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Appendix 1

This appendix was part of the submitted manuscript and has been peer reviewed.
It is posted as supplied by the authors.

Appendix to:Tideman PA, Tirimacco R, Senior DP, et al. Impact of a regionalised clinical cardiac support network on mortality among rural patients with myocardial infarction. *Med J Aust* 2014; 200: 157-160. doi: 10.5694/mja13.10645.

Statistical Methods

To adjust for baseline risk we examined clinical factors associated with mortality within 60% of the patients presenting to metropolitan hospitals (training set) and then evaluated the performance of the model in the remaining 40% of metropolitan patients (validation set). The final logistic regression model included: type of MI; age (in 5 year groups); prior heart failure; cardiogenic shock; arrhythmia on presentation; cerebrovascular disease; renal failure; known ischaemic heart disease; dementia; and the weighted Charlson index.(1) The model's discrimination was assessed using the c-statistic while calibration used the Hosmer-Lemeshow goodness-of-fit test where a non-significant p-value indicates concordance between observed and model predicted event rates**.** The final model described the risk of mortality with a c-statistic of 0.829, with the goodness-of-fit test of p=0.286. Within the rural population, this model's c-statistic was 0.818. This patient specific estimate of risk was used to adjust comparisons examining the relationship between availability the clinical network and care or mortality. To enable contrast of the observed mortality rate within the metropolitan and rural populations of similar risk, the model derived predicted risk was used to group patients into 30-day predicted mortality rates of ≤5%, 5.1-10% 10.1-15%, 15.1-20% and >20%.

Thirty-day mortality rates by month for patients presenting to rural and metropolitan hospitals, smoothed using an exponential moving average function, were plotted together with the proportion of rural patients being treated at ICCNet available rural hospitals. The interaction between the year of MI and a rural hospital presentation was explored in logistic regression adjusting for patient risk. Rates of angiography for rural patients compared with metropolitan patients over time were also plotted as an exponential moving average and

compared with a generalized linear model adjusting for year and patient risk. Given clinical co-morbidities influence transfer for angiography, the Charlson Index were incorporated into the assessment of the relationship between the availability of the clinical network and transfer for angiography using logistic regression. Normal distributed variables are expressed as means (± standard deviation) and medians (and inter-quartile ranges) for factors not normally distributed. Counts and proportions are presented as "n" (%). Odds ratios ($OR_{risk\text{-}adj}$) and relative risk ratios ($RR_{risk\text{-}adj}$) are presented after adjusting for individual patient risk. A probability of <0.05 is considered statistically significant. All analyses were performed using STATA 11.2 (College Station, TX).

Reference:

1. Charlson M, Krieger K, Peterson J, Hayes J, Isom O. Predictors and outcomes of cardiac complications following elective coronary bypass grafting. Proc Assoc Am Physicians. 1999;111(6):622–32.