

Variation in Partnership Health general practice enrolment data related to need and hospital and national records on ethnicity

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ABSTRACT

AIM: To compare enrolment data for ethnicity and deprivation and other classifications in Partnership Health Primary Health Organisation (PHO) general practices with the National Health Index (NHI) data set and hospital discharge data and to analyse use of special access funding.

METHODS: NHI-linked practice data were obtained through Partnership Health and sent directly to New Zealand Health Information Service (NZHIS). The database was linked with the hospital discharge data for the two years ending June 2007, with the NHIs encrypted. Data were analysed for a range of variables and relationships especially related to ethnicity.

RESULTS: Data was obtained from a total of 345 247 patients in 103 practices. Practices varied widely in their data completion including ethnicity, the latter being unavailable in 7.2% of patients. Ethnicity recording in Partnership Health practice was substantially more complete than national NHI records. Maori in the hospital records was 6.1% compared with 7.0% in the Partnership Health records relating to discharged patients ($p < .001$). Practice use of special access funding varied widely and was unrelated to need.

DISCUSSION: Despite substantial practice database development, findings point to the need for further collaborative and innovative strategies to improve data recording. Issues needing to be addressed nationally include regular updating and correction of the national NHI set from PHO records. PHO data could, with improvements, become the basis for District Health Board databases. The findings support the current national review of the use of special access funding which appears to be seriously inequitable and inefficient.

KEYWORDS: Patient enrolment; ethnicity; special access funding; data quality

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Introduction

A number of studies in recent years have shown that Maori and other disadvantaged populations in New Zealand (NZ) have poor access to, and hence low utilisation of, primary health care services.^{1,2} As a probable consequence, they are generally high users of secondary care, hospital-based services. Ethnicity is included in the population-based funding formula of District Health Boards (DHBs) and Primary Health Organisations (PHOs).

Hence there has been a strong focus upon the inclusion of ethnicity in the enrolment data of PHOs. All Canterbury PHOs are now reporting their ethnicity data. However those identified as Maori appear to fall short of those who identified themselves as Maori in the 2006 census. In a Canterbury DHB report in August 2007, 94.4% of the population of 479 360 were enrolled in PHOs.³ However, of the census population of Maori for Canterbury of 35 215, only 26 339 were enrolled in PHOs, a shortfall of 8876 or

J PRIMARY HEALTH CARE
2009;1(4):297–301.

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25.2%. This contrasted with Pacific People's enrolment where the shortfall was only 1.8% of the total population of 8940. It is far from clear as to what the explanation is for the apparent Maori shortfall.

There has also been a major effort by the Canterbury DHB to ensure that ethnicity is attached to all hospital discharge data. Hospital data indicates that this recording has recently been up in the 90% plus range. However, there continue to be discrepancies between census and health data in all DHBs.⁴

The development of PHOs and their focus on improving access to disadvantaged populations provides both the need and opportunity for better information on strategies to achieve this. This includes the use of special access funding, high use health cards (HUHCs) for frequent attenders and Care Plus for patients with chronic conditions. However very little analysis has been undertaken at the PHO and practice level to determine the use of this funding and its relationship to patient need.

Partnership Health is the largest PHO in New Zealand.⁵ The latest enrolment figures as at January 2008 are 351 314 with 20 800 Maori and 7401 Pacific People. This is approximately 75% of the Canterbury district population. It was formed in April 2004 from the bringing together of Pegasus Health, a large and well-established Independent Practitioner Association (IPA) together with five other IPAs and large general practices.

Partnership Health now has 95 general practices which are Christchurch and Selwyn based. It has a broadly based governance structure with strong representation from community groups including Maori and Pacific people.

The Partnership Health information system is based upon the well-developed system developed by Pegasus Health over the last 12 years. Pegasus Health is contracted to by Partnership Health for the management of its enrolment data. Recording of ethnicity by general practices had reached to over 96% of the enrolled population in an earlier study.⁶ Ethnicity recording is based on the Ministry of Health coding system Level 2.⁷

This report examines these issues using the enrolment data from the PHO Partnership Health linked to the hospital discharge data from the National Health Information Service (NZHIS). It has the following aims:

- To analyse the enrolment data of Partnership Health by practice, age, gender, ethnicity, deprivation, HUHC and Care Plus.
- To compare the ethnicity classifications in Partnership Health practices with the National Health Index (NHI) data set and the ethnicity data attached to Canterbury DHB hospital discharge data.
- To explore relationships between practice and individual need characteristics and enrolment patterns in HUHC and Care Plus.

Methods

Enrolment data for Partnership Health were provided by Pegasus Health. This included the NHI for all patients enrolled to which was attached data relating to practice of enrolment, date of birth, gender, ethnicity, NZDep scores measuring deprivation, HUHC and Care Plus. The date of the data set was October 2007.

