

Results: In the AVI model, EPA and DHA supplementation increased their respective blood levels by 272% and 62% ($p < 0.0001$). Plasma cholesterol and triglycerides were normal and did not differ between groups. Despite this, EPA significantly reduced carotid endothelial protein expression of VCAM-1 and MCP-1 compared to no treatment (see table). In the atherogenesis model, EPA and DHA increased their respective blood levels by 856% and 279% ($p < 0.0001$). Both EPA (-28%, $p = 0.003$) and DHA (-42%, $p = 0.0001$) reduced plasma triglycerides, and attenuated increases in cholesterol levels. However, this did not translate into favourable effects on plaque size, characteristics, or aortic lipid burden (see table).

Conclusion: The omega-3 fatty acid EPA reduces acute vascular inflammation; however, neither EPA nor DHA favourably alters atherogenesis, plaque characteristics, or lipid burden. The effects of omega-3s on atherosclerosis and clinical outcomes warrant clinical validation.

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Outcomes of Out-of-Hospital Cardiac Arrests Admitted to an Inner City Hospital



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We aimed to assess the causes and outcomes of all out of hospital cardiac arrest (OOHCA) cases that were admitted to an inner city tertiary hospital over a two-year period and compare the data to published literature.

All OOHCA presentations to our Emergency Department (ED) from 1 Jan 2014 to 1 Jan 2016 were included. Patients that did not achieve return of spontaneous circulation (ROSC) and died in ED were not analysed further. We excluded arrests due to non-cardiac causes such as asphyxiation, drug overdose, trauma or intra-cerebral haemorrhage.

Patients who presented to ED with OOHCA were 16 to 98 years old, and 138 (69.0%) were male. ROSC was achieved in 76 (38.0%) patients and of these 39 (19.5%) subsequently died in hospital. In all 37 patients (18.5%) survived to discharge: of these 22 (59.5%) were discharged home, 11 (29.7%) to a rehabilitation facility and 4 (10.8%) to another hospital.

Of the 76 patients who achieved ROSC, 31 (40.8%) were still alive at one year; 15.5% of all OOHCA patients. 29 (38.2%) were due to coronary disease, 12 (15.8%) were due to cardiomyopathies, 3 (3.9%) were due to primary arrhythmias and 18 (23.7%) were idiopathic.

Patients who present to RPH with OOHCA have one-year survival rates comparable to national rates as quoted by the Australian Resuscitation Council (6-13%). As expected, the most common initial rhythm for patients surviving past ED was ventricular fibrillation. Survival post OOHCA was low and mortality was commonly within 1 week of presentation.

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Post-Discharge Readmissions and Mortality Following Hospitalisation for Acute Myocardial Infarction in Australia and New Zealand



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Background: An acute myocardial infarction (AMI) may result in death or readmission, however national 30-day rates for these outcomes are unknown. We assessed 30-day all-cause readmissions and mortality following an AMI hospitalisation.

Methods: We obtained population-wide hospitalisation data from all Australian State Health Departments (excluding the Northern Territory) and New Zealand (NZ) Ministry of Health from 2010-2015 linked with Death Registries to identify post-discharge deaths. We identified hospitalisations with a primary discharge diagnosis of AMI (ICD10AM codes I21.0-9). The primary study outcome was all-cause death or hospital readmission at 30-days post-discharge.

Results: We identified 209,029 hospitalisations (mean age 69.0 ± 14.2 years, 65.4% males) among 188,832 unique patients. Following discharge, 41,555 (19.9%) were readmitted as an inpatient and 5,447 (2.6%) died within 30-days. Overall, 54,968 (26.9%) AMI hospitalisations resulted in death or readmission at 30 days. Both 30-day rates of mortality (2.1% in Australian Capital Territory to 3.2% in Victoria, $p < 0.01$) and readmission (15.1% in Queensland to 23.4% in Western Australia, $p < 0.01$) varied among regions. Overall, there were 265 hospitals with more than 25 hospitalisations ($n = 192,458$ hospitalisations) and the 30-day rate of death or readmission varied from 7.7% to 48.6% among these hospitals.

Conclusion: Nearly a quarter of patients discharged from hospital following an AMI in Australian and NZ are readmitted or die within the following 30 days. There is considerable variability in these outcomes between states and hospitals, which warrants further investigation.

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