



# Suicide in Australian veterinarians

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PMR Proportional mortality ratio

This study reports on suicide rates of veterinarians, determined for two Australian states. Many older Australian veterinarians claim to know of at least one colleague who has committed suicide, which leads to the perception that veterinarians may be at considerable risk for suicide. Presently, however, there is no evidence that rates of suicide for Australian veterinarians differ markedly from that of the general population. The objectives were to examine the records showing cause of death, to estimate suicide numbers and to ascertain the rate of suicide for Australian veterinarians.

Suicide was only briefly mentioned as a possible occupational hazard by Jeyaretnam et al in their review of occupational injuries and disease among veterinarians from Western Australia.<sup>1</sup> To date, there are no published studies reporting the actual rates of suicide in this professional group for Australia. Ascertaining the rates of suicide and suicidal behaviours among Australian veterinarians and comparing them with the suicide rates in other professional groups seems important in order for the profession to make informed judgements about how to respond to this concern.

While doctors and dentists are among the professional groups that have been cited in the past as having high rates of suicide in Australia,<sup>2</sup> there is no recent evidence of their current rates. Recent contact with both the professional and registering bodies for dentists (McKerracher, P, personal communication) and doctors in Western Australia (Australian Medical Association, Western Australia, personal communication), showed that these groups were uncertain of suicide rates for their professions.

Suicide rates in Australia are generally reported as age-standardised rates per 100,000, which uses a standard population to eliminate the effects of differences in age structure of various populations, and enables comparisons between groups with different age compositions.<sup>3</sup> The UK uses proportional mortality ratio (PMR), which is the observed number of suicides divided by the expected number of suicides expressed as a percentage. A PMR for suicide of 100 indicates that the given occupation has the same rate as that of the general population.<sup>4</sup>

UK reports from 1993 and 1998, show that pharmacists, dentists, farmers and physicians had up to twice the expected suicide rate, expressed as PMR, as the general population, while veterinarians had the highest rate, being more than three times the PMR.<sup>4,5</sup> Mellanby found that the PMR for male suicides among veterinarians was 361 and for female suicides was 414.<sup>6</sup> Most suicide deaths for males occurred in the 30 to 49 year age group, while all female suicide deaths were in the 25 to 39 year age range. In Australia, comparative suicide rates per 100,000 for professionals were reported for the period 1968 to 1981.<sup>2</sup> Male medical doctors were reported as having a rate of 34.5 and dentists 15.5. No rates were provided for females.

The Australian Bureau of Statistics has no way of identifying veterinarians as a separate professional group (McConville, personal communication). The veterinary profession is included with other relatively small professional groups and coding is therefore not specific enough to obtain reliable statistics on causes of death. In addition, there are reservations about the quality of occupation data taken from information listed on death certificates provided by state coroners' offices.<sup>7</sup>

Official sources, which include coroners' courts and government agencies, often have different ways of recording deaths. Hassan, in his book *Suicide Explained – The Australian Experience*, stated that when determining the cause of death, coroners used subjective criteria which can lead to misclassification of deaths as suicide.<sup>2</sup> Some coroners may provide the designation of suicide, while others give the cause of death without designating whether the death was suicide. For example, terms such as 'toxic effect of drugs,' 'drug toxicity (open finding),' 'drug related death,' 'accident,' 'acute cardiac failure, probably intoxication' or 'undetermined' have all been used to describe deaths that may indicate suicide. For a death to be classified as suicide, the coroner usually expects tangible evidence such as a note confirming the intention. Therefore coroners may report 'open' verdicts, which may include suicides. Hillman et al suggest that a verdict of suicide may be inferred from the circumstances relating to the discovery of a note, or reports that the person had threatened suicide and the circumstances relating to how the body was found.<sup>7</sup> Furthermore, inconsistency between the various states means that some suicides are not included in data analyses.

## Methods

The current study involved examining the official records for causes of death among veterinarians from the Registry of Deaths in Western Australia and Victoria. Both states list the profession of persons who have died except when the deceased was retired and there is no information about their previous employment.

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**Table 1. Rates of suicide among WA and Vic veterinarians**

State	Rate per 100,000	95% confidence interval (CI)
Western Australia	52.6	19.7–140.1
Victoria	41.8	19.9–87.7
Combined	45.2	25.0–81.6

The listing for ‘vets’ obtained from these two sources contained some data on retired defence service personnel, veterinary assistants, technologists and nurses. After removal of these, there remained 89 records for deaths of veterinarians occurring between 1990 and 2002, with 29% from Western Australia, 69% from Victoria and 2% from elsewhere. The number of suicide deaths was extracted from the records of these two states, as other states do not list the profession of the deceased person.

The Registry of Deaths in Western Australia contained information about the cause of death and whether it was suicide or an open finding. The Registry in Victoria provided only the cause of death, without designating suicide unless the persons had indicated they were going to kill themselves. The comparable number of suicides in Victorian veterinarians was estimated using criteria identified by Hillman et al.<sup>7</sup> Suicides included drug-related or undetermined cases as specified by the coroner. Drug toxicities listed specifically as accidental were excluded from any calculations of suicide.

