CHAPTER 5 :
OUTCOME

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CHAPTER 5: OUTCOME

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Summary

1. The in-hospital mortality rates of ACS patients remained consistent between six to eight percent over the five-year period from 2006 to 2010, with overall average of seven percent.

2. The in-hospital mortality rates for STEMI (9%) and NSTEMI (8%) were higher compared to several other global and regional ACS registries.

Overall in-hospital and 30-day outcome

Over the period of five years, in-hospital mortality rate remained consistent between six to eight percent for the entire ACS cohort. Similarly, the mortality rate at 30-day follow-up remained consistent between 10 to 11%. [Table 5.1] The in-hospital mortality rate was highest in STEMI (8-10%), slightly lower in NSTEMI (6-9%), and lowest in UA (1-3%). At 30-day follow-up, the mortality rates were similar for both STEMI and NSTEMI (12% in average), and the rate was lowest in UA (3-6%). For STEMI, the mortality rates appeared to be lower in the last two years of registry period (2009-2010), which were eight percent for in-hospital mortality and 11% for 30-day follow-up. However, there was no obvious change for NSTEMI patients. [Table 5.8]

The mortality rate of our patients was higher than the mortality rates in several other global and regional ACS registries within the similar period. The expanded Global Registry of Acute Coronary Events (GRACE 2)[1] from 2001 to 2007 reported in-hospital mortality rate of 6.2% in STEMI, 2.9% in NSTEMI and 1.7% in unstable angina patients. The Gulf Registry of Acute Coronary Events (Gulf Race) conducted in 2006 reported in-hospital mortality rate of just three percent for the entire registry cohort[2]. French Registry on Acute ST-elevation and Non ST-elevation myocardial infarction 2010 (FAST-MI 2010) reported in-hospital mortality rate of 4.5% for STEMI, 1.9% for NSTEMI and average of 3.4%.[3]

Outcome by patient characteristics

The mortality rates according to the patients' demographics and pre-morbid medical conditions remained consistent during the registry period. Higher mortality rate was observed in the elderly, female patients, patients with pre-morbid diabetes mellitus and hypertension, and patients without pre-morbid dyslipidaemia. [Table 5.2, 5.3, 5.4, 5.5 & 5.6]

Outcome of STEMI patients by treatment

Patients who received fibrinolytic therapy had lower in-hospital (7% vs. 13%) and 30-day (10% vs. 17%) mortality rates compared to those who did not receive the therapy. This was consistent throughout the five year period. [Table 5.9.1]

Due to the limitation of the availability and resources for PCI as treatment for STEMI during the same admission, the number of patients who received this therapy was small and remained similar in the five-year period. The mortality rate for those received PCI was slightly lower compared to those who did not receive, for both in-hospital (8% vs. 9%) and 30-day follow-up (10% vs. 12%). [Table 5.9.2] The survival benefit of PCI therapy was not as apparent as what was observed in fibrinolytic therapy. This was probably because PCI therapy was usually offered to or reserved to those patients who were at higher risk, e.g. patients in cardiogenic shock, whereas fibrinolytic therapy was usually given to majority of patients at presentation of STEMI.

Throughout the five-year period, the number of STEMI patients who had CABG during the same admission remained very small. There were only 35 patients in the whole period and three deaths (8%) had occurred, all during the hospitalization. [Table 5.9.3]

Outcome of NSTEMI/UA patients by treatment

In this group of patients, PCI therapy did improve the mortality rate. In-hospital mortality was four percent for those received PCI therapy compared to five percent for those who did not receive. The survival benefit was more obvious for 30-day follow-up (mortality rates of 6% vs. 9%). [Table 5.10.1]

Number of NSTEMI/UA patients who had CABG during the same admission was declining during the five year period. The mortality rate was higher in this group of patients compared to those who did not have CABG, for both in-hospital and 30-day follow-up. [Table 5.10.2] This was probably because those patients who required in-patient CABG after diagnostic coronary angiography were usually patients with more complex disease and at much higher risk.

