0.6)	15 (0.6)	49 (1.4)	13 (0.8)	12 (0.7)	52 (1.4)	8 (0.4)	9 (0.5)	101 (1.4)	21 (0.6)	196 (5.5)	539 (15.1)	1,118 (31.4)	1,540 (100.0)	
	30 – <40	531 (8.4)	132 (4.6)	97 (4.2)	294 (8.7)	62 (4.0)	91 (5.1)	357 (9.6)	88 (4.7)	105 (5.8)	651 (9.1)	150 (4.4)	1,042 (29.3)	539 (15.1)	1,118 (31.4)	1,540 (100.0)	
	40 – <50	1474 (23.0)	457 (15.8)	376 (16.0)	789 (23.3)	227 (14.6)	272 (15.4)	832 (22.3)	291 (15.7)	267 (14.9)	1,621 (22.8)	518 (15.2)	1,042 (29.3)	539 (15.1)	1,118 (31.4)	1,540 (100.0)	
	50 – <60	2207 (34.5)	949 (33.0)	768 (32.6)	1,137 (33.6)	487 (31.3)	561 (31.7)	1,293 (34.6)	584 (31.5)	557 (31.0)	2,430 (34.1)	1,071 (31.4)	1,042 (29.3)	539 (15.1)	1,118 (31.4)	1,540 (100.0)	
	60 – <70	1404 (22.0)	792 (27.5)	631 (26.7)	778 (23.0)	443 (28.5)	519 (29.4)	815 (21.8)	531 (28.6)	523 (29.1)	1,593 (22.4)	974 (28.6)	1,042 (29.3)	539 (15.1)	1,118 (31.4)	1,540 (100.0)	
	70 – <80	579 (9.0)	440 (15.3)	390 (16.6)	284 (8.4)	252 (16.2)	251 (14.2)	316 (8.5)	298 (16.1)	286 (15.9)	600 (8.4)	550 (16.1)	537 (15.1)	1,042 (29.3)	1,118 (31.4)	1,540 (100.0)	
	≥ 80	103 (1.6)	94 (3.2)	82 (3.3)	53 (1.6)	70 (4.5)	61 (3.5)	68 (1.8)	56 (3.0)	48 (2.7)	121 (1.7)	126 (3.7)	109 (3.1)	1,042 (29.3)	1,118 (31.4)	1,540 (100.0)	
	Total	6,397 (100.0)	2,882 (100.0)	2,359 (100.0)	3,384 (100.0)	1,554 (100.0)	1,767 (100.0)	3,733 (100.0)	1,856 (100.0)	1,795 (100.0)	7,117 (100.0)	3,410 (100.0)	3,562 (100.0)	1,042 (29.3)	1,118 (31.4)	1,540 (100.0)	
	Female	20 – <30	3 (0.2)	2 (0.2)	4 (0.4)	1 (0.2)	1 (0.2)	2 (0.3)	1 (0.2)	2 (0.3)	1 (0.1)	2 (0.2)	3 (0.3)	3 (0.2)	3 (0.2)	3 (0.2)	3 (0.2)
		30 – <40	22 (2.0)	12 (1.2)	23 (2.2)	9 (1.8)	7 (1.4)	17 (2.2)	18 (3.2)	4 (0.7)	22 (2.8)	27 (2.5)	11 (1.0)	39 (2.5)	39 (2.5)	39 (2.5)	39 (2.5)
40 – <50		135 (12.2)	52 (5.4)	112 (10.6)	54 (10.8)	33 (6.7)	69 (9.1)	54 (9.5)	48 (8.4)	93 (11.9)	108 (10.1)	81 (7.6)	162 (10.5)	162 (10.5)	162 (10.5)	162 (10.5)	
50 – <60		273 (24.7)	209 (21.8)	242 (22.8)	142 (28.3)	123 (24.8)	190 (25.1)	149 (26.1)	122 (21.3)	188 (24.0)	291 (27.1)	245 (22.9)	378 (24.5)	378 (24.5)	378 (24.5)	378 (24.5)	
60 – <70		311 (28.2)	295 (30.8)	331 (31.2)	152 (30.3)	132 (26.7)	235 (31.1)	168 (29.4)	182 (31.7)	242 (30.9)	320 (29.8)	314 (29.4)	477 (31.0)	477 (31.0)	477 (31.0)	477 (31.0)	
70 – <80		289 (26.2)	301 (31.4)	261 (24.6)	106 (21.1)	142 (28.7)	176 (23.3)	142 (24.9)	152 (26.5)	170 (21.7)	248 (23.1)	294 (27.5)	346 (22.5)	346 (22.5)	346 (22.5)	346 (22.5)	
≥ 80		72 (6.5)	89 (9.2)	87 (8.2)	38 (7.6)	57 (11.5)	67 (8.9)	39 (6.8)	64 (11.1)	68 (8.7)	77 (7.2)	121 (11.3)	135 (8.8)	135 (8.8)	135 (8.8)	135 (8.8)	
Total		1,105 (100.0)	960 (100.0)	1,060 (100.0)	502 (100.0)	495 (100.0)	756 (100.0)	571 (100.0)	574 (100.0)	784 (100.0)	1,073 (100.0)	1,069 (100.0)	1,540 (100.0)	1,069 (100.0)	1,540 (100.0)	1,540 (100.0)	

CHAPTER 3: CLINICAL PRESENTATIONS & INVESTIGATIONS

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Summary

1. The spectrum of ACS in 2014 – 2015 revealed that the commonest subtype was STEMI (46.1%), similar to previous years. However, unstable angina at 28.7% had overtaken NSTEMI. Two-thirds of STEMI had intermediate-high TIMI risk score; whereas NSTEMI-UA had a slightly higher intermediate-high score in 2014 – 2015 compared to 2011 – 2013.
2. The proportion of STEMI remained highest in young patients. The proportion of NSTEMI-UA amongst the elderly ACS cases increased to 62.9%. The proportion of Killip III–IV in the elderly patients had doubled compared to the younger patients.
3. Gender ratio of male:female remained at 4:1 for ACS. 50.5% of men presented with STEMI whereas 70.8% of women presented with NSTEMI/UA.
4. About 43% of ACS patients were diabetic and 60.8% were hypertensive. Among STEMI patients, 38.0% were diabetic and 36.1% were hypertensive. These cohorts of patients have higher Killip III & IV at presentation. The median total cholesterol and LDL-cholesterol were higher in STEMI compared to NSTEMI/UA.

This chapter presents the results of clinical presentation and investigations of patients who were notified and registered in the NCVD-ACS registry in year 2014 – 2015. The outlines of the discussion are:

- 1) Epidemiology
- 2) Clinical presentation
- 3) Diagnosis
- 4) Risk factors: diabetes, dyslipidaemia, hypertension

Epidemiology & clinical presentation

A total of 17,771 ACS were analysed in 2014 – 2015 from our NCVD-ACS registry; of which 8,190 were STEMI (46.1%), 4,479 NSTEMI (25.2%) and 5,102 unstable anginas (UA) (28.7%). Similar to the previous cohorts, STEMI remained the commonest ACS subtype (46.1%). Compared to the previous cohort, mean heart rate, mean SBP and mean DBP were similar. Patients with NSTEMI/UA were older and had higher CV risk factors compared to STEMI patients.

Across the spectrum of ACS, the majority of STEMI patients had angina symptoms within 24 hours compared to NSTEMI/UA (Table 3.1). This observation highlights the importance of public education, to recognise early warning symptoms and to seek early medical attention. Amongst STEMI patients, 67.4% of patients have intermediate-high TIMI risk score, similar to the 2011 – 2013 cohorts (70.3%). Amongst NSTEMI-UA, 48.4% had intermediate-high score in 2014 – 2015, compared to 41.5% in 2011 – 2013. There seem to be an increasing trend of ACS patients who presented with cardiogenic shock compared to the previous cohort (STEMI; 14.7% vs. 13.4%; NSTEMI/UA, 8.3% vs 6.7%).

About 70% of STEMI patients had an echocardiogram examination during the index admission compared to 50% in NSTEMI and 30% in UA. With regards to ECG patterns in patients with STEMI, 52.3% were anterior. 22.2% had lateral involvement, and 7.5% and 7.1% had posterior and right ventricular (RV) involvement respectively.

The proportion of STEMI was highest in young patients, and decreased with advancing age (63.8% in young aged group [20-<40 years old], 52% in middle aged group [40-<60 years old], 37.1% in elderly aged group [≥60 years old]), similar to previous years. For NSTEMI/UA, the proportion of elderly patients was higher than the previous cohort (62.9% vs. 57.8%). Killip III–IV was higher in the older sub-group (9.3% in 20 – < 40 years, 13.9% in 40 – < 60 years, and 18.2% in ≥ 60 years).

The gender ratio of male:female remained at 4:1 for ACS. STEMI comprised 50% of ACS in men. In contrast, NSTEMI-UA occurred more in women (70.8%). Elderly or female patients tend to have higher systolic blood pressure on presentation.

Pre-morbid risk factors

Diabetes mellitus

About 43% of the patients were diabetic. The highest incidence were seen in STEMI (38.0%) followed by unstable angina (32.9%) and NSTEMI (29.1%). ACS patients with diabetes mellitus had higher SBP (median 139 mmHg vs. 135 mmHg), wider pulse pressure (median 57 mmHg vs. 52 mmHg), higher heart rate (median 83/min vs. 79/min), higher HbA1c (median 8.2% vs. 5.8%), and higher Killip class III & IV at presentation (17.8% vs. 13.3%). Non-diabetic patients had higher LDL (median 3.3 mmol/L vs. 2.8 mmol/L) (Table 3.4).

Hypertension

60.8% of ACS patients were hypertensive. More patients with STEMI had hypertension followed by unstable angina and NSTEMI (36.1%, 35.0% and 28.9% respectively). Hypertensive patients had wider pulse pressure (median 58 mmHg vs. 49 mmHg), higher heart rate at presentation (median 82/min vs 80/min), higher Killip class III and IV (15.7% vs. 14.9%) and higher HbA1c (median 6.9% vs 6.3%) (Table 3.5).

Dyslipidaemia

Medical history of dyslipidaemia was higher in unstable angina (41.7%) compared to NSTEMI (29.6%) and STEMI (28.8%). The median total cholesterol was higher in STEMI followed by NSTEMI and unstable angina; 5.3 mmol/L, 4.9 mmol/L, and 4.5 mmol/L respectively. The same trend was seen for LDL-cholesterol (3.4 mmol/L, 3.0 mmol/L and 2.7 mmol/L respectively). Patients with dyslipidaemia had higher SBP (median 139 mmHg vs. 135 mmHg), wider pulse pressure (median 57 mmHg vs. 53 mmHg) and higher HbA1c (median 6.8% vs. 6.6%) than those without dyslipidaemia (Table 3.6).

Discussion

The commonest ACS presentation was STEMI (46.1%). The guiding principle that “time is muscle” in emergency cardiology implies that every patient with STEMI should be taken up for thrombolysis or primary PCI at the earliest after the onset of symptoms. As diabetes, hypertension and dyslipidaemia are strongly associated with ACS, primary prevention program should be reinforced.

Table 3.1 Cardiac presentation of patients with ACS by ACS stratum, NCVD-ACS Registry, 2014 – 2015

Year	2011 – 2013				2014				2015				2014 – 2015			
	STEMI	NSTEMI	UA		STEMI	NSTEMI	UA		STEMI	NSTEMI	UA		STEMI	NSTEMI	UA	
ACS stratum																
Total	7,502 (50.8)	3,842 (26.0)	3,419 (23.2)		3,886 (45.9)	2,049 (24.2)	2,523 (29.8)		4,304 (46.2)	2,430 (26.1)	2,579 (27.7)		8,190 (46.1)	4,479 (25.2)	5,102 (28.7)	
Systolic blood pressure, mmHg																
N	7,161	3,541	3,272		3,833	1,995	2,486		4,220	2,372	2,549		8,053	4,367	5,035	
Mean (SD)	132.4 (29.1)	139.9 (29.7)	144.6 (26.9)		133.7 (29.0)	141.6 (30.3)	145.5 (27.0)		134.0 (28.6)	140.7 (29.3)	143.7 (26.0)		133.8 (28.8)	141.1 (29.8)	144.6 (26.5)	
Median (min, max)	130.0 (50.0, 261.0)	137.0 (56.0, 270.0)	142.0 (54.0, 268.0)		132.0 (54.0, 269.0)	138.0 (50.0, 269.0)	142.0 (56.0, 255.0)		131.0 (54.0, 250.0)	138.0 (50.0, 264.0)	141.0 (55.0, 257.0)		131.0 (54.0, 269.0)	138.0 (50.0, 269.0)	142.0 (55.0, 257.0)	
IQR	37.0	38.0	35.0		36.0	39.0	33.0		35.0	36.0	35.0		35.0	37.0	34.0	
Missing (%)	341 (4.5)	301 (7.8)	147 (4.3)		53 (1.4)	54 (2.6)	37 (1.5)		84 (2.0)	58 (2.4)	30 (1.2)		137 (1.7)	112 (2.5)	67 (1.3)	
Diastolic blood pressure, mmHg																
N	7,147	3,531	3,265		3,835	1,995	2,481		4,224	2,367	2,548		8,059	4,362	5,029	
Mean (SD)	79.8 (19.0)	81.0 (18.1)	81.6 (16.3)		80.8 (19.1)	82.2 (19.2)	81.9 (16.4)		81.1 (18.5)	81.0 (17.6)	80.4 (15.3)		81.0 (18.7)	81.6 (18.4)	81.2 (15.9)	
Median (min, max)	79.0 (10.0, 170.0)	80.0 (10.0, 170.0)	80.0 (11.0, 170.0)		80.0 (10.0, 167.0)	80.0 (20.0, 159.0)	80.0 (30.0, 157.0)		80.0 (20.0, 159.0)	80.0 (30.0, 170.0)	80.0 (34.0, 148.0)		80.0 (10.0, 167.0)	80.0 (20.0, 170.0)	80.0 (30.0, 157.0)	
IQR	24.0	23.0	20.0		24.0	23.0	20.0		23.0	22.0	20.0		23.0	23.0	20.0	
Missing (%)	355 (4.7)	311 (8.1)	154 (4.5)		51 (1.3)	54 (2.6)	42 (1.7)		80 (1.9)	63 (2.6)	31 (1.2)		131 (1.6)	117 (2.6)	73 (1.4)	
Pulse pressure, mmHg																
N	7,127	3,527	3,259		3,748	1,920	2,320		4,152	2,257	2,416		7,900	4,177	4,736	
Mean (SD)	52.6 (18.6)	58.8 (21.3)	63.1 (21.1)		51.7 (16.7)	57.5 (18.2)	60.3 (17.6)		52.1 (16.9)	57.0 (18.1)	60.7 (17.6)		51.9 (16.8)	57.2 (18.2)	60.5 (17.6)	
Median (min, max)	50.0 (1.0, 178.0)	55.0 (1.0, 198.0)	60.0 (5.0, 169.0)		50.0 (2.0, 100.0)	56.0 (9.0, 100.0)	60.0 (3.0, 100.0)		50.0 (6.0, 100.0)	56.0 (6.0, 100.0)	60.0 (2.0, 100.0)		50.0 (2.0, 100.0)	56.0 (6.0, 100.0)	60.0 (2.0, 100.0)	
IQR	23.0	27.0	27.0		22.0	26.5	26.0		22.0	25.0	25.0		22.0	26.0	25.0	
Missing (%)	489 (6.5)	450 (11.7)	334 (9.8)		138 (3.6)	129 (6.3)	203 (8.0)		152 (3.5)	173 (7.1)	163 (6.3)		290 (3.5)	302 (6.7)	366 (7.2)	

Year	2011 – 2013				2014				2015				2014 – 2015			
	STEMI	NSTEMI	UA		STEMI	NSTEMI	UA		STEMI	NSTEMI	UA		STEMI	NSTEMI	UA	
ACS stratum																
Total	7,502 (50.8)	3,842 (26.0)	3,419 (23.2)		3,886 (45.9)	2,049 (24.2)	2,523 (29.8)		4,304 (46.2)	2,430 (26.1)	2,579 (27.7)		8,190 (46.1)	4,479 (25.2)	5,102 (28.7)	
Heart rate at presentation, beats/min																
N	7,113	3,515	3,262		3,780	1,973	2,469		4,199	2,358	2,540		7,979	4,331	5,009	
Mean (SD)	83.6 (21.8)	85.7 (21.3)	80.4 (18.6)		83.4 (21.8)	87.5 (23.0)	81.4 (19.3)		82.2 (20.8)	86.1 (22.1)	80.3 (19.0)		82.8 (21.3)	86.7 (22.5)	80.9 (19.1)	
Median (min, max)	81.0 (20.0, 200.0)	83.0 (28.0, 198.0)	78.0 (35.0, 195.0)		81.0 (24.0, 195.0)	84.0 (34.0, 200.0)	80.0 (26.0, 197.0)		80.0 (20.0, 190.0)	83.0 (28.0, 198.0)	78.0 (30.0, 196.0)		80.0 (20.0, 195.0)	84.0 (28.0, 200.0)	79.0 (26.0, 197.0)	
IQR	29.0	28.0	23.0		28.0	29.0	23.0		26.0	28.0	23.0		28.0	30.0	22.0	
Missing (%)	389 (5.2)	327 (8.5)	157 (4.6)		106 (2.7)	76 (3.7)	54 (2.1)		105 (2.4)	72 (3.0)	39 (1.5)		211 (2.6)	148 (3.3)	93 (1.8)	
Episodes of angina in past 24 hours, No. (%)																
0 – 2	3,230 (47.2)	1,236 (37.0)	1,315 (42.4)		1,824 (50.7)	693 (36.2)	980 (41.4)		2,513 (61.0)	1,085 (46.7)	1,235 (50.6)		4,337 (56.2)	1,778 (41.9)	2,215 (46.1)	
> 2	164 (2.4)	92 (2.8)	176 (5.6)		56 (1.6)	52 (2.7)	142 (6.0)		81 (2.0)	109 (4.7)	236 (9.7)		137 (1.8)	161 (3.8)	378 (7.9)	
Not available	3,453 (50.4)	2,006 (60.2)	1,613 (52.0)		1,715 (47.7)	1,170 (61.1)	1,243 (52.6)		1,524 (37.0)	1,130 (48.6)	969 (39.7)		3,239 (42.0)	2,300 (54.3)	2,212 (46.0)	
Missing	655	508	315		291	134	158		186	106	139		477	240	297	
Killip classification code, No. (%)																
I	3,851 (55.4)	1,566 (52.5)	1,267 (55.6)		2,364 (62.3)	1,078 (66.3)	1,212 (84.2)		2,690 (62.5)	1,106 (45.5)	1,211 (47.0)		5,054 (63.5)	2,184 (65.9)	2,423 (86.3)	
II	1,272 (18.3)	467 (15.6)	261 (11.4)		688 (18.1)	304 (18.7)	169 (11.7)		714 (16.6)	259 (10.7)	115 (4.5)		1,402 (17.6)	563 (17.0)	284 (10.1)	
III	314 (4.5)	151 (5.0)	44 (2.0)		162 (4.3)	139 (8.5)	43 (3.0)		177 (4.1)	187 (7.7)	24 (0.9)		339 (4.3)	326 (9.8)	67 (2.4)	
IV	927 (13.4)	163 (5.5)	29 (1.2)		577 (15.2)	105 (6.5)	15 (1.0)		590 (13.7)	134 (5.5)	17 (0.7)		1,167 (14.7)	239 (7.2)	32 (1.1)	
Not stated/ inadequately described	577 (8.4)	642 (21.4)	681 (29.8)		1 (0.0)	1 (0.1)	1 (0.1)		133 (3.1)	744 (30.6)	1,212 (47.0)		1 (0.0)	1 (0.0)	1 (0.0)	
Not available	266	436	839		94	421	1,083		0	0	0		227	1,165	2,295	
Missing	295	417	298		0	1	0		0	0	0		0	1	0	

Year	2011 – 2013				2014				2015				2014 – 2015			
	STEMI	NSTEMI	UA		STEMI	NSTEMI	UA		STEMI	NSTEMI	UA		STEMI	NSTEMI	UA	
ACS stratum																
Total	7,502 (50.8)	3,842 (26.0)	3,419 (23.2)		3,886 (45.9)	2,049 (24.2)	2,523 (29.8)		4,304 (46.2)	2,430 (26.1)	2,579 (27.7)		8,190 (46.1)	4,479 (25.2)	5,102 (28.7)	
Total cholesterol, mmol/L																
N	5,922	2,557	2,129		3,108	1,480	1,828		3,599	1,813	1,939		6,707	3,293	3,767	
Mean (SD)	5.4 (1.4)	5.0 (1.5)	4.8 (1.3)		5.3 (1.4)	5.0 (1.5)	4.7 (1.3)		5.3 (1.4)	4.9 (1.4)	4.7 (1.3)		5.3 (1.4)	4.9 (1.5)	4.7 (1.3)	
Median (min, max)	5.3 (2.0, 14.5)	4.8 (2.0, 17.0)	4.6 (2.0, 16.9)		5.2 (2.0, 14.0)	4.8 (2.0, 22.0)	4.5 (2.0, 16.6)		5.2 (2.0, 17.7)	4.8 (2.0, 15.5)	4.5 (2.0, 12.6)		5.2 (2.0, 17.7)	4.8 (2.0, 22.0)	4.5 (2.0, 16.6)	
IQR	1.8	1.9	1.7		1.8	1.9	1.7		1.8	1.9	1.7		1.8	1.9	1.7	
Test not done (%)	1,053 (15.1)	931 (26.7)	1,088 (33.8)		555 (15.2)	452 (23.4)	598 (24.6)		509 (12.4)	509 (21.9)	574 (22.8)		1,064 (13.7)	961 (22.6)	1,172 (23.7)	
Missing (%)	527 (7.0)	354 (9.2)	202 (5.9)		223 (5.7)	117 (5.7)	97 (3.8)		196 (4.6)	108 (4.4)	66 (2.6)		419 (5.1)	225 (5.0)	163 (3.2)	
HDL-C, mmol/L																
N	5,668	2,520	2,091		3,039	1,452	1,801		3,568	1,792	1,927		6,607	3,244	3,728	
Mean (SD)	1.1 (0.3)	1.1 (0.4)	1.1 (0.4)		1.1 (0.3)	1.1 (0.4)	1.1 (0.3)		1.1 (0.3)	1.1 (0.3)	1.1 (0.4)		1.1 (0.3)	1.1 (0.4)	1.1 (0.3)	
Median (min, max)	1.0 (0.5, 4.9)	1.0 (0.5, 4.6)	1.0 (0.5, 4.5)		1.0 (0.5, 4.5)	1.0 (0.5, 4.7)	1.0 (0.5, 3.1)		1.0 (0.5, 4.9)	1.0 (0.5, 4.3)	1.0 (0.5, 4.6)		1.0 (0.5, 4.9)	1.0 (0.5, 4.7)	1.0 (0.5, 4.6)	
IQR	0.3	0.3	0.3		0.3	0.4	0.4		0.3	0.4	0.4		0.3	0.4	0.4	
Test not done (%)	1,246 (18.0)	947 (27.3)	1,091 (34.3)		589 (16.2)	452 (23.7)	602 (25.1)		527 (12.9)	507 (22.1)	577 (23.0)		1,116 (14.5)	959 (22.8)	1,179 (24.0)	
Missing (%)	588 (7.8)	375 (9.8)	237 (6.9)		258 (6.6)	145 (7.1)	120 (4.8)		209 (4.9)	131 (5.4)	75 (2.9)		467 (5.7)	276 (6.2)	195 (3.8)	
LDL-C, mmol/L																
N	5,715	2,537	2,073		3,069	1,466	1,789		3,576	1,816	1,920		6,645	3,282	3,709	
Mean (SD)	3.5 (1.3)	3.1 (1.3)	2.9 (1.2)		3.5 (1.3)	3.1 (1.3)	2.8 (1.2)		3.5 (1.3)	3.1 (1.3)	2.8 (1.2)		3.5 (1.3)	3.1 (1.3)	2.8 (1.2)	
Median (min, max)	3.4 (0.5, 12.3)	2.9 (0.5, 10.9)	2.7 (0.5, 9.5)		3.4 (0.5, 12.0)	3.0 (0.5, 18.0)	2.7 (0.5, 14.8)		3.4 (0.5, 9.8)	3.0 (0.5, 8.6)	2.6 (0.6, 13.0)		3.4 (0.5, 12.0)	3.0 (0.5, 18.0)	2.7 (0.5, 14.8)	
IQR	1.7	1.7	1.4		1.6	1.7	1.5		1.6	1.7	1.5		1.6	1.7	1.5	
Test not done (%)	1,281 (18.3)	974 (27.7)	1,136 (35.4)		613 (16.6)	470 (24.3)	638 (26.3)		544 (13.2)	522 (22.3)	599 (23.8)		1,157 (14.8)	992 (23.2)	1,237 (25.0)	
Missing (%)	506 (6.7)	331 (8.6)	210 (6.1)		204 (5.2)	113 (5.5)	96 (3.8)		184 (4.3)	92 (3.8)	60 (2.3)		388 (4.7)	205 (4.6)	156 (3.1)	

Year	2011 – 2013			2014			2013			2011 – 2013		
	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA
ACS stratum												
Total	7,502 (50.8)	3,842 (26.0)	3,419 (23.2)	3,886 (45.9)	2,049 (24.2)	2,523 (29.8)	4,304 (46.2)	2,430 (26.1)	2,579 (27.7)	8,190 (46.1)	4,479 (25.2)	5,102 (28.7)
Triglycerides, mmol/L												
N	5901	2535	2093	3,092	1,478	1,818	3,589	1,816	1,928	6,681	3,294	3,746
Mean (SD)	1.7 (1.1)	1.7 (1.1)	1.7 (1.1)	1.7 (1.0)	1.6 (1.0)	1.7 (1.2)	1.7 (1.0)	1.7 (1.0)	1.7 (1.1)	1.7 (1.0)	1.7 (1.0)	1.7 (1.1)
Median (min, max)	1.5 (0.5, 15.0)	1.4 (0.5, 13.9)	1.5 (0.5, 14.6)	1.5 (0.5, 14.4)	1.4 (0.5, 10.4)	1.4 (0.5, 13.3)	1.5 (0.5, 10.6)	1.4 (0.5, 13.9)	1.5 (0.5, 12.6)	1.5 (0.5, 14.4)	1.4 (0.5, 13.9)	1.4 (0.5, 13.3)
IQR	0.9	1.0	1.0	0.9	0.9	1.0	0.9	0.9	0.9	0.9	0.8	1.0
Test not done (%)	1,079 (15.5)	951 (27.3)	1,106 (34.6)	568 (15.5)	457 (23.6)	604 (24.9)	519 (12.6)	508 (21.9)	569 (22.8)	1,087 (14.0)	965 (22.7)	1,173 (23.8)
Missing (%)	522 (7.0)	356 (9.3)	220 (6.4)	226 (5.8)	114 (5.6)	101 (4.0)	196 (4.6)	106 (4.4)	82 (3.2)	422 (5.2)	220 (4.9)	183 (3.6)
*HbA1c, mmol/L												
	<i>only for 2013</i>											
N	560	260	189	842	560	595	1,077	675	646	1,919	1,235	1,241
Mean (SD)	7.6 (2.8)	7.6 (2.1)	7.7 (2.8)	7.6 (2.7)	7.3 (2.3)	7.3 (2.6)	7.8 (3.1)	7.8 (2.9)	7.6 (2.5)	7.7 (2.9)	7.6 (2.6)	7.4 (2.6)
Median (min, max)	6.6 (4.2, 32.0)	7.2 (4.2, 16.5)	6.5 (4.8, 29.0)	6.5 (4.0, 31.0)	6.5 (4.0, 20.3)	6.4 (4.1, 32.0)	6.5 (4.0, 32.0)	7.0 (4.3, 32.0)	6.8 (4.0, 30.0)	6.5 (4.0, 32.0)	6.7 (4.0, 32.0)	6.6 (4.0, 32.0)
IQR	3.1	2.6	2.8	3.4	2.8	2.6	3.6	3.0	2.6	3.5	2.9	2.6
Test not done (%)	1,445 (72.1)	807 (75.6)	970 (83.7)	2,177 (72.1)	1,184 (67.9)	1,693 (74.0)	2,479 (69.7)	1,414 (67.7)	1,592 (71.1)	4,656 (70.8)	2,598 (67.8)	3,285 (72.6)
Missing (%)	1,056 (34.5)	535 (33.4)	305 (20.8)	867 (22.3)	305 (14.9)	235 (9.3)	748 (17.4)	341 (14.0)	341 (13.2)	1,615 (19.7)	646 (14.4)	576 (11.3)
Left ventricular ejection fraction, %												
N	4,141	1,667	907	2,488	1,040	786	2,913	1,262	941	5,401	2,302	1,727
Mean (SD)	45.8 (11.9)	46.6 (14.3)	50.7 (15.2)	45.2 (11.6)	46.5 (13.9)	51.3 (15.4)	45.7 (11.2)	45.5 (13.8)	51.4 (14.7)	45.5 (11.4)	46.0 (13.9)	51.4 (15.0)
Median (min, max)	45.0 (6.3, 88.0)	48.0 (6.4, 89.0)	54.2 (5.3, 84.0)	45.0 (5.1, 85.0)	46.0 (10.0, 90.0)	55.0 (5.5, 88.0)	45.0 (5.3, 84.0)	45.0 (6.8, 87.0)	55.0 (5.9, 90.0)	45.0 (5.1, 85.0)	45.0 (6.8, 90.0)	55.0 (5.5, 90.0)
IQR	16.0	22.0	22.0	14.0	20.0	17.0	12.0	20.0	15.0	13.0	20.0	16.0
Test not done (%)	2,353 (36.2)	1,495 (47.3)	2,087 (69.7)	1,060 (29.9)	858 (45.2)	1,585 (66.8)	1,187 (29.0)	1,028 (44.9)	1,429 (60.3)	2,247 (29.4)	1,886 (45.0)	3,014 (63.6)
Missing (%)	1,008 (13.4)	680 (17.7)	425 (12.4)	338 (8.7)	151 (7.4)	152 (6.0)	204 (4.7)	140 (5.8)	209 (8.1)	542 (6.6)	291 (6.5)	361 (7.1)

Year	2011 – 2013			2014			2013			2011 – 2013		
	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA
ACS stratum												
Total	7,502 (50.8)	3,842 (26.0)	3,419 (23.2)	3,886 (45.9)	2,049 (24.2)	2,523 (29.8)	4,304 (46.2)	2,430 (26.1)	2,579 (27.7)	8,190 (46.1)	4,479 (25.2)	5,102 (28.7)
Left ventricular ejection fraction, No. (%)												
≤ 40	1,438 (34.7)	581 (34.9)	234 (25.8)	918 (36.9)	380 (36.5)	187 (23.8)	978 (33.6)	479 (38.0)	211 (22.4)	1,896 (35.1)	859 (37.3)	398 (23.0)
41 – 49	1,028 (24.8)	290 (17.4)	123 (13.6)	618 (24.8)	187 (18.0)	106 (13.5)	856 (29.4)	251 (19.9)	112 (11.9)	1,474 (27.3)	438 (19.0)	218 (12.6)
≥ 50	1,675 (40.4)	796 (47.8)	550 (60.6)	952 (38.3)	473 (45.5)	493 (62.7)	1,079 (37.0)	532 (42.2)	618 (65.7)	2,031 (37.6)	1,005 (43.7)	1,111 (64.3)
Missing	3,361	2,175	2,512	1,398	1,009	1,737	1,391	1,168	1,638	2,789	2,177	3,375
ECG, No. (%)												
Inferior leads	3,471 (46.2)	887 (23.0)	578 (17.0)	1,808 (46.5)	493 (24.1)	431 (17.1)	2,134 (49.6)	585 (24.1)	412 (16.0)	3,942 (48.1)	1,078 (24.1)	843 (16.5)
Anterior leads	4,011 (53.4)	1,227 (32.0)	945 (27.6)	2,091 (53.8)	752 (36.7)	626 (24.8)	2,195 (51.0)	848 (34.9)	571 (22.1)	4,286 (52.3)	1,600 (35.7)	1,197 (23.5)
Lateral leads	1,471 (19.6)	1,319 (34.4)	984 (28.8)	845 (21.7)	865 (42.2)	814 (32.3)	973 (22.6)	1,029 (42.3)	799 (31.0)	1,818 (22.2)	1,894 (42.3)	1,613 (31.6)
True posterior	564 (7.6)	51 (1.4)	42 (1.2)	279 (7.2)	36 (1.8)	32 (1.3)	334 (7.8)	28 (1.2)	41 (1.6)	613 (7.5)	64 (1.4)	73 (1.4)
Right ventricle	448 (6.0)	16 (0.4)	4 (0.2)	253 (6.5)	4 (0.2)	2 (0.1)	326 (7.6)	12 (0.5)	8 (0.3)	579 (7.1)	16 (0.4)	10 (0.2)
None	62 (0.8)	753 (19.6)	1,003 (29.4)	28 (0.7)	351 (17.1)	719 (28.5)	21 (0.5)	383 (15.8)	879 (34.1)	49 (0.6)	734 (16.4)	1,598 (31.3)
Not stated/ inadequately described	133 (1.8)	311 (8.0)	383 (11.2)	38 (1.0)	147 (7.2)	374 (14.8)	66 (1.5)	196 (8.1)	293 (11.4)	104 (1.3)	343 (7.7)	667 (13.1)

Year	2011 – 2013			2014			2013			2011 – 2013		
	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA
ACS stratum												
Total	7,502 (50.8)	3,842 (26.0)	3,419 (23.2)	3,886 (45.9)	2,049 (24.2)	2,523 (29.8)	4,304 (46.2)	2,430 (26.1)	2,579 (27.7)	8,190 (46.1)	4,479 (25.2)	5,102 (28.7)
Total number of STEMI patients who were given fibrinolytic therapy at this centre	3,717 (49.5)			1,806 (46.5)			1,861 (43.2)			3,667 (44.8)		
Pain-to-needle time, min (** symptom to treatment)												
N	2,840			1,515			1,572			3,087		
Mean (SD)	288.0 (252.5)			295.7 (252.6)			283.2 (242.1)			289.4 (247.3)		
Median (min, max)	210.0 (15.0, 1439.0)			220.0 (15.0, 1425.0)			200.0 (15.0, 1440.0)			210.0 (15.0, 1440.0)		
IQR	230.0			215.0			215.0			215.0		
Missing	877 (23.6)			291 (16.1)			289 (15.5)			580 (15.8)		
Pain-to-needle time, No. (%)												
≤ 180 min	1,283 (45.2)			625 (41.3)			699 (44.5)			1,324 (42.9)		
> 180 min	1,557 (54.8)			890 (58.7)			873 (55.5)			1,763 (57.1)		
Missing	877			291			289			580		

* Definition was different in CRF version 2013 ** Symptom to treatment is the time difference between onset of ACS symptom and when patient was given fibrinolytic therapy

Table 3.2 Cardiac presentation of patients with ACS by age group (years), NCVd-ACS Registry, 2014 – 2015

Year	2011 – 2013			2014			2015			2014 – 2015		
	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly
ACS stratum												
Total	958 (6.5)	7,254 (49.1)	6,551 (44.4)	558 (6.6)	4,084 (48.3)	3,816 (45.1)	667 (7.2)	4,478 (48.1)	4,168 (44.8)	1,225 (6.9)	8,562 (48.2)	7,984 (44.9)
ACS stratum, No. (%)												
STEMI	655 (68.4)	4,089 (56.4)	2,758 (42.1)	353 (63.3)	2,122 (52.0)	1,411 (37.0)	428 (64.2)	2,328 (52.0)	1,548 (37.1)	781 (63.8)	4,450 (52.0)	2,959 (37.1)
NSTEMI	164 (17.1)	1,667 (23.0)	2,011 (30.7)	83 (14.9)	870 (21.3)	1,096 (28.7)	102 (15.3)	1,045 (23.3)	1,283 (30.8)	185 (15.1)	1,915 (22.4)	2,379 (29.8)
UA	139 (14.5)	1,498 (20.7)	1,782 (27.2)	122 (21.9)	1,092 (26.7)	1,309 (34.3)	137 (20.5)	1,105 (24.7)	1,337 (32.1)	259 (21.1)	2,197 (25.7)	2,646 (33.1)
Systolic blood pressure, mmHg												
N	901	6,883	6,190	549	4,023	3,742	657	4,395	4,089	1,206	8,418	7,831
Mean (SD)	131.5 (25.5)	135.9 (27.9)	139.4 (31.0)	136.4 (27.0)	138.0 (28.6)	140.7 (30.1)	134.9 (25.7)	137.5 (27.8)	140.1 (29.3)	135.6 (26.3)	137.7 (28.2)	140.4 (29.7)
Median (min, max)	129.0 (70.0, 253.0)	134.0 (50.0, 270.0)	137.0 (52.0, 270.0)	134.0 (60.0, 269.0)	136.0 (56.0, 256.0)	139.0 (50.0, 266.0)	132.0 (66.0, 257.0)	135.0 (58.0, 264.0)	138.0 (50.0, 254.0)	133.0 (60.0, 269.0)	135.0 (56.0, 264.0)	138.0 (50.0, 266.0)
IQR	33.0	35.0	39.0	33.0	35.0	39.0	31.0	35.0	37.0	31.0	35.0	38.0
Missing (%)	57 (5.9)	371 (5.1)	361 (5.5)	9 (1.6)	61 (1.5)	74 (1.9)	10 (1.5)	83 (1.9)	79 (1.9)	19 (1.6)	144 (1.7)	153 (1.9)
Diastolic blood pressure, mmHg												
N	896	6,869	6,178	549	4,022	3,740	656	4,395	4,088	1,205	8,417	7,828
Mean (SD)	81.2 (18.1)	82.5 (18.1)	78.3 (18.1)	84.5 (18.7)	83.8 (18.3)	78.5 (17.9)	84.6 (18.1)	82.8 (17.3)	78.3 (17.0)	84.5 (18.4)	83.3 (17.8)	78.4 (17.5)
Median (min, max)	80.0 (37.0, 168.0)	81.0 (10.0, 170.0)	77.0 (10.0, 170.0)	83.0 (25.0, 157.0)	82.0 (10.0, 167.0)	78.0 (20.0, 163.0)	83.0 (40.0, 156.0)	81.0 (31.0, 160.0)	77.0 (20.0, 170.0)	83.0 (25.0, 157.0)	82.0 (10.0, 167.0)	77.0 (20.0, 170.0)
IQR	23.0	23.0	23.0	24.0	22.0	23.5	23.0	22.0	21.0	24.0	23.0	22.0
Missing (%)	62 (6.5)	385 (5.3)	373 (5.7)	9 (1.6)	62 (1.5)	76 (2.0)	11 (1.6)	83 (1.9)	80 (1.9)	20 (1.6)	145 (1.7)	156 (2.0)
Pulse pressure, mmHg												
N	885	6,749	5,856	544	3,923	3,521	649	4,308	3,868	1,193	8,231	7,389
Mean (SD)	49.5 (15.0)	52.6 (16.6)	58.2 (18.6)	51.2 (15.4)	53.0 (16.8)	59.2 (18.5)	50.0 (14.1)	53.6 (17.1)	59.0 (18.4)	50.5 (14.7)	53.3 (17.0)	59.1 (18.4)
Median (min, max)	48.0 (1.0, 100.0)	50.0 (3.0, 100.0)	57.0 (1.0, 100.0)	49.0 (14.0, 100.0)	51.0 (2.0, 100.0)	59.0 (3.0, 100.0)	48.0 (18.0, 96.0)	52.0 (2.0, 100.0)	59.0 (6.0, 100.0)	48.0 (14.0, 100.0)	51.0 (2.0, 100.0)	59.0 (3.0, 100.0)
IQR	18.0	23.0	27.0	19.0	22.0	27.0	18.0	23.0	26.0	20.0	23.0	27.0
Missing (%)	73 (7.6)	505 (7.0)	695 (10.6)	14 (2.5)	161 (3.9)	295 (7.7)	18 (2.7)	170 (3.8)	300 (7.2)	32 (2.6)	331 (3.9)	595 (7.5)

Year	2011 – 2013			2014			2015			2014 – 2015		
	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly
ACS stratum												
Total	958 (6.5)	7,254 (49.1)	6,551 (44.4)	558 (6.6)	4,084 (48.3)	3,816 (45.1)	667 (7.2)	4,478 (48.1)	4,168 (44.8)	1,225 (6.9)	8,562 (48.2)	7,984 (44.9)
Heart rate at presentation, beats/min												
N	892	6,832	6,166	547	3,966	3,709	654	4,378	4,065	1,201	8,344	7,774
Mean (SD)	84.0 (18.8)	83.2 (20.3)	83.5 (22.1)	84.6 (20.1)	83.4 (20.9)	84.1 (22.3)	83.7 (19.7)	82.5 (20.0)	82.7 (21.7)	84.1 (19.9)	82.9 (20.5)	83.4 (22.0)
Median (min, max)	82.0 (20.0, 162.0)	81.0 (30.0, 200.0)	81.0 (25.0, 195.0)	81.0 (42.0, 190.0)	80.0 (24.0, 200.0)	81.0 (26.0, 197.0)	81.0 (30.0, 190.0)	80.0 (20.0, 198.0)	80.0 (28.0, 196.0)	81.0 (30.0, 190.0)	80.0 (20.0, 200.0)	80.0 (26.0, 197.0)
IQR	26.0	26.0	28.0	26.0	26.0	29.0	24.0	26.0	27.0	25.0	26.0	28.0
Missing (%)	66 (6.9)	422 (5.8)	385 (5.9)	11 (2.0)	118 (2.9)	107 (2.8)	13 (1.9)	100 (2.2)	103 (2.5)	24 (2.0)	218 (2.5)	210 (2.6)
Episodes of angina in past 24 hours, No. (%)												
0 – 2	400 (46.6)	2,942 (45.3)	2,439 (41.1)	270 (52.8)	1,768 (46.7)	1,459 (40.8)	384 (59.4)	2,390 (55.7)	2,059 (52.2)	654 (56.5)	4,158 (51.5)	3,518 (46.8)
> 2	25 (2.9)	212 (3.3)	195 (3.3)	12 (2.3)	121 (3.2)	117 (3.3)	37 (5.7)	202 (4.7)	187 (4.7)	49 (4.2)	323 (4.0)	304 (4.0)
Not available	434 (50.5)	3,343 (51.5)	3,295 (55.6)	229 (44.8)	1,898 (50.1)	2,001 (55.9)	226 (34.9)	1,695 (39.5)	1,702 (43.1)	455 (39.3)	3,593 (44.5)	3,703 (49.2)
Missing (%)	99	757	622	47	297	239	20	191	220	67	488	459
Killip classification code, No. (%)												
I	565 (68.7)	3,585 (59.1)	2,534 (47.6)	388 (83.1)	2,401 (70.6)	1,865 (62.4)	453 (67.9)	2,558 (57.1)	1,996 (47.9)	841 (82.2)	4,959 (71.3)	3,861 (63.2)
II	74 (9.0)	879 (14.5)	1,047 (19.7)	34 (7.3)	521 (15.3)	606 (20.3)	52 (7.8)	506 (11.3)	530 (12.7)	86 (8.4)	1,027 (14.8)	1,136 (18.6)
III	18 (2.2)	204 (3.4)	287 (5.4)	8 (1.7)	146 (4.3)	190 (6.4)	11 (1.6)	146 (3.3)	231 (5.5)	19 (1.9)	292 (4.2)	421 (6.9)
IV	49 (6.0)	520 (8.6)	550 (10.3)	36 (7.7)	332 (9.8)	329 (11.0)	40 (6.0)	341 (7.6)	360 (8.6)	76 (7.4)	673 (9.7)	689 (11.3)
Not stated/ inadequately described	116 (14.1)	883 (14.5)	901 (16.9)	1 (0.2)	1 (0.0)	1 (0.0)	111 (16.6)	927 (20.7)	1,051 (25.2)	1 (0.1)	1 (0.0)	1 (0.0)
Not available	72	694	775	91	682	825	0	0	0	202	1,609	1,876
Missing	64	489	457	0	1	0	0	0	0	0	1	0

Year	2011 – 2013			2014			2015			2014 – 2015		
	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly
ACS stratum												
Total	958 (6.5)	7,254 (49.1)	6,551 (44.4)	558 (6.6)	4,084 (48.3)	3,816 (45.1)	667 (7.2)	4,478 (48.1)	4,168 (44.8)	1,225 (6.9)	8,562 (48.2)	7,984 (44.9)
Total cholesterol, mmol/L												
N	737	5,367	4,504	461	3,128	2,827	567	3,643	3,141	1,028	6,771	5,968
Mean (SD)	5.4 (1.4)	5.4 (1.5)	4.8 (1.4)	5.4 (1.5)	5.3 (1.4)	4.8 (1.4)	5.5 (1.5)	5.2 (1.4)	4.8 (1.4)	5.5 (1.5)	5.2 (1.4)	4.8 (1.4)
Median (min, max)	5.3 (2.2, 16.9)	5.2 (2.0, 14.6)	4.7 (2.0, 17.0)	5.2 (2.0, 11.0)	5.2 (2.0, 14.4)	4.6 (2.0, 22.0)	5.4 (2.4, 17.7)	5.1 (2.0, 15.5)	4.6 (2.0, 12.5)	5.3 (2.0, 17.7)	5.2 (2.0, 15.5)	4.6 (2.0, 22.0)
IQR	1.7	1.9	1.9	1.8	1.8	1.8	1.8	1.9	1.8	1.8	1.9	1.8
Test not done (%)	142 (16.2)	1,342 (20.0)	1,588 (26.1)	74 (13.8)	719 (18.7)	812 (22.3)	82 (12.6)	665 (15.4)	845 (21.2)	156 (13.2)	1,384 (17.0)	1,657 (21.7)
Missing (%)	79 (8.2)	545 (7.5)	459 (7.0)	23 (4.1)	237 (5.8)	177 (4.6)	18 (2.7)	170 (3.8)	182 (4.4)	41 (3.3)	407 (4.8)	359 (4.5)
HDL-C, mmol/L												
N	717	5,210	4,352	446	3,073	2,773	560	3,601	3,126	1,006	6,674	5,899
Mean (SD)	1.0 (0.3)	1.1 (0.3)	1.1 (0.4)	1.0 (0.3)	1.1 (0.3)	1.1 (0.4)	1.0 (0.4)	1.0 (0.3)	1.1 (0.4)	1.0 (0.4)	1.0 (0.3)	1.1 (0.4)
Median (min, max)	1.0 (0.5, 4.3)	1.0 (0.5, 4.9)	1.1 (0.5, 4.6)	1.0 (0.5, 4.0)	1.0 (0.5, 4.6)	1.1 (0.5, 4.7)	1.0 (0.5, 4.9)	1.0 (0.5, 4.3)	1.1 (0.5, 4.6)	1.0 (0.5, 4.9)	1.0 (0.5, 4.6)	1.1 (0.5, 4.7)
IQR	0.3	0.3	0.4	0.3	0.3	0.4	0.3	0.3	0.4	0.3	0.3	0.4
Test not done (%)	153 (17.6)	1,442 (21.7)	1,689 (28.0)	76 (14.6)	733 (19.3)	834 (23.1)	84 (13.0)	672 (15.7)	855 (21.5)	160 (13.7)	1,405 (17.4)	1,689 (22.3)
Missing (%)	88 (9.2)	602 (8.3)	510 (7.8)	36 (6.5)	278 (6.8)	209 (5.5)	23 (3.4)	205 (4.6)	187 (4.5)	59 (4.8)	483 (5.6)	396 (5.0)
LDL-C, mmol/L												
N	721	5,210	4,394	451	3,068	2,805	555	3,608	3,149	1,006	6,676	5,954
Mean (SD)	3.5 (1.3)	3.5 (1.3)	3.0 (1.2)	3.5 (1.3)	3.4 (1.3)	3.0 (1.3)	3.7 (1.4)	3.4 (1.3)	3.0 (1.2)	3.6 (1.4)	3.4 (1.3)	3.0 (1.2)
Median (min, max)	3.4 (0.6, 12.0)	3.4 (0.5, 12.3)	2.9 (0.5, 10.9)	3.3 (0.8, 12.0)	3.3 (0.5, 11.4)	2.8 (0.5, 18.0)	3.6 (0.7, 9.7)	3.3 (0.5, 9.6)	2.8 (0.5, 13.0)	3.4 (0.7, 12.0)	3.3 (0.5, 11.4)	2.8 (0.5, 18.0)
IQR	1.5	1.7	1.6	1.6	1.6	1.6	1.5	1.7	1.7	1.6	1.7	1.6
Test not done (%)	168 (18.9)	1,500 (22.4)	1,723 (28.2)	85 (15.9)	785 (20.4)	851 (23.3)	89 (13.8)	708 (16.4)	868 (21.6)	174 (14.7)	1,493 (18.3)	1,719 (22.4)
Missing (%)	69 (7.2)	544 (7.5)	434 (6.6)	22 (3.9)	231 (5.7)	160 (4.2)	23 (3.4)	162 (3.6)	151 (3.6)	45 (3.7)	393 (4.6)	311 (3.9)

Year	2011 – 2013			2014			2015			2014 – 2015		
	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly
ACS stratum												
Total	958 (6.5)	7,254 (49.1)	6,551 (44.4)	558 (6.6)	4,084 (48.3)	3,816 (45.1)	667 (7.2)	4,478 (48.1)	4,168 (44.8)	1,225 (6.9)	8,562 (48.2)	7,984 (44.9)
Triglycerides, mmol/L												
N	735	5,314	4,480	461	3,110	2,817	562	3,631	3,140	1,023	6,741	5,957
Mean (SD)	1.9 (1.2)	1.9 (1.2)	1.5 (0.9)	2.0 (1.4)	1.8 (1.2)	1.5 (0.8)	1.9 (1.3)	1.8 (1.1)	1.5 (0.8)	2.0 (1.3)	1.8 (1.1)	1.5 (0.8)
Median (min, max)	1.6 (0.5, 11.8)	1.6 (0.5, 15.0)	1.3 (0.5, 11.8)	1.6 (0.5, 12.9)	1.5 (0.5, 14.4)	1.3 (0.5, 11.4)	1.6 (0.5, 12.6)	1.5 (0.5, 13.9)	1.3 (0.5, 11.2)	1.6 (0.5, 12.9)	1.5 (0.5, 14.4)	1.3 (0.5, 11.4)
IQR	1.1	1.0	0.8	1.2	1.0	0.8	1.1	1.0	0.8	1.1	1.0	0.8
Test not done (%)	150 (16.9)	1,382 (20.6)	1,604 (26.4)	74 (13.8)	730 (19.0)	825 (22.7)	83 (12.9)	667 (15.5)	846 (21.2)	157 (13.3)	1,397 (17.2)	1,671 (21.9)
Missing (%)	73 (7.6)	558 (7.7)	467 (7.1)	23 (4.1)	244 (6.0)	174 (4.6)	22 (3.3)	180 (4.0)	182 (4.4)	45 (3.7)	424 (5.0)	356 (4.5)
* HbA1c, mmol/L												
N	60	508	441	120	916	961	179	1,149	1,070	299	2,065	2,031
Mean (SD)	7.7 (2.7)	7.8 (2.6)	7.5 (2.7)	6.7 (2.4)	7.7 (2.5)	7.3 (2.6)	6.9 (3.5)	8.0 (2.7)	7.6 (2.9)	6.8 (3.1)	7.9 (2.6)	7.4 (2.8)
Median (min, max)	6.4 (4.5, 15.0)	6.9 (4.4, 32.0)	6.6 (4.2, 30.0)	5.7 (4.0, 16.5)	6.7 (4.1, 18.3)	6.4 (4.0, 32.0)	5.8 (4.5, 32.0)	7.2 (4.0, 32.0)	6.7 (4.1, 32.0)	5.8 (4.0, 32.0)	7.0 (4.0, 32.0)	6.6 (4.0, 32.0)
IQR	4.7	3.1	2.5	1.7	3.6	2.5	1.5	3.9	2.4	1.6	3.8	2.5
Test not done (%)	207 (77.5)	1,513 (74.9)	1,502 (77.3)	328 (73.2)	2,426 (72.6)	2,300 (70.5)	381 (68.0)	2,592 (69.3)	2,512 (70.1)	709 (70.3)	5,018 (70.8)	4,812 (70.3)
Missing (%)	140 (34.4)	1,023 (33.6)	733 (27.4)	110 (19.7)	742 (18.2)	555 (14.5)	107 (16.0)	737 (16.5)	586 (14.1)	217 (17.7)	1,479 (17.3)	1,141 (14.3)
Left ventricular ejection fraction, %												
N	476	3,374	2,865	297	2,156	1,861	365	2,578	2,173	662	4,734	4,034
Mean (SD)	48.3 (12.3)	47.1 (12.7)	45.9 (13.6)	47.8 (11.6)	46.9 (12.9)	46.1 (13.6)	48.4 (12.6)	47.0 (12.4)	46.0 (13.2)	48.1 (12.2)	47.0 (12.6)	46.1 (13.4)
Median (min, max)	50.0 (7.2, 88.0)	47.0 (6.3, 85.0)	45.0 (5.3, 89.0)	49.0 (12.0, 77.0)	47.0 (5.3, 90.0)	45.0 (5.1, 85.0)	49.0 (6.0, 90.0)	46.0 (5.3, 90.0)	45.0 (6.8, 87.0)	49.0 (6.0, 90.0)	46.0 (5.3, 90.0)	45.0 (5.1, 87.0)
IQR	15.0	15.0	20.0	15.0	16.0	19.6	15.0	15.0	18.0	15.0	15.0	19.0
Test not done (%)	341 (41.7)	2,784 (45.2)	2,810 (49.5)	215 (42.0)	1,606 (42.7)	1,682 (47.5)	263 (41.9)	1,628 (38.7)	1,753 (44.7)	478 (41.9)	3,234 (40.6)	3,435 (46.0)
Missing (%)	141 (14.7)	1,096 (15.1)	876 (13.4)	46 (8.2)	322 (7.9)	273 (7.2)	39 (5.8)	272 (6.1)	242 (5.8)	85 (6.9)	594 (6.9)	515 (6.5)

Year	2011 – 2013			2014			2015			2014 – 2015		
	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly
ACS stratum												
Total	958 (6.5)	7,254 (49.1)	6,551 (44.4)	558 (6.6)	4,084 (48.3)	3,816 (45.1)	667 (7.2)	4,478 (48.1)	4,168 (44.8)	1,225 (6.9)	8,562 (48.2)	7,984 (44.9)
ECG, No. (%)												
Inferior leads	378 (39.5)	2,505 (34.5)	2,053 (31.3)	200 (35.8)	1,384 (33.9)	1,148 (30.1)	243 (36.4)	1,637 (36.6)	1,251 (30.0)	443 (36.2)	3,021 (35.3)	2,399 (30.0)
Anterior leads	428 (44.7)	3,111 (42.9)	2,644 (40.4)	252 (45.2)	1,680 (41.1)	1,537 (40.3)	289 (43.3)	1,728 (38.6)	1,597 (38.3)	541 (44.2)	3,408 (39.8)	3,134 (39.3)
Lateral leads	209 (21.8)	1,663 (22.9)	1,902 (29.0)	129 (23.1)	1,098 (26.9)	1,297 (34.0)	171 (25.6)	1,261 (28.2)	1,369 (32.8)	300 (24.5)	2,359 (27.6)	2,666 (33.4)
True posterior	57 (5.9)	341 (4.7)	259 (4.0)	27 (4.8)	176 (4.3)	144 (3.8)	48 (7.2)	193 (4.3)	162 (3.9)	75 (6.1)	369 (4.3)	306 (3.8)
Right ventricle	38 (4.0)	237 (3.3)	193 (2.9)	22 (3.9)	143 (3.5)	94 (2.5)	32 (4.8)	180 (4.0)	134 (3.2)	54 (4.4)	323 (3.8)	228 (2.9)
None	80 (8.4)	839 (11.6)	899 (13.7)	63 (11.3)	515 (12.6)	520 (13.6)	67 (10.0)	565 (12.6)	651 (15.6)	130 (10.6)	1,080 (12.6)	1,171 (14.7)
Not stated/ inadequately described	37 (3.9)	387 (5.3)	403 (6.2)	24 (4.3)	258 (6.3)	277 (7.3)	38 (5.7)	232 (5.2)	285 (6.8)	62 (5.1)	490 (5.7)	562 (7.0)
Total number of STEMI patients who were given fibrinolytic therapy at this centre	329 (34.3)	2,071 (28.5)	1,317 (20.1)	183 (32.8)	1,011 (24.8)	612 (16.0)	194 (29.1)	1,020 (22.8)	647 (15.5)	377 (30.8)	2,031 (23.7)	1,259 (15.8)
Pain-to-needle time, min (** symptom to treatment)												
N	248	1,618	974	161	856	498	165	889	518	326	1,745	1,016
Mean (SD)	288.4 (253.4)	283.4 (256.4)	295.7 (245.6)	291.3 (241.1)	290.6 (250.7)	306.0 (259.6)	290.4 (269.7)	277.6 (240.6)	290.6 (235.6)	290.8 (255.6)	284.0 (245.6)	298.1 (247.6)
Median (min, max)	207.5 (30.0, 1350.0)	195.0 (15.0, 1400.0)	212.0 (15.0, 1439.0)	220.0 (26.0, 1350.0)	215.0 (30.0, 1380.0)	220.0 (15.0, 1425.0)	190.0 (45.0, 1440.0)	195.0 (20.0, 1430.0)	215.0 (15.0, 1302.0)	200.0 (26.0, 1440.0)	200.0 (20.0, 1430.0)	220.0 (15.0, 1425.0)
IQR	230.0	210.0	235.0	210.0	220.0	215.0	205.0	210.0	230.0	225.0	215.0	220.0
Missing (%)	81 (24.6)	453 (21.9)	343 (26.0)	22 (12.0)	155 (15.3)	114 (18.6)	29 (14.9)	131 (12.8)	129 (19.9)	51 (13.5)	286 (14.1)	243 (19.3)
Pain-to-needle time, No (%)												
≤ 180 min	115 (46.4)	764 (47.2)	404 (41.5)	65 (40.4)	362 (42.3)	198 (39.8)	79 (47.9)	409 (46.0)	211 (40.7)	144 (44.2)	771 (44.2)	409 (40.3)
> 180 min	133 (53.6)	854 (52.8)	570 (58.5)	96 (59.6)	494 (57.7)	300 (60.2)	86 (52.1)	480 (54.0)	307 (59.3)	182 (55.8)	974 (55.8)	607 (59.7)
Missing	81	453	343	22	155	114	29	131	129	51	286	243

Young is defined as age 20 to less than 40 years, middle-aged is defined as age 40 to less than 60 years, and elderly is defined as 60 years and above

* Definition was different in CRF version 2013

** Symptom to treatment is the time difference between onset of ACS symptom and when patient was given fibrinolytic therapy

Note: Percentage is to the nearest decimal point

Table 3.3 Cardiac presentation of patients with ACS by gender, NCVd-ACS Registry, 2014 – 2015

Year	2011 – 2013		2014		2015		2014 – 2015	
	Male	Female	Male	Female	Male	Female	Male	Female
ACS stratum								
Total	11,638 (78.8)	3,125 (21.2)	6,705 (79.3)	1,753 (20.7)	7,384 (79.3)	1,929 (20.7)	14,089 (79.3)	3,682 (20.7)
ACS stratum, No. (%)								
STEMI	6,397 (55.0)	1,105 (35.4)	3,384 (50.5)	502 (28.6)	3,733 (50.6)	571 (29.6)	7,117 (50.5)	1,073 (29.1)
NSTEMI	2,882 (24.8)	960 (30.7)	1,554 (23.2)	495 (28.2)	1,856 (25.1)	574 (29.8)	3,410 (24.2)	1,069 (29.0)
UA	2,359 (20.3)	1,060 (33.9)	1,767 (26.4)	756 (43.1)	1,795 (24.3)	784 (40.6)	3,562 (25.3)	1,540 (41.8)
Systolic blood pressure, mmHg								
N	11,065	2,909	6,587	1,727	7,245	1,896	13,832	3,623
Mean (SD)	135.6 (28.3)	143.1 (31.9)	137.9 (28.6)	143.9 (31.1)	137.3 (27.9)	143.0 (29.8)	137.5 (28.2)	143.5 (30.4)
Median (min, max)	133.0 (50.0, 268.0)	140.0 (57.0, 270.0)	136.0 (54.0, 269.0)	141.0 (50.0, 269.0)	135.0 (54.0, 264.0)	140.0 (50.0, 254.0)	135.0 (54.0, 269.0)	141.0 (50.0, 269.0)
IQR	36.0	41.0	36.0	40.0	34.0	37.0	35.0	38.0
Missing (%)	573 (4.9)	216 (6.9)	118 (1.8)	26 (1.5)	139 (1.9)	33 (1.7)	257 (1.8)	59 (1.6)
Diastolic blood pressure, mmHg								
N	11,039	2,904	6,585	1,726	7,243	1,896	13,828	3,622
Mean (SD)	80.9 (18.1)	79.3 (18.4)	82.2 (18.3)	78.7 (18.2)	81.5 (17.4)	78.7 (17.2)	81.8 (17.9)	78.7 (17.7)
Median (min, max)	80.0 (10.0, 170.0)	78.0 (11.0, 170.0)	81.0 (21.0, 165.0)	78.0 (10.0, 167.0)	80.0 (20.0, 159.0)	78.0 (27.0, 170.0)	80.0 (20.0, 165.0)	78.0 (10.0, 170.0)
IQR	22.0	22.0	23.0	23.0	21.0	21.0	22.0	22.0
Missing (%)	599 (5.1)	221 (7.1)	120 (1.8)	27 (1.5)	141 (1.9)	33 (1.7)	261 (1.9)	60 (1.6)
Pulse pressure, mmHg								
N	10,784	2,706	6,396	1,592	7,067	1,758	13,463	3,350
Mean (SD)	53.5 (17.0)	60.1 (19.3)	54.3 (17.1)	61.0 (19.1)	54.5 (17.3)	60.6 (18.9)	54.4 (17.2)	60.8 (19.0)
Median (min, max)	51.0 (1.0, 100.0)	60.0 (8.0, 100.0)	52.0 (2.0, 100.0)	60.0 (8.0, 100.0)	53.0 (6.0, 100.0)	60.0 (2.0, 100.0)	53.0 (2.0, 100.0)	60.0 (2.0, 100.0)
IQR	23.0	28.0	23.0	30.0	23.0	28.0	23.0	28.0
Missing (%)	854 (7.3)	419 (13.4)	309 (4.6)	161 (9.2)	317 (4.3)	171 (8.9)	626 (4.4)	332 (9.0)

Year	2011 – 2013		2014		2015		2014 – 2015	
	Male	Female	Male	Female	Male	Female	Male	Female
ACS stratum								
Total	11,638 (78.8)	3,125 (21.2)	6,705 (79.3)	1,753 (20.7)	7,384 (79.3)	1,929 (20.7)	14,089 (79.3)	3,682 (20.7)
Heart rate at presentation, beats/min								
N	10,997	2,893	6,517	1,705	7,210	1,887	13,727	3,592
Mean (SD)	82.7 (20.8)	86.0 (21.6)	83.1 (21.1)	86.5 (22.6)	82.1 (20.7)	85.0 (21.0)	82.6 (20.9)	85.7 (21.8)
Median (min, max)	80.0 (20.0, 198.0)	84.0 (30.0, 200.0)	80.0 (24.0, 200.0)	84.0 (29.0, 200.0)	80.0 (20.0, 198.0)	82.0 (28.0, 195.0)	80.0 (20.0, 200.0)	83.0 (28.0, 200.0)
IQR	27.0	29.0	27.0	30.0	26.0	28.0	26.0	28.5
Missing (%)	641 (5.5)	232 (7.4)	188 (2.8)	48 (2.7)	174 (2.4)	42 (2.2)	362 (2.6)	90 (2.4)
Episodes of angina in past 24 hours, No. (%)								
0 – 2	4,714 (44.8)	1,067 (38.5)	2,848 (45.7)	649 (39.4)	3,878 (55.0)	955 (52.2)	6,726 (50.6)	1,604 (46.1)
> 2	341 (3.2)	91 (3.3)	194 (3.1)	56 (3.4)	315 (4.5)	111 (6.1)	509 (3.8)	167 (4.8)
Not available	5,456 (51.9)	1,616 (58.3)	3,185 (51.1)	943 (57.2)	2,861 (40.6)	762 (41.7)	6,046 (45.5)	1,705 (49.1)
Missing (%)	1,127	351	478	105	330	101	808	206
Killip classification code, No. (%)								
I	5,402 (55.4)	1,282 (52.0)	3,782 (68.5)	872 (65.2)	4,131 (55.9)	876 (45.4)	7,913 (69.3)	1,748 (65.5)
II	1,596 (16.4)	404 (16.4)	908 (16.4)	253 (18.9)	894 (12.1)	194 (10.1)	1,802 (15.8)	447 (16.7)
III	388 (4.0)	121 (4.9)	252 (4.6)	92 (6.9)	279 (3.8)	109 (5.7)	531 (4.7)	201 (7.5)
IV	898 (9.2)	221 (9.0)	577 (10.4)	120 (9.0)	587 (7.9)	154 (8.0)	1,164 (10.2)	274 (10.3)
Not stated/ inadequately described	1,461 (15.0)	439 (17.8)	3 (0.1)	0 (0.0)	1,493 (20.2)	596 (30.9)	3 (0.0)	0 (0.0)
Not available	1,141	400	1,182	416	0	0	2,675	1,012
Missing	752	258	1	0	0	0	1	0
Total cholesterol, mmol/L								
N	8,516	2,092	5,114	1,302	5,899	1,452	11,013	2,754
Mean (SD)	5.1 (1.4)	5.1 (1.6)	5.1 (1.4)	5.0 (1.5)	5.0 (1.4)	5.1 (1.5)	5.1 (1.4)	5.0 (1.5)
Median (min, max)	5.0 (2.0, 14.1)	4.9 (2.0, 17.0)	5.0 (2.0, 22.0)	4.9 (2.0, 16.6)	5.0 (2.0, 17.7)	4.9 (2.0, 14.9)	5.0 (2.0, 22.0)	4.9 (2.0, 16.6)
IQR	1.8	1.9	1.9	1.8	1.9	1.9	1.9	1.8
Test not done (%)	2,289 (21.2)	783 (27.2)	1,234 (19.4)	371 (22.2)	1,193 (16.8)	399 (21.6)	2,427 (18.1)	770 (21.9)
Missing (%)	833 (7.2)	250 (8.0)	357 (5.3)	80 (4.6)	292 (4.0)	78 (4.0)	649 (4.6)	158 (4.3)

Year	2011 – 2013		2014		2015		2014 – 2015	
	Male	Female	Male	Female	Male	Female	Male	Female
ACS stratum								
Total	11,638 (78.8)	3,125 (21.2)	6,705 (79.3)	1,753 (20.7)	7,384 (79.3)	1,929 (20.7)	14,089 (79.3)	3,682 (20.7)
HDL-C, mmol/L								
N	8,255	2,024	5,012	1,280	5,846	1,441	10,858	2,721
Mean (SD)	1.1 (0.3)	1.2 (0.4)	1.1 (0.3)	1.2 (0.3)	1.1 (0.3)	1.2 (0.4)	1.1 (0.3)	1.2 (0.4)
Median (min, max)	1.0 (0.5, 4.9)	1.1 (0.5, 4.6)	1.0 (0.5, 4.7)	1.1 (0.5, 3.1)	1.0 (0.5, 4.9)	1.1 (0.5, 4.6)	1.0 (0.5, 4.9)	1.1 (0.5, 4.6)
IQR	0.3	0.5	0.3	0.5	0.3	0.4	0.3	0.4
Test not done (%)	2,468 (23.0)	816 (28.7)	1,266 (20.2)	377 (22.8)	1,208 (17.1)	403 (21.9)	2,474 (18.6)	780 (22.3)
Missing (%)	915 (7.9)	285 (9.1)	427 (6.4)	96 (5.5)	330 (4.5)	85 (4.4)	757 (5.4)	181 (4.9)
LDL-C, mmol/L								
N	8,293	2,032	5,036	1,288	5,868	1,444	10,904	2,732
Mean (SD)	3.3 (1.3)	3.1 (1.4)	3.2 (1.3)	3.1 (1.3)	3.2 (1.3)	3.1 (1.3)	3.2 (1.3)	3.1 (1.3)
Median (min, max)	3.2 (0.5, 12.2)	3.0 (0.6, 12.3)	3.1 (0.5, 18.0)	2.9 (0.5, 14.8)	3.2 (0.5, 9.8)	3.0 (0.5, 13.0)	3.2 (0.5, 18.0)	3.0 (0.5, 14.8)
IQR	1.7	1.7	1.7	1.6	1.7	1.6	1.7	1.6
Test not done (%)	2,542 (23.5)	849 (29.5)	1,332 (20.9)	389 (23.2)	1,251 (17.6)	414 (22.3)	2,583 (19.2)	803 (22.7)
Missing (%)	803 (6.9)	244 (7.8)	337 (5.0)	76 (4.3)	265 (3.6)	71 (3.7)	602 (4.3)	147 (4.0)
Triglycerides, mmol/L								
N	8,475	2,054	5,085	1,303	5,888	1,445	10,973	2,748
Mean (SD)	1.7 (1.1)	1.7 (1.0)	1.7 (1.1)	1.7 (0.9)	1.7 (1.1)	1.7 (0.9)	1.7 (1.1)	1.7 (0.9)
Median (min, max)	1.5 (0.5, 15.0)	1.4 (0.5, 12.0)	1.4 (0.5, 14.4)	1.5 (0.5, 13.3)	1.4 (0.5, 13.9)	1.5 (0.5, 9.2)	1.4 (0.5, 14.4)	1.5 (0.5, 13.3)
IQR	1.0	0.8	0.9	0.9	0.9	0.9	0.9	0.9
Test not done (%)	2,334 (21.6)	802 (28.1)	1,254 (19.8)	375 (22.3)	1,196 (16.9)	400 (21.7)	2,450 (18.3)	775 (22.0)
Missing (%)	829 (7.1)	269 (8.6)	366 (5.5)	75 (4.3)	300 (4.1)	84 (4.4)	666 (4.7)	159 (4.3)

Year	2011 – 2013		2014		2015		2014 – 2015	
	Male	Female	Male	Female	Male	Female	Male	Female
ACS stratum								
Total	11,638 (78.8)	3,125 (21.2)	6,705 (79.3)	1,753 (20.7)	7,384 (79.3)	1,929 (20.7)	14,089 (79.3)	3,682 (20.7)
* HbA1c, mmol/L	<i>*only for 2013</i>							
N	794	215	1,533	464	1,860	538	3,393	1,002
Mean (SD)	7.5 (2.7)	8.0 (2.4)	7.3 (2.5)	7.8 (2.7)	7.6 (2.7)	8.2 (3.3)	7.5 (2.6)	8.0 (3.0)
Median (min, max)	6.5 (4.2, 32.0)	7.5 (4.5, 15.3)	6.4 (4.0, 32.0)	6.9 (4.1, 31.0)	6.6 (4.0, 32.0)	7.4 (4.0, 32.0)	6.5 (4.0, 32.0)	7.1 (4.0, 32.0)
IQR	2.9	3.3	2.8	3.3	2.9	3.7	2.9	3.5
Test not done (%)	2,543 (76.2)	679 (76.0)	4,010 (72.3)	1,044 (69.2)	4,376 (70.2)	1,109 (67.3)	8,386 (71.2)	2,153 (68.2)
Missing (%)	1,528 (31.4)	368 (29.2)	1,162 (17.3)	245 (14.0)	1,148 (15.5)	282 (14.6)	2,310 (16.4)	527 (14.3)
Left ventricular ejection fraction, %								
N	5,451	1,264	3,524	790	4,198	918	7,722	1,708
Mean (SD)	46.2 (12.9)	48.8 (13.6)	46.1 (12.9)	49.0 (13.7)	46.3 (12.7)	48.4 (13.2)	46.2 (12.8)	48.7 (13.5)
Median (min, max)	46.0 (5.3, 89.0)	50.0 (6.6, 87.0)	45.0 (5.1, 90.0)	50.0 (5.5, 85.0)	45.0 (5.3, 90.0)	48.0 (6.8, 90.0)	45.0 (5.1, 90.0)	50.0 (5.5, 90.0)
IQR	17.0	18.0	18.0	18.0	15.0	15.0	17.0	17.0
Test not done (%)	4,537 (45.4)	1,398 (52.5)	2,656 (43.0)	847 (51.7)	2,769 (39.7)	875 (48.8)	5,425 (41.3)	1,722 (50.2)
Missing (%)	1,650 (14.2)	463 (14.8)	525 (7.8)	116 (6.6)	417 (5.6)	136 (7.1)	942 (6.7)	252 (6.8)
ECG, No. (%)								
Inferior leads	4,004 (34.4)	932 (29.8)	2,219 (33.1)	513 (29.3)	2,560 (34.7)	571 (29.6)	4,779 (33.9)	1,084 (29.4)
Anterior leads	4,953 (42.6)	1,230 (39.4)	2,766 (41.3)	703 (40.1)	2,899 (39.3)	715 (37.1)	5,665 (40.2)	1,418 (38.5)
Lateral leads	2,864 (24.6)	910 (29.1)	1,881 (28.1)	643 (36.7)	2,150 (29.1)	651 (33.7)	4,031 (28.6)	1,294 (35.1)
True posterior	554 (4.8)	103 (3.3)	295 (4.4)	52 (3.0)	327 (4.4)	76 (3.9)	622 (4.4)	128 (3.5)
Right ventricle	393 (3.4)	75 (2.4)	221 (3.3)	38 (2.2)	298 (4.0)	48 (2.5)	519 (3.7)	86 (2.3)
None	1,353 (11.6)	465 (14.9)	829 (12.4)	269 (15.3)	954 (12.9)	329 (17.1)	1,783 (12.7)	598 (16.2)
Not stated/ inadequately described	606 (5.2)	221 (7.1)	440 (6.6)	119 (6.8)	416 (5.6)	139 (7.2)	856 (6.1)	258 (7.0)

Year	2011 – 2013		2014		2015		2014 – 2015	
	Male	Female	Male	Female	Male	Female	Male	Female
ACS stratum								
Total	11,638 (78.8)	3,125 (21.2)	6,705 (79.3)	1,753 (20.7)	7,384 (79.3)	1,929 (20.7)	14,089 (79.3)	3,682 (20.7)
Total number of STEMI patients who were given fibrinolytic therapy at this centre	3,187 (27.4)	530 (17.0)	1,588 (23.7)	218 (12.4)	1,648 (22.3)	213 (11.0)	3,236 (23.0)	431 (11.7)
Pain-to-needle time, min (** symptom to treatment)								
N	2,460	380	1,338	177	1,398	174	2,736	351
Mean (SD)	281.7 (252.3)	328.9 (249.8)	287.8 (250.4)	355.3 (261.3)	281.8 (243.7)	294.7 (228.9)	284.8 (247.0)	325.3 (247.3)
Median (min, max)	197.5 (15.0, 1439.0)	250.0 (15.0, 1205.0)	210.0 (26.0, 1425.0)	290.0 (15.0, 1380.0)	199.0 (15.0, 1440.0)	232.5 (30.0, 1320.0)	202.5 (15.0, 1440.0)	260.0 (15.0, 1380.0)
IQR	215.0	272.5	210.0	261.0	220.0	195.0	215.0	240.0
Missing (%)	727 (22.8)	150 (28.3)	250 (15.7)	41 (18.8)	250 (15.2)	39 (18.3)	500 (15.5)	80 (18.6)
Pain-to-needle time, No (%)								
≤ 180 min	1,151 (46.8)	132 (34.7)	575 (43.0)	50 (28.2)	638 (45.6)	61 (35.1)	1,213 (44.3)	111 (31.6)
> 180 min	1,309 (53.2)	248 (65.3)	763 (57.0)	127 (71.8)	760 (54.4)	113 (64.9)	1,523 (55.7)	240 (68.4)
Missing	727	150	250	41	250	39	500	80

* Definition was different in CRF version 2013

** Symptom to treatment is the time difference between onset of ACS symptom and when patient was given fibrinolytic therapy

Note: Not all participating centres performed Troponin T or Troponin I tests

Note: Percentage is to the nearest decimal point

Table 3.4 Cardiac presentation of patients with ACS by pre-morbid diabetes, NCVd-ACS Registry, 2014 – 2015

Year	2011 – 2013			2014			2015			2014 – 2015		
	Diabetic	Non-diabetic	Unknown	Diabetic	Non-diabetic	Unknown	Diabetic	Non-diabetic	Unknown	Diabetic	Non-diabetic	Unknown
Diabetes status												
Total	6,284 (42.6)	6,638 (45.0)	792 (5.4)	3,687 (43.6)	3,736 (44.2)	457 (5.4)	3,991 (42.9)	4,202 (45.1)	497 (5.3)	7,678 (43.2)	7,938 (44.7)	954 (5.4)
ACS stratum, No. (%)												
STEMI	2,668 (42.5)	3,578 (53.9)	536 (67.7)	1,419 (38.5)	1,842 (49.3)	308 (67.4)	1,496 (37.5)	2,110 (50.2)	365 (73.4)	2,915 (38.0)	3,952 (49.8)	673 (70.5)
NSTEMI	1,930 (30.7)	1,596 (24.0)	127 (16.0)	1,007 (27.3)	868 (23.2)	91 (19.9)	1,227 (30.7)	1,008 (24.0)	89 (17.9)	2,234 (29.1)	1,876 (23.6)	180 (18.9)
UA	1,686 (26.8)	1,464 (22.1)	129 (16.3)	1,261 (34.2)	1,026 (27.5)	58 (12.7)	1,268 (31.8)	1,084 (25.8)	43 (8.7)	2,529 (32.9)	2,110 (26.6)	101 (10.6)
Systolic blood pressure, mmHg												
N	6,003	6,199	780	3,623	3,673	445	3,920	4,137	481	7,543	7,810	926
Mean (SD)	139.8 (29.5)	135.6 (28.8)	135.4 (31.4)	141.3 (29.3)	138.1 (29.2)	135.4 (28.7)	140.6 (28.8)	137.3 (27.8)	135.6 (29.2)	140.9 (29.1)	137.7 (28.5)	135.5 (29.0)
Median (min, max)	138.0 (52.0, 270.0)	133.0 (50.0, 270.0)	132.5 (61.0, 245.0)	140.0 (56.0, 266.0)	135.0 (50.0, 269.0)	134.0 (54.0, 236.0)	138.0 (55.0, 264.0)	135.0 (50.0, 260.0)	134.0 (54.0, 240.0)	139.0 (55.0, 266.0)	135.0 (50.0, 269.0)	134.0 (54.0, 240.0)
IQR	38.0	37.0	38.0	38.0	37.0	33.0	36.0	35.0	33.0	37.0	36.0	32.0
Missing (%)	281 (4.5)	439 (6.6)	12 (1.5)	64 (1.7)	63 (1.7)	12 (2.6)	71 (1.8)	65 (1.5)	16 (3.2)	135 (1.8)	128 (1.6)	28 (2.9)
Diastolic blood pressure, mmHg												
N	5,991	6,182	780	3,621	3,670	447	3,922	4,135	481	7,543	7,805	928
Mean (SD)	80.3 (17.8)	80.9 (18.5)	80.7 (19.7)	80.8 (17.8)	82.3 (18.8)	82.2 (20.0)	79.9 (17.0)	81.8 (17.7)	82.5 (18.3)	80.3 (17.4)	82.0 (18.2)	82.4 (19.1)
Median (min, max)	80.0 (10.0, 170.0)	80.0 (10.0, 170.0)	80.0 (10.0, 160.0)	80.0 (25.0, 167.0)	81.0 (20.0, 163.0)	80.0 (21.0, 165.0)	79.0 (20.0, 170.0)	80.0 (23.0, 153.0)	82.0 (24.0, 159.0)	79.0 (20.0, 170.0)	80.0 (20.0, 163.0)	81.0 (21.0, 165.0)
IQR	21.0	23.0	24.0	22.0	23.0	24.0	21.0	22.0	22.0	21.0	22.0	23.0
Missing (%)	293 (4.7)	456 (6.9)	12 (1.5)	66 (1.8)	66 (1.8)	10 (2.2)	69 (1.7)	67 (1.6)	16 (3.2)	135 (1.8)	133 (1.7)	26 (2.7)

* Definition was different in CRF version 2013

** Symptom to treatment is the time difference between onset of ACS symptom and when patient was given fibrinolytic therapy

Note: Not all participating centres performed Troponin T or Troponin I tests

Note: Percentage is to the nearest decimal point

Year	2011 – 2013			2014			2015			2014 – 2015		
	Diabetic	Non-diabetic	Unknown	Diabetic	Non-diabetic	Unknown	Diabetic	Non-diabetic	Unknown	Diabetic	Non-diabetic	Unknown
Diabetes status												
Total	6,284 (42.6)	6,638 (45.0)	792 (5.4)	3,687 (43.6)	3,736 (44.2)	457 (5.4)	3,991 (42.9)	4,202 (45.1)	497 (5.3)	7,678 (43.2)	7,938 (44.7)	954 (5.4)
Pulse pressure, mmHg												
N	5,732	6,035	749	3,436	3,559	438	3,729	4,031	474	7,165	7,590	912
Mean (SD)	57.1 (18.0)	53.6 (17.3)	53.0 (17.8)	57.8 (18.4)	54.3 (17.0)	52.6 (17.3)	58.2 (18.6)	54.3 (16.9)	52.3 (16.8)	58.0 (18.5)	54.3 (16.9)	52.4 (17.0)
Median (min, max)	55.0 (5.0, 100.0)	51.0 (1.0, 100.0)	50.0 (1.0, 100.0)	57.0 (2.0, 100.0)	52.0 (6.0, 100.0)	50.0 (3.0, 100.0)	57.0 (2.0, 100.0)	53.0 (6.0, 100.0)	50.5 (6.0, 98.0)	57.0 (2.0, 100.0)	52.0 (6.0, 100.0)	50.0 (3.0, 100.0)
IQR	25.0	24.0	24.0	27.0	23.0	24.0	27.0	23.0	21.0	27.0	23.0	23.0
Missing (%)	552 (8.8)	603 (9.1)	43 (5.4)	251 (6.8)	177 (4.7)	19 (4.2)	262 (6.6)	171 (4.1)	23 (4.6)	513 (6.7)	348 (4.4)	42 (4.4)
Heart rate at presentation, beats/min												
N	5,982	6,154	772	3,584	3,637	434	3,901	4,118	476	7,485	7,755	910
Mean (SD)	86.2 (20.8)	81.0 (20.7)	83.1 (23.0)	86.6 (21.7)	81.9 (21.3)	82.5 (20.5)	85.3 (21.2)	80.9 (20.3)	81.8 (21.6)	85.9 (21.4)	81.4 (20.8)	82.1 (21.1)
Median (min, max)	85.0 (25.0, 195.0)	79.0 (20.0, 200.0)	80.0 (34.0, 198.0)	84.0 (24.0, 200.0)	79.0 (29.0, 200.0)	80.0 (38.0, 190.0)	83.0 (20.0, 195.0)	78.0 (25.0, 198.0)	79.0 (30.0, 192.0)	83.0 (20.0, 200.0)	79.0 (25.0, 200.0)	80.0 (30.0, 192.0)
IQR	27.0	26.0	26.5	28.0	26.0	25.0	28.0	25.0	25.0	27.0	25.0	25.0
Missing (%)	302 (4.8)	484 (7.3)	20 (2.5)	103 (2.8)	99 (2.6)	23 (5.0)	90 (2.3)	84 (2.0)	21 (4.2)	193 (2.5)	183 (2.3)	44 (4.6)
Episodes of angina in past 24 hours, No. (%)												
0 – 2	2,253 (40.1)	2,809 (46.3)	261 (34.8)	1,418 (41.7)	1,601 (45.7)	181 (42.0)	1,995 (52.6)	2,201 (54.6)	271 (56.2)	3,413 (47.5)	3,802 (50.5)	452 (49.5)
> 2	202 (3.6)	184 (3.0)	23 (3.1)	100 (2.9)	115 (3.3)	6 (1.4)	208 (5.5)	148 (3.7)	9 (1.9)	308 (4.3)	263 (3.5)	15 (1.6)
Not available	3,169 (56.3)	3,071 (50.6)	466 (62.1)	1,884 (55.4)	1,790 (51.1)	244 (56.6)	1,587 (41.9)	1,679 (41.7)	202 (41.9)	3,471 (48.3)	3,469 (46.0)	446 (48.8)
Missing (%)	660	574	42	285	230	26	201	174	15	486	404	41

* Definition was different in CRF version 2013

** Symptom to treatment is the time difference between onset of ACS symptom and when patient was given fibrinolytic therapy

Note: Not all participating centres performed Troponin T or Troponin I tests

Note: Percentage is to the nearest decimal point

Year	2011 – 2013			2014			2015			2014 – 2015		
	Diabetic	Non-diabetic	Unknown	Diabetic	Non-diabetic	Unknown	Diabetic	Non-diabetic	Unknown	Diabetic	Non-diabetic	Unknown
Diabetes status												
Total	6,284 (42.6)	6,638 (45.0)	792 (5.4)	3,687 (43.6)	3,736 (44.2)	457 (5.4)	3,991 (42.9)	4,202 (45.1)	497 (5.3)	7,678 (43.2)	7,938 (44.7)	954 (5.4)
Killip classification code, No. (%)												
I	2,503 (49.4)	3,330 (59.3)	347 (51.0)	1,817 (63.1)	2,256 (72.2)	253 (62.5)	1,887 (47.3)	2,438 (58.0)	267 (53.7)	3,704 (63.9)	4,694 (72.7)	520 (62.1)
II	923 (18.2)	831 (14.8)	112 (16.5)	571 (19.8)	449 (14.4)	77 (19.0)	492 (12.3)	450 (10.7)	84 (16.9)	1,063 (18.3)	899 (13.9)	161 (19.2)
III	272 (5.4)	184 (3.3)	25 (3.7)	189 (6.6)	124 (4.0)	20 (4.9)	225 (5.6)	130 (3.1)	17 (3.4)	414 (7.1)	254 (3.9)	37 (4.4)
IV	491 (9.7)	426 (7.6)	102 (15.0)	300 (10.4)	294 (9.4)	55 (13.6)	318 (8.0)	315 (7.5)	64 (12.9)	618 (10.7)	609 (9.4)	119 (14.2)
Not stated/ inadequately described	881 (17.4)	843 (15.0)	94 (13.8)	1 (0.0)	2 (0.1)	0 (0.0)	1,069 (26.8)	869 (20.7)	65 (13.1)	1 (0.0)	2 (0.0)	0 (0.0)
Not available	765	643	64	808	611	52	0	0	0	1,877	1,480	117
Missing	449	381	48	1	0	0	0	0	0	1	0	0
Total cholesterol, mmol/L												
N	4,322	4,862	600	2,748	2,832	344	3,080	3,365	382	5,828	6,197	726
Mean (SD)	4.9 (1.5)	5.2 (1.4)	5.4 (1.4)	4.8 (1.4)	5.2 (1.4)	5.5 (1.4)	4.9 (1.5)	5.1 (1.3)	5.6 (1.5)	4.9 (1.5)	5.1 (1.4)	5.6 (1.4)
Median (min, max)	4.8 (2.0, 17.0)	5.1 (2.0, 16.9)	5.4 (2.3, 12.1)	4.7 (2.0, 14.4)	5.1 (2.0, 22.0)	5.4 (2.2, 11.0)	4.7 (2.0, 15.5)	5.0 (2.0, 11.8)	5.6 (2.0, 9.9)	4.7 (2.0, 15.5)	5.1 (2.0, 22.0)	5.5 (2.0, 11.0)
IQR	1.9	1.8	1.9	1.8	1.8	2.1	2.0	1.7	2.0	1.9	1.8	2.0
Test not done (%)	1,502 (25.8)	1,299 (21.1)	126 (17.4)	759 (21.6)	701 (19.8)	78 (18.5)	759 (19.8)	685 (16.9)	94 (19.7)	1,518 (20.7)	1,386 (18.3)	172 (19.2)
Missing (%)	460 (7.3)	477 (7.2)	66 (8.3)	180 (4.9)	203 (5.4)	35 (7.7)	152 (3.8)	152 (3.6)	21 (4.2)	332 (4.3)	355 (4.5)	56 (5.9)
HDL-C, mmol/L												
N	4,180	4,744	568	2,697	2,784	336	3,054	3,333	379	5,751	6,117	715
Mean (SD)	1.1 (0.4)	1.1 (0.4)	1.1 (0.3)	1.1 (0.3)	1.1 (0.3)	1.1 (0.3)	1.1 (0.3)	1.1 (0.4)	1.1 (0.3)	1.1 (0.3)	1.1 (0.3)	1.1 (0.3)
Median (min, max)	1.0 (0.5, 4.6)	1.1 (0.5, 4.9)	1.0 (0.5, 4.1)	1.0 (0.5, 3.8)	1.1 (0.5, 4.7)	1.1 (0.6, 2.3)	1.0 (0.5, 4.6)	1.0 (0.5, 4.9)	1.0 (0.5, 4.1)	1.0 (0.5, 4.6)	1.0 (0.5, 4.9)	1.1 (0.5, 4.1)
IQR	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.3
Test not done (%)	1,578 (27.4)	1,378 (22.5)	153 (21.2)	771 (22.2)	714 (20.4)	80 (19.2)	761 (19.9)	699 (17.3)	95 (20.0)	1,532 (21.0)	1,413 (18.8)	175 (19.7)
Missing (%)	526 (8.4)	516 (7.8)	71 (9.0)	219 (5.9)	238 (6.4)	41 (9.0)	176 (4.4)	170 (4.0)	23 (4.6)	395 (5.1)	408 (5.1)	64 (6.7)

Year	2011 – 2013			2014			2015			2014 – 2015		
	Diabetic	Non-diabetic	Unknown	Diabetic	Non-diabetic	Unknown	Diabetic	Non-diabetic	Unknown	Diabetic	Non-diabetic	Unknown
Diabetes status												
Total	6,284 (42.6)	6,638 (45.0)	792 (5.4)	3,687 (43.6)	3,736 (44.2)	457 (5.4)	3,991 (42.9)	4,202 (45.1)	497 (5.3)	7,678 (43.2)	7,938 (44.7)	954 (5.4)
LDL-C, mmol/L												
N	4,211	4,758	566	2,704	2,800	340	3,063	3,349	379	5,767	6,149	719
Mean (SD)	3.1 (1.3)	3.4 (1.3)	3.6 (1.3)	3.0 (1.3)	3.3 (1.3)	3.7 (1.3)	3.0 (1.3)	3.3 (1.2)	3.8 (1.3)	3.0 (1.3)	3.3 (1.3)	3.7 (1.3)
Median (min, max)	2.9 (0.5, 12.3)	3.3 (0.5, 12.0)	3.5 (0.7, 10.1)	2.8 (0.5, 11.4)	3.3 (0.5, 18.0)	3.6 (0.9, 8.9)	2.8 (0.5, 13.0)	3.2 (0.5, 9.7)	3.7 (0.9, 9.1)	2.8 (0.5, 13.0)	3.3 (0.5, 18.0)	3.7 (0.9, 9.1)
IQR	1.7	1.6	1.8	1.6	1.7	1.9	1.8	1.6	1.7	1.7	1.6	1.8
Test not done (%)	1,625 (27.8)	1,417 (22.9)	164 (22.5)	808 (23.0)	749 (21.1)	82 (19.4)	793 (20.6)	714 (17.6)	101 (21.0)	1,601 (21.7)	1,463 (19.2)	183 (20.3)
Missing (%)	448 (7.1)	463 (7.0)	62 (7.8)	175 (4.7)	187 (5.0)	35 (7.7)	135 (3.4)	139 (3.3)	17 (3.4)	310 (4.0)	326 (4.1)	52 (5.5)
Triglycerides, mmol/L												
N	4,299	4,818	589	2,749	2,809	338	3,075	3,357	384	5,824	6,166	722
Mean (SD)	1.8 (1.2)	1.7 (1.0)	1.7 (1.0)	1.8 (1.1)	1.6 (1.0)	1.6 (1.1)	1.8 (1.1)	1.6 (1.0)	1.8 (1.1)	1.8 (1.1)	1.6 (1.0)	1.7 (1.1)
Median (min, max)	1.5 (0.5, 15.0)	1.4 (0.5, 15.0)	1.4 (0.5, 10.5)	1.5 (0.5, 14.4)	1.4 (0.5, 13.1)	1.4 (0.5, 12.2)	1.5 (0.5, 13.9)	1.4 (0.5, 12.6)	1.5 (0.5, 9.0)	1.5 (0.5, 14.4)	1.4 (0.5, 13.1)	1.4 (0.5, 12.2)
IQR	1.0	0.9	0.9	1.0	0.9	0.9	1.0	0.9	1.0	1.0	0.9	0.9
Test not done (%)	1,525 (26.2)	1,326 (21.6)	135 (18.6)	765 (21.8)	715 (20.3)	80 (19.1)	762 (19.9)	685 (16.9)	91 (19.2)	1,527 (20.8)	1,400 (18.5)	171 (19.1)
Missing (%)	460 (7.3)	494 (7.4)	68 (8.6)	173 (4.7)	212 (5.7)	39 (8.5)	154 (3.9)	160 (3.8)	22 (4.4)	327 (4.3)	372 (4.7)	61 (6.4)
* HbA1c, mmol/L												
N	570	308	52	1,086	717	49	1,251	872	121	2,337	1,589	170
Mean (SD)	8.6 (2.3)	6.4 (2.5)	6.7 (3.6)	8.4 (2.3)	6.2 (2.5)	6.4 (1.5)	8.9 (2.6)	6.4 (2.5)	6.7 (2.1)	8.7 (2.5)	6.3 (2.5)	6.6 (2.0)
Median (min, max)	8.2 (4.8, 16.5)	5.8 (4.2, 32.0)	5.8 (4.9, 30.0)	8.0 (4.0, 19.5)	5.8 (4.0, 32.0)	6.0 (4.9, 13.6)	8.3 (4.4, 32.0)	5.9 (4.1, 32.0)	5.9 (4.0, 14.1)	8.2 (4.0, 32.0)	5.8 (4.0, 32.0)	6.0 (4.0, 14.1)
IQR	3.3	0.9	0.9	3.3	0.8	1.0	3.4	0.9	1.2	3.3	0.8	1.2
Test not done (%)	1,245 (68.6)	1,595 (83.8)	176 (77.2)	2,023 (65.1)	2,392 (76.9)	295 (85.8)	2,124 (62.9)	2,821 (76.4)	273 (69.3)	4,147 (64.0)	5,213 (76.6)	568 (77.0)
Missing (%)	753 (29.3)	891 (31.9)	118 (34.1)	578 (15.7)	627 (16.8)	113 (24.7)	616 (15.4)	509 (12.1)	103 (20.7)	1,194 (15.6)	1,136 (14.3)	216 (22.6)

*only for 2013

Year	2011 – 2013			2014			2015			2014 – 2015		
	Diabetic	Non-diabetic	Unknown	Diabetic	Non-diabetic	Unknown	Diabetic	Non-diabetic	Unknown	Diabetic	Non-diabetic	Unknown
Diabetes status												
Total	6,284 (42.6)	6,638 (45.0)	792 (5.4)	3,687 (43.6)	3,736 (44.2)	457 (5.4)	3,991 (42.9)	4,202 (45.1)	497 (5.3)	7,678 (43.2)	7,938 (44.7)	954 (5.4)
Left ventricular ejection fraction, %												
N	2,808	2,975	363	1,813	2,001	239	2,079	2,475	261	3,892	4,476	500
Mean (SD)	45.7 (13.5)	47.4 (12.8)	47.5 (13.7)	45.7 (13.5)	47.2 (12.8)	47.6 (12.7)	45.7 (13.1)	47.2 (12.5)	46.5 (12.4)	45.7 (13.3)	47.2 (12.6)	47.0 (12.5)
Median (min, max)	45.0 (5.3, 89.0)	48.0 (6.3, 87.0)	49.0 (7.2, 79.0)	45.0 (5.5, 90.0)	47.0 (5.1, 88.0)	49.0 (15.0, 77.0)	45.0 (5.9, 90.0)	47.0 (5.3, 90.0)	45.0 (6.0, 75.0)	45.0 (5.5, 90.0)	47.0 (5.1, 90.0)	48.0 (6.0, 77.0)
IQR	20.0	15.0	19.0	20.0	15.0	15.0	18.0	15.0	16.0	19.0	15.0	15.0
Test not done (%)	2,579 (47.9)	2,708 (47.7)	321 (46.9)	1,610 (47.0)	1,468 (42.3)	173 (42.0)	1,673 (44.6)	1,573 (38.9)	209 (44.5)	3,283 (45.8)	3,041 (40.5)	382 (43.3)
Missing (%)	897 (14.3)	955 (14.4)	108 (13.6)	264 (7.2)	267 (7.1)	45 (9.8)	239 (6.0)	154 (3.7)	27 (5.4)	503 (6.6)	421 (5.3)	72 (7.5)
ECG, No. (%)												
Inferior leads	1,860 (29.6)	2,375 (35.8)	303 (38.3)	1,085 (29.4)	1,274 (34.1)	181 (39.6)	1,192 (29.9)	1,507 (35.9)	211 (42.5)	2,277 (29.7)	2,781 (35.0)	392 (41.1)
Anterior leads	2,504 (39.8)	2,827 (42.6)	377 (47.6)	1,436 (38.9)	1,591 (42.6)	217 (47.5)	1,432 (35.9)	1,709 (40.7)	232 (46.7)	2,868 (37.4)	3,300 (41.6)	449 (47.1)
Lateral leads	1,817 (28.9)	1,561 (23.5)	185 (23.4)	1,215 (33.0)	1,049 (28.1)	129 (28.2)	1,355 (34.0)	1,147 (27.3)	134 (27.0)	2,570 (33.5)	2,196 (27.7)	263 (27.6)
True posterior	228 (3.6)	309 (4.7)	53 (6.7)	117 (3.2)	172 (4.6)	26 (5.7)	141 (3.5)	213 (5.1)	24 (4.8)	258 (3.4)	385 (4.9)	50 (5.2)
Right ventricle	169 (2.7)	220 (3.3)	41 (5.2)	99 (2.7)	123 (3.3)	20 (4.4)	103 (2.6)	193 (4.6)	30 (6.0)	202 (2.6)	316 (4.0)	50 (5.2)
None	878 (14.0)	804 (12.1)	56 (7.1)	508 (13.8)	518 (13.9)	31 (6.8)	620 (15.5)	556 (13.2)	22 (4.4)	1,128 (14.7)	1,074 (13.5)	53 (5.6)
Not stated/ inadequately described	394 (6.3)	364 (5.5)	33 (4.2)	296 (8.0)	146 (3.9)	18 (3.9)	288 (7.2)	200 (4.8)	23 (4.6)	584 (7.6)	346 (4.4)	41 (4.3)

