HAUORA

Māori Standards of Health III

A study of the years
1970 - 1991

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Eru Pōmare, Vera Keefe-Ormsby, Clint Ormsby, Neil Pearce,
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Contents

List of Tables

List of Figures

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Engari, he toa takitini ē.

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E rau rangatira mā, kei te mihi te ngākau ki a koutou katoa.

He Tohu Whakamahara

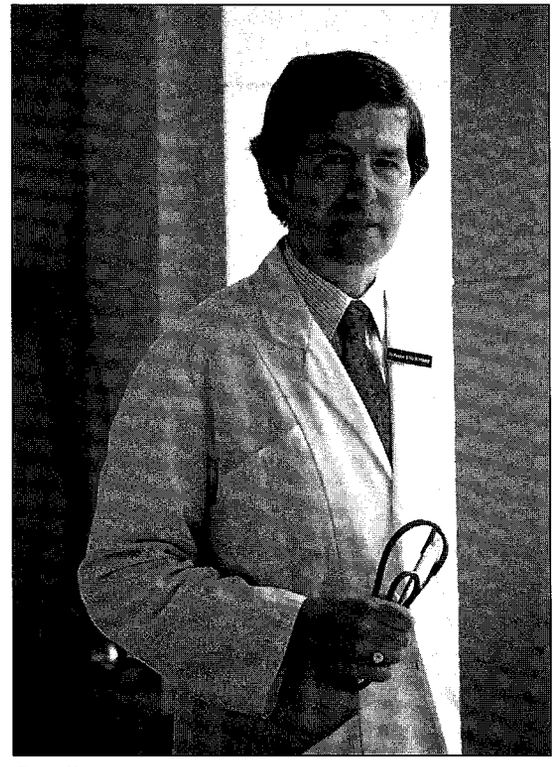


Photo: *Health*

Eru Woodbine Pōmare

Tai timu tai pari
Taihoa e haere
Kia mutu taku riringi roimata ē.

Ka pinea koe e au
Ki te pine o te aroha
Ki te pine e kore nei e waikura ē.

E te rangatira, e te rata rongonui, e te hoa!

Moe mai rā i te kāinga tūturu mō tāua mō te tangata. Tae atu ana koe ki ō tūpuna, whai muri tata tonu atu hoki ko tō tuakana, ko Māui. Takoto mai kōrua.

Mahue iho ana mātou, ō hoa puta noa i te motu me ērā i tāwāhi rā, ō iwi o Te Ātiawa, o Ngāti Toa Rangatira, o Ngāti Raukawa, o Rongomaiwahine, o Ngāti Kahungunu me Rongowhakaata, ō kōkā o Te Rōpū Wāhine Māori Toko i te Ora, te mano me te tini e tangi tonu ana mōhou.

Moumou koe! Moumou kōrua! Moumou rawa atu!

Nui atu ngā kōrero mōhou. Nāhau tonu te kōrero nā tō tipuna wahine, nā Mīria koe i poipoi, nāna i whakatō te whakaaro kia whāia e koe te mātauranga ā te Pākehā, kia tū koe hei rata hei tiaki, hei manaaki i te hunga e māuiui ana.

Tutuki pai i a koe – atu i Ōtākou, ki Ahitereiria, ki Ingarangi, ki Kānata. Ka riro mai i a koe ā rātou tohu whakahirahira. Eke rawa koe ki te tino tohungatanga mō te āhua ki ngā mate taumaha e pā ana ki te puku, ki ngā whēkau o te tangata.

Kātahi anō koe ka hoki mai ki tō whenua tupu. Ka whakapau koe i ō kaha ki te kōkiri, ki te hāpai kaupapa hei waha mā te iwi, kia riro ai mā te iwi tonu hei whai te hauora o te iwi. Tū ana koe hei kaiwhakaako; kare i roa ka whakaingoatia ko koe hei Tumuaki mō Te Kura Wānanga mō Ngā Rata i te Whanganui-a-Tara. Me te haere tonu o ō mahi rangahau, tuhituhi, pānui i ngā tatauranga mō ngā heke, ngā piki, ngā mauiui, me te matemate o tō iwi.

Kua tata tonu atu koe ki te taumata tiketike rawa, ka kapohia mai koe e te ringa kaha o Aituā:

Mate ohorere
Mate taurekareka
Moumou te tangata
Auē, taukiri ē!

Ko te *Hauora* tēnei mō ngā tau 1985-91, he whakaroanga atu i tāu i whakaputa ai mō ngā tau 1970-1984. Nāu anō i tīmata, nā ō hoa o te rōpū

rangahau o Te Pūmanawa Hauora ki Te Whanganui-a-Tara i whakatutuki i muri i a koe.

Koia nei tō pukapuka whakamutunga. Hei te rā e tukuna ai ki te ao, ka pānuihia e te rōpū tā rātou oha ki a koe, ko tō rātou ingoa hōu, ko te Rōpū Rangahau Hauora a Eru Pōmare.

Ka haere tonu ō mahi rangahau. Pērā anō ngā whakaritenga i waiho mai e koe hei kawe mā ngā rōpū maha o te motu, mā ngā rōpū wāhine, mō ngā āhuatanga e pā ana ki ngā mate pukupuku, ki ngā mate manawa, ki te huangō, ki te mate ate kakā. E whakamau atu ana kia riro mā ngā iwi tonu e whakapakari ō rātou hapū, me ā rātou whānau.

Anei rā tā tāua waiata:

Mā wai rā pea
Mā wai rā pea
Mā wai koe e awhi ē
Ki te ara, ara tupu
Mā wai koe e awhi ē.

Māku rā pea
Māku rā pea
Māku koe e awhi ē
Ki te ara, ara tupu
Māku koe e awhi ē.

Me tuku anō hoki aku mihi ki tō kōkā, ki a Madge, ki tō hoa rangatira, ki a Lynne, ki ā kōrua tamāhine, ki ā kōrua mokopuna, ki ō tāina me ā rātou tamariki, ki ō karangatanga maha, Pākehā, Māori.

Māku e kī: Ko tō taonga maioha tēnei ki o iwi.

Nā tō hoa aroha.

Paratene.

Paratene Ngata (Dr)

Foreword

What a debt this country owes to the late Professor Eru Woodbine Pōmare. A leader in medicine and medical research, for over a decade Pōmare used a formidable array of skills to galvanise the nation into positive action on Māori health. Untiring in his efforts to attract Māori into the health field, he was a popular, respected and dedicated communicator on marae and other platforms nationwide. For the medical profession and health planners, he produced quality research. He is credited with more than 70 publications and he compiled statistical information in a concise format which highlighted the urgent need to expand health services beyond the monocultural if they were to be compatible with the health needs of te iwi Māori.

Hauora: Māori Standards of Health III – A study of the years 1970-1991 is the third in a series of Professor Pōmare's comprehensive studies on the health status of the Māori population. It is a series that covers a timeframe of 36 years. This new publication usefully extends, and brings up-to-date, the original publication of *Māori Standards of Health – A study of the 20-year period 1955-1975* and the document that followed in 1988, *Hauora: Māori Standards of Health – A study of the years 1970-1984*, which Pōmare co-authored with Gail de Boer.

Hauora: Māori Standards of Health III again provides statistics and tables which give a picture of Māori health in relation to non-Māori. Analysis and commentary complement statistics to give a fuller portrayal of Māori health. Statistics alone may show differences in health status, but are of limited use unless there is informed interpretation to highlight causes of differences and to point to remedial action.

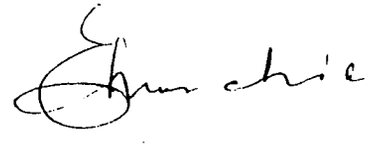
This volume also draws attention to Māori ill-health being to a great extent as a result of socio-economic and socio-cultural factors which have their roots in colonialism, and the struggle to adapt to rapid change arising from post-World War Two urbanisation. Until the grievances arising from failure to honour the Treaty of Waitangi are resolved, Māori ill-health will remain a problem. Smoking, obesity, alcohol abuse and poor diet are largely symptoms of economic and educational disadvantage and until incomes and scholastic attainments are improved,

they will continue to inflict ill-health, premature death and sorrow on te iwi Māori.

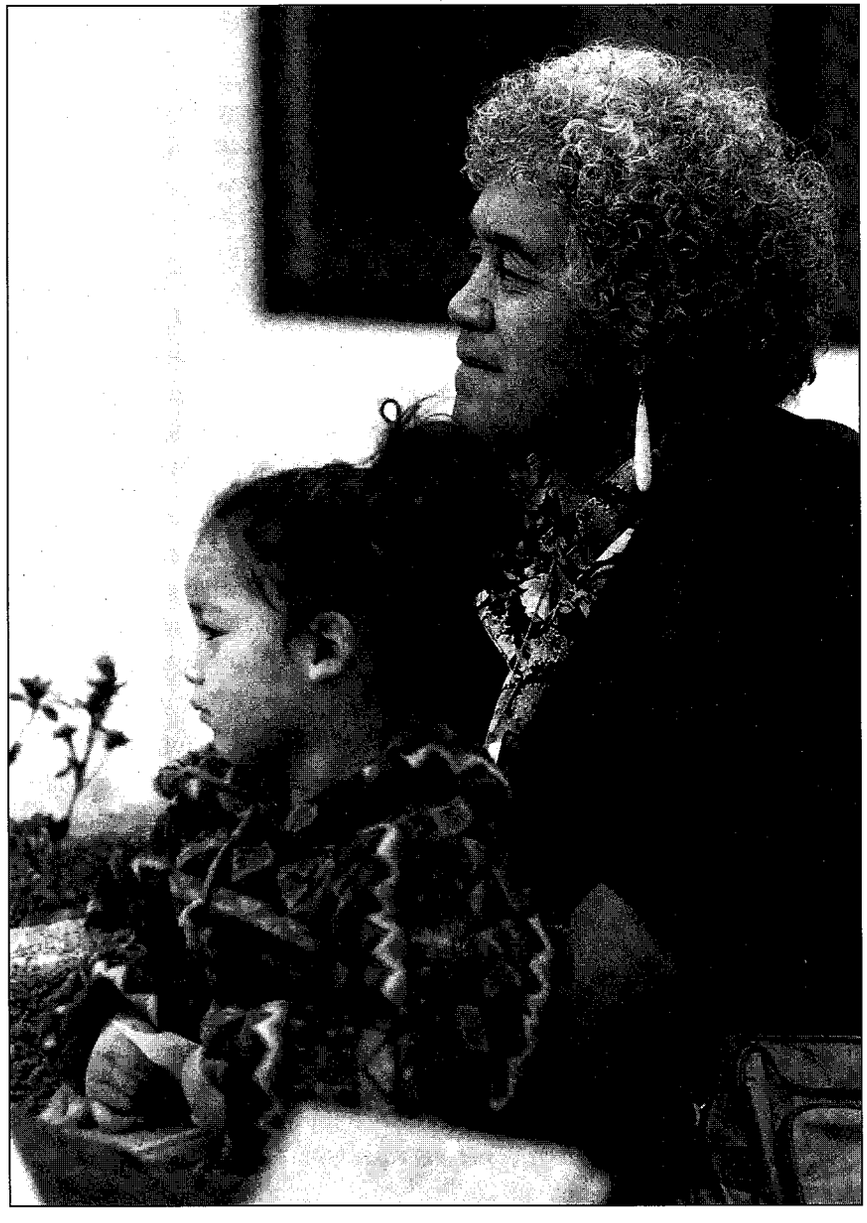
The past decade has witnessed a notable increase in Māori participation in health care and health promotion. Many more Māori are entering the health professions, especially as nurses and health planners, and frequently they have a strong sense of mission towards the wellbeing of their own people. Government sponsorship of iwi projects and grants from the Health Research Council of New Zealand which have assisted in the establishment of two health research centres, Te Pūmanawa Hauora ki Manawatu at Massey University and Te Pūmanawa Hauora ki te Whanganui-a-Tara at the Wellington School of Medicine, are leading to increased empowerment of te iwi Māori. At present, however, constitutional and political structures can frustrate Māori efforts to steer their own waka.

How sad that the initiator of the Māori Standards of Health series did not live to see this latest publication. The deep sense of loss experienced on 19 January 1995 as he was laid to rest at Hongoeka Pa, Plimmerton, to the accompaniment of the copious tears of Rangi, will linger in Māoridom and the medical world.

Eru Pōmare was a visionary. Our best tribute to a man whose counsel, research, writing and persuasive advocacy gave so much to Māori health, is for each of us to continue working towards his goal of a diminished disparity between Māori and non-Māori standards of health.



Erihapeti Murchie



Kokiri Tutahi and her mokopuna Miriama Flutey at Takapuwahia Marae.
Photo by Lynette Shum

Introduction

This report is the third volume of *Hauora: Māori Standards of Health*. The first report was an assessment of the mortality experience for Māori and non-Māori over the 20-year period 1955 to 1975. It showed clearly that the incidence and mortality from most of the common killing diseases in this country were still appreciably higher in Māori than non-Māori. The report also stressed that the current poor health status of Māori was largely due to the adoption of adverse lifestyle factors and that these needed to be tackled if substantial improvements in health status were to be made.

The second report developed that assessment to 1984. It showed that the incidence of disease and mortality was still higher for Māori than non-Māori. It also extended the analysis to consider factors which might account for the differences. The Māori community had long considered that socio-economic, self-esteem and cultural factors were of major importance to wellbeing and that some of the health differences were the inevitable result of the difficulties associated with monoculturalism. The second report examined these factors as possible contributors to ill health.

This third volume of *Hauora: Māori Standards of Health* continues to monitor trends in Māori health indicators and updates the series to the year 1991. It is divided into three sections.

The first section paints a picture of the environment of the years under review, including the demographic environment, the policy environment, the influence of Māori development, and models for analysing Māori health. The second section reviews and compares trends in mortality, hospitalisation rates and takes a more indepth look at cancer and mental health. The third section reviews key issues which are known to influence health outcomes. These include socioeconomic factors, health risk behaviours and health services.

The key points, in Māori, have been presented in a new section He Pūwhakaoho i o Koutou Hinengaro, and provide an executive summary to this report.

The report covers the period 1985 to 1991 and compares these years with those studied in previous volumes of *Hauora* to enable comment on trends. During the time of the analysis, hospital discharge data became available for 1992 and this most up-to-date data was used for chapter 4. While this timeframe covers a period of significant state sector reform, it does not include the period of the health reforms.

In recent years, some Crown agencies have published reviews of Māori health. *Hauora* contains some key differences from these analyses. The main significance of the *Hauora* series is that it presents a Māori analysis of available health information.

He Pūwhakaoho i o Koutou Hinengaro
Āta tirohia – wānangahia – whakaarohia

Ūpoko 1 Te Kaupapa Tātari i te Hauora o te Iwi Whānui

- Whānui noa atu te aronga Māori mō te hauora. Nā reira, e kore e taea e te aronga Pākehā te whakaahua mārire i te hauora o ngā Māori. Inātata nei, ka puta he tauira hōu, tōtika ake, hei tātari i te hauora o te iwi.

Ūpoko 2 Te Tatauranga i te Iwi

- He maha, he taupatupatu ngā āhuatanga tautuhi i te iwi Māori. He kaupapa kē – he tautuhitanga kē.
- Kia huri rawa te rautau ki 1991, kātahi anō ka tātaia ngā āhuatanga o ngā iwi.
- He taipakeke te nuinga o ngā Māori; heoi taipakeke kē atu a Tauiwi. Āpiti atu hoki, kei ngā tāone te nuinga o ngā Māori e noho ana.

  Whānau mai ana te tangata,
  Whakaheke ana ki te mate.

  Mai rā anō, whakapiki tonu te mauriora o te Māori. Kua tata tonu te mau atu ki a Tauiwi, engari i ēnei tau tata, kāore anō i nekeneke.

Ūpoko 3 Te Ringa Kaha o Mate

- Kua torutoru ake te matemate o ngā Māori i ētahi momo mate whiu i te iwi, pērā i te huangō me ngā mate manawa.
- Ahakoa anō, kei te whakaheke tonu i te mate ohorere o ngā kōhungahunga; i te whakamomori o te hunga rangatahi; i te mate pukupuku, i te kōhuru, i te mamau, i te mate i ngā motokā.

Ūpoko 4 Ngā Tūroro i ngā Hōhipera, 1992

- Mai i te tau 1984, e piki haere tonu ana te maha o ngā tūroro Māori kei ngā hōhipera.
- Ko ngā wāhine Māori, nā te hapū, me te whakawhānau.
- Ko te nuinga, nā te huangō; nā te hauata i ngā waka; nā te taka i te

rākau; he mate nō ngā taringa; he hēmanawa; he mate manawa; he mate huka.

Ūpoko 5 Te Hunga Wairangi kei ngā Hōhipera

- Ahakoa torutoru ake te hunga wairangi kei ngā hōhipera, he maha rawa ngā Māori.
- Ko te kai waipiro, me te haurangi, koia nei te mate nui rawa o ngā tāne, ahakoa Māori, ahakoa Tauiwi. Hei ngā wāhine Māori, koia nei te tuarua o ngā tino mate mō rātou.
- Kei te taumata tuatoru te maha o ngā tāne Māori kei ngā hohipera he kai tarukino te mate.
- Kua tae mai te wā me āta tātari mārire ngā mate wairangi e pā ana ki ngā Māori.

Ūpoko 6 Ngā Mate Pukupuku

- Kua riro ko te mate pukupuku te mate patu i ngā iwi katoa o Aotearoa nei, Māori, Tauiwi. I mua ake rā, ko ngā mate manawa.
- 1 o Tauiwi : 2.5+ ngā Māori – koia nei te ōwehenga mō ngā mate pukupuku ki ngā pūkahukahu, ki te puku, ki te waha o te kōpū. Mō te mate pukupuku ki te ate, 1 o Tauiwi : 4 ngā Māori. Pērā anō te āhua ki ngā pūkahukahu o ngā wāhine, 1 o Tauiwi : 4 ngā Māori.
- Nā, ko te mate pukupuku ki ngā whēkau me te kiritona pukupuku e pākia nuitia rawa ana ki te hunga kiritea.
  Ahakoa tonu, me tūpato tātou katoa, Māori, Tauiwi.

  Whakarongo ki ngā tohutohu me ngā whakaakoranga mō te katoa.
- Whāia ngā tohutohu kia wawe te kitea ngā mate pukupuku.
  Haere wāhine mā kia tirohia ngā wai o te tomokanga ki te nohoanga tamariki.

  Whakamutua hoki te kai paipa – he mate kei reira.

Ūpoko 7 Te Taiao o te Noho-ā-iwi, me ngā Ohaoha

- Ko tēnei mea ko te hauora o te tangata kei te āhua tonu o tana noho, tana kāinga, tana mahi e whiwhi oranga ai ia; ōna mātauranga e riro mai ai he mahi tōtika.

I te tekau-tau ka hipa ake nei, kua kitea e ngā kairangahau kua taka rawa atu te iwi Māori ki muri i a Tauiwi.

- Maha rawa atu ngā Māori – ko te hunga rangatahi tonu – kei te noho noa iho, kāore he mahi. Ka kore he mahi, ka kore he moni, ka heke te ora.
- Kua tahuri te iwi ki te whai i te mātauranga i nāianei. Ko ngā kōhungahunga kei ngā kōhanga reo; ko ngā taitamāhine, me ngā taitama kua eke ki ngā taumata tuaono, tuawhitu i ngā kura tuarua, ā, ka ahu atu ki ngā kura wānanga, ki ngā kuratini.

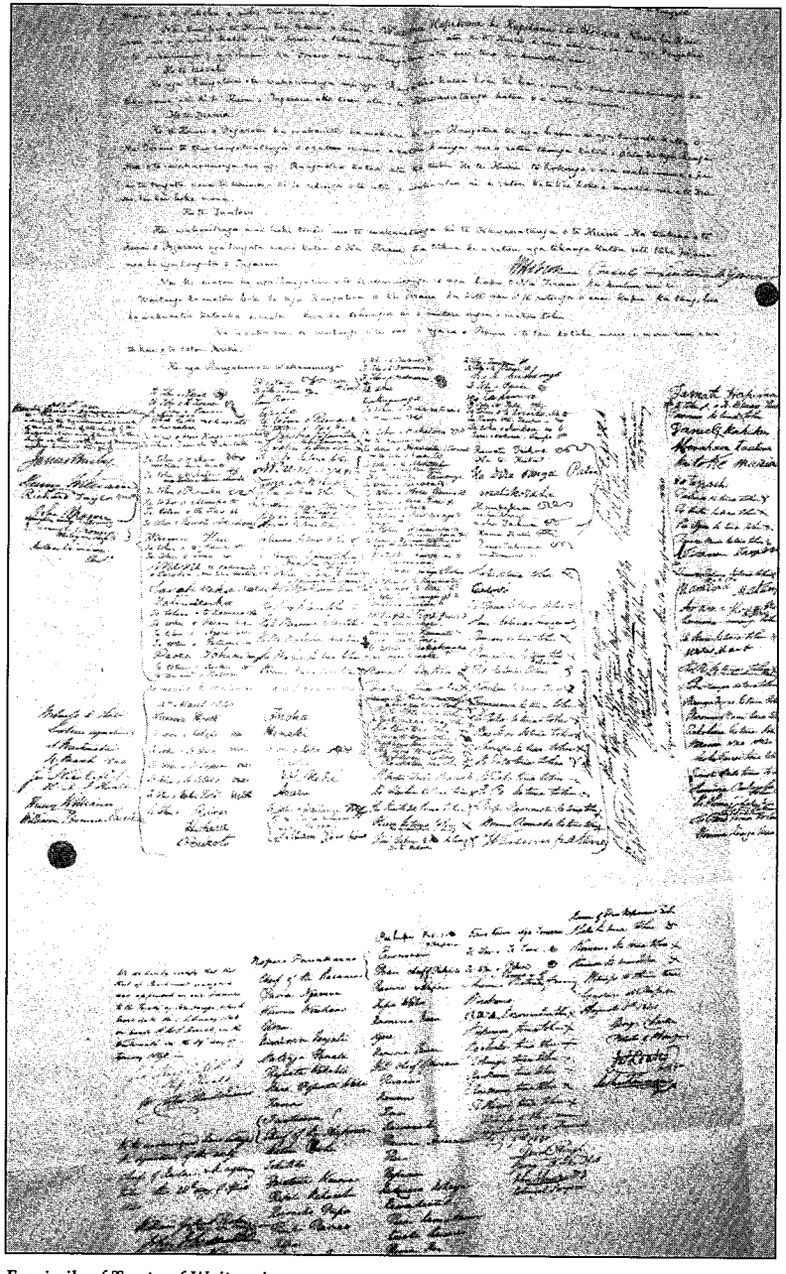
Ūpoko 8 Te Ara ki te Mate

- He tōrori – he kai waipiro – he taru kino.
- Ko te kaipaipa te kai tuku i te iwi Māori ki te mate. Nō reira, kia auahi kore, kia ora roa ai tātou.
- Kei ētahi momo kai e kaha nei te whāia e te tini o tātou – he mate anō hoki kei reira – ko te mate huka, ko te mate manawa, me te mate pukupuku.
- Ko te kai waipiro – he kēhua tēnei nō te mate. Ka whai atu hoki ko te kore mahi, kātahi ka hē rawa atu.

  Nā reira, kei te whakapakari tinana he ora. Tonotonoa ngā mea ngoikore ki te whakapakari tinana.

Ūpoko 9 Takahia te Ara Whānui ki te Kimi i te Ora

- Ko ngā mate huhua e patu nei i a tātou ka taea katoa te pare ake, te whakaora.
- Kia tere te haere ki te tākuta. Kauaka hei kōroiroi. Kauaka hei takaroa.
- Haere rānei ki ngā Rōpū Hauora Māori – ko rātou ngā hunga kawe i ngā tikanga Māori hei oranga ngākau, hei oranga tinana mō tātou.



Facsimile of Treaty of Waitangi.
Photo: Papārangi Reid

SECTION ONE

The Decade of Māori Health Development

Background

In 1984, the Māori Women's Welfare League, at the launch of their report *Rapuora: Health and Māori Women* declared a focus on the decade of Māori health. This became a challenge to Māori and non-Māori alike to work toward substantial improvements in Māori standards of health. This volume of *Hauora: Māori Standards of Health* is being published at the end of that decade.

Māori health workers throughout the country responded positively to opportunities to develop their own health programmes and services, and began providing a variety of Māori wellbeing programmes. Marae health centres such as the centre at Waahi, were developed initially to provide health promotion and subsequently have extended to the provision of comprehensive primary health care. Others, like Tipu Ora in Rotorua, focused on delivering holistic health care programmes for Māori caregivers and their children. Some groups such as Te Poutirirangi-a-Papa in the Bay of Plenty developed contracts with their Area Health Boards so that services could be delivered in partnership with the Boards.

A review of the decade from 1984 shows positive support and goodwill on the part of Government and its agencies, and an enthusiasm and determination from Māori individual health workers and organisations. The Department of Health's Hui Whakaoranga in 1984 gave Māori the opportunity to assist in planning the future directions for Māori health.

The Area Health Board Act (1983) allowed for the establishment of standing committees for community organisations and interest groups as well as consultation with Māori. Some of the boards established Māori Health Units and Standing Committees on Māori Health. By 1989, all Area Health Boards had at least one Māori representative on their board.

Alongside this growth in Māori health was a general movement of Māori development crystallised by many at Hui Taumata which was also held in 1984. Māori described a desire to move away from dependency and into development with the support of the Crown as Treaty partner.

The complex inter-relationship of Māori well health with social, cultural and economic factors, as well as structural change within the health sector, continues. At the same time, Māori response to claims to the Waitangi Tribunal, moves toward iwi development, and the growth of urban Māori authorities provides a broader context for Māori development and control of Māori resources. Māori have included health as a key resource and have made a concerted effort to improve it. This section discusses background issues to Māori health development during the decade.

CHAPTER 1

Frameworks for Reviewing Māori Health

KEY POINT

- **Māori continue to describe health within a broad definition. As such, many of the conventional measures of health status fail to fully illustrate the picture of Māori health. Recently, other models have begun to emerge to describe and monitor Māori health.**

Introduction

In recent years, a number of models for describing Māori health have emerged. Some seek to describe the component parts of individual and communal wellbeing, while others are analyses of how Māori, as clients, providers and purchasers, can interact with modern health systems. Recent focus on cultural and intellectual property rights has encouraged debate about Māori methodologies for research, commentary and analysis.

Health commentators find it useful to use a model of health that reflects the way in which health is integrated in society. Unfortunately, this is not as simple as it seems. It is essential for the commentator to understand the culture and value systems of the society in order that the relationship between health and society can be accurately explored.

Concepts of Health

In the recent history of New Zealand, Māori and western concepts of health and illness have co-existed. This co-existence was silent until recently when Māori health workers successfully lobbied for the recognition of culture as an integral part of wellbeing.

The 1970s witnessed the presentation of the Māori language petition to Parliament, the Land March, the occupation of Takaparawhā and the establishment of the Waitangi Tribunal. These were also the years when women's health groups became a political force and alternative health options became more accepted. Māori health workers became more

vocal and more organised. The National Council of Māori Nurses was established and Māori doctors met to discuss the state of Māori health. Māori commentators noted the inadequacy of the western concepts of health, even those seemingly as broad as the World Health Organisation (WHO) model[1].

There were reminders from kuia and koroua that Māori wellbeing was the result of a complex set of relationships which included social, economic, political, cultural and spiritual factors. The relevance of these factors, together with culturally appropriate practices, was discussed. Models of health that reflected Māori world views and their historical context were re-examined and promoted.

The first of these models to be widely acknowledged was the Whare Tapa Whā, also known as the four cornerstones of Māori health. It describes four dimensions which contribute to wellbeing: *te taha wairua* (spiritual aspects); *te taha hinengaro* (mental and emotional aspects); *te taha whānau* (family and community aspects); and *te taha tinana* (physical aspects). This model is fully discussed in *Whaiora*[2].

Another model based on Te Wheke, the octopus, was presented at Hui Whakaoranga in 1984, and describes the eight tentacles which collectively contribute to *waiora* (total wellbeing). These were: *wairuatanga* (spirituality); *hinengaro* (mental); *taha tinana* (physical); *whanaungatanga* (the extended family); *whatumanawa* (emotional); *mauri* (life principle in people and objects); *mana ake* (unique identity), and *hā a koro mā a kui mā* (inherited strengths)[3].

The Royal Commission on Social Policy in the late 1980s also described a set of pre-requisites for health which focused on factors which are primarily external to the individual. These factors were: *whanaungatanga* (family); *taonga tuku iho* (cultural heritage); *te ao turoa* (the physical environment), and *tūrangawaewae* (source of identity).

This broad focus to include external factors had been signalled by previous papers which had recognised the need for health initiatives to be part of an overall development strategy to improve the overall status and wellbeing of a Māori community, tribal or family group[4]. Durie had also explained that land, language and family were institutions for

health[5] and to some extent this focus had been sharpened by claims to the Waitangi Tribunal and the moves toward iwi development.

The Treaty of Waitangi and Māori Health

The second half of this century also witnessed increased awareness of the Treaty of Waitangi and its fundamental position in New Zealand society. The Treaty has special relevance in health. Firstly, the wellbeing of residents, and some would argue particularly Māori, was an intention of the Treaty noted both in Normanby's instructions to Hobson and in the preamble of the Treaty. This is reinforced by the health implications of the various articles including processes of good government, self-determination and development of iwi resources, as well as participation and equity.

Secondly, the Treaty of Waitangi represents the partnership agreement between Māori and the Crown which established aspects of how coexistence in Aotearoa might be implemented.

Thirdly, Māori have contributed to the health sector and its development. This contribution has been by gifting of land for hospitals and health services; providing a workforce, especially in the voluntary sector; as taxpayers, clients and subjects of research; as providers of services; and often as catalysts for change.

However, while the significance of the Treaty is acknowledged by many, the principles are not protected by statute. Experience has shown that implementation of the principles of the Treaty has been subject to repeated negotiation with ever-changing health bureaucracies. Historical contractual arrangements, such as the gifting of land for hospitals in return for free health services, may be subsumed when resources, previously under the guardianship of the Crown Treaty partner, are being transferred to Crown Health Enterprises.

Many Māori health workers consider the Treaty of Waitangi as a suitable framework within which to consider health, especially in regard to the relationship between Māori and the Crown as Treaty partners.

Models for Māori Health Research

Research, in the context of development, relates not only to collecting data, but also to providing direction for future decisions. It is depen-

dent on understanding the perspective of those studied and their processes for decision making.

Māori have been researched by non-Māori since first contact. When James Cook circumnavigated Aotearoa between 1769 and 1770, included in his party was a group of scientists led by Joseph Banks. Tupaia, a Tahitian rangatira, had joined Cook in Tahiti and assisted as translator when Cook met with various Māori groups. Tupaia questioned Māori about 'their antiquity and the legends of their ancestors'[6] as well as their customs and geographical knowledge.

Traditionally, Māori have also conducted their own research as part of ongoing information management practices. Much of this research influenced health and wellbeing. For example, the development of a recipe which transformed karaka berries from a highly toxic plant to a safe food source could not have been accomplished without some form of clinical trial. Similarly, there is evidence that Māori acquired knowledge in areas such as astronomy, horticulture, navigation, food, technology, pharmacology and public health.

This research was protected by institutionalisation. While some aspects of knowledge were widely known and practised, others were maintained in specialist institutions, whare wānanga, by tohunga whose roles included the maintenance and development of knowledge as well as the selection and training of scholars.

The arrival of Cook and Banks signalled the arrival of a new class of scholar with a different attitude to the retention and control of knowledge. This attitude that Māori could be the subjects of research, from school history projects to doctorates, persisted for many years. Despite the amount of research conducted, there remains relatively little published research on Māori health[7] and an even smaller amount has been carried out by Māori.

Some Māori feel that there has been little research that has directly benefited Māori. Issues of participation, ownership, accountability and definition in research are beginning to emerge as more Māori are trained in research skills. Māori researchers are challenging standards for ethical frameworks and research methodologies. This challenge is

entirely expected. It has become apparent during the last two decades that Māori want to define the threats to Māori wellbeing, as well as the possible range of solutions. This position has become stronger as Māori providers of integrated primary health care emerge.

The recent focus on intellectual and cultural property rights has also heightened awareness of traditional values and processes. Māori researchers have signalled the need for Māori methodologies which permeate modern Māori realities and reflect a Māori world view[8]. Others note the need to use methodologies which are appropriate to Māori[9]. Regardless of which methodologies are chosen, it is important that researchers recognise the different processes which are necessary for Māori health research and adopt an analysis which is culturally relevant.

It seems likely then that the re-emergence of traditional frameworks for assessing, monitoring and promoting health will be paralleled with the refashioning of introduced models and the development of new models. All of these will be trialled and, true to all science, the useful ones will be adopted and adapted, while others will be put aside for reconsideration at another time.

CHAPTER 2

The Māori Population

KEY POINTS

- **The Māori population is diverse. There are a number of definitions of different Māori populations. Each of these defined populations has unique characteristics and can be used for specific purposes.**
- **In 1991, the Census attempted to measure the size and characteristics of iwi for the first time in almost 100 years.**
- **The Māori population is ageing but is still more youthful than the non-Māori population.**
- **Most Māori live in urban areas.**
- **The life-expectancy at birth for Māori has improved, but this improvement has not been as great as that of non-Māori. Consequently, the difference in life-expectancy between Māori and non-Māori remains static.**

Definition

The Māori population is not static. It is dynamic, undergoing constant change. However, monitoring the Māori population over time has been made difficult because of problems with definitions of ethnicity.

Until the 1980s, official estimates of the Māori population were taken from the census and based on persons of 'half or more' Māori origin. In recent years, it has been argued that the preferred definition of 'Māori' is a person who has Māori ancestry and who chooses to identify as Māori[1]. Following this advice, the census question on ethnicity changed, and the 1991 Census included two questions:

One question related to Māori ancestry (descent).

Have you any New Zealand Māori ancestry?

– *No* ☐
– *Don't know* ☐
– *Yes* ☐

The other question relates to ethnic self-identification and asks respondents to 'tick' which of the listed ethnic groups they 'belong to'; respondents can 'tick' more than one box.

Which ethnic group do you belong to?

– *New Zealand European* ☐
– *New Zealand Māori* ☐
– *Samoan* ☐
– *Cook Island Māori* ☐
– *Tongan* ☐
– *Niuean* ☐
– *Chinese* ☐
– *Indian* ☐
– *Other (please state)* _____

There are three current options for estimates of the Māori population.

- ***Māori Ancestry*** which is based on the ancestry question (1991 numbers = 511,278)[2].
- ***Māori Ethnic group*** which is based on the self-identification question and includes all those who identified as Māori or Māori plus other ethnic groups (1991 numbers = 434,847)[3].
- ***Sole Māori*** which is also based on the self-identification question and only includes those who solely identified as Māori (1991 numbers = 323,998)[4].

Producers and users of statistics have debated which population should be considered 'the' Māori population for statistical purposes. However, each of these definitions has their own meaning and perhaps the issue should be which population should be used for which occasion.

The ancestry group has constitutional rights. The individual members may exercise their right to take a claim to the Waitangi Tribunal and enrol on the Māori electoral roll. The Māori Ethnic population culturally identify as Māori or part-Māori, while the Sole Māori group comprises those who name Māori as their only ethnic affiliation. In many ways, it is this last group which best parallels the definition of Māori used in the past, which was all persons of half or more Māori origin. This is further discussed in section 2.

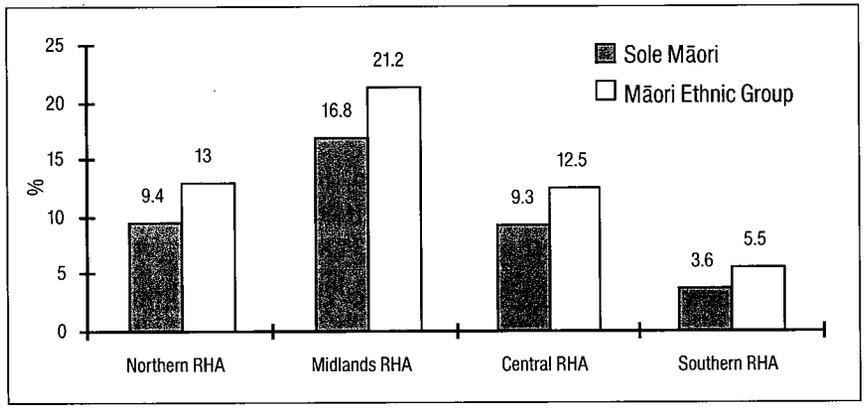
Geographical Distribution

The Māori population is predominantly urban and it is not evenly spread through the four Regional Health Authority (RHA) areas. In the 1991 Census, nearly one in four persons belonging to the Māori Ethnic group lived in the Auckland region[5].

Figure 1 shows the proportion of Māori in each RHA area. This has previously been described using the Māori Ethnic group[6]. Analysis in this review demonstrates that the health risk associated with ethnicity is most accurately described by the Sole Māori population.

FIGURE 1

Proportion of Māori in each RHA population



Iwi Affiliation

In response to an increasing demand for iwi information, there was a question in the 1991 Census addressed to every person who stated that they had New Zealand Māori ancestry. The question asked was:

(a) What is the main iwi (tribe) you belong to?

(Please state one iwi only)

_____

Don't know ☐

Don't belong to any iwi (tribe) ☐

(b) What other iwi (tribes) do you have strong ties with?

(Please state no more than two iwi)

_____

The review of iwi statistics proved to be a challenging exercise. Several issues surfaced, including limitations of the questions, a variety of types of response, and important issues relating to classification matters. Despite these, the information received gives an important view of iwi today. The 1991 Census was the first census in almost a century that had attempted to measure the size and characteristics of iwi[7].

The significant findings included:

- Of the 511,278 persons stating that they had New Zealand Māori ancestry, 71.8% were affiliated with an iwi. 73.5% of North Island Māori specified a main iwi compared with only 60.2% of South Island Māori.
- Of the 144,351 Māori who did not report an iwi, 78.4% stated that they did not know their iwi.
- The iwi with the most total affiliates was Ngāpuhi with 92,973. Ngāti Porou had 48,525 members and Ngāti Kahungunu had 43,614.
- Ngāi Tahu was the largest South Island iwi with 20,304 total affiliates. Almost 70% of the 17,052 Māori who stated that this was their main iwi, live in the South Island. However, for most iwi the majority of their members live outside their tribal boundaries[8].

Age Distribution

There are two key features regarding age distribution of the three Māori populations described in the 1991 Census.

- The Māori population is ageing but is still more youthful than the non-Māori population.
- The age structure of the population described by the Census ancestry question is very similar to that described in the ethnic group question. The Sole Māori population differs somewhat from the others.

