

# Cardiovascular Outcomes in Indigenous Australians: A National Gap



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## Keywords

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Health outcomes in Indigenous Australians remain poor despite being a national health priority. Cardiothoracic surgery has excelled, relative to cardiology in publishing treatment outcomes of Indigenous Australians. Since the first publication in 2009 by Lehman et al. there have been roughly 15 publications documenting outcomes and challenges of cardiac surgery in Indigenous Australians.

There are comparatively few publications focussing on Indigenous patients in the fields of heart failure [1], ischaemic heart disease [2], atrial fibrillation and stroke. Those that have been done tend to focus on remote patients in central Australia and/or on rheumatic heart disease. There are exceedingly few publications from major tertiary hospitals in New South Wales or Victoria.

As of 2016, there were 798,400 people who identified as Aboriginal or Torres Strait Islander in Australia, representing 3.3% of our total population. Despite the cardiovascular focus of Indigenous groups in very remote areas of Australia, the largest states by Indigenous population are New South Wales (NSW), Queensland and Western Australia.

New South Wales has 254,842 Indigenous Australians (32% of the national total) and almost no peer reviewed publications regarding Indigenous Australian cardiovascular outcomes, despite closing the gap being a national health priority. To say there is a paucity of data relative to the size of the problem is an understatement.

Our understanding of the scope of the problem has not been driven by peer review publications, but rather peak government body publications, predominantly through

Australian Institute of Health and Welfare (AIHW). Ischaemic heart disease (IHD) remains the leading specific cause of death in Indigenous Australians reported by the AIHW national mortality database, accounting for 16.2% of deaths of Indigenous Australian males and 11.2% of Indigenous Australian females [3]. Between 2008–2012, IHD was the greatest contributor to the gap in death rates between Indigenous and non-Indigenous males (18.8% of the rate difference) and the third greatest contributor in females (9.5% of the rate difference) [4].

Data from Western Australia demonstrated that Indigenous Australians presenting with acute myocardial infarction (AMI) were younger, and over represented the incidence of AMI, contributing 7.4% of incident AMI, whilst only representing 2.4% of the state's population [5,6]. Indigenous patients generally experienced worse adjusted outcomes following AMI events, including a case fatality ratio at 28 days of 1.6 and 1.4 for males and females respectively aged 55–74 [5,6].

It is, therefore, no surprise that the gap between Indigenous and non-Indigenous Australians is evident within cardiothoracic surgery patients. Indigenous Australians undergoing cardiac surgery are substantially younger [7,8] and have a higher burden of comorbidities; particularly smoking, hypertension, previous CABG [9], diabetes and renal dysfunction [7].

Indigenous Australians present with higher rates of heart failure and left ventricular dysfunction preoperatively and are more likely to undergo concomitant valvular surgery.

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They also have reported higher perioperative morbidity, cardiac mortality and all-cause mortality regardless of remoteness [10].

In this issue, the most recent publication by Wiemers *et al.*, a small, retrospective, single centre cohort study in a major regional centre, also documents worse outcomes in Indigenous people, relative to non-Indigenous. In this well described cohort Indigenous patients were younger, more likely to be female, to be a current smoker, twice as likely to be diabetic, had more renal impairment, and more likely live in a remote area [11].

The Indigenous cohort had higher rates of left ventricular impairment and lower rates of left main disease. At 3-year follow-up their major adverse cardiovascular outcomes were worse than non-Indigenous Australians, and this was driven by increased rates of stroke and myocardial infarction. Their main finding was that on adjustment, Indigenous status was not a significant association, but rather the co-morbidities of renal impairment and left ventricular dysfunction [11].

Several studies have now demonstrated that the poorer outcomes seen in Indigenous people are driven by the higher prevalence of comorbidities [9,11,12]. As these authors pointed out in their previous overview of Indigenous ischaemic disease in 2018, Indigenous Australians face disadvantage at almost every stage of the atherosclerotic disease process [2]. This disadvantage seems rooted in socioeconomic and cultural factors. Thus far we lack the evidence-based practices to reduce this disparity and close the gap.

Currently, the literature is dominated by retrospective studies and studies based on registry data. While this helps to inform us on the scope of the problem, prospective and interventional studies are needed to assess utility of health interventions aimed at actually closing the gap.

Any successful strategies to address this disparity are likely to require:

- Indigenous community supportive
- Socioeconomic and cultural engagement
- Culturally appropriate health behaviour modification programs (such as smoking cessation, regular exercise and healthy diets)
- Increased primary health awareness and targeted preventative care initiatives

- Aggressive and targeted secondary prevention strategies for renal disease and diabetes
- Indigenous targeted rehabilitation that is accessible in regional and remote areas

Anything else than a comprehensive, multi-disciplinary approach being driven and supported by Indigenous people themselves is likely doomed to fail. Indigenous cardiovascular health should not only be a federal and state government priority, but a cardiovascular academic and clinical priority as well.

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