Year	2011 – 2013			2014			2015			2014 – 2015		
	Diabetic	Non-diabetic	Unknown	Diabetic	Non-diabetic	Unknown	Diabetic	Non-diabetic	Unknown	Diabetic	Non-diabetic	Unknown
Total	6,284 (42.6)	6,638 (45.0)	792 (5.4)	3,687 (43.6)	3,736 (44.2)	457 (5.4)	3,991 (42.9)	4,202 (45.1)	497 (5.3)	7,678 (43.2)	7,938 (44.7)	954 (5.4)
Total number of STEMI patients who were given fibrinolytic therapy at this centre	1,327 (21.1)	1,749 (26.3)	283 (35.7)	659 (17.9)	862 (23.1)	138 (30.2)	629 (15.8)	889 (21.2)	171 (34.4)	1,288 (16.8)	1,751 (22.1)	309 (32.4)
Pain-to-needle time, min (** symptom to treatment)												
N	993	1,349	225	537	732	120	522	758	154	1,059	1,490	274
Mean (SD)	308.3 (257.6)	281.3 (259.8)	281.4 (225.1)	315.7 (265.0)	289.9 (251.3)	268.4 (217.4)	288.2 (238.6)	278.1 (241.6)	282.9 (240.2)	302.2 (252.6)	283.9 (246.4)	276.5 (230.2)
Median (min, max)	225.0 (15.0, 1439.0)	190.0 (15.0, 1390.0)	210.0 (40.0, 1222.0)	230.0 (28.0, 1380.0)	210.0 (15.0, 1425.0)	217.5 (30.0, 1320.0)	210.0 (15.0, 1370.0)	195.0 (20.0, 1440.0)	210.0 (31.0, 1430.0)	225.0 (15.0, 1380.0)	200.0 (15.0, 1440.0)	212.5 (30.0, 1430.0)
IQR	255.0	210.0	205.0	233.0	207.5	202.5	215.0	192.0	235.0	225.0	200.0	220.0
Missing (%)	334 (25.2)	400 (22.9)	58 (20.5)	122 (18.5)	130 (15.1)	18 (13.0)	107 (17.0)	131 (14.7)	17 (9.9)	229 (17.8)	261 (14.9)	35 (11.3)
Pain-to-needle time, No (%)												
≤ 180 min	401 (40.4)	652 (48.3)	102 (45.3)	205 (38.2)	311 (42.5)	51 (42.5)	223 (42.7)	346 (45.6)	65 (42.2)	428 (40.4)	657 (44.1)	116 (42.3)
> 180 min	592 (59.6)	697 (51.7)	123 (54.7)	332 (61.8)	421 (57.5)	69 (57.5)	299 (57.3)	412 (54.4)	89 (57.8)	631 (59.6)	833 (55.9)	158 (57.7)
Missing	334	400	58	122	130	18	107	131	17	229	261	35

Table 3.5 Cardiac presentation of patients with ACS by pre-morbid hypertension, NCVd-ACS Registry, 2014 – 2015

Year	2011 – 2013			2014			2015			2014 – 2015		
	Hypertensive	Non-hypertensive	Unknown	Hypertensive	Non-hypertensive	Unknown	Hypertensive	Non-hypertensive	Unknown	Hypertensive	Non-hypertensive	Unknown
Hypertension status												
Total	8,974 (60.8)	4,222 (28.6)	605 (4.1)	5,141 (60.8)	2,449 (29.0)	380 (4.5)	5,671 (60.9)	2,658 (28.5)	439 (4.7)	10,812 (60.8)	5,107 (28.7)	819 (4.6)
ACS stratum, No. (%)												
STEMI	3,788 (42.2)	2,582 (61.2)	440 (72.7)	1,843 (35.8)	1,461 (59.7)	286 (75.3)	2,065 (36.4)	1,573 (59.2)	349 (79.5)	3,908 (36.1)	3,034 (59.4)	635 (77.5)
NSTEMI	2,642 (29.4)	955 (22.6)	88 (14.5)	1,428 (27.8)	489 (20.0)	58 (15.3)	1,697 (29.9)	572 (21.5)	64 (14.6)	3,125 (28.9)	1,061 (20.8)	122 (14.9)
UA	2,544 (28.3)	685 (16.2)	77 (12.7)	1,870 (36.4)	499 (20.4)	36 (9.5)	1,909 (33.7)	513 (19.3)	26 (5.9)	3,779 (35.0)	1,012 (19.8)	62 (7.6)
Systolic blood pressure, mmHg												
N	8,541	3,935	596	5,054	2,405	369	5,562	2,618	428	10,616	5,023	797
Mean (SD)	141.7 (30.1)	129.7 (26.0)	131.6 (28.2)	144.0 (30.0)	131.5 (26.0)	131.2 (27.0)	142.8 (28.9)	131.0 (25.2)	133.2 (28.5)	143.4 (29.5)	131.3 (25.6)	132.3 (27.8)
Median (min, max)	140.0 (50.0, 270.0)	128.0 (52.0, 268.0)	129.0 (61.0, 233.0)	141.0 (54.0, 269.0)	130.0 (50.0, 266.0)	128.0 (69.0, 236.0)	140.0 (55.0, 264.0)	129.0 (50.0, 250.0)	131.5 (54.0, 237.0)	141.0 (54.0, 269.0)	130.0 (50.0, 266.0)	130.0 (54.0, 237.0)
IQR	39.0	33.0	35.0	38.0	33.0	31.0	37.0	31.0	33.5	37.0	32.0	33.0
Missing (%)	433 (4.8)	287 (6.8)	9 (1.5)	87 (1.7)	44 (1.8)	11 (2.9)	109 (1.9)	40 (1.5)	11 (2.5)	196 (1.8)	84 (1.6)	22 (2.7)
Diastolic blood pressure, mmHg												
N	8,521	3,927	595	5,049	2,405	370	5,561	2,617	428	10,610	5,022	798
Mean (SD)	81.8 (18.8)	78.3 (16.8)	79.1 (18.4)	82.6 (18.9)	79.7 (17.1)	79.9 (18.9)	81.7 (17.7)	79.2 (16.4)	80.9 (17.9)	82.2 (18.3)	79.5 (16.7)	80.4 (18.4)
Median (min, max)	80.0 (10.0, 170.0)	78.0 (21.0, 162.0)	78.0 (10.0, 148.0)	81.0 (20.0, 167.0)	79.0 (21.0, 157.0)	78.5 (21.0, 155.0)	80.0 (20.0, 170.0)	78.0 (27.0, 148.0)	80.0 (24.0, 159.0)	81.0 (20.0, 170.0)	78.0 (21.0, 157.0)	80.0 (21.0, 159.0)
IQR	22.0	22.0	22.0	24.0	21.0	23.0	22.0	20.0	21.0	23.0	20.0	22.0
Missing (%)	453 (5.0)	295 (7.0)	10 (1.7)	92 (1.8)	44 (1.8)	10 (2.6)	110 (1.9)	41 (1.5)	11 (2.5)	202 (1.9)	85 (1.7)	21 (2.6)

Year	2011			2014			2015			2014 – 2015		
	Hypertensive	Non-hypertensive	Unknown	Hypertensive	Non-hypertensive	Unknown	Hypertensive	Non-hypertensive	Unknown	Hypertensive	Non-hypertensive	Unknown
Hypertension status												
Total	8,974 (60.8)	4,222 (28.6)	605 (4.1)	5,141 (60.8)	2,449 (29.0)	380 (4.5)	5,671 (60.9)	2,658 (28.5)	439 (4.7)	10,812 (60.8)	5,107 (28.7)	819 (4.6)
Pulse pressure, mmHg												
N	8,152	3,869	581	4,789	2,362	361	5,307	2,574	421	10,096	4,936	782
Mean (SD)	57.5 (18.1)	50.7 (16.1)	51.6 (16.5)	58.7 (18.2)	51.0 (15.7)	50.7 (16.1)	58.6 (18.3)	51.0 (15.6)	51.4 (16.6)	58.7 (18.3)	51.0 (15.7)	51.0 (16.4)
Median (min, max)	56.0 (1.0, 100.0)	49.0 (1.0, 100.0)	50.0 (11.0, 100.0)	58.0 (2.0, 100.0)	50.0 (6.0, 100.0)	49.0 (11.0, 100.0)	58.0 (2.0, 100.0)	49.0 (6.0, 100.0)	49.0 (8.0, 100.0)	58.0 (2.0, 100.0)	49.0 (6.0, 100.0)	49.0 (8.0, 100.0)
IQR	26.0	20.0	22.0	26.0	20.0	21.0	26.0	20.0	21.0	26.0	20.0	21.0
Missing (%)	822 (9.2)	353 (8.4)	24 (4.0)	352 (6.8)	87 (3.6)	19 (5.0)	364 (6.4)	84 (3.2)	18 (4.1)	716 (6.6)	171 (3.3)	37 (4.5)
Heart rate at presentation, beats/min												
N	8,496	3,911	591	4,999	2,383	358	5,539	2,607	421	10,538	4,990	779
Mean (SD)	84.2 (21.1)	81.9 (20.2)	83.6 (23.9)	84.4 (21.3)	83.4 (22.2)	82.8 (21.1)	83.6 (21.1)	81.8 (20.5)	81.4 (21.1)	84.0 (21.2)	82.6 (21.3)	82.0 (21.1)
Median (min, max)	82.0 (25.0, 200.0)	80.0 (20.0, 198.0)	81.0 (34.0, 198.0)	82.0 (26.0, 200.0)	80.0 (24.0, 200.0)	80.0 (35.0, 190.0)	81.0 (20.0, 196.0)	80.0 (25.0, 198.0)	78.0 (30.0, 180.0)	82.0 (20.0, 200.0)	80.0 (24.0, 200.0)	79.0 (30.0, 190.0)
IQR	28.0	26.0	28.0	27.0	28.0	25.0	27.0	24.0	23.0	27.0	26.0	25.0
Missing (%)	478 (5.3)	311 (7.4)	14 (2.3)	142 (2.8)	66 (2.7)	22 (5.8)	132 (2.3)	51 (1.9)	18 (4.1)	274 (2.5)	117 (2.3)	40 (4.9)
Episodes of angina in past 24 hours, No. (%)												
0 – 2	3,315 (41.1)	1,812 (47.1)	215 (37.5)	1,998 (41.7)	1,093 (48.2)	155 (43.1)	2,898 (53.7)	1,366 (53.6)	242 (56.9)	4,896 (48.1)	2,459 (51.1)	397 (50.6)
> 2	292 (3.6)	105 (2.7)	14 (2.4)	169 (3.5)	60 (2.6)	5 (1.4)	284 (5.3)	88 (3.5)	8 (1.9)	453 (4.4)	148 (3.1)	13 (1.7)
Not available	4,465 (55.3)	1,928 (50.1)	345 (60.1)	2,626 (54.8)	1,114 (49.1)	200 (55.6)	2,210 (41.0)	1,093 (42.9)	175 (41.2)	4,836 (47.5)	2,207 (45.8)	375 (47.8)
Missing (%)	902	377	31	348	182	20	279	111	14	627	293	34

Year	2011 – 2013			2014			2015			2014 – 2015		
	Hypertensive	Non-hypertensive	Unknown	Hypertensive	Non-hypertensive	Unknown	Hypertensive	Non-hypertensive	Unknown	Hypertensive	Non-hypertensive	Unknown
Hypertension status												
Total	8,974 (60.8)	4,222 (28.6)	605 (4.1)	5,141 (60.8)	2,449 (29.0)	380 (4.5)	5,671 (60.9)	2,658 (28.5)	439 (4.7)	10,812 (60.8)	5,107 (28.7)	819 (4.6)
Killip classification code, No. (%)												
I	3,715 (51.3)	2,221 (61.1)	276 (52.2)	2,692 (66.9)	1,472 (70.1)	206 (60.6)	2,879 (50.8)	1,515 (57.0)	242 (55.1)	5,571 (67.6)	2,987 (70.5)	448 (61.4)
II	1,253 (17.3)	534 (14.7)	91 (17.2)	714 (17.8)	322 (15.3)	67 (19.7)	663 (11.7)	296 (11.1)	74 (16.9)	1,377 (16.7)	618 (14.6)	141 (19.3)
III	365 (5.0)	97 (2.7)	20 (3.8)	247 (6.1)	71 (3.4)	15 (4.4)	273 (4.8)	84 (3.2)	16 (3.6)	520 (6.3)	155 (3.7)	31 (4.2)
IV	633 (8.7)	307 (8.4)	77 (14.6)	366 (9.1)	234 (11.1)	52 (15.3)	406 (7.2)	239 (9.0)	58 (13.2)	772 (9.4)	473 (11.2)	110 (15.1)
Not stated/ inadequately described	1,276 (17.6)	477 (13.1)	65 (12.3)	2 (0.0)	1 (0.0)	0 (0.0)	1,450 (25.6)	524 (19.7)	49 (11.2)	2 (0.0)	1 (0.0)	0 (0.0)
Not available	1,096	344	40	1,119	349	40	0	0	0	2,569	873	89
Missing (%)	636	242	36	1	0	0	0	0	0	1	0	0
Total cholesterol, mmol/L												
N	6,211	3,180	468	3,796	1,914	288	4,429	2,128	342	8,225	4,042	630
Mean (SD)	5.0 (1.4)	5.4 (1.4)	5.5 (1.5)	4.9 (1.4)	5.3 (1.5)	5.5 (1.4)	4.9 (1.4)	5.3 (1.4)	5.7 (1.5)	4.9 (1.4)	5.3 (1.4)	5.6 (1.5)
Median (min, max)	4.8 (2.0, 16.9)	5.3 (2.0, 17.0)	5.4 (2.2, 14.0)	4.7 (2.0, 14.4)	5.2 (2.0, 22.0)	5.5 (2.2, 11.0)	4.7 (2.0, 14.9)	5.2 (2.0, 11.8)	5.6 (2.6, 15.5)	4.7 (2.0, 14.9)	5.2 (2.0, 22.0)	5.5 (2.2, 15.5)
IQR	1.8	1.8	1.9	1.9	1.8	2.0	1.9	1.8	2.0	1.9	1.8	2.0
Test not done (%)	2,134 (25.6)	709 (18.2)	90 (16.1)	1,078 (22.1)	406 (17.5)	64 (18.2)	1,052 (19.2)	406 (16.0)	80 (19.0)	2,130 (20.6)	812 (16.7)	144 (18.6)
Missing (%)	629 (7.0)	333 (7.9)	47 (7.8)	267 (5.2)	129 (5.3)	28 (7.4)	190 (3.4)	124 (4.7)	17 (3.9)	457 (4.2)	253 (5.0)	45 (5.5)
HDL-C, mmol/L												
N	6,032	3,092	443	3,737	1,868	281	4,380	2,117	342	8,117	3,985	623
Mean (SD)	1.1 (0.4)	1.1 (0.3)	1.1 (0.3)	1.1 (0.3)	1.1 (0.3)	1.1 (0.3)	1.1 (0.3)	1.1 (0.3)	1.1 (0.4)	1.1 (0.3)	1.1 (0.3)	1.1 (0.3)
Median (min, max)	1.0 (0.5, 4.6)	1.0 (0.5, 4.9)	1.0 (0.5, 4.1)	1.0 (0.5, 4.6)	1.0 (0.5, 4.7)	1.1 (0.5, 2.3)	1.0 (0.5, 4.6)	1.0 (0.5, 4.9)	1.0 (0.5, 4.1)	1.0 (0.5, 4.6)	1.0 (0.5, 4.9)	1.0 (0.5, 4.1)
IQR	0.3	0.3	0.4	0.4	0.3	0.3	0.4	0.3	0.3	0.4	0.3	0.3
Test not done (%)	2,237 (27.1)	764 (19.8)	115 (20.6)	1,090 (22.6)	421 (18.4)	66 (19.0)	1,063 (19.5)	412 (16.3)	80 (19.0)	2,153 (21.0)	833 (17.3)	146 (19.0)
Missing (%)	705 (7.9)	366 (8.7)	47 (7.8)	314 (6.1)	160 (6.5)	33 (8.7)	228 (4.0)	129 (4.9)	17 (3.9)	542 (5.0)	289 (5.7)	50 (6.1)

Year	2011 – 2013			2014			2015			2014 – 2015		
	Hypertensive	Non-hypertensive	Unknown	Hypertensive	Non-hypertensive	Unknown	Hypertensive	Non-hypertensive	Unknown	Hypertensive	Non-hypertensive	Unknown
Hypertension status												
Total	8,974 (60.8)	4,222 (28.6)	605 (4.1)	5,141 (60.8)	2,449 (29.0)	380 (4.5)	5,671 (60.9)	2,658 (28.5)	439 (4.7)	10,812 (60.8)	5,107 (28.7)	819 (4.6)
LDL-C, mmol/L												
N	6,064	3,102	442	3,753	1,879	284	4,400	2,124	339	8,153	4,003	623
Mean (SD)	3.1 (1.3)	3.5 (1.3)	3.7 (1.4)	3.0 (1.3)	3.5 (1.3)	3.7 (1.3)	3.0 (1.3)	3.4 (1.3)	3.8 (1.3)	3.0 (1.3)	3.5 (1.3)	3.7 (1.3)
Median (min, max)	2.9 (0.5, 12.3)	3.4 (0.6, 12.0)	3.6 (0.7, 12.2)	2.8 (0.5, 18.0)	3.4 (0.5, 14.8)	3.5 (0.9, 8.9)	2.9 (0.5, 13.0)	3.4 (0.5, 9.7)	3.7 (0.9, 9.1)	2.9 (0.5, 18.0)	3.4 (0.5, 14.8)	3.6 (0.9, 9.1)
IQR	1.6	1.7	1.7	1.6	1.6	1.8	1.7	1.6	1.6	1.7	1.6	1.7
Test not done (%)	2,294 (27.4)	799 (20.5)	121 (21.5)	1,137 (23.3)	445 (19.1)	68 (19.3)	1,101 (20.0)	421 (16.5)	86 (20.2)	2,238 (21.5)	866 (17.8)	154 (19.8)
Missing (%)	616 (6.9)	321 (7.6)	42 (6.9)	251 (4.9)	125 (5.1)	28 (7.4)	170 (3.0)	113 (4.3)	14 (3.2)	421 (3.9)	238 (4.7)	42 (5.1)
Triglycerides, mmol/L												
N	6,171	3,147	461	3,789	1,895	285	4,423	2,121	343	8,212	4,016	628
Mean (SD)	1.7 (1.1)	1.8 (1.2)	1.8 (1.2)	1.7 (1.1)	1.7 (1.0)	1.7 (1.2)	1.7 (1.0)	1.7 (1.0)	1.8 (1.1)	1.7 (1.0)	1.7 (1.0)	1.7 (1.2)
Median (min, max)	1.5 (0.5, 15.0)	1.5 (0.5, 14.6)	1.5 (0.5, 15.0)	1.4 (0.5, 13.3)	1.4 (0.5, 14.4)	1.4 (0.5, 12.2)	1.5 (0.5, 13.9)	1.4 (0.5, 12.6)	1.4 (0.5, 9.0)	1.4 (0.5, 13.9)	1.4 (0.5, 14.4)	1.4 (0.5, 12.2)
IQR	0.9	1.0	0.9	0.9	0.9	1.0	0.9	0.9	1.0	0.9	0.9	1.0
Test not done (%)	2,163 (26.0)	734 (18.9)	96 (17.2)	1,087 (22.3)	419 (18.1)	65 (18.6)	1,053 (19.2)	407 (16.1)	78 (18.5)	2,140 (20.7)	826 (17.1)	143 (18.5)
Missing (%)	640 (7.1)	341 (8.1)	48 (7.9)	265 (5.2)	135 (5.5)	30 (7.9)	195 (3.4)	130 (4.9)	18 (4.1)	460 (4.3)	265 (5.2)	48 (5.9)
* HbA1c, mmol/L												
N	660	240	30	1,326	486	44	1,537	598	118	2,863	1,084	162
Mean (SD)	7.7 (2.3)	7.7 (3.3)	7.9 (4.6)	7.5 (2.5)	7.5 (2.8)	7.8 (4.3)	7.8 (2.5)	7.8 (3.5)	7.0 (2.2)	7.7 (2.5)	7.7 (3.2)	7.2 (2.9)
Median (min, max)	7.2 (4.2, 16.5)	6.4 (4.3, 32.0)	6.1 (5.4, 30.0)	6.7 (4.0, 32.0)	6.3 (4.0, 30.0)	6.3 (4.9, 31.0)	7.1 (4.1, 32.0)	6.4 (4.1, 32.0)	6.0 (4.0, 14.1)	6.9 (4.0, 32.0)	6.3 (4.0, 32.0)	6.1 (4.0, 31.0)
IQR	2.9	3.1	2.9	2.9	3.5	3.4	3.1	3.4	2.7	3.0	3.5	2.8
Test not done (%)	1,904 (74.3)	991 (80.5)	134 (81.7)	3,021 (69.5)	1,509 (75.6)	238 (84.4)	3,312 (68.3)	1,682 (73.8)	232 (66.3)	6,333 (68.9)	3,191 (74.6)	470 (74.4)
Missing (%)	1,066 (29.4)	626 (33.7)	94 (36.4)	794 (15.4)	454 (18.5)	98 (25.8)	822 (14.5)	378 (14.2)	89 (20.3)	1,616 (14.9)	832 (16.3)	187 (22.8)

*only for 2013

Year	2011 – 2013			2014			2015			2014 – 2015		
	Hypertensive	Non-hypertensive	Unknown	Hypertensive	Non-hypertensive	Unknown	Hypertensive	Non-hypertensive	Unknown	Hypertensive	Non-hypertensive	Unknown
Hypertension status												
Total	8,974 (60.8)	4,222 (28.6)	605 (4.1)	5,141 (60.8)	2,449 (29.0)	380 (4.5)	5,671 (60.9)	2,658 (28.5)	439 (4.7)	10,812 (60.8)	5,107 (28.7)	819 (4.6)
Left ventricular ejection fraction, %												
N	3,992	1,921	291	2,529	1,336	217	3,005	1,599	240	5,534	2,935	457
Mean (SD)	46.5 (13.5)	46.8 (12.6)	47.0 (14.0)	46.8 (13.6)	46.1 (12.4)	48.0 (12.7)	46.6 (13.2)	46.1 (12.1)	47.5 (11.8)	46.7 (13.4)	46.1 (12.2)	47.7 (12.2)
Median (min, max)	47.0 (5.3, 88.0)	46.0 (6.3, 89.0)	48.0 (7.2, 79.0)	46.0 (5.1, 88.0)	45.0 (5.3, 90.0)	50.0 (15.0, 77.0)	46.0 (5.9, 85.0)	45.0 (5.3, 90.0)	45.5 (6.0, 80.0)	46.0 (5.1, 88.0)	45.0 (5.3, 90.0)	48.0 (6.0, 80.0)
IQR	18.0	15.0	20.0	18.0	17.0	15.0	17.0	15.0	15.0	17.0	15.0	15.0
Test not done (%)	3,746 (48.4)	1,642 (46.1)	235 (44.7)	2,237 (46.9)	924 (40.9)	129 (37.3)	2,325 (43.6)	952 (37.3)	180 (42.9)	4,562 (45.2)	1,876 (39.0)	309 (40.3)
Missing (%)	1,236 (13.8)	659 (15.6)	79 (13.1)	375 (7.3)	189 (7.7)	34 (8.9)	341 (6.0)	107 (4.0)	19 (4.3)	716 (6.6)	296 (5.8)	53 (6.5)
ECG, No. (%)												
Inferior leads	2,779 (31.0)	1,554 (36.8)	234 (38.7)	1,522 (29.6)	895 (36.5)	145 (38.2)	1,726 (30.4)	1,017 (38.3)	189 (43.1)	3,248 (30.0)	1,912 (37.4)	334 (40.8)
Anterior leads	3,542 (39.5)	1,891 (44.8)	296 (48.9)	1,971 (38.3)	1,100 (44.9)	196 (51.6)	2,031 (35.8)	1,144 (43.0)	219 (49.9)	4,002 (37.0)	2,244 (43.9)	415 (50.7)
Lateral leads	2,522 (28.1)	931 (22.1)	133 (22.0)	1,667 (32.4)	650 (26.5)	99 (26.1)	1,854 (32.7)	706 (26.6)	108 (24.6)	3,521 (32.6)	1,356 (26.6)	207 (25.3)
True posterior	334 (3.7)	220 (5.2)	38 (6.3)	180 (3.5)	114 (4.7)	21 (5.5)	194 (3.4)	164 (6.2)	23 (5.2)	374 (3.5)	278 (5.4)	44 (5.4)
Right ventricle	230 (2.6)	164 (3.9)	35 (5.8)	129 (2.5)	97 (4.0)	17 (4.5)	167 (2.9)	137 (5.2)	25 (5.7)	296 (2.7)	234 (4.6)	42 (5.1)
None	1,248 (13.9)	465 (11.0)	37 (6.1)	767 (14.9)	277 (11.3)	23 (6.1)	917 (16.2)	278 (10.5)	16 (3.6)	1,684 (15.6)	555 (10.9)	39 (4.8)
Not stated/ inadequately described	600 (6.7)	172 (4.1)	21 (3.5)	388 (7.5)	90 (3.7)	12 (3.2)	397 (7.0)	103 (3.9)	17 (3.9)	785 (7.3)	193 (3.8)	29 (3.5)

Year	2011 – 2013			2014			2015			2014 – 2015		
	Hypertensive	Non-hypertensive	Unknown	Hypertensive	Non-hypertensive	Unknown	Hypertensive	Non-hypertensive	Unknown	Hypertensive	Non-hypertensive	Unknown
Total	8,974 (60.8)	4,222 (28.6)	605 (4.1)	5,141 (60.8)	2,449 (29.0)	380 (4.5)	5,671 (60.9)	2,658 (28.5)	439 (4.7)	10,812 (60.8)	5,107 (28.7)	819 (4.6)
Total number of STEMI patients who were given fibrinolytic therapy at this centre	1,831 (20.4)	1,315 (31.1)	229 (37.9)	829 (16.1)	707 (28.9)	131 (34.5)	887 (15.6)	660 (24.8)	158 (36.0)	1,716 (15.9)	1,367 (26.8)	289 (35.3)
Pain-to-needle time, min (** symptom to treatment)												
N	1,386	1,005	182	683	604	111	750	561	135	1,433	1,165	246
Mean (SD)	296.0 (259.6)	284.6 (254.0)	295.3 (245.8)	318.1 (267.8)	284.2 (245.9)	242.1 (167.1)	292.1 (244.1)	275.2 (243.2)	267.2 (218.6)	304.5 (255.9)	279.8 (244.5)	255.9 (197.1)
Median (min, max)	210.0 (15.0, 1439.0)	195.0 (15.0, 1395.0)	212.5 (40.0, 1335.0)	239.0 (30.0, 1380.0)	202.5 (15.0, 1425.0)	210.0 (40.0, 1100.0)	210.0 (15.0, 1430.0)	192.0 (20.0, 1440.0)	205.0 (40.0, 1415.0)	225.0 (15.0, 1430.0)	195.0 (15.0, 1440.0)	210.0 (40.0, 1415.0)
IQR	240.0	225.0	218.0	240.0	200.0	185.0	220.0	190.0	210.0	225.0	195.0	195.0
Missing (%)	445 (24.3)	310 (23.6)	47 (20.5)	146 (17.6)	103 (14.6)	20 (15.3)	137 (15.4)	99 (15.0)	23 (14.6)	283 (16.5)	202 (14.8)	43 (14.9)
Pain-to-needle time, No (%)												
≤ 180 min	608 (43.9)	477 (47.5)	79 (43.4)	249 (36.5)	273 (45.2)	48 (43.2)	319 (42.5)	261 (46.5)	59 (43.7)	568 (39.6)	534 (45.8)	107 (43.5)
> 180 min	778 (56.1)	528 (52.5)	103 (56.6)	434 (63.5)	331 (54.8)	63 (56.8)	431 (57.5)	300 (53.5)	76 (56.3)	865 (60.4)	631 (54.2)	139 (56.5)
Missing	445	310	47	146	103	20	137	99	23	283	202	43

* Definition was different in CRF version 2013

** Symptom to treatment is the time difference between onset of ACS symptom and when patient was given fibrinolytic therapy

Note: Not all participating centres performed Troponin T or Troponin I tests

Note: Percentage is to the nearest decimal point

Table 3.6 Cardiac presentation of patients with ACS by pre-morbid dyslipidaemia, NCVd-ACS Registry, 2014 – 2015

Year	2011 – 2013			2014			2015			2014 – 2015		
	Dyslipidaemia	Non-dyslipidaemia	Unknown	Dyslipidaemia	Non-dyslipidaemia	Unknown	Dyslipidaemia	Non-dyslipidaemia	Unknown	Dyslipidaemia	Non-dyslipidaemia	Unknown
Total	5,100 (34.5)	6,920 (46.9)	1,593 (10.8)	2,965 (35.1)	3,997 (47.3)	838 (9.9)	3,410 (36.6)	4,494 (48.3)	788 (8.5)	6,375 (35.9)	8,491 (47.8)	1,626 (9.1)
ACS stratum, No. (%)												
STEMI	1,927 (37.8)	3,734 (54.0)	1,053 (66.1)	856 (28.9)	2,125 (53.2)	564 (67.3)	977 (28.7)	2,418 (53.8)	569 (72.2)	1,833 (28.8)	4,543 (53.5)	1,133 (69.7)
NSTEMI	1,552 (30.4)	1,769 (25.6)	299 (18.7)	823 (27.8)	969 (24.2)	157 (18.7)	1,061 (31.1)	1,106 (24.6)	148 (18.8)	1,884 (29.6)	2,075 (24.4)	305 (18.8)
UA	1,621 (31.8)	1,417 (20.4)	241 (15.2)	1,286 (43.4)	903 (22.6)	117 (14.0)	1,372 (40.2)	970 (21.6)	71 (9.0)	2,658 (41.7)	1,873 (22.1)	188 (11.6)
Systolic blood pressure, mmHg												
N	4747	6569	1569	2,913	3,927	823	3,346	4,429	764	6,259	8,356	1,587
Mean (SD)	139.6 (28.7)	136.7 (29.5)	134.9 (30.3)	142.0 (27.8)	138.0 (29.9)	135.9 (30.1)	140.8 (27.7)	137.5 (28.6)	135.8 (29.9)	141.3 (27.7)	137.7 (29.2)	135.8 (30.0)
Median (min, max)	137.0 (52.0, 270.0)	135.0 (50.0, 268.0)	133.0 (55.0, 245.0)	140.0 (54.0, 260.0)	135.0 (50.0, 269.0)	133.0 (56.0, 253.0)	138.0 (55.0, 264.0)	135.0 (50.0, 257.0)	134.0 (54.0, 249.0)	139.0 (54.0, 264.0)	135.0 (50.0, 269.0)	133.0 (54.0, 253.0)
IQR	37.0	37.0	38.0	35.0	37.0	37.0	35.0	36.0	34.0	35.0	36.0	35.0
Missing (%)	353 (6.9)	351 (5.1)	24 (1.5)	52 (1.8)	70 (1.8)	15 (1.8)	64 (1.9)	65 (1.4)	24 (3.0)	116 (1.8)	135 (1.6)	39 (2.4)
Diastolic blood pressure, mmHg												
N	4735	6556	1565	2,914	3,923	823	3,347	4,426	765	6,261	8,349	1,588
Mean (SD)	80.8 (17.4)	80.6 (18.7)	80.1 (18.8)	81.6 (17.2)	81.5 (18.7)	81.5 (20.3)	80.4 (16.7)	81.2 (17.7)	81.4 (18.5)	80.9 (17.0)	81.3 (18.2)	81.5 (19.4)
Median (min, max)	80.0 (10.0, 170.0)	80.0 (10.0, 170.0)	79.0 (10.0, 160.0)	80.0 (20.0, 157.0)	80.0 (24.0, 163.0)	80.0 (21.0, 165.0)	79.0 (31.0, 170.0)	80.0 (20.0, 160.0)	80.0 (24.0, 159.0)	80.0 (20.0, 170.0)	80.0 (20.0, 163.0)	80.0 (21.0, 165.0)
IQR	21.0	23.5	23.0	22.0	23.0	24.0	21.0	21.0	22.0	21.0	22.0	23.0
Missing (%)	365 (7.2)	364 (5.3)	28 (1.8)	51 (1.7)	74 (1.9)	15 (1.8)	63 (1.8)	68 (1.5)	23 (2.9)	114 (1.8)	142 (1.7)	38 (2.3)

Year	2011 – 2013			2014			2015			2014 – 2015		
	Dyslipidaemia	Non-dyslipidaemia	Unknown	Dyslipidaemia	Non-dyslipidaemia	Unknown	Dyslipidaemia	Non-dyslipidaemia	Unknown	Dyslipidaemia	Non-dyslipidaemia	Unknown
Dyslipidaemia status												
Total	5,100 (34.5)	6,920 (46.9)	1,593 (10.8)	2,965 (35.1)	3,997 (47.3)	838 (9.9)	3,410 (36.6)	4,494 (48.3)	788 (8.5)	6,375 (35.9)	8,491 (47.8)	1,626 (9.1)
Pulse pressure, mmHg												
N	4,726	6,540	1,561	2,778	3,783	804	3,209	4,286	742	5,987	8,069	1,546
Mean (SD)	58.8 (20.9)	56.2 (20.0)	55.0 (20.2)	58.1 (17.7)	54.6 (17.6)	53.3 (17.7)	58.2 (18.1)	54.6 (17.4)	52.9 (17.2)	58.2 (17.9)	54.6 (17.5)	53.1 (17.4)
Median (min, max)	56.0 (5.0, 169.0)	53.0 (1.0, 198.0)	51.0 (1.0, 167.0)	57.0 (3.0, 100.0)	53.0 (2.0, 100.0)	51.0 (3.0, 100.0)	57.0 (6.0, 100.0)	53.0 (2.0, 100.0)	51.0 (8.0, 100.0)	57.0 (3.0, 100.0)	53.0 (2.0, 100.0)	51.0 (3.0, 100.0)
IQR	27.0	26.0	25.0	25.0	24.0	24.0	26.0	24.0	23.0	25.0	24.0	24.0
Missing (%)	551 (10.8)	561 (8.1)	77 (4.8)	187 (6.3)	214 (5.4)	34 (4.1)	201 (5.9)	208 (4.6)	46 (5.8)	388 (6.1)	422 (5.0)	80 (4.9)
Heart rate at presentation, beats/min												
N	4,717	6,534	1,563	2,898	3,879	801	3,330	4,409	758	6,228	8,288	1,559
Mean (SD)	82.9 (20.1)	83.7 (21.1)	84.1 (22.9)	83.0 (20.5)	84.8 (22.1)	84.0 (22.0)	82.0 (20.2)	83.5 (21.1)	83.9 (23.3)	82.5 (20.4)	84.1 (21.5)	83.9 (22.6)
Median (min, max)	80.0 (30.0, 195.0)	82.0 (20.0, 200.0)	82.0 (28.0, 198.0)	80.0 (26.0, 200.0)	82.0 (29.0, 200.0)	81.0 (24.0, 173.0)	80.0 (20.0, 195.0)	81.0 (25.0, 198.0)	80.0 (30.0, 189.0)	80.0 (20.0, 200.0)	81.0 (25.0, 200.0)	81.0 (24.0, 189.0)
IQR	26.0	27.0	29.0	25.0	29.0	27.0	25.0	27.0	28.0	26.0	28.0	28.0
Missing (%)	383 (7.5)	386 (5.6)	30 (1.9)	67 (2.3)	118 (3.0)	37 (4.4)	80 (2.3)	85 (1.9)	30 (3.8)	147 (2.3)	203 (2.4)	67 (4.1)
Episodes of angina in past 24 hours, No. (%)												
0 – 2	1,898 (41.5)	2,843 (45.4)	564 (37.5)	1,134 (40.6)	1,690 (45.7)	344 (44.2)	1,678 (52.2)	2,397 (55.4)	392 (51.5)	2,812 (46.8)	4,087 (51.0)	736 (47.8)
> 2	186 (4.0)	182 (3.0)	40 (2.7)	94 (3.4)	106 (2.9)	15 (1.9)	218 (6.8)	147 (3.4)	18 (2.4)	312 (5.2)	253 (3.2)	33 (2.1)
Not available	2,495 (54.5)	3,236 (51.6)	901 (59.8)	1,563 (56.0)	1,901 (51.4)	419 (53.9)	1,316 (41.0)	1,780 (41.2)	351 (46.1)	2,879 (48.0)	3,681 (45.9)	770 (50.0)
Missing (%)	521	659	88	174	300	60	198	170	27	372	470	87

Year	2011 – 2013			2014			2015			2014 – 2015		
	Dyslipidaemia	Non-dyslipidaemia	Unknown	Dyslipidaemia	Non-dyslipidaemia	Unknown	Dyslipidaemia	Non-dyslipidaemia	Unknown	Dyslipidaemia	Non-dyslipidaemia	Unknown
Total	5,100 (34.5)	6,920 (46.9)	1,593 (10.8)	2,965 (35.1)	3,997 (47.3)	838 (9.9)	3,410 (36.6)	4,494 (48.3)	788 (8.5)	6,375 (35.9)	8,491 (47.8)	1,626 (9.1)
Killip classification code, No. (%)												
I	2,154 (53.3)	3,289 (56.5)	696 (49.8)	1,624 (71.5)	2,275 (67.0)	433 (59.4)	1,734 (50.9)	2,491 (55.4)	392 (49.7)	3,358 (71.7)	4,766 (68.2)	825 (57.9)
II	633 (15.6)	997 (17.0)	223 (16.0)	404 (17.8)	547 (16.1)	141 (19.3)	377 (11.1)	507 (11.3)	140 (17.8)	781 (16.7)	1,054 (15.1)	281 (19.7)
III	195 (4.8)	226 (3.8)	57 (4.0)	105 (4.6)	175 (5.2)	45 (6.2)	126 (3.7)	196 (4.4)	44 (5.6)	231 (4.9)	371 (5.3)	89 (6.2)
IV	282 (7.0)	526 (9.0)	188 (13.5)	137 (6.0)	394 (11.6)	110 (15.1)	173 (5.1)	403 (9.0)	121 (15.4)	310 (6.6)	797 (11.4)	231 (16.2)
Not stated/ inadequately described	780 (19.3)	799 (13.7)	231 (16.7)	1 (0.0)	2 (0.1)	0 (0.0)	1,000 (29.3)	897 (20.0)	91 (11.5)	1 (0.0)	2 (0.0)	0 (0.0)
Not available	678	700	91	694	603	109	0	0	0	1,694	1,500	200
Missing	378	383	107	0	1	0	0	0	0	0	1	0
Total cholesterol, mmol/L												
N	3,560	4,999	1,157	2,173	3,066	613	2,654	3,579	601	4,827	6,645	1,214
Mean (SD)	5.0 (1.5)	5.1 (1.4)	5.4 (1.5)	4.9 (1.5)	5.1 (1.4)	5.3 (1.5)	4.9 (1.4)	5.1 (1.4)	5.4 (1.5)	4.9 (1.5)	5.1 (1.4)	5.4 (1.5)
Median (min, max)	4.9 (2.0, 16.9)	5.0 (2.0, 17.0)	5.3 (2.2, 14.0)	4.7 (2.0, 22.0)	5.0 (2.0, 16.6)	5.2 (2.1, 11.3)	4.8 (2.0, 15.5)	5.0 (2.0, 13.1)	5.3 (2.0, 14.9)	4.7 (2.0, 22.0)	5.0 (2.0, 16.6)	5.2 (2.0, 14.9)
IQR	1.9	1.8	2.0	1.9	1.8	2.0	1.9	1.8	1.9	1.9	1.8	2.0
Test not done (%)	1,203 (25.3)	1,424 (22.2)	291 (20.1)	636 (22.6)	744 (19.5)	156 (20.3)	651 (19.7)	751 (17.3)	135 (18.3)	1,287 (21.1)	1,495 (18.4)	291 (19.3)
Missing (%)	337 (6.6)	497 (7.2)	145 (9.1)	156 (5.3)	187 (4.7)	69 (8.2)	105 (3.1)	164 (3.6)	52 (6.6)	261 (4.1)	351 (4.1)	121 (7.4)
HDL-C, mmol/L												
N	3,470	4,876	1,078	2,139	3,003	600	2,619	3,563	591	4,758	6,566	1,191
Mean (SD)	1.1 (0.4)	1.1 (0.4)	1.1 (0.3)	1.1 (0.4)	1.1 (0.3)	1.1 (0.3)	1.1 (0.4)	1.1 (0.3)	1.1 (0.4)	1.1 (0.4)	1.1 (0.3)	1.1 (0.3)
Median (min, max)	1.0 (0.5, 4.6)	1.0 (0.5, 4.9)	1.0 (0.5, 3.3)	1.0 (0.5, 4.5)	1.0 (0.5, 4.7)	1.0 (0.5, 2.3)	1.0 (0.5, 4.3)	1.0 (0.5, 4.9)	1.0 (0.5, 4.6)	1.0 (0.5, 4.5)	1.0 (0.5, 4.9)	1.0 (0.5, 4.6)
IQR	0.3	0.3	0.3	0.4	0.3	0.3	0.4	0.4	0.3	0.4	0.3	0.3
Test not done (%)	1,245 (26.4)	1,497 (23.5)	359 (25.0)	638 (23.0)	766 (20.3)	161 (21.2)	657 (20.1)	755 (17.5)	142 (19.4)	1,295 (21.4)	1,521 (18.8)	303 (20.3)
Missing (%)	385 (7.5)	547 (7.9)	156 (9.8)	188 (6.3)	228 (5.7)	77 (9.2)	134 (3.9)	176 (3.9)	55 (7.0)	322 (5.1)	404 (4.8)	132 (8.1)

Year	2011 – 2013			2014			2015			2014 – 2015		
	Dyslipidaemia	Non-dyslipidaemia	Unknown	Dyslipidaemia	Non-dyslipidaemia	Unknown	Dyslipidaemia	Non-dyslipidaemia	Unknown	Dyslipidaemia	Non-dyslipidaemia	Unknown
Total	5,100 (34.5)	6,920 (46.9)	1,593 (10.8)	2,965 (35.1)	3,997 (47.3)	838 (9.9)	3,410 (36.6)	4,494 (48.3)	788 (8.5)	6,375 (35.9)	8,491 (47.8)	1,626 (9.1)
LDL-C, mmol/L												
N	3,485	4,901	1,085	2,137	3,024	609	2,622	3,576	598	4,759	6,600	1,207
Mean (SD)	3.2 (1.3)	3.3 (1.3)	3.5 (1.3)	3.0 (1.2)	3.3 (1.3)	3.5 (1.4)	3.0 (1.3)	3.3 (1.2)	3.6 (1.3)	3.0 (1.3)	3.3 (1.3)	3.5 (1.4)
Median (min, max)	3.0 (0.5, 12.3)	3.2 (0.5, 12.0)	3.4 (0.7, 12.2)	2.8 (0.5, 11.4)	3.2 (0.5, 14.8)	3.4 (0.7, 18.0)	2.9 (0.6, 13.0)	3.2 (0.5, 9.7)	3.5 (0.6, 9.1)	2.8 (0.5, 13.0)	3.2 (0.5, 14.8)	3.4 (0.6, 18.0)
IQR	1.7	1.6	1.8	1.7	1.6	1.7	1.7	1.6	1.7	1.7	1.6	1.8
Test not done (%)	1,284 (26.9)	1,545 (24.0)	368 (25.3)	679 (24.1)	797 (20.9)	163 (21.1)	682 (20.6)	778 (17.9)	147 (19.7)	1,361 (22.2)	1,575 (19.3)	310 (20.4)
Missing (%)	331 (6.5)	474 (6.8)	140 (8.8)	149 (5.0)	176 (4.4)	66 (7.9)	106 (3.1)	140 (3.1)	43 (5.5)	255 (4.0)	316 (3.7)	109 (6.7)
Triglycerides, mmol/L												
N	3,533	4,956	1,147	2,169	3,047	607	2,638	3,582	602	4,807	6,629	1,209
Mean (SD)	1.8 (1.1)	1.7 (1.1)	1.7 (1.1)	1.8 (1.1)	1.7 (1.0)	1.7 (0.9)	1.7 (1.1)	1.7 (1.0)	1.7 (1.0)	1.8 (1.1)	1.7 (1.0)	1.7 (1.0)
Median (min, max)	1.5 (0.5, 15.0)	1.4 (0.5, 14.5)	1.5 (0.5, 14.6)	1.5 (0.5, 13.3)	1.4 (0.5, 14.4)	1.5 (0.5, 7.1)	1.5 (0.5, 13.9)	1.4 (0.5, 11.2)	1.5 (0.5, 9.0)	1.5 (0.5, 13.9)	1.4 (0.5, 14.4)	1.5 (0.5, 9.0)
IQR	1.0	0.9	0.9	1.0	0.9	0.9	0.9	0.9	0.9	1.0	0.9	0.9
Test not done (%)	1,222 (25.7)	1,455 (22.7)	300 (20.7)	643 (22.9)	757 (19.9)	159 (20.8)	647 (19.7)	755 (17.4)	135 (18.3)	1,290 (21.2)	1,512 (18.6)	294 (19.6)
Missing (%)	345 (6.8)	509 (7.4)	146 (9.2)	153 (5.2)	193 (4.8)	72 (8.6)	125 (3.7)	157 (3.5)	51 (6.5)	278 (4.4)	350 (4.1)	123 (7.6)
* HbA1c, mmol/L												
N	406	428	81	853	885	99	930	1,118	196	1,783	2,003	295
Mean (SD)	7.6 (2.2)	7.9 (2.9)	7.6 (3.4)	7.4 (2.4)	7.6 (2.7)	7.9 (3.6)	7.8 (2.4)	7.8 (3.1)	7.7 (2.9)	7.6 (2.4)	7.7 (2.9)	7.8 (3.2)
Median (min, max)	7.0 (4.3, 16.5)	6.9 (4.2, 32.0)	6.6 (4.2, 30.0)	6.6 (4.0, 31.0)	6.6 (4.0, 32.0)	6.6 (4.7, 31.0)	7.1 (4.1, 26.0)	6.6 (4.1, 32.0)	6.6 (4.0, 32.0)	6.8 (4.0, 31.0)	6.6 (4.0, 32.0)	6.6 (4.0, 32.0)
IQR	2.7	3.5	2.9	2.6	3.5	3.2	3.1	3.2	3.6	2.8	3.3	3.5
Test not done (%)	1,096 (73.0)	1,615 (79.1)	300 (78.7)	1,697 (66.5)	2,436 (73.4)	522 (84.1)	1,942 (67.6)	2,847 (71.8)	421 (68.2)	3,639 (67.1)	5,283 (72.5)	943 (76.2)
Missing (%)	601 (28.6)	927 (31.2)	227 (37.3)	415 (14.0)	676 (16.9)	217 (25.9)	538 (15.8)	529 (11.8)	171 (21.7)	953 (14.9)	1,205 (14.2)	388 (23.9)

