



SPATIAL INFORMATION DAY 2010

Adelaide Convention Centre | FRIDAY 13 AUGUST 2010

Spatial Information Day 2010 Abstract

Title: Cardiac ARIA: A Geographic Accessibility Model to Cardiac Services in Australia

Session: 5 – Community and Planning

Presenter: Turner D,¹ Coffee N,² Clark RA,² Eckert K,¹ Coombe D,¹ Lawrence J,³ Astles P,³ Stewart S,⁴ van Gaans D,¹ Hugo G,¹ Bamford E,¹ Wilkinson D,⁴ Tonkin A⁶
On behalf of the CARDIAC-ARIA project group.

Abstract:

Background / Aims

In a cardiac emergency every minute counts. Access to appropriate care immediately following an acute cardiac event is critical for positive outcomes. Current evidence shows that most lives are saved by treatment within the first hour. In 2006 cardiovascular disease claimed the lives of almost 46,000 Australians (34% of all deaths). The aim of the Cardiac ARIA index was to derive an objective, comparable, geographic measure reflecting access to cardiac services across Australia.

Methods

The index was modelled in two key stages. First an expert panel of cardiologists developed a single patient care pathway for major cardiac events, from which a master list of healthcare resources and services was derived. From this list, 9 national datasets were acquired to model geographic accessibility, using cost path analysis to measure time and distance to cardiac facilities. Two phases were measured, acute care and aftercare.

The acute phase of the index measured the time taken, from dialling 000, to reach the most appropriate medical facility (using 5 classes of hospital/remote clinic) via the road network by ambulance. Time frames were calculated to include dispatch time, travel to the scene, time to assess and load the patient, and travel to the medical facility. The aftercare phase measured time to 4 service categories (medical centre/doctor, retail pharmacy, cardiac rehabilitation program, and pathology) for follow-up care upon returning home. The analysis was applied to over 20,000 localities, which were then linked to census population data.

Results

The acute phase of the index ranges from 1 (access to a tertiary hospital with a cardiac catheter laboratory ≤ 1 hour) to 8 (no road ambulance service, > 3 hours to any medical facility and air transport required). The aftercare phase was modelled into 5 alphabetic categories, A (all 4 services ≤ 1 hour) to E (no services available within 1 hour).

Approximately 13 million (66%) Australians live within Cardiac ARIA Category 1A locations (i.e. a hospital with ICU/CCU and cardiac catheter laboratory and all aftercare ≤ 1 hour), however 6.7 million (34%) live outside of this range.

Spatial Information Day hosted by:





SPATIAL INFORMATION DAY 2010

Adelaide Convention Centre | FRIDAY 13 AUGUST 2010

Conclusion

These data indicate that “geographically” the majority of Australian’s are located in communities that have timely access for survival. At a strategic level, the index will provide a valuable tool for researchers to inform development of policy for systems of care. The methodology could be used for other diseases, such as stroke, where time to services is also important.

-
1. The University of Adelaide dorothy.turner@adelaide.edu.au
 2. Sansom Institute, University of South Australia
 3. Alphapharm Pty Ltd
 4. Baker IDI
 5. Faculty of Health Sciences, University of Queensland
 6. Department of Epidemiology and Preventive Medicine, Monash University

Spatial Information Day hosted by:

