



CHAPTER 2: PATIENT CHARACTERISTICS

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Summary

1. Baseline characteristics in patients presenting with Acute Coronary Syndrome (ACS) in Malaysia were consistent throughout years 2006 to 2008.
2. More than 90% of patients had at least one cardiovascular risk factor, and many of these were modifiable.
3. In comparison to findings from the Global Registry of Acute Coronary Events (GRACE), it was clear that Malaysian patients presented with ACS at a much younger age (age less than 50 years old).
4. A high proportion of patients had diabetes mellitus (about 40%).
5. A higher proportion of Indian males was in the youngest patient groups (<50 years old).

Characteristics of patients admitted with ACS were obtained and analysed from 11 Source Data Providers (SDP) in 2006, which grew to, 15 SDPs in 2008; in addition, comparisons were made between years 2006, 2007 and 2008.

In total, 3422, 3651 and 2851 patients were admitted with ACS in 2006, 2007 and 2008, respectively. In 2006, 42% were admitted with ST-Elevated Myocardial Infarction (STEMI), 33% with Non ST-Elevated Myocardial Infarction (NSTEMI) and 25% with Unstable Angina (UA). In 2007, 46%, 27% and 26% were admitted with STEMI, NSTEMI and UA, respectively. In 2008, 54%, 23% and 23% were admitted with STEMI, NSTEMI and UA, respectively. In each year, STEMI was the most common type of ACS presentation in Malaysia. [Table 2.6]

Patient demographics

The mean (SD) age of patients presenting with ACS was 59 years (12 years) and this was consistent for all three years. Between 23% and 24% of patients from each ethnic groups were aged below 50 years and males accounted for 75% of all patients admitted with ACS. This finding was similar for all three years. There was no major change in ethnic distribution over the 3 years period. [Table 2.1]

Coronary risk factors

There was a high prevalence of established cardiovascular risk factors in our ACS patients. Around 33% - 34% were active smokers, 9% - 13% had positive family history of premature cardiovascular disease, 31% - 35% had dyslipidaemia, 56% - 63% had hypertension and 39% - 44% had diabetes.

Between 13% and 18% of patients presenting with ACS had a prior history of MI and 15% - 18% had previously documented CAD with >50% stenosis. Between 8% and 15% had a history of chronic stable angina, 45% - 53% had a history of new onset angina, and 5% - 8% had a history of heart failure.

Majority of patients were overweight. The mean Body Mass Index (BMI) was 25.6 (4.3) kg/m², and 73% - 75% of patients had a BMI above 23 kg/m², which is the criterion for obesity by Asian standards. Between 42% and 50% of males had a waist circumference more than 90cm, while 74% - 80% of females had a waist circumference of more than 80cm, which are the criteria for metabolic syndrome. [Table 2.1] More than 90% of patients had at least one established cardiovascular risk factor. [Table 2.5]

Socio-demographics

In general, SDPs in the Klang Valley and the East Coast of Semenanjung Malaysia had a high proportion of the Malay ethnic group. Exceptions were Pusat Perubatan Universiti Malaya in Kuala Lumpur, which reported up to 38% - 42% of cases were Indian; and Hospital Umum Sarawak and Hospital Pulau Pinang which each reported up to 40% of cases Chinese patients. This may be a reflection of the demographics of the local population served by the hospital. At nearly all the SDPs, 88% of patients who presented with ACS were male, although for Hospital Tuanku Ja'afar, Negeri Sembilan, up to 57% of its ACS presentations were females. [Table 2.2.2 & 2.2.3] There were also a much higher percentage of females (74%) below the age of 50.

The 50-60 years age group had the highest percentage of Malay and Indian males with ACS. While the 60-70 years age group had the highest percentage of Chinese males. This was consistent for 2007 and 2008. The 60 -70 years age group had the highest percentage of Malay and Indian females while the 70-80 years age group had the highest percentage of Chinese. Exception, the data for 2007 showed the highest percentage of Indian females in the 50-60 years age group. [Table 2.4]

Analysis according to ACS subtypes

In each year between 2006 and 2008, STEMI was the most common of the three ACS subtypes. The mean age of those presenting with STEMI was 57 years, approximately four years younger than those presenting with NSTEMI and UA. Approximately 85% of patients presenting with STEMI were male, and this was similar for years 2006 to 2008. The NSTEMI and UA demographics were similar, with approximately 69% male. [Table 2.7]

Approximately 50% of patients presenting with STEMI were active smokers. There were fewer STEMI patients with history of dyslipidaemia compared to NSTEMI and UA subgroups, (23% and 40% respectively). Prevalence of other pre-morbid cardiovascular risk factors were similar across the spectrum of ACS. [Table 2.7]

Table 2.1 Summary of characteristics for patients with ACS, NCVD-ACS Registry, 2006-2008

Year	2006	2007	2008	Total
Total	3422	3646	2851	9919
DEMOGRAPHICS				
Age, years				
N	3422	3646	2851	9919
Mean (SD)	59 (12)	59 (12)	59 (12)	59 (12)
Median (min, max)	59 (21, 100)	59 (25, 95)	59 (21, 94)	59 (21, 100)
IQR	17	17	17	17
Age group, No. (%)				
20 - <30	23 (1)	20 (1)	19 (1)	62 (1)
30 - <40	143 (4)	161 (4)	149 (5)	453 (5)
40 - <50	621 (18)	681 (19)	489 (17)	1791 (18)
50 - <60	1054 (31)	1118 (31)	856 (30)	3028 (31)
60 - <70	881 (26)	961 (26)	769 (27)	2611 (26)
70 - <80	571 (17)	592 (16)	469 (16)	1632 (16)
≥ 80	129 (4)	113 (3)	100 (4)	342 (3)
Gender, No. (%)				
Male	2569 (75)	2797 (77)	2147 (75)	7513 (76)
Female	853 (25)	849 (23)	704 (25)	2406 (24)
Ethnic group, No. (%)				
Malay	1684 (49)	1740 (48)	1426 (50)	4850 (49)
Chinese	786 (23)	853 (23)	660 (23)	2299 (23)
Indian	799 (23)	847 (23)	601 (21)	2247 (23)
Orang Asli	0 (0)	2 (0)	0 (0)	2 (0)
Kadazan	2 (0)	26 (1)	9 (0)	37 (0)
Melanau	0 (0)	0 (0)	2 (0)	2 (0)
Bajau	1 (0)	28 (1)	24 (1)	53 (1)
Bidayuh	28 (1)	12 (0)	15 (1)	55 (1)
Iban	48 (1)	41 (1)	31 (1)	120 (1)
Sikh	1 (0)	4 (0)	4 (0)	9 (0)
Other Malaysian	36 (1)	46 (1)	26 (1)	108 (1)
Foreigner	37 (1)	43 (1)	45 (2)	125 (1)
Not Available	0 (0)	4 (0)	8 (0)	12 (0)

Table 2.1 Summary of characteristics for patients with ACS, NCVD-ACS Registry, 2006-2008

Year	2006	2007	2008	Total
Total	3422	3646	2851	9919
OTHER CORONARY RISK FACTORS				
Smoking, No. (%)				
Never	1370 (40)	1358 (37)	1013 (36)	3741 (38)
Former (quit >30 days)	805 (24)	818 (22)	555 (19)	2178 (22)
Current (any tobacco use within last 30 days)	1138 (33)	1250 (34)	971 (34)	3359 (34)
Unknown	109 (3)	220 (6)	312 (11)	641 (6)
Family history of Premature Cardiovascular Disease, No. (%)				
Yes	404 (12)	478 (13)	260 (9)	1142 (12)
No	1684 (49)	2201 (60)	1693 (59)	5578 (56)
Unknown	1334 (39)	967 (27)	898 (31)	3199 (32)
ANTHROPOMETRIC				
BMI				
N	1926	1929	1604	5459
Mean (SD)	25.8 (4.4)	25.7 (4.2)	25.3 (4.1)	25.6 (4.3)
Median (min, max)	25.2 (13.2, 60.4)	25.2 (13.3, 51.9)	24.8 (13.9, 50.9)	25.1 (13.2, 60.4)
IQR	4.9	5	4.8	4.9
BMI, kg/m², No. (%)				
<18.5	58 (3)	32 (2)	57 (4)	147 (3)
18.5 - 23	426 (22)	465 (24)	378 (24)	1269 (23)
>23	1442 (75)	1432 (74)	1169 (73)	4043 (74)
WHR				
N	1394	1572	1303	4269
Mean (SD)	0.97 (.09)	1.02 (2.42)	0.95 (.08)	0.98 (1.47)
Median (min, max)	0.96 (0.46, 1.85)	0.96 (0.36, 97.02)	0.95 (0.38, 1.57)	0.96 (0.36, 97.02)
IQR	0.09	0.07	0.07	0.07
WHR, No. (%)				
Men	1091	1250	1026	3367
≤1.0	786 (72)	977 (78)	827 (81)	2590 (77)
>1.0	305 (28)	273 (22)	199 (19)	777 (23)

