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Foreword

The measurement and monitoring of ethnic inequalities in health has long been of policy interest in New Zealand. The need for reliable and valid information on these inequalities has become even more pressing with the development of the New Zealand Health Strategy, released by the Minister of Health on 14 December 2000.

However, the quality of ethnic health statistics in New Zealand remains problematic, both because of changing societal concepts of ethnicity and a limited appreciation on the part of some data collectors of the policy relevance of this data.

Monitoring Ethnic Inequalities in Health aims to summarise how the current state of ethnic health statistics in New Zealand evolved, and to identify ways for improving these statistics in the future. This advice will feed into the review of ethnicity measurement currently being undertaken by Statistics New Zealand, which is due for completion by mid-2002.

It is hoped that the information provided will be of value to all those involved with ethnic health statistics and ethnic inequalities in health in New Zealand. Comments on this report should be sent to Public Health Intelligence, Ministry of Health, PO Box 5013, Wellington.

Don Matheson
Deputy Director-General
Public Health Directorate
Acknowledgements

This report was written by Martin Tobias (public health physician, Ministry of Health).

The author acknowledges an intellectual debt to James Nazroo (University College London) and Papaarangi Reid and Bridget Robson (Eru Pomare Māori Health Research Centre). The report was peer reviewed both internally and externally, and the constructive feedback of peer reviewers is also gratefully acknowledged.

Disclaimer

Opinions expressed in this report are those of the author, and should not be construed as representing the view of the Ministry of Health.
Introduction

This report describes the history and current state of ethnic health statistics in New Zealand, including:

- measurement of ethnic group denominators
- measurement of ethnic group numerators
- calculation of ethnic-specific rates.

This report also identifies conceptual issues involved in measuring and monitoring inequalities in health outcomes between ethnic groups, and points out the pitfalls of overly simplistic interpretation of differential trends in health indicators.

The report then attempts to identify the causes generating ethnic health inequalities. It argues that ethnicity is both a marker of socioeconomic location (structural dimension) and an aspect of one’s identity (cultural dimension). The report proposes that underlying both structural and – to a lesser extent – cultural dimensions of ethnicity is discrimination (institutional and personal racism). Discrimination also has a direct impact on health, acting through psychological pathways. These three dimensions of ethnicity - structure, identity and the direct experience of discrimination - are thought to interact with each other and with age, gender and social class to generate the observed health inequalities.

Finally, options for improvement are considered. These are not specifically defined for particular agencies, nor are the options costed. Rather, they are intended to stimulate further debate (and, where necessary, research) among key stakeholders, including the district health boards, Statistics New Zealand, the Department of Internal Affairs and the Ministry of Health (particularly the New Zealand Health Information Service) itself.
1 Concepts of Ethnicity

Definition of ethnicity

The definition of ethnicity underlying New Zealand’s official statistics has changed over the past quarter century from one of biological race to one of cultural affiliation (SNZ 1998b). The current official (Statistics New Zealand) definition of an ethnic group is a social group whose members:

- share a sense of common origin
- claim a common and distinctive history and destiny
- possess one or more dimensions of collective cultural individuality
- feel a sense of unique collective solidarity.

This definition distinguishes ethnicity from the related concepts of ancestry (origin or descent), natality (birthplace or country of origin), and nationality (country of permanent residence or citizenship).

While not implying that ethnicity is simply a matter of personal choice or preference, the definition does emphasise the fluid and dynamic nature of the concept. Individuals can belong to more than one ethnic group at a time (multiple ethnic identity), and can move between ethnic groups over time (inter-ethnic mobility).

Mode of measurement of ethnicity

The concept of ethnicity should be differentiated from how its measurement is operationalised. The mode of measurement is intended to be self-identified cultural affiliation. In reality, however, respondents are generally presented with a closed set of ethnic categories from which they must choose (with typically up to three choices being permitted). In many situations (for example, children, decedents) a proxy response must be obtained (generally from relatives).

These practical limitations may create numerator-denominator bias when datasets are linked to calculate rates. Both the setting and method of data collection may introduce further biases.²

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1 Such as a unique language, religion, customs, mythology or folklore.
2 The concepts and methods used to collect ethnicity data influence (and are influenced by) the social construction of ethnicity itself. How the data collection method is operationalised in practice in different settings (eg, hospitals, primary health care provider organisations, birth registries) is not discussed in detail in this report.
Classification of ethnicity

The assignment of respondents to different ethnic groups depends on the application of standard rules of classification, and this process should be differentiated from both the underlying concept and the mode of measurement.

The New Zealand Standard Classification of Ethnicity (SNZ 1998b) has five levels, ranging from broad groupings of related ethnic identities at Level Zero (European, NZ Māori, Pacific Island, Other) to very tightly specified ethnic groups at Level Five (for example, Malaitian, Kurd, Sikh, Inuit).

Prioritisation of output

The classification can be applied in two modes (SNZ 1995):

- total response output
- prioritised response output.

The total response mode counts each individual as belonging to each ethnic group with which they identify. Individuals identifying with more than one ethnic group will be counted more than once. As a result, the sum of the ethnic group subpopulations will exceed the total New Zealand population.

The prioritised response mode arbitrarily assigns all individuals to only one ethnic group, using a hierarchical classification rule (Māori > Pacific > Other > European at Level Zero). This ensures that each individual is counted only once, and the sum of the ethnic group subpopulations equals the total New Zealand population. The size of each ethnic group will be underestimated, with the exception of the Māori ethnic group. The effect is particularly severe for the Pacific ethnic group.

The use of an arbitrary classification rule is necessary because the ethnicity data collected in New Zealand statistics provides no information on the relative strength of each ethnic identity for those respondents claiming multiple ethnic affiliations. While other classification rules could be envisaged, all are similarly arbitrary.

3 At the 1996 Census 173,181 people were included in the Pacific ethnic group, excluding 29,055 people who identified with both the Pacific and the Māori ethnic groups.
2 Measuring Ethnicity in the New Zealand Census

The concept of ethnicity used in New Zealand’s official statistics was, until the mid-1990s, biological race (SNZ 1997b). For example, the mode of measurement of ethnicity in the 1966 Census required respondents to calculate fractions of racial origin (Box 1).

Box 1: Ethnicity section from 1966 Census

If of European descent, no matter where born, write ‘European’.
Otherwise state whether Māori, Indian, Chinese, etc. as the case may be.
If of more than one race, give particulars, as ¾ European – ¼ Māori; ½ Māori – ½ Indian, etc.

The first major change to the Census question in over a century came in 1976, in response to a legislative requirement (Māori Affairs Amendment Act 1974) for enumeration of all those with Māori ancestry, no matter how remote. This required a two-part question.

Box 2: Ethnicity section from 1976 Census

Ethnic origin
(a) If of full European descent, no matter where born, tick box
   If not, state whether full New Zealand Māori, Cook Island Māori, Indian, etc. as the case may be
   ---------------------------------------------------------------
   If more than one origin, give particulars, eg, 7/8 European – 1/8 Māori;
   1/2 New Zealand Māori – 1/2 Samoan
(b) If you are a person of the Māori race of New Zealand, or a descendant of such a person, tick box

However, the use of a two-part question led to a significant proportion of inconsistent responses (for example, respondents claiming a degree of Māori descent in (a) but not in (b)), and the second part of the question was dropped in the 1981 Census. The wording of the 1981 question differed little from that of the first part of the 1976 question, and the guide to answering the question explicitly reaffirmed the biological (racial) concept involved.

