AUSTRALIAN INSTITUTE OF HEALTH

Aboriginal health information bulletin

Number 16, November 1991

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Guidelines for contributors
Articles which could be published in Brief Communications, Selected Reviews or Book Reviews are most welcome. Those suitable for Brief Communications or Book Reviews should not exceed 1,500 words.

The editors would be grateful for any assistance in the compilation of the Bulletin, particularly with regard to Current Topics, Recently Published Research and Recent Reports, Publications and Theses.

Authors are urged to write in plain English so that their works can be easily understood. They should follow the style used in the most recent issue of the Bulletin. In other cases the recommendations of the AGPS *Style Manual* should be followed. The Harvard system of referencing should be used.

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Editorial

We are grateful to the 107 readers who responded to the questionnaire seeking reader feedback on the *Bulletin*'s usefulness, in terms of both 'keeping up-to-date' and 'relevance to present work' (the questionnaire was circulated with *Bulletin* number 14, November 1990). In view of the current circulation of approximately 1,500 copies, the response was somewhat disappointing, but the feedback received was valuable in planning for the future.

Overall, around 80 to 90 per cent of respondents rated the various sections either 'generally useful' or 'very useful' for 'keeping up-to-date'. About 1 per cent rated the sections 'not useful' (it is interesting to note that one reader who felt the *Bulletin* was biased and not worth reading still completed the address update form!). In terms of 'relevance to present work', around 70 to 80 per cent of respondents rated the sections either 'generally useful' or 'very useful'. About 2 per cent rated the sections 'not useful'. Of all the current sections, the recently introduced 'Statistical summary' section rated lowest, in terms of both 'keeping up-to-date' and 'relevance to present work'.

As well as the ratings of the individual sections, readers provided some useful suggestions. A number of readers commented on the lack of information about Aboriginal health in urban and major rural areas. Others readers noted the paucity of details about current research work being undertaken, and on the limited publication of research findings. Information about Aboriginal mental health was also identified as an area of deficiency, as was occupational health and safety.

To address these deficiencies, we invite people undertaking work in these areas to send possible contributions to the *Bulletin*. While we can, and do, request contributions from people known to be working in these areas, overall the response is not good, so we need your help if the *Bulletin* is to be of maximum usefulness. At the same time, it is opportune to remind readers that we need assistance in all areas. For example, when you publish material in any form, could you please provide us with a copy of the article/report/monograph etc. (or, at least, adequate publication details so we can track it down). If you know of some recent development that should be included in 'Current topics', please let us have the details. Theses in the area of Aboriginal health are particularly difficult to locate, so we give a special plea for a copy (perhaps in electronic form) of your thesis (remember, too, that the Australian Institute of Aboriginal and Torres Strait Islander Studies tries to maintain a complete collection of theses on Aboriginal topics).

Returning to readers' comments from the questionnaire, some felt that the *Bulletin* was too 'academic', while others suggested that inclusion of a list of forthcoming meetings, conferences, seminars etc. would be useful.

Being an information bulletin, we attempt to reach as wide an audience as possible, presenting material in 'plain English' and avoiding the level of technical detail usually included in journals like the *Medical Journal of Australia*. We also see the *Bulletin* as complementary to publications such the *Aboriginal and Islander Health Worker*. Given these points, we will try to avoid being too academic.

In terms of notices of forthcoming events, the frequency of publication of the *Bulletin* (six-monthly) limits its usefulness for disseminating such information.

As an adjunct to the questionnaire, we are pleased that Dr Peter Lake has prepared a paper analysing the contents of the *Bulletin* in its almost 10 years of publication (the first edition appeared in April 1982). This paper will be featured in the tenth anniversary edition, scheduled for circulation in May 1992.

For the moment, this edition includes a variety of articles: a summary of the health components of the final report of the Royal Commission into Aboriginal Deaths in Custody; a review of cardiovascular risk factors in the Aboriginal and Islander population of the North Coast, New South Wales; a paper on maternal and environmental factors affecting Aboriginal child health in the Kimberley region of Western Australia; a review of acute respiratory infections in Aboriginal children; and an analysis of Aboriginal mortality in western New South Wales during the 1980s.

Neil Thomson
Bruce English

Current topics

National Aboriginal Health Strategy

As noted in *Bulletin* No. 15, on 17 December 1990, the Federal Government announced implementation of the National Aboriginal Health Strategy with funding of up to $232 million over a five year period. Funding was dependent on the States and Territories making substantial contributions. It is understood that negotiations with States and Territories are near completion, thus enabling the specific aspects endorsed by the Federal Government to proceed fully.

The Federal Government has already moved on a number of the new initiatives, including the establishment of an Office of Aboriginal Health within the Aboriginal and Torres Strait Islander Commission (ATSIC). Mr Ian Myers, formerly the New South Wales ATSIC State Manager, has been appointed as the Assistant General Manager of the Office of Aboriginal Health. The Office's functions include:

- oversight of implementation of the Strategy
- assessment of infrastructure and environmental conditions in Aboriginal and Torres Strait Islander communities
- monitoring and evaluation of Commonwealth sector activities in Aboriginal health.

Appointment of members to the Council for Aboriginal Health is nearing finalisation. The tripartite Council (including representatives of Aboriginal communities and Federal and State/Territory governments) will advise the Aboriginal Affairs Advisory Council (AAAC) and the Australian Health Ministers' Conference (AHMC) on national Aboriginal and Torres Strait Islander health issues.

It is understood that parallel State-specific tripartite bodies have been established in New South Wales, Victoria, Queensland, South Australia and the Northern Territory.

Royal Commission into Aboriginal Deaths in Custody

In April 1991, the final National Report of the Royal Commission was presented to the Commonwealth and the States and Territories. This National Report, in five volumes, summarises the deaths that occurred, and the underlying social, cultural and legal issues that had a bearing on the deaths. The Report makes 339 recommendations, including many relating to health (directly and indirectly). The health related areas of the report are summarised in the 'Brief communications' section of this *Bulletin*.

At a Joint Ministerial Forum held on 8 July 1991, Ministers from the Commonwealth, the States and the Territories agreed to develop a coordinated national response to the report by March 1992.

Guidelines on ethical matters in Aboriginal and Torres Strait Islander research

As foreshadowed in *Bulletin* No. 15, the 111th session of the National Health and Medical Research Council adopted guidelines on ethical matters in Aboriginal and Torres Strait Islander health research. The guidelines, which complement those relating to research where human experimentation is undertaken, deal with the specific ethical considerations relating to Aboriginal health. All persons involved in research with Aboriginal people should obtain a copy of the guidelines from:

NHMRC Publications
GPO Box 9848
Canberra ACT 2601

Aboriginal health in New South Wales

On 30 July 1991, the NSW Minister for Health, Mr John Hannaford, announced that he had endorsed the direction for Aboriginal health embodied in *The last report*, a review into Aboriginal health in the State (see 'Recent reports, publications and theses' in this issue). He expressed confidence that implementation of the report's recommendations would improve the quality and accessibility of health services to Aboriginal communities.

Among the recommendations endorsed by the Minister for immediate implementation were the construction of primary health posts in a number of Aboriginal communities, and the undertaking of a number of administrative reviews (including award restructuring for Aboriginal health workers). Other recommendations, such as those involving special transport needs and support for cooperative ventures, were referred to the Director General of Health for investigation and advice.

Public Health Association (PHA) conference

The Association's 24th Annual Conference, held in Alice Springs from 29 September to 2 October, represented a major milestone in the collaboration of public health professionals with Aboriginal people.

The conference, on the theme of 'The health of indigenous peoples', was attended by about 750 people, including many from overseas (New Zealand, Canada, United States, the Philippines, Zimbabwe, England, Germany and a number of other countries were represented). As well as plenary sessions (on topics such as an overview of indigenous health, primary health care and community control, health service delivery, and alcohol and substance abuse), there were about 35 workshops running in five parallel sessions throughout the conference.

In the final session, participants endorsed a number of conference resolutions, which have been passed to PHA for action. The resolutions reflect what the conference organisers see as 'the new relationship between Aboriginal people and public health professionals' which they hope will 'continue to develop and lead to an active alliance for greater justice and equity in this country'. A part of this new relationship includes the election of the first Aboriginal person (Ms Chris George from Anyinginyi Congress in Tennant Creek) as convenor of PHA's Aboriginal Health Special Interest Group.

More information about the conference, PHA and its Special Interest Group is available from:

PHA
GPO Box 2204
Canberra ACT 2601
Telephone: (06) 285 2373

Recently published research

Guest C, Mitchell H, Plant A

Cancer of the uterine cervix and screening of Aboriginal women.

Australian and New Zealand Journal of Obstetrics and Gynaecology 1990 30(3):243–247

Cancer of the cervix has not been widely reported as an important health problem for Aboriginal women. This article reviews four sources of data on cervical cancer death rates, abnormalities detected by cervical cytology screening, and the proportion of women who had been screened.

In the Northern Territory during 1979–1983, the relative risk for cervical cancer deaths among Aboriginal women was 6.3 compared with the total Australian female population.

For Aboriginal women screened at Victorian Aboriginal health services, the prevalence of Pap smears with a significant abnormality was higher than among the general population, confirming the need for effective screening programs for Aboriginal women.

The increase in the number of Pap smears performed at Aboriginal health services in the period 1984 to 1988 suggests that these services have been successful in making screening more acceptable to Aboriginal women.

Hunter EM

A question of power: contemporary self-mutilation among Aborigines in the Kimberley

Australian Journal of Social Issues 1990 25(4):261–278

This article reports an increase during the 1980s in non-traditional self-mutilation in the Kimberley region of Western Australia, coinciding with increases in other forms of intentional violence (such as suicide, homicide and deaths from accidents). The author highlights the distinction between ritual mutilation, which is culturally sanctioned, and non-traditional self-mutilation which is generally associated with a limited set of psychiatric conditions.

The author focuses on the recent sociocultural changes taking place within Aboriginal Australian society and the role played by alcohol in these changes. He argues that since citizenship rights were gained key issues have been shifts in the economic power base to women (through welfare payments) and changes in alcohol consumption patterns, which have accelerated the destruction of traditional values.

While acknowledging the dangers of concentrating on the role of alcohol, the author concludes that contemporary patterns of self-mutilation (often including violence towards others) are expressions of the powerlessness of Aborigines, in which patterns of alcohol abuse and the destruction of traditional lifestyles are key factors.

Kunitz SJ
Public policy and mortality among indigenous populations of northern America and Australasia.
Population and Development Review 1990 16(4):647–672

This article relates historical and contemporary mortality among Australian Aborigines, New Zealand Maoris, United States Indians and Canadian Indians to the socio-political context of each population. In passing, Kunitz notes the relatively poor development of health statistics relating to Aborigines.

The author suggests that the lack of treaties between Aborigines and the Federal Government is a very significant factor in the later decline in mortality, from infectious diseases, among Aborigines than among the other populations. For the other indigenous populations, he argues that treaties provided the legitimacy for 'claims to land, reparations and services'.

In terms of contemporary mortality, the striking difference between Aborigines and the other populations is the high mortality from cardiovascular disease, particularly ischemic heart disease: 'that ischemic heart disease accounts for such a high proportion of deaths in a population with such low life expectancy is truly anomalous'.

The author concludes that national health insurance is not the way to address the health disadvantages of the indigenous populations considered, and that these populations 'may wish to maintain their own exclusive services as a means of resisting cultural assimilation and the loss of whatever political autonomy they have managed to acquire'.

Aboriginal and Islander Health Worker
Vol. 15, No. 1, January/February 1991

This issue includes an examination of the primary health care needs of Aboriginal people from the point of view of the work of the Healthy Aboriginal Life Team. Attitudes towards alcohol in Alice Springs and Aboriginal awareness of alcohol abuse are also discussed in two articles.

The journal also includes articles on: the work and success of the Alukura Birthing Centre, Alice Springs; redefining Aboriginal health by the year 2000; family violence; and Pat Gamananga (a personal history).

Aboriginal and Islander Health Worker
Vol. 15, No. 2, March/April 1991

This issue of the journal examines the relevance of research, its impacts on improvements in Aboriginal health, the ethics of Aboriginal health research and the active involvement of Aborigines and Torres Strait Islanders in research projects. It also raises the crucial issue of research data ownership. Other maters included are: a short report on cardiovascular risk factors of the North Coast (New South Wales) Aboriginal and Islander population; the management of blood pressure and heart disease; and the first part of an article by Charles Perkins challenging Aboriginal people to participate in determining their future.

