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Patients consulting outside of funded practices within primary health organisations: implications for utilisation reporting

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Abstract

Aim To consider two definitions for utilisation reporting in primary care in New Zealand and to assess the affect of two reporting methods on volumes of utilisation in four primary health organisations (PHOs).

Methods Utilisation data was analysed for a 6-month period from 60 practices across four PHOs. Analysis was based on comparing the expected volumes from two alternative collection and reporting methods, named "matched" and "unmatched" reporting. The "unmatched" method is potentially sensitive to patients consulting outside of the practice in which they are funded. Volumes were grouped into categories based on those used for reporting.

Results There was up to 25% difference in volumes in some reporting groups depending on the matching method used. Several of these were for high deprivation, New Zealand Maori, Pacific Islanders, and Community Service Card (CSC) holders—all potentially target populations within PHOs. Two PHOs were more affected having a total of 7.6% and 6.4% fewer reported encounters using the "unmatched" method. Data implies that some groups of patients may not be receiving continuity of care.

Conclusions There were differences in reporting volumes between the two methods. The Ministry of Health (MOH), district health boards (DHBs), and PHOs should be aware of how these results may potentially apply to them, especially where they have after-hours services or target groups as minorities.

Wellington Independent Practice Association (WIPA) Limited manages five primary health organisations (PHOs) in a defined geographical area throughout the lower North Island of New Zealand. As part of a contractual obligation to PHO reporting requirements, WIPA supplies utilisation data to the Ministry of Health (MOH) and district health boards (DHBs). This reporting is important as it is reasonable to assume that the MOH and DHBs may make policy decisions that affect funding based on the data supplied.

Because of the way in which PHOs were initially set up, there are three groups of patients dealt with in this paper. Two groups are funded on a population basis, those being enrolled or registered at a particular practice in a PHO—these are collectively referred to in this paper as "funded" patients. The third group are those patients who are not enrolled or registered at any practice in the PHO which they visit, and are referred to as "non-funded" patients.

Initial analysis conducted at the start of this process indicated that there were many consultations being made by patients outside of the practice at which they were

funded but still within the same PHO. In this paper this is referred to as a "PHO Funded Encounter" and collectively as "intra-PHO flow".

This paper aims to investigate and describe the issues and potential effects this may have on utilisation reporting. To understand how this can occur, one must consider the definition of what is being reported and the two alternative processes that may be undertaken to complete the reports. The terms used for the two processes will be "matched" and "unmatched" utilisation reporting.

Although some investigations have been made into why patients change their primary carers in New Zealand[1] and abroad,[2,3] these studies do not apply to the current PHO setting and address "real" and "permanent" movement of patients. This study looks at the artificial affect the definition and reporting methods have on volumes.

It is hoped that information presented may help the MOH and DHBs consider the definition of what should be reported and empower other PHOs making future decisions on utilisation reporting and analysis.

Reporting definitions and interpretations

The contracts for the five PHOs managed by WIPA all define utilisation reporting as being for "First Level Services delivered to Enrolled Persons."[4–8] Although the specific term "enrolled" is used, it has been interpreted as "funded" (as a registered patient has only a temporary status over 3 years within the PHO).

Furthermore there are two alternative ways of interpreting the requirement: counting where only patient consultations occur at the practice at which the patient is funded ("exclusive" definition) or where patient consultations occur at any practice in the PHO at which the patient is funded ("inclusive" definition).

PHOs are primarily focused on population-based health, and funding is based on patients at this level.[9–11] The inclusive definition potentially gives a more complete perspective on healthcare being delivered in a PHO to its funded population, thus making it a more desirable approach. However it is problematic when practices seeing patients on a "casual" basis are not aware that the patient is registered or enrolled somewhere else within the same PHO.

This problem applies to PHOs that consist of more than one practice. Of the five PHOs managed by WIPA, four consist of more than one practice. This paper mainly analyses data from these four PHOs.