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Although the process of change in official statistics from a biological concept of race to a sociological construct of ethnicity began in the mid-1980s, this was not complete until almost a decade later.
Box 3: Ethnicity section from 1981 Census

<table>
<thead>
<tr>
<th>Ethnic origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Either (a) If only one (full) origin, tick box which applies:</td>
</tr>
<tr>
<td>Full European or full Caucasian</td>
</tr>
<tr>
<td>Full New Zealand Māori</td>
</tr>
<tr>
<td>Full Samoan</td>
</tr>
<tr>
<td>Full Cook Island Māori</td>
</tr>
<tr>
<td>Full Chinese</td>
</tr>
<tr>
<td>Full Indian</td>
</tr>
<tr>
<td>Full Niuean</td>
</tr>
<tr>
<td>Full Tongan</td>
</tr>
<tr>
<td>Other full origin (specify) ______________________________________</td>
</tr>
</tbody>
</table>

Or (b) If of more than one origin, give particulars:

-----------------------------------------------------------------------------

Guide

The term ‘ethnic origin’ refers to the blood mixture of races within a person and is calculated by adding one half the mother’s ethnic origin to one half the father’s ethnic origin.

Example:

<table>
<thead>
<tr>
<th></th>
<th>Mother</th>
<th>Father</th>
<th>Children</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5/8 Māori + 3/8 European</td>
<td>1/2 New Zealand Māori + 1/4 European + 1/4 Samoan</td>
<td>9/16 New Zealand Māori + 5/16 European + 1/8 Samoan</td>
</tr>
</tbody>
</table>

The inability of many respondents to calculate complex fractions accurately (resulting in ‘heaping’ or guessing) contributed – along with changing societal concepts of ethnicity – to this mode of measurement being dropped in the 1986 Census. Instead, respondents were simply asked to indicate their ethnic origin with no indication of relative magnitude. Also, the concept of ‘ethnic origin’ was left undefined in both the question itself and the guide.
Box 4: Ethnicity section from 1986 Census

What is your ethnic origin?
Tick the box or boxes which apply to you.

- European
- New Zealand Māori
- Samoan
- Cook Island Māori
- Niuean
- Tongan
- Chinese
- Indian
- Other (such as Fijian, Tokelauan) please state _____________________

The 1986 Census defined three Māori populations: those who ticked only the ‘New Zealand Māori’ box (‘sole Māori’), those who ticked this box and one or more other boxes (‘mixed Māori’), and the sum of these two categories (‘total Māori’).

Intercensal consistency studies demonstrated a high degree of concordance between the ‘half or more Māori descent’ category of earlier censuses and the ‘sole Māori’ population of the 1986 Census, and moderate concordance between the ‘any Māori descent’ category of earlier censuses and the ‘total Māori’ population of the 1986 Census. Thus it is likely that most respondents to the 1986 Census continued to interpret ‘ethnic origin’ as biological (racial) rather than as referring to any notion of cultural affiliation (SNZ 1999b).

It was only at the 1991 Census that the biological or racial concept of ethnic origin was explicitly replaced by the sociocultural concept of ethnic group, measured by self-identification. A second question was included in the 1991 Census to gauge the separate concept of Māori ancestry.

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5 The change process began with the dropping of the ‘blood fractions’ in the 1986 Census. Indeed, with respect to both the wording of the ethnicity question and the choice of response categories, the 1986 Census is intermediate between the 1981 (racial) and 1991 (cultural) concepts, and perhaps closer to the latter. However, the changeover became complete and explicit only with the 1991 Census.
Box 5: Ethnicity section from 1991 Census

Which ethnic group do you belong to?

Tick the box or boxes which apply to you.

- New Zealand European
- New Zealand Māori
- Samoan
- Cook Island Māori
- Tongan
- Niuean
- Chinese
- Indian
- Other (such as Dutch, Japanese, Tokelauan) please state ____________

Have you any New Zealand Māori ancestry?

- Yes
- No
- Don't know

The 1991 Census not only introduced a new (cultural) concept of ethnicity, but also defined a fourth Māori population: the Māori ancestry population (23% of whom did not identify with the Māori ethnic group). Of those who did identify as Māori, 74% identified solely with Māori.

The same concepts of cultural affiliation and Māori ancestry were continued in the 1996 Census. However, the wording of the ethnic question was altered to make it clearer to respondents that they could tick more than one ethnic box. Other changes to this question were that ‘New Zealand Māori’ became the first tick box, and a new tick box category ‘Other European’ was added (with six subcategories).

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6 Three populations based on cultural affiliation (sole Māori, mixed Māori and total Māori or Māori ethnic group), and the population defined on the basis of the Māori ancestry question, independently of responses to the ethnic identity question.

7 The wording of the Māori ancestry question was also altered, but is not considered here.

8 Not all of which would be universally agreed to represent ethnic groups, eg, ‘Australian’.
Box 6: Ethnicity section from 1996 Census

Tick as many circles as you need to show which ethnic group(s) you belong to:

- New Zealand Māori
- New Zealand European or Pākehā
- Other European
- Samoan
- Cook Island Māori
- Tongan
- Niuean
- Chinese
- Indian
- Other (such as Fijian, Korean) →

Which of these groups?

- English
- Dutch
- Australian
- Scottish
- Irish
- Other ↓

Print your ethnic group(s)

Responses to the 1996 ethnic question were significantly different to those of the 1991 question. Qualitative research (ACNielsen 1999) and the intercensal consistency study (SNZ 1999d) confirmed the hypothesis that the wording changes had led to a much higher proportion of multiple ethnic responses, with many respondents interpreting the instruction to ‘tick as many boxes as you need’ in terms of ancestry rather than current ethnic (cultural) affiliation.

The New Zealand European ethnic group was also affected more directly, by the addition of the new category ‘Other European’. The net result of both changes was a drop of 15% in the ‘sole New Zealand European’ group between 1991 and 1996 with a corresponding increase in ‘Other European’ responses.

The Pacific population was also affected by the wording change, with the ‘mixed Pacific’ group growing more than expected, and the ‘sole Pacific’ group shrinking by 5% between 1991 and 1996 – compared to an increase of 34% between 1986 and 1991.

The most significant changes were those affecting the Māori ethnic group. The number of ‘sole Māori’ declined by 16% (from 324,000 in 1991 to 274,000 in 1996), while the number of ‘mixed Māori’ increased by 124% (from 112,000 in 1991 to 250,000 in 1996). The proportion of ‘sole Māori’ in the Māori ethnic group dropped from 74% in 1991 to 52% in 1996, and the (total) Māori ethnic group grew by 20% (from 436,000 in 1991 to 524,000 in 1996), compared to a corresponding growth of only 7.5% between the 1986 and 1991 censuses (Figure 1).

---

9 The rate of missing response (to the ethnicity item) was also higher in 1996 (4.2% overall) than in previous censuses.

10 Ethnic group = total = sole + mixed.
Changes to the ‘sole’ and ‘mixed’ populations between 1991 and 1996 cannot be explained by demographic processes (births, deaths and migration). Instead, these changes must reflect either changes in respondents’ preferences for identifying with different ethnic groups over the period, or the impact of the change in wording of the ethnicity question between the two censuses. Research studies (identified above) have confirmed the latter hypothesis (although societal change may also make a minor contribution).

Accordingly, Statistics New Zealand (after consultation with stakeholders) decided to revert to the 1991 wording for the ethnicity question in the 2001 Census (SNZ 2000) (with one minor change: ‘New Zealand’ will be dropped from ‘New Zealand Māori’. Note that this decision also means that the 1996 category ‘New Zealand European or Pākehā’ becomes once again ‘New Zealand European’).
Box 7: 2000 dress rehearsal for the 2001 Census

Which ethnic group do you belong to?

Mark the space or spaces which apply to you.

☐ New Zealand European
☐ Māori
☐ Samoan
☐ Cook Island Māori
☐ Tongan
☐ Niuean
☐ Chinese
☐ Indian
☐ Other (such as Dutch, Japanese, Tokelauan) please state ________________

Note: Separate questions for Māori ancestry and knowledge of iwi.

Analysis of the 2000 dress rehearsal (SNZ 2000) indicates that ethnic responses in the 2001 Census may turn out to be comparable to the 1991 Census once again, with the 1996 Census becoming something of an outlier.

