

# Indigenous male health disadvantage

## Linking the heart and mind

**BACKGROUND** Aboriginal men experience unacceptably high morbidity and mortality rates for almost all medical conditions. Heart disease and depression in particular are common, inter-linked, and potentially amendable to interventions delivered through primary care.

**OBJECTIVE** This article aims to raise awareness of mental illness and heart disease in Aboriginal men, to explore the links between these disease groups, and to encourage general practitioners to do all they can to help reduce morbidity and mortality, in particular through active secondary prevention.

**DISCUSSION** It would be simplistic to think that these problems can be adequately addressed merely through improved general practice services, but improved recognition of illness by GPs, improved accessibility and acceptability of health services, active follow up and management of depression and heart disease, and ongoing engagement with communities is likely to improve the current situation.

*'The sorrow that has no vent in tears makes other organs weep'.*

Henry Maudsley

**T**he poor state of health among Aboriginal people represents one of the most challenging inequity and human rights issues facing contemporary Australia. Across virtually any marker of health and social status, across the life span, Indigenous Australians are the most disadvantaged in Australian society.<sup>1,2</sup> The disproportionate burden of ill health experienced by indigenous males, in particular, is a cause for great concern. They are more likely to die from almost any cause and at any age than nonindigenous males. They demonstrate the lowest life expectancy, high rates of substance misuse, the highest rates of suicide, and are continually over-represented in prison and other institutional settings.<sup>2</sup> These stark differentials should be a priority target for reform. Yet health and social systems have failed to deliver resource and support services to meet the needs of indigenous males.

Over the period 1997–1999, the life expectancy at birth for Australian Indigenous males was 56 years, compared to 76 years for their nonindigenous counterparts.<sup>3</sup> This compares to a life expectancy at birth of 63 years and 82 years among Australian Indigenous and non-Indigenous females respectively. Of all deaths of indigenous people in the Northern Territory, 58% occur before the age of 55 years, compared to only 17% of the nonindigenous population.<sup>4</sup> Death during the years that are usually considered the most productive of a man's life has resulted in perpetuation of the cycle of disadvantage faced by indigenous communities. 'Growing up' the next generation of indigenous men, therefore,



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not only contends with high levels of poverty, socioeconomic and educational disadvantage, but has been undermined by the disconnection of successive generations of indigenous males, families and communities from the guidance, nurturing and wisdom of their leaders, fathers, uncles and grandfathers.<sup>5</sup>

Although there are complex reasons for substantial gaps in morbidity and mortality rates between indigenous and nonindigenous men, heart disease and depressive disorders contribute substantially to this discrepancy.

### Heart disease

Cardiovascular disease (CVD) is the primary cause of death for the Aboriginal and Torres Strait Islander population<sup>6,7</sup> with approximately three times the age adjusted CVD death rate when compared to the nonindigenous population.<sup>8</sup> The premature nature of cardiovascular deaths is also of concern, with 62% of all cardiovascular deaths occurring before the age of 65 years, compared with only 10% among non-Indigenous Australians. The greatest mortality differentials occur between 25–54 years of age, where the rates are 7–12 times that of nonindigenous populations.<sup>9,10</sup>

The transition from 'traditional' to contemporary lifestyles has been noted as a likely antecedent to the high rates of CVD, renal impairment, impaired glucose tolerance and diabetes among Australian Aboriginal populations.<sup>11–13</sup> Traditional risk factors have been noted to be more common among Indigenous Australians than among their nonindigenous counterparts.<sup>13–17</sup> However, there is growing interest in the role of socioeconomic and psychosocial factors in the disproportionate burden of CVD experienced by Indigenous Australians.<sup>18</sup> Given that social factors influence the risk of coronary heart disease (CHD),<sup>19</sup> the excess CVD mortality in indigenous populations is most likely to have its foundations in economic, social, physiological, psychological, and educational disadvantage.<sup>18</sup>

### The importance of depression

In addition to the impact of CVD, depression is a significant problem for Australian males. Over 4% of all males aged 18 years and over will experience an affective disorder in a given year.<sup>20</sup> Depression is also extremely disabling. According to the Global Burden of Disease study, the burden of unipolar depression for males is high, currently ranked among the top 10 causes of healthy life lost, and is predicted to remain the same in the foreseeable future.<sup>21</sup> Additionally,

suicide rates for males have been rising worldwide since the 1950s with one of the greatest single contributors being depression. Males aged 15–34 years in particular have experienced a marked increase in suicide rates in the second half of the 1990s, with the result that suicide now constitutes one of the three leading causes of death in this group.<sup>22</sup>

