

The effect of ethnic prioritisation on ethnic health analysis: a research note

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Abstract

Ethnicity is an important variable in studies of health inequalities in New Zealand. Yet there are ongoing concerns about the nature, quality and use of ethnic data. In 2004, Statistics New Zealand recommended that researchers and policy makers no longer use the system of ethnic prioritisation, a system originally designed to assign people with multiple ethnic responses to one ethnic category. While across a range of disciplines researchers have shifted to using either total ethnic counts or single and combination counts, many health researchers continue to use ethnic prioritisation.

Census data show that when using prioritisation there are significant losses to Pacific, Asian and European groups, especially for young people. Losses are especially high for New Zealand born people in all age groups. Health researchers need to consider very carefully the costs and benefits of using prioritised data. Based on the census data we suggest the costs, in terms of loss of information and possible biases in findings, outweigh any benefits.

Researchers have been long concerned about the nature and quality of New Zealand ethnic data when undertaking ethnic based health analysis. It is widely known that mortality data (at least during the 1980s and early 1990s) undercounted Māori and Pacific deaths.¹⁻³

Current problems include missing data and discrepancies in the way ethnicity is recorded in contributing data sources.⁴ People may identify themselves with more than one ethnicity and, while individuals may change their ethnicities over time and should have this recorded at each contact with service providers, in practice the ethnicity or ethnicities held against their health records may not accurately reflect their current preferences.

Health researchers and epidemiologists continue to struggle with these concerns, particularly in regard to the choice of output strategies to handle multiple responses by people who have more than one ethnicity.

Census has recorded multiple responses in a number of ways for many decades, earlier as combinations of ethnicities/ ethnic origins/ races and more recently with up to six ethnicities recorded per individual. Some other collections such as birth and death registrations now record multiple responses routinely in the same manner as done for census, but historic collections frequently restricted their recording to one ethnicity per individual, or, where more than one was collected, the options were only at high level and very restricted.

When respondents to surveys are required to record only one ethnic group, reporting membership of ethnic groups is relatively straightforward provided respondents do in

fact write a single response, necessitating selection during data processing. When more than one group is collected, then reporting is more complex.

In the early period during which more than one group was recorded in New Zealand it was normal to output combinations but then to consider groups based on a half-or-more affiliation basis. This applied until around 1981. However, for the 1986 and 1991 censuses, the then Department of Statistics (now Statistics New Zealand) as well as most government agencies and researchers relied primarily on the prioritisation of ethnic groups in order to simplify the presentation of the data.

Under this system, Māori had priority coding, followed by Pacific, then Asian, then other ethnic groups, with people of only European ethnicities last.

The one advantage in using a system of prioritisation is that mathematically ethnic counts equal counts of the total population with specified ethnicity, making statistical analysis more straightforward. However, mathematical expedience should be secondary to the meaning of the data. In New Zealand this advantage was greatly outweighed by the disadvantages.

The disadvantages are that (1) there is no underlying logic to the order of prioritisation except that it privileges the indigenous population, (2) it is not ethnically neutral (that is, it elevates one ethnic group over another), (3) it does not acknowledge the preferences of people, and (4) it biases population measures by misrepresenting the membership of all groups except for Māori.

Moreover, a further complication was that questionnaire design often meant that it was not possible to identify the level of non-response, because the absence of a tick in the targeted tick-boxes was taken to indicate membership of a “non-X” group and then this was treated as though it were some kind of “ethnic group”. Hence the correct denominator for calculation of rates was not available.¹⁴

Increasingly, the biasing effects of both the process of prioritisation and the increase in non-response have become problematic in New Zealand in recent years, with the growth in the number of people, especially children, reporting ethnicities in more than one ethnic group.⁵

In terms of reflecting the preferences of people, two sets of research confirm that imposed prioritisation is problematic. Using 2006 data from wave one of the Youth Connectedness survey of early adolescents, Kukutai and Callister found that three-quarters of youth who recorded more than one ethnic group were able to choose a main group when asked to do so.⁵

Of the dual identified Māori–European children who could choose a main group, more chose a European ethnicity over Māori. Kukutai also found a similar pattern of self-prioritisation responses among women identified as Māori and European in the 1995 New Zealand Women: Family, Education and Employment (NZW: FEE) survey of women aged 20–59 years.⁶

Among the 183 women who recorded Māori and European ethnic groups, 42% were identified mainly as European, 37% identified mainly as Māori, and the remainder could not choose.

Table 1. More than one ethnicity reported, Census of Population and Dwellings, 1991–2006

Census year	More than one ethnicity reported					
	N			% ¹		
	Total NZ, all ages	Total NZ, 0–14	Māori, all ages	Total NZ	Total NZ, 0–14	Māori, all ages
1991	166,158	77,172	111,351	5.0	19.3	25.6
1996	536,757	181,338	249,894	15.5 ²	45.2	47.8
2001	324,090	145,194	231,552	9.0	34.2	44.0
2006	400,428	164,262	266,934	10.4	38.1	47.2

¹ Percentage of people with a valid ethnic group response.

