

Hauora: Māori Standards of Health IV

For those of us who've been told that we've got a bit of a heart problem, don't think it's the end of the world. Don't think it's the end of the world – it's not the end of the world. So, you've got a heart problem – so what! You live with it, and try and cope with the situation. But don't make yourself any worse by saying 'oh dear, I've got a crook heart, I can't get out there and mow the lawns', or, 'I can't shift a bed because it's too heavy'. No, no, no, no, no. You go to your doctor, your doctor says 'you've got a wheeze, you've got a weak heart, you take it easy'. Well, you take it easy, true, but don't take it too easy, crikey man. Well, here I am. I'm happy. I still can't catch my wife!

I think the big thing about it, for me anyway, is to think well. You don't think sick because if you think sick you're going to be sick. I think well. And of course, the wife and I go to the gym next door every morning at five o'clock and do half an hour's exercise every day and it just makes a difference to the day. We don't eat meat much now, we'll have chicken. Fish is our mainstay – fish and chicken. Very little in the way of steaks. Now and again we'll have a boil-up with a few ribs, but not like how we used to.

This last summer I went down to the beach diving and as I came out of the water this young fella was swimming past and I thought to myself, 'crikey, here's an old coot here in his 70s diving and there's this young fella here 25 years old'. But there you are you see, it's your whole attitude of mind.

You know, a lot of people say that when your number's up, your number's up. But a lot of us die before our number's up. It's a fact. There's no need for us to die before our number's up. I enjoy my grandchildren. One of the things about it is the fact that many of us older people that die a little early, our grandchildren don't know us, aye. And, you know, it's good to hear the kids talking about grandma and grandpa. And all our grandchildren, you know, we've enjoyed their company.

Phil Aspinall

Source: Williams Associates (producer). 2000. *Kei te mate tō manawa? Living with heart failure*. [Video] Auckland: Te Hotu Manawa Māori.

8 CARDIOVASCULAR DISEASE

Elana Curtis, Matire Harwood, Tania Riddell¹

Cardiovascular disease (CVD) is a general term that includes all diseases of the heart and blood vessels. As a group, CVD is a leading cause of death in New Zealand causing approximately 40% of all deaths (New Zealand Guidelines Group [NZGG] 2003). The burden of CVD falls disproportionately on Māori. This chapter focuses on three conditions that are major contributors to the overall burden of CVD, namely ischaemic heart disease, stroke, and heart failure. The evidence of disparities between Māori and non-Māori is examined using existing evidence as well as data specifically analysed for this edition of *Hauora* (summarised in Table 8.4 at the end of this section along with data on hypertensive diseases and chronic rheumatic heart disease).

Ischaemic heart disease²

Ischaemic heart disease occurs when arteries that supply blood to the heart become blocked or narrowed. This results in a lack of oxygen being delivered to the heart, which in turn results in damage to the heart muscle. Ischaemic heart disease is the most common type of heart disease in New Zealand and can cause angina, heart attacks (myocardial infarction), and heart failure.

The impact of ischaemic heart disease

Ischaemic heart disease accounted for 18% of all Māori deaths and 23% of all non-Māori deaths during 2000–2004. Among Māori 45% of deaths occurred in people aged under 65 years compared to 11% among non-Māori. The higher proportion of younger deaths in Māori (Table 8.1) is partly due to the higher risk for Māori in younger ages but also because of the younger age structure of the Māori population compared to the non-Māori population (see chapter 2). New Zealand death rates from ischaemic heart disease have declined over the last 25 years. However, this decline has been greater for non-Māori than for Māori. Because of this, relative disparities in ischaemic heart disease death rates have increased between Māori and non-Māori (Blakely et al 2007). Mortality *rates* for ischaemic heart disease are expected to decline for both Māori and non-Māori over the next decade. However, because of population changes, the actual *number* of deaths from ischaemic heart disease is expected to increase among Māori and decrease among non-Māori (Tobias et al 2006).

¹ The authors are listed here in alphabetical order. Elana Curtis wrote the IHD section, Matire Harwood wrote the stroke section, and Tania Riddell authored the heart failure and Cardiovascular Action Plan sections.

² The conditions encompassed by the term ischaemic heart disease in this chapter include angina pectoris, acute myocardial infarction, chronic ischaemic heart disease, and other ischaemic heart disease.

Hauora: Māori Standards of Health IV

The 2002/03 New Zealand Health Survey estimated that 1 in 7 Māori and 1 in 10 non-Māori aged 35 years and over had been diagnosed with heart disease³ (Ministry of Health 2006a).

Important ischaemic heart disease disparities for Māori

There are significant disparities between Māori and non-Māori in the risk of developing and dying from ischaemic heart disease. For example:

- Māori males aged 45–64 years had a rate of death from ischaemic heart disease that was 3 times that of non-Māori males during 2000–2004. Māori males aged 65 years and over had a death rate 1.63 times that of non-Māori (Table 8.1)
- Māori females aged 45–64 years had a rate of death that was 4.39 times that of non-Māori females from 2000–2004. Māori females aged 65 years and over had a death rate 1.92 times that of non-Māori (Table 8.1)
- in 2002, 30-day age-standardised case fatality rates following acute coronary syndrome were 158 per 1,000 patients for Māori compared to 112 per 1,000 patients for Europeans/Others (Bramley et al 2004)
- Māori age-sex-standardised public hospitalisation rates (2003–2005) were 1.43 times that of non-Māori while mortality rates (2000–2004) were 2.25 times that of non-Māori (Table 8.4).