References

1. Goodman SG, Huang W, Yan AT et al; GRACE2 Investigators. The expanded Global Registry of Acute Coronary Events: Baseline characteristics, management practices, and hospital outcomes of patients with acute coronary syndromes. *Am Heart J 2009;158:193-201.*

2. Zabaid M, Rashed WA, Al-Khaja N et al. Clinical presentations and outcomes of acute coronary syndromes in the Gulf registry of Acute Coronary Events (Gulf RACE). *Saudi Med J 2008;29(2):251-255.*

3. Hanssen M et al; FAST-MI 2010 investigators. French Registry on Acute ST-elevation and non ST-elevation Myocardial Infarction 2010. *Heart 2012;98:699-705*

Table 5.1 Outcomes for patients with ACS by year, NCVD-ACS Registry, 2006-2010

	+Outcome	Overall outcome			
		Outcome at discharge		30-day**	
		No.	%	No.	%
2006	Alive	3138	93	2862	84
	Death	254	7	530	16
2007	Alive	3327	91	3058	84
	Death	313	9	582	16
2008	Alive	2590	91	2401	85
	Death	249	9	438	15
2006 -2008	Alive	9055	92	8321	84
	Death	816	8	1550	16
2009	Alive	3328	93	3153	88
	Death	266	7	441	12
2010	Alive	3148	93	2955	87
	Death	253	7	446	13
2006 -2010	Alive	15531	92	14429	86
	Death	1335	8	2437	14

+ 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, 2006-2010

	+Outcome	In-hospital						30-day*					
		Young		Middle-age		Elderly		Young		Middle-age		Elderly	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
2006 - 2008	Alive	504	98	4563	95	3988	87	491	95	4359	91	3471	76
	Died	12	2	230	5	574	13	25	5	434	9	1091	24
2009	Alive	199	98	1630	95	1499	89	196	97	1583	93	1374	82
	Died	4	2	77	5	185	11	7	3	124	7	310	18
2010	Alive	203	96	1610	95	1335	89	199	94	1549	92	1207	80
	Died	9	4	79	5	165	11	13	6	140	8	293	20
2006 - 2010	Alive	906	97	7803	95	6822	88	886	95	7491	91	6052	78
	Died	25	3	386	5	924	12	45	5	698	9	1694	22

+ 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 from 20 to less than 40 years, middle-aged is defined as age between 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 gender, NCVD-ACS Registry, 2006 - 2010

	+Outcome	In-hospital				30-day*			
		Male		Female		Male		Female	
		No.	%	No.	%	No.	%	No.	%
2006 - 2008	Alive	6900	92	2155	90	6422	86	1899	79
	Died	576	8	240	10	1054	14	496	21
2009	Alive	2535	93	793	91	2420	89	733	84
	Died	191	7	75	9	306	11	135	16
2010	Alive	2441	93	707	91	2315	88	640	82
	Died	180	7	73	9	306	12	140	18
2006 - 2010	Alive	11876	93	3655	90	11157	87	3272	81
	Died	947	7	388	10	1666	13	771	19

+ 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 pre-morbid diabetes, NCVD-ACS Registry, 2006-2010

	+Outcome	In-hospital						30-day*					
		Yes		No		Not known		Yes		No		Unknown	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
2006 - 2008	Alive	3790	91	3677	93	1588	91	3386	81	3433	87	1502	86
	Died	383	9	268	7	165	9	787	19	512	13	251	14
2009	Alive	1437	92	1470	94	421	92	1334	85	1409	90	410	89
	Died	127	8	101	6	38	8	230	15	162	10	49	11
2010	Alive	1382	92	1343	94	423	92	1273	84	1273	89	409	89
	Died	126	8	91	6	36	8	235	16	161	11	50	11
2006 - 2010	Alive	6609	91	6490	93	2432	91	5993	83	6115	88	2321	87
	Died	636	9	460	7	239	9	1252	17	835	12	350	13

+ 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 hypertension, NCVD-ACS Registry, 2006-2010

	+Outcome	In-hospital						30-day*					
		Yes		No		Not known		Yes		No		Unknown	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
2006 - 2008	Alive	5430	92	2298	93	1327	91	4902	83	2175	88	1244	85
	Died	503	8	181	7	132	9	1031	17	304	12	215	15
2009	Alive	2121	92	904	95	303	90	1979	86	877	92	297	88
	Died	181	8	50	5	35	10	323	14	77	8	41	12
2010	Alive	1919	92	904	94	325	91	1777	85	860	89	318	89
	Died	162	8	58	6	33	9	304	15	102	11	40	11
2006 - 2010	Alive	9470	92	4106	93	1955	91	8658	84	3912	89	1859	86
	Died	846	8	289	7	200	9	1658	16	483	11	296	14