Table 2.1 Summary of characteristics for patients with ACS, NCVD-ACS Registry, 2006-2008

Year	2006	2007	2008	Overall
Total	3422	3646	2851	9919
Women	303	322	277	902
≤0.85	35 (12)	40 (12)	33 (12)	108 (12)
>0.85	268 (88)	282 (88)	244 (88)	794 (88)
Waist circumference, cm				
N	1502	1676	1357	4535
Mean (SD)	89.7 (14.4)	88.1 (15.4)	87.8 (13.7)	88.5 (14.6)
Median (min, max)	90 (36, 160)	89 (36, 162)	88 (36, 153)	89 (36, 162)
IQR	13	15	15	15
Waist circumference, cm, No. (%)				
Men	1162	1323	1065	3550
≤90	586 (50)	718 (54)	617 (58)	1921 (54)
>90	576 (50)	605 (46)	448 (42)	1629 (46)
Women	340	353	292	985
≤80	68 (20)	91 (26)	77 (26)	236 (24)
>80	272 (80)	262 (74)	215 (74)	749 (76)
CO-MORBIDITY				
Dyslipidaemia, No. (%)				
Yes	1131 (33)	1291 (35)	883 (31)	3305 (33)
No	902 (26)	1185 (33)	996 (35)	3083 (31)
Unknown	1389 (41)	1170 (32)	972 (34)	3531 (36)
Hypertension, No. (%)				
Yes	2084 (61)	2279 (63)	1602 (56)	5965 (60)
No	786 (23)	930 (26)	768 (27)	2484 (25)
Unknown	552 (16)	437 (12)	481 (17)	1470 (15)
Diabetes, No. (%)				
Yes	1497 (44)	1599 (44)	1098 (39)	4194 (42)
No	1226 (36)	1526 (42)	1207 (42)	3959 (40)
Unknown	699 (20)	521 (14)	546 (19)	1766 (18)
Fasting blood glucose, mmol/L				
N	2561	2717	1901	7179
Mean (SD)	8.2 (4)	8 (3.7)	7.9 (3.7)	8 (3.8)
Median (min, max)	6.8 (3, 29.9)	6.7 (3, 28.5)	6.6 (3, 29.8)	6.7 (3, 29.9)
IQR	3.9	3.7	3.2	3.7

Table 2.1 Summary of characteristics for patients with ACS, NCVD-ACS Registry, 2006-2008

Year	2006	2007	2008	Overall
Total	3422	3646	2851	9919
Myocardial infarction history, No. (%)				
Yes	562 (16)	656 (18)	375 (13)	1593 (16)
No	1847 (54)	2423 (66)	1845 (65)	6115 (62)
Unknown	1013 (30)	567 (16)	631 (22)	2211 (22)
Documented CAD>50% stenosis, No. (%)				
Yes	508 (15)	661 (18)	417 (15)	1586 (16)
No	1734 (51)	2241 (61)	1557 (55)	5532 (56)
Unknown	1180 (34)	744 (20)	877 (31)	2801 (28)
Chronic angina (onset more than 2 weeks ago), No. (%)				
Yes	502 (15)	403 (11)	242 (8)	1147 (12)
No	2012 (59)	2689 (74)	1973 (69)	6674 (67)
Unknown	908 (27)	554 (15)	636 (22)	2098 (21)
New onset angina (less than 2 weeks ago), No. (%)				
Yes	1532 (45)	1944 (53)	1362 (48)	4838 (49)
No	1160 (34)	1274 (35)	970 (34)	3404 (34)
Unknown	730 (21)	428 (12)	519 (18)	1677 (17)
Heart failure, No. (%)				
Yes	284 (8)	248 (7)	141 (5)	673 (7)
No	2289 (67)	2872 (79)	2124 (75)	7285 (73)
Unknown	849 (25)	526 (14)	586 (21)	1961 (20)
Chronic lung disease, No. (%)				
Yes	130 (4)	103 (3)	91 (3)	324 (3)
No	2431 (71)	3027 (83)	2148 (75)	7606 (77)
Unknown	861 (25)	516 (14)	612 (21)	1989 (20)
Renal disease, No. (%)				
Yes	253 (7)	236 (6)	155 (5)	644 (6)
No	2305 (67)	2890 (79)	2085 (73)	7280 (73)
Unknown	864 (25)	520 (14)	611 (21)	1995 (20)

Table 2.1 Summary of characteristics for patients with ACS, NCVD-ACS Registry, 2006-2008

Year	2006	2007	2008	Overall
Total	3422	3646	2851	9919
Cerebrovascular disease, No. (%)				
Yes	149 (4)	127 (3)	83 (3)	359 (4)
No	2420 (71)	3012 (83)	2149 (75)	7581 (76)
Unknown	853 (25)	507 (14)	619 (22)	1979 (20)
Peripheral vascular disease, No. (%)				
Yes	37 (1)	25 (1)	18 (1)	80 (1)
No	2492 (73)	3066 (84)	2191 (77)	7749 (78)
Unknown	893 (26)	555 (15)	642 (23)	2090 (21)
None of the above, No. (%)				
Yes	52 (2)	71 (2)	112 (4)	235 (2)
No	3089 (90)	3306 (91)	2350 (82)	8745 (88)
Unknown	281 (8)	269 (7)	389 (14)	939 (9)
Coronary artery disease, No. (%)**				
Yes	2199 (64)	2500 (69)	1676 (59)	6375 (64)
No	532 (16)	697 (19)	619 (22)	1848 (19)
Unknown	691 (20)	449 (12)	556 (20)	1696 (17)

* 'Unknown' includes patients who do not know their co-morbidities and missing data

** Coronary artery disease is defined as "Yes" to any of the following co-morbidities: 1) History of myocardial infarction, 2) Documented CAD >50% stenosis, 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 2.2.1 Distribution of patients with ACS by SDP, NCVD-ACS Registry, 2006-2008

Year	2006		2007		2008		Overall	
Source Data Provider	No.	%	No.	%	No.	%	No.	%
Pusat Perubatan Universiti Malaya	802	23	623	17	337	12	1762	18
Hospital Pulau Pinang	482	14	605	17	483	17	1570	16
Hospital Kuala Lumpur	413	12	374	10	334	12	1121	11
Institut Jantung Negara	456	13	401	11	264	9	1121	11
Hospital Umum Sarawak	375	11	284	8	277	10	936	9
Hospital Tengku Ampuan Afzan	152	4	370	10	277	10	799	8
Hospital Sultanah Aminah	242	7	231	6	260	9	733	7
Hospital Tuanku Ja'afar	146	4	245	7	194	7	585	6
Hospital Raja Perempuan Zainab II	141	4	135	4	82	3	358	4
Hospital Melaka	-	-	113	3	146	5	259	3
Hospital Tuanku Fauziah	53	2	71	2	101	4	225	2
Hospital Sultanah Bahiyah	160	5	49	1	4	0	213	2
Hospital Queen Elizabeth	-	-	92	3	82	3	174	2
Hospital Raja Permaisuri Bainun	-	-	53	1	-	-	53	1
Hospital Tengku Ampuan Rahimah	-	-	-	-	10	0	10	0
TOTAL	3422	100	3646	100	2851	100	9919	100