Table 8.1: Ischaemic heart disease mortality rates, 2000–2004

	Age group	Māori		Non-Māori		Rate ratio (95% CI)
		Number	Rate	Number	Rate	
Female	25–44 years	28	6.2	46	1.8	3.45 (2.16–5.52)
	45–64 years	277	131.4	605	29.9	4.39 (3.81–5.06)
	65 and over	621	1,010.7	12,962	527.61	1.92 (1.76–2.08)
	All ages	926	53.3	13,613	21.8	2.45 (2.29–2.62)
Male	25–44 years	118	29.0	259	10.8	2.69 (2.17–3.35)
	45–64 years	681	343.4	2,267	113.9	3.01 (2.77–3.28)
	65 and over	724	1,570.0	12,548	965.0	1.63 (1.51–1.75)
	All ages	1,523	106.7	15,075	49.2	2.17 (2.05–2.29)

Notes: Rates are calculated per 100,000; rates for 'all ages' and 65 years and over were age-standardised to the 2001 Māori population.

It has been noted that Māori have the highest prevalence of many cardiovascular risk factors (Bramley et al 2004). For example:

- age-standardised⁴ prevalences show that in 2006 40% of Māori males aged 15–64 years were smokers compared to 21% of European males. Fifty percent of Māori females were smokers compared to 20% of European females (Ministry of Health 2006b)

³ This figure is based on self-report and includes other conditions such as abnormal heart rhythm and heart failure.

⁴ Standardised to the WHO world population.

Cardiovascular Disease

- the age-standardised⁵ prevalence of self-reported diabetes among adults (15+ years) in 2002/03 was 6.9% in Māori males and 5.1% in Māori females compared to 2.6% in non-Māori males and 2.1% in non-Māori females (Ministry of Health 2006a)
- the age-standardised⁶ prevalence of self-reported high blood pressure in adults (15+ years) was 23.7% in Māori males and 23.9% in Māori females compared to 17.6% and 19.2% respectively in European New Zealanders during 2002/03 (Ministry of Health 2004). An Auckland survey in 2002/03 found 9% of Māori males aged 35–74 years had undetected high blood pressure and 5% of Māori females, compared to 3% and 1% of non-Māori/non-Pacific males and females respectively (Gentles et al 2006)
- the age-standardised⁷ prevalence of obesity⁸ in adults (15+ years) during 2002/03 was 26.5% in Māori males compared to 16.9% in European males, and 26.1% in Māori females compared to 19.1% in European females (Ministry of Health 2006a)
- just as ischaemic heart disease mortality is strongly associated with socioeconomic position (Blakely et al 2007), so too are cardiovascular risk factors (Howden-Chapman and Tobias 2000)
- the experience of racial discrimination was found to be associated with current smoking and with self-reported cardiovascular disease in the 2002/03 New Zealand Health Survey, independent of socioeconomic deprivation, with evidence of a dose-response (Harris et al 2006a). Differences in socioeconomic deprivation and the experience of racial discrimination together accounted for most of the disparity between Māori and Europeans in self-reported cardiovascular disease (Harris et al 2006b).

What should health care providers do to reduce the burden of ischaemic heart disease?

- *Health promotion and public health strategies* – Intersectoral action to improve social and economic environments for Māori to facilitate healthy eating and activity and, therefore, ischaemic heart disease risk factor reduction are important. This will require a health promotion focus that extends beyond activities focused solely on individual behaviour, to incorporate interventions that will reduce discrimination and advocate for policies and resources to improve socioeconomic conditions for Māori at a broader community and national level.
- *Risk assessment and management* – There are well-established interventions that prevent and treat risk factors for ischaemic heart disease. The NZGG recommends smoking cessation programmes, intensive nutritional/exercise advice and support, risk assessment and medication where risk is high (aspirin,

⁵ Standardised to the 2001 Māori population.

⁶ Standardised to the WHO world population.

⁷ Age-standardised to 2001 Māori population.

⁸ BMI \geq 30 kg/m² in non-Māori and \geq 32 kg/m² in Māori.

blood pressure lowering medication and lipid modifying therapy (statins)) (NZGG 2003). Electronic audit methods are being used to support clinical management of high risk patients in general practice (Sinclair & Kerr 2006). Such systems hold promise for Māori health gain but will need to be used in conjunction with other strategies to reduce barriers to care (such as full-cost funding of drug therapies and increased attention at the whānau level) (Riddell et al 2007).

- *Diagnosis of coronary artery disease* – Given the higher prevalence of risk factors and higher mortality from IHD, providers should increase the level of exercise testing and other diagnostic tests provided to Māori patients. A more vigilant approach is required. Once a diagnosis of coronary artery disease has been made it is also important to communicate to patients the best practice treatment pathway rather than expecting patients to raise treatment options themselves (Penney et al 2006).
- *Identification and management of acute coronary syndromes* – New ways of diagnosing heart attacks and managing acute coronary syndromes (heart attacks and unstable angina) have resulted in more effective treatment in recent years,⁹ but best practice guidelines have yet to be fully implemented in New Zealand hospitals (Ellis et al 2004). Efforts to increase provider compliance with evidence-based guidelines should specifically address issues of equitable access to high quality care for Māori.

