Comparison of private for-profit with private community-governed not-for-profit primary care services in New Zealand

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Abstract

Objectives To compare the characteristics of patients, their disease patterns, and the investigation and referral patterns in community-governed non-profit and private for-profit primary care practices in New Zealand.

Methods Observational study using a representative survey of visits to general practitioners in New Zealand. Practices were categorised according to their ownership status: private for-profit or private community-governed non-profit. Patient sociodemographic characteristics, treated prevalence and other characteristics of presenting problems, morbidity burden, numbers of investigations and referral patterns were compared.

Results Compared with for-profits, community-governed non-profits served a younger, largely non-European population, nearly three quarters of whom had a means tested benefit card (community services card), 10.5% of whom were not fluent in English, and the majority of whom lived in the 20% of areas ranked as the most deprived by the NZDep2001 index of socioeconomic deprivation. Patients visiting non-profits were diagnosed with more problems. The problems presented to non-profit primary care GPs included higher rates of asthma, diabetes, and skin infections, and lower rates of chest infections. The duration of visits was significantly longer in non-profits. No differences were observed in the average number of laboratory testes ordered. The odds of specialist referral were higher in for-profits when confounding variables were controlled for.

Conclusions Community-governed non-profits in New Zealand serve a poor, largely non-European population who present with somewhat different rates of various problems

compared with patients at for-profits. The study highlights for communities, policy makers and purchasers the importance of this ownership form in meeting the needs of low-income and minority population groups.

Introduction

Ownership confers governance responsibility (ultimate control) for an organisation, and accountability for its actions. Primary care organisations can be classed as 1) government owned and operated, or 2) privately owned and operated, with the latter being divided into those responsible to a community-governance board versus those not responsible to such a board. Community-governance seeks to ensure that an organisation is in the control of the users, constituents or clients of the organisation.[1] While there has been considerable research comparing for-profit and non-profit hospitals,[2 3] there is comparatively little research comparing for-profit and non-profit primary care. Ownership is important not only in New Zealand, but also in the US where non-profit community health centres have been important sources of care for low-income and uninsured people since the late 1960s,[4] and in the UK where there is growing diversity of ownership arrangements[5-8] and increasing emphasis on community involvement in governance in the newly formed primary care trusts.[9] Non-profit bodies are now involved in NHS partnerships, particularly in the area of housing for NHS clients—but it is probably only a matter of time before they expand their involvement to include core clinical services.[6]

Traditionally general practitioners (GPs) in New Zealand have adopted a self-employed, for-profit small business model. Community-governed non-profit primary care organisations started having a significant presence in the late 1980s in response to increasing demands for more affordable, culturally appropriate primary care services.[10] The first non-profit trade union health centres were set up in 1987, and a diverse range of non-profit primary care organisations emerged during the early and mid 1990s, most notably Maori initiatives. Currently about 3% of GPs work in community-governed non-profit settings. There are no recent data on the total amounts of government funding going to different types of practice. At the time of this study all practices were free to determine their level of patient co-payments for consultations. Government funding of primary care practices was determined within a complex contracting framework. Some Maori and community-governed practices received government assistance for their establishment, as did the independent practitioner associations to which most for-profit practices belonged.[11] The operational funds for all practices were negotiated largely within a framework that did not distinguish between non-profit and for-profit status. Funding of programmes outside of standard medical consultation work was allocated through a modified form of tendering. Most community-governed practices did not participate in referred services budget-holding programmes which, in their early years (1990s), delivered significant new funding to practices for service development.[12, p.70 13]

This paper uses nationally representative survey data to compare the characteristics of patients, their diagnoses, and the investigation and referral patterns at private community-governed non-profit and private for-profit primary care practices in New Zealand. Non-

profits in this study met at least two of these three criteria: 1) they had a community board of governance, 2) there was no equity ownership by GPs or others associated with the organisation, and 3) there was no profit distribution to GPs or others associated with the organisation.