*Each SDP started to contribute data at different time period

Note: Percentage is to the nearest decimal point

**Table 2.2.2 SDP-ethnicity distribution of patients with ACS, NCVD-ACS Registry, 2006-2008
(row percentage)**

Source Data Provider	Ethnic Group												
	Malay		Chinese		Indian		Others*		NA ⁺		Total		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
2006	Pusat Perubatan Universiti Malaya	264	33	180	22	335	42	23	3			802	100
	Institut Jantung Negara	216	47	85	19	141	31	14	3			456	100
	Hospital Kuala Lumpur	223	54	74	18	91	22	25	6			413	100
	Hospital Pulau Pinang	190	39	172	36	113	23	7	1			482	100
	Hospital Umum Sarawak	141	38	151	40	4	1	79	21			375	100
	Hospital Sultanah Aminah	128	53	66	27	46	19	2	1			242	100
	Hospital Sultanah Bahiyah	145	91	7	4	7	4	1	1			160	100
	Hospital Tuanku Ja'afar	71	49	23	16	52	36	0	0			146	100
	Hospital Tuanku Fauziah	49	92	1	2	2	4	1	2			53	100
	Hospital Raja Perempuan Zainab II	134	95	7	5	0	0	0	0			141	100
2007	Hospital Tengku Ampuan Afzan	123	81	20	13	8	5	1	1			152	100
	Pusat Perubatan Universiti Malaya	220	35	150	24	236	38	16	3	1	0	623	100
	Institut Jantung Negara	179	45	88	22	123	31	11	3	0	0	401	100
	Hospital Kuala Lumpur	175	47	48	13	126	34	25	7	0	0	374	100
	Hospital Pulau Pinang	217	36	215	36	163	27	8	1	2	0	605	100
	Hospital Umum Sarawak	96	34	128	45	5	2	54	19	1	0	284	100
	Hospital Sultanah Aminah	114	49	57	25	50	22	10	4	0	0	231	100
	Hospital Sultanah Bahiyah	42	86	6	12	1	2	0	0	0	0	49	100
	Hospital Tuanku Ja'afar	101	41	53	22	85	35	6	2	0	0	245	100
	Hospital Tuanku Fauziah	61	86	5	7	3	4	2	3	0	0	71	100
	Hospital Raja Permaisuri Bainun	30	57	8	15	13	25	2	4	0	0	53	100
	Hospital Raja Perempuan Zainab II	133	99	1	1	0	0	1	1	0	0	135	100
	Hospital Queen Elizabeth	9	10	16	17	3	3	64	70	0	0	92	100
	Hospital Tengku Ampuan Afzan	294	79	54	15	20	5	2	1	0	0	370	100
	Hospital Melaka	69	61	24	21	19	17	1	1	0	0	113	100
2008	Pusat Perubatan Universiti Malaya	114	34	76	23	128	38	17	5	2	1	337	100
	Institut Jantung Negara	103	39	52	20	99	38	10	4	0	0	264	100
	Hospital Kuala Lumpur	170	51	47	14	96	29	21	6	0	0	334	100
	Hospital Pulau Pinang	177	37	194	40	107	22	3	1	2	0	483	100
	Hospital Umum Sarawak	129	47	96	35	1	0	50	18	1	0	277	100
	Hospital Sultanah Aminah	143	55	52	20	57	22	8	3	0	0	260	100
	Hospital Sultanah Bahiyah	4	100	0	0	0	0	0	0	0	0	4	100
	Hospital Tuanku Ja'afar	93	48	36	19	64	33	1	1	0	0	194	100
	Hospital Tuanku Fauziah	90	89	7	7	1	1	2	2	1	1	101	100
	Hospital Raja Perempuan Zainab II	79	96	2	2	0	0	1	1	0	0	82	100
	Hospital Queen Elizabeth	9	11	29	35	4	5	39	48	1	1	82	100
	Hospital Tengku Ampuan Afzan	210	76	46	17	17	6	4	1	0	0	277	100
	Hospital Melaka	102	70	22	15	21	14	0	0	1	1	146	100
	Hospital Tengku	3	30	1	10	6	60	0	0	0	0	10	100

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

⁺ NA = Not Available

Note: Percentage is to the nearest decimal point

Table 2.2.3 SDP-gender distribution of patients with ACS, NCVD-ACS Registry, 2006-2008 (row percentage)

Source Data Provider	Gender										2008										
	2006					2007					2008										
	Male		Female		Total	Male		Female		Total	Male		Female		Total						
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	No.	%	No.	%	No.	%
Pusat Perubatan Universiti Malaya	588	73	214	27	802	100	424	68	199	32	623	100	231	69	106	31	337	100			
Institut Jantung Negara	357	78	99	22	456	100	306	76	95	24	401	100	202	77	62	23	264	100			
Hospital Kuala Lumpur	329	80	84	20	413	100	308	82	66	18	374	100	273	82	61	18	334	100			
Hospital Pulau Pinang	366	76	116	24	482	100	433	72	172	28	605	100	360	75	123	25	483	100			
Hospital Umum Sarawak	263	70	112	30	375	100	211	74	73	26	284	100	213	77	64	23	277	100			
Hospital Sultanah Aminah	212	88	30	12	242	100	210	91	21	9	231	100	230	88	30	12	260	100			
Hospital Sultanah Bahiyah	103	64	57	36	160	100	36	73	13	27	49	100	4	100	0	0	4	100			
Hospital Tuanku Ja'afar	77	53	69	47	146	100	167	68	78	32	245	100	84	43	110	57	194	100			
Hospital Tuanku Fauziah	45	85	8	15	53	100	67	94	4	6	71	100	86	85	15	15	101	100			
Hospital Raja Perempuan Zainab II	109	77	32	23	141	100	116	86	19	14	135	100	73	89	9	11	82	100			
Hospital Tengku Ampuan Afzan	120	79	32	21	152	100	301	81	69	19	370	100	203	73	74	27	277	100			
Hospital Raja Permaisuri Bainun							46	87	7	13	53	100									
Hospital Queen Elizabeth							81	88	11	12	92	100	67	82	15	18	82	100			
Hospital Melaka							91	81	22	19	113	100	113	77	33	23	146	100			
Hospital Tengku Ampuan Rahimah											8	80	2	20	10	10	100				

Note: Percentage is to the nearest decimal point

Table 2.3 Age-gender distribution of patients with ACS, NCVD-ACS Registry, 2006-2008

	Age	Gender					
		Male		Female		Total	
		No.	%	No.	%	No.	%
2006	20 - <30	22	1	1	0	23	1
	30 - <40	131	5	12	1	143	4
	40 - <50	541	21	80	9	621	18
	50 - <60	888	35	166	19	1054	31
	60 - <70	616	24	265	31	881	26
	70 - <80	306	12	265	31	571	17
	≥80	65	3	64	8	129	4
	Total	2569	100	853	100	3422	100
2007	20 - <30	18	1	2	0	20	1
	30 - <40	147	5	14	2	161	4
	40 - <50	589	21	92	11	681	19
	50 - <60	929	33	189	22	1118	31
	60 - <70	704	25	257	30	961	26
	70 - <80	348	12	244	29	592	16
	≥80	62	2	51	6	113	3
	Total	2797	100	849	100	3646	100
2008	20 - <30	19	1	0	0	19	1
	30 - <40	135	6	14	2	149	5
	40 - <50	432	20	57	8	489	17
	50 - <60	704	33	152	22	856	30
	60 - <70	547	25	222	32	769	27
	70 - <80	259	12	210	30	469	16
	≥80	51	2	49	7	100	4
	Total	2147	100	704	100	2851	100
Overall	20 - <30	59	1	3	0	62	1
	30 - <40	413	5	40	2	453	5
	40 - <50	1562	21	229	10	1791	18
	50 - <60	2521	34	507	21	3028	31
	60 - <70	1867	25	744	31	2611	26
	70 - <80	913	12	719	30	1632	16
	≥80	178	2	164	7	342	3
	Total	7513	100	2406	100	9919	100

Note: Percentage is to the nearest decimal point

Table 2.4.1 Age-gender distribution of patients with ACS by ethnic group, NCVD-ACS Registry, 2006-2008

Year	Gender	Age group	Ethnic groups									
			Malay		Chinese		Indian		Others*		Not Available	
			No.	%	No.	%	No.	%	No.	%	No.	%
2006	Male	20 - <30	10	1	5	1	5	1	2	2		
		30 - <40	67	5	25	4	28	5	11	9		
		40 - <50	286	22	91	16	133	23	31	26		
		50 - <60	445	34	183	33	227	39	33	28		
		60 - <70	324	25	137	24	130	22	25	21		
		70 - <80	148	11	95	17	48	8	15	13		
		≥80	24	2	25	4	15	3	1	1		
		Total	1304	100	561	100	586	100	118	100		
2006	Female	20 - <30	1	0	0	0	0	0	0	0		
		30 - <40	5	1	3	1	4	2	0	0		
		40 - <50	41	11	7	3	32	15	0	0		
		50 - <60	88	23	28	12	45	21	5	14		
		60 - <70	117	31	68	30	62	29	18	51		
		70 - <80	111	29	91	40	53	25	10	29		
		≥80	17	4	28	12	17	8	2	6		
		Total	380	100	225	100	213	100	35	100		
2007	Male	20 - <30	10	1	3	0	3	1	2	1	0	0
		30 - <40	65	5	21	3	43	7	18	10	0	0
		40 - <50	304	22	94	15	155	26	36	21	0	0
		50 - <60	474	34	186	29	213	36	54	31	2	100
		60 - <70	350	25	203	32	108	18	43	25	0	0
		70 - <80	167	12	111	17	54	9	16	9	0	0
		≥80	25	2	18	3	15	3	4	2	0	0
		Total	1395	100	636	100	591	100	173	100	2	100
2007	Female	20 - <30	1	0	0	0	1	0	0	0	0	0
		30 - <40	2	1	4	2	6	2	2	7	0	0
		40 - <50	39	11	12	6	36	14	5	17	0	0
		50 - <60	74	21	29	13	79	31	7	24	0	0
		60 - <70	124	36	65	30	62	24	6	21	0	0
		70 - <80	90	26	81	37	64	25	7	24	2	100
		≥80	15	4	26	12	8	3	2	7	0	0
		Total	345	100	217	100	256	100	29	100	2	100

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

Table 2.4.1 Age-gender distribution of patients with ACS by ethnic group, NCVD-ACS Registry, 2006-2008