+ 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 dyslipidaemia, NCVD-ACS Registry, 2006-2010

	+Outcome	In-hospital						30-day*					
		Yes		No		Not known		Yes		No		Unknown	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
2006 - 2008	Alive	3053	93	2829	92	3173	90	2762	84	2621	85	2938	84
	Died	226	7	249	8	341	10	517	16	457	15	576	16
2009	Alive	1178	94	1466	92	684	90	1092	88	1404	89	657	86
	Died	70	6	120	8	76	10	156	13	182	11	103	14
2010	Alive	1024	94	1328	93	796	90	957	88	1244	87	754	85
	Died	66	6	101	7	86	10	133	12	185	13	128	15
2006 - 2010	Alive	5255	94	5623	92	4653	90	4811	86	5269	86	4349	84
	Died	362	6	470	8	503	10	806	14	824	14	807	16

+ 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 by types of centre, NCVD-ACS Registry, 2006-2010

	+Outcome	In-hospital				30-day*			
		Physician Centre		Cardiologist Centre		Physician Centre		Cardiologist Centre	
		No.	%	No.	%	No.	%	No.	%
2006 - 2008	Alive	3374	91	5681	92	3178	85	5143	84
	Died	343	9	473	8	539	15	1011	16
2009	Alive	703	95	2625	92	680	92	2473	87
	Died	39	5	227	8	62	8	379	13
2010	Alive	1086	94	2062	92	1047	90	1908	85
	Died	72	6	181	8	111	10	335	15
2006 - 2010	Alive	5163	92	10368	92	4905	87	9524	85
	Died	454	8	881	8	712	13	1725	15

+ 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 with ACS by ACS stratum, NCVD-ACS Registry, 2006-2010

	+Outcome	In-hospital						30-day*					
		STEMI		NSTEMI		UA		STEMI		NSTEMI		UA	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
2006 - 2008	Alive	4165	90	2645	91	2245	97	3946	85	2336	80	2039	88
	Died	482	10	259	9	75	3	701	15	568	20	281	12
2009	Alive	1526	91	953	91	849	98	1475	88	872	83	806	93
	Died	155	9	93	9	18	2	206	12	174	17	61	7
2010	Alive	1649	92	915	91	584	99	1590	88	812	81	553	94
	Died	153	8	93	9	7	1	212	12	196	19	38	6
2006 - 2010	Alive	7340	90	4513	91	3678	97	7011	86	4020	81	3398	90
	Died	790	10	445	9	100	3	1119	14	938	19	380	10

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

Table 5.9.1 Overall outcomes for patients with STEMI by fibrinolytic therapy, NCVD-ACS Registry, 2006-2010

	+Outcome	In-hospital				30-day*			
		Yes		No		Yes		No	
		No.	%	No.	%	No.	%	No.	%
2006 - 2008	Alive	3079	91	1086	86	2937	87	1009	79
	Died	298	9	184	14	440	13	261	21
2009	Alive	1163	92	363	86	1130	90	345	82
	Died	95	8	60	14	128	10	78	18
2010	Alive	1255	93	394	87	1213	90	377	83
	Died	92	7	61	13	134	10	78	17
2006 - 2010	Alive	5497	92	1843	86	5280	88	1731	81
	Died	485	8	305	14	702	12	417	19

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

Table 5.9.2 Overall outcomes for patients with STEMI by Percutaneous Coronary Intervention at admission, NCVD-ACS Registry, 2006-2010

	+Outcome	In-hospital				30-day*			
		Yes		No		Yes		No	
		No.	%	No.	%	No.	%	No.	%
2006 - 2008	Alive	773	90	3392	89	732	86	3214	85
	Died	83	10	399	11	124	14	577	15
2009	Alive	322	94	1204	90	316	93	1159	86
	Died	19	6	136	10	25	7	181	14
2010	Alive	252	92	1397	91	247	90	1343	88
	Died	23	8	130	9	28	10	184	12
2006 - 2010	Alive	1347	92	5993	90	1295	88	5716	86
	Died	125	8	665	10	177	12	942	14