² In 1996 an “Other European” tick-box was included, along with a sub-list that specified English, Irish, Australian, Scottish and Dutch ethnic groups. This led to an increase in the reporting of those groups, though at the highest level of ethnicity this had much less effect than this table implies (see Table 2) because people with multiple responses within a group were counted only once in that group. The tick-box was dropped from subsequent census questionnaires.

Source: Kukutai and Callister, 2009, drawn from Census of Population and Dwellings.

Table 2. More than one Level 1 ethnic group reported, census of population and dwellings, 1991–2006

Census	More than one ethnic grouping					
	Numbers			Percentages		
	Total	0–14	Māori	Total	0–14	Māori
1991	138,171	69,939	111,351	4.1	9.0	25.6
1996	308,154	135,288	249,894	8.9	16.9	47.7
2001	282,825	131,580	231,552	7.9	16.0	44.0
2006	363,402	150,318	266,934	9.4	18.0	47.2

Source: Census of Population and Dwellings.

Disquiet with the system of prioritisation was already increasing from the early 1990s as the limitations and distortions to the data were being recognised. Throughout the 1990s, less use was being made of prioritisation in social science research, though it persisted among some economic, some education and most health analysts, largely because data were most readily available in this form.

Following the 2004 Review of Ethnicity, Statistics New Zealand recommended that researchers and policy makers no longer use ethnic prioritisation. Despite this recommendation and despite an increasing proportion of health data being available in other formats, many health researchers continue to use the system. While many of the studies using prioritised data are published in overseas journals,^{7–10} recent examples can be found in this medical journal.^{11,12}

So what effect does the continued use of prioritisation have? While each survey will have different characteristics, the five yearly Census of Population and Dwellings allows some tracking of the effect over time.

Table 2 compares the difference in size of each grouping of ethnicities when total responses are used and when the data have been prioritised. For example, in 2006 the

Pacific population is 14.9% larger than prioritised data would suggest even though the Pacific grouping has second ranking in the prioritisation system. The Table shows a loss across all age groups for every ethnic group except Māori, which is accorded the highest priority. The difference in numbers is a result of people who gave multiple responses.¹⁴

The greatest loss is experienced in the two youngest age groups and is shown to progressively extend into older age groups over time. This reflects the increasing number of children/younger people with multiple ethnicities due to ethnic intermarriage and changes in how people report their ethnic identification.¹⁵

More significantly though, this progressive extension shows that the effect has both age group and cohort implications. These data suggest that currently the main distorting effect of prioritisation is for studies that focus on young people, for example rates of child immunisation, but any continuation of a prioritised ethnic frame would have increasing significance for health monitoring of older age groups.

Table 3. Percentage understatement of prioritised ethnic counts compared with total responses, 1991, 1996, 2001 and 2006 Censuses

Ethnicity	Year	Age groups								Total
		Under 15	15-19	20-24	25-29	30-34	35-39	40-44	45+	
European	1991	11.6	8.1	5.4	4.4	3.5	2.8	2.0	1.1	4.7
	1996	24.4	19.4	14.7	11.8	10.1	8.2	6.6	3.3	11.0
	2001	24.0	17.2	15.4	12.4	9.1	7.4	5.9	2.6	10.0
	2006	21.4	16.6	14.1	13.0	10.4	8.2	6.8	3.2	10.1
Māori	1991	0	0	0	0	0	0	0	0	0
	1996	0	0	0	0	0	0	0	0	0
	2001	0	0	0	0	0	0	0	0	0
	2006	0	0	0	0	0	0	0	0	0
Pacific	1991	18.4	9.5	5.0	4.4	4.1	2.5	1.7	1.0	9.2
	1996	30.0	20.9	12.8	8.7	7.8	7.8	5.6	4.4	16.8
	2001	29.5	18.5	14.4	9.1	6.4	6.4	5.8	2.6	15.8
	2006	24.7	17.6	13.7	11.6	8.1	5.8	5.8	3.3	14.9
Asian	1991	10.7	9.6	6.3	3.8	2.7	2.9	3.6	3.1	6.1
	1996	13.3	8.5	9.2	8.2	5.3	4.2	4.0	4.7	8.0
	2001	10.5	4.5	4.8	5.2	4.1	2.7	2.4	2.5	5.1
	2006	8.4	4.4	2.4	3.0	3.1	2.7	1.9	2.0	3.9
MELAA	1991	13.9	9.9	5.1	4.9	3.0	2.3	1.2	2.6	6.5
	1996	19.8	16.9	12.6	8.1	6.7	8.9	7.4	5.3	12.0
	2001	14.4	8.1	7.8	5.5	3.4	4.5	4.1	3.8	7.7
	2006	11.7	6.2	4.4	2.8	2.2	2.2	2.3	2.8	5.6