Year	Gender	Age group	Ethnic groups									
			Malay		Chinese		Indian		Others*		Not Available	
			No.	%	No.	%	No.	%	No.	%	No.	%
2008	Male	20 - <30	9	1	3	1	5	1	2	2	0	0
		30 - <40	67	6	17	4	37	9	13	10	1	20
		40 - <50	239	21	54	11	101	24	37	28	1	20
		50 - <60	378	34	130	28	151	35	43	33	2	40
		60 - <70	283	25	163	35	77	18	24	18	0	0
		70 - <80	116	10	88	19	45	11	9	7	1	20
		≥80	23	2	15	3	11	3	2	2	0	0
		Total	1115	100	470	100	427	100	130	100	5	100
2008	Female	20 - <30	0	0	0	0	0	0	0	0	0	0
		30 - <40	7	2	3	2	3	2	1	4	0	0
		40 - <50	31	10	1	1	23	13	2	8	0	0
		50 - <60	76	24	32	17	37	21	7	27	0	0
		60 - <70	93	30	59	31	64	37	5	19	1	33
		70 - <80	89	29	72	38	37	21	11	42	1	33
		≥80	15	5	23	12	10	6	0	0	1	33
		Total	311	100	190	100	174	100	26	100	3	100

*'Others' includes Orang asli, Kadazan, Melana, 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, 2006-2008

Year	Gender	Age group	Pre-morbid diabetes					
			Diabetic		Non-diabetic		Unknown	
			No.	%	No.	%	No.	%
2006	Male	20 - <30	1	0	15	2	6	1
		30 - <40	31	3	60	6	41	7
		40 - <50	193	19	212	22	135	23
		50 - <60	401	39	287	30	191	33
		60 - <70	259	25	225	23	130	22
		70 - <80	115	11	128	13	62	11
		≥80	18	2	32	3	15	3
		Total	1018	100	959	100	580	100
2006	Female	20 - <30	0	0	0	0	1	1
		30 - <40	4	1	3	1	4	4
		40 - <50	45	9	23	9	13	12
		50 - <60	96	20	45	17	23	21
		60 - <70	150	31	82	31	32	29
		70 - <80	156	33	86	33	25	23
		≥80	26	5	25	9	13	12
		Total	477	100	264	100	111	100

Table 2.4.2 Age-gender distribution of patients with ACS by pre-morbid diabetes, NCVD-ACS Registry, 2006-2008

Year	Gender	Age group	Pre-morbid diabetes					
			Diabetic		Non-diabetic		Unknown	
			No.	%	No.	%	No.	%
2007	Male	20 - <30	5	0	5	0	8	2
		30 - <40	30	3	84	7	33	8
		40 - <50	198	18	276	22	116	26
		50 - <60	385	35	404	32	140	32
		60 - <70	316	29	307	24	80	18
		70 - <80	142	13	160	13	46	11
		≥80	17	2	30	2	15	3
		Total	1093	100	1266	100	438	100
2008	Female	20 - <30	1	0	1	0	0	0
		30 - <40	5	1	9	3	0	0
		40 - <50	57	11	24	9	11	13
		50 - <60	119	24	50	19	20	24
		60 - <70	155	31	77	30	25	30
		70 - <80	147	29	75	29	22	27
		≥80	22	4	24	9	5	6
		Total	506	100	260	100	83	100
2008	Male	20 - <30	1	0	12	1	6	1
		30 - <40	35	5	66	7	35	8
		40 - <50	116	16	226	23	90	21
		50 - <60	246	34	313	31	143	34
		60 - <70	208	29	243	24	97	23
		70 - <80	104	14	115	12	40	9
		≥80	12	2	25	3	14	3
		Total	722	100	1000	100	425	100
2008	Female	20 - <30	0	0	0	0	0	0
		30 - <40	5	1	7	3	2	2
		40 - <50	34	9	18	9	5	4
		50 - <60	91	24	45	22	16	13
		60 - <70	135	36	53	26	34	28
		70 - <80	93	25	70	34	47	39
		≥80	18	5	14	7	17	14
		Total	376	100	207	100	121	100

Table 2.4.3 Age-gender distribution of patients with ACS by pre-morbid hypertension, NCVD-ACS Registry, 2006-2008

Year	Gender	Age group	Pre-morbid hypertension					
			Hypertensive		Non-hypertensive		Unknown	
			No.	%	No.	%	No.	%
2006	Male	20 - <30	2	0	15	2	5	1
		30 - <40	38	3	56	8	38	8
		40 - <50	236	17	177	26	127	27
		50 - <60	508	36	229	34	142	31
		60 - <70	393	28	125	18	96	21
		70 - <80	196	14	63	9	46	10
		≥80	39	3	16	2	10	2
		Total	1412	100	681	100	464	100
2007	Female	20 - <30	0	0	0	0	1	1
		30 - <40	5	1	3	3	3	4
		40 - <50	52	8	14	13	15	19
		50 - <60	128	19	23	22	13	16
		60 - <70	213	32	32	30	19	23
		70 - <80	214	32	27	26	26	32
		≥80	54	8	6	6	4	5
		Total	666	100	105	100	81	100
2007	Male	20 - <30	7	0	4	0	7	2
		30 - <40	52	3	62	8	33	9
		40 - <50	250	16	234	29	106	28
		50 - <60	556	34	247	31	126	33
		60 - <70	462	29	174	22	67	18
		70 - <80	248	15	73	9	27	7
		≥80	37	2	11	1	14	4
		Total	1612	100	805	100	380	100
2007	Female	20 - <30	1	0	1	1	0	0
		30 - <40	5	1	8	6	1	2
		40 - <50	62	9	21	17	9	16
		50 - <60	138	21	34	27	17	30
		60 - <70	219	33	22	18	16	28
		70 - <80	204	31	28	22	12	21
		≥80	38	6	11	9	2	4
		Total	667	100	125	100	57	100

Table 2.4.3 Age-gender distribution of patients with ACS by pre-morbid hypertension, NCVD-ACS Registry, 2006-2008

Year	Gender	Age group	Pre-morbid hypertension					
			Hypertensive		Non-hypertensive		Unknown	
			No.	%	No.	%	No.	%
2008	Male	20 - <30	5	0	8	1	6	2
		30 - <40	45	4	61	9	30	8
		40 - <50	170	16	179	26	83	22
		50 - <60	343	32	227	33	132	34
		60 - <70	338	31	129	19	81	21
		70 - <80	159	15	60	9	40	10
		≥80	24	2	16	2	11	3
		Total	1084	100	680	100	383	100
2008	Female	20 - <30	0	0	0	0	0	0
		30 - <40	5	1	6	7	3	3
		40 - <50	38	7	12	14	7	7
		50 - <60	118	23	21	24	13	13
		60 - <70	173	33	22	25	27	28
		70 - <80	152	29	24	27	34	35
		≥80	32	6	3	3	14	14
		Total	518	100	88	100	98	100

Table 2.4.4 Age-gender distribution of patients with ACS by pre-morbid dyslipidaemia, NCVD-ACS Registry, 2006-2008

Year	Gender	Age group	Pre-morbid dyslipidaemia					
			Yes		No		Unknown	
			No.	%	No.	%	No.	%
2006	Male	20 - <30	2	0	11	2	9	1
		30 - <40	28	4	45	7	59	5
		40 - <50	145	18	152	22	243	23
		50 - <60	267	34	230	33	382	36
		60 - <70	238	30	140	20	236	22
		70 - <80	97	12	92	13	116	11
		≥80	15	2	22	3	28	3
		Total	792	100	692	100	1073	100
2006	Female	20 - <30	0	0	0	0	1	0
		30 - <40	2	1	1	0	8	3
		40 - <50	27	8	24	11	30	10
		50 - <60	65	19	48	22	51	17
		60 - <70	109	33	65	30	90	30
		70 - <80	116	35	55	26	96	32
		≥80	15	4	22	10	27	9
		Total	334	100	215	100	303	100

Table 2.4.4 Age-gender distribution of patients with ACS by pre-morbid dyslipidaemia, NCVD-ACS Registry, 2006-2008