Aboriginal and Islander Health Worker
Vol. 15, No. 3, May/June 1991

The importance of genetically determined birth defects is reviewed in this issue of the journal, which also reports on issues covered by the Human Rights and Equal Opportunity Commission. Other articles cover a diverse range of topics relating to: Aboriginal mental health; rehabilitation programs in Townsville and Palm Island; child sexual assault; and the role of the Central Australian Aboriginal Alcohol Planning Unit. The article by Charles Perkins (see previous abstract) is completed in this edition.

Bartlett B
Central Australia: medical practice in Australia's fourth world
Medical Journal of Australia 1991 155:470–472

The author notes that the health problems of Aboriginal people in central Australia must be viewed in relation to the underlying problems and inequalities faced by the Aboriginal communities. These underlying problems largely result from the colonisation process, which deprived Aborigines of their land and economic base, and caused a 'breakdown of community relations and traditional community cohesiveness'.

In its overall health strategy, the Central Australian Aboriginal Congress, the Alice Springs-based Aboriginal-controlled health service, addresses three basic problems—physical environment, social environment and nutrition/exercise (so-called lifestyle)—rather than adopt a 'disease' approach, which is difficult for the Aboriginal community to comprehend. These strategies are reflected in the programs run by Congress: a 24-hour medical service, child care, a housing advisory service, a welfare service, a town-camp health program, community health education, Alukura (women's health service), dental care, Aboriginal health worker education, family support program, and a 'health food' store.

The author emphasises the need for non-Aboriginal health workers to understand the different perspective of Aborigines to health and health services. Although a reliance on Western methods is inevitable for many illnesses, 'bush medicine and the practice of *ngankerres* (traditional healers) are powerful for Aboriginal people'. Aboriginal health workers are important in providing the link between Western health practitioners and the community.

Carter E, Bartlett B
Long way from my country—Aboriginal patients in hospital [letter]
Medical Journal of Australia 1991 155:350

This letter notes that for many traditional Aboriginal people, hospitals and hospital systems are an alien environment. Aboriginal health workers are suggested as a resource that could be used to help non-Aboriginal health professionals deliver culturally appropriate health care, but this requires the allocation of adequate resources and appropriate recognition of Aboriginal health workers.

Clayer JR, Czechowicz AS
Suicide by Aboriginal people in South Australia: comparison with suicide deaths in the total urban and rural populations.
Medical Journal of Australia 1991 154:683–685

This study, undertaken in consultation with members of the South Australian Aboriginal Community and with the support of an Aboriginal research officer, examined the South Australian Coroner's records for Aboriginal suicides for the period 1981–1988.

Between 1981 and 1988, Aboriginal suicides rose from a total of 1 (10.1 per 100,000) to 14 (105.3 per 100,000), with Aboriginal males dying from suicide more frequently than females. The study tended to confirm earlier findings that suicide was more likely to occur in Aboriginal people who were not exposed to traditional Aboriginal backgrounds as children.

The study concluded that suicide among Aborigines is increasing at a faster rate than among non-Aborigines, and this may in part be due to social processes which create unacceptable and stressful situations. Suicide is one manifestation of this process, while abuse of alcohol, drugs and petrol is another.

Clements DA
Ear disease in three Aboriginal communities in Western Australia [letter]
Medical Journal of Australia 1991 154:491

In commenting on the question of whether the current prevalence of ear disease reflects a change in awareness of the disease, the author suggests that discharging ears in Aboriginal children was probably the norm from at least as long ago as 1788 (or shortly thereafter).

Gracey M
Health of Kimberley Aboriginal mothers and their infants and young children
Medical Journal of Australia 1991 155:398–402

Developed from a paper delivered to the ANZAAS Congress in Hobart during February 1990, the author suggests that Aboriginal children in the Kimberley are undernourished, growth retarded, and fail to reach their ultimate potential for growth.

Early nutritional deficits such as intrauterine growth retardation, low birthweight and prematurity are considered, along with environmental and nutritional factors. Also reviewed are maternal factors, morbidity, faltering (that is, unsatisfactory) growth in early childhood, nutrition, and infections and their impact on child growth rates.

Gracey M
Nutrition of Australian Aboriginal infants and children
Journal of Paediatric Child Health 1991 27:259–271

Adequate nutrition is considered essential for normal growth during childhood. The author reviews published literature about the growth patterns of Aboriginal children and relates these patterns to genetic and environmental factors, particularly nutrition and infection. He suggests early interventions to counter growth retardation in Aboriginal children.

Hanna JN, Wild BE
Bacterial meningitis in children under five years of age in Western Australia
Medical Journal of Australia 1991 155:160–164

The study examines 270 cases of bacterial meningitis (200 non-Aborigines and 70 Aborigines) occurring in Western Australia between 1984 and 1988 among children aged one month to five years. There were 16 deaths (case fatality rate 5.9 per cent), seven children developed profound sensorineural deafness, and a further seven developed cerebral palsy after bacterial meningitis. Aboriginal children were at very high risk of developing bacterial meningitis and were over-represented among those dying, but under-represented among those with severe neurological sequelae.

Haemophilus influenza type b caused nearly 70 per cent of the cases of childhood bacterial meningitis, with the rate being significantly higher for Aboriginal children (150 per 100,000 children under five years of age compared with 27 per 100,000 for non-Aboriginal children). The mean age of onset of *H. influenza* meningitis was also significantly lower in Aboriginal children than in non-Aboriginal children (6.8 months compared with 19.8 months).

Aboriginal children in Western Australian and the Northern Territory had similar high annual rates for *H. influenza* type b meningitis to indigenous children of North America, but this pathogen was responsible for less than 60 per cent of cases among Aborigines compared with about 75 per cent of cases among non-Aborigines. Among Aboriginal children, *N. meningitidis* and *S. pneumoniae* were also important causes of meningitis.

The authors believe that the *H. influenza* vaccine PRP-D would be ineffective among Aboriginal children, but that the vaccine PRP-OMP (a conjugate vaccine consisting of *H. influenza* type b capsular polysaccharide coupled to the outer membrane protein complex from *N. meningitidis* group B) may prove effective.

Lowe P
Long way from my country—Aboriginal patients in hospital [letter]
Medical Journal of Australia 1991 154:854–855

Based on observations of communication failures between non-Aboriginal health workers and Aboriginal patients in a Perth hospital, the author stresses the need for appropriate interpreters to be available.

Mackenzie JS, Broom K, Smith DW, Burrow J, Whelan P
Australian encephalitis in Western Australia and the Northern Territory, 1991.
Communicable Diseases Intelligence 1991 15(17):294–295

Two of the four cases of Australian encephalitis (two from Western Australia and two from the Northern Territory) diagnosed in 1991 involved young Aboriginal children. Three of the cases were caused by Murray Valley encephalitis (MVE) virus and one by the Kunjin virus.

Merianos A, Mulvaney G, Jayathissa S, Stewart J, Linehan P, Matters R
Outbreak of non-sexually transmitted gonococcal conjunctivitis in Central Australia, 31 January to 6 June 1991.
Communicable Diseases Intelligence 1991 15(16):264–266

During the period 31 January to 6 June 1991, 251 cases of gonococcal conjunctivitis were reported to the Communicable Diseases Control Centre in Alice Springs. All but one of the cases occurred in Aboriginal people and most within 400 km of Alice Springs. The study found that the population was highly mobile between related communities, and that young children (0–4 years of age) represented 43.7 per cent of the cases. Multiple cases within affected households were also noted as a feature of the outbreak.

Morrow M, Barraclough S
Issues and policy developments in the official collection of Australian Aboriginal health statistics
Australian Medical Record Journal 1991 21(1):6–9

This article covers contemporary issues in the official collection of Aboriginal health statistics. Problems of excluding Aborigines from some past surveys are discussed, as is the restrictive nature of the official definition of Aboriginality and a lack of uniformity between collection agencies.

The authors also note the slow development and implementation of collection procedures and the often incomplete nature of Aboriginal statistics. The article concludes that accurate and complete data will only come about by: commitment by the States/Territories; the acceptance by Aborigines of the benefits of statistical collections; and the raising of awareness of the Aboriginality issue by collectors of data.

O'Dea K
Westernisation, insulin resistance and diabetes in Australian Aborigines
Medical Journal of Australia 1991 155:258–264

This article summarises factors associated with the high rate of obesity, non-insulin dependent diabetes mellitus and coronary heart disease among Aborigines, and the impact of the westernisation process on traditional lifestyle, including dietary patterns.

The traditional hunter-gatherer lifestyle, characterised by high physical activity and a diet of low energy density (low fat, high fibre), promoted the maintenance of a low body weight and minimised insulin resistance. In contrast, the impact of westernisation has resulted in a sedentary lifestyle and an energy dense diet (highly refined carbohydrate and fat), which has promoted obesity and maximised insulin resistance. The author suggests that interventionist strategies at the community level could be an effective way of combating chronic diseases related to insulin resistance.

Patel MS, Phillips CB, Cabaron Y
Frequent hospital admissions for bacterial infections among Aboriginal people with diabetes in central Australia
Medical Journal of Australia 1991 155:218–222

Of the 374 known Aboriginal diabetics in the central Australian region, 165 (60 per cent) were admitted to Alice Springs Hospital on 281 occasions between 1984 and 1986 because of a bacterial infection. These admissions for infections accounted for 4.6 per cent of all adult Aboriginal admissions.

Of the 165 people, 13 died as a result of their infections (10 involving bacteraemia). Almost one-fifth of the admissions for infections involved soft tissue infections of the legs. A total of 11 patients required amputations: toes—six cases; fingers—two cases; and leg—three cases (one above knee and two below knee). Forty-three patients were admitted with urinary tract infections, three with tuberculosis and two with meningitis (one on two occasions). As well, a number of patients had unusual infections, some of which are seen as specific indicators of poorly controlled diabetes.

In view of the substantial personal costs to the patients, families and communities, and financial costs to the health system, the authors recommend strengthening diabetic management strategies as part of primary health care activities. These strategies include: routine testing for diabetes of all adults with infections; a foot care program; regular examinations for urinary tract infections; regular chest X-rays; and cautious antibiotic selection based on local sensitivity patterns.

Prociv P, Croese J
Eosinophilic enteritis in the Northern Territory [letter]
Medical Journal of Australia 1991 154:639–640

The authors discuss the difficulties of diagnosing cryptic zoonotic infestations, such as canine hookworm (*Anclyostoma caninum*) in populations heavily infected with the common nematodes of humans. In such populations, including many Aboriginal communities in the Northern Territory, the diagnosis of eosinophilic enteritis from non-patient infections can be assisted by special serological tests.

They suggest that infections with *A. caninum*, and possibly zoonotic species of *Strongyloides*, will become more evident as transmission of the common nematodes is controlled in Aboriginal communities.

Reath JS, Patel M, Moodie R
Cervical cytology in Central Australian Aboriginal women
Australian Family Physician 1991 20(5):600–606

This article reports the results of routine cervical screening of 113 Aboriginal women attending an Aboriginal community controlled health service in Alice Springs. Of the women, nine (8 per cent) had cervical atypia and two (1.8 per cent) had cervical intraepithelial neoplasia. These rates were similar to those observed in larger Australian and overseas populations. Of the group studied, a higher prevalence of abnormal smears was reported in urban dwellers (15 per cent) compared to the town camp and rural women (2 per cent).

Reznik RB
A hepatitis B vaccination programme for the inner metropolitan Sydney neonates
Medical Journal of Australia 1991 155:153–156

In this article reviewing a hepatitis B vaccination program for the inner metropolitan area of Sydney, New South Wales, reference is made to the high risk status of Aborigines according to World Health Organization criteria.

The author argues that selective vaccination based on identification of those in high risk groups creates some difficulties and that the vaccination of all neonates would remove many anomalies and problems. The study found that vulnerable groups such as Aborigines and Pacific Islanders had significantly lower compliance rates than other groups.

Smith DW, Broom AK, Keil A, Mackenzie JS
Murray Valley encephalitis acquired in Western Australia
Medical Journal of Australia 1991 154:845–846

This article reports a fatal case of Murray Valley encephalitis (MVE) in an 18-month-old Aboriginal male from the Kimberley region of Western Australia. On admission to hospital with meningitis, *Haemophilus influenzae* type b was cultured from the cerebrospinal fluid. Initially, he had a good clinical response to appropriate antibiotics, but subsequently his condition deteriorated. Serological tests confirmed the presence of MVE virus, and the authors raise the possibility that the *H. influenzae* infection may have predisposed to the development of the fatal MVE.