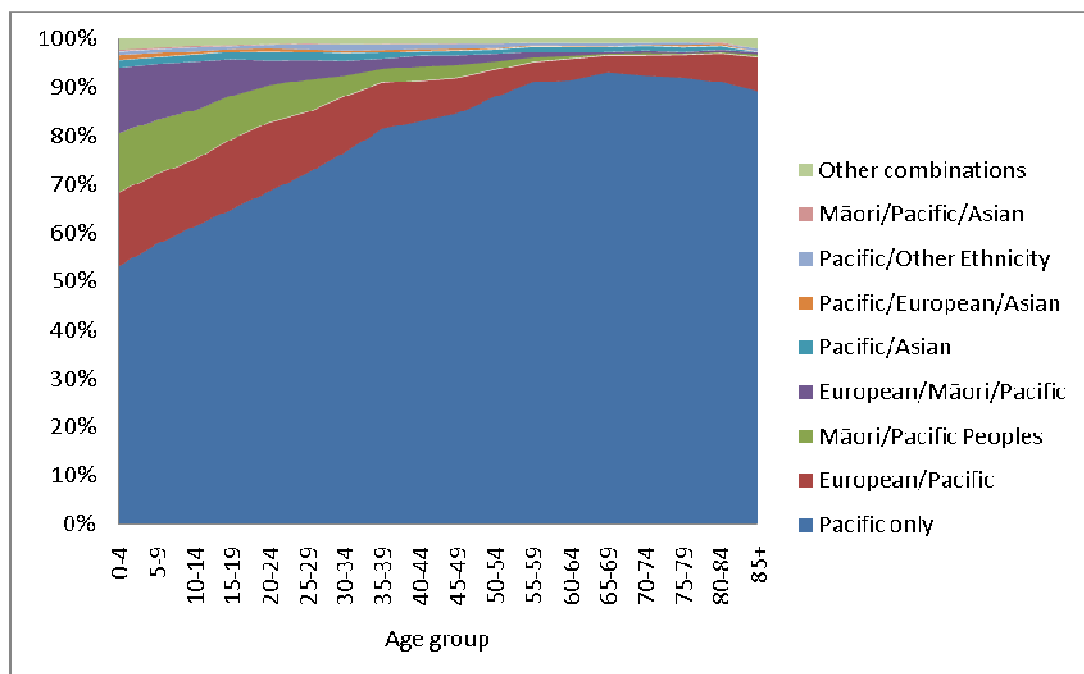
Note: For consistency, “Other” (predominantly New Zealander responses) has been included with European for 2006 Census and the group labelled “Other” prior to 2006 is here labelled “MELAA” (=Middle Eastern, Latin American and African).

Source: Census of Population and Dwellings, Statistics New Zealand.

But Figure 1 suggests that there may be more subtle distortions amongst older age groups. While single ethnicity remains more common amongst older people this reverses somewhat in the oldest age groups. The primary reason for this appears to be longer life expectancy for those Pacific people with multiple ethnic affiliations,

specifically better outcomes for those recording Pacific and European.¹⁶ This pattern also holds for the Māori ethnic group. Prioritised data would disguise this pattern.

Figure 1. Main single and combination ethnic responses, Pacific ethnic group, 2006



Source: Census of Population and Dwellings, Statistics New Zealand.

As a further complication for researchers, migration has an effect on the degree to which groups other than Māori lose population due to prioritisation.¹⁷ For example, if we compare the data in table 3 for 2006 with the portion of the 2006 which had been in New Zealand in 2001, as shown in Table 4, we see a more diverse population. Partly this indicates that new migrants tend to identify initially with ethnicities in a single grouping, though many may diversify ethnically as they settle and their lives integrate with other New Zealanders.

Table 4. Percentage understatement of prioritised ethnic counts compared with total responses for people in New Zealand 5 years previously, 2006 Census

Ethnicity	Under 15	15-19	20-24	25-29	30-34	35-39	40-44	45+	Total
European and other	21.9	16.9	14.5	14.2	11.5	8.7	7.0	3.2	10.4
Māori	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pacific	25.9	19.1	15.2	12.7	8.8	6.1	6.1	3.5	16.0
Asian	10.9	7.5	4.7	5.3	5.3	4.2	2.8	2.4	5.8
MELAA	15.1	9.9	7.3	5.3	4.0	3.6	3.4	3.4	8.4

Source: Census of Population and Dwellings, Statistics New Zealand.

Similarly, Table 5 considers only people born in New Zealand. This shows the much stronger affect of partnering and re-partnering within New Zealand, especially on the subsequent generation, and the diversification of the New Zealand born population across all age groups. Any ethnic based study of the health in older New Zealand born people is potentially much more affected by prioritisation than for those born overseas.