Matched utilisation reporting

The fundamental steps involved in matched utilisation reporting are:

(a) Extraction of data from practice management systems.

(b) Transport of data to PHO.

(c) Matching of data against PHO registers.

(d) Aggregation of data at PHO.

(e) Reporting to MOH or DHB.

The defining step in this process is the matching of data (c). It affects the way in which all other steps are undertaken and its purpose is to determine the consults

completed in any practice for those patients that are funded in the PHO (either enrolled or registered within the last 3 years).

To match the data and identify PHO-funded patients, it is necessary to extract data at an encounter level, with patient identifiers (in this case National Health Index [NHI]). It then needs to be loaded into a database management system and matched against a PHO-funding database. Ideally this is done on NHI but where this is not available for all patients, second-level matching may be done with patient *date of birth* and *family name.* The purpose of the match is to identify all patients funded in the PHO on the day of the encounters to be included in the reporting.

Aggregation of data is then done on a basis of counting all encounters for PHO-funded patients and assigning to the appropriate reporting categories. This data is then formatted in the appropriate way ready to be sent to the MOH or DHB.

The matched process allows the application of either the inclusive or exclusive definition to utilisation reporting.

Unmatched utilisation reporting

The fundamental steps involved in unmatched utilisation reporting are:

(a) Extraction of data from practice management systems.

(b) Transport of data to PHO.

(c) Aggregation of data at PHO.

(d) Reporting to MOH or DHB.

In this process, extraction of data at the practice can take two basic forms: either encounter-level extracts or aggregated extracts. Either form would include encounters for patients enrolled or registered at the practice only, which implicitly means they are funded within the PHO. The chosen method will dictate what is done to aggregate the data at the PHO.

Where encounter-level data is provided, the PHO must aggregate the data into the appropriate categories. If aggregated data is supplied, the PHO only need sum the aggregate totals from each practice in each reporting category. Alternatively if a combination is supplied, the encounter data should be aggregated and summed with the already aggregated data.

There may be advantages in extracting aggregated data, as the volume transported would potentially be less and processing is distributed among practices, rather than centrally at the PHO. By not matching it, this process potentially requires less resource at the PHO level.

The unmatched process allows reporting based only on the exclusive definition of utilisation. Where an inclusive definition is applied, this method would potentially under-report volumes.

Method

In this analysis, 6 months of matched utilisation data was used from five PHOs. It was extracted from the wider set of data collected on a routine basis for utilisation reporting.

The routine collection method involves extracting data on a monthly basis from practice patient-management systems, transporting it via HealthLink to the PHO data warehouse, where it is loaded via

an automated software mechanism. The data warehouse is built as a Microsoft SQL Server 2000 database.

At present, not all practices supply utilisation data. Those that do are all using the MedTech32 patient management system (PMS). Some practices had incomplete data for several months, due to anomalies in automated collection routines.

Two quarters of data was used, being the periods 1 April 2004 to 30 June 2004 and 1 July 2004 to 30 September 2004.

Because of the way in which data is stored in, and consequently extracted from, the PMSs, duplicate entries for some encounters exist in the data. This has been accounted for by de-duplicating data at the PHO using the assumption that a patient can have only one encounter for a particular day at a particular practice with a particular healthcare provider.

Any patient that has two or more encounters in a day at the same practice by the same provider has the encounters counted only once. All matching was done using NHI, so any patient without was not matched and therefore counted as a casual encounter. Some *date of birth* and all *encounter date* fields included a time component, which was truncated in all calculations.

PHO information was matched based on the practice in which patients were funded. Data covered two complete quarter periods, and patients could potentially be registered with different practices and PHOs in each quarter. Because of this, the nature of the encounter (being for a funded or casual patient) was determined based on the registration status of the patient in the quarter of the encounter.

Data was manipulated in SQL Server and exported to Microsoft Excel software for presentation. Each category required for contractual reporting was used to group and analyse the information. Comparisons were made of the number of encounters that occurred within practices where the patient was recorded as funded and those being part of the PHO where the patient was funded, but not the funded practice itself.