Specifically, comparing a sample of matched responses to the 1996 Census with the 2000 dress rehearsal:

- 11% of respondents overall stated fewer groups in 2000 than in 1996, while 2% stated more
- there were decreases in both the Māori and Pacific ethnic groups
- sole Māori as a proportion of the Māori ethnic group increased from 52% to 61%
- 23% of the mixed Māori population in 1996 moved to sole Māori in 2000, while 11% of the sole Māori population in 1996 moved to mixed Māori in 2000
- the proportion of people stating ‘New Zealand European’ increased from 74% in 1996 to 81% in 2000, mainly at the expense of the ‘Other European’ ethnic group.

All these results for 2000 are reasonably comparable to those for 1991 (allowing for demographic change in the interim), although it remains true that more people are embodying multiple ethnic identities than has formerly been the case. Statistics New Zealand is currently undertaking a major review of ethnicity measurement (to be completed by June 2002), which may lead to still further changes to the ethnicity question(s) in the 2006 Census and beyond.

Measurement of ethnicity in the Census provides essential information for ethnic population estimates and projections. These populations serve as denominators for the calculation of ethnic fertility, mortality and morbidity rates.
3 Measuring Ethnicity in Health Records

Births and deaths

In New Zealand, data on the ethnicity of newborns and decedents is collected by registration (RG27 and RG28 respectively, administered by the Department of Internal Affairs). Until 1995 the concept of ethnicity used was biological race (SNZ 1997a).

Box 8: Registration of ethnicity until September 1995

<table>
<thead>
<tr>
<th>Father [of newborn or deceased]:</th>
</tr>
</thead>
<tbody>
<tr>
<td>degree of Māori blood and tribe (if any)</td>
</tr>
<tr>
<td>Pacific Island blood (state which island)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mother [of newborn or deceased]:</th>
</tr>
</thead>
<tbody>
<tr>
<td>degree of Māori blood and tribe (if any)</td>
</tr>
<tr>
<td>Pacific Island blood (state which island)</td>
</tr>
</tbody>
</table>

Data was collected only for Māori and Pacific births and deaths, not for other ethnic groups. Births and deaths with missing ethnic data were assumed to belong to neither of these two ethnic groups, leading to significant undercounting of Māori and Pacific births and deaths.

Data quality was further weakened by ethnicity data being collected not for the person concerned, but for his or her parents (followed by application of the ‘half or more blood’ rule to assign Māori or Pacific ethnicity to the individual). This was especially problematic for deaths: informants, often the children of the deceased, needed to know the ethnicity of their grandparents.

Furthermore, the targeting of Māori and Pacific groups and the intrusiveness of the questioning about parents made data collectors (funeral directors and registry counter staff) reluctant to inquire about ethnicity. In a high proportion of deaths and a lesser proportion of births, ethnicity was simply guessed or assumed by the data collector, or the question was left blank (SNZ 1996).

At least the concept of ethnicity underlying registration was consistent with that used in the Census – until 1991, when self-identified cultural affiliation replaced racial origin in the census. Because such consistency is necessary for the calculation of fertility and mortality rates, registration was revised in 1995. The new forms, phased in over the last quarter of 1995, included separate ethnicity and ancestry questions identical to those included in the 1996 Census.

---

11 Since data for 1995 is a mix of old and new concepts, reliable counts and rates are not available for that year.
**Box 9: Registration of ethnicity after January 1996**

### Death (RG28)

**Ethnic group(s)**

Tick as many circles as needed to show which ethnic group(s) the deceased belonged to:

- New Zealand Māori
- New Zealand European or Pākehā
- Other European → Which of these groups?
  - Samoan
  - Cook Island Māori
  - Tongan
  - Niuean
  - Chinese
  - Indian
  - Other (such as Fijian, Korean) → ____________________________________

Print your ethnic group(s)

Was the deceased descended from a New Zealand Māori?

- Yes
- No
- Don't know

### Birth (RG27)

**Ethnic group(s)**

Tick as many circles as needed to show which ethnic group(s) the child belongs to:

- New Zealand Māori
- New Zealand European or Pākehā
- Other European → Which of these groups?
  - Samoan
  - Cook Island Māori
  - Tongan
  - Niuean
  - Chinese
  - Indian
  - Other (such as Fijian, Korean) → ____________________________________

Print your ethnic group(s)

Is the child descended from a New Zealand Māori?

- Yes
- No
- Don't know

Note: Items in RG27 are repeated for the mother and father of the child.
As well as restoring consistency of concept, the 1995 registration changes have significantly improved data quality (SNZ 1997a):

- births and deaths can now be counted for all ethnic groups, not just for Māori and Pacific peoples
- non-response can now be measured (in 1996, for example, 0.2% of births and 3% of deaths had missing data for ethnicity - rates that are much lower than those estimated to have applied in earlier years)
- ethnicity is no longer based on that of the parents
- questioning is less intrusive, and funeral directors and registry counter staff may now be more willing to inquire about, rather than to assume, ethnicity.

**Hospitalisations**

Unlike birth and death registries, hospitals began to change from a racial to a cultural concept of ethnicity earlier (mid-1980s), but progressed more slowly (Reid 2000a). By the early 1990s some hospitals were collecting ethnicity data on the latter basis, but using non-standard forms which typically allowed a single ethnic identification only. Admissions officers frequently assumed ethnicity rather than inquiring, or left the question blank. The result was significant undercounting of Māori and Pacific hospitalisations, albeit less so than for deaths (Department of Health 1993).

From July 1996 all hospitals were required to inquire about the ethnicity of patients in a standardised way, one which was compatible with the 1996 Census and allowed for multiple ethnic identities. However, a random audit of admission forms conducted by Statistics New Zealand in 1999 indicated that the standard ethnicity question had not yet been implemented by many hospitals (SNZ 1999c).

The state of ethnicity measurement in other health care records (for example, primary care consultations, ACC compensated claims for personal injury, communicable disease notifications) is generally even less complete and consistent than that for hospitalisations.

On the other hand, the 1996/97 round of national health, disability and nutrition surveys all collected ethnicity data from participants using the standard 1996 Census question (including allowance for multiple ethnic identities) with a high degree of completeness and reliability.
Impact of recent changes on ethnic birth, death and hospitalisation counts

Births

The number of Māori births more than doubled between 1994 (7053 births, or 12% of total, based on ‘half or more blood’) and 1996 (15,813 births, or 27.5% of total, based on ‘ethnic group’). The number and proportion of Pacific births increased by a smaller extent (Figure 2) (SNZ 1997a; 1998a; 1999a).

Figure 2: Number of live births, by ethnicity of child, 1991–98

![Graph showing number of live births by ethnicity 1991-98](image)

Source of base data: SNZ.
Note: Ethnicity based on ‘half or more blood’ until 1995, total ethnic group thereafter.

These increases reflect the inclusion within the (total) ethnic group category of ‘mixed’ births: in 1996 54% of Māori and 47% of Pacific births had multiple ethnicities. There appears to be reasonable continuity between the pre-1995 racial categories and the post-1995 sole ethnic categories: for example, there were 7290 sole Māori births in 1996, compared to the 7053 ‘half or more blood’ Māori births in 1994.

There was also good agreement between Māori birth registrations in 1996 and data on infants collected in the 1996 Census, including both ‘sole’ and ‘mixed’ (and therefore total) ethnic categories, indicating that the question is being interpreted similarly in the birth registries and in the Census.12

12 For example, the number of infants in the 1996 Census was 14,844 (27.1%) for Māori compared with 15,813 (27.5%) Māori births registered in that year.
The 1998 change to the legal period for birth registration from two months to two years after the birth has further compromised the fertility time series. This is especially so for Māori and Pacific birth rate trends after 1997.

Deaths

The number of Māori deaths almost doubled from 1994 (1405 deaths, or 5% of the total, based on ‘half or more blood’) to 1996 (2627 deaths, or 9.3 % of the total, based on ‘ethnic group’). The apparent increase in Pacific deaths was even greater, more than doubling from 291 (1.1%) in 1994 to 723 (2.6 %) in 1996 (Table 1) (SNZ 1997a; 1998a; 1999a).