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

Table 5.9.3 Overall outcomes for patients with STEMI by CABG at admission, NCVD-ACS Registry, 2006-2010

	+Outcome	In-hospital				30-day*			
		Yes		No		Yes		No	
		No.	%	No.	%	No.	%	No.	%
2006 - 2008	Alive	25	89	4140	90	24	86	3922	85
	Died	3	11	479	10	4	14	697	15
2009	Alive	4	100	1522	91	4	100	1471	88
	Died	0	0	155	9	0	0	206	12
2010	Alive	6	100	1643	91	6	100	1584	88
	Died	0	0	153	9	0	0	212	12
2006 - 2010	Alive	35	92	7305	90	34	89	6977	86
	Died	3	8	787	10	4	11	1115	14

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

Table 5.9.4 Overall outcomes for patients with STEMI by pre-admission aspirin use, NCVD-ACS Registry, 2006-2010

	+Outcome	In-hospital						30-day*					
		Yes		No		Not known		Yes		No		Unknown	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
2006 - 2008	Alive	760	86	2996	91	409	88	711	81	2840	86	395	85
	Died	120	14	307	9	55	12	169	19	463	14	69	15
2009	Alive	342	89	1114	91	70	88	323	84	1086	89	66	83
	Died	41	11	104	9	10	13	60	16	132	11	14	18
2010	Alive	332	91	1238	92	79	89	323	89	1194	88	73	82
	Died	31	9	112	8	10	11	40	11	156	12	16	18
2006 - 2010	Alive	1434	88	5348	91	558	88	1357	83	5120	87	534	84
	Died	192	12	523	9	75	12	269	17	751	13	99	16

+ 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 NSTEMI/UA by Percutaneous Coronary Intervention at admission, NCVD-ACS Registry, 2006-2010

	+Outcome	In-hospital				30-day*			
		Yes		No		Yes		No	
		No.	%	No.	%	No.	%	No.	%
2006 - 2008	Alive	553	95	4337	93	524	90	3851	83
	Died	29	5	305	7	58	10	791	17
2009	Alive	171	96	1631	94	167	94	1511	87
	Died	7	4	104	6	11	6	224	13
2010	Alive	118	96	1381	94	112	91	1253	85
	Died	5	4	95	6	11	9	223	15
2006 - 2010	Alive	842	95	7349	94	803	91	6615	84
	Died	41	5	504	6	80	9	1238	16

+ 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 NSTEMI/UA by CABG at admission, NCVD-ACS Registry, 2006-2010

	+Outcome	In-hospital				30-day*			
		Yes		No		Yes		No	
		No.	%	No.	%	No.	%	No.	%
2006 - 2008	Alive	98	88	4792	94	94	84	4281	84
	Died	14	13	320	6	18	16	831	16
2009	Alive	26	93	1776	94	25	89	1653	88
	Died	2	7	109	6	3	11	232	12
2010	Alive	12	100	1487	94	11	92	1354	85
	Died	0	0	100	6	1	8	233	15
2006 - 2010	Alive	136	89	8055	94	130	86	7288	85
	Died	16	11	529	6	22	14	1296	15

+ 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 NSTEMI/UA by pre-admission aspirin use, NCVD-ACS Registry, 2006-2010

	+Outcome	In-hospital						30-day*					
		Yes		No		Not known		Yes		No		Unknown	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
2006 - 2008	Alive	2240	94	1965	94	685	94	1960	82	1781	85	634	87
	Died	153	6	135	6	46	6	433	18	319	15	97	13
2009	Alive	940	94	825	94	37	93	867	87	775	88	36	90
	Died	56	6	52	6	3	8	129	13	102	12	4	10
2010	Alive	699	93	719	94	81	98	628	84	662	87	75	90
	Died	52	7	46	6	2	2	123	16	103	13	8	10
2006 - 2010	Alive	3879	94	3509	94	803	94	3455	83	3218	86	745	87
	Died	261	6	233	6	51	6	685	17	524	14	109	13