For the purpose of this paper these will be termed funded practice and funded PHO encounters respectively. The latter are those that may be potentially lost in unmatched reporting. All analysis of funded PHO patients had Otaki PHO data excluded from analysis, as it consists of only one practice and has no possibility of having intra-PHO patient flow.

Because of the relatively recent commencement of Care Plus, this category was not analysed.

Results

Factors affecting analysis—The data collected from practices for each PHO showed a coverage rate of 77.5–86.7% of the total available for the period. This is considered sufficiently high for the analysis in this paper.

The completeness of NHI data was between 96.8–99.8% for the total of 527,175 encounter records analysed.

Funded encounters—Table 1 shows the number of encounters in each PHO broken into non-funded, and funded groups. The Practice group are those encounters where patients have been funded at the practice at which the encounter occurred. The PHO group are those encounters where the patient is funded in the PHO, but not at the practice in which the encounter occurred. The % PHO column shows the percentage of funded encounters that are made up by the PHO group, indicating those encounters that may potentially be lost in unmatched reporting and this is summarised in Figure 1.

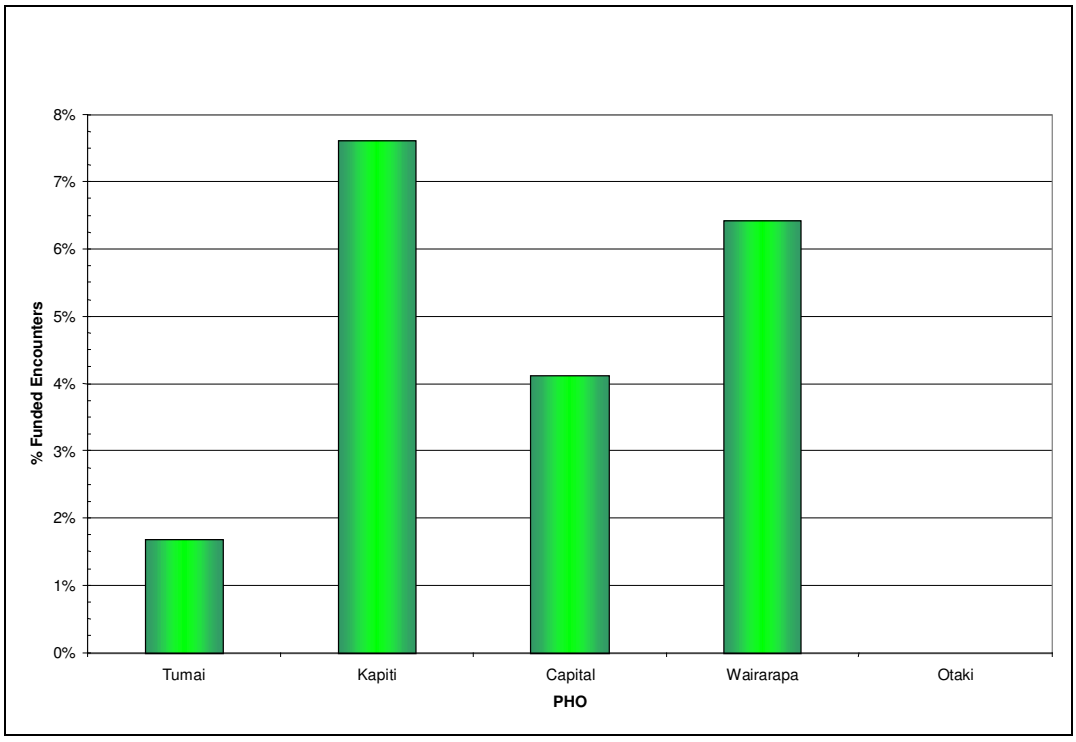
Gender—There was little difference in the rates of PHO funded encounters in the gender groups amongst PHOs, ranging from 0 to 0.4% differences between male and females.