*only for 2013

Year	2011 – 2013			2014			2015			2014 – 2015		
	Dyslipidaemia	Non-dyslipidaemia	Unknown	Dyslipidaemia	Non-dyslipidaemia	Unknown	Dyslipidaemia	Non-dyslipidaemia	Unknown	Dyslipidaemia	Non-dyslipidaemia	Unknown
Total	5,100 (34.5)	6,920 (46.9)	1,593 (10.8)	2,965 (35.1)	3,997 (47.3)	838 (9.9)	3,410 (36.6)	4,494 (48.3)	788 (8.5)	6,375 (35.9)	8,491 (47.8)	1,626 (9.1)
Left ventricular ejection fraction, %												
N	2,235	3,085	780	1,392	2,157	468	1,691	2,704	427	3,083	4,861	895
Mean (SD)	46.9 (13.5)	46.3 (12.8)	46.9 (14.1)	47.7 (13.8)	45.9 (12.7)	46.4 (13.0)	47.4 (13.2)	46.0 (12.6)	46.3 (12.6)	47.6 (13.5)	45.9 (12.6)	46.3 (12.8)
Median (min, max)	48.0 (5.3, 88.0)	46.0 (6.3, 89.0)	48.0 (7.2, 88.0)	48.0 (5.1, 90.0)	45.0 (5.3, 85.0)	47.0 (15.0, 80.0)	48.0 (5.3, 86.0)	45.0 (6.0, 90.0)	45.0 (6.0, 76.0)	48.0 (5.1, 90.0)	45.0 (5.3, 90.0)	46.0 (6.0, 80.0)
IQR	19.0	17.0	18.0	17.0	18.0	18.0	15.0	15.0	17.0	15.0	16.0	17.0
Test not done	2,183 (49.4)	2,807 (47.6)	600 (43.5)	1,366 (49.5)	1,547 (41.8)	291 (38.3)	1,471 (46.5)	1,646 (37.8)	305 (41.7)	2,837 (47.9)	3,193 (39.6)	596 (40.0)
Missing (%)	682 (13.4)	1,028 (14.9)	213 (13.4)	207 (7.0)	293 (7.3)	79 (9.4)	248 (7.3)	144 (3.2)	56 (7.1)	455 (7.1)	437 (5.1)	135 (8.3)
ECG, No. (%)												
Inferior leads	1,521 (29.8)	2,388 (34.6)	596 (37.4)	824 (27.8)	1,380 (34.5)	322 (38.4)	967 (28.4)	1,627 (36.2)	313 (39.7)	1,791 (28.1)	3,007 (35.4)	635 (39.1)
Anterior leads	1,920 (37.6)	2,992 (43.2)	744 (46.8)	1,085 (36.6)	1,736 (43.4)	404 (48.2)	1,089 (31.9)	1,905 (42.4)	391 (49.6)	2,174 (34.1)	3,641 (42.9)	795 (48.9)
Lateral leads	1,340 (26.2)	1,803 (26.0)	394 (24.8)	982 (33.1)	1,180 (29.5)	218 (26.0)	1,112 (32.6)	1,337 (29.8)	197 (25.0)	2,094 (32.8)	2,517 (29.6)	415 (25.5)
True posterior	169 (3.4)	306 (4.4)	109 (6.8)	84 (2.8)	176 (4.4)	50 (6.0)	114 (3.3)	220 (4.9)	41 (5.2)	198 (3.1)	396 (4.7)	91 (5.6)
Right ventricle	99 (2.0)	239 (3.4)	85 (5.4)	56 (1.9)	151 (3.8)	35 (4.2)	70 (2.1)	215 (4.8)	40 (5.1)	126 (2.0)	366 (4.3)	75 (4.6)
None	809 (15.8)	830 (12.0)	100 (6.2)	512 (17.3)	487 (12.2)	63 (7.5)	635 (18.6)	535 (11.9)	36 (4.6)	1,147 (18.0)	1,022 (12.0)	99 (6.1)
Not stated/ inadequately described	392 (7.6)	309 (4.4)	81 (5.0)	226 (7.6)	165 (4.1)	25 (3.0)	290 (8.5)	177 (3.9)	28 (3.6)	516 (8.1)	342 (4.0)	53 (3.3)

Year	2011 – 2013			2014			2015			2014 – 2015		
	Dyslipidaemia	Non-dyslipidaemia	Unknown	Dyslipidaemia	Non-dyslipidaemia	Unknown	Dyslipidaemia	Non-dyslipidaemia	Unknown	Dyslipidaemia	Non-dyslipidaemia	Unknown
Total	5,100 (34.5)	6,920 (46.9)	1,593 (10.8)	2,965 (35.1)	3,997 (47.3)	838 (9.9)	3,410 (36.6)	4,494 (48.3)	788 (8.5)	6,375 (35.9)	8,491 (47.8)	1,626 (9.1)
Total number of STEMI patients who were given fibrinolytic therapy at this centre	929 (18.2)	1,821 (26.3)	567 (35.6)	371 (12.5)	1,003 (25.1)	264 (31.5)	399 (11.7)	1,009 (22.5)	280 (35.5)	770 (12.1)	2,012 (23.7)	544 (33.5)
Pain-to-needle time, min (* symptom to treatment)												
N	723	1,365	442	303	842	226	346	849	240	649	1,691	466
Mean (SD)	287.6 (261.4)	291.2 (256.0)	295.2 (249.7)	296.5 (261.1)	296.4 (252.4)	289.9 (235.9)	264.1 (228.4)	290.7 (244.2)	282.3 (250.1)	279.3 (244.6)	293.5 (248.2)	286.0 (243.1)
Median (min, max)	195.0 (15.0, 1439.0)	210.0 (15.0, 1400.0)	210.0 (20.0, 1350.0)	205.0 (30.0, 1380.0)	220.0 (15.0, 1425.0)	220.0 (30.0, 1320.0)	187.5 (20.0, 1370.0)	205.0 (20.0, 1440.0)	210.0 (15.0, 1430.0)	195.0 (20.0, 1380.0)	210.0 (15.0, 1440.0)	220.0 (15.0, 1430.0)
IQR	245.0	220.0	230.0	235.0	213.0	205.0	215.0	210.0	221.5	210.0	210.0	215.0
Missing (%)	206 (22.2)	456 (25.0)	125 (22.0)	68 (18.3)	161 (16.1)	38 (14.4)	53 (13.3)	160 (15.9)	40 (14.3)	121 (15.7)	321 (16.0)	78 (14.3)
Pain-to-needle time, No. (%)												
≤ 180 min	351 (48.5)	602 (44.1)	195 (44.1)	129 (42.6)	343 (40.7)	92 (40.7)	171 (49.4)	361 (42.5)	104 (43.3)	300 (46.2)	704 (41.6)	196 (42.1)
> 180 min	372 (51.5)	763 (55.9)	247 (55.9)	174 (57.4)	499 (59.3)	134 (59.3)	175 (50.6)	488 (57.5)	136 (56.7)	349 (53.8)	987 (58.4)	270 (57.9)
Missing	206	456	125	68	161	38	53	160	40	121	321	78

* Definition was different in CRF version 2013

** Symptom to treatment is the time difference between onset of ACS symptom and when patient was given fibrinolytic therapy

Note: Not all participating centres performed Troponin T or Troponin I tests

Note: Percentage is to the nearest decimal point

Table 3.7 TIMI risk score of patients with ACS by ACS stratum, NCVI-ACS Registry, 2014 – 2015

Year	2011 – 2013		2014		2015		2014 – 2015	
	STEMI	NSTEMI/UA	STEMI	NSTEMI/UA	STEMI	NSTEMI/UA	STEMI	NSTEMI/UA
ACS stratum								
Total	7,502	7,261	3,886	4,572	4,304	5,009	8,190	9,581
TIMI Risk Score, No. (%)								
0	108 (1.4)	697 (9.6)	74 (1.9)	299 (6.5)	67 (1.6)	347 (6.9)	141 (1.7)	646 (6.7)
1	759 (10.1)	1,597 (22.0)	374 (9.6)	866 (18.9)	507 (11.8)	990 (19.8)	881 (10.8)	1,856 (19.4)
2	1,374 (18.3)	1,955 (26.9)	763 (19.6)	1,187 (26.0)	885 (20.6)	1,253 (25.0)	1,648 (20.1)	2,440 (25.5)
3	1,215 (16.2)	1,734 (23.9)	641 (16.5)	1,089 (23.8)	709 (16.5)	1,246 (24.9)	1,350 (16.5)	2,335 (24.4)
4	1,071 (14.3)	908 (12.5)	553 (14.2)	740 (16.2)	646 (15.0)	766 (15.3)	1,199 (14.6)	1,506 (15.7)
5	1,130 (15.1)	306 (4.2)	568 (14.6)	315 (6.9)	580 (13.5)	334 (6.7)	1,148 (14.0)	649 (6.8)
6	651 (8.7)	58 (0.8)	316 (8.1)	72 (1.6)	290 (6.7)	65 (1.3)	606 (7.4)	137 (1.4)
7	541 (7.2)	6 (0.1)	287 (7.4)	4 (0.1)	292 (6.8)	8 (0.2)	579 (7.1)	12 (0.1)
8	284 (3.8)		130 (3.3)		158 (3.7)		288 (3.5)	
9	186 (2.5)		95 (2.4)		88 (2.0)		183 (2.2)	
10	127 (1.7)		58 (1.5)		55 (1.3)		113 (1.4)	
11	34 (0.5)		12 (0.3)		19 (0.4)		31 (0.4)	
12	19 (0.3)		12 (0.3)		6 (0.1)		18 (0.2)	
13	3 (0.0)		3 (0.1)		2 (0.0)		5 (0.1)	

CHAPTER 4: TREATMENT

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CHAPTER 4: TREATMENTJayakhanthan Kolanthaivelu¹, Ng Yau Piow¹, Mohd Rahal Yusoff², Rosli Mohd Ali¹*1 Institut Jantung Negara, 2 Columbia Asia Klang***Summary**

1. Similar lengths of admission was observed in CCU/ICU for all spectrums of ACS and age groups.
2. The use of DAPT was up to 96% for STEMI and more than 90% for NSTEMI. Use of statin was more than 90% for all spectrum of ACS.
3. Use of beta blocker upon discharge was 69% for STEMI, 67.2% for NSTEMI and 66.9% for UA.
4. Use of ACE inhibitor/ARB upon discharge were 56.1%, 50.5%, and 54.5% for STEMI, NSTEMI and UA respectively.
5. 81% of STEMI patients who presented to non-PCI capable centres received fibrinolysis.
6. 16.4% of STEMI patients presenting to PCI-capable centres underwent primary PCI, a significant increase compared to previous report.
7. The median door-to-needle (DTN) time was 45 minutes; and 35.2% achieved DTN time of less than 30 minutes.
8. The median door-to-device (balloon) (DTB) time was 69 minutes; and 63.6% achieved DTB time of less than 90 minutes.

Pattern of admission

The total number of days of admission was almost similar in all the ACS spectrum. Compared to the previous cohort, total numbers of days of admission for STEMI and NSTEMI were 5 days each, and 4 days for UA. The number of days in critical care (ICU/CCU/CICU) was in the range of 2 – 3 days, which was shorter compared to the 2011 – 2013 period.

There was no significant gender difference in the number of days spent in hospital or in critical care units. When compared by age, no significant difference in the length of stay in hospital or critical care units was noted. There was no difference in the number of days spent in hospital or critical care units among all three ethnic groups (Malay, Chinese and Indians).

Pharmacological therapy

Dual anti-platelet (DAPT) use was commendable. More than 96% of the STEMI cohort used aspirin and ADP antagonist upon discharge. For NSTEMI, 93.2% was on aspirin and 91.9% was discharged with an ADP antagonist. The use of aspirin was over 91.6% in the UA cohort; however the use of ADP antagonist in this cohort was only 86.4%. A lower proportion of females were on an ADP antagonist. There was no difference in the use of DAPT between the different age groups and ethnic groups.

Anti-coagulant use was also encouraging during the index hospital admission. Use of anti-coagulant (unfractionated heparin, LMWH, fondaparinux or OAC) was over 90%. There were no differences in terms of ethnicity, age or gender.

Use of lipid lowering agents upon discharge reached 90 – 94% for the HMG CoA reductase group. There were no significant differences between the different age strata, gender or ethnic groups.

The use of beta blockers upon discharge was 69.8% for STEMI, 67.2% for NSTEMI and 66.9% for UA. For patients with STEMI, beta blocker use upon discharge was lower in the elderly (66.1%) compared to the other age strata (75.2% in the young and 71% in the middle-aged). Its use among Malay, Chinese and Indian ethnic groups were similar (68.4%, 68.7% and 69.6% respectively). For the “other ethnic origin”, beta blocker use upon discharge was as high as 76.4%. For patients with NSTEMI/UA, a lower percentage of females were discharged with a beta blocker compared to STEMI (63.5% vs 68.4%). There was no significant difference in its use among the different age and ethnic strata.

As for ACE inhibitors, 56.1%, 50.5% and 54.5% of patients with STEMI, NSTEMI, and UA respectively received these drugs upon discharge. There was a higher use of ARB for the NSTEMI and UA cohorts compared to STEMI (8.1% vs 12.2% vs 3.0% respectively). For STEMI, there was a lower use of ACE inhibitor in the elderly age group (52.5%) and in the female gender (52.9% vs 56.5% in males); however the use of ARB was highest in the elderly age group (4%) and higher in women (4.1% vs 2.8% in males). There was no significant difference in the use of ACE inhibitor upon discharge amongst the different ethnic groups. For NSTEMI/UA, the use of ARB in the middle and elderly age group was higher compared to the young patients (9.6% vs 11.3% vs 4.3% respectively). There was also an increase in the use of ARB upon discharge in women (11.7% vs 9.8%).

Use of diuretics during hospitalisation was also higher in NSTEMI (37.2%) and UA (28.2%) compared to STEMI (22.8%), indicating that patients with NSTEMI presented with a more decompensated heart failure. The use was also higher in the elderly group.

Use of oral hypoglycaemic agent upon discharge was notably higher in NSTEMI and UA (28.9% and 37.3% respectively) compared to STEMI (24.3%). There was a higher use of these agents among females, in the middle-aged and elderly age strata and in the Indian ethnic group.

Insulin use during hospitalisation was higher in the NSTEMI cohort (28.3%) followed by STEMI (26.2%) and UA (22.4%). The use of insulin was highest in the Indian ethnic group, middle and elderly age strata and in females. Upon discharge, insulin was prescribed in 20.1% of patients in the NSTEMI cohort, 18.3% in the UA cohort and 14.4% in the STEMI cohort. In the STEMI cohort, insulin was used more in the middle-aged and elderly groups, women, and the Indian ethnic group. This trend was also seen in the NSTEMI/UA cohort.

Revascularisation

There were 8190 cases of STEMI reported during the period of 2014 – 2015. In general, 69.2% of them received fibrinolytic therapy and 13.7% proceeded directly to primary PCI, which saw an increase of 4.3% compared to the previous cohort. A significant number of patients (13.4%) missed fibrinolytic therapy. Another 3.4% of STEMI patients did not receive fibrinolytic therapy because of contraindications. For those who received fibrinolytic therapy, the median symptom onset to needle time was similar (210 minutes) to the previous period. Women tend to have a longer delay (265 minutes) compared to males (202.5 minutes). Diabetic (225 minutes) and hypertensive (225 minutes) patients also tend to have longer delays compared to patients without diabetes (200 minutes) or hypertension (195 minutes). The elderly also had a longer delay compared to other age group strata. (220 minutes vs 200 minutes)

For STEMI, 81% of patients presented to a non-PCI-capable centre received fibrinolytic therapy as their reperfusion strategy. 18.1 % did not receive any form of reperfusion; 13.8% of which was due to missed MI, 4.2% had a contra-indication for thrombolysis, and 0.1% refused any form of reperfusion therapy. A very small percentage was transferred to a PCI-capable centre for primary angioplasty as their reperfusion strategy (0.1%).

For the majority of patients, the median of symptom onset to needle time still exceeded the 180-minute timeframe. The longest delay in presentation was seen in females (260 minutes), followed by diabetic and hypertensive patients (225 minutes respectively), and the elderly group (220 minutes).

For STEMI patients who presented to a PCI-capable centre, 39% had fibrinolytic therapy as their primary reperfusion strategy, with only 16.4% who underwent primary PCI. About twenty-eight

percent (27.8%) had fibrinolytic therapy at a different centre and was transferred to a PCI-capable centre either due to hemodynamic instability, for rescue PCI, or as part of the pharmaco-invasive strategy. Almost 17% (16.8%) did not receive any form of reperfusion strategy; 13.3% of which was due to missed MI, 3.2% had contra-indication for thrombolysis and 0.3% refused any form of reperfusion therapy. During index hospitalisation, 49.7% underwent in-patient PCI and 1.1% had CABG for STEMI.

The median door-to-needle (DTN) time was 45 minutes; and 35.2% achieved DTN time of less than 30 minutes. Although the median DTN time had remained the same, there were fewer patients achieving a DTN time of less than 30 minutes (35.2%) compared to the previous report (39.2%). Efforts are already underway among the emergency physicians to address this issue to improve the overall DTN time.

The median door-to-device (balloon) (DTB) time was 69 minutes, and 63.6% achieved DTB time of less than 90 minutes. There was great improvement in patients' achieving median DTB time of less than 90 minutes compared to the previous report (63.6% vs 45.3%).

24.6% of NSTEMI and 11.4% of UA had PCI during the index hospitalisation. 1.9% of NSTEMI had CABG during the index hospitalisation.

A higher proportion of middle-aged patients underwent PCI compared to the young and elderly patients (18.2% vs 13.4% vs 13.7% respectively). The proportion of patients in the young age strata receiving PCI during index hospitalisation (13.4%) had dropped from the 2011 – 2013 period (21.8%). Females also had a lower proportion of PCI compared to males (12.9% vs 16.6%). "Other ethnic group" patients (24.6%) had the highest proportion of PCI during the index hospitalisation followed by the Indians (15.7%), Chinese (14.7%) and Malays (14.2%).

Table 4.1 Summary of treatments for patients with ACS by ACS stratum, NCVd-ACS Registry, 2014 – 2015

Year	2011 – 2013				2014				2015				2014 – 2015			
	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	
ACS stratum																
Total	7,502	3,842	3,419	3,886	2,049	2,523	4,304	2,430	2,579	8,190	4,479	5,102	4,479	5,102		
#*Total admission days																
N	7,322	3,766	3,393	3,862	2,033	2,510	4,260	2,410	2,566	8,122	4,443	5,076	4,443	5,076		
Mean (SD)	6.4 (6.5)	7.0 (8.0)	5.3 (6.0)	6.0 (5.6)	6.8 (7.2)	5.1 (6.0)	5.8 (5.4)	6.4 (6.8)	5.0 (5.8)	5.9 (5.5)	6.6 (7.0)	5.0 (5.9)	6.6 (7.0)	5.0 (5.9)		
Median (min, max)	5.0 (1.0, 98.0)	5.0 (1.0, 100.0)	4.0 (1.0, 95.0)	5.0 (1.0, 94.0)	5.0 (1.0, 97.0)	4.0 (1.0, 96.0)	5.0 (1.0, 82.0)	5.0 (1.0, 95.0)	4.0 (1.0, 95.0)	5.0 (1.0, 94.0)	5.0 (1.0, 97.0)	4.0 (1.0, 96.0)	5.0 (1.0, 97.0)	4.0 (1.0, 96.0)		
IQR	2.0	4.0	2.0	2.0	4.0	2.0	2.0	4.0	2.0	2.0	4.0	2.0	4.0	2.0		
Missing	180 (2.4)	77 (2.0)	26 (0.8)	24 (0.6)	16 (0.8)	13 (0.5)	44 (1.0)	20 (0.8)	13 (0.5)	68 (0.8)	36 (0.8)	26 (0.5)	36 (0.8)	26 (0.5)		
Number of days in CCU																
N	4,693	975	334	2,396	469	173	2,706	564	182	5,102	1,033	355	1,033	355		
Mean (SD)	3.4 (2.9)	3.7 (3.5)	3.3 (2.9)	3.1 (2.7)	4.2 (4.1)	3.6 (2.9)	2.8 (2.3)	3.6 (3.0)	2.9 (2.9)	3.0 (2.5)	3.9 (3.5)	3.2 (2.9)	3.9 (3.5)	3.2 (2.9)		
Median (min, max)	3.0 (1.0, 30.0)	3.0 (1.0, 30.0)	3.0 (1.0, 23.0)	3.0 (1.0, 30.0)	3.0 (1.0, 30.0)	3.0 (1.0, 15.0)	2.0 (1.0, 30.0)	3.0 (1.0, 28.0)	2.0 (1.0, 22.0)	2.0 (1.0, 30.0)	3.0 (1.0, 30.0)	2.0 (1.0, 22.0)	3.0 (1.0, 30.0)	2.0 (1.0, 22.0)		
IQR	2.0	2.0	2.0	2.0	3.0	2.0	1.0	2.0	2.0	2.0	3.0	2.0	3.0	2.0		
No admission to CCU	2,796 (37.3)	2,861 (74.6)	3,085 (90.2)	1,484 (38.2)	1,577 (77.1)	2,349 (93.1)	1,593 (37.1)	1,863 (76.8)	2,397 (92.9)	3,077 (37.6)	3,440 (76.9)	4,746 (93.0)	3,440 (76.9)	4,746 (93.0)		
Missing	13 (0.2)	6 (0.2)	0 (0.0)	6 (0.2)	3 (0.1)	1 (0.0)	5 (0.1)	3 (0.1)	0 (0.0)	11 (0.1)	6 (0.1)	1 (0.0)	6 (0.1)	1 (0.0)		
Number of days in ICU/CICU																
N	80	39	22	77	59	43	38	19	14	115	78	57	78	57		
Mean (SD)	3.3 (3.1)	6.1 (5.9)	4.6 (2.9)	3.2 (2.2)	3.8 (2.6)	3.7 (1.9)	4.6 (4.3)	5.1 (3.7)	3.7 (2.0)	3.7 (3.1)	4.2 (2.9)	3.7 (1.9)	4.2 (2.9)	3.7 (1.9)		
Median (min, max)	3.0 (1.0, 23.0)	4.0 (1.0, 26.0)	4.0 (1.0, 13.0)	3.0 (1.0, 15.0)	3.0 (1.0, 12.0)	3.0 (1.0, 8.0)	3.0 (1.0, 21.0)	4.0 (1.0, 15.0)	3.0 (2.0, 9.0)	3.0 (1.0, 21.0)	3.0 (1.0, 15.0)	3.0 (1.0, 9.0)	3.0 (1.0, 15.0)	3.0 (1.0, 9.0)		
IQR	2.0	6.0	3.0	2.0	2.0	3.0	4.0	4.0	2.0	3.0	3.0	2.0	3.0	3.0		
No admission to ICU/CICU	7,418 (99.1)	3,803 (99.1)	3,397 (99.4)	3,807 (98.1)	1,990 (97.3)	2,480 (98.3)	4,266 (99.2)	2,411 (99.3)	2,565 (99.5)	8,073 (98.7)	4,401 (98.4)	5,045 (98.9)	4,401 (98.4)	5,045 (98.9)		
Missing	4 (0.1)	0 (0.0)	0 (0.0)	2 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)		

Year	2011 – 2013			2014			2015			2014 – 2015		
	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA
ACS stratum												
Total	7,502	3,842	3,419	3,886	2,049	2,523	4,304	2,430	2,579	8,190	4,479	5,102
Fibrinolytic therapy, No. (%)												
Given at this centre	3,717 (50.8)			1,806 (46.7)			1,861 (43.5)			3,667 (45.0)		
Given at another centre prior to transfer	1,770 (24.2)			966 (25.0)			1,007 (23.5)			1,973 (24.2)		
Not given-Proceeded directly to primary angioplasty	691 (9.4)			411 (10.6)			704 (16.5)			1,115 (13.7)		
Not given-Missed thrombolysis	827 (11.3)			531 (13.7)			557 (13.0)			1,088 (13.4)		
Not given-Patient refusal	34 (0.4)			10 (0.3)			14 (0.3)			24 (0.3)		
Not given-Contraindicated	285 (3.9)			141 (3.6)			136 (3.2)			277 (3.4)		
Not applicable	24			9			15			24		
Not available	48			12			10			22		
Missing	106			0			0			0		
Cardiac catheterisation, No. (%)												
Yes	2,650 (37.8)	1,210 (35.4)	591 (20.4)	1,769 (46.9)	618 (31.8)	495 (20.3)	2,161 (51.2)	888 (37.5)	591 (23.4)	3,930 (49.1)	1,506 (34.9)	1,086 (21.8)
No	4,159 (59.2)	2,126 (62.2)	2,232 (76.8)	1,987 (52.6)	1,321 (68.0)	1,939 (79.4)	2,038 (48.3)	1,477 (62.3)	1,934 (76.5)	4,025 (50.3)	2,798 (64.8)	3,873 (77.9)
Number transferred to another centre	206 (3.0)	83 (2.4)	82 (2.8)	18 (0.5)	5 (0.3)	8 (0.3)	24 (0.6)	6 (0.3)	4 (0.2)	42 (0.5)	11 (0.3)	12 (0.2)
Missing	487	423	514	112	105	81	81	59	50	193	164	131
Percutaneous coronary intervention, No. (%)												
Yes	2,218 (33.4)	685 (21.0)	296 (10.8)	1,427 (39.2)	340 (17.9)	254 (10.6)	1,761 (44.0)	545 (23.7)	275 (11.2)	3,188 (41.7)	885 (21.1)	529 (10.9)
No	4,391 (66.2)	2,577 (78.9)	2,432 (89.0)	2,205 (60.5)	1,557 (81.8)	2,142 (89.4)	2,217 (55.5)	1,744 (76.0)	2,178 (88.6)	4,422 (57.9)	3,301 (78.6)	4,320 (89.0)
Not applicable	24 (0.4)	4 (0.1)	4 (0.1)	11 (0.3)	6 (0.3)	1 (0.0)	20 (0.5)	6 (0.3)	5 (0.2)	31 (0.4)	12 (0.3)	6 (0.1)
Missing	869	576	687	243	146	126	306	135	121	549	281	247

Year	2011 – 2013				2014				2015				2014 – 2015			
	STEMI	NSTEMI	UA		STEMI	NSTEMI	UA		STEMI	NSTEMI	UA		STEMI	NSTEMI	UA	
ACS stratum																
Total	7,502	3,842	3,419		3,886	2,049	2,523		4,304	2,430	2,579		8,190	4,479	5,102	
CABG, No. (%)																
Yes	66 (1.0)	83 (2.7)	49 (1.8)		30 (0.8)	39 (2.1)	44 (1.8)		39 (1.0)	31 (1.3)	37 (1.5)		69 (0.9)	70 (1.7)	81 (1.7)	
No	6,228 (98.4)	3,015 (97.1)	2,664 (97.8)		3,539 (98.3)	1,838 (97.3)	2,357 (97.8)		3,987 (98.4)	2,262 (98.1)	2,429 (98.3)		7,526 (98.3)	4,100 (97.7)	4,786 (98.0)	
Not applicable	38 (0.6)	6 (0.2)	11 (0.4)		32 (0.9)	12 (0.6)	9 (0.4)		26 (0.6)	13 (0.6)	6 (0.2)		58 (0.8)	25 (0.6)	15 (0.3)	
Missing	1,170	738	695		285	160	113		252	124	107		537	284	220	
Pre-admission aspirin use, No. (%)																
Yes	1,430 (20.0)	1,594 (44.6)	1,950 (60.4)		683 (18.2)	913 (46.3)	1,601 (65.6)		712 (17.0)	1,051 (44.9)	1,616 (64.2)		1,395 (17.5)	1,964 (45.5)	3,217 (64.9)	
No	5,707 (80.0)	1,979 (55.4)	1,279 (39.6)		3,076 (81.8)	1,057 (53.7)	840 (34.4)		3,483 (83.0)	1,292 (55.1)	903 (35.8)		6,559 (82.5)	2,349 (54.5)	1,743 (35.1)	
Missing	365	269	190		127	79	82		109	87	60		236	166	142	
Pharmacological therapy given during admission, No. (%)																
Aspirin	7,048 (97.2)	3,584 (97.0)	3,119 (95.4)		3,724 (98.0)	1,941 (97.0)	2,412 (97.2)		4,135 (97.2)	2,315 (96.4)	2,435 (95.5)		7,859 (97.6)	4,256 (96.7)	4,847 (96.3)	
*ADP antagonist	6,151 (91.2)	3,042 (89.4)	2,643 (84.4)		3,717 (97.6)	1,876 (95.3)	2,335 (95.2)		4,177 (98.3)	2,339 (97.5)	2,379 (94.1)		7,894 (98.0)	4,215 (96.5)	4,714 (94.6)	
GP receptor inhibitor	235 (3.8)	62 (2.0)	50 (1.6)		62 (2.0)	4 (0.2)	8 (0.4)		116 (3.0)	8 (0.4)	5 (0.2)		178 (2.5)	12 (0.3)	13 (0.3)	
Unfractionated heparin	939 (15.0)	338 (11.0)	242 (8.2)		569 (17.7)	137 (7.5)	72 (3.4)		742 (19.1)	162 (7.2)	100 (4.6)		1,311 (18.5)	299 (7.4)	172 (4.0)	
LMWH	2,795 (43.2)	1,850 (56.6)	1,487 (48.6)		556 (17.4)	507 (27.4)	399 (18.6)		638 (16.3)	570 (25.1)	439 (19.6)		1,194 (16.8)	1,077 (26.1)	838 (19.1)	
Fondaparinux	1,240 (53.9)	794 (67.7)	926 (74.3)		1,831 (53.4)	1,177 (62.3)	1,791 (76.1)		2,502 (60.3)	1,581 (67.7)	1,844 (74.5)		4,333 (57.2)	2,758 (65.3)	3,635 (75.3)	
Oral anticoagulant (eg. Warfarin)	27 (1.3)	23 (2.1)	36 (3.1)		45 (1.4)	47 (2.6)	64 (3.1)		70 (1.8)	58 (2.6)	65 (3.0)		115 (1.6)	105 (2.6)	129 (3.0)	
Beta blocker	4,221 (63.4)	2,172 (65.0)	2,223 (70.0)		1,974 (58.7)	1,116 (59.1)	1,545 (65.4)		2,355 (59.3)	1,496 (63.9)	1,643 (66.2)		4,329 (59.0)	2,612 (61.8)	3,188 (65.8)	
ACE inhibitor	3,556 (54.0)	1,894 (58.0)	1,884 (59.8)		1,490 (44.8)	861 (46.1)	1,212 (52.6)		1,967 (49.3)	1,145 (49.4)	1,395 (56.8)		3,457 (47.3)	2,006 (48.0)	2,607 (54.8)	

Year	2011 – 2013			2014			2015			2014 – 2015		
	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA
ACS stratum												
Total	7,502	3,842	3,419	3,886	2,049	2,523	4,304	2,430	2,579	8,190	4,479	5,102
Pharmacological therapy given during admission, No. (%)												
Angiotensin II receptor blocker	228 (3.6)	281 (9.2)	353 (11.8)	63 (2.0)	118 (6.5)	258 (11.9)	84 (2.2)	150 (6.7)	237 (10.6)	147 (2.1)	268 (6.6)	495 (11.3)
Statin	6,617 (92.4)	3,263 (92.4)	2,959 (91.2)	3,468 (92.1)	1,755 (89.7)	2,276 (93.0)	3,986 (94.1)	2,212 (92.5)	2,409 (94.3)	7,454 (93.2)	3,967 (91.2)	4,685 (93.7)
Other lipid lowering agent	199 (3.2)	154 (5.0)	181 (6.0)	61 (1.9)	54 (3.0)	80 (3.8)	64 (1.7)	56 (2.5)	77 (3.5)	125 (1.8)	110 (2.7)	157 (3.7)
Diuretics	1,496 (23.2)	1,173 (36.6)	860 (28.0)	743 (22.9)	728 (38.8)	640 (29.4)	892 (22.7)	814 (35.8)	610 (27.0)	1,635 (22.8)	1,542 (37.2)	1,250 (28.2)
Calcium antagonist	383 (6.2)	600 (19.4)	720 (23.8)	154 (4.9)	309 (16.8)	558 (25.6)	175 (4.5)	381 (17.0)	569 (25.2)	329 (4.7)	690 (16.9)	1,127 (25.4)
Oral hypoglycaemic agent	1,248 (19.6)	937 (29.4)	1,028 (33.6)	552 (17.2)	479 (26.0)	789 (35.9)	585 (15.1)	573 (25.3)	838 (36.3)	1,137 (16.1)	1,052 (25.6)	1,627 (36.1)
Insulin	1,577 (24.4)	837 (26.4)	617 (20.2)	913 (28.0)	498 (26.8)	489 (22.6)	972 (24.8)	666 (29.5)	500 (22.2)	1,885 (26.2)	1,164 (28.3)	989 (22.4)
Anti-arrhythmic agent	518 (8.2)	224 (7.2)	154 (5.2)	262 (8.4)	132 (7.3)	116 (5.6)	192 (5.0)	119 (5.4)	80 (3.7)	454 (6.5)	251 (6.3)	196 (4.6)
Pharmacological therapy given at discharge, No (%)												
Aspirin	5,767 (96.5)	3,095 (94.6)	2,958 (93.5)	3,154 (96.5)	1,646 (92.9)	2,223 (92.5)	3,501 (95.8)	1,986 (93.5)	2,233 (90.6)	6,655 (96.1)	3,632 (93.2)	4,456 (91.6)
*ADP antagonist	5,140 (91.5)	2,597 (86.1)	2,383 (79.3)	3,153 (96.5)	1,564 (90.0)	2,050 (86.9)	3,547 (97.0)	1,977 (93.3)	2,070 (85.9)	6,700 (96.8)	3,541 (91.9)	4,120 (86.4)
Fondaparinux	104 (5.6)	50 (4.8)	75 (6.3)	61 (2.3)	46 (2.8)	57 (2.8)	73 (2.2)	58 (2.9)	68 (3.0)	134 (2.2)	104 (2.8)	125 (2.9)
Oral anticoagulant (eg. Warfarin)	41 (2.2)	34 (3.4)	30 (2.6)	70 (2.6)	45 (2.8)	73 (3.6)	96 (2.9)	78 (3.9)	84 (4.0)	166 (2.7)	123 (3.4)	157 (3.8)
Beta blocker	4,074 (71.8)	2,046 (68.2)	2,150 (69.6)	2,100 (69.9)	1,090 (64.2)	1,523 (66.4)	2,415 (69.8)	1,455 (69.6)	1,622 (67.3)	4,515 (69.8)	2,545 (67.2)	3,145 (66.9)
ACE inhibitor	3,374 (60.5)	1,760 (59.8)	1,826 (59.6)	1,585 (54.3)	815 (48.5)	1,165 (52.1)	1,989 (57.5)	1,076 (52.1)	1,355 (56.8)	3,574 (56.1)	1,891 (50.5)	2,520 (54.5)
Angiotensin II receptor blocker	221 (4.2)	248 (8.9)	32 (10.9)	84 (3.1)	119 (7.3)	265 (12.7)	96 (2.9)	172 (8.7)	252 (11.7)	180 (3.0)	291 (8.1)	517 (12.2)

Year	2011 – 2013			2014			2015			2014 – 2015		
	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA
ACS stratum												
Total	7,502	3,842	3,419	3,886	2,049	2,523	4,304	2,430	2,579	8,190	4,479	5,102
Statin	5,552 (93.2)	2,898 (92.1)	2,872 (91.1)	3,041 (93.8)	1,565 (89.5)	2,186 (91.6)	3,433 (94.2)	1,950 (92.0)	2,285 (92.6)	6,474 (94.0)	3,515 (90.9)	4,471 (92.1)
Other lipid lowering agent	192 (3.6)	122 (4.4)	161 (5.5)	67 (2.5)	49 (3.0)	77 (3.8)	77 (2.3)	69 (3.5)	80 (3.8)	144 (2.4)	118 (3.3)	157 (3.8)
Diuretics	833 (15.5)	853 (29.9)	747 (25.1)	475 (17.1)	531 (31.9)	547 (25.8)	579 (17.2)	603 (30.1)	536 (24.6)	1,054 (17.1)	1,134 (30.9)	1,083 (25.2)
Calcium antagonist	281 (5.3)	491 (17.5)	673 (22.8)	133 (4.9)	274 (16.7)	526 (24.9)	143 (4.3)	328 (16.5)	531 (24.1)	276 (4.5)	602 (16.6)	1,057 (24.5)
Oral hypoglycaemic agent	1,447 (26.7)	948 (32.8)	1,032 (34.5)	708 (25.3)	475 (28.6)	798 (37.3)	791 (23.5)	591 (29.2)	839 (37.4)	1,499 (24.3)	1,066 (28.9)	1,637 (37.3)
Insulin	650 (12.2)	501 (17.6)	477 (16.1)	436 (15.8)	307 (18.6)	382 (18.2)	447 (13.3)	428 (21.3)	402 (18.4)	883 (14.4)	735 (20.1)	784 (18.3)
Anti-arrhythmic agent	317 (6.0)	149 (5.4)	142 (4.8)	188 (6.9)	101 (6.2)	101 (5.0)	94 (2.8)	77 (3.9)	58 (2.7)	282 (4.7)	178 (4.9)	159 (3.8)

Total admission days is derived from Outcome date-Admission date + 1

^ Acceptable range between the previous report (2009 & 2010) and this current version (2011 – 2013) was different

* For CRF version 2013, details of the breakdown are available for ticlopidine, clopidogrel, prasugrel and ticagrelor. These drugs are grouped as ADP antagonist in this current version (2011 – 2013)

Table 4.2 Treatments for patients with STEMI by age group (years), NCVS-ACS Registry, 2014 – 2015

Year	2011 – 2013			2014			2015			2014 – 2015		
	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly
Age group												
Total	655	4,089	2,758	353	2,122	1,411	428	2,328	1,548	781	4,450	2,959
# Total admission days												
N	639	3,991	2,692	352	2,110	1,400	426	2,307	1,527	778	4,417	2,927
Mean (SD)	6.0 (5.7)	6.2 (6.4)	6.7 (6.9)	5.3 (3.0)	5.9 (5.2)	6.4 (6.6)	5.0 (3.4)	5.7 (4.6)	6.4 (6.7)	5.1 (3.2)	5.8 (4.9)	6.4 (6.6)
Median (min, max)	5.0 (1.0, 80.0)	5.0 (1.0, 97.0)	5.0 (1.0, 98.0)	5.0 (1.0, 26.0)	5.0 (1.0, 71.0)	5.0 (1.0, 94.0)	4.5 (1.0, 38.0)	5.0 (1.0, 63.0)	5.0 (1.0, 82.0)	5.0 (1.0, 38.0)	5.0 (1.0, 71.0)	5.0 (1.0, 94.0)
IQR	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0	4.0	2.0	2.0	3.0
Missing	16 (2.4)	98 (2.4)	66 (2.4)	1 (0.3)	12 (0.6)	11 (0.8)	2 (0.5)	21 (0.9)	21 (1.4)	3 (0.4)	33 (0.7)	32 (1.1)
Number of days in CCU												
N	406	2,577	1,710	227	1,290	879	271	1,464	971	498	2,754	1,850
Mean (SD)	3.3 (2.5)	3.3 (2.6)	3.7 (3.4)	3.0 (2.3)	3.1 (2.5)	3.2 (2.9)	2.6 (1.7)	2.8 (2.2)	2.9 (2.5)	2.7 (2.0)	2.9 (2.4)	3.1 (2.7)
Median (min, max)	3.0 (1.0, 25.0)	3.0 (1.0, 30.0)	3.0 (1.0, 28.0)	3.0 (1.0, 20.0)	2.0 (1.0, 30.0)	3.0 (1.0, 28.0)	2.0 (1.0, 15.0)	2.0 (1.0, 30.0)	2.0 (1.0, 29.0)	2.0 (1.0, 20.0)	2.0 (1.0, 30.0)	2.0 (1.0, 29.0)
IQR	2.0	2.0	2.0	1.0	2.0	2.0	2.0	1.0	1.0	1.0	2.0	2.0
No admission to CCU	248 (37.9)	1,507 (36.9)	1,041 (37.8)	125 (35.5)	828 (39.1)	531 (37.7)	157 (36.9)	861 (37.0)	575 (37.1)	282 (36.2)	1,689 (38.0)	1,106 (37.4)
Missing	1 (0.2)	5 (0.1)	7 (0.3)	1 (0.3)	4 (0.2)	1 (0.1)	3 (0.7)	2 (0.1)	0 (0.0)	1 (0.1)	7 (0.2)	3 (0.1)
Number of days in ICU/CICU												
N	6	46	28	3	48	26	0	26	12	3	74	38
Mean (SD)	1.8 (0.8)	3.4 (3.4)	3.5 (2.9)	2.7 (2.1)	3.1 (2.2)	3.5 (2.2)	0.0 (0.0)	3.6 (2.5)	6.8 (6.4)	2.7 (2.1)	3.3 (2.3)	4.6 (4.2)
Median (min, max)	2.0 (1.0, 3.0)	3.0 (1.0, 23.0)	2.5 (1.0, 16.0)	2.0 (1.0, 5.0)	3.0 (1.0, 15.0)	3.0 (1.0, 11.0)	0.0 (0.0, 0.0)	3.0 (1.0, 10.0)	4.0 (1.0, 21.0)	2.0 (1.0, 5.0)	3.0 (1.0, 15.0)	3.0 (1.0, 21.0)
IQR	1.0	2.0	2.0	4.0	2.0	2.0	0	4.0	6.5	4.0	2.0	3.0
No admission to ICU/CICU	647 (98.9)	4,041 (98.9)	2,730 (99.2)	349 (99.1)	2,073 (97.9)	1,385 (98.2)	428 (100.7)	2,302 (99.0)	1,536 (99.2)	777 (99.6)	4,375 (98.5)	2,921 (98.8)
Missing	2 (0.3)	2 (0.0)	0 (0.0)	1 (0.3)	1 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.1)	1 (0.0)	0 (0.0)

Year	2011 – 2013			2014			2015			2014 – 2015		
	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly
Age group												
Total	655	4,089	2,758	353	2,122	1,411	428	2,328	1,548	781	4,450	2,959
Fibrinolytic therapy, No. (%)												
Given at this centre	329 (51.4)	2,071 (51.8)	1,317 (49.0)	183 (52.1)	1,011 (47.9)	612 (43.6)	194 (45.9)	1,020 (44.1)	647 (41.9)	377 (48.7)	2,031 (45.9)	1,259 (42.7)
Given at another centre prior to transfer	170 (26.6)	990 (24.8)	610 (22.7)	81 (23.1)	547 (25.9)	338 (24.1)	97 (22.9)	554 (24.0)	356 (23.1)	178 (23.0)	1,101 (24.9)	694 (23.6)
Not given-Proceeded directly to primary angioplasty	60 (9.4)	383 (9.6)	248 (9.2)	43 (12.3)	223 (10.6)	145 (10.3)	81 (19.1)	375 (16.2)	248 (16.1)	124 (16.0)	598 (13.5)	393 (13.3)
Not given-Missed thrombolysis	61 (9.5)	418 (10.4)	348 (13.0)	39 (11.1)	262 (12.4)	230 (16.4)	40 (9.5)	299 (12.9)	218 (14.1)	79 (10.2)	561 (12.7)	448 (15.2)
Not given-Patient refusal	4 (0.6)	15 (0.4)	15 (0.6)	0 (0.0)	7 (0.3)	3 (0.2)	1 (0.2)	6 (0.3)	7 (0.5)	1 (0.1)	13 (0.3)	10 (0.3)
Not given-Contraindicated	16 (2.5)	120 (3.0)	149 (5.5)	5 (1.4)	61 (2.9)	75 (5.3)	10 (2.4)	59 (2.6)	67 (4.3)	15 (1.9)	120 (2.7)	142 (4.8)
Not applicable	2	13	9	1	5	3	2	9	4	3	14	7
Not available	5	26	17	1	6	5	3	6	1	4	12	6
Missing	8	53	45	0	0	0	0	0	0	0	0	0
Cardiac catheterisation, No. (%)												
Yes	272 (43.8)	1,506 (39.4)	872 (33.8)	175 (50.7)	989 (48.2)	605 (44.0)	222 (52.4)	1,227 (53.6)	712 (47.1)	397 (51.6)	2,216 (51.0)	1,317 (45.6)
No	335 (53.8)	2,204 (57.8)	1,620 (63.0)	168 (48.7)	1,055 (51.4)	764 (55.5)	200 (47.2)	1,048 (45.8)	790 (52.3)	368 (47.9)	2,103 (48.4)	1,554 (53.8)
Number transferred to another centre	15 (2.4)	108 (2.8)	83 (3.2)	2 (0.6)	9 (0.4)	7 (0.5)	2 (0.5)	13 (0.6)	9 (0.6)	4 (0.5)	22 (0.5)	16 (0.6)
Missing	33	271	183	8	69	35	4	40	37	12	109	72
Percutaneous coronary intervention, No. (%)												
Yes	229 (38.2)	1,267 (35.0)	722 (29.8)	143 (43.1)	806 (40.6)	478 (36.0)	193 (47.7)	1,008 (46.7)	560 (39.0)	336 (45.6)	1,814 (43.8)	1,038 (37.6)
No	365 (60.9)	2,338 (64.7)	1,688 (69.8)	188 (56.6)	1,173 (59.1)	844 (63.7)	210 (51.9)	1,141 (52.9)	866 (60.3)	398 (54.0)	2,314 (55.9)	1,710 (61.9)
Not applicable	5 (0.8)	10 (0.3)	9 (0.4)	1 (0.3)	6 (0.3)	4 (0.3)	2 (0.5)	8 (0.4)	10 (0.7)	3 (0.4)	14 (0.3)	14 (0.5)
Missing	56	474	339	21	137	85	23	171	112	44	308	197

Year	2011 – 2013			2014			2015			2014 – 2015		
	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly
Age group												
Total	655	4,089	2,758	353	2,122	1,411	428	2,328	1,548	781	4,450	2,959
CABG, No. (%)												
Yes	2 (0.4)	42 (1.2)	22 (0.9)	1 (0.3)	19 (1.0)	10 (0.8)	0 (0.0)	25 (1.1)	14 (1.0)	1 (0.1)	44 (1.1)	24 (0.9)
No	562 (98.9)	3,385 (98.2)	2,281 (98.4)	324 (98.5)	1,914 (98.2)	1,301 (98.4)	402 (99.5)	2,155 (98.2)	1,430 (98.3)	726 (99.0)	4,069 (98.2)	2,731 (98.4)
Not applicable	4 (0.7)	19 (0.6)	15 (0.6)	4 (1.2)	17 (0.9)	11 (0.8)	2 (0.5)	14 (0.6)	10 (0.7)	6 (0.8)	31 (0.7)	21 (0.8)
Missing	87	643	440	24	172	89	24	134	94	48	306	183
Pre-admission aspirin use, No. (%)												
Yes	59 (9.4)	702 (18.0)	669 (25.4)	36 (10.5)	348 (16.9)	299 (22.0)	40 (9.5)	367 (16.1)	305 (20.3)	76 (10.0)	715 (16.5)	604 (21.1)
No	564 (90.6)	3,187 (82.0)	1,956 (74.6)	306 (89.5)	1,708 (83.1)	1,062 (78.0)	380 (90.5)	1,906 (83.9)	1,197 (79.7)	686 (90.0)	3,614 (83.5)	2,259 (78.9)
Missing	32	200	133	11	66	50	8	55	46	19	121	96
Pharmacological therapy given during admission, No. (%)												
Aspirin	615 (96.6)	3,861 (97.6)	2,572 (96.4)	344 (98.0)	2,038 (98.5)	1,342 (97.2)	421 (98.8)	2,245 (97.3)	1,469 (96.5)	765 (98.5)	4,283 (97.9)	2,811 (96.8)
*ADP antagonist	530 (90.6)	3,353 (91.8)	2,268 (90.2)	344 (98.6)	2,036 (98.0)	1,337 (96.7)	418 (98.8)	2,261 (98.1)	1,498 (98.4)	762 (98.7)	4,297 (98.1)	2,835 (97.6)
GP receptor inhibitor	29 (5.4)	132 (4.0)	74 (3.2)	8 (2.8)	39 (2.3)	15 (1.3)	17 (4.3)	65 (3.1)	34 (2.5)	25 (3.7)	104 (2.7)	49 (1.9)
Unfractionated heparin	88 (16.0)	536 (15.6)	315 (13.6)	59 (20.6)	325 (18.5)	185 (15.9)	76 (19.3)	429 (20.3)	237 (17.3)	135 (19.8)	754 (19.5)	422 (16.6)
LMWH	236 (42.0)	1,550 (44.2)	1,009 (42.0)	44 (15.3)	274 (15.7)	238 (20.3)	46 (11.6)	304 (14.3)	288 (20.8)	90 (13.2)	578 (14.9)	526 (20.6)
Fondaparinux	132 (61.7)	687 (55.4)	421 (49.9)	175 (55.7)	1,048 (56.3)	608 (48.4)	263 (63.1)	1,414 (62.3)	825 (56.3)	438 (59.9)	2,462 (59.6)	1,433 (52.7)
Oral anticoagulant (eg. Warfarin)	4 (2.0)	8 (0.7)	15 (1.9)	5 (1.8)	20 (1.2)	20 (1.7)	9 (2.3)	25 (1.2)	36 (2.6)	14 (2.1)	45 (1.2)	56 (2.2)
Beta blocker	383 (65.4)	2,426 (66.8)	1,412 (58.0)	208 (66.5)	1,130 (61.5)	636 (52.3)	265 (65.6)	1,325 (61.1)	765 (54.8)	473 (66.0)	2,455 (61.3)	1,401 (53.7)
ACE inhibitor	298 (51.8)	2,031 (56.8)	1,227 (50.6)	143 (47.7)	843 (46.7)	504 (41.4)	214 (52.5)	1,119 (51.5)	634 (45.0)	357 (50.4)	1,962 (49.3)	1,138 (43.3)