FIGURE 2

Age-Sex Distribution, New Zealand Māori Sole Ethnic Group

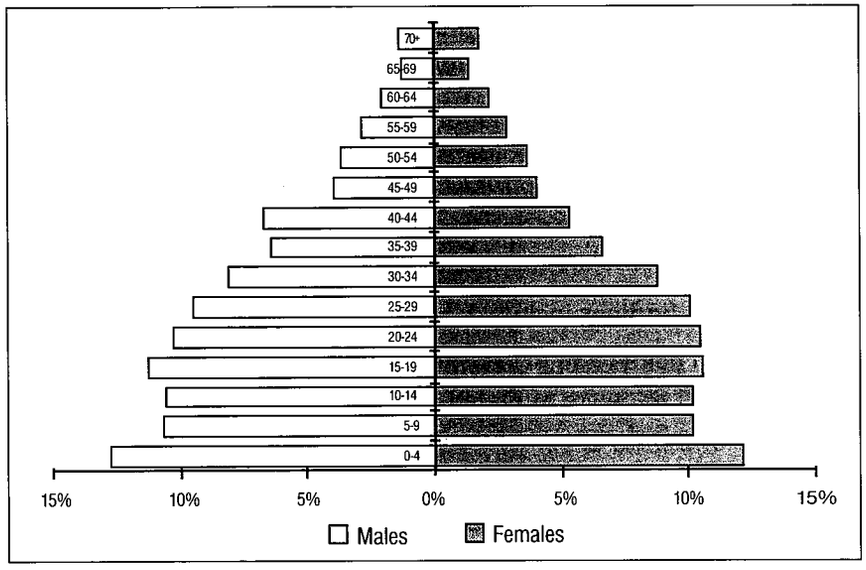


FIGURE 3

Age-Sex Distribution, New Zealand Māori Ethnic Group

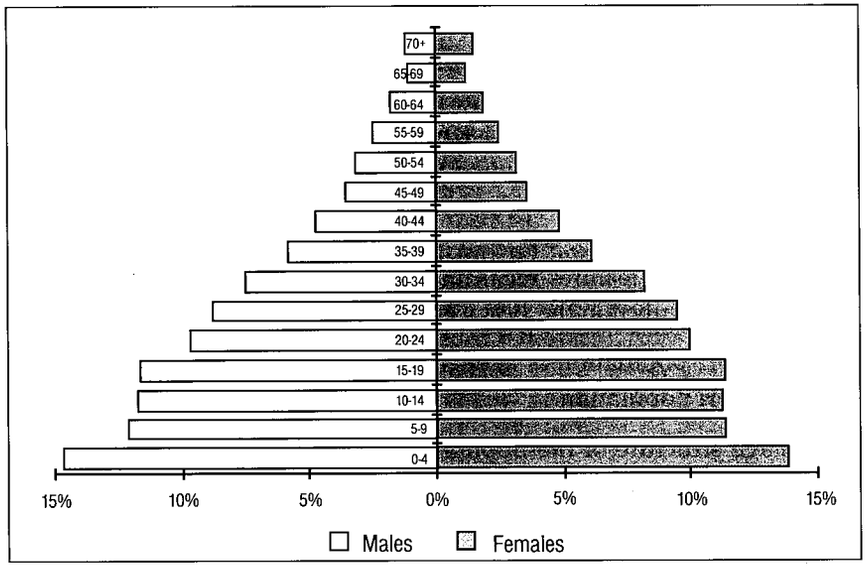
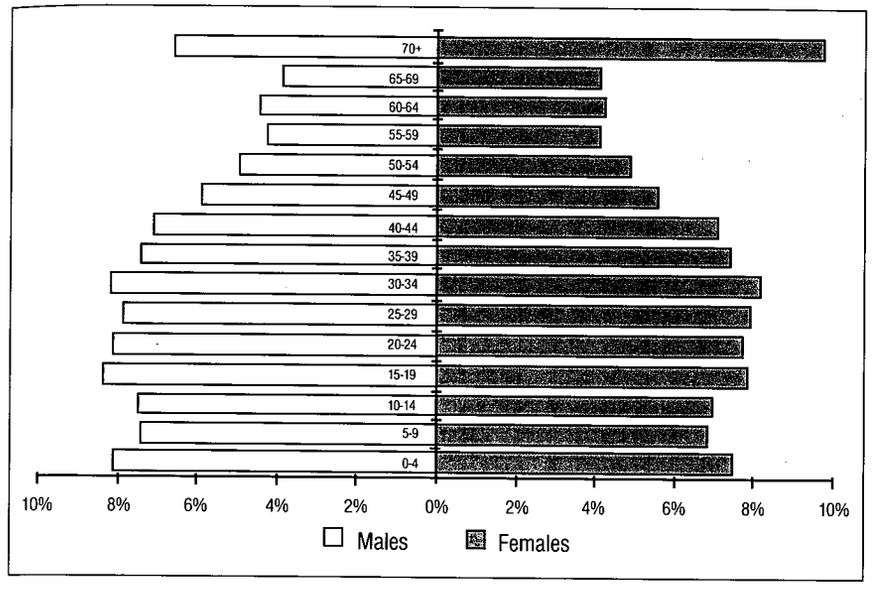


FIGURE 4

Age-Sex Distribution, New Zealand Non-Māori Population



Using the Sole Māori population at the 1991 Census, 64% of Māori were aged under 30 years of age compared with 48% of the non-Māori population. Furthermore, 33% were aged under 15 years compared with 23% of non-Māori. In contrast, 5% of Māori were aged 60 years and over, compared with 17.2% of non-Māori.

Life Expectancy

A key factor of health advancement during this century has been the improvement in life expectancy at birth of both Māori and non-Māori. However, although life expectancy at birth for Māori has improved, it has not improved as much as non-Māori. At present the difference in life expectancy remains static.

TABLE 1

Life Expectancy at Birth, Māori and Non-Māori, 1950-92

Period	Māori Male	Non-Māori Male	Difference	Māori Female	Non-Māori Female	Difference
1950-52	54.1	68.3	14.2	55.9	72.4	16.5
1955-57	57.2	68.9	11.7	58.7	73.9	15.2
1960-62	59.1	69.2	10.1	61.4	74.5	13.1
1965-67	61.4	68.7	7.3	64.8	74.8	10.0
1970-72	61.0	69.1	8.1	65.0	75.2	10.2
1975-77	63.4	69.4	6.0	67.8	75.9	8.1
1980-82	65.1	70.8	5.7	69.5	76.9	7.4
1985-87	67.4	71.4	4.0	72.3	77.4	5.1
1990-92	68.0	73.4	5.4	73.0	79.2	6.2

Source: Department of Statistics Life Tables

Fertility

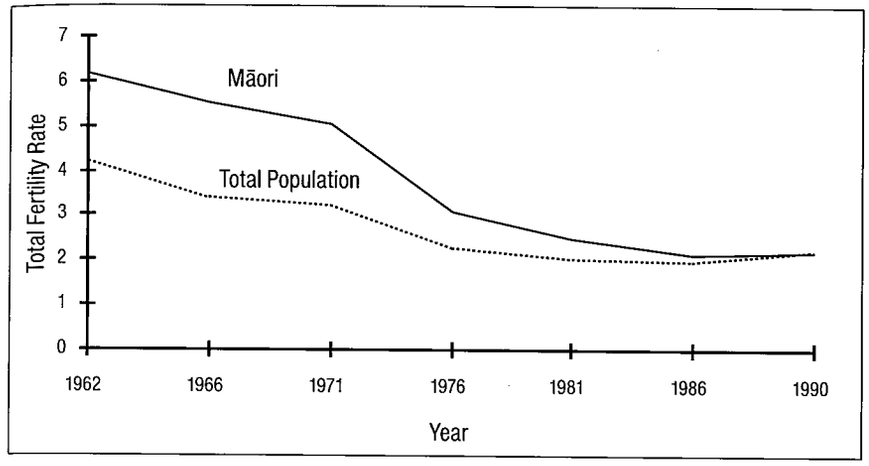
Population growth is influenced by fertility, the rate at which new members are being born into a group; mortality, the rate by which group members are dying; and migration, the rate at which members are leaving the group or returning to the group. Fertility will be discussed in this section and mortality is discussed in chapter 3. Migration is discussed briefly later in this section.

Fertility helps shape the way in which a population grows and develops. In 1992, of the 53,349 live births, 7,097 (13.3%) were registered as being of half or more Māori ancestry[9]. The Māori population has a higher rate of natural increase, mainly because of the younger age structure and a greater proportion of Māori women being in the childbearing age group. There has been a dramatic decline in the total fertility rate of Māori, especially in the last 30 years.

The total fertility rate is a measure of the average number of children a woman can expect to bear in her lifetime at current fertility levels. It is often used as an indicator of average family size.

FIGURE 5

Total Fertility Rates, Māori and Total Population, 1962-90



Source: Department of Statistics Demographic Trends 1993

The fertility decline among Māori is one of the most rapid ever documented in the world and it is the result of a number of factors including reducing Māori mortality over the previous decades; rapid urbanisation; the availability of contraception, and fuller participation in education and employment, especially for women[10].

The decline in fertility has occurred at all ages for Māori women. It has been most marked among Māori women in their twenties who have decided to have fewer children and delay childbearing. However, the fertility decline has been lowest among young Māori women in their teenage years.

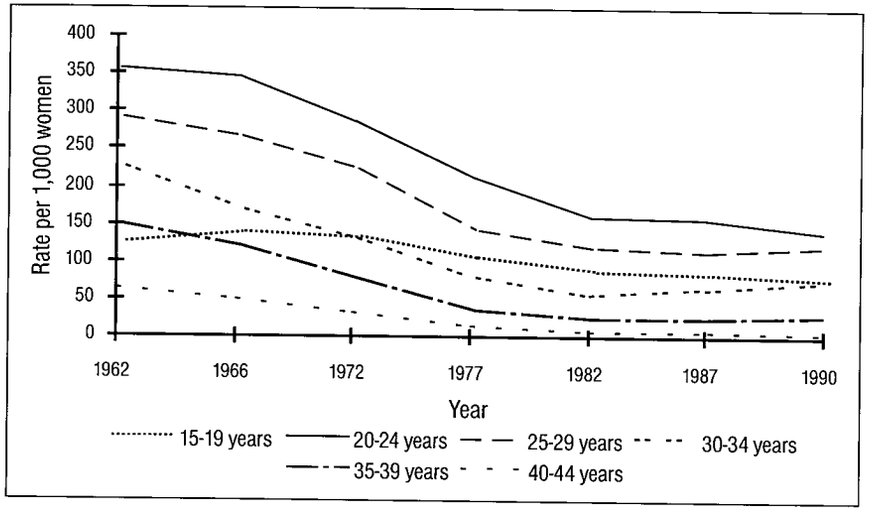
The fall in fertility has been achieved using a variety of family planning methods. This includes more widespread use of contraception, sterilisation and, since 1977, abortion.

Studies have shown that women in lower socio-economic classes were more likely to be using contraception or have been sterilised for contraceptive purposes[11]. Overseas information suggests that the Pill is still widely used by younger women and poorer women[12].

Tubal ligation rates suggest that Māori women take primary responsibility for limiting family size and ceasing childbearing[13]. During the 1980s, Māori women had higher rates of tubal ligation than non-Māori and the average age at tubal ligation for Māori was also significantly lower than that of non-Māori. Furthermore, it seems that vasectomy is less popular among Māori men than non-Māori, but these figures have considerable under-reporting of ethnicity and of the procedure itself [14].

FIGURE 6

Age-Specific Fertility Rates in Māori Women, 1962-90



The Contraception, Sterilisation and Abortion Act 1977 gave women access to legal abortion in restricted circumstances. Since that time, the total abortion rate for New Zealand women has risen to 0.3[15]. This means that on average, given current fertility patterns, three in 10 New Zealand women will have an abortion during their reproductive lifetime. The majority of women having abortions are young, single and childless[16]. Age-specific rates demonstrate that at all ages, Māori women are more likely than non-Māori to use abortion services. Whatever one's opinion on abortion, these statistics reflect negatively on access to health education and contraception.

TABLE 2

Age Specific Abortion Rates Per 100,000 Women, 1992

Age	Māori	Non-Māori	Ratio
5 - 14 years	1.2	0.1	12.0
15 - 24 years	86.8	43.0	2.0
25 - 44 years	49.9	21.9	2.3
45 - 64 years	0.5	0.2	2.5

Note: Public Hospital data only

Source: NZHIS

Migration

Migration is not new for Māori. Apart from migration from throughout the Pacific to Aotearoa, internal migration through regions has also been demonstrated during previous centuries[17]. This internal migration culminated in the rural-urban shift during the later half of this century.

In recent decades, the Māori population in New Zealand has continued to increase. This increase has been less than expected due to the migration of members going overseas. Between 1980 and 1986, the net decline to the Māori population through migration overseas was approximately 8,000 members[18]. Customs stopped recording the ethnicity of travellers in 1986 but the estimated ongoing loss is thought to be about 500 per year[19]. If this trend of more Māori moving overseas than the number returning continues, by the year 2031, some 20,000 Māori will be living overseas[20].

Most of those leaving New Zealand are likely to be young adults of child-bearing age. By going overseas they reduce the fertility levels of the Māori population remaining in New Zealand, and if they have a family while away, they increase the population of Māori resident overseas.

Inter-ethnic mobility is the movement of people of Māori ancestry between the groupings of Māori and non-Māori cultural identity. The extent of this mobility is demonstrated by the numbers identified in the 1991 Census. Of the approximately 511,300 who stated Māori ancestry and hence, had the potential to self-identify as Māori, 434,800 actually

identified as Māori or part-Māori. This means about 76,500 persons chose not to culturally identify with their Māori ancestry. It is estimated that this mobility results in a loss to the Māori population of about 3,000-4,000 people between each census [21].

In summary, the Māori population exhibits some unique characteristics which have a considerable bearing on health outcomes. The shape and dynamics of the Māori population are therefore important characteristics which need to underpin the decision-making of Māori leadership, Māori health workers, health planners and policymakers.

SECTION TWO

Māori Health Statistics

Introduction

There are a number of different ways of measuring health status. The conventional measures usually involve mortality (death rates) and morbidity (illness rates) and are based on death registrations in the case of mortality, and service utilisation statistics, usually hospital admissions and GP visits, in the case of morbidity. Specific disease registers, for example, cancer, may also be used.

It is widely acknowledged that these statistics have significant limitations as measurements of health status, not the least being that they are measures of death and illness rather than of health. More recently, these measures have been supplemented by measures of health based on self-assessment by the individual concerned. Reviews have found that information gained from self-assessment surveys provide an informative picture of wellbeing within a community[1].

However, statistics which are routinely collected by government are cheaper and quicker to use, whereas health statistics gained from self-assessment surveys require a lengthy and expensive collection and analysing process. The strength of the conventional measures is that they are especially useful for measuring trends over time. While a single measure of mortality or morbidity can rightly be criticised as an incomplete picture of health status, serial measurement over a period of time is likely to provide a more complete picture. In this way, these statistics may be used as a tool for monitoring aspects of health services and their performance.

Māori have noted that the conventional measures portray a negative view of Māori health[2]. Despite this, previous volumes of *Hauora: Māori Standards of Health* have been well received and utilised by Māori health workers and others interested in Māori health, as a resource to access Māori health information, understand trends and negotiate service changes.

Although they are useful, these measures have considerable limitations. Firstly, they assume that Māori health and that of non-Māori is underpinned by the same value system. Comparisons between the health status of Māori and non-Māori, while they point out inequities, also carry with them the expectation that the outcomes should be the same. In this way, they run the risk of supporting assimilative aims and goals[3]. Secondly, it is well recognised that changes in health status are the result of the interaction of numerous factors, including those of social, economic, cultural and health service influences[4]. A suitable theoretical model which interweaves the contributions of these various influences together has not yet been developed nor are there appropriate indicators[5].

Limitations of a different level relate to gaps in the current database. For example, statistics on health service utilisation lack information about the use of primary health care services by Māori. There are further significant limitations in the way in which Māori are defined and counted.

Calculating Māori Health Statistics

In the past, Māori health statistics have been unreliable and there is evidence of considerable under-reporting. There are several factors which affect the reliability of Māori health statistics.

- Any current system has to provide data which is comparable with previous data.
- In the past, both the numerator and denominator data were based on the 'half or more' definition. This led to considerable under-reporting of Māori ethnicity.

The 'Sole Māori' classification is the most appropriate. It provides continuity with the 'half or more' denominator definition which was

used previously. Although it does not eliminate under-reporting of Māori ethnicity, it does provide a more accurate picture than the use of the 'Māori Ethnic group' definition[6].

It is essential that the same definition of 'Māori' is used in the numerator data and the denominator data. If this approach is not followed, then the resulting statistics may be misleading and this may have major implications for resource allocation and for the monitoring of trends in Māori health status.

Potential problems with the collection of data and definition of Māori can be demonstrated by an example. Calculating the death rate from asthma in Māori in 1991 involves the following steps:

- Finding out how many Māori died of asthma in 1991. This is done using information from death certificates and death registration forms which is collected by the Department of Justice. This information is then coded and stored by the Ministry of Health. This figure is the numerator.
- Finding out how many Māori there were in New Zealand in 1991. This is obtained from the Census questions on ethnicity (collected and published by the Department of Statistics). This figure is called the denominator.
- Dividing the number of asthma deaths in Māori (the numerator) by the total number of Māori (the denominator) to find out the proportion of Māori who died of asthma in 1991.

The calculation of health statistics has been complicated because the data required has been collected by different agencies using different definitions of 'Māori'. The information in the numerator may come from various sources (death registrations, hospital records, cancer registrations, etc) depending on which disease or health issue is being studied. Furthermore, each source may differ in its approach to defining ethnicity. For example, death certificates at present use a biological definition while hospitals ask for ethnic identification, but are unable to differentiate between those who self-identify as Sole Māori or Māori Ethnic group. The information in the denominator usually comes from the census.

As noted in the previous section, the 1991 Census described three different definitions of Māori. In this volume of *Hauora: Māori Standards of Health III*, the 'Sole Māori' population from the Census was used in the denominator to calculate death rates as well as hospital discharge rates, psychiatric hospital admissions, and cancer incidence statistics. Appendix 2 discusses these issues in more detail.

CHAPTER 3

Mortality

KEY POINTS

- **The death rates for Māori from almost all major causes have continued to decrease. There are, however, some significant exceptions. These include: continuing high rates of sudden infant death syndrome (SIDS) amongst Māori infants; youth suicide, especially among males; homicide and violence; and motor vehicle crashes.**
- **There has been a reduction in the death rate from asthma and coronary heart disease amongst Māori. However, these death rates for Māori still exceed those of non-Māori.**
- **Cancer continues to be a leading cause of death and illness for Māori.**

Statistical Coverage

This section presents a comparison of the number and rate of deaths registered in the years 1970-74, 1980-84 and 1987-91. The number of Māori deaths registered each year is comparatively small when presented by age-group and specific causes. To overcome the yearly fluctuation in rates which can occur when numbers are small, all deaths in each five-year period have been combined. The numbers shown in tables are therefore the total number of deaths for the five-year period 1987-91. Appendix 3 contains a glossary of International Classification of Diseases (ICD) codes (9th revision) and groupings used in this volume.

The denominators used in this chapter are derived from census data from the Department of Statistics and classified as 'New Zealand Māori Sole ethnic origin'. The estimated mean population numbers for each year were totalled for the five-year period and used to calculate age-specific death rates. Rates for infants (under one year of age) were calculated using the number of live births for each five-year period. For infants under one year of age, the ethnicity on the death certificate is matched with that on the birth certificate.

Age-standardised rates using Segi's World Population were used to

compare the total Māori population with the total non-Māori population[1]. This takes account of the higher proportion of young people in the Māori population, in which fewer deaths are expected.

Changes in Mortality Rates 1970-74, 1980-84 and 1987-91

The reduction in Māori death rates between the years 1970-74 and 1980-84 has continued into the 1987-91 period in all age-groups except for males aged 5-24 years.

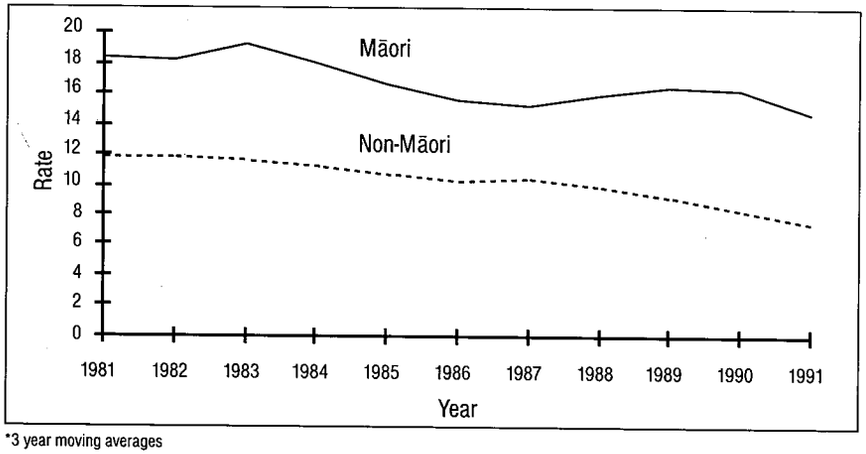
TABLE 3

Infant Deaths, Ages Under 1 Year, 1970-74, 1980-84 and 1987-91
(Rates per 1,000 live births)

Years	Māori	Non-Māori	Ratio Māori to non-Māori
1970-74	23.3	15.1	1.5
1980-84	18.4	11.4	1.6
1987-91	15.5	8.8	1.8
% Change			
1970-74 – 1980-84	-21	-25	
1980-84 – 1987-91	-16	-23	
1970-74 – 1987-91	-33	-42	

FIGURE 7

Infant Deaths, 1981-91 (Rates per 1,000 live births)*



*3 year moving averages

The Māori infant death rate reduced by 16% from 18.4 per 1,000 live births in 1980-84 to 15.5 in 1987-91. The ratio of Māori to non-Māori infant deaths, however, continued to increase slightly from 1.5 (or 50% higher) in 1970-74 and 1.6 in 1980-84 to 1.8 (or 80% higher) in 1987-91.

The widening of the gap has occurred mainly in the post-neonatal period (ages 1-11 months) in which the Māori death rate has decreased, but at a slower pace than the rate for non-Māori infants.

TABLE 4

Late Fetal Deaths (Stillbirths), 1970-74, 1980-84 and 1987-91
(Rates per 1,000 total births)

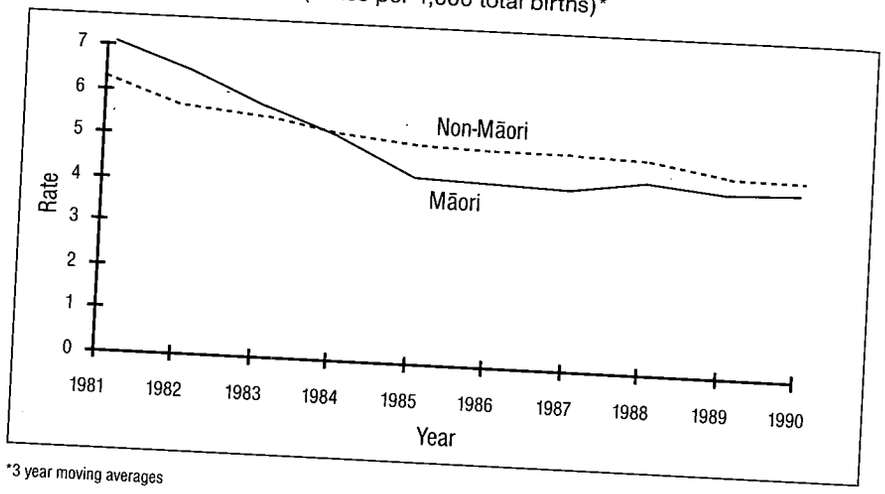
Years	Māori	Non-Māori	Ratio Māori to non-Māori
1970-74	10.2	9.6	1.1
1980-84	6.4	5.9	1.1
1987-91	4.3	4.7	0.9
% Change			
1970-74 – 1980-84	-37	-39	
1980-84 – 1987-91	-32	-20	
1970-74 – 1987-91	-58	-51	

The late fetal death rate (stillbirths) for Māori decreased by a third between 1980-84 and 1987-91 (table 4), and has remained lower than the non-Māori rate since 1984 (see figure 8). The Māori perinatal death rate, which includes stillbirths and early neonatal deaths (within seven days from birth), also decreased since 1980-84, and has remained lower or similar to the non-Māori rate.

FIGURE 8

Late Fetal Deaths (Stillbirths), 1981-90

(Rates per 1,000 total births)*

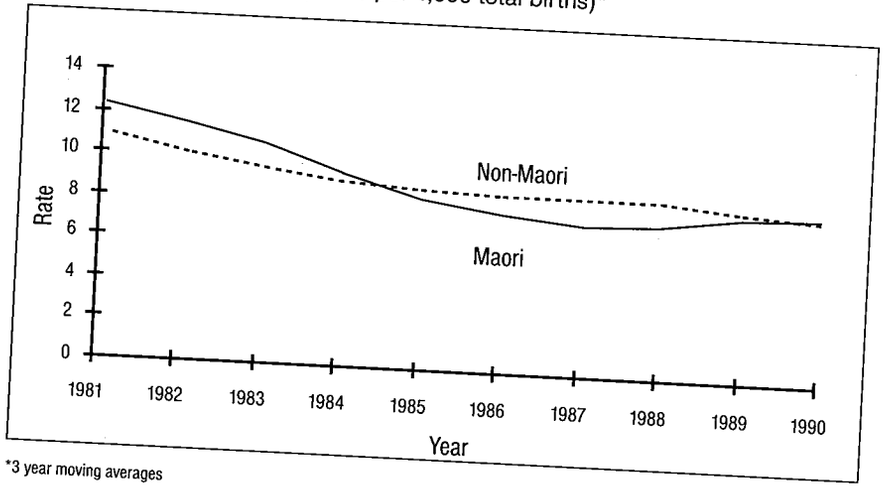


*3 year moving averages

FIGURE 9

Perinatal Deaths, 1981-90

(Rates per 1,000 total births)*

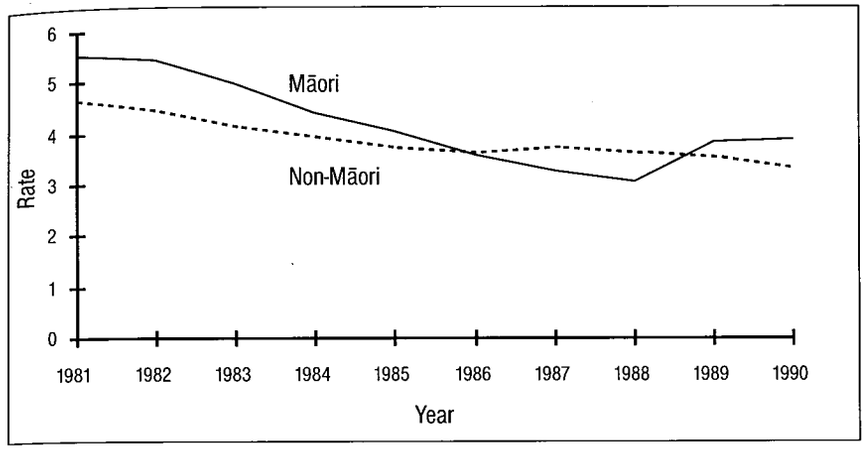


*3 year moving averages

FIGURE 10

Early Neonatal Deaths, Ages Under 7 Days, 1981-90

(Rates per 1,000 live births)*

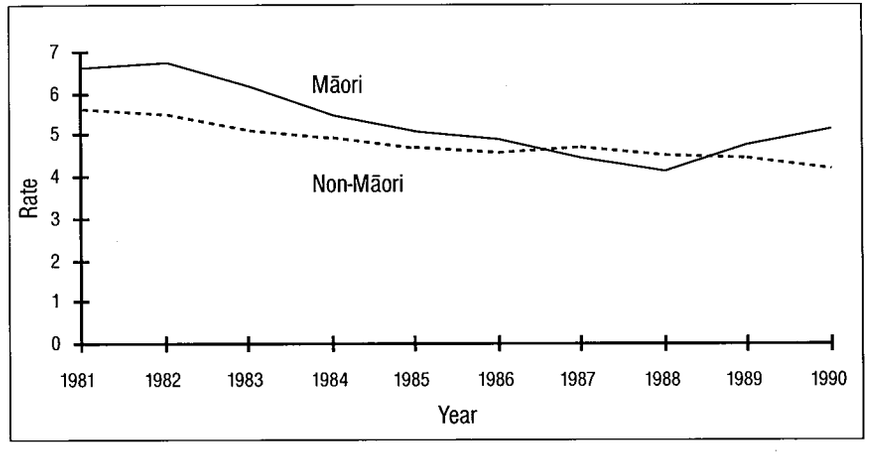


*3 year moving averages

FIGURE 11

Neonatal Deaths, Ages Under 28 Days, 1981-90

(Rates per 1,000 live births)*



*3 year moving averages

Māori neonatal deaths (ages under 28 days) have decreased by more than a quarter since 1980-84 and by 60% since 1970-74.

TABLE 5

Neonatal Deaths, Ages Under 28 Days, 1970-74, 1980-84 and 1987-91
(Rates per 1,000 live births)

Years	Māori	Non-Māori	Ratio Māori to Non-Maori
1970-74	11.8	9.8	1.2
1980-84	6.2	5.4	1.1
1987-91	4.6	4.4	1.0
% Change			
1970-74 – 1980-84	-47	-45	
1980-84 – 1987-91	-26	-19	
1970-74 – 1987-91	-61	-55	

In the post-neonatal period (ages 1-11 months), the Māori death rate reduced by 5% from the 1970-74 rate to 10.9 per 1,000 live births in 1987-91. During the same period, the non-Māori rate reduced by 17%.

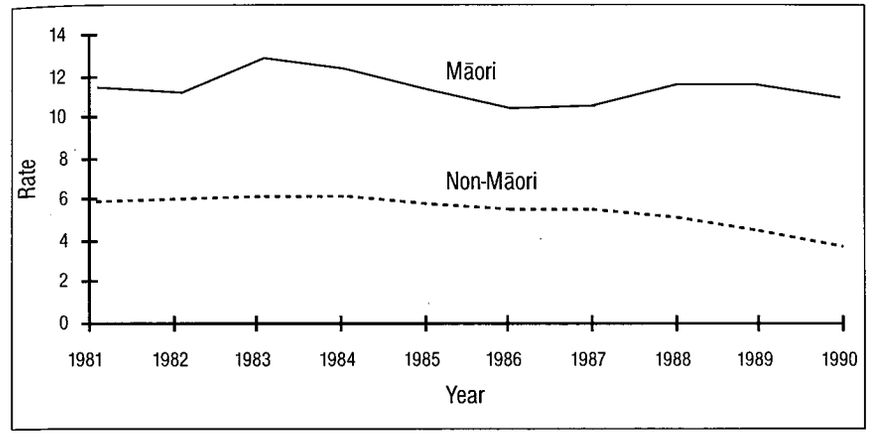
TABLE 6

Post-Neonatal Deaths, Ages 1-11 months, 1970-74, 1980-84 and 1987-91
(Rates per 1,000 live births)

Years	Māori	Non-Māori	Ratio Māori to Non-Māori
1970-74	11.5	5.3	2.2
1980-84	12.2	5.9	2.1
1987-91	10.9	4.4	2.5
% Change			
1970-74 – 1980-84	+6	+11	
1980-84 – 1987-91	-11	-25	
1970-74 – 1987-91	-5	-17	

FIGURE 12

Post-neonatal Deaths, Ages 1-11 Months, 1981-90
(Rates per 1,000 live births)*



*3 year moving averages

Seventy percent of Māori infant deaths in 1987-91 occurred at ages 1-11 months (post-neonatal) compared to 50% of non-Māori infant deaths. Sudden infant death syndrome (SIDS) or cot death is the leading cause of death in the post-neonatal period accounting for 76% of Māori and 60% of non-Māori deaths at ages 1-11 months in 1987-91.

TABLE 7

Deaths, All Causes, All Ages, 1970-74, 1980-84 and 1987-91
(Age-standardised rates per 10,000 population)

Years	Male		Ratio Māori to non-Māori	Female		Ratio Māori to non-Māori
	Māori	Non-Māori		Māori	Non-Māori	
1970-74	132.0	90.0	1.5	102.6	60.6	1.7
1980-84	102.3	78.4	1.3	71.3	52.7	1.4
1987-91	86.2	69.9	1.2	64.0	43.4	1.5
% Change						
1970-74 – 1980-84	-23	-13		-31	-13	
1980-84 – 1987-91	-16	-11		-10	-18	
1970-74 – 1987-91	-35	-22		-38	-28	

Between the periods 1980-84 and 1987-91, Māori death rates at ages 1-4 years continued to decrease and remain below those of non-Māori. At ages 5-24 years, the death rate for Māori females also continued to fall, but the rate for Māori males increased slightly in this age-group. The death rate amongst non-Māori males aged 15-24 years also increased. The gap between the death rates for Māori and non-Māori aged 25-44 years continued to narrow from 1980-84 to 1987-91, but the Māori rate is still around 50% higher than the non-Māori rate. The difference between Māori and non-Māori death rates is highest at ages 45-64 years and there has been no change in this difference since 1980-84. For Māori and non-Māori aged 65 years and over the death rates are now the same.

Death rates for females are lower than for males at all age-groups. This is most marked at ages 15-24 years where male rates are more than two and a half times the female rates. This is mostly due to a higher rate of deaths from motor vehicle crashes and suicide amongst young men. At ages 25-44 years, males had a higher rate of death from both coronary heart disease and motor vehicle crashes. Coronary heart disease was the main contributor to the difference after the age of 45, and males over 64 years also had higher rates of cancer deaths than females.

The 1991 Māori death rates at ages 25 years and over would have equalled the non-Māori rate had there been 96 fewer Māori deaths at ages 25-44, 260 fewer at ages 45-64, and 102 fewer at ages 65 years and over. For all ages in 1991, the higher Māori death rates meant 472 (263 male and 209 female) excess Māori deaths.

TABLE 8

Deaths, All Causes, Ages 1-4 Years, 1970-74, 1980-84 and 1987-91

(Age-specific rates per 10,000 population)

Years	Male		Ratio Māori to non-Māori	Female		Ratio Māori to non-Māori
	Māori	Non-Māori		Māori	Non-Māori	
1970-74	17.4	9.2	1.9	13.1	7.8	1.7
1980-84	6.2	7.7	0.8	5.2	5.5	0.9
1987-91	4.8	6.6	0.7	2.4	4.7	0.5
% Change						
1970-74 – 1980-84	-64	-16		-60	-29	
1980-84 – 1987-91	-23	-14		-54	-15	
1970-74 – 1987-91	-72	-28		-82	-40	

TABLE 9

Deaths, All Causes, Ages 5-14 Years, 1970-74, 1980-84 and 1987-91

(Age-specific rates per 10,000 population)

Years	Male		Ratio Māori to non-Māori	Female		Ratio Māori to non-Māori
	Māori	Non-Māori		Māori	Non-Māori	
1970-74	7.1	4.4	1.6	4.6	3.0	1.5
1980-84	3.2	3.5	0.9	2.3	2.4	1.0
1987-91	3.3	3.3	1.0	1.4	2.2	0.7
% Change						
1970-74 – 1980-84	-55	-20		-50	-20	
1980-84 – 1987-91	+3	-6		-39	-8	
1970-74 – 1987-91	-54	-25		-70	-27	

TABLE 10

Deaths, All Causes, Ages 15-24 Years, 1970-74, 1980-84 and 1987-91

(Age-specific rates per 10,000 population)

Years	Male		Ratio Māori to non-Māori	Female		Ratio Māori to non-Māori
	Māori	Non-Māori		Māori	Non-Māori	
1970-74	26.1	15.1	1.7	11.5	5.4	2.1
1980-84	15.2	15.2	1.0	7.3	6.1	1.2
1987-91	15.7	17.0	0.9	6.1	5.8	1.0
% Change						
1970-74 – 1980-84	-42	+1		-37	+13	
1980-84 – 1987-91	+3	+12		-16	-5	
1970-74 – 1987-91	-40	+13		-47	+7	

TABLE 11

Deaths, All Causes, Ages 25-44 Years, 1970-74, 1980-84 and 1987-91

(Age-specific rates per 10,000 population)

Years	Male		Ratio Māori to non-Māori	Female		Ratio Māori to non-Māori
	Māori	Non-Māori		Māori	Non-Māori	
1970-74	44.6	18.4	2.4	31.0	11.4	2.7
1980-84	28.9	16.1	1.8	19.1	9.3	2.1
1987-91	23.4	16.7	1.4	13.5	9.1	1.5
% Change						
1970-74 – 1980-84	-35	-13		-38	-18	
1980-84 – 1987-91	-19	+4		-29	-2	
1970-74 – 1987-91	-48	-9		-56	-20	

TABLE 12

Deaths, All Causes, Ages 45-64 Years, 1970-74, 1980-84 and 1987-91

(Age-specific rates per 10,000 population)

Years	Male		Ratio Māori to non-Māori	Female		Ratio Māori to non-Māori
	Māori	Non-Māori		Māori	Non-Māori	
1970-74	234.3	127.2	1.8	178.3	69.8	2.6
1980-84	175.5	109.1	1.6	123.3	63.2	2.0
1987-91	142.6	91.2	1.6	112.8	55.9	2.0
% Change						
1970-74 – 1980-84	-25	-14		-31	-9	
1980-84 – 1987-91	-19	-16		-9	-12	
1970-74 – 1987-91	-39	-28		-37	-20	

TABLE 13

Deaths, All Causes, Ages 65 Years and over, 1970-74, 1980-84 and 1987-91 (Age-specific rates per 10,000 population)

Years	Male		Ratio Māori to non-Māori	Female		Ratio Māori to non-Māori
	Māori	Non-Māori		Māori	Non-Māori	
1970-74	890.9	750.5	1.2	735.0	556.9	1.3
1980-84	756.3	662.5	1.1	544.7	482.9	1.1
1987-91	600.9	627.9	1.0	459.8	476.3	1.0
% Change						
1970-74 – 1980-84	-15	-12		-26	-13	
1980-84 – 1987-91	-21	-5		-16	-1	
1970-74 – 1987-91	-33	-16		-37	-14	

TABLE 14

Deaths, 1970-74, 1980-84 and 1987-91

(Age-standardised rates per 10,000 population)

Cause of death	Māori			Non-Māori			Ratio Māori to non-Māori
	1970-1974	1980-1984	1987-1991	1970-1974	1980-1984	1987-1991	1987-1991
Infectious and parasitic diseases	3.7	1.4	1.1	0.7	0.4	0.4	2.5
Neoplasms	20.7	18.3	16.8	14.3	14.9	14.6	1.2
Endocrine, nutritional metabolic diseases and immunity disorders	5.3	4.5	4.2	1.6	1.1	1.0	4.2
Diseases of blood and blood forming organs	0.3	0.1	0.1	0.2	0.2	0.1	0.9
Mental disorders	0.4	0.3	0.4	0.2	0.5	0.5	0.7
Diseases of nervous system and sense organs	1.0	0.7	0.6	1.1	1.0	1.0	0.5
Diseases of circulatory system	50.0	37.8	30.3	36.6	29.5	22.4	1.4
Diseases of respiratory system	16.2	10.7	8.0	7.1	6.4	5.1	1.6
Diseases of digestive system	2.6	2.1	2.2	1.7	1.6	1.5	1.5
Diseases of genito-urinary system	2.6	1.5	1.5	0.9	0.8	0.7	2.1
Complication of pregnancy, childbirth and the puerperium*	0.4	–	–	0.1	–	–	–
Diseases of the skin and sub-cutaneous tissue	0.2	0.2	0.2	0.1	0.1	0.1	2.7
Diseases of the musculo-skeletal system and connective tissue	0.3	0.2	0.2	0.4	0.3	0.3	0.9
Congenital anomalies	1.1	0.8	0.8	1.3	1.0	0.9	0.9
Certain conditions originating in the perinatal period	2.2	1.0	0.7	1.7	0.7	0.7	1.0
Symptoms, signs and ill-defined conditions	0.5	1.7	1.8	0.3	1.0	0.8	2.3
External causes of injury and poisoning	10.4	6.0	5.5	6.2	5.3	5.1	1.1
Total: All causes	117.5	87.2	74.4	74.3	64.6	55.3	1.3

* Female specific rates

– Less than 0.1

Table 14 shows age-standardised death rates by the International Classification of Diseases (ICD) chapter groupings in 1970-74, 1980-84 and 1987-91. Since 1980-84, the death rates for Māori have decreased for about half the groupings, and have remained the same for about a third. However, there has been a 33% increase in the rate of deaths from mental disorders amongst Māori, and slight increases in the Māori rates for deaths from 'diseases of the digestive system' and 'symptoms, signs and ill-defined conditions', which includes SIDS. There have been no increases in the non-Māori rates. The greatest improvement for Māori has been in the groupings 'diseases of the respiratory system' with a 25% decrease, and in 'certain conditions originating in the perinatal period' with a 30% reduction in the death rate.

