

Original Research Paper

Inequities in public primary care expenditure in the Auckland region

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ABSTRACT

Aims: To describe and analyse variation in per capita expenditure on general medical services, pharmaceutical services and laboratory services between primary care organisations (PCOs) in the four Auckland subregions.

Methods: Data were obtained from the Health Funding Authority (HFA) relating to PCO practice registers and expenditure and volume data by individual PCO members and other GPs for 1996 and 1997. After exploring a number of options, denominator populations served by PCOs were calculated from consultation rates for each of the four subregions. Actual per capita expenditure for each PCO in the above categories was calculated using these populations and compared with expenditure based on the HFA funding formula.

Results: Wide variation in per capita expenditure was found between subregions, even after allowing for small cross-boundary flows, and between PCOs. Well-off populations in Central Auckland were receiving expenditure some 27 per cent higher than expected, whereas very disadvantaged populations in South Auckland were receiving expenditure 17 per cent less than expected. The latter discrepancy would have been much greater if there had been an appropriate uptake by these populations of their community services card entitlement.

Conclusions: The findings demonstrate that there are major inequities in the distribution of, utilisation of, and expenditure on primary care services in the Auckland region. These inequities conform to the inverse care law, ie, that those populations in greatest need are those least likely to receive the services they

KEY POINTS

- Report of an analysis of the variation in per capita utilisation and expenditure on general medical, pharmaceutical and laboratory services between primary care organisations (PCOs) in the Auckland subregions
- Despite uncertainties about the data, wide variation in per capita utilisation and expenditure was found even after standardising for patient factors such as age, gender and income and comparing the findings with the expected expenditure from the HFA's funding formula
- PCOs serving wealthier populations tended to have higher per capita expenditure, whereas those serving poorer populations had significantly lower expenditure, conforming to Hart's inverse care law
- Addressing this problem, and redistributing funding to those most in need, will be the single most important challenge facing the implementation of the Government's primary health-care strategy

need. The consequences of poorer access are high rates of inappropriate admission to hospital and poorer health status. As yet no effective strategy appears to be available to shift resources from PCOs serving healthier populations to those in greatest need. Finding such a strategy is the major challenge facing the implementation of population-based equitable funding.

- Research is needed now to establish strategies to address the even wider variation within IPAs as the first step in resolving the serious inequities between IPAs

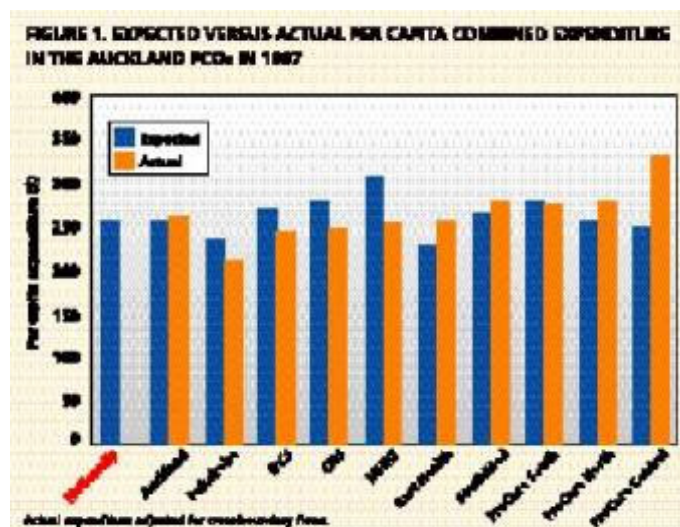
INTRODUCTION

In recent years there have been dramatic developments in the organisation of primary care services in New Zealand.^{1,2} These have been largely led by GPs through independent practitioner associations (IPAs). However, other organisations are also involved, coming within the generic heading of primary care organisations (PCOs).¹ Recent contracting arrangements between the Health Funding Authority (HFA) and PCOs have indicated a strong trend towards capitated, equitable population-based funding for primary care expenditure inclusive of general medical services (GMS), pharmaceutical and laboratory services.¹

