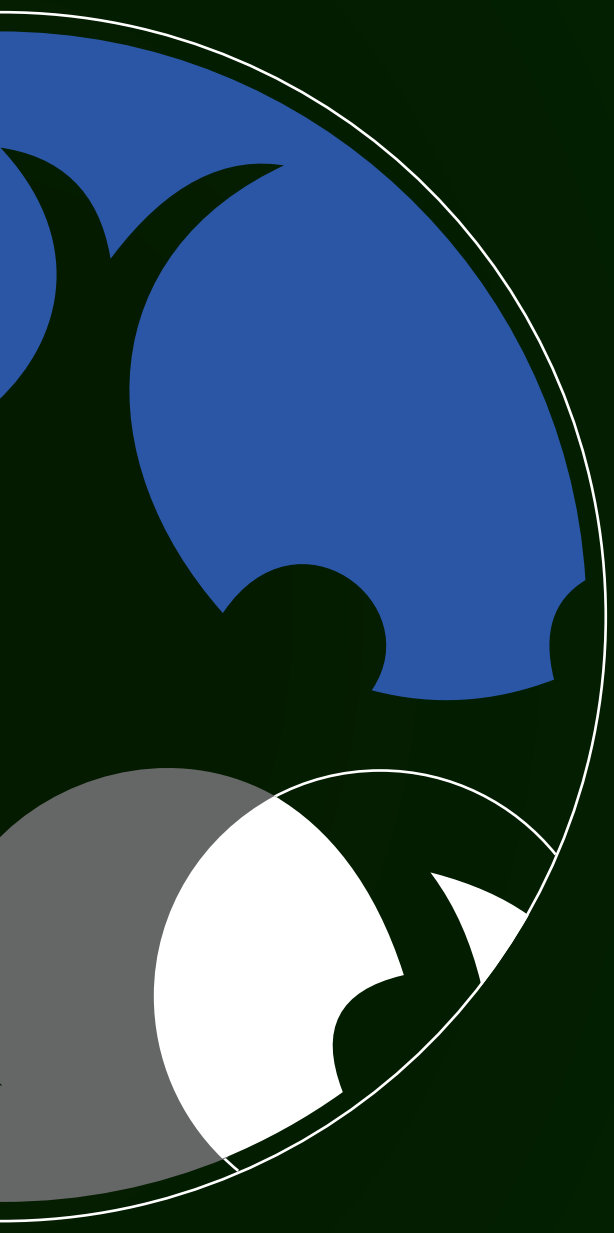

CLASSIFICATION AND OUTPUT OF MULTIPLE ETHNICITIES: CONSIDERATIONS FOR MONITORING MĀORI HEALTH

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Contents

INTRODUCTION

As policies and practices of ethnic enumeration have changed over time, so too have approaches to the conceptualisation and classification of individuals who identify (or are identified) with more than one ethnic group. In New Zealand, there have been significant shifts in the way in which multiple ethnic affiliations have been classified in ethnic statistics, most notably the move away from racialised, proportions-of-descent based approaches to self-identified cultural affiliation with one or more ethnic groups.

The 2005 *Statistical Standard for Ethnicity* produced by Statistics New included changes to recommended practice for coding and output of multiple ethnicities in official statistics. The standard recommended that 'prioritisation' (a method whereby individuals who identify with more than one ethnic group are assigned to a single mutually exclusive group based on a pre-determined hierarchy) should no longer be a standard output format for official ethnicity data and that alternative methods ('total' response or 'single/combination' response) be used[1]. In relation to input of ethnicity data, randomisation was proposed instead of prioritisation for reducing the number of multiple ethnicities where it was not possible to code all collected responses. The standard also recommended that all collections should be able to collect up to six ethnicities for an individual, with the ability to record three ethnicities (where applicable) as a minimum requirement (Statistics New Zealand 2005). These changes, in particular the move in recommended official practice away from prioritisation, have some potential impacts for measuring and monitoring Māori health and ethnic inequalities. In the health and disability sector, prioritised ethnicity has become a relatively common method for the analysis and output of ethnic statistics, particularly where comparisons are being made between ethnic groups.

This paper will consider broadly the conceptualisation and classification of multiple ethnic affiliations in New Zealand, and different methods for the collection, classification, analysis, and output of data on multiple ethnicities. It is one in a series of discussion papers examining current ethnicity data issues and impacts on the ability to measure and monitor Māori health and ethnic inequalities[2].

1) **'Prioritisation', 'total response' and 'single/combination' are different methods for coding, analysing and outputting ethnicity data where respondents identify with more than one group. These methods are discussed in more detail in the body of the document.**

2) **Accompanying discussion papers are available on the website: www.ethnicity.maori.nz**

Overview of the paper

The aims of this paper are to:

- reflect briefly on selected aspects of multiple ethnic identification in relation to how multiple identities have been conceptualised historically and within the context of colonisation in New Zealand;
- map the different approaches that have been used for categorisation and output of data on multiple ethnicities in official statistics in New Zealand;
- discuss approaches to multiple ethnicity data collection and output in key health data sets and analyses; and,
- consider the implications of different approaches to multiple ethnicities for measuring and monitoring Māori health and ethnic inequalities.

There has been some recent domestic literature published in this area (see, for example: Callister, Didham, Potter & Blakely 2007; Callister, Didham & Kivi 2009; Didham 2005; Howard & Didham 2005; Kukutai 2003, 2007; Kukutai & Callister 2009). This paper draws on the existing domestic literature, but will have a more specific focus on theoretical and technical implications for the health and disability sector, particularly for Māori health, that arise from current debates, policies, and practices in relation to multiple ethnicities. It will concentrate on official statistics, such as the population census and vital statistics, and on ethnicity data in the health sector. It will also focus on issues for data users and researchers, rather than for communities more broadly. It is, therefore, limited in scope but aims to map some key issues as a basis for ongoing discussion in this area.

BACKGROUND

In recent decades, there have been important changes to the way in which ethnic groups[3] are understood and categorised in official statistics in New Zealand. The most significant of these has been the formal movement away from biological, racialised approaches to ethnic categorisation towards a view of ethnicity as self-identified cultural affiliation. This development is clearly evident in changes to the wording and format of the ethnicity question asked in the population census over time[4].

The numbers and proportions of individuals reporting multiple ethnic affiliations have fluctuated in the population census over time. This is likely to reflect, at least in part, changing approaches to the collection and classification of multiple ethnicities in official statistics.

Table 1: Numbers and proportions of people identifying with multiple ethnicities in the population census 1991–2006

	Total population		Māori population	
Year	Number	Proportion	Number	Proportion
1991	166, 158	5.0%	111,357	26%
1996	536,757	15.5%	249,993	48%
2001	324,090	9.0%	231,555	44%
2006	400,428	10.4%	266,934	47%

Source: Statistics New Zealand data, cited in Kukutai & Callister 2009

In line with social constructionist approaches to identity, the complex and dynamic nature of ethnicity is increasingly acknowledged. Ethnic affiliation is influenced by a range of factors, both internal and external to a particular individual or group. Individuals also have multiple facets to their identity, of which their ethnicity will be only one. While there has been a broad shift over time in approaches to the theorisation of social identities, it should not be assumed that multiple ethnic affiliations are themselves a new concept. Individuals identifying (or identified by others) with more than one group have been classified in a range of ways in the past in both official and everyday discourses.

This paper is focused primarily on the classification and output of data on multiple ethnic identities in official statistics, particularly in relation to measuring and monitoring Māori health.

3) An important distinction to keep in mind in reading this paper is the difference between ethnicity and ethnic group. The data collected in official statistics is based on collecting peoples' ethnicities (or ethnic identity). This information is often grouped into broader, often aggregate ethnic groupings for analysis and reporting of data. As this paper is concerned with issues around classification and output, the focus is on how self-identified ethnicities are recorded, classified and output as ethnic groups.
For a fuller discussion of ethnicity data in the population census over time see, for example, Brown 1983, Statistics New Zealand 1999, or the accompanying discussion paper 'The politics and practice of counting' (Cormack 2010) (available on the website www.ethnicity.maori.nz).

4) For a fuller discussion of ethnicity data in the population census over time see, for example, Brown 1983, Statistics New Zealand 1999, or the accompanying discussion paper 'The politics and practice of counting' (Cormack 2010) (available on the website www.ethnicity.maori.nz).

However, it is important to understand the context within which current practices and discourses in this area exist. More specifically, this includes consideration of the ways in which multiple ethnic affiliations have been approached historically. In line with the aims of the paper, the focus of the discussion is going to be on the official construction of multiple ethnicities following colonisation in New Zealand. While wishing to avoid the privileging of 'post-contact' accounts of history in New Zealand, multiple ethnic (or 'racial' identities) are embedded in the political, economic and social contexts of the colonial encounter.

Historical constructs of multiple ethnic identity in New Zealand

In New Zealand, as in other settler societies, multiple ethnic identities are commonly talked about, in both historic and contemporary settings, within the frame of 'inter-mixing' or intermarriage between ethnic groups. The concepts of hybridity and miscegenation are features of colonial race talk that provide a context for understanding approaches to multiple ethnic identities today, even where the language has changed somewhat. It is, therefore, useful to consider briefly some of the historical approaches to notions of 'race-mixing' in New Zealand.

Colonial discourses of hybridity and miscegenation

As noted above, discussions of multiple ethnic identities often take place within the context of intermarriage (or 'inter-mixing') between different groups. This concern with inter-group relationships, and the results of those relationships, is a feature of colonial societies and is associated with its own discursive and linguistic characteristics. The term 'miscegenation', for example, arose in Britain during a period of imperial and colonial expansion as a way of talking about inter-mixing between population groups, and more specifically, mixing between 'racial groups' (Freeman 2005). The nature of the concern about miscegenation differed depending on the particular society and its political and economic circumstances and, more specifically, "… whether the colonizing power's relationship to the colonized centres on land or labour" (Freeman 2005: 42). According to Freeman, where relationships between coloniser and colonised were based on the exploitation of the labour of the 'colonised', discourses of intermixing facilitated the growth of the 'labour force'. In contrast, in settler colonies where the primary interest was land, such as New Zealand, discourses of miscegenation tended to support "territorial expropriation and elimination or absorption of the competing presence" (2005: 42). Discourses about miscegenation were also influenced by European attitudes to particular indigenous peoples as well as their past experiences with them (Freeman 2005: 43).

In New Zealand in the late 19th and early 20th centuries, physical assimilation or cultural amalgamation of Māori was widely seen as the only possible future for Māori – who were believed to be dying out in the face of a stronger race (Europeans). This view was bolstered by early race science (and, by the turn of the century, was contradicted by the available evidence that Māori were in fact recovering in numbers). The belief that racial mixing could be a possible solution to the problem of race relations in a colonial society was unusual in the British Empire[5].

5) One of the reasons why racial mixing could gain acceptance in New Zealand, unlike other British colonies, was the theory of the 'Aryan Maori' (that Māori had the same Aryan roots as Europeans, and were therefore not a separate race at all). This theory was most popular in the 1910s and had currency for several decades, but is unlikely to have made much difference to the experiences of individual 'mixed-race' people in terms of racism or social acceptability.

In relation to assimilation, there were different opinions expressed historically about whether or not 'hybrids' were stronger or weaker than the 'original' races. Some European observers believed that half-castes were healthier and stronger than 'pure-blood' Māori, that the contribution of European blood counteracted the effects of Māori weakness, and also that intermarriage was an opportunity to civilise Māori (Robson 2008). There were several political and economic agendas tied up in the theory that Māori could not survive as a separate race – some of the individual 'scientists' and commentators benefited financially from buying confiscated Māori land, or were missionaries trying to save Māori from themselves, or politicians arguing about providing healthcare and other services for Māori.