Year	Gender	Age group	Pre-morbid dyslipidaemia					
			Yes		No		Unknown	
			No.	%	No.	%	No.	%
2007	Male	20 - <30	7	1	2	0	9	1
		30 - <40	35	4	62	7	50	6
		40 - <50	191	20	179	19	220	24
		50 - <60	327	34	319	34	283	32
		60 - <70	250	26	247	27	206	23
		70 - <80	140	14	98	11	110	12
		≥80	24	2	18	2	20	2
		Total	974	100	925	100	898	100
2008	Female	20 - <30	1	0	1	0	0	0
		30 - <40	5	2	6	2	3	1
		40 - <50	30	9	33	13	29	11
		50 - <60	58	18	59	23	72	26
		60 - <70	109	34	74	28	74	27
		70 - <80	95	30	73	28	76	28
		≥80	19	6	14	5	18	7
		Total	317	100	260	100	272	100
2008	Male	20 - <30	1	0	10	1	8	1
		30 - <40	29	5	50	6	57	8
		40 - <50	106	17	162	20	164	22
		50 - <60	210	34	249	31	243	33
		60 - <70	192	31	194	24	162	22
		70 - <80	74	12	106	13	79	11
		≥80	6	1	27	3	18	2
		Total	618	100	798	100	731	100
2008	Female	20 - <30	0	0	0	0	0	0
		30 - <40	3	1	3	2	8	3
		40 - <50	19	7	24	12	14	6
		50 - <60	56	21	52	26	44	18
		60 - <70	93	35	55	28	74	31
		70 - <80	82	31	52	26	76	32
		≥80	12	5	12	6	25	10
		Total	265	100	198	100	241	100

Table 2.4.5 Age-gender distribution of patients with ACS by family history of premature cardiovascular disease, NCVD-ACS Registry, 2006-2008

Year	Gender	Age group	Family history of premature cardiovascular disease					
			Yes		No		Unknown	
			No.	%	No.	%	No.	%
2006	Male	20 - <30	3	1	13	1	6	1
		30 - <40	36	11	56	5	40	4
		40 - <50	94	28	251	20	195	20
		50 - <60	129	38	393	32	357	36
		60 - <70	58	17	309	25	247	25
		70 - <80	14	4	176	14	115	12
		≥80	2	1	37	3	26	3
		Total	336	100	1235	100	986	100
2007	Female	20 - <30	0	0	0	0	1	0
		30 - <40	2	3	2	0	7	2
		40 - <50	22	33	33	7	26	8
		50 - <60	14	21	86	19	64	19
		60 - <70	16	24	156	35	92	27
		70 - <80	12	18	138	31	117	35
		≥80	1	1	35	8	28	8
		Total	67	100	450	100	335	100
2007	Male	20 - <30	2	1	11	1	5	1
		30 - <40	28	7	81	5	38	5
		40 - <50	116	30	319	19	155	21
		50 - <60	128	33	556	33	245	34
		60 - <70	79	20	452	27	172	24
		70 - <80	26	7	227	14	95	13
		≥80	10	3	34	2	18	2
		Total	389	100	1680	100	728	100
2007	Female	20 - <30	0	0	2	0	0	0
		30 - <40	4	4	10	2	0	0
		40 - <50	22	25	52	10	18	8
		50 - <60	22	25	119	23	48	20
		60 - <70	24	27	149	29	84	35
		70 - <80	15	17	155	30	74	31
		≥80	2	2	34	7	15	6
		Total	89	100	521	100	239	100

Table 2.4.5 Age-gender distribution of patients with ACS by family history of premature cardiovascular disease, NCVD-ACS Registry, 2006-2008

Year	Gender	Age group	Family history of premature cardiovascular disease					
			Yes		No		Unknown	
			No.	%	No.	%	No.	%
2008	Male	20 - <30	4	2	10	1	5	1
		30 - <40	28	13	67	5	41	6
		40 - <50	71	33	242	19	119	19
		50 - <60	68	32	426	33	208	33
		60 - <70	33	15	357	27	158	25
		70 - <80	10	5	164	13	85	13
		≥80	0	0	34	3	17	3
		Total	214	100	1300	100	633	100
2008	Female	20 - <30	0	0	0	0	0	0
		30 - <40	1	2	10	3	3	1
		40 - <50	7	15	36	9	14	5
		50 - <60	19	41	80	20	53	20
		60 - <70	12	26	128	33	82	31
		70 - <80	6	13	115	29	89	34
		≥80	1	2	24	6	24	9
		Total	46	100	393	100	265	100

Table 2.4.6 Age-gender distribution of patients with ACS by smoking status, NCVD-ACS Registry, 2006-2008

Year	Gender	Age group	Smoking status					
			Never		Former (quit more than 30days)		Current (any tobacco used within 30days)	
			No.	%	No.	%	No.	%
2006	Male	20 - <30	2	0	1	0	19	2
		30 - <40	12	2	19	3	98	9
		40 - <50	112	18	103	14	315	28
		50 - <60	203	33	247	33	394	36
		60 - <70	189	31	204	27	198	18
		70 - <80	84	14	135	18	75	7
		≥80	16	3	38	5	9	1
		Total	618	100	747	100	1108	100
2006	Female	20 - <30	0	0	0	0	1	4
		30 - <40	11	1	0	0	0	0
		40 - <50	76	10	2	4	2	7
		50 - <60	146	19	6	12	5	19
		60 - <70	232	31	18	35	10	37
		70 - <80	231	31	17	33	8	30
		≥80	54	7	9	17	1	4
		Total	750	100	52	100	27	100

Table 2.4.6 Age-gender distribution of patients with ACS by smoking status, NCVD-ACS Registry, 2006-2008

Year	Gender	Age group	Smoking status							
			Never		Former (quit more than 30days)		Current (any tobacco used within 30days)		Unknown	
			No.	%	No.	%	No.	%	No.	%
2007	Male	20 - <30	4	1	1	0	13	1	0	0
		30 - <40	22	3	28	4	91	7	6	4
		40 - <50	108	17	104	13	361	30	17	11
		50 - <60	220	34	238	31	416	34	55	35
		60 - <70	175	27	256	33	227	19	45	29
		70 - <80	98	15	124	16	99	8	27	17
		≥80	16	2	26	3	14	1	6	4
		Total	643	100	777	100	1221	100	156	100
2008	Female	20 - <30	2	0	0	0	0	0	0	0
		30 - <40	12	2	0	0	2	7	0	0
		40 - <50	83	12	1	2	3	10	5	8
		50 - <60	163	23	8	20	5	17	13	20
		60 - <70	219	31	8	20	8	28	22	34
		70 - <80	194	27	20	49	9	31	21	33
		≥80	42	6	4	10	2	7	3	5
		Total	715	100	41	100	29	100	64	100
2008	Male	20 - <30	2	0	1	0	14	1	2	1
		30 - <40	11	2	16	3	87	9	22	10
		40 - <50	71	16	68	13	264	28	29	13
		50 - <60	139	31	159	31	333	35	71	31
		60 - <70	140	31	167	32	186	20	55	24
		70 - <80	71	16	92	18	56	6	40	18
		≥80	18	4	15	3	9	1	9	4
		Total	452	100	518	100	949	100	228	100
2008	Female	20 - <30	0	0	0	0	0	0	0	0
		30 - <40	13	2	0	0	0	0	1	1
		40 - <50	49	9	1	3	2	9	5	6
		50 - <60	124	22	10	27	4	18	14	17
		60 - <70	180	32	9	24	7	32	26	31
		70 - <80	157	28	17	46	8	36	28	33
		≥80	38	7	0	0	1	5	10	12
		Total	561	100	37	100	22	100	84	100

Table 2.5 Presence of cumulative risk factors, NCVD-ACS Registry, 2006-2008

Year	2006		2007		2008		Overall	
Total	3422		3646		2851		9919	
Presence of cumulative risk factors*	No.	%	No.	No.	%	%	No.	%
None	143	4	156	4	183	6	482	5
1 risk factor	634	19	641	18	642	23	1917	19
2 risk factors	987	29	1069	29	810	28	2866	29
3 risk factors	938	27	980	27	713	25	2631	27
>3 risk factors	720	21	800	22	503	18	2023	20

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

Table 2.6 Summary of type of cardiac presentation for patients with ACS, NCVD-ACS Registry, 2006-2008

Year	2006		2007		2008		Total	
Total	3422		3646		2851		9919	
Acute coronary syndrome stratum	No	%	No	%	No	%	No	%
STEMI	1445	42	1687	46	1534	54	4666	47
NSTEMI	1132	33	1001	27	662	23	2795	28
Unstable Angina (UA)	845	25	958	26	655	23	2458	25

Note: Percentage is to the nearest decimal point

Table 2.7 Characteristics of patients with ACS by ACS stratum, NCVD-ACS Registry, 2006-2008