For Indigenous Australians, profound socioeconomic and health disadvantage is compounded and contributed to by mental illness and its consequences. Rates of depression, self harm and suicide are much higher among Indigenous Australians.<sup>23,24</sup> Furthermore, Indigenous Australians are more likely to die from mental disorders than their nonindigenous counterparts, and consideration of mental wellbeing should form an essential component of therapeutic relationships between primary care providers and indigenous patients.

### Depression and heart disease

The evidence linking CHD and depression is consistent and strong, and is increasingly accepted as a factor of importance in aetiology, recurrence, progression and mortality.<sup>25–27</sup>

There are a number of potential pathways by which psychosocial stressors may influence an individual's risk of CHD, including allostatic load; altered autonomic function and neuroendocrine responses; development of insulin resistance and the metabolic syndrome; abnormal coagulation; and stress induced inflammation and immune responses.<sup>28</sup> Depression may also promote endothelial dysfunction, platelet activity, thrombus formation and subsequent coronary events.<sup>29</sup> It may also act directly through specific effects on the nature and aggressiveness of known CVD risk factors or through modulation of the neurohormonal<sup>30</sup> or immunological systems.<sup>31</sup> Furthermore, it may promote the adoption or continuation of lifestyle behaviours known to carry additional risk of CVD events.<sup>29</sup> The clarification of these potential pathways is important to understanding the burden of disease suffered by Indigenous Australians, to increasing health professionals' understandings of the broader constructs of health and wellbeing, and further, to the development of preventive strategies across the social and health care spectrum.

### Psychosocial stress, heart disease and Indigenous Australians

Numerous studies have confirmed that 'psychosocial

stress' induced by social isolation, poverty, hopelessness and lack of empowerment and control over life chances has important associations with CHD.<sup>25,27,32,33</sup> The National Heart Foundation of Australia position statement<sup>34</sup> noted that there was 'strong and consistent evidence of an independent causal association between depression, social isolation, and lack of quality social support and the causes and prognosis of CHD'. Prospective studies have demonstrated elevated risk of CHD among men suffering from stress. Only part of this elevated risk has been attributable to health behaviours and remains despite controlling for major risk factors.<sup>35</sup> Furthermore, 'the increased risk contributed by these psychosocial factors is of similar order to the more conventional CHD risk factors such as smoking, dyslipidaemia and hypertension'.<sup>34</sup>

Poor housing, income inequality, poverty, low levels of education, poor sanitation and overcrowded living conditions, perpetual and trans-generational grief and loss, and high levels of perceived stress are important contributors to and manifestations of, physical, emotional and social ill health among Indigenous Australians. Factors contributing to the higher risk of mental illness are complex and wide ranging. Racism, stigma, environmental adversity and social disadvantage constitute chronic, perpetual causes of stress among Aboriginal communities, and have ongoing effects on mental health and wellbeing.<sup>23</sup> Erosion of family and community social structures through policies leading to forced separations and the undermining of traditional roles and practices within families are likely contributors. As a consequence, Aboriginal people throughout Australia suffer a disproportionate burden of problems related to social and emotional wellbeing.<sup>36</sup> These psychosocial impacts have been long discussed by Aboriginal communities, but are yet to find their rightful place in conceptualising and responding to chronic disease disparity.

### Poor access to health services

In contemporary Australian society, those most likely to suffer multiple barriers to care are indigenous groups, those of low socioeconomic status, people with mental illness, those living in rural and remote settings, and most notably, males. Males underutilise health care compared to females. After the age of 14 years and into old age, males have a consistently lower usage of Medicare funded services,<sup>37</sup> have

shorter consultations, and seem less likely to access health care for preventive services.<sup>38</sup> Even if males do present for clinical care, there is evidence to suggest that care may be of lower quality compared to that received by women for the same complaint.<sup>39</sup> When males do seek help for their medical or social problems, it is often at a stage of crisis, rather than at a stage where disease and dysfunction could have been prevented or adequately managed. The progression of illness past reversible stages is a likely contributor to the premature mortality seen in males across many cultural settings.