Year	2011 – 2013			2014			2015			2014 – 2015		
	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly
Age group												
Total	655	4,089	2,758	353	2,122	1,411	428	2,328	1,548	781	4,450	2,959
Pharmacological therapy given during admission, No. (%)												
Angiotensin II receptor blocker	16 (3.0)	119 (3.6)	93 (4.0)	2 (0.7)	31 (1.8)	30 (2.6)	7 (1.8)	43 (2.0)	34 (2.5)	9 (1.3)	74 (1.9)	64 (2.5)
Statin	577 (91.2)	3635 (93.2)	2405 (91.2)	320 (93.6)	1,896 (92.2)	1,252 (91.5)	399 (94.1)	2,173 (94.6)	1,414 (93.4)	719 (93.9)	4,069 (93.5)	2,666 (92.5)
Other lipid lowering agent	21 (3.8)	109 (3.2)	69 (3.0)	7 (2.4)	39 (2.3)	15 (1.3)	6 (1.5)	33 (1.6)	25 (1.8)	13 (1.9)	72 (1.9)	40 (1.6)
Diuretics	64 (11.4)	712 (20.6)	720 (30.2)	28 (9.8)	374 (21.2)	341 (28.7)	45 (11.3)	437 (20.5)	410 (29.5)	73 (10.7)	811 (20.8)	751 (29.1)
Calcium antagonist	20 (3.6)	158 (4.6)	205 (8.8)	11 (3.9)	67 (3.9)	76 (6.6)	13 (3.3)	84 (4.0)	78 (5.7)	24 (3.5)	151 (3.9)	154 (6.1)
Oral hypoglycaemic agent	74 (13.2)	749 (21.6)	425 (18.2)	33 (11.6)	321 (18.3)	198 (17.0)	35 (8.9)	338 (16.0)	212 (15.6)	68 (10.0)	659 (17.0)	410 (16.3)
Insulin	82 (14.4)	861 (24.6)	634 (26.6)	57 (19.9)	500 (28.0)	356 (29.8)	45 (11.4)	573 (26.8)	354 (25.6)	102 (15.0)	1,073 (27.3)	710 (27.5)
Anti-arrhythmic agent	34 (6.2)	246 (7.2)	238 (10.2)	18 (6.3)	142 (8.4)	102 (8.9)	20 (5.1)	88 (4.2)	84 (6.2)	38 (5.6)	230 (6.0)	186 (7.4)
Pharmacological therapy given at discharge, No (%)												
Aspirin	549 (95.8)	3,305 (97.1)	1,913 (95.7)	316 (96.6)	1,785 (96.6)	1,053 (96.2)	376 (96.7)	1,993 (96.2)	1,132 (94.9)	692 (96.6)	3,778 (96.4)	2,185 (95.5)
*ADP antagonist	489 (90.4)	2,934 (92.1)	1,717 (90.8)	314 (96.9)	1,778 (96.3)	1,061 (96.8)	377 (96.4)	2,013 (97.4)	1,157 (96.7)	691 (96.6)	3,791 (96.9)	2,218 (96.7)
Fondaparinux	13 (7.4)	54 (5.2)	37 (5.8)	5 (1.9)	38 (2.5)	18 (2.0)	7 (1.9)	43 (2.3)	23 (2.1)	12 (1.9)	81 (2.4)	41 (2.0)
Oral anticoagulant (eg. Warfarin)	8 (4.4)	19 (1.9)	14 (2.2)	8 (3.0)	35 (2.3)	27 (2.9)	7 (1.9)	51 (2.7)	38 (3.5)	15 (2.4)	86 (2.5)	65 (3.3)
Beta blocker	392 (72.5)	2,352 (72.5)	1,330 (70.3)	222 (74.7)	1,220 (71.7)	658 (65.5)	285 (75.6)	1,391 (70.5)	739 (66.5)	507 (75.2)	2,611 (71.0)	1,397 (66.1)
ACE inhibitor	311 (58.9)	1,952 (61.6)	1,111 (59.1)	165 (57.1)	921 (55.6)	499 (51.2)	221 (58.2)	1,170 (59.6)	598 (53.7)	386 (57.7)	2,091 (57.8)	1,097 (52.5)
Angiotensin II receptor blocker	19 (3.8)	122 (4.1)	80 (4.5)	2 (0.8)	46 (3.0)	36 (3.9)	6 (1.6)	47 (2.5)	43 (4.0)	8 (1.3)	93 (2.7)	79 (4.0)
Statin	518 (90.9)	3,171 (93.4)	1,863 (93.4)	303 (94.1)	1,720 (94.0)	1,018 (93.2)	368 (93.9)	1,945 (94.4)	1,120 (94.1)	671 (94.0)	3,665 (94.2)	2,138 (93.7)
Other lipid lowering agent	15 (2.9)	119 (4.0)	58 (3.2)	12 (4.5)	36 (2.4)	19 (2.1)	10 (2.7)	44 (2.3)	23 (2.1)	22 (3.5)	80 (2.3)	42 (2.1)

Year	2011 – 2013			2014			2015			2014 – 2015		
	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly
Age group												
Total	655	4,089	2,758	353	2,122	1,411	428	2,328	1,548	781	4,450	2,959
Pharmacological therapy given at discharge, No (%)												
Diuretics	37 (7.2)	416 (13.7)	380 (20.9)	23 (8.6)	253 (16.2)	199 (21.0)	22 (6.0)	311 (16.3)	246 (22.5)	45 (7.1)	564 (16.2)	445 (21.8)
Calcium antagonist	15 (3.0)	120 (4.0)	146 (8.2)	5 (1.9)	66 (4.3)	62 (6.7)	9 (2.4)	74 (3.9)	60 (5.5)	14 (2.2)	140 (4.1)	122 (6.1)
Oral hypoglycaemic agent	95 (18.3)	890 (28.9)	462 (25.4)	52 (19.2)	408 (25.8)	248 (26.2)	54 (14.7)	482 (25.1)	255 (23.5)	106 (16.6)	890 (25.4)	503 (24.8)
Insulin	37 (7.3)	379 (12.5)	234 (13.0)	29 (10.8)	255 (16.4)	152 (16.3)	15 (4.1)	270 (14.1)	162 (14.9)	44 (6.9)	525 (15.1)	314 (15.6)
Anti-arrhythmic agent	27 (5.3)	177 (5.9)	113 (6.3)	17 (6.5)	110 (7.2)	61 (6.7)	11 (3.0)	39 (2.1)	44 (4.1)	28 (4.5)	149 (4.3)	105 (5.3)

Total admission days is derived from Outcome date-Admission date + 1

^ Acceptable range between the previous report (2009 & 2010) and this current version (2011 – 2013) was different

* For CRF version 2013, details of the breakdown are available for ticlopidine, clopidogrel, prasugrel and ticagrelor. These drugs are grouped as ADP antagonist in this current version (2011 – 2013)

** Young is defined as age 20 to less than 40 years, middle-aged is defined as age 40 to less than 60 years and elderly is defined as 60 years and above

Table 4.3 Treatments for patients with STEMI by gender, NCD-ACS Registry, 2014 – 2015

Year	2011 – 2013		2014		2015		2014 – 2015	
	Male	Female	Male	Female	Male	Female	Male	Female
Gender								
Total	6,397	1,105	3,384	502	3,733	571	7,117	1,073
#*Total admission days								
N	6,242	1,080	3,362	500	3,694	566	7,056	1,066
Mean (SD)	6.3 (6.5)	6.6 (6.3)	6.0 (5.5)	6.0 (6.4)	5.7 (5.1)	6.6 (6.6)	5.9 (5.3)	6.3 (6.5)
Median (min, max)	5.0 (1.0, 98.0)	5.0 (1.0, 74.0)	5.0 (1.0, 94.0)	5.0 (1.0, 94.0)	5.0 (1., 82.0)	5.0 (1.0, 63.0)	5.0 (1.0, 94.0)	5.0 (1.0, 94.0)
IQR	2.0	3.0	2.0	2.0	2.0	3.0	2.0	3.0
Missing	155 (2.4)	25 (2.3)	22 (0.7)	2 (0.4)	39 (1.0)	5 (0.9)	61 (0.9)	7 (0.7)
Number of days in CCU								
N	4,036	657	2,097	299	2,352	354	4,449	653
Mean (SD)	3.4 (2.9)	3.6 (3.1)	3.1 (2.7)	3.1 (2.2)	2.8 (2.2)	3.0 (2.5)	3.0 (2.5)	3.0 (2.4)
Median (min, max)	3.0 (1.0, 30.0)	3.0 (1.0, 26.0)	3.0 (1.0, 30.0)	3.0 (1.0, 18.0)	2.0 (1.0, 30.0)	2.0 (1.0, 21.0)	2.0 (1.0, 30.0)	2.0 (1.0, 21.0)
IQR	2.0	2.0	2.0	2.0	1.0	2.0	2.0	2.0
No admission to CCU	2,351 (36.8)	445 (40.4)	1,282 (37.9)	202 (40.3)	1,378 (36.9)	215 (37.8)	2,660 (37.4)	417 (39.0)
Missing	10 (0.2)	3 (0.3)	5 (0.1)	1 (0.2)	3 (0.1)	2 (0.4)	8 (0.1)	3 (0.3)
Number of days in ICU/CICU								
N	68	12	63	14	35	3	98	17
Mean (SD)	3.4 (3.3)	2.8 (1.4)	3.1 (2.3)	3.7 (1.6)	4.8 (4.4)	2.3 (2.3)	3.7 (3.3)	3.5 (1.7)
Median (min, max)	3.0 (1.0, 23.0)	2.5 (1.0, 6.0)	3.0 (1.0, 15.0)	3.5 (1.0, 7.0)	3.0 (1.0, 21.0)	1.0 (1.0, 5.0)	3.0 (1.0, 21.0)	3.0 (1.0, 7.0)
IQR	2.0	1.5	2.0	2.0	4.0	4.0	2.0	3.0
No admission to ICU/CICU	6,326 (99.0)	1,092 (99.1)	3,319 (98.2)	488 (97.4)	3,698 (99.1)	568 (99.8)	7,017 (98.7)	1,056 (98.7)
Missing	3 (0.0)	1 (0.1)	2 (0.1)	0 (0.0)	(0.0)	0 (0.0)	2 (0.0)	0 (0.0)

Year	2011 – 2013		2014		2015		2014 – 2015	
	Male	Female	Male	Female	Male	Female	Male	Female
Gender								
Total	6,397	1,105	3,384	502	3,733	571	7,117	1,073
Fibrinolytic therapy, No. (%)								
Given at this centre	3,187 (51.0)	530 (49.2)	1,588 (47.1)	218 (44.0)	1,648 (44.4)	213 (37.6)	3,236 (45.7)	431 (40.5)
Given at another centre prior to transfer	1,533 (24.5)	237 (22.0)	857 (25.4)	109 (22.0)	873 (23.5)	134 (23.6)	1,730 (24.4)	243 (22.9)
Not given-Proceeded directly to primary angioplasty	610 (9.8)	81 (7.6)	364 (10.8)	47 (9.5)	616 (16.6)	88 (15.5)	980 (13.8)	135 (12.7)
Not given-Missed thrombolysis	671 (10.8)	156 (14.4)	435 (12.9)	96 (19.4)	461 (12.4)	96 (16.9)	896 (12.7)	192 (18.1)
Not given-Patient refusal	27 (0.4)	7 (0.6)	7 (0.2)	3 (0.6)	11 (0.3)	3 (0.5)	18 (0.3)	6 (0.6)
Not given-Contraindicated	219 (3.5)	66 (6.2)	118 (3.5)	23 (4.6)	103 (2.8)	33 (5.8)	221 (3.1)	56 (5.3)
Not applicable	21	3	7	2	13	2	20	4
Not available	41	7	8	4	8	2	16	6
Missing	88	18	0	0	0	0	0	0
Cardiac catheterisation, No. (%)								
Yes	2,320 (38.8)	330 (31.5)	1,593 (48.4)	176 (36.4)	1,905 (52.0)	256 (46.0)	3,498 (50.3)	432 (41.5)
No	3,469 (58.2)	690 (66.0)	1,681 (51.1)	306 (63.2)	1,740 (47.5)	298 (53.5)	3,421 (49.2)	604 (58.0)
Number transferred to another centre	179 (3.0)	27 (2.5)	16 (0.5)	2 (0.4)	21 (0.6)	3 (0.5)	37 (0.5)	5 (0.5)
Missing	429	58	94	18	67	14	161	32
Percutaneous coronary intervention, No. (%)								
Yes	1,949 (34.5)	269 (27.4)	1,287 (40.6)	140 (29.7)	1,563 (45.1)	198 (37.0)	2,850 (43.0)	338 (33.6)
No	3,682 (65.2)	709 (72.2)	1,875 (59.1)	330 (69.9)	1,881 (54.3)	336 (62.8)	3,756 (56.6)	666 (66.1)
Not applicable	20 (0.4)	4 (0.4)	9 (0.3)	2 (0.4)	19 (0.5)	1 (0.2)	28 (0.4)	3 (0.3)
Missing	746	123	213	30	270	36	483	66

Year	2011 – 2013		2014		2015		2014 – 2015	
	Male	Female	Male	Female	Male	Female	Male	Female
Gender								
Total	6,397	1,105	3,384	502	3,733	571	7,117	1,073
CABG, No. (%)								
Yes	63 (1.2)	3 (0.3)	28 (0.9)	2 (0.4)	35 (1.0)	4 (0.7)	63 (0.9)	6 (0.6)
No	5,301 (98.2)	927 (99.4)	3,073 (98.2)	466 (98.9)	3,456 (98.4)	531 (98.2)	6,529 (98.3)	997 (98.5)
Not applicable	35 (0.6)	3 (0.3)	29 (0.9)	3 (0.6)	20 (0.6)	6 (1.1)	49 (0.7)	9 (0.9)
Missing	998	172	254	31	222	30	476	61
Pre-admission aspirin use, No. (%)								
Yes	1,193 (19.6)	237 (22.4)	606 (18.5)	77 (15.8)	615 (16.9)	97 (17.4)	1,221 (17.7)	174 (16.7)
No	4,882 (80.4)	825 (77.6)	2,666 (81.5)	410 (84.2)	3,022 (83.1)	461 (82.6)	5,688 (82.3)	871 (83.3)
Missing	322	43	112	15	96	13	208	28
Pharmacological therapy given during admission, No. (%)								
Aspirin	6,024 (97.2)	1,024 (96.2)	3,249 (98.2)	475 (96.3)	3,594 (97.3)	541 (96.3)	6,843 (97.7)	1,016 (96.3)
*ADP antagonist	5,241 (91.2)	910 (90.8)	3,237 (97.8)	480 (96.6)	3,628 (98.4)	549 (97.7)	6,865 (98.1)	1,029 (97.2)
GP receptor inhibitor	205 (3.8)	30 (3.2)	56 (2.0)	6 (1.5)	102 (3.0)	14 (2.7)	158 (2.6)	20 (2.2)
Unfractionated heparin	816 (15.2)	123 (13.2)	497 (17.8)	72 (17.3)	640 (19.1)	102 (19.5)	1,137 (18.5)	174 (18.5)
LMWH	2,393 (43.4)	402 (42.2)	492 (17.7)	64 (15.4)	534 (15.8)	104 (19.7)	1,026 (16.6)	168 (17.8)
Fondaparinux	1,060 (54.1)	180 (52.9)	1,577 (52.9)	254 (56.3)	2,207 (61.2)	295 (54.4)	3,784 (57.4)	549 (55.3)
Oral anticoagulant (eg. Warfarin)	20 (1.1)	7 (2.2)	37 (1.4)	8 (1.9)	66 (2.0)	4 (0.8)	103 (1.7)	12 (1.3)
Beta blocker	3,622 (64.0)	599 (61.0)	1,728 (59.1)	246 (56.0)	2,065 (60.0)	290 (54.9)	3,793 (59.6)	536 (55.4)
ACE inhibitor	3,067 (54.6)	489 (50.4)	1,308 (45.2)	182 (42.3)	1,723 (49.7)	244 (46.3)	3,031 (47.7)	426 (44.5)
Angiotensin II receptor blocker	183 (3.4)	45 (4.8)	48 (1.8)	15 (3.6)	70 (2.1)	14 (2.7)	118 (1.9)	29 (3.1)
Statin	5,675 (92.6)	942 (90.4)	3,026 (92.3)	442 (90.2)	3,473 (94.5)	513 (91.8)	6,499 (93.5)	955 (91.0)
Other lipid lowering agent	169 (3.2)	30 (3.2)	55 (2.0)	6 (1.5)	53 (1.6)	11 (2.1)	108 (1.8)	17 (1.8)
Diuretics	1,225 (22.4)	271 (28.6)	629 (22.3)	114 (27.1)	741 (21.8)	151 (28.5)	1,370 (22.0)	265 (27.9)
Calcium antagonist	301 (5.6)	82 (9.0)	126 (4.6)	28 (6.8)	141 (4.2)	34 (6.5)	267 (4.4)	62 (6.7)

Year	2011 – 2013		2014		2015		2014 – 2015	
	Male	Female	Male	Female	Male	Female	Male	Female
Gender								
Total	6,397	1,105	3,384	502	3,733	571	7,117	1,073
Pharmacological therapy given during admission, No. (%)								
Oral hypoglycaemic agent	995 (18.4)	253 (27.0)	455 (16.3)	97 (23.2)	478 (14.3)	107 (20.4)	933 (15.2)	204 (21.6)
Insulin	1,188 (21.6)	389 (40.4)	708 (25.0)	205 (47.0)	757 (22.3)	215 (40.5)	1,465 (23.6)	420 (43.4)
Anti-arrhythmic agent	448 (8.4)	70 (7.6)	229 (8.4)	33 (8.1)	166 (5.0)	26 (5.0)	395 (6.5)	59 (6.4)
Pharmacological therapy given at discharge, No. (%)								
Aspirin	5,018 (96.7)	749 (95.2)	2,788 (96.6)	366 (95.8)	3,088 (96.1)	413 (94.1)	5,876 (96.3)	779 (94.9)
*ADP antagonist	4,465 (91.7)	675 (90.7)	2,786 (96.6)	367 (95.8)	3,128 (97.3)	419 (95.4)	5,914 (97.0)	786 (95.6)
Fondaparinux	90 (5.6)	14 (5.5)	56 (2.3)	5 (1.6)	66 (2.2)	7 (1.7)	122 (2.3)	12 (1.7)
Oral anticoagulant (eg. Warfarin)	38 (2.4)	3 (1.2)	65 (2.7)	5 (1.6)	86 (2.9)	10 (2.4)	151 (2.8)	15 (2.1)
Beta blocker	3,534 (71.7)	540 (72.4)	1,841 (69.6)	259 (72.8)	2,136 (70.1)	279 (67.1)	3,977 (69.9)	538 (69.7)
ACE inhibitor	2,929 (60.5)	445 (60.5)	1,401 (54.3)	184 (54.6)	1,775 (58.4)	214 (51.4)	3,176 (56.5)	398 (52.9)
Angiotensin II receptor blocker	179 (3.9)	42 (6.0)	71 (3.0)	13 (4.1)	79 (2.7)	17 (4.2)	150 (2.8)	30 (4.1)
Statin	4,839 (93.5)	713 (90.8)	2,693 (94.0)	348 (92.3)	3,027 (94.3)	406 (93.5)	5,720 (94.2)	754 (93.0)
Other lipid lowering agent	163 (3.5)	29 (4.1)	61 (2.5)	6 (1.9)	64 (2.2)	13 (3.2)	125 (2.3)	19 (2.6)
Diuretics	690 (14.8)	143 (20.2)	398 (16.2)	77 (23.6)	485 (16.4)	94 (22.9)	883 (16.3)	171 (23.2)
Calcium antagonist	226 (4.9)	55 (7.9)	116 (4.8)	17 (5.4)	114 (3.9)	29 (7.1)	230 (4.3)	46 (6.4)
Oral hypoglycaemic agent	1,179 (25.1)	268 (37.2)	585 (23.7)	123 (36.8)	654 (22.1)	137 (33.3)	1,239 (22.8)	260 (34.9)
Insulin	491 (10.6)	159 (22.6)	332 (13.7)	104 (31.7)	336 (11.4)	111 (26.9)	668 (12.4)	215 (29.0)
Anti-arrhythmic agent	270 (5.9)	47 (6.7)	167 (7.0)	21 (6.7)	81 (2.8)	13 (3.2)	248 (4.7)	34 (4.7)

Total admission days is derived from Outcome date-admission date + 1

^ Acceptable range between the previous report (2009 & 2010) and this current version (2011 – 2013) was different

*For CRF version 2013, details of the breakdown are available for ticlopidine, clopidogrel, prasugrel and ticagrelor. These drugs are grouped as ADP antagonist in this current version (2011 – 2013)

Table 4.4 Treatments for patients with STEMI by ethnic group, NCDV-ACS Registry, 2014 – 2015

Year	2011 – 2013					2014					2015					2014 – 2015						
	Malay	Chinese	Indian	#Others		Malay	Chinese	Indian	#Others		Malay	Chinese	Indian	#Others		Malay	Chinese	Indian	#Others			
ACS stratum																						
Total	4,318	1,262	1,145	777		2,128	634	629	495		2,344	702	660	598		4,472	1,336	1,289	1,093			
#*Total admission days																						
N	4,210	1,233	1,122	757		2,113	632	626	491		2,321	696	654	589		4,434	1,328	1,280	1,080			
Mean (SD)	6.4 (6.7)	6.1 (5.6)	6.7 (7.1)	6.0 (5.9)		6.1 (5.5)	6.1 (5.8)	6.0 (5.4)	5.7 (6.3)		6.0 (5.3)	6.0 (6.0)	5.9 (4.9)	5.1 (5.3)		6.0 (5.4)	6.0 (5.9)	5.9 (5.1)	5.4 (5.8)			
Median (min, max)	5.0 (1.0, 98.0)	5.0 (1.0, 66.0)	5.0 (1.0, 95.0)	5.0 (1.0, 67.0)		5.0 (1.0, 94.0)	5.0 (1.0, 70.0)	5.0 (1.0, 66.0)	5.0 (1.0, 94.0)		5.0 (1.0, 74.0)	5.0 (1.0, 82.0)	5.0 (1.0, 56.0)	4.0 (1.0, 63.0)		5.0 (1.0, 94.0)	5.0 (1.0, 82.0)	5.0 (1.0, 66.0)	4.0 (1.0, 94.0)			
IQR	2.0	2.0	3.0	2.0		2.0	3.0	2.0	3.0		2.0	3.0	2.0	2.0		2.0	2.0	2.0	2.0			
Missing	108 (2.5)	29 (2.3)	23 (2.0)	20 (2.6)		15 (0.7)	2 (0.3)	3 (0.5)	4 (0.8)		23 (1.0)	6 (0.9)	6 (0.9)	9 (1.5)		38 (0.8)	8 (0.6)	9 (0.7)	13 (1.2)			
Number of days in CCU																						
N	2,811	752	605	525		1,418	364	361	253		1,482	431	409	384		2,900	795	770	637			
Mean (SD)	3.4 (2.9)	3.4 (3.2)	3.6 (3.0)	3.5 (2.7)		3.2 (2.8)	3.1 (2.4)	2.9 (2.0)	3.4 (3.0)		2.7 (2.2)	2.9 (2.1)	2.8 (2.5)	3.1 (2.2)		2.9 (2.6)	3.0 (2.2)	2.8 (2.3)	3.3 (2.5)			
Median (min, max)	3.0 (1.0, 28.0)	3.0 (1.0, 30.0)	3.0 (1.0, 26.0)	3.0 (1.0, 24.0)		3.0 (1.0, 30.0)	3.0 (1.0, 21.0)	2.0 (1.0, 16.0)	3.0 (1.0, 25.0)		2.0 (1.0, 30.0)	2.0 (1.0, 17.0)	2.0 (1.0, 29.0)	3.0 (1.0, 18.0)		2.0 (1.0, 30.0)	3.0 (1.0, 21.0)	2.0 (1.0, 29.0)	3.0 (1.0, 25.0)			
IQR	2.0	2.0	2.0	2.0		2.0	2.0	3.0	2.0		2.0	1.0	1.0	2.0		3.0	2.0	1.0	2.0			
No admission to CCU	1,499 (34.8)	509 (40.4)	537 (47.0)	251 (32.3)		707 (33.3)	269 (42.5)	266 (42.4)	242 (48.9)		862 (36.8)	270 (38.6)	249 (37.8)	212 (35.5)		1,569 (35.1)	539 (40.4)	515 (40.1)	454 (41.6)			
Missing	8 (0.2)	1 (0.1)	3 (0.3)	1 (0.1)		3 (0.1)	1 (0.2)	2 (0.3)	0 (0.0)		1 (0.0)	2 (0.3)	2 (0.3)	0 (0.0)		3 (0.1)	2 (0.1)	4 (0.3)	2 (0.2)			

Year	2011 – 2013				2014				2015				2014 – 2015			
	Malay	Chinese	Indian	#Others	Malay	Chinese	Indian	#Others	Malay	Chinese	Indian	#Others	Malay	Chinese	Indian	#Others
ACS stratum																
Total	4,318	1,262	1,145	777	2,128	634	629	495	2,344	702	660	598	4,472	1,336	1,289	1,093
Number of days in ICU/CICU																
N	48	9	13	10	33	10	27	7	19	8	5	6	52	18	32	13
Mean (SD)	3.8 (3.7)	1.8 (1.1)	2.8 (1.5)	2.7 (1.8)	3.2 (1.9)	4.0 (1.8)	3.1 (2.7)	2.9 (1.5)	4.1 (4.5)	5.9 (5.2)	3.4 (1.8)	5.5 (4.3)	3.5 (3.1)	4.8 (3.7)	3.2 (2.6)	4.1 (3.3)
Median (min, max)	3.0 (1.0, 23.0)	1.0 (1.0, 4.0)	3.0 (1.0, 6.0)	2.0 (1.0, 6.0)	3.0 (1.0, 11.0)	4.5 (1.0, 7.0)	2.0 (1.0, 15.0)	2.0 (2.0, 5.0)	3.0 (1.0, 21.0)	5.0 (1.0, 17.0)	3.0 (1.0, 6.0)	5.0 (1.0, 11.0)	3.0 (1.0, 21.0)	4.5 (1.0, 17.0)	3.0 (1.0, 15.0)	2.0 (1.0, 11.0)
IQR	2.0	1.0	1.0	3.0	2.0	3.0	1.0	3.0	3.0	5.5	1.0	9.0	2.0	4.0	1.0	3.0
No admission to ICU/CICU	4,268 (99.0)	1,252 (99.3)	1,131 (99.0)	767 (98.8)	2,094 (98.5)	624 (98.6)	601 (95.9)	488 (98.6)	2,325 (99.2)	694 (99.1)	655 (99.5)	592 (99.0)	4,419 (98.9)	1,318 (98.8)	1,256 (97.7)	1,080 (99.0)
Missing	2 (0.0)	1 (0.1)	1 (0.1)	0 (0.0)	1 (0.0)	1 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.0)	1 (0.1)	0 (0.0)	0 (0.0)
Fibrinolytic therapy, No. (%)																
Given at this centre	2,184 (51.7)	625 (50.9)	603 (54.4)	305 (40.0)	1,005 (47.4)	285 (45.2)	321 (51.2)	195 (39.9)	1,037 (44.6)	295 (42.2)	285 (43.3)	244 (40.9)	2,042 (45.9)	580 (43.6)	606 (47.2)	439 (40.4)
Given at another centre prior to transfer	1,021 (24.2)	247 (20.1)	201 (18.1)	301 (39.4)	558 (26.3)	111 (17.6)	98 (15.6)	199 (40.7)	562 (24.2)	114 (16.3)	104 (15.8)	227 (38.0)	1,120 (25.2)	225 (16.9)	202 (15.7)	426 (39.2)
Not given-Proceeded directly to primary angioplasty	396 (9.4)	124 (10.1)	132 (12.0)	39 (5.1)	216 (10.2)	75 (11.9)	91 (14.5)	29 (5.9)	372 (16.0)	133 (19.0)	153 (23.3)	46 (7.7)	588 (13.2)	208 (15.7)	244 (19.0)	75 (6.9)
Not given-Missed thrombolysis	444 (10.5)	165 (13.4)	139 (12.5)	79 (10.3)	261 (12.3)	120 (19.0)	102 (16.3)	48 (9.8)	275 (11.8)	128 (18.3)	95 (14.4)	59 (9.9)	536 (12.1)	248 (18.7)	197 (15.3)	107 (9.9)
Not given-Patient refusal	18 (0.4)	11 (0.9)	1 (0.0)	4 (0.5)	5 (0.2)	4 (0.6)	1 (0.2)	0 (0.0)	7 (0.3)	5 (0.7)	0 (0.0)	2 (0.3)	12 (0.3)	9 (0.7)	1 (0.1)	2 (0.2)
Not given-Contraindicated	159 (3.8)	57 (4.6)	33 (3.0)	36 (4.7)	74 (3.5)	35 (5.6)	14 (2.2)	18 (3.7)	72 (3.1)	24 (3.4)	21 (3.2)	19 (3.2)	146 (3.3)	59 (4.4)	35 (2.7)	37 (3.4)
Not applicable	10	3	10	1	2	3	0	4	11	3	1	0	13	6	1	4
Not available	27	10	9	2	7	1	2	2	8	0	1	1	15	1	3	3
Missing	59	20	17	10	0	0	0	0	0	0	0	0	0	0	0	0

Year	2011 – 2013				2014				2015				2014 – 2015			
	Malay	Chinese	Indian	#Others	Malay	Chinese	Indian	#Others	Malay	Chinese	Indian	#Others	Malay	Chinese	Indian	#Others
ACS stratum																
Total	4,318	1,262	1,145	777	2,128	634	629	495	2,344	702	660	598	4,472	1,336	1,289	1,093
Cardiac catheterisation, No. (%)																
Yes	1,466 (36.4)	502 (42.1)	400 (37.3)	282 (38.7)	896 (43.3)	333 (53.7)	293 (47.9)	247 (52.4)	1,080 (46.9)	400 (58.2)	369 (56.3)	312 (54.1)	1,976 (45.2)	733 (56.1)	662 (52.2)	559 (53.3)
No	2,441 (60.8)	662 (55.5)	634 (59.1)	422 (57.9)	1,168 (56.4)	285 (46.0)	313 (51.1)	221 (46.9)	1,208 (52.4)	284 (41.3)	285 (43.5)	261 (45.2)	2,376 (54.3)	569 (43.5)	598 (47.2)	482 (46.0)
Number transferred to another centre	113 (2.8)	29 (2.4)	39 (3.6)	25 (3.4)	7 (0.3)	2 (0.3)	6 (1.0)	3 (0.6)	16 (0.7)	3 (0.4)	1 (0.2)	4 (0.7)	23 (0.5)	5 (0.4)	7 (0.6)	7 (0.7)
Missing	298	69	72	48	57	14	17	24	40	15	5	21	97	29	22	45
Percutaneous coronary intervention, No. (%)																
Yes	1,229 (32.5)	413 (36.0)	341 (34.3)	235 (33.4)	730 (36.9)	263 (43.3)	243 (39.8)	191 (42.7)	880 (40.9)	332 (48.6)	307 (47.6)	242 (46.5)	1,610 (39.0)	595 (46.1)	550 (43.8)	433 (44.8)
No	2,544 (67.2)	733 (63.9)	648 (65.2)	466 (66.2)	1,243 (62.8)	343 (56.5)	364 (59.7)	255 (57.0)	1,257 (58.5)	348 (51.0)	337 (52.2)	275 (52.9)	2,500 (60.5)	691 (53.6)	701 (55.9)	530 (54.8)
Not applicable	14 (0.4)	2 (0.2)	5 (0.5)	3 (0.4)	6 (0.3)	1 (0.2)	3 (0.5)	1 (0.2)	13 (0.6)	3 (0.4)	1 (0.2)	3 (0.6)	19 (0.5)	4 (0.3)	4 (0.3)	4 (0.4)
Missing	531	114	151	73	149	27	19	48	194	19	15	78	343	46	34	126
CABG, No. (%)																
Yes	43 (1.2)	10 (0.9)	8 (0.8)	5 (0.8)	13 (0.7)	7 (1.2)	5 (0.8)	5 (1.2)	17 (0.8)	9 (1.3)	6 (0.9)	7 (1.3)	30 (0.7)	16 (1.3)	11 (0.9)	12 (1.3)
No	3,615 (98.3)	1,056 (98.1)	933 (98.5)	624 (98.8)	1,956 (98.1)	587 (98.2)	597 (98.7)	399 (98.5)	2,173 (98.5)	658 (98.1)	628 (98.4)	528 (98.3)	4,129 (98.3)	1,245 (98.1)	1,225 (98.6)	927 (98.4)
Not applicable	19 (0.5)	10 (0.9)	6 (0.6)	3 (0.5)	24 (1.2)	4 (0.7)	3 (0.5)	1 (0.2)	16 (0.7)	4 (0.6)	4 (0.6)	2 (0.4)	40 (1.0)	8 (0.6)	7 (0.6)	3 (0.3)
Missing	641	186	198	145	135	36	24	90	138	31	22	61	273	67	46	151

Year	2011 – 2013				2014				2015				2014 – 2015			
	Malay	Chinese	Indian	##Others	Malay	Chinese	Indian	##Others	Malay	Chinese	Indian	##Others	Malay	Chinese	Indian	##Others
ACS stratum																
Total	4,318	1,262	1,145	777	2,128	634	629	495	2,344	702	660	598	4,472	1,336	1,289	1,093
Pre-admission aspirin use, No. (%)																
Yes	848 (20.6)	229 (19.0)	266 (24.4)	87 (11.8)	352 (17.1)	107 (17.4)	132 (21.6)	92 (19.3)	381 (16.7)	115 (16.8)	120 (18.6)	96 (16.5)	733 (16.9)	222 (17.1)	252 (20.1)	188 (17.8)
No	3257 (79.4)	971 (81.0)	824 (75.6)	655 (88.2)	1,705 (82.9)	508 (82.6)	478 (78.4)	385 (80.7)	1,903 (83.3)	570 (83.2)	525 (81.4)	485 (83.5)	3,608 (83.1)	1,078 (82.9)	1,003 (79.9)	870 (82.2)
Missing	213	62	55	35	71	19	19	18	60	17	15	17	131	36	34	35
Pharmacological therapy given during admission, No. (%)																
Aspirin	4,048 (97.0)	1,191 (97.2)	1,071 (97.2)	738 (97.4)	2,023 (97.8)	608 (97.9)	608 (98.2)	485 (98.6)	2,253 (97.4)	678 (97.8)	640 (97.1)	564 (95.3)	4,276 (97.6)	1,286 (97.9)	1,248 (97.7)	1,049 (96.8)
*ADP antagonist	3,509 (91.0)	1,080 (92.2)	949 (91.8)	613 (89.4)	2,034 (98.1)	605 (97.3)	607 (97.9)	471 (95.7)	2,267 (98.2)	679 (97.8)	644 (98.2)	587 (99.3)	4,301 (98.1)	1,284 (97.6)	1,251 (98.0)	1,058 (97.7)
GP receptor inhibitor	127 (3.6)	45 (4.2)	38 (4.0)	25 (3.6)	28 (1.7)	6 (1.1)	10 (1.9)	18 (4.0)	54 (2.7)	15 (2.2)	12 (1.9)	35 (6.1)	82 (2.3)	21 (1.8)	22 (1.9)	53 (5.2)
Unfractionated heparin	576 (16.2)	140 (13.0)	164 (17.0)	59 (8.6)	355 (21.2)	79 (14.7)	103 (19.1)	32 (7.0)	454 (22.7)	111 (16.6)	127 (19.9)	50 (8.8)	809 (22.0)	190 (15.8)	230 (19.5)	82 (8.0)
LMWH	1,335 (36.6)	542 (49.2)	443 (44.2)	475 (66.0)	183 (10.9)	124 (23.3)	72 (13.5)	177 (38.6)	215 (10.7)	159 (23.6)	85 (13.1)	179 (31.3)	398 (10.8)	283 (23.4)	157 (13.3)	356 (34.6)
Fondaparinux	752 (56.2)	208 (53.7)	192 (55.5)	88 (38.4)	1,027 (55.7)	294 (51.5)	318 (57.2)	192 (41.7)	1,395 (62.6)	376 (55.3)	376 (57.8)	355 (60.2)	2,422 (59.5)	670 (53.6)	694 (57.5)	547 (52.1)
Oral anticoagulant (eg. Warfarin)	16 (1.3)	3 (0.8)	5 (1.5)	3 (1.3)	25 (1.5)	9 (1.7)	7 (1.3)	4 (0.9)	45 (2.3)	6 (0.9)	8 (1.2)	11 (1.9)	70 (1.9)	15 (1.3)	15 (1.3)	15 (1.5)
Beta blocker	2,384 (63.2)	730 (63.6)	649 (63.6)	458 (64.0)	1,032 (58.1)	312 (55.9)	326 (58.4)	304 (64.5)	1,178 (57.0)	383 (56.4)	387 (59.8)	407 (70.7)	2,210 (57.5)	695 (56.2)	713 (59.2)	711 (67.9)
ACE inhibitor	2,050 (54.8)	605 (53.6)	553 (54.8)	348 (49.4)	813 (46.1)	236 (42.5)	237 (43.2)	204 (44.5)	974 (46.6)	336 (49.7)	291 (45.1)	366 (63.3)	1,787 (46.4)	572 (46.5)	528 (44.3)	570 (55.0)

Year	2011 – 2013					2014					2015					2014 – 2015				
	Malay	Chinese	Indian	##Others	##Others	Malay	Chinese	Indian	##Others	##Others	Malay	Chinese	Indian	##Others	##Others	Malay	Chinese	Indian	##Others	
ACS stratum																				
Total	4,318	1,262	1,145	777	2,128	634	629	495	2,344	702	660	598	4,472	1,336	1,289	1,093				
Angiotensin II receptor blocker	124 (3.6)	32 (3.0)	43 (4.4)	29 (4.2)	30 (1.8)	9 (1.7)	16 (3.0)	8 (1.8)	37 (1.9)	18 (2.7)	14 (2.2)	15 (2.6)	67 (1.8)	27 (2.3)	30 (2.6)	23 (2.3)				
Statin	3,807 (92.4)	1,112 (92.2)	1,009 (92.4)	689 (91.6)	1,899 (92.9)	557 (90.6)	576 (93.5)	436 (88.6)	2,182 (94.8)	635 (92.3)	611 (93.1)	558 (94.9)	4,081 (93.9)	1,192 (91.5)	1,187 (93.3)	994 (92.0)				
Other lipid lowering agent	107 (3.0)	33 (3.0)	43 (4.4)	16 (2.4)	24 (1.5)	16 (3.0)	11 (2.1)	10 (2.2)	36 (1.8)	13 (1.9)	13 (2.0)	2 (0.4)	60 (1.6)	29 (2.4)	24 (2.1)	12 (1.2)				
Diuretics	865 (23.8)	241 (21.8)	224 (22.8)	166 (23.8)	417 (24.4)	117 (21.8)	131 (24.3)	78 (17.0)	490 (24.1)	139 (20.7)	158 (24.6)	105 (18.4)	907 (24.2)	256 (21.2)	289 (24.5)	183 (17.8)				
Calcium antagonist	224 (6.4)	76 (7.0)	49 (5.0)	34 (5.0)	82 (5.0)	31 (5.9)	23 (4.4)	18 (4.0)	96 (4.8)	26 (3.9)	34 (5.3)	19 (3.3)	178 (4.9)	57 (4.8)	57 (4.9)	37 (3.6)				
Oral hypoglycaemic agent	709 (19.8)	184 (16.8)	279 (28.4)	76 (11.0)	286 (17.0)	76 (14.2)	138 (25.7)	52 (11.6)	290 (14.5)	88 (13.3)	146 (22.8)	61 (10.7)	576 (15.7)	164 (13.7)	284 (24.1)	113 (11.1)				
Insulin	950 (26.0)	193 (17.6)	346 (34.6)	88 (12.6)	535 (31.0)	108 (20.0)	213 (38.9)	57 (12.6)	562 (27.6)	100 (15.0)	242 (37.5)	68 (11.9)	1,097 (29.2)	208 (17.2)	455 (38.1)	125 (12.2)				
Anti-arrhythmic agent	293 (8.2)	90 (8.4)	85 (8.8)	50 (7.4)	131 (8.0)	44 (8.4)	34 (6.5)	53 (11.9)	94 (4.7)	34 (5.1)	33 (5.2)	31 (5.4)	225 (6.2)	78 (6.6)	67 (5.8)	84 (8.3)				
Pharmacological therapy given at discharge, No. (%)																				
Aspirin	3,331 (96.9)	963 (96.0)	897 (95.9)	576 (95.8)	1,704 (96.9)	504 (95.6)	523 (97.2)	423 (95.1)	1,882 (96.0)	556 (96.0)	554 (96.5)	509 (94.3)	3,586 (96.4)	1,060 (95.8)	1,077 (96.9)	932 (94.6)				
*ADP antagonist	2,970 (92.1)	885 (91.9)	801 (91.3)	484 (87.8)	1,711 (97.3)	504 (95.8)	528 (97.6)	410 (93.0)	1,908 (97.3)	560 (96.6)	548 (95.5)	531 (98.3)	3,619 (97.3)	1,064 (96.2)	1,076 (96.5)	941 (95.9)				
Fondaparinux	59 (5.5)	15 (4.9)	18 (6.4)	12 (6.4)	30 (2.1)	12 (2.7)	14 (3.1)	5 (1.2)	33 (1.9)	9 (1.6)	10 (1.8)	21 (4.0)	63 (2.0)	21 (2.1)	24 (2.4)	26 (2.8)				
Oral anticoagulant (eg. Warfarin)	22 (2.1)	7 (2.3)	8 (2.8)	4 (2.1)	36 (2.6)	12 (2.7)	9 (1.9)	13 (3.2)	52 (3.1)	10 (1.8)	8 (1.4)	26 (5.0)	88 (2.8)	22 (2.2)	17 (1.7)	39 (4.2)				
Beta blocker	2,354 (72.7)	678 (70.6)	642 (71.8)	400 (68.6)	1,085 (69.1)	346 (70.6)	353 (68.9)	316 (73.5)	1,212 (67.8)	387 (67.1)	400 (70.2)	416 (78.8)	2,297 (68.4)	733 (68.7)	753 (69.6)	732 (76.4)				

Year	2011 – 2013				2014				2015				2014 – 2015			
	Malay	Chinese	Indian	##Others	Malay	Chinese	Indian	##Others	Malay	Chinese	Indian	##Others	Malay	Chinese	Indian	##Others
ACS stratum																
Total	4,318	1,262	1,145	777	2,128	634	629	495	2,344	702	660	598	4,472	1,336	1,289	1,093
Pharmacological therapy given at discharge, No. (%)																
ACE inhibitor	1,979 (62.4)	569 (59.6)	533 (60.7)	293 (51.2)	863 (56.0)	240 (50.8)	254 (52.0)	228 (54.7)	1,005 (56.2)	329 (57.4)	296 (52.1)	359 (68.0)	1,868 (56.1)	569 (54.4)	550 (52.1)	587 (62.1)
Angiotensin II receptor blocker	114 (3.8)	30 (3.3)	44 (5.3)	33 (6.0)	40 (2.9)	16 (3.6)	17 (3.7)	11 (2.7)	40 (2.3)	21 (3.7)	19 (3.4)	16 (3.1)	80 (2.6)	37 (3.7)	36 (3.5)	27 (2.9)
Statin	3,196 (93.4)	933 (93.1)	866 (92.7)	557 (92.7)	1,639 (93.9)	479 (93.0)	504 (93.3)	419 (94.8)	1,853 (94.6)	537 (92.7)	534 (93.5)	509 (95.1)	3,492 (94.3)	1,016 (92.9)	1,038 (93.4)	928 (95.0)
Other lipid lowering agent	110 (3.6)	30 (3.3)	40 (4.8)	12 (2.2)	31 (2.2)	17 (3.9)	10 (2.2)	9 (2.2)	41 (2.4)	16 (2.8)	16 (2.8)	4 (0.8)	72 (2.3)	33 (3.3)	26 (2.6)	13 (1.4)
Diuretics	489 (16.1)	132 (14.5)	137 (16.2)	75 (13.4)	258 (17.9)	67 (14.9)	94 (20.0)	56 (13.5)	301 (17.5)	81 (14.3)	118 (20.8)	79 (15.2)	559 (17.7)	148 (14.6)	212 (20.4)	135 (14.4)
Calcium antagonist	166 (5.6)	57 (6.3)	37 (4.4)	21 (3.8)	70 (5.0)	23 (5.3)	16 (3.5)	24 (5.9)	66 (3.9)	22 (3.9)	36 (6.4)	19 (3.6)	136 (4.4)	45 (4.5)	52 (5.1)	43 (4.6)
Oral hypoglycaemic agent	838 (27.2)	201 (21.9)	321 (37.2)	87 (15.7)	372 (25.5)	85 (18.8)	184 (38.1)	67 (16.3)	420 (24.4)	110 (19.4)	184 (32.6)	77 (14.7)	792 (25.0)	195 (19.2)	368 (35.1)	144 (15.4)
Insulin	373 (12.3)	72 (7.9)	176 (20.8)	29 (5.3)	271 (18.8)	42 (9.5)	93 (19.8)	30 (7.4)	253 (14.7)	44 (7.8)	133 (23.5)	17 (3.3)	524 (16.6)	86 (8.5)	226 (21.9)	47 (5.1)
Anti-arrhythmic agent	173 (5.7)	54 (6.0)	57 (6.8)	33 (6.0)	85 (6.1)	29 (6.7)	25 (5.5)	49 (12.0)	39 (2.3)	20 (3.6)	14 (2.5)	21 (4.1)	124 (4.0)	49 (4.9)	39 (3.8)	70 (7.5)

Total admission days is derived from Outcome date-Admission date + 1

^ Acceptable range between the previous report (2009 & 2010) and this current version (2011 – 2013) was different

* For CRF version 2013, details of the breakdown are available for ticlopidine, clopidogrel, prasugrel and ticagrelor. These drugs are grouped as ADP antagonist in this current version (2011 – 2013)

"Others" includes Orang Asli, Kadazan, Melanau, Murut, Bajau, Bidayuh, Iban, other Malaysian and Foreigner

Table 4.5 Door-to-needle and balloon time distribution for patients with STEMI by year, NCVS-ACS Registry, 2014 – 2015

ACS stratum	STEMI only			
	2011 – 2013	2014	2015	2014 – 2015
STEMI (Total)	7,502	3,886	4,304	8,190
*Door-to-needle time, min	3,717	1,806	1,861	3,667
N	3,347	1,729	1,773	3,502
Mean (SD)	124.3 (222.5)	120.6 (214.2)	95.5 (171.0)	107.9 (193.9)
Median (min, max)	45.0 (1.0, 1440.0)	48.0 (1.0, 1440.0)	45.0 (2.0, 1440.0)	45.0 (1.0, 1440.0)
IQR	75.0	79.0	60.0	68.0
Not available	370 (10.0)	77 (4.3)	88 (4.7)	165 (4.5)
Door-to-needle time, No (%)				
≤ 30 min	1,315 (39.3)	582 (33.7)	651 (36.7)	1,233 (35.2)
> 30 min	2,032 (60.7)	1,147 (66.3)	1,122 (63.3)	2,269 (64.8)
Missing	370	77	88	165
**Door-to-balloon time, min	675	363	625	988
N	400	261	525	786
Mean (SD)	165.0 (222.4)	137.8 (175.9)	101.5 (134.5)	113.5 (150.3)
Median (min, max)	98.0 (5.0, 1440.0)	90.0 (5.0, 1380.0)	61.0 (9.0, 1210.0)	69.0 (5.0, 1380.0)
IQR	86.0	79.0	62.0	73.0
Not available	275 (40.7)	102 (28.1)	100 (16.0)	202 (20.4)
Door-to-balloon time, No (%)				
≤ 90 min	181 (45.3)	132 (50.6)	368 (70.1)	500 (63.6)
> 90 min	219 (54.8)	129 (49.4)	157 (29.9)	286 (36.4)
Missing	275	102	100	202

* Door-to-needle time only available for STEMI patients who were given fibrinolytic therapy

** Door-to-balloon time only available for STEMI patients who had urgent PCI procedure

Table 4.6 Treatments for patients with NSTEMI/UA by age group (years), NCVd-ACS Registry, 2014 – 2015

