

## The impact of inter-hospital transfers in acute coronary syndrome, in Perth WA

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**Background:** Cardiovascular disease is recognised as the leading cause of death and disability in Australia and Acute Coronary Syndrome (ACS) alone accounts for 20% of deaths in Western Australia (WA). Morality rates in acute myocardial infarction (AMI) are halved when treatment is initiated within the first hour from symptom onset. Rural and remote populations are more at risk of adverse outcomes due to the sheer distance and associated travel times to attend appropriate medical facilities.

**Aims:** With all rural and remote western Australian ACS patients requiring transfer to metropolitan hospitals for primary interventions, the study aimed to look at the impact of being transferred to a hospital capable of primary interventions on key performance indexes (door-to-balloon, door-to-ECG times), length of stay and in-hospital mortality.

**Methods:** De-identified primary hospital data were collected from one tertiary hospital in Perth WA between 01/06/2013 and 31/12/2013. Data collected were age, sex, postcode of residence, primary diagnosis, primary procedure, date of presentation, time of symptom onset, time of arrival to referral hospital, time departed referral hospital, time of arrival to tertiary hospital, time of ECG, time of activation of cardiac catheterisation lab, procedure length, discharge date, mode of arrival, disposal code and length of stay. Data were analysed using SPSS Statistics.

**Relevance:** This study is a preliminary needs-analysis of the challenges associated with rural and remote populations receiving equitable and timely management during an ACS event.

**Results:** The cohort consisted of 106 WA patients, with a mean age of 59.72 years (35-87 year range), 81.1% were male, in hospital mortality was 5.7% and the median length of stay was three days (0-32 days range). There was a statistically significant difference with experiencing door-to-balloon times within the recommended 90 minutes between transferred and direct-presentation patients ( $p=0.02$ ). Patients who were transferred experienced statistically significant higher median activation-to-balloon ( $p=0.000$ ), door-to-balloon ( $p=0.032$ ) and ECG-to-balloon ( $p=0.000$ ) times than those who presented initially to the tertiary hospital but no statistically significant difference in ECG-to-Activation times between groups ( $p=0.146$ ).

**Conclusions:** Key performance indices were poorer in the transferred cohort, particularly door-to-balloon times. This study was not able to assess the effect of transfers on mortality rates due to the small sample size. The rationale of achieving door-to-ECG and door-to-balloon times within recommended time frames is due to previous findings of improved survival. The higher median times experienced by transferred patients could potentially be associated with more adverse outcomes.