Deprivation quintile—Figure 2 shows the funded encounters by quintile. A quintile of "0" indicates no quintile assigned for the patient.

Table 1: Encounters (by funding)

PHO	Encounters				
	Non Funded	Practice	PHO	Total	% PHO
Tumai	9,087	64,635	1,098	74,820	1.7%
Kapiti	13,919	72,609	5,973	92,501	7.6%
Capital	40,169	186,780	8,018	234,967	4.1%
Wairarapa	11,931	88,831	6,090	106,852	6.4%
Otaki	2,438	15,597		18,035	0.0%
Total	77,544	428,452	21,179	527,175	
%	14.7%	81.3%	4.0%		

Figure 1. Percentage of funded encounters (by PHO)



Age group—Figure 3 shows the funded encounters by age group. The age groups are deliberately split into uneven year intervals in order to match those used for utilisation reporting. The 15 to 24 years category has by far the largest percentage of PHO encounters, being 11.5 %. The over 65 category is the lowest on 2.3 %, with the 45 to 64 years category low on 3.2 %. The remainder of the categories are between 6.1 and 6.9%.

Figure 2. Percentage PHO-funded and total-funded encounters (by quintile)

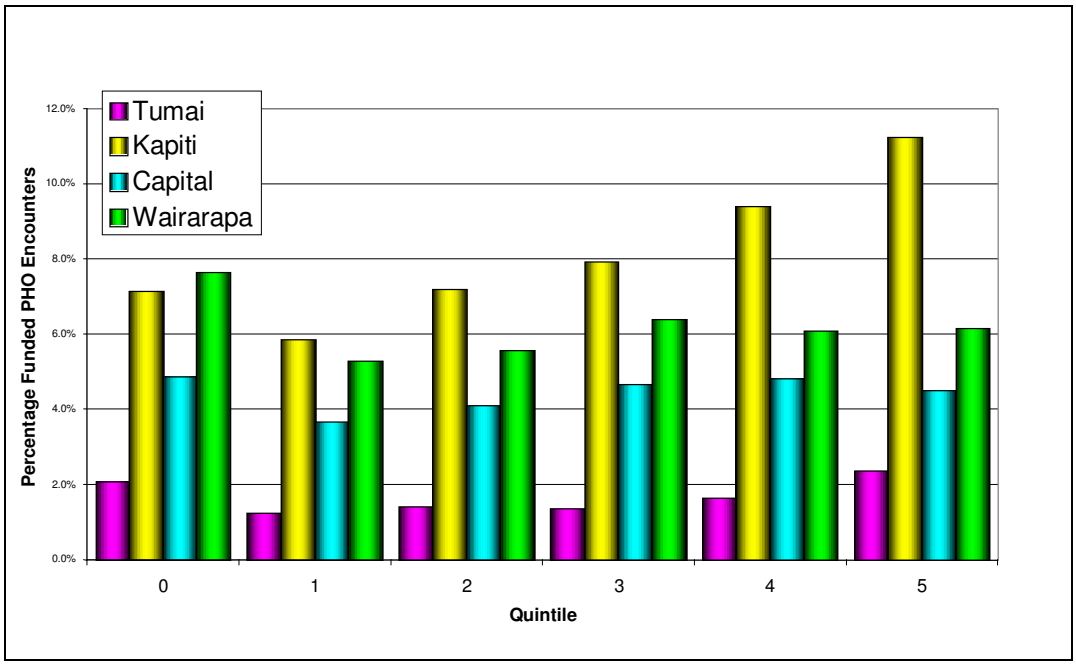
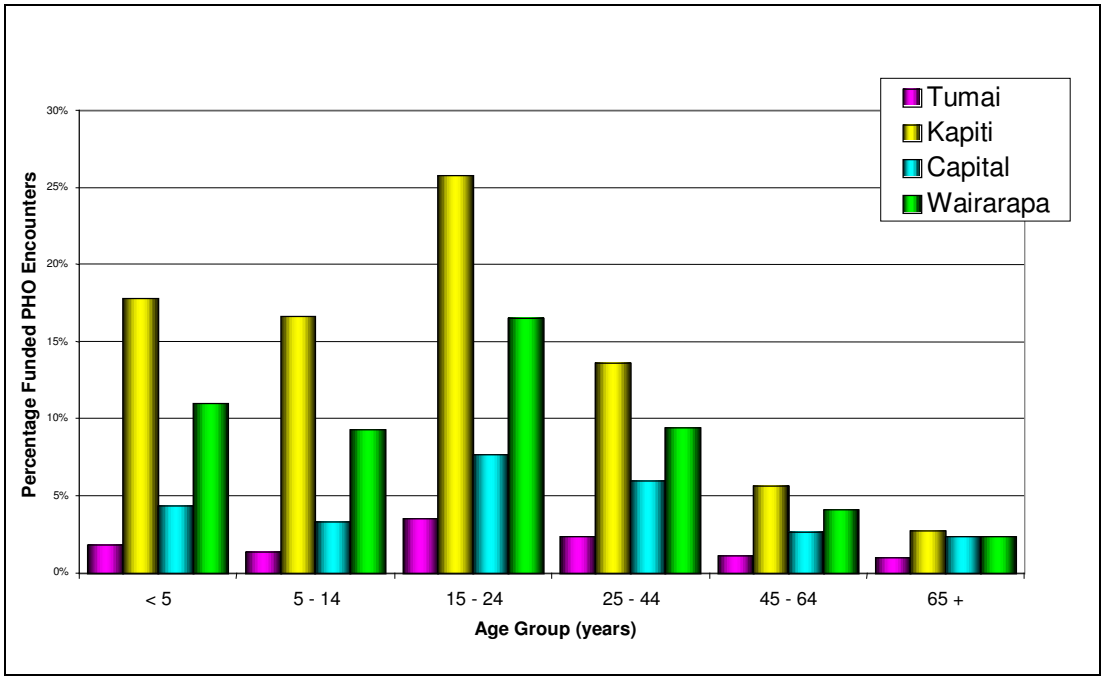