In contrast to Australia, Canada, and the United States, New Zealand did not formally restrict intermarriage between Māori and the (predominantly European) settlers (Brookes 2007; Freeman 2005). However, this absence of formalised restriction did not mean there was an absence of opposition to the idea of 'inter-mixing' between 'Native' and settler populations. Concerns about the possible negative consequences of miscegenation, social and biological, were perhaps expressed more overtly in New Zealand in relation to groups other than Māori and Pākehā. Anti-Chinese and anti-Indian sentiment, for example, traditionally deployed arguments based on perceived sexual and moral threats (Ip & Murphy 2005; Leckie 1995). New Zealand legislation did prohibit marriages between Samoan and Chinese under the *1921 Samoa Act* (a period during which Samoa was a 'mandated territory' of New Zealand). The *British Nationality and Status of Aliens (in New Zealand) Act, 1923* also penalised women who married 'alien' Chinese by removing their status as British subjects (Murphy 2008: 319)[6].

The period during which these laws were passed (the 1920s) was a time when discourses of social Darwinism were enjoying currency in New Zealand, with their accompanying concerns about the consequences of inter-mixing and miscegenation (Ballara 1986; Ip 2008). A clear example of this concern was expressed during the 1929 *New Zealand Committee of Inquiry into the Employment of Māoris on Market Gardens.* The Committee was established to consider broadly the employment of Māori by Chinese and Indian market gardeners. The Committee also undertook to examine the extent of relationships between Māori and Chinese or Hindu and comment on moral issues surrounding the employment of Māori women within Chinese and Hindu-owned businesses (Ballara 1986; Lee 2003):

The indiscriminate intermingling of the lower types of the races – i.e. Māoris, Chinese and Hindus – will … have an effect that must eventually cause deterioration not only in the family and the national life of the Māori race, but also in the national life of this country, by the introduction of a hybrid race, the successful absorption of which is problematic (as cited in Ballara 1986, p. 108).

6) Chinese were prohibited from becoming naturalised citizens in Aotearoa/New Zealand for a period of 44 years (from 1908 until 1952). Therefore, many Chinese at the time of the passing of this Act would have been classified as 'aliens'. The Act was amended in 1934 allowing citizenship to be retained if the woman remained in New Zealand. The Act was further amended in 1946, following which the removal of New Zealand citizenship no longer applied (Murphy 2008).

According to Brookes (2007), while "…intimate relationships between Māori and Pākehā were accepted as unremarkable, perhaps inevitable and, to some, very desirable as a means of hastening assimilation, Māori men expressed a great deal of concern about relationships between Māori women and Chinese men…" (501). While there may have been less formal restriction of 'inter-ethnic' relationships historically in New Zealand than in other settler societies, a level of general discomfort and anti-miscegenation sentiment existed. This included the deployment of commonsense tropes regarding the perceived moral and biological degradation that could result from 'intermixing', particularly during the 1920s.

Official approaches to classifying 'mixed-race' historically

Official approaches to the classification and categorisation of individuals with multiple affiliations developed within this context of imperial and colonial attitudes to intermixing and intermarriage, and necessarily reflected prevailing social and political interests of the time. This discussion will focus on the classification of 'mixed race' and multiple ethnicities in the population census, because of its central importance as a data source for statistics on Māori health.

Categorising 'mixed-race' in the population census

In early colonial censuses, Māori were enumerated separately from the predominantly European settler population (Statistics New Zealand 2001)[7]. There was, however, official interest in relationships between Māori and the settler population, with commentary on intermarriage and 'mixed-race' included in early census reports. The *1901 Census of Natives*, for example, differentiated between 'Half-castes living as Members of Māori tribes' and 'Half-castes living as Europeans' (von Dadelszen 1902). In this manner, 'mode of living' was utilised to categorise individuals with both Māori and European descent into either the Māori or the European group:

If they lived as Europeans in European settlements they were counted in the European population. Persons of greater than half Māori descent were classified as Māori and allocated to the Māori population regardless of their mode of living (Brown 1984: 160).

The emphasis on the way people lived reflected an interest in the assimilation of the Māori population (Brown 1983; Kukutai 2003). The allocation of Māori who had 'greater than half Māori descent' to the Māori group also demonstrates a proportions-of-descent threshold (50%), similar to those that operated in other societies in relation to indigenous populations (and continues to be operationalised in contemporary times in some settings, such as Hawaii).

7) A census of the Māori population was undertaken in 1857-58, and again in 1874 and 1878. Following that, they were carried out every five years (Statistics new Zealand 2006). Maori and European populations were enumerated in separate censuses until 1951 (Statistics New Zealand 2001).

Reports from early censuses also commented on marriage between ethnic (or racial) groups, noting, for example, the numbers of Māori women married to European men, and European women married to Chinese (von Dadelszen 1908: 41) (Box 1).

Box 1: Extract from the 1906 Census Report

	Persons	Males	Females
Population (exclusive of persons of the aboriginal Native race, of mixed European and Native blood, and Chinese)	883,430	467,186	416,944
Half-castes and persons of mixed race living as and among Europeans	2,578	1,307	1,271
Chinese	2,570	2,515	55
Aboriginal Natives (including 211 Maori wives of Europeans)	43,793	23,387	20,406
Half-castes and persons of mixed race living among and as members of Maori tribes	3,938	2,151	1,787

Source: von Dadelszen 1908: 8

Until 1916, 'race' was collected only for the European, Māori and Chinese populations (Department of Statistics 1977). From 1916, the population census included a question on 'race' for all respondents:

> *(b). Race. (If not of European race, write "Māori," "Chinese," "Hindu," "Javanese," "Negro," "Polynesian," &c., or "Māori half-caste," "Chinese half-caste," &c., as the case may be.) (Statistics Office 1916).*

The 1916 ‘race’ question illustrates the official interest in classifying people in terms of proportions-of-descent (albeit using relatively broad categories of half). In the terminology of the day, mixed ‘race’ individuals were referred to as ‘half-castes’, with the emphasis appearing to be on the ‘non-European’ aspect of their identity, e.g. Chinese half-caste or Māori half-caste.

However, the definition of ‘half-caste’, a term used widely during this period, was problematic. While it officially indicated a mixed-race individual with a Māori blood-quantum of half or more, this was not always easy to determine. There were no legal rights or sanctions accruing from official racial designations such as half-caste (unlike in other colonies) at this point in time and this may have influenced the way in which they were recorded by census enumerators. The working definition that the census enumerators used tended to be those of mixed ancestry who ‘lived as Māori’, which may have meant different things to different enumerators. This was a problem for those who believed that measuring the number of half-castes was a measure of the degree of assimilation, as well as for physical anthropologists who were concerned about measuring ‘racial’ characteristics. The contemporary understanding about race was that it indicated physical and behavioural attributes that were immutable, and this did not allow for self-definition of cultural affiliation, which was how many ‘half-castes’ tended to define their own racial identity, or that ultimately, those of Māori descent were more likely to identify as Māori than as European, regardless of blood-quantum, thus in the long term strengthening rather than weakening Māori numbers. However, the prevailing European belief in this period was that intermarriage would result in the dilution, and eventually the disappearance of Māori as a race (Robson 2008).

There was a change in terminology in the 1926 Census, within which Māori respondents were asked a question about blood quantum (full-blood or half-blood). While individuals could identify dual ancestry in this way, they were categorised as belonging to a single group through the use of terms such as ‘half-caste’ or ‘half-blood’. In contrast to earlier censuses, Māori were classified as Māori based on their blood quantum, rather than their mode of living, with all ‘half-bloods’ or more categorised as Māori. The 1926 Census also provided information on ‘quarter-castes’ (those identified as less than half Māori) as well (Lowe 1989: 10).

There was a further shift in approach in the 1936 Census, when respondents were asked to indicate their fractions of blood (in greater detail than half or full) (Howard & Didham 2005; Statistics New Zealand 1999). Subsequent censuses continued to collect information on proportion-of-descent or blood quantum.

In relation to the early collection of official statistics and the enumeration of the New Zealand population, the language of 'race purity' associated with anti-miscegenation discourses was evident in talking about so-called 'race aliens' at this time (that is, populations other than European or Māori):

> *The importance of racial purity has long been a consideration of immigration legislation. The view has been taken that the coalescence of the white and so-called coloured races is not conducive to improvement in racial types. The presence in a population of considerable groups of alien races who cannot be readily assimilated into that population, or whose assimilation, for reasons dependent on the physical or other characteristics of the respective races, is not attended with advantage, presents administrative difficulties in no mean degree (Department of Statistics, p.2 cited in Brown 1984).*

Changes in approach to intermarriage and 'mixed race' over time have also been reflected in the many legislative definitions of Māori. The 1960 *Report on Department of Māori Affairs* (Hunn 1960) noted that at that time there were ten different statutory definitions. Some definitions included any person 'belonging to the Aboriginal race of New Zealand' and any of their descendants, while others specified half or more Māori blood. The author of this report expressed a concern about the broader definition, saying that the definition should become "stricter and more exclusive" (Hunn 1960: 19).

In 1974, the Māori Affairs Amendment Act was passed. According to the Act, a Māori was defined as any person with Māori descent – there was no specification of a proportion-of-descent threshold such as 50% or more as there had been in the Act prior to this (Statistics New Zealand 1999). The following year, the *Statistical Act 1975* made it mandatory to collect information on "ethnic origin" in the population census. In response to these legislative changes, the wording in the 1976 Census was changed to make reference to 'ethnic origin' (as opposed to race). Respondents were required to indicate whether they were of 'full European descent' and, if not, what their descent was, calculating fractions where they identified that they had more than one origin. An additional item on Māori ancestry was also included in the Census to collect information on the Māori descent population (Statistics New Zealand 1999):

> *ETHNIC ORIGIN*
> *(a) If of full European descent, no matter where born, tick box. If not, state whether full NZ Māori, Cook Island Māori, Indian etc., as the case may be. _____*
> *If of more than one origin, give particulars, e.g. 7/8 European – 1/8 Māori; ½ NZ Māori – ½ Samoan*
> *(b) If you are a person of the Māori race of New Zealand, or a descendant of such a person, tick box*

There were, however, issues with the ancestry question, with disagreement between the ways in which some individuals answered the ethnic origin and descent portions of the question, as well as some respondents not completing both portions of the question (Brown 1983). The portion of the question relating to descent was subsequently removed for the 1981 Census.

The 1981 Census asked about 'ethnic origin' and supplied nine tick boxes for respondents, including eight tick boxes for 'full' origin (e.g. 'full Samoan'), and one write-in tick box for 'Other full origin'. If individuals identified with more than one group, they were required to write in their proportions of descent, as had been the case in the 1976 and 1971 Censuses (Statistics New Zealand 1997; Statistics New Zealand 1996). A 'half or more origin' criterion and a hierarchy of prioritisation were then used to allocate individuals to a single response category:

> *Half or more origin is the general criterion for inclusion in an ethnic group and cases of half origin are currently assigned to one particular ethnic classification, according to the following priority order: New Zealand Māori, Pacific Island Polynesian, Other Ethnic Groups (excluding European), and European. Thus, as an example, a person who is ½ New Zealand Māori – ½ Cook Island Māori, is counted as a New Zealand Māori (Department of Statistics 1981: 7-8).*

Moving from race to ethnicity

By the 1970s and 1980s, there was increasing concern about the appropriateness of traditional biological approaches to ethnic categorisation in New Zealand and the relevancy of the degrees of blood measures that continued to be employed in official statistical collections (Brown 1983; Statistics New Zealand 2001). According to a Review undertaken by the then Department of Statistics:

> *… there is evidence to suggest that since at least the turn of the century the biological definition of Māori (i.e. half or more Māori blood) has not been accepted by a considerable proportion of the Māori population as a valid measure of their ethnicity (Brown 1983:29).*

The relevance of the census ethnicity question for respondents and the need to calculate degrees of blood, particularly for those individuals whose parents had multiple affiliations, was being questioned more and more. In response to these concerns and to criticism of the 1981 Census ethnicity question, the 1986 Census did not ask respondents to calculate fractions of descent, but rather to select the "box or boxes" that applied to them (Howard & Didham 2005). This represented a major shift in the official approach to ethnicity data in New Zealand.

