

Cardiac arrest is a major cause of mortality and morbidity including recurring cardiac events, cognitive impairments, and mental health issues. This thesis is on empirical analyses of cardiac arrest patients in Ontario, Canada using administrative health data sources.

Chapter 1 is a retrospective population surveillance study, which employs logistic regression analysis to examine short-term and long-term survival trends for adult patients in acute care hospitals. The 1-year adjusted odds ratio for initial successful resuscitation is 1.049 (95% CI: 1.022-1.076) when controlling for demographics, pre-admission comorbidities, and hospital of arrest. In stark contrast, there was no evidence of a trend in survival at discharge, 30 days, or 1 year. Results suggest further research into post-resuscitation care in Ontario care may be useful. However, we also find evidence of measurement error coding in successful resuscitation that is trending in magnitude in way that could bias trend estimates.

Chapter 2 takes a serious look at the nonclassical measurement error problem in resuscitation success coding identified in the previous chapter. We employ a combination of credible assumptions from within the partial identification econometrics literature to nonparametrically bound the trend in resuscitation while allowing misclassification rates to trend. We also develop a novel approach which weakly restricts asymmetry between false positive and negative rates. We find that restricting false positives and negative to be within 10% and 90% of misclassified observations, in combination with monotonicity assumptions is enough to identify a trend.

Chapter 3 follows survivors of cardiac arrest after discharge and investigates follow-up patterns in primary care. These patients remain at high risk of death, recurrence of cardiac events, cognitive impairment, and mental health issues. They may benefit from ongoing monitoring of cardiac risk factors, early mental health screening, and co-ordination of specialist care. This requires continuity of primary care. Primary care reforms in Ontario, Canada have led to the majority of general practitioners (GP) switching from fee-for-service remuneration to enhanced patient enrolment models, which encourage or require GPs to formally enroll most patients attached to their practice. To understand continuity of care across payment models, we use semi-parametric duration models to analyze time to first GP outpatient follow-up visit, distinguishing visits a patient's own regular GP, and other GPs. We find enrolled patients visit their own (other) GP earlier (later) compared to patients whose regular GP is fee-for-service.