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

Table 5.11.1 Prognostic factors for death in hospital among STEMI patients, NCVD-ACS Registry, 2006-2010

Factors	N	Odds Ratio	95% CI		P-value
Age group, years					
20 - <40 (ref)	635	1.00			
40 - <60	4470	1.23	(0.76,	1.99)	0.398
≥60	3025	1.96	(1.21,	3.19)	0.006
Gender					
Male (ref)	6941	1.00			
Female	1189	1.09	(0.86,	1.39)	0.468
Ethnic group*					
Malay (ref)	4466	1.00			
Chinese	1614	0.90	(0.72,	1.11)	0.322
Indian	1502	0.80	(0.63,	1.02)	0.072
Others	548	0.72	(0.50,	1.04)	0.078
Killip classification					
I (ref)	4420	1.00			
II	1553	1.32	(1.03,	1.68)	0.028
III	297	2.82	(2.00,	3.97)	0.000
IV	493	7.07	(5.38,	9.30)	0.000
Not stated/inadequately described/missing	1367	1.64	(1.28,	2.11)	0.000
Percutaneous Coronary Intervention					
Yes	1472	0.89	(0.61,	1.30)	0.558
No (ref)	6658	1.00			
Cardiac catheterisation					
Yes	1744	1.04	(0.73,	1.48)	0.835
No (ref)	6386	1.00			
TIMI risk score					
0-2 (ref)	2750	1.00			
3-4	2523	1.61	(1.17,	2.21)	0.003
5-7	2269	3.30	(2.42,	4.49)	0.000
>7	588	7.31	(5.05,	10.57)	0.000
Fibrinolytic therapy					
Given	5982	0.60	(0.50,	0.72)	0.000
Not given (ref)	2148	1.00			

Factors	N	Odds Ratio	95% CI		P-value
Smoking					
Never (ref)	2393	1.00			
Former (quit >30 days)	1522	2.57	(1.86,	3.56)	0.000
Current (any tobacco use within last 30 days)	3845	2.00	(1.46,	2.74)	0.000
Unknown	370	0.97	(0.66,	1.42)	0.860
Family history of premature cardiovascular disease					
Yes	938	1.81	(1.24,	2.65)	0.002
No (ref)	4804	1.00			
Unknown	2388	0.99	(0.79,	1.25)	0.960
Dyslipidaemia					
Yes	2006	1.92	(1.40,	2.62)	0.000
No (ref)	3084	1.00			
Unknown	3040	1.28	(1.02,	1.61)	0.036
Hypertension					
Yes	3982	3.41	(2.50,	4.64)	0.000
No (ref)	2769	1.00			
Unknown	1379	1.06	(0.73,	1.55)	0.756
Diabetes					
Yes	2969	2.89	(2.17,	3.86)	0.000
No (ref)	3574	1.00			
Unknown	1587	0.90	(0.64,	1.29)	0.576
Heart failure					
Yes	267	1.53	(1.07,	2.19)	0.020
No (ref)	6376	1.00			
Unknown	1487	1.36	(0.98,	1.88)	0.064
Coronary artery disease**					
Yes	4877	0.96	(0.77,	1.19)	0.694
No (ref)	1777	1.00			
Unknown	1476	0.84	(0.58,	1.20)	0.338

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

Table 5.11.2 Prognostic factors for death in hospital among NSTEMI/UA patients, NCVD-ACS Registry, 2006-2010