Indigenous Australians demonstrate poorer access to a range of clinical and preventive services. Indigenous Australians predominantly utilise publicly provided health care services,<sup>40</sup> and underutilise the Pharmaceutical Benefits Scheme, Medicare Benefits Schedule, specialist services and general practitioner consultations.<sup>41</sup> In particular, access to specialist cardiology services, appropriate interventional diagnostics and acute care modalities is limited in remote and regional areas where large indigenous groups reside.<sup>42</sup> There is also evidence to suggest that even when health care facilities are available, Aboriginal people are less likely to receive cardiac procedures than non-Aboriginal people during hospital admission.<sup>43</sup> Indigenous Australians are also more likely to access public hospitals for acute mental health care,<sup>44</sup> often at a time of crisis, with disproportionately low access to community based mental health care,<sup>23</sup> and private specialist mental health care.<sup>45</sup> They are over-represented in rural and remote settings where mental health services are poorly distributed.

Spry and Lowe<sup>5</sup> highlighted several access barriers to health care for indigenous males. These include the predominance of female staff within the health sector, the lack of cultural awareness of nonindigenous medical staff, the strong influence of women's health issues in defining health priorities and action, lack of ownership and control, concerns with privacy and shame when presenting to clinic settings, the continuing destruction of men's usual roles within community and family life, and the predominant focus of primary health care on acute clinical care at the expense of preventive and more holistic approaches to indigenous peoples' wellbeing.

Improving access to primary care stands as a critical target for improving health status among Indigenous Australians.

### General practice at the coalface

The role(s) that a GP can play will vary according to their practice location and degree of engagement with local Aboriginal communities. It must be recognised that there is no magic bullet approach to Aboriginal disadvantage. Acceptance of the complexity of the determinants of health also requires recognition of the complex health and social reforms and interventions required to decrease health disparity. Furthermore, indigenous communities, despite their similarities, require acceptance of the heterogeneity of context, issues, culture, history and needs in order to develop intervention at the local level. Nevertheless, some principles apply.

### Recognising CVD and elevated global risk in indigenous men

It is important to recognise that the pattern and contributors to CVD disparity is likely to differ in indigenous populations. The INTERHEART study<sup>46</sup> demonstrated that traditional risk factors such as smoking, diabetes, hypertension, abdominal obesity, dietary fruit and vegetables, exercise, alcohol consumption, and adverse lipid profiles in combination with psychosocial factors, accounted for most, if not all, of the population attributable risk of myocardial infarction across 52 countries. For most, if not all, of these predictors, Indigenous Australians fare worse than their nonindigenous counterparts. However, differences in the prevalence of hypertension, raised total cholesterol, self reported obesity and physical activity between Indigenous and non-Indigenous Australians are small, and unlikely to account for the enormous differentials, particularly at younger ages.<sup>8,10,47-49</sup>

Wang and Hoy have recently demonstrated that conventional absolute risk equations to predict cardiovascular events among a community based cohort of Indigenous Australians were essentially flawed.<sup>50</sup> Framingham equations predicted less than half of the first CHD events. Underestimation occurred at all ages and in both sexes, but was greatest among those less than 35 years of age. The particular flaw of conventional risk assessment at young age is of critical importance to assessment and preventive care for Indigenous Australians at risk of, or with CVD (see *Case study 1*).

Indigenous Australians also demonstrate elevated rates of the 'unholy trinity' of vascular risk – renal impairment, diabetes and atherosclerosis.<sup>18</sup> Given

that chronic kidney disease is a strong independent predictor of cardiovascular events among those without established CHD,<sup>51</sup> and among patients suffering from acute coronary syndromes,<sup>52,53</sup> comorbid renal impairment is a critical consideration in assessing global risk among indigenous patients.

### Diagnosing depression in indigenous men

Understanding the expression, determinants and consequences of mental ill health is of the utmost importance to understanding the experience of disadvantage for indigenous peoples. Understanding the context and lived experience of each patient is essential to the nature and success of a long term therapeutic relationship between provider and patient and is likely to contribute to improved outcomes for disadvantaged populations. Culture can impact on the way in which an individual experiences, processes and manifests symptoms, and as a result, the manner and stage at which they present for assessment and care. In particular, the diagnosis of psychopathology with predominantly western/eurocentric diagnostic criteria must be treated with due care and consideration of cross cultural validity.