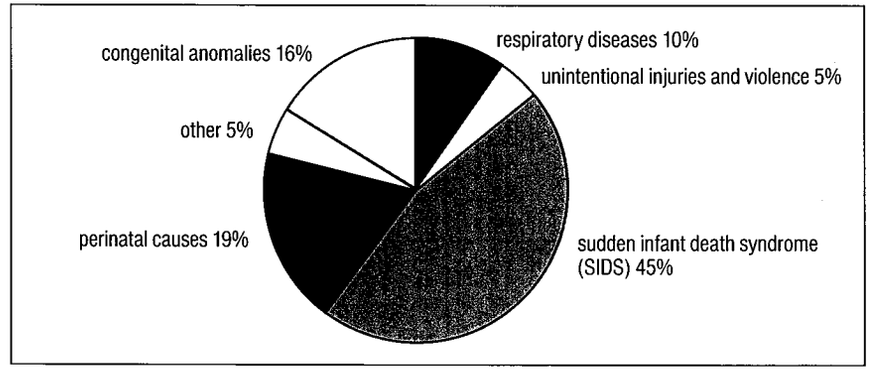
During the period between 1980-84 and 1987-91, the overall reduction in the Māori age-standardised death rate was 14.7%, similar to the non-Māori reduction of 14.4%. This contrasts with the previous period between 1970-74 and 1980-84 during which the reduction for Māori was twice that for non-Māori. The age-standardised death rate for Māori during 1987-91 is 35% higher than the non-Māori rate.

Major Causes of Death

Infants Aged Under 1 Year

FIGURE 13

Major Causes of Death, Māori Population, Infants under 1 year, 1987-91



There has been substantial reduction in the rate of deaths amongst Māori infants from perinatal causes which have decreased by a third, and from respiratory diseases which have more than halved since 1980-84. However, the Māori rate for respiratory disease is still more than three times higher than the non-Māori rate. It is also of concern that deaths from unintentional injuries and violence have increased amongst Māori infants since 1980-84.

SIDS was the main cause of death for Māori infants, with a rate of 7.2 per 1,000 live births during 1987-91. Table 15 and Figure 14 show the rates for SIDS peaked in 1984 and 1989 amongst Māori infants, while the non-Māori rate peaked in 1983 and has been declining since then. By 1991, the Māori rate had reduced to the same level as 1982.

TABLE 15

Sudden Infant Death Syndrome (SIDS) By Ethnicity, 1980-91

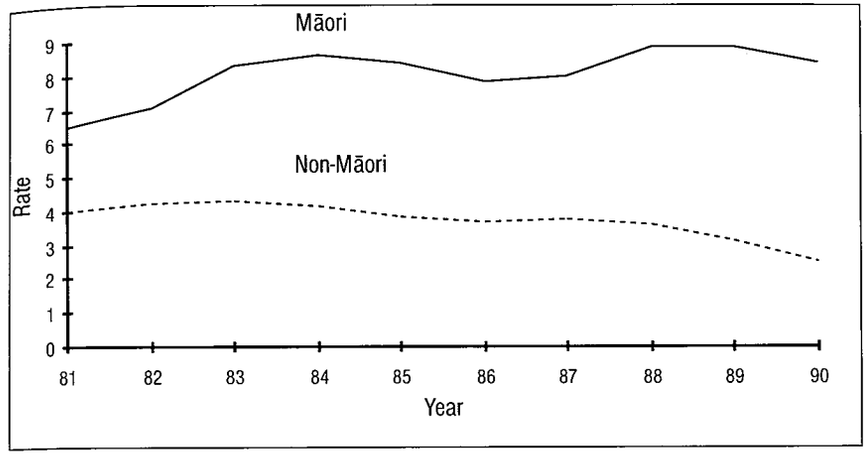
(Numbers and rates per 1,000 live births)

Year	Māori		Non-Māori		Ratio of Māori to Non-Māori
	Number	Rate	Number	Rate	
1980	41	6.4	168	3.8	1.7
1981	41	6.2	181	4.1	1.5
1982	43	6.9	176	4.0	1.7
1983	51	8.1	198	4.5	1.8
1984	67	9.9	191	4.3	2.3
1985	51	7.9	168	3.7	2.1
1986	48	7.4	165	3.6	2.1
1987	57	8.2	180	3.7	2.2
1988	57	8.4	197	3.9	2.2
1989	69	9.9	168	3.3	3.0
1990	58	8.3	117	2.2	3.8
1991	48	6.9	100	1.9	3.6

FIGURE 14

Sudden Infant Death Syndrome (SIDS) 1981-90

(Rates per 1000 live births)*



*3 year moving averages

TABLE 16

Major Causes of Death, Infants Aged Under 1 Year, 1980-84 and 1987-91 (Numbers and rates per 1,000 live births)

Cause of death	Māori				Non-Māori				Ratio Māori to non-Māori	Ratio Māori to non-Māori
	Rate 80-84	Rate 87-91	Total No. 87-91	Rank 87-91	Rate 80-84	Rate 87-91	Total No. 87-91	Rank 87-91	80-84	87-91
Total: All causes	18.4	15.5	537		11.4	8.8	2,262		1.6	1.8
Sudden infant death syndrome (SIDS)	6.7	7.2	248	1	3.6	2.5	645	2	1.9	2.9
Perinatal causes	4.2	2.9	100	2	3.0	2.6	679	1	1.4	1.1
– Respiratory conditions of newborn	1.7	1.7	58		1.4	1.4	370		1.2	1.2
– Low birthweight conditions	1.0	0.7	23		0.5	0.5	138		2.0	1.2
Congenital anomalies (defects present at birth)	2.5	2.5	86	3	3.0	2.3	602	3	0.8	1.1
Respiratory diseases	2.7	1.5	52	4	0.8	0.5	121	4	3.4	3.2
– Pneumonia	1.6	0.7	24		0.6	0.3	67		2.7	2.7
– Bronchitis and bronchiolitis	0.6	0.5	18		0.1	0.1	26		6.0	5.1
Unintentional injury and violence	0.6	0.7	24	5	0.3	0.3	73	5	2.0	2.4

continued over

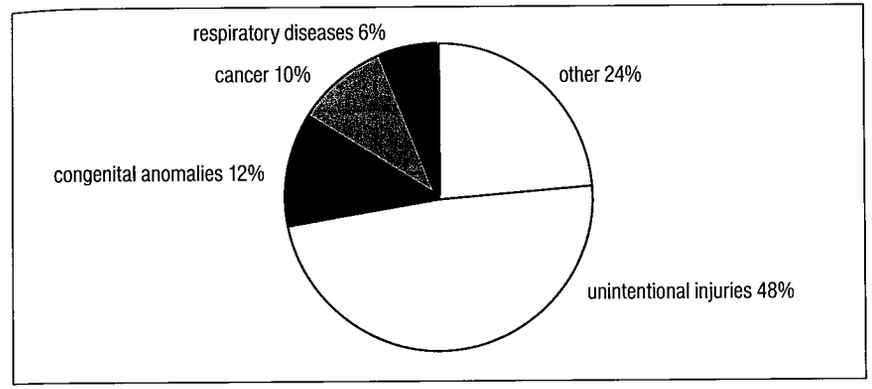
Table 16 continued

Cause of death	Māori				Non-Māori				Ratio Māori to non-Māori	Ratio Māori to non-Māori
	Rate 80-84	Rate 87-91	Total No. 87-91	Rank 87-91	Rate 80-84	Rate 87-91	Total No. 87-91	Rank 87-91	80-84	87-91
Males: All causes	19.5	17.3	307		12.7	10.0	1,316		1.5	1.7
Sudden infant death syndrome (SIDS)	7.4	7.8	139	1	4.4	2.9	383	2	1.7	2.7
Perinatal causes	3.8	3.5	62	2	3.4	3.2	415	1	1.1	1.1
– Respiratory conditions of newborn	1.4	2.2	39		1.6	1.8	237		0.9	1.2
– Low birthweight conditions	1.1	0.7	13		0.5	0.6	76		2.2	1.3
Congenital anomalies (present at birth)	2.5	2.5	45	3	3.0	2.5	323	3	0.8	1.0
Respiratory diseases	3.1	1.6	28	4	0.8	0.6	81	4	3.9	2.6
– Pneumonia	1.9	0.7	12		0.6	0.3	41		3.2	2.2
– Bronchitis and bronchiolitis	0.4	0.6	11		0.1	0.1	18		4.0	4.5
Unintentional injury and violence	0.5	1.0	17	5	0.3	0.3	35	5	1.7	3.6
Females: All causes	17.2	13.7	230		10.0	7.6	946		1.7	1.8
Sudden infant death syndrome (SIDS)	6.0	6.5	109	1	2.7	2.1	262	3	2.2	3.1
Congenital anomalies (defects present at birth)	2.4	2.4	41	2	2.9	2.2	279	1	0.8	1.1
Perinatal causes	4.5	2.3	38	3	2.6	2.1	264	2	1.7	1.1
– Respiratory conditions of newborn	2.0	1.1	19		1.2	1.1	133		1.7	1.1
– Low birthweight conditions	1.0	0.6	10		0.4	0.5	62		2.5	1.2
Respiratory diseases	2.4	1.4	24	4	0.8	0.3	40	4	3.0	4.5
– Pneumonia	1.3	0.7	12		0.6	0.2	26		2.2	3.4
– Bronchitis and bronchiolitis	0.9	0.4	7		0.1	0.1	8		9.0	6.5
Unintentional injury and violence	0.8	0.4	7	5	0.2	0.3	38	5	4.0	1.4

Ages 1–4 Years

FIGURE 15

Major Causes of Death, Māori Population, Ages 1-4 Years, 1987-91



In 1987-91 the death rates for Māori children aged 1-4 years were lower than non-Māori rates for all major causes except certain perinatal conditions, infectious and parasitic diseases, and homicide.

The reduction in the death rate for Māori preschoolers between 1980-84 and 1987-91 was mostly due to a 37% decrease in deaths from unintentional injuries (the leading cause of deaths), and a substantial decrease of 78% in the rate of deaths from respiratory disease, with no deaths from asthma or pneumonia amongst Māori.

TABLE 17

Major Causes of Death, Ages 1-4 Years, 1980-84 and 1987-91

(Numbers and age-specific rates per 10,000 population)

Cause of death	Māori				Non-Māori				Ratio Māori to non-Māori 80-84	Ratio Māori to non-Māori 87-91
	Rate 80-84	Rate 87-91	Total No. 87-91	Rank 87-91	Rate 80-84	Rate 87-91	Total No. 87-91	Rank 87-91		
Total: All causes	5.7	3.6	50		6.6	5.7	508		0.9	0.6
Unintentional injuries	2.7	1.7	24	1	3.1	2.4	214	1	0.9	0.7
- Motor vehicle crashes	1.2	0.7	10		1.0	1.0	90		1.2	0.7
- Drowning	0.7	0.3	4		1.3	0.6	56		0.5	0.5
- Fires		0.3	4			0.2	14			1.8
Congenital anomalies (defects present at birth)	0.5	0.4	6	2	1.0	0.8	67	3	0.5	0.6
Malignant neoplasms (cancer)	0.3	0.4	5	3=	0.7	0.9	78	2	0.4	0.4
Certain perinatal conditions		0.4	5	3=		0.1	8			4.0
Respiratory diseases	0.9	0.2	3	5=	0.4	0.4	32	5	2.3	0.6
Infectious and parasitic disease		0.2	3	5=		0.1	12			1.7
Homicide		0.2	3	5=		0.1	8			2.4
Diseases of the nervous system	0.2	0.1	1		0.4	0.5	47	4	0.5	0.1
Males: All causes	6.2	4.8	34		7.7	6.6	304		0.8	0.7
Unintentional injuries	3.3	1.8	13	1	3.9	2.9	134	1	0.8	0.6
- Motor vehicle crashes	1.2	0.6	4		1.2	1.1	51		1.1	0.5
- Drowning	0.9	0.4	3		1.7	0.8	35		0.5	0.6
Malignant neoplasms (cancer)	0.4	0.7	5	2	0.8	1.0	45	2	0.5	0.7
Congenital anomalies (defects present at birth)	0.6	0.6	4	3=	1.0	0.7	34	3	0.6	0.8
Certain perinatal conditions		0.6	4	3=		0.0	2			-
Respiratory diseases	0.9	0.4	3	5	0.5	0.4	20	5	1.8	1.0
Diseases of the nervous system	-	0.1	1		0.4	0.7	30	4	-	0.2

continued over

Table 17 continued

Cause of death	Māori				Non-Māori				Ratio Māori to non-Māori 80-84	Ratio Māori to non-Māori 87-91
	Rate 80-84	Rate 87-91	Total No. 87-91	Rank 87-91	Rate 80-84	Rate 87-91	Total No. 87-91	Rank 87-91		
Females: All causes	5.2	2.4	16		5.5	4.7	204		0.9	0.5
Unintentional injuries	2.0	1.6	11	1	2.3	1.8	80	1	0.9	0.9
- Motor vehicle crashes	1.2	0.9	6		0.8	0.9	39		1.5	1.0
- Drowning	0.5	0.1	1		0.8	0.5	21		0.6	0.3
Congenital anomalies (defects present at birth)	0.5	0.3	2	2	1.0	0.8	33	2=	0.5	0.4
Malignant neoplasms (cancer)	0.2	0.0	0		0.6	0.8	33	2=	0.3	0.0
Respiratory diseases	0.9	0.0	0		0.3	0.3	12	5	3.0	0.0
Diseases of the nervous system	0.5	0.0	0		0.4	0.4	17	4	1.3	0.0

Ages 5-14 Years

The overall death rate for Māori 5-14 year olds in 1987-91 decreased by 11% since 1980-84, and remains below that of non-Māori children. However, the death rate for girls decreased by 39%, while there was an increase of 3% in the rate for boys.

There was a substantial improvement in the rate of deaths from asthma amongst Māori in this age group, with a decrease of 90% since 1980-84. Māori children now have half as many deaths from asthma as non-Māori children, compared to three times the non-Māori rate in 1980-84. However, Māori children have twice the hospital discharge rate for asthma.

Unintentional injuries (mainly motor vehicle crashes) were the leading cause of death for both Māori and non-Māori 5-14 year olds in 1987-91. The death rate for motor vehicle crashes decreased by a third since 1980-84 for Māori children, while remaining the same for non-Māori children.

TABLE 18

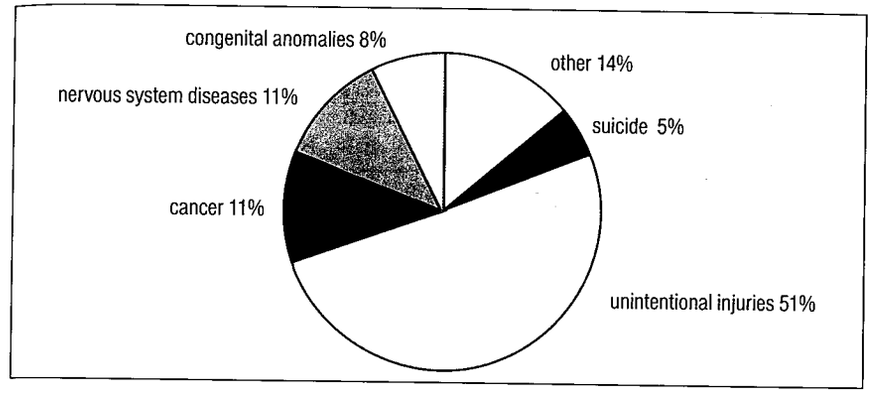
Major Causes of Death, Ages 5-14 Years, 1980-84 and 1987-91

(Numbers and age-specific rates per 10,000 population)

Cause of death	Māori				Non-Māori				Ratio Māori to non-Māori	Ratio Māori to non-Māori
	Rate 80-84	Rate 87-91	Total No. 87-91	Rank 87-91	Rate 80-84	Rate 87-91	Total No. 87-91	Rank 87-91	80-84	87-91
Total: All causes	2.7	2.4	79		2.9	2.8	616		0.9	0.9
Unintentional injuries	1.4	1.2	40	1	1.3	1.2	260	1	1.1	1.0
– Motor vehicle crashes	0.9	0.6	21		0.7	0.7	166		1.3	0.9
– Drowning	0.1	0.2	6		0.2	0.1	33		0.5	1.2
Malignant neoplasms (cancer)	0.5	0.3	9	2=	0.5	0.5	119	2	1.0	0.5
Diseases of the nervous system	0.1	0.3	9	2=	0.2	0.2	51	3	0.5	1.2
Congenital anomalies (defects present at birth)	0.1	0.2	6	4	0.2	0.2	50	4	0.5	0.8
Suicide	0.1	0.1	4	5	0.04	0.1	20	5	2.5	1.3
Asthma	0.3	0.03	1		0.1	0.06	14		3.0	0.5
Males: All causes	3.2	3.3	56		3.5	3.3	379		0.9	1.0
Unintentional injuries	1.7	1.7	29	1	1.6	1.5	171	1	1.1	1.2
– Motor vehicle crashes	1.1	0.8	13		0.8	0.9	108		1.4	0.8
– Drowning	0.3	0.2	4		0.2	0.2	23		1.5	1.2
Malignant neoplasms (cancer)	0.7	0.3	5	2=	0.6	0.6	70	2	1.2	0.5
Diseases of the nervous system	0.1	0.3	5	2=	0.3	0.3	32	3	0.3	1.1
Congenital anomalies (defects present at birth)	0.1	0.3	5	2=	0.1	0.2	28	4	1.0	1.2
Suicide	-	0.2	4	5	-	0.2	19	5	-	1.4
Asthma	0.3	0.06	1		0.2	0.07	8		1.5	0.8
Females: All causes	2.3	1.4	23		2.4	2.2	237		1.0	0.7
Unintentional injuries	1.0	0.7	11	1	0.9	0.8	89	1	1.1	0.8
– Motor vehicle crashes	0.8	0.5	8		0.6	0.5	58		1.3	0.9
– Drowning	-	0.1	2		0.1	0.1	10		-	1.3
Malignant neoplasms (cancer)	0.2	0.2	4	2=	0.4	0.4	49	2	0.5	0.6
Diseases of the nervous system	0.2	0.2	4	2=	0.2	0.2	19	4	1.0	1.4
Congenital anomalies (defects present at birth)	0.1	0.1	1	4	0.3	0.2	22	3	0.3	0.3
Asthma	0.3	0.0	0		0.1	0.05	6		3.0	0.0

FIGURE 16

Major Causes of Death, Māori Population, Ages 5-14 Years, 1987-91

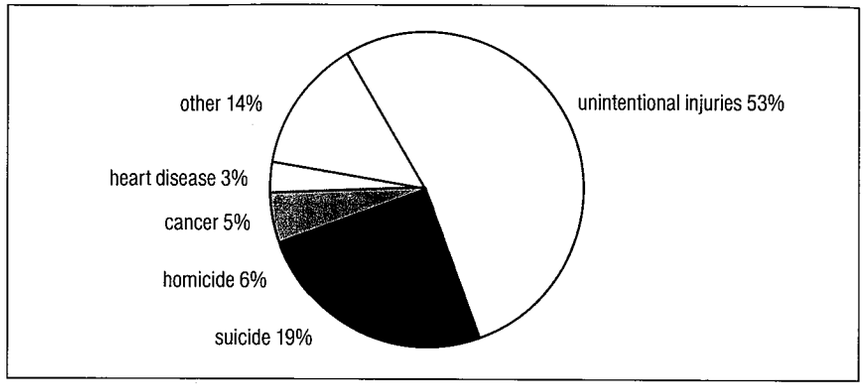


Ages 15-24 Years

The rate of deaths for Māori 15-24 year olds decreased by 4% between 1980-84 and 1987-91. This improvement was due to a reduction of 16% in the rate for Māori females, while the rate for Māori males increased by 3%. The increase was mainly due to a substantial increase in the rates of suicide (250%) and homicide (100%) amongst Māori males, and a slight increase in the rate of deaths from motor vehicle crashes.

FIGURE 17

Major Causes of Death, Māori Population, Ages 15-24 Years, 1987-91



Males accounted for almost three quarters of the Māori deaths in this age group in 1987-91, with their death rate well over twice the rate of Māori females (see table 19). This was due to the high number of young men dying as a result of motor vehicle crashes and higher rates of suicide and homicide. However, it is also of concern that there was an increase in the death rate from motor vehicle crashes and suicide amongst young Māori women since 1980-84.

There was a reduction of 60% in the death rate from asthma among Māori in this age-group between 1980-84 and 1987-91. There were also reductions in the death rates from malignant neoplasms (cancer) and heart disease.

In 1987-91, Māori in this age group had similar death rates to non-Māori for all major causes except homicide where the Māori rate was 2.7 times the non-Māori rate, all forms of heart disease (80% higher) and respiratory disease (50% higher). The ratio of Māori to non-Māori deaths from rheumatic heart disease was very high with Māori 8.5 times more likely to die from this cause during 1987-91. However, there was a reduction of 30% in the death rate from rheumatic fever for Māori females between 1980-84 and 1987-91.

TABLE 19

Major Causes of Death, Ages 15-24 Years, 1980-84 and 1987-91 (Numbers and age-specific rates per 10,000 population)

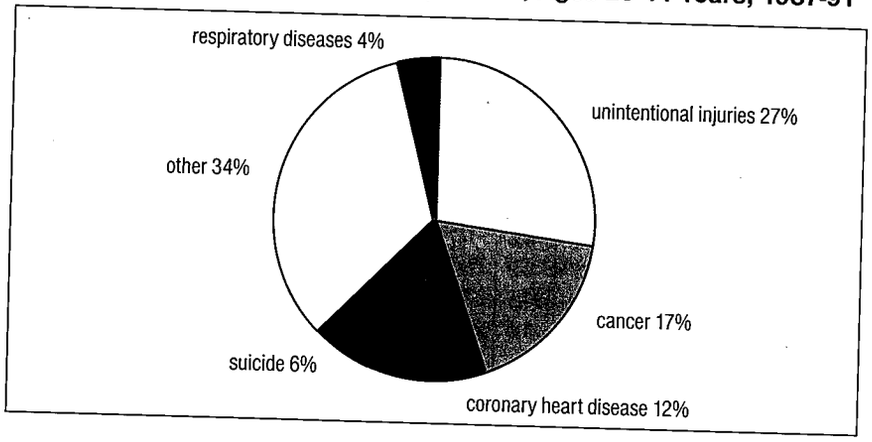
Cause of death	Māori				Non-Māori				Ratio Māori to non-Māori	Ratio Māori to non-Māori
	Rate 80-84	Rate 87-91	Total No. 87-91	Rank 87-91	Rate 80-84	Rate 87-91	Total No. 87-91	Rank 87-91	80-84	87-91
Total: All causes	11.3	10.9	374		10.8	11.5	2,924		1.0	1.0
Unintentional injuries	6.3	5.8	198	1	6.5	6.6	1,670	1	1.0	0.9
- Motor vehicle crashes	4.6	4.9	167		4.9	5.2	1,327		0.9	0.9
Suicide	0.7	2.1	71	2	1.2	2.2	559	2	0.6	0.9
Homicide	-	0.6	22	3	-	0.2	61	5	-	2.7
Malignant neoplasms (cancer)	1.1	0.6	20	4	0.8	0.7	167	3	1.0	0.9
Respiratory diseases	-	0.4	15	5	-	0.3	77	4	-	1.5
- Asthma	0.5	0.2	6		0.4	0.2	51		1.3	0.9
All forms of heart disease	0.7	0.4	13		0.3	0.2	55		1.4	1.8
- Rheumatic heart disease	0.4	0.2	8		0.04	0.03	7		10.0	8.5
Males: All causes	15.2	15.7	272		15.2	17.0	2,196		1.0	0.9
Unintentional injuries	9.6	8.5	147	1	10.0	10.3	1,323	1	1.0	0.8
- Motor vehicle crashes	6.7	6.9	120		7.4	7.9	1,020		0.9	0.9
Suicide	1.0	3.5	61	2	1.9	3.6	469	2	0.5	1.0
Homicide	0.5	1.0	17	3	0.2	0.4	46	4	2.5	2.7
Malignant neoplasms (cancer)	1.2	0.7	13	4	0.9	0.7	90	3	1.3	1.1
All forms of heart disease	0.6	0.5	9	5	0.3	0.3	39		2.0	1.7
- Rheumatic heart disease	0.3	0.3	5		0.04	0.04	5		7.5	7.4
Respiratory Diseases	-	0.4	7		-	0.3	41	5	-	1.3
- Asthma	0.4	0.2	3		0.3	0.2	28		1.3	0.8
Females: All causes	7.3	6.1	102		6.1	5.8	728		1.2	1.0
Unintentional injuries	2.9	3.0	51	1	2.8	2.8	347	1	1.0	1.1
- Motor vehicle crashes	2.4	2.8	47		2.3	2.4	307		1.0	1.1
Suicide	0.4	0.6	10	2	0.5	0.7	90	2	0.8	0.8
Respiratory diseases	-	0.5	8	3	-	0.3	36	4	-	1.7
- Asthma	0.7	0.2	3		0.4	0.2	23		1.8	1.0
Malignant neoplasms (cancer)	1.0	0.4	7	4	0.8	0.6	77	3	1.3	0.7
Homicide	-	0.3	5	5	-	0.1	15	5	-	2.5
All forms of heart disease	0.7	0.2	4		0.4	0.1	16		1.8	1.9
- Rheumatic heart disease	0.3	0.2	3		0.07	0.02	2		4.3	11.2

Ages 25-44 Years

The overall death rate for Māori aged 25-44 years fell by 24% between 1980-84 and 1987-91. This was mainly due to a reduction in deaths from cancer (41%), coronary heart disease (24%), respiratory diseases (65%) and cerebrovascular disease (71%). Suicide was the only cause of death that rose during this period, with an increase of 10%. Māori had higher death rates than non-Māori for all major causes except cancer, which was the same, and for suicide which was two-thirds the non-Māori rate during 1987-91.

FIGURE 18

Major Causes of Death, Māori Population, Ages 25-44 Years, 1987-91



In 1987-91, the leading cause of death for Māori males aged 25-44 years was unintentional injuries. Motor vehicle crashes were the leading cause of death for males in this age group. Males had more than two and a half times the female death rate for motor vehicle crashes. However, this rate has declined by 12.5% for Māori men since 1980-84, while it increased by 19% for Māori women.

Cancer was the leading cause of death for Māori females in this age group, the leading sites being breast, lung and cervix. The rates have decreased for all sites since 1980-84, except for lung cancer which increased by 133%. Cancer was the third leading cause of death for Māori males, the leading sites being the stomach, liver and leukaemia.

TABLE 20

Major Causes of Death, Ages 25-44 years, 1980-84 and 1987-91

(Numbers and age-specific rates per 10,000 population)

	Māori				Non-Māori				Ratio Māori to non-Māori	Ratio Māori to non-Māori
Cause of death	Rate 80-84	Rate 87-91	Total No. 87-91	Rank 87-91	Rate 80-84	Rate 87-91	Total No. 87-91	Rank 87-91	80-84	87-91
Total: All causes	24.0	18.3	831		12.7	12.9	5,910		1.9	1.4
Unintentional injuries	5.3	5.0	225	1	3.0	3.4	1,556	1	1.8	1.5
– Motor vehicle crashes	3.6	3.4	154		1.7	2.2	1,010		2.1	1.5
Malignant neoplasms (cancer)	5.4	3.2	144	2	3.4	3.3	1,520	2	1.6	1.0
– Cancer of stomach	0.7	0.4	17		0.1	0.1	55		7.0	3.1
– Cancer of lung	0.5	0.4	19		0.2	0.2	89		2.5	2.2
– Leukaemia	0.5	0.2	11		0.3	0.2	102		1.7	1.1
Coronary heart disease (heart attack)	2.9	2.2	100	3	1.3	1.0	453	4	2.2	2.2
Suicide	1.0	1.1	51	4	1.4	1.7	801	3	0.7	0.6
Respiratory diseases	2.3	0.8	35	5	0.6	0.3	160		3.8	2.2
– Asthma	1.2	0.4	18		0.4	0.2	99		3.0	1.8
– Bronchiectasis	0.3	0.1	5		0.03	0.03	14		10.0	3.6
Cerebrovascular disease (stroke)	2.1	0.6	29		0.5	0.4	179	5	4.2	1.6
Males: All causes	28.9	23.4	519		16.1	16.7	3,809		1.8	1.4
Unintentional injuries	8.4	7.6	169	1	5.0	5.3	1,217	1	1.7	1.4
– Motor vehicle crashes	5.6	4.9	109		2.6	3.3	755		2.2	1.5
Coronary heart disease (heart attack)	4.3	3.4	75	2	2.2	1.7	385	4	2.0	2.0
Malignant neoplasms (cancer)	4.5	2.5	55	3	3.0	2.6	602	3	1.5	0.9
– Cancer of lung	0.7	0.1	3		0.2	0.2	37		3.5	0.8
– Cancer of stomach	0.4	0.3	7		0.1	0.1	25		4.0	2.9
– Cancer of liver	-	0.3	7		-	0.1	16		-	4.5
– Leukaemia	0.6	0.3	6		0.3	0.2	56		2.0	1.1
Suicide	1.5	2.0	44	4	2.1	2.7	625	2	0.7	0.7
Homicide	-	0.9	19	5	-	0.3	80		-	2.4
Cerebrovascular disease (stroke)		0.7	16			0.3	79			2.1
Respiratory diseases	2.2	0.6	13		0.6	0.4	87	5	3.7	1.5
– Asthma	1.1	0.2	4		0.4	0.2	52		2.8	0.8

continued over

Table 20 continued

Cause of death	Māori Rate 80-84	Māori Rate 87-91	Māori Total No. 87-91	Māori Rank 87-91	Non-Māori Rate 80-84	Non-Māori Rate 87-91	Non-Māori Total No. 87-91	Non-Māori Rank 87-91	Ratio Māori to non-Māori 80-84	Ratio Māori to non-Māori 87-91
Females: All causes	19.1	13.5	312		9.3	9.1	2,101		2.1	1.5
Malignant neoplasms (cancer)	6.2	3.8	89	1	3.8	4.0	918	1	1.6	1.0
- Cancer of breast	1.5	0.9	20		1.1	1.4	313		1.4	0.6
- Cancer of cervix	1.3	0.6	15		0.5	0.5	121		2.6	1.2
- Cancer of stomach	0.9	0.4	10		0.1	0.1	30		9.0	3.3
- Cancer of lung	0.3	0.7	16		0.1	0.2	52		3.0	3.1
- Leukaemia	0.3	0.2	5		0.2	0.2	46		1.5	1.1
Unintentional injuries	2.3	2.4	56	2	1.1	1.5	339	2	2.1	1.6
- Motor vehicle crashes	1.6	1.9	45		0.7	1.1	255		2.3	1.8
Coronary heart disease (heart attack)	1.4	1.1	25	3	0.4	0.3	68		3.5	3.7
Respiratory diseases	2.3	0.9	22	4	0.5	0.3	73	5	4.6	3.0
- Asthma	1.4	0.6	14		0.3	0.2	47		4.7	3.0
Cerebrovascular disease (stroke)	1.4	0.6	13	5	0.5	0.4	100	4	2.8	1.3
Suicide	0.5	0.3	7		0.7	0.8	176	3	0.7	0.4

There was a decline in the death rate from cancer for Māori males for all sites, including lung cancer, which declined by 86%.

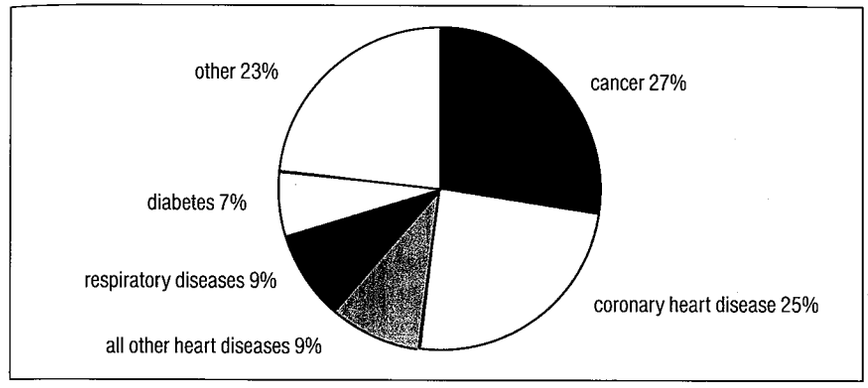
While there has been a substantial reduction in the death rates from coronary heart disease and respiratory disease amongst Māori, it is of concern that Māori women still die at more than three times the rate of non-Māori women for these causes, and Māori men have twice the rate of deaths from coronary heart disease and 50% higher rates for respiratory disease, compared to non-Māori men.

Ages 45-64 Years

At ages 45-64 years, the overall death rate for Māori decreased by 14% between 1980-84 and 1987-91, with a greater reduction in the male rate (19%) compared with the female rate (9%). The greatest reductions were in deaths from cerebrovascular disease (35%), respiratory diseases (21%) and coronary heart disease (17%). The leading cause of death was cancer, followed by coronary heart disease.

FIGURE 19

Major Causes of Death, Māori Population, Ages 45-64 Years, 1987-91



Despite the reduction in the Māori death rates for all major causes in this age group, Māori death rates remain higher than non-Māori rates. Since 1980-84, the gap between Māori and non-Māori death rates has actually widened in this age-group for most causes apart from stroke and the overall cancer rate. Of particular concern are the death rates from diabetes and all forms of heart disease.

For deaths from cancer, the leading site was the lung for both Māori males (120 deaths) and Māori females (106 deaths). Māori women had 2.7 times the death rate from lung cancer as non-Māori women, and four times the death rate from cancer of the cervix. Māori men had more than twice the death rate from stomach cancer as non-Māori men.

TABLE 21

Major Causes of Death, Ages 45-64 Years, 1980-84 and 1987-91

(Numbers and age-specific rates per 10,000 population)

Cause of death	Māori				Non-Māori				Ratio Māori to non-Māori	Ratio Māori to non-Māori
	Rate 80-84	Rate 87-91	Total No. 87-91	Rank 87-91	Rate 80-84	Rate 87-91	Total No. 87-91	Rank 87-91	80-84	87-91
Total: All causes	149.1	127.8	2,477		86.3	73.7	21,281		1.7	1.7
Malignant neoplasms (cancer)	39.2	35.2	682	1	30.3	30.2	8,713	1	1.3	1.2
- Cancer of lung	13.9	11.7	226		6.7	6.7	1,925		2.1	1.7
- Cancer of stomach	2.9	2.6	51		1.4	1.1	305		2.1	2.5
- Cancer of colon	1.1	1.5	30		3.4	3.4	973		0.3	0.5
- Cancer of liver	-	1.5	30		-	0.4	114		-	3.9
Coronary heart disease (heart attack)	38.1	31.6	612	2	27.3	19.9	5,740	2	1.4	1.6
All other forms of heart disease	13.8	12.0	232	3	2.9	2.6	742	5	4.8	4.7
- Hypertensive heart disease	3.1	1.7	32		0.5	0.3	73		6.2	6.5
- Rheumatic heart disease	2.3	2.7	52		0.5	0.4	102		4.6	7.6
Respiratory diseases	14.1	11.1	215	4	5.6	4.2	1,219	3	2.5	2.6
- Chronic obstructive respiratory disease	7.3	5.9	114		3.0	2.4	681		2.4	2.5
Diabetes		8.6	167	5		1.2	341			7.3
Cerebrovascular disease (stroke)	10.4	6.8	132		5.5	3.8	1,097	4	1.9	1.8
Males: All causes	175.5	142.6	1,389		109.1	91.2	13,253		1.6	1.6
Coronary heart disease (heart attack)	51.1	42.1	410	1	41.9	30.7	4,464	2	1.2	1.4
Malignant neoplasms (cancer)	41.2	34.2	333	2	32.4	31.5	4,572	1	1.3	1.1
- Cancer of lung	17.4	12.3	120		10.2	9.2	1,343		1.7	1.3
- Cancer of stomach	3.8	2.9	28		2.0	1.4	200		1.9	2.1
All other forms of heart disease	16.8	13.0	127	3	3.7	3.4	496	5	4.5	3.8
- Hypertensive heart disease	3.1	1.7	17		0.5	0.4	52		6.2	4.9
- Rheumatic heart disease	1.3	1.3	13		0.4	0.3	50		3.3	3.9
Respiratory diseases	14.4	10.3	100	4	7.1	4.6	674	3	2.0	2.2
- Chronic obstructive respiratory disease	7.6	5.0	49		4.1	2.7	387		1.9	1.9

continued over

Table 21 continued

Cause of death	Māori				Non-Māori				Ratio Māori to non-Māori	Ratio Māori to non-Māori
	Rate 80-84	Rate 87-91	Total No. 87-91	Rank 87-91	Rate 80-84	Rate 87-91	Total No. 87-91	Rank 87-91	80-84	87-91
Diabetes	10.5	8.9	87	5	1.3	1.3	188		8.1	6.9
Cerebrovascular disease (stroke)	9.0	5.9	57		5.8	4.3	627	4	1.6	1.4
Females: All causes	123.3	112.8	1,088		63.2	55.9	8,028		2.0	2.0
Malignant neoplasms (cancer)	37.2	36.2	349	1	28.1	28.9	4,141	1	1.3	1.3
- Cancer of lung	10.5	11.0	106		3.2	4.1	582		3.3	2.7
- Cancer of breast	7.9	6.6	64		7.6	7.7	1,110		1.0	0.9
- Cancer of cervix	4.6	4.0	39		1.2	1.0	146		3.8	4.0
Coronary heart disease (heart attack)	25.4	20.9	202	2	12.6	8.9	1,276	2	2.0	2.4
Respiratory diseases	13.8	11.9	115	3	4.1	3.8	545	3	3.4	3.1
- Chronic obstructive respiratory disease	7.1	6.7	65		2.0	2.0	294		3.6	3.3
All other forms of heart disease	8.8	10.9	105	4	2.1	1.7	246	5	4.2	6.4
- Hypertensive heart disease	3.1	1.6	15		0.4	0.1	21		7.8	10.6
- Rheumatic heart disease	3.3	4.0	39		0.6	0.4	52		5.5	11.2
Diabetes		8.3	80	5		1.1	153			7.8
Cerebrovascular disease (stroke)	11.8	7.8	75		5.1	3.3	470	4	2.3	2.4

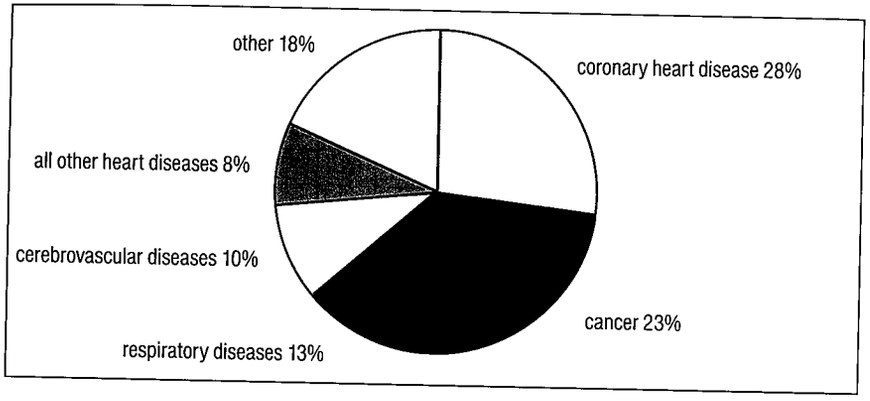
Ages 65 Years and Over

At ages 65 years and over, the Māori death rate fell by 19% between 1980-84 and 1987-91. The death rates fell for all major causes including coronary heart disease (22%), respiratory diseases (25%), cerebrovascular disease (23%), and all other forms of heart disease (27%). The gap between Māori and non-Māori death rates has narrowed since 1980-84 and the overall death rates in this age group are now similar.