Figure 3. Percentage PHO-funded compared with total-funded encounters (by age group)



Ethnicity—Figure 4 shows funded encounters by ethnicity, in the groups used for utilisation reporting. Of particular note is the relatively large number of ethnicities not stated. In this case, this seems to have been caused by a large number of miscoded or

non-standard coding. This group has a high funded PHO encounter percentage, followed closely by New Zealand (NZ) Maori and South East Asians (7.8%, 6.4%, and 6.4% respectively).

Figure 4. Funded PHO-encounter percentages by ethnic group

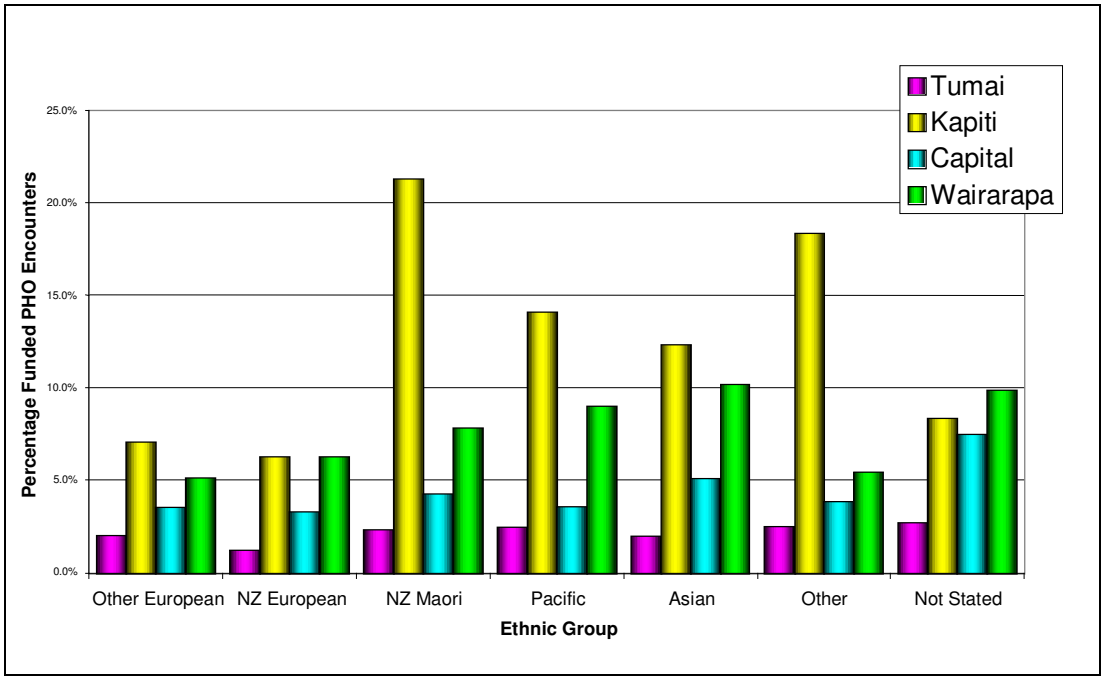
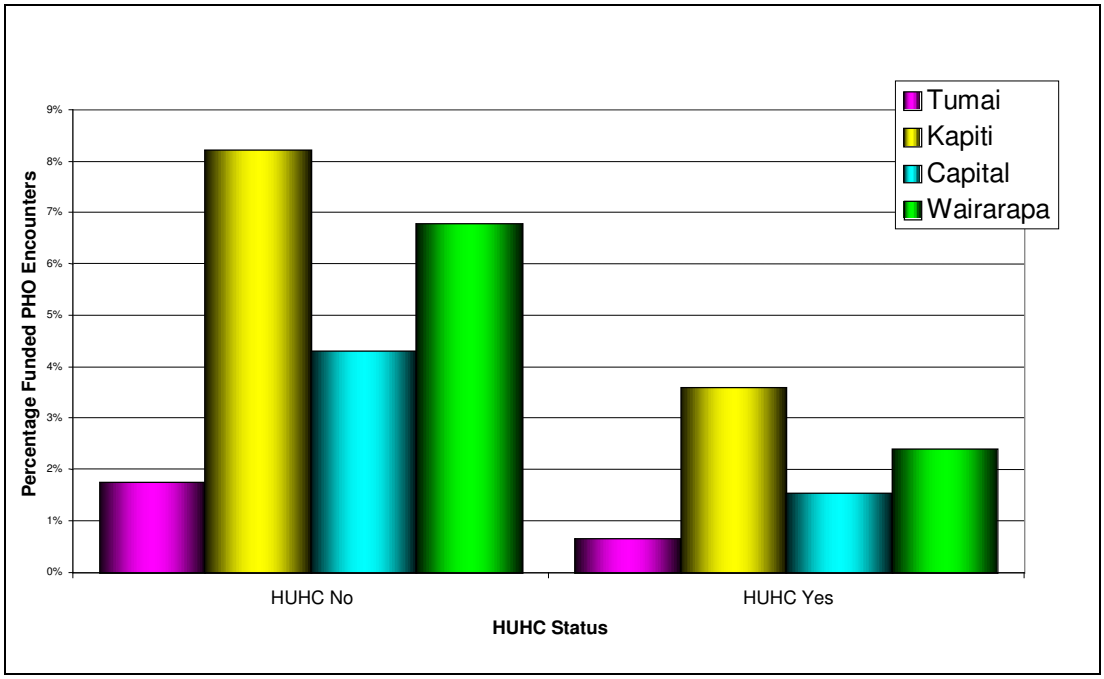