Early recognition of symptoms, early access to emergency services, early cardiac resuscitation, early defibrillation, and early advanced cardiac life support are recognised as independent key links in the chain of survival from a heart attack outside of hospital (Tanner et al 2006). Increased availability of emergency equipment (e.g., automated external defibrillation) and training for advanced life support in rural areas may also improve outcomes (Penney et al 2006). Interviews with Māori who had experienced heart disease identified that many described symptoms other than the classic severe chest pain. This made recognition of a heart attack more difficult. Revision of the messages communicated by the media and health services was recommended (Penney et al 2006).

Pre-hospital fibrinolytic therapy is recommended for patients experiencing heart attacks who are more than an hour from hospital (Pre-Hospital Fibrinolysis Guidelines Working Party [PHFGWP] 2004). Increasing the availability of such therapy is likely to improve outcomes for Māori, given the higher proportion living in rural or isolated areas.

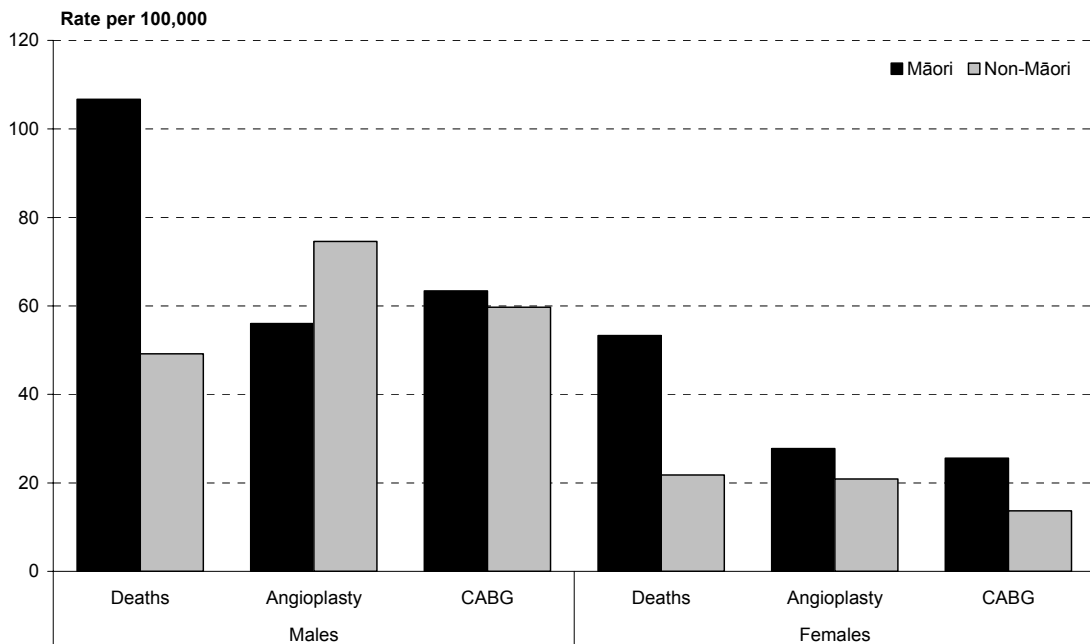
- *Coronary revascularisation* – invasive revascularisation procedures such as angioplasty and coronary artery bypass and graft can decrease the risk of heart attacks and relieve symptoms of angina and chest pain. Substantial disparities in

⁹ See ST-Elevation Myocardial Infarction Guidelines Group and the New Zealand Branch of the Cardiac Society of Australia and New Zealand (2005) and Non ST-Elevation Acute Coronary Syndrome Guidelines Group and the New Zealand Branch of the Cardiac Society of Australia and New Zealand (2005).

Cardiovascular Disease

the receipt of procedures between Māori and Pākehā persisted through the 1980s (Pomare & de Boer 1988) and 1990s (Tukuitonga & Bindman 2002) even after controlling for differences in age, sex, and socioeconomic deprivation (Westbrooke et al 2001). In recent years Māori revascularisation rates have increased (as have non-Māori rates) but are still considerably less than might be expected given the much higher mortality rates (Figure 8.1). Furthermore, if private hospital procedures were included the gap between Māori and non-Māori would likely be larger. Lower receipt of revascularisation procedures among Māori was also found in a subgroup of patients in primary care with known ischaemic heart disease, suggesting a need to revise the clinical priority scoring system (Riddell et al 2007). Alongside system-level barriers, health practitioners in Northland have talked of differential referral practices for Māori patients that depart from best practice pathways (Penney et al 2006). Professional development for clinicians at primary, secondary, and tertiary services may be needed to support appropriate decision making.

Figure 8.1: Ischaemic heart disease mortality 2000–04 and revascularisation procedures 2003–05, by gender



Note: Rates were age-standardised to the 2001 Māori population.