Year	2011 – 2013			2014			2015			2014 – 2015		
	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly
Age group												
Total	303	3,165	3,793	205	1,962	2,405	239	2,150	2,620	444	4,112	5,025
# Total admission days												
N	300	3,119	3,740	204	1,952	2,387	237	2,135	2,604	441	4,087	4,991
Mean (SD)	5.2 (5.9)	5.8 (6.7)	6.6 (7.7)	4.7 (3.9)	5.6 (6.7)	6.2 (6.8)	4.4 (3.6)	5.4 (6.6)	6.0 (6.3)	4.6 (3.7)	5.5 (6.6)	6.1 (6.6)
Median (min, max)	4.0 (1.0, 64.0)	4.0 (1.0, 95.0)	4.0 (1.0, 100.0)	4.0 (1.0, 36.0)	4.0 (1.0, 96.0)	4.0 (1.0, 97.0)	3.0 (1.0, 43.0)	4.0 (1.0, 95.0)	4.0 (1.0, 92.0)	4.0 (1.0, 43.0)	4.0 (1.0, 96.0)	4.0 (1.0, 97.0)
IQR	2.0	3.0	4.0	2.0	3.0	4.0	2.0	2.0	3.0	2.0	2.0	3.0
Missing	3 (1.0)	47 (1.5)	53 (1.4)	1 (0.5)	10 (0.5)	18 (0.7)	2 (0.8)	15 (0.7)	16 (0.6)	3 (0.7)	25 (0.6)	34 (0.7)
Number of days in CCU												
N	59	540	710	24	247	371	30	298	418	54	545	789
Mean (SD)	2.8 (1.9)	3.5 (3.2)	3.8 (3.6)	3.0 (2.3)	3.8 (3.7)	4.3 (3.9)	2.7 (1.5)	3.1 (2.6)	3.7 (3.3)	2.9 (1.9)	3.4 (3.1)	4.0 (3.6)
Median (min, max)	2.0 (1.0, 11.0)	3.0 (1.0, 30.0)	3.0 (1.0, 24.0)	2.5 (1.0, 10.0)	3.0 (1.0, 23.0)	3.0 (1.0, 30.0)	2.0 (1.0, 7.0)	2.0 (1.0, 22.0)	3.0 (1.0, 28.0)	2.0 (1.0, 10.0)	3.0 (1.0, 23.0)	3.0 (1.0, 30.0)
IQR	1.0	2.0	2.0	2.5	2.0	3.0	1.0	2.0	3.0	1.0	2.0	3.0
No admission to CCU	244 (80.5)	2,625 (82.9)	3,077 (81.3)	181 (89.6)	1,712 (87.3)	2,033 (84.5)	209 (88.6)	1,852 (86.1)	2,199 (83.9)	390 (88.4)	3,564 (86.8)	4,232 (84.2)
Missing	0 (0.0)	0 (0.0)	6 (0.2)	3 (1.5)	1 (0.1)	0 (0.0)	3 (1.3)	0 (0.0)	0 (0.0)	3 (0.7)	4 (0.1)	0 (0.0)
Number of days in ICU/CICU												
N	1	28	32	3	40	59	1	17	15	4	57	74
Mean (SD)	7.0 (.)	4.7 (3.4)	6.2 (6.1)	3.7 (2.9)	3.5 (1.8)	4.0 (2.6)	2.0 (0.0)	4.3 (3.3)	4.9 (3.0)	3.3 (2.5)	3.7 (2.4)	4.2 (2.7)
Median (min, max)	7.0 (7.0, 7.0)	3.5 (1.0, 13.0)	4.0 (1.0, 26.0)	2.0 (2.0, 7.0)	3.0 (1.0, 10.0)	3.0 (1.0, 12.0)	2.0 (2.0, 2.0)	3.0 (1.0, 15.0)	5.0 (1.0, 12.0)	2.0 (2.0, 7.0)	3.0 (1.0, 15.0)	3.0 (1.0, 12.0)
IQR	0	3.5	4.0	5.0	2.0	3.0	0	1.0	5.0	2.5	2.0	4.0
No admission to ICU/CICU	302 (99.7)	3,137 (99.1)	302 (99.7)	202 (100.0)	1,922 (98.0)	2,346 (97.5)	238 (100.8)	2,133 (99.2)	2,605 (99.4)	440 (99.8)	4,055 (98.7)	4,951 (98.5)
Missing	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)

Year	2011 – 2013			2014			2015			2014 – 2015		
	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly
Age group												
Total	303	3,165	3,793	205	1,962	2,405	239	2,150	2,620	444	4,112	5,025
Cardiac catheterisation, No. (%)												
Yes	71 (27.8)	877 (32.0)	853 (25.6)	33 (16.8)	537 (28.5)	543 (23.5)	62 (26.5)	715 (34.0)	702 (27.4)	95 (22.0)	1,252 (31.4)	1,245 (25.6)
No	173 (67.8)	1,783 (65.2)	2,402 (72.2)	163 (82.7)	1,338 (71.1)	1,759 (76.2)	172 (73.5)	1,385 (65.8)	1,854 (72.4)	335 (77.7)	2,723 (68.3)	3,613 (74.2)
Number transferred to another centre	11 (4.4)	78 (2.8)	76 (2.2)	1 (0.5)	6 (0.3)	6 (0.3)	0 (0.0)	5 (0.2)	5 (0.2)	1 (0.2)	11 (0.3)	11 (0.2)
Missing	48	427	462	8	81	97	5	45	59	13	126	156
Percutaneous coronary intervention, No. (%)												
Yes	52 (21.8)	477 (18.3)	452 (14.3)	22 (11.2)	294 (16.0)	278 (12.3)	35 (15.2)	411 (20.2)	374 (15.1)	57 (13.4)	705 (18.2)	652 (13.7)
No	186 (77.8)	2,124 (81.5)	2,699 (85.6)	173 (88.3)	1,546 (83.9)	1,980 (87.5)	193 (83.9)	1,620 (79.5)	2,109 (84.9)	366 (85.9)	3,166 (81.6)	4,089 (86.2)
Not applicable	1 (0.4)	4 (0.2)	3 (0.1)	1 (0.5)	2 (0.1)	4 (0.2)	2 (0.9)	8 (0.4)	1 (0.0)	3 (0.7)	10 (0.3)	5 (0.1)
Missing	64	560	639	9	120	143	9	111	136	18	231	279
CABG, No. (%)												
Yes	1 (0.4)	71 (2.8)	60 (1.9)	2 (1.0)	44 (2.4)	37 (1.6)	2 (0.9)	34 (1.7)	32 (1.3)	4 (1.0)	78 (2.0)	69 (1.4)
No	229 (98.3)	2,423 (96.8)	3,027 (97.9)	189 (98.4)	1,782 (97.0)	2,224 (98.0)	222 (97.4)	1,993 (97.8)	2,476 (98.6)	411 (97.9)	3,775 (97.4)	4,700 (98.3)
Not applicable	3 (1.3)	9 (0.4)	5 (0.2)	1 (0.5)	12 (0.7)	8 (0.4)	4 (1.8)	11 (0.5)	4 (0.2)	5 (1.2)	23 (0.6)	12 (0.3)
Missing	70	662	701	13	124	136	11	112	108	24	236	244
Pre-admission aspirin use, No. (%)												
Yes	100 (35.4)	1,485 (50.4)	1,959 (55.0)	83 (41.9)	1,050 (55.1)	1,381 (59.8)	83 (35.9)	1,083 (51.9)	1,501 (59.0)	166 (38.7)	2,133 (53.5)	2,882 (59.4)
No	183 (64.6)	1,467 (49.6)	1,608 (45.0)	115 (58.1)	854 (44.9)	928 (40.2)	148 (64.1)	1,002 (48.1)	1,045 (41.0)	263 (61.3)	1,856 (46.5)	1,973 (40.6)
Missing	20	213	226	7	58	96	8	65	74	15	123	170

Year	2011 – 2013			2014			2015			2014 – 2015		
	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly
Age group												
Total	303	3,165	3,793	205	1,962	2,405	239	2,150	2,620	444	4,112	5,025
Pharmacological therapy given during admission, No. (%)												
Aspirin	277 (95.2)	2,947 (97.4)	3,479 (95.4)	196 (98.5)	1,871 (97.2)	2,286 (96.9)	228 (96.2)	2,037 (95.9)	2,485 (96.0)	424 (97.2)	3,908 (96.5)	4,771 (96.4)
*ADP antagonist	223 (85.2)	2,452 (87.2)	3,010 (87.0)	185 (95.4)	1,820 (95.7)	2,206 (94.8)	218 (92.8)	2,027 (95.6)	2,473 (96.2)	403 (93.9)	3,847 (95.6)	4,679 (95.5)
GP receptor inhibitor	6 (2.4)	51 (2.0)	55 (1.6)	5 (2.9)	7 (0.4)	0 (0.0)	11 (5.2)	2 (0.1)	0 (0.0)	16 (4.2)	9 (0.3)	0 (0.0)
Unfractionated heparin	22 (9.0)	236 (9.2)	322 (9.8)	3 (1.8)	88 (5.3)	118 (5.6)	15 (7.4)	107 (5.8)	140 (5.9)	18 (4.9)	195 (5.6)	258 (5.8)
LMWH	131 (50.2)	1,410 (52.2)	1,796 (53.4)	31 (17.9)	295 (17.6)	580 (27.1)	34 (16.3)	359 (18.8)	616 (25.6)	65 (17.1)	654 (18.3)	1,196 (26.3)
Fondaparinux	63 (69.2)	788 (75.4)	869 (67.8)	140 (76.9)	1,355 (74.7)	1,473 (65.6)	181 (78.4)	1,524 (73.8)	1,720 (68.4)	321 (77.7)	2,879 (74.2)	3,193 (67.1)
Oral anticoagulant (eg. Warfarin)	1 (1.1)	25 (2.6)	33 (2.7)	5 (3.0)	39 (2.4)	67 (3.2)	4 (2.0)	42 (2.3)	77 (3.3)	9 (2.4)	81 (2.3)	144 (3.2)
Beta blocker	160 (61.6)	1,944 (69.4)	2,291 (66.2)	128 (68.8)	1,130 (62.2)	1,403 (62.4)	149 (64.5)	1,378 (66.5)	1,612 (64.0)	277 (66.4)	2,508 (64.5)	3,015 (63.3)
ACE inhibitor	140 (54.2)	1,698 (61.8)	1,940 (57.0)	91 (50.3)	964 (53.9)	1,018 (46.2)	133 (57.8)	1,183 (57.7)	1,224 (49.1)	224 (54.5)	2,147 (55.9)	2,242 (47.8)
Angiotensin II receptor blocker	13 (5.2)	247 (9.6)	374 (11.4)	9 (5.4)	152 (9.0)	215 (10.1)	9 (4.4)	149 (7.9)	229 (9.6)	18 (4.8)	301 (8.4)	444 (9.8)
Statin	248 (89.6)	2,700 (92.4)	3,274 (91.6)	187 (95.9)	1,731 (91.8)	2,113 (91.0)	219 (92.4)	1,988 (93.8)	2,414 (93.2)	406 (94.0)	3,719 (92.9)	4,527 (92.1)
Other lipid lowering agent	15 (6.0)	167 (6.4)	153 (4.8)	10 (6.1)	57 (3.5)	67 (3.2)	6 (2.9)	56 (3.0)	71 (3.0)	16 (4.3)	113 (3.2)	138 (3.1)
Diuretics	30 (12.0)	687 (26.0)	1,316 (39.0)	24 (13.6)	453 (26.6)	891 (41.0)	30 (14.7)	481 (25.2)	913 (37.8)	54 (14.2)	934 (25.9)	1,804 (39.3)
Calcium antagonist	31 (12.6)	411 (15.8)	878 (26.8)	24 (14.0)	304 (18.0)	539 (25.1)	23 (11.5)	325 (17.1)	602 (25.0)	47 (12.7)	629 (17.5)	1,141 (25.1)
Oral hypoglycaemic agent	50 (20.0)	840 (31.6)	1,075 (32.2)	35 (20.0)	556 (32.3)	677 (31.6)	36 (17.5)	618 (31.8)	757 (31.2)	71 (18.6)	1,174 (32.1)	1,434 (31.4)
Insulin	30 (12.0)	608 (23.0)	816 (24.4)	17 (10.1)	408 (24.0)	562 (26.1)	24 (11.9)	510 (26.7)	632 (26.3)	41 (11.1)	918 (25.5)	1,194 (26.2)
Anti-arrhythmic agent	13 (5.2)	133 (5.2)	232 (7.2)	4 (2.4)	104 (6.4)	140 (6.7)	9 (4.6)	77 (4.2)	113 (4.8)	13 (3.6)	181 (5.2)	253 (5.7)

Year	2011 – 2013			2014			2015			2014 – 2015		
	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly
Total	303	3,165	3,793	205	1,962	2,405	239	2,150	2,620	444	4,112	5,025
Pharmacological therapy given at discharge, No. (%)												
Aspirin	262 (93.2)	2,720 (95.7)	3,071 (92.7)	171 (94.0)	1,695 (93.2)	2,003 (92.2)	204 (92.3)	1,849 (92.7)	2,166 (91.2)	375 (93.1)	3,544 (92.9)	4,169 (91.7)
*ADP antagonist	203 (79.9)	2,192 (83.2)	2,585 (82.5)	150 (85.2)	1,588 (88.8)	1,876 (88.0)	190 (89.6)	1,750 (89.1)	2,107 (89.6)	340 (87.6)	3,338 (89.0)	3,983 (88.8)
Fondaparinux	7 (7.9)	59 (6.1)	59 (5.0)	8 (5.1)	43 (2.7)	52 (2.7)	11 (5.4)	64 (3.5)	51 (2.3)	19 (5.3)	107 (3.1)	103 (2.5)
Oral anticoagulant (eg. Warfarin)	1 (1.1)	25 (2.7)	38 (3.4)	5 (3.2)	48 (3.1)	65 (3.4)	6 (3.2)	56 (3.2)	100 (4.7)	11 (3.2)	104 (3.2)	165 (4.0)
Beta blocker	158 (62.0)	1,868 (70.4)	2,170 (68.3)	120 (69.0)	1,155 (66.6)	1,338 (64.2)	146 (66.4)	1,376 (70.2)	1,555 (67.1)	266 (67.5)	2,531 (68.5)	2,893 (65.7)
ACE inhibitor	129 (51.6)	1,634 (62.2)	1,823 (58.2)	87 (51.8)	913 (53.7)	980 (47.8)	124 (57.4)	1,147 (59.2)	1,160 (50.4)	211 (54.9)	2,060 (56.6)	2,140 (49.2)
Angiotensin II receptor blocker	11 (4.5)	234 (9.4)	324 (10.8)	9 (5.7)	160 (10.0)	215 (10.9)	6 (3.2)	163 (9.2)	255 (11.7)	15 (4.3)	323 (9.6)	470 (11.3)
Statin	247 (91.5)	2,543 (91.7)	2,980 (91.6)	169 (94.9)	1,645 (91.0)	1,937 (90.2)	196 (88.3)	1,857 (93.2)	2,182 (92.0)	365 (91.3)	3,502 (92.2)	4,119 (91.1)
Other lipid lowering agent	14 (5.8)	140 (5.7)	129 (4.3)	8 (5.2)	59 (3.8)	59 (3.0)	6 (3.2)	61 (3.5)	82 (3.8)	14 (4.1)	120 (3.6)	141 (3.4)
Diuretics	25 (10.3)	564 (22.4)	1,011 (32.9)	19 (11.7)	366 (22.7)	693 (34.6)	23 (11.9)	397 (22.2)	719 (32.7)	42 (11.8)	763 (22.4)	1,412 (33.6)
Calcium antagonist	31 (12.8)	353 (14.2)	780 (25.8)	23 (14.5)	287 (17.9)	490 (24.7)	20 (10.5)	311 (17.4)	528 (23.9)	43 (12.3)	598 (17.6)	1,018 (24.3)
Oral hypoglycaemic agent	57 (23.1)	855 (33.5)	1,068 (34.7)	35 (21.3)	569 (34.8)	669 (33.5)	34 (17.4)	635 (34.5)	761 (34.0)	69 (19.2)	1,204 (34.6)	1,430 (33.8)
Insulin	21 (8.6)	417 (16.6)	540 (17.7)	14 (8.8)	304 (19.0)	371 (18.7)	14 (7.3)	376 (20.9)	440 (20.0)	28 (8.0)	680 (20.0)	811 (19.4)
Anti-arrhythmic agent	10 (4.1)	115 (4.7)	166 (5.5)	3 (1.9)	99 (6.3)	100 (5.1)	6 (3.2)	61 (3.5)	68 (3.2)	9 (2.6)	160 (4.8)	168 (4.1)

Total admission days is derived from Outcome date-Admission date + 1

^ Acceptable range between the previous report (2009 & 2010) and this current version (2011 – 2013) was different

* For CRF version 2013, details of the breakdown are available for ticlopidine, clopidogrel, prasugrel and ticagrelor. These drugs are grouped as ADP antagonist in this current version (2011 – 2013)

** Young is defined as age 20 to less than 40 years, middle-aged is defined as age 40 to less than 60 years and elderly is defined as 60 years and above

Table 4.7 Treatments for patients with NSTEMI/UA by gender, NCVd-ACS Registry, 2014 – 2015

Year	2011 – 2013		2014		2015		2014 – 2015	
	Male	Female	Male	Female	Male	Female	Male	Female
Gender								
Total	5,241	2,020	3,321	1,251	3,651	1,358	6,972	2,609
#*Total admission days								
N	5,167	1,992	3,299	1,244	3,632	1,344	6,931	2,588
Mean (SD)	6.1 (7.0)	6.5 (7.7)	5.8 (6.6)	6.0 (6.7)	5.7 (6.6)	5.7 (5.6)	5.7 (6.6)	5.9 (6.2)
Median (min, max)	4.0 (1.0, 100.0)	4.0 (1.0, 100.0)	4.0 (1.0, 97.0)	4.0 (1.0, 76.0)	4.0 (1.0, 95.0)	4.0 (1.0, 76.0)	4.0 (1.0, 97.0)	4.0 (1.0, 76.0)
IQR	3.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Missing	74 (1.4)	29 (1.4)	22 (0.7)	7 (0.6)	19 (0.5)	14 (1.0)	41 (0.6)	21 (0.8)
Number of days in CCU								
N	980	329	483	159	565	181	1,048	340
Mean (SD)	3.6 (3.3)	3.7 (3.5)	3.9 (3.6)	4.3 (4.2)	3.3 (2.9)	3.8 (3.1)	3.6 (3.3)	4.0 (3.7)
Median (min, max)	3.0 (1.0, 30.0)	3.0 (1.0, 25.0)	3.0 (1.0, 30.0)	3.0 (1.0, 23.0)	3.0 (1.0, 22.0)	3.0 (1.0, 28.0)	3.0 (1.0, 30.0)	3.0 (1.0, 28.0)
IQR	2.0	2.0	3.0	3.0	2.0	3.0	2.0	3.0
No admission to CCU	4,258 (81.3)	1,688 (83.7)	2,835 (85.4)	1,091 (87.3)	3,084 (84.5)	1,176 (86.7)	5,919 (85.0)	2,267 (87.0)
Missing	3 (0.1)	3 (0.1)	3 (0.1)	1 (0.1)	2 (0.1)	1 (0.1)	5 (0.1)	2 (0.1)
Number of days in ICU/CICU								
N	48	13	69	33	28	5	97	38
Mean (SD)	5.4 (5.0)	6.2 (5.4)	3.6 (2.2)	4.2 (2.6)	4.3 (3.0)	6.0 (3.9)	3.8 (2.4)	4.4 (2.8)
Median (min, max)	4.0 (1.0, 26.0)	4.0 (1.0, 21.0)	3.0 (1.0, 12.0)	4.0 (1.0, 12.0)	3.0 (1.0, 15.0)	6.0 (2.0, 12.0)	3.0 (1.0, 15.0)	4.0 (1.0, 12.0)
IQR	4.5	4.0	2.0	3.0	3.0	4.0	2.0	4.0
No admission to ICU/CICU	5,193 (99.1)	2,007 (99.5)	3,252 (98.0)	1,218 (97.4)	3,623 (99.3)	1,353 (99.7)	6,875 (98.7)	2,571 (98.6)
Missing	5,193 (99.1)	2,007 (99.4)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)

Year	2011 – 2013		2014		2015		2014 – 2015	
	Male	Female	Male	Female	Male	Female	Male	Female
Gender								
Total	5,241	2,020	3,321	1,251	3,651	1,358	6,972	2,609
Cardiac catheterisation, No. (%)								
Yes	1,393 (30.5)	408 (23.3)	871 (27.3)	242 (20.2)	1,158 (32.4)	321 (24.3)	2,029 (30.0)	563 (22.3)
No	3,062 (67.0)	1,296 (73.9)	2,305 (72.3)	955 (79.6)	2,411 (67.4)	1,000 (75.6)	4,716 (69.7)	1,955 (77.5)
Number transferred to another centre	116 (2.5)	49 (2.8)	11 (0.3)	2(0.2)	8 (0.2)	2 (0.2)	19 (0.3)	4 (0.2)
Missing	670	267	134	52	74	35	208	87
Percutaneous coronary intervention, No. (%)								
Yes	788 (18.1)	193 (11.8)	456 (14.6)	138 (11.7)	639 (18.4)	181 (14.1)	1,095 (16.6)	319 (12.9)
No	3,565 (81.8)	1,444 (88.1)	2,656 (85.2)	1,043 (88.2)	2,822 (81.3)	1,100 (85.7)	5,478 (83.2)	2,143 (86.9)
Not applicable	6 (0.1)	2 (0.1)	6 (0.2)	1 (0.1)	8 (0.2)	3 (0.2)	14 (0.2)	4 (0.2)
Missing	882	381	203	69	182	74	385	143
CABG, No. (%)								
Yes	102 (2.4)	30 (1.9)	63 (2.0)	20 (1.7)	59 (1.7)	9 (0.7)	122 (1.8)	29 (1.2)
No	4,136 (97.3)	1,543 (97.7)	3,037 (97.5)	1,158 (97.9)	3,411 (97.9)	1,280 (98.8)	6,448 (97.7)	2,438 (98.4)
Not applicable	11 (0.3)	6 (0.4)	16 (0.5)	5 (0.4)	13 (0.4)	6 (0.5)	29 (0.4)	11 (0.4)
Missing	992	441	205	68	168	63	373	131
Pre-admission aspirin use, No. (%)								
Yes	2,579 (52.4)	965 (51.4)	1,847 (57.7)	667 (55.2)	1,935 (54.8)	732 (55.1)	3,782 (56.1)	1,399 (55.2)
No	2,347 (47.6)	911 (48.6)	1,356 (42.3)	541 (44.8)	1,599 (45.2)	596 (44.9)	2,955 (43.9)	1,137 (44.8)
Missing	315	144	118	43	117	30	235	73

Year	2011 – 2013		2014		2015		2014 – 2015	
	Male	Female	Male	Female	Male	Female	Male	Female
Gender								
Total	5,241	2,020	3,321	1,251	3,651	1,358	6,972	2,609
Pharmacological therapy given during admission, No. (%)								
Aspirin	4,855 (96.4)	1,848 (96.0)	3,169 (97.4)	1,184 (96.3)	3,478 (96.2)	1,272 (95.3)	6,647 (96.7)	2,456 (95.8)
*ADP antagonist	4,132 (87.6)	1,553 (85.6)	3,059 (95.4)	1,152 (94.8)	3,449 (95.9)	1,269 (95.4)	6,508 (95.6)	2,421 (95.1)
GP receptor inhibitor	86 (2.0)	26 (1.6)	10 (0.4)	2 (0.2)	12 (0.4)	1 (0.1)	22 (0.4)	3 (0.1)
Unfractionated heparin	434 (10.0)	146 (8.6)	159 (5.6)	50 (4.5)	208 (6.4)	54 (4.5)	367 (6.1)	104 (4.5)
LMWH	2400 (52.6)	937 (53.2)	635 (22.1)	271 (24.2)	713 (21.6)	296 (24.2)	1,348 (21.9)	567 (24.2)
Fondaparinux	1,284 (72.4)	436 (67.6)	2,170 (71.0)	798 (67.4)	2,517 (71.5)	908 (70.1)	4,687 (71.3)	1,706 (68.8)
Oral anticoagulant (eg. Warfarin)	45 (2.7)	14 (2.3)	81 (2.9)	30 (2.7)	83 (2.6)	40 (3.4)	164 (2.7)	70 (3.1)
Beta blocker	3,198 (67.8)	1,197 (66.4)	1,939 (63.3)	722 (60.9)	2,332 (66.3)	807 (61.9)	4,271 (64.9)	1,529 (61.4)
ACE inhibitor	2,754 (59.4)	1,024 (57.8)	1,535 (50.9)	538 (46.5)	1,889 (54.2)	651 (50.7)	3,424 (52.7)	1,189 (48.7)
Angiotensin II receptor blocker	447 (10.2)	187 (11.2)	250 (8.7)	126 (11.2)	267 (8.2)	120 (10.1)	517 (8.4)	246 (10.6)
Statin	4,518 (92.0)	1,704 (91.2)	2,934 (92.0)	1,097 (90.4)	3,368 (93.4)	1,253 (93.5)	6,302 (92.7)	2,350 (92.0)
Other lipid lowering agent	253 (5.8)	82 (4.8)	101 (3.6)	33 (3.0)	98 (3.0)	35 (2.9)	199 (3.3)	68 (3.0)
Diuretics	1,383 (30.6)	650 (37.2)	932 (32.0)	436 (38.3)	995 (30.0)	429 (35.3)	1,927 (30.9)	865 (36.8)
Calcium antagonist	850 (19.2)	470 (27.6)	570 (19.8)	297 (26.1)	638 (19.4)	312 (25.6)	1,208 (19.6)	609 (25.9)
Oral hypoglycaemic agent	1,324 (29.4)	641 (36.8)	872 (30.1)	396 (34.7)	976 (29.2)	435 (35.1)	1,848 (29.6)	831 (34.9)
Insulin	920 (20.6)	534 (30.6)	627 (21.8)	360 (31.7)	769 (23.3)	397 (32.6)	1,396 (22.6)	757 (32.2)
Anti-arrhythmic agent	264 (6.0)	114 (6.8)	194 (6.9)	54 (4.9)	144 (4.5)	55 (4.7)	338 (5.6)	109 (4.8)

Year	2011 – 2013		2014		2015		2014 – 2015	
	Male	Female	Male	Female	Male	Female	Male	Female
Gender								
Total	5,241	2,020	3,321	1,251	3,651	1,358	6,972	2,609
Pharmacological therapy given at discharge, No. (%)								
Aspirin	4,411 (94.4)	1,642 (93.0)	2,834 (93.1)	1,035 (91.8)	3,090 (92.3)	1,129 (90.9)	5,924 (92.7)	2,164 (91.3)
*ADP antagonist	3,651 (83.6)	1,329 (80.4)	2,675 (89.4)	939 (85.0)	2,969 (89.7)	1,078 (88.7)	5,644 (89.5)	2,017 (86.9)
Fondaparinux	92 (5.6)	33 (5.6)	80 (3.0)	23 (2.2)	99 (3.2)	27 (2.3)	179 (3.1)	50 (2.3)
Oral anticoagulant (eg. Warfarin)	48 (3.1)	16 (2.8)	95 (3.6)	23 (2.3)	123 (4.1)	39 (3.5)	218 (3.9)	62 (2.9)
Beta blocker	3,043 (69.0)	1,153 (68.7)	1,934 (66.9)	679 (61.8)	2,283 (69.6)	794 (65.0)	4,217 (68.4)	1,473 (63.5)
ACE inhibitor	2,626 (60.2)	960 (58.2)	1,485 (52.2)	495 (46.2)	1,818 (55.8)	613 (51.2)	3,303 (54.1)	1,108 (48.9)
Angiotensin II receptor blocker	397 (9.6)	172 (10.9)	260 (9.7)	124 (12.0)	297 (9.8)	127 (11.4)	557 (9.8)	251 (11.7)
Statin	4,216 (92.2)	1,554 (90.3)	2,742 (91.2)	1,009 (89.6)	3,096 (92.4)	1,139 (92.1)	5,838 (91.8)	2,148 (90.9)
Other lipid lowering agent	215 (5.2)	68 (4.3)	100 (3.8)	26 (2.6)	106 (3.5)	43 (3.9)	206 (3.7)	69 (3.3)
Diuretics	1,099 (26.0)	501 (31.1)	729 (26.7)	349 (33.2)	795 (26.0)	344 (30.7)	1,524 (26.3)	693 (31.9)
Calcium antagonist	763 (18.4)	401 (25.1)	523 (19.4)	277 (26.4)	575 (18.8)	284 (25.0)	1,098 (19.1)	561 (25.7)
Oral hypoglycaemic agent	1,343 (31.7)	637 (38.9)	880 (32.1)	393 (37.2)	971 (31.2)	459 (39.6)	1,851 (31.6)	852 (38.5)
Insulin	605 (14.4)	373 (23.0)	433 (16.0)	256 (24.5)	533 (17.4)	297 (26.3)	966 (16.8)	553 (25.4)
Anti-arrhythmic agent	205 (5.0)	86 (5.4)	162 (6.1)	40 (3.9)	99 (3.3)	36 (3.3)	261 (4.6)	76 (3.6)

Total admission days is derived from Outcome date-Admission date + 1

^ Acceptable range between the previous report (2009 & 2010) and this current version (2011 – 2013) was different

* For CRF version 2013, details of the breakdown are available for ticlopidine, clopidogrel, prasugrel and ticagrelor. These drugs are grouped as ADP antagonist in this current version (2011 – 2013)

Table 4.8 Treatments for patients with NSTEMI/UA by ethnic group, NCVd-ACS Registry, 2014 – 2015

Year	2011 – 2013				2014				2015				2014 – 2015			
	Malay	Chinese	Indian	##Others	Malay	Chinese	Indian	##Others	Malay	Chinese	Indian	##Others	Malay	Chinese	Indian	##Others
ACS stratum																
Total	3,141	1,912	1,759	449	2,062	1,133	951	426	2,224	1,186	1,056	543	4,286	2,319	2,007	969
# Total admission days																
N	3,091	1,894	1,733	440	2,042	1,131	947	423	2,207	1,177	1,055	537	4,249	2,308	2,002	960
Mean (SD)	6.2 (6.8)	6.2 (7.6)	6.3 (7.7)	5.5 (6.5)	6.0 (6.7)	6.1 (7.8)	5.6 (5.6)	4.9 (4.7)	5.9 (6.6)	5.8 (6.8)	5.5 (5.1)	5.0 (6.7)	5.9 (6.6)	5.9 (7.3)	5.5 (5.3)	4.9 (5.9)
Median (min, max)	4.0 (1.0, 100.0)	4.0 (1.0, 100.0)	4.0 (1.0, 96.0)	4.0 (1.0, 64.0)	4.0 (1.0, 97.0)	4.0 (1.0, 96.0)	4.0 (1.0, 65.0)	4.0 (1.0, 56.0)	4.0 (1.0, 95.0)	4.0 (1.0, 95.0)	4.0 (1.0, 53.0)	3.0 (1.0, 75.0)	4.0 (1.0, 97.0)	4.0 (1.0, 96.0)	4.0 (1.0, 65.0)	4.0 (1.0, 75.0)
IQR	3.0	3.0	3.0	2.0	3.0	3.0	3.0	2.0	3.0	3.0	3.0	2.0	3.0	3.0	3.0	2.0
Missing	50 (1.6)	18 (0.9)	26 (1.5)	9 (2.0)	20 (1.0)	2 (0.2)	4 (0.4)	3 (0.7)	17 (0.8)	9 (0.8)	1 (0.1)	6 (1.1)	37 (0.9)	11 (0.5)	5 (0.2)	9 (0.9)
Number of days in CCU																
N	656	288	214	151	346	140	86	70	373	141	120	112	719	281	206	182
Mean (SD)	3.7 (3.5)	3.5 (3.4)	3.3 (2.9)	3.9 (3.6)	4.0 (3.9)	3.7 (3.3)	4.7 (4.6)	4.0 (3.2)	3.4 (2.9)	3.8 (3.8)	3.6 (2.8)	3.0 (2.0)	3.7 (3.4)	3.8 (3.5)	4.0 (3.7)	3.4 (2.5)
Median (min, max)	3.0 (1.0, 26.0)	2.0 (1.0, 23.0)	3.0 (1.0, 20.0)	3.0 (1.0, 30.0)	3.0 (1.0, 30.0)	3.0 (1.0, 22.0)	3.0 (1.0, 23.0)	3.0 (1.0, 21.0)	3.0 (1.0, 21.0)	3.0 (1.0, 28.0)	3.0 (1.0, 16.0)	3.0 (1.0, 15.0)	3.0 (1.0, 30.0)	3.0 (1.0, 28.0)	3.0 (1.0, 23.0)	3.0 (1.0, 21.0)
IQR	2.0	2.0	3.0	3.0	3.0	3.0	4.0	3.0	2.0	2.0	2.5	2.0	2.0	3.0	3.0	2.0
No admission to CCU	2,484 (79.1)	1,622 (84.9)	1,543 (87.8)	297 (66.3)	1,714 (83.2)	992 (87.6)	865 (91.1)	355 (83.3)	1,849 (83.2)	1,044 (88.1)	936 (88.6)	431 (79.4)	3,563 (83.2)	2,036 (87.9)	1,801 (89.8)	786 (81.1)
Missing	1 (0.0)	2 (0.1)	2 (0.1)	1 (0.2)	2 (0.1)	1 (0.1)	1 (0.1)	0 (0.0)	2 (0.1)	1 (0.1)	0 (0.0)	0 (0.0)	4 (0.1)	2 (0.1)	1 (0.0)	0 (0.0)

Year	2011 – 2013				2014				2015				2014 – 2015			
	Malay	Chinese	Indian	##Others	Malay	Chinese	Indian	##Others	Malay	Chinese	Indian	##Others	Malay	Chinese	Indian	##Others
ACS stratum																
Total	3,141	1,912	1,759	449	2,062	1,133	951	426	2,224	1,186	1,056	543	4,286	2,319	2,007	969
Number of days in ICU/CICU																
N	37	8	11	5	50	26	19	7	14	11	4	4	64	37	23	11
Mean (SD)	5.5 (5.0)	4.4 (2.0)	5.1 (3.4)	8.8 (10.0)	3.3 (1.7)	5.1 (3.1)	3.1 (1.4)	4.1 (3.0)	4.3 (3.2)	4.2 (2.2)	4.3 (1.7)	6.5 (5.9)	3.5 (2.1)	4.8 (2.9)	3.3 (1.5)	5.0 (4.2)
Median (min, max)	4.0 (1.0, 22.0)	4.5 (1.0, 7.0)	4.0 (2.0, 12.0)	4.0 (1.0, 26.0)	3.0 (1.0, 9.0)	4.0 (1.0, 12.0)	2.0 (0.0, 6.0)	3.0 (2.0, 9.0)	3.0 (1.0, 12.0)	3.0 (2.0, 9.0)	4.5 (2.0, 6.0)	4.5 (2.0, 15.0)	3.0 (1.0, 12.0)	4.0 (1.0, 12.0)	3.0 (1.0, 6.0)	3.0 (2.0, 15.0)
IQR	4.0	3.0	5.0	5.0	2.0	4.0	2.0	6.0	4.0	3.0	2.5	8.0	2.0	3.0	3.0	6.0
No admission to ICU/CICU	3,104 (98.9)	1,904 (99.7)	1,748 (99.5)	444 (99.1)	2,012 (97.7)	1,107 (97.8)	932 (98.1)	419 (98.4)	2,210 (99.5)	1,175 (99.2)	1,052 (99.6)	539 (99.3)	4,222 (98.6)	2,282 (98.5)	1,984 (98.9)	958 (98.9)
Missing	3,104 (98.8)	1,904 (99.6)	1,748 (99.4)	444 (98.9)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Cardiac catheterisation, No. (%)																
Yes	751 (27.5)	465 (27.2)	447 (30.2)	138 (34.4)	457 (23.4)	270 (24.5)	214 (23.3)	172 (41.6)	588 (27.1)	348 (30.0)	307 (29.3)	236 (44.9)	1,045 (25.4)	618 (27.3)	521 (26.5)	408 (43.5)
No	1,904 (69.6)	1,205 (70.5)	994 (67.2)	255 (63.6)	1,488 (76.3)	830 (75.2)	702 (76.4)	240 (58.1)	1,572 (72.5)	810 (69.9)	740 (70.6)	289 (54.9)	3,060 (74.3)	1,640 (72.5)	1,442 (73.3)	529 (56.3)
Number transferred to another centre	79 (2.9)	39 (2.3)	39 (2.6)	8 (2.0)	6 (0.3)	3 (0.3)	3 (0.3)	1 (0.2)	7 (0.3)	1 (0.1)	1 (0.1)	1 (0.2)	13 (0.3)	4 (0.2)	4 (0.2)	2 (0.2)
Missing	407	203	279	48	111	30	32	13	57	27	8	17	168	57	40	30

Year	2011 – 2013				2014				2015				2014 – 2015			
	Malay	Chinese	Indian	#Others	Malay	Chinese	Indian	#Others	Malay	Chinese	Indian	#Others	Malay	Chinese	Indian	#Others
ACS stratum																
Total	3,141	1,912	1,759	449	2,062	1,133	951	426	2,224	1,186	1,056	543	4,286	2,319	2,007	969
Percutaneous coronary intervention, No. (%)																
Yes	420 (16.1)	243 (14.8)	242 (17.5)	76 (20.3)	247 (12.9)	136 (12.5)	122 (13.4)	89 (23.1)	323 (15.4)	189 (16.7)	182 (17.7)	126 (25.8)	570 (14.2)	325 (14.7)	304 (15.7)	215 (24.6)
No	2,178 (83.7)	1,393 (85.0)	1,140 (82.4)	298 (79.7)	1,670 (86.9)	948 (87.4)	787 (86.6)	294 (76.4)	1,708 (84.2)	944 (83.3)	848 (82.3)	362 (74.0)	3,438 (85.5)	1,892 (85.3)	1,635 (84.3)	656 (75.1)
Not applicable	5 (0.2)	2 (0.1)	1 (0.1)	0 (0.0)	4 (0.2)	1 (0.1)	0 (0.0)	2 (0.5)	9 (0.4)	0 (0.0)	1 (0.1)	1 (0.2)	13 (0.3)	1 (0.0)	1 (0.1)	3 (0.3)
Missing	538	274	376	75	141	48	42	41	124	53	25	54	265	101	67	95
CABG, No. (%)																
Yes	53 (2.1)	36 (2.2)	34 (2.5)	9 (2.7)	29 (1.5)	20 (1.9)	19 (2.1)	15 (4.1)	20 (0.9)	26 (2.3)	16 (1.6)	6 (1.2)	49 (1.2)	46 (2.1)	35 (1.8)	21 (2.4)
No	2,468 (97.7)	1,566 (97.6)	1,320 (96.9)	325 (97.0)	1,893 (97.7)	1,057 (97.8)	893 (97.9)	352 (95.4)	2,095 (98.5)	1,111 (97.5)	1,002 (98.4)	483 (97.6)	3,988 (98.2)	2,168 (97.7)	1,895 (98.2)	835 (96.6)
Not applicable	6 (0.2)	2 (0.1)	8 (0.6)	1 (0.3)	15 (0.8)	4 (0.4)	0 (0.0)	2 (0.5)	11 (0.5)	2 (0.2)	0 (0.0)	6 (1.2)	26 (0.6)	6 (0.3)	0 (0.0)	8 (0.9)
Missing	614	308	397	114	125	52	39	57	98	47	38	48	223	99	77	105
Pre-admission aspirin use, No. (%)																
Yes	1,478 (50.4)	932 (51.4)	949 (58.1)	185 (43.4)	1,116 (56.0)	600 (55.0)	578 (62.7)	220 (54.3)	1,147 (53.3)	625 (54.0)	622 (60.8)	273 (51.6)	2,263 (54.6)	1,225 (54.5)	1,200 (61.7)	493 (52.8)
No	1,452 (49.6)	880 (48.6)	685 (41.9)	241 (56.6)	877 (44.0)	491 (45.0)	344 (37.3)	185 (45.7)	1,006 (46.7)	532 (46.0)	401 (39.2)	256 (48.4)	1,883 (45.4)	1,023 (45.5)	745 (38.3)	441 (47.2)
Missing	211	100	125	23	69	42	29	21	71	29	33	14	140	71	62	35

Year	2011 – 2013				2014				2015				2014 – 2015			
	Malay	Chinese	Indian	#Others	Malay	Chinese	Indian	#Others	Malay	Chinese	Indian	#Others	Malay	Chinese	Indian	#Others
Total	3,141	1,912	1,759	449	2,062	1,133	951	426	2,224	1,186	1,056	543	4,286	2,319	2,007	969
Pharmacological therapy given during admission, No. (%)																
Aspirin	2,887 (96.3)	1,778 (96.0)	1,610 (95.8)	428 (97.9)	1,949 (97.1)	1,078 (96.3)	913 (97.5)	413 (98.3)	2,123 (96.7)	1,119 (95.2)	1,007 (96.1)	501 (94.2)	4,072 (96.9)	2,197 (95.7)	1,920 (96.8)	914 (96.0)
*ADP antagonist	2,423 (87.1)	1,536 (87.8)	1,392 (87.2)	334 (83.9)	1,905 (96.2)	1,042 (94.4)	901 (97.4)	363 (87.9)	2,094 (95.7)	1,118 (95.6)	1,011 (97.3)	495 (93.0)	3,999 (96.0)	2,160 (95.0)	1,912 (97.4)	858 (90.8)
GP receptor inhibitor	47 (1.8)	28 (1.7)	28 (1.9)	9 (2.4)	8 (0.5)	1 (0.1)	2 (0.3)	1 (0.3)	6 (0.3)	1 (0.1)	4 (0.4)	2 (0.4)	14 (0.4)	2 (0.1)	6 (0.4)	3 (0.3)
Unfractionated heparin	284 (11.1)	111 (6.8)	160 (10.7)	25 (6.7)	116 (6.6)	32 (3.2)	48 (6.0)	13 (3.4)	138 (7.1)	37 (3.4)	71 (7.8)	16 (3.2)	254 (6.9)	69 (3.3)	119 (7.0)	29 (3.3)
LMWH	1,325 (49.7)	939 (55.1)	830 (53.6)	243 (59.9)	275 (15.5)	317 (31.0)	189 (23.4)	125 (32.6)	359 (18.1)	300 (27.4)	208 (22.3)	142 (27.8)	634 (29.2)	617 (29.2)	397 (22.8)	267 (29.9)
Fondaparinux	771 (74.0)	464 (69.7)	403 (73.7)	82 (50.3)	1,444 (76.7)	662 (61.9)	687 (76.8)	175 (44.4)	1,627 (76.8)	758 (65.7)	783 (77.1)	257 (49.0)	3,071 (76.8)	1,420 (63.8)	1,470 (77.0)	432 (47.0)
Oral anticoagulant (eg. Warfarin)	22 (2.3)	18 (2.9)	12 (2.4)	7 (4.4)	52 (3.0)	37 (3.7)	13 (1.6)	9 (2.4)	54 (2.8)	41 (3.8)	11 (1.2)	17 (3.4)	106 (2.9)	78 (3.7)	24 (1.4)	26 (2.9)
Beta blocker	1,854 (67.1)	1,208 (69.2)	1,075 (67.3)	258 (62.6)	1,195 (63.2)	672 (62.7)	555 (62.6)	239 (59.8)	1,350 (63.7)	740 (64.2)	672 (65.9)	377 (71.1)	2,545 (63.4)	1,412 (63.5)	1,227 (64.4)	616 (66.2)
ACE inhibitor	1,636 (60.1)	960 (56.1)	974 (61.8)	208 (51.2)	945 (50.9)	497 (47.1)	449 (52.0)	182 (46.0)	1,120 (53.2)	574 (50.1)	537 (53.8)	309 (58.9)	2,065 (52.1)	1,071 (48.7)	986 (53.0)	491 (53.3)
Angiotensin II receptor blocker	258 (10.1)	169 (10.3)	170 (11.3)	37 (9.6)	161 (9.1)	100 (9.8)	84 (10.3)	31 (8.1)	158 (8.1)	87 (8.0)	89 (9.7)	53 (10.4)	319 (8.6)	187 (8.9)	173 (10.0)	84 (9.4)
Statin	2,659 (92.0)	1,638 (90.5)	1,528 (92.5)	397 (93.2)	1,829 (92.6)	997 (90.4)	847 (92.5)	358 (87.3)	2,052 (93.4)	1,097 (93.4)	987 (94.5)	485 (91.2)	3,881 (93.0)	2,094 (92.0)	1,834 (93.6)	843 (89.5)
Other lipid lowering agent	155 (6.1)	83 (5.1)	80 (5.3)	17 (4.4)	70 (4.0)	25 (2.5)	31 (3.9)	8 (2.1)	69 (3.6)	24 (2.2)	33 (3.7)	7 (1.4)	139 (3.8)	49 (2.4)	64 (3.8)	15 (1.7)
Diuretics	877 (33.1)	548 (32.4)	508 (33.1)	100 (25.6)	616 (34.0)	350 (33.9)	311 (37.7)	91 (23.7)	649 (32.5)	334 (30.5)	316 (34.0)	125 (24.6)	1,265 (33.2)	684 (32.2)	627 (35.7)	216 (24.2)
Calcium antagonist	562 (21.8)	369 (22.3)	313 (20.8)	76 (19.8)	363 (20.5)	249 (24.3)	188 (22.7)	67 (17.3)	438 (22.2)	239 (21.7)	190 (20.6)	83 (16.3)	801 (21.4)	488 (23.0)	378 (21.6)	150 (16.8)
Oral hypoglycaemic agent	783 (29.7)	460 (27.6)	632 (40.6)	90 (23.2)	546 (30.5)	290 (28.2)	347 (41.4)	85 (22.1)	577 (29.0)	298 (26.9)	439 (45.4)	97 (18.9)	1,123 (27.5)	588 (27.5)	786 (43.5)	182 (20.3)
Insulin	610 (23.3)	295 (17.7)	495 (31.9)	54 (14.0)	451 (25.3)	185 (18.2)	298 (35.8)	53 (13.9)	526 (26.7)	197 (18.0)	386 (41.0)	57 (11.2)	977 (26.0)	382 (18.1)	684 (38.6)	110 (12.4)
Anti-arrhythmic agent	179 (7.0)	107 (6.5)	62 (4.2)	30 (7.8)	95 (5.5)	69 (6.9)	38 (4.8)	46 (12.2)	93 (4.9)	50 (4.7)	30 (3.4)	26 (5.1)	188 (5.2)	119 (5.7)	68 (4.1)	72 (8.2)

Year	2011 – 2013				2014				2015				2014 – 2015			
	Malay	Chinese	Indian	##Others	Malay	Chinese	Indian	##Others	Malay	Chinese	Indian	##Others	Malay	Chinese	Indian	##Others
Total	3,141	1,912	1,759	449	2,062	1,133	951	426	2,224	1,186	1,056	543	4,286	2,319	2,007	969
Pharmacological therapy given at discharge, No. (%)																
Aspirin	2,599 (94.3)	1,605 (93.8)	1,483 (93.6)	366 (95.3)	1,736 (93.4)	942 (91.6)	848 (94.9)	343 (87.3)	1,881 (93.0)	969 (90.1)	927 (93.8)	442 (87.9)	3,617 (93.2)	1,911 (90.9)	1,775 (94.3)	785 (87.6)
*ADP antagonist	2,123 (83.1)	1,336 (83.2)	1,250 (82.9)	271 (77.2)	1,639 (89.8)	880 (87.3)	791 (90.0)	304 (79.0)	1,815 (90.9)	918 (86.4)	905 (93.4)	409 (81.8)	3,454 (90.4)	1,798 (86.9)	1,696 (91.8)	713 (80.6)
Fondaparinux	51 (5.4)	27 (4.4)	41 (8.0)	6 (3.9)	59 (3.6)	24 (2.6)	17 (2.2)	3 (0.8)	68 (3.7)	18 (1.8)	25 (2.7)	15 (3.1)	127 (3.6)	42 (2.1)	42 (2.5)	18 (2.1)
Oral anticoagulant (eg. Warfarin)	22 (2.4)	22 (3.7)	12 (2.4)	8 (5.2)	51 (3.2)	41 (4.5)	13 (1.7)	13 (3.7)	66 (3.7)	55 (5.6)	19 (2.2)	22 (4.5)	117 (3.5)	96 (5.0)	32 (2.0)	35 (4.2)
Beta blocker	1,783 (69.3)	1,153 (70.9)	1,026 (67.5)	234 (63.6)	1,176 (66.4)	657 (66.2)	529 (62.5)	251 (65.7)	1,322 (67.2)	716 (67.4)	680 (70.2)	359 (71.4)	2,498 (66.9)	1,373 (66.8)	1,209 (66.6)	610 (68.9)
ACE inhibitor	1,548 (60.7)	917 (57.7)	940 (62.4)	181 (49.5)	891 (51.4)	475 (48.7)	419 (50.5)	195 (51.7)	1,086 (55.8)	542 (51.4)	516 (54.2)	287 (57.4)	1,977 (53.7)	1,017 (50.1)	935 (52.5)	482 (55.0)
Angiotensin II receptor blocker	232 (9.7)	157 (10.3)	148 (10.2)	32 (9.1)	167 (10.1)	100 (10.7)	83 (10.6)	34 (9.4)	161 (9.0)	101 (10.2)	99 (11.4)	63 (13.0)	328 (9.6)	201 (10.4)	182 (11.0)	97 (11.5)
Statin	2,468 (92.0)	1,529 (91.7)	1,431 (91.5)	342 (89.5)	1,683 (91.3)	926 (90.7)	790 (89.8)	352 (90.5)	1,868 (92.7)	992 (91.9)	919 (93.1)	456 (90.3)	3,551 (92.0)	1,918 (91.3)	1,709 (91.5)	808 (90.4)
Other lipid lowering agent	124 (5.2)	78 (5.1)	68 (4.7)	13 (3.7)	66 (4.1)	23 (2.5)	28 (3.7)	9 (2.5)	73 (4.1)	29 (2.9)	36 (4.2)	11 (2.3)	139 (4.1)	52 (2.7)	64 (4.0)	20 (2.4)
Diuretics	688 (28.0)	432 (27.8)	403 (27.5)	77 (21.6)	485 (28.9)	255 (26.9)	257 (32.5)	81 (22.1)	511 (28.1)	271 (27.0)	253 (29.0)	104 (21.4)	996 (28.5)	526 (26.9)	510 (30.7)	185 (21.7)
Calcium antagonist	494 (20.4)	333 (21.7)	270 (18.7)	67 (18.9)	333 (20.2)	228 (24.2)	173 (21.9)	66 (18.1)	383 (21.1)	215 (21.3)	185 (21.0)	76 (15.7)	716 (20.6)	443 (22.7)	358 (21.4)	142 (16.7)
Oral hypoglycaemic agent	800 (32.2)	462 (29.7)	630 (42.4)	88 (24.8)	537 (32.0)	291 (30.8)	352 (43.2)	93 (25.5)	589 (32.0)	297 (29.2)	446 (48.4)	98 (20.0)	1,126 (32.0)	588 (30.0)	798 (46.0)	191 (22.4)
Insulin	410 (16.7)	177 (11.5)	363 (24.6)	28 (7.9)	326 (19.7)	101 (10.8)	227 (28.5)	35 (9.7)	380 (20.9)	130 (12.9)	276 (31.2)	44 (9.1)	706 (20.3)	231 (11.9)	503 (29.9)	79 (9.3)
Anti-arrhythmic agent	140 (5.8)	74 (4.9)	57 (4.0)	20 (5.7)	73 (4.5)	53 (5.8)	33 (4.3)	43 (11.9)	60 (3.4)	33 (3.3)	22 (2.6)	20 (4.2)	133 (3.9)	86 (4.5)	55 (3.4)	63 (7.5)