Van Buynder PG, Mathews JD, Pugsley DJ
Hepatitis B surface antigen is not associated with chronic renal disease in Aboriginal Australians [letter]
Medical Journal of Australia 1991 154:366

In view of overseas evidence associating hepatitis B surface antigen (HBsAG) with membranous nephropathy, this study examined the occurrence of HBsAG and hepatitis B e antigen (HBeAG) in 322 adult and 180 children Aboriginal volunteers from three Aboriginal communities in the Northern Territory.

The seroprevalence of HBsAG ranged from 0.7 per cent to 24.1 per cent in adults and 0 per cent to 11.7 per cent in children. Although there was insufficient evidence to positively conclude that HBsAG was not associated with membranous or mesangioproliferative glomerulonephritis in a minority of Aborigines subjects, the overall evidence suggests that hepatitis B infection is not an important cause of chronic renal disease in Aboriginal Australians.

Brief communications

The National Report of the Royal Commission into Aboriginal Deaths in Custody (RCIADIC): findings relating to Aboriginal and Torres Strait Islander health[1]

Kathy Whimp *(formerly coordinator of the preparation of the National Report, RCIADIC)* **and David McDonald** *(formerly Deputy Head of Research, RCIADIC)*

Introduction

The Royal Commission into Aboriginal Deaths in Custody (RCIADIC) was appointed in 1987 and submitted its report in April 1991.[2]

The purpose of the Commission was to enquire into the deaths of Aboriginal and Torres Strait Islander people that occurred in custody during the period 1 January 1980 to 31 May 1989. Ninety-nine such deaths met these criteria, and they were the subject of exhaustive enquiries by the Commissioners.

The Royal Commission was led until April 1989 by Commissioner James Muirhead, and from that point until its conclusion by Commissioner Elliott Johnston. Three other Royal Commissioners, Commissioner Daniel O'Dea, Commissioner Hal Wootten and Commissioner Lewis Wyvill, were appointed with the primary responsibility of investigating the deaths that occurred in particular States, as well as the underlying issues associated with the deaths in those States. In June 1989, Commissioner Pat Dodson was appointed to enquire into the underlying issues in Western Australia.

The Royal Commission's National Report is in five volumes. A number of state reports are also available. The report reflects the style of operation of the Royal Commission: it pays detailed attention to both the deaths that occurred and the immediate reasons for the deaths, on the one hand, and the underlying social, cultural and legal issues that had a bearing on the deaths, on the other.

Health and illness is a theme that runs throughout the report. The poor health status of Aboriginal and Torres Strait islander people in the community is reflected in the poor health status of people in custody. The two chapters of the report directly concerned with health (Chapters 23 and 31) are summarised later in this paper.

[1] Many people contributed to the Commissions' understanding of Aboriginal health issues. They include those who gave evidence and provided submissions the Royal Commission, as well as the staff of the Royal Commission and contract researchers, particularly Jane Bathgate, Deborah Fyfe, David McDonald, Suzanne O'Neill, Joseph Reser and Neil Thomson.

[2] The Royal Commission into Aboriginal Deaths in Custody's national report, in five volumes, and the State reports, are published by the Australian Government Publishing Service, Canberra, and are available through Australian Government Bookshops in each capital city, and in major libraries, including that of the AIATSIS.

Interested readers may wish to follow up other chapters which also focus on health issues, including:

- Chapter 3 —The findings of the Commissioners as to the deaths
- Chapter 15—The harmful use of alcohol and other drugs
- Chapter 24—Custodial health and safety
- Chapter 32—Coping with alcohol and other drugs.

The deaths

Of the 99 Aboriginal deaths examined in detail by the Royal Commission, 88 were males and 11 were females. Their ages ranged from 14 to 62 years, with a mean of 32 years. The majority of the deaths occurred in police custody (63 deaths), with 33 occurring in prison custody, and three in juvenile centres.

The manner of death varied. The largest category was 'natural causes' (37 deaths), with hanging (30 deaths) being the next most frequent category. The other categories were head injuries (12 deaths), gunshot wounds (4), other external trauma (7), drug use (4) and acute alcohol use (5).

The Royal Commission found that none of the deaths had been caused by foul play. Illness and self-inflicted hangings accounted for most of the deaths. The Commissioners did find, however, that in a number of cases the custodial death would not, or may not, have occurred if the person had been dealt with more appropriately.

The vulnerabilities of those in custody (Chapter 23)

It was apparent that health was a key vulnerability facing those Aboriginal people who died in custody. The deaths occurring in custody highlight the great health risks to which many Aboriginal people are exposed, in and out of custody.

The pattern of Aboriginal deaths occurring in custody (with the exception of the self-inflicted deaths) resulted from an unusual combination of causes associated with material disadvantage and of causes previously thought to be associated with affluence, such as heart disease and stroke. The self-inflicted deaths, occurring at much the same rate as among non-Aboriginal people in custody, appeared to reflect an increasing tendency for some Aboriginal people to behave in self-harming ways. For most of the people whose deaths were examined by the Commission, the hazardous use of alcohol was a major factor contributing to their deaths.

The diseases and injuries which caused many of the deaths in custody reflect the overall health status of the Aboriginal population. Aboriginal people have an expectation of life at birth which is markedly lower than that of other Australians and poor even by international standards. Despite a rapid decline in recent years, the Aboriginal infant mortality rate is still three times higher than that of other Australians. Hospitals statistics confirm the relatively poor health status of Aboriginal people, both in terms of the rate of hospitalisation and the length of stay in hospital. Many of the diseases which are still common among Aboriginal people are very uncommon among the non-Aboriginal population: malnutrition, diarrhoeal disease, meningitis, tuberculosis and leprosy, for example. Aboriginal people also suffer increasingly from the so-called lifestyle diseases, including diabetes, hypertension and ischemic heart disease.

On the basis of the deaths examined, it appeared that the greatest specific risk for Aboriginal people in custody was self-harmful behaviour, which the Commission recognised could be precipitated by acute situational factors, as well as any underlying mental disorder or distress.

A number of factors were identified as contributing to mental health problems. These include socio-historical and socioeconomic stress, the effects of rapid cultural transition, implications of alcohol use, and experiences of racism. Other factors increasing the risk of self-harmful behaviour included intoxication, anger and emotional distress, age and sex (younger adult males appeared to be most vulnerable).

For Aboriginal people, higher proportions of self-harm occurred in police rather than in prison custody, and alcohol figured significantly in the incidents of self-harm. In noting that self-destructive behaviour was not uncommon in Aboriginal communities, nor in custodial situations, the Commission concluded that it is best understood in its social context, as the interaction of life experiences and immediate stresses.

In its consideration of the mental health context of the self-inflicted deaths, the Commission noted two particular factors: the presence of psychotic conditions, and of alcohol-induced states of mental disturbance. Five cases of self-inflicted death examined by the Commission appear to have involved a classified mental disorder. A number of the cases also involved alcohol induced states of mental disturbance, including those associated with withdrawal from alcohol use.

The Commission noted that conventional models of mental health may not necessarily provide the most appropriate context in which to analyse and treat the mental distress experienced by Aboriginal people. It recognised that to comprehend fully the nature of this distress, psychiatric assessments of Aboriginal people must be balanced by the social and cultural insights provided by social science perspectives of mental health.

In terms of underlying factors, the most frequent element of risk for Aboriginal people in custody (particularly police custody) was alcohol use, seen in conditions associated with acute alcohol intoxication and in diseases associated with the long-term effects of alcohol use. The effects of alcohol misuse were also seen in more general ways, such as in the general debility of Aboriginal people in custody. Alcohol also contributed to the masking of life-threatening conditions and, in some cases, was a cause of sleep apnoea, the cessation of breathing caused by a blockage of the airway during sleep.

In 20 of the cases examined by the Commission, the deaths were caused directly by diseases of the circulatory system. Autopsies also revealed significant heart disease in a number of other cases. It is likely that the emergence of significant ischemic heart disease among Aboriginal people is a relatively recent health phenomenon, but it appears that its impact is particularly lethal. The Commission noted that the extent of premature mortality caused by circulatory system diseases warrants urgent attention from all responsible authorities.

Towards better health (Chapter 31)

Since so many Aboriginal people experience serious sickness and injury as part of their everyday lives, the Commission was not surprised to find that many coming into the custodial situation had a relatively poor health status. Although no clear and direct relationship was established, it was felt that the provision of health services could undoubtedly impact significantly on Aboriginal health. It was also felt that a mismatch existed between national health services resources, and their application to meeting the needs of particularly vulnerable groups within Australian society.

The Commission noted that health services were provided to Aboriginal people by a combination of Commonwealth, State, Territory and local governments. This diversity of responsibility impacts significantly on the coordination of services provided. A major issue in access to health care for Aboriginal people was the relative inaccessibility of many mainstream health care services. In recent years, Commonwealth funding of State-run programs has decreased steadily with funds being redirected to Aboriginal community-controlled health services. Some States have also provided funds to these health services. The Commission recognised that Aboriginal health services had improved both the accessibility and the cultural sensitivity of health care delivery to Aboriginal people.

A primary principle underlying the way in which Aboriginal health services operate is the commitment to a broad definition of health, taking into account the cultural, social and economic circumstances of Aboriginal people. The Commission recommended that they should be adequately resourced to maintain this focus (Recommendation 259). In addition, it was noted that mainstream health services have much to learn from the experiences of Aboriginal community-controlled health services (Recommendation 248). Aboriginal health workers were seen as an important component in the effectiveness of Aboriginal health services, and the Northern Territory example of the training and career structures developed for Aboriginal health workers was seen as a model for their better incorporation into health care institutional structures (Recommendation 262).

The Commission recognised that the evaluation of Aboriginal health services is a difficult area, as it is for all community based health services, but that the development of appropriate and sensitive indicators could contribute to the building of skills and self-confidence in managers and service delivery personnel. This should contribute to the development of services, and not simply be a tool for determining levels of funding (Recommendation 260). The Commission concluded that Aboriginal organisations should increasingly be recognised as the appropriate vehicle for delivering, coordinating and evaluating Aboriginal health services, and that existing models which involve the contracting of Aboriginal community-controlled organisations to provide health services on behalf of government departments should be considered (Recommendation 258). It was also seen as vital that effective mechanisms of communication between Aboriginal health services and mainstream health services be developed (Recommendation 250).

The experience of being a patient in mainstream health services was noted as being uncomfortable and bewildering for many Aboriginal people. The Commission concluded that there was much room for improvement in the better training of health professionals at all levels, particularly in aspects of Aboriginal culture, society and economic circumstances, as well as in the skills of cross-cultural communication. In addition, the distinctive morbidity patterns of Aboriginal people need to be understood by health professionals (Recommendations 247 and 249), as does the effect of negative stereotypes, both of Aboriginal people and of people with drinking problems (Recommendation 255). The design and procedures of health services which service Aboriginal people should be reviewed to reduce the likelihood of ineffective diagnosis and to better attune the physical design of, and methods of operating, health care facilities to the needs of intended patients (Recommendations 251–253, 267).

The involvement of Aboriginal people at all levels in the operation of the health care system was seen as a critical factor in improving the quality of mainstream health care delivery. This should range from inclusion of Aboriginal people on hospital boards (Recommendation 254), to the increased employment of Aboriginal people at all levels of mainstream health care delivery (Recommendations 254 and 256). The appointment of Aboriginal liaison officers in hospitals, and their recognition as a part of the therapeutic team, was endorsed, as was the encouragement of Aboriginal doctors (Recommendations 257 and 261). To ensure that the contribution of Aboriginal staff is effective, it was important to recognise the potential for role conflict, and to develop strategies to minimise it (Recommendation 256).

The Commission noted substantial deficiencies in the delivery of mental health care services to Aboriginal people, but felt that these deficiencies could be ameliorated through better training of non-Aboriginal health professionals and the development of a cadre of Aboriginal health workers with appropriate mental health training (Recommendation 265). It was felt particularly important that mental health services should be linked and integrated with local health and other support services (Recommendation 266).

The major current policy thrust in the area of Aboriginal health in the implementation of a National Aboriginal Health Strategy was recognised. It was noted that the Working Party which was responsible for developing the strategy comprised leading members of the Aboriginal community, who undertook an exhaustive process of consultation with Aboriginal people and others. As such, it embodied a perhaps unprecedented direct involvement of Aboriginal people in the formulation of Aboriginal health policy.

The National Aboriginal Health Strategy Working Party recognised the need for research into a wide variety of Aboriginal health issues. It recommended that funds be set aside for research projects conducted by, and specific to, Aboriginal communities and Aboriginal community-controlled organisations. In noting that Aboriginal people are particularly sensitive to intrusive research, the Commission recommended that they should be involved at all stages of the development and implementation of research and statistical data collection (Recommendations 268–270).