Data on 345 247 enrolled patients were sent directly to NZHIS (now part of the Information Directorate of the Ministry of Health). Two NHI linkages were performed by NZHIS. The first was to link the Partnership Health data with the national NHI data set and to add gender, national ethnicity classifications, date of birth, date of death if recorded, and NZDep scores. The second NHI linkage was to the National Minimum Data Set (NMDS) for all hospital discharges for those enrolled for the 2½ years ending 30 June 2007 totalling 153 827. The data added to the Partnership Health data set included ethnicity, and all the other variables associated with a hospital discharge including date of admission and discharge and diagnosis. The linked data from NZHIS was returned to the researchers with the NHIs encrypted.

The data analysis was for the two years of discharges ending June 2007. From the Partnership Health data set patients were aggregated into gender and age groups 0–4, 5–14, 15–24, 25–44, 45–64, 65–74, 75–84, 85+. Ages as at

30 June 2007 were calculated from the dates of birth. Patients were also analysed by practice into ethnicity groupings, HUHC, Care Plus, and other variables.

Because this was analysis of anonymised secondary data, no ethical committee approval was required.

Results

Partnership Health practice profiles

Table 1 summarises the data derived from Partnership Health practices relating to enrolled patients studied. Data were obtained from a total of 345 247 patients in 103 practices as at October 2007. Practice size varied greatly, the smallest being only 104 enrolled patients and the largest 11 989.

There was a wide variation in ethnicity recording. From the revised figures referred to above, a total of 25 336 patients, or 7.2%, had no ethnicity recorded. However, variation between practices was wide ranging from 0.6 to 99.2%, although the larger figures applied in general only to smaller practices. Maori enrolment totalled 20 800 or 5.9%, but varied greatly between practices from 0.0 to 37.3%.

HUHC averaged 3.4% and Care Plus 2.2%. Again there was wide variation between practices ranging from 0.0% to 20.2% for HUHCs and 0.0% to 24.4% Care Plus. There were 152 patients in total or 0.04% who were classified as both HUHC and Care Plus.

WHAT GAP THIS FILLS

What we already know: Despite the improving quality of general practice enrolment data, very little analysis has been undertaken to explore the content and quality of the data.

What this study adds: A new approach to analysis using the National Health Index (NHI) to link general practice data with other data sources including national data on deprivation and ethnicity and how primary health organisations' data can reliably contribute to a district database.

Table 1. Summary of enrolment data on Partnership Health practices

	Total	Practice mean	Range
Practice numbers	103	–	–
Enrolment	345 247	3352	104–11 989
Ethnicity recording—not stated	25 336	7.2%	0.6–99.2 %
NHI recording	338 659	98.9%	0.2–11.8 %
Meshblock recording	323 602	93.7%	99.9–57.1 %
Maori enrolment	19 712	5.9%	0.0–37.3%
Pacific enrolment	6717	2.0%	0.0–76.6%
Patients over 65 years	49 712	14.4%	0.6–66.7%
HUHC	10 448	3.0%	0.0–20.2%
Care Plus	7496	2.2%	0.0–24.0%

Partnership Health enrolled patient profile

The enrolled patient profile of Partnership Health practices was similar to the national pattern with a higher proportion of a younger Maori and Pacific Peoples population. European patients were found much more frequently in the higher decile categories. On the other hand, Maori and Pacific Peoples patients were much more likely to be found in the lower decile categories.

Table 2. Comparison of ethnicity records in Partnership Health practices and the national NHI set for the same NHIs

Ethnicity	PHO numbers	Percentage	National numbers	Percentage
European	279568	79.3	251699	72.9
Maori	20800	5.9	13676	4.0
Pacific	7401	2.1	6045	1.8
Asian	17358	4.9	12536	3.6
Other stated	1817	0.5	1811	0.5
Not stated	19026	5.4	26989	7.8
Other not stated	6343	1.8	32491	9.4
Total not stated	25369	7.2	59480	17.2
Total	351314	100.0	345247	100.0

P-values for all categories < .001

Table 3. Comparison of ethnicity records of Partnership Health patients discharged from hospital and the hospital discharge data from NMDS records

	PHO numbers	PHO percentages	NMDS numbers	NMDS percentages
European	117086	75.7	126247	81.5
Maori	10767	7.0	9515	6.1
Pacific Peoples	3513	2.3	3528	2.3
Asian total	4633	3.0	4814	3.1
Other stated	738	0.3	869	0.6
Other/not stated	18090	11.7	9854	6.4
Total	154827	100.0	154827	100.0

P-values for all categories <.001

Ethnicity classification

Table 2 presents a comparison of the classification of ethnicity in Partnership Health practices with data derived from the national NHI set. As already noted above, the revised overall percentages of patients in Partnership Health with no ethnic classification was 7.2%, but this is much lower than 17.2% in the national NHI set. Maori in the national set are only 4.0% compared with 5.9% in Partnership Health. This raises questions about the completeness of the national NHI set as will be discussed below.