Theories predict that non-profits will tend to provide services to diverse populations that are otherwise poorly catered for because of 'failure' of the government and for-profit sectors to provide services[14] or, according to an alternative theory,[15] because of the inherent interdependency of the government and non-profit sectors in providing services to diverse groups. This study tests the hypotheses that patient visits at community-governed non-profits, compared with for-profits:

1. are more likely to be drawn from minority ethnic groups (eg, Maori and Pacific Island patients);
2. have a greater representation of low-income families;
3. have, as a consequence of 1. and 2., a higher morbidity burden;
4. but not differ in activity rates for laboratory tests and referrals, once morbidity and socioeconomic position are taken account of.

Methods

Data

The National Primary Medical Care Survey (NatMedCa), carried out over 2001/2002, was a nationally representative, multistage, probability sample of GPs and patient visits.

The primary purpose of the survey was to collect data on the content of patient visits. For 2 periods, each of 1 week, each selected GP completed a questionnaire for a 25% systematic sample of patient visits. The questionnaire was adapted from the annual US National Ambulatory Medical Care Survey (NAMCS).[16 2003 2003 2003]

In order to obtain a nationally representative sample: 1) geographic locations were sampled, and 2) GPs were sampled from locations, stratified by organisation type (independent; independent practitioner association; capitated; community-governed non-profit) and rural/urban (metropolis & cities; towns and rural areas). GP and visit weights were calculated to take account of different sampling probabilities, so that approximately unbiased estimates of proportions, means, and measures of association between ownership status and visit characteristics could be calculated.[17]

Analysis

Practices in the study were categorised according to their ownership status—private for-profit and community-governed private non-profit (criteria are listed in the introduction)—and comparisons of these two ownership categories were carried out using the Sudaan statistical package,[18] allowing estimates to take account of clustering, stratification and weights.[19] Age standardisation was carried out using the direct method, with the 1996 census population as the standard. Comparing for-profit and non-profit categorical variables a chi-square test was used, with p-values computed from the Wald chi-square using denominator degrees of freedom equal to the number of sampling units

minus the number of strata. For continuous variables, t-tests and associated p-values were used.

To examine case-mix characteristics, International Classification of Diseases-ninth revision-Clinical Modification (ICD-9-CM) codes were grouped (according to their clinical similarity) into Expanded Diagnostic Clusters (EDCs) using the John Hopkins ACG Case-Mix System.[20] EDCs were assigned to 83.1% of visits (with a total of 209 unique EDCs). EDCs were grouped into clinical domains (generally organ systems) designated as MEDCs (Major EDCs) based on the nature of the problems and the specialty most responsible for the care. The treated prevalence was calculated for all MEDCs and the 10 most common EDCs, where the numerator was the number of visits for the MEDC/EDC under consideration, and the denominator was the total number of visits with ICD-9 assignments.

A morbidity index score was also assigned to each visit. The index was based on the aggregated diagnostic groups (ADGs) which form the building blocks of the John Hopkins ACG Case-Mix System. The 32 ADGs represent morbidity groups that contain ICD-9-CM diagnosis codes that are similar with respect to likelihood of persistence, expected need for health care resources, and other clinical criteria. Up to 4 ICD-9-CM codes were assigned per visit; thus each visit was assigned up to 4 ADGs. A morbidity burden score was obtained by summing ADG-specific resource intensity weights. Larger weights suggest more complex health problems and greater expected resource intensity. In the current and previous research,[21] morbidity burden scores had the expected

relationship with patient age and resource use. For the logistic regression analyses, the index was divided into tertiles representing high, medium and low levels of morbidity burden.

Socioeconomic position was measured using the NZDep2001 index of socioeconomic deprivation, a census based small-area index of deprivation.[22] The index scale used here is from 1 to 5, where 1 = the least deprived 20% of areas, and 5 = the most deprived 20% of areas.

Logistic regression was used to examine differences in specialist referral rates between for-profits and non-profits, with referral as the dependent variable and the following independent variables: for-profit/non-profit (reference = non-profit), age group (reference ≥ 65), sex (reference = female), morbidity burden (reference = 3), and socioeconomic deprivation (reference = quintile 5).

The total visit sample consisted of 10,506 records gathered from 246 GPs, 48 (19.5%) of whom worked in non-profit practices and 198 (80.5%) of whom worked in for-profit practices. The overall GP response rate was 71.7% (70.7% in the for-profits and 72.7% in the non-profits). The response rate was calculated as the proportion of eligible GPs in the sample who completed patient visit survey forms for the two 1 week survey periods.