Year	2006				2007				2008				Overall		
	ACS Stratum	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI
Total	1445	1132	845	1687	1001	958	1534	662	655	4666	2795	2458			
DEMOGRAPHICS															
Age, years															
N	1445	1132	845	1687	1001	958	1534	662	655	4666	2795	2458			
Mean (SD)	56 (12)	62 (11)	60 (11)	57 (12)	61 (11)	61 (12)	57 (12)	63 (11)	61 (12)	57 (12)	62 (11)	61 (12)			
Median (min, max)	56 (21, 93)	63 (23, 100)	60 (32, 92)	56 (25, 95)	61 (26, 89)	61 (27, 91)	56 (21, 94)	63 (22, 90)	61 (24, 90)	56 (21, 95)	62 (22, 10)	61 (24, 92)			
IQR	17	16	17	16	16	17	17	17	17	17	17	16	17		
Age group, No. (%)															
20 - <30	22 (2)	1 (0)	0 (0)	10 (1)	4 (0)	6 (1)	14 (1)	2 (0)	3 (0)	46 (1)	7 (0)	9 (0)			
30 - <40	91 (6)	27 (2)	25 (3)	102 (6)	32 (3)	27 (3)	104 (7)	15 (2)	30 (5)	297 (6)	74 (3)	82 (3)			
40 - <50	343 (24)	139 (12)	139 (16)	404 (24)	129 (13)	148 (15)	337 (22)	75 (11)	77 (12)	1084 (23)	343 (12)	364 (15)			
50 - <60	460 (32)	330 (29)	264 (31)	549 (33)	294 (29)	275 (29)	477 (31)	184 (28)	195 (30)	1486 (32)	808 (29)	734 (30)			
60 - <70	318 (22)	334 (30)	229 (27)	398 (24)	295 (29)	268 (28)	371 (24)	195 (29)	203 (31)	1087 (23)	824 (29)	700 (28)			
70 - <80	180 (12)	244 (22)	147 (17)	186 (11)	206 (21)	200 (21)	189 (12)	158 (24)	122 (19)	555 (12)	608 (22)	469 (19)			
≥80	31 (2)	57 (5)	41 (5)	38 (2)	41 (4)	34 (4)	42 (3)	33 (5)	25 (4)	111 (2)	131 (5)	100 (4)			
Gender, No. (%)															
Male	1230 (85)	779 (69)	560 (66)	1447 (86)	700 (70)	650 (68)	1281 (84)	457 (69)	409 (62)	3958 (85)	1936 (69)	1619 (66)			
Female	215 (15)	353 (31)	285 (34)	240 (14)	301 (30)	308 (32)	253 (16)	205 (31)	246 (38)	708 (15)	859 (31)	839 (34)			

Table 2.7 Characteristics of patients with ACS by ACS stratum, NCVD-ACS Registry, 2006-2008

Year	ACS Stratum	2006			2007			2008			Overall		
		STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA
Total		1445	1132	845	1687	1001	958	1534	662	655	4666	2795	2458
Ethnic group, No. (%)													
Malay	780 (54)	514 (45)	390 (46)	893 (53)	457 (46)	390 (41)	852 (56)	310 (47)	264 (40)	2525 (54)	1281 (46)	1044 (42)	
Chinese	301 (21)	265 (23)	220 (26)	356 (21)	243 (24)	254 (27)	301 (20)	177 (27)	182 (28)	958 (21)	685 (25)	656 (27)	
Indian	286 (20)	303 (27)	210 (25)	322 (19)	246 (25)	279 (29)	271 (18)	139 (21)	191 (29)	879 (19)	688 (25)	680 (28)	
Orang Asli	0 (0)	0 (0)	0 (0)	1 (0)	1 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (0)	1 (0)	0 (0)
Kadazan	1 (0)	1 (0)	0 (0)	21 (1)	4 (0)	1 (0)	6 (0)	3 (0)	0 (0)	28 (1)	8 (0)	1 (0)	
Melanau	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (0)	0 (0)	1 (0)	1 (0)	0 (0)	0 (0)	1 (0)
Murut	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)
Bajau	1 (0)	0 (0)	0 (0)	21 (1)	6 (1)	1 (0)	18 (1)	5 (1)	1 (0)	40 (1)	11 (0)	2 (0)	
Bidayuh	16 (1)	9 (1)	3 (0)	5 (0)	6 (1)	1 (0)	9 (1)	6 (1)	0 (0)	30 (1)	21 (1)	4 (0)	
Iban	21 (1)	19 (2)	8 (1)	16 (1)	15 (1)	10 (1)	18 (1)	12 (2)	1 (0)	55 (1)	46 (2)	19 (1)	
Other Malaysian	12 (1)	14 (1)	11 (1)	2 (0)	1 (0)	1 (0)	4 (0)	0 (0)	0 (0)	6 (0)	1 (0)	2 (0)	
Foreigner	27 (2)	7 (1)	3 (0)	21 (1)	12 (1)	13 (1)	12 (1)	6 (1)	8 (1)	45 (1)	32 (1)	31 (1)	
Not Available	0 (0)	0 (0)	0 (0)	28 (2)	10 (1)	5 (1)	37 (2)	4 (1)	4 (1)	92 (2)	21 (1)	12 (0)	
OTHER CORONARY RISK FACTORS													
Smoking, No. (%)													
Never	417 (29)	551 (49)	402 (48)	480 (28)	424 (42)	454 (47)	438 (29)	292 (44)	283 (43)	1335 (29)	1267 (45)	1139 (46)	
Former (quit >30 days)	272 (19)	295 (26)	238 (28)	303 (18)	236 (24)	279 (29)	269 (18)	145 (22)	141 (22)	844 (18)	676 (24)	658 (27)	
Current (any tobacco use within last 30 days)	723 (50)	259 (23)	156 (18)	824 (49)	263 (26)	163 (17)	712 (46)	149 (23)	110 (17)	2259 (48)	671 (24)	429 (17)	
Unknown	33 (2)	27 (2)	49 (6)	80 (5)	78 (8)	62 (6)	115 (7)	76 (11)	121 (18)	228 (5)	181 (6)	232 (9)	

Table 2.7 Characteristics of patients with ACS by ACS stratum, NCVD-ACS Registry, 2006-2008

Year	ACS Stratum	2006				2007				2008				Overall		
		STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA
Total	1445	1132	845	1687	1001	958	1534	662	655	4666	2795	2458				
Family history of premature cardiovascular disease, No. (%)																
Yes	168 (12)	127 (11)	109 (13)	207 (12)	136 (14)	135 (14)	160 (10)	59 (9)	41 (6)	535 (11)	322 (12)	285 (12)				
No	742 (51)	550 (49)	392 (46)	1008 (60)	570 (57)	623 (65)	920 (60)	378 (57)	395 (60)	2670 (57)	1498 (54)	1410 (57)				
Unknown	535 (37)	455 (40)	344 (41)	472 (28)	295 (29)	200 (21)	454 (30)	225 (34)	219 (33)	1461 (31)	975 (35)	763 (31)				
Body Mass Index (BMI), kg/m ²																
N	831	698	397	916	525	488	871	408	325	2618	1631	1210				
Mean (SD)	25.69 (4.27)	25.45 (4.37)	26.46 (4.81)	25.67 (4.15)	25.8 (4.03)	25.78 (4.59)	25.41 (4.04)	24.95 (3.9)	25.47 (4.44)	25.59 (4.15)	25.44 (4.16)	25.92 (4.64)				
Median {min, max}	25.14 (13.15, 60.39)	25.05 (14.87, 59.93)	25.81 (14.87, 45.99)	25.1 (13.68, 44.98)	25.31 (14.67, 44.22)	25.11 (13.28, 51.92)	25.01 (14.67, 50.93)	24.45 (13.85, 42.46)	24.91 (14.53, 40.98)	25.1 (13.15, 60.39)	24.97 (13.85, 59.93)	25.28 (13.28, 51.92)				
IQR																
BMI, kg/m ² , No. (%)																
<18.5	21 (3)	24 (3)	13 (3)	18 (2)	6 (1)	8 (2)	26 (3)	20 (5)	11 (3)	65 (2)	50 (3)	32 (3)				
18.5-23	181 (22)	174 (25)	71 (18)	211 (23)	130 (25)	124 (25)	200 (23)	102 (25)	76 (23)	592 (23)	406 (25)	271 (22)				
>23	629 (76)	500 (72)	313 (79)	687 (75)	389 (74)	356 (73)	645 (74)	286 (70)	238 (73)	1961 (75)	1175 (72)	907 (75)				

Table 2.7 Characteristics of patients with ACS by ACS stratum, NCVD-ACS Registry, 2006-2008