The Commission noted that, despite acceptance by Commonwealth and State Ministers, current funding allocations appear inadequate to facilitate the full implementation of the Strategy. The recently announced allocation of $232 million over a five year period is less than one-fifth of that estimated as being needed by the government officials responsible for recommending on implementation. Around three-quarters of the $232 million will go to improvements in housing, water, waste disposal, roads, power and communication facilities, with a further one-fifth being allocated to the establishment of new Aboriginal community-controlled health services, and to improving the facilities of existing services. The Commission recommended that funds should be made available urgently to allow the strategy to be implemented fully (Recommendation 271).

Conclusion

The Royal Commission's National Report was tabled in the Commonwealth Parliament on 9 May 1991. At a Joint Ministerial Forum held on 8 July, Ministers from the Commonwealth, the States and the Territories agreed to develop a coordinated national response to the report by March 1992.

In the 1991–92 Commonwealth budget, a small appropriation (approximately $3 million) was made based on the Commission's recommendations. During the second half of 1991, however, the main activity has been for governments to develop their responses to the report. It is to be hoped that Aboriginal and Torres Strait Islander people will be actively involved in the process of developing and implementing the far-reaching changes which the Royal Commission's report recommends.

Cardiovascular risk factors in the Aboriginal and Islander population of the North Coast, New South Wales

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Introduction

In western New South Wales in 1984–1987, disease of the circulatory system has been estimated to be responsible for approximately 40 per cent of the excess risk of death experienced by Aborigines compared with non-Aborigines (Gray and Hogg 1989). The relative risk of death from ischemic heart disease was 13 times higher for Aborigines than for the rest of the New South Wales population.

Cardiovascular disease is one of the main contributing factors to premature mortality and chronic morbidity among Aboriginal and Islander people living in the North Coast region of New South Wales, where they account for 2.0 per cent of the population. The life expectancy of Aboriginal and Islander people of this region is 54 years, compared with 76 years for non-Aborigines.

To examine the reasons for Aboriginal and Islander mortality in the North Coast region, a screening program has been set up to establish the prevalence of risk factors for cardiovascular disease.

The goals of the program were:

- to document the prevalence and severity of the risk factors for cardiovascular disease (CVD)
- to report these results back to the local communities, and discuss possible intervention strategies to reduce the prevalence and incidence of risk factors
- to implement selected intervention strategies.

The CVD risk factor screening was conducted between June and July 1990. Results were reported to the local communities by October/November, and intervention programs were implemented from February 1991.

Methods

Permission for the survey was obtained from the communities involved, and a pilot study was undertaken to adapt survey procedures for the Aboriginal communities.

With the assistance of local Aboriginal health workers, two staff from the North Coast Health Promotions Unit conducted the survey in 17 different locations on the North Coast. Interviews were undertaken at venues familiar to the people, with the Aboriginal Land Council offices being the most favoured venues.

As well as basic socio-demographic data (name, age, sex, address, education and employment), information on family history of disease, and estimates of tobacco and alcohol consumption (based on the CAGE screening instrument—see Ewing 1984) and exercise was sought from participants. Height, weight and blood pressure were measured, and blood samples taken for estimating cholesterol, blood sugar and gamma GT (glutamyl transpeptidase) (estimated by means of a Boehringer–Mannheim Reflotron and a glucometer). Participants were provided with health information and fruit. If considered appropriate, participants were referred to a medical practitioner for further assessment and/or medical management.

Results

A total of 420 participants, comprising 185 males (44 per cent) and 235 females (56 per cent), were screened. The average age of participants was 36 years (range: 15 to 84 years). Of the 420 participants, 49 (12 per cent) had had no formal education, and, for the others, the average level of education reached was Year 8. A total of 103 people (25 per cent) were employed, but 117 (28 per cent) were unemployed and another 121 (29 per cent) were recipients of a pension of some form. Of the participants, 40 (9 per cent) were involved in domestic duties and 24 (6 per cent) were students.

A total of 58 people (14 per cent) reported that they had received treatment for high blood pressure, and 109 (26 per cent) had had their cholesterol measured previously (this compares with more than 50 per cent for the total population—see National Heart Foundation of Australia 1983).

In terms of family history of disease, 164 people (39 per cent) reported the existence of heart disease in a close relative; 141 (34 per cent) diabetes mellitus, and 12 (3 per cent) liver and/or urinary tract disease. Two people reported that a close relative had been diagnosed as being infected with hepatitis B virus.

Of the 420 participants, 164 (39 per cent) reported consuming alcohol: 89 males (48 per cent of male participants) and 75 females (32 per cent of females). For alcohol consumers, the average number of drinking sessions per week was 2, and an average of 10 standard drinks were consumed per session. Of alcoholic beverages, 144 drinkers (88 per cent) reported beer consumption, 26 (16 per cent) wine and 43 (26 per cent) spirits. In response to the CAGE questions, 76 drinkers (46 per cent) said they had felt the need to cut down their drinking, 53 (32 per cent) had felt annoyed by others asking about their drinking, 39 (24 per cent) had felt guilty about their drinking and 18 (11 per cent) said they had an 'eye-opener' in the morning.

Cigarette smoking was reported by 224 people: 102 males (55 per cent of males) and 122 females (52 per cent of females). The average number of cigarettes smoked per day was seventeen.

A total of 144 participants (34 per cent) engaged in regular exercise (largely walking significant distances for shopping and/or participation in sporting activities).

The measurements made revealed a slightly higher mean body mass index (BMI) for females than for males (see Table 1). Most other measurements, however, found slightly higher levels for males than for females, the exception being Gamma GT, for which the level for males was markedly higher than that for females.

The levels of BMI found for Aboriginal males and females living in the North Coast were higher than found by surveys of the total population in Darwin, Northern Territory, Warren, New South Wales and Australian capital cities (Menzies School of Health Research 1990; National Heart Foundation of Australia 1985; Stephenson & McKay 1990). Compared with the other populations, North Coast Aborigines had higher mean systolic and diastolic blood pressures, and higher levels of blood glucose. For North Coast Aborigines, serum cholesterol was higher than found in Darwin, but lower than the levels for Warren and Australian capital cities. Compared with residents of Warren and Australian capital cities, the proportion of North Coast Aborigines reporting alcohol use was lower, and tobacco use higher.

Table 1: *Mean characteristics of participants in the North Coast Aboriginal and Islander cardiovascular disease and risk factor survey*

	Men ($n = 186$)	Women ($n = 234$)
Age (years)	34	37
Body Mass Index (kg/m^2)	27.6	28.7
Systolic blood pressure (mm Hg)	134	128
Diastolic blood pressure (mm Hg)	87	81
Blood glucose (mmol/L)	6.2	6.7
Serum cholesterol (mmol/L)	4.9	4.9
Gamma GT (U/L)	52.5	34.1
Proportion using alcohol (per cent)	48	32
Proportion smoking (per cent)	55	52

Discussion

As well as providing clear evidence of the relatively poor cardiovascular disease risk status of Aboriginal people living in the North Coast region of New South Wales, the results form the basis for a health education and intervention program, targeting participants considered to be in an 'at risk' category for heart disease.

When the results were presented to the communities, there was a general concern about the poor average state of health, indicating that the feedback process may be an important stimulus to action. In many cases, the feedback resulted in requests for specific follow-up interventions. Participants saw a real need for the screening and, in most areas, expressed regret that the program had been limited in both time and scope. Referrals made as part of the program were also seen as an important contribution to the communities.

The screening staff noted more alcohol and drug-related lifestyle problems in the more isolated communities, particularly where environmental conditions were poor. Many health problems are related to how people live and what they eat. Aboriginal and Islander people in the North Coast region are generally living in poor environmental conditions, are of lower socioeconomic status and are more susceptible to disease than their non-Aboriginal counterparts. A large number of families remain without adequate housing, water and sewerage systems, and electricity supplies.

The results of the survey will play a key role in future health promotion activities within these communities. These activities will include:

- health education programs using the Heart Care Kit developed by the New South Wales Department of Health's Aboriginal Health Promotions Program
- formation of community health committees, to focus on issues of immediate and major concern to the community
- programs to access the needs and resources of the communities, and to channel whatever resources are available towards health improvements
- encouragement of community participation, discussion and decision making programs
- fostering of cooperation, where appropriate, with other local authorities and planning bodies

- ongoing evaluation of developments in communities
- provision of guidance about services available to members of the communities
- enhanced training opportunities for health workers, and for members of the community health committees.

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It would not have been possible to complete this survey without the cooperation and assistance of the communities involved, the Aboriginal Land Councils, and particularly the Aboriginal Health Workers: Betty Cohen, Tracey Cohen, Anita Craig, Sue Follent, Pam Griffin, Betty Harris, Marion Johnson, Trevor Kapeen, Gloria Kelly, Rosemary Laurie, Bob Mumbler, Marg Payton, Cheryl Siddhom, Liz Wilmott, Tim Torrens and Helen Sikkens. Special thanks are also due to the Heart Health team: Karen Fardon, Julie Christian, Cave Steiner and Therase Dunn.

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Maternal and environmental factors which affect Aboriginal child health in the Kimberley region of Western Australia[1]

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Introduction

A great deal has been written about undernutrition in Aboriginal infants and young children and the high prevalence of diseases which they experience, particularly respiratory and gastrointestinal infections and parasitic infestations (Gracey et al. 1983, Gracey 1985, Roberts, Gracey & Spargo 1988). The wide gap between disease patterns in Aborigines and other young Australians is reflected in the much higher admission rates of Aboriginal infants and children to hospital for infections. In Western Australia, for example, admission rates of Aboriginal infants for gastroenteritis are 16 to 20 times those for non-Aboriginal infants (Gracey & Anderson 1989).

There is little published information, however, about factors in the community or family environment which contribute to these high levels of ill health in young Aborigines. Such information is required from different parts of Australia in order for appropriate interventions and preventive strategies to be developed and implemented at the family and community levels to help reduce the inequalities in Aboriginal child health. The study reported here was undertaken to help provide basic information about factors which contribute to unsatisfactory health and nutrition in young Aborigines.

Materials and methods

The project was undertaken in six communities in the Fitzroy Valley district of the Kimberley region of Western Australia—a semi-arid, sparsely populated savannah. The total Aboriginal population of about 1,500 lives in communities of about 120 to 430.

Each community is serviced by doctors, public health nurses and Aboriginal health workers from the Health Department of Western Australia. Pregnant women are transferred at 37 weeks' gestation to the Regional Hospital in Derby for their confinements. All pregnant women who were due to have babies in the 12 months from July 1984 to June 1985 were invited to take part and involve their infants in a study of their health, growth and nutrition. Permission to undertake the study was obtained from community councils and from individual mothers who were free to withdraw from the study at any time. There were 54 pregnant women who were eligible. Of these, two declined to take part, one experienced a miscarriage, one child was fostered out and one family left the area. The remaining 49 infants in the orig-

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[1] The Editors are grateful to the *Annals of Tropical Paediatrics* for permission to publish this condensed version of a paper to appear in the March 1992 edition of that journal.

inal cohort (24 boys, 25 girls) were studied monthly to 24 months of age, except for one infant girl who died from viral myocarditis at 11 months of age.

The conventional houses in these communities have running water, flush toilets, electricity, most have wood-burning stoves and some have low pressure (LP) gas. Each community has its community-run store and access to town stores, which can be more than two hours drive away and are sometimes inaccessible in the summer monsoon season because of flooding. Most families (54 per cent) used town stores. Stoves are provided for cooking but 54 per cent of families cooked their food in fires on the ground.

During the study, 14 per cent of toilets were blocked at one time; only 27 per cent of toddlers used toilets or had their nappies adequately disposed of. Family and community rubbish collections were made regularly in 90 per cent of households, but 8 per cent had rubbish collected only every two weeks. Households had an average of 9.5 persons (including 2.2 under-fives and 2.0 school children) and more than 5 dogs and/or other animals, including lizards and pet birds.

Information about mothers' pregnancies (including laboratory investigations) and deliveries was obtained from clinic and hospital records. Data about smoking and alcohol usage were obtained by direct questioning, and verified by independent informants, and detailed community-based information by personal interview with each family every three months. Children were weighed unclothed (to 10 g) on Seca beam balance scales and recumbent length measured (to 5 mm) on specially designed boards using standard procedures (Jelliffe 1966, United Nations 1986). Nutritional status of children was assessed by a mathematical model providing fitted growth curves from one month to two years of age, which allows growth patterns to be described as 'good' (very similar to the 50th centile of international reference values), 'moderate' (usually crossing percentiles after 6 to 8 months of age) or 'bad' (equivalent to the clinical description of growth faltering and failure to thrive followed by frank undernutrition). Data were analysed using SPSS/PC with ANOVA, stepwise logistic regression for dichotomous variables, or stepwise multiple regression for continuous variables.