This was spelt out in the Government's primary care strategy "The future shape of primary health care" largely supported by the primary care sector.^{3,4} However, preliminary studies indicate that there are wide inequities in per capita expenditure in these categories between PCOs and that these inequities conform to Hart's inverse care law, ie, that populations most in need are those which are least likely to receive the services they need.^{1,5-10}

One of the problems in accurately calculating per capita expenditure is defining the denominator population.⁵ There is evidence of considerable overlap in practice and PCO registers, ie, people on two or more registers.¹⁰ In order to define populations more precisely, and to relate expenditure to these populations, this study was undertaken of the Auckland region to allocate the 1996 census population to PCOs in order to ensure that populations were counted only once in this allocation.¹¹

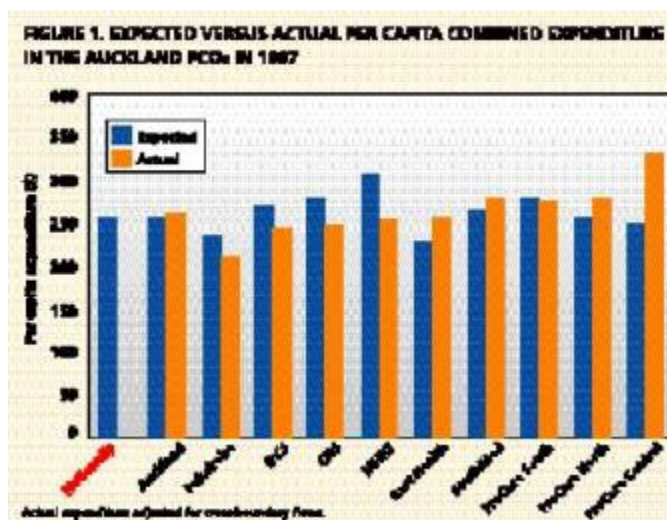
The study reports on the methods used to determine and allocate denominator populations. These were used to calculate actual as compared with expected per capita expenditure. The paper discusses the implications of the findings for the implementation of population-based, equitable funding.



METHODS

Details of the methods used and findings are set out in the report to the HFA on this project.⁸ Data were obtained from the northern division of the HFA on each PCO in the Auckland region. PCO is defined in this paper as any organisation providing a core of primary medical care and related referral services.¹ The data included population data, as at May 1998, for each PCO as supplied to the HFA by PCOs in the 33 categories of gender and community services card (CSC) of the HFA funding formula. Data were also obtained on all expenditure and volume data on GMS, pharmaceutical and laboratory services for 1996 and 1997 calendar years, linked to the NZMC and other provider numbers of those generating this expenditure. The NZMC number included the PCO identifier and location of the practice within the four Auckland subregions, North, West, Central and South. Population census figures were used from the 1996 census for these subregions.

Data were also obtained from the HFA on practice registers and a sample of 20,000 GMS claims for May and June 1998. The data were National Health Index (NHI)-linked, thus enabling a determination of the location of patient registration and practice visited as compared with the location of patient residence. Net cross-boundary registration and patient consultation flows between the four subregions were calculated from the data.



Various methods were explored to determine how the census populations might be allocated to PCOs including a capitation report prepared by the HFA from merged practice and PCO registers.¹¹ There was gross overlap between PCO registers, with no PCO having a greater proportion than 84 per cent of patients unique to the PCO. Most had much smaller percentages. Furthermore, this did not include non-PCO patients. The only feasible method found was to use GMS consultation volume data to calculate denominator populations.

However, a serious limitation with this data was the unreliable reporting of A3s (adults with no CSC). In order to allow for this the following formula was calculated from national GMS category annual consultation rates obtained from Health Benefits Ltd:

$$y = 0.83x - 19$$

where y is the percentage of A3 consultations in a PCO, and x is the percentage of non-CSCs in a PCO register.¹¹ This gives a figure of 30 per cent A3s for a national percentage of 59 per cent non-CSCs. This method allowed for the wide variation in A3 registrations and claims between PCOs. All A3s reported were subtracted from the volume data. The estimated figure for total consultations, both PCO and non-PCO GPs, was calculated for 1997 from the above formula using the percentage of non-CSCs from the PCOs, and the national average for non-PCO GPs.