Coronary heart disease and cancer were the leading causes of death in 1987-91. The coronary heart disease rate for Māori (142.4) was below the non-Māori rate (159.0).

FIGURE 20

Major Causes of Death, Māori Population, Ages 65 Years and over, 1987-91



The cancer rate for Māori reduced by 5% between 1980-84 and 1987-91, and is now similar to the non-Māori rate. Amongst Māori males there were decreases in the death rates for lung and stomach cancer, but an increase in the rate of prostate cancer (for which increasing age is a risk factor). During this period, there were decreases in the death rates from lung, breast and stomach cancer amongst Māori women, and an increase in the death rates from cancer of the cervix. At the same time, the death rates for non-Māori women increased for lung and breast cancer, but decreased for stomach and cervical cancer.

The rate of Māori deaths from colon cancer increased by 35% between 1980-84 and 1987-91, but still remains less than half the non-Māori rate. The Māori death rate from prostate cancer also remains lower than the non-Māori rate, despite an increase of 7% since 1980-84.

TABLE 22

Major Causes of Death, Ages 65 Years and over, 1980-84 and 1987-91

(Numbers and age-specific rates per 10,000 population)

	Māori				Non-Māori				Ratio Māori to non-Māori	Ratio Māori to non-Māori
Cause of death	Rate 80-84	Rate 87-91	Total No. 87-91	Rank 87-91	Rate 80-84	Rate 87-91	Total No. 87-91	Rank 87-91	80-84	87-91
Total: All causes	645.0	523.4	2,315		558.4	539.7	94,727		1.2	1.0
Coronary heart disease (heart attack)	182.5	142.4	630	1	172.8	159.0	27,906	1	1.1	0.9
Malignant neoplasms (cancer)	127.2	121.2	536	2	110.5	119.9	21,050	2	1.2	1.0
- Cancer of lung	46.4	41.2	182		23.6	23.5	4,129		2.0	1.7
- Cancer of stomach	15.2	10.6	47		7.5	6.1	1,079		2.0	1.7
- Cancer of colon	4.0	5.4	24		12.7	13.1	2,294		0.3	0.4
Respiratory diseases	92.3	69.0	305	3	68.3	67.8	11,899	3	1.4	1.0
- Chronic obstructive respiratory disease	46.1	34.6	153		28.2	28.4	4,984		1.6	1.2
Cerebrovascular disease (stroke)	66.2	51.3	227	4	80.0	66.5	11,678	4	0.8	0.8
All other forms of heart disease	60.7	44.5	197	5	33.5	32.1	5,634	5	1.8	1.4
- Hypertensive heart disease	13.2	8.4	37		5.1	3.5	615		2.6	2.4
- Rheumatic heart disease	5.2	4.3	19		2.4	2.1	367		2.2	2.0
Males: All causes	756.3	600.9	1,198		662.5	627.9	46,114		1.1	1.0
Coronary heart disease (heart attack)	215.8	175.6	350	1	221.2	198.9	14,604	1	1.0	0.9
Malignant neoplasms (cancer)	151.8	148.0	295	2	145.2	153.9	11,303	2	1.0	1.0
- Cancer of lung	59.9	52.7	105		43.2	39.5	2,901		1.4	1.3
- Cancer of stomach	20.6	15.5	31		10.4	9.1	671		2.0	1.7
- Cancer of prostate	19.3	20.6	41		20.3	24.2	1,780		1.0	0.8
Respiratory diseases	119.1	74.7	149	3	92.2	84.5	6,204	3	1.3	0.9
- Chronic obstructive respiratory disease	65.3	41.1	82		51.1	45.4	3,337		1.3	0.9
All other forms of heart disease	70.1	47.7	95	4	31.4	29.4	2,162	5	2.2	1.6
- Hypertensive heart disease	11.5	6.0	12		4.6	2.9	212		2.5	2.1
- Rheumatic heart disease	5.4	1.5	3		1.9	1.8	134		2.8	0.8
Cerebrovascular disease (stroke)	62.9	46.6	93	5	74.0	59.8	4,393	4	0.9	0.8

continued over

Table 22 continued

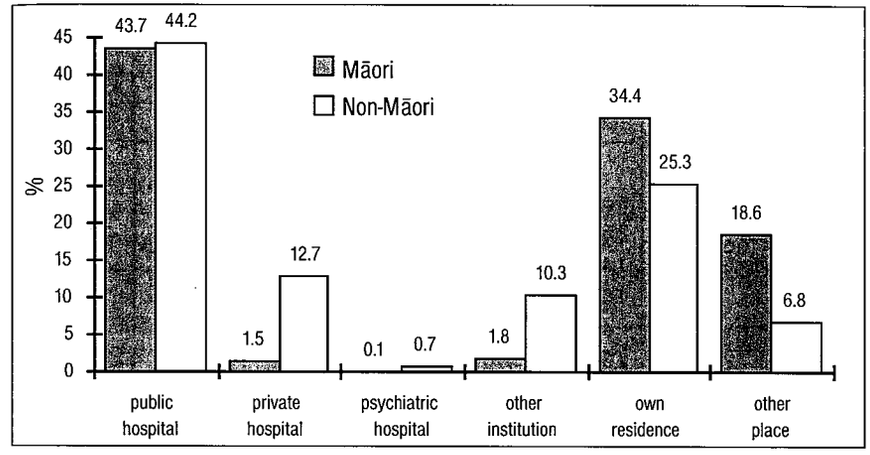
Cause of death	Māori Rate 80-84	Māori Rate 87-91	Māori Total No. 87-91	Māori Rank 87-91	Non-Māori Rate 80-84	Non-Māori Rate 87-91	Non-Māori Total No. 87-91	Non-Māori Rank 87-91	Ratio Māori to non-Māori 80-84	Ratio Māori to non-Māori 87-91
Females: All causes	544.7	459.8	1,117		482.9	476.3	48,613		1.1	1.0
Coronary heart disease (heart attack)	152.5	115.3	280	1	137.7	130.3	13,302	1	1.1	0.9
Malignant neoplasms (cancer)	105.1	99.2	241	2	85.4	95.5	9,747	2	1.2	1.0
– Cancer of lung	34.3	31.7	77		9.3	12.0	1,228		3.7	2.6
– Cancer of breast	12.5	10.7	26		13.2	14.6	1,494		0.9	0.7
– Cancer of stomach	10.3	6.6	16		5.4	4.0	408		1.9	1.6
– Cancer of cervix	5.4	7.4	18		1.9	1.6	168		2.8	4.5
Respiratory diseases	68.1	64.2	156	3	51.0	55.8	5,695	4	1.3	1.2
– Chronic obstructive respiratory disease	28.9	29.2	71		11.6	16.1	1,647		2.5	1.8
Cerebrovascular disease (stroke)	69.2	55.2	134	4	84.3	71.4	7,285	3	0.8	0.8
All other forms of heart disease	52.3	42.0	102	5	35.1	34.0	3,472	5	1.5	1.2
– Hypertensive heart disease	14.7	10.3	25		5.5	3.9	403		2.7	2.6
– Rheumatic heart disease	4.9	6.6	16		2.7	2.3	233		1.8	2.9

Place of Death

Figure 21 shows the place where deaths occurred in 1987-91. Forty-three percent of Māori and 44% of non-Māori deaths occurred in public hospitals. Very few Māori deaths occurred in private or psychiatric hospitals or other institutions. More Māori than non-Māori died in their own houses or other places.

FIGURE 21

Place of Death by Ethnicity, 1987-91



Age at Death

FIGURE 22

Age at Death by Ethnicity, 1987-91

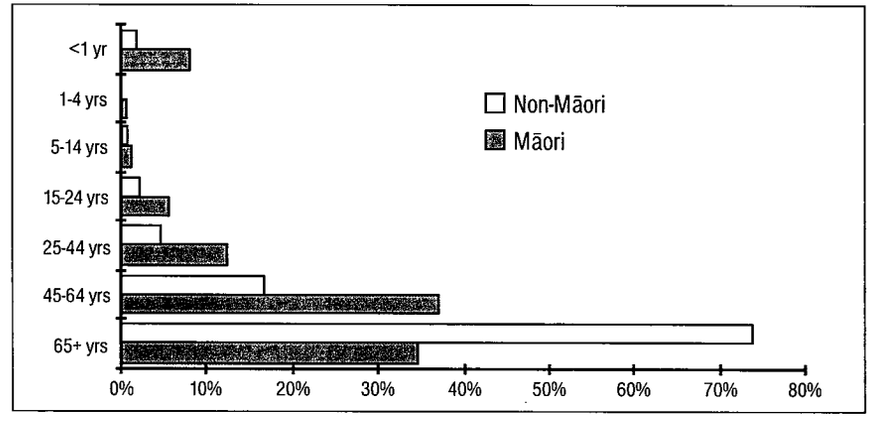


Figure 22 shows the percentage of deaths occurring at each age-group in the years 1987-91. As in 1980-84, only 35% of Māori deaths occurred at ages 65 years and over compared to 73% of non-Māori deaths. The percentage of Māori deaths occurring at all other age-groups was higher than for non-Māori.

Potential Years of Life Lost

TABLE 23

Potential Years of Life Lost, Māori Population, 1991

Cause of death	Males		Females		Total	
	PYLL	% of total	PYLL	% of total	PYLL	% of total
Unintentional injuries & violence						
- Motor vehicle crashes	2,590	13	1,415	10	4,005	11
- Other accidents	1,400	7	305	4	1,705	8
- Suicide	1,630	8	132.5	2	1,762.5	8
- Homicide	407.5	2	110	1	517.5	2
Cancer	2,340	12	3,400	43	5,740	27
Vascular diseases						
- Heart diseases	3,705	19	2,365	30	6,070	29
- Cerebrovascular disease	560	3	637.5	8	1,197.5	6
- Other vascular diseases	252.5	1	260	3	512.5	2
Respiratory diseases	830	4	980	13	1,810	9
Congenital anomalies	762.5	4	740	9	1,502.5	7
Perinatal conditions	797.5	4	775	10	1,572.5	7
Infectious diseases	647.5	3	220	3	867.5	4
SIDS	2,175	11	1,395	9	3,570	10
All other causes	1,410	7	2,110	27	3,520	17
Total: All causes	19,507.5	100	14,845	100	34,352.5	100

To give an indication of the impact on society that deaths at younger ages have, the number of potential years of life lost before age 75 years for Māori males and 80 years for Māori females is presented in Table 23. They have been calculated by working out the total number of potential years of life lost because death occurred before these ages.

In 1991, motor vehicle crashes and heart disease were responsible for the largest percentage of potential years of life lost for Māori males. For females, cancer was responsible for the greatest percentage, followed by motor vehicle crashes and heart disease.

Compared with 1984, the largest reduction in potential years of life lost for Māori males was in respiratory disease, and a smaller decrease in motor vehicle crashes. The largest increase for males was due to suicide,

followed by heart disease. For females the greatest decrease was in the potential years of life lost due to respiratory disease. There were also reductions in suicide, heart disease, stroke and accidents other than motor vehicle crashes. Among females, the biggest increases were in perinatal conditions, motor vehicle crashes, congenital anomalies and cancer.

TABLE 24

Selected Causes of Death, 1987-91

(Numbers and age-standardised rates per 10,000 population)

Cause of death	Male				Ratio Maori to non-Māori	Female				Ratio Māori to non-Māori
	Māori		Non-Māori			Maori		Non-Māori		
	Total No.	Rate	Total No.	Rate		Total No.	Rate	Total No	Rate	
Coronary heart disease	836	22.1	19,458	19.2	1.1	507	12.9	14,647	9.0	1.4
Chronic rheumatic heart disease	36	0.6	220	0.2	2.5	70	1.4	306	0.2	6.2
Hypertensive disease	53	1.3	439	0.4	3.2	59	1.4	637	0.4	3.7
Other forms of heart disease	212	5.2	2,223	2.3	2.3	119	3.0	2,882	1.6	1.8
Cerebrovascular disease	168	4.7	5,115	4.9	1.0	223	5.7	7,868	4.5	1.3
Cancer of lung	228	6.3	4,282	4.4	1.4	199	4.6	1,862	1.6	2.8
Pneumonia	73	2.1	2,373	2.4	0.9	63	1.7	3,369	1.8	1.0
Asthma	36	0.8	427	0.5	1.8	61	1.3	428	0.4	3.2
Chronic obstructive respiratory disease (including bronchitis and emphysema)	140	4.2	3,737	3.5	1.2	140	3.5	1,953	1.4	2.5
Cancer of cervix						72	1.5	436	0.4	3.4
Tuberculosis (includes late effects)	17	0.4	61	0.1	7.0	11	0.3	65	0.05	5.4
Viral hepatitis	8	0.1	31	0.04	3.9	7	0.2	17	0.02	8.7
Diabetes	145	3.7	835	0.8	4.4	142	3.2	849	0.6	5.2
Obesity	21	0.4	32	0.04	10.1	23	0.4	37	0.04	11.3
Diseases of the urinary system	52	1.4	835	0.8	1.7	63	1.5	974	0.6	2.6
Alcohol-related deaths (includes alcoholic cirrhosis)	14	0.3	111	0.1	2.2	5	0.1	29	0.03	2.9
Motor vehicle accidents	291	3.6	2,389	3.0	1.2	138	1.8	1,004	1.2	1.5
Suicide	119	1.4	1,740	2.1	0.7	18	0.2	464	0.5	0.4
Homicide	47	0.6	190	0.2	2.3	16	0.2	86	0.1	2.0

Discussion

Despite the limitations of mortality data as an indicator of health, much information can be gained from comparing this data over time. The age-standardised death rate for Māori has continued to decrease for almost all the major causes of death. Against this general trend we note with concern that there was no decrease amongst Māori males aged 5 to 24 years.

During the period covered by the previous volume of *Hauora: Māori Standards of Health (1980-1984)*, there was an epidemic of deaths from asthma. The death rate for New Zealanders in the 5-34 years age group was the highest in the world, and was particularly high for Māori. Since 1989, a series of studies has shown that the epidemic of deaths was due to the asthma drug, fenoterol, which was used much more commonly in New Zealand than in other countries[2,3,4]. These studies found that people with asthma who were prescribed fenoterol were about twice as likely to die from asthma than people who were prescribed other asthma drugs (instead of fenoterol). When the problem was identified and the drug was restricted in 1989, the asthma death rate fell sharply and is now low in both Māori and non-Māori in this age-group. However, rates of hospitalisation for asthma among Māori remain high and are discussed in the following chapter.

Death rates from coronary heart disease have reduced since the previous volume of *Hauora: Māori Standards of Health*, and Māori still have a higher death rate than non-Māori. Coronary heart disease has been overtaken by cancer as the leading cause of death among Māori women aged 25-64 years. However, coronary heart disease remains the single most important cause of death in Māori adults. Efforts to reduce coronary risk factors remain important, together with the early identification of and intervention in coronary disease. As Māori have higher death rates from coronary artery disease than non-Māori, one would expect higher hospital admission rates and higher rates of coronary artery surgery. However, hospital admission rates are similar to non-Māori, and the coronary artery surgery rates are much lower. Further investigation is needed to identify any barriers along the continuum of care which influence these discrepancies.

SIDS remains the most significant cause of death for Māori infants. A national Māori SIDS prevention programme was recently initiated, Māori community health workers provide education and support to whānau, and some Māori well-child programmes have been established. However, the effect of these programmes will not be measurable by statistics such as these for some years.

The national Māori SIDS prevention programme focuses on minimising the risk of SIDS. It has been argued that the prone sleeping position was a more important factor for the non-Māori population, and turning baby over to their back or side enabled the non-Māori SIDS rate to be reduced significantly within a short timeframe. However, for Māori, the most significant factor is likely to be tobacco smoking, which is harder to change and the reduction in deaths is likely to be more gradual[5]. Also, the fact that non-Māori rates reduced rapidly, while the Māori rates have been declining gradually, results in increased disparity between Māori and non-Māori. SIDS is still the most significant cause of death for Māori infants and the risk for Māori infants is substantially higher than non-Māori. Accordingly, the prevention of SIDS among Māori needs to remain a priority for whānau and health services alike.

We cannot help but note the increase in homicide, especially among the 15-24 years age-group. Homicide even appears in the statistics of Māori 1-4 year olds. There has been some research into a variety of factors, including availability of firearms, the role of alcohol and other drugs, the influence of violence portrayed in the media, societal attitudes about the expression of power relationships and unemployment[6]. Homicide is part of a spectrum of violence which affects many aspects of wellbeing and the whole spectrum needs to be addressed.

The previous volume of *Hauora: Māori Standards of Health* noted that the rates of suicide among Māori were increasing. This volume shows that Māori rates are now equivalent to the non-Māori. We also note that suicide has become a significant cause of death for Māori children and young adults. Previous reviews of Māori health have monitored this trend during the last decade and there is now a need to address this tragedy urgently with appropriate interventions. The picture of suicide needs to be viewed with the pattern of mental illness amongst Māori,

and with the known risk factors, including stressful life events, sexual abuse and substance abuse[7]. Suicide, especially youth suicide, has been recognised by some communities as a priority issue, with hui and interventions beginning to be developed[8]. These deserve further support given the disturbing increases in Māori suicide rates.

Motor vehicle crashes remain the leading cause of death for Māori and non-Māori aged 1-24 years, and also for men aged 25-44 years. Despite significant attempts at intervention, young men seem to be immune to many road safety messages. It is of concern that alcohol advertising policies have changed in recent years to allow for wider promotion of alcohol, especially through sponsorship and by using the powerful medium of television. Alcohol has become more widely available through a variety of different outlets in recent years. Overseas research suggests that availability is a key factor in increased alcohol consumption[9]. While a number of Māori interventions have responded to alcohol-related problems, the resources available to health promotion groups are far outweighed by those that the industry invests in advertising and promotion.

Cancer continues to be a leading cause of death and disability in Māori. Furthermore, for Māori women, cancer was responsible for the greatest percentage of potential years of life lost. Important sites were the lung, breast and cervix among women, and lung, liver and stomach among Māori men. Cancer and some of the risk factors are discussed more fully in chapter 6.

CHAPTER 4

Public and Private Hospital Discharges 1992

KEY POINTS

- **Since 1984, the Māori rate of hospital admissions has increased for almost all major disease groupings, although some of this relates to changes in the way in which hospital admissions are counted.**
- **The major reasons for admission to hospital for Māori included: asthma; unintentional injuries, including falls and motor vehicle crashes; ear disease; respiratory diseases; heart disease and diabetes.**
- **Pregnancy and childbirth were the main reasons for admission to hospital for Māori women.**
- **With a number of key conditions, Māori are receiving lower rates of surgical procedures than would be expected from death rates and hospital admission rates. Examples include coronary artery bypass surgery and surgery for rheumatic heart disease.**

Statistical Coverage

The statistics in this chapter refer to public hospital discharges during 1992. The unit of analysis is the number of discharges (episodes of care). Therefore, each readmission of a patient for the same condition is counted as a separate episode of care, and patients transferred to another public hospital are counted twice. Patients dying in hospital are also included in these figures. The figures include all discharges (ie, inpatients and day patients). While the figures for the previous volume of *Hauora: Māori Standards of Health* used all discharges, day patient discharges were often not recorded prior to 1992. Therefore the 1992 data is not totally comparable with the previous *Hauora: Māori Standards of Health* data. In this report, mean stay is calculated for all inpatients and day patients. A patient staying overnight and day patients both have a length of stay of one day.

Licensed rest homes and psychiatric hospitals are excluded from this

section, but psychiatric units of public general hospitals and some rest homes which provide non-hospital nursing care beds are included.

To calculate rates we have used denominators derived from the Census data on New Zealand Māori Sole Ethnic origin. It is likely that the numbers of patients classified as Māori are underestimated due to inconsistencies in the collection of ethnicity data by the health services. ICD – 9 codes and their groups used in this volume are in appendix 3.

Overview

In 1992, there were 558,511 discharges from public hospitals, 82,261 (14.7%) being from the Māori population. This compares to 429,745 discharges in 1984 when 58,184 (13.5%) were Māori.

The number of apparent readmissions has decreased since 1984, accounting for 16% of the Māori cases in 1992, compared to 20% in 1984. However, at the time of the data collection, there was no standard definition for a readmission, and the two percentages may not be comparable.

TABLE 25

Public Hospital Discharges, Infants aged under 1 year, 1970-92

(Age-specific rates per 10,000 population)

Years	Māori	Non-Māori	Ratio Māori to non-Māori
1970	3,984	1,721	2.3
1974	4,557	2,314	2.0
1980	6,050	2,751	2.2
1984	8,153	3,703	2.2
1988	9,447	3,623	2.6
1992	*18,318	*10,271	1.8

* Includes healthy liveborn infants

TABLE 26

Public Hospital Discharges, Ages 1–4 years, 1970-92

(Age-specific rates per 10,000 population)

Years	Māori	Non-Māori	Ratio Māori to non-Māori
1970	1,244	757	1.6
1974	1,179	818	1.4
1980	1,631	864	1.9
1984	1,892	993	1.9
1988	2,240	1,021	2.2
1992	2,356	1,229	1.9

Tables 25 to 31 show hospital discharge rates by age-group between the years 1970 and 1992. Hospitalisation appears to have increased at all age-groups for both Māori and non-Māori. Changes in the way data are collected (eg, full reporting of day patients) may account for some of the increases. Māori rates, however, continue to be from 1.4 to 2.3 times higher than non-Māori rates.

Since 1984, reported discharge rates have increased by 125% for Māori infants and by 177% for non-Māori infants. However, since 1992, healthy liveborn infants have been included in the statistics under the special admissions category, and accounted for 48% of the total Māori discharges and 57% of the non-Māori discharges in this age-group. If the numbers of healthy liveborn infants are removed from the data, the Māori rate increased by 17% and the non-Māori by 19% since 1984.

TABLE 27

Public Hospital Discharges, Ages 5–14 years, 1970-92

(Age-specific rates per 10,000 population)

Years	Māori	Non-Māori	Ratio Māori to non-Māori
1970	710	517	1.4
1974	666	526	1.3
1980	767	547	1.4
1984	822	551	1.5
1988	866	519	1.7
1992	959	609	1.6

TABLE 28

Public Hospital Discharges, Ages 15-24 years, 1970-92

(Age-specific rates per 10,000 population)

Years	Māori	Non-Māori	Ratio Māori to non-Māori
1970	1,192	809	1.5
1974	1,079	822	1.3
1980	1,275	829	1.5
1984	2,526	1,178	2.1
1988	2,712	1,122	2.4
1992	2,573	1,131	2.3

TABLE 29

Public Hospital Discharges, Ages 25-44 years, 1970-92

(Age-specific rates per 10,000 population)

Years	Māori	Non-Māori	Ratio Māori to non-Māori
1970	1,219	728	1.7
1974	1,185	793	1.5
1980	1,393	871	1.6
1984	2,053	1,226	1.7
1988	2,313	1,294	1.8
1992	2,255	1,324	1.7

TABLE 30

Public Hospital Discharges, Ages 45-64 years, 1970-92

(Age-specific rates per 10,000 population)

Years	Māori	Non-Māori	Ratio Māori to non-Māori
1970	1,650	957	1.7
1974	1,699	1,045	1.6
1980	1,865	1,129	1.7
1984	1,875	1,101	1.7
1988	2,036	1,117	1.8
1992	2,157	1,201	1.8

TABLE 31

Public Hospital Discharges, Ages 65 years and over, 1970-92

(Age-specific rates per 10,000 population)

Years	Māori	Non-Māori	Ratio Māori to non-Māori
1970	3,196	1,848	1.7
1974	3,097	2,041	1.5
1980	3,297	2,406	1.4
1984	3,828	2,579	1.5
1988	4,025	2,845	1.4
1992	4,602	3,211	1.4

Table 32 shows age-standardised discharge rates for the Māori and non-Māori populations from 1970 to 1992 subdivided by the ICD chapter groups. Māori age-standardised rates are higher than non-Māori rates in all groupings, the overall rate being 80% higher.

Apart from a reduction in the discharge rates for infectious and parasitic diseases amongst Māori, age-standardised rates for all other groupings have increased since 1970 and 1984. The 1992 discharge rate for mental disorders increased by 110% since 1970. In 1970 the Māori rate was slightly lower than the non-Māori rate, but in 1992 it was almost twice as high. The major contributors were schizophrenia and affective psychoses.

The greatest difference between Māori and non-Māori hospital discharge rates was in the category 'endocrine, nutritional and metabolic diseases and immunity disorders', where the major diseases were diabetes and gout. Māori also had comparatively high discharge rates for respiratory disease, acute rheumatic fever (7.2 times higher than non-Māori), chronic rheumatic heart disease (6.4 times higher) and tuberculosis (6.6 times higher).

TABLE 32

Public Hospital Discharges, 1970, 1984 and 1992

(Age-standardised rates per 10,000 population)

ICD Chapter Headings	Māori			Non-Māori			Ratio of Māori to non-Māori, 1992
	1970	1984	1992	1970	1984	1992	
Infectious and parasitic diseases	64.9	56.8	50.2	22.2	28.2	29.3	1.7
Neoplasms	72.5	102.2	121.7	60.6	77.8	84.8	1.4
Endocrine, nutritional and metabolic diseases and immunity disorders	46.1	45.7	54.9	14.7	14.9	15.8	3.5
Diseases of blood and blood-forming organs	7.0	11.2	15.3	5.6	6.9	9.5	1.6
Mental disorders	23.1	36.7	48.4	23.5	25.3	25.8	1.9
Diseases of nervous system and sense organs	72.4	98.6	137.0	42.0	52.0	72.3	1.9
Diseases of circulatory system	167.8	172.5	180.6	93.3	101.6	105.0	1.7
Diseases of respiratory system	224.4	261.3	299.0	97.9	105.1	115.0	2.6
Diseases of digestive system	103.4	126.6	155.2	81.8	84.5	105.2	1.5
Diseases of genitourinary system	101.7	127.6	130.2	66.2	76.8	79.4	1.6
Pregnancy, childbirth and the puerperium*	134.0	712.8	831.6	77.6	375.0	412.8	2.0
Diseases of the skin and sub-cutaneous tissue	44.5	32.8	46.3	18.2	16.7	20.8	2.2
Diseases of the musculo-skeletal system and connective tissue	40.8	54.4	65.4	38.8	49.6	54.5	1.2
Congenital anomalies	18.9	29.7	34.6	22.0	25.0	24.2	1.4
Perinatal conditions	13.6	64.0	76.6	10.4	35.1	47.7	1.6
Symptoms and signs	69.6	97.3	123.0	49.6	68.5	79.5	1.5
Injury and poisoning	249.0	268.0	298.2	152.3	158.4	181.5	1.6
Special admissions	20.5	179.2	385.0	13.0	85.5	223.9	1.7
Total: All causes	1,406.9	2,121.0	2,618.0	850.1	1,197.6	1,465.1	1.8

* Female specific rate

TABLE 33

Public Hospital Discharges 1992, Leading Causes of Admission

ICD Codes	Cause	Māori			Non-Māori		
		Rank	Number of Cases	% of Total	Rank	Number of Cases	% of Total
640-676	Pregnancy, childbirth and the puerperium	1	15,092	18.3	2	59,735	12.5
V01-V82	Special admissions	2	12,584	15.3	3	57,394	12.0
800-994	Injuries and poisoning including late effects	3	9,939	12.1	1	60,171	12.6
780-799	Symptoms and signs	4	3,547	4.3	5	26,431	5.5
490-496	Chronic obstructive pulmonary disease and allied conditions (including asthma)	5	3,489	4.2	9	12,074	2.5
380-389	Diseases of ear and mastoid process	6	2,610	3.2		7,325	1.5
760-779	Perinatal Conditions	7	2,500	3.0		9,804	2.1
460-466	Acute respiratory infections	8	2,407	2.9		6,022	1.3
140-208, 230-234	Malignant neoplasms (cancer) and carcinoma-in-situ	9	2,263	2.8	4	28,113	5.9
614-629	Disorders of female genital tract	10	1,937	2.4	8	13,402	2.8
710-729	Joint and back disorders, and rheumatism (except rheumatic fever)		1,619	2.0	6	17,666	3.7
401-405, 415-429	Hypertensive disease and other forms of heart disease (except ischaemic)		1,529	2.0	10	12,070	2.5
410-414	Ischaemic heart disease (heart attack)		794	1.0	7	17,410	3.7

Table 33 lists the 10 leading causes for admissions to public hospitals for Māori and non-Māori in 1992. 'Pregnancy, childbirth and the puerperium' was the leading cause for Māori. Special admissions accounted for 15.3% of discharges amongst Māori in 1992, compared with only 9.2%

in 1984, contributable in the main inclusion of healthy liveborn infants. 'Diseases of the ear and mastoid process' did not rank in the top 10 causes in 1984, but now ranks sixth for Māori. Some of this is likely to be due to the inclusion of day patients which included the numerous operations for the insertion of grommets.

TABLE 34

Public Hospital Discharges 1992, Leading Causes of Bed Occupancy

ICD Codes	Cause	Māori			Non-Māori		
		Rank	Total Stay in Days	% of Total	Rank	Total Stay in Days	% of Total
640-676	Pregnancy, childbirth and the puerperium	1	51,739	14.0	5	240,905	7.4
V01-V82	Special admissions	2	42,972	11.7	4	253,608	7.8
800-994	Injuries and poisoning including late effects	3	38,939	10.6	1	322,295	9.9
760-779	Perinatal Conditions	4	21,140	5.7			
290-299	Psychoses	5	17,139	4.7	3	281,156	8.7
140-208, 230-234	Malignant neoplasms (cancer) and carcinoma-in-situ	6	15,569	4.2	6	213,881	6.6
401-405, 415-429	Hypertensive disease and other forms of heart disease (except ischaemic)	7	14,545	3.9			
490-496	Chronic obstructive pulmonary disease and allied conditions (including asthma)	8	13,522	3.7			
430-438	Cerebrovascular disease	9	12,067	3.3	2	301,545	9.3
320-359	Diseases of the nervous system	10	10,394	2.8	7	203,221	6.3
780-799	Symptoms and signs		9,346	2.5	9	122,026	3.8
710-729	Arthropathies and related disorders, dorsopathies (joint and back disorders) and rheumatism (except rheumatic fever)				8	129,598	4.0
410-414	Ischaemic heart disease (heart attack)				10	115,320	3.6

Table 34 lists the 10 leading causes of bed occupancy in public hospitals during 1992 for the Māori and non-Māori populations. 'Pregnancy, childbirth and the puerperium' accounted for 14% of the total stay for Māori patients compared with 7.4% for non-Māori patients, while cerebrovascular disease accounted for 9.3% of non-Māori total stay compared with 3.3% of Māori total stay.

Figure 23 shows hospital discharges in 1992 by the percentage in each age-group. The greatest percentage of hospital discharges for the Māori population was in the 25-44 year age-group (27%), a change from 1984 when it was in the 15-24 year age-group. The older age-structure of the non-Māori population is reflected in the 26% of discharges at ages 65 years and over, compared to 6% of Māori discharges in that age-group.

FIGURE 23

Percentage of Public Hospital Discharges by age and ethnicity, 1992

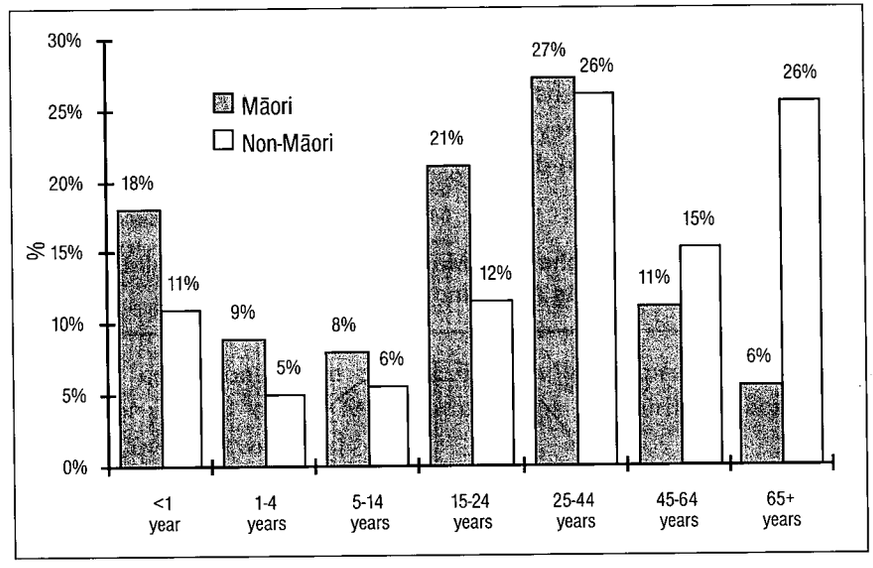
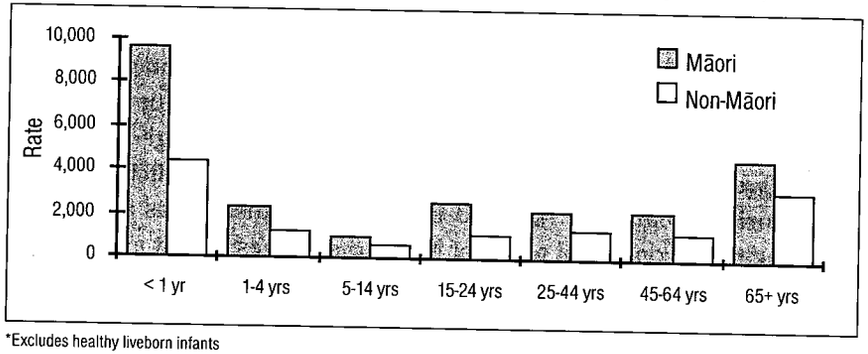


Figure 24 shows the 1992 hospital discharge rates for each age-group by ethnicity. Māori rates are from 1.4 to 2.3 times higher than the non-Māori rates. For both groups, rates are highest at ages under 1 year and

lowest at ages 5-14 years. Healthy newborn babies have been excluded from the rates for infants shown in this graph.

FIGURE 24

Age-specific Hospital Discharge Rates per 10,000 population, 1992*



*Excludes healthy liveborn infants

Major Causes of Admission by Age Group, 1992

Infants Under 1 Year

In 1992, healthy newborn babies were the leading category of infant discharges from hospital. They accounted for 48% of the Māori discharges and 57% of the non-Māori discharges.

FIGURE 25

Public Hospital Discharges, Major Causes, Māori Population, Infants aged under 1 year, 1992

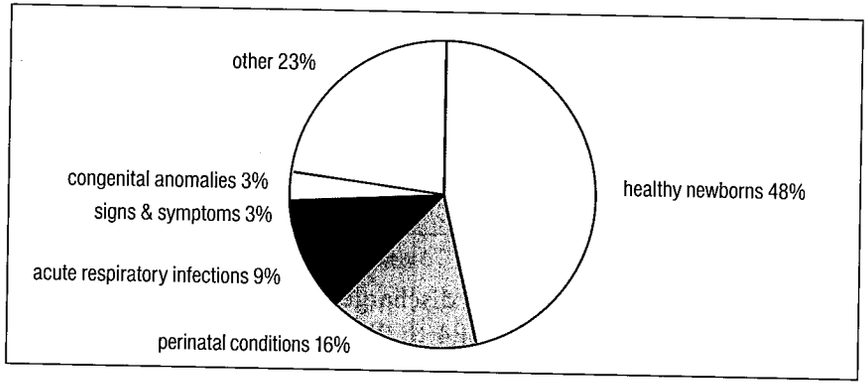


TABLE 35

Public Hospital Discharges, Infants aged under 1 year, 1992

(Numbers and age-specific rates per 10,000 population)

Cause of Admission	Māori				Non-Māori				
	Rank	No	Rate	Mean Days Stay	Rank	No	Rate	Mean Days Stay	Ratio Māori to non-Māori
Total: All causes		14,959	18,363	4.2		52,634	1,0281	4.6	1.8
Healthy newborns	1	7,123	8,744	3.0	1	29,825	5,826	3.6	1.5
Perinatal conditions	2	2,485	3,051	8.6	2	9,757	1,906	8.8	1.6
– Low birthweight conditions		899	1,104	15.4		2,794	546	18.4	2.0
Acute respiratory infections	3	1,405	1,725	3.7	3	2,290	447	2.5	3.9
Congenital anomalies	4	496	609	6.0	4	1,842	356	6.4	1.7
Signs and symptoms	5	426	523	3.2	5	1,483	290	3.0	1.8
Males: All causes		8,304	19,515	4.2		27,932	10,558	4.5	1.8
Healthy newborns	1	3,661	8,604	3.0	1	14,988	5,665	3.6	1.5
Perinatal conditions	2	1,411	3,314	8.3	2	5,398	2,040	8.6	1.6
Acute respiratory infections	3	894	2,101	3.8	3	1,378	521	2.6	4.0
Congenital anomalies	4	306	719	6.0	4	1,084	410	5.7	1.8
Hernia of abdominal cavity	5	275	646	2.3		523	198	2.5	3.3
Signs and symptoms		234	550	3.2	5	782	296	3.1	1.9
Females: All causes		6,655	17,104	4.2		24,702	9,985	4.6	1.7
Healthy newborns	1	3,462	8,898	3.0	1	14,837	5,997	3.5	1.5
Perinatal conditions	2	1,074	2,760	9.0	2	4,359	1,762	9.2	1.6
Acute respiratory infections	3	511	1,313	3.5	3	912	369	2.5	3.6
Congenital anomalies	4	190	488	5.9	4	758	306	7.3	1.6
Signs and symptoms	5	192	493	3.2	5	701	283	3.0	1.7

Perinatal conditions were the second leading cause of admission. Thirty-six percent of the Māori admissions for perinatal conditions were for low birthweight.

Rates of admission for infectious and parasitic diseases have decreased since 1984 when they were the fourth leading cause, and are now no longer in the five leading causes.

Readmissions accounted for 10% of the total discharges in this age group. Admissions for congenital anomalies had the highest readmission rate, accounting for 38% of discharges in this category. Fifteen per-

cent of the admissions for low birthweight were also readmissions.