- *Rehabilitation* – rehabilitation and chronic disease management programmes after acute coronary syndromes (heart attack and unstable angina) and revascularisation have been shown to reduce the risk of further heart attacks and to improve quality of life (NZGG 2002). A national audit in 2002 found deprivation and lack of transport were associated with reduced likelihood of referral to and attendance at cardiac rehabilitation programmes (Doolan-Noble et al 2004). Heart Guide Aotearoa, a home-based cardiac rehabilitation programme currently being trialled, aims to provide access to those who would not otherwise

receive hospital-based services. If successful, Māori communities should be prioritised in the roll-out of the programme.

Research into ethnic disparities in receipt of ischaemic heart disease procedures

There is international evidence for the existence of ethnic disparities in invasive cardiovascular procedure use (Smedley et al 2003). In the United States, for example, 'Blacks' are significantly less likely than 'Whites' to receive cardiovascular procedures despite controlling for multiple factors including socioeconomic status, service location and type, and co-morbidities (Curtis 2002; Kressin and Peterson 2001). Less well researched are the areas of physician or institution bias (Smedley et al 2003). Explanations for ethnic inequalities in the receipt of cardiovascular procedures in New Zealand requires further investigation and should consider these factors.

Stroke

What is stroke?

A stroke is like a 'brain attack' – a sudden interruption of blood flow to a part of the brain, causing damage to the brain cells.¹⁰ The interruption to blood flow can occur through two different mechanisms:

1. Ischaemic stroke – an artery bringing blood to part of the brain is blocked by narrowing of the artery or by a clot that has travelled there. The brain cells do not receive enough oxygen and then become damaged. Ischaemic stroke is the most common type of stroke.
2. Haemorrhagic stroke – the wall of an artery bursts and blood leaks into the brain.

Different regions of the brain control various movements, senses, and intellectual functions. If a stroke damages one of these regions the different functions that they control may be affected. Some effects of a stroke include weakness, paralysis, loss of vision, and problems understanding or saying words.

The impact of stroke

Stroke is a common disease that can have considerable consequences for the individual and their whānau. On average nearly 800 Māori are admitted to hospital each year with a stroke and 140 per year die from stroke (Table 8.4).

As well as being a major cause of mortality, stroke is a leading cause of disability in New Zealand (Bonita 1996; Ministry of Health 2002). In 2003, of the 32,000 people living in New Zealand after having a stroke more than 50% had some form of disability and only 30% said that they were independent in all activities of daily living.¹⁰

Age is a major risk factor for stroke and therefore as the Māori population gets older the number of Māori having a stroke is expected to increase over the next 50 years (Ministry of Health 2002). However, it is possible to 'reverse' this expected trend. The ARCOS

¹⁰ Taken, with permission, from the Stroke Foundation of New Zealand website (www.stroke.org.nz).

study group recently showed that stroke incidence and case fatality rates have reduced for New Zealand Europeans in Auckland over the past 20 years through prompt and effective management of modifiable stroke risk factors (such as high blood pressure and smoking) and acute stroke care (by admission to a stroke unit) (Anderson et al 2005). A similar commitment from health services is required for Māori with stroke.

Important stroke disparities for Māori

As is the case internationally (Alter 1994; Hajat et al 2001) there are significant ethnic stroke disparities in Aotearoa/New Zealand. Differences in stroke rates and outcomes between Māori and non-Māori include the following:

1. Māori have higher age-sex-standardised rates of hospitalisation for stroke than non-Māori (116.1/100,000 compared to 63.3/100,000 in 2003–05) (Table 8.4).
2. Age-sex-standardised death rates from stroke are higher for Māori than non-Māori (21.7/100,000 compared with 13.5/100,000) (Table 8.4), a difference which is largely explained by the higher incidence rate. Stroke case fatality rates (the proportion of people having a stroke who die from the stroke) are similar across ethnic groups (Carter et al 2006).
3. Māori are younger on average at the time of first stroke than New Zealand Europeans (mean age of 60.7 years compared with 75.6 years) (Carter et al 2006). The age difference reflects the younger age of the Māori population as a whole when compared with the New Zealand European population. However, we note that stroke at a young age can create additional burdens on family/whānau and support systems, particularly when earning capacity is lost (Moewaka-Barnes and Tunks 1996; Harwood 2005). In addition, funding for and access to rehabilitation services in New Zealand is much more restricted for patients under 65 years of age than those 65 years of age or older (Fink 2006). One stroke physician suggests this is evidence “that there is institutionalised bias against Māori and Pacific Island stroke patients in our public health system [which] requires redress with urgency” (Fink 2006).
4. Compared with New Zealand Europeans, Māori are at two to three times greater risk of ischaemic stroke and intracerebral haemorrhage (Feigin et al 2006) due to ethnic differences in risk factor profiles (see below).
5. Other important differences in stroke outcomes:
 - Māori are more likely to be living at home with others/whānau at the time of their first stroke and are more likely to be discharged back home to live with their whānau after hospitalisation for stroke than non-Māori (McNaughton et al 2002a). Non-Māori are more likely to be living alone at the time of their first stroke and are discharged home with extra support, to a private hospital, or to residential care.
 - Māori and Pacific people report being more dependent, disabled, and dissatisfied with their quality of life after stroke than non-Māori-non-Pacific people (McNaughton et al 2002a).