Factors	N	Odds ratio	95% CI		P-value
Age group, years					
20 - <40 (ref)	296	1.00			
40 - < 60	3719	2.72	(0.97,	7.68)	0.058
≥60	4721	6.30	(2.25,	17.65)	0.000
Gender					
Male (ref)	5882	1.00			
Female	2854	0.80	(0.64,	1.00)	0.053
Ethnic group*					
Malay (ref)	3852	1.00			
Chinese	2142	0.89	(0.72,	1.12)	0.323
Indian	2385	0.72	(0.57,	0.93)	0.010
Others	357	0.76	(0.47,	1.23)	0.270
Killip classification code					
I (ref)	4273	1.00			
II	1313	2.02	(1.54,	2.64)	0.000
III	331	4.71	(3.35,	6.62)	0.000
IV	151	16.94	(11.46,	25.03)	0.000
Not stated/ inadequately described	2668	1.64	(1.29,	2.09)	0.000
Percutaneous Coronary Intervention					
Yes	883	0.67	(0.44,	1.03)	0.066
No (ref)	7853	1.00			
Cardiac catheterisation					
Yes	1474	1.55	(1.12,	2.13)	0.007
No (ref)	7262	1.00			
TIMI risk score					
0-2 (ref)	4794	1.00			
3-4	3276	0.97	(0.78,	1.20)	0.774
5-7	666	1.56	(1.10,	2.21)	0.012
Smoking					
Never (ref)	4127	1.00			
Former (quit >30 days)	2261	1.71	(1.23,	2.37)	0.001
Current (any tobacco use within last 30 days)	1760	1.79	(1.25,	2.56)	0.001
Unknown	588	1.10	(0.77,	1.57)	0.602

Factors	N	Odds ratio	95% CI		P-value
Family history of premature cardiovascular disease					
Yes	964	0.87	(0.55,	1.40)	0.571
No (ref)	4907	1.00			
Unknown	2865	0.93	(0.74,	1.17)	0.542
Dyslipidaemia					
Yes	3611	1.54	(1.12,	2.12)	0.008
No (ref)	3009	1.00			
Unknown	2116	0.76	(0.56,	1.02)	0.064
Hypertension					
Yes	6334	1.89	(1.33,	2.70)	0.000
No (ref)	1626	1.00			
Unknown	776	1.14	(0.69,	1.87)	0.605
Diabetes					
Yes	4276	2.52	(1.84,	3.46)	0.000
No (ref)	3376	1.00			
Unknown	1084	1.29	(0.84,	1.99)	0.250
Heart failure					
Yes	965	1.98	(1.54,	2.53)	0.000
No (ref)	6505	1.00			
Unknown	1266	1.31	(0.91,	1.88)	0.142
Coronary artery disease**					
Yes	6773	0.69	(0.52,	0.91)	0.008
No (ref)	1032	1.00			
Unknown	931	0.81	(0.52,	1.25)	0.347

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

Table 5.11.3 Prognostic factors for death within 30 days among STEMI patients, NCVD-ACS Registry, 2006-2010

Factors	N	Odds Ratio	95% CI		P-value
Age group, years					
20 - <40 (ref)	635	1.00			
40 - <60	4470	1.21	(0.82,	1.78)	0.348
≥60	3025	2.21	(1.48,	3.28)	0.000
Gender					
Male (ref)	6941	1.00			
Female	1189	1.22	(1.00,	1.50)	0.054
Ethnic group*					
Malay (ref)	4466	1.00			
Chinese	1614	0.91	(0.75,	1.09)	0.292
Indian	1502	0.85	(0.69,	1.04)	0.109
Others	548	0.60	(0.43,	0.83)	0.002
Killip classification code					
I (ref)	4420	1.00			
II	1553	1.30	(1.07,	1.59)	0.009
III	297	2.81	(2.08,	3.79)	0.000
IV	493	5.04	(3.93,	6.48)	0.000
Not stated/inadequately described/missing	1367	1.14	(0.92,	1.42)	0.227
Percutaneous Coronary Intervention					
Yes	1472	0.67	(0.49,	0.92)	0.014
No (ref)	6658	1.00			
Cardiac catheterisation					
Yes	1744	1.36	(1.02,	1.82)	0.037
No (ref)	6386	1.00			
TIMI risk score					
0-2 (ref)	2750	1.00			
3-4	2523	1.48	(1.16,	1.89)	0.001
5-7	2269	2.72	(2.13,	3.48)	0.000
>7	588	5.79	(4.25,	7.89)	0.000
Fibrinolytic therapy					
Given	5982	0.60	(0.52,	0.71)	0.000
Not given (ref)	2148	1.00			