Results

(a) Maternal characteristics

The average age of mothers was 24.3 (± 5.3) years and their average height was 160 (± 55) cm. A third of women were having their first pregnancy (gravida 1, parity 0), 31 per cent were gravida 2 and 36 per cent gravida 3+. Thirty-five per cent were parity 1 and 32 per cent parity 2+. One woman had previously had a cesarean section. One mother had had a previous stillbirth, three had lost babies in the neonatal period, one in the postneonatal period (1–12 months) and two had children who had died in the preschool years. Of 65 previous infants, 17 (26 per cent) were of low birthweight (less than 2,500 grams), including seven who were less than 2,000 grams at birth.

Almost half the mothers were anemic at their first antenatal visit and two-thirds were anemic at some time during their pregnancies, despite 88 per cent of the women being prescribed iron medications. Ten women (21 per cent) had urinary tract infections, five (10 per cent) had glycosuria, four had elevated blood pressure (systolic greater than 130 mm Hg and/or diastolic greater than 90 mm Hg) on two or more occasions, three were assessed as having pre-eclamptic toxaemia and six had proteinuria. One-third of the pregnancies were induced and eight of the women had forceps deliveries. Other abnormalities found during pregnancy included positive serology to hepatitis B (2), donovanosis (2) and syphilis (1), and three women had abnormal cervical smears. Two women had at most one antenatal visit, and 20 had between two and five antenatal visits. Weight gain was 3 kg in four women and 12 kg in 10 women. Most mothers were non-drinkers or infrequent drinkers, but 13 admitted to being drunk regularly and four of the women were reported to have been drunk at least every week. Forty-three per cent of the mothers were smokers.

(b) Households

Half of the families had refrigerators, 22 per cent had food freezers, 48 per cent had clothes washing machines, 20 per cent had video-cassette recorders, 20 per cent had television and 11 per cent had airconditioners. Sixty-eight per cent had electric kettles and 50 per cent had electric frying pans. Overall, there was only one knife and fork for every second household member, and there was less than one plate and one pannikin per person. Eighty-four per cent of households had hot water, 90 per cent were assessed as washing their dishes adequately, 86 per cent had food storage facilities, 55 per cent had lockable space for food and 25 per cent had tin trunks in which food could be kept securely.

(c) Birthweight

Details about the nutritional anthropometry and growth of these children have been published elsewhere (Gracey & Sullivan 1988, Gracey & Sullivan 1989, Gracey et al. in press). The average birthweight of boys was 3,080 grams, 190 grams lighter than the international reference values (National Center for Health Statistics 1977), and that of girls 3,170 grams, 60 grams lighter.

Birthweight was independently correlated, statistically, with maternal systolic blood pressure, uncomplicated vaginal delivery, regular antenatal supervision, number of visits to the doctor during pregnancy, abstinence from alcohol consumption and lack of smoking or cessation of smoking during pregnancy. Higher birthweight was significantly associated with diastolic blood pressure, controlled weight gain and absence of oedema or proteinuria during pregnancy and with absence of maternal anemia and regular iron medication. Babies of mothers who smoked throughout pregnancy (n=12) were 540 g lighter (2,690 g compared with 3,230 g) and 0.6 cm shorter (49.3 cm compared with 49.9 cm) than those of non-smokers. Infants of mothers who did not drink alcohol or stopped by 12 weeks' gestation (n=39) were 580 g heavier than those (n=5) who stopped drinking between 12 and 30 weeks' gestation.

(d) Growth

Only nine children (19 per cent) had 'good' growth patterns, 27 (56 per cent) had 'moderate' growth patterns and 12 (25 per cent) had frank undernutrition and growth retardation. The maternal factors which were associated with satisfactory growth patterns included regular attendance at antenatal clinics and classes, number of visits to the doctor during pregnancy, maternal systolic blood pressure and usage of alcohol and tobacco.

Significant positive environmental factors were families being within walking distance to food stores, income being regular each fortnight (and not being without cash within a few days), good personal hygiene (hand washing, food washing, disposing of nappies and rubbish) and the presence of fewer dogs, cats, other family pets and fewer cockroaches in the household. The presence of electrical consumer goods (refrigerators, food freezers, air conditioners, clothes washing machines, TVs and VCRs and cassette players) was significantly associated with unsatisfactory growth, as were leaking taps, maternal anemia, complicated births and lack of adequate rubbish bins.

(e) Clinic and hospital attendances

The children followed in this study used clinical and hospital services frequently in their first two years of life. On average, they attended public health clinics more than monthly for regular routine weighing and measuring, and approximately every two months for illness and surgical dressings (Table 2). They also attended hospital out-patients departments for illnesses, accidents and other causes at least every two months during their first two years of life. Three-fifths of the children were hospitalised in the first six months of life, 65 per cent between six and 12 months of age, 67 per cent between 12 and 18 months and 56 per cent between 18 and 24 months. The main causes of hospital admissions were respiratory and gastrointestinal infections, other infections, failure to thrive, anemia, intestinal parasites and social reasons.

Table 2: *Average numbers of attendances of Aboriginal infants and young children at public health clinics and hospital out-patients' departments, Fitzroy Valley, WA*

	Public health clinic		Hospital
Age (months)	Routine weighing and measuring	Illness and surgical dressing	Out-patients department
0–6	8.9	2.3	3.8
6–12	7.4	3.3	3.8
12–18	7.4	3.3	3.8
18–24	7.1	3.6	3.0

Discussion

This study showed that a cohort of Aboriginal infants born in the Kimberley region of WA had high levels of ill-health and most had growth faltering and failure to thrive in their first two years of life. Most importantly, it was found that birthweight and prospectively documented growth and nutrition of these children were significantly associated with maternal and environmental factors. Favourable maternal factors included regular antenatal supervision, absence of anemia and other illnesses during pregnancy, lack of smoking tobacco, and abstinence from or stopping alcohol consumption during pregnancy. Positive environmental factors included close access to food stores, budgeting skills and standards of maternal and household hygiene.

These findings have important practical implications for the improvement of health and nutrition of Aboriginal infants and children. Simple and inexpensive strategies, such as stopping smoking and drinking alcohol during pregnancy, would have benefits to maternal health and should help increase birthweights and growth patterns of infants in their first two years, even in the short-term. Other inexpensive strategies which should have beneficial and measurable effects on child health and nutrition would include improved personal and family hygiene and increased attention to maternal dietary practices, and to food purchasing and preparation. It is also clear from this study that regular antenatal clinics and classes for expectant mothers, as well as the number of visits made to the doctor during pregnancy, had an important influence on the outcomes of the pregnancies and childhood growth and nutrition in early life. Clearly, all these elements need to be included when developing strategies aimed at improving Aboriginal child health and nutrition.

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Selected reviews

Acute respiratory infections in Australian Aboriginal children: current knowledge and future requirements[1]

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Introduction

Although the growth of many Australian Aboriginal children is characterised by recurrent infections and suboptimal nutrition, there are substantial differences in the infectious disease burden and nutritional status of Aboriginal children from differing parts of Australia. These differences partly reflect differences in the level of socioeconomic development in urban compared to rural communities, and in the differences between tropical and desert communities. 'Aboriginal Australia' is characterised by a wide spectrum of environmental living conditions. Many Aboriginal people live in cities where, despite substantial poverty compared to non-Aboriginal Australians, the basic provisions of water and other hygiene resources are available. In contrast, many remote communities are characterised by a lack of the most basic health 'hardware' (Nganampa Health Council 1987). However, even in those Aboriginal communities that have made considerable recent progress, acute respiratory infections remain a major cause of morbidity and hospitalisation in young children (Harris & Kamien 1990).

While acute respiratory infections (ARI) have long been recognised as a leading cause of mortality and morbidity in Aboriginal children (Moodie 1973), there is a paucity of data and it is only recently that attention has focused on ARI, and that research has commenced to determine their incidence, aetiology, treatment and prevention.

The impact of ARI upon Aboriginal children

(a) Mortality

During the last 30 years, there has been a major reduction in Aboriginal infant mortality rates (IMR). Between 1964 and 1971, the Aboriginal IMR in the Northern Territory was 172 per 1000 live births (Kirke 1974). In regions where data are available, in 1986–1988 the Aboriginal rates vary between two and four times the overall Australian rate of approximately 9 infant deaths per 1000 live births (Thomson 1990). Mortality due to ARI has fallen during this time, but ARI still remains a predominant cause of mortality in Aboriginal infants. In the Northern Territory in 1979–1983, 'respiratory disease' (predominantly pneumonia) caused

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18.2 per cent of all Aboriginal infant deaths, compared with only 5.6 per cent of non-Aboriginal infant deaths (Devanesen et al. 1986). However, mortality rates for Aboriginal infants and young children are still low compared to those found in developing countries. For central Australia, a review of 240 ARI hospital admissions of Aboriginal children under 5 years of age demonstrated only two deaths (unpublished data).

(b) Morbidity

Although mortality from ARI in Aboriginal children is low compared to developing countries, this has been achieved partly by an extraordinarily high rate of hospitalisation. One-third of all central Australian Aboriginal children born in 1982 had at least one hospital admission for pneumonia in the first three years of life (unpublished observations), and in Western Australia between 1981 and 1986 the rate of hospitalisation of Aboriginal infants with ARI was more than 10 times that for non-Aboriginal infants (Gracey & Anderson 1989). As well, many Aboriginal children are diagnosed and treated for ARI by community-based primary health care services, so hospitalisation rates markedly underestimate the overall incidence of ARI in Aboriginal children.

(c) Sequelae

The effect of repeated and often severe episodes of ARI, particularly pneumonia, upon the growth and health of Aboriginal children is unknown. However, studies from developing countries have documented that lower respiratory tract infections are an important cause of growth faltering (see, for example, Rowland, Rowland & Cole 1988), making a major contribution to the malnutrition–infection cycle.

Chronic lung disease, including bronchiectasis, has been documented for Aboriginal children since the 1960s (Maxwell 1972), but neither its relationship with ARI nor its current prevalence has been established.

Disease of the respiratory system is one of the most frequent causes of death and hospitalisation for Aboriginal adults, with standardised hospital separation rates for respiratory disease being substantially higher than those for non-Aboriginal adults (Devanesen et al. 1986). Since there is increasing evidence that ARI in early childhood are an antecedent of chronic and recurrent lung disease in adulthood (Glezen 1989), it is plausible that pulmonary abnormalities established in childhood, and aggravated by heavy tobacco smoking initiated in early adulthood (Watson, Fleming & Alexander 1988), are directly responsible for a substantial proportion of deaths from respiratory disease in Aboriginal adults.

As well, repeated and often prolonged hospitalisation separates Aboriginal children from their communities at an important time for learning language and culture. The hidden social costs (to Aboriginal families and their communities) of hospitalisation of young Aboriginal children may be far more pervasive and serious than is usually recognised (Hanna 1989).

ARI: the diseases and their causes

Vaccine-preventable causes of ARI (that is, measles, pertussis and diphtheria) are no longer common causes of ARI in Aboriginal children. This is because immunisation has been given high priority by Aboriginal primary health care services, and consequently there has been a high uptake of vaccines by Aboriginal children (Hanna & Kass 1985).

(a) Pneumonia

Although there is little descriptive information concerning the relative frequencies of the diseases included in the category of 'ARI', it is clear that pneumonia is a major cause of hospitalisation for Aboriginal children throughout Australia. Of 481 Aboriginal children admitted to Derby Regional Hospital, WA, in 1984, 21 per cent were diagnosed as having pneumonia (Harris, Knight & Henderson 1986). In the Alice Springs region, Aboriginal children are admitted to hospital for pneumonia 70 times more frequently than non-Aboriginal children (Hanna, unpublished data). In Bourke, NSW, 25 per cent of Aboriginal children born in the three-year period 1979–1981 had at least one episode of X-ray proven pneumonia in the first three years of life, compared with only 3 per cent of non-Aboriginal children born in the same period (Harris, Nolan & Davidson 1984).

There is now clear evidence that much of the severe pneumonia in Aboriginal children is caused by bacteria. In particular, *Streptococcus pneumoniae* and *Haemophilus influenzae* are important causes of severe pneumonia in hospitalised Aboriginal children (Hanna 1988; Torzillo & Erlich 1985).

