



Outcomes following cardiac arrest in remote areas of the Northern Territory

Colin Urguhart¹, Jodie Martin¹, Mark Ross^{1,2}

¹Careflight; ²Royal Darwin Hospital

Out of hospital cardiac arrest is a common cause of death worldwide, and studies assessing outcome frequent the literature. Although several papers have looked at survival rates in rural locations, to our knowledge none have assessed outcomes in the remote regions of the Northern Territory. There is evidence demonstrating that mortality is adversely affected by distance from population density and tertiary medical care. The top end of the Northern Territory encompasses a vast area and a low population density, suggesting that patients suffering out of hospital cardiac arrests in these remote areas would have poorer outcomes than their city counterparts. In addition, the NT primary response to emergencies and retrieval set up for transfer to a hospital is relatively unique in comparison to the predominantly road ambulance based systems presented in the literature. The initial emergency response is most commonly provided by rural clinic staff, with further critical care treatment advice and subsequent retrieval provided by the Top End Medical Retrieval Service (Careflight). Although advanced life support is often administered in a timely manner, the time for the patient to reach hospital can be several hours and the aim of Careflight is to bring critical care management to the patient in the remote community. With the World Health Organization predicting the burden of ischaemic heart disease to increase over the coming years, cardiac arrest will certainly become a more prevalent problem. We aim to retrospectively identify all cardiac arrest cases since January 2010 with whom the Careflight retrieval service has been involved. From the Careflight medical database and hospital notes, we aim to identify all cardiac arrest referrals and associated information: response times; retrieval times; team composition; interventions performed; outcomes (survival at 1 day post arrest, 28 days and to hospital discharge). Preliminary review of the medical database has revealed 41 cases with a primary or secondary diagnosis of cardiac arrest, although more cases may be revealed using wider search parameters and case note review to illicit cases in which it was not a labelled diagnosis. In addition we will review and include all cases that were referred but did not survive to retrieval team arrival. We aim to show similar outcomes to published data on survival from cardiac arrest compared to other areas of the country and demonstrate that the current rural emergency response and retrieval systems provide a comparable outcome to the rest of Australia and the world.