Results

Patient mix

Compared with the sample of patients at for-profit practices, the population attending community-governed non-profits was younger, more likely to be Maori or Pacific Island, considerably more likely both to have a means tested benefit card and to live in areas with high socioeconomic deprivation ranking (Table 1).

—Insert Table 1 about here—

Visit characteristics

There was a small but significant difference in the average number (age standardised) of problems diagnosed (ICD-9-CM codes) per visit in for-profits and non-profits (1.6 and 1.8 problems respectively; p=0.002). Overall the status of problems differed significantly between for-profits and non-profits (p=0.012): a higher proportion of problems diagnosed in for-profits were for short-term follow-up (17.0% in for-profits vs 13.9% in non-profits), but a higher proportion of visits in non-profits were for long-term follow-up (27.1% in for-profits vs 31.5% in non-profits). A similar proportion of visits were for preventive care (5.8% in for-profits vs 5.1% in non-profits).

While a higher proportion of patients were new to the GP in non-profits (12.3% in for-profits vs 23.2% in non-profits; p<0.001), the proportions for whom the practice was their usual source of care were similar (92.0% in for-profits vs 91.7% in non-profits;

p=0.812) as were the proportions of patients new to the practice (7.5% in both). The average visit duration was longer in non-profits compared with for-profits (Table 2), but there was no difference in the average number of visits per patient to the practice over the past 12 months.

—Insert Table 2 about here—

Treated morbidity

Overall the morbidity index had the expected j-shaped relationship with age, with a hump in the 20-30 year age group for females. There was no clear pattern in the relationship between morbidity and deprivation (NZDep2001). The average age standardised morbidity index score did not vary significantly between for-profits and non-profits.

Medical categories of visit and treated prevalence of problems

Table 3 shows the breakdown of medical categories for visits. There were no significant differences between for-profits and non-profits other than for psychosocial visits. Tables 4 & 5 show, in increasing levels of detail, differences in the frequency of diagnoses. In Table 4 the allergy category was dominated by asthma ICD-9 codes, and the endocrine category by diabetes ICD-9 codes.

—Insert Table 3, 4, 5 about here—

Follow-up and referral

In age-standardised bivariate analyses GPs in non-profits had higher referral rates than those in for-profits (8.4% of consultations in for-profits vs 11.2% in non-profits; p=0.027). However, in the logistic regression model (ownership, age group, sex, morbidity, deprivation), for-profits had an odds ratio for referral of 1.4 compared with non-profits (95%CI 1.04-1.85; p<0.031). Of the variables included in the model, age group was also a significant predictor of referral; the odds ratio of referral was 2.5 times higher for children under age 10 years compared with the oldest (reference) age group (95%CI 1.65-3.77; p=0.012).

Using age-standardised bivariate analysis, visits to non-profits were more likely to result in follow-up within 3 months (55.2% in for-profits vs 66.4% in non-profits; p=0.001). There was no significant difference in likelihood of acute referral to hospital (1.4% in for-profits vs 2.0% in non-profits; p=0.219).

Laboratory tests and radiology

There were no significant differences between the age-standardised average number of laboratory investigations undertaken per 1000 visits (500 in for-profits vs 580 in non-profits; p=0.178), the age-standardised average number of radiology procedures per 1000 visits (50 in for-profits vs 40 in non-profits; p=0.586), or the age-standardised number of ECGs per 1000 visits (3.7 in for-profits vs 6.2 in non-profits; p=0.299). The age-standardised number of cervical smears taken per 1000 visits was higher in the for-profits (women only: 62.6 in for-profits vs 32.0 in non-profits; p=0.038).