In 1986, people identifying with more than one group were categorised as 'two origins' or 'three origins' as appropriate, rather than being allocated to a single ethnic group (Department of Statistics 1988a). In reporting on ethnic group data from the 1986 Census, the 'European Population' was stated to refer to "…those persons who specified themselves as being of solely European origin and also includes persons who stated 'New Zealander', 'Caucasian', 'Dutch', 'Greek', etc. as their sole ethnic origin" (Department of Statistics 1988b) (Box 2). Census outputs also reported a 'solely New Zealand Māori origin' category as well as a 'New Zealand Māori population' category (which included all those responding as Māori) (Department of Statistics 1988a).

Box 2: Example of output categories used in 1986 Census tables

One Ethnic Origin	European
	New Zealand Māori
	Pacific Island Polynesian
	Other
Two Ethnic Origins	European/New Zealand Māori
	European/Pacific Island Polynesian
	New Zealand Māori/Pacific Island Polynesian
	Mixed Pacific Island Polynesian
	Other Combinations
Three Ethnic Origins	
Persons of N.Z. Māori	
Persons of Pacific Island Polynesian Origin	

Source: Department of Statistics 1988a

Note: More detailed combinations were used in some other Census products

While this shift responded to concerns about the approach of the census ethnicity question, it also represented a break in the time series for Māori data (Statistics New Zealand 2001), impacting on the ability to make comparisons with earlier time periods.

The Review Committee on Ethnic Statistics 1988

As noted, concerns about the usefulness and appropriateness of the proportions-of-descent approach to classifying ethnicity were being increasingly articulated in the 1980s (Statistics New Zealand 2001), leading to a change in approach to the ethnicity question in the 1986 Census. In 1988, a major review of official ethnic statistics was undertaken. As part of the review, the Committee made recommendations about the need for a standard approach to ethnicity data collection, including the development of a standard definition and classification. Of significance for discussions of reporting and recording of multiple ethnicities, the Committee supported the move towards a cultural affiliation approach to ethnicity and recommended self-identification as the most appropriate method of collecting this data (Department of Statistics 1988c). The Committee did also make a specific recommendation in relation to the need for education statistics to allow for the identification of multiple ethnicities.

The 1991 Census ethnicity question

In 1991, the Census ethnicity question reflected the recommendations of the Review Committee, asking about "ethnic group", as opposed to "ethnic origin":

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 _____

Respondents were able to identify with more than one ethnic group, with a maximum of three ethnic groups being coded. Of the around 435,000 people who reported that they belonged to the Māori ethnic group, about 111,500 (26%) people also identified with one or more other ethnic groups in addition to Māori. A question on Māori ancestry was also included in the 1991 Census. Output from the 1991 Census on ethnicity presented counts of 'Single Ethnic Group' and 'Two or more combinations' (Department of Statistics 1993a), reported at Levels Two, Three, and Four, as well as total response to the'fifty most frequently reported ethnic groups' (Department of Statistics 1993a).

The 1993 New Zealand Standard Classification of Ethnicity

The 1988 Review of Ethnic Statistics made a number of recommendations relating to the need for the Department of Statistics to develop and promote a standardised approach to official ethnicity data in New Zealand. In 1993, the Department of Statistics produced a standard classification of ethnicity that outlined a definition of ethnicity, rationale for an official classification, a classification structure, and options for coding and outputting multiple ethnicities.

In line with the official definition of ethnicity, the Standard acknowledged the ability for individuals to identify with more than one ethnic group (Department of Statistics 1993b: 24). A maximum of three ethnic group responses were able to be coded for an individual. In order to accommodate multiple responses in analyses and outputs from official collections, the Standard proposed two methods:

1. Assigning individuals to either a single (if they identified with only one ethnic group) or a combination ethnic group (if they identified with more than one ethnic group);
2. Assigning individuals to one ethnic group using priority criteria.

The single and combination method was proposed in the Standard as most closely reflecting individuals' responses to the ethnicity question. Using this method, respondents who identified with one ethnic group were assigned to the relevant ethnic group in the standard classification. Those who identified with more than one group were assigned to a combination group category. Similar to the four levels of the standard classification, there were also four levels of combination groups:

> *… taking all the possible two-group and three-group combinations of the single-group categories, and selectively collapsing or aggregating these into groups of combination. The principle of choice in arriving at this reduced set of combination categories was to keep together groups related or combined at the next highest level of the classification, and to reflect the pattern of ethnic combinations by distinguishing multiple ethnicities of related groups such as Pacific Island groups, from combinations of less related groups (Department of Statistics 1993b: 25).*

This resulted in 117 combinations at Level Four, 24 at Level Three, 12 at Level Two, and 7 at Level One. The single and combination method was seen to more closely reflect the way in which people answered the ethnicity question (Department of Statistics 1993b: 24). Variations of a 'single/combination' method had been employed in reporting data in earlier census periods (see, for example, outputs from the 1986 Census, which included over 50 categories at Level Two and approximately 590 combinations overall). However, the increase in the

number of ethnic groups included in the official classification meant that the number of possible combinations also increased markedly over time.

The Standard outlined two methods for assigning individual responses to single ethnic groups where combination groups were not appropriate, such as when they would result in small numbers or when comparisons between ethnic groups and the total population were to be made (Department of Statistics 1993b). The two methods were the 'overlapping' approach (commonly referred to in contemporary settings as the 'total response' method), and 'priority recording' (also referred to as prioritisation). The overlapping approach counted each individual once in each group they identified with. The standard noted that this might make some types of statistical analyses more difficult and make direct comparisons between ethnic groups invalid (Department of Statistics 1993b).

The priority recording method assigned individuals to one mutually exclusive group based on a priority that was "developed with the aim of giving priority to non-Pakeha/European groups and special priority to Māori and Pacific Island groups" (Department of Statistics 1993b: 26). The rationale for priority recording was that it should:

(a) *be consistent with Recommendation 4 of the report of the Review Committee on Ethnic Statistics;*
(b) *be consistent with the definition of Māori found in the Māori Affairs Amendment Act 1974 and the Electoral Amendment Act 1980 ("a person of the Māori race of New Zealand, and includes any descendant of such a person");*
(c) *ensure that important but numerically small groups are not submerged in the dominant majority; and*
(d) *ensure that groups (such as Māori and Pacific Island groups) about whom policy decisions are commonly made, requiring information to inform those decisions, and which have in the past been shown statistically to be disadvantaged in some way, continue to be identified for monitoring purposes" (Department of Statistics 199b3: 26).*

The priority recording system was for use at Levels One, Two and Three of the classification system. The hierarchy used (that is, Māori > Pacific > Other (excluding European) > European) reflected the prioritisation order that had been employed in previous census periods when respondents identifying multiple 'ethnic origins' were allocated to a single ethnic origin group (Box 3).

Box 3: Level One priority recording system, 1993 Statistical Standard for Ethnicity

Level One
If NZ Māori is one of the groups reported, then assign to NZ Māori;

Otherwise, if any Pacific Island group is one of the groups reported, then assign to Pacific Island;

Otherwise, if any group other than a European/Pakeha group is one of the groups reported, then assign to Other;

Otherwise, assign to European/Pakeha.

Source: Department of Statistics 1993b: 26.

The 1996 Statistical Standard for Ethnicity

The official classification of ethnicity was revised in 1996. In relation to multiple ethnic identities, the 1996 Standard continued to provide for a maximum of three ethnic groups to be coded for an individual in official data sets, with prioritisation used to determine the coding of multiple responses greater than three. The 1996 Standard outlined three methods for the analysis and output of multiple ethnicities, 'total' response, 'prioritised' response, and 'sole/combination'.

Total response

Total response was essentially the 'overlapping' response method that had been presented in the 1993 official classification, whereby individuals were allocated to each of the ethnic groups they reported. It was one of the standard output formats used for ethnic statistics produced from the 1996 Population Census. In Statistics New Zealand publications, statistics were produced based on 'total' response at Level One of the ethnicity classification, as well as for the 50 most commonly reported ethnic groups. Statistics New Zealand noted that while the total response method produced a 'useful summary measure', it was likely to also include 'a significant amount of double counting' (Statistics New Zealand 1997: 18).

Prioritised response

Prioritised response was retained in the 1996 Statistical Standard for Ethnicity as an option for the output of multiple ethnic responses (and input, where the number of responses per individual had to be reduced). Although it was revised when the Ethnicity Standard was revised, it remained based on the underlying rationale of the previous system. Under the 1996 Standard, prioritised output at Levels One and Three were standard outputs for the census (Box 4).

Box 4: Level One prioritisation categories, 1996 Statistical Standard for Ethnicity

Level One Categories:
European
New Zealand Māori
Pacific Island
Asian
Other Ethnic Groups

Priority Recording System for Level One:
If NZ Māori is one of the groups reported, then assign to NZ Māori;
Otherwise, if any Pacific Island group is one of the groups reported, then assign to Pacific Island;
Otherwise, is any Asian group is one of the groups reported, then assign to Asian;
Otherwise, if any group other than a European group is one of the groups reported, then assign to Other Ethnic Groups;
Otherwise, assign to European.

Asian is ranked after NZ Māori and Pacific Island groups, but before European groups because priority is given to non-European groups, but special priority is give to NZ Māori and Pacific Island groups.

Source: Statistics New Zealand 1997: 33

However, for the Household Labour Force Survey (HLFS) and the Household Economic Survey, Level Zero prioritisation was the standard output. The Level Zero prioritisation system prioritised NZ Māori, then 'any Pacific Island group', then 'any group other than an European group', otherwise 'European' (Statistics New Zealand 1997: 32)[8].

8) The Household Labour Force Survey (HLFS) has counted up to three ethnicities since data collection began. Ethnicity data is collected by people being shown a card and choosing from a list of ethnic groups, including an "other" category. In December 1991, a category "Other Pacific" was added to the list (Statistics New Zealand 1997). The Household Economic Survey has collected ethnicity since 1974, and has always used the term "ethnic group". Ethnicity data is collected in the same way as for the HLFS, using a card with a list of ethnic groups to choose from. Respondents have been able to identify with up to three ethnicities since 1992/93 (Statistics New Zealand 1997).

Sole/combination response

The single/combination response method was referred to as sole/combination in the 1996 Standard. For standard Census output, it proposed to use two sets of categories, one aggregated and one detailed (Box 5):

Box 5: Sole/combination ethnic group outputs, 1996 Statistical Standard for Ethnicity

Aggregated sole/combination ethnic group output

Single Ethnic Group
- European
- NZ Māori
- Pacific Island
- Asian
- Other Single Ethnic Group

Total Single Ethnic Group

Two Ethnic Groups
- European and NZ Māori
- European and Pacific Island
- European and Asian
- European and Other
- Two European Groups
- NZ Māori and Pacific Island
- NZ Māori and Asian
- Pacific Island and Asian
- Two Pacific Island Groups
- Two Asian Groups
- Any Other Two Groups

Total Two Ethnic Groups

Total Three Ethnic Groups

Not applicable/unidentifiable
Not Specified

Total

Detailed sole/combination ethnic group output

Single Ethnic Group
- NZ European/Pakeha
- Other European

Total single European
- NZ Māori
- Samoan
- Cook Island Māori
- Tongan
- Niuean
- Tokelauan
- Fijian
- Other single Pacific Island Group

Total Single Pacific Island Group
Total Single Asian Group
Total single ethnic group

Two Ethnic Groups
Total NZ European/Pakeha and any other single ethnic group
Total Other European and any other single ethnic group
Total NZ Māori and any other single ethnic group
Total Two Ethnic Groups

Three Ethnic Groups
European, NZ Māori and Pacific Island
Other Three Ethnic Groups
Total Three Ethnic Groups

Not applicable/unidentifiable
Not Specified

Total

Source: Statistics New Zealand 1997

Subcategories for combinations of two ethnic groups were not 'mutually exclusive' (Statistics New Zealand 1997). The combination categories could also often contain small numbers (Statistics New Zealand 1997: 27).

