

## Patterns of mortality in Indigenous adults in the Northern Territory, 1998–2003

Emma E Kowal

**TO THE EDITOR:** A letter by Scrimgeour<sup>1</sup> in the 18 May 2009 issue of the Journal praised an earlier study by Andraeyan and Hoy<sup>2</sup> for adding to the evidence that Indigenous people living in small communities (known as “outstations” or “homelands”) in very remote areas are healthier than those living in larger settlements. I believe this was an error. The study found that mortality was lower in both outer regional areas and very remote areas than in remote areas.<sup>2</sup> But, unfortunately, this tells us nothing about outstations. The Accessibility/Remoteness Index of Australia (ARIA) classification used by the authors groups larger remote communities and their outstations together — categorising both as “very remote”.

Scrimgeour is not alone in overstating the evidence for better health among Indigenous people living in smaller communities. The possible health benefits associated with living in outstations has become a major argument against the Australian Government's plan to create 26 remote “hubs” that will receive improved services (to the likely detriment of smaller communities)<sup>3</sup> and the related plan of the Northern Territory Government to develop 20 larger remote communities.<sup>4</sup> For example, Tom Calma, Aboriginal and Torres Strait Islander Commissioner at the Australian Human Rights Commission, was reported as saying that there was “a strong body of research showing that people on homelands lived longer,

healthier lives”.<sup>5</sup> Calma seriously overstated the evidence we have to date, which consists of two studies from Utopia in central Australia and one study of land management practices in an Arnhem Land community.<sup>6–8</sup> Although this research is encouraging, we are a long way from determining the causes of better health among sections of those two communities, and whether residence at outstations/homelands or land management practices are associated with better health in other communities as well.

There are many reasons for supporting the growth of outstations, and health may be one of them, but it is crucial that those in the field of Indigenous health get this right. Rather than jumping the gun, we need more research into the effects of outstation life on health and wellbeing.

**Emma E Kowal**, NHMRC Postdoctoral Fellow  
School of Philosophy, Anthropology and Social Inquiry, University of Melbourne, Melbourne, VIC.  
e.kowal@unimelb.edu.au

- 1 Scrimgeour D. Patterns of mortality in Indigenous adults in the Northern Territory, 1998–2003: are people living in remote areas worse off [letter]? *Med J Aust* 2009; 190: 545.
- 2 Andraeyan K, Hoy WE. Patterns of mortality in Indigenous adults in the Northern Territory, 1998–2003: are people living in more remote areas worse off? *Med J Aust* 2009; 190: 307–311.
- 3 Australian Government Department of Families, Housing, Community Services and Indigenous Affairs. Closing the gap on Indigenous disadvantage: the challenge for Australia. [http://www.fahcsia.gov.au/sa/indigenous/pubs/general/Documents/closing\\_the\\_gap/default.htm](http://www.fahcsia.gov.au/sa/indigenous/pubs/general/Documents/closing_the_gap/default.htm) (accessed May 2009).
- 4 Northern Territory Government. Working future. <http://www.workingfuture.nt.gov.au/index.html> (accessed May 2009).
- 5 Skelton R. Homelands plan faces massive backlash. *The Age* (Melbourne) 2009; 23 May: 3. <http://www.theage.com.au/national/homelands-plan-faces-massive-backlash-20090522-bic7.html> (accessed Sep 2009).
- 6 McDermott R, O'Dea K, Rowley K, et al. Beneficial impact of the homelands movement on health outcomes in central Australian Aborigines. *Aust N Z J Public Health* 1998; 22: 653–658.
- 7 Rowley K, O'Dea K, Anderson I, et al. Lower than expected morbidity and mortality for an Australian Aboriginal population: 10-year follow-up in a decentralised community. *Med J Aust* 2008; 188: 283–287.
- 8 Burgess C, Johnston F, Berry H, et al. Healthy country, healthy people: the relationship between Indigenous health status and “caring for country”. *Med J Aust* 2009; 190: 567–572. □

**Yuejen Zhao, Steve Guthridge, Shu Q Li and Christine Connors**

**TO THE EDITOR:** In an article about Indigenous mortality in the Northern Territory, Andraeyan and Hoy<sup>1</sup> concluded that Indigenous residents in very remote areas (VRAs)

had a better health status than those in remote areas (RAs) and outer regional areas (ORAs). This result is inconsistent with previous reports and prompted us to examine the authors' outcome.

A central problem with the authors' analysis lies in the identification of “usual residence” for death registration. The usual residence is defined by the Australian Bureau of Statistics as the dwelling at which a person spends or intends to spend 6 months or more in the year in which the question is asked.<sup>2</sup> This definition limits its usefulness for the authors' purpose, but is further compromised by the common practice by certifying doctors of simply using the last known address as a proxy for usual residence. In either case, the address recorded at death registration may differ from the location where a person lived for the majority of his or her life. The latter is the location more closely associated with health risks, particularly for chronic disease.