For Aboriginal children admitted to Alice Springs Hospital between mid-1985 and mid-1988, there were 65 episodes of invasive pneumococcal disease diagnosed, compared with only five episodes diagnosed in non-Aboriginal children during the same period (Hanna 1988). Based upon the diagnosed cases, the annual incidence rate is estimated at 1,110 episodes of invasive pneumococcal disease per 100,000 Aboriginal children less than 5 years of age, compared with 78 episodes per 100,000 non-Aboriginal children less than 5 years of age. Of the 65 episodes in Aboriginal children, 46 per cent were for children with pneumonia and another 42 per cent were for children with bacteraemia without an obvious focus. Unfortunately, little is known about the epidemiology of the serotypes of pneumococci that cause invasive disease in Aboriginal children. However, a study on the nasal carriage of pneumococci in Aboriginal children in the Alice Springs region found a carriage rate of 89 per cent, with serotypes 23, 19, 6, 22 and 16 (in that order) being predominant (Hansman et al. 1985). A recent study in Pakistan showed a perfect concordance in the types of pneumococci isolated from the blood and from the oropharynx in children with pneumonia (World Health Organization 1989), so it may be that the types isolated in the nasal carriage study are important invasive types for central Australian Aboriginal children.

The annual incidence of invasive *Haemophilus influenzae* type b disease in Aboriginal children in the Northern Territory is extremely high, with about 450 episodes per 100,000 children less than 5 years of age (Hanna 1988). However, strains other than type b cause a substantial proportion of the cases of invasive disease in Aboriginal children. In particular, non-typable strains were isolated in 12 per cent of the 34 episodes of *H. influenzae* pneumonia diagnosed in Aboriginal children in the Northern Territory between mid-1985 and mid-1988 (Hanna 1988). In summary, Aboriginal children have a high incidence of invasive *H. influenzae* disease, it occurs at an early age (nearly 40 per cent of the cases occurred before 6 months of age), the spectrum of disease includes meningitis and pneumonia (but not epiglottitis), and strains other than type b are also important causes of invasive disease.

Although 21 per cent of pneumococci carried in the nasal passages of Aboriginal children in the Alice Springs region in 1981 were penicillin-insensitive (Hansman et al. 1985), clinically significant penicillin resistance in pneumococcal invasive disease has not been detected in the ensuing years (Morey, personal communication). However, a multiple-antibiotic resistant invasive strain of *H. influenzae* type b was first isolated (from an Aboriginal child) at Alice Springs Hospital in August 1987. Of 49 invasive isolates from central Australian Aboriginal children up until the end of 1990, 12 (25 per cent) were resistance to both ampicillin and chloramphenicol (Morey, personal communication). Nine of these multiple-antibiotic resistant isolates were from children with pneumonia (one of whom died), and one was from a child with meningitis.

(b) Bronchiolitis

Aboriginal children hospitalised in Western Australia between 1980–1988 were six times more likely to have a discharge diagnosis of bronchiolitis than were non-Aboriginal children (unpublished data). Beyond this unvalidated information, there is very little known about the epidemiology of bronchiolitis (caused by respiratory syncytial virus) in Aboriginal children. There is little known, also, about the role of other respiratory viruses, and other pathogens (such as *Mycoplasma pneumoniae* and *Chlamydia sp.*. However, comprehensive studies into the aetiology of lower respiratory tract infections in Aboriginal children in central Australia have commenced, and studies examining the role of chlamydia are being carried out at the Menzies School of Health Research in Darwin. There is evidence that *C. trachomatis* is not readily transmitted from an infected Aboriginal mother to her infant at the time of birth (Douglas & Powers 1990).

(c) Upper respiratory tract infections

Chronic nasal and ear discharge are extremely common in Aboriginal children, although their prevalence is clearly less in areas where living conditions have improved (Sunderman & Dyer 1984). Middle ear perforation and discharge can occur in Aboriginal infants in the first few months of life, and, in some areas, over 50 per cent of infants have had perforations in one or both ears by one year of age (Boswell et al. 1990). Chronically discharging ears can cause a conductive hearing loss at a critical time for learning and the development of language skills. In the Northern Territory, 25 to 50 per cent of all Aboriginal school children have an educationally-significant conductive hearing loss at any one time (Boswell et al. 1990). The aetiology of the chronic middle ear disease in Aboriginal children is unknown, and is the focus of a considerable research initiative.

Streptococcal pharyngitis continues to lead to devastating rheumatic heart disease in some Aboriginal communities (Brennan and Patel 1990). However, the success of a specific rheumatic fever intervention project in Queensland (Streatfield 1989) indicates that such interventions should be implemented in those communities where rheumatic fever and carditis remain a problem.

Risk factors for ARI in Aboriginal children

The poor health status of Aboriginal people is a consequence of their poverty. In turn, this is the outcome of a history of dispossession, discrimination and oppression, which began with the first contact with European people. However, it is possible to identify some specific risk factors which could place groups of Aboriginal children at an increased risk of developing frequent, and often severe, ARI.

(a) Low birth weight

Over 10 per cent of Aboriginal infants born in Western Australia between 1980–1986 were of low birth weight (less than 2500 grams), compared with about 4 per cent of non-Aboriginal babies (Kliewer & Stanley 1989). Approximately 16 per cent of Aboriginal infants were born preterm (less than 37 weeks gestation), compared with 6.5 per cent of non-Aboriginal infants. Low birth weight and preterm delivery are associated with an increased incidence, and increased severity, of ARI, particularly pneumonia (World Health Organization 1990a).

(b) Malnutrition

Providing they are breast-fed, there are very few undernourished Aboriginal infants in the first 6 months of life (Hall 1985). Thereafter, however, growth faltering may become evident. Approximately 16 per cent of central Australian Aboriginal children between 6 and 11 months of age were less than 80 per cent standard weight for age (Hall 1985). For young children in developing countries, malnutrition appears to be one of the most important risk factors for severe ARI (World Health Organization 1990a).

Although overt vitamin A deficiency does not occur in Aboriginal children, there is a suggestion that subclinical deficiency might occur in undernourished children (Cheek et al. 1989). The possibility that even subclinical vitamin A deficiency might increase the risk for ARI (and other infectious diseases) has prompted an intense international research effort.

(c) Adverse living conditions

The transmission of respiratory pathogens is facilitated by crowded living conditions. An extensive environmental health review found that an average house on the Anangu Pitjantjatjara Lands (northwest South Australia) was used by 8.3 persons (Nganampa Health Council 1987). As well, many of the houses were damaged, with nearly 50 per cent of the windows being either broken or recently repaired. This means that, in the winter months, small children would have been exposed to bitterly cold weather, another likely risk factor for pneumonia in young infants (World Health Organization 1990a). Only 60 per cent of cold water points (and 45 per cent of hot water points) in the houses functioned adequately, thus limiting the reduction of respiratory pathogens by frequent face and hand washing (Pickering & Rose 1988). The continuous exposure of many rural Aboriginal children to woodsmoke and environmental dust is likely, also, to compromise respiratory tract defence mechanisms, therefore adding to the risk of ARI.

Requirements for the control of ARI in Aboriginal children

Broad-ranging economic and environmental changes will be required to bring about long-term improvements in the health of Aboriginal children. Improvements in the living environment have been given priority by the report of the National Aboriginal Health Strategy Working Party (1989). Clearly, improved housing, water supply, waste disposal and power supply should eventually lead to a sustained reduction in ARI, and other infectious diseases, in Aboriginal children. Meanwhile, there is a clear need to continue to emphasise those strategies that either promote optimal infant growth or protect infants from ARI (for example, optimal antenatal care, breastfeeding, improved weaning practices, frequent washing of face and hands, childhood immunisation, cessation of parental smoking, etc.).

The primary objective of the World Health Organization (WHO) Programme for the Control of Acute Respiratory Infections (1990a) is to reduce deaths from ARI, but the primary objective in Australia should be to prevent hospitalisation, since the relatively low ARI mortality in Aboriginal children has been achieved only through high hospitalisation rates. Consideration should be given to the adoption of strategies for correct case management, as promoted by the World Health Organization (1989, 1990a), so that primary health care providers can administer the appropriate treatment. This, in turn, may require policy changes, giving Aboriginal Health Workers more autonomy, responsibility and training than they have at present. It would require allocation of resources, development of an appropriate curriculum and standard treatment protocols, training, supervision and evaluation.

Although the adoption of the correct case management strategy should be the immediate priority, there are important research questions to be addressed. As mentioned, studies concerning the aetiology of ARI (particularly pneumonia) in Aboriginal children have commenced in central Australia. More descriptive information concerning the various diseases (for example, bronchiolitis) and their geographic distribution is required, surveillance of antibiotic resistance in the important respiratory bacterial pathogens should be established, and the serotypes of *S. pneumoniae* that cause invasive disease in Aboriginal children should be determined. The vitamin A status of undernourished Aboriginal children should be assessed. Since a conjugate *H. influenzae* type b vaccine is likely to be available for use in Australia within the next few years, consideration should be given to assessing the efficacy of the vaccine in Aboriginal children.

Primary care services and antibiotic delivery are much more accessible to most Aboriginal people than in most of the developing world. For this reason, behavioural research may not be as critical as it is in some other countries (World Health Organization 1990b). However, certain issues may be fruitful for research: what is the Aboriginal perception of the importance of ARI, given the complexity and magnitude of Aboriginal ill-health; what are the signs and symptoms recognised by the guardian of an Aboriginal child ill with ARI (in particular pneumonia); what determines when an ill Aboriginal child is taken to a primary health care centre; how might compliance with antibiotic (and other drug) regimens be improved, etc.

In conclusion, medical intervention is unlikely to improve many of the severe health problems of Aboriginal people. However, ARI in children is one important area where medical intervention and research could play a significant role in improving health status.

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Aboriginal mortality in western New South Wales during the 1980s[1]

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Introduction and overview

Only two major studies[2] of Aboriginal mortality in the country areas of New South Wales have been undertaken in the past ten years—both were conducted for the Aboriginal Health Unit of the New South Wales Department of Health. The first study noted that, for all country areas, the relative risk of death for male and female Aborigines in 1980–1981 was four times higher than that of the New South Wales population in 1981, with the relative risk of death in middle adulthood being up to 12 times higher (Julienne et al. 1983; Smith, Thomson & Gray 1983; Thomson & Smith 1985). The second study found that, for western New South Wales, Aboriginal sex-specific death rates from 1984 to 1987 were three to four times higher than those of the New South Wales population in 1986, with the relative risk of death in middle adulthood being at least five times higher (Gray & Hogg 1989). Both studies have drawn attention to the high level of mortality experienced by Aboriginal adults in country areas of New South Wales, especially during the middle adult years.

Mortality data from these two studies, as well as from other sources, have been used to assess trends in Aboriginal mortality in the western regions of New South Wales between 1980–1983 and 1984–1987. The assessment reviews the quality of available sources of data, and compares age and cause-specific mortality rates and life expectancy for nine Aboriginal communities.

Sources of mortality data

The mortality data used in this paper were compiled from three State-wide data bases, and include the listings of deaths produced from the two previous Aboriginal Health Unit studies. Individually, these sources of data are incomplete, but together they provide a reliable body of information on most Aboriginal deaths which have occurred in selected western New South Wales communities during the 1980s.

The first and most substantial sources of data on Aboriginal deaths are the records held by local registry offices throughout the State. Information was gathered by searching through the records of these registry offices, located in small and medium sized communities and in larger centres, such as Broken Hill and Sydney. Aboriginal informants were employed to identify the records on Aboriginal deaths, and sometimes to supplement these records with additional background information.

Although the listing of most Aboriginal deaths was compiled from registry records, two other sources of mortality data were used. Additional data were

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[1] This paper is based on research undertaken as a Doctor of Philosophy student in the Demography Program at the Australian National University.

[2] Another minor study was conducted by the New South Wales Health Commission Aboriginal Policy Committee (1979). In western New South Wales there have also been community mortality studies conducted in Bourke (Kamien 1976) and in Wilcannia (Peever & Webster 1984).

necessary because the completeness of the listing obtained from local registry records was often difficult to determine. In the past, country registries in New South Wales were required to record the deaths of individuals who died locally, or who were buried locally after dying elsewhere. Now, however, with the computerisation of the New South Wales Principal Registrar's central data base in Sydney, this requirement has been relaxed (Gray & Hogg 1989).

The first supplementary source of data used was the yearly listing of Aboriginal deaths produced by the New South Wales Principal Registrar. These listings have been produced since 1980 and are generated from the question on the death record notification form (which is completed by the funeral director) asking whether the deceased was considered to be Aboriginal. The main shortcoming of this data source is that a large proportion of Aboriginal deaths are missed, because they are recorded as non-Aboriginal (Gray 1983). For selected western New South Wales communities, considered to be an area of good reporting (Gray & Hogg 1989), one in three Aboriginal deaths occurring between 1984 and 1987 were not found on these yearly listings.