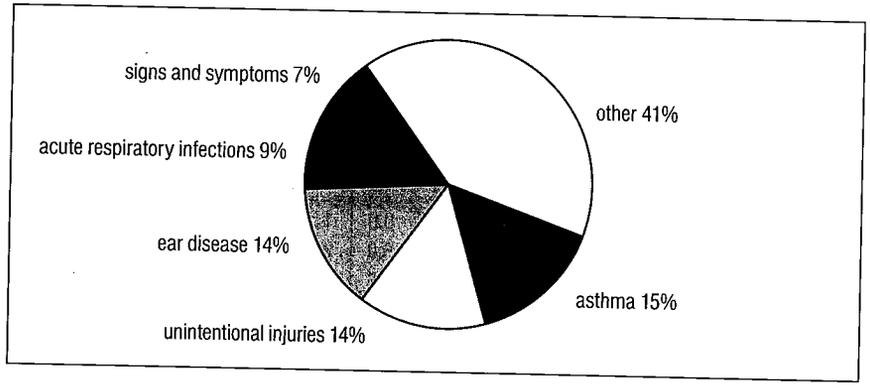
Males had higher hospital discharge rates than females for all causes other than special admissions.

Ages 1-4 Years

Asthma and unintentional injuries were the leading causes of admission for Māori 1-4 year olds in 1992. Readmissions accounted for 29% of the asthma cases. Males had an admission rate for asthma 60% higher than females. Māori children with asthma stayed in hospital slightly longer, on average, than non-Māori children.

FIGURE 26

Public Hospital Discharges, Major Causes, Māori Population, Ages 1-4 years, 1992



The major unintentional injuries leading to hospitalisation were falls (29%) and poisoning (13%). Motor vehicle crashes accounted for 10% of Māori and 5% of non-Māori admissions for unintentional injuries.

Glue ear was the main contributor to the rates for diseases of the ear and mastoid process.

Males had nearly a third higher discharge rates than females in the 1-4 years age group.

TABLE 36

Public Hospital Discharges, Major Causes, Ages 1-4 years, 1992

(Numbers and age-specific rates per 10,000 population)

	Māori					Non-Māori			
Cause of Admission	Rank	No	Rate	Mean Days Stay	Rank	No	Rate	Mean Days Stay	Ratio Māori to non-Māori
Total: All causes		7,279	2,347	2.4		23,880	1,225	2.3	1.9
Asthma	1	1,096	353	2.1	3	2,243	115	1.8	3.1
Unintentional injuries	2	1,055	340	3.1	1	3,451	177	3.5	1.9
- Falls		308	99	1.9		1,151	59	2.0	1.7
- Poisoning		140	45	1.4		764	39	1.3	1.2
- Motor vehicle crashes		110	35	4.2		173	9	4.2	3.9
Diseases of the ear and mastoid process	3	1,018	328	1.3	2	2,965	152	1.3	2.2
Acute respiratory infections	4	676	218	2.1	4	2,139	110	1.7	2.0
Signs and symptoms	5	479	154	2.0	5	1,616	83	1.7	1.9
Pneumonia		406	131	2.8		1,007	52	2.5	2.5
Males: All causes		4,221	2,642	2.4		14,003	1,410	2.4	1.9
Asthma	1	678	424	2.1	3	1,476	149	1.8	2.8
Unintentional injuries	2	591	370	2.9	1	1,951	196	4.4	1.9
- Falls		178	111	2.0		688	69	2.0	1.6
- Poisoning		82	51	1.1		428	43	1.3	1.2
- Motor vehicle crashes		68	43	4.2		99	10	4.2	4.3
Diseases of the ear and mastoid process	3	556	348	1.2	2	1,719	173	1.2	2.0
Acute respiratory infections	4	432	270	2.0	4	1,363	137	1.6	2.0
Signs and symptoms	5	271	170	1.9	5	877	88	1.8	1.9
Pneumonia		227	142	2.8		553	56	2.3	2.5
Females: All causes		3,058	2,033	2.4		9,877	1,033	2.2	2.0
Unintentional injuries	1	464	309	3.3	1	1,500	157	2.3	2.0
- Falls		130	86	1.7		463	48	2.0	1.8
- Poisoning		58	39	1.9		336	35	1.3	1.1
- Motor vehicle crashes		42	28	4.2		74	8	4.0	3.5
Diseases of the ear and mastoid process	2	462	307	1.3	2	1,246	130	1.5	2.4
Asthma	3	418	278	2.1	4	767	80	1.8	3.5
Acute respiratory infections	4	244	162	2.1	3	776	81	1.7	2.0
Signs and symptoms	5	208	138	2.1	5	739	77	1.7	1.8
Pneumonia		179	119	2.7		454	47	2.7	2.5

Ages 5-14 Years

Unintentional injuries were the leading cause of admission in 1992 for 5-14 year olds, accounting for more than a fifth of all discharges. Falls were the major contributor (43%) to the Māori rates with motor vehicle crashes contributing a further 11%. The rate of admissions for unintentional injuries was 60% higher for males than females.

The second leading cause for Māori in this age-group was diseases of the ear and mastoid process, followed by asthma.

Males had higher rates than females for almost all leading causes.

Māori children were admitted to hospital at higher rates than non-Māori children for all leading causes except for chronic disease of the tonsils and adenoids, which was 14% lower.

Although not a leading cause of admission, the rates of admission for acute rheumatic fever and chronic rheumatic heart disease were high for Māori children. The rate for Māori males (9.0 per 10,000) was nine times the non-Māori rate (1.0) and the rate for Māori females (4.8) was 5.3 times the non-Māori rate (0.9).

FIGURE 27

Public Hospital Discharges, Major Causes, Māori Population, Ages 5-14 years, 1992

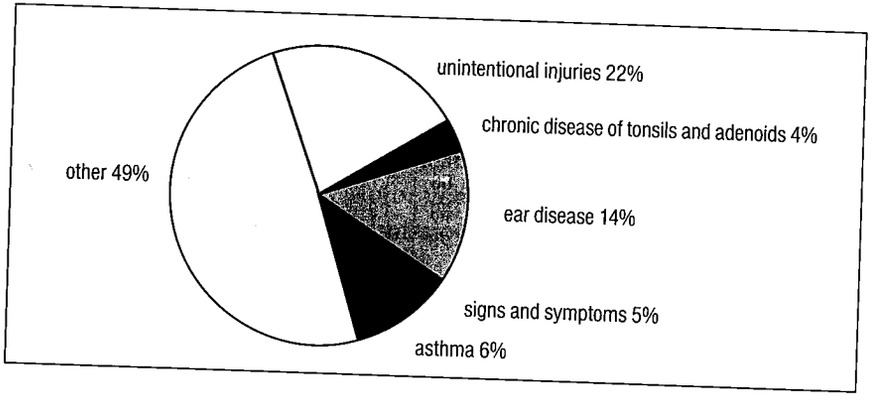


TABLE 37

Public Hospital Discharges, Major Causes, Ages 5-14 years, 1992

(Numbers and age-specific rates per 10,000 population)

	Māori					Non-Māori			
Cause of Admission	Rank	No	Rate	Mean Days Stay	Rank	No	Rate	Mean Days Stay	Ratio Māori to non-Māori
Total: All causes		6,529	958	3.3		26,790	608	3.2	1.6
Unintentional injuries	1	1,497	220	3.6	1	6,089	138	3.7	1.6
– Falls		650	95	2.7		2,803	64	3.8	1.5
– Motor vehicle crashes		160	23	6.8		580	13	6.0	1.8
Diseases of ear and mastoid process	2	991	145	1.2	2	2,366	54	1.3	2.7
Asthma	3	423	62	2.8	5	1,411	32	2.4	1.9
Signs and symptoms	4	363	53	2.0	3	1,962	45	2.0	1.2
Chronic disease of tonsils and adenoids	5	253	37	1.4	4	1,884	43	1.4	0.9
Males: All causes		3,707	1,071	3.4		15,250	676	3.1	1.6
Unintentional injuries	1	938	271	3.9	1	3,822	169	3.4	1.6
– Falls		397	115	2.8		1741	77	3.0	1.5
– Motor vehicle crashes		92	27	8.2		392	17	6.4	1.6
Diseases of ear and mastoid process	2	591	171	1.3	2	1,346	60	1.4	2.9
Asthma	3	239	69	2.6	5	812	36	2.2	1.9
Signs and symptoms	4	175	51	2.0	3	1,023	45	2.0	1.1
Chronic disease of tonsils and adenoids	5	126	36	1.4	4	854	38	1.5	0.9
Females: All causes		2,822	842	3.2		11,540	537	3.2	1.6
Unintentional injuries	1	559	167	3.0	1	2,267	105	4.0	1.6
– Falls		253	75	2.5		1,062	49	5.3	1.5
– Motor vehicle crashes		68	20	4.8		188	9	5.2	2.2
Disease of ear and mastoid process	2	400	119	1.2	3	1,020	47	1.2	2.5
Signs and symptoms	3	188	56	1.9	4	939	44	2.0	1.3
Asthma	4	184	55	3.1	5	599	28	2.6	2.0
Chronic disease of tonsils and adenoids	5	127	38	1.4	2	1,030	48	1.4	0.8

Ages 15-24 Years

Females accounted for 79% of the Māori discharges at ages 15-24 years. Over half the female admissions were for pregnancy, childbirth and the puerperium. Special admissions were the second leading cause for Māori females. Postpartum care and examination accounted for 43% of this category and consultations without complaint (boarders) accounted for a further 42%.

FIGURE 28

Public Hospital Discharges, Major Causes, Māori Population, Ages 15-24 years, 1992

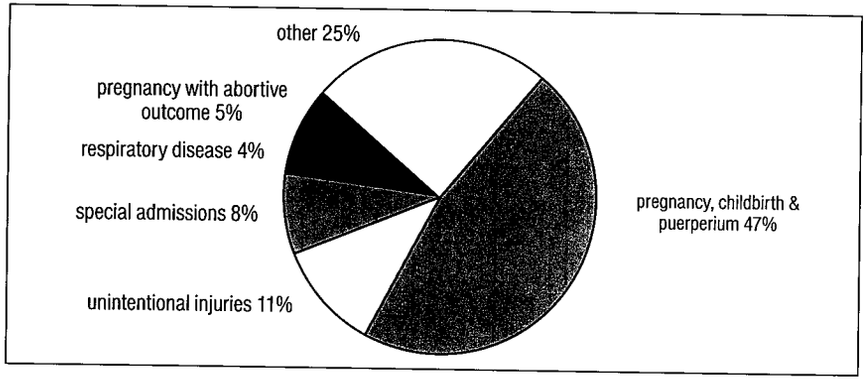


TABLE 38

Public Hospital Discharges, Major Causes, Ages 15-24 years, 1992
(Numbers and age-specific rates per 10,000 population)

Cause of Admission	Māori				Non-Māori				Ratio Māori to non-Māori
	Rank	No	Rate	Mean Days Stay	Rank	No	Rate	Mean Days Stay	
Total: All causes		17,278	2,575	4.0		54,920	1,131	4.2	2.3
Pregnancy, childbirth and the puerperium	1	8,068	1,203	3.5	1	16,968	350	3.9	3.4
Unintentional injuries	2	1,914	285	4.9	2	8,463	174	4.9	1.6
– Motor vehicle crashes		640	95	7.3		2,719	56	7.1	1.7
– Falls		338	50	3.0		1,530	32	4.8	1.6
Special admissions	3	1,440	215	4.2	3	3,134	65	3.8	3.3
Pregnancy with abortive outcome	4	940	140	1.4	5	2,848	59	1.4	2.4
Respiratory diseases	5	637	95	2.9	4	2,938	61	2.7	1.6
– Asthma		234	35	2.5		833	17	3.0	2.1
Signs and symptoms		493	73	2.1		2,784	57	2.2	1.3
Males: All causes		3,561	1,054	5.9		16,711	678	5.2	1.6
Unintentional injuries	1	1,423	421	5.1	1	6,408	260	5.0	1.6
– Motor vehicle crashes		441	131	7.8		1,969	80	7.2	1.6
– Falls		264	78	3.2		1,218	49	5.2	1.6
Respiratory diseases	2	270	80	3.5	2	1,219	49	2.6	1.6
– Asthma		87	26	2.8		301	12	2.6	2.2
Mental disorders	3	244	72	13.9		707	29	15.0	2.5
Homicide and assault	4	222	66	2.6	4	756	31	1.9	2.1
Diseases of musculo-skeletal system	5	150	44	3.7	5	730	30	3.6	1.5
Signs and symptoms		133	39	2.1	3	865	35	2.2	1.1
Appendicitis		119	35	3.4		641	26	3.2	1.3

continued over

Table 38 continued

Cause of Admission	Māori					Non-Māori			Ratio Māori to non-Māori
	Rank	No	Rate	Mean Days Stay	Rank	No	Rate	Mean Days Stay	
Females: All causes		13,717	4,119	3.5		38,209	1,560	3.7	2.6
Pregnancy, childbirth and the puerperium	1	8,068	2,423	3.5	1	16,968	710	3.9	3.4
Special admissions	2	1,375	413	4.3	3	2,821	118	3.7	3.5
Pregnancy with abortive outcome	3	940	282	1.4	2	2,848	119	1.4	2.4
Unintentional injuries	4	491	147	4.5	4	2,055	86	4.7	1.7
- Motor vehicle crashes		199	60	6.0		750	31	6.6	1.9
- Falls		74	22	2.3		312	13	3.4	1.7
Respiratory diseases	5	367	110	2.4		1,719	72	2.7	1.5
- Asthma		147	44	2.4		532	22	3.2	2.0
Signs and symptoms		360	108	2.0	5	1,919	80	2.2	1.4
Mental disorders		201	60	14.0		633	27	22.5	2.2

The 1992 Māori discharge rates for asthma in this age group reduced by 40% from the 1984 rates. However, the Māori rates were still more than twice those for non-Māori. Females had a higher rate of admission for asthma in this age-group, unlike the younger ages where males had a higher rate of admission.

Unintentional injuries were the leading cause of admission for males, contributing 40% of the discharge rate for Māori males. Motor vehicle crashes contributed almost a third, while falls accounted for a further 19%. Males had three times the female rate of admission to hospital for unintentional injuries.

Mental disorders and homicide/assault were not among the five leading causes of admission in 1984, but featured third and fourth for Māori males in 1992. These causes were also reflected in the increased mortality rates for suicide and homicide during 1987-91.

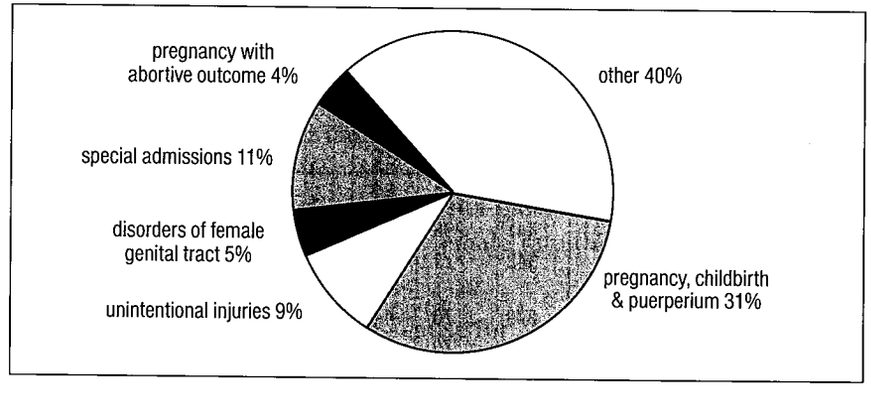
The rate for acute rheumatic fever and chronic rheumatic heart disease for Māori females (4.8) was more than five times the rate for non-Māori females (0.9). The rate for Māori males (2.0) was four times the non-Māori rate (0.5).

Ages 25-44 Years

Females accounted for 76% of the Māori discharges at ages 25-44 years in 1992. Pregnancy, childbirth and the puerperium was the leading cause for Māori females, with special admissions ranking second. A third of the special admissions were boarders, a third were for contraceptive management, and a further 26% for postpartum care and examination.

FIGURE 29

Public Hospital Discharges, Major Causes, Māori Population, Ages 25-44 years, 1992



Unintentional injuries were the leading cause of admissions for males, with the rate more than twice that for females. In 1992, 24% of the Māori cases were from motor vehicle crashes, compared with 32% in 1984. Falls were the second leading cause, contributing 18%.

Respiratory diseases dropped from being the second leading cause of admissions for Māori males in 1984, to the fifth leading cause in 1992. There has been an overall reduction in the hospital discharge rates for respiratory disease during this period. However, Māori rates for asthma are still more than three times the non-Māori rate for this age-group. Female rates for asthma are more than twice the rate for males.

TABLE 39

Public Hospital Discharges, Major Causes, Ages 25-44 years, 1992

(Numbers and age-specific rates per 10,000 population)

Cause of Admission	Māori				Non-Māori				Ratio Māori to non-Māori
	Rank	No	Rate	Mean Days Stay	Rank	No	Rate	Mean Days Stay	
Total: All causes		22,438	2,253	4.1		123,909	1,324	4.3	1.7
Pregnancy, childbirth and the puerperium	1	6,995	702	3.7	1	42,756	457	4.2	1.5
Special admissions	2	2,468	248	2.7	2	13,043	139	3.1	1.8
Unintentional Injuries	3	2,087	210	5.6	3	9,808	105	5.4	2.0
- Motor vehicle crashes		512	51	7.3		2,018	22	8.2	2.3
Disorders of female genital tract	4	1,076	108	2.5	4	6,693	71	2.4	1.5
Pregnancy with abortive outcome	5	942	95	1.7	5	5,641	60	1.6	1.6
Respiratory diseases		886	89	3.7		3,459	37	3.2	2.4
- Asthma		338	34	3.2		907	10	3.5	3.4
Males: All causes		5,430	1,124	5.3		30,198	655	5.0	1.7
Unintentional injuries	1	1,441	298	5.7	1	7,197	156	5.4	1.9
- Motor vehicle crashes		342	71	6.4		1,476	32	8.1	2.2
Diseases of musculo-skeletal system	2	379	78	4.4	3	2,244	49	3.7	1.6
Mental disorders	3	337	70	11.9	4	1,559	34	12.0	2.1
Signs and symptoms	4	334	69	2.7	2	2,337	51	2.2	1.4
Respiratory diseases	5	330	68	3.8	5	1,539	33	3.0	2.1
- Asthma		103	21	4.0		225	5	3.0	4.2
Females: All causes		17,008	3,317	3.7		93,711	1,973	4.1	1.7
Pregnancy, childbirth and the puerperium	1	6,995	1,364	3.7	1	42,756	900	4.2	1.5
Special admissions	2	2,222	433	2.7	2	11,156	235	3.1	1.8
Disorders of female genital tract	3	1,076	210	2.5	3	6,693	141	2.4	1.5
Pregnancy with abortive outcome	4	942	184	1.7	4	5,641	119	1.6	1.5
Unintentional injuries	5	646	126	5.5	5	2,611	55	5.1	2.3
- Motor vehicle crashes		170	33	9.2		542	11	8.4	3.0
Respiratory disease		556	108	3.6		1,920	40	3.4	2.7
- Asthma		235[1]	46	2.9		682	14	3.7	3.3

Mental disorders were the third leading cause for Māori males in 1992 (compared with fifth in 1984). However, the rate for Māori females (101 per 10,000) was 40% higher than the rate for Māori males (70).

The rate of discharges for chronic rheumatic heart disease for Māori females (14.2) was 14 times the rate for non-Māori (1.0). The rate for Māori males (7.9) was 11 times the non-Māori rate (0.7).

Ages 45-64 Years

In this age-group respiratory diseases were the leading cause of admission for Māori females in 1992 and the second leading cause for Māori males. Chronic obstructive respiratory disease, including bronchitis and emphysema, accounted for 24% of the cases and asthma contributed a further 23%.

Hypertensive disease and other forms of heart disease (except coronary) were the leading cause of admission for Māori males, with the rate 3.7 times the non-Māori rate. In contrast, coronary heart disease was the leading cause for non-Māori males, with the Māori rate 20% lower. Coronary heart disease did not feature in the five major causes for Māori females, but the Māori female rate (83) was 60% higher than the non-Māori female rate (53).

Cancer was the second leading cause for Māori females and the first for non-Māori females. The leading sites for Māori women in 1992 were the lung (56 per 10,000), breast (47), leukaemia (25) and cervix (19). For non-Māori women, the leading sites were the breast (25), colon (11), skin (12), and lung (10).

Chronic rheumatic heart disease was not a major cause, but the rate for Māori women (24.4) was nearly seven times the non-Māori rate (3.6). Māori males (7.5) had a rate 4.7 times the non-Māori rate (1.6).

Māori also had admission rates for diabetes nearly eight times higher than non-Māori in this age-group.

FIGURE 30

Public Hospital Discharges, Major Causes, Māori Population, Ages 45-64 years, 1992

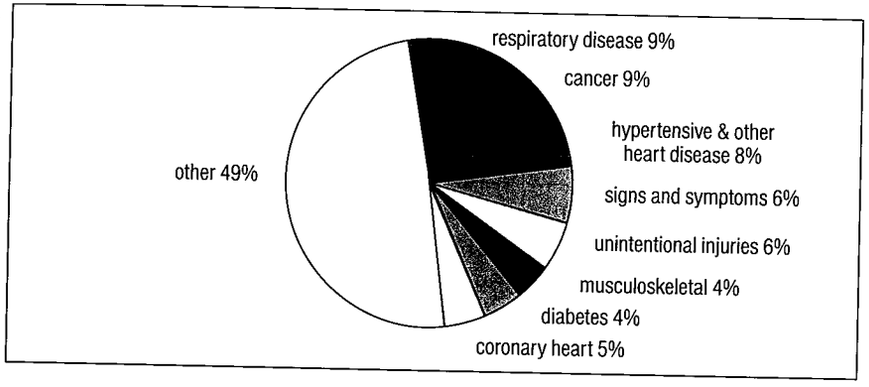


TABLE 40

Public Hospital Discharges, Major Causes, Ages 45-64 years, 1992

(Numbers and age-specific rates per 10,000 population)

Cause of Admission	Māori					Non-Māori			Ratio Māori to non-Māori
	Rank	No	Rate	Mean Days Stay	Rank	No	Rate	Mean Days Stay	
Total: All causes		9,182	2,156	7.1		72,501	1,201	6.7	1.8
Respiratory diseases	1	941	221	6.6		3,581	59	5.7	3.7
– Chronic obstructive respiratory diseases		226	53	7.4		946	16	8.0	3.3
– Asthma		221	52	5.2		662	11	4.9	4.7
Malignant neoplasms (cancer)	2	860	202	7.9	1	8,300	137	7.1	1.5
– Cancer of lung		256	60	6.6		845	14	6.6	4.3
Hypertensive disease & other forms of heart disease (not coronary)	3	769	181	7.4		2,795	46	5.4	3.9
Signs and symptoms	4	645	151	3.4	3	5,819	96	3.1	1.6
Unintentional injuries	5	558	131	7.6	5	5,038	83	7.8	1.6
– Motor vehicle crashes		130	31	10.4		768	13	10.1	2.4
– Falls		159	37	7.3		1,677	28	9.7	1.3
Coronary heart disease		461	108	5.0	2	6,479	107	5.3	1.0
Diabetes		450	106	8.8		816	14	9.9	7.6
Diseases of musculo-skeletal system		441	104	7.8	4	5,396	89	6.1	1.2

Table 40 continued

Cause of Admission	Māori					Non-Māori			Ratio Māori to non-Māori
	Rank	No	Rate	Mean Days Stay	Rank	No	Rate	Mean Days Stay	
Males: All causes		4,360	2,046	7.3		37,347	1,236	6.7	1.7
Hypertensive disease & other forms of heart disease (not coronary)	1	458	215	7.6		1,760	58	5.3	3.7
Respiratory diseases	2	411	193	7.3		1,773	59	5.7	3.3
– Chronic obstructive respiratory diseases		97	46	9.6		474	16	7.9	2.9
– Asthma		79	37	5.2		213	7	4.7	5.3
Malignant neoplasms (cancer)	3	355	167	7.7	2	3,979	132	7.2	1.3
– Cancer of lung		137	64	6.1		543	18	6.4	3.6
Unintentional injuries	4	332	156	8.3	4	3,051	101	7.4	1.5
– Motor vehicle crashes		81	38	12.0		483	16	10.4	2.4
– Falls		76	36	7.4		804	27	8.3	1.3
Signs and symptoms	5	313	147	3.5	3	3,087	102	3.3	1.4
Coronary heart disease		284	133	5.1	1	4,866	161	5.4	0.8
Diabetes		239	112	8.2		422	14	9.8	8.0
Diseases of musculo-skeletal system		217	102	6.3	5	2,612	86	6.3	1.2
Females: All causes		4,822	2,267	7.0		35,154	1,166	6.7	1.9
Respiratory diseases	1	530	249	6.0		1,808	60	5.7	4.2
– Asthma		142	67	5.2		449	15	4.9	4.5
– Chronic obstructive respiratory disease		129	61	5.7		472	16	8.1	3.8
Malignant neoplasms (cancer)	2	505	237	8.1	1	4,321	143	7.0	1.7
– Cancer of lung		119	56	7.2		302	10	7.0	5.6
– Cancer of breast		99	47	5.0		755	25	5.2	1.9
– Leukaemia		53	25	8.7		135	5	10.6	5.0
– Cancer of cervix		40	19	9.2		169	6	5.9	3.2
– Cancer of bowel		8	4	5.9		334	11	7.6	0.4
Disorders of female genital tract	3	377	177	2.8	2	3,309	110	2.7	1.6
Signs and symptoms	4	332	156	3.4	4	2,732	91	2.9	1.7
Hypertensive disease and other forms of heart disease	5	311	146	7.1		1,035	34	5.6	4.3
Unintentional injuries		226	106	6.6	5	1,987	66	8.4	1.6
– Motor vehicle crashes		49	23	7.8		285	10	9.6	2.3
– Falls		83	39	7.2		873	29	11.0	1.3
Diseases of musculo-skeletal system		224	105	9.2	3	2,784	92	5.9	1.1

TABLE 41

Public Hospital Discharges, Major Causes, Ages 65 years and over, 1992

(Numbers and age-specific rates per 10,000 population)

Cause of Admission	Māori				Non-Māori				Ratio Māori to non-Māori
	Rank	No	Rate	Mean Days Stay	Rank	No	Rate	Mean Days Stay	
Total: All causes		4,596	4,591	12.6		121,616	3,203	14.2	1.4
Respiratory diseases	1	597	596	10.9	4	8,207	216	14.1	2.8
– Chronic obstructive respiratory disease		257	257	10.4		3,723	98	11.5	2.6
– Pneumonia		149	149	15.0		2,051	54	24.2	2.8
Malignant neoplasms(cancer)	2	472	472	9.5	1	14,761	389	9.1	1.2
Hypertensive disease and other forms of heart disease	3	409	409	16.9	5	8,122	214	11.0	1.9
Special admissions	4	357	357	17.0		5,949	157	13.3	2.3
Signs and symptoms	5	298	298	6.0		7,208	190	11.2	1.6
Coronary heart disease		233	233	6.9	2	10,119	267	8.1	0.9
Unintentional injuries		201	201	13.0	3	9,289	245	20.1	0.8
– Falls		117	117	15.9		6,848	180	22.8	0.6
Males: All causes		2,324	5,199	12.0		59,908	3,719	11.4	1.4
Malignant neoplasms(cancer)	1	275	615	10.6	1	8,626	536	8.4	1.1
– Cancer of lung		65	145	7.8		1,138	71	8.1	2.0
– Cancer of prostate		45	101	8.9		1,334	83	8.2	1.2
Respiratory diseases	2	267	597	8.8	3	4,624	287	11.8	2.1
– Chronic obstructive respiratory disease		105	235	9.8		2,247	139	11.0	1.7
– Pneumonia		78	175	8.4		1,149	71	17.8	2.5
Hypertensive disease and other forms of heart disease	3	199	445	7.9	4	4,061	252	9.8	1.8
Special admissions	4	191	427	8.3		3,140	195	11.1	2.2
Signs and symptoms	5	145	324	5.0	5	3,586	223	6.6	1.5
Coronary heart disease		113	252	7.4	2	5,626	349	7.8	0.7
Unintentional injuries		95	213	12.4		2,735	170	17.1	1.3
– Falls		48	107	16.3		1,701	106	21.1	1.0
Diabetes		84	188	16.5		669	42	17.2	4.5
Cerebrovascular disease (stroke)		80	179	19.3		2,991	186	29.5	1.0

continued over

Table 41 continued

Cause of Admission	Māori				Non-Māori				Ratio Māori to non-Māori
	Rank	No	Rate	Mean Days Stay	Rank	No	Rate	Mean Days Stay	
Females: All causes		2,272	4,101	13.2		61,708	2,823	17.0	1.5
Respiratory diseases	1	330	596	12.5		3,583	164	17.0	3.6
– Chronic obstructive respiratory disease		152	274	10.8		1,476	68	12.2	4.0
– Pneumonia		71	128	22.3		902	41	32.3	3.1
Hypertensive disease and other forms of heart disease	2	210	379	25.4	5	4,061	186	12.2	2.0
Malignant neoplasms (cancer)	3	197	356	8.0	2	6,135	281	10.0	1.3
– Cancer of lung		31	56	11.4		433	20	9.2	2.8
– Cancer of breast		21	38	8.5		696	32	8.8	1.2
– Cancer of cervix		12	22	8.8		133	6	8.0	3.7
– Cancer of uterus		22	40	5.9		179	8	8.5	5.0
Special admissions	4	166	300	27.1		2,809	128	15.7	2.3
Signs and symptoms	5	153	276	6.9		3,622	166	15.7	1.7
Coronary heart disease		120	217	6.5	4	4,493	206	8.4	1.1
Cerebrovascular disease		110	200	21.1		3,335	153	49.1	1.3
Unintentional injuries		106	191	13.5	1	6,554	300	21.3	0.6
– Falls		69	125	15.6		5,147	235	23.3	0.5
Diseases of musculo-skeletal system		90	162	13.2	3	4,879	223	13.3	0.7
Diabetes		81	146	9.1		651	30	19.6	4.9

Respiratory disease was the leading cause of admission for Māori females and the second leading cause for Māori males aged 65 years and over during 1992. The rate for Māori females was 3.6 times the non-Māori rate, and the rate for Māori males was just over twice the non-Māori rate.

Cancer was the leading cause for Māori and non-Māori males. It was the third leading cause for Māori females and second for non-Māori females. The leading sites for Māori males were the lung (145 per 10,000) and the prostate (101). The leading sites for Māori females were the lung (56), the uterus (40), the breast (38), the stomach (22) and the cervix (22).

Hypertensive disease was the second leading cause for Māori women, at twice the non-Māori rates. Māori men had 1.8 times the rate of non-Māori men for hypertensive disease. In contrast, the rate of admission for coronary heart disease was 30% lower for Māori men than the non-Māori rate, and similar for Māori and non-Māori women.

Special admissions were the fourth leading cause for Māori men and women. Around 80% of these admissions were due to 'housing, household and economic circumstances'.

Unintentional injuries were the leading cause for non-Māori females, of which 78% were falls. The rate for Māori women was half the non-Māori rate.

Diabetes did not feature in the five major causes. However, the rate for Māori females (146 per 10,000) was five times the non-Māori rate, and the rate for Māori males (188) was 4.5 times the non-Māori rate.

FIGURE 31

Public Hospital Discharges, Major Causes, Māori Population, Ages 65 years and over, 1992

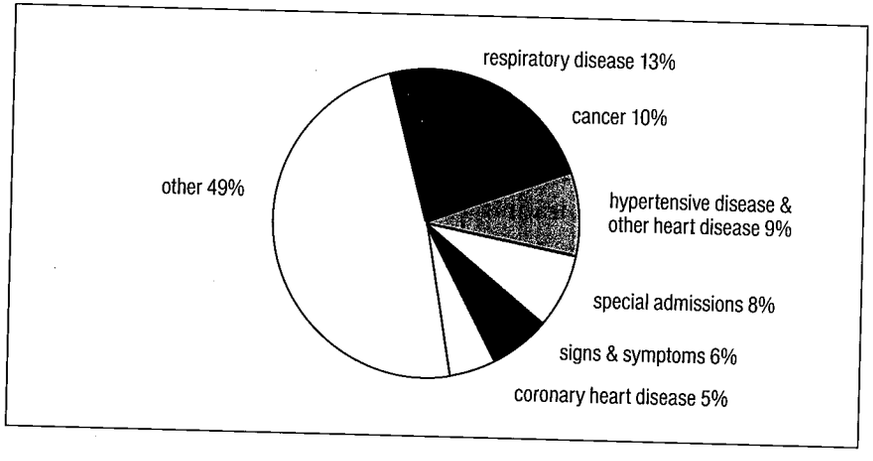


TABLE 42

Selected Public Hospital Discharges, 1992

(Numbers and age-standardised rates per 10,000 population)

Cause of death	Male				Ratio Māori to non-Māori	Female				Ratio Māori to non-Māori
	Māori		Non-Māori			Maori		Non-Māori		
	No.	Rate	No.	Rate		No.	Rate	No	Rate	
Coronary heart disease	465	47.3	11,158	58.1	0.8	329	33.4	6,252	24.3	1.4
Acute rheumatic fever and chronic rheumatic heart disease	103	6.4	160	1.0	6.4	164	10.8	306	1.7	6.4
Hypertensive disease and other forms of heart disease	868	85.3	6,464	31.6	2.7	661	63.4	5,606	20.5	3.1
Cerebrovascular disease	282	29.4	4,188	19.6	1.5	313	30.2	4,244	14.2	2.1
Cancer of the lung	209	23.2	1,694	18.3	2.8	160	15.4	807	3.7	4.1
Pneumonia and influenza	863	62.3	3,093	20.4	3.0	764	53.2	2,539	15.6	3.4
Asthma	1,439	86.6	3,455	28.8	3.0	1,272	80.1	3,450	25.6	3.1
Chronic obstructive respiratory disease (includes bronchitis and emphysema)	271	30.1	2,833	13.0	2.3	241	34.7	2,056	8.1	4.3
Tuberculosis	59	4.9	139	0.8	6.4	51	3.9	104	0.6	6.8
Viral hepatitis	13	0.8	69	0.4	1.9	12	0.7	49	0.3	2.4
Diabetes	386	38.4	1,487	8.1	4.7	378	33.9	1,473	7.4	4.6
Obesity	33	2.3	63	0.4	6.0	21	1.6	64	0.4	4.2
Diseases of urinary system	541	46.0	4,414	25.5	1.8	756	50.4	4,012	23.3	2.2
Cancer of the cervix						115	8.8	480	2.5	3.5
Inflammatory disease of female pelvic organs						453	23.9	1,721	10.4	2.3
Other disorders of female genital tract						1,484	192.5	11,680	66.3	1.4
Pregnancy with abortive outcome						1,898	93.7	8,531	51.9	1.8
Complications of pregnancy childbirth and the puerperium						10,544	516.6	44,881	271.5	1.9
Motor vehicle accidents	1,047	59.4	4,719	30.8	1.9	546	31.4	2,245	13.8	2.3
Self-inflicted injury	185	9.6	970	6.0	1.6	213	11.1	1,471	9.2	1.2
Injury purposely inflicted by other persons	541	29.0	1,665	10.8	2.7	300	15.9	404	2.8	5.7

Private Hospital Discharges

TABLE 43

Private Hospital Discharges, all ages, 1992
(Numbers and age-standardised rates per 10,000 population)

Cause of Admission	Māori				Non-Māori				Ratio Māori to non-Māori
	Rank	No	Rate	Mean Days Stay	Rank	No	Rate	Mean Days Stay	
Total: All causes		1,117	37.7	11.0		99,199	289.8	18.0	0.1
Diseases of musculo-skeletal system	1	394	11.4	3.4	1	18,815	54.3	8.1	0.2
Diseases of nervous system	2	149	5.5	6.7	4	13,832	43.1	23.4	0.1
– Diseases of the ear and mastoid process		63	2.2	0.3		5,096	22.8	0.3	0.1
Diseases of the genito-urinary system	3	97	3.4	2.3	2	17,278	49.3	2.9	0.1
– Disorders of the female genital tract		53	1.7	3.1		9,224	26.4	2.4	0.1
Diseases of the digestive system	4	93	3.0	1.7	3	14,197	41.2	2.7	0.1
– Hernia of abdominal cavity		54	1.7	0.6		4,168	12.3	2.1	0.1
Neoplasms	5	78	3.5	20.4	5	5,732	14.6	9.5	0.2

In 1992, only 1,117 (1%) of the private hospital discharges were from the Māori population. This compares with 1,709 (2%) in 1984. However, this number may be understated through incomplete recording of ethnicity. Māori had a different range of reasons for admission and some of these markedly affect the length of stay.

Table 43 shows the five leading reasons for admission to private hospital in 1992. Diseases of the musculo-skeletal system were the leading cause accounting for 35% of the Māori discharges. The greatest proportion in this category was joint disorders. The use of private hospitals in this instance is probably covered by ACC.

Surgical Procedures – Public and Private Hospitals

Table 44 shows age-standardised rates of selected operations carried out in public and private hospitals amongst Māori and non-Māori in 1992.

These rates are not true population rates, but are used only for comparisons between Māori and non-Māori.

Rates for operations performed in private hospitals were much lower for Māori.

Overall, the Māori population had higher rates than the non-Māori population for tubal ligations, cataracts, heart valve surgery, conization of the cervix, kidney transplant and myringotomy (ear drum procedure). However, when need is taken into account, as measured by mortality, even higher rates would be expected for some procedures.

Discussion

In the period under study, hospital admissions have increased in most of the major disease groupings. Some of this increase relates to changes in the way in which hospital admission data is counted. The inclusion of day patients and newborn babies contributes to this increase.

Respiratory disease remains an important cause of hospitalisation in all age-groups. Among young Māori, asthma is a major contributor, whilst among the older age-groups, chronic respiratory disease including chronic bronchitis and emphysema is the major contributor. Tobacco smoking is widely recognised to cause, or contribute to, a range of respiratory diseases. Moreover, recent reports note that chronic exposure to cannabis smoke is also associated with respiratory diseases[1].

Although, as noted in the previous chapter, deaths from asthma have decreased, asthma remains a significant cause of admission for both Māori children and adults. The Māori Asthma Review[2] found that access to appropriate health care and asthma education were key issues for Māori with asthma. Following the review, Te Kaiwhakahaere Huangō o te Motu, a national Māori coordinator for asthma, was appointed and an education and prevention intervention programme has since been implemented[3].