Furthermore, the diagnosis of illness and the alleviation of suffering require attention to the broader realities of individuals, families, communities and the social worlds in which they exist.<sup>54</sup> While it is impossible for every clinician to be able to understand each of the social, moral, ethical, and cultural contexts of a number of ethnic groups, 'openness, respect, and capacity for collective self criticism are... key elements of any transcultural clinical encounter'.<sup>55</sup> The utilisation of key community, family, cultural brokers, interpreters and health workers assists clinicians in identifying and conceptualising illness and should be routinely engaged in the assessment of indigenous patients at risk (see *Case study 2*).

Barriers to making a diagnosis of depression in general practice include patient concerns about stigma, somatised clinical presentations of mental illness, lack of time and competing demands of general practice, the GP's attitude and consulting style, and inadequate systems of psychiatric classification.<sup>56</sup> One strategy that may improve detection rates is the use of depression screening tools in general practice.<sup>57</sup> The National Heart Foundation of Australia will soon be releasing recommendations for depression screening tools for use in cardiovascular patients. Unfortunately, there are no tools that have been specifically validated

for use in Indigenous Australian adults.

### Improving access to and continuity of care

Chronic disease management approaches are required for both heart disease and mental illness, and this requires GPs to provide continuity of care and to develop effective follow up systems. A systematic treatment program<sup>58</sup> was developed in a remote Northern Territory Aboriginal community to modify renal and CVD and this intervention was associated with improvements in blood pressure, stabilisation of renal function, decreases in the rates of renal failure and all cause mortality. Systematic, primary care approaches to the treatment of cardiovascular and renal disease risk factors is central to reducing the burden of CVD in Indigenous Australians.

The barriers to health care for indigenous patients require special consideration. The role of community controlled Aboriginal health services is critical. However, many indigenous people may lack access to these services. Therefore, improving the acceptability and appropriateness of all services is essential. General practitioners have a central role in assisting patients and their families to negotiate difficult pathways through the health system. This not only requires awareness of what is available to support complex psychological and physical illness, but necessitates that GPs are strong patient advocates.

### Community engagement

Genuine engagement with indigenous communities often requires the GP to step out of their formal medical role and build informal relationships and trust with the community, indigenous health workers, and indigenous health services (see *Case study 2*). Recognition of, and support for, the valuable role of indigenous people within the health workforce is also critical. Indigenous patients may be more likely to attend for care in an environment with indigenous clinical, reception, paramedical or administrative staff. A patient may be more likely to see the GP that one of their family or friends recommends, or even attend the GP with that person in the first instance. In essence, much can be achieved for and with indigenous people through an open, deliberate, respectful and sustainable commitment to establishing relationships between mainstream services/clinicians and their indigenous neighbours and colleagues, and with indigenous patients, families, elders and communities.

#### Case study 1 – Mick

Mick, 32 years of age, is an Aboriginal man who runs the local community sports club. He presents with left shoulder pain following a football match in which he received a heavy bump on his left side, just before launching the winning goal (which he takes great pleasure in recounting throughout the consultation). Past history is unremarkable, however he smokes a packet of cigarettes a day and is mildly obese. He tells you he has taken some Panadeine, and feels a little nauseous as a result. On examination, there is no local shoulder tenderness and he has full range of motion. He returns after having an X-ray, which is normal. You notice that he now looks pale and sweaty. He tells you the pain has now moved to his chest, and you perform an ECG in the practice which indicates ischemic changes in the lateral leads. You give Mick an aspirin, take a set of bloods, and insert an IV while waiting for the ambulance to arrive.

#### Case study 2 – Alan

Alan, 41 years of age, is an Aboriginal man living in a rural community who presents initially with difficulty sleeping. Over a series of consultations you establish that he is depressed, smoking marijuana heavily, and has possible psychotic features you would like further assessed by a psychiatrist. You note that he has had episodes of angina in the past but is no longer taking antihypertensive medication or aspirin. Ideally you would like to help implement a number of secondary preventive strategies, ie. smoking cessation, recommencement of antihypertensives and psychiatric assessment. However, these need to be considered within the context of Alan's living conditions. Currently he lives with two friends who are heavy marijuana smokers and Alan is not keen to travel for a psychiatric assessment. You contact the local AMS that has a 'spiritual and emotional wellbeing' program and arrange for an indigenous health worker to visit Alan. Alan has known the health worker for many years, and after speaking with the worker agrees to be assessed by a visiting psychiatrist.