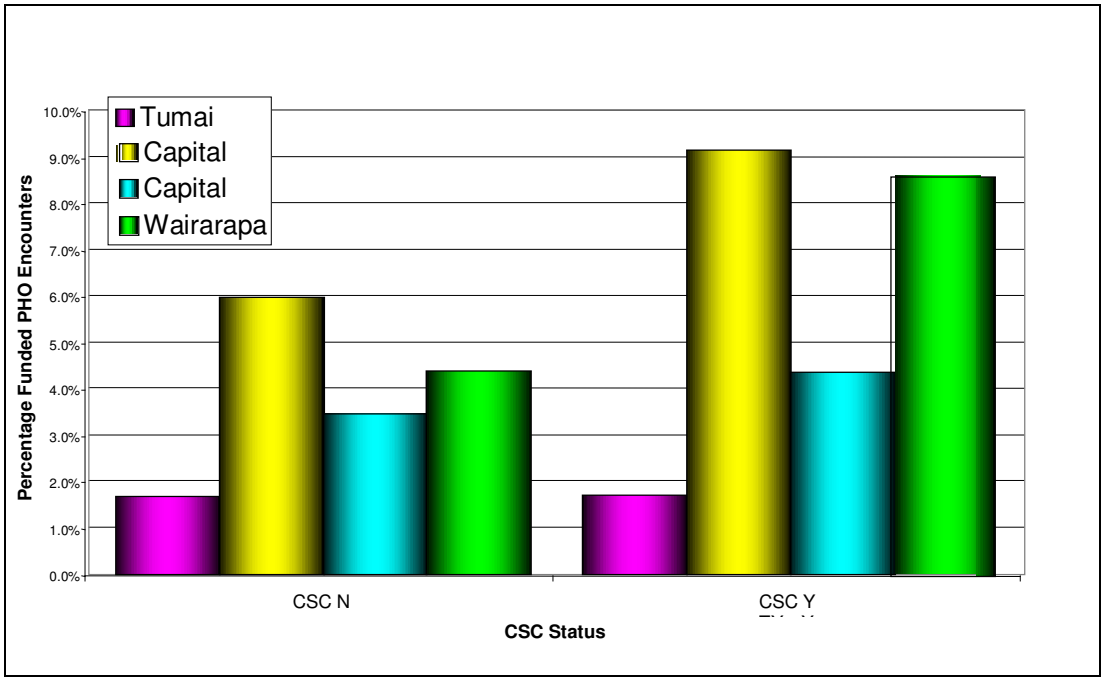
Figure 5. Funded encounters by HUHC status



High User Health Cards (HUHCs)—Figure 5 shows that holders of a HUHC have only 2.2% PHO encounters, compared with 5.1% for non-card holders.

Community Service Cards (CSCs)—Figure 6 shows that CSC holders have a 5.4% funded PHO encounter rate, marginally higher than non-holders.

Figure 6. % PHO-funded and total encounters (by CSC status)



N=No; Y=Yes

Discussion

Factors affecting analysis—The range of the data analysed was from 77 to 87% complete for PHOs. Data that was not analysed was not collected at the time due mainly to errors in collection or practices not yet implemented with the automated collection software. The majority of the latter group are non-MedTech32 practices. For all PHOs, the completeness of data is acceptably high for the analysis made in this paper.

The decision to only match data based on NHI makes this analysis susceptible to error where there are low rates of its reporting. The range by PHO is from 96.8% to 99.8%. It is consistent with the registered rates of 94.1% and 94.8% respectively reported by other studies.[10,12]

It is likely that the majority of those patients without NHI fall into the "casual" encounter group, and given that the rates of recording are so high, analysis should not be affected.

PHO-funded encounters—The purpose of this paper is to analyse the impact of intra-PHO flow on unmatched utilisation reporting. Using a unmatched process, funded PHO encounters would not be reported. A matched process would detect all encounters by funded patients.

Figure 1 shows the proportion of encounters that would be not be reported for each PHO under a unmatched process, ranging from 1.7 to 7.6%.

Both Kapiti and Wairarapa have after-hours services as part of their PHOs. It is possible this contributes to a higher level of funded PHO encounters, as patients cannot access their funded practice out of hours. In other PHOs (although there may be a similar rate of after-hours encounters) they would be outside of the PHO.