Because of low numbers of suicides reported, and the fact that there were none in certain years, it was not possible to calculate an age-standardised rate. The number of resident veterinarians in Victoria in 1990 was estimated to be 1150, increasing to 1500 in 2002.<sup>8</sup> In 1990, Western Australia was estimated to have 400 resident veterinarians and 770 in 2002. Linear interpolation was used to estimate the number of veterinarians for the denominator in all the intervening years. A program using SAS statistical software (2002–03, SAS Institute Inc., Cary, NC, USA) was written by author D Lawrence, to perform the calculations, and the rates were calculated using Poisson regression. This calculated a separate rate for each year and then calculated the average over all the years, adjusting for the size of the denominator in that year.

## Results

The results of this survey on the causes of deaths of veterinarians for Western Australia and Victoria found that 11 veterinarians had committed suicide in the 13-year period between 1990 and 2002.

The estimated suicide rates for Western Australian and Victorian veterinarians were respectively 4.0 times and 3.8 times the age standardised rate for suicide in the respective state adult populations (Table 1).

The means used by veterinarians to commit suicide during the 13-year period are listed in Table 2 along with age at death and

**Table 2. Method of suicide of WA and Vic veterinarians**

Gender	Age at death	City/rural	Cause of death
Female	28	City	Poisoning by drugs
Female	28	Rural	Poisoning by drugs
Male	27	Rural	Poisoning by drugs
Male	35	City	Poisoning by drugs
Male	36	Rural	Hanging
Male	40	Rural	Poisoning by drugs
Male	47	Rural	Poisoning by drugs
Male	48	Rural	Poisoning by drugs
Male	50	Rural	Poisoning by drugs
Male	52	Rural	Poisoning by drugs
Male	63	Rural	Firearm

whether the suicide occurred in the city or country. Year of death has been removed for reasons of confidentiality. The major method of suicide was poisoning by drugs, which involved injectable barbiturates.

## Discussion

It must be cautioned that suicide deaths could be as much a result of factors unique to the individual cases as to the profession as a whole. The other cautionary comment is that because there are such small numbers, one or two more or less deaths due to suicide can change the statistics considerably. Decreasing or increasing the number of suicides by one produced rates of 39.4 or 65.8 per 100,000 respectively for Western Australia and a rate of 35.8 or 47.7 per 100,000 for Victoria. For the two states combined, the rate would be 37.0 or 53.4 per 100,000. Even so, the rates are markedly higher than the national average of 11.8 per 100,000 in 2004.<sup>9</sup>

Also, the estimates may be an underestimation of the actual numbers of suicides because veterinarians who have retired do not have their profession listed in the Death Register and may not have been counted among resident veterinarians.

In this survey, 9 of the 11 suicides occurred in rural or provincial towns and 2 in the metropolitan area. While there appeared to be a considerable difference between rural and metropolitan areas for place of death, the numbers of suicides in a metropolitan area were too few for reliable statistical evaluation.

The major method of suicide was poisoning by injectable barbiturates which may be attributed to the easy access veterinarians have to these drugs, and this is consistent with the methods reported from studies of suicide in veterinarians and medical doctors overseas.<sup>5,9</sup> There is a clear contrast to the major methods of suicide in the general population, which are by hanging, use of firearms and explosives, carbon monoxide and poisonings by drugs.<sup>3,7,9</sup> Suicide was spread evenly across all age groups, which is consistent with rates in the general population, where the rates are relatively similar across most age groups.<sup>9</sup>



Reducing the rate of suicide in veterinarians will be a complex and difficult undertaking. Halliwell in the UK has suggested that the profession may be particularly vulnerable because of the selection of highly intelligent and gifted students into veterinary schools.<sup>10</sup> This notion appears to be supported by Voracek's research, which found a significant positive relationship between national intelligence quotient and suicide rate.<sup>11</sup> Furthermore, Halliwell suggested that a very demanding veterinary course has the potential to stifle the development of emotional maturity and that these, coupled with a lack of support following graduation and the ready availability of lethal agents, were possible reasons for suicide among veterinarians.

Controlling access to drugs used for suicide may not necessarily control suicide ideation and suicide, because there may be other lifestyle issues. Dissemination of information about distress and suicide should be balanced with advice on how to alleviate distress among veterinarians and where to obtain the most appropriate support and mentoring. Training institutions should also emphasise the unique rewards of the profession and its contribution to the wellbeing of animals, and ultimately the community.

This study has highlighted the need for a thorough investigation of the rate of suicide and contributing factors for all Australian veterinarians. A more representative sample of veterinarians will be required to determine if the suicide rate is as high as indicated by the results of this study and if stress, distress and depression play a significant role in contributing to suicide.

A limitation of the study is the lack of clear data on which the statistics are based. In the light of there being no accurate way of obtaining statistics on suicide in veterinarians, the rate could be established by identifying the names of those suspected of committing suicide, together with date of birth or death in the National Death Index.

We recommend that, in view of the apparently high suicide rate among veterinarians shown by this study, further research using the total Australian veterinary population be undertaken.

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