Table 1: Deaths, by ethnicity, 1992–98

<table>
<thead>
<tr>
<th>Year</th>
<th>Māori</th>
<th>Pacific</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Half or more blood</td>
<td></td>
</tr>
<tr>
<td>1992</td>
<td>1389 (5.2%)</td>
<td>301 (1.1%)</td>
</tr>
<tr>
<td>1993</td>
<td>1518 (5.6%)</td>
<td>297 (1.1%)</td>
</tr>
<tr>
<td>1994</td>
<td>1405 (5.2%)</td>
<td>291 (1.1%)</td>
</tr>
<tr>
<td></td>
<td>Sole ethnicity</td>
<td></td>
</tr>
<tr>
<td>1996</td>
<td>2386 (8.5%)</td>
<td>674 (2.4%)</td>
</tr>
<tr>
<td>1997</td>
<td>2290 (8.3%)</td>
<td>695 (2.5%)</td>
</tr>
<tr>
<td>1998</td>
<td>2224 (8.5%)</td>
<td>769 (2.9%)</td>
</tr>
<tr>
<td></td>
<td>Ethnic group</td>
<td></td>
</tr>
<tr>
<td>1996</td>
<td>2627 (9.3%)</td>
<td>723 (2.6%)</td>
</tr>
<tr>
<td>1997</td>
<td>2549 (9.3%)</td>
<td>778 (2.8%)</td>
</tr>
<tr>
<td>1998</td>
<td>2447 (9.3%)</td>
<td>824 (3.1%)</td>
</tr>
</tbody>
</table>

Source of base data: SNZ.

Unlike the case for births, the ‘sole’ ethnic categories also showed a significant, albeit slightly smaller, response shift when compared with the earlier time series. Thus 2386 deaths were identified as ‘sole Māori’ in 1996, 70% more than the 1405 ‘half or more Māori blood’ deaths in 1994; the corresponding increase for Pacific people was 130%. The post-1995 sole ethnic categories cannot therefore be considered comparable to the pre-1995 racial categories in the case of deaths. This difference between births and deaths probably reflects a greater extent of under-reporting of Māori and Pacific deaths than of births pre-1995.

Again unlike births, comparison of single to multiple ethnic responses for deaths registered in 1996 with 1996 Census responses shows that these responses are not comparable. For example, 91% of Māori deaths were ‘sole Māori’, while only 52% of the Māori ethnic group identify solely as Māori. Even allowing for the older age structure of the sole compared to the mixed Māori group, this reflects a bias resulting from proxy response for deaths. That is, relatives or funeral directors tend to assign a single ethnic identity to their deceased kin or client, whereas the decedent him- or herself is more likely to have claimed multiple ethnic identities when completing his or her Census form – especially in 1996 (the 1991 Census question was much less likely to elicit multiple responses, as discussed earlier). This implies that Māori (Māori total ethnic group) deaths are still being undercounted in death records, although less so than formerly, while for ‘sole Māori’ deaths overcounting is now occurring (some of the deaths being recorded as ‘sole Māori’ are actually ‘mixed Māori’). These concerns apply, albeit to a lesser extent, to the Pacific (and indeed to other) ethnic groups as well.
Hospitalisations

The number of Māori admitted to hospitals has shown only a gradual and steady rise over the 1990s, suggesting that the concept and collection of ethnic data have been changing only gradually and relatively smoothly over this period (Figure 3) (Ministry of Health 1999a).

Figure 3: Hospital discharges, by ethnicity, 1988–99

Source of base data: NZHIS

Note: Ethnicity based on ‘half or more blood’ until early to mid-1990s, total ethnic group thereafter (change occurred at different times in different hospitals).

There was no sudden increase in the number or proportion of admissions recorded as Māori after July 1996, suggesting that the change to a standard question allowing for multiple ethnic identifications did not in fact occur.13 Consistency of numbers and proportions of hospitalisations by ethnicity pre-and post-1996, and the low rate of multiple ethnicity in hospital records post-1996, both imply that ethnicity as counted in hospital records throughout the 1990s (the hospitalisation data for 1998 and 1999 are similar to that for 1997) is more consistent with a ‘sole’ than a ‘total’ ethnic group concept.

In summary, prior to the mid- to late 1980s, the concept of ethnicity applied in most hospitals would have been a racial one (‘half or more blood’); the smoothness of the count trend line suggests that this concept was compatible with the sole ethnic group (sociocultural) concept that seems to have been applied progressively in most hospitals after that time.

13 An alternative or additional explanation might be that the change occurred at different times in different hospitals, leading to an apparently smooth and gradual trend when aggregated nationally.
4 Calculating Ethnic-Specific Rates

Fertility

Since 1996, both birth registrations and the Census have used the cultural affiliation concept of ethnicity, and both have allowed for multiple ethnic identities. Analysis of the proportion of sole to total responses for Māori (and other ethnic groups) in births registered in 1996 compared with the proportion recorded in the 1996 Census suggests reasonable concordance between these two data sources (SNZ 1997a). Since this proportion is age dependent (lower at younger ages), the data suggests a continuing but lesser degree of undercounting of Māori (and Pacific) births, which should correct with reversion to the 1991 Census question format in the 2001 Census.

Comparison of the number of births registered as ‘sole Māori’ (or ‘sole Pacific’) in 1996 with the numbers of ‘half or more Māori (or Pacific) blood’ births in earlier years suggests that these two concepts may be more or less equivalent. Similarly, the sole Māori (Pacific) population enumerated in the 1991 Census seems to correspond with the equivalent denominator from earlier censuses. However, this is not the case for the 1996 Census, where the sole Māori population was 16% smaller than in 1991 (5% smaller for Pacific). As a result, sole Māori (Pacific) fertility cannot be calculated for the late 1990s at present. After the 2001 Census, new population estimates will be derived by interpolation between the 1991 and 2001 Censuses, so allowing the time series to be recreated for sole Māori (and Pacific) as well as total Māori (Pacific) fertility (Denise Brown, SNZ, personal communication, February 2001).

Fertility rates calculated under the ethnic group concept differ from those calculated under the ethnic origin concept in another way. Fertility no longer relates to the reproductive experience of a particular group of women, since children born to women identifying with the Māori ethnic group, for example, will be excluded if the children themselves are not identified as Māori (perhaps reflecting the father’s ethnicity, or a decision on the part of the parents not to raise their child as Māori); and some children born to non-Māori mothers will be included if they (the children) are identified as Māori.

The overall impact of these changes on total fertility rates since 1991 is shown in Table 2, using Māori as an example.

Table 2: Live births and total fertility rates, Māori, 1992–96

<table>
<thead>
<tr>
<th>Year</th>
<th>Births: Māori Child</th>
<th>Births: Māori Mother</th>
<th>Total Fertility Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Half or more blood</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1992</td>
<td>7,238</td>
<td>10,160</td>
<td>2.29</td>
</tr>
<tr>
<td>1993</td>
<td>7,131</td>
<td>10,121</td>
<td>2.29</td>
</tr>
<tr>
<td>1994</td>
<td>7,053</td>
<td>10,099</td>
<td>2.29</td>
</tr>
<tr>
<td><strong>Sole Māori</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1996</td>
<td>7,290</td>
<td>8,527</td>
<td>–</td>
</tr>
<tr>
<td><strong>Māori ethnic group</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1996</td>
<td>15,813</td>
<td>12,729</td>
<td>2.60</td>
</tr>
</tbody>
</table>

Source of base data: SNZ
The net result of the numerator and denominator changes has thus been an upward revision of the Māori (and Pacific) total fertility rates, while that of the New Zealand European ethnic group has been revised slightly downwards.

