

AUSTRALIAN RESUSCITATION OUTCOMES CONSORTIUM (AUS-ROC)

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Background

Out-of-hospital cardiac arrest (OHCA) remains a significant public health issue, with a high case fatality (>90% overall), despite decreasing incidence of coronary artery disease and 50 years since the advent of cardiopulmonary resuscitation (CPR). The wide variation in outcome of OHCA across different geographical areas (Table 1) has led to speculation that better organisation and integration of local emergency medical services (and post-resuscitation hospital care) may improve outcomes.[1] Tackling the problem requires an interdisciplinary systems approach to research generation and knowledge translation.

Structure

The (Australian) National Health and Medical Research Council (NHMRC) has funded the establishment of the Australian Resuscitation Outcomes Consortium (Aus-ROC) - as a Centre of Research Excellence (CRE), 2012-2016. Aus-ROC has initially brought together three Australian Universities and three whole-of-State Ambulance Services; in Victoria (Vic), South Australia (SA) and Western Australia (WA), together with International collaborators. The total catchment population for the North American Resuscitation Outcomes Consortium (ROC) is 21.4 million, involving some 94 Emergency Medical Service (EMS) systems.[2] Whilst the total catchment population for the Aus-ROC will be half of this number, with a population of 9.49 million across the three States (Vic=5.5m; SA=1.6m; WA=2.2m), it will only involve three EMS systems. Over time we hope that Aus-ROC will develop into a truly national collaborative involving all Australian States and international partnerships.

Aims

Aus-ROC will promote and conduct multi-centre clinical research in OHCA, modelled on the highly successful North American Resuscitation Outcomes Consortium.[2] The overall goal of the Aus-ROC CRE is to improve patient outcomes from OHCA. The specific aims are to:

- undertake large multi-centre clinical trials
- establish an Australia-wide OHCA 'epistry' (epidemiologic registry) to facilitate trials and measure process and outcome of cardiac arrest
- examine emergency system-based strategies to improve outcomes from OHCA
- build capacity in pre-hospital emergency care research.

Programme of Research

The 'chain of survival' [3] concept (Figure 1) will provide the framework on which to build the Aus-ROC programme of research; which will involve two main methodological approaches, namely: (1) multi-centre clinical trials to develop the evidence base for clinical and system-wide interventions; and (2) epidemiological studies involving the interrogation of OHCA registry data integrated from the existing OHCA registries in each State. Our first multi-centre trial – a randomised controlled trial (RCT) of patient cooling by paramedics during CPR compared with standard treatment, the 'RINSE' study [4] - is in progress in the three metropolitan State Ambulance Services (Vic, WA & SA).

Capacity Building

Aus-ROC funding will enable the building of research capacity through the appointment of four postdoctoral research fellows and the provision of five full-time three-year PhD scholarships – which must directly relate to OHCA (including post-resuscitation care).



Figure 1 The 'Chain of Survival' for the management of cardiac arrest. [3]



Table 1: Comparison of unadjusted incidence rates and survival to hospital discharge outcomes for EMS assessed and EMS treated OHCA in Perth(WA), Vic and the 10 North American ROC sites.[2]

	Perth (WA) 2008 ^a	Vic 2008 ^b	US/Canada[2]
All arrests (n)	1,058	4,986	19,584
Rate per 100,000 population	66.0	93.8	95.7
Survival EMS assessed	3.6%	5.4%	1.1 to 8.1%
Survival EMS treated	8.4%	12.4%	3.0 to 16.3%

(a) St John Ambulance (WA) Cardiac Arrest Registry (b) Victorian Ambulance Cardiac Arrest Register

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