TABLE 44

Selected Operations in Public and Private Hospitals by Ethnicity, 1992

(Age-standardised rates per 10,000 population)

Operation	Māori			Non-Māori			Ratio Māori to non-Māori
	Public	Private	Total	Public	Private	Total	Total
Cataracts	20.9	0.1	21.0	8.0	0.5	8.5	2.5
Myringotomy (eardrum procedure)	51.4	1.4	52.8	23.6	20.3	43.9	1.2
Tonsillectomy and adenoidectomy	24.2	0.8	25.0	22.0	17.0	39.0	0.6
Heart valve surgery	3.3	-	3.3	1.4	0.1	1.5	2.1
Removal coronary artery obstruction	0.7	-	0.7	2.3	0.4	2.7	0.2
Bypass for heart revascularisation	4.1	0.1	4.2	5.1	1.1	6.1	0.7
Varicose veins	8.0	0.8	8.7	4.4	5.9	10.3	0.8
Appendicectomy	14.1	0.1	14.2	11.1	1.2	12.2	1.2
Haemorrhoidectomy	3.2	0.3	3.5	2.0	2.8	4.8	0.7
Cholecystectomy (removal of gall bladder)	8.5	0.3	8.8	5.9	4.9	10.8	0.8
Repair inguinal/femoral hernia	21.1	1.3	22.3	11.5	9.4	20.9	1.1
Kidney transplant	0.4	-	0.4	0.3	-	0.3	1.3
Menisectomy (removal of knee cartilage)	3.1	3.3	6.4	1.8	12.0	13.8	0.5
Total hip replacement	5.7	0.6	6.3	5.0	4.0	9.0	0.7
Transurethral prostatectomy*	4.9	0.3	5.2	4.4	4.7	9.1	0.6
Vasectomy*	3.4	-	3.4	3.1	0.6	3.8	0.9
Destruction/occlusion fallopian tubes^	27.7	0.1	27.8	9.4	0.8	10.2	2.7
Conization cervix^	4.9	0.04	4.9	1.7	1.0	2.8	1.8
Other excision/destruction lesion cervix^	8.0	0.2	8.2	6.6	2.1	8.7	0.9
Hysterectomy (vaginal and abdominal)	13.0	0.7	13.6	8.2	8.6	16.8	0.8

* Male-specific rates

^ Female-specific rates

Ear disease continues to be a significant cause of admission to hospital for Māori following a review of Māori hearing impairment in 1989[4]. Māori children were hospitalised at well over twice the rate of non-Māori for diseases of the ear and mastoid process in 1992. Furthermore, myringotomy procedures, including the insertion of grommets, were 20% higher for Māori, while tonsillectomies and adenoidectomies were 40% lower among Māori. Passive smoking and lack of breastfeeding have both been associated with increased risk of glue ear[5]. Government has recognised the reduction of hearing loss in children under five years of age as a priority[6]. It noted that access to appropriate prevention and treatment services was essential and recommended that well child care checks which included relevant hearing and ear assessment continue to be purchased[7].

Unintentional injuries are a significant cause of hospitalisation for Māori at all ages. For those aged under 15 years and over 65 years, falls are the main cause. Motor vehicle crashes are the leading cause in other ages. Injuries are a major contributor to both excessive mortality and morbidity amongst Māori. Information about injuries and their causation, which includes ethnicity, should be available and utilised in the development of a comprehensive intervention plan.

Heart disease remains a leading cause of hospital admission for Māori in most age-groups. This includes coronary heart disease, hypertensive heart disease and rheumatic heart disease. While coronary heart disease is the major contributor to deaths from heart disease, hypertensive and other forms of heart disease are more significant with respect to hospital admissions. In the previous chapter we noted that Māori had an increased death rate from coronary heart disease. Given this, we would also expect Māori to have an increased rate of hospital admissions. However, the age-standardised rates of admission for coronary heart disease for Māori are similar to those for non-Māori. Furthermore, as we proceed along the care continuum, Māori are under-represented in cardiac diagnostic and operative procedures for coronary heart disease. For example, the non-Māori rate for removal of coronary artery obstruction (angioplasty) was more than 3.5 times the rate for Māori, and the rate of coronary bypass surgery was 1.5 times the Māori rate. This dis-

crepancy was noted in the previous volume of *Hauora: Māori Standards of Health*. It was considered by the authors of that report that despite the sensitivity of these issues, further investigation and answers were necessary. The continuation of these discrepancies make a full investigation a matter of urgency.

Hypertension is a major risk factor for coronary heart disease. There is some evidence that hypertension is underdiagnosed amongst the Māori community. A study in Auckland and Tokoroa found that Māori with hypertension were three times less likely to be receiving treatment[8]. This may be a factor in the high hospital admission rate of Māori for hypertensive disease, which is three times the age-standardised non-Māori rate. Moreover, the age-standardised mortality rate for Māori is also three times the non-Māori rate.

Acute rheumatic fever and chronic rheumatic heart disease remain high amongst Māori children. Furthermore, the mortality for rheumatic heart disease is disproportionately high amongst Māori. The 1983 report to the Minister of Health on the Prevention of Cardiovascular Disease noted the need to address rheumatic fever. Since 1989, groups such as Te Hotu Manawa Māori and iwi such as Ngāti Hine have worked together to prevent rheumatic fever by promoting messages such as 'Sore Throats Matter'. Furthermore, rheumatic fever and rheumatic heart disease have significant economic implications[9]. We note that despite the age-standardised rates for chronic rheumatic heart disease among Māori being 2.5 times the non-Māori rate for males, and 6.2 times the non-Māori rate for females, heart valve surgery was only twice as common.

The second volume of *Hauora: Māori Standards of Health* noted with concern the higher number of cases of diabetes among Māori. Diabetes continues to be a significant cause of admission to hospital at a rate eight times higher than non-Māori in the 45-64 years age-group. Early diagnosis with the appropriate intervention and management need to become key components in minimising the morbidity relating to diabetes.

The Māori rate of hospitalisation for chronic renal failure amongst those aged 45-64 years was 5.8 times higher and for those aged 65 years and

over was 4.3 times higher than non-Māori. In the same age-groups deaths from chronic renal failure amongst Māori were respectively 5.2 and 1.5 times the non-Māori rate. However we note that the Māori age-standardised rate of kidney transplantation was only 1.3 times the non-Māori rate.

While hospital admissions are an imperfect measure of morbidity, they remain an important indicator especially when trends are considered. This review has noted a general pattern of increase in hospitalisation among Māori and areas where further investigation or intervention are necessary.

CHAPTER 5

Psychiatric Hospital Admissions

KEY POINTS

- **Although psychiatric admissions overall have been falling, particularly among non-Māori, the rate of admission to psychiatric hospitals amongst Māori is still increasing.**
- **While first admission rates amongst Māori men for alcohol dependence or abuse have fallen by one half since 1984, alcohol dependence or abuse remains the leading cause of admission in Māori and non-Māori men and is the second most common cause of admission in Māori women.**
- **Drug dependence or abuse has become the third most common cause of first admission in Māori men.**
- **Māori access mental health services at a later stage of illness than non-Māori and are therefore more likely to be seriously ill before help is sought.**
- **Changes in the pattern of mental illness that have been documented during the last two decades suggest that a comprehensive review of Māori mental health is necessary.**

Statistical Coverage

Information on psychiatric hospital admissions in Māori and non-Māori comes from the national mental health data collection; this has now become part of the National Minimum Data Set (NMDS) which is maintained by the New Zealand Health Information Service (NZHIS) in the Ministry of Health. It includes information from psychiatric hospitals, intellectual handicap hospitals, psychiatric units of public hospitals and institutions licensed under the Alcoholism and Drug Addiction Act[1]. No data on community-based programmes is included. Thus, the data presented here only relates to psychiatric hospital admissions and may not reflect the real patterns of psychiatric illness in the community. This particularly affects non-psychotic conditions since these are often treated as outpatients and are not admitted to hospital[2]. A description of how various types of mental illnesses are classified is in appendix 4.

First Admissions

There were 4,551 first admissions to psychiatric hospitals in 1992, 737 (16.2%) being from the Māori population. This compares with 4,265 first admissions in 1984 when 579 (13.6%) were from the Māori population.

Males accounted for 57% of the Māori and 53% of the non-Māori admissions in 1992. About half (48%) of the Māori admissions were in the age-group 25-44 years while for non-Māori, 34% were in this age group.

Table 45 shows age-specific admission rates by ethnicity and sex for the years 1970, 1984 and 1992. During these decades there has been a significant reduction in first admissions for both Māori and non-Māori aged under 15 years. For Māori men aged 15-44 years the first admission rates have continued to increase despite the provision of alternative forms of psychiatric care.

TABLE 45

First Admissions to Psychiatric Hospitals, 1970, 1984 and 1992

(Age-specific rates per 10,000 population)

	Age in Years											
	<15		15-24		25-44		45-64		65+		Total*	
1970	M	F	M	F	M	F	M	F	M	F	M	F
Māori	7.3	6.0	32.3	43.5	23.0	29.2	17.0	13.6	24.2	14.5	18.6	20.3
N-Māori	4.4	3.5	24.2	28.6	23.3	25.9	19.7	20.4	24.8	25.6	17.0	18.3
1984	M	F	M	F	M	F	M	F	M	F	M	F
Māori	2.8	2.1	47.4	30.0	37.8	26.5	14.0	8.9	11.5	7.6	22.2	14.9
N-Māori	3.5	2.2	19.5	17.1	16.6	14.9	11.7	12.0	17.7	15.0	12.2	10.8
1992	M	F	M	F	M	F	M	F	M	F	M	F
Māori	0.2	0.4	50.3	33.6	42.8	33.2	14.1	11.8	20.1	19.9	23.2	18.0
N-Māori	0.2	0.3	23.6	13.6	19.2	17.9	10.8	11.0	12.9	12.8	12.0	10.1

* Age-standardised rates

Table 46 shows the leading causes for first admissions in 1992 by ethnicity and gender and compares these with 1984. Alcohol dependence or abuse was the leading cause for males accounting for 24% of the Māori

and 22% of the non-Māori admissions. The rate of admission for Māori males (5.5) was twice the non-Māori rate (2.7). Schizophrenic psychoses, the second most common cause of admission for Māori males at a rate of 2.7 per 10,000, is twice the non-Māori rate of 1.3. Drug dependence or abuse was the third most common cause of admission in Māori males. The overall rates of first admission have remained constant in Māori men and non-Māori men since 1984, and the relative risk has therefore also remained constant.

The leading cause of first admission for females was affective psychoses, accounting for 17% of the Māori and 19% of the non-Māori admissions. Alcohol dependence or abuse ranked second for Māori females, the rate (2.4) being nearly 2.6 times the non-Māori rate (0.9). The overall rates of first admissions to psychiatric hospitals have increased by about 22% in Māori women since 1984 (from 14.9 per 10,000 to 18.1 per 10,000). The overall relative risk for admission in Māori women (compared with non-Māori women) therefore increased from 1.4 in 1984 to 1.8 in 1992.

A significant change between 1984 and 1992 for Māori men has been the increase in admission rate for drug dependence and abuse to now become the third most common cause of admission. For Māori women in the same period, affective psychoses have moved from fifth ranking to first. On the other hand, depressive disorders have gone from top ranking and are now not included in the top five causes of first admissions for Māori women.

TABLE 46

First Admissions to Psychiatric Hospitals, Major Causes, All Ages, 1984 and 1992

(Numbers and age-standardised rates per 10,000 population)

	Māori					Non-Māori					Ratio Māori
	Rank		Total	Rate		Rank		Total	Rate		to non-
Cause of Admission	1984	1992	No	1984	1992	1984	1992	No	1984	1992	Māori
Males: All causes			417	22.2	23.2			2,014	12.2	12.0	1.9
Alcohol dependence or abuse	1	1	100	10.5	5.5	1	1	448	3.8	2.7	2.0
Schizophrenic psychoses	2	2	52	1.8	2.7	5	3	207	0.9	1.3	2.1
Drug dependence or abuse	-	3	51	-	2.6	-	5	172	-	1.1	2.4
Affective psychoses	4=	4	35	1.2	2.2	4	2	240	1.0	1.4	1.5
Stress and adjustment reactions	4=	5	29	1.2	1.6			164	0.7	1.0	1.5
Other psychoses	-		24	-	1.3			72	-	0.5	2.9
Neurotic depression and other depressive disorders	3		21	1.3	1.3	2	4	181	1.6	1.0	1.2
Females: All causes			320	14.9	18.0			1,800	10.8	10.1	1.8
Affective psychoses	5	1	54	2.7	3.4	2	1	337	2.8	1.9	1.8
Alcohol dependence or abuse	2	2	48	2.1	2.4	4	4	163	1.1	0.9	2.6
Stress and adjustment reactions	3	3	40	1.8	2.2	3	3	192	1.3	1.1	1.9
Schizophrenic psychoses	4	4	36	1.7	2.0	-	5	143	0.6	0.8	2.5
Other psychoses	-	5	30	-	1.7	-		1.8	-	0.6	2.9
Neurotic depression and other depressive disorders	1	-	28	2.7	1.5	1	2	281	2.8	1.5	1.0

Figures 32 and 33 shows age-specific first admission rates in 1992 by ethnicity. Māori men and women aged 15 years and over now have higher rates of first admission than non-Māori.

FIGURE 32

First Admissions to Psychiatric Hospitals, by Age and Ethnicity, Māori and Non-Māori Males, 1992 (Rates per 10,000 population)

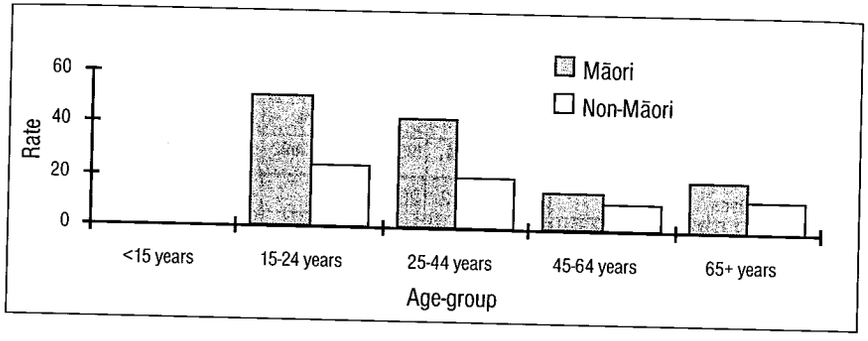
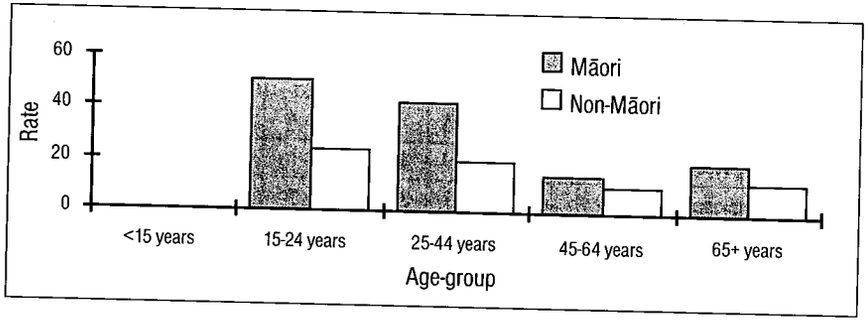


FIGURE 33

First Admissions to Psychiatric Hospitals, by Age and Ethnicity, Māori and Non-Māori Females, 1992 (Rates per 10,000 population)



Readmissions

There were 11,389 readmissions (including replacements from leave of former patients) in 1992, of which 2,202 (19.3%) were from the Māori population. The major reasons for readmission of Māori patients were schizophrenic psychoses (42%), affective psychoses (22%) and alcohol dependence or abuse (5%). It should be noted that in 1984, only 13.5% of Māori readmissions were for schizophrenic psychoses.

Discussion

As noted earlier, psychiatric hospital admissions alone do not give a true indication of the degree of mental illness and mental distress within a population. There is a need to take a broader view of the situation and identify those people who use various services, why they use them, when they use them, how they use them and what outcome follows. Psychiatric hospital admissions provide part of the picture. Most notably, they do not tell the story of those people who do not use services or delay using services until a late stage of their illness, and those who feel unsatisfied with the treatment or outcome. Previous reviews of Māori mental health have noted that Māori have a different pattern of mental health service utilisation than non-Māori[3]. Furthermore, there has been a significant change in Māori utilisation of mental health services during this century. Blake-Palmer noted that few Māori used mental health services, although it was felt that a number would have benefited from these services[4]. The first volume of *Māori Standards of Health* noted that the most common cause of first admissions for mental disorders amongst Māori was for schizophrenic psychoses, which in the 25-44 year old age group, had the highest rate for any disorder in any age group, Māori or non-Māori[5]. The second volume of *Hauora: Māori Standards of Health* noted that a different picture had emerged. Although the psychiatric admissions overall had been tending to fall, particularly amongst non-Māori, the Māori admission rates were still occurring at a greater rate[6].

The second volume of *Hauora: Māori Standards of Health* noted that alcohol-related problems had increased staggeringly by four times between 1970 and 1984. In 1992, the first admission rates for Māori men for alcohol dependence or abuse have fallen by about one half, and the relative risk compared with non-Māori has fallen from 2.8 to 2.0. Amongst Māori women, alcohol dependence and abuse is the second most common cause of admission. This rate has increased slightly since 1984 and the ratio compared to non-Māori has increased also. The increasing prominence of affective psychoses among Māori women needs further investigation.

It seems that Māori access mental health services at a later stage of the illness process than non-Māori. Consequently, Māori are more likely to

be seriously ill before help is sought. Other authors have noted two reasons for Māori failing to seek early intervention[7]. Firstly, if the illness is thought to be related to *mākutu* or some infringement of *tapu*, then going to hospital may seem inappropriate. In a large study of Māori women, up to 20% indicated that they would seek the services of a *tohunga* if *mate Māori* was thought to be the problem[8]. Secondly, there may be a high acceptance of abnormal behaviour amongst Māori, leaving illness undetected and untreated.

The fact that Māori are more likely to be seriously ill before help is sought may also reflect upon the help agencies available for early intervention. One regional survey noted that of 251 community organisations assisting people with mental health needs, only 11 were run by Māori[9]. Māori provider development, especially at the community or primary health care level, may increase early intervention by improving accessibility and appropriateness of available services.

Furthermore, that Māori are more likely to be seriously ill before help is sought may also influence the future outcome of their illness and treatment. For example, Māori have higher readmission rates than non-Māori and this may be due to a more serious illness at the time of first admission, a less effective or appropriate treatment at the first admission, a discharge from first admission which was too early, or insufficient or inappropriate community support on discharge[10]. Māori readmissions are most likely to be for severe psychotic illnesses (schizophrenia and affective psychosis). These illnesses are usually significantly disabling and often long term. Consequently, returning to the community requires significant support which may need to become a way of life.

Māori are becoming increasingly institutionalised. One author noted:

> Already Māori make up half the population of prisons and forensic units. On current trends, in 10 years time, they may eventually make up half the population of psychiatric hospitals[11].

In 1988, it was noted in *Hauora: Māori Standards of Health* that Māori were more likely to be admitted to psychiatric hospitals following referrals from non-medical agencies such as those to do with law enforcement. In 1991, 36% of Māori first admissions to psychiatric hospitals and wards were through law enforcement agencies or welfare services, compared with only 23% for non-Māori[12]. This is a further indicator that gaining access to services for mental health problems may be difficult for Māori[13].

It is with concern that we note the increasing significance of mental illness in this review. This includes a picture of increasing suicides, attempted suicides and intentional injuries, a significant incidence of alcohol and drug problems, as well as severe psychiatric disorders which usually require ongoing management. The combination of these factors makes a strong statement despite the imperfection of the data.

This picture is paralleled with changes in our society which are known to endanger the mental health of at risk groups, including increasing levels of unemployment and the potential for social and cultural isolation.

During the last decade, there has been a significant response by Māori mental health workers to provide culturally appropriate care for Māori. However, many of these initiatives are based within institutions and there is still a lack of community agencies working under kaupapa Māori in the mental health field to whom Māori individuals and whānau can turn when a mental illness develops[14].

The three volumes of *Hauora: Māori Standards of Health* have monitored this picture during the last two decades. While the need for monitoring and evaluation continues, there is a need to commit adequate resources to the early identification of, and intervention into, Māori mental illness. Indeed, it is timely for a comprehensive review of Māori mental health.

CHAPTER 6

Cancer Incidence

KEY POINTS

- **Cancer was the leading cause of death in 1991.**
- **Māori rates for cancer of the lung, stomach and cervix are more than 2.5 times higher than non-Māori rates.**
- **The Māori rate for liver cancer is four times the non-Māori rate, as is the rate of lung cancer amongst Māori women compared to that of non-Māori women.**
- **Health promotion measures for the prevention and early detection of cancer, including cervical screening and the promotion of smokefree, will be important to help minimise the toll of cancer in the Māori community.**
- **While cancer of the colon and melanoma are more common amongst non-Māori, they still occur in Māori and therefore, health education messages should be applicable to both Māori and non-Māori.**

Statistical Coverage

Information on cases of cancer in Māori and non-Māori comes from the New Zealand Cancer Registry which collects information from public and private hospitals throughout the country, as well as from death certificates and autopsy reports. The Registry was created in 1948 and registration has been virtually 100% complete since 1973[1], including the period covered in the previous volumes of *Hauora: Māori Standards of Health*. In the mid-1980s many private hospitals stopped registering cancer patients with the national Cancer Registry[2]. Thus, figures presented here for 1989-91 may be underestimated by 5-10%. The data have been combined into three-year periods to smooth out random fluctuations which are caused by the small number of Māori cases for some cancer sites. The cancer sites were selected on the basis of at least 10 Māori cases being reported in the years 1974-76.

The Cancer Registry Act 1993 came into force on 1 July 1994. There is a requirement for the person in charge of a laboratory to make a report on

new primary cases of malignant disease. This Act will ensure all new cancer cases are reported to the New Zealand Cancer Registry.

Cancer Incidence

In 1991, cancer was the leading cause of death in New Zealand for Māori and non-Māori, with one death in four in 1991 being attributed to it[3]. Table 55 shows age-standardised cancer incidence rates for Māori and non-Māori for the years 1974-76[4], 1981-83[5] and 1989-91.

The Māori rate for all sites has increased by 10% from 31.3 per 10,000 in 1981-83 to 34.3 to 1989-91. Over the same period the non-Māori rate increased by 9% from 24.9 to 27.8.

In 1989-91, Māori incidence rates for cancer of the stomach, lung and cervix were more than 2.5 times higher than non-Māori rates and cancer of the liver was four times higher. In contrast, the non-Māori rate for colon cancer was 1.7 times the Māori rate and the rate for malignant melanoma was about six times the Māori rate. Other cancer types which were more common in non-Māori included rectal cancer and brain tumours. The Māori rate for liver cancer increased from 0.5 in 1974-76 to 0.9 in 1981-83 and was 0.8 in 1989-91. Thirty-five (74%) of the 47 Māori liver cancer cases registered in 1989-91 were males.

The non-Māori rate for cancer of the cervix remained the same in the three time periods. The Māori rate however, increased by 14% from 2.8 in 1974-76 to 3.2 in 1981-83 and increased a further 9% to 3.5 in 1989-91. Rates for cancer of the breast were the same in 1974-76 and 1981-83 for Māori women (6.1) but increased to 7.6 in 1989-91; a greater increase (to 7.9) was observed in non-Māori women. The Māori rate for stomach cancer has decreased by 39% from 3.1 to 1.9 but remained higher than the non-Māori rate of 0.7. Māori cancer of the prostate also continues to exceed the non-Māori rate.

The non-Māori rate for cancer of the lung remained constant over the period reviewed. In contrast, the Māori rate increased by 17% from 7.2 in 1974-76 to 8.4 in 1981-83 and was 8.2 in 1989-91. Females accounted for 192 (47%) of the Māori lung cancer cases in 1989-91 and 1259 (31%) of the non-Māori cases. The rate for Māori women in 1989-91 (7.2) was 3.8 times higher than the non-Māori female rate (1.9).

TABLE 47

Cancer Incidence, 1974-76, 1981-83 and 1989-91

(Age-standardised rates per 10,000 population)

Selected Sites	1974-1976				1981-1983				1989-1991				Ratio Māori to non-Māori
	Total Numbers		Rate		Total Numbers		Rate		Total Numbers		Rate		
	M	N-M	M	N-M	M	N-M	M	N-M	M	N-M	M	N-M	
Oesophagus	15	378	0.5	0.4	16	451	0.5	0.4	28	557	0.6	0.4	1.4
Stomach	93	1,156	3.1	1.1	98	1,168	2.4	0.9	111	1,025	1.9	0.7	2.6
Colon	31	2,697	1.0	2.7	58	3,372	1.3	2.8	88	4,023	1.8	3.1	0.6
Rectum and rectosigmoid junction	25	1,326	0.8	1.3	38	1,725	0.9	1.5	59	1,990	1.1	1.6	0.7
Liver	22	140	0.5	0.1	43	184	0.9	0.2	47	261	0.8	0.2	3.9
Pancreas	32	717	1.1	0.7	34	700	0.8	0.6	40	822	0.8	0.6	1.4
Lung	224	3,168	7.2	3.1	315	3,689	8.4	3.1	411	4,067	8.2	3.1	2.6
Connective and other soft tissue	16	166	0.2	0.2	14	196	0.2	0.2	21	259	0.3	0.2	1.5
Melanoma of the skin	11	1,440	0.3	1.6	15	2,046	0.3	2.0	27	2,869	0.4	2.5	0.2
Breast*	126	3,149	6.1	6.4	147	3,206	6.1	5.9	242	4,646	7.6	7.9	1.0
Cervix uteri*	71	498	2.8	1.1	88	559	3.2	1.1	123	645	3.5	1.2	2.9
Other uterus*	32	598	1.7	1.2	44	557	1.8	1.0	42	607	1.5	1.0	1.5
Ovary, fallopian tube and broad ligament*	18	545	0.9	1.1	34	564	1.2	1.0	40	695	1.2	1.1	1.1
Prostate*	45	1,443	4.1	3.1	55	1,919	4.1	3.4	78	2,413	4.6	3.7	1.2
Testis*	11	179	0.3	0.4	32	245	0.8	0.5	41	297	0.8	0.6	1.3
Bladder	14	841	0.5	0.8	18	990	0.4	0.8	29	1,191	0.6	0.9	1.5
Kidney and ureter	26	436	0.7	0.5	21	628	0.5	0.6	27	709	0.5	0.6	0.8
Brain	36	410	0.5	0.5	25	544	0.4	0.6	29	595	0.4	0.6	0.7
Thyroid	21	206	0.4	0.2	18	212	0.4	0.2	31	258	0.4	0.2	2.0
Lymphosarcoma and reticulum cell sarcoma	14	279	0.3	0.3	13	389	0.3	0.3	8	229	0.1	0.2	0.6
Multiple myeloma	13	267	0.5	0.3	13	351	0.3	0.3	28	415	0.5	0.3	1.7
Lymphatic leukaemia	11	270	0.2	0.3	20	353	0.3	0.4	21	497	0.3	0.4	0.6
Myleloid leukaemia	30	346	0.7	0.4	31	337	0.6	0.3	37	469	0.5	0.4	1.3
All sites	1,070	23,477	30.4	23.7	1,406	28,800	31.3	24.9	1,924	34,709	34.3	27.8	1.2

* Sex specific

Figures 34 to 47 show three-year moving average age-standardised rates per 10,000 population for selected sites.

FIGURE 34

Cancer Incidence, 1975-90, All Sites

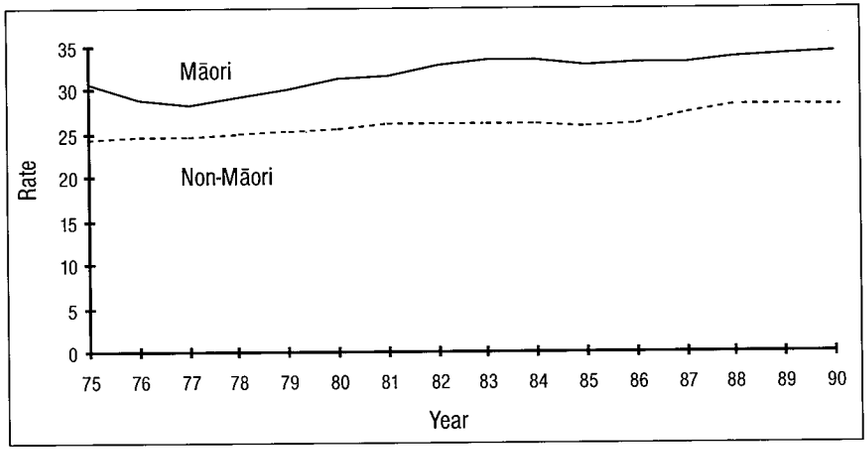


FIGURE 35

Cancer Incidence, 1975-90, Lung

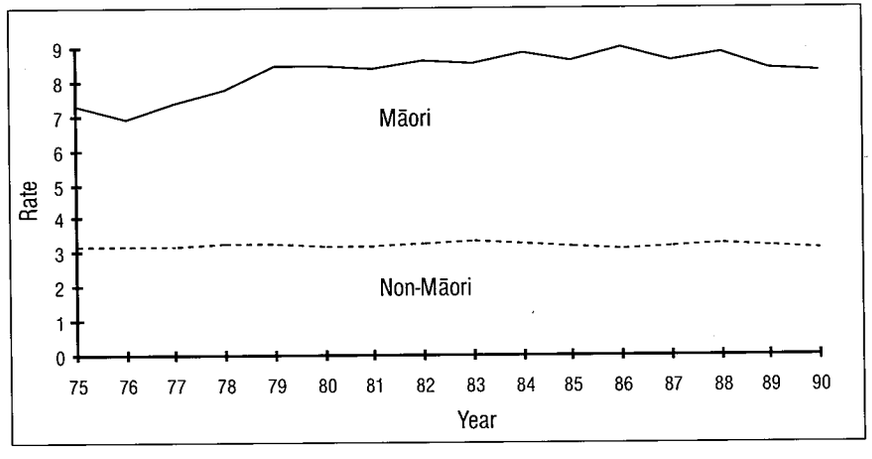


FIGURE 36

Cancer Incidence, 1975-90, Breast

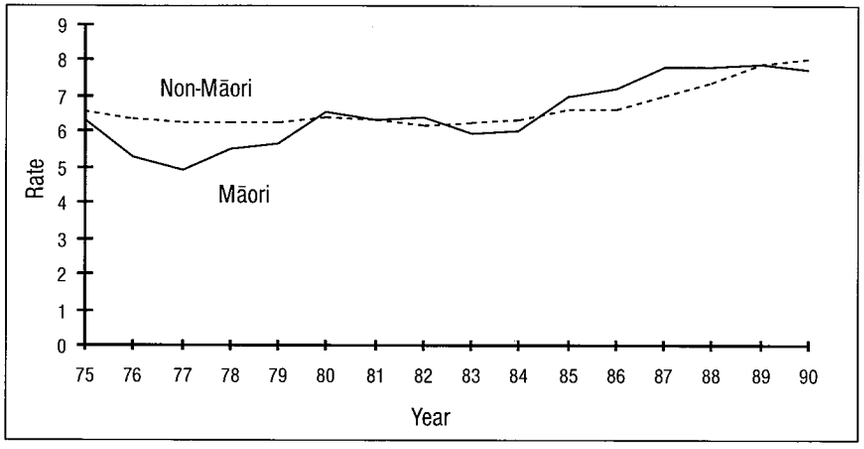


FIGURE 37

Cancer Incidence, 1975-90, Cervix Uteri

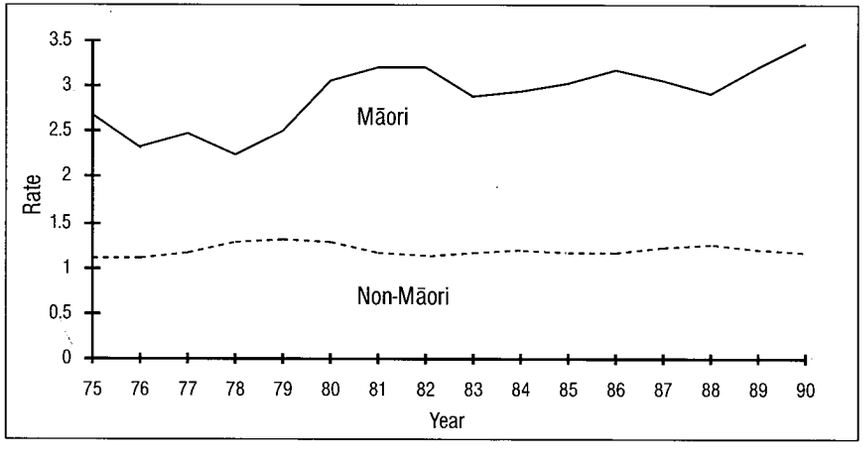


FIGURE 38

Cancer Incidence, 1975-90, Uterus (Other)

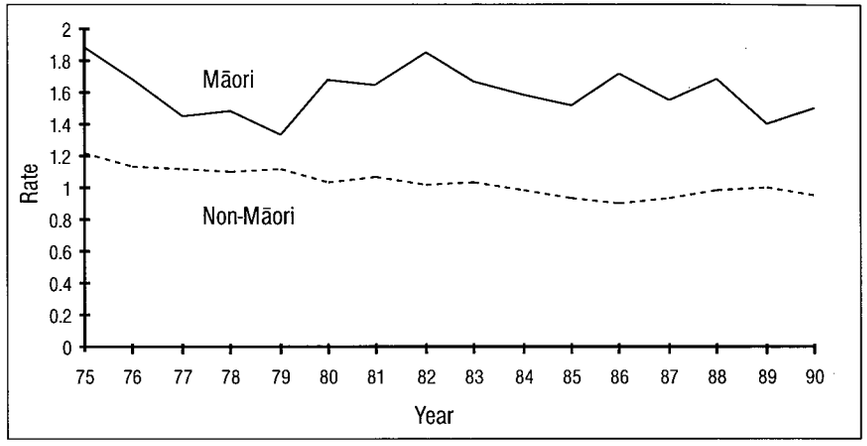


FIGURE 39

Cancer Incidence, 1975-90, Colon

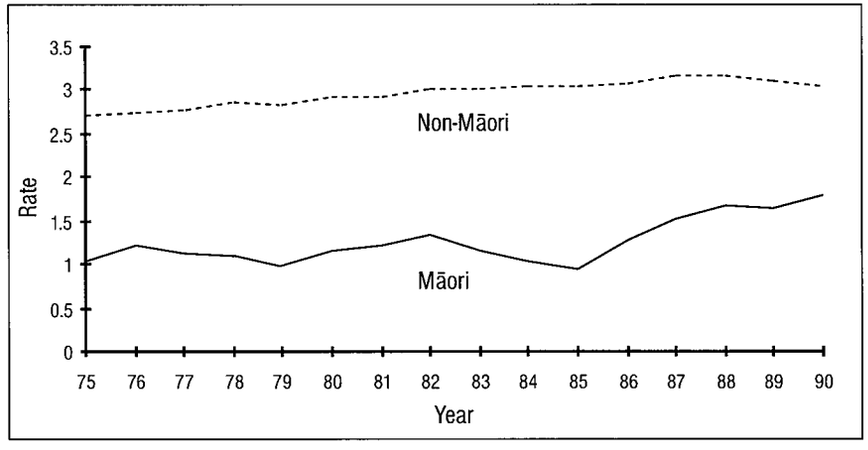


FIGURE 40

Cancer Incidence, 1975-90, Rectum and Recto-Sigmoid Junction

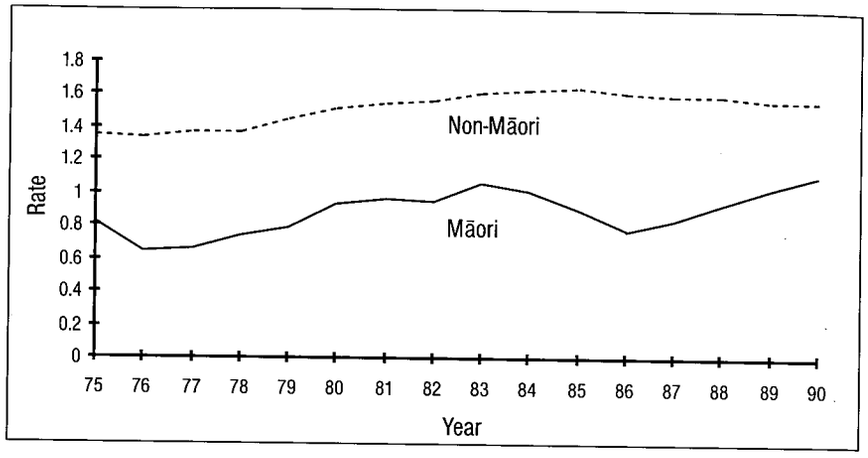


FIGURE 41

Cancer Incidence, 1975-90, Stomach

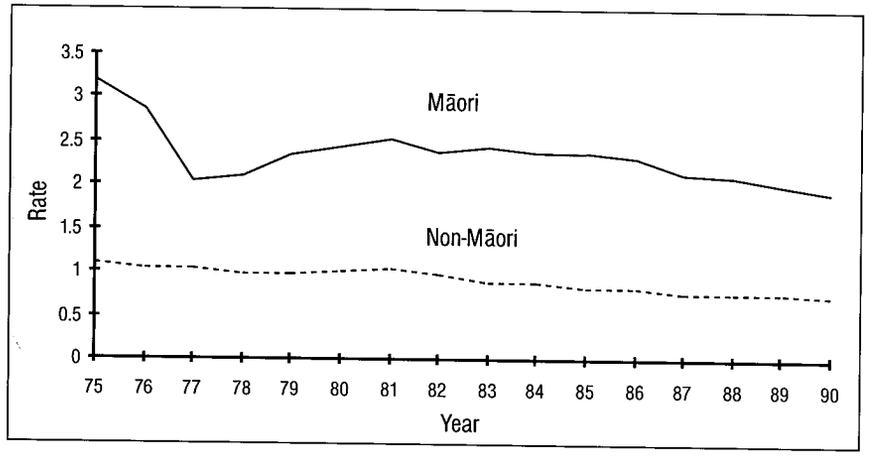


FIGURE 42

Cancer Incidence, 1975-90, Liver

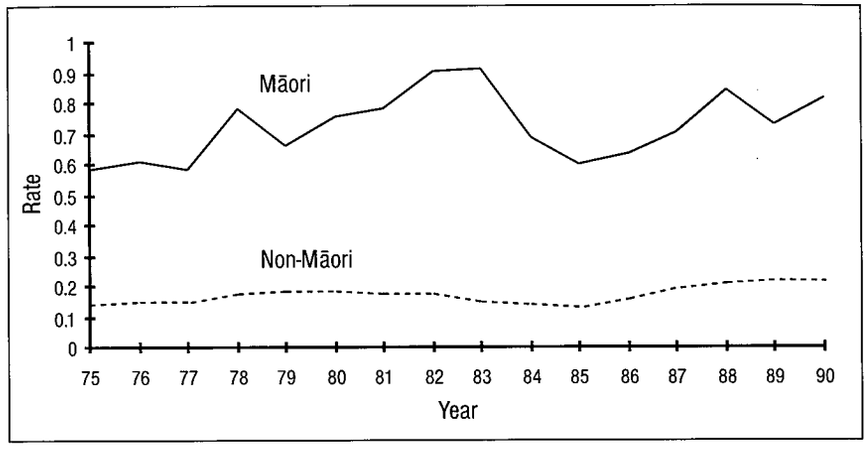


FIGURE 43

Cancer Incidence, 1975-90, Prostate

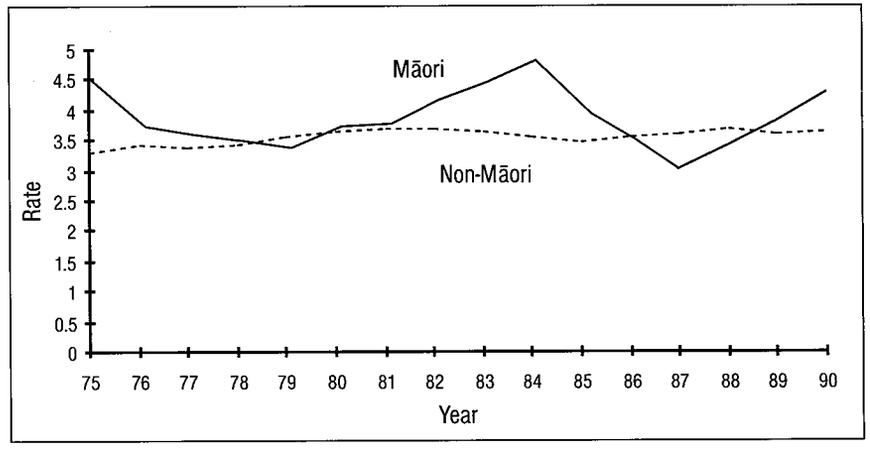


FIGURE 44

Cancer Incidence, 1975-90,Testis

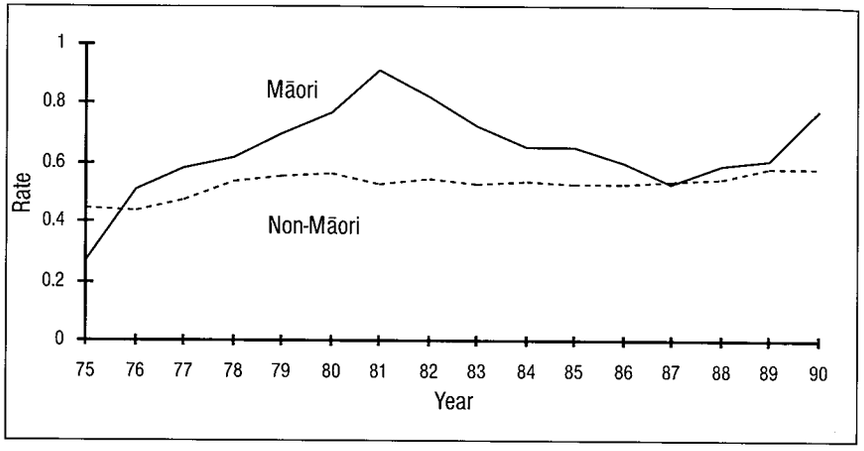


FIGURE 45

Cancer Incidence, 1975-90, Non-Hodgkin's Lymphoma

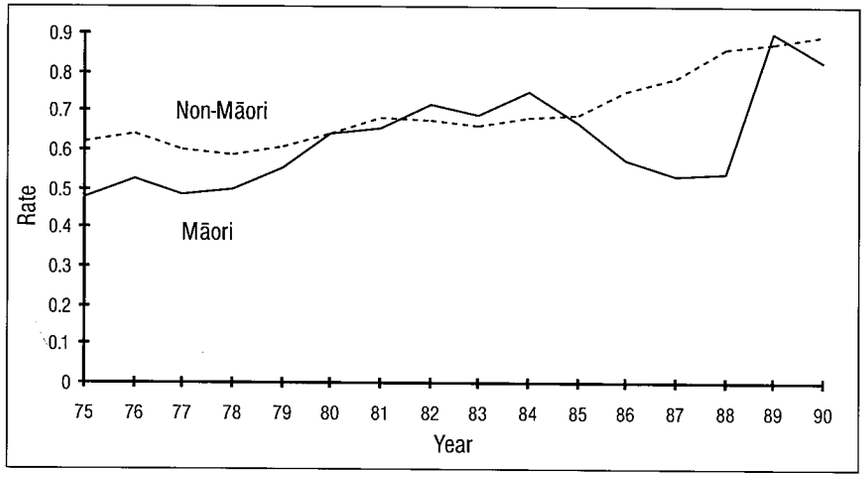


FIGURE 46

Cancer Incidence, 1975-90, Hodgkin's Disease

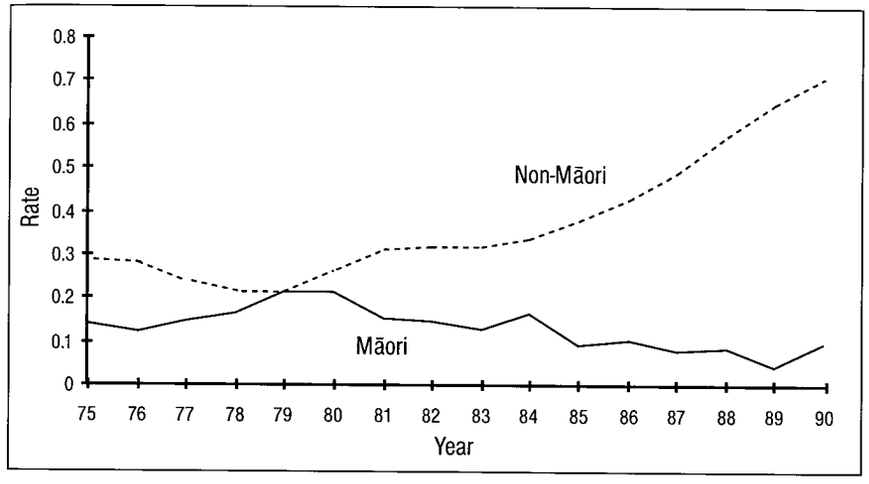
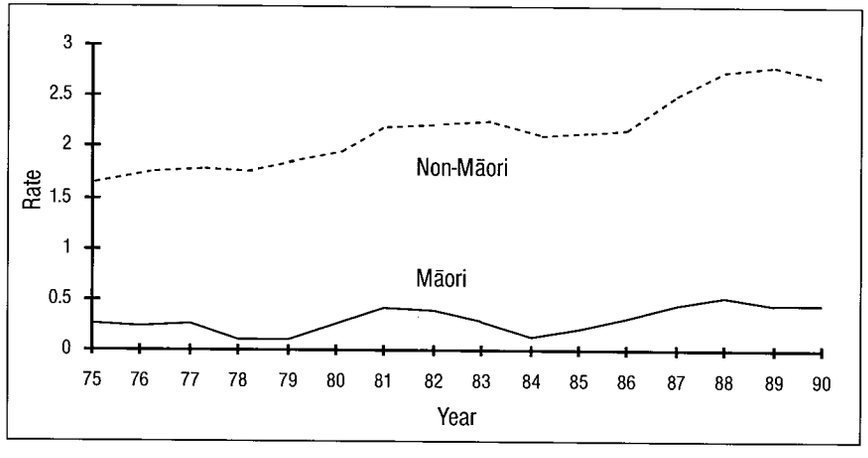


FIGURE 47

Cancer Incidence, 1975-90, Melanoma



Tables 48 and 49 show the 10 leading sites of cancer registered in 1989-1991 by ethnicity and sex.