### Conclusion

The disadvantage of indigenous males is a case study in the important interface between the psychological, social, physical and cultural world. For millennia, indigenous peoples have discussed and understood that the body and mind are inseparable and interdependent. Modern medicine is only just starting to catch up. The symbiotic relationship between depression and heart disease, two of the leading contributors to the burden of disease in Australia, should be a primary target for alleviating health disparity among the most disadvantaged.

Indigenous males are missing tremendous opportunity for prevention of future illness and disability because an incompatibility exists between the needs of males and the services provided. Reorientating services to decrease or remove barriers to care; and to be acceptable, high quality and sensitive to the needs and demands of indigenous males is needed.

Broader changes in economic policy, education outcomes, access to the foundations of healthy life and opportunity, the development of sustainable employment opportunities, improved correctional services, health awareness and the development of the next generation of Aboriginal men are important elements of holistic approaches to dealing with indigenous male health disadvantage.

Primary health care and GPs, at the coalface of the fight against contemporary Australia's physical and emotional ill health, can achieve much in reducing preventable and unacceptable disparity through identifying, preventing, treating and healing the most disadvantaged.

Conflict of interest: none declared.

### Acknowledgment

Thanks to Dr Litza Kiroopoulos for assistance with preparation of this manuscript.

### References

1. Australian Bureau of Statistics and the Australian Institute of Health and Welfare. The Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples 2003. ABS Cat No. 4704.0. Canberra: ABS and AIHW, 2003.
2. SCRGSP. (Steering Committee for the Review of Government Service Provision). Overcoming indigenous disadvantage: key indicators 2003. Canberra: Productivity Commission, 2003.
3. Australian Bureaus of Statistics. Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples 2001. Canberra: ABS, 2001.
4. Dempsey K, Condon J. Mortality in the Northern Territory 1979–1997. Darwin: Territory Health Services, 1999.
5. Spry F, Lowe H. Living male. Indigenous male health discussion paper. Darwin: Territory Health Services, 2002.
6. Commonwealth Department of Health and Aged Care and Australian Institute of Health and Welfare. National Health Priority Areas Report: Cardiovascular health 1998. AIHW Cat. No. PHE9. Canberra: DHAC and AIHW, 1999.
7. Australian Bureau of Statistics and the Australian Institute of Health and Welfare. The Health and Welfare of Australian Aboriginal and Torres Strait Islander People 2001. ABS Catalogue No. 4704.0. Canberra: ABS and AIHW, 2001.
8. Australian Institute of Health and Welfare. Heart, stroke and vascular diseases – Australian facts 2004. AIHW Cat No. CVD 27. Canberra: AIHW and National Heart Foundation of Australia (Cardiovascular series No. 22), 2004.
9. Condon J, Warman G, Arnold L. The health and welfare of Territorians. Darwin: Epidemiology Branch, Territory Health Services, 2001.
10. Brown ADH. A comparative analysis of cardiovascular and all cause mortality in Australia and New Zealand 1984–1996: Is there evidence of widening indigenous/non-indigenous differentials? School of Public Health and Community Medicine. Jerusalem: Hebrew University, 1999.