Year	2006						2007						2008						Overall	
	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI
Total	1445	1132	845	1687	1001	958	1534	662	655	4666	2795	2458								
Waist to Hip Ratio (WHR)																				
N	643	454	297	643	454	297	765	302	236	2212	1147	910								
Mean (SD)	0.97 (0.08)	0.97 (0.09)	0.96 (0.10)	0.97 (0.08)	0.97 (0.09)	0.96 (0.10)	0.96 (0.07)	0.95 (0.06)	0.95 (0.09)	0.97 (0.04)	1 (0.08)	0.96 (0.09)								
Median (min, max)	0.96 (0.54, 1.63)	0.96 (0.67, 1.61)	0.96 (0.46, 1.85)	0.96 (0.54, 1.63)	0.96 (0.67, 1.61)	0.96 (0.67, 1.61)	0.96 (0.46, 1.85)	0.95 (0.38, 1.56)	0.95 (0.70, 1.15)	0.96 (0.70, 1.57)	0.96 (0.70, 1.57)	0.96 (0.38, 1.51)	0.96 (0.36, 1.85)	0.96 (0.36, 1.51)	0.96 (0.36, 1.85)	0.96 (0.36, 1.51)	0.96 (0.36, 1.85)	0.96 (0.36, 1.51)	0.96 (0.36, 1.85)	0.96 (0.36, 1.51)
IQR																				
WHR No. (%)																				
Male	550	329	212	709	288	253	653	218	155	1912	835	620								
≤ 1.0	405 (74)	230 (70)	151 (71)	568 (80)	226 (78)	183 (72)	538 (82)	178 (82)	111 (72)	1511 (79)	634 (76)	445 (72)								
>1.0	145 (26)	99 (30)	61 (29)	141 (20)	62 (22)	62 (28)	70 (28)	115 (18)	40 (18)	44 (28)	401 (21)	201 (24)	175 (28)							
Female	93	125	85	95	103	124	112	84	81	300	312	290								
≤ 0.85	9 (10)	18 (14)	8 (9)	8 (8)	14 (14)	18 (15)	13 (12)	8 (10)	12 (15)	30 (10)	40 (13)	38 (13)								
>0.85	84 (90)	107 (86)	77 (91)	87 (92)	89 (86)	106 (85)	99 (88)	76 (90)	69 (85)	270 (90)	272 (87)	252 (87)								
Waist circumference (WC), cm, No. (%)																				
N	690	494	318	837	417	422	801	314	242	2328	1225	982								
Mean (SD)	88.80 (14.10)	89.60 (14.90)	91.70 (14.10)	88.70 (14.20)	88.10 (14.50)	86.90 (18.20)	87.70 (13.90)	86.60 (12.50)	89.80 (14.30)	88.40 (14.10)	88.30 (14.20)	89.20 (16.20)								
Median (min, max)	90.00 (36.00, 131.00)	90.00 (36.00, 160.00)	92.00 (37.50, 152.00)	89.00 (36.00, 135)	88.00 (36.00, 162.00)	90.00 (36.00, 130.00)	88.00 (36.00, 153.00)	85.50 (36.00, 114.00)	90.00 (38.00, 142.00)	89.00 (36.00, 153.00)	89.00 (36.00, 162.00)	89.00 (36.00, 152.00)								
IQR																				

Table 2.7 Characteristics of patients with ACS by ACS stratum, NCVD-ACS Registry, 2006-2008

Year	ACS Stratum	2006				2007				2008				Overall			
		STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	
Total	1445	1132	845	1687	1001	958	1534	662	655	4666	2795	2458					
Fasting blood glucose, mmol/L																	
N	1149	812	600	1339	681	697	1151	383	367	3639	1876	1664					
Mean (SD)	8.70 (4.00)	8.00 (4.00)	7.40 (3.70)	8.20 (3.80)	8.00 (3.80)	7.60 (3.50)	8.10 (3.80)	7.60 (3.40)	7.30 (3.50)	8.30 (3.80)	7.90 (3.80)	7.50 (3.60)					
Median (min, max)	7.10 (3.20, 29.80)	6.60 (3.00, 27.80)	6.10 (3.10, 29.90)	6.90 (3.00, 25.70)	6.60 (3.00, 28.50)	6.20 (3.10, 27.90)	6.90 (3.10, 29.80)	6.50 (3.20, 24.20)	5.90 (3.00, 23.10)	7.00 (3.00, 29.80)	6.60 (3.00, 28.50)	6.60 (3.00, 29.90)					
IQR																	
Myocardial infarction history, No. (%)																	
Yes	144 (10)	216 (19)	202 (24)	185 (11)	235 (23)	236 (25)	118 (8)	137 (21)	120 (18)	447 (10)	588 (21)	558 (23)					
No	876 (61)	579 (51)	392 (46)	1207 (72)	610 (61)	606 (63)	1079 (70)	390 (59)	376 (57)	3162 (68)	1579 (56)	1374 (56)					
Unknown	425 (29)	337 (30)	251 (30)	295 (17)	156 (16)	116 (12)	337 (22)	135 (20)	159 (24)	1057 (23)	628 (22)	526 (21)					
Documented CAD > 50% stenosis, No. (%)																	
Yes	74 (5)	230 (20)	204 (24)	108 (6)	247 (25)	306 (32)	86 (6)	168 (25)	163 (25)	268 (6)	645 (23)	673 (27)					
No	851 (59)	527 (47)	356 (42)	1171 (69)	564 (56)	506 (53)	966 (63)	323 (49)	268 (41)	2988 (64)	1414 (51)	1130 (46)					
Unknown	520 (36)	375 (33)	285 (34)	408 (24)	190 (19)	146 (15)	482 (31)	171 (26)	224 (34)	1410 (30)	736 (26)	655 (27)					
Chronic angina (onset more than 2 weeks ago), No. (%)																	
Yes	103 (7)	189 (17)	210 (25)	94 (6)	129 (13)	180 (19)	65 (4)	79 (12)	98 (15)	262 (6)	397 (14)	488 (20)					
No	920 (64)	651 (58)	441 (52)	1284 (76)	725 (72)	680 (71)	1113 (73)	463 (70)	397 (61)	3317 (71)	1839 (66)	1518 (62)					
Unknown	422 (29)	292 (26)	194 (23)	309 (18)	147 (15)	98 (10)	356 (23)	120 (18)	160 (24)	1087 (23)	559 (20)	452 (18)					

Table 2.7 Characteristics of patients with ACS by ACS stratum, NCVD-ACS Registry, 2006-2008

Year	2006				2007				2008				Overall		
	Stratum	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI
Total	1445	1132	845	1687	1001	958	1534	662	655	4666	2795	2458			
WC, cm, No. (%)															
Male	592	350	220	735	306	282	682	225	158	2009	881	660			
≤ 90	307 (52)	184 (53)	95 (43)	390 (53)	174 (57)	154 (55)	393 (58)	145 (64)	79 (50)	1090 (54)	503 (57)	328 (50)			
> 90	285 (48)	166 (47)	125 (57)	345 (47)	132 (43)	128 (45)	289 (42)	80 (36)	79 (50)	919 (46)	378 (43)	332 (50)			
Female	98	144	98	102	111	140	119	89	84	319	344	322			
≤ 80	20 (20)	30 (21)	18 (18)	33 (32)	27 (24)	31 (22)	27 (23)	30 (34)	20 (24)	80 (25)	87 (25)	69 (21)			
> 80	78 (80)	114 (79)	80 (82)	69 (68)	84 (76)	109 (78)	92 (77)	59 (66)	64 (76)	239 (75)	257 (75)	253 (79)			
Co-morbidities															
Dyslipidaemia, No. (%)															
Yes	278 (19)	464 (41)	389 (46)	381 (23)	425 (42)	485 (51)	349 (23)	257 (39)	277 (42)	1008 (22)	1146 (41)	1151 (47)			
No	458 (32)	247 (22)	197 (23)	614 (36)	316 (32)	255 (27)	559 (36)	241 (36)	196 (30)	1631 (35)	804 (29)	648 (26)			
Unknown	709 (49)	421 (37)	259 (31)	692 (41)	260 (26)	218 (23)	626 (41)	164 (25)	182 (28)	2027 (43)	845 (30)	659 (27)			
Hypertension, No. (%)															
Yes	681 (47)	789 (70)	614 (73)	840 (50)	694 (69)	745 (78)	731 (48)	437 (66)	434 (66)	2252 (48)	1920 (69)	1793 (73)			
No	433 (30)	202 (18)	151 (18)	545 (32)	223 (22)	162 (17)	530 (35)	136 (21)	102 (16)	1508 (32)	561 (20)	415 (17)			
Unknown	331 (23)	141 (12)	80 (9)	302 (18)	84 (8)	51 (5)	273 (18)	89 (13)	119 (18)	906 (19)	314 (11)	250 (10)			
Diabetes, No. (%)															
Yes	525 (36)	579 (51)	393 (47)	612 (36)	491 (49)	496 (52)	515 (34)	301 (45)	282 (43)	1652 (35)	1371 (49)	1171 (48)			
No	538 (37)	364 (32)	324 (38)	734 (44)	407 (41)	385 (40)	705 (46)	257 (39)	245 (37)	1977 (42)	1028 (37)	954 (39)			
Unknown	382 (26)	189 (17)	128 (15)	341 (20)	103 (10)	77 (8)	314 (20)	104 (16)	128 (20)	1037 (22)	396 (14)	333 (14)			

Table 2.7 Characteristics of patients with ACS by ACS stratum, NCVD-ACS Registry, 2006-2008