Discussion

Principal findings

The study confirms three of the four hypotheses. Compared to their for-profit counterparts, community-governed non-profits 1) serve a higher proportion of minority ethnic groups, 2) serve a higher proportion of low-income families, and 3) have patients with a higher number of presenting problems per visit. However, using an ICD-9 based measure, the overall morbidity burden, as assessed in this cross-sectional survey, did not differ between the two types of practice. This latter finding is unexpected, and it is possible that were morbidity measured in a longitudinal survey (ie, capturing the full morbidity burden associated with each patient), then differences would emerge. The pattern of diagnoses made by non-profit primary care GPs differed, with higher rates of asthma, diabetes and skin infection, and lower rates of chest infection. The duration of visits was significantly higher in non-profits. The hypothesis concerning referral rates was not confirmed: after controlling for potential confounders, referral rates were higher in for-profits. The explanation for this finding may relate to different financial incentives in non-profits and for-profits and requires further research. While there were no differences in the proportions of patients who were new to the practice, patients attending non-profits were more likely to see a new GP, and were more likely to be visiting for long-term follow-up as opposed for a new problem.

Limitations of study

A strength of the study is that the data describe the organisational arrangements of a nationally representative sample of GPs. Bias may have been introduced due to the overall GP response rate of 71.7%. Non-responders tended to be male and reported greater than average patient loads. If the busiest GPs differ in some systematic way in their characteristics or activities, this may bias the results. The magnitude and direction of such bias is unknown. The magnitude of many of the observed differences reduces the chance of spurious conclusions being drawn. Similarly there may have been bias associated with incomplete recording of diagnoses and assignment of ICD-9 codes (83.9% of visits had at least one disease code assigned), although the magnitude is likely to be small.

NatMedCa was a practitioner- rather than a population-based survey. The data refer to the actual work of primary care practitioners rather than to population utilisation or to the needs of different populations. As a visits-based study NatMedCa, by its nature, over represents frequent users. For this reason care must be exercised when generalising results to the general population: the results of this study apply to users of primary care services rather than to the general population.

Meaning of the study

The very pronounced differences in populations served by community-governed non-profits and for-profits observed in this study are consistent with the theoretical literature that argues that non-profits have a social role catering for minority populations.[15 23 24]

While differences between non-profits and for-profits are likely to be associated with their ownership and governance arrangements, it is hard to separate out the dual influences of 1) community-governance and 2) the different financial incentives facing GPs in the two types of practice. Non-profits were defined partly on the basis of no equity ownership by GPs and no profit distribution to GPs, hence it is likely that financial incentives had some influence on patient mix and, speculatively, referral patterns.

The epidemiological profile of the low-income, non-European population attending non-profits differs from the average, with higher prevalences of asthma, diabetes and skin infections. Clearly there are implications for funding and planning. For example, it would be expected that the prescribing rates of inhaled corticosteroids and hypoglycaemics would be higher in non-profits, and there would be a commensurately greater need for community and specialty support for diabetes care. Also, the overall utilisation rates in non-profits, which are mainly capitation-funded, have previously been shown to be somewhat lower than utilisation rates in fee-for-service for-profit practices (especially for young children).[25] Given the differences in morbidity observed in the present study, the appropriateness of the utilisation rates deserves further investigation.

Patients at non-profits experience similar levels of continuity of care in terms of the practice as do patients attending for-profits, but less continuity in terms of the individual GP. The implications of this finding need to be considered carefully by non-profits as there may be a potential trade-off between access and continuity of care. Should, for example, non-profits work to increase GP-based continuity of care, or is the lack of

continuity an unavoidable consequence of a team-based, multi-disciplinary approach, and a more mobile patient population?

The observed differences in the sociodemographic characteristics and disease patterns of populations attending community-governed non-profits compared with those attending for-profits, highlight for communities and policy makers the importance of non-profit ownership and community governance in determining the mission of primary care organisations. This study raises as yet unanswered questions about health outcomes in for-profit and non-profit settings.

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Table 1: Sociodemographic characteristics of patients (%)

	For-profit	Non-profit	p value *
Age group			0.035
0-9	19.8	20.6	
10-19	8.4	8.5	
20-34	15.1	18.2	
35-54	23.8	26.5	
55-64	10.8	11.2	
≥ 65	22.2	15.0	
Gender			0.652
Male	41.6	42.3	
Female	58.5	57.7	
Ethnicity of patients			<0.001
NZ European	75.8	30.9	
Maori	11.9	37.5	
Pacific Island	3.8	20.0	
Asian	3.7	2.5	
Other	4.8	9.2	
Marital status			0.002
Married (age ≥ 16)	54.0	43.3	
Not married (age ≥ 16)	46.0	56.7	
CSC † §	44.5	72.8	<0.001
HUHC † §	5.4	4.8	0.457
NZDep2001 quintile ‡			<0.001
1	20.6	4.8	
2	20.0	5.7	
3	19.8	12.0	
4	19.9	22.2	
5	19.6	55.4	
Not fluent in English §	4.0	10.5	0.001

