APPENDIX B: STATISTICAL METHODS

The statistical methods described were used to summarise the data collected from National Cardiovascular Database NCVD-ACS.

The data without missing on initial diagnosis, final diagnosis was neither stable angina nor non-cardiac, aged at 20 years old that were admitted from 1st January 2006 till 31st Dec 2010 were analysed. The data was stratified to reflect differences in
- Demography: race, gender , age
- Medical factors: pre-morbid or past medical history
- Initial diagnoses: ACS stratums
- Therapy: fibrinolytic given, aspirin use

Methods for handling missing data and outliers

Missing age was imputed using the hotdeck method. The variables were set to missing value if it lay outside the acceptable range as seen in table below.

Fields	Acceptable range
Number of distinct episodes of angina	≤ 20
Heart Rate	20 - 200 beats/min (should not be 0)
Systolic BP	60 - 230 mmHg (should not be 0)
Diastolic BP	10 -120 mmHg (should not be 0)
Height	130 cm - 210 cm (should not be 0)
Weight	30 kg - 200 kg (should not be 0)
Waist circumference	≥ 36 cm
Hip circumference	60 - 200 cm (should not be 0)
Peak CK-MB	< 1000 Unit/L (should not be 0)
Peak CK-MB	< 10 000 Unit/L (should not be 0)
Peak Troponin - TnT	No range
Peak Troponin - TnI	No range
Total Cholesterol, TC	3 -20 mmol/L
LDL	1 -15 mmol/L
HDL-C	0.5 -5 mmol/L
Triglycerides, Tg	1 - 15 mmol/L
Fasting Blood Glucose	3 - 30 mmol/L
Left Venrticular Ejection Fraction, LVEF	5% - 80%
Onset to Door	(should not be 0)
Door to needle time (mins)	1 min - 24 hours (or equivalent minutes) (should not be 0)
Door to balloon time (mins)	1 min - 24 hours (or equivalent minutes) Apply only for patients with STEMI and planned for primary angioplasty (should not be 0)

Patient Characteristics

The information on patient characteristics was summarized by number of admissions in chapter 2 of the report. These tables included patients' age, gender, ethnic group, coronary risk factors, anthropometric measurements, co-morbidity, and also the distribution of patients by source data providers (SDP). Continuous variables were summarised using summary statistics, such as mean, standard deviation, median, minimum and maximum were reported. On the other hand, both the frequency count and percentage were reported for categorical data.

Invariably, there were situations where there was missing data. For the purpose of analysis, subjects with missing age had their values imputed by using a hotdeck imputation method. For discrete data, analysis was confined to available data and no imputation was done.

Cardiac Presentation

Chapter 3 of the report basically was to summarize the patient characteristics, vital sign measurements, and laboratory parameters by ACS stratum such as STEMI, NSTEMI and UA, age groups namely young, middle-age and elderly, gender as well as the pre-morbid conditions such as diabetes, hypertension, and dyslipidaemia by number of admissions. Continuous variables were summarised using summary statistics, such as mean, standard deviation, median, minimum and maximum were reported. On the other hand, frequency count and percentage were reported for categorical data.

Treatment

The treatments that were provided to the patients were mainly summarized in chapter 4 of the report by number of admissions. This information was cross tabulated by ACS stratum, age group, gender as well as the main ethnic group in Malaysia. No imputation was done for this chapter.

Clinical Outcomes

Chapter 5 of the report summarized the overall in-hospital as well as 30-day outcomes for patients with ACS by number of admissions. Cross tabulations of outcomes by gender, pre-morbid conditions such as diabetes, hypertension, dyslipidaemia, and ACS stratum were included in this chapter. Tabulation of outcomes by fibrinolytic therapy was only presented for STEMI patients. Other tabulations such as outcomes by percutaneous coronary intervention at admission, CABG at admission, and also the pre-admission aspirin use were presented separately for patients with STEMI and NSTEMI/UA. Prognostic factors for in-hospital death as well as death in 30 days were summarized separately for STEMI and NSTEMI/UA patients. No imputation was done for this chapter.