11. O'Dea K. Diabetes in Australian Aborigines: impact of the western diet and lifestyle. *J Intern Med* 1992;232:103–17.
12. Hoy W, Mathews J, McCredie D, et al. The multidimensional nature of renal disease: rates and associations of albuminuria in an Australian Aboriginal community. *Kidney Int* 1998;54:1296–304.
13. Gault A, O'Dea K, Rowley KG, McLeay T, Traianedes K. Abnormal glucose tolerance and other CHD risk factors in an isolated aboriginal community in central Australia. *Diabetes Care* 1996;19:1269–73.
14. Australian Institute of Health and Welfare. Heart, stroke and vascular diseases – Australian facts, 2000. Canberra: AIHW, 2001.
15. Australian Bureau of Statistics and the Australian Institute of Health and Welfare. The health and welfare of Australia's Aboriginal and Torres Strait Islander peoples 1999. ABS Cat No. 4740.0. Canberra: ABS and AIHW, 1999.
16. Rowley K, Walker K, Cohen J, et al. Inflammation and vascular endothelial activation in an Aboriginal population: relationships to coronary disease risk factors and nutritional markers. *Med J Aust* 2003;178:495–500.
17. Braun B, Zimmerman M, Kretschmer N. Risk factors for diabetes and cardiovascular disease in young Australian Aborigines. A five year follow up study. *Diabetes Care* 1996;19:472–9.
18. Brown A, Walsh W, Lea T, Tonkin A. What becomes of the broken hearted? Coronary heart disease as a paradigm of cardiovascular disease and poor health among Indigenous Australians. *Heart, Lung and Circulation* 2005; in press.
19. Marmot M, Bartley M. Social class and coronary heart disease. In: Stansfeld S, Marmot M, editors. *Stress and the heart: psychosocial pathways to coronary heart disease*. London: BMJ Books, 2002.
20. Australian Bureau of Statistics. Mental health and wellbeing: profile of adults, Australia, 1997. Canberra: Australian Bureau of Statistics, 1998.
21. Murray C, Lopez A. The global burden of disease: a comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020. Boston: Harvard University Press, 1996.
22. World Health Organisation. Preventing suicide: a resource for general physicians. Geneva: World Health Organisation, 2000.
23. Social Health Reference Group. Consultation paper for the development of the Aboriginal and Torres Strait Islander National Strategic Framework for Mental Health and Social and Emotional Well Being 2004–2009. Canberra: Commonwealth Department of Health and Ageing, 2003.
24. Swann P, Raphael B. Ways forward. National Consultancy Report on Aboriginal and Torres Strait Islander mental health. Canberra: AGPS, 1995.
25. Kuper H, Marmot M, Hemingway H. Systematic review of prospective cohort studies of psychosocial factors in the aetiology and prognosis of coronary heart disease. *Semin Vasc Med* 2002;2:267–314.
26. Musselman D, Evans D, Nemeroff C. The relationship of depression to cardiovascular disease: epidemiology, biology and treatment. *Arch Gen Psychiatry* 1998;55:580–92.
27. Rozanski A, Blumenthal J, Kaplan J. Impact of psychosocial factors on the pathogenesis of cardiovascular disease and implications for therapy. *Circulation* 1999;99:2192–217.
28. Brunner E. Stress mechanisms in coronary heart disease. In: Stansfeld S, Marmot M, editors. *Stress and the heart. Psychosocial pathways to coronary heart disease*. London: BMJ Books, 2002.
29. Sheps D, Rozanski A. From feeling blue to clinical depression:

- exploring the pathogenicity of depressive symptoms and their management in cardiac practice. *Psychosom Med* 2005;67: S2–5.
30. Gillespie C, Nemeroff C. Hypercortisolemia and depression. *Psychosom Med* 2005;67:S26–8.
  31. Kop W, Gortdiener J. The role of immune system parameters in the relationship between depression and coronary artery disease. *Psychosom Med* 2005;67:S37–41.
  32. Eriksen W. The role of social support in the pathogenesis of coronary heart disease: a literature review. *Fam Pract* 1994;11:201–9.
  33. Tennant C. Life stress, social support and coronary heart disease. *Aust N Z J Psychiatry* 1999;33:636–41.
  34. Bunker SJ, Colquhoun DM, Esler MD, et al. 'Stress' and coronary heart disease: psychosocial risk factors. *Med J Aust* 2003;178:272–6.
  35. Siegrist J, Marmot M. Health inequalities and the psychosocial environment: two scientific challenges. *Soc Sci Med* 2004;58:1463–73.
  36. SHRG. Social Health Reference Group. Consultation paper for the development of the Aboriginal and Torres Strait Islander National Strategic Framework for Mental Health and Social and Emotional Wellbeing 2004–2009. Canberra: Commonwealth Department of Health and Ageing, 2003.
  37. Australian Bureau of Statistics. Australian social trends, 1996. Canberra: Australian Bureau of Statistics, 1996.
  38. Britt H, Sayer GP, Miller GC, et al. BEACH survey. General practice activity in Australia 1998–1999. AIHW Cat No. GEP2. Canberra: AIHW, GPSCU, 1999.
  39. Courtenay W. Reaching men: evidence based communication and marketing strategies for improving men's health. First World Congress on Men's Health. Sex and gender matter – from boys to men. The future of men's health. Vienna, Austria, 2001.
  40. Thomas D, Heller R, Hunter J. Clinical consultations in an Aboriginal community controlled health service: a comparison with general practice. *Aust N Z J Public Health* 1998;22:86–91.
  41. Deeble J, et al. Expenditures on health services for Aboriginal and Torres Strait Islander people. Cat No. HWE 6. Canberra: Australian Institute of Health and Welfare, 1998.
  42. Rowley KG, Daniel M, Skinner K, Skinner M, White GA, O'Dea K. Effectiveness of a community based 'healthy lifestyle' program in a remote Australian Aboriginal community. *Aust N Z J Public Health* 2000;24:136–44.
  43. Cunningham J. Diagnostic and therapeutic procedures among Australian hospital patients identified as indigenous. *Med J Aust* 2002;176:58–62.
  44. Australian Institute of Health and Welfare. Expenditures on health services for Aboriginal and Torres Strait Islander people (1998–1999). AIHW Cat No IHW 7. Canberra: Australian Institute of Health and Welfare and Commonwealth Department of Health and Aged Care, 2001.
  45. Keys-Young. Market research into Aboriginal and Torres Strait Islander access to Medicare and the Pharmaceutical Benefits Scheme. Canberra: Health Insurance Commission, 1997.
  46. Yusuf S, Hawken S, Ōunpuu S, et al. On behalf of the INTERHEART Study Investigators. Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): case control study. *Lancet* 2004;364:937–52.
  47. Hoy WE, McFarlane R, Pugsley DJ, Norman R, Mathews JD. Markers for cardiovascular and renal morbidity: expectations for an intervention program in an Australian aboriginal community. *Clin Exp Pharmacol Physiol* 1996;23:S33–7.
  48. McDonald SP, Wang Z, Hoy WE. Physical and biochemical predictors of death in an Australian aboriginal cohort. *Clin Exp Pharmacol Physiol* 1999;26:618–21.
  49. Rowley K, Walker K, Cohen J, et al. Inflammation and vascular endothelial activation in an Aboriginal population: relationships to coronary disease risk factors and nutritional markers. *Med J Aust* 2003;178:495–500.
  50. Wang Z, Hoy W. Is the Framingham coronary heart disease absolute risk function applicable to Aboriginal people? *Med J Aust* 2005;182:66–9.
  51. Go AS, Chertow GM, Fan D, McCulloch CE, Hsu CY. Chronic kidney disease and the risks of death, cardiovascular events, and hospitalisation. *N Engl J Med* 2004;351:1296–305.
  52. Anavekar NS, McMurray JJ, Velazquez EJ, et al. Relation between renal dysfunction and cardiovascular outcomes after myocardial infarction. *N Engl J Med* 2004;351:1285–95.
  53. Dumaine R, Collet JP, Tanguy ML, et al. Prognostic significance of renal insufficiency in patients presenting with acute coronary syndrome (the Prospective Multicenter SYCOMORE study). *Am J Cardiol* 2004;94:1543–7.
  54. Lopez S, Guarnaccia P. Cultural psychopathology: uncovering the social world of mental illness. *Annu Rev Psychol* 2000;51:571–98.
  55. Kirmayer LJ, Rousseau C, Jarvis G, Guzder J. The cultural context of clinical assessment. In: Lieberman T, Kay J, editors. *Psychiatry*. 2nd ed. New York: John Wiley and Sons, 2003;1–12.
  56. Sartorius N, Ustun TB, editors. *Mental illness in general health care: an international study*. New York: John Wiley & Sons, 1994.
  57. Hickie I. Primary care psychiatry is not specialist psychiatry in general practice. *Med J Aust* 1999;170:171–3.
  58. Hoy WE, Baker PR, Kelly AM, Wang Z. Reducing premature death and renal failure in Australian aboriginals. A community based cardiovascular and renal protective program. *Med J Aust* 2000;172:473–8.

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