**Mortality**

As with births, since 1996 death registrations and the Census have used self- or proxy identified cultural affiliation, with allowance for multiple responses. However, unlike births, analysis of 1996 (and subsequent) data clearly shows that proxy respondents tend to assign single rather than multiple ethnic identities to decedents. For example, Māori deaths registered in 1996 included only 9% with other ethnicities, whereas 48% of people identifying as Māori in the 1996 Census identified also with one or more other ethnic groups. Thus Māori (and Pacific) mortality rates for 1996 (or later years) may continue to underestimate the ‘true’ rates (Harris et al 2000), although significantly less so than formerly. This applies to both genders, at all ages beyond infancy, and for all causes of death.

The degree of underestimation should reduce even further after 2001, with reversion to the 1991 Census question format. Even so, the extent of underestimation using the total ethnic group concept was much less in 1996 than prior to 1995, when death registration used a racial (half or more blood) concept, and Māori (and Pacific) deaths were grossly undercounted. Thus Māori age-standardised mortality rates, for example, appeared to increase significantly from 1994 to 1996 (approximately 30% overall) (Figure 4).

**Figure 4:** All-cause mortality, Māori and non-Māori, 1980–98

Source of base data: NZHIS

Notes: Rates are age standardised to Segi’s world population. Ethnicity based on ‘half or more blood’ until 1994, total ethnic group thereafter.
The sole Māori (and Pacific) denominators derived from the 1991 Census do not correspond well with the equivalent measures from the 1996 Census. In the latter, the sole Māori (Pacific) denominator was too small (as previously explained). Also the numerator (mortality) was too large (some decedents reported by relatives as sole Māori (or Pacific) would have considered themselves to be mixed), so sole Māori (Pacific) mortality rates calculated since 1996 significantly overestimate the ‘true’ rates (Sporle and Pearce 1999).

After the 2001 Census it should be possible to restore the sole Māori (Pacific) mortality time series (using the New Zealand Census Mortality Study to adjust the numerators and interpolation between 1991 and 2001 censal populations to adjust the denominators). However, the ‘sole ethnic group’ concept does not match closely with the ‘half or more blood’ concept of the 1980s (or earlier) with respect to mortality, again reflecting the severe undercounting of Māori and Pacific ethnicity that characterised death registration prior to 1995.

The Māori (and Pacific) infant mortality rate is likely to be less severely underestimated post-1996 than mortality rates at older ages. This is because the denominator (live births) is not derived from the 1996 Census but from birth registrations. In fact, the total infant mortality rate was steady from 1994 to 1996 at 7.1 per 1000 live births, while over the same period the Māori rate appeared to fall from 12.2 to 11.5 per 1000 and the non-Māori rate also appeared to fall from 6.4 to 5.5 per 1000. This suggests that infants who tended to move from the non-Māori to Māori category with the 1995 change in ethnicity recording were of intermediate risk of death compared to those who did not shift category.

Hospitalisations

Since July 1996 hospitals were required to record ethnicity identically to the 1996 Census, using self-identified cultural affiliation with allowance for multiple responses. However, analysis of 1996 (and more recent) data shows that ethnicity reporting from hospitals continues to undercount multiple ethnic identification. For example, only 7% of Māori discharged from public hospitals in 1996 were recorded as also identifying with another ethnic group, whereas in the 1996 Census 48% of Māori claimed such multiple affiliations.

As a result, morbidity rates post-1996 may continue to underestimate the ‘true’ rates for Māori (and Pacific) ethnic groups (Reid 2000a), since some individuals with mixed ethnicity may not be included in the numerator. On the other hand, sole Māori (and Pacific) hospitalisation rates based on 1996 denominators will overestimate the corresponding rates based on 1991 denominators (which in turn seem to correspond reasonably well with the earlier rates based on the ‘half or more blood’ concept), since some individuals who actually have multiple ethnic identities (and so are excluded from the ‘sole’ denominator) will be included in the ‘sole’ numerator.

A gain, reversion to the 1991 Census question format in the 2001 Census should both improve the validity of the post-1996 total ethnic group rates, and allow for re-creation of a time series through the 1990s for sole ethnic group rates.

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14 Also, infant deaths have routinely been linked back to infant births and the ethnicity data amended accordingly (on the assumption that ethnicity recorded on birth registrations is more reliable than that recorded on death registrations). Since the 1998 extension of time permitted to register a birth (from two months to two years) this will no longer be fully effective and has been discontinued as a routine operation.
**Base population changes**

Beyond the changes in the way ethnicity is recorded in the Census (since 1991 in particular), in birth and death registration (since 1995), and in hospital records (since the late 1980s), other changes to the way population denominators are calculated were introduced in 1996 (SNZ 1997a). These changes have had an independent effect on the calculation of ethnic-specific, as well as all New Zealand, rates.

For the first time, the 1996 Census was used to estimate populations on the basis of a ‘usually resident’ concept. This required the inclusion of New Zealand citizens and permanent residents temporarily overseas, and of ‘category jumpers’ – people who had indicated an intention to stay in New Zealand for less than 12 months on arrival in the country, but who subsequently stayed longer (or intend to), so changing their status from short-term visitor or temporary migrant to long-term (permanent) migrant.

Also for the first time, a post-enumeration survey (PES) was carried out to estimate the Census undercount. The undercount was found to be low by international standards, but higher for some groups – such as young adult Māori males – than for others. By including these previously uncounted people, the population increased by 4.3% overall from 1995 to 1996, compared to an average annual rate of increase of just 1.0% through the 1980s and early 1990s. Furthermore, the change did not affect all age, gender and ethnic groups equally. In general, Māori and Pacific peoples are more affected than other ethnic groups, so that post-1996 rates are lower for these groups than would otherwise have been estimated, irrespective of any changes in ethnicity recording itself.

One option to deal with the generic changes of 1996 would be to use population back forecasts to 1991, based on the new 1996 population estimates, and so calculate revised rates back to 1991. However, as explained above, this would perpetuate the undercounting of sole ethnicity and overcounting of mixed ethnicity populations introduced by the change in format of the 1996 Census ethnicity question. A better solution may be to await the 2001 Census, then use interpolation (between the 1991 and 2001 Censuses) to generate revised total and ethnic-specific population denominators based on a census (the 2001 Census) which incorporates both the ‘usually resident’ population concept and PES correction introduced in 1996 and uses an ethnicity question equivalent to that introduced in 1991.

**Capturing the diversity of ethnic identity**

Ethnicity data as currently recorded in New Zealand health statistics provides no information on the strength of ethnic identity or the degree of cultural engagement. However, for Māori an indirect indication of this diversity may be obtained by comparing sole Māori rates with those of mixed Māori or the total Māori ethnic group (which of course includes sole Māori). Significant socioeconomic and cultural as well as health differences are known to exist between these two groups (although the pattern if not the magnitude of disadvantage is the same for both) (Reid 2000a).

For ethnic groups other than Māori and New Zealand European, differentiation by migrant status and English-language competence represent other axes of social stratification that may serve to capture some of the diversity within each ethnic group. Of course simply differentiating ethnic groups more finely (using lower levels of the standard classification) is also relevant to these
groups – especially Pacific groups – but quickly runs into problems of small numbers leading to instability of rates.

Routine monitoring of sole as well as total ethnic group statistics has been suggested (Reid 2000a). Sole ethnic group rates (for Māori or Pacific) would tend to highlight the disparity in health or socioeconomic status between these groups and the majority sole New Zealand European ethnic group, which may be relevant to the construction of ‘needs adjustors’ in resource allocation formulas. At the same time, the monitoring of total ethnic group sizes also needs to be considered because the size of the Māori and Pacific populations would be seriously underestimated if only sole ethnic group statistics were monitored. Undersizing is an issue for the Pacific ethnic group even if the total ethnic group concept is used, if this is based on prioritised rather than total response outputs.

