

Preventable Chronic Diseases Among Indigenous Australians: The Need for a Comprehensive National Approach[☆]

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Chronic conditions such as diabetes, cardiovascular disease and heart disease represent a serious and escalating health burden for Indigenous populations across Australia. Social disadvantage, inactive lifestyle and poor nutrition are major contributors to chronic disease among Indigenous peoples. We have the knowledge base to reduce the devastating impact of early onset chronic diseases in those who already have the conditions, and to prevent or delay their onset in those who have not yet succumbed. This represents a major and urgent challenge to governments and Indigenous communities.

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Introduction

Indigenous Australians have a life expectancy of approximately 20 years less than non-Indigenous Australians. A major contributor to earlier mortality is premature death from chronic diseases such as heart disease, stroke, diabetes and renal failure¹. Not only are these conditions much more common among Indigenous people, but they occur at much younger ages. In the 25–45 years age group, diabetes prevalence and death from heart disease are both 10 times higher than the national rate. End stage renal disease (ESRD) is up to 100 times more prevalent in the worst affected communities in remote Australia. These chronic diseases share some common risk factors (poor quality diet, physical inactivity, smoking, central obesity) and frequently occur together in the same individuals. Furthermore they interact to amplify mortality risk. For example, a person with diabetes has four to six times higher risk of coronary heart disease (CHD), while end stage renal disease increases the risk of CHD 12 to 20-fold. All available information indicates that this is an escalating epidemic – with increasing prevalence rates and earlier age of onset evident over the past 20–30 years².

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Diabetes

The type of diabetes occurring in epidemic proportions among Indigenous people is lifestyle-related – previously known as 'maturity-onset', now referred to as 'type 2 diabetes'. It is a condition of insulin resistance, rather than insulin deficiency. The strongest predictor of risk is central obesity: indeed risk increases sharply with even moderate increases in fat on the abdomen. Increasing age is also a risk factor – but much more so when combined with increasing weight. In the wider Australian community, the recent AusDiab Study has found that diabetes prevalence has doubled in the last 20 years in association with increasing body weight and less physical activity of Australians – they have coined the term 'diabesity' to highlight the link between weight gain and diabetes risk³. Diabetes is associated with a number of micro- and macrovascular complications. If not closely monitored, it can result in blindness, renal failure, lower limb amputations, heart disease and stroke. These complications are generally related to duration of diabetes: the younger the age of onset, the earlier the development of complications. This means complications are occurring in relatively young Indigenous people – fuelling a very serious public health problem.

In a prospective study in two Central Australian Aboriginal communities, leanness was shown to protect against the development of diabetes across the age range⁴. The obvious conclusion from this and data from other populations is that the risk of diabetes could be greatly reduced

if excessive weight gain could be prevented. Diet and physical activity are critical factors – both of which have changed dramatically for Indigenous Australians as they made the transition from traditional hunter-gatherer to western lifestyle.

Renal disease

In contrast to diabetes, where the relationship between weight gain and risk of diabetes is observed in Indigenous peoples all over Australia, the risk of end stage renal disease varies widely across regions of Australia. In general the situation is most serious for Aboriginal people in remote areas of northern and western Australia. Researchers from the Menzies School of Health Research compared rates of ESRD across 36 Aboriginal and Torres Strait Islander Commission (ATSIC) regions and found great variation⁵. The differences were largely explained by standard SEIFA indices for social disadvantage (Socio Economic Indexes For Areas, Australian Bureau of Statistics), with the most disadvantaged communities exhibiting the highest rates of renal failure. The SEIFA indices take into account income, education, occupation/unemployment, and living conditions. There was a 20-fold gradient in ESRD among Indigenous people between the least and most disadvantaged ATSIC regions. This compares to a three-fold gradient for the non-Indigenous population of Australia.

Social disadvantage and poor health

The pathway by which social disadvantage increases the risk of kidney failure is not yet clearly elucidated. However, it is likely to be related to factors in early life, the burden of infectious disease secondary to poverty and overcrowded living conditions, and psychosocial mediators (now also strongly implicated in heart disease and diabetes). The risk factors for renal disease which have been identified in Aboriginal people include diabetes, high blood pressure, low birth weight, central obesity, and post streptococcal glomerular nephritis (which appears to be secondary to skin infections common among Aboriginal infants and children). Most of these risk factors are also associated with social disadvantage⁶.

Many Aboriginal communities, especially those in remote regions, are very disadvantaged relative to mainstream Australians: poverty secondary to high unemployment and welfare dependency, poor educational outcomes, overcrowded living conditions, poor quality food supply (high cost and limited availability of fresh foods such as fruit and vegetables in particular). Poor health follows. There is a very high burden of infectious diseases, particularly among children, and a very high burden of non-communicable (lifestyle-related) chronic diseases among adults. There is an emerging view that the heavy burden of infectious disease may amplify the risk and/or severity of chronic disease – not just ESRD as noted above, but vascular disease generally (impacting on both diabetes and heart disease). This effect may be mediated through activation of common inflammatory pathways.

Aborigines as hunter gatherers

It is important to place contemporary Aboriginal health in its historical context. All available evidence indicates that when Aborigines lived as hunter gatherers they were extremely healthy with no evidence of the chronic diseases that plague them now⁷. They had a diet derived from a wide variety of animal and plant sources. It was characterized by many qualities now recognized as desirable: low saturated fat, relatively rich in omega-3 polyunsaturated fat, high fibre, low glycemic index, rich in essential micronutrients (vitamins, minerals, antioxidants and other bioactive chemicals from plants), and low energy density (high bulk). Because they had to hunt and gather daily, physical activity was built in to daily routines. There was a very high level of social cohesion within clear social structures, and no evidence of substance abuse. From the psychosocial perspective community members were mutually supportive and interdependent. The loss of this lifestyle is a source of great distress to most Indigenous people, whether that loss was in their own lifetimes or earlier in the period of colonization.

Under these previous, very different lifestyle circumstances Aborigines had no evidence of the chronic diseases that now occur so commonly: they were lean, and had low blood pressure, cholesterol and glucose. Furthermore, these risk factors did not increase with age as they do in western societies. Because they lived in relatively small family groups and were primarily nomadic (within well defined 'homelands' recognized by Traditional Law), infectious diseases were likely to have been uncommon.

The therapeutic potential of the hunter gatherer lifestyle

There is no question that the hunter gatherer lifestyle promoted good health and protected against chronic diseases such as diabetes, kidney failure and heart disease. There is also evidence that it could be therapeutic. In 1982, I examined the impact on health of temporary reversion to hunter gatherer lifestyle on a group of middle-aged, diabetic Aborigines from the West Kimberley region of WA⁸. This unique study was possible because the people involved had retained the knowledge and ability to live as hunter gatherers. They were all over weight or obese at the outset. After 7 weeks living off their traditional lands their health profile was transformed. They lost on average 7 kg and the metabolic abnormalities of diabetes were greatly improved (fasting glucose fell from an average of 11.6–6.3 mmol/L). Half of them were no longer diabetic. In addition the risk factors for heart disease that we measured (blood pressure, blood cholesterol and triglycerides, bleeding time) all improved markedly. I was struck by the change in people when they were back on their own country: they were confident and assertive, and proud of their local knowledge and skills. At the time we were not able to measure markers of psychosocial state, however observation suggested a very positive change.

This study caught the imagination of Aboriginal people across Australia, and they were not at all surprised by the

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