As a test, we investigated changes of residence for all NT public hospital inpatients who died within a 7-year period by linking multiple hospitalisations between 1 January 2001 and 31 December 2007. We found that 26% of inpatients classified as residents of RAs at the time of death were previously usual residents of VRAs. This “unhealthy migrant” effect can be readily recognised as people relocate due to illness from VRAs, which have limited health services, to RAs or ORAs to access secondary and tertiary health care.

The likelihood of inconsistent classification of usual residence in mortality data can also be tested demographically. Assuming the authors' mortality ratios were correct for a stable population, we estimate that the Indigenous life expectancy at birth in VRAs would be 72.3 years, or 23 years longer than the life expectancy at birth in RAs (49.1 years). Such a large discrepancy is implausible. The age structure of a stable population is determined by fertility and mortality,<sup>3</sup> and reported NT Indigenous fertility rates show a lack of substantial variation across regions.<sup>4</sup> If the life expectancy at birth in VRAs was significantly longer than the life expectancy in RAs, VRAs would have about five times more elderly people (aged over 75 years) than the current estimates.<sup>5</sup>

The mobility of residence shown by hospital data and the absence of a substantial elderly population in VRAs suggest that the reported differential mortality rates between VRAs and RAs are the result of misidentification of “usual residence”.

Yuejen Zhao, Senior Health Economist<sup>1</sup>

Steve Guthridge, Director<sup>1</sup>

Shu Q Li, Epidemiologist<sup>1</sup>

Christine Connors, Director<sup>2</sup>

<sup>1</sup> Health Gains Planning Branch, Department of Health and Families, Darwin, NT.

<sup>2</sup> Preventable Chronic Disease Program, Department of Health and Families, Darwin, NT.

yuejen.zhao@nt.gov.au

1 Andreasyan K, Hoy WE. Patterns of mortality in Indigenous adults in the Northern Territory, 1998–2003: are people living in more remote areas worse off? *Med J Aust* 2009; 190: 307–311.

2 Australian Bureau of Statistics. Usual residence concepts sources and methods paper. Canberra: ABS, 2004. (ABS Cat. No. 1389.0.)

3 Preston SH, Heuveline P, Guillot M. Demography: measuring and modelling population process. Oxford: Blackwell Publishing, 2001.

4 Stewart ML, Li SQ. Northern Territory midwives collection: mothers and babies, 2000–2002. Darwin: Northern Territory Department of Health and Community Services, 2005.

5 Australian Bureau of Statistics. Northern Territory estimated resident population by age, sex, Indigenous status and collection district, 2001. (ABS data available on request.) □

#### Karen Andreasyan and Wendy E Hoy

**IN REPLY:** We thank Zhao and colleagues for their interest in our study.<sup>1</sup> The main issue they raise is misclassification of deaths by remoteness of residence. In our article, we acknowledged the role of migration to larger urban centres to access health services and raised the issue of

unhealthy lifestyle and its flow-on effects on mortality.

If we were to assume that 26% of deaths in hospital in remote areas were deaths of people who previously lived in very remote areas (as Zhao and colleagues suggest), regional variation in the disparity between Indigenous and total Australian all-cause mortality would narrow but would still remain. A re-analysis of our data based on this assumption<sup>1</sup> shows that standardised mortality ratios in remote areas would drop from 875% (95% CI, 799%–956%) to 646% (95% CI, 582%–717%) in 1998–2000 and from 731% (95% CI, 665%–801%) to 540% (95% CI, 484%–601%) in 2001–2003. In very remote areas, the standardised mortality ratios would increase from 214% (95% CI, 193%–236%) to 281% (95% CI, 258%–306%) in 1998–2000 and from 208% (95% CI, 189%–228%) to 264% (95% CI, 242%–286%) in 2001–2003.

Furthermore, in our article we stressed the importance of examining Indigenous migration to enable more accurate interpretation of our findings and called for future studies to “clarify the reasons for these differences in mortality by remoteness, with a particular focus on migration”.

Our studies of Queensland data and national data (unpublished) have shown a similar pattern of higher Indigenous mortality in remote areas than in very remote areas, but the difference in mortality rates between

these areas is highest in the Northern Territory. Thus, the phenomenon of the “methodological” error applies to all of these studies.

We propose to undertake a prospective study of Indigenous mortality that will overcome some study design problems inherent in a cross-sectional study.

Karen Andreasyan, Epidemiologist

Wendy E Hoy, Professor of Medicine and Director

Centre for Chronic Disease, University of Queensland, Brisbane, QLD.

kandreasyan@somc.uq.edu.au

1 Andreasyan K, Hoy WE. Patterns of mortality in Indigenous adults in the Northern Territory, 1998–2003: are people living in more remote areas worse off? *Med J Aust* 2009; 190: 307–311. □