Total admission days is derived from Outcome date-Admission date + 1

^ Acceptable range between the previous report (2009 & 2010) and this current version (2011 – 2013) was different

* For CRF version 2013, details of the breakdown are available for ticlopidine, clopidogrel, prasugrel and ticagrelor. These drugs are grouped as ADP antagonist in this current version (2011 – 2013)

"Others" includes Orang Asli, Kadazan, Melanau, Murut, Bajau, Bidayuh, Iban, other Malaysian and Foreigner

Table 4.9 Treatments for patients with ACS by type of participating centres, NCVd-ACS Registry, 2014 – 2015

Year	ACS stratum	2011 – 2013						2014								
		STEMI		NSTEMI		Unstable Angina		STEMI		NSTEMI		Unstable Angina				
		PCI centre	Non-PCI centre	PCI centre	Non-PCI centre	PCI centre	Non-PCI centre	PCI centre	Non-PCI centre	PCI centre	Non-PCI centre	PCI centre	Non-PCI centre			
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Total		5,694	1,808	3,342	500	3,136	283	3,236	650	1,774	275	2,406	117			
Fibrinolytic therapy, No (%)																
Given at this centre		2,337 (42.1)	1,380 (77.6)					1,309 (40.7)	497 (77.1)							
Given at another centre prior to transfer		1,602 (28.9)	168 (9.4)					920 (28.6)	46 (7.1)							
Not given-Proceeded directly to primary angioplasty		690 (12.4)	1 (0.1)					411 (12.8)	0 (0.0)							
Not given-Missed thrombolysis		678 (12.2)	149 (8.4)					451 (14.0)	80 (12.4)							
Not given-Patient refusal		28 (0.5)	6 (0.3)					9 (0.3)	1 (0.2)							
Not given-Contraindicated		210 (3.8)	75 (4.2)					120 (3.7)	21 (3.3)							
Not applicable		21	3					8	1							
Not available		44	4					8	4							
Missing		84	22					0	0							
Percutaneous coronary intervention, No (%)																
Yes		2,208 (42.2)	0 (0.0)	685 (23.7)	0 (0.0)	296 (11.4)	0 (0.0)	1,424 (46.6)	0 (0.0)	340 (20.2)	0 (0.0)	254 (11.0)	0 (0.0)			
No		3,016 (57.6)	1,375 (98.6)	2,202 (76.2)	375 (99.5)	2,297 (88.4)	135 (100.0)	1,626 (53.3)	579 (98.1)	1,339 (79.7)	218 (98.2)	2,052 (89.0)	90 (98.9)			
Not applicable		8 (0.2)	19 (1.4)	2 (0.1)	2 (0.5)	4 (0.2)	0 (0.0)	3 (0.1)	11 (1.9)	2 (0.1)	4 (1.8)	0 (0.0)	1 (1.1)			
Missing		462	414	453	123	539	148	183	60	93	53	100	26			
CABG, No (%)																
Yes		54 (1.1)	0 (0.0)	83 (3.0)	0 (0.0)	49 (1.9)	0 (0.0)	30 (1.0)	0 (0.0)	39 (2.3)	0 (0.0)	44 (1.9)	0 (0.0)			
No		4,934 (98.6)	1,294 (98.2)	2,726 (96.9)	289 (99.3)	2,563 (97.7)	101 (100.0)	2,992 (98.8)	547 (95.5)	1,627 (97.5)	211 (95.5)	2,274 (98.0)	83 (93.3)			
Not applicable		16 (0.3)	24 (1.8)	4 (0.1)	2 (0.7)	11 (0.4)	0 (0.0)	6 (0.2)	26 (4.5)	2 (0.1)	10 (4.5)	3 (0.1)	6 (6.7)			
Missing		690	490	529	209	513	182	208	77	106	54	85	28			

Year	2015						2014 – 2015					
	STEMI		NSTEMI		Unstable Angina		STEMI		NSTEMI		Unstable Angina	
	PCI centre	Non-PCI centre	PCI centre	Non-PCI centre	PCI centre	Non-PCI centre	PCI centre	Non-PCI centre	PCI centre	Non-PCI centre	PCI centre	Non-PCI centre
ACS stratum	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Total	3,603	701	2,081	349	2,442	137	6,839	1,351	3,855	624	4,848	254
Fibrinolytic therapy, No (%)												
Given at this centre	1,345 (37.6)	516 (73.8)					2,654 (39.0)	1,013 (75.4)				
Given at another centre prior to transfer	967 (27.0)	40 (5.7)					1,887 (27.8)	86 (6.4)				
Not given-Proceeded directly to primary angioplasty	703 (19.6)	1 (0.1)					1,114 (16.4)	1 (0.1)				
Not given-Missed thrombolysis	452 (12.6)	105 (15.0)					903 (13.3)	185 (13.8)				
Not given-Patient refusal	13 (0.4)	1 (0.1)					22 (0.3)	2 (0.1)				
Not given-Contraindicated	100 (2.8)	36 (5.2)					220 (3.2)	57 (4.2)				
Not applicable	13	2					21	3				
Not available	10	0					18	4				
Missing	0	0					0	0				
Percutaneous coronary intervention, No (%)												
Yes	1,750 (52.5)	0 (0.0)	543 (27.6)	0 (0.0)	275 (11.8)	0 (0.0)	3,174 (49.7)	0 (0.0)	883 (24.2)	0 (0.0)	529 (11.4)	0 (0.0)
No	1,579 (47.3)	638 (96.4)	1,419 (72.3)	325 (98.2)	2,050 (88.0)	128 (99.2)	3,205 (50.2)	1,217 (97.2)	2,758 (75.7)	543 (98.2)	4,102 (88.5)	218 (99.1)
Not applicable	7 (0.2)	24 (3.6)	2 (0.1)	6 (1.8)	4 (0.2)	1 (0.8)	10 (0.2)	35 (2.8)	4 (0.1)	10 (1.8)	4 (0.1)	2 (0.9)
Missing	267	39	117	18	113	8	450	99	210	71	213	34
CABG, No (%)												
Yes	39 (1.1)	0 (0.0)	31 (1.6)	0 (0.0)	37 (1.6)	0 (0.0)	69 (1.1)	0 (0.0)	70 (1.9)	0 (0.0)	81 (1.7)	0 (0.0)
No	3,362 (98.7)	625 (97.0)	1,928 (98.0)	334 (98.8)	2,301 (98.2)	128 (99.2)	6,354 (98.7)	1,172 (96.3)	3,555 (97.8)	545 (97.5)	4,575 (98.1)	211 (96.8)
Not applicable	7 (0.2)	19 (3.0)	9 (0.5)	4 (1.2)	5 (0.2)	1 (0.8)	13 (0.2)	45 (3.7)	11 (0.3)	14 (2.5)	8 (0.2)	7 (3.2)
Missing	195	57	113	11	99	8	403	134	219	65	184	36

Table 4.10 Cardiac catheterisation for ACS patients by TIMI Risk Score, NCVd-ACS Registry, 2014 – 2015

Year	2011 – 2013				2014				2015				2014 – 2015			
	Cardiac catheterisation				Cardiac catheterisation				Cardiac catheterisation				Cardiac catheterisation			
TIMI risk score	Yes	No	No-transfer	Missing	Yes	No	No-transfer	Missing	Yes	No	No-transfer	Missing	Yes	No	No-transfer	Missing
NSTEMI/UA																
(0 – 1)	520 (28.9)	1,395 (32.0)	55 (33.3)	324 (34.6)	317 (28.5)	796 (24.4)	4 (30.8)	48 (25.8)	459 (31.0)	847 (24.8)	4 (40.0)	27 (24.8)	776 (29.9)	1,643 (24.6)	8 (34.8)	75 (25.4)
(2 – 4)	1,196 (66.4)	2,729 (62.6)	98 (59.4)	574 (61.3)	734 (65.9)	2,155 (66.1)	7 (53.8)	120 (64.5)	921 (62.3)	2,266 (66.4)	6 (60.0)	72 (66.1)	1,655 (63.9)	4,421 (66.3)	13 (56.5)	192 (65.1)
(5 – 7)	85 (4.7)	234 (5.4)	12 (7.3)	39 (4.2)	62 (5.6)	309 (9.5)	2 (15.4)	18 (9.7)	99 (6.7)	298 (8.7)	0 (0.0)	10 (9.2)	161 (6.2)	607 (9.1)	2 (8.7)	28 (9.5)
STEMI																
(0 – 2)	830 (46.1)	1,200 (27.5)	52 (31.5)	159 (17.0)	595 (53.5)	579 (17.8)	6 (46.2)	31 (16.7)	826 (55.8)	607 (17.8)	4 (40.0)	22 (20.2)	1,421 (54.8)	1,186 (17.8)	10 (43.5)	53 (18.0)
(3 – 4)	851 (47.3)	1,221 (28.0)	54 (32.7)	160 (17.1)	534 (48.0)	612 (18.8)	8 (61.5)	40 (21.5)	707 (47.8)	616 (18.1)	9 (90.0)	23 (21.1)	1,241 (47.9)	1,228 (18.4)	17 (73.9)	63 (21.4)
(5 – 7)	762 (42.3)	1,338 (30.7)	79 (47.9)	143 (15.3)	518 (46.5)	615 (18.9)	4 (30.8)	34 (18.3)	516 (34.9)	608 (17.8)	10 (100.0)	28 (25.7)	1,034 (39.9)	1,223 (18.3)	14 (60.9)	62 (21.0)
(> 7)	207 (11.5)	400 (9.2)	21 (12.7)	25 (2.7)	122 (11.0)	181 (5.6)	0 (0.0)	7 (3.8)	112 (7.6)	207 (6.1)	1 (10.0)	8 (7.3)	234 (9.0)	388 (5.8)	1 (4.3)	15 (5.1)

CHAPTER 5: OUTCOME

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CHAPTER 5: OUTCOME

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Summary

1. The overall in-hospital and 30-day mortality rates remained constant at 7.4% and 9.2% respectively comparable to the last NCVD-ACS 2011 – 2013 report 7.6% and 9%).
2. STEMI remained the highest in-hospital (10.6%) and 30-day (12.3%) risk of mortality after an event. However, at 1-year post ACS, the risk of mortality for NSTEMI had doubled to be 23% higher than STEMI (17.9%).
3. Patients who received fibrinolytic therapy or PCI had better outcomes than those who did not. However, the rate had remained the same from the last report.
4. Hospitals with cardiac catheterisation facility registered lower in-hospital and 30-day mortality rates. Worryingly, the mortality rate for hospitals without cardiac catheterisation facility had worsened.
5. Advanced age, higher Killip classification, and TIMI risk score at presentation as well as diabetes were independent risk factors for poor prognosis.

Overall in-hospital and 30-day mortality

In the year 2014 and 2015, the all-cause in-hospital mortality rates were 7.5% and 7.2% respectively while the 30-day mortality rates were 9.4% and 9.0% respectively (Table 5.1). There was no obvious change in the trend of mortality across all stratum of ACS over these 2 years. In-hospital mortality for STEMI was the highest (10.6%), followed by NSTEMI (8%) and UA (1.6%). The 30-day mortality was also highest in STEMI (12.3%), followed by NSTEMI (10.9%) and UA (2.8%) (Table 5.9).

In contrast to the previous report, patients treated at PCI centres (cardiologist centre) had favourable outcomes for in-hospital and 30-day mortality (6.9% and 8.7%) compared to patients treated at non-PCI centres (physician centre) (10.5% and 12.7%) (Table 5.8). Young patients consistently showed lower rate of mortality for in-hospital and 30-day outcomes (Table 5.2). In terms of ethnic distribution, Indians and those categorised as Others ('Orang Asli' (aboriginal), various East Malaysian tribes, other Malaysian and foreigners) seemed to have better in-hospital and 30-day outcomes. (Table 5.3)

Females had a higher mortality rate compared to males, although there was a slight improvement from the previous report (9.2% for in-hospital and 11.8% for 30-day mortality rates) (Table 5.4).

Patients with traditional cardiovascular risk factors namely diabetes mellitus and hypertension expectedly had higher rate of mortality, which was also seen in the previous report (Tables 5.5, 5.6). Patients with dyslipidaemia had a lower mortality rate, but this could be due to these patients already being on some form of statin. On the other hand, non-dyslipidaemic patients could have been undiagnosed at presentation, hence having a higher mortality rate (Table 5.7).

Outcome at 1-year post ACS

In this latest NCVD-ACS Registry 2014 – 2015, we have included the mortality rates at 1-year post ACS. The overall rate of mortality at 1-year was 17.1%. Comparison with the earlier report was not possible because this data was not captured previously. The mortality rates at 1-year for NSTEMI and UA had increased significantly to 23% and 10.6% respectively compared to the 30-day outcome. The rate of mortality for STEMI was 17.9% at 1-year.

Elderly patients had the highest mortality rate at 24.9% compared to only 6.4% in the younger group. Patients treated at PCI centres (cardiologist centre) had more favourable mortality outcomes (16.5%) compared to those treated at non-PCI centres (physician centre) (21.4%) (Table 5.8). STEMI patients who received fibrinolytic therapy (16%) seemed to have better outcome compared to those who did not (19.3%). An even higher benefit was seen in STEMI patients who had PCI with mortality rate of 13.1% vs those without PCI (21.5%).

Prognostic factors for STEMI patients

Advanced age, higher Killip classification, and TIMI risk score at presentation as well as diabetes were independent risk factors for mortality in-hospital, at 30-day and at 1-year. On the other hand, Indian and other Malaysian patients who received fibrinolytic therapy, patients who underwent cardiac catheterisation, smokers, patients with positive family history of premature cardiovascular disease were found to have good prognosis (Table 5.12.1, 5.12.2, 5.12.3).

The bizarre phenomenon of the ‘smoker’s paradox’ could be explained as follows:

1. Smokers who present with STEMI were much younger.
2. Young STEMI patients tend to have less complex lesion and often single vessel disease.
3. The lesions in smokers were more ‘thrombotic’ vs ‘atherosclerotic’ in non-smokers.

Patients with positive family history of premature cardiovascular disease would have most likely received more aggressive treatment, hence having better survival.

Prognostic factors for NSTEMI / UA

We observed similar predictors of mortality in NSTEMI/UA in the STEMI cohort (Table 5.11.4, 5.11.5, 5.11.6). Patients with severe LV dysfunction in NSTEMI/UA had a higher hazard ratio (8.35) than the STEMI (3.37) at 1-year after an ACS. Similar ‘protective’ factors were also noted in NSTEMI/UA cohort with the addition of dyslipidaemia. As discussed earlier, dyslipidaemic patients were more likely to be on some form of treatment prior to the event unlike those who were non-dyslipidaemic (perhaps undiagnosed).

Table 5.1 Outcomes for patients with ACS by year, NCVD-ACS Registry, 2014 – 2015

	+Outcome	Overall outcome					
		Outcome at discharge		30-day*		1-year*	
		No.	%	No.	%	No.	%
2011 – 2013	Alive	13,633	92.3	13,440	91.0		
	Died	1,130	7.7	1,323	9.0		
2014	Alive	7,820	92.5	7,664	90.6	6,954	82.2
	Died	638	7.5	794	9.4	1,504	17.8
2015	Alive	8,642	92.8	8,473	91.0	7,783	83.6
	Died	671	7.2	840	9.0	1,530	16.4
2014 – 2015	Alive	16,462	92.6	16,137	90.8	14,737	82.9
	Died	1,309	7.4	1,634	9.2	3,034	17.1

+ The outcome data is derived based on data matching with the National Death Register

* Includes patients who died in-hospital

Table 5.2 Overall outcomes for patients with ACS by age group (years), NCVD-ACS Registry, 2014 – 2015

	+Outcome	In-hospital			30-day*			1-year*		
		Young	Middle-aged	Elderly	Young	Middle-aged	Elderly	Young	Middle-aged	Elderly
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
2011 – 2013	Alive	934 (97.5)	6,904 (95.2)	5,795 (88.5)	928 (96.9)	6,843 (94.3)	5,669 (86.5)			
	Died	24 (2.5)	350 (4.8)	756 (11.5)	30 (3.1)	411 (5.7)	882 (13.5)			
2014	Alive	545 (97.7)	3,872 (94.8)	3,403 (89.2)	541 (97.0)	3,826 (93.7)	3,297 (86.4)	526 (94.3)	3,585 (87.8)	2,843 (74.5)
	Died	13 (2.3)	212 (5.2)	413 (10.8)	17 (3.0)	258 (6.3)	519 (13.6)	32 (5.7)	499 (12.2)	973 (25.5)
2015	Alive	641 (96.1)	4,274 (95.4)	3,727 (89.4)	639 (95.8)	4,220 (94.2)	3,614 (86.7)	620 (93.0)	4,008 (89.5)	3,155 (75.7)
	Died	26 (3.9)	204 (4.6)	441 (10.6)	28 (4.2)	258 (5.8)	554 (13.3)	47 (7.0)	470 (10.5)	1,013 (24.3)
2014 – 2015	Alive	1,186 (96.8)	8,146 (95.1)	7,130 (89.3)	1,180 (96.3)	8,046 (94.0)	6,911 (86.6)	1,146 (93.6)	7,593 (88.7)	5,998 (75.1)
	Died	39 (3.2)	416 (4.9)	854 (10.7)	45 (3.7)	516 (6.0)	1,073 (13.4)	79 (6.4)	969 (11.3)	1,986 (24.9)

+ The outcome data is derived based on data matching with the National Death Register

* Includes patients who died in-hospital

Note: Young is defined as age 20 to less than 40 years, middle-aged is defined as age 40 to less than 60 years and elderly is defined as 60 years and above

Table 5.3 Overall outcomes for patients with ACS by ethnicity, NCVD-ACS Registry, 2014 – 2015

Year	*Outcome	In-hospital					30-day*					1-year*						
		Malay	Chinese	Indian	Others	Malay	Chinese	Indian	Others	Malay	Chinese	Indian	Others	Malay	Chinese	Indian	Others	
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
2011 - 2013	Alive	3,837 (91.6)	1,612 (91.2)	1,491 (94.4)	880 (95.5)	3,754 (89.6)	1,570 (88.9)	1,473 (93.2)	867 (94.1)	3,360 (80.2)	1,421 (80.4)	1,344 (85.1)	829 (90.0)					
	Died	353 (8.4)	155 (8.8)	89 (5.6)	41 (4.5)	436 (10.4)	197 (11.1)	107 (6.8)	54 (5.9)	830 (19.8)	346 (19.6)	236 (14.9)	92 (10.0)					
2014	Alive	4,207 (92.1)	1,739 (92.1)	1,609 (93.8)	1,087 (95.3)	4,110 (90.0)	1,699 (90.0)	1,582 (92.2)	1,082 (94.8)	3,746 (82.0)	1,563 (82.8)	1,444 (84.1)	1,030 (90.3)					
	Died	361 (7.9)	149 (7.9)	107 (6.2)	54 (4.7)	458 (10.0)	189 (10.0)	134 (7.8)	59 (5.2)	822 (18.0)	325 (17.2)	272 (15.9)	111 (9.7)					
2014 - 2015	Alive	8,044 (91.8)	3,351 (91.7)	3,100 (94.1)	1,967 (95.4)	7,864 (89.8)	3,269 (89.4)	3,055 (92.7)	1,949 (94.5)	7,106 (81.1)	2,984 (81.6)	2,788 (84.6)	1,859 (90.2)					
	Died	714 (8.2)	304 (8.3)	196 (5.9)	95 (4.6)	894 (10.2)	386 (10.6)	241 (7.3)	113 (5.5)	1,652 (18.9)	671 (18.4)	508 (15.4)	203 (9.8)					

+ The outcome data is derived based on data matching with the National Death Register
* Includes patients who died in-hospital

Table 5.4 Overall outcomes for patients with ACS by gender, NCVD-ACS Registry, 2014 – 2015

Year	*Outcome	In-hospital				30-day*				1-year*			
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
2011 - 2013	Alive	10,830 (93.1)	2,803 (89.7)	10,696 (91.9)	2,744 (87.8)								
	Died	808 (6.9)	322 (10.3)	942 (8.1)	381 (12.2)								
2014	Alive	6,234 (93.0)	1,586 (90.5)	6,120 (91.3)	1,544 (88.1)	5,598 (83.5)	1,356 (77.4)						
	Died	471 (7.0)	167 (9.5)	585 (8.7)	209 (11.9)	1,107 (16.5)	397 (22.6)						
2015	Alive	6,886 (93.3)	1,756 (91.0)	6,770 (91.7)	1,703 (88.3)	6,275 (85.0)	1,508 (78.2)						
	Died	498 (6.7)	173 (9.0)	614 (8.3)	226 (11.7)	1,109 (15.0)	421 (21.8)						
2014 - 2015	Alive	13,120 (93.1)	3,342 (90.8)	12,890 (91.5)	3,247 (88.2)	11,873 (84.3)	2,864 (77.8)						
	Died	969 (6.9)	340 (9.2)	1,199 (8.5)	435 (11.8)	2,216 (15.7)	818 (22.2)						

+ The outcome data is derived based on data matching with the National Death Register
* Includes patients who died in-hospital

Table 5.5 Overall outcomes for patients with ACS by pre-morbid diabetes, NCVd-ACS Registry, 2014 – 2015

	+Outcome	In-hospital			30-day*			1-year*		
		Yes	No	Not known	Yes	No	Not known	Yes	No	Not known
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
2011 – 2013	Alive	5,707 (90.8)	6,217 (93.7)	725 (91.5)	5,595 (89.0)	6,149 (92.6)	722 (91.2)			
	Died	577 (9.2)	421 (6.3)	67 (8.5)	689 (11.0)	489 (7.4)	70 (8.8)			
2014	Alive	3,345 (90.7)	3,516 (94.1)	419 (91.7)	3,267 (88.6)	3,450 (92.3)	410 (89.7)	2,856 (77.5)	3,207 (85.8)	378 (82.7)
	Died	342 (9.3)	220 (5.9)	38 (8.3)	420 (11.4)	286 (7.7)	47 (10.3)	831 (22.5)	529 (14.2)	79 (17.3)
2015	Alive	3,641 (91.2)	3,952 (94.1)	452 (90.9)	3,545 (88.8)	3,894 (92.7)	442 (88.9)	3,134 (78.5)	3,659 (87.1)	420 (84.5)
	Died	350 (8.8)	250 (5.9)	45 (9.1)	446 (11.2)	308 (7.3)	55 (11.1)	857 (21.5)	543 (12.9)	77 (15.5)
2014 – 2015	Alive	6,986 (91.0)	7,468 (94.1)	871 (91.3)	6,812 (88.7)	7,344 (92.5)	852 (89.3)	5,990 (78.0)	6,866 (86.5)	798 (83.6)
	Died	692 (9.0)	470 (5.9)	83 (8.7)	866 (11.3)	594 (7.5)	102 (10.7)	1,688 (22.0)	1,072 (13.5)	156 (16.4)

+ The outcome data is derived based on data matching with the National Death Register

* Includes patients who died in-hospital

Table 5.6 Overall outcomes for patients with ACS by pre-morbid hypertension, NCVd-ACS Registry, 2014 – 2015

	+Outcome	In-hospital			30-day*			1-year*		
		Yes	No	Not known	Yes	No	Not known	Yes	No	Not known
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
2011 – 2013	Alive	8,199 (91.4)	3,973 (94.1)	562 (92.9)	8,054 (89.7)	3,935 (93.2)	560 (92.6)			
	Died	775 (8.6)	249 (5.9)	43 (7.1)	920 (10.3)	287 (6.8)	45 (7.4)			
2014	Alive	4,729 (92.0)	2,290 (93.5)	346 (91.1)	4,613 (89.7)	2,258 (92.2)	341 (89.7)	4,090 (79.6)	2,116 (86.4)	316 (83.2)
	Died	412 (8.0)	159 (6.5)	34 (8.9)	528 (10.3)	191 (7.8)	39 (10.3)	1,051 (20.4)	333 (13.6)	64 (16.8)
2015	Alive	5,237 (92.3)	2,487 (93.6)	393 (89.5)	5,118 (90.2)	2,447 (92.1)	389 (88.6)	4,610 (81.3)	2,301 (86.6)	370 (84.3)
	Died	434 (7.7)	171 (6.4)	46 (10.5)	553 (9.8)	211 (7.9)	50 (11.4)	1,061 (18.7)	357 (13.4)	69 (15.7)
2014 – 2015	Alive	9,966 (92.2)	4,777 (93.5)	739 (90.2)	9,731 (90.0)	4,705 (92.1)	730 (89.1)	8,700 (80.5)	4,417 (86.5)	686 (83.8)
	Died	846 (7.8)	330 (6.5)	80 (9.8)	1,081 (10.0)	402 (7.9)	89 (10.9)	2,112 (19.5)	690 (13.5)	133 (16.2)

+ The outcome data is derived based on data matching with the National Death Register

* Includes patients who died in-hospital

Table 5.7 Overall outcomes for patients with ACS by pre-morbid dyslipidaemia, NCVd-ACS Registry, 2014 – 2015

	+Outcome	In-hospital			30-day*			1-year*		
		Yes	No	Not known	Yes	No	Not known	Yes	No	Not known
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
2011 – 2013	Alive	4,733 (92.8)	6,385 (92.3)	1,448 (90.9)	4,671 (91.6)	6,279 (90.7)	1,434 (90.0)			
	Died	367 (7.2)	535 (7.7)	145 (9.1)	429 (8.4)	641 (9.3)	159 (10.0)			
2014	Alive	2,797 (94.3)	3,662 (91.6)	750 (89.5)	2,745 (92.6)	3,586 (89.7)	726 (86.6)	2,456 (82.8)	3,265 (81.7)	659 (78.6)
	Died	168 (5.7)	335 (8.4)	88 (10.5)	220 (7.4)	411 (10.3)	112 (13.4)	509 (17.2)	732 (18.3)	179 (21.4)
2015	Alive	3,217 (94.3)	4,138 (92.1)	696 (88.3)	3,161 (92.7)	4,046 (90.0)	682 (86.5)	2,881 (84.5)	3,715 (82.7)	636 (80.7)
	Died	193 (5.7)	356 (7.9)	92 (11.7)	249 (7.3)	448 (10.0)	106 (13.5)	529 (15.5)	779 (17.3)	152 (19.3)
2014 – 2015	Alive	6,014 (94.3)	7,800 (91.9)	1,446 (88.9)	5,906 (92.6)	7,632 (89.9)	1,408 (86.6)	5,337 (83.7)	6,980 (82.2)	1,295 (79.6)
	Died	361 (5.7)	691 (8.1)	180 (11.1)	469 (7.4)	859 (10.1)	218 (13.4)	1,038 (16.3)	1,511 (17.8)	331 (20.4)

+ The outcome data is derived based on data matching with the National Death Register
 *Includes patients who died in-hospital

Table 5.8 Overall outcomes for patients by types of centre, NCVd-ACS Registry, 2014 – 2015

	+Outcome	In-hospital		30-day*		1-year*	
		PCI centre	Non-PCI centre	PCI centre	Non-PCI centre	PCI centre	Non-PCI centre
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
2011 – 2013	Alive	11,238 (92.3)	2,395 (92.4)	11,064 (90.9)	2,376 (91.7)		
	Died	934 (7.7)	196 (7.6)	1,108 (9.1)	215 (8.3)		
2014	Alive	6,873 (92.7)	947 (90.9)	6,741 (90.9)	923 (88.6)	6,130 (82.7)	824 (79.1)
	Died	543 (7.3)	95 (9.1)	675 (9.1)	119 (11.4)	1,286 (17.3)	218 (20.9)
2015	Alive	7,593 (93.4)	1,049 (88.4)	7,450 (91.7)	1,023 (86.2)	6,854 (84.3)	929 (78.3)
	Died	533 (6.6)	138 (11.6)	676 (8.3)	164 (13.8)	1,272 (15.7)	258 (21.7)
2014 – 2015	Alive	14,466 (93.1)	1,996 (89.5)	14,191 (91.3)	1,946 (87.3)	12,984 (83.5)	1,753 (78.6)
	Died	1,076 (6.9)	233 (10.5)	1,351 (8.7)	283 (12.7)	2,558 (16.5)	476 (21.4)

+ The outcome data is derived based on data matching with the National Death Register
 * Includes patients who died in-hospital

Table 5.9 Overall outcomes for patients with ACS by ACS stratum, NCDV-ACS Registry, 2014 – 2015

	+ Outcome	In-hospital			30-day*			1-year*		
		STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
2011 – 2013	Alive	6,705 (89.4)	3,550 (92.4)	3,378 (98.8)	6,617 (88.2)	3,486 (90.7)	3,337 (97.6)			
	Died	797 (10.6)	292 (7.6)	41 (1.2)	885 (11.8)	356 (9.3)	82 (2.4)			
2014	Alive	3,465 (89.2)	1,875 (91.5)	2,480 (98.3)	3,403 (87.6)	1,811 (88.4)	2,450 (97.1)	3,154 (81.2)	1,534 (74.9)	2,266 (89.8)
	Died	421 (10.8)	174 (8.5)	43 (1.7)	483 (12.4)	238 (11.6)	73 (2.9)	732 (18.8)	515 (25.1)	257 (10.2)
2015	Alive	3,857 (89.6)	2,244 (92.3)	2,541 (98.5)	3,783 (87.9)	2,182 (89.8)	2,508 (97.2)	3,573 (83.0)	1,916 (78.8)	2,294 (88.9)
	Died	447 (10.4)	186 (7.7)	38 (1.5)	521 (12.1)	248 (10.2)	71 (2.8)	731 (17.0)	514 (21.2)	285 (11.1)
2014 – 2015	Alive	7,322 (89.4)	4,119 (92.0)	5,021 (98.4)	7,186 (87.7)	3,993 (89.1)	4,958 (97.2)	6,727 (82.1)	3,450 (77.0)	4,560 (89.4)
	Died	868 (10.6)	360 (8.0)	81 (1.6)	1,004 (12.3)	486 (10.9)	144 (2.8)	1,463 (17.9)	1,029 (23.0)	542 (10.6)

+ The outcome data is derived based on data matching with the National Death Register

* Includes patients who died in-hospital

Table 5.10.1 Overall outcomes for patients with STEMI by fibrinolytic therapy, NCDV-ACS Registry, 2014 – 2015

	+ Outcome	Fibrinolytic therapy					
		In-hospital		30-day*		1-year*	
		Yes	No	Yes	No	Yes	No
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
2011 – 2013	Alive	4,954 (90.3)	1,595 (86.8)	4,900 (89.3)	1,565 (85.2)		
	Died	533 (9.7)	242 (13.2)	587 (10.7)	272 (14.8)		
2014	Alive	1,650 (91.4)	1,800 (87.4)	1,621 (89.8)	1,766 (85.8)	1,514 (83.8)	1,626 (79.0)
	Died	156 (8.6)	259 (12.6)	185 (10.2)	293 (14.2)	292 (16.2)	433 (21.0)
2015	Alive	1,685 (90.5)	2,150 (88.9)	1,654 (88.9)	2,107 (87.1)	1,565 (84.1)	1,988 (82.2)
	Died	176 (9.5)	268 (11.1)	207 (11.1)	311 (12.9)	296 (15.9)	430 (17.8)
2014 – 2015	Alive	3,335 (90.9)	3,950 (88.2)	3,275 (89.3)	3,873 (86.5)	3,079 (84.0)	3,614 (80.7)
	Died	332 (9.1)	527 (11.8)	392 (10.7)	604 (13.5)	588 (16.0)	863 (19.3)

+ The outcome data is derived based on data matching with the National Death Register

* Includes patients who died in-hospital

Table 5.10.2 Overall outcomes for patients with STEMI by percutaneous coronary intervention at admission, NCVD-ACS Registry, 2014 – 2015

	†Outcome	Percutaneous coronary intervention (PCI)					
		In-hospital		30-day*		1-year*	
		Yes	No	Yes	No	Yes	No
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
2011 – 2013	Alive	2,045 (92.2)	3,854 (87.8)	2,011 (90.7)	3,813 (86.8)		
	Died	173 (7.8)	537 (12.2)	207 (9.3)	578 (13.2)		
2014	Alive	1,282 (89.8)	1,948 (88.3)	1,270 (89.0)	1,900 (86.2)	1,205 (84.4)	1,734 (78.6)
	Died	145 (10.2)	257 (11.7)	157 (11.0)	305 (13.8)	222 (15.6)	471 (21.4)
2015	Alive	1,654 (93.9)	1,908 (86.1)	1,632 (92.7)	1,863 (84.0)	1,565 (88.9)	1,736 (78.3)
	Died	107 (6.1)	309 (13.9)	129 (7.3)	354 (16.0)	196 (11.1)	481 (21.7)
2014 – 2015	Alive	2,936 (92.1)	3,856 (87.2)	2,902 (91.0)	3,763 (85.1)	2,770 (86.9)	3,470 (78.5)
	Died	252 (7.9)	566 (12.8)	286 (9.0)	659 (14.9)	418 (13.1)	952 (21.5)

+ The outcome data is derived based on data matching with the National Death Register

* Includes patients who died in-hospital

Table 5.10.3 Overall outcomes for patients with STEMI by coronary artery bypass graft at admission, NCVD-ACS Registry, 2014 – 2015

	†Outcome	Coronary artery bypass graft (CABG)					
		In-hospital		30-day*		1-year*	
		Yes	No	Yes	No	Yes	No
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
2011 – 2013	Alive	64 (97.0)	5,559 (89.3)	63 (95.5)	5,483 (88.0)		
	Died	2 (3.0)	669 (10.7)	3 (4.5)	745 (12.0)		
2014	Alive	27 (90.0)	3,145 (88.9)	26 (86.7)	3,088 (87.3)	24 (80.0)	2,862 (80.9)
	Died	3 (10.0)	394 (11.1)	4 (13.3)	451 (12.7)	6 (20.0)	677 (19.1)
2015	Alive	36 (92.3)	3,573 (89.6)	35 (89.7)	3,508 (88.0)	31 (79.5)	3,323 (83.3)
	Died	3 (7.7)	414 (10.4)	4 (10.3)	479 (12.0)	8 (20.5)	664 (16.7)
2014 – 2015	Alive	63 (91.3)	6,718 (89.3)	61 (88.4)	6,596 (87.6)	55 (79.7)	6,185 (82.2)
	Died	6 (8.7)	808 (10.7)	8 (11.6)	930 (12.4)	14 (20.3)	1,341 (17.8)

+ The outcome data is derived based on data matching with the National Death Register

* Includes patients who died in-hospital

Table 5.10.4 Overall outcomes for patients with STEMI by pre-admission aspirin use, NCVd-ACS Registry, 2014 – 2015

	*Outcome	STEMI by pre-admission aspirin use					
		In-hospital		30-day*		1-year*	
		Yes	No	Yes	No	Yes	No
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
2011 – 2013	Alive	1,247 (87.2)	5,142 (90.1)	1,227 (85.8)	5,074 (88.9)		
	Died	183 (12.8)	565 (9.9)	203 (14.2)	633 (11.1)		
2014	Alive	606 (88.7)	2,743 (89.2)	600 (87.8)	2,691 (87.5)	537 (78.6)	2,516 (81.8)
	Died	77 (11.3)	333 (10.8)	83 (12.2)	385 (12.5)	146 (21.4)	560 (18.2)
2015	Alive	623 (87.5)	3,143 (90.2)	602 (84.6)	3,091 (88.7)	549 (77.1)	2,940 (84.4)
	Died	89 (12.5)	340 (9.8)	110 (15.4)	392 (11.3)	163 (22.9)	543 (15.6)
2014 – 2015	Alive	1,229 (88.1)	5,886 (89.7)	1,202 (86.2)	5,782 (88.2)	1,086 (77.8)	5,456 (83.2)
	Died	166 (11.9)	673 (10.3)	193 (13.8)	777 (11.8)	309 (22.2)	1,103 (16.8)

+ The outcome data is derived based on data matching with the National Death Register

* Includes patients who died in-hospital

Table 5.11.1 Overall outcomes for patients with NSTEMI/UA by percutaneous coronary intervention at admission, NCVd-ACS Registry, 2014 – 2015

	*Outcome	Percutaneous coronary intervention (PCI)					
		In-hospital		30-day*		1-year*	
		Yes	No	Yes	No	Yes	No
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
2011 – 2013	Alive	950 (96.8)	4,743 (94.7)	943 (96.1)	4,659 (93.0)		
	Died	31 (3.2)	266 (5.3)	38 (3.9)	350 (7.0)		
2014	Alive	582 (98.0)	3,522 (95.2)	572 (96.3)	3,443 (93.1)	534 (89.9)	3,054 (82.6)
	Died	12 (2.0)	177 (4.8)	22 (3.7)	256 (6.9)	60 (10.1)	645 (17.4)
2015	Alive	801 (97.7)	3,733 (95.2)	790 (96.3)	3,653 (93.1)	751 (91.6)	3,234 (82.5)
	Died	19 (2.3)	189 (4.8)	30 (3.7)	269 (6.9)	69 (8.4)	688 (17.5)
2014 – 2015	Alive	1,383 (97.8)	7,255 (95.2)	1,362 (96.3)	7,096 (93.1)	1,285 (90.9)	6,288 (82.5)
	Died	31 (2.2)	366 (4.8)	52 (3.7)	525 (6.9)	129 (9.1)	1,333 (17.5)

+ The outcome data is derived based on data matching with the National Death Register

* Includes patients who died in-hospital

Table 5.11.2 Overall outcomes for patients with NSTEMI/UA by coronary artery bypass graft at admission, NCVD-ACS Registry, 2014 – 2015

	*Outcome	Coronary artery bypass graft (CABG)					
		In-hospital		30-day*		1-year*	
		Yes	No	Yes	No	Yes	No
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
2011 – 2013	Alive	123 (93.2)	5,406 (95.2)	123 (93.2)	5,306 (93.4)		
	Died	9 (6.8)	273 (4.8)	9 (6.8)	373 (6.6)		
2014	Alive	82 (98.8)	4,008 (95.5)	81 (97.6)	3,920 (93.4)	80 (96.4)	3,492 (83.2)
	Died	1 (1.2)	187 (4.5)	2 (2.4)	275 (6.6)	3 (3.6)	703 (16.8)
2015	Alive	67 (98.5)	4,482 (95.5)	68 (100.0)	4,387 (93.5)	64 (94.1)	3,932 (83.8)
	Died	1 (1.5)	209 (4.5)	0 (0)	304 (6.5)	4 (5.9)	759 (16.2)
2014 – 2015	Alive	149 (98.7)	8,490 (95.5)	149 (98.7)	8,307 (93.5)	144 (95.4)	7,424 (83.5)
	Died	2 (1.3)	396 (4.5)	2 (1.3)	579 (6.5)	7 (4.6)	1,462 (16.5)

+ The outcome data is derived based on data matching with the National Death Register

* Includes patients who died in-hospital

Table 5.11.3 Overall outcomes for patients with NSTEMI/UA by pre-admission aspirin use, NCVD-ACS Registry, 2014 – 2015

	*Outcome	Pre-admission aspirin use					
		In-hospital		30-day*		1-year*	
		Yes	No	Yes	No	Yes	No
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
2011 – 2013	Alive	3,419 (96.5)	3,077 (94.4)	3,362 (94.9)	3,031 (93.0)		
	Died	125 (3.5)	181 (5.6)	182 (5.1)	227 (7.0)		
2014	Alive	2,424 (96.4)	1,778 (93.7)	2,376 (94.5)	664 (16.2)	2,107 (83.8)	1,568 (82.7)
	Died	90 (3.6)	119 (6.3)	138 (5.5)	161 (8.5)	407 (16.2)	329 (17.3)
2015	Alive	2,571 (96.4)	2,074 (94.5)	2,515 (94.3)	2,037 (92.8)	2,230 (83.6)	1,860 (84.7)
	Died	96 (3.6)	121 (5.5)	152 (5.7)	158 (7.2)	437 (16.4)	335 (15.3)
2014 – 2015	Alive	4,995 (96.4)	3,852 (94.1)	4,891 (94.4)	3,773 (92.2)	4,337 (83.7)	3,428 (83.8)
	Died	186 (3.6)	240 (5.9)	290 (5.6)	319 (7.8)	844 (16.3)	664 (16.2)

+ The outcome data is derived based on data matching with the National Death Register

* Includes patients who died in-hospital

Table 5.12.1 Prognostic factors for death in hospital among STEMI patients, NCVd-ACS Registry, 2014 – 2015 (Multivariable Analysis)

Factors	N	Hazard ratio	95% CI		[^] p-value
Age group, years					
20 – < 40 (ref)	623	1.00			
40 – < 60	3,680	1.05	0.70	1.57	0.831
≥ 60	2,452	1.57	1.05	2.36	0.028
Gender					
Male (ref)	5,843				
Female	912				
*Ethnic group					
Malay (ref)	3,699				
Chinese	1,120				
Indian	1,144				
Others	792				
Killip classification					
I (ref)	4,182	1.00			
II	1,152	1.13	0.87	1.46	0.376
III	277	1.80	1.32	2.47	< 0.001
IV	961	4.25	3.42	5.27	< 0.001
Not stated/inadequately described/missing	183	1.19	0.69	2.07	0.526
Percutaneous coronary intervention					
No (ref)	3,929				
Yes	2,826				
Cardiac catheterisation					
No (ref)	3,314	1.00			
Yes	3,441	0.64	0.55	0.75	< 0.001
TIMI risk score					
0 – 2 (ref)	2,141	1.00			
3 – 4	2,109	2.92	1.86	4.59	< 0.001
5 – 7	1,965	5.90	3.76	9.24	< 0.001
> 7	540	8.02	4.97	12.96	< 0.001
Fibrinolytic therapy					
Not given (ref)	2,183	1.00			
Given	4,572	0.78	0.67	0.91	0.002

Factors	N	Hazard ratio	95% CI		^p-value
Smoking					
Never (ref)	2,044	1.00			
Former (quit > 30 days)	1,046	0.92	0.75	1.14	0.443
Current (any tobacco use within last 30 days)	3,425	0.73	0.61	0.88	0.001
Unknown	240	1.32	1.01	1.72	0.040
Family history of premature cardiovascular disease					
No (ref)	5,020	1.00			
Yes	800	0.71	0.50	1.00	0.051
Unknown	935	1.32	1.10	1.60	0.004
Dyslipidaemia					
No (ref)	4,148				
Yes	1,643				
Unknown	964				
Hypertension					
No (ref)	2,734				
Yes	3,478				
Unknown	543				
Diabetes					
No (ref)	3,594	1.00			
Yes	2,584	1.25	1.06	1.46	0.006
Unknown	577	1.17	0.89	1.56	0.262
Heart failure					
No (ref)	6,352				
Yes	138				
Unknown	265				

* 'Others' includes Orang Asli, Kadazan, Melanau, Murut, Bajau, Bidayuh, Iban, other Malaysian and Foreigner
 ^ using Cox regression with backward stepwise variable selection

Table 5.12.2 Prognostic factors for death within 30 days among STEMI patients, NCVD-ACS Registry, 2014 – 2015 (Multivariable analysis)

Factors	N	Hazard ratio	95% CI		[^] p-value
Age group, years					
20 – < 40 (ref)	623	1.00			
40 – < 60	3,680	1.14	0.78	1.67	0.490
≥ 60	2,452	1.66	1.13	2.43	0.010
Gender					
Male (ref)	5,843				
Female	912				
*Ethnic group					
Malay (ref)	3,699	1.00			
Chinese	1,120	1.02	0.85	1.22	0.836
Indian	1,144	0.78	0.64	0.96	0.018
Others	792	0.69	0.52	0.93	0.013
Killip classification code					
I (ref)	4,182	1.00			
II	1,152	1.26	1.00	1.59	0.049
III	277	2.06	1.55	2.74	< 0.001
IV	961	4.61	3.78	5.63	< 0.001
Not stated/inadequately described	183	1.88	1.21	2.93	0.005
Percutaneous coronary intervention					
No (ref)	3,929				
Yes	2,826				
Cardiac catheterisation					
No (ref)	3,314	1.00			
Yes	3,441	0.64	0.55	0.74	< 0.001
TIMI risk score					
0 – 2 (ref)	2,141	1.00			
3 – 4	2,109	2.95	2.01	4.33	< 0.001
5 – 7	1,965	6.09	4.16	8.93	< 0.001
> 7	540	9.02	5.95	13.67	< 0.001
Fibrinolytic therapy					
Not given (ref)	2,183	1.00			
Given	4,572	0.77	0.66	0.89	< 0.001

Factors	N	Hazard ratio	95% CI		[^] p-value
Smoking					
Never (ref)	2,044	1.00			
Former (quit > 30 days)	1,046	0.86	0.71	1.05	0.149
Current (any tobacco use within last 30 days)	3,425	0.70	0.59	0.82	< 0.001
Unknown	240	1.34	1.04	1.72	0.022
Family history of premature cardiovascular disease					
No (ref)	5,020	1.00			
Yes	800	0.76	0.57	1.03	0.079
Unknown	935	1.33	1.11	1.58	0.002
Dyslipidaemia					
No (ref)	4,148				
Yes	1,643				
Unknown	964				
Hypertension					
No (ref)	2,734				
Yes	3,478				
Unknown	543				
Diabetes					
No (ref)	3,594	1.00			
Yes	2,584	1.36	1.18	1.58	< 0.001
Unknown	577	1.28	0.99	1.66	0.058
Heart failure					
No (ref)	6,352				
Yes	138				
Unknown	265				

* 'Others' includes Orang Asli, Kadazan, Melanau, Murut, Bajau, Bidayuh, Iban, other Malaysian and Foreigner
[^] using Cox regression with backward stepwise variable selection

Table 5.12.3 Prognostic factors for death within one year among STEMI patients, NCVI-ACS Registry, 2014 – 2015 (Multivariable analysis)

Factors	N	Hazard ratio	95% CI		[^] p-value
Age group, years					
20 – < 40 (ref)	623	1.00			
40 – < 60	3,680	1.22	0.89	1.66	0.212
≥ 60	2,452	1.75	1.28	2.40	0.000
Gender					
Male (ref)	5,843				
Female	912				
*Ethnic group					
Malay (ref)	3,699	1.00			
Chinese	1,120	0.98	0.85	1.14	0.803
Indian	1,144	0.81	0.69	0.95	0.009
Others	792	0.60	0.47	0.78	< 0.001
Killip classification code					
I (ref)	4,182	1.00			
II	1,152	1.26	1.06	1.50	0.010
III	277	1.88	1.50	2.37	< 0.001
IV	961	3.37	2.87	3.97	< 0.001
Not stated/inadequately described	183	1.59	1.12	2.27	0.010
Percutaneous coronary intervention					
No (ref)	3,929	1.00			
Yes	2,826	0.81	0.66	1.00	0.048
Cardiac catheterisation					
No (ref)	3,314	1.00			
Yes	3,441	0.76	0.62	0.92	0.005
TIMI risk score					
0 – 2 (ref)	2,141	1.00			
3 – 4	2,109	2.36	1.84	3.04	< 0.001
5 – 7	1,965	4.16	3.22	5.37	< 0.001
> 7	540	6.22	4.64	8.34	< 0.001
Fibrinolytic therapy					
Not given (ref)	2,183	1.00			
Given	4,572	0.75	0.67	0.85	< 0.001