At present, the population-based funding formulas (PBFFs) to be used by the Ministry of Health to allocate resources to the district health boards are undergoing revision. The current formulas for personal health, disability support and public health services all use cost weights that incorporate ethnicity (for example, the personal health PBFF includes an ‘unmet needs scalar’ based on the Māori SMR\(^{15}\) to estimate the ratio of expected to actual utilisation of hospital services by Māori). The sole ethnicity concept may be more appropriate for the calculation of such formulas, since use of the (total) ethnic group concept may underestimate the degree of needs adjustment required. At the same time, to do so could introduce a Treaty risk if the smaller sole ethnic group populations were used to allocate resources or social assistance. It should be emphasised that, firstly, both sole and mixed Māori ethnic groups show the same pattern of health disadvantage (albeit differing in magnitude); and secondly, that socioeconomic needs adjustment (based, for example, on the New Zealand deprivation index (Salmond et al 1998) should be distinguished from and included alongside ethnic needs adjustment in PBFFs.

Beyond ethnicity

Analysis of ethnic inequalities in health cannot be considered in isolation from other axes of social stratification. The ethnic experience is different for males and females, for people living in different parts of the country (and, for example, experiencing different degrees of residential segregation), for people of different birth cohorts ageing through different periods (historical epochs), and for people belonging to different social classes.

Another issue is the meaning of ethnicity itself. Evidence from qualitative (for example, ACNielsen 1999) and quantitative research (for example, Statistics New Zealand’s regular intercensal consistency studies) is that the official concept of ethnicity as self-identified cultural affiliation is not well understood or accepted by the general population, who tend to interpret ethnicity as biological race, natality (birthplace, country of origin) or nationality (country of long-term residence or citizenship). It may be possible to resolve this by collecting data on natality and nationality in addition to ethnicity (in both the Census and in health records), although this would increase respondent burden. The concept of ‘race’, according to many researchers in the field of ethnicity (see, for example, Goodman 2000; Barof 1996), has no scientific validity when applied to human populations, and arguably has therefore no place in public policy discourse.\(^{16}\)

\(^{15}\) Standardised mortality ratio: the ratio of Māori to European all-cause mortality rates, adjusted for age.

\(^{16}\) Although the term ‘race’ is used in New Zealand legislation; for example, the Office of the Race Relations Conciliator.
5 Measuring Ethnic Inequalities in Health

Concept of health and choice of comparator

One view of disparity involves comparison of Māori and Pacific levels of health (narrowly defined as mortality and morbidity rates) with those of an appropriate external reference group (‘deficit model’). Logically the ‘New Zealand European’ group provides such an external standard of comparison (provided it is defined in the same way - total or sole ethnic group as required). A variant on this approach would be to compare all three ethnic groups with some common standard, such as the rates of Australia or Japan, or those of a model population constructed to represent the ideal or optimal levels of health theoretically attainable.

However, the use of an external standard imposes a common concept of health on all ethnic groups. While most would agree that reducing premature mortality and limiting disability are objectives shared by everyone, beyond this ethnic groups may have very different ‘health’ priorities.

An alternative approach, which makes allowance for the cultural specificity of health, is to create for each ethnic group its own internal standard of comparison. That is, each group is compared only with itself over time, and its rate of progress (if any) is assessed in relation to its own starting position, access to resources for change, and sense of priorities (relative importance of different health issues). Progress is then defined in terms of the position that each ethnic group has reached in relation to its own choice of indicators and scale of measurement. While this approach has instrumental advantages, within-group comparison does not satisfy monitoring requirements under the Treaty of Waitangi, which necessitates direct comparison of Māori with non-Māori health. The two approaches may usefully be considered complementary, rather than mutually exclusive.

For the purposes of this report it will be assumed that the New Zealand European total ethnic group (prioritised response output) as defined in the 2001 Census will be the comparator (for the similarly defined Māori and Pacific ethnic groups). This implies that statistical modelling methods will be used to recreate the historical time series (at least back to 1991) to the extent possible. For example, the New Zealand Census Mortality Study (Blakely et al, in preparation) is being used to provide adjustors for the undercount of Māori and Pacific deaths from 1991 to 1994.

A classification of health disparity indicators, appropriate for such a model of health equity, and suggested criteria for selecting indicators from this ‘menu’, are provided in a companion publication to this report (MOH 2001a).
Defining success or failure

Intergroup comparisons

The comparison of rates between groups can be made in an absolute (rate difference) or relative (rate ratio) sense. While the latter is more commonly done – and possibly more intuitive – the former is preferred. This is because ratios depend on the baseline level of the variable whereas differences do not. Thus the same absolute decrease in Māori and European rates of a health indicator will affect the rate ratio but not the rate difference. Equally, the same proportionate increase in Māori and European rates will be reflected in a change in the rate difference but not in the rate ratio. The rate difference – because it reflects the actual (absolute) size of the disparity – is more useful from a policy perspective. Of course, both rate differences and ratios can and should be measured simultaneously.

The definition of success and failure is problematic using an external standard of comparison that is itself subject to variation. It seems appropriate to conclude that ethnic trends need to be carefully analysed, avoiding simplistic interpretation of disparities as ‘increasing’ or ‘decreasing’ within a defined time window. Use of both absolute and relative measures in tandem may make the interpretive task easier.

Intragroup comparison

Comparing one group with itself at different times is fundamental to the health development model of inequality. This requires consistency of numerator and denominator definitions over time, allowance for the lag times between exposure to risks (or interventions) and health effects, and elapse of sufficient time for measurable change in health indicators to occur (itself a function of the size of the population and the underlying variability in the relevant event rate).

Means and variances

Is it enough to measure the difference between group means, without paying attention to within-group variances? While this is generally what happens in practice, it may be useful from a scientific perspective to understand the degree of overlap of the ethnic distributions.17

At the same time, the relevance for policy of the high degree of overlap often found between social groups18 (whether defined by gender, social class, region or ethnicity) should not be overstated. That characteristics such as ethnicity or class have little predictive value for the health outcomes of individuals does not alter the salience of these variables at the group level – which is the level at which policy is aimed. For policy, it is often enough to know the differences ‘on average’.

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17 Murray et al (1999) argue that the distribution of health across the population as a whole should first be described, then (multivariate) explanations – including the contribution of ‘ethnicity’ – sought for the observed distribution. For a response to this suggestion, see Braveman 2000. In practice, Murray’s approach – while theoretically attractive – may be difficult to implement. It is also questionable whether such a measurement approach would meet monitoring obligations under the Treaty of Waitangi.

18 Since most people are healthy at any point in time (illness or death are relatively rare events), large overlaps in health levels between groups are inevitable.
Spatial analysis

Ethnic rate differences - and trends in these differences - will often vary significantly across regions\(^{19}\) (such as health districts), even after adjusting for other covariates. Spatial analysis is especially important from a policy perspective, both for mobilising communities by providing them with local data, and for targeting interventions (when appropriate) to groups with the highest need.

Age, period and cohort analysis

As well as period or historical epoch (considered above), age has a major influence on health. Since the Māori and Pacific ethnic groups have much younger age structures than the New Zealand European ethnic group, stratification or adjustment for age is essential for fair comparison of rates.

Although less frequently considered, both Māori and Pacific ethnic groups typically show strong birth cohort effects, so analysis by birth cohort should also be considered when making ethnic group comparisons in New Zealand. Cohort analysis is also relevant when considering health inequalities from a lifecourse perspective.

Gender analysis

The health experience of males and females is so different (at least for adults) (Ministry of Health 1999b) that separate analysis should always be done of the health of both genders within each of the ethnic groups under consideration. At a minimum, therefore, measuring ethnic inequalities in health involves contrasting rates (of different health indicators) for Māori males with European males, and Māori females with European females (and similarly for Pacific males and females).

Socioeconomic analysis

Socioeconomic status (SES) - whether measured by education, occupation, income or deprivation - is not simply a confounder of the ‘ethnic effect’, like age or gender, but rather constitutes a pathway variable linking ethnicity to health (Figure 5): at least part of the effect of ethnicity on health is mediated through SES, to which ethnicity is logically prior.