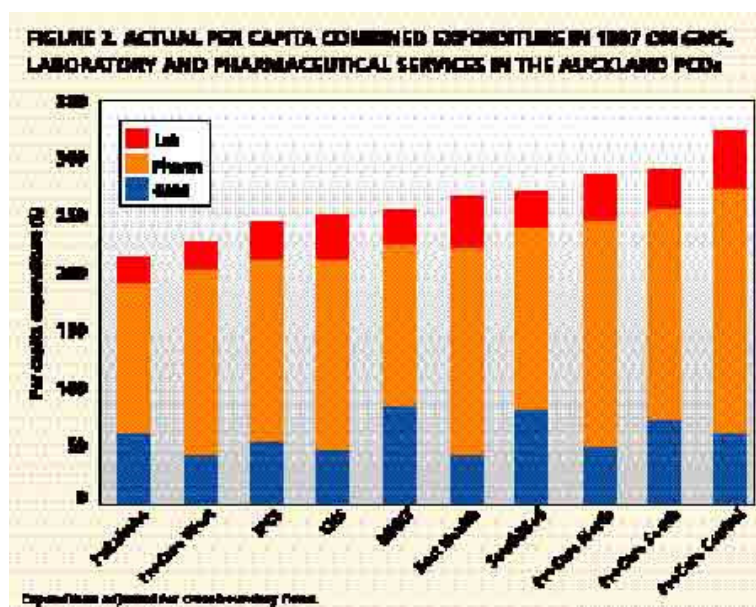
Populations served by capitated PCOs, 4.4 per cent of the total, were obtained from

the HFA and subtracted from their subregion census populations. The remaining figures were used as a denominator to divide into the total fee-for-service consultations for each subregion to determine a subregion consultation rate. The population for each PCO was then calculated by dividing the total PCO consultations by this rate. The expected per capita expenditure for each PCO was calculated from the HFA funding formula using the 33 population categories of age, gender and CSC supplied for each PCO, and compared with the actual per capita expenditure calculated from total PCO GMS, pharmaceutical and laboratory expenditure divided by the calculated populations.

FTE GPs were assumed to be those earning more than \$40,000, ie, providing more than 4000 consultations per year.¹² The total GMS claims for those earning less than this figure was divided by 40,000 to derive an FTE figure. These figures were used to calculate the population per FTE GP for each PCO and subregion. Subregional expenditure was calculated after allowing for cross-boundary consultation flows. The paper does not include PCO populations less than 18,000 due to the increased uncertainty of calculations in smaller populations.

RESULTS

The calculated consultation rates, net cross-boundary registrations and consultations, percentage of FTE GPs in PCOs, population per FTE GP and annual per capita expenditure on GMS, pharmaceutical and laboratory services for each subregion are shown in Table 1. Allowing for cross-boundary flows, consultation rates varied from a low of 3.6 in West Auckland to a high of 5.9 in Central Auckland. Net cross-boundary registrations, not unexpectedly, showed a net gain of 8.9 per cent to Central Auckland with corresponding reductions in other subregions.¹¹ However, also not unexpectedly, net gain in consultations for Central Auckland was much less, only 3.4 per cent, most of this increase coming from South Auckland.



In 1997 just under 70 per cent of FTE GPs were in PCOs, but with a surprisingly low figure of 58.6 per cent in Central Auckland where there were a large number of GPs working outside the PCO framework. Central Auckland also showed the lowest population per FTE GP, only 1142. There was a wide variation in annual per capita expenditure on GMS, pharmaceutical and laboratory services ranging from a low of \$181.9 in West Auckland to a high of \$290.2 in

Central Auckland.

Table 2 compares the actual per capita expenditure on GMS, pharmaceutical and laboratory services for Auckland PCOs for 1997 compared with the expected per capita expenditure calculated from the HFA funding formula, with percentage differences between the two sets. The actual and expected per capita figures are graphed in Figure 1, and the actual per capita expenditure figures for GMS, pharmaceutical and laboratory services are shown in Figure 2. Table 2 and the figures show a wide variation in actual per capita expenditure with marked percentage differences between actual and expected expenditures. These range from 26.6 per cent above expected for ProCare Central to 17.0 per cent less than expected for Mangere Health Resources Trust.