Table 3 compares ethnicity records in Partnership Health with ethnicity classifications as recorded by hospital staff of enrolled patients discharged from hospital over the 2½ year period to June 2007. This is compared with the ethnicity of enrolled patients discharged from hospital. Data were used from a total of 154 827 discharges. From the NMDS records a total of 6.4% of patients had no ethnicity recorded. This compares with 7.0% from Partnership Health practices for discharged patients.

There was a marked difference between the two sets of records on a Maori classification for which 5.9% for the PHO compares with only 4.0% for the national set. For other ethnic categories with

the exception of European, the percentages were reasonably similar from both sets of records.

Table 3 compares the Partnership Health ethnicity classifications for patients discharged from hospital with the hospital NMDS classifications. The latter were more complete overall but were less complete for Maori (only 6.1% compared with 7.0%).

Ethnic and practice differences in HUHC and Care Plus enrolment patterns

An analysis of HUHC and ethnicity for individual patients was undertaken and the results shown in Table 4. The use of HUHC for Maori and Pacific patients was statistically significantly less ($p < 0.05$) than expected, 2.1% and 1.8% respectively compared with the total of 3.1%. However the use of Care Plus for Maori and Pacific at 2.8% and 2.9% was statistically significantly ($p < 0.05$) higher than the mean of 2.2%. In other words both Maori and Pacific patients were benefiting at the individual level from Care Plus but not HUHC special access funding.

A correlation analysis of practice variation showed no statistically significant relationship between need factors, such as the percentage of patients over 65 years, Maori and deprivation and the practice percentages of HUHC and Care Plus.

Discussion

Ethnicity classification

Considerable uncertainty remains regarding what might be considered to be an appropriate level of

Table 4. Relationship between ethnicity and HUHC and Care Plus for individual patients compared with percentages of total patient enrolment in Partnership Health practices

	HUHC totals	HUHC %	Care Plus totals	Care Plus %
Maori	565	2.7	548	2.8
Pacific	137	1.8	199	2.9
Total	10603	3.1	7496	2.2

ethnicity classification within practices. Clearly some practices are able to maintain 100% classification. It would seem clear that assisting practices with poor levels of recording with appropriate incentives and support could dramatically improve the overall ethnicity recording within Partnership Health.

Comparisons of PHO data with the national NHI set derived from hospital discharge data show serious deficiencies in the national set. It is suggested that the national set needs regular updating and correction from PHO records, not only relating to ethnicity but also discrepancies in meshblock data and integration of hospital discharge data with PHO data.

Maori shortfall in Partnership Health DHB classifications

Reference was made in the introduction to an apparent shortfall in Maori enrolment in Canterbury DHB PHOs as compared with the census, 8876 or 25.2%. This contrasts with the enrolment of Pacific peoples where enrolment appears to be substantially complete. This is a pattern in almost all DHBs. This may be due to Maori not enrolling, although this study suggests that at least in this PHO the numbers of Maori in the population without an ethnicity classification would be small. More importantly the classification of Maori in the census includes all categories where 'Maori' is listed. In the protocols for classification in health, both hospital and PHOs, Level 2 is used where Maori is only one category. Hence the health figures will inevitably be less for Maori than the census figures.

A recent study comparing PHO registers within the Waitemata District found that the National Immunisation Register (NIR) was a much more accurate source of ethnicity recording than the PHO.⁸ For example, for children classified as Maori on the NIR, only 62.9% were recorded as Maori on the PHO registers and 23.3% were misclassified as European. These results would appear to be much less complete than those achieved by Partnership Health general practices.

An extensive study was undertaken by Chan et al. using ethnicity data from the national NHI

set to determine Maori morbidity.⁹ However, the quality of the national data used may be questionable given the findings of this study.

Variation between practices

A major concern is the wide variation in reporting of variables between practices. Ethnicity recording varied from 0.0 to 100% between practices. Possibly as a consequence Maori enrolment varied from 0.0 to 37.3%. There was also wide variation between practices in the percentage of enrolled patients with HUHC and Care Plus. Given that there was no correlation demonstrated between these need variables, including NZDep scores, this wide variation lacks any clear explanation. If some practices are able to identify and hence provide extra assistance, including funding, for needy patients, should such standards not apply to all practices?

Conclusions

This study indicates major progress has been made in general practice classification of ethnicity and other measures of disadvantage. Many practices now have very complete records. Nevertheless the ethnic differences in registration identified here indicate that a targeting of practices with deficient records, especially for Maori, could result in further improvements. This is important as the findings also indicate that there is much more that could be achieved in improving access to primary care for disadvantaged patients.

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ACKNOWLEDGEMENTS

We are grateful to Partnership Health for funding the study and arranging for the supply of data through Pegasus Health. We are also grateful to NZHIS for linking the Partnership Health data with the NMDS data.

COMPETING INTERESTS

None declared.