The 1996 Census ethnicity question and reporting of multiple ethnicity

In the 1996 Census, there was a marked increase in the number of people identifying with more than one ethnic group (Ministry of Health 2001; Statistics New Zealand 1999). The 1996 ethnicity question included a prompt for respondents to "Tick as many circles as you need to show which ethnic group(s) you belong to". The order of some of the categories was also changed from the previous Census, and a side box was added that included additional categories from the broader European grouping (namely, English, Dutch, Australian, Scottish, Irish and Other). This impacted on the number of people identifying with two European ethnicities. In addition to the 68.7% of the total population who reported identifying with one European group, a further 162,213 people (4.7% of the total population) identified with two European ethnicities (Khawaja, Boddington & Didham 2007). This within-group multiple ethnicity reporting would have been masked in Level One reporting, as the more specific ethnicities would have been aggregated into the broad European group. Standard statistical outputs have tended to report multiple ethnicities when they occur across Level One categories, but not within.

The number of respondents who identified with the Māori ethnic group as their only ethnic group decreased from 324,000 in 1991 to 274, 000 in 1996 (16% decrease). Correspondingly the number of Māori identifying with Māori ethnicity and one or more other ethnic group more than doubled from 112,000 in 1991 to 250,000 in 1996 (124% increase) (Ministry of Health 2001: 8). In the 1991 Census, 74% of Māori identified with Māori as their only ethnic group, dropping to 52% in 1996 (Statistics New Zealand 1999).

The proportion of the total population recording more than one ethnicity increased from 5% in 1991 to 16% in 1996. There was also an increase in reporting of three ethnic groups (or more, as three was the maximum number of ethnic groups coded) from 16,000 people in 1991 to 131,000 in 1996 (Statistics New Zealand 1999). Some of this change was related to coding practices in the 1986 and 1991 Censuses, and to the context of the 1996 Census (personal communication, Statistics New Zealand 2010).

The 2001 Census ethnicity question and outputs

Statistics New Zealand undertook work following the change in the 1996 Census ethnicity question to investigate the effects on Māori statistics (Statistics New Zealand 1999). Their report, entitled *Measuring Māori ethnicity in the New Zealand Census,* identified impacts on the way people reported their ethnicity in 1996, compared with 1991. It recommended that the 1996 Census ethnicity question be retained in the 2001 Census for reasons relating to providing continuity over time, the time available to review the question thoroughly prior to the 2001 Census, and the impacts on data comparability with birth and death registration forms which were using the 1996 question (Statistics New Zealand 1999).

However, the 2001 Census reverted to using the 1991 Census ethnicity question. Multiple ethnic responses were collected, with up to three being coded. Census-related outputs were produced using total response ethnicity. The shift back to the 1991 Census ethnicity question was intended to re-establish the ability to compare ethnic statistics over time, albeit over two Census periods rather than one.

'Mixed race' and multiple ethnicities in vital statistics

The population census has been discussed in some detail because of its important role in ethnic statistics, including in terms of providing ethnic-specific population estimates frequently used as the denominator in the calculation of population rates by ethnicity. Vital statistics data also contribute to understanding Māori health and determinants of health outcomes and ethnic inequalities. Data from birth and death registrations provide important information for calculating fertility and mortality rates, and mapping trends in these over time.

Historically, ethnicity information on births and deaths in New Zealand was collected using a blood quantum approach. Up until September 1995, the question on birth and death registration forms related to the "degree of Māori blood" and "Pacific Island blood" of the parents (mother and father):

> If the person's mother or father had Māori "blood", details of the Tribe were requested. If the person's mother or father had Pacific Island blood, respondents were asked to state the Island (Statistics NZ 1997: 2).

Information was, therefore, only collected if one or both parents were Māori or Pacific Island (in descent terms), and no ethnic information was collected for other groups (Brown 1983; Te Rōpū Rangahau Hauora a Eru Pōmare 2000). There is evidence of high levels of undercount of Māori on death registrations during this period (Graham, Jackson, Beaglehole & de Boer 1989; Ajwani et al 2003), which impacted on the reliability of data on life expectancy and fertility rates, for example.

Following the passing of the Births, Deaths and Marriages (BDM) Act in 1995, there was a shift to collecting ethnicity as opposed to descent for all births (including ethnicity for the baby, mother and father) and deaths, and to alignment with the 1996 census ethnicity question, which allowed for multiple ethnicities to be recorded. The practice of deriving the ethnicity of the child from the parents' reported ethnicities on birth registrations was discontinued (Boddington & Didham 2009). As a result, there was a significant increase in the number of Māori deaths recorded (TRRHAEP 2000), as well as in the number of Māori births (Ministry of Health 2001).

In 1996, 10% of Māori deaths had multiple ethnicities recorded, smaller than might be expected based on percentages in the 1996 Census (Khawaja, Boddington & Didham 2007).

Table 2: Multiple ethnicities recorded on death registrations, 1996

Ethnic grouping	***Multiple ethnicity %***
NZ European	2
NZ Māori	10
Pacific	8
Southeast Asian	10
Chinese	14
Indian	12

Source: Khawaja, Boddington & Didham 2007

Data from the New Zealand Census-Mortality Study suggests that there is under-identification and/or recording of multiple ethnicity on death registrations, with a finding that there were 7% higher deaths identified as Māori using census ethnicity compared with death registration (Ajwani et al 2003), for the 1996–1999 period.

The question on the birth and death registration forms has more recently been aligned with the 2005 Statistical Standard for ethnicity, and now includes a version of the 2006 Population Census ethnicity question (with some slightly modified wording).

Data from births registered in 2008 shows that for about one-half of Māori mothers identified with multiple ethnicities (of which Māori was one), and two-thirds of Māori children (Boddington & Didham 2009). This is higher than proportions for the total population. According to birth registrations for the total population for the June 2010 quarter, 25% of babies registered belonged to more than one ethnic group, and 13% of mothers recorded multiple ethnic group responses (Statistics New Zealand 2010)[9].

9) For a recent discussion of Maori ancestry and ethnicity in birth registrations, see: Boddington B & Didham D. (2009). 'Ethnicity in recent birth registration data'. New Zealand Population Review, 35: 149-160.

REVISIONS TO THE OFFICIAL STATISTICAL STANDARD FOR ETHNICITY

The previous section has briefly outlined some of the historical context to the official classification of multiple ethnicity (or mixed-race) and identified a number of changes in approach to the collection, coding and output of multiple responses in the population census over time. More recently, revisions to the official statistical standard for ethnicity have introduced some specific changes in policy and practice surrounding the coding and output of multiple ethnicity responses in official statistics.

The Review of the Measurement of Ethnicity (RME)

Beginning in 2000, Statistics New Zealand undertook a major review of the measurement of ethnicity in official statistics in New Zealand, the first such review since 1988. The final report of the Review was published in 2004, and outlined a number of recommended changes to official ethnicity data policies and practices, including:

- A revised definition of ethnicity;
- A commitment to undertake a programme of research;
- Retention of the 2001 Census ethnicity question for the 2006 Census;
- Changes to the classification, including the removal of Level Zero, increasing the Level One categories to six, and introduction of a 'New Zealander' category at Level Four ;
- Collection of six ethnicities and Level Four detail where possible;
- Discontinuation of prioritisation as a standard output, in favour of total response or single/combination (Statistics New Zealand 2004).

The recommendations of most significance in relation to multiple ethnicities were the move to increase the number of ethnic group responses per individual able to be coded from three to six, and the recommendation for the discontinuation of prioritisation as a standard output.

In relation to prioritisation, the RME report identified a number of reasons behind the decision. Firstly, the increase in the proportion of people reporting multiple ethnicities in New Zealand was seen to impact on the usefulness of the method. Secondly, prioritisation was seen to in bias statistics by reducing the ethnic counts for some ethnic groups, particularly for Pacific groups. That prioritisation did not represent how people actually responded and may not reflect

how they would choose to rank their ethnicities given the option were also cited as reasons. Finally, the report noted that prioritisation did not utilise all ethnicity data that was reported by an individual (Statistics New Zealand 2004: 13). Some of these issues had been identified previously in discussions of standard methods for output of multiple ethnic group responses in official statistics.

The report acknowledged that the discontinuation of outputting data using the prioritisation method would have significant impacts, particularly for agencies where it had become a commonly used method. Accordingly, the report noted that there would be a potential need to make time-series data available retrospectively, as well as to provide customised outputs when prioritised data was needed was also identified.

The official Statistical Standard for Ethnicity 2005

The Statistical Standard for Ethnicity 2005 was produced following the RME. It notes that because people can identify with more than one group, ethnicity data collection and coding practices need to support this. In line with the recommendations of the RME, the standard supported collecting up to six ethnic groups per respondent where possible, with three responses considered the minimum requirement (Statistics New Zealand 2005). A random method for reducing the number of multiple responses to three (where more than three are identified but not able to be captured in a data collection) was also outlined. This method was proposed as preferable to prioritisation at input, which had been the previous recommended practice.

As recommended in the RME, prioritisation was discontinued as a standard output for official ethnic statistics, with total response and single/combination output proposed as the preferred standard output formats.

Total Response Standard Output

Total response in the 2005 standard is essentially the same as that outlined in the 1993 and 1996 Standards, although some output categories have changed due to changes in the official classification (Box 6).

Box 6: Total response Level One standard outputs, 2005 Statistical Standard for Ethnicity

European
Māori
Pacific Peoples
Asian
Middle Eastern/Latin American/African
Other Ethnicity
Not Elsewhere Included

Source: Statistics New Zealand 2005

Single/Combination Standard Output

The single/combination standard output was also based on methods outlined in earlier standards. People were counted once in either a single ethnic group (if they only identified one ethnic group), or in a combination group (where they reported more than one ethnicity. The glossary of the standard notes that people are only counted once at Level One if they report two or more ethnic groups within the same level (Statistics New Zealand 2005). This is also the case for other multiple ethnicity response methods, that is, multiple ethnicities are reported if they occur across the broad Level One categories, but not within:

> Someone reports two or more ethnic groups within the same level one group the person would be counted once in the single group. For example, a person who reported 'English' and 'Scottish' ethnic groups would be counted once in the 'European Only' output group (Statistics New Zealand 2005).

The standard provides examples of single/combination outputs, with more or less detail (Box 7). Although the method is the same as in previous standards, because of the changes to the official classification, single and combination group output using the 2005 Standard would not be directly comparable with single/combination categories produced in earlier time periods.

Box 7: Example of Level One Single/Combination output, 2005 Statistical Standard for Ethnicity

Single/combination output (15 groups)

European Only
Māori Only
Pacific Peoples Only
Asian Only
MELAA* Only
Other Ethnicity Only
Māori/European
Māori/Pacific Peoples
Pacific Peoples/European
Asian/European
Two Groups Not Elsewhere Included
Māori/Pacific Peoples/European
Three Groups Not Elsewhere Included
Four to Six Groups
Not Elsewhere Included

*MELAA refers to Middle Eastern/Latin American/African

Single/combination output (8 groups)

European Only
Māori Only
Pacific Peoples Only
Asian Only
MELAA* Only
Other Ethnicity Only
Two or More Groups
Not Elsewhere Included

Source: Statistics New Zealand 2005

When this method is used, Statistics New Zealand note the need to provide total response counts at Level One as well, as not all Level One groups will necessarily be able to be differentiated with single/combination output (Statistics New Zealand 2005).