Year	2006				2007				2008				Overall			
	ACS Stratum	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA
Total	1445	1132	845	1687	1001	958	1534	662	655	4666	2795	2458				
New onset angina (less than 2 weeks), No. (%)																
Yes	628 (43)	538 (48)	366 (43)	896 (53)	514 (51)	534 (56)	714 (47)	322 (49)	326 (50)	2238 (48)	1374 (49)	1226 (50)				
No	479 (33)	378 (33)	303 (36)	542 (32)	381 (38)	351 (37)	516 (34)	248 (37)	206 (31)	1537 (33)	1007 (36)	860 (35)				
Unknown	338 (23)	216 (19)	176 (21)	249 (15)	106 (11)	73 (8)	304 (20)	92 (14)	123 (19)	891 (19)	414 (15)	372 (15)				
Heart failure, No. (%)																
Yes	48 (3)	153 (14)	83 (10)	56 (3)	99 (10)	93 (10)	34 (2)	66 (10)	41 (6)	138 (3)	318 (11)	217 (9)				
No	1008 (70)	724 (64)	557 (66)	1338 (79)	771 (77)	763 (80)	1165 (76)	485 (73)	474 (72)	3511 (75)	1980 (71)	1794 (73)				
Unknown	389 (27)	255 (23)	205 (24)	293 (17)	131 (13)	102 (11)	335 (22)	111 (17)	140 (21)	1017 (22)	497 (18)	447 (18)				
Chronic lung disease, No. (%)																
Yes	34 (2)	57 (5)	39 (5)	34 (2)	32 (3)	37 (4)	46 (3)	22 (3)	23 (4)	114 (2)	111 (4)	99 (4)				
No	1016 (70)	810 (72)	605 (72)	1357 (80)	843 (84)	827 (86)	1147 (75)	524 (79)	477 (73)	3520 (75)	2177 (78)	1909 (78)				
Unknown	395 (27)	265 (23)	201 (24)	296 (18)	126 (13)	94 (10)	341 (22)	116 (18)	155 (24)	1032 (22)	507 (18)	450 (18)				
Renal disease, No. (%)																
Yes	58 (4)	142 (13)	53 (6)	47 (3)	109 (11)	80 (8)	46 (3)	72 (11)	37 (6)	151 (3)	323 (12)	170 (7)				
No	989 (68)	729 (64)	587 (69)	1335 (79)	767 (77)	788 (82)	1149 (75)	476 (72)	460 (70)	3473 (74)	1972 (71)	1835 (75)				
Unknown	398 (28)	261 (23)	205 (24)	305 (18)	125 (12)	90 (9)	339 (22)	114 (17)	158 (24)	1042 (22)	500 (18)	453 (18)				
Cerebrovascular disease, No. (%)																
Yes	46 (3)	65 (6)	38 (4)	50 (3)	41 (4)	36 (4)	32 (2)	21 (3)	30 (5)	128 (3)	127 (5)	104 (4)				
No	1011 (70)	806 (71)	603 (71)	1345 (80)	837 (84)	830 (87)	1161 (76)	521 (79)	467 (71)	3517 (75)	2164 (77)	1900 (77)				
Unknown	388 (27)	261 (23)	204 (24)	292 (17)	123 (12)	92 (10)	341 (22)	120 (18)	158 (24)	1021 (22)	504 (18)	454 (18)				

Table 2.7 Characteristics of patients with ACS by ACS stratum, NCVD-ACS Registry, 2006-2008

Year ACS Stratum	2006				2007				2008				Overall			
	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI	NSTEMI	UA	STEMI
Total	1445	1132	845	1687	1001	958	1534	662	655	4666	2795	2458				
Peripheral vascular disease, No. (%)																
Yes	4 (0)	25 (2)	8 (1)	7 (0)	12 (1)	6 (1)	3 (0)	5 (1)	10 (2)	14 (0)	42 (2)	24 (1)				
No	1040 (72)	830 (73)	622 (74)	1373 (81)	849 (85)	844 (88)	1184 (77)	527 (80)	480 (73)	3597 (77)	2206 (79)	1946 (79)				
Unknown	401 (28)	277 (24)	215 (25)	307 (18)	140 (14)	108 (11)	347 (23)	130 (20)	165 (25)	1055 (23)	547 (20)	488 (20)				
None of the above, No. (%)																
Yes	125 (9)	36 (3)	18 (2)	52 (3)	13 (1)	6 (1)	89 (6)	13 (2)	10 (2)	266 (6)	62 (2)	34 (1)				
No	1320 (91)	1096 (97)	827 (98)	1449 (86)	936 (94)	921 (96)	1234 (80)	579 (87)	537 (82)	4003 (86)	2611 (93)	2285 (93)				
Unknown	0 (0)	0 (0)	0 (0)	186 (11)	52 (5)	31 (3)	211 (14)	70 (11)	108 (16)	397 (9)	122 (4)	139 (6)				
Coronary artery disease*, No. (%)																
Yes	779 (54)	787 (70)	633 (75)	1033 (61)	703 (70)	764 (80)	798 (52)	426 (64)	452 (69)	2610 (56)	1916 (69)	1849 (75)				
No	306 (21)	146 (13)	80 (9)	374 (22)	195 (19)	128 (13)	403 (26)	136 (21)	80 (12)	1083 (23)	477 (17)	288 (12)				
Unknown	360 (25)	199 (18)	132 (16)	280 (17)	103 (10)	66 (7)	333 (22)	100 (15)	123 (19)	973 (21)	402 (14)	321 (13)				

Unknown' includes patients who do not know their co-morbidities and missing data*Coronary artery disease is defined as "Yes" to any of the following co-morbidities: 1) History of myocardial infarction, 2) Documented CAD >50% stenosis, 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, NCVD-ACS Registry, 2006-2008

	Gender	Age group	ACS stratum					
			STEMI		NSTEMI		UA	
			No.	%	No.	%	No.	%
2006	Male	20 - <30	21	2	1	0	0	0
		30 - <40	87	7	23	3	21	4
		40 - <50	321	26	122	16	98	18
		50 - <60	414	34	274	35	200	36
		60 - <70	256	21	218	28	142	25
		70 - <80	113	9	112	14	81	14
		≥80	18	1	29	4	18	3
		Total	1230	100	779	100	560	100
	Female	20 - <30	1	0	0	0	0	0
		30 - <40	4	2	4	1	4	1
		40 - <50	22	10	17	5	41	14
		50 - <60	46	21	56	16	64	22
		60 - <70	62	29	116	33	87	31
		70 - <80	67	31	132	37	66	23
		≥80	13	6	28	8	23	8
		Total	215	100	353	100	285	100
2007	Male	20 - <30	9	1	4	1	5	1
		30 - <40	95	7	29	4	23	4
		40 - <50	374	26	109	16	106	16
		50 - <60	494	34	231	33	204	31
		60 - <70	327	23	200	29	177	27
		70 - <80	124	9	107	15	117	18
		≥80	24	2	20	3	18	3
		Total	1447	100	700	100	650	100
	Female	20 - <30	1	0	0	0	1	0
		30 - <40	7	3	3	1	4	1
		40 - <50	30	13	20	7	42	14
		50 - <60	55	23	63	21	71	23
		60 - <70	71	30	95	32	91	30
		70 - <80	62	26	99	33	83	27
		≥80	14	6	21	7	16	5
		Total	240	100	301	100	308	100

Note: Percentage is to the nearest decimal point

Table 2.8 Age-gender distribution of patients with ACS by ACS stratum, NCVD-ACS Registry, 2006-2008

	Gender	Age group	ACS stratum					
			STEMI		NSTEMI		UA	
			No.	%	No.	%	No.	%
2008	Male	20 - <30	14	1	2	0	3	1
		30 - <40	96	7	13	3	26	6
		40 - <50	317	25	63	14	52	13
		50 - <60	424	33	145	32	135	33
		60 - <70	298	23	130	28	119	29
		70 - <80	108	8	89	19	62	15
		≥80	24	2	15	3	12	3
		Total	1281	100	457	100	409	100
	Female	20 - <30	0	0	0	0	0	0
		30 - <40	8	3	2	1	4	2
		40 - <50	20	8	12	6	25	10
		50 - <60	53	21	39	19	60	24
		60 - <70	73	29	65	32	84	34
		70 - <80	81	32	69	34	60	24
		≥80	18	7	18	9	13	5
		Total	253	100	205	100	246	100
Overall	Male	20 - <30	44	1	7	0	8	0
		30 - <40	278	7	65	3	70	4
		40 - <50	1012	26	294	15	256	16
		50 - <60	1332	34	650	34	539	33
		60 - <70	881	22	548	28	438	27
		70 - <80	345	9	308	16	260	16
		≥80	66	2	64	3	48	3
		Total	3958	100	1936	100	1619	100
	Female	20 - <30	2	0	0	0	1	0
		30 - <40	19	3	9	1	12	1
		40 - <50	72	10	49	6	108	13
		50 - <60	154	22	158	18	195	23
		60 - <70	206	29	276	32	262	31
		70 - <80	210	30	300	35	209	25
		≥80	45	6	67	8	52	6
		Total	708	100	859	100	839	100

Note: Percentage is to the nearest decimal point