Hauora: Māori Standards of Health IV

6. Given the likelihood of having a stroke and of being discharged from hospital after stroke to their own home is higher for Māori than non-Māori, we would expect Māori to receive more rehabilitation in the community than non-Māori. However, there is no significant difference in the utilisation of community rehabilitation between Māori and non-Māori non-Pacific people (McNaughton et al 2002b).
7. Māori have higher rates of stroke risk factors including:
 - *Hypertension*. Raised blood pressure is a well known risk factor for stroke. Average blood pressure levels and the prevalence of raised blood pressure were shown to be higher in Māori compared to non-Māori non-Pacific people (Gentles et al 2006)
 - *Type 2 diabetes*. The prevalence of type 2 diabetes in Auckland is 2.8 times greater for Māori than for New Zealand Europeans (Sundborn et al 2007)
 - *Smoking*. Five studies that examined the prevalence of cardiovascular risk factors in the community by ethnicity were reviewed by Bramley and others (2006) who found that 44.1% of Māori respondents reported being current smokers compared with 21.4% of non-Māori respondents.

What should health care providers do to reduce the burden of stroke?

Service providers need to recognise that differences in the timeliness, quality, and appropriateness of stroke care may contribute to ethnic disparities in stroke rates and outcomes. There is growing evidence that ethnic inequalities in stroke care occur along the entire stroke care pathway. Health services can, therefore, play an important role in addressing ethnic inequalities in stroke. Examples are presented here.

Prevention

Prompt identification and effective management of stroke risk factors has led to reduced stroke incidence rates both here in New Zealand (Carter et al 2006) and overseas (Rothwell et al 2004). Lifestyle risk factors include a diet high in saturated fat, a diet high in salt, a diet low in fruit and vegetables, heavy alcohol consumption, physical inactivity, cigarette consumption and obesity (Stroke Foundation of New Zealand 2003). Modifying just one of these risk factors can reduce risk for stroke. However, total population approaches to lifestyle and behavioural risk factors such as smoking have the potential to increase inequalities (Jarvis and Wardle 1999) and may not be as effective for Māori. The effectiveness of such programmes for Māori must be monitored and services could also consider new evidence based initiatives (Bramley et al 2005) to reduce the risk of stroke for Māori.

The management of medical risk factors (such as hypertension, atrial fibrillation, diabetes, and dyslipidaemia) is also extremely important. Raised blood pressure or hypertension is considered to be *the* most important medical risk factor for stroke, and treatment of high blood pressure reduces the risk of having a stroke. A previous study found that Māori with hypertension were less likely to receive treatment than non-Māori and non-Pacific people (OR 0.33, 95% CI 0.19–0.58) (Scragg et al 1993). Screening

Cardiovascular Disease

for medical stroke risk factors in Māori has improved with the implementation of the 'New Zealand guidelines for management of cardiovascular risk factors' and primary care based programmes such as PREDICT (Riddell et al 2007).

"He had a lot of things going on. His blood pressure was high every time he went to the GP but they never gave him medicine and it never got better. So when we found out he had little [strokes] before the major one we weren't surprised"

- 25 year old woman (Ngāpuhi) talking about her father¹¹

Diagnosis, acute management and rehabilitation

Best practice and evidence-based guidelines for the assessment, management and rehabilitation of stroke were developed for New Zealand (Stroke Foundation of New Zealand 2003). The guidelines include high level strategies to improve the quality of stroke care alongside steps for best practice. Within each strategy / step there are important issues for services to consider with regard to Māori with stroke.

People with stroke should have an initial assessment (including clinical diagnosis, CT scan of head, level of consciousness, swallow, mobility) completed with minimal delay (Stroke Foundation of New Zealand 2003). A delay in access to stroke assessment for Māori can occur when frontline services (e.g., general practices, ambulance staff, emergency departments) do not recognise the symptoms and signs of stroke (Harwood 2005). One solution is to develop local protocols for 'first contact' providers in conjunction with educational programmes to raise awareness about the signs and symptoms of stroke for the community.

"The ambulance came and told me it wasn't a stroke. [It wasn't until] my friend told him it was probably a stroke that he took me to hospital."

- 56 year old woman (Ngāti Porou)

Once stroke is diagnosed, the guideline recommends organised stroke care. Organised stroke care, especially early and coordinated rehabilitation in a stroke unit, reduces both mortality and morbidity following stroke when compared with rehabilitation in general wards (Stroke Unit Trialists' Collaboration 2001). In general, organised stroke care includes a geographically defined stroke unit, a coordinated multidisciplinary team, staff with specialist expertise in stroke and rehabilitation, educational programmes for staff, patients and carers and agreed protocols for common problems (Stroke Foundation of New Zealand 2003).

Two studies of stroke management in New Zealand identified major deficiencies and found that most New Zealanders do not have access to stroke specific, organised, acute inpatient care and rehabilitation (Barber et al 2002; Gommans et al 2003). Access to rehabilitation services for younger people (aged under 65 years) with stroke was not available in all centres and rural/smaller hospitals in particular did not provide stroke specific services such as community/home rehabilitation (Gommans et al 2003). Given the younger age and rural location of Māori, inequalities in stroke care are likely.

¹¹ Quotes in this section are taken from an unpublished PhD thesis by Matire Harwood: *Stroke Recovery for Māori and their Whānau*, used with permission of the participants.

Hauora: Māori Standards of Health IV

Importantly, patients and their carers/whānau recognise the importance of having an organised stroke service.