Thus ethnic inequalities in health should be measured both with and without stratification or adjustment for SES, and simplistic interpretations of the share of the ethnic effect ‘attributable’ to SES (and vice versa) need to be avoided, if for no other reason than the imperfection of SES measures (especially when applied cross culturally) which means that residual SES ‘confounding’ of the ethnicity - health relationship cannot be avoided (Davey Smith 2000).

\(^{19}\) Although some of this variation may in fact reflect variation in numerator-denominator bias between regions.
The policy implication for New Zealand of the relationship between these variables, as illustrated in Figure 5, is that a social justice approach to inequality may prove to be insufficient to address Māori disadvantage. Improvement in the relative position of Māori may require framing issues and interventions from a Treaty rights perspective as well (Reid 2000b).
6 Explaining Ethnic Inequalities in Health

Analysis of the causes of ethnic inequalities in health at the level of diseases and risk factors is of direct relevance to policy. However, understanding causation at the more fundamental level of determinants may be helpful in framing the policy debate and strengthening intersectoral action to reduce inequality.

Although these determinants overlap and interact, five major categories may be identified (based on the work of Nazroo (1998), Jones (1999) and others): demography, social structure, culture or identity, discrimination or racism, and health care.

Demographic forces

Age structure

Māori and Pacific ethnic groups have a younger age structure than the New Zealand European ethnic group, with a higher child but lower elderly dependency ratio (SNZ 1999a). Any comparison must therefore take age into account.

Family dynamics

All ethnic groups in New Zealand have high rates of inter-ethnic union (SNZ 2000b), but this affects numerically smaller groups more (Waters 2000). In addition, Māori and Pacific ethnic groups have higher rates of fertility (although much less so than formerly), early childbearing, and lone motherhood (SNZ 1999a) – all of which impact on health outcomes.

Household size and composition

Māori and – especially – Pacific peoples tend to live in larger households (including multi-family households) (Howden-Chapman and Tobias 2000). These differences in living arrangements and obligations for support likewise impact (positively or negatively) on health.

Residential mobility and segregation

Between about 1950 and 1975 the Māori population experienced massive internal migration from rural to urban settings. Similarly, Pacific peoples experienced a wave of migration to New Zealand during the 1960s and early 1970s. These major events will have significant consequences for health for several generations to come. Even today, Pacific peoples are heavily concentrated into just a few urban areas, and Māori are also disproportionately settled in the north and east of the North Island. Both groups experience considerable segregation of neighbourhoods, and high residential mobility (Khawaja M, personal communication, February 2001), again with both positive and negative influences on health.
Socioeconomic conditions: ethnicity as structure

Ethnic groups in New Zealand occupy different socioeconomic (as well as geographic) locations. For example, the distribution of Māori, Pacific and European ethnic groups across the NZDep96 deciles is shown in Figure 6.

Figure 6: Deprivation profiles, by ethnicity, 1996


Europeans are over-represented in the least deprived small areas (deciles 1 and 2) and under-represented in the most deprived small areas (deciles 9 and 10). The opposite pattern holds for Māori, and the distribution is even more skewed for Pacific peoples: over one-quarter of the Māori and one-third of the Pacific ethnic groups are concentrated into the most deprived 10 percent of small areas.
Socioeconomic location (whether measured as deprivation, social class or SES) is a major determinant of health status (Figure 7).

Figure 7: Life expectancy at birth, by gender and deprivation decile, 1995–97

Males living in the most deprived 10 percent of small areas have a life expectancy at birth 9 years less than those living in the least deprived 10 percent of small areas. For females, the corresponding difference is 6.7 years.

What proportion of the ethnic disparity in health, then, reflects the differential socioeconomic location of the ethnic groups? There have been two major investigations into this question.

Studies of working-age males (15–64) by Pearce et al (1993) found only about 20–30% of the Māori–non-Māori difference in mortality to be attributable to occupational class. In these unlinked studies death certificates provided the numerators while a 10% sample of census questionnaires provided the denominators. After adjusting for age and occupational class, the Māori–non-Māori mortality rate ratio was found to be 1.52 in 1975–77 and 1.27 in 1985–87 (data for 1995–97 should be available shortly). In both of the earlier periods, the adjustment for social class reduced the excess Māori mortality by only about 20–30%. The authors did, however, note that the adjustment for socioeconomic position was incomplete, both because residual confounding remained within occupational classes, and because dimensions of socioeconomic position unrelated to occupational class were not captured. Selection bias introduced by the lack of linkage between the way both occupation and ethnicity data is collected for the numerator and the denominator could also lead to underestimation of the attributable proportion.

Studies of males and females aged 0–74 years in the early 1990s by Blakely et al (2001a) adjusted for numerator–denominator bias using ratios derived from linked census and mortality data (Blakely et al, in preparation (b)). These studies thus represent a methodological advance.
over the unlinked studies of Pearce et al. However, their conclusion is the same: factors other than socioeconomic position appear to contribute significantly to the Māori–non-Māori mortality gap. Again, however, the authors note that the importance of socioeconomic factors may not be fully captured in their studies.

The possible reasons why these (and other) studies tend to underestimate socioeconomic factors as causes of ethnic inequalities in health may be categorised into three main groups:

**Failure to measure socioeconomic position adequately**

This may involve failure to incorporate all relevant socioeconomic variables. For example, most studies examine income, not wealth (as the former is easier to measure). Yet ethnic differences in wealth greatly exceed differences in income, and wealth has a greater impact on health than does income (especially when the latter is measured at a single point in time).

There may also be failure to remove residual confounding by socioeconomic variables within included categories. For example, there is much variability between occupations included in the same occupational class, and Māori and Pacific workers are more likely to be found in the lower status occupations within each occupational class. Another example is the lower return on investment in human capital experienced by Māori and Pacific ethnic groups (Davis 1997).

**Failure to consider the life course**

Most studies have been restricted to a single point in time, and so have been unable to take into account the cumulative impact on adult health of disadvantage over the life course. Māori and Pacific people are more likely to be disadvantaged in childhood and throughout life (including intergenerational transmission of socioeconomic disadvantage and health risk).

**Failure to account for contextual effects**

For example, the residential segregation of Māori and (especially) Pacific peoples into disadvantaged neighbourhoods exposes them to additional health risks over and above those resulting from individual socioeconomic position. Most studies have neglected any contribution from group-level variables (contextual variables) independent of individual-level variables (compositional variables).

Thus the structural dimension of ethnicity could in fact account for a much larger share of the ethnic health disparity than is currently estimated. However, it is unlikely to explain all of it, and it leaves unresolved the question of why different ethnic groups occupy different socioeconomic locations in the first place.

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20 However, residential segregation is not necessarily harmful to health, as it may act to increase the level of social support and cultural engagement.

21 Some workers in this field would go further, and insist that since SES is an effect modifier rather than a confounder of the ethnicity–health relationship, attempts to tease out the share of the observed disparity due to each are logically flawed (Davey Smith 2000).
Cultural influences: ethnicity as identity

Ethnic identity can be an ‘external definition’ imposed on minority groups by the majority in order to construct boundaries of social exclusion and maintain hierarchical power and status relationships in society. This view ‘leads to a focus on the process and origins of ethnic signification (perhaps located in the wider demands of capitalism); how this [ethnic signification] leads to the disadvantaged position of ethnic minority groups; and the links between that material disadvantage and poor health’ (Karlsen and Nazroo, in preparation (b)).

Yet ethnic identity can also be an ‘internal definition’, a boundary of inclusion rather than exclusion, providing a sense of identity and access to social resources. Furthermore, identity as internally defined cannot be considered fixed and immutable: individuals can choose to identify with more than one culture concurrently, and can change their cultural affiliations over time.

Depending on the strength of ethnic identification and the degree of engagement with the culture concerned, ethnicity may promote or endanger health. A strong sense of one’s cultural roots, and access to a supportive community, can be a source of self esteem and social support – which are highly protective of health. On the other hand, health-compromising behaviours may be more prevalent among an ethnic group simply as a consequence of its more disadvantaged socioeconomic position.