The 2006 Census question and multiple ethnicity

In line with the changes in the 2005 statistical standard, the 2006 Census was able to, for the first time, record up to six ethnic group responses for an individual. The ethnicity question employed was the 2001 Census ethnicity question. In 2006, approximately 10% of the total population reported more than one ethnic group, with about 9% reporting two ethnicities, while 1% of respondents reported three or more (Statistics New Zealand 2009a). The proportion of individuals reporting multiple ethnicities varied however, by ethnic group. Forty-eight per cent of people who identified as Māori also reported identifying with one or more other ethnic groups.

In terms of 2006 Census output, ethnic group statistics were generally produced using total counts. Some tables using single/combination output are also available. In the *Guidelines for using ethnicity data: 2006 Census,* Statistics New Zealand recommended continuing to supply customized prioritised data to official statistical agencies upon request, 'for the time being' (2007: 19).

'Review of Cultural Identity' statistics and revisions to the standard

Statistics New Zealand commenced a 'Review of Cultural Identity Official Statistics' in 2009b. As part of this review, revisions to the official Statistical Standard for Ethnicity were considered, with a specific focus on issues related to 'New Zealander'-type responses. In their final report on the revisions to the 2005 Statistical Standard for Ethnicity, Statistics New Zealand noted that during the process some stakeholders had also raised the issue of the "need for an easily used classification that allocates individuals to one ethnic category only" (2009a: 14). The two 'broad reasons' given for this were:

- The need to be able to compare and contrast different ethnic groups, which requires the respective populations to be partitioned.
- The need for general fairness, particularly in allocating resources where perceptions of possible double-counting can undermine the credibility of the allocation models even if it's statistically or financially not significant (Statistics New Zealand 2009a: 15).

In response, the report goes on to outline the two current output methods in use in the official Statistical Standard for Ethnicity ('Total response' and 'Single and combined response' available), and the reasons why 'Prioritised response' has been discontinued as a standard output. It also notes that 'Single and combined response' method has not been very widely used as an approach for classifying multiple ethnicities. The issue around the standard outputs for multiple ethnic group responses was proposed to be dealt with within the broader Review of Cultural Identity Official Statistics.

APRROACHES TO MULTIPLE ETHNICITY IN THE HEALTH SECTOR

Issues with the completeness and quality of ethnicity data in the health sector are well-documented (Donaldson 2002; Kilgour & Keefe 1992; Ministry of Health 2001). In 1996, hospitals officially moved to align their collection practices with the census approach to collecting ethnicity, allowing for individuals to self-identify with the ethnic group or groups they felt they belonged to. From 1996, most national collections were able to store up to three ethnicities per individual, with the first ethnicity mandatory (although this could be 'not stated'). However, it is somewhat unclear the extent to which multiple ethnic groups are captured currently, or have been captured over time in the health sector[10].

There is some evidence of lower proportions of people recorded as identifying with more than one ethnic group in routinely collected and administrative health sector datasets. For example, the 2004 Ministry of Health ethnicity data protocols reported that less than 0.5 % of National Health Index (NHI) records had multiple ethnicities recorded (Ministry of Health 2004a). In part, this may reflect different data collection, recording and reporting practices in the health sector relative to the census. The census ethnicity question is self-administered and while this is supposed to be the case in the health sector, there is evidence of variation in data collection practices in these settings. In addition, it is difficult to judge what the 'appropriate' level of reporting of multiple ethnicities would be in administrative datasets (with the possible exception of the NHI) by comparing with the census, as these datasets are only a section of the population, not the total population or a representative sample. There is also no routine way of knowing when ethnicity data has been changed or updated on administrative data collections in the health care settings.

Common current practice in relation to the classification, analysis and output of data on multiple ethnicities in the health sector is mapped briefly below.

The Ethnicity data protocols and multiple ethnicities

The Ministry of Health has produced protocols to guide standardised ethnicity data collection across the health sector. The *Ethnicity Data Protocols for the Health and Disability Sector* (Ministry of Health 2004a) were produced prior to the release of the 2005 Statistical Standard for Ethnicity. The protocols specify that data recording systems must allow for up to three

10) For a fuller discussion of the quality of ethnicity data in the health and disability sector, see the accompanying discussion paper: Cormack D & McLeod M. (2010). Improving and maintaining quality in ethnicity data collections. Wellington: Te Rōpū Rangahau Hauora a Eru Pōmare .

ethnicities to be collected in all health and disability sector collections, in line with the minimum requirements outlined in the 2005 standard. Since moves to align health sector ethnicity data collection with the census approach in 1996, it has been policy for public hospitals and national collections such as the National Health Index (NHI) and the NMDS to have the ability to collect and record up to three ethnicities per individual, where relevant. Prior to this, it was common for only one ethnicity (if any) to be collected in hospital settings, and national collections only had the facility to record one ethnicity (Cormack & McLeod 2010). The protocols extended this requirement out to cover the whole health and disability sector. Little is known about the data collection and recording practices in relation to multiple ethnicities in primary care, and other community-based and private providers, where ethnicity data collection has been relatively less embedded.

Where more than three ethnicities are identified for an individual, the protocols recommend the use of prioritisation to reduce responses to three for input (Ministry of Health 2004a). This differs from the official statistical standard, which recommends randomisation as the preferred method for reducing the number of responses to three where they exceed the number able to be recorded.

The protocols specify that recording ethnicity at Level Two of the Statistics New Zealand classification is the minimum requirement, but that collections can record at Level Three or Level Four where this is preferable or contractually required. In this case, where data collections are recording ethnicity at Level Three or Level Four, recording systems should be capable of recording up to six ethnicity responses, as per the Statistics New Zealand statistical standard (Ministry of Health 2004a).

In regards to output, the protocols have a degree of flexibility in that they outline all three methods that have been used in recent times in official statistics – total, prioritised, and sole/combination – as the recommended options for the health sector, noting that each method has strengths and limitations, and that decisions about which method is most appropriate need to be considered in light of the purposes of the output. In addition, the protocols stipulate all output must include clear details about which particular methods are being used (Ministry of Health 2004a).

Consultation was undertaken in 2008 with the health sector over alignment with the official statistical standard for ethnicity. This consultation generally indicated a lack of support for randomisation in the sector. While other changes were made to ethnicity data practice as part of the National Collections Annual Maintenance Programme 2009, prioritisation was retained in the protocols as an option for both input (where responses exceeded the number able to be recorded by the system) and output.

Analysis and output of multiple ethnicities in the health sector

A range of analyses are undertaken in the health sector. At the Ministry of Health level, analysis draws on data from routine collections such as the National Minimum Dataset (NMDS) and the New Zealand Cancer Registry (NZCR), as well as data from periodic surveys conducted as part of the New Zealand Health Monitor (NZHM). Various health and disability institutions and organisations also produce their own statistics and publications. Additionally, there are a number of studies and research projects, including longitudinal and cohort studies, which report health data and include ethnicity in their analyses. Prioritisation has become relatively embedded in health over a number of years as a standard method for analysing and reporting data on multiple ethnicities, particularly where comparisons are being made between ethnic groups. Total response is becoming increasingly common, while single/combination methods remain uncommon in the sector. The methods currently used in key sector analyses and publications are outlined briefly in this section.

Routine outputs from national collections

The Ministry of Health produces a number of routine publications drawing on data from national collections, such as the New Zealand Cancer Registry (NZCR) and the National Minimum Dataset (NMDS). These datasets contain ethnicity data collected in administrative settings such as hospitals and other interactions with healthcare providers. From what is known about administrative ethnicity data collection processes in New Zealand, it is likely that there is variable alignment with the health sector protocols in terms of the use of the standard ethnicity question (that allows individuals to identify with more than one ethnic group), and the way in which multiple ethnicities are recorded (or not).

Many of these routine publications based on national collections data have tended to use prioritisation for analysis of multiple ethnicities since changes to birth and death registrations and health sector policy in the mid-1990s made it possible for more than one ethnicity to be collected and recorded. For example, the most recent report on new cancer registrations and deaths uses prioritisation to allocate individuals to a single group (following the hierarchy of Māori>Pacific peoples>Asian>other groups except New Zealand European>New Zealand European), although ethnic statistics are reported only for Māori and non-Māori (Ministry of Health 2010a). Annual reports on mortality, hospital-based maternity events, mental health service use and fetal and infant deaths also use prioritised output. There is some variation in the prioritisiation categories used and the ethnic groupings reported in the publications (Table 3).

Table 3: Methods for analysis and output of multiple ethnicities in selected Ministry of Health national collections publications

Publication name	Publication date	Description	Collections	Method	Comments
Cancer: new registrations and deaths 2007	2010a	New registrations of cancer and deaths from cancer for the year 2007	NZCR, MORT	Prioritisation (Māori>Pacific peoples>Asian> other groups except New Zealand European>New Zealand European). Rates by ethnicity are reported only for Māori and non-Māori*	Prioritisation has been used consistently for several years, although ethnic groupings reported have changed
Mortality and demographic data 2007	2010b	Underlying causes of all deaths registered in New Zealand in 2007	MORT	Prioritisation, although data only reported for Māori and non-Māori	
Fetal and infant deaths 2006	2010c	Deaths occuring before one completed year of life and underlying causes		Prioritisation (Māori>Pacific>Other) Reports data for Māori, Pacific, and Other	Prioritisation has been used in publications since 1999 (1996 data)
Hospital-based maternity events 2006	2010d	Statistics on pregnancy and childbirth characteristics of mothers giving birth in hospitals and their babies	NMDS	Prioritisation (Māori>Pacific>Asian> European/Other)	
Mental health: service use in New Zealand, 2007/08	2010e	Use of secondary mental health services and government funded alcohol and drug services	MHINC	Prioritisation (Māori>Pacific>Asian> Other)	

Notes: * non-Māori includes unspecified ethnicity

Outputs from the New Zealand Health Monitor surveys

Ethnicity data is collected in various surveys administered as part of the New Zealand Health Monitor. Ethnicity data collected in these surveys, at least in recent time periods, often uses the standard census ethnicity question to collect data and, therefore, more closely replicates the census collection process than does administrative data collection processes in many cases.

While NZHM surveys have previously tended to use prioritisation in analysis and output, there has recently been a move to the use of total response methods (Table 4). In 2008, Public Health Intelligence (now known as Health and Disability Intelligence) undertook a study to investigate the impact of using total response as opposed to prioritised response for analysis of NZHM surveys. Using data from the 2002/03 New Zealand Health Survey (NZHS), and assessing rates for 10 selected health indicators, the report found that it made little difference to rates in terms of both absolute and relative differences whether or not total or prioritisation methods were used (Ministry of Health 2008a). The report made a number of recommendations, including advocating for a shift to using total response in the New Zealand Health Monitor where possible (Box 8).

Recommendations for the descriptive analyses of key results of NZHM surveys

- Consider the data, the sampling method and the purpose of the analysis before deciding on which method and comparison group to use.
- Use total response ethnic groups to present key results of NZHM surveys where possible. Using total response ethnic groups increases the sample sizes for Pacific and Asian ethnic groups as total numbers are used.
- Use the category of 'total European/Other' rather than the category of 'non-Māori non-Pacific non-Asian' when presenting total response ethnic groups. This allows the European/Other group to include all people who identified with these ethnic groups and means that a consistent approach is taken for presenting total response ethnic groups.
- Present crude rates in a table if readers require an indication of the unadjusted proportion of the different ethnic populations affected.
- Present standardised rate ratios (SRRs) for the comparison of the rates of each ethnic group with national New Zealand rates for males and females.
- Use the 'total New Zealand' population as the key reference group for SRRs, for publications with a total population focus (that is, for publications that do not focus on only one ethnic group).
- Use total response ethnicity for time-series comparisons of NZHM surveys when appropriate.
- The approach of 'ethnic group versus non-ethnic group' may be used for ethnic-specific analyses, such as in publications about specific ethnic groups.
- Regardless of the method used to present ethnicity, report clearly what analysis was carried out.

Source: Ministry of Health 2008a: vii-viii.

They also note that their study dealt only with survey data, not administrative data, and was restricted to adults (aged 15 years and over), limiting the generalisability of their conclusions somewhat.