Factors	N	Odds Ratio	95% CI		P-value
Smoking					
Never (ref)	2393	1.00			
Former (quit >30 days)	1522	1.93	(1.47,	2.53)	0.000
Current (any tobacco use within last 30 days)	3845	1.59	(1.22,	2.05)	0.000
Unknown	370	0.98	(0.70,	1.36)	0.892
Family history of premature cardiovascular disease					
Yes	938	1.65	(1.22,	2.24)	0.001
No (ref)	4804	1.00			
Unknown	2388	1.08	(0.88,	1.31)	0.472
Dyslipidaemia					
Yes	2006	1.64	(1.27,	2.12)	0.000
No (ref)	3084	1.00			
Unknown	3040	1.34	(1.10,	1.63)	0.003
Hypertension					
Yes	3982	2.35	(1.83,	3.02)	0.000
No (ref)	2769	1.00			
Unknown	1379	0.96	(0.69,	1.33)	0.790
Diabetes					
Yes	2969	2.42	(1.91,	3.07)	0.000
No (ref)	3574	1.00			
Unknown	1587	0.91	(0.67,	1.24)	0.543
Heart failure					
Yes	267	1.54	(1.12,	2.13)	0.008
No (ref)	6376	1.00			
Unknown	1487	1.18	(0.89,	1.57)	0.245
Coronary artery disease**					
Yes	4877	0.90	(0.74,	1.08)	0.262
No (ref)	1777	1.00			
Unknown	1476	0.93	(0.68,	1.27)	0.644

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

Table 5.14.4 Prognostic factors for death within 30 days among NSTEMI/UA patients, NCVD-ACS Registry, 2006-2010

Factors	N	Odds ratio	95% CI		P-value
Age group, years					
20 - <40 (ref)	296	1.00			
40 - < 60	3719	1.88	(1.05	3.37)	0.034
≥60	4721	4.11	(2.30	7.33)	0.000
Gender					
Male (ref)	5882	1.00			
Female	2854	0.91	(0.78	1.06)	0.214
Ethnic group*					
Malay (ref)	3852	1.00			
Chinese	2142	0.92	(0.79	1.07)	0.274
Indian	2385	0.83	(0.71	0.97)	0.022
Others	357	0.61	(0.43	0.88)	0.008
Killip classification code					
I (ref)	4273	1.00			
II	1313	1.96	(1.66	2.33)	0.000
III	331	3.05	(2.35	3.96)	0.000
IV	151	7.12	(5.00	10.19)	0.000
Not stated/ inadequately described	2668	1.06	(0.91	1.25)	0.439
Percutaneous Coronary Intervention					
Yes	883	0.58	(0.43	0.79)	0.001
No (ref)	7853	1.00			
Cardiac catheterisation					
Yes	1474	1.06	(0.84	1.32)	0.633
No (ref)	7262	1.00			
TIMI risk score					
0-2 (ref)	4794	1.00			
3-4	3276	1.18	(1.02	1.36)	0.024
5-7	666	1.48	(1.17	1.88)	0.001
Smoking					
Never (ref)	4127	1.00			
Former (quit >30 days)	2261	1.67	(1.37	2.10)	0.000
Current (any tobacco use within last 30 days)	1760	1.51	(1.19	1.92)	0.001
Unknown	588	1.15	(0.89	1.49)	0.271

Factors	N	Odds Ratio	95% CI		P-value
Family history of premature cardiovascular disease					
Yes	964	0.94	(0.71	1.25)	0.688
No (ref)	4907	1.00			
Unknown	2865	1.07	(0.91	1.25)	0.405
Dyslipidaemia					
Yes	3611	1.59	(1.29	1.95)	0.000
No (ref)	3009	1.00			
Unknown	2116	0.94	(0.77	1.15)	0.559
Hypertension					
Yes	6334	1.93	(1.52	2.45)	0.000
No (ref)	1626	1.00			
Unknown	776	1.46	(1.02	2.08)	0.037
Diabetes					
Yes	4276	2.08	(1.70	2.55)	0.000
No (ref)	3376	1.00			
Unknown	1084	0.83	(0.61	1.12)	0.222
Heart failure					
Yes	965	1.80	(1.52	2.15)	0.000
No (ref)	6505	1.00			
Unknown	1266	0.94	(0.73	1.21)	0.646
Coronary artery disease**					
Yes	6773	0.75	(0.62	0.91)	0.004
No (ref)	1032	1.00			
Unknown	931	0.89	(0.65	1.21)	0.460

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