“Everything was fine and I really thought that would continue when he was transferred ... from one hospital to another ... but it wasn’t organised ...and it was upsetting.”

– 52 year old woman (Ngāti Maniapoto) talking about her whānau

“The hospital mainly, they told us most of what was going to happen, especially about my talking and how that was going to go. And [community rehabilitation] came to do the things to the house, put in the rails and there was a ramp at the front. So ... they told us most of what we know.”

– 72 year old woman (Tainui)

Secondary prevention

Significant narrowing or stenosis of the carotid artery in the neck is a risk factor for cerebral ischaemia. The narrowing is diagnosed and its severity is measured by ultrasound or other radiological imaging of the neck arteries. A procedure known as ‘carotid endarterectomy’ improves blood flow by removing or bypassing the narrowing, and this procedure can prevent further ischaemic strokes. Between 2003 and 2005 age-sex-standardised hospital admission rates due to cerebral ischaemic stroke were significantly higher for Māori than non-Māori (rate ratio 1.98, 95% CI 1.84–2.14). However rates of carotid endarterectomy were similar for Māori and non-Māori (rate ratio of 1.01, 95% CI 0.81–1.26) (Table 8.4), suggesting inequitable access to the procedure.

Whānau ora

International research has shown that caregivers (such as a family member or spouse) for a person with stroke frequently report adverse effects on emotional health, social activities and family relationships. Qualitative research has confirmed that these themes are experienced by Māori with stroke and their whānau (Moewaka Barnes and Tunks 1996; Gentles et al 2006) along with increased financial strain. Socioeconomic disadvantage and evidence suggesting that Māori are less likely to receive their full entitlement to financial assistance (Howell and Hackwell 2003) further impacts on whānau ora.

“No-one seems to understand what you go through caring for a stroke person. Especially the relationship and how that changed. I mean it couldn’t be any other way but sometimes ... I need to be awhi’ed.”

– 58 year old woman (Tainui) talking about caring for her husband

To support whānau ora, family doctors should assess the wellbeing of carers/whānau of a person with stroke by using an appropriate assessment tool such as the Caregiver Strain Index or similar. In order to address inequities in financial assistance for Māori, a number of health providers have included ‘right to financial assistance’ in their ‘well health checks’ and many community health workers and social workers provide advocacy and support to people with stroke for visits to their primary care centre, local Work and Income New Zealand office or Housing New Zealand.

Cardiovascular Disease

“Having whānau there helps ... but sometimes you might need a break. The social worker and Stroke Foundation helped us”

– 52 year old woman (Ngāpuhi)

Conclusion

The priority for Māori with stroke is to ensure evidence-based decision making is an integral part of stroke care delivery. Stroke guidelines based on established research and best practices have been developed to assist with this. The New Zealand Stroke Guidelines, available from the Stroke Foundation of New Zealand (2003) (www.stroke.org.nz), are relevant to both stroke clinicians and Māori with stroke and their whānau as a way to monitor their own stroke care.

Strategies for quality improvement are required and should include regular audit of clinical practice, development of practical ways to eliminate ethnic disparities and a kaupapa Māori research framework for stroke research. A broad framework for achieving cardiovascular health gain for Māori in New Zealand is outlined in the Māori Cardiovascular Action Plan, which is discussed later in this chapter.

Heart failure

Many definitions for heart failure exist but, because it is a complex syndrome, none is entirely satisfactory. Put simply, heart failure occurs when the heart fails to pump enough blood, leading to fluid retention, shortness of breath, and congestion. The diagnosis of heart failure relies on clinical judgement based on a patient's history, a physical examination, and an echocardiogram. Heart failure can result from a number of different causes (for example, previous heart attack or coronary heart disease, hypertension, diabetes, smoking, excess alcohol consumption, rheumatic heart disease, unknown cause). It is a debilitating and costly disease that leads to high hospitalisation and death rates. Importantly, heart failure is a chronic condition that is highly responsive to appropriate medical care. Relatively simple pharmacological (i.e., medication) and health service interventions improve patient functioning, decrease hospitalisations, and reduce deaths.

Why is heart failure important?

Heart failure is of growing public health concern and has an increasing prevalence (Mair et al 1997). Both national (Westbrooke 2001; Riddell 2001; Carr et al 2002; Riddell 2005) and international evidence (Ayanian 1999; Goldberg 1999) have shown that ethnic disparities in heart failure morbidity and mortality rates exist. Approximately 3,600 Māori men and women were admitted to hospital with heart failure between 2003 and 2005, corresponding to an age-standardised rate over four times that of non-Māori (Table 8.4). Disparities in hospital admissions for heart failure are highest in the 45–64 year age group, where rates for Māori men and Māori women are more than seven times that of non-Māori (Table 8.2). Congruent with these figures, heart failure death rates for Māori, over the period 2000–2004, were approximately 2.3 times the age-sex-standardised death rates of non-Māori (Table 8.4). Most of these deaths

Hauora: Māori Standards of Health IV

occurred among kuia and kaumatua (Table 8.3) although again disparities were highest in the 45–64 year age group (Table 8.3). The number of Māori having, or dying from, heart failure is expected to increase over the next 30 years as the Māori population ages.