Total response method was subsequently used in analysis of the 2006/07 NZHS. Respondents' ethnicity was output to the groups European/Other, Māori, Pacific and Asian. There were 1,578 adults (12.7% of adult participants) and 1,390 children (28.3% of child participants) in the 2006/07 Survey who recorded more than one ethnic group (Ministry of Health 2008b). Comparisons were made with the total population in the report, although online data tables with 'independent' comparator groups were also available for some ethnic categories (e.g. Māori/non-Māori, Pacific/non-Pacific). The accompanying report on the health of Māori and Pacific children also used total response output. It noted that using total counts in the survey, there were 1,983 Māori children and 798 Pacific children, with 242 of these children identifying as both Māori and Pacific. This represented 12.2% of Māori children and 30.3% of Pacific children (Ministry of Health 2009).

Prioritisation had been used in the analysis of previous NZHSs. In the 2002/03 survey, for example, multiple ethnic responses were allocated for analysis to a single group in the priority order Māori>Pacific>Asian>European/Other. In some output from the current Survey, prioritised response is used in logistic regression, for example in the problem gambling findings.

In line with the move away from prioritisation, the *2008 National Tobacco Use Survey*, the *2007/08 New Zealand Alcohol and Drug Use Survey*, and the *National Survey of Children and Young People's Physical Activity and Dietary Behaviours*, use total response methods and report results for the groupings European/Other, Māori, Pacific, and Asian, compared with a total New Zealand population reference group[11].

Some publications have used a combination of methods in output. For example, *Te Rau Hinengaro: The New Zealand Mental Health Survey* used prioritised response for the majority of its output, employing the categories Māori>Pacific>Other. However, in the chapter reporting on Pacific peoples, all Pacific peoples were allocated to one group (i.e. total response) and the remainder of responses allocated to the Other grouping (Ministry of Health 2006). The report notes that in this survey there 138 participants who reported both Māori and Pacific ethnicity (Table 4).

11) In the chapters on Māori and Pacific peoples, independent reference groups (that is, non-Māori and non-Pacific) are presented (Ministry of Health 2009). The National Survey of Children and Young People's Physical Activity and Dietary Behaviours uses the label NZ European/Other (rather than European/Other).

Table 4: Methods for analysis and output of multiple ethnicities in selected Ministry of Health survey outputs

Publication name	Publication date	Survey	Method	Comments
National Survey of Children and Young People's Physical Activity and Dietary Behaviours in New Zealand: 2008/09 – key findings	2010	2008/09 National Survey of Children and Young People's Physical Activity and Dietary Behaviours in New Zealand	Total response Reports data for Māori, Pacific, Asian, NZ European/Other	-
A focus on the health of Māori and Pacific children: key findings of the 2006/07 New Zealand Health Survey	2009a	New Zealand Health Survey (Child sample)	Total response Reports data for Māori and Pacific Comparator groups are non-Māori, non-Pacific	-
Tobacco trends 2008: A brief update of tobacco use in New Zealand	2009b	2008 New Zealand Tobacco Use Survey (NZTUS)	Total response Reports data for European/Other, Māori, Pacific, Asian Comparator group is total NZ population	Prioritisation used in 2006 Survey 'Discrete' comparator groups (e.g. Māori/ non-Māori) available online
Alcohol use in New Zealand: Key results of the 2007/08 New Zealand Alcohol and Drug Use Survey	2009c	2007/08 New Zealand Alcohol and Drug Use Survey	Total response Reports data for European/Other, Māori, Pacific, Asian	Prioritsiation used in previous 2004 New Zealand Health Behaviours Survey (only collected maximum of two ethnicities)
A portrait of health: key results of the 2006/07 New Zealand Health Survey	2008	NZHS (Adult sample)	Total response Reports data for European/Other, Māori, Pacific, Asian Comparator group is total NZ population	Prioritisation used in2002/03 Survey outputs Independent comparator groups (e.g. Māori/non-Māori) available online
National Childhood Immunisation Coverage Survey 2005	2007	National Childhood Immunisation Coverage Survey 2005	Prioritised (Māori>Pacific>European/ Other)	-
Te Rau Hinengaro	2006	Te Rau Hinengaro: The New Zealand Mental Health Survey	Prioritised (Māori>Pacific>Other) Total response for Pacific (with non-Pacific grouped into Other grouping)	-

Other health sector analyses

There are a range of methods to classify multiple ethnicities being used in other forms of analysis and output in the health sector, and in research on Māori health and ethnic inequalities. For example, in public health surveillance reporting, Environmental Science and Research (ESR), tend to use prioritised ethnicity (c.f. Lopez, Sexton & Hefferman 2010).

Key publications focused on monitoring disparities or reporting on the health of specific ethnic groupings have also used a range of methods. In recent publications reporting Māori health statistics, such as *Tatau kahukura: Maori health chartbook* (Ministry of Health 2010f) and *Unequal impact II: Maori and non-Maori cancer statistics by deprivation and rural-urban status 2002-2006* (Robson, Purdie & Cormack 2010), data is presented for Māori and the comparator grouping non- Māori. Where comparisons are being made at this high level between Māori and non-Māori, the choice of prioritisation or total response method is largely irrelevant in terms of the allocation of Māori to an ethnic grouping, as the counts of the Māori ethnic population would be the same either way. It does have an impact, however, on the choice of comparator group. An underlying total response approach would encourage a total response comparator group (e.g. total New Zealand population), whereas a prioritisation approach would encourage the use of an 'independent' comparator (such as 'non-Māori').

Some publications reporting on Māori health and ethnic disparities continue to use prioritisation (c.f. *Close-contact infectious diseases in New Zealand: trends and ethnic inequalities in hospitalisations, 1989 to 2008*), while others use a combination of methods (c.f. *Decades of disparity).* The report *Perinatal and maternal mortality in New Zealand 2008* reports data using both prioritised and sole/combination ethnicity (PMMRC 2010).

Summary of output of multiple ethnicities in the health sector

In summary, it appears that there are two main methods currently in play in the health sector in terms of analysis and output of multiple ethnicities. In relation to the routine output from national collections, which involves data recorded in administrative databases, prioritisation remains the most common method used. Prioritisation has tended to be the method used in reporting on these collections since the changes in the mid-1990s to collecting and recording of multiple ethnicities in national collections and vital statistics. There is variation in the ethnic groupings reported, with some publications reporting four groupings (Māori, Pacific, Asian, Other), others reporting three (Māori, Pacific, Other), and some outputs reporting for Māori and non-Māori groupings. Considerations about the level of reporting (i.e. the number of ethnic groupings to report) appear to be driven predominantly by number (size of group) considerations.

In contrast, the output from surveys conducted as part of the New Zealand Health Monitor has moved to total response. In recent publications, total response ethnic groupings (usually Māori,

Pacific, Asian, European/Other) are reported, with the total New Zealand population presented as the comparator group. Caution is made in reports against directly comparing ethnic groups with each other because of overlap, however, this is usually included in discussions of methods rather than in close proximity to relevant tables or figures. A number of these surveys also present some output for ethnic groups compared with an independent (non-overlapping) comparator group, e.g. Māori/non-Māori, Pacific/non-Pacific.

Within the health sector, use of the single/combination method in routine output is uncommon, although there has been some recent discussion of its possible use (see Callister et al 2007). In their study of the impact of moving to total response ethnicity (instead of prioritisation), HDI noted that they did not investigate single/combination as a method for the health survey, because "the low numbers of respondents in many of the multiple ethnic groups would generally preclude robust and reliable analysis" (Ministry of Health 2008a: 5).

CONSIDERATIONS FOR MĀORI HEALTH AND ETHNIC INEQUALTIES ANALYSIS

There are implications for statistics on Māori health and ethnic inequalities that flow from the current policies and approaches to coding multiple ethnicities, and from methods for classifying individuals who identify with more than one ethnicity for the purposes of analysis and output. These incorporate both theoretical and practical impacts, realised and potential. This section briefly considers some of the impacts related to choices about multiple ethnic identities in health.

Practical and technical impacts for the health sector

At a practical level, changes in official approaches to collecting and coding ethnicity data over time have impacts on data on multiple ethnicities in official statistics and on comparability with earlier time periods. As discussed in the background section, there has been a shift in time from historical approaches to classifying ethnicity based on proportions-of-descent to more recent notions of cultural affiliation. This shift is reflected in the changing approaches to labeling and coding multiple ethnic responses in official statistics. These changes in approach, which include changes in the questions used to collect ethnicity data, as well as the way in which multiple responses are coded and output, impact on the ability to measure multiple ethnicities over time. These shifts in practice and policy are also accompanied by ecological changes and shifts in the social, political and economic landscape that can influence how people respond to the ethnicity question.

More recently, revisions to the ethnicity classification introduced by the 2005 Statistical Standard for Ethnicity, impact on the comparability over time of statistics by ethnicity, including multiple ethnicities. In particular, the changes at Level One of the classification from five to six codes, and the introduction of ‘New Zealander’ responses at Level Four (within the broader ‘Other’ grouping) potentially impact on reporting and analysis of multiple ethnicities. Under the new standard, a multiple ethnic response might be coded differently than under the previous classification regardless of the method used to report multiple ethnicities (that is, total, prioritised, or single/combination).

A further change introduced by the 2005 Statistical Standard was the recommendation that randomisation be the preferred approach for reducing multiple responses at input of data,

where the number of responses received are greater than the system can cater for. In the census and 'large surveys', up to six responses are now able to be recorded for an individual. This is a change from earlier censuses (prior to 2001), where only three responses were recorded. The 2005 Standard recommends that where: "… more responses are given than can be recorded per person, a random method for reducing the number of responses selects the ethnicities to be retained" (Statistics New Zealand: 2005). Randomisation first removes residual responses, then aggregates responses within broader ethnic groupings where applicable in order to retain information at Level One of the classification (Didham 2005)[12]. There is, therefore, less of an issue for reducing multiple responses to six codes, as this would still enable all Level One data to be retained (as there are six Level One categories). It is potentially more of an issue where responses are being reduced to three, particularly if there are more than three Level One categories involved. It is possible in this scenario that not all Level One categories would be captured (Didham 2005), and that a Māori response could be unable to be identified or could be randomised differently on different data sources. Although the numbers involved may be small, the differential distribution of the reporting of multiple ethnicities by ethnic group (with Māori having higher proportions of multiple ethnicity reporting) means decisions about processes for reducing multiple ethnicity responses may impact more on Māori than on other ethnic groups.

In reducing responses for the purposes of output, the need to think carefully about the implications of this has been noted, including the potential impacts on comparing data from a collection that collects a maximum of three responses per individual with data from a collection that records more than three ethnicities (Didham 2005). As Didham points out, in this type of situation it "may be necessary to reduce the second data set to three responses for valid comparison. However, before doing so, it should be established that the methods used to collect the data were sufficiently similar to warrant taking such a step" (2005: 5-6).

Following consultation with the health sector about alignment with the 2005 Standard, and a lack of sector support for randomisation, the decision was made to continue to use prioritisation as the recommended method in the health sector to reduce responses where necessary. This is consistent with the ethnicity data protocols, but does introduce a comparability issue where different datasets are using different approaches. In practice, the number of cases where reduction of the number of ethnicities at input may be necessary is likely to be relatively small, but may disproportionately affect some ethnic groups more than others. Although there is some suggestion of low reporting of multiple ethnicities in administrative collections relative to the population census, it is possible that this may change over time as data collections align more closely with census processes for collecting ethnicity data, as outlined in the protocols. In combination with the predicted general increase in reporting of multiple ethnicities, decisions about the inputting of multiple ethnicities may be more of an issue in the future.

12) The Level One groupings are European, Māori, Pacific peoples, Asian, Middle Eastern/Latin American/African (MELAA) and Other.