Tumai PHO has the lowest rate (possibly due to services in the Porirua region running to capacity, thus making it difficult to gain appointments outside of one's funded practice).

Category analysis—The purpose of analysing discrete categories is to determine if the intra-PHO flow affects them uniformly. If this is not the case an unmatched process has the implication that particular pockets of population may appear to be under-utilising PHO resources. It may also imply discontinuity of service which possibly would imply that the *Primary Health Care Strategy*[12] is not achieving its goals in some PHO populations. This has previously been theorised by Kerse and Mainous.[13]

All categories with the exception of gender show differences in rates, both across categories and also across PHOs. Of most interest and potential concern are the high rates in ethnic and deprivation categories.

Deprivation quintile 5 has a very high rate of PHO encounters, particularly in Kapiti but also in Wairarapa. Capital shows an increased level, but not to the same degree as the other two PHOs which may be again an indication of health-seeking behaviour in after-hours services.

Another possibility that may contribute to this pattern may be due to debts being incurred by more deprived populations, seeking treatment where they have little or no debt incurred at the time of consultation thereby avoiding confrontation or payment requests. This could also account for the high rate seen in CSC holders. Literature[1–3] on the topic of why patients change GPs does not support this view, but with the studies being questionnaire based and the stigma associated with debt, respondents may be disinclined to share this as a reason.

The NZ Maori, Pacific Island, and Asian ethnic groups exhibit very high rates of PHO encounters especially in Kapiti and Wairarapa. With the exception of NZ Maori in Wairarapa, these groups are in a minority in comparison with other PHOs. After-hours service use can be one possible explanation for this, where these ethnic groups may consult more often out of hours. Alternatively it may be that the PHOs are not catering for the ethnic needs of these populations and patients must actively seek specific services within the PHO that do.

15–24 and 25–44 age groups show increased levels of PHO encounters through all PHOs. In Kapiti, the <5 and 5–14 age groups are also high. This again is in fitting with trends in ethnicity where minority groups seem to have high rates. It may also be likely that these age groups tend to consult after-hours clinics more often. In all

PHOs, the 45–64 and 65+ groups have remarkably low rates, which may be a positive indicator of continuity of care for the older population.

It is also positive to see that HUHC users have a consistently low rate across all PHOs. This may indicate that they tend to move around less and are getting a higher continuity of care, in line with *Primary Health Care Strategy* goals.

Access to after-hours services may be confounding other trends in all categories, possibly due to work commitments preventing normal-hours consultations, lack of transport in rural areas in 'one-car families', or waiting for ailments to turn into more serious or urgent issues. Several of these issues may affect younger working populations, which could explain the high trends for the 15–24 and 25–44 age groups in Kapiti and Wairarapa.

Conclusion

Some PHOs and some populations in the data analysed would be significantly under-reported if an unmatched process was followed. In several cases these are populations that are being "targeted", making the issue more pertinent. Because this is different between PHOs, some may be affected more than others, thus putting them on an uneven footing when utilisation rates are compared at a regional or national level.

The implication of this is that if either an exclusive definition of what is reported or an unmatched reporting process if followed, utilisation rates may appear artificially low. If left unclear this may mislead policy decisions at MOH and DHBs.

Although the inclusion of after-hours services within the PHO is believed to be a major contributor to the trends seen in this paper, the effect is not clear or proven. Therefore, further investigation may be important in understanding the functioning of PHOs.

PHOs undertaking utilisation reporting should examine the methods by which they are collecting and reporting information and consider the potential impact some of the factors highlighted in this paper may affect them, especially those with after-hours services or that have target age, ethnic, and deprivation groups as minorities.

The MOH and DHBs should consider carefully the definition of what should be included in utilisation reporting and the effect this may have on data influencing policy and funding. Indeed, (in these early stages) PHOs would be wise to consider having the inclusive definition applied where possible using a matched reporting process to capture and illustrate a fuller picture of utilisation.

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