The second supplementary source of data used was the system established by the Aboriginal Health Unit in 1978, whereby health workers complete notification forms for all Aboriginal deaths occurring in their health district. The basic details found on these forms are then forwarded to regional and central offices. Unfortunately, this listing was very much incomplete in terms of the actual number of Aboriginal deaths which occurred in western New South Wales. It did contain, however, a few deaths that were not included in the other two sources.

In total, information was recorded on 673 Aboriginal deaths which occurred between 1979 and 1988. This data set included many deaths which occurred outside the study area, or in communities where the enumeration of deaths was believed to be incomplete. Therefore, instead of basing estimates of Aboriginal mortality on the total number of deaths, calculations were restricted to two non-overlapping data subsets made up of the details of deceased individuals from nine communities where the enumeration of deaths was believed to be complete. Together, these data sets consisted of details of 408 Aboriginal deaths (258 male and 150 female) which occurred in Bourke, Brewarrina, Dubbo, Gilgandra, Gingie, Goodooga, Lightning Ridge, Moree, and Walgett between 1980 and 1987.

Estimates of the population at risk of death were obtained by applying a limited cohort-component method of reverse survival to 1986 census figures for these nine communities (Shryock & Siegel 1971: 740–741). Using life table survivor ratios, mid-point population estimates were produced for the Aboriginal populations living in the nine communities over the two periods, 1980–1983 and 1984–1987.

A reverse survival technique was used, as opposed to an intercensal survival technique, because of the inherent inaccuracies in the 1981 census figures. As indicated by the 1986 figures, there was a large intercensal increase between 1981 and 1986 in the total number of Australian Aborigines. For Aborigines in New South Wales, there was an increase of 91 per cent in major urban areas, 70 per cent in other urban areas, and 28 per cent in rural areas.

The coding of Aboriginal and non-Aboriginal underlying causes of death (the disease or injury initiating the sequence of events which led to death) was based on criteria outlined in the ninth revision of the International Classification of Diseases (World Health Organization 1977). Most causes of Aboriginal death included in this study were already coded by ABS and were found on the yearly listings of Aboriginal deaths. However, for Aboriginal deaths that were not recorded on the Principal Registrar's listings, the underlying cause of death was coded in accordance with World Health Organization criteria.

Age-specific death rates and life expectancy

Potential changes in Aboriginal mortality in the nine communities were assessed by calculating standardised and age-specific death rates and constructing life tables for two periods, 1980–1983 and 1984–1987. Changes in age-specific death rates were assessed by estimating relative risk ranges based on the ratio of the Aboriginal rates in 1980–1983 and 1984–1987 to the New South Wales rate in 1986. First, age intervals were grouped so as to limit the effects of small numbers. Second, age-specific relative risks were determined. Third, confidence intervals, at a 95 per cent level of confidence, were constructed around each ratio (Bailar and Ederer 1964). Finally, in an additional effort to limit the effects of small numbers, these ranges were only calculated for age-specific death rates based on five or more deaths. Changes in life expectancy were evaluated by comparing differences at each age interval using a ratio of the differences in life expectancy to the difference in standard error over the two periods. If this ratio, called the critical ratio, exceeded a value of 2.33, then the difference in life expectancy was significant at a 0.01 probability level (see Chiang 1984: 164–165).

Generally, few noticeable trends in Aboriginal mortality were found. Between 1980–1983 and 1984–1987, directly standardised rates of overall mortality increased slightly for men at all ages, while for women they remained constant (see Table 1).

The comparison between Aboriginal and total New South Wales age-specific death rates revealed a consistently higher relative risk of death experienced by both Aboriginal men and women at most age groups, but especially between the ages of 25 and 44 years. Overall, this analysis suggests a pattern of gradually increasing relative risk until the age of 45 years, and then a progressive decline in relative risk for older age groups. With few exceptions, this pattern of age-specific mortality remained quite constant over the two time periods (see Figure 1).

Differences in life expectancy between the two periods were not found to be statistically significant. In 1980–1983, life expectancy at birth was 58 years for males and 67 years for females. In 1984–1987, it was 54 years for males and 68 years for females (see Table 2). This analysis suggests that the gap between male and female life expectancy at all ages appears to be getting larger. For example, the gap between males and females in life expectancy at birth grew from 9 years in 1980–1983 to 14 years in 1984–1987.

Table 1: *Crude and standardised death rates*[1] *and standardised rate ratios*[2] *for Aborigines living in nine western New South Wales communities, 1980–1983 and 1984–1987, and the total New South Wales population, 1986, by sex*

	Males	Females
Aboriginal, 1980–1983		
Total number of deaths	122	81
Crude death rate	9.3	6.1
Standardised death rate	18.5	13.8
Aboriginal, 1984–1987		
Total number of deaths	136	69
Crude death rate	10.8	5.4
Standardised death rate	24.8	13.2
New South Wales, 1986		
Total number of deaths	22,571	19,596
Crude death rate	8.2	7.1
Standardised rate ratio		
Aborigines, 1980–1983	2.3	2.0
	(1.9 – 2.7)	(1.6 – 2.5)
Aborigines, 1984–1987	3.0	1.9
	(2.6 – 3.6)	(1.5 – 2.4)

Sources: Unpublished mortality data for nine western New South Wales communities
Australian Bureau of Statistics 1988a

[1] Rates are deaths per 1,000 population per year. Aboriginal crude death rates were directly standardised to the New South Wales age structure, 30 June 1986.

[2] A ratio of expected Aboriginal deaths to the total number of deaths in New South Wales in 1986. Confidence intervals, at a 95 per cent level of confidence, are designated by the ratios shown in brackets.

Table 2: *Expectation of life at birth for Aborigines living in nine western New South Wales communities, 1980–1983 and 1984–1987, and the total New South Wales population, 1986, by sex*

	Males	Females
Aborigines, 1980–1983	58	67
	(1.4)	(1.5)
Aborigines, 1984–1987	54	68
	(1.3)	(1.6)
New South Wales, 1986	73	79

[1] The number in brackets refers to the standard error around each life expectancy value. Differences between Aboriginal sex-specific life expectancies for the two periods are not significant at a 0.01 probability level.

Sources: Unpublished mortality data for nine western New South Wales communities
Australian Bureau of Statistics 1988a

Cause-specific death rates

Comparisons were also made between Aboriginal and total New South Wales cause-specific death rates for major underlying causes of death. As before, the calculations involved directly standardising the Aboriginal cause-specific death rates to the New South age structure, grouping age intervals, and constructing relative risk ranges for major causes based on five or more deaths. In addition, a measure of the proportion of excess risk of each major underlying cause of death was determined. Excess risk was calculated by subtracting cause-specific death rates for the total New South Wales population from the rates for the Aboriginal population. The proportion of excess risk was then derived by producing a ratio of the Aboriginal cause-specific excess risk to the Aboriginal excess risk for all causes.

This analysis demonstrates that major differences exist between Aboriginal and total New South Wales cause-specific death rates (see Tables 3 and 4). The most apparent difference is in the incidence of circulatory system diseases as an underlying cause of death. In comparison with the total New South Wales population, disease of the circulatory system made up by far the greatest proportion of excess risk experienced by Aboriginal men and women during the time periods 1980–1983 and 1984–1987. For males, cause-specific death rates from circulatory system disease tended to rise between the two periods, while for females they remained constant.

Other notable major causes of death among Aboriginal men and women included disease of the respiratory and digestive systems and accidental and violent deaths (external causes). For males, there was a rather large decline in deaths from respiratory disease over the two periods, from 3.8 to 1.0 deaths per 1,000 population per year. However, overall cause-specific death rates changed little over these two periods.

Table 3: *Male cause-specific death rates (CSDR)[1], relative risks[2] and proportion of excess risk[3] for Aborigines living in nine western New South Wales communities, 1980–1983 and 1984–1987*

Cause of death	Aborigines Deaths	 CSDR	Relative risk range	Proportion of excess risk
			1980–1983	
All causes	122	18.5	(1.9 – 2.7)	100
Malignant neoplasms	5	1.2	(0.2 – 1.7)	–9
Circulatory system	51	8.7	(1.7 – 3.1)	47
Respiratory system	18	3.8	(3.7 – 10.0)	30
Digestive system	12	1.5	(3.0 – 10.2)	12
External causes	11	1.0	(0.8 – 3.0)	3
Other causes	25	2.4	(2.2 – 5.0)	16
			1984–1987	
All causes	136	24.8	(2.6 – 3.6)	100
Malignant neoplasms	16	3.6	(1.1 – 3.0)	9
Circulatory system	61	14.3	(3.0 – 5.0)	64
Respiratory system	4	1.0	–	2
Digestive system	12	1.7	(3.3 – 11.2)	8
External causes	17	1.7	(1.6 – 4.5)	7
Other causes	26	2.5	(2.3 – 5.1)	11

Sources: Unpublished mortality data for nine western New South Wales communities
Australian Bureau of Statistics 1988b

[1] Rates are deaths per 1,000 population per year. Aboriginal cause-specific rates were directly standardised to the New South Wales age structure, 30 June 1986.

[2] A ratio of the directly standardised Aboriginal rate to the total New South Wales rate. The relative risk range represents confidence intervals, at a 95 per cent level of confidence, around each ratio. A relative risk range was calculated for rates based on five or more deaths.

[3] Excess risk was calculated by subtracting cause-specific death rates for the total New South Wales population from directly standardised Aboriginal rates. The proportion of excess risk was then derived by producing a ratio of the Aboriginal cause-specific excess risk to the Aboriginal excess risk for all causes. Percentages may not add up because of rounding.

Table 4: *Female cause-specific death rates (CSDR)*[1]*, relative risks*[2]*, and proportion of excess risk*[3] *for Aborigines living in nine western New South Wales communities, 1980–1983 and 1984–1987*

Cause of death	Aborigines Deaths	Aborigines CSDR	Relative risk range	Proportion of excess risk
			1980–1983	
All causes	81	13.8	(1.6 – 2.5)	100
Malignant neoplasms	8	1.4	(0.4 – 2.0)	–3
Circulatory system	30	7.7	(1.4 – 3.0)	59
Respiratory system	6	1.2	(1.5 – 8.6)	12
Digestive system	6	0.5	(0.9 – 5.2)	3
External causes	11	0.7	(1.3 – 5.0)	6
Other causes	20	2.3	(1.9 – 4.9)	23
			1984–1987	
All causes	69	13.2	(1.5 – 2.4)	100
Malignant neoplasms	5	1.5	(0.4 – 2.8)	–2
Circulatory system	23	6.2	(1.1 – 2.6)	40
Respiratory system	4	0.8	–	8
Digestive system	4	0.7	–	8
External causes	10	1.0	(1.8 – 6.9)	11
Other causes	23	3.0	(2.5 – 6.0)	35

[1] Rates are deaths per 1,000 population per year. Aboriginal cause-specific rates were directly standardised to the New South Wales age structure, 30 June 1986.

[2] A ratio of the directly standardised Aboriginal rate to the total New South Wales rate. The relative risk range represents confidence intervals, at a 95 per cent level of confidence, around each ratio. A relative risk range was calculated for rates based on five or more deaths.

[3] Excess risk was calculated by subtracting cause-specific death rates for the total New South Wales population from directly standardised Aboriginal rates. The proportion of excess risk was then derived by producing a ratio of the Aboriginal cause-specific excess risk to the Aboriginal excess risk for all causes. Percentages may not add up because of rounding.

Sources: Unpublished mortality data for nine western New South Wales communities
Australian Bureau of Statistics 1988b

Conclusion

Very little is actually known about Aboriginal longitudinal mortality trends. One regional study, of Aboriginal death rates in central Australia, suggests that there was a steady decline in mortality between 1975 and 1986 (Khalidi 1989). This decline was associated with improvements in life expectation at birth, the gap between male and female life expectancy, and in the death rates of most leading causes of death.

exhibited by Aborigines in the Northern Territory during the 1960s (Gray 1990). This similarity was especially apparent after the age of 40 years.

The analysis presented here has confirmed that, for Aborigines living in western New South Wales during the 1980s, life expectancy and age- and cause-specific mortality rates did not change significantly. However, among males there was a small increase in age-specific mortality during adulthood and cause-specific mortality from circulatory system diseases.

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Book review

A matter of life and death: contemporary Aboriginal mortality

Alan Gray (editor)

1990, Aboriginal Studies Press, Australian Institute of Aboriginal and Torres Strait Islander Studies, Canberra (xiv + 211 pp.; A$15.00).
Reviewed by **Dr Ian Ring**, *Queensland Department of Health.*

The book reports the proceedings of a workshop of the National Centre for Epidemiology and Population Health held at Kiola in July 1989.