Different approaches to collecting ethnicity data in different settings have also impacted on comparability between datasets in terms of calculating health statistics. For example, although the population census has provided for the reporting of multiple ethnicities since the 1986 Census, births and deaths registrations data did not collect comparable data until after 1996. Hospitals also only collected one ethnicity prior to 1996 (Kilgour & Keefe 1992). This resulted in numerator/denominator bias when calculating population rates using population estimates derived from census counts as the denominator and ethnicity data collected in other healthcare settings as the numerator. Official population estimates and projections have used total response ethnicity since the mid-1990s.

The 2005 Statistical Standard for Ethnicity recommended total response and single/combination as the standard outputs (Statistics New Zealand 2005). Outputs using the range of methods have been produced in recent census periods. In 1996, ethnic group data from the Census was output in three ways, using prioritised ethnicity, total response ethnicity and single/combination (Statistics New Zealand 1997). In 2001, Statistics New Zealand's ethnic group report was produced using both total response and single/combination response to account for reporting of multiple ethnicities (Statistics New Zealand 2002). For the most recent census, the standard outputs have been produced using total response. This creates issues in making comparisons over time, in that the ethnic groupings are not able to be compared with each other directly.

In terms of methods for the analysis and output of multiple ethnicities in the health sector, there appears to have been a shift towards an increased use of total response ethnicity, specifically in relation to the outputs produced from routine surveys administered by the Ministry of Health. In contrast, the use of prioritisation appears to remain relatively embedded in the analysis of routine datasets and for monitoring purposes in the health sector, particularly where comparisons are being made between ethnic groups. Single/combination output is uncommon in the sector.

As acknowledged in the sector data protocols, there are strengths and limitations of each method (total, prioritised, single/combination). Identified limitations of the prioritisation method include the undercounting of some ethnic groupings (with the exception of Māori, who are first in the prioritisation hierarchy). This particularly affects Pacific populations, and has a differential pattern by age (Statistics New Zealand 2006), affecting younger age groups more. Concerns of undercounting may apply less in the calculation of rates as the same method of output, prioritisation or total ethnic group, is applied to both the numerator and denominator, with the provision that the reporting of multiple ethnicities is not substantially different between the data sources used for the numerator and the denominator. There is some evidence that there are lower levels of multiple ethnicity data in administrative datasets in the health and disability sector than are reported in survey data, such as the population census.

In terms of Māori health analyses, prioritisation ensures that Māori responses (whether they are sole Māori or as part of a multiple ethnicity response) are identifiable in all analyses and output. This is seen to be important for policy and monitoring reasons. In addition, there is evidence of continued undercounting of Māori in health datasets. While prioritisation does not address the issue of undercount *per se*, it does ensure that all those individuals reporting Māori ethnicity (alone or in combination with another ethnic group) are able to be counted in analyses and output.

Total response ethnicity provides for an individual to be counted in each group they identify with. The sum of the groups is greater than the number of people, and it does produce overlapping groups, which needs to be taken into account in analysis and output of data comparing ethnic groups. Statistics New Zealand recommends total response as the preferred approach where possible (Didham 2005).

In relation to health analyses, HDI notes that:

> *It is difficult to compare groups that are not independent, that is, groups that include some people from other groups (for example, comparing total Māori with the total New Zealand population). In these situations, when the distance between two confidence intervals is reasonably large, the results are significantly different. However, when the confidence intervals overlap, there may still be a statistically significant difference" (Ministry of Health 2008a: 8).*

Specific methods are needed to calculate confidence intervals and to standardise ethnic groups. In their 2008 investigation of the shift to use of total response method in the NZHM, HDI did not examine the impact of using total response method for regression analysis, but suggest that some forms of analysis, such as regression analysis, are more difficult when groups are overlapping. A further disadvantage of the total response method identified by Callister et al is that "multiple ethnicity remains hidden in total count data and the unsophisticatd reader may forget the existence of overlap between groups and fail to take this into account when interpreting data" (2005: 52).

Single/combination method is proposed to provide more detailed information, and also allows for non-overlapping groups, so that numbers sum to the total count of respondents. Practically, however, as has been noted in earlier sections, there are a large number of categories potentially available. For example, under the 2005 standard, there are 61 possible combinations at Level One at an aggregated level (that is, only counting combinations across but not within Level One groupings). Single/combination output has several levels of detail (with greater or fewer numbers of categories). The use of single/combination output with varying levels of detail in different analyses could impact on data comparability. In analysing particular

health outcomes, the single/combination method quickly produces categories with quite small numbers, particularly if any other variables are introduced to the analysis (Callister, Didham & Potter 2005). For this reason, it was not considered as a standard output option for the New Zealand Health Monitor.

In addition, issues with the stability of single/combination data have been raised:

> *Analysis of ethnicity data (e.g. infant deaths versus births, comparing intercensal population change, births and deaths versus census) suggests that single/combination data is currently far less stable than total response data. Single/combination data appears to be very sensitive to ethnic mobility and contextual effects because these are frequently transitional processes which occur across boundaries between combinations of ethnicities within groups (Didham 2005: 9).*

While single/combination response is not currently a common method in health data, it is now being used in some official statistical products, namely the Household Labour Force Survey (HLFS).

Case study – single/combination method in reporting multiple ethnicity in the HLFS

The Household Labour Force Survey (HLFS) is a quarterly survey administered by Statistics New Zealand. The Survey collects information "…relating to the employed, the unemployed and those not in the labour force who comprise New Zealand's working-age (15 years and over) population" (Statistics New Zealand 2009c). Information is collected from individuals and households on a range of variables, including age, sex, ethnicity, occupation, employment status, educational qualification, and hours worked. The HLFS is important for tracking employment status over time. Given that there are known ethnic disparities in labour force status in New Zealand, it is important to be able to monitor trends in this area, including unemployment.

Quarterly releases had used prioritised ethnicity for some years, reporting ethnicity for the groups European/Pakeha, Māori, Pacific peoples, and Other (see, for example Statistics New Zealand 2006). In 2008, the HLFS shifted to reporting multiple ethnicity data using the single/combination approach. For example, in the March 2009 quarter, data was presented in the quarterly release in the following way:

Single/combination unemployment rate (unadjusted) by ethnic group

	March 2008 quarter (percent)	**March 2009 quarter (percent)**
European only	3.0	3.9
Maori only	10.2	10.7
Pacific peoples only	8.7	12.6
Asian only	5.8	6.7
MELAA only	10.4	12.0
'Other ethnicity' only	S	S
European/Maori	7.2	11.6
Two or more groups not elsewhere included	6.2	11.8

This output made it difficult to have an understanding of Māori unemployment rates overall, as the Māori ethnic population was split across three groups ('Māori only', 'European/ Māori', and 'Two or more groups not elsewhere included'). This highlights one of the concerns that has been raised about single/combination methods, that is, the potential that some Māori will be allocated to miscellaneous combination groups and, therefore, not be visible in output.

The other issue this case study illustrates is the risk of misinterpretation of single/combination output. In reporting the Māori unemployment rate based on HLFS single/combination output, at times the 'Māori only'(or 'sole Māori') rate has been presented as the Māori rate (see, for example, press releases for the December 2009 quarter). For the March 2009 quarter (data shown in table above) the total unemployment rate for Māori was 11.2%, compared with the 'Māori only' rate of 10.7%.

There is a similar issue for Pacific peoples. In the type of single/combination output used in the HLFS, Pacific peoples are only visible where they are part of the 'Pacific only' grouping, which was only about 77–80% of the Pacific population for the 2009 releases (personal communication Statistics New Zealand, 2009). This method, therefore, has the potential to undercount Pacific peoples, which has been a common criticism or prioritisation.

Because of the proportion of multiple ethnicities in the Maori and Pacific population, they are the groups the most affected by the use of single/combination rather than total or prioritised. According to Statistics New Zealand, there is variation in the proportion of the working age population in each total response group at Level One that identify with only one ethnic group in the HLFS. In the five quarters March 2008 – March 2009 inclusive, 50% – 58% of the Total Māori population identified with one ethnic group, between 74% – 80% for Pacific peoples, European around 91%, Asian 91% - 96%, MELAA 87% - 94%, and Other Ethnicity 91% - 97% (Statistics New Zealand: customised request 2009).

The HLFS now report a total Māori unemployment rate alongside their single/combination output in the quarterly releases (although not for other ethnic groupings).

Regardless of the relative merits of each of the most common methods in current use in the health sector, there are several practical impacts relating to the move away from prioritised output as a standard output in health and disability statistics, including implications for the stability of comparator groups over time in relation to Māori (Ministry of Health 2008a). Because Māori is the first level in the hierarchy for prioritisation, the count is essentially the same as the total response Māori count. The comparability issues in terms of time series relate, therefore, to the impacts on comparator groups of a move from prioritisation to total response. For example, in prioritisation, because of the hierarchy, a 'sole European' category was available as a comparator group. This group can be useful in particular analyses of health data, particularly where there is interest in examining privilege and advantage, alongside disadvantage. This comparator group is not routinely available as a standard census output, nor is a non-Māori grouping routinely available as an alternative non-overlapping reference or comparator group for disparities analysis. The use of total counts as standard, therefore, requires additional work to enable comparisons to be made with earlier time periods where prioritisation was used, in the form of back casting or the production of dual series. While Statistics New Zealand currently provides customised requests for prioritised ethnicity data, it is not clear if this will continue to be the case indefinitely.

In addition, because of the widespread use of prioritisation for a number of years in the health sector, there is a danger that people will directly compare ethnic group data produced using total counts (which are overlapping) with each other, as was done in the past with prioritised ethnic data. As Statistics New Zealand has noted:

> *If there is a significant overlap between two populations being compared (ie where some are members of both populations), it may be difficult to draw conclusions about the apparent statistical differences between them. Including the overlap members in both or one of the populations may diminish or over-exaggerate apparent differences, depending on how the issues under comparison are distributed across the three groups (ie each of the two non-overlap groups and the overlap group)" (Statistics New Zealand 2009: 15).*

Of significant concern in relation to Māori health and ethnic disparities, is the inappropriate comparisons made and conclusions drawn where different methods have been used over time and/or across data sets. While Statistics New Zealand recommends that notes accompany output tables so that it is clear to readers the number of different ethnic groups recorded per person and the method used to assign individuals with multiple ethnicities to ethnic groups, this is not always the case in practice. At times, while reference is made to this in methodology sections for example, it is not always included alongside the data presented. For example, it might be presumed that prioritisation has been used and comparisons made between ethnic groups, when in fact total response was used. This is potentially a more significant issue for Māori than other groups, given the relative size of the population and the frequency of reporting of multiple ethnicities.

Depending on methods used for inputting and outputting data on multiple ethnicities, there are different potential populations available for analysis and reporting of health statistics. In relation to Māori health (and other outcomes), there has been discussion and debate about the use of the 'Māori ethnic group' (a grouping that includes all those who identify as Māori), 'sole Māori' (those people who identified Māori as their only ethnic group), and 'mixed Māori' (those identified as Māori as one of their ethnicities as part of a multiple ethnicity). In the past, a focus on 'sole Māori' has been advocated for certain disparities analyses, because of the increased exposure to risk factors for health such as deprivation (TRRHAEP 2000), as well as being a response to some extent to issues with data quality and inconsistencies in data collection practices:

> *However, it is important to recognize that if both numerator and denominator datasets applied the same question, administered it in the same way and were committed to obtaining quality data, then the health status of both sole Māori and the Māori ethnic group could be analysed readily (TRRHAEP 2000: 10).*

Some concern was expressed however, that use of 'sole' ethnic group counts would underestimate Māori and Pacific populations, particularly in relation to the allocation and distribution of resources (Ministry of Health 2001). Work undertaken by Kukutai (2003) found that the dichotomy 'sole Māori /mixed Māori' did not capture all the complexity of affilliaton within the broad Māori ethnic group. Some analysis has been undertaken historically in the health sector using these categorisations and they continue to be used in some health research (e.g. Marie et al 2009).