However, lifestyle and other health-related behaviours, while of policy relevance in view of their modifiability, make only a relatively modest contribution to differences in health levels between social groups, and are in any case strongly determined by socioeconomic position. Thus the cultural dimension of ethnicity, at least in the New Zealand context, is much less important than its structural dimension in terms of its impact on population health.22

Discrimination: the experience of institutional and personal racism

Few would disagree that the socioeconomic location of the Māori ethnic group today is largely a consequence of the experience of colonisation (with its associated alienation of land and economic collapse).23 By contrast, that of the Pacific ethnic group largely reflects the experience of international migration (with its associated employment in low-skilled manufacturing ‘sunset’ industries). However, maintenance of these socioeconomic locations today may be at least partly the result of more recent – and ongoing – experience of discrimination24 by Māori and Pacific peoples, at both institutional and personal levels (Jones 1999; 2000).

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22 Further information on this issue should become available from a cohort study of Māori households currently in progress (Massey University 1999).

23 Together with consequential historical events, including the massive migration of Māori from rural to urban settings (1950–1975, approximately), and the economic ‘shock’ of the mid-1980s (which impacted much more severely on Māori than on non-Māori).

24 For convenience the distinction between discrimination (the process) and racism (the ideology that justifies the process) is not drawn in this report.
Explaining Ethnic Inequalities in Health

If the institutional rules that govern our society tend to favour the majority ethnic group at the expense of other groups, then the latter will suffer material disadvantage and consequential health effects. The experience of personal racism reinforces these effects (Krieger 2000). For example, discrimination against Māori and Pacific peoples in the labour market and the housing market will materially disadvantage these ethnic groups. Discrimination in the school system will have the same result over a longer period.

As mentioned above, discrimination is also a process of signification, whereby an ethnic identity may be externally imposed on an individual (or a group). Thus discrimination acts on cultural as well as structural dimensions of ethnicity.

The direct, personal experience of harassment and perception of discrimination may also make an independent contribution to health outcomes, acting through psychological pathways separate from both the structural and the cultural pathways discussed above (Karlsen and Nazroo, in preparation (a)). For example, negative stereotypes may become internalised with adverse impacts on self esteem, leading to self-destructive behaviours and ultimately compromising health (so-called ‘internalised racism’).

Thus discrimination is simultaneously a means whereby the disadvantaged status of Māori and Pacific ethnic groups is created and maintained, a process whereby these ethnic groups are culturally devalued and stigmatised, and a direct influence on their everyday experience of social approval and perception of self – with predictable consequences for health.

Clearly, policies to redress ethnic health inequalities will need to include strategies aimed at both redistribution (socioeconomic disadvantage) and recognition (cultural devaluation and the personal experience of racism).

Health service factors: access and quality

Differential utilisation of health services (especially preventive services) may well be an important contributor to the ethnic health disparity, but is of course by no means independent of the structural and cultural pathways discussed above. Rather, health care is identified here as a separate causal category merely to highlight it as the one determinant for which the health sector itself bears prime responsibility.

There is increasing evidence for differential access to, and social engagement with, both primary and secondary care services for Māori (Baxter 2000), although there is little research yet for Pacific peoples. Access limitations may reflect the socioeconomic location of these ethnic groups: financial barriers to care - loss of wages, costs of child care, costs of public or private transport - are still relevant even when the care itself is subsidised. It may also partially reflect lack of cultural comfort with many mainstream providers (this is especially relevant to mental health services). In addition, there is some evidence of discrimination against Māori and Pacific patients within the health system; for example, they may be less likely to be referred for appropriate surgical care, or more likely to be institutionalised. Indeed, the quality of care provided may be systematically inferior for Māori patients (Baxter 2000).
Lower utilisation of care in relation to need, later presentation for care (for cultural, socioeconomic or other reasons), less empowering relationships with health professionals, and a generally lower quality of care add up to poorer care outcomes, which in turn make a contribution to the poorer level of health experienced by Māori and Pacific ethnic groups. The contribution of health care relative to socioeconomic and cultural determinants is difficult to quantify and, as emphasised above, is in any case partly determined by these forces.

**Māori compared with Pacific disadvantage**

The explanations for (and societal responses to) Māori and Pacific disadvantage are very different. For Māori the explanation should be sought in the experience of colonisation and the solution sought in Treaty rights; for Pacific peoples the experience of international migration is paramount, and the solution lies in the recognition of ethnic minority rights.

For all disadvantaged ethnic groups, however, there are common issues of discrimination and racism, and common concerns regarding measurement and monitoring of ethnic inequalities in health as summarised in this report.
7 Options for Improvement

Improving the quality of ethnic health statistics

1. Statistics New Zealand research shows that New Zealanders are not well informed about the concept of ethnicity used in New Zealand’s official statistics, or the uses made of this data, indicating that education is needed, perhaps in association with preparations for the 2006 Census. This should be coupled with further and ongoing training for data collectors (registry counter staff, funeral directors, hospital record clerks and clinical staff in both primary and secondary care settings).

2. Pending the outcome of Statistics New Zealand’s review of ethnicity measurement (expected in mid-2002), the ethnic question format of the 1991 Census should be used in all records (the wording of the 1996 Census question yielded an excessive rate of multiple responses). This implies that birth and death registration forms will have to be altered yet again, and the same applies for hospitals and other health-care settings.

3. The time limit for registering a birth should be restored to two months (not two years, as has been the case since 1998), and infant deaths should be routinely linked back to births (as was done until 1997) to evaluate the quality of ethnicity data for this age group.

4. Research has recently been undertaken to compare the validity and reliability of ethnicity recorded on death registrations with that recorded on the NHI. The latter has the advantage of being self- as opposed to proxy identified, but has the disadvantage that it may relate to a much earlier time period – and ethnicity may have changed in the interim (Eru Pomare Research Centre personal communication February 2001). This research should be extended to provide an ongoing evaluation of ethnicity data quality for mortality for non-infant age groups.

5. Research should be undertaken to determine whether collecting data on natality and nationality in addition to (and prior to) ethnicity is feasible in the Census, in birth and death registrations, and in health records; whether this would significantly improve the quality of the ethnicity data collected; and whether such data would be of added value in its own right.

6. Improvements in intercensal and subnational population estimates for both Māori and Pacific ethnic groups are needed, to provide robust denominators for rates in non-Census years and in different health districts. This requires better ethnic-specific migration data, including the recording of ethnicity (using the standard question) on arrival and departure cards.
Measuring ethnic inequalities in health

1. At present, use of total ethnic group numerators and denominators may underestimate the ‘true’ inequalities between Māori and Pacific ethnic groups and the New Zealand European ethnic group. On the other hand, use of the sole ethnic group concept will overestimate the differences as well as greatly reduce the size of the Māori and Pacific populations. At least until data from the 2001 Census becomes available, both series should be monitored for appropriate purposes, with care taken to avoid creating Treaty risk.

2. Once results of the 2001 Census become available, re-creation of the ethnic time series for the 1990s should be attempted using the New Zealand Census Mortality Study to adjust for the undercount in numerators, and interpolation between the 1991 and 2001 Censuses to adjust the denominators.

3. Difference as well as ratio measures should be used concurrently to estimate the ethnic health disparity.

4. The New Zealand European ethnic group may serve as an appropriate external reference category, but use of an internal standard of comparison should also be developed.

5. Ethnic inequalities in health should be monitored comprehensively and regularly. This may require more frequent monitoring of some disparity indicators (such as biological and behavioural risk factors) that at present can only be monitored (at best) five-yearly.

Explaining ethnic inequalities in health

1. Appropriate statistical methods should be developed to better understand the interaction of age, gender, ethnicity, socioeconomic position and region in generating the observed health inequalities.

2. Research is needed to measure and monitor institutional racism, including its impact on access to and quality of primary and secondary health care services.

3. Consideration should be given to including questions on the experience of personal racism in future health and social surveys.
References


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