The lung was the leading site of cancer for males, accounting for 25% of Māori and 17% of non-Māori cases. Prostate ranked second, accounting for 9% of Māori and 14% of non-Māori cancer cases.

For females, breast was the top ranking cancer site with 23% of Māori and 26% of non-Māori cases. Lung cancer ranked second for Māori females with 19% and colon cancer for non-Māori with 12% of cases. Cervix ranked third for Māori women accounting for 12% of cancer cases whereas for non-Māori women, cervix ranked eighth with 4% of cases.

TABLE 48

Leading Sites of Cancer, Māori Population, 1989-91

Males	Ranking 1981-1983	Ranking 1989-1991	Number 1989-1991	Percentage
Lung	1	1	219	24.6
Prostate	2	2	78	8.8
Stomach	3	3	64	7.2
Leukaemia	4	4	44	4.9
Colon	6	5	44	4.9
Testis	-	6	41	4.6
Liver	5	7	35	3.9
Rectum	7	8	33	3.7
Lymphoma	-	9	30	3.4
Pancreas	8	10=	24	2.7
Bladder	-	10=	24	2.7
Females				
Breast	1	1	242	23.4
Lung	2	2	192	18.6
Cervix	3	3	123	11.9
Stomach	5	4	47	4.6
Colon	7	5	44	4.3
Uterus	4	6	42	4.1
Ovary	6	7	40	3.9
Rectum	9	8=	26	2.5
Thyroid	-	8=	26	2.5
Lymphoma	-	8=	26	2.5

TABLE 49

Leading Sites of Cancer, Non-Māori Population, 1989-91

Males	Ranking 1981-1983	Ranking 1989-1991	Number 1989-1991	Percentage
Lung	1	1	2,808	16.6
Prostate	2	2	2,413	14.3
Colon	3	3	1,828	10.8
Malignant melanoma	5	4	1,314	7.8
Rectum	4	5	1,160	6.9
Bladder	6	6	866	5.1
Lymphoma	-	7	687	4.1
Stomach	7	8	657	3.9
Leukaemia	8	9	580	3.4
Pancreas	10	10	421	2.5
Females				
Breast	1	1	4,646	26.1
Colon	2	2	2,195	12.3
Malignant melanoma	3	3	1,555	8.8
Lung	4	4	1,259	7.1
Rectum	5	5	830	4.7
Ovary	7	6	695	3.9
Cervix	8	7	645	3.6
Uterus	6	8	607	3.4
Lymphoma	-	9	583	3.3
Leukaemia	-	10	467	2.6

Discussion

Cancer registrations have increased by about 10% in both Māori and non-Māori between 1981-1983 and 1989-1991. This increase has occurred despite an apparent decrease in the completeness of registrations with the Cancer Registry since the late 1980s[6]. In fact, cancer is the only major cause of death that is continuing to increase in New Zealand[7] and it was the leading cause of death in 1991[8].

Lung cancer incidence increased in Māori between 1974-1976 and 1981-1983, but the rate has now apparently levelled out in both Māori and non-Māori. However, the overall rate in Māori is still more than 2.5

times that in non-Māori, and the rate in Māori women is 3.8 times that in non-Māori women[9].

A review of the mortality rates noted in chapter 3 show that among younger age-groups, 25-44 years, Māori women now have a higher death rate than Māori men. In the 45-64 year age-group, the death rates are similar, whereas in the 65 and over age-group the death rate for Māori men still significantly exceeds that of Māori women. This reflects the reduction of tobacco use by Māori men in recent decades. However, the high prevalence of tobacco smoking by Māori women will continue having a disastrous effect in the next one or two decades[10]. Fortunately, there is increasing awareness of this issue[11] and intervention programmes are beginning to be developed and implemented[12].

The second most common cause of cancer in Māori is cancer of the breast. Incidence rates are similar in Māori and in non-Māori, although these are relatively high compared to rates from cancer registries in other countries[13]. The increases in incidence between 1981-1983 and 1989-1991 may in part be due to the introduction of mammography screening and hence an increased diagnosis and reporting of this disease[14]. The major causes of breast cancer are unknown although dietary factors may play a role[15,16]. Contraceptives (including oral contraceptives and depo provera) may play a minor role in breast cancer before age 35 years[17]. There has also been concern about a possible link between pesticides and breast cancer, but the evidence of this is very limited at this time. A study of breast cancer cases in Auckland during 1976-1985 found that survival was similar in Māori and Pākehā women, whereas survival was significantly lower in Pacific Island women.

This difference disappeared when the severity of disease at time of diagnosis was taken into account. This indicated that Pacific Island women with breast cancer were being diagnosed later when the disease had become more severe. There was a slight tendency for late presentation to occur in Māori women. Overseas, mammography screening services have been effective in women aged 50 years[18], and two pilot programmes have been established in Otago/Southland[19] and in the Waikato[20].

For Māori women, the most common site of cancer after the breast and the lung is the cervix, and the incidence has continued to increase

whereas it has remained static in non-Māori women. Furthermore, cervical cancer is three times as common in Māori women as in non-Māori women.

Researchers studying the prevention of cervical cancer note that the human papilloma virus (HPV) plays a key role in the causation of cervical cancer[21]. However, HPV is relatively common among young women with normal cervical smears[22]. It is likely that other factors determine which women with HPV go on to develop cervical abnormalities. A review of smoking and cervical cancer found an increased risk of developing cervical cancer amongst women who smoke tobacco. The evidence suggested that tobacco use promotes the HPV infection and encourages it to persist longer in the cervical tissues. Furthermore, tobacco use has a damaging effect on the cervical tissues[23].

A national survey in 1990 found that 73% of Māori women and 73% of Pacific Island women had had a smear test in the previous three years, compared with 85% of Pākehā women[24]. By contrast, a survey of Māori women developing invasive cervical cancer during 1989-1991 found that only 24% had had a routine smear test in the three years before diagnosis[25]. Major reductions in incidence and mortality from cervical cancer can be gained with regular cervical smear tests and adequate follow-up treatment[26]. There are significant issues of cultural safety in the implementation of cervical screening programmes for Māori women. For Māori, much of the debate on the establishment of a cervical screening register centred around the issue that information is a taonga[27]. As such, the safety, management, guardianship and the use of this information, both personal and aggregate, is critical.

Colorectal cancer (which includes both colon cancer and rectal cancer) is often quoted, along with malignant melanoma, as a cancer which is more common in non-Māori than in Māori[28,29]. There has been an 80% increase in colon cancer in Māori in the last two decades and it is now the fourth most common cancer in Māori, but the Māori incidence rate is still only 0.6 times the non-Māori rate.

Dietary factors seem to be most important in large bowel cancer, including high energy intakes and associated obesity, high fat intake, and low

consumption of fruit, vegetables, and cereals. Issues relating to nutrition and associated health risks are discussed further in chapter 8[30].

Other cancers where incidence in Māori is disproportionately high include cancers of the stomach and liver. Stomach cancer is declining[31] but is still nearly three times higher in Māori than in non-Māori. The risk factors for stomach cancer are not well-established but probably include tobacco use, low consumption of fruit and vegetables, consumption of smoked and other cured foods, and drinking water with high nitrate levels from contamination with nitrogenous fertilisers[32]. Fresh fruit and vegetables (particularly green and yellow vegetables[33]) may have a protective effect, and better preservation of foods by refrigeration and modern food processing techniques are probably also protective factors[34]. In particular, there is now considerable evidence that infection with helicobacter pylori (a bacteria which can occur in the stomach) is the major cause of stomach cancer[35], accounting for about 60% of cases[36]. The bacteria has also been linked to duodenal ulcers, gastric ulcers and lymphomas[37]. Poverty and overcrowding increase the risk of infection with the bacteria among children[38]. There may be value in testing for helicobacter pylori and developing screening and intervention programmes (treatment with antibiotics) for whānau of Māori who have developed stomach cancer. However, this approach is still experimental and has not yet been widely adopted overseas. A recent review concluded that eradication of helicobacter pylori had been achieved in 60-95% of cases, although it is not known whether this also reduces cancer risk[39].

The incidence of cancer of the liver in Māori increased markedly between 1974-1976 and 1981-1983 but has since remained stable. The high rate of hepatitis B carriage in Māori[40] would appear to be the most important factor[41,42]. The campaigns in the 1980s to immunise infants and children against hepatitis B, particularly in high risk areas, will have a significant effect in the long-term reduction of the incidence of hepatitis B infection and its chronic complications such as liver cancer, cirrhosis, chronic hepatitis and the carrier state. The challenge now is the identification and long-term management of those who have already become carriers.

Cancer of the prostate has been increasing in New Zealand in recent years[43]. Testicular cancer is not a common site in either Māori or non-Māori, but rates of testicular cancer have been increasing in New Zealand[44].

For only a few cancers has the incidence decreased among Māori. These include cancer of the stomach and some lymphomas. While less common, some cases of melanoma and colorectal cancer do occur in Māori, and therefore screening should be carried out in Māori as often as in non-Māori.

Cancer has a major impact in the Māori community, particularly for Māori women. Cancer in Māori women is the single most important cause of potential years of life lost (see chapter 3) and its relative impact has increased in the past two decades as deaths from heart disease have declined[45]. Cancer was the leading cause of death for both Māori and non-Māori in 1991[46].

Most cancers are caused by more than one factor, but amongst the most important individual risk factors would be tobacco, diet and alcohol[47]. Reductions in tobacco smoking, obesity and alcohol consumption and increases in consumption of fresh fruit and vegetables would therefore have an important impact in preventing cancer in the Māori community. Furthermore, appropriate screening and early intervention programmes have the potential to reduce the toll of cancer among Māori.

Children holding kina, c1939.
Photo: Thelma Kent collection, Alexander Turnbull Library

SECTION THREE

Factors Influencing Māori Health

Introduction

In general, Māori health status, as measured by conventional markers of death rates and hospital utilisation, has improved considerably since the previous volume of *Hauora: Māori Standards of Health*. Life expectancy has also improved. In fact, some have argued that according to these factors, Māori have never been healthier either in pre-European or contemporary times[1].

In this section, other factors which influence Māori health status are considered. These key areas include the socioeconomic environment, health behaviours, and access to health care.

Any discussion of the health of Māori today must take into account New Zealand's colonial history. The arrival of the Pākehā not only brought disease, conflict and dispossession, but also caused the destruction of belief and value systems[2]. This in turn, led to a decline in the Māori population by one third or more during the late 19th century. The 20th century has witnessed a regeneration of the Māori population and a narrowing of the gap in life expectancy between Māori and non-Māori. However, important differences still remain.

Kunitz (1994)[3] makes a comparison of several Polynesian populations, and argues that the population collapse following colonisation was especially severe and prolonged in New Zealand and Hawaii because these were places where the settlers dispossessed the indigenous people of their lands. The taking of land not only makes people poor, but also makes them more susceptible to diseases which flourish under conditions of poverty, overcrowding and malnutrition. It

destroys or disrupts social networks which provide practical and emotional support in times of need[4]. For example, Pool[5] showed that the Māori child to woman ratios (which are affected by high child death rates) were lowest in the areas where land seizures were occurring most rapidly.

Thus, the legacy of this colonial history continues to affect Māori today and is reflected in the low incomes and other markers of poor socioeconomic status. This status is, in turn, a significant factor influencing health[6]. Socioeconomic differences between Māori and non-Māori, and their effects on health, are reviewed in chapter 7.

Sociocultural factors are those factors which have a cultural base and influence the way in which we live our lives. There are many sociocultural factors which have a major positive impact on Māori health status. This is reflected in the high proportion of people with Māori ancestry who choose to identify as Māori. Traditional grieving practices among Māori have been found to be healthy and result in less need for prescription drugs, fewer general practitioner visits in the months following a bereavement, and fewer delayed grief reactions[7].

However, some positive sociocultural experiences have become associated with health behaviours which are related to illness. For example, a study of fifth form students in Gisborne found that those who had most cultural contact also had higher levels of tobacco use[8].

Researchers have often concentrated on 'lifestyle' factors such as tobacco, alcohol, hypertension, and diet. Studies which narrowly focus on individual risk factors can too easily 'blame the victim' and ignore the reasons for Māori being more exposed to these risk behaviours than are non-Māori. Unless historical, cultural, social and economic issues are acknowledged, it is difficult to develop effective interventions[9].

Historical and socioeconomic factors not only influence how and why people are exposed to particular risk behaviours, but also affect their response to such exposures. For example, measles infections were very common in children until effective vaccines were developed relatively recently. The death rate from measles fell markedly during the past century and deaths from measles became very rare, even though infections were still very common and effective immunization was not available[10]. In fact, there was a dramatic decline in infectious diseases which occurred prior to the development of modern medicines, and this has been attributed to improvements in nutrition, sanitation and general living conditions, as well as specific public health interventions to improve housing conditions[11]. The health policies of Sir Maui Pōmare and the Young Māori Party in the early decades of this century also recognised the influence of these factors on health.

In this sense, even though individual risk behaviours such as tobacco, diet and alcohol may account for a high proportion of deaths in Māori[12], they are not the most fundamental cause of disease. Rather, they are part of the mechanism by which disease occurs. Nevertheless, provided that these factors are seen in their historical and social context, it is important to know which specific risk behaviours have the biggest impact on Māori health, so that realistic and effective interventions are planned. We review the possible contribution of various 'lifestyle' behaviours to Māori health patterns in chapter 8.

Medical therapy played a minor role in improvements to health and life expectancy during the past century. It continues to play a relatively minor role today[13]. For example, there has been a major decline in the death rate from coronary heart disease in New Zealand during the last 20 years and this has been largely due to changes in diet and tobacco smoking[14,15]. Medical treatment also has little impact on some of the other major causes of death and disease today such as motor vehicle crashes, accidents and lung cancer. However, there are several reasons why the health services continue to be important for Māori health. For example, there are specific health problems for which health care is effective. Smith and Pearce[16] found that 30-40% of the 'excess' Māori deaths were due to diseases which should not usually be fatal. These included tuberculosis, bronchiectasis, asthma, pneumonia, diabetes, gout, chronic nephritis, chronic rheumatic heart

disease and hypertensive heart disease. They concluded that these problems reflected a serious failing in the health services.

Health services are also important, because even for those diseases for which medical treatment is essentially ineffective (eg, many forms of cancer), health care can be important for quality of life. Furthermore, the primary health care services have the potential to play a major role in disease prevention and health promotion. The issue of equitable access to services is also a fundamental right guaranteed in the Treaty of Waitangi. Health service factors affecting health are discussed in chapter 9.

Finally, we should note that genetic and hereditary factors probably only play a very minor role in current Māori health problems. Genetic research has become more common in recent years as a result of advances in molecular biology techniques, and some researchers have been eager to use these new techniques and apply them to important Māori health problems. However, there is a danger that medical researchers will assume that most Māori health challenges are genetic in origin and this may divert attention and resources from the more fundamental influences on Māori health.

CHAPTER 7

Socioeconomic Factors Affecting Health

KEY POINTS

- **Socioeconomic factors such as income, employment, housing and education are strongly related to health. A review of these indicators for the last decade show that Māori have become relatively worse off compared to the non-Māori population.**
- **Unemployment has been particularly high among Māori, especially in the younger age-groups, and this has affected income level, which is a key factor influencing health status.**
- **Māori participation in early childhood education has increased, particularly with the growth of the kōhanga reo movement. More Māori are staying at school for the 6th and 7th forms and are entering tertiary institutions.**

The previous volume of *Hauora: Māori Standards of Health* noted the relatively weak socioeconomic position of Māori in New Zealand society and commented that this contributed to Māori ill health. The introduction to this section draws attention to the fact that the current socioeconomic position of Māori is a consequence of New Zealand's colonial history and subsequent policies which have impacted on Māori development. In this chapter, indicators of socioeconomic status are noted and there is discussion on areas where change has occurred.

Indicators of Socioeconomic Status

Income

- The distribution of household income in the Māori population deteriorated between 1986 and 1991, while it improved for non-Māori of all ages except those over 60 years (ie, there were fewer Māori in the top two income quintiles, but more Pākehā). Also, on average, Māori have more people living in the household than non-Māori, therefore the household income has to support more people[1].

- In 1991, Māori males received an annual median income of $12,955, less than two-thirds that of non-Māori males ($20,023). Māori women received $10,027 while non-Māori women received $11,452[2].
- In 1992, 71% of Māori aged 15 to 59 had no assets, compared to 41% of non-Māori. Twenty-one percent of Māori had assets of $25,000 or less, compared to 32% of non-Māori[3].

Employment

- Over the last decade, Māori unemployment rates have risen steeply, reaching 24.2% at the 1991 Census, compared with 9.0% of the non-Māori workforce. Young Māori aged 15-24 years were particularly affected with over three times the unemployment rate of non-Māori in this age-group (37% compared to 12%)[4].
- Māori workers were under-represented in professional, technical, administrative and managerial occupations at the 1991 Census, which were the occupations least affected by redundancy and unemployment throughout the decade[5].
- There was a significant decrease in the Māori workforce (employed or seeking work) between 1986 and 1991 which probably indicates a growth in the number of people who felt it was unrealistic to continue to seek work[6].

Housing

- Māori home ownership increased from 45% in 1981 to 55% in 1991. Fifteen percent of Māori homes were owned without a mortgage in 1991, compared to 37% of non-Māori homes[7].
- Forty percent of Māori were living in rented accommodation in 1991 compared to 21% of non-Māori[8].

Education

- In recent years Māori participation in education has increased rapidly. More Māori than ever before are accessing early childhood education, staying at secondary school for the sixth and seventh forms, and entering tertiary institutions[9].

- The kōhanga reo movement has been closely associated with this growth in participation. Since the first centre opened in 1982, the number of kōhanga reo has expanded to 809 in 1993, catering for 49% of Māori children enrolled in early childhood education[10].
- Māori medium education at primary and secondary level has also increased, with 23 kura kaupapa Māori operating in 1993, and significant development in Māori medium education in mainstream schools[11].
- Only 34% of Māori students left school without a formal qualification in 1993 compared to 53% in 1986. However young Māori continue to face greater risk than non-Māori of exiting the school system with few or no qualifications[12].

Family Structure

- There has been a marked increase in the proportion of Māori children under 15 years living in one-parent families, from 19% in 1981 to 40% in 1991[13].

Discussion

As with death rates and hospital utilisation rates, socioeconomic factors are known to be important but imperfect indicators of health status. Socioeconomic factors include educational achievement, social class, housing, employment, income, gender and family structure. Many of these factors are interrelated.

While these factors have been shown to be closely associated with health both locally and internationally, their weaknesses as health status indicators have also been noted. For instance, many measures of socioeconomic status are based on occupation and therefore, may not be a suitable measure for communities where a significant percentage of people is unemployed. Furthermore, they may fail to recognise cultural differences in status and responsibility such as those which occur following retirement.

Despite the above reservations regarding socioeconomic status, most, if not all, commentators have concluded that socioeconomic status

explains some, but not all, of the mortality and morbidity excess in Māori[14].

Since the previous volume of *Hauora: Māori Standards of Health*, the major changes in the socioeconomic profile of Māori have been in the areas of education, unemployment, income, family structure and home ownership. For education and housing, these changes have been positive.

Māori participation in formal education has increased dramatically in recent years with many more Māori children attending early childhood education, and staying at secondary school for the 6th and 7th forms. Māori enrolments at tertiary institutions have also risen, especially at polytechnics. This increased participation has been closely associated with the growth in Māori medium education, in particular, Te Kōhanga Reo, kura kaupapa Māori and hapū and iwi wānanga[15]. Non-Māori performance in education has also improved.

The level of education has been found by many studies to be strongly related to health outcomes[16]. At Hui Whakaoranga in 1984, an enthusiastic contingent from Te Kōhanga Reo predicted that they would contribute to Māori health development. The development noted above in Māori educational achievement is an expression of the success of Te Kōhanga Reo and it can be expected that health improvements will flow from these in future years.

Te Ara Ahu Whakamua, a hui held in 1994, reflected on the past decade of Māori health and looked forward to strategies for the 21st century. Possible indicators included: the number of Māori in positions of influence; the value of resources in Māori ownership; increase in educational achievement; the use of te reo Māori; increase in quality of life; drop in the crime rate, and economic success. Information is not easily available for many of these measures, but the indicators listed above lead us to believe that there has already been development in the areas of educational achievement and in use of te reo Māori.

There has also been an increase in the number of Māori households who own their own homes. A Papakāinga Housing Scheme which enabled

homes to be built on Māori land may have contributed to this increase. However, there is still a significant housing need in many sectors of the Māori community. A large qualitative study carried out by the Māori Women's Housing Research Project 1991 found that many Māori families, particularly in rural areas, lived in '. . . appalling physical conditions . . .'[17].

There has been evidence of recent worsening of Māori status in terms of income and employment. Income has been found to be a key influence on health, with the health of a population affected by the degree of inequality of income distribution[18]. It is of concern, therefore, that this last decade has seen a widening inequality in income, with more Māori households in the lower income brackets than previously, while in the non-Māori population (apart from those aged 60 years and over), there are more households in the higher brackets[19].

There has been little change in the distribution of occupations in the Māori workforce, but unemployment has had a major impact, especially amongst young Māori under 25 years of age.

At Hui Taumata, the Māori Economic Development Summit Conference held in 1984, Māori were warned to resist policies which make Māori the 'shock absorbers in the economy', through hitting those at the bottom of the economic ladder hardest during poor times, while rewarding those at the top of the economic ladder during good times[20]. The years that followed showed that the policies of the macroeconomic reforms did indeed have that effect. Because of the pattern of Māori employment, Māori were more affected by the state sector and trade reforms than were non-Māori. This has been witnessed by higher rates of unemployment and lower incomes.

The trends of increasing suicide, homicide and mental ill health among Māori over the last decade indicate a classic picture of a population undergoing an upturn in unemployment and hardship.

Family structure has also changed with many more Māori children now living in one-parent families and fewer living in an extended family household. The long term effect of this change is not known, but previous studies have noted benefits to strong social support structures for

Māori women[21]. However, it is unclear if the increase in one-parent families correlates with increasing social isolation.

The decade under review was both the Decade of Māori Health and Māori Development. During this decade, Māori health has continued to improve, although at a rate which is less than expected. It is likely that the decrease in the rate of improvement has been contributed to by socioeconomic factors such as income and employment which have worsened during this time. While some improvement in socioeconomic indicators is noted, particularly in education, changing state sector policies and their impact on employment and income may have prevented the benefits of Māori development from reaching Māori individuals and whānau.

CHAPTER 8

Behaviours Influencing Health

KEY POINTS

- **Specific behaviours have a significant effect on health status. The most commonly noted behaviours include: tobacco use; alcohol and drug use; inappropriate diet, and lack of exercise.**
- **Tobacco remains the single greatest preventable cause of premature death amongst Māori. There is recent evidence that Māori are beginning to respond to the smokefree message.**
- **Diet contributes significantly to diabetes, heart disease and cancer. Dietary information suggests that Māori now eat a diet similar to non-Māori. National nutrition guidelines promote a diet which has similarities to traditional Māori foods.**
- **While recent studies have shown that Māori exercise at about the same rate as non-Māori, there is an ongoing need to promote physical activity, especially amongst those who currently have low levels of physical activity.**
- **Studies suggest that Māori have a different pattern of alcohol use than non-Māori. However, alcohol exacts a high toll of both death and illness among Māori and there is concern that the impact from factors such as unemployment, increased advertising and availability will exacerbate this toll.**

In this chapter, specific behaviours which affect Māori health are considered. As noted in the introduction to this section, many behaviours influence health status. Sometimes this influence is positive, sometimes neutral, while other behaviours have a negative influence on health.

Traditionally, it has been the health risk behaviours which negatively impact on health outcomes that have been the most studied. Knowledge of these behaviours is important so that effective intervention programmes can be planned. The previous volume of *Hauora: Māori Standards of Health* noted several of these so-called lifestyle factors which have an impact on Māori health. New information about these factors, as well as other factors which have become prominent during

the period under review, are discussed below.

Tobacco

Every year, tobacco kills at least 650 Māori prematurely[1]. About 50% of Māori adults use tobacco. The prevalence is higher in women than in men[2].

Furthermore, Māori spend about $250 million each year on tobacco. Of this, the government takes $170 million as tax revenue. After paying for the cost of tobacco-related illness and disability, the government profit from Māori tobacco smoking is about $150 million annually. Tobacco companies take about $30 million a year from Māori smokers[3].

A network of Māori health workers have taken up the key task of assisting Māori smokers to quit and promoting 'Smokefree' amongst young Māori. A testimony to their success is that approximately 4,000 Māori quit smoking every year[4].

However, tobacco sponsorship and promotion continues to exert an influence on young Māori, especially through carefully measured events, such as the Winfield Cup. Winfield is the most commonly smoked brand among Māori[5].

The last decade has witnessed an increase in awareness about tobacco use amongst Māori. Many marae have become smokefree, the kohanga reo have a smokefree policy and many Māori groups seek smokefree sponsorship for their sports and cultural events. Preliminary results from a national survey of Māori about tobacco use suggests that there has been a decrease in tobacco use by Māori adults aged 18 years and over[6].

Alcohol

The previous volume of *Hauora: Māori Standards of Health* noted that Māori have a different pattern of alcohol use than non-Māori. This pattern demonstrates that fewer Māori drink regularly and that those Māori who do drink alcohol do so less frequently. However, on these occasions, Māori drink nearly twice as much as non-Māori[7].

Māori suffer excessive morbidity and mortality from alcohol-related causes. For the period 1989-91, alcohol-related deaths in Māori males

were 2.2 times the rate of non-Māori males. This is slightly lower than the rate noted for the period 1980-84 (2.8 times). However, for Māori women the death rate for the 1989-91 period is 2.9 times that of non-Māori females. In 1980-84 the mortality rate for Māori women was half that of non-Māori women.

It is estimated that about half the fatalities from motor vehicle crashes are alcohol-related. Among Māori, this means an excess number of deaths. Furthermore, motor vehicle crashes are the second most common cause of admission to hospital for Māori males.

It is disturbing to note the high prevalence of alcohol consumption in New Zealand secondary school children, particularly males. There is a predominance of Māori boys amongst the heaviest drinkers[8].

Studies have shown that an increase in availability of alcohol generally leads to an increase in alcohol consumption[9]. Amendments to the Sale of Liquor Act which came into effect in April 1990, have been shown to have led to an increase in alcohol sales. Furthermore, alcohol advertising and promotion has been reintroduced onto television. It appears that Māori are among those specifically responsive to this advertising as young Māori are one of the few groups who are continuing to increase their consumption of alcohol. It is also well documented that alcohol advertising has an impact on children as they develop individual attitudes towards drinking and drinking practices[10]. This pattern is likely to provide an even greater challenge for those Māori initiatives working in the area of reducing alcohol morbidity and mortality among Māori families.

Manaaki Tangata (Caring for People) is a programme which outlines guidelines for safer alcohol use and is aimed specifically at Māori. It attempts to market the message of moderation in alcohol consumption. Recommended safe drinking amounts for men and women have been developed to inform people about the amount of alcohol they can drink without exceeding the legal blood alcohol limit of 80mg of alcohol per 100mls of blood. Information on these guidelines can be obtained from the Alcohol Advisory Council of New Zealand (ALAC).

Results from the evaluation of a Māori health promotion initiative in 1993 and 1994 suggests that a significant proportion of the Māori women in the study group have changed their drinking patterns. This may be a reflection of greater awareness of safe drinking patterns[11,12].

Exercise

People who engage in more than four hours per week of vigorous exercise (60%) are more likely to describe their health as excellent compared to those who have no vigorous exercise (38%)[13].

In the last decade, two large surveys have included questions on exercise. In 1989-1990, the Life in New Zealand (LINZ) survey found that for both men and women, Māori had higher levels of physical activity than non-Māori[14]. There were similar findings in the 1992-1993 household health survey, but when the younger age structure of the Māori population was taken into account, the proportion of those who exercise was slightly lower amongst Māori than non-Māori[15].

However, just over half the population, both Māori and non-Māori, have low levels of physical activity. The chance of belonging to this inactive group increases with age[16].

There has been a visible growth in Māori sports events. Some marae have built gymnasiums to reinforce the concept that the marae is a health complex. Others are involved in marae sports competitions. Many Māori are participating in waka sports both at home and internationally. Touch rugby has also proved to be very popular among both men and women.

Nutrition

National nutrition guidelines promote a diet with many similarities to traditional Māori foods. The traditional diet had much to recommend it. The protein content was largely from fish and poultry and the diet was high in carbohydrates, mainly kumara. So important was the cultivation of the kumara as the primary food, that it had its own god, *Rongo-ma-tāne*. Steaming was the main method of cooking.

Traditional proverbs disclose that obesity was not highly regarded. Delicacies were stored for special occasions or people, for example,

kererū which have a high fat content, were often saved for pregnant women or breastfeeding mothers.

Recent studies of body mass have found Māori to be more likely to be overweight than non-Māori. However, most studies of body composition have been based on the European population and it is not clear whether standards derived from these groups can be applied to Māori[17].

The LINZ survey noted dietary intakes estimated by a 24 hour dietary recall. For Māori, total energy intake and fat intake were slightly higher than non-Māori and the intake of vitamins was lower[18]. Deaths and hospital admissions due to obesity are higher for Māori than non-Māori. This is especially true for Māori men (refer to section 2).

In recent years, a growing number of people in New Zealand depend on the provision of assistance from food banks. There have been a number of reports that suggest that socioeconomically disadvantaged New Zealanders are unable to afford sufficient quantities and quality of food to meet their nutritional needs[19,20]. Furthermore, in Australia, in areas where a significant proportion of the population is in lower socioeconomic groups, food has been found to have higher prices than comparable foods in higher socioeconomic areas[21]. Investigation of this issue has begun in New Zealand. Many Māori families need or desire to supplement their diet with foods gathered from traditional places. However, this is complicated by issues of pollution or depletion of food sources.

An increasing number of marae have recognised the need to serve food which will reinforce the wellbeing of guests. Some have been involved in health initiatives relating to nutrition and others have been recognised with Marae Heartbeat Awards.

Cannabis

Cannabis is the most widely used illegal drug in New Zealand. A 1990 study showed about 12% of New Zealanders between the ages of 15-45 years had used cannabis in the previous 12 months and 43% of New Zealanders in the same age group report having used cannabis at some time in their life[22].

There is some evidence that cannabis is widely used amongst some groups of Māori. Furthermore, there is anecdotal evidence that it is grown by some Māori for economic survival[23]. Admissions to mental hospitals for drug use and conditions associated with drug use is noted for the first time in this volume of *Hauora: Māori Standards of Health III*. A small number of Māori interventions currently focus on detoxification, treatment and rehabilitation of Māori for drug and substance abuse.

Environment

Māori have expressed concern about environmental health issues. Much of this concern has focused on the provision of a safe water supply and traditional food sources, and the appropriate disposal of human and industrial waste. The Waitangi Tribunal has been the forum for much of this debate as the full, exclusive and undisturbed possession of lands, forest and fisheries was guaranteed under Article II of the Treaty of Waitangi.

The urban environment also has many hazards for Māori families. Traffic is a particular hazard for Māori children[24]. For example, 25% of Māori households in Auckland have no access to a car compared with 13% of non-Māori households, yet child pedestrian injury rates are three times higher for Māori children than non-Māori[25]. More generally, the process of urbanisation has had a major impact on lifestyles, including many of the risk factors discussed in this chapter, as well as being especially significant for whānau and for the process of whanaungatanga[26,27].

Dental Health

The dental health of Māori children is of concern, especially as access to dental care is free for children until age 18. Only 34% of Māori five year olds are caries-free compared to 62% of non-Māori. Furthermore, the severity of decay at five years is greater for Māori children and Māori pre-schoolers are less likely to have been seen by the school dental service[28].

Violence

Analysis during the production of this volume of *Hauora: Māori Standards of Health* highlighted the fact that violence is causing death and hospitalisation for an increasing number of Māori at all ages. Other indicators include the disproportionate representation of Māori women and children in women's refuges[29].

Disabilities

Thirty-six percent of Māori report some sort of disability or long term illness. When adjusted for the age structure of the population, this represents higher rates than other ethnic groups[30].

Discussion

The purpose of this chapter is to note those behaviours which influence wellbeing and where significant health advancement is likely if these behaviours are addressed. Comprehensive health promotion policies are most likely to be effective in altering health behaviours. However, where the need is urgent, initiatives have sprung up as people feel the need to respond immediately and this in turn often initiates comprehensive interventions.

The previous volume of *Hauora: Māori Standards of Health* drew attention to several risk factors including tobacco use, nutrition, alcohol use, lack of exercise and infectious diseases. It is heartening to note that within this timeframe, Māori have begun to address all the key risk behaviours noted. While change has begun, ongoing work on all of these issues is necessary. However, the underlying message is that communities working together with their health workers can achieve change.

Studies have shown a correlation between alcohol abuse and unemployment[31]. Unemployment has increased, especially among young people in many Māori communities during this period under review. It is likely that the effects of alcohol use will increase and require ongoing intervention until underlying issues are addressed.

In this third volume of *Hauora: Māori Standards of Health* emerging health risks are noted. The dental health of Māori is at risk through a

complex set of interrelationships which include dietary habits, food advertising, access to and the delivery of dental health care, as well as the role of health education. Further research may help clarify appropriate interventions to improve Māori dental health.

The signals are now clear that issues such as cannabis use and violence need to be addressed by Māori in the context of comprehensive intervention strategies.

Many of the health risk behaviours noted above involve the use of non-traditional or introduced behaviours and substances. As such, they can be seen as the results of colonisation. It is important to put these risk behaviours in this context and in the final analysis the effects of these behaviours will be controlled by Māori taking appropriate action.