Despite such disconcerting statistics, cardiovascular care provision for Māori in New Zealand (Curtis 2002; Tukuitonga and Bindman 2002; Westbrooke et al 2001) demonstrates the inverse care law whereby the availability of care is inversely proportional to the need of the population served, i.e., those who need healthcare the most, receive it the least.

Table 8.2: Heart failure hospitalisations, 2003–2005

Sex	Age group	Māori		Non-Māori		Rate ratio (95% CI)
		Number	Rate	Number	Rate	
Female	0–14	14	4.3	41	4.3	1.00 (0.51–1.96)
	15–24	8	5.0	11	1.5	3.29 (0.99–10.92)
	25–44	105	37.9	100	6.6	5.76 (3.87–8.58)
	45–64	559	402.2	656	51.2	7.85 (6.74–9.16)
	65 and over	837	2,078.4	7,827	602.9	3.45 (3.18–3.73)
Male	0–14	19	5.6	50	4.9	1.14 (0.63–2.06)
	15–24	23	13.9	21	2.9	4.88 (2.01–11.80)
	25–44	206	82.2	173	12.0	6.86 (5.03–9.36)
	45–64	1,009	777.0	1,260	100.1	7.77 (6.95–8.67)
	65 and over	897	2,865.8	7,415	918.1	3.12 (2.89–3.37)

Notes: Rates are calculated per 100,000; rates for ages 65 years and over were age-standardised to the 2001 Māori population.

Table 8.3: Heart failure mortality, 2000–2004

Sex	Age group	Māori		Non-Māori		Rate ratio (95% CI)
		Number	Rate	Number	Rate	
Female	45–64	4	1.9	8	0.4	4.80 (1.44–15.93)
	65 and over	55	81.2	1,238	35.2	2.30 (1.75–3.03)
Male	45–64	7	3.5	7	0.4	10.04 (3.52–28.61)
	65 and over	29	65.4	558	34.5	1.89 (1.30–2.76)

Notes: Rates are calculated per 100,000; rates for ages 65 years and over were age-standardised to the 2001 Māori population.

Improving heart failure outcomes for Māori is an important and urgent priority. It is unacceptable that there are such large ethnic inequalities in heart failure in New Zealand. A broad approach that considers interventions at a social policy level is required to address inequalities in the determinants of health, strategies to support early detection and treatment of predisposing conditions, high quality evidence-based treatment of people with heart failure, and the elimination of barriers to health care (Carr et al 2002).

The Māori Cardiovascular Action Plan

Disparities in cardiovascular health outcomes in Aotearoa/New Zealand continue to negatively impact on the health of Māori individuals and whānau. The Māori

Cardiovascular Disease

Cardiovascular Action Plan (Bramley et al 2004) was developed to improve the responsiveness of the health sector to Māori, with an aim to improve Māori cardiovascular health and remove inequalities in CVD outcomes between Māori and non-Māori. The plan has six categories, recognising that a multi-level/multi-sector approach is required. In summary, the categories are:

1. **Policy development** – the need for prioritisation of Māori health gain in all health policy directives, in explicit recognition of the Treaty of Waitangi.
2. **Information systems** – most importantly, the need for complete and consistent collection of ethnicity data in order to monitor CVD inequalities. Additionally, the requirement for provider information on funding and expenditure, and provision of systematic care for Māori who have, or who are at risk of developing, CVD.
3. **Needs assessment** – cardiovascular health needs assessments for Māori communities are required to identify the level of met and unmet need. In addition, barriers for Māori to cardiovascular preventive, primary, secondary, and tertiary health services should be identified and strategies to address them developed, tested, and progressed.
4. **Quality standards** – it is strongly recommended that Māori-specific and equity-based performance indicators are applied across the heart healthcare continuum. Revision of coronary scoring and surgical prioritisation methods for Māori is required. Furthermore, a culture shift among all healthcare providers toward equity and quality improvement, ongoing evaluation, and practice audit is needed.
5. **Workforce development** – a critical shortage of Māori cardiovascular health workers exists. Priority areas for Māori recruitment, training, and retention include cardiovascular doctors, nurses, health researchers, and public health workers. A benchmark audit should be undertaken and forward planning and budgeting for a robust Māori cardiovascular workforce planned. At the wider health sector level, service-wide recognition of the Treaty of Waitangi is essential.
6. **Research** – both quantitative and qualitative research pertaining to access and equity of healthcare for Māori with CVD is needed. All cardiovascular research in New Zealand should be weighted to relevance and need and aimed at improving Māori cardiovascular disparities. Kaupapa Māori health research should be given precedence for funding.

Conclusion

Improving all CVD outcomes for Māori and removing inequalities between Māori and non-Māori is an important and urgent health priority. As outlined in the Māori Cardiovascular Action Plan, there is substantial scope to effectively achieve cardiovascular health gain for Māori in New Zealand.