Theoretical and strategic considerations

In the 2001 Census, 2% of total European group recorded another Level One group, 7% of Pacific, 3% of Asian, and 4% of Other (Callister et al 2007: 305). For many purposes, multiple ethnicities are generally only output when they occur across broad ethnic categories, such as Level One, but not when they occur within these groupings. For example, individuals who identify as Samoan and Tongan are reported as Pacific at Level One and, therefore, would not have a multiple ethnicity at this Level, whereas they would be considered to in the output if they identified as Māori and Samoan. In this sense, a type of prioritisation still occurs if data is reported at Level One, regardless of the method used to classify multiple ethnicity responses, in that the aggregate group ethnicity is prioritised over the multiple ethnicities within that group. While this may be primarily for practical and numbers reasons, it does still at one level hide some multiple ethnicities and/or consider some types of multiple identification (i.e. across broad groupings) more significant than others (i.e. those within a grouping such as Asian or Pacific). At a conceptual level, it risks implying that some types of multiple ethnicity – that is, those that cross Level One category borders – are more significant than others.

As a method for the input and output of data on multiple ethnicities, prioritisation has been criticised for appearing 'essentialist' in the way in which individuals are assigned to one ethnic group category. This is a potential danger. However, whether or not prioritisation is appropriate depends on the purposes for which the data is being collected and analysis undertaken. If the interest is in measuring social outcomes such as health, particularly in a society where ethnicity matters and is strongly associated with social realities, it may make sense in some cases to use a method that emphasises the 'minority' group identity.

As it relates to self-identification, the argument against the use of prioritisation appears to conflate somewhat the concept of self-identification as the approach to defining ethnicity officially and self-identification as the process for collecting ethnicity data. As has correctly been noted, prioritisation assigns an individual to an ethnic category that does not capture the way they actually answered the question (or more correctly, captures only part of their response). However, this argument is also applicable in relation to the common practice of aggregating ethnic groups for the purposes of analysis and output[13].

13) This argument would also apply to the 'randomisation' technique for reducing the number of multiple responses where not all responses are able to be captured in a data collection. For further discussion of randomisation, see also: Cormack D & Harris R. (2009). Issues in monitoring Maori health and ethnic disparities: an update. Wellington: Te Rōpū Rangahau Hauora a Eru Pōmare .

While the ideal situation is for information on ethnic groups to be available at the most detailed level possible, much data on ethnic groups is presented at Level One. At this level, ethnic group responses have been already aggregated into broad categories (with the exception of Maori). The broad categories individuals may be assigned to during aggregation will undoubtedly also differ from the way in which these individuals chose to identify themselves in the data set.

In response to concerns about externally-imposed prioritisation, 'self-prioritisation' has been presented as an alternative option for classifying data on multiple ethnicities. In contrast to the prioritisation approach discussed elsewhere in this paper, self-prioritisation asks respondents who may report more than one ethnic group to identify a 'main' or 'preferred' ethnic group at the point of data collection. Although not a standard approach, self-prioritisation type questions are currently being used to collect administrative data in some sectors. In a paper on the issue, Kukutai (2008) identifies that a self-prioritisation question has been used in several surveys in the past, such as the 1995 survey *New Zealand Women: Family, Employment and Education*, and the *Youth Connectedness survey*. In 2008, Kukutai undertook analysis of results from the Youth Connectedness survey (see Kukutai 2008 for a full discussion of methods, analysis and limitations of sample). The study found that youth in the survey could in many cases identify a "main" ethnic group when prompted to following a multiple ethnic group response (Kukutai & Callister 2009). However, there were some respondents who indicated that they did not have a "main" ethnic group, or did not know. The authors suggested some caution around the findings and the potential uses of a self-prioritisation method, but concluded that in this context many youth were able to identify a 'main ethnicity' when asked to.

In decisions about multiple ethnicity coding, and output, there is perhaps an underlying concern for some about the potential to make Māori less visible, and the relationship of this to the denial or minimisation of claims to rights and entitlements. As mentioned in the background, early approaches to the classification of race occurred within the context of policies of assimilation, whereby amalgamation of Māori into the European population was seen by some to be desirable, if not inevitable. Over time, however, the Māori ethnic group has broadened rather than been assimilated through intermarriage. Although New Zealand does not have blood quantum requirements in terms of legal definitions of Māori, these have been present in the past. Decisions about contemporary practices around the classification of multiple ethnicities may be approached with some caution where they are seen to have the potential to limit who 'counts' as Māori.

As Māori commentators have noted, complex identity is nothing new for Māori. Multiple affiliations with hapu and iwi are normal and generally understood as a strength. Strong identification with one aspect of one's identity does not necessarily represent less attachment with another aspect. This is where the linking of multiple ethnicity with concepts of strength

of identity, either implicitly or explicitly, becomes problematic. In addition, this means that the approach of self-prioritisation, whereby people with multiple ethnic affiliations identify their 'main' or 'preferred' ethnicity, may also be conceptually challenging, as well as being likely to be highly context-dependent. There is risk of problematising multiple identities or conflating them with a measure of cultural identity (see, for example, Marie et al 2009). While reporting of multiple ethnicities may cause headaches for those involved in decisions about analysis and output of data, there is nothing inherently problematic with identifying with more than one ethnic group. A rights-based approach to health supports an approach to ethnicity that is concerned with making visible (and, therefore, countable) all those identifying as Māori, whether as their only ethnicity or one of their ethnicities, whether their 'main' or 'preferred'. This is also consistent with inclusive approaches to Māori identity.

As discussed in the background, there is a context to contemporary discussions of multiple ethnicities, particularly when they occur within the frame of inter-marriage. Given the history of labeling Māori, some may view with suspicion or concern the use of combination groups such as Māori /European or see them as newly created hybrid labels. This probably has heightened salience in discussions of Māori health, given the context, both historical and contemporary, of racialised approaches to indigenous health and to disparities in health between ethnic groups. Although officially discredited, discourses of race in health remain strongly linked with racialised, biological concepts of immutability and inherent genetic differences. The comparison of health outcomes, for example, between Māori (sole) and Māori/European, could be interpreted as reflecting these supposed inherent differences, and draw attention away from the impact of the uneven distribution of the social determinants of health, which is where the bulk of the evidence lies. From a social determinants perspective, differences between 'sole' Māori and 'mixed' Māori health outcomes would be approached as representing differential exposure to risk and protective factors, rather than reflecting any underlying genetic or cultural differences.

CONCLUSIONS

Multiple ethnic affiliation is a part of the way in which ethnicity is defined and understood in New Zealand, at least in terms of how it is defined in official statistical contexts. The formal embodiment of this recognition is more recent in other countries, such as the United States, where the 2000 Census was the first within which individuals were able to identify with more than one group, as 'mixed race'. In New Zealand, identification with multiple ethnicities, and historically, multiple 'races', in the population census has been possible for a long time, although individuals were coded to one category up until the 1986 Census (some of these categories were combination groups) (Department of Statistics 1988c). Statisticians, researchers, and other stakeholders have, therefore, been grappling with issues about the appropriate approaches to classifying multiple ethnicities for some time, in the health sector as well as in other sectors such as education (Leather 2009).

It is not entirely clear the extent to which discordance between the recording of multiple ethnicity on health sector administrative datasets and the census (or other surveys) exists, although it seems that administrative data collections have consistently lower levels of reporting of multiple ethnicity data when compared with survey collections. It is also not clear where discordance does exist if it represents a setting effect, a quality issue, or both. The Ministry of Health is currently undertaking some work to understand patterns of multiple ethnicity reporting and what this might mean for choices of output method, particularly in relation to the reporting and recording of multiple ethnicities on administrative data sets in the health and disability sector.

It seems likely that consideration of the most appropriate methods for the categorisation of multiple ethnicities will be an ongoing issue. In particular, the imperative to understand, monitor and eliminate inequalities in New Zealand, including ethnic disparities in health, means that there will be a need going forward to 'deal with' multiple ethnicities in the analysis and reporting of ethnic data. In addition, there are high levels of multiple ethnic reporting for Māori. This reflects a number of things potentially, including the age structure of the population with a higher proportion of young people who identify with multiple ethnicities, and a smaller population size that means there is likely to be increased relationships between people of different ethnic groups which may affect the ethnicity of their children. It may also reflect, in part, a higher level of comfort with identifying multiple origins or affiliations.

Whatever the reasons, there are practical impacts that relate to the current situation where a number of methods are in play, as discussed above. This includes implications for comparisons

over time and between data sources or products. The added costs in terms of time, resources and expertise further burden those doing disparities analysis, in light of the impact of other changes to the practice and policy around official ethnicity data collection.

There are potential strengths in having more than one option, however, as one single method is not always the most useful or appropriate. The health sector protocols recommend choosing the particular method that is most appropriate for the research question that is being asked, and being clear about what has been done. All the methods have strengths and limitations as have been discussed and choices should, therefore, relate to the question and the needs and uses of the data.

The recommendations provided by HDI in relation to the use of total response in the New Zealand Health Monitor provide a useful guide for making decisions about the output of multiple ethnicity in health. In terms of Māori health and ethnic inequalities data, it is important to consider the method that best fits the purpose of a particular output and take into account issues of data comparability over time and across settings. It is likely that both prioritisation and total response methods will be in use in the health sector at least in the near future. While single/combination method is included as an option in the protocols, based on experience to date, it seems less likely that single/combination response will become a common output in the sector.

Collecting and recording data at the most detailed level and allowing for the greatest number of multiple responses to be recorded provides the best option for decisions about multiple ethnicity at the analysis and output stage (although recording large numbers of multiple ethnicities for each individual may not always be practical, cost-effective or useful). It is very important that all output is clear about the methods that have been used in any analysis and their respective strengths and limitations. It would also be beneficial to interpretation of data if notes about the method were more prominent in output, as footnotes to tables and figures for example. In addition, if single/combination methods are used, it is critical that outputs also report total response ethnicity, as has been recommended by Statistics New Zealand, in order that overall Māori patterns or rates can be clearly identified. Output should also note the level at which multiple ethnicities are counted – that is, whether they are counting across Level One groups (as is standard practice), or within.

Discussion of multiple ethnicities in New Zealand, and particularly in relation to Māori and Māori health, needs to cognisant of the historical context of discourses of intermarriage and intermixing that provide the backdrop to this issue for indigenous peoples in New Zealand, and internationally. Historically, the purpose of collecting data on ‘mixed race’ or ‘half-caste’ Māori individuals in official statistics was to determine how fast Māori were being assimilated

(or disappearing). This context may continue to impact on perceptions about the purpose and possible use of data on multiple ethnicity, and in particular the perceived appropriateness of combination categories. In addition, there is a risk that the discursive association of multiple ethnicity with intermarriage may encourage essentialist assumptions about the transference of ethnicity intergenerationally. Although not a major focus of this paper, there is an added context around multiple ethnicity in health that is a hangover from colonial discourses about miscegenation. These discourses can take on extra salience in discussions about Māori health and ethnic inequalities, as they do in discussions internationally about indigenous peoples, particularly where they are conflated with ideas about the determinants of health outcomes and inequalities. This is an area where further research could be beneficial. Finally, this paper does not cover issues relating to the acceptance or stigmatisation of multiple ethnicity in society, or what it means for people who identify with more than one ethnic group. There is a small, but growing body of literature in this area in New Zealand (see, for example, Ip 2008; Lee 2003; Webber 2008).

One of the high level aims of collecting ethnicity data is in order that it contributes to an ability to "… monitor and report changes and disparities in outcomes among ethnic groups over time" (Statistics New Zealand 2004). In addition, Statistics New Zealand as a Crown agency has Treaty of Waitangi obligations. In line with this, it is critical that the various Māori populations in official datasets are able to be clearly and easily identified in statistical outputs and products. Decisions about methods for classification and output of multiple ethnicity in the health sector need to be mindful of this and, ultimately, should facilitate the measurement and monitoring of Māori health and inequalities.

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