

## RESEARCH ARTICLE

**The Burden of work-related Cardiovascular Disease in Australia**

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## LETTER TO EDITOR

There is limited information on the extent of work-related CVD in Australia. Information that is available comes from a variety of sources, including published studies; workers' compensation claims data and general practitioner data sources. The available information is presented in this section.

**Population-based estimates**

The only estimate of work-related CVD PAR in Australia comes from a study of morbidity and mortality arising from occupational exposure to hazardous substances. This study (conducted by a team lead by Professor Charles Kerr at the University of Sydney, and widely known as "The Kerr Report") did not develop its own PAR estimates, adopting what were believed to be conservative estimates from international literature available at the time of the study.

Non-chemical exposures such as environmental tobacco smoke, job control and noise were excluded from consideration because the focus of the study was workplace hazardous substances. Using a PAR of 1%, the study estimated that each year in Australia there were about 800 deaths due to cardiovascular disease arising from occupational exposure to hazardous substances.<sup>1</sup> An attribution rate of 3% (presented as part of a sensitivity analysis) resulted in an estimate of 2,400 deaths each year.

These estimates caused a lot of controversy when they were released, primarily because the number of deaths was perceived to be too high.<sup>2</sup> Although some of the criticism was constructive, much of it appeared ill-informed, and there has been no published attempt to provide better

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estimates. The Kerr study estimates appear to be based on all persons 15 years or older. It is not clear whether or not there should be a maximum age used. In the recent United States study by Steenland and co-workers<sup>3</sup>, an upper age limit of 69 years was used for cardiovascular deaths, the authors arguing that the risk resulting from occupational exposure probably dropped quickly after exposure ceased, and this was presumed to have ceased by about the age of 70 years. The authors commented that, because the number of coronary heart disease deaths increases sharply after the age of 69, their estimates would be conservative if their assumption was wrong. The study by Nurminen excluded people aged more than 74 years, and progressively decreased the risk used for people between aged 60 and 74 years.<sup>4</sup>

#### **Workers' compensation-based estimates**

Workers' compensation data systems are very unlikely to be a good source of information on cases of work-related cardiovascular disease, for reasons discussed earlier. There are very few situations in which an acute coronary event, or underlying heart disease, in an individual can be confidently connected to occupational exposures. Exceptions might be heart attacks that occur after acute high exposure to carbon monoxide or heavy manual work in very hot conditions, but even in these instances the major cause of the

underlying disease might well be non-occupational.

Similarly, occupational factors could have been important in the development of ischaemic heart disease that results in someone having a heart attack in a situation that has no connection to work. Therefore, it is difficult for a claim for work-related ischaemic heart disease to be confidently assessed as work-related, and likely that many instances of work-related heart disease are never recognised by the worker or the treating doctor as being related to work. Conversely, people who sustain an acute coronary event whilst working may make a successful claim for compensation, even though the fact that the event occurred while working was coincidental. Also, a large minority of workers are not represented in workers' compensation statistics.<sup>5</sup>

These factors mean that workers' compensation data cannot be considered a reliable or valid indicator of the extent of work-related CVD in Australia. Notwithstanding this, national workers' compensation data provide an indication as to whether any such claims are being accepted, and the number of such claims. Over the period 1998/1999 to 2002/2003, there were between 70 and 94 claims each year for ischaemic heart disease (at a rate of between 9 and 12 per million employees), and between 11

and 49 claims for other heart disease (at a rate of between 1.4 and 6.7 cases per million employees). (There were an additional eight to twelve claims for hypertension.) These are gross underestimates, based on the number of deaths (which would be expected to be much less than the number of non-fatal cases) estimated in the Kerr study, which data from other countries suggest is a significant underestimate (Table 1).

General practitioner-based estimates As with workers' compensation data systems, general practitioner data systems can be expected to provide little useful information on work-related cardiovascular disease. Most of the same issues apply to both data sources. In addition, it is more likely that a person with an acute coronary event will go to a hospital emergency department than to a general practitioner. The BEACH study is the only reliable source of information on work-related consultations with general practitioners in Australia. The study involved a cluster random sample of all general practitioner

consultations in Australia. A comprehensive analysis of work-related BEACH consultations covering the years April 1998 to March 2000 identified only 52 cases involving cardiovascular problems, and only nine of these were identified as new problems. Thirty-five per cent of the consultations at which these problems were managed were covered by workers' compensation payments.<sup>6</sup>

The 52 cases represent only the work-related cardiovascular cases in the study sample. These extrapolate to each year Australian general practitioners managing about 15,000 problems (2,500 new problems) identified as work-related CVD. However, given the small numbers in the sample, the uncertainties that must be associated with diagnosis of any cardiovascular condition as being related to work, and the many cases of work-related CVD that certainly would not be identified through general practice consultations, these should be considered significant underestimates

**Table 1: Accepted workers' compensation claims<sup>1</sup> for cardiovascular disease and hypertension. Australia, 1998/1999 to 2002/2003**

	1998/1999	1999/2000	2000/2001	2001/2002	2002/2003
<b>Ischaemic heart disease<sup>2</sup></b>					
Number	88	73	99	70	94
Rate <sup>3</sup>	12.1	9.3	12.4	8.6	11.2
95% CI	10.7 – 14.0	9.0 – 9.6	10.8 – 14.4	7.7 – 9.7	9.9 – 12.9
<b>Other heart disease<sup>4</sup></b>					
Number	49	39	38	31	11
Rate	6.7	4.9	4.7	3.8	1.4
95% CI	5.9 – 7.7	4.8 – 5.1	4.2 – 5.5	3.4 – 4.3	1.2 – 1.6
<b>Total heart disease<sup>5</sup></b>					
Number	137	112	137	101	105
Rate	18.8	14.2	17.1	12.4	12.6
95% CI	18.3 – 19.4	14.1 – 14.3	16.5 – 17.8	12.0 – 12.8	12.1 – 13.0

1: Data supplied by NOHSC, from NOSI.

2: TOOCS code 710

3: Cases per million employees

4: TOOCS code 720

5: TOOCS codes 710 and 720

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