Hauora: Māori Standards of Health IV

Table 8.4: Cardiovascular disease deaths (2000–2004), public hospitalisations and procedures (2003–2005)

Cardiovascular disease		Māori		Non-Māori		Rate ratio (95% CI)
		Number	Rate	Number	Rate	
Cardiovascular disease						
Total	Deaths	4,316	139.8	51,805	61.2	2.29 (2.21–2.36)
	Hospitalisations	22,326	1,119.9	183,516	643.2	1.74 (1.71–1.77)
Males	Deaths	2,420	170.0	24,462	78.2	2.18 (2.08–2.27)
	Hospitalisations	11,820	1,252.9	103,206	805.5	1.56 (1.52–1.59)
Females	Deaths	1,896	109.7	27,343	44.2	2.48 (2.37–2.61)
	Hospitalisations	10,506	986.8	80,310	480.9	2.05 (2.00–2.10)
Ischaemic heart disease						
Total	Deaths	2,449	80.0	28,688	35.5	2.25 (2.16–2.35)
	Hospitalisations	6,870	342.5	72,337	239.0	1.43 (1.40–1.47)
	Angiography	5,029	253.9	44,084	186.0	1.36 (1.32–1.41)
	Angioplasty	826	41.9	11,577	47.7	0.88 (0.82–0.95)
	CABG	876	44.5	9,591	36.7	1.21 (1.13–1.30)
Males	Deaths	1,523	106.7	15,075	49.2	2.17 (2.05–2.29)
	Hospitalisations	3,822	401.8	45,194	337.1	1.19 (1.15–1.23)
	Angiography	2,860	299.8	29,498	258.4	1.16 (1.11–1.21)
	Angioplasty	534	56.0	8,498	74.6	0.75 (0.69–0.82)
	CABG	606	63.4	7,525	59.7	1.06 (0.97–1.16)
Females	Deaths	926	53.3	13,613	21.8	2.45 (2.29–2.62)
	Hospitalisations	3,048	283.2	27,143	140.8	2.01 (1.93–2.10)
	Angiography	2,169	208.0	14,586	113.7	1.83 (1.74–1.92)
	Angioplasty	292	27.8	3,079	20.9	1.33 (1.17–1.52)
	CABG	270	25.6	2,065	13.7	1.87 (1.63–2.14)
Stroke						
Total	Deaths	685	21.7	13,092	13.5	1.61 (1.49–1.74)
	Hospitalisations	2,367	116.1	22,227	63.3	1.84 (1.75–1.92)
	• subarachnoid haemorrhage	322	15.9	1,422	7.9	2.17 (1.90–2.49)
	• intracerebral haemorrhage	422	21.3	3,470	11.8	1.90 (1.70–2.14)
	• ischaemic stroke	925	45.5	8,566	23.7	1.98 (1.84–2.14)
	• undetermined type	523	24.9	6,221	14.0	1.85 (1.68–2.04)
	Enderterectomy	91	4.5	1,508	4.4	1.01 (0.81–1.26)
Males	Deaths	277	19.9	4,904	14.0	1.41 (1.25–1.60)
	Hospitalisations	1,030	109.1	10,933	71.1	1.54 (1.43–1.65)
	Enderterectomy	40	4.1	959	6.1	0.68 (0.49–0.95)
Females	Deaths	408	23.6	8,188	12.9	1.83 (1.65–2.03)
	Hospitalisations	1,337	123.0	11,294	55.4	2.22 (2.08–2.37)
	Enderterectomy	51	4.8	549	2.8	1.71 (1.26–2.33)
Heart failure						
Total	Deaths	95	2.8	1,816	1.2	2.27 (1.83–2.81)
	Hospitalisations	3,677	182.7	17,554	39.4	4.64 (4.43–4.86)
Males	Deaths	36	2.7	569	1.2	2.14 (1.52–3.01)
	Hospitalisations	2,154	228.4	8,919	48.5	4.71 (4.44–4.99)
Females	Deaths	59	3.0	1,247	1.2	2.40 (1.84–3.13)
	Hospitalisations	1,523	136.9	8,635	30.2	4.53 (4.22–4.86)

Cardiovascular Disease

Cardiovascular disease		Māori		Non-Māori		Rate ratio (95% CI)
		Number	Rate	Number	Rate	
Hypertensive diseases						
Total	Deaths	160	5.1	1,039	1.1	4.87 (4.08–5.81)
	Hospitalisations	455	22.9	2,099	9.3	2.48 (2.20–2.80)
Males	Deaths	82	5.8	368	1.1	5.30 (4.14–6.79)
	Hospitalisations	182	19.5	801	8.7	2.25 (1.87–2.70)
Females	Deaths	78	4.5	671	1.0	4.41 (3.44–5.65)
	Hospitalisations	272	26.4	1,299	9.8	2.68 (2.29–3.15)
Chronic rheumatic heart disease						
Total	Deaths	186	6.0	545	0.8	7.46 (6.19–9.00)
	Hospitalisations	496	25.2	1,004	5.5	4.62 (3.95–5.39)
	Valve replacements	375	19.2	2,015	9.2	2.10 (1.85–2.38)
Males	Deaths	73	5.0	193	0.7	6.76 (5.04–9.07)
	Hospitalisations	195	20.9	419	4.8	4.34 (3.39–5.55)
	Valve replacements	193	20.5	1,223	11.7	1.75 (1.48–2.08)
Females	Deaths	113	7.0	352	0.9	8.06 (6.34–10.26)
	Hospitalisations	301	29.5	585	6.1	4.84 (3.96–5.90)
	Valve replacements	183	18.0	791	6.7	2.70 (2.22–3.28)

Note: Rates are calculated per 100,000 and were age-sex-standardised to the 2001 Māori population.

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Tarquin and Greenstone Flavell

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