CHAPTER 9

Health Service Issues

KEY POINTS

- **Many of the diseases which disproportionately affect Māori are treatable. High rates of these diseases in Māori may therefore reflect failings in the health services.**
- **Māori use health services differently than non-Māori. When need for health care is taken into account, Māori visit a general practitioner less often than non-Māori.**
- **In recent years, there has been an increase in the number of Māori health service providers. This illustrates a demand for culturally safe services together with Māori efforts to manage health services by and for Māori.**

In this chapter, the role of health services and their delivery is discussed with regard to their contribution to the current state of Māori health. Generally, health services cover those provided to individuals, such as medical and auxiliary services, including pharmaceuticals, through to public health services including health promotion and environmental health. While welfare services impact on health outcomes, they are usually not described as health services. Many Māori include rongoa Māori in the definition of health services.

Many authors have noted that health services have played only a minor role in health improvement during the last century[1]. Most health improvement has followed general improvements to housing, sanitation and standards of living. However, some authors have illustrated that Māori have excessive mortality from diseases which ought not to be fatal. Smith and Pearce[2] found that 30-40% of 'excess' Māori deaths were due to diseases for which effective health care is available. They concluded that these problems reflected a serious failing in the health services.

Furthermore, health care can make a contribution to quality of life. About one in three Māori report some type of disability[3]. Hence, Māori are not only disadvantaged in comparison with non-Māori in terms of

length of life, but also in the proportion of life span spent disability-free[4]. This indicates a greater requirement for health services by Māori. Public health services have an important role to play in the prevention of illness and promotion of health.

For these reasons, timely and appropriate health service delivery has the potential to contribute to health advancement.

The utilisation of health services is not a simple matter. It reflects a complex interrelationship between a triangle of consumers, providers and institutions including politicians, policy makers and Treasury. Consumers have been asked about barriers to accessing health services and responses have often noted such issues as cost, transport, acceptability of the provider, as well as the Māori concept of whakamā[5].

Cost is an important factor. Even changes to the cost structure of services can affect health services utilisation. Davis et al[6] found that levels of utilisation fell by 15% shortly after the introduction of the new subsidy and charging regime in general practice, which was the first substantial change in the current health reforms. All patient groups were affected, but the greatest fall occurred among beneficiaries, even though this group was supposedly the focus of increased assistance.

On the other hand, attitude is also important. Even for those general practices which have very low fees, some Māori are reluctant to go to the doctor. One problem frequently cited in submissions to the Māori Asthma Review was the attitude of doctors who do not have the time or the inclination to help educate their patients about their health. For example, many Māori with asthma had received no instruction on how to take their medicines, and some were using completely the wrong inhaler technique[7].

The location of medical services is often cited as a major factor affecting access to health care. This partly involves the costs of travel. These costs were cited by 22% of patients as a reason for non-attendance for follow-up at the free hospital-based chest clinic in a recent study at Middlemore Hospital[8]. Cost of transport can be an issue for some people living in cities who do not have cars. The time and inconvenience involved in travel is a major challenge in rural areas. For example, on the Chatham

Islands, the Mahia Peninsula and the West Coast it can take hours driving on difficult roads to reach medical help.

Overcoming the barriers to access caused by location and transportation difficulties is part of the success of initiatives such as Te Waka Hauora, a mobile health promotion clinic in Otago, and outreach clinics in Hokianga.

The acceptability of the service to the client has also been considered in recent years. Māori have defined a term which is in line with the accepted views of legal safety, ethical safety and physical safety. The concept of 'cultural safety' has been offered as a further category of service delivery. It is very difficult to assess the 'cultural values' of any individual Māori[9] and therefore it is important not to assume that a Māori will react in a predictable way to any given situation. Furthermore, each iwi differs to some extent in the ways they express their values and belief systems. People with seemingly different views and values identify as Māori. They may be rural or urban, marae based or families without marae links.

Different areas of service provision also have their unique challenges. The use of prevention services including health education and screening has been shown to be affected by socioeconomic factors. A review of health services in Britain showed that people of lower classes used the services differently. Of concern was the fact they were also less likely to use prevention services such as screening and immunisation[10].

The low rate of childhood vaccination among Māori reflects the lack of accessibility and acceptability of current immunisation programmes to Māori parents[11]. A study in Hawkes Bay in 1991 found that only 46% of Māori children were fully immunised by age two years, compared with 67% of non-Māori children[12]. A national immunisation survey in 1992[13] found that only 56% of all children had completed all their immunisations by their second birthday, and the rate of immunisation was about one-third lower if the principal care giver was Māori.

Concern about these issues, including problems of access to and use of immunisation, led to the establishment of the Tipu Ora project in Rotorua in 1991. Pregnant mothers were identified and followed

through Māori networks by a kaitiaki[14]. Immunisation uptake rates appeared to improve almost immediately and mothers became actively involved in parenting programmes[15].

Furthermore, recent initiatives in other areas of prevention have illustrated that for many reasons, Māori may have a different starting point for an intervention. Recent experience with cervical screening showed that Māori initiatives working in this area had to devise appropriate education programmes and implement them before screening could begin.

Interviews with a group of Māori women now show that most Māori women know that cervical screening is performed for early detection of cancer of the cervix at a treatable stage[16]. While a significant proportion of Māori women are still not accessing smears at the recommended rate, it is likely that an increase in smears will follow in the near future[17].

Access to primary health care (general practitioners) is also of concern. Research has found that the Māori age-standardised rate for GP visits is 12% higher than for the whole population[18]. However, when the need for health care was taken into account, Māori people were visiting their general practitioner less often than Pākehā, but the pattern was not uniform within the Māori population. General practitioner consultation visits for Māori children were at a rate which was similar to what was expected and rates for Māori men were only slightly lower than expected, but the rates of visits by Māori women were much lower than expected. The implication was that Māori women were ensuring that their children had access to health care, but were missing out on access for themselves[19,20,21].

A survey in South Auckland in 1988-89[22] found similar patterns, with only slightly higher rates of general practitioner consultation in Māori (an average of 1.6 visits in the previous three months) than Pākehā (1.4 visits), whereas consultation rates were higher in Pacific Islanders (2.5 visits). West and Harris[23] also reported greater problems for Māori in gaining access to primary health care, even though actual rates of medical contact were higher in Māori because of the greater need[24].

With respect to pharmaceutical use, when adjusted for the younger age of the Māori population, in general Māori receive slightly more pre-

scription items each year[25]. However this is not unexpected given the total picture of increased Māori mortality, hospital admission rates and general practitioner utilisation.

Several studies have found problems of access to health care in Māori people with asthma[26]. For example, Garrett et al[27,28] studied reasons for ethnic differences in accident and emergency attendance rates for asthma. Māori and Pacific Islanders were less likely than Pākehā to have a regular general practitioner, less likely to be on preventive medications, less likely to have a crisis plan, and less likely to have and use a peak flow meter. Relative to the perceived severity of their asthma, Māori and Pacific Islanders lost more time from work or school and used hospital services more.

In contrast, a survey in South Auckland[29] found that a similar proportion of Māori (70%) and Pākehā (69%) with diabetes had received some diabetes education, whereas the proportion was lower in Pacific Islanders (49%). However, a study in Auckland and Tokoroa during 1988-1990 found that Māori, Pacific Islanders and Asians with hypertension were three times less likely to be receiving treatment than Pākehā[30].

A survey in South Auckland[31] found little ethnic difference in reported satisfaction with general practitioner service with respect to waiting times and out-of-hours services, but found significantly less satisfaction in Māori (and even less in Pacific Islanders) with respect to prices and 'doctor qualities'.

Davis and Yee[32] analysed the patterns of care and professional decision making in general practice office encounters in Hamilton during 1979-1980. They found little difference in the services given to Māori and non-Māori, except that there was a lower proportion of referrals (to private specialists, physiotherapists, hospital accident or to hospitals) for Māori. The Household Health Survey[33] also found that a lower proportion of Māori (17%) than non-Māori (24%) had seen a medical specialist in the previous year, even though the proportions visiting a general practitioner were similar in the two ethnic groups and a higher proportion of Māori (15%) than non-Māori (8%) assessed their own health as 'not so good' or 'poor'.

A study of attendances at the Christchurch diabetes clinic[34] for complication screening during 1991-92 found that there were proportionately 3.4 times more Māori than Pākehā attending the clinic, which is consistent with evidence that diabetes prevalence is several times higher in Māori than in Pākehā[35,36]. This suggests that, when the need for health care is taken into account, there was little ethnic difference in access and utilisation of this particular clinic. However, a survey of patients at the Wellington Hospital diabetes outpatient clinic[37] found that Māori patients were disproportionately under-represented.

Mitchell and Quested[38] found that 33% of 'Polynesian' children had not received any asthma drugs in the 24 hours prior to a hospital admission compared with 14% of Europeans, and fewer 'Polynesian' children were taking preventive medications. These differences were not explained by ethnic differences in the characteristics of the asthma[39]. It was concluded that medical practitioners were making assumptions about the value of prescribing preventive medicines for Polynesians, and that this was an example of institutional racism[40].

There is more extensive evidence of ethnic differences in availability and quality of care in hospitals. For example, relatively few Māori are gaining access to coronary bypass surgery despite the high rate of admissions for coronary heart disease and the high death rate from this disease[41,42]. Māori constitute 6.2% of all public hospital discharges from this disease, but only receive 1.6% of the surgery for this condition[43]. Similarly, an analysis of the cardiac surgery register for 1983-1987 found that non-Māori males were 3.5 times as likely to receive coronary artery bypass grafts than Māori men even though the death rate from this disease was lower in non-Māori men than Māori[44]. By contrast, a study in Otago[45] of the period 1987-89 (of all ethnic groups combined) found that there was not a systematic association between social class and access to coronary artery surgery (angioplasties and coronary artery bypass grafting). This suggests that the poor access by Māori is not solely due to socioeconomic factors, and that doctors are, consciously or unconsciously, being influenced by the patients' ethnicity when making decisions as to whether to offer cardiac surgery.

These are some of the reasons for many Māori expressing a preference for Māori management of Māori health services[46]. The aim of such services is to reduce barriers especially those of location and cost as well as the positive association with an appropriate provider.

However, it must be stressed that Māori health services cannot meet the needs of all Māori at this time, and that Māori will continue to use general health services. Health services for Māori need to be based on the recognition of the diverse realities of Māori rather than on 'traditional' values.

> An exclusive focus on tribal structures might bypass many Māori. Similarly, making the New Zealand mainstream more bicultural might do little to address the needs and interests of those who are so uncomfortable in society's institutions that they will choose to avoid them if possible.[47]

Māori have also been catalysts for change in health protection. Some iwi have taken claims to the Waitangi Tribunal which contain significant environmental health issues. These claims, which include Motunui, Kaituna and Manukau, successfully challenged projects which were contributing to environmental pollution. This is recognition of the fact that health development requires a balance between people, their circumstances and the environment. Health services play a role in helping maintain this balance.

While health services have been noted to have only a minor impact on mortality, they are nonetheless important in the total equation of health status. Furthermore, access to health services, and some would argue, equitable outcomes from health service delivery is guaranteed to Māori by the Treaty of Waitangi. A review of health service issues highlights a complex interaction of factors, including cost, location, appropriateness of care, workforce development and acceptability of provider. It is important that current health sector reforms attempt to provide an environment where these issues can be more easily researched and appropriate interventions initiated.

Summary and Recommendations

Summary

This is the third report in the series of *Hauora: Māori Standards of Health*. Previous reports have covered the period 1970-1984. This has now been extended to 1991. Analyses of mortality, morbidity and social indicators have limitations when used at one point in time. However, they are useful when considering health trends over time.

This period under review was an interesting time for Māori health development. Following Hui Whakaoranga in 1984, there was a proliferation of Māori health initiatives in an environment which was generally supportive and responsive. However, the latter part of the 1980s was also remarkable for its macroeconomic reforms. Māori occupy a vulnerable position in New Zealand's economy and thus have been disproportionately affected by the state sector reform, benefit cuts and increases in unemployment.

This volume highlights the general trend of ongoing improvement in Māori health as measured by increased life expectancy and decreased mortality. However, the general pattern of improvement slowed during the review period. As health is known to be very responsive to social and economic variables, it is likely that this reduced improvement is a reflection of the economic reforms in the latter part of the 1980s.

It is also likely that there have been further changes since 1991 as a result of the current reforms. However, the health outcomes for Māori associated with the health reforms are not covered by this report.

The analysis of this volume of *Hauora: Māori Standards of Health III* has highlighted areas where there has been considerable advancement, including asthma and coronary heart disease. However, ongoing work needs to build on this gain. Other areas noted in this report are cause for concern. These include issues such as mental health, unintentional injuries and violence. Furthermore, issues requiring further study are noted including access to health services, disabilities and environmental health. Finally, there is a need for Māori health workers and policy makers to form a consensus on the classification of ethnic identity.

Recommendations

1 That ongoing effort continues with specific issues which negatively affect Māori health.

It is noted that there has been significant attention given to specific areas in Māori health including: asthma, cardiovascular disease, tobacco use, the prevention of alcohol-related harm, nutrition, cervical screening, diabetes, and cot death prevention. Improvements have followed in many of these areas. However, this work needs to be continued and developed to ensure maximum benefit is obtained from these interventions.

2 Further research should be directed into areas highlighted in this report.

These areas include: disabilities, environmental health, dental health, access to health services, cannabis and drug use, violence, Māori health workforce, as well as the outcome for Māori from the current health reforms.

3 That policy makers recognise the social, economic, cultural and political factors that influence health outcomes.

This report has noted that health is a consequence of a variety of factors. Some of the health effects noted in this report are due to policies related to employment, income, education and housing in the years under review. It is important that these consequences are monitored and provide input into policy making.

4 That there be a comprehensive review of Māori mental health.

There has been an alarming increase in suicide among Māori during the last decades which needs appropriate intervention. Furthermore, Māori have had different outcomes during the reorganisation of the health services in recent years and there is evidence that Māori continue to have problems accessing appropriate mental health care at an early stage of illness. There is no indication that these issues will improve in the near future and some concern that they may worsen. For these reasons a comprehensive review of Māori mental health is necessary.

5 That a comprehensive plan for Māori injury prevention assess-

ment, treatment and rehabilitation be developed which achieves positive outcomes for Māori.

Injury, both intentional and unintentional, is a significant cause of death, hospitalisation and disability among Māori. Information about injury and its cause should be the focus of research in order that appropriate interventions may be planned. It is imperative that this information includes accurate ethnicity classification.

6 **That Māori health initiatives, particularly at the primary health care level, be adequately resourced with respect to people, information, skills and finance.**

This report has highlighted that Māori have difficulty in accessing health care services. The recent development of Māori initiatives that are iwi based or based within Māori organisations is likely to alleviate some of this disparity and needs ongoing support and evaluation. However, this does not negate the responsibilities of mainstream services to ensure they are affordable, accessible, appropriate and acceptable. Indeed, discrepancies in the provision of some mainstream services, eg, coronary artery surgery, indicate areas where review is necessary.

7 **That the classification of ethnicity becomes a requirement for all health and disability service purchasers and providers.**

Ongoing monitoring of trends in Māori health is hampered by the fact that not all service providers collect ethnicity and that when collected, the information is not in a consistent format. Given that Māori health outcomes represent an obligation under the Treaty of Waitangi and the Health and Disabilities Services Act, it is imperative that a consensus be reached on how ethnic data be collected and incentives be given to providers to ensure that accurate data is available to assist in the monitoring of Māori health trends.

8 **That a further major report on Māori standards of health be prepared in due course to cover Māori health issues and health trends during the 1990s.**

Te Tiriti o Waitangi

Ko Wikitoria, te Kuini o Ingarani, i tana mahara atawai ki nga Rangatira me Nga Hapu o Nu Tirani, i tana hiahia hoki kia tohungia ki a ratou o ratou rangatiratanga, me to ratou wenua, a kia mau tonu hoki te Rongo ki a ratou me te ata noho hoki, kua wakaaro ia he mea tika kia tukua mai tetahi Rangatira hei kai wakarite ki nga tangata Maori o Nu Tirani. Kia wakaaetia e nga Rangatira Maori te Kawanatanga o te Kuini, ki nga wahi katoa o te wenua nei me nga motu. Na te mea hoki he tokomaha ke nga tangata o tona iwi kua noho ki tenei wenua, a e haere mai nei.

Na, ko te Kuini e hiahia ana kia wakaritea te Kawanatanga, kia kaua ai nga kino e puta mai ki te tangata Maori ki te pakeha e noho ture kore ana.

Na, kua pai te Kuini kia tukua a hau, a Wiremu Hopihona, he Kapitana i te Roiara Nawa, hei Kawana mo nga wahi katoa o Nu Tirani, e tukua aianei amua atu ki te Kuini; e mea atu ana ia ki nga Rangatira o te Wakaminenga o nga Hapu o Nu Tirani, me era Rangatira atu, enei ture ka korerotia nei.

Ko te Tuatahi

Ko nga Rangatira o te Wakaminenga, me nga Rangatira katoa hoki, kihai i uru ki taua Wakaminenga, ka tuku rawa atu ki te Kuini o Ingarani ake tonu atu te Kawanatanga katoa o o ratou wenua.

Ko te Tuarua

Ko te Kuini o Ingarani ka wakarite ka wakaae ki nga Rangatira, ki nga Hapu, ki nga tangata katoa o Nu Tirani, te tino Rangatiratanga o o ratou wenua o ratou kainga me o ratou taonga katoa. Otiia ko nga Rangatira o te Wakaminenga, me nga Rangatira katoa atu, ka tuku ki te Kuini te hokonga o era wahi wenua e pai ai te tangata nona te wenua, ki te ritenga o te utu e wakaritea ai e ratou ko te kai hoko e meatia nei e te Kuini hei kai hoko mona.

Ko te Tuatoru

Hei wakaritenga mai hoki tenei mo te wakaaetanga ki te Kawanatanga o te Kuini. Ka tiakina e te Kuini o Ingarani nga tangata Maori katoa o Nu Tirani. Ka tukua ki a ratou nga tikanga katoa rite tahi ki ana mea ki nga tangata o Ingarani.

(Signed) William Hobson
Consul and Lieutenant-Governor

Na, ko matou, ko nga Rangatira o te Wakaminenga o nga Hapu o Nu Tirani, ka huihui nei ki Waitangi. Ko matou hoki ko nga Rangatira o Nu Tirani, ka kite nei i te ritenga o enei kupu, ka tangohia, ka wakaaetia katoatia e matou. Koia ka tohungia ai o matou ingoa o matou tohu.

Ka meatia tenei ki Waitangi, i te ono o nga ra o Pepuere, i te tau kotahi mano, e waru rau, e wa tekau, o to tatou Ariki.

Ko nga Rangatira o te Wakaminenga.

Treaty of Waitangi: English Translation of Maori Version

(by Professor Sir Hugh Kawharu)

Victoria, the Queen of England, in her concern to protect the chiefs and subtribes of New Zealand, and in her desire to preserve their chieftainship and their lands to them, and to maintain peace and good order, considers it just to appoint an administrator one who will negotiate with the people of New Zealand to the end that their chiefs will agree to the Queen's Government being established over all parts of this land and (adjoining) islands and also because there are many of her subjects already living on this land and others yet to come.

So, the Queen desires to establish a government so that no evil will come to Maori and European living in a state of lawlessness.

So, the Queen has appointed me, William Hobson a captain in the Royal Navy to be Governor for all parts of New Zealand (both those) shortly to be received by the Queen, and (those) to be received hereafter and presents to the chiefs of the Confederation, Chiefs of the subtribes of New Zealand and other chiefs these laws set out here.

The First

The Chiefs of the Confederation and all the Chiefs who have not joined that Confederation give absolutely to the Queen of England for ever the complete government over their land.

The Second

The Queen of England agrees to protect the Chiefs, the Subtribes and all the people of New Zealand in the unqualified exercise of their chieftainship over their lands, villages and all their treasures. But on the other hand the Chiefs of the Confederation and all the Chiefs will sell land to the Queen at a price agreed to by the person owning it and by the person buying it (the latter being) appointed by the Queen as her purchase agent.

The Third

For this agreed arrangement therefore concerning the Government of the Queen, the Queen of England will protect all the ordinary people of New Zealand and will give them the same rights and duties of citizenship as the people of England.

(Signed) William Hobson
Consul and Lieutenant-Governor

So we, the Chiefs of the Confederation and the subtribes of New Zealand meeting here at Waitangi having seen the shape of these words which we accept and agree to record our names and marks thus.

Was done at Waitangi on the sixth of February in the year of our Lord 1840.

The Chiefs of the Confederation.

APPENDIX 2

Classification of Ethnicity in Health Information

The preferred definition of 'Māori' is 'a person who has Māori ancestry and who chooses to identify as Māori'[1]. The ideal situation would therefore be for all health information systems to use essentially the same self-identification question as in the census. Thus, persons could identify with as many ethnic groups as they chose (as in the census). Health data could then be produced both for the 'Māori Ethnic Group (mixed)' and 'Sole Māori' groups (which have socioeconomic differences between them) and death rates and admission rates could be calculated using both sets of numerators and denominators.

Although the census question has been changed, the methods of collecting health information have not changed to match the census. Thus, only one set of Māori numerator data is available in most health information systems, but the definitions used in the various systems differ from each other and from the census.

Mortality Data

To date, deaths in New Zealand have been registered with the Department of Justice. The funeral director is responsible for completing the death registration form (RG28) which includes a question on degree of Māori blood of the parents of the deceased. Deaths are classified as 'Māori' if the deceased was of half or more 'Māori blood'. If the death registration question is not completed by the funeral director, the deceased is classified as non-Māori. In addition, it appears that the funeral director may often 'guess' the ethnicity of the deceased. These two factors may lead to a significant underestimation of the number of Māori deaths, even in terms of the 'half or more' biologically based definition[2,3,4,5,6].

Under-reporting of the number of deaths of infants (under 1 year) has been demonstrated by the Department of Statistics. Since 1975 they have matched each infant death registration with the corresponding birth registration form (RG27). Birth registration forms are considered to be more accurate for ethnic information than death registration forms, as they are completed by a parent. If an infant death registration

does not record the child as of Māori ancestry, but the birth registration does, the death record is amended to agree with the birth record. In 1984, 95.5% of infant deaths were matched with their corresponding birth registration and 67 infants had their ethnic classification changed from non-Māori to Māori. This indicates that there was significant under-reporting (by about one-third) of Māori ethnicity in the death registrations in this age-group, and supports other evidence that there is also under-reporting of Māori ethnicity in death registrations at other ages.

Hospital Admission and Discharge Data

It appears that Māori ethnicity is also under-reported in hospital admission and discharge data[7,8,9,10,11]. In hospitals, ethnic information is recorded by the Admissions Office staff, but a 1991 survey of hospital admission clerks' methods found that a wide variety of approaches were in use[12]. Asking about ethnicity was embarrassing for some clerks. Some 'guessed' the ethnicity based on the patient's surname, some looked at the patient and then guessed, some left the form blank, and others attempted to follow the recommended procedures and asked patients to define their own ethnic affiliations. All of these problems will tend to produce an underestimate of the number of Māori admissions, since forms which are left blank will be coded as 'non-Māori'. For example, one Wellington study[13] found that the number of Māori patients were underestimated by about 30%, and there was little improvement in the situation when the study was repeated 13 years later[14]. On the other hand, a study in Auckland[15] found that Māori hospital admission data was reasonably accurate.

A further issue of concern is that different admission forms are used by different hospitals. Although most hospitals use a self-identification question on ethnicity, this frequently only allows one ethnic group to be chosen, whereas the census question involves multiple ethnic groups to be chosen. Assuming that not all persons who marked multiple ethnic groups (including Māori in the census) would choose Māori when required to choose only one group, this means that the ethnicity definition used in 'single choice' admission forms, even when correctly completed, falls between the 'Sole Māori' and 'Māori Ethnic Group' definitions used in the census.

Other Health Information Systems

Psychiatric hospital admission records collect information on ethnicity which is generally similar to that collected for general hospital admissions. Thus, the same issues apply, including non-reporting of Māori ethnicity, the use of different questions from the one in the census, and the use of different admission forms by different hospitals.

Information on cases of cancer in Māori and non-Māori comes from the New Zealand Cancer Registry which collects information from public and private hospitals throughout the country, as well as from death certificates and autopsy reports. Once again, similar issues apply to those for general hospital admissions.

However, some other health information systems that do not involve hospital admission data do not collect information on ethnicity at all. The most striking example is in general practice, where ethnicity is often not recorded, and there is apparently some resistance on the part of general practitioners to the proposal that general practitioners may be asked to record ethnicity as part of their obligation to supply health care information to RHAs[16]. Ethnicity is also not routinely collected by ACC.

Current Options for Calculating Māori Health Statistics

These considerations raise many issues for the calculation of Māori health statistics in this new volume of *Hauora: Māori Standards of Health III*. In the previous volume, it was known that Māori ethnicity was under-reported in most health information systems, but at least the questions used in the various systems were reasonably similar to the one which was used in the census at the time. Thus, both the numerator data (eg, deaths) and the denominator data (eg, the census) were based on the 'half or more' biological definition, although it was known that the Māori numbers were underestimated in the numerator data.

Now, while the problem of under-reporting of Māori ethnicity in health information systems appears to be continuing, different questions are used in different systems. Therefore, the key problem is to use the denominator data definition (from the census data) which is most applicable to the available numerator data, both in terms of using similar definitions, and in terms of providing consistency with previous data so that trends over time can be studied.

Māori ancestry is not currently collected for any health statistics on a routine basis. Therefore, this is not a realistic option for use as the denominator in calculating death rates and hospital discharge rates. The only two realistic options currently are 'Māori Ethnic Group' or 'Sole Māori'.

The denominator numbers obtained from the 'Sole Māori' classification closely correspond to those obtained with the previous 'half or more' classification. This is shown in figure 48 (which shows the total Māori population in successive censuses) and also in figure 49 (which traces four different 'cohorts' across the censuses).

FIGURE 48

Total Māori Population in Successive Censuses

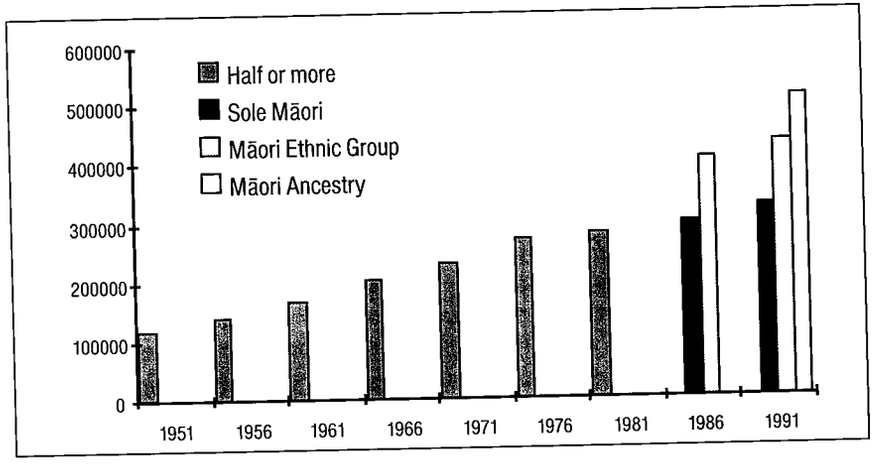
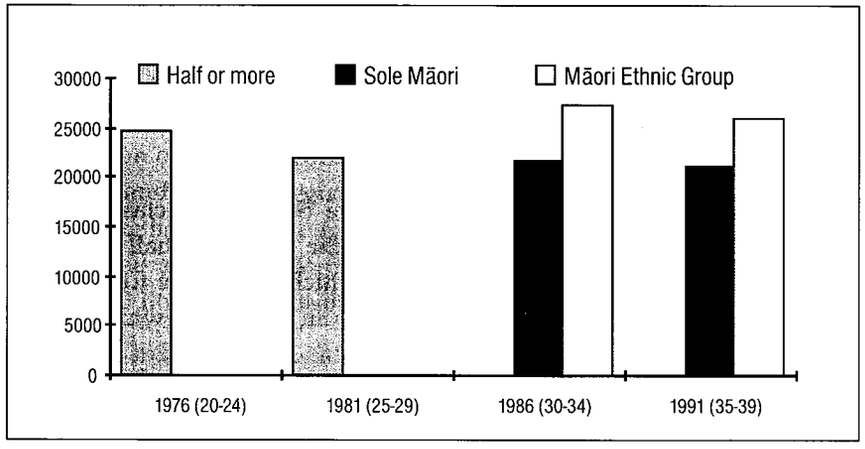


FIGURE 49

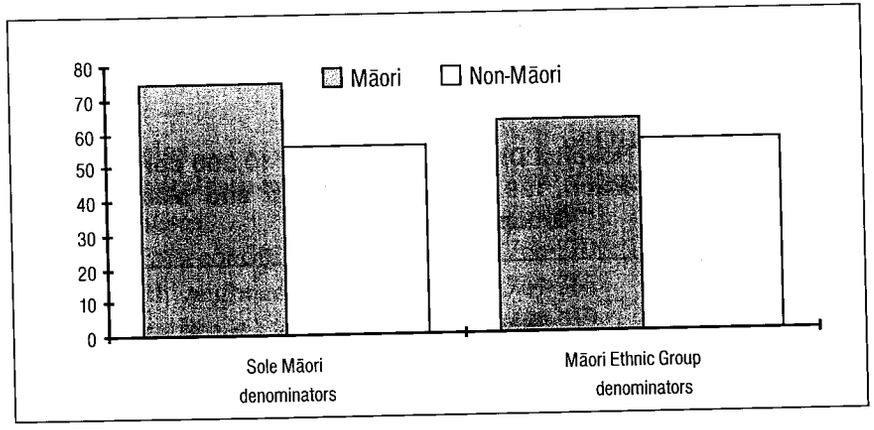
Two Different Age-Cohorts Followed Across Censuses



Thus, for deaths, the 'Sole Māori' classification seems the best current option, since it provides continuity with the 'half or more' denominator definition which was used previously. Furthermore, even the 'half or more' definition was known to underestimate Māori death rates (because of the under-reporting of Māori ethnicity on death certificates) and the use of other definitions (eg, Māori Ethnic Group) would increase the denominator numbers without changing the numerator numbers, and would therefore lead to an even greater underestimation of the Māori death rates. Therefore, the 'Sole Māori' definition has been used in this report as the denominator data for calculating death rates (see chapter 3).

FIGURE 50

Age-standardised Death Rates per 10,000 person-years in Māori and Non-Māori, 1987-91, using 'Sole Māori' and 'Māori Ethnic Group' Denominators



For hospital discharges the situation is less clear. Some agencies have used the 'Māori Ethnic Group' denominator classification for calculating discharge rates, arguing that hospital admission and discharge data are based on self-identification in a manner which is similar to that used in the Census[17].

There are several problems with this approach:

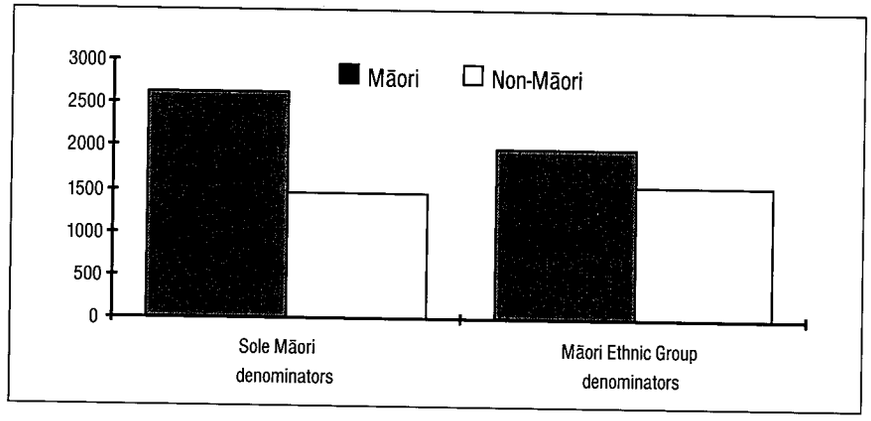
- It involves using different denominators for deaths ('Sole Māori') and discharges ('Māori Ethnic Group [mixed]') which is confusing.
- It does not correspond to the denominators which have been used previously, making it impossible to examine trends over time.

Furthermore, it yields results which are less plausible than those obtained with 'Sole Māori' denominators. We have therefore used the 'Sole Māori' classification as the denominator in calculating hospital discharge rates (chapter 4) as well as for psychiatric hospital admissions (chapter 5) and cancer incidence statistics (chapter 6). Figure 51 shows the differing results which may be obtained with the different denominator definitions when calculating hospital discharge rates. It shows that the age-standardised Māori hospital discharge rates noted in this

report would have been about 24% lower if 'Māori Ethnic Group' denominators had been used. However, for the reasons outlined above, it is considered that the discharge rates yielded by using the ethnic or mixed definition approach would have been severe underestimates, and even the discharge rates presented in this report (based on 'Sole Māori' denominators) are themselves likely to be underestimates.

FIGURE 51

Age-standardised Hospital Discharge Rates per 10,000 person-years in Māori and Non-Māori, 1992, using 'Sole Māori' and 'Māori Ethnic Group' Denominators



APPENDIX 3

Glossary of ICD Codes

International Classification of Diseases, 9th Revision codes used in *Hauora: Māori Standards of Health III.*

Disease Codes	International Classification of Diseases (ICD)
Sudden infant death syndrome (SIDS)	7980 (not cot death indicator)
Perinatal causes	760-779
– Respiratory conditions of newborn	768-770
– Low birthweight conditions	764-765
Respiratory disease	460-519
– Pneumonia	480-486
– Bronchitis and bronchiolitis	466, 490-491
Congenital anomalies	740-759
External injuries (unintentional injuries/violence)	E800-848, E850-876, E880-929, E960-968, E980-989
Infectious and parasitic diseases	001-139
Diseases of nervous system	320-389
Unintentional injuries	E800-848, E850-876, E880-929
– Motor vehicle crashes	E810-825
– Drowning	E830, 832, 910
– Fires	E890-899
Asthma	493
Malignant neoplasms (cancer)	140-208
Heart disease (excludes congenital heart disease)	391, 392.0, 393-398, 402, 404, 410-429
Suicide	E950-959
Rheumatic heart disease	391, 392.0, 393-398
Homicide	E960-969
Cancer of stomach	151
Cancer of liver	155
Cancer of lung	162

Leukaemia	204-208
Coronary heart disease	410-414
Bronchiectasis	494
Cerebrovascular disease	430-438
Cancer of breast	174
Cancer of cervix	180
Cancer of colon	153
Chronic obstructive respiratory disease	490-492, 496
All other forms of heart disease (excludes coronary heart disease)	391, 392.0, 393-398, 402, 404, 415-429
Hypertensive heart disease	402, 404
Diabetes	250
Cancer of prostate	185
Chronic rheumatic heart disease	393-398
Hypertensive disease	401-405
Other forms heart disease (excludes rheumatic, hypertensive, coronary)	415-429
Tuberculosis (including late effects)	010-108, 137
Viral hepatitis	070
Obesity	278
Diseases of urinary system	580-599
Alcohol-related (includes alcoholic cirrhosis)	303, 305.0, 571.0,.1,.2.,3

Public Hospital Discharges (same as above and includes the following)

Acute respiratory infections	460-466
Special admissions	V01-V82
Diarrhoea and gastroenteritis	008-009
Signs and symptoms	780-799
Hernia of abdominal cavity	550-553
Falls	E880-888
Poisoning	E850-869
Diseases of ear and mastoid process	380-389
Chronic disease of tonsils and adenoids	474

Pregnancy, childbirth and the puerperium	640-676
Pregnancy with abortive outcome	630-639
Appendicitis	540-543
Diseases of musculo-skeletal system	710-739
Disorders of female genital tract	614-629
Mental disorders	290-319
Injuries	800-999
Cancer of uterus	179,182

Surgical Procedures

Cataracts	13.1-13.6
Myringotomy	20.0
Tonsillectomy and adenoidectomy	28.2, 28.3, 28.6
Heart valve surgery	35.0-35.2
Removal coronary artery obstruction	36.0
Bypass for heart revascularisation	36.1
Varicose veins	38.5
Appendicectomy	47.0
Haemorroidectomy	49.4
Cholecystectomy	51.2
Repair inguinal/femoral hernia	53.0-53.3
Kidney transplant	55.6
Menisectomy	80.6
Total hip replacement	81.5
Transurethral prostatectomy	60.2
Vasectomy	63.7
Destruction/occlusion fallopian tubes	66.2-66.3
Conization cervix	67.2
Other excision/destruction lesion cervix	67.3
Hysterectomy (vaginal and abdominal)	68.3-68.7
Acute rheumatic fever and chronic rheumatic heart disease	390-398
Hypertensive disease and other forms of heart disease	401-405, 415-429
Tuberculosis	010-018, 137

Viral hepatitis	070
Obesity	278
Diseases of urinary system	580-599
Inflammatory disease of female pelvic organs	614-616
Other disorders of female genital tract	617-629
Complications of pregnancy, childbirth and the puerperium (excludes normal delivery)	640-648, 651-676
Self-inflicted injury	E950-959
Injury purposely inflicted by others	E960-969

Cancer Incidence

Malignant melanoma	172
Body of uterus	182
Liver and intrahepatic bile ducts	155
Colon	153
Stomach	151
Rectum, rectosigmoid junction & anus	154
Lung	162
Testis	186
Prostate	185
Hodgkin's disease	200
Non-Hodgkin's lymphoma	200, 202
All sites	140-208

Glossary of Psychiatric Terms

Mental illness comes in many shapes and sizes. Traditionally psychiatrists have divided mental illness into *psychosis* and *non-psychosis* (ie, neurosis, personality disorders and other disorders). The descriptions below are taken from the International Classification of Diseases, 9th revision (1975), which is used by the Ministry of Health for its statistics in the period we are reviewing.

Psychosis: disorders where the illness is so severe that the person is unable 'to meet some ordinary demands of life' or to understand their illness or what is happening to their life. People typically have bizarre beliefs not held by others, hallucinations or hear voices. Most psychoses are thought to have a biological or organic basis – that is to say that some people are born with a tendency to become psychotically ill. It is not a well-defined term, but generally it is used for the most serious and disabling mental illnesses. The most common psychoses are schizophrenia and affective disorders (an example of which is manic depression).

Neuroses: include things like excessive anxiety, powerful fears and panic attacks, compulsive behaviours and depression.

Personality disorders: cover behaviours like excessive hostility, withdrawal, instability of mood, insecurity or indifference. Typically people with personality disorders have major difficulties establishing relationships.

Other disorders: include sexual deviation, alcohol and drug abuse, stress and adjustment problems and intellectual disability. These illnesses are thought to arise from the experience of life and not out of any biological weakness, and generally people are able to carry on with a normal life of some kind. They also usually have some understanding of their illness. The most commonly diagnosed illnesses in this group are drug and alcohol abuse and neurosis.

(This extract is taken from *Nga Ia o Te Oranga Hinengaro Māori*, published by Te Puni Kokiri in association with the Mental Health Foundation and Members of the Māori Caucus, 1993.)

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Te Rōpū Rangahau Hauora a Eru Pōmare (formerly known as Te Pūmanawa Hauora ki te Whanganui-a-Tara) was established in 1991 and is based at the Wellington School of Medicine. The kaupapa of the Centre is to develop health research by Māori, for Māori and to provide an environment where Māori can be trained in a variety of research techniques. The Centre receives core funding from the Health Research Council of New Zealand.

Naina Wātene-Haydon, Clint Ormsby, Eru Pōmare, Neil Pearce, Bridget Robson, Vera Keefe-Ormsby and Papārangi Reid.