There are three sections in the report, Infant and Child Mortality, State and Local Studies, and National and Comparative Studies. A record of the participants' discussion is included at the end of each section.

It says something about the place of Aborigines in contemporary Australian society that this report, valuable as it is, has only recently been released. It presents information which should have been available long since.

The description of Aboriginal mortality in the report is probably the best and most comprehensive that is available. However, while there is by now a reasonably clear picture of the mortality in some States, there are still a number of gaps. For example there appears to have been few studies on the mortality of Aborigines in large cities. (At a more basic level, reasonably accurate estimates of population have only become available recently.)

The report describes the very significant improvements in the mortality of Aboriginal children that has occurred over the last 15 years and makes a fairly convincing case that much of this has been due to health services. In contrast, there has been little or no improvement in the health of Aboriginal adults, despite a level of mortality which is substantially higher than for many developing countries. There is the strong impression that far too little effort has been directed towards adult health.

There is surprisingly little difference in the mortality of Aborigines in different States, and it is impossible to avoid the conclusion that the principal determinant of Aboriginal health has been the way Australians as a whole have treated the Aboriginal population, rather than the particular policies of individual States. For most indicators, mortality rates in Aboriginal populations, including rates for children, are at least two to three times that of the population as a whole.

The discussion in the report centres around culturally appropriate services, the homeland movement, and the actual and potential contribution of health services to health. The relative roles of health services and wider social and economic changes were also debated. However, while efforts are being made to bring about wider social and economic changes, there is much that public health has to offer in implementing knowledge that has been around for decades.

The book is highly recommended—buy it and read it.

Recent reports, publications and theses

Aboriginal Affairs Planning Authority [Western Australia]
Annual Report 1989–90

This report contains comment on the Waaka Ngaparrkulu Yirringkatjakula State Working party on Petrol Sniffing, which was established to assist Aboriginal people develop the skills required in combating petrol and substance abuse.

Alexander K (Editor)
Aboriginal alcohol use and related problems
Alcohol and Drug Foundation, Australia, Canberra, 1991

This report was produced for the Royal Commission into Aboriginal Deaths in Custody. It addresses the prevalence and health consequences of alcohol use and abuse, the impact of alcohol use on social relationships and community well-being, and the relationship between alcohol consumption and crime. Other aspects covered include the economic impact of alcohol, the socioenvironmental context of alcohol use, and interventions and treatment of alcohol abuse.

Aboriginal and Torres Strait Islander Commission
Annual Report 5 March 1990–30 June 1990

This report is the first by the Commission following its creation, including the amalgamation of the former Department of Aboriginal Affairs and Aboriginal Development Commission.

The report covers the aims, goals and structure of ATSIC and includes significant sections on the new health arrangements as proposed by the National Aboriginal Health Strategy and on approaches to substance abuse. Summaries are provided of health initiatives covering hepatitis B, lifestyle diseases, eye and ear diseases, women's health, health worker education, community health and evaluation. Ongoing programs, such as Aboriginal Health Services, communicable disease strategies, the collection of statistics and performance indicators, are covered briefly.

Duquemin A, d'Abbs P, Chalmers E
Making research into Aboriginal substance misuse issues more effective.
National Drug and Alcohol Research Centre, Kensington, New South Wales, 1991

This publication is the result of a small workshop held in Darwin on 3–4 December 1990. The workshop attempted to answer the question of how to make research into Aboriginal substance misuse more effective. The workshop addressed the following themes: the funding of research into Aboriginal alcohol issues; the impact of research on policies, programs, and the quality of Aboriginal life; the design and conduct of research into Aboriginal alcohol issues; and the communication/dissemination of research findings.

Fleming J, McDonald D, Biles D
Self-inflicted harm in custody
Research Paper No. 16, Royal Commission into Aboriginal Deaths in Custody, Canberra, 1990

This paper describes all reported incidents of self-inflicted harm, including suicide, occurring in police and prison custody between April and September 1989. Of the 375 incidents reported, 221 (59 per cent) occurred in prison and 154 (41 per cent) in police custody, and 79 (21 per cent) of the incidents involved Aboriginal people. In contrast to non-Aboriginal incidents, most of which occurred in prison, a higher proportion of self-harm incidents by Aborigines occurred in police custody.

Gray A, Tesfaghiorghis H
Social indicators of the Aboriginal population of Australia
Paper prepared for the Royal Commission into Aboriginal Deaths in Custody. National Centre for Epidemiology and Population Health, Canberra, 1991

The paper considers the social indicators and demographic changes of the Aboriginal and Torres Strait Islander population. The authors examine various aspects, including: inconsistency of estimates from different sources; broad changes in the population structure; and how demographic indicators are used to foster program and policy decisions.

Demographic indicators, such as fertility levels and projections, are discussed, as are the geographical distribution and the social and economic status of the Aboriginal population.

Hunter E, Hall W, Spargo R
The distribution and correlates of alcohol consumption in a remote Aboriginal population
Monograph No. 12, National Drug and Alcohol Research Centre, University of New South Wales, Sydney, 1991

This monograph reports the results of a study examining the association between alcohol use and psychological vulnerability to suicide (as expressed in psychotic symptoms and suicidal impulses) within the context of the contemporary social, economic and living circumstances of Aborigines in the Kimberley region of Western Australia.

The report, largely based on a sample of 516 adult Aborigines (virtually equal numbers of males and females), presents details of socioeconomic circumstances, alcohol consumption patterns (including proportions of abstainers, ex-drinkers and drinkers; the setting and frequency of drinking; and evidence of alcohol dependence and biological changes) and the prevalence of personal and social problems (including psychiatric symptoms and behaviour; and incarceration).

The report concludes by considering a range of prevention and treatment strategies to ameliorate alcohol problems in the Kimberley, but acknowledges that these specific strategies must be part of more general approaches to improve the social and economic circumstances of Aborigines.

McDonald D, Biles D
Methodological issues in the calculation of over-representation and exposure to risk in custody
Research Paper No. 17, Royal Commission into Aboriginal Deaths in Custody, Canberra, 1990

This paper considers three methods for quantifying the relative risk of custody of Aboriginal and non-Aboriginal people. The authors conclude that, in calculating rates, the population at risk of being in custody is the most appropriate denominator. Allowance needs to be made for differences in the age structures of the populations.

In terms of the risks faced by Aborigines in custody, attention is drawn to their generally poor health status and specific health problems seen in custody. Also of importance are the length of time a person has been in custody and the level of recidivism among different populations.

New South Wales Aboriginal mental health report
Aboriginal Medical Services Cooperative Ltd, Redfern, 1991

This report summarises information on the mental health problems experienced by Aboriginal people, and on the community mental health services available to the Aboriginal community in New South Wales. Preparation of the report involved extensive consultation, utilising the health and community contact networks.

The report considers education issues, current mental health initiatives, future service development and research. It emphasises that mental health is an integral component of health status of a community; mental health is an issue within Aboriginal communities; and that complex socioeconomic and cultural mores may preclude Aboriginal people getting the assistance they require. The report concludes that improvement in mental health, indeed in health status generally, requires more than medical intervention—a range of social, political, legal and judicial issues must also be addressed.

New South Wales Task Force on Aboriginal Health
The last report: report to the New South Wales Minister for Health
New South Wales Department of Health, Sydney, 1990

The Task Force was charged with: inquiring into and reporting on increased Aboriginal community involvement in developing appropriate strategies for Aboriginal health; improving Aboriginal access to mainstream services (and specifically implementing the recommendations of the *Casualty Review*); restructuring an autonomous Aboriginal Health Unit; and gaining appropriate public service status for Aboriginal Health Workers.

The Report sets out a series of proposals and recommendations concerning the provision of technically sound and culturally appropriate and accessible health services to Aborigines throughout New South Wales. In addition, the operations of the Aboriginal Health Unit and its relationship to the Aboriginal community are identified and improvements suggested. The Task Force saw the role of the Aboriginal Health Unit as providing appropriate guidance and direction, including new initiatives in redressing inadequacies associated with the past provision of Aboriginal health services.

Northern Territory Trachoma and Eye Health Committee Inc.
Biennial Report July 1988–June 1990
Northern Territory Department of Health and Community Services, Darwin, 1990

Reports on two years of eye health activity by the Northern Territory Trachoma and Eye Health Committee Inc., including the increasing attention to the impact of diabetes mellitus on eye health. The report sets out the background, membership and work of the Committee.

Proust AJ (Editor)
History of tuberculosis in Australia, New Zealand and Papua New Guinea
Brolga Press, Canberra, 1990

This broad collection of articles on the history of tuberculosis includes a section dealing with tuberculosis among Aborigines. Contributors in this section include Neil Thomson (Tuberculosis among Aborigines), JM Crotty (Tuberculosis lesions at autopsy in Aborigines in the Northern Territory), EW Abrahams (Tuberculosis in indigenous Australians), Ellen Kettle (Tuberculosis in the Northern Territory), and John E Thompson (Tuberculosis in Far North Queensland).

Reid J, Trompf P (Editors)
The Health of Aboriginal Australia
Harcourt Brace Jovanovich, Marrickville, 1991

This publication, intended as a textbook on Aboriginal health and welfare areas, covers a wide range of issues; it can be supplemented by an instructors manual which is available on request from the publishers.

The book, which will be reviewed in detail in a future edition of the *Bulletin*, includes chapters on: the history and politics of Aboriginal health; Aboriginal health status; Aboriginal families; food, nutrition and growth in Aboriginal communities; drug and alcohol use among Aborigines; Aboriginal mental health; the sociocultural context of Aboriginal wellbeing, illness and healing; contemporary issues in Aboriginal public health; and policy and practice in Aboriginal health.

Smith R, Hunter E, Spargo R, Hall W
Feedback: a summary of research findings on health and lifestyle presented to Kimberley Aboriginal communities
CSIRO Division of Human Nutrition, Adelaide, 1990

This publication presents a brief summary of information provided to 12 Aboriginal communities and Aboriginal representatives throughout the Kimberley region of Western Australia. Basic areas covered include child health and nutrition, blood pressure and heart disease, and patterns and consequence of alcohol use. The report is well presented and relatively easy to understand without being cluttered by too much detail.

Stevenson BF
Aboriginal health: with particular reference to Queensland
Background Information Brief No. 19, Queensland Parliamentary Library, Brisbane, 1990.

This report reviews a number of specific health problems experienced by Aborigines and Torres Strait Islanders in Queensland. These problems are considered within an historical and cultural framework, and particular attention is directed to the roles of the Federal and Queensland governments.

Thomson N, Briscoe N
Overview of Aboriginal health status in Western Australia
Australian Institute of Health: Aboriginal and Torres Strait Islander Health Series No. 1, AGPS, Canberra, 1991

Overview of Aboriginal health status in the Northern Territory
Australian Institute of Health: Aboriginal and Torres Strait Islander Health Series No. 2, AGPS, Canberra, 1991

Overview of Aboriginal health status in South Australia
Australian Institute of Health: Aboriginal and Torres Strait Islander Health Series No. 3, AGPS, Canberra, 1991

Overview of Aboriginal health status in Queensland
Australian Institute of Health: Aboriginal and Torres Strait Islander Health Series No. 4, AGPS, Canberra, 1991

Overview of Aboriginal health status in New South Wales
Australian Institute of Health: Aboriginal and Torres Strait Islander Health Series No. 5, AGPS, Canberra, 1991

These five reports, the first in a new series from the Australian Institute of Health, were prepared for the Royal Commission into Aboriginal Deaths in Custody.

Each report summarises population figures and social indicators, and presents current health status data on: fertility and pregnancy outcome; mortality (including fetal and infant mortality); and hospitalisation (hospital data were not available for the Queensland overview).

Thomson N, McDonald D
Australian deaths in custody 1980–1989: an epidemiological analysis of the relative risks of death for Aborigines and non-Aborigines
Research Paper No. 20, Royal Commission into Aboriginal Deaths in Custody, Canberra 1991

This report analyses the relative risks of death in custody for Aboriginal and non-Aboriginal people. The risks are calculated, including adjustment for age and sex, by relating the numbers of deaths occurring in police and prison custody to estimates of the person-years of exposure to death in custody.

The risk of death in police custody is much higher than in the general community, for both Aboriginal and non-Aboriginal people, but the risks of death in prison are much the same as in the general community. No statistically significant difference exists between Aborigines and non-Aborigines in the relative risk of death, in either policy or prison custody.