Factors	N	Hazard ratio	95% CI		[^] p-value
Smoking					
Never (ref)	2,044	1.00			
Former (quit > 30 days)	1,046	0.84	0.71	0.98	0.032
Current (any tobacco use within last 30 days)	3,425	0.68	0.60	0.78	< 0.001
Unknown	240	1.21	0.96	1.52	0.103
Family history of premature cardiovascular disease					
No (ref)	5,020	1.00			
Yes	800	0.73	0.57	0.92	0.008
Unknown	935	1.21	1.04	1.41	0.013
Dyslipidaemia					
No (ref)	4,148				
Yes	1,643				
Unknown	964				
Hypertension					
No (ref)	2,734				
Yes	3,478				
Unknown	543				
Diabetes					
No (ref)	3,594	1.00			
Yes	2,584	1.43	1.27	1.61	< 0.001
Unknown	577	1.18	0.94	1.47	0.154
Heart failure					
No (ref)	6,352				
Yes	138				
Unknown	265				

* 'Others' includes Orang Asli, Kadazan, Melanau, Murut, Bajau, Bidayuh, Iban, other Malaysian and Foreigner
[^] using Cox regression with backward stepwise variable selection

Table 5.12.4 Prognostic factors for death in hospital among NSTEMI/UA patients, NCVS-ACS Registry, 2014 – 2015 (Multivariable analysis)

Factors	N	Hazard ratio	95% CI		[^] p-value
Age group, years					
20 – < 40 (ref)	342	1.00			
40 – < 60	3,317	2.03	0.75	5.53	0.166
≥ 60	4,271	3.37	1.25	9.07	0.016
Gender					
Male (ref)	5,741				
Female	2,189				
*Ethnic group					
Malay (ref)	3,525				
Chinese	1,974				
Indian	1,647				
Others	784				
Killip classification code					
I (ref)	3,796	1.00			
II	749	2.95	2.10	4.13	< 0.001
III	342	4.48	3.16	6.36	< 0.001
IV	218	12.18	8.96	16.56	< 0.001
Not stated/inadequately described	2,825	0.96	0.69	1.33	0.802
Percutaneous coronary intervention					
No (ref)	6,712				
Yes	1,218				
Cardiac catheterisation					
No (ref)	5,767	1.00			
Yes	2,163	0.44	0.32	0.60	< 0.001
TIMI risk score					
0 – 2 (ref)	2,040				
3 – 4	5,193				
5 – 7	697				
Smoking					
Never (ref)	3,297				
Former (quit > 30 days)	1,874				
Current (any tobacco use within last 30 days)	1,789				
Unknown	301				

Factors	N	Hazard ratio	95% CI		[^] p-value
Family history of premature cardiovascular disease					
No (ref)	4,924				
Yes	993				
Unknown	1,344				
Dyslipidaemia					
No (ref)	3,671	1.00			
Yes	3,844	0.75	0.60	0.93	0.008
Unknown	415	1.02	0.70	1.49	0.923
Hypertension					
No (ref)	1,928				
Yes	5,840				
Unknown	162				
Diabetes					
No (ref)	3,677				
Yes	4,014				
Unknown	239				
Heart failure					
No (ref)	7,048				
Yes	653				
Unknown	229				

* 'Others' includes Orang Asli, Kadazan, Melanau, Murut, Bajau, Bidayuh, Iban, other Malaysian and Foreigner
[^] using Cox regression with backward stepwise variable selection

Table 5.12.5 Prognostic factors for death within 30 days among NSTEMI/UA patients, NCVDA-ACS Registry, 2014 – 2015 (Multivariable analysis)

Factors	N	Hazard ratio	95% CI		[^] p-value
Age group, years					
20 – < 40 (ref)	342	1.00			
40 – < 60	3,317	1.74	0.81	3.73	0.155
≥ 60	4,271	3.23	1.52	6.87	0.002
Gender					
Male (ref)	5,741				
Female	2,189				
*Ethnic group					
Malay (ref)	3,525				
Chinese	1,974				
Indian	1,647				
Others	784				
Killip classification code					
I (ref)	3,796	1.00			
II	749	3.16	2.43	4.13	< 0.001
III	342	5.02	3.74	6.73	< 0.001
IV	218	17.30	13.39	22.35	< 0.001
Not stated/inadequately described	2,825	1.15	0.90	1.47	0.254
Percutaneous coronary intervention					
No (ref)	6,712				
Yes	1,218				
Cardiac catheterisation					
No (ref)	5,767	1.00			
Yes	2,163	0.62	0.49	0.78	< 0.001
TIMI risk score					
0 – 2 (ref)	2,040				
3 – 4	5,193				
5 – 7	697				
Smoking					
Never (ref)	3,855	1.00			
Former (quit > 30 days)	1,736	1.06	0.86	1.31	0.588
Current (any tobacco use within last 30 days)	1,942	0.82	0.65	1.03	0.092
Unknown	397	1.40	1.01	1.94	0.046

Factors	N	Hazard ratio	95% CI		^p-value
Family history of premature cardiovascular disease					
No (ref)	6,094				
Yes	966				
Unknown	870				
Dyslipidaemia					
No (ref)	3,671	1.00			
Yes	3,844	0.73	0.61	0.88	0.001
Unknown	415	1.18	0.86	1.62	0.317
Hypertension					
No (ref)	1,928				
Yes	5,840				
Unknown	162				
Diabetes					
No (ref)	3,677				
Yes	4,014				
Unknown	239				
Heart failure					
No (ref)	7,048				
Yes	653				
Unknown	229				

* 'Others' includes Orang Asli, Kadazan, Melanau, Murut, Bajau, Bidayuh, Iban, other Malaysian and Foreigner
 ^ using Cox regression with backward stepwise variable selection

Table 5.12.6 Prognostic factors for death within one year among NSTEMI/UA patients, NCVDA-ACS Registry, 2014 – 2015 (Multivariable analysis)

Factors	N	Hazard ratio	95% CI		[^] p-value
Age group, years					
20 – < 40 (ref)	342	1.00			
40 – < 60	3,317	1.82	1.11	2.97	0.017
≥ 60	4,271	3.40	2.08	5.54	< 0.001
Gender					
Male (ref)	5,741				
Female	2,189				
*Ethnic group					
Malay (ref)	3,525	1.00			
Chinese	1,974	0.89	0.78	1.02	0.093
Indian	1,647	0.80	0.69	0.92	0.002
Others	784	0.69	0.54	0.87	0.002
Killip classification code					
I (ref)	3,796	1.00			
II	749	2.45	2.08	2.89	< 0.001
III	342	3.11	2.54	3.80	< 0.001
IV	218	8.35	6.86	10.18	< 0.001
Not stated/inadequately described	2,825	1.20	1.05	1.38	0.008
Percutaneous coronary intervention					
No (ref)	6,712	1.00			
Yes	1,218	0.73	0.57	0.94	0.015
Cardiac catheterisation					
No (ref)	5,767	1.00			
Yes	2,163	0.77	0.64	0.93	0.007
TIMI risk score					
0 – 2 (ref)	2,040	1.00			
3 – 4	5,193	1.20	1.03	1.40	0.020
5 – 7	697	1.43	1.14	1.79	0.002
Smoking					
Never (ref)	3,855	1.00			
Former (quit > 30 days)	1,736	1.05	0.91	1.20	0.508
Current (any tobacco use within last 30 days)	1,942	1.02	0.88	1.18	0.827
Unknown	397	1.48	1.20	1.83	< 0.001

Factors	N	Hazard ratio	95% CI		[^] p-value
Family history of premature cardiovascular disease					
No (ref)	6,094	1.00			
Yes	966	0.79	0.64	0.96	0.019
Unknown	870	1.11	0.93	1.32	0.235
Dyslipidaemia					
No (ref)	3,671	1.00			
Yes	3,844	0.75	0.66	0.84	< 0.001
Unknown	415	1.05	0.81	1.37	0.710
Hypertension					
No (ref)	1,928	1.00			
Yes	5,840	1.14	0.98	1.32	0.100
Unknown	162	2.08	1.12	3.84	0.020
Diabetes					
No (ref)	3,677	1.00			
Yes	4,014	1.30	1.15	1.47	< 0.001
Unknown	239	0.67	0.39	1.15	0.150
Heart failure					
No (ref)	7,048	1.00			
Yes	653	1.31	1.12	1.54	< 0.001
Unknown	229	0.86	0.62	1.20	0.388

* 'Others' includes Orang Asli, Kadazan, Melanau, Murut, Bajau, Bidayuh, Iban, other Malaysian and Foreigner
[^]using Cox regression with backward stepwise variable selection

APPENDIX A: DATA MANAGEMENT

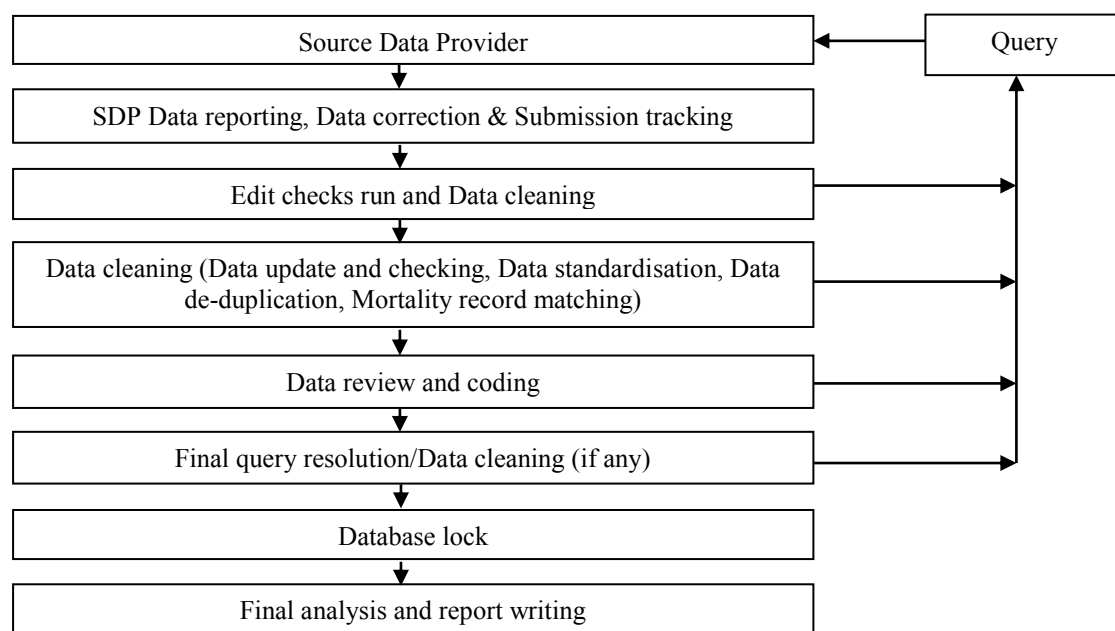
The National Cardiovascular Disease Database (NCVD) Registry maintains two different databases for cardiovascular diseases, i.e. for Acute Coronary Syndrome and Percutaneous Coronary Intervention. Data is stored in SQL Server due to the high volume of data accumulated throughout the years.

Data sources

Source Data Providers (SDPs) of the NCVD-ACS Registry comprise of all major hospitals who have participated in the registry, throughout Malaysia.

Data Flow Process

This section describes the data management flow process of the National Cardiovascular Disease Database Registry.



SDP Data reporting, Data correction and Submission tracking

Data reporting by SDP is done via Web Applications e-Case Report Forms.

There are a number of data security features that are designed into the NCVD web application (eCRF) such as web owner authentication, 2-level user authentication (user name and password authentication and a Short Messaging System (SMS) of authorisation code via mobile phone authentication), access control, data encryption, session management to automatically log off the application, audit trail and data backup and disaster recovery plan.

For ACS, SDP submits NCVD-ACS notification form on an ad-hoc basis whenever a patient is admitted for an ACS event. SDP also submits follow-up data at 30-days and 12-months post notification date intervals. An alert page containing all the overdue submissions for follow-up at 30-days and 12-months post notification date is available to users to ease submissions tracking.

Prior to registering a patient record, a verification process is done by using the search functionality to search if the patient already exists in the registry. The application will still detect a duplicate record if the same MyKad number is keyed in, should the step of searching a patient is not done. This step is

done to avoid duplicate records. For patients whose records already exist in the database, the SDP needs to only add a new ACS notification as the basic patient particulars are pre-filled, based on existing patient information in the database. The ACS and PCI registries share the same patient list.

There are a few in-built functionalities at the data entry page that serve to improve data quality. One such function is auto calculation function to reduce human error, in calculations. There is also an inconsistency check functionality that disables certain fields and prompts the user, if the value entered is out of range.

A real time data query page is also available via the web application to enable users to check which non-compulsory data is missing, out of range or inconsistent. A link is provided on the data query page for user to click on to resolve the query for the particular patient.

Real time reports are also provided in the web application. The aggregated data reports are presented in the form of tables and graphs. The aggregated data reports are typically presented in two forms, one as the centre's own aggregated data report and another as the registry's overall aggregated data report. In this way, the centre can be compared with the overall registry's average.

Data download function is also available in the web application to allow users to download their own centre's data from all the forms entered, for their own further analyses. The data are downloadable as Text - tab delimited (.txt) format, Microsoft excel workbook (.xls) and as Comma separated value (.csv) format.

Edit checks run and data cleaning

Edit checks are performed periodically by the registry manager to identify missing compulsory data, out of range values, inconsistency of data, invalid values and errors with de-duplication. Data cleaning is then performed based on the results of edit checks. Data update and data checking of the dataset is performed when there is a query of certain fields as and when necessary. It could be due to a request by the user, correction of data based on checking via data query in eCRF or after receiving results for preliminary data analysis. During data standardisation, missing data are handled based on derivation from existing data. Data de-duplication is also performed to identify duplicate records in the database that might have been missed out by SDPs. Finally, record matching against the National Death Register (*Jabatan Pendaftaran Negara*) is performed to verify the mortality status of the patient.

Final query resolution / data cleaning / database lock

A final edit check run is performed to ensure that the data is clean. All queries will be resolved before the database is locked, to ensure data quality and integrity. The final dataset is subsequently locked and exported to the statistician for analysis.

Data analysis

Please refer to Statistical Analysis Method section for further details.

Data release policy

One of the primary objectives of the registry is to make data available to the cardiovascular healthcare providers, policy makers and researchers. The registry would appreciate if users acknowledge the registry for the use of the data. Any request for data that requires a computer run must be made in writing (by e-mail, fax, or registered mail) accompanied with a Data Release Application Form and signed Data Release Agreement Form. These requests need prior approval by the Advisory Board before data can be released.

Registry ICT Infrastructure and Data centre

The operation of the NCVD is supported by an extensive ICT infrastructure to ensure operational efficiency and effectiveness.

The NCVD subscribes to co-location service with a high availability and highly secured Internet Data Centre at Cyberjaya in order to provide NCVD with quality assured Internet Hosting services and state-of-the-art physical and logical security features without having to invest in costly data centre setup internally. Physical security features implemented includes state-of-the-art security features such as anti-static raised flooring, fire protection with smoke and heat alarm warning system, biometric security access, video camera surveillance system, uninterrupted power supply, environmental control, etc.

Other managed security services include patch management of the servers, antivirus signature monitoring and update, firewall traffic monitoring and intrusion detection, security incidence response, data backup service done on a daily, weekly and monthly basis, data recovery simulation to verify that the backup works, which is done at least once yearly, network security scan and penetration test done on a half-yearly basis, security policy maintenance, maintenance and monitoring of audit trail of user access, etc. Managed system services such as usage and performance report, operating system maintenance and monitoring, bandwidth monitoring and systems health monitoring are also provided.

APPENDIX B: STATISTICAL METHODS

The statistical analysis described below was conducted on data collected in the NCVD-ACS Registry from year 2014 to 2015.

The inclusion criteria were:

- all patients who had ACS procedures performed between 2014 and 2015
- all patients who are aged 20 years and above

The exclusion criteria were:

- all patients with unknown or missing ACS stratum
- all patients with the final diagnosis of either stable angina or non-cardiac condition

In general, the unit of analysis was the number of patients with admission due to ACS. A total of 17,380 patients were admitted due to ACS from 2014 to 2015 with 391 patients admitted in both years.

Table 1: Distribution of patients by number of admissions, NCVD-ACS Registry, 2014 – 2015

Year		Number of Admissions		
		1	2	Total
Number of Patients	2014	8,067	391	8,458
	2015	8,922	391	9,313
	Total	16,989	782	17,771

Statistical methods for most chapters involved descriptive analysis. For categorical and discrete data, we calculated frequency and percentage. For continuous data, the mean, standard deviation (SD), median, minimum and maximum values were calculated. An exception to this was the survival analyses, which were performed to evaluate the prognostic factors for in-hospital, 30-day and 1-year mortality in Chapter 5.

For all variables, percentages were only calculated for categories listed in the CRFs.

Missing data were reported for categorical, discrete and continuous data. No statistical imputation was applied to replace missing data. However, to avoid illogical ranges in continuous data, outliers were set to missing data based on acceptable range, as presented in a table below:

Fields	Acceptable Range
Age	≥ 20 years
Height	130 – 250 cm
Weight	30 – 200 kg
BMI	14 – 50 kg m ⁻²
WHR	0.7 – 3.0
Waist Circumference	70 – 130 cm
Hip Circumference	80 – 200 cm
Fasting Blood Glucose	3.0 – 50.0 mmol/L
Systolic blood pressure	50 – 270 mmHg
Diastolic blood pressure	10 – 170 mmHg
Pulse Pressure	1 – 100 mmHg
Heart rate	20 – 200 beats/min

Fields	Acceptable Range
Number of distinct episodes of angina	≤ 20 (0=no episodes)
Total cholesterol	2.0 – 25.0 mmol/L
HDL-C	0.5 – 5.0 mmol/L
LDL-C	0.5 – 20.0 mmol/L
HbA1c	4.0 – 32.0 %
Triglycerides	0.5 – 15.0 mmol/L
Left ventricular ejection fraction	5.0 – 90.0 %
Total admission	1 – 100 days
Number of days in CCU	1 – 30 days
Number of days in ICU/CICU	1 – 30 days
Pain-to-needle time	15 – 1440 minutes
Door-to-needle time	1 – 1440 minutes
Door-to-balloon time	1 – 1440 minutes

The data was analysed based on the focus of each report chapter as described below.

Patient Characteristics

Patient characteristics were summarised in Chapter 2. Number of patients in each year was determined based on their admission year due to ACS. The results presented the patients' age, gender, ethnicity, coronary risk factors, co-morbidities and other variables in the CRF.

Cardiac Presentation

Chapter 3 includes an analysis of the clinical presentations, baseline investigations, electrocardiography, clinical diagnosis at admission, fibrinolytic therapy and invasive therapeutic procedures. An analysis of STEMI time-to-treatment was performed in which we excluded any illogical values of time-to-treatment (such as negative values for pain-to-needle time and door-to-balloon time).

Treatment

Summary of treatments is presented in Chapter 4. The summary of treatments includes duration of hospitalisation, admission days in CCU and ICU, types of treatment and pharmacological therapy given during admission.

Clinical Outcomes

The patient outcomes at discharge, 30-day and 1-year follow-up are presented by their ACS stratum, by pre-morbid conditions and types of treatment. In order to evaluate the status of alive or deceased, individual patients were matched against the status provided by the Malaysian National Registration Department (NRD). Patients were considered as alive at the time of follow-up if the date of their death was not provided in the NRD dataset. Prognostic factors for in-hospital, 30-day and 1-year mortality were also presented in Chapter 5.

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A heart-felt appreciation is extended to everyone who contributed to the successful publication of this report.

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MARIANI AHMAD
ROSLIZA NAYAN

HOSPITAL RAJA PERMAISURI BAINUN

DR. K. CHANDRAN
DR. ASRI RANGA ABDULLAH
DR. VIJAY VENGKAT
DR. HAZLEENA HASNAN
DR. HOW ANN KEE
SHAYLA BANU NALINI GOVINDAN
INDRANI TAMILSALVAN
SURYIA HARUN
SHARIFAH MARSHIDAH TUAN YIM
NOOR AZIDA ARBA'AIN
NOR HASNIZA ABDUL HALIM
NORIZAN HASHIM
SAUFIAH AHMAD
SHAYLA BANU NALINI GOVINDAN
THAVAMANI BALAN
NOR AIN ZULKEPLI
SUREKA MARINAIDU
ROSITA AHMAD
SUZANA SUZILA MAT SAAD
JUMI HAIZA AZMI

UITM SUNGAI BULOH CAMPUS

DR. SAZZLI SHAHLAN KASIM
DR. ZUBIN OTHMAN IBRAHIM
DR. MOHD KAMAL MOHD ARSHAD
DR. JOHAN RIZWAL ISMAIL
DR. EFFAREZAN ABDUL RAHMAN
DR. LIM CHIAO WEN
DR. HAFISYATUL AIZA ZAINAL ABIDIN
DR. NICHOLAS CHUA YUL CHYE
DR. RIZMY NAJME KHIR
MASITAH ABDUL WAHID
JARIAH TAMCHIK
ARTINI DZOLKARNAINI
NURUL AIN WAHIDAH ZULKIFLI
NORDIANA BORHAN
NURUL NABILLA ABDULLAH
HARIANTY ISMA ABDUL MAJID
NORAZURA SHARIF

HOSPITAL PULAU PINANG

DR. OMAR ISMAIL
DR. AINOL SHAHERA SAHAR
DR. MUHAMMAD ALI SHEIKH ABD KADER
DR. KONG POI KEONG
DR. SARAVANAN KRISHINAN
DR. MOHAMED JAHANGIR ABDUL WAHAB
DR. SHAHUL HAMID AHMAD SHA
DR. GOH CHONG AIK
DR. NG JIT BENG
DR. MOHD NAZRULHISHAM NASER
DR. TAN NEE HOOI
TAN SAW EAN
NORMILAH YAHAYA
KOO KWAI CHUN
WAN MARLIANA WAN RAZAK
NATRAH REJAB

HOSPITAL SULTANAH NUR ZAHIRAH

DR. ZULKIFLI MUSTAPHA
SUHAILY SULONG
RINA MUHAMAD
SHARLIDAWATY SAID
NAFISHAH OTHMAN
NUR ZALINA MOHD NOOR
NUR AZMAWANI IBRAHIM
WAN NURDIYANA WAN ISMAIL
SUZILAWANI GHANI

HOSPITAL RAJA PEREMPUAN ZAINAB II

DR. MANSOR YAHYA
DR. AZERIN OTHMAN
DR. MOHD SAPAWI MOHAMED
WAN RUZITA WAN HASSAN
RAFIDAH MUSTAFA
FARIDAH ABDUL RAHMAN
NIK NOR IZATI SAUD
CHE HAMIRI CHE HUSAIN
CHE ROSELINA CHE ABDUL RAHMAN
NORZUBAIDAH BEDIN

HOSPITAL TUANKU FAUZIAH

DR. SIA KOON KET
DR. SHERRY TANG
DR. NORAZRULRIZAL MAT NOR
DR. AARON ONG HEAN JIN
RUSMIRA RAMLI
FAZILAH HAZAIN @ TAHARIM
NUAN CHAN PUAN
AIMI AZURA MAT SABU
NUR SYAZIELA AZIZAN
ALIFF FITRI MUHAMMAD
FARAH IZZAH MAHBUB
ROSMAWATI MD ARIFFIN
RAFIZAH MD LELA
SURIA PRAKASH

HOSPITAL QUEEN ELIZABETH

DR. PETER TOK SEAH KENG
DR. MICHAL CHRISTINA STEVEN
AMMAR RAFIDAH SAPTU
STEPHENIE ANN ALBART
NADIRAH SULAIMAN
TAN JUN EE
ROHANI LANTOP
ALINAH WEH
CAROLINE BERNARD SARIMUDA
AINI YOKOK

HOSPITAL AMPANG

SITI NOOR BACHIK
PUNITHA JAYAKUMAR
SITI NORAISHAH SULAIMAN
NIK NUR AZMA NIK HUSSIN
NOR AINI MAT JUSOH
NUR HAZIRAH MOHD DIN

HOSPITAL SULTANAH AMINAH

DR. LEE CHUEY YAN
DR. GUNASEGARAN RAMASAMY
DR. BENJAMIN LEO CHEANG LENG
DR. KAM JIYEN
DR. ANG KAI PING
SHARIFAH IBRAHIM
NURFARAHAIN SIYON
ZAHARAH KADIR

TUANKU JA'AFAR HOSPITAL

DR. K. SREE RAMAN
DR. LOOI YIK KIA
DR. MAHESHWARAN KALIMUTHU
SARASWATHI SUBRAMANIAM
SITI NADIA ABD RAHIM
JAZILAH CHIK

HOSPITAL MELAKA

DR. SHARIFAH OMAR
DR. JULIAN TEY HOCK CHUAN
DR. TING SENG KIAT
ROZANNA JOHARI
JUHAIMAH HANIPAH
SULIANA AHMAD SHAARI
NUR MAWATI AWANG
KHAMSATUN HAMZAH

HOSPITAL SERDANG

DR. ABDUL KAHAR ABDUL GHAPAR
DR. KAMARAJ SELVARAJ
DR. ABDUL MUIZZ ABD MALEK
DR. KOH HUI BENG
DR. DIANA SHAHIDA
DR. NORFAZIELA JAAFAR
DR. SARAVANAN VENGADESA PILLAI
SITI SALMOR TALIB
RUBIAH OMAR
ROSILAH BT ABDUL RAHIM
MEERA A/P KUPPUSAMY
NAZIRA LEMAN
INNTAN ASURRAH ABU SAMAH
ASLIZA ARIFFIN
ROZIANA JALANI
NUR FADHLINA NIK SALMINA
NORHAPIZA AHMAD NIZAR
NOOR EDENLINA ABDULLAH
SUHANA ABD RAHMAN
AGEELA KATHYZREE KALAI CHEELLVAN
NORMA MOHD ZIN

HOSPITAL TENGGU AMPUAN RAHIMAH

DR. MOHAMAD NAZRULHISHAM
DR. PREM NATHAN ARUMUGANATHAN
P WILSON V. PERIANAYAGAM
CHING BEE LIAN
NOR HAYATI ISMAIL

HOSPITAL LAHAD DATU

DR. KEW CHEN HUI
DR. WENDY CHEN TYNG TYNG
DR. KOO THOMSON
DR. SOH SI LING
DR. CHU KIAN WAH
DR. NUR ISHANI ISAHAN
DR. ONG JIUN JYH
DR. SUBBIAH KASI

Appendix F :Case Report Form

NATIONAL CARDIOVASCULAR DISEASE DATABASE (ACS REGISTRY) NOTIFICATION FORM

For NCVD Use only:

Centre:

ID:

Instruction: Complete this form to notify all ACS admissions at your centre to NCVD ACS Registry. Where check boxes are provided, please check (✓) one or more boxes. Where radio buttons are provided, check (✓) only one option.

A. Reporting Centre: _____

B. Date of Admission (dd/mm/yy):

SECTION 1: DEMOGRAPHICS

1. Patient Name: <i>(as per MyKad / Other ID)</i>			2. Hospital RN:	
3. Identification Card Number:	MyKad: <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> - <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> - <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/>	Old IC No.: <input style="width: 100px;" type="text"/>		
	Other ID Document No.: <input style="width: 150px;" type="text"/>	Specify type: <i>(eg. Passport, armed force ID)</i> <input style="width: 100px;" type="text"/>		
4. Gender:	<input type="radio"/> Male <input type="radio"/> Female		5. Nationality:	<input type="radio"/> Malaysian <input type="radio"/> Non Malaysian
6a. Date of birth: <i>(dd/mm/yy)</i>	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <i>(write DOB as 01/01/yy if age is known)</i>	6b. Age on admission:	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <i>(auto calculate)</i>	
7. Ethnic Group:	<input type="radio"/> Malay <input type="radio"/> Punjabi <input type="radio"/> Melanau <input type="radio"/> Bidayuh <input type="radio"/> Foreigner, specify country of origin: <input type="radio"/> Chinese <input type="radio"/> Orang Asli <input type="radio"/> Murut <input type="radio"/> Iban <input type="radio"/> Indian <input type="radio"/> Kadazan Dusun <input type="radio"/> Bajau <input type="radio"/> Other Malaysian, specify:			
8. Contact Number:	<i>(1):</i> <input style="width: 100px;" type="text"/>		<i>(2):</i> <input style="width: 100px;" type="text"/>	

SECTION 2 : STATUS BEFORE EVENT

1. Smoking status:	<input type="radio"/> Never <input type="radio"/> Former (quit >30 days) <input type="radio"/> Current (any tobacco use within last 30 days) <input type="radio"/> Not Available			
2. Status of Aspirin use:	<input type="radio"/> Never <input type="radio"/> Used less than 7 days previously <input type="radio"/> Used more than or equal to 7 days previously			
3. Medical history:				
a) Dyslipidaemia	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not known	g) Chronic Angina (≥2 weeks)	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not known	
b) Hypertension	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not known	h) New onset angina (<2 weeks)	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not known	
c) Diabetes	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not known	i) History of heart failure	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not known	
		<input type="checkbox"/> OHA <input type="checkbox"/> Insulin <input type="checkbox"/> Non pharmacology therapy/diet therapy		j) Chronic lung disease
d) Family history of premature cardiovascular disease <i>(1st degree relative with either MI or stroke; <55 y/o if Male & <65 y/o if Female)</i>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not known	k) Chronic renal disease <i>[>200 μmol(micromol) serum creatinine]</i>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not known	
e) Myocardial Infarction History	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not known	l) Cerebrovascular disease	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not known	
f) Documented CAD <i>(presence of >50% stenosis on CTA, angiogram or ischaemia on functional Cardiac Imaging such as nuclear, MRI, echo). Positive treadmill test or high Calcium score alone are not sufficient.)</i>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not known	m) Peripheral vascular disease	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not known	
		n) None of the above	<input type="checkbox"/>	

SECTION 3 : ONSET

1a. Date of onset of ACS symptoms:	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <i>(dd/mm/yy)</i>	1b. Time of onset of ACS symptoms: <i>(24 hr format)</i>	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> (hh:mm) <input type="checkbox"/> Not Available
2a. Date patient presented:	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <i>(dd/mm/yy)</i>	2b. Time patient presented: <i>(24 hr format)</i>	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> (hh:mm) <input type="checkbox"/> Not Available
3. Was patient transferred from another centre?	<input type="radio"/> Yes <input type="radio"/> No		

SECTION 4 : CLINICAL PRESENTATION & EXAMINATION

1. Number of distinct episodes of angina in past 24h:	<input type="checkbox"/> Not Available	2. Heart rate at presentation:	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> beats / min
3. Blood pressure at presentation:	a. Systolic: <input style="width: 40px;" type="text"/> mmHg	b. Diastolic: <input style="width: 40px;" type="text"/> mmHg	
4. Anthropometric: <i>(if not measured, please tick as 'Not Available')</i>	a. Height: <input style="width: 40px;" type="text"/> (cm) <input type="checkbox"/> Not Available	BMI: <input style="width: 40px;" type="text"/>	<i>(auto calculate)</i>
	b. Weight: <input style="width: 40px;" type="text"/> (cm) <input type="checkbox"/> Not Available		
	c. Waist Circumference: <input style="width: 40px;" type="text"/> (cm) <input type="checkbox"/> Not Available	WHR: <input style="width: 40px;" type="text"/>	<i>(auto calculate)</i>
	d. Hip Circumference: <input style="width: 40px;" type="text"/> (cm) <input type="checkbox"/> Not Available		
5. Killip classification:	<input type="radio"/> Killip I <i>(no clinical signs of heart failure)</i> <input type="radio"/> Killip II <i>(rales or crackles in the lungs, an S₃, and elevated jugular venous pressure)</i> <input type="radio"/> Killip III <i>(frank acute pulmonary oedema)</i> <input type="radio"/> Killip IV <i>(cardiogenic shock or hypotension [measured as systolic blood pressure <90 mmHg], and evidence of peripheral vasoconstriction [oliguria, cyanosis or sweating])</i> <input type="radio"/> Not Applicable/ Not Available		

a. Patient Name:		b. Reporting Centre:	
c. Identification Card No.:		d. Hospital RN:	

SECTION 5: BASELINE INVESTIGATION (values obtained within 48 hours from admission)

	Absolute Value	Unit	Reference Upper Limit	Check (✓) if not done
1. Peak CK-MB:		Unit/L		<input type="radio"/> Not done
2. Peak CK:		Unit/L		<input type="radio"/> Not done
3. Peak Troponin:	a. T n T:	<input type="radio"/> +ve <input type="radio"/> -ve OR <input type="text"/>	ng/mL or mcg/L	<input type="radio"/> Not done
	b. T n I:	<input type="radio"/> +ve <input type="radio"/> -ve OR <input type="text"/>	ng/mL or mcg/L	<input type="radio"/> Not done
4. Lipid Profile (Fasting):	a. Total Cholesterol:		mmol/L	<input type="radio"/> Not done
	b. HDL-C:		mmol/L	<input type="radio"/> Not done
	c. LDL-C:		mmol/L	<input type="radio"/> Not done
	d. Triglyceride:		mmol/L	<input type="radio"/> Not done
5. Fasting blood glucose:		mmol/L		<input type="radio"/> Not done
6. HbA1c		mmol/L		<input type="radio"/> Not done
7. Left Ventricular Ejection Fraction:		%		<input type="radio"/> Not done

SECTION 6: ELECTROCARDIOGRAPHY (ECG)

1. ECG abnormalities type: <i>(Check one or more boxes)</i>	<input type="checkbox"/> ST-segment elevation $\geq 1\text{mm}$ (0.1mV) in ≥ 2 contiguous limb leads	<input type="checkbox"/> Bundle branch block (BBB)
	<input type="checkbox"/> ST-segment elevation $\geq 2\text{mm}$ (0.2mV) in ≥ 2 contiguous frontal leads or chest leads	<input type="checkbox"/> Non-specific
	<input type="checkbox"/> ST-segment depression $\geq 0.5\text{mm}$ (0.05mV) in ≥ 2 contiguous leads	<input type="checkbox"/> None
	<input type="checkbox"/> T-wave inversion $\geq 1\text{mm}$ (0.1mV)	<input type="checkbox"/> Not stated/ inadequately described
2. ECG abnormalities location: <i>(Check one or more boxes)</i>	<input type="checkbox"/> Inferior leads: II, III, aVF	<input type="checkbox"/> Right ventricle: ST elevation in lead V4R
	<input type="checkbox"/> Anterior leads: V1 to V4	<input type="checkbox"/> None
	<input type="checkbox"/> Lateral leads: I, aVL, V5 to V6	<input type="checkbox"/> Not stated/ inadequately described
	<input type="checkbox"/> True posterior: V1, V2	

SECTION 7: CLINICAL DIAGNOSIS AT ADMISSION

1. <u>Acute Coronary Syndrome stratum:</u>	<input type="radio"/> STEMI	<input type="radio"/> NSTEMI	<input type="radio"/> Unstable Angina (UA)
2a. TIMI Risk Score for NSTEMI/ UA:	<input type="text"/>	<i>(auto calculate)</i>	2b. TIMI Risk Score for STEMI:
			<input type="text"/>
			<i>(auto calculate)</i>

SECTION 8: FIBRINOLYTIC THERAPY (Following Section is applicable for STEMI only)

1. <u>Fibrinolytic therapy status:</u>	<input type="radio"/> Given at this centre → <i>(Please proceed to number 2 and 3 below)</i>				
	<input type="radio"/> Given at another centre prior to transfer here				
	<input type="radio"/> Not given—proceeded directly to primary angioplasty				
	<input type="radio"/> Not given—missed thrombolysis				
<input type="radio"/> Not given—patient refusal					
<input type="radio"/> Not given—contraindicated					
Fill in (2) and (3) only if you check 'Given at this centre' in no. (1) above	2. Fibrinolytic drug used:	<input type="radio"/> Streptokinase		<input type="radio"/> Others (t-PA, r-PA, TNK t-PA)	
	3. <u>Intravenous fibrinolytic therapy:</u>	a. Date: <i>(dd/mm/yy)</i>	<input type="text"/> / <input type="text"/> / <input type="text"/>	b. Time: <i>(in 24 hr format)</i>	<input type="text"/> : <input type="text"/> <i>(hh:mm)</i>
	4. Door to Needle time:	<input type="text"/> <i>(minutes)</i> Auto calculated—(time patient presented to time of fibrinolytic therapy given)			

SECTION 9: INVASIVE THERAPEUTIC PROCEDURES

1. Did patient undergo cardiac catheterization on this admission at your centre?	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> No-transferred to another centre	
2. Did patient undergo Percutaneous Coronary intervention (PCI) on this admission?	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Not applicable	
	<input type="radio"/> a. For STEMI	<input type="radio"/> Urgent → <input type="radio"/> Primary PCI <input type="radio"/> Rescue PCI <input type="radio"/> Facilitated PCI <input type="radio"/> Elective → Routine hospital practice? <input type="radio"/> Yes <input type="radio"/> No		
	<input type="radio"/> b. For NSTEMI/UA	<input type="radio"/> Urgent <input type="radio"/> Elective → Routine hospital practice? <input type="radio"/> Yes <input type="radio"/> No		
3. First balloon inflation (for STEMI-Urgent PCI only):	a. Date: <i>(dd/mm/yy)</i>	<input type="text"/> / <input type="text"/> / <input type="text"/>	b. Time: <i>(in 24 hr format)</i>	<input type="text"/> : <input type="text"/> <i>(hh:mm)</i>
4. Door to balloon time (for STEMI-Urgent PCI only):	<input type="text"/> <i>(minutes)</i> Auto calculated—(time patient presented to time of first angio balloon inflation)			
5. Did patient undergo CABG on this admission?	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Not applicable	

a. Patient Name:		b. Reporting Centre:	
c. Identification Card No.:		d. Hospital RN:	

SECTION 10: PHARMACOLOGICAL THERAPY

Group	Given during admission		Given at discharge	
1. ASA	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
2. Ticlopidine	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
3. Clopidogrel	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
4. Prasugrel	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
5. Ticagrelor	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
6. Other antiplatelet	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
7. GP receptor inhibitor	<input type="radio"/> Yes	<input type="radio"/> No		
8. Unfrac heparin	<input type="radio"/> Yes	<input type="radio"/> No		
9. LMWH	<input type="radio"/> Yes	<input type="radio"/> No		
10. Fondaparinux	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
11. Oral anticoagulant (eg. Warfarin)	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
12. Beta blocker	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
13. ACE inhibitor	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
14. Angiotensin II receptor blocker	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
15. Statin	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
16. Other lipid lowering agent	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
17. Diuretics	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
18. Calcium antagonist	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
19. Oral hypoglycaemic agent	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
20. Insulin	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
21. Anti-arrhythmic agent	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No

SECTION 11 : IN HOSPITAL OUTCOME

1. Number of overnight stays:	a. CCU (days):		
	b. ICU/CICU (days):		
2. Outcome:	<input type="radio"/> Discharged →	a) <u>Date:</u> (dd/mm/yy)	<input type="text"/> / <input type="text"/> / <input type="text"/>
	<input type="radio"/> Transferred to another centre →	a) <u>Date:</u> (dd/mm/yy)	<input type="text"/> / <input type="text"/> / <input type="text"/>
		b) Name of centre:	<input type="text"/>
	<input type="radio"/> Died →	a) <u>Date:</u> (dd/mm/yy)	<input type="text"/> / <input type="text"/> / <input type="text"/>
		b) <u>Cause of death:</u>	<input type="radio"/> Cardiac <input type="radio"/> Non Cardiac
3. Total number of overnight stays:		(auto calculate)	
4. <u>Final diagnosis at discharge:</u>	<input type="radio"/> STEMI <input type="radio"/> NSTEMI <input type="radio"/> UA <input type="radio"/> Non Cardiac / Non ACS		
5. <u>Bleeding Complication:</u> (TIMI criteria)	<input type="radio"/> Major (Any intracranial bleed or other bleeding ≥ 5g/dL Hb drop) <input type="radio"/> Minor (Non-CNS bleeding with 3-5g/dL Hb drop) <input type="radio"/> Minimal (Non-CNS bleeding, non-overt bleeding, < 3g/dL Hb drop) <input type="radio"/> None <input type="radio"/> Not stated / Inadequately described		

NATIONAL CARDIOVASCULAR DISEASE DATABASE (ACS REGISTRY) FOLLOW UP FORM

For NCVD use only:

Centre:

ID:

Instruction: This form is to be completed at patient follow-up at specified duration (30 days / 12 months) after admission. Following may be performed by telephone interview or clinic visit.

Where check boxes are provided, please check (✓) one or more boxes. Where radio buttons are provided, check (✓) **only one option**.

A. Reporting Centre:			
B. Patient Name:			
C. Identification Card Number:	MyKad: <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> - <input style="width: 20px;" type="text"/> - <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/>	Old IC:	<input style="width: 100%;" type="text"/>
	Other ID document No.: <input style="width: 100%;" type="text"/>	Specify type: <i>(eg. Passport, armed force ID)</i>	<input style="width: 100%;" type="text"/>
D. Date of Follow Up:	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> (dd/mm/yy)	E. Type of Follow Up:	<input type="radio"/> 30 days <input type="radio"/> 12 months

SECTION 1: OUTCOME

1. Outcome	<input type="radio"/> Alive										
	<input type="radio"/> Died	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">a. Date of death:</td> <td><input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> (dd/mm/yy)</td> </tr> <tr> <td>b. Cause of death:</td> <td><input type="radio"/> Cardiac <input type="radio"/> Non Cardiac <input type="radio"/> Other, specify: _____</td> </tr> </table>	a. Date of death:	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> (dd/mm/yy)	b. Cause of death:	<input type="radio"/> Cardiac <input type="radio"/> Non Cardiac <input type="radio"/> Other, specify: _____					
	a. Date of death:	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> (dd/mm/yy)									
	b. Cause of death:	<input type="radio"/> Cardiac <input type="radio"/> Non Cardiac <input type="radio"/> Other, specify: _____									
<input type="radio"/> Transferred to another centre	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">a. Date :</td> <td><input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> (dd/mm/yy)</td> </tr> <tr> <td>b. Name of centre:</td> <td><input style="width: 100%;" type="text"/></td> </tr> </table>	a. Date :	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> (dd/mm/yy)	b. Name of centre:	<input style="width: 100%;" type="text"/>						
a. Date :	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> (dd/mm/yy)										
b. Name of centre:	<input style="width: 100%;" type="text"/>										
<input type="radio"/> Lost to Follow Up	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">a. Date :</td> <td><input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> (dd/mm/yy)</td> </tr> </table>	a. Date :	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> (dd/mm/yy)								
a. Date :	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> (dd/mm/yy)										
2. Cardiovascular Readmission:	<input type="checkbox"/> ACS	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">a. Date:</td> <td><input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> (dd/mm/yy)</td> </tr> <tr> <td>b. ACS Stratum:</td> <td><input type="radio"/> STEMI <input type="radio"/> NSTEMI <input type="radio"/> UA</td> </tr> </table>	a. Date:	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> (dd/mm/yy)	b. ACS Stratum:	<input type="radio"/> STEMI <input type="radio"/> NSTEMI <input type="radio"/> UA					
	a. Date:	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> (dd/mm/yy)									
	b. ACS Stratum:	<input type="radio"/> STEMI <input type="radio"/> NSTEMI <input type="radio"/> UA									
	<input type="checkbox"/> Heart Failure	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">a. Date :</td> <td><input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> (dd/mm/yy)</td> </tr> </table>	a. Date :	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> (dd/mm/yy)							
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<input type="checkbox"/> Revascularization	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">a. Type:</td> <td><input type="checkbox"/> PCI</td> <td style="width: 20%;">Date:</td> <td><input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> (dd/mm/yy)</td> <td style="width: 20%;"><input type="radio"/> Urgent <input type="radio"/> Elective</td> </tr> <tr> <td></td> <td><input type="checkbox"/> CABG</td> <td>Date:</td> <td><input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> (dd/mm/yy)</td> <td><input type="radio"/> Urgent <input type="radio"/> Elective</td> </tr> </table>	a. Type:	<input type="checkbox"/> PCI	Date:	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> (dd/mm/yy)	<input type="radio"/> Urgent <input type="radio"/> Elective		<input type="checkbox"/> CABG	Date:	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> (dd/mm/yy)	<input type="radio"/> Urgent <input type="radio"/> Elective
	a. Type:	<input type="checkbox"/> PCI	Date:	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> (dd/mm/yy)	<input type="radio"/> Urgent <input type="radio"/> Elective						
	<input type="checkbox"/> CABG	Date:	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> (dd/mm/yy)	<input type="radio"/> Urgent <input type="radio"/> Elective							
<input type="checkbox"/> Stroke	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">a. Date :</td> <td><input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> (dd/mm/yy)</td> </tr> </table>	a. Date :	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> (dd/mm/yy)								
a. Date :	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> (dd/mm/yy)										

SECTION 2: CLINICAL HISTORY AND EXAMINATION (OPTIONAL)

1. Angina status: (CCS classification)	<input type="radio"/> None <input type="radio"/> CCS I <input type="radio"/> CCS II <input type="radio"/> CCS III <input type="radio"/> CCS IV								
2. Functional capacity: (NYHA classification)	<input type="radio"/> None <input type="radio"/> NYHA I <input type="radio"/> NYHA II <input type="radio"/> NYHA III <input type="radio"/> NYHA IV								
3. Blood Pressure:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">a. Systolic:</td> <td style="width: 20%; text-align: center;">mmHg</td> <td style="width: 20%;">b. Diastolic:</td> <td style="width: 20%; text-align: center;">mmHg</td> </tr> </table>	a. Systolic:	mmHg	b. Diastolic:	mmHg				
a. Systolic:	mmHg	b. Diastolic:	mmHg						
4. Anthropometric:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">a. Weight:</td> <td style="width: 20%; text-align: center;">kg</td> <td style="width: 20%;">b. Waist circumference:</td> <td style="width: 20%; text-align: center;">cm</td> </tr> <tr> <td>c. Hip circumference:</td> <td style="text-align: center;">cm</td> <td></td> <td></td> </tr> </table>	a. Weight:	kg	b. Waist circumference:	cm	c. Hip circumference:	cm		
	a. Weight:	kg	b. Waist circumference:	cm					
c. Hip circumference:	cm								

SECTION 3: INVESTIGATIONS (OPTIMAL)

1. Lipid Profile:	a. Total Cholesterol:	mmol/L	b. HDL-C:	mmol/L
	c. LDL-C:	mmol/L	d. Triglycerides:	mmol/L
2. Left Ventricular Ejection Fraction:	%	3. HbA1c	mmol/L	

SECTION 4: MEDICATION (OPTIONAL)

Group	Given	Group	Given
1. ASA	<input type="radio"/> Yes <input type="radio"/> No	12. Beta Blocker	<input type="radio"/> Yes <input type="radio"/> No
2. Ticlopidine	<input type="radio"/> Yes <input type="radio"/> No	13. ACE inhibitor	<input type="radio"/> Yes <input type="radio"/> No
3. Clopidogrel	<input type="radio"/> Yes <input type="radio"/> No	14. Angiotensin II receptor blocker	<input type="radio"/> Yes <input type="radio"/> No
4. Prasugrel	<input type="radio"/> Yes <input type="radio"/> No	15. Statin	<input type="radio"/> Yes <input type="radio"/> No
5. Ticagrelor	<input type="radio"/> Yes <input type="radio"/> No	16. Other lipid lowering agent	<input type="radio"/> Yes <input type="radio"/> No
6. Other antiplatelet	<input type="radio"/> Yes <input type="radio"/> No	17. Diuretics	<input type="radio"/> Yes <input type="radio"/> No
7. GP receptor inhibitor	<input type="radio"/> Yes <input type="radio"/> No	18. Calcium antagonists	<input type="radio"/> Yes <input type="radio"/> No
8. Heparin	<input type="radio"/> Yes <input type="radio"/> No	19. Oral Hypoglycaemic Agent	<input type="radio"/> Yes <input type="radio"/> No
9. LMWH	<input type="radio"/> Yes <input type="radio"/> No	20. Insulin	<input type="radio"/> Yes <input type="radio"/> No
10. Fondaparinux	<input type="radio"/> Yes <input type="radio"/> No	21. Anti-arrhythmic agent	<input type="radio"/> Yes <input type="radio"/> No
11. Oral anticoagulant agent (eg. Warfarin)	<input type="radio"/> Yes <input type="radio"/> No		

SECTION 5: REHABILITATION AND COUNSELLING (OPTIONAL)

1. Was patient referred to cardiac rehabilitation?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Applicable
2. Has patient stopped smoking?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Applicable