DISCUSSION

Quality of data

There are of course important reservations about the quality of the data used in this study, discussed in detail in the report to the HFA.¹¹ Reservations include: the overall quality of the data supplied for the study including practice registers from PCOs; the quality of the GMS, pharmaceutical and laboratory data; and the adjustments needed to allow for A3s. The calculated consultation rates made no allowance for almost certain differences between PCOs within subregions. There are also some discrepancies in times, with the more reliable practice register data for May 1998 being related to utilisation data for calendar year 1997.

However, the GMS claim and volume data is likely to be reasonably accurate given that providers will complain if there are discrepancies between their claims and amounts paid.

Another source of inaccuracy is the low uptake of CSCs in disadvantaged populations. A study of Mangere Health Resources Trust patients has shown that, whereas the NZDep96 score was 9.0 out of a possible 10 for most disadvantaged for this population, and hence an entitlement to CSCs of about 90 per cent, only 57.5 per cent of patients in the HFA data for this population had CSCs.¹² A full uptake of CSCs would dramatically increase the observed discrepancy of -17.0 per cent between actual and expected per capita expenditure.

The consultation rates as calculated in this study are consistent with those from earlier studies.^{13,14} For Central Auckland the consultation rate in 1989/90, when full consultation numbers were available, was 5.7; for South Auckland 3.6; and for North and West Auckland 4.0. The rates observed in this study appear to be consistent with these figures, allowing for the increasing consultation rates over the last two decades associated with the increased availability of FTE GPs, from 1/1693 in 1989/90 to 1/1329 in 1997.¹⁰ Some inaccuracies may derive from the calculation of A3s. However, even in the unlikely event that the consultation rate for Central Auckland had not increased above 5.7, the calculated difference between expected and actual per capita expenditure for ProCare Central would still be 25.7 per cent.

Variation in PCO expenditure

This study has confirmed findings of previous studies that there is wide variation in per capita expenditure on primary care and related services even after making allowance for patient factors.^{1,5-7,14} This variation is evident both between subregions and between PCOs. Furthermore, this variation is consistent with Hart's

inverse care law, that those populations with the greatest needs are those who receive least services. ProCare Central, with the highest level of funding above that expected and generally serving well-off patients in Central Auckland, has a consultation rate of 5.9 and population per FTE GP of 1135. By contrast Mangere Health Resources Trust, which serves one of the most disadvantaged populations in New Zealand in South Auckland, has a consultation rate of less than 4.6 and a population per FTE GP of 1840.

Recent studies have confirmed the poor access to primary care services of disadvantaged populations.^{1,15} A national study of 401 low-income households showed poor access to GP services when needed and inability to pay for medicines, and confirmed that financial barriers were important in limiting access to both primary medical care and pharmaceutical services.¹⁵

Implications for population-based equitable funding

This study has demonstrated that fundamental issues need to be addressed if population-based equitable funding is to be successfully implemented, as now required under contracts between the HFA and PCOs and with the implementation of the Government's primary care strategy.^{1,2} If primary care funding is limited to its present level, high-spending PCOs, which appear to be serving well-off and hence healthier populations, must adopt a strategy which significantly reduces their spending in order that savings may be transferred to PCOs serving poorer populations. Such transfer of funding is essential if primary care services to poorer populations are to be effective in reducing inappropriate hospital admissions and improving the health status for such populations, including Maori and Pacific peoples.^{1,6,7}

Not only are there major inequities between subregions and PCOs. Even greater inequities have been demonstrated between practices within PCOs.¹ Evaluation of budget holding has shown almost no evidence that the wide variation between members and practices has been reduced by even comprehensive strategies.^{1,16} The evidence is also clear that those with high rates of consultation are also those who are high users of laboratory and pharmaceutical services.¹

An effective strategy to enable shifts to be made between PCOs must start by addressing inequities within PCOs. As yet no effective strategy appears to be available, either internationally or nationally, to address this problem. This is the major issue facing PCOs in the move to equitable-funding, patient-enrolment, and global, capitated funding of primary care services.

Research is urgently needed to identify the factors underlying this variation, especially the relationship between quality and cost, and hence the development of strategies as to how it might begin to be addressed.

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