Table 5. Percentage understatement of prioritised ethnic counts compared with total responses for people born in New Zealand, 2006 Census

Ethnicity	Age groups								Total
	Under 15	15-19	20-24	25-29	30-34	35-39	40-44	45+	
European and other	22.4	17.5	15.0	14.3	11.8	9.4	7.8	3.7	11.4
Māori	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pacific	27.6	21.6	20.7	19.2	16.5	15.5	19.0	25.3	24.2
Asian	13.4	17.5	20.3	27.9	29.2	27.3	21.8	19.2	16.3
MELAA	21.2	36.2	32.5	29.9	33.3	34.4	35.0	25.2	24.1

Source: Census of Population and Dwellings, Statistics New Zealand.

The recognition of multiple ethnicities is important in making comparisons between different ethnic groups as people reporting several ethnicities may have different characteristics from those who do not, and each of the combinations may have different characteristics from each other as well as from the contributing groups.

While prioritisation does not affect the number of people of Māori ethnicity, it is important to recognise that approximately half of all Māori identify with other ethnicities. Pacific children are an example of the significance of this. Whereas prioritisation provides a total count for Māori, prioritised data effectively remove more than a quarter of the Pacific children from their count.

Even though prioritised data do provide a total count for Maori, it remains problematic for Māori from a different perspective. It camouflages multiple ethnicity within Māori. There is much research showing that those reporting only Māori or only Pacific ethnicities (and those with both Māori and Pacific ethnicities) tend to have poorer outcomes across a range of non-health measures than do those reporting Māori or Pacific and European ethnicities.^{18,19}

Using a variety of data sources, Kukutai has found that those who have a strong Māori identification seem to be more disadvantaged than those with “thinner” ties to Māori identity.²⁰ Some exploratory health research also showed differences in mortality rates between ‘sole’ Māori and Māori reporting more than one ethnic group.¹⁶ The reasons for these differences are far from clear.²⁰

The distinction between sole and mixed groups is only part of the story, though. Differentials within Pacific point too to another aspect of diversity of high importance for health researchers. Māori is recorded as a single ethnicity so it is not easy to demonstrate diversity within either “sole” Māori or “mixed” Māori.

Symptomatic evidence of such diversity has been shown by recent work by Tony Blakely and his team. This work demonstrated that there are significant differences in

mortality between different Pacific ethnicities, with, for example, Cook Island, Samoan and Tongan mortality rates varying markedly from each other strongly suggestive that heterogeneity within even the “sole” major groupings such as Pacific needs to be taken into account in policy formulation.²¹

The within-ethnic-group differences are disguised not only by prioritisation but also by total counts. This is a consequence of grouping ethnicities into collectives. However, prioritisation exacerbates this and makes it difficult to even start developing hypotheses and research instruments to determine the underlying causes of new or emerging ethnic inequalities on the basis of large heterogeneous groupings. This is transparently clear for groupings such as Asian and Pacific, but has implications for groups we often treat as unitary.

As an example, the small but important rise in melanoma amongst Māori identified by using prioritised data may possibly be concentrated amongst those recording Māori and European ethnic groups.²² Because prioritisation changes the relativity between groupings, this may be due to the shifting of groups with higher melanoma incidence into the Māori group, the moving of groups with lower incidence out of Maori or a consequence of ongoing interethnic partnering.^{15,16,23}

In turn, this might be due to shifts in skin colour within the wider Māori ethnic group. While skin colour data would be needed to fully test this hypothesis, abandoning prioritised ethnicity data as a surrogate would be a useful first step to help better understand this recent shift and to better understand the relationship between incidence among Māori and among Pacific.

Conclusion

Despite a recommendation by Statistics New Zealand in 2004 that ethnic prioritisation no longer be utilised in research, its use continues within the health research community for the two reasons that it is mathematically simpler within epidemiological models and much recent historical health data are only available in this form.

We consider the benefits of using this system are greatly outweighed by the costs. Where possible, single and combination ethnic responses should be examined and, where single groups are required, total counts used.

We recognise that total counts are overlapping categories, and this can present some challenges for some statistical modelling approaches. But new methods need to be developed to handle complex ethnic, rather than using potentially misleading output methods simply to fit data into models.

There are two key reasons: this is an increasingly extensive feature of the populations of interest and understanding the phenomenology of pathologies requires a robust valid basis if the populations are to be disaggregated along ethnic lines.

Finally, some older datasets will require some continued use of prioritised data. However, when reporting such data researchers need to take care in relation to what patterns such data may be disguising.

The principal concern remains that for ongoing analytical work with contemporary data, datasets should be designed to accommodate multiple analytical strategies at a

range of scales to better understand the relationship between social identification parameters and biomedical data.

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