* Comparisons of for-profit and non-profit

† The CSC (community services card) and HUHC (high use health card) are benefit cards that entitle the user to higher levels of government payment for consultations and prescriptions thus reducing the amount of patient co-payment; the CSC is means tested and indicates low-income

‡ NZDep2001 is a census based small are index of deprivation, where 1 = the least deprived 20% of areas, and 5 = the most deprived 20% of areas

§ These variables were coded as yes/no. The no rows are not shown

Table 2: Average visit duration and number of visits in previous 12 months (age standardised)

	For-profit	Non-profit	p value
Average visit duration (minutes)			
Total	14.9	16.4	0.007
NZDep2001=1 *	15.8	17.8	0.045
NZDep2001=5	14.1	16.2	0.015
Average number of visits to practice in previous 12 months			
Total	5.9	6.1	0.413
NZDep2001=1	5.4	5.6	0.797
NZDep2001=5	6.1	6.5	0.263

* NZDep2001 is a census based small are index of deprivation, where
1 = the least deprived 20% of areas, and 5 = the most deprived 20% of areas

Table 3: Types of visits (age standardised) (%)*

	For-profit	Non-profit	p value
Administrative †	1.5	1.9	0.389
Medical	53.0	52.4	0.938
Surgical	44.7	45.5	0.988
Obstetric /gynaecological	4.6	4.1	0.897
Psychosocial	9.3	12.5	0.030

* Analysis limited to those visits records with disease data coded; totals sum to greater than 100% because of multiple reasons for visits in some instances

† Visits for documentation to be completed, and preventive care

Table 4: Treated prevalence of Major Expanded Diagnostic Clusters (MEDCs) (age standardised) (%)*

MEDC	For-profit	Non-profit	p value †
Ear/nose/throat	17.3	17.7	0.717
Musculoskeletal	14.1	12.7	0.300
Cardiovascular	9.4	11.4	0.069
Skin	14.7	12.2	0.070
Psychosocial	9.3	12.5	0.033
Respiratory	8.1	5.5	0.016
Allergy ‡	6.6	10.6	0.008
General surgery	6.6	9.4	0.032
Gastrointestinal/ hepatic	5.9	5.1	0.331
Endocrine ‡	3.3	6.4	0.005
Neurologic	5.1	5.1	0.997
Female reproductive	4.6	4.1	
Genitourinary	2.8	2.7	
Eye	2.9	2.8	
Administrative	1.5	1.9	
Infectious	2.0	1.7	
Rheumatologic	1.7	1.9	
Reconstructive	2.2	1.4	
Malignancies	1.1	0.7	
Nutrition	1.3	2.3	
General signs and symptoms	1.4	1.5	
Dental	0.7	0.4	
Haematologic	0.9	1.0	
Renal	0.3	0.3	
Toxic effects	0.2	0.0	
Genetic	0.1	0.0	
Developmental	0.0	0.0	

* Analysis limited to those visits records with disease data coded. There were up to 4 diagnoses per visit

† p-values have not been included where the treated prevalence was <5% due to the uncertain clinical significance of any observed differences

‡ The allergy category is dominated by asthma ICD-9 codes, and the endocrine category by diabetes ICD-9 codes

Table 5: Treated prevalence of 10 most common Extended Diagnostic Clusters (EDCs) (%) (age standardised)*

EDC	For-profit	Non-profit	p value
Acute URTI	11.5	12.8	0.292
Hypertension without complications	5.9	7.1	0.177
Unassigned codes	7.1	6.5	0.526
Asthma	5.0	9.1	0.005
Otitis media	4.4	3.2	0.095
Acute LRTI	5.0	3.2	0.029
Schizophrenia or affective psychosis	4.3	6.0	0.081
Dermatitis or eczema	3.6	3.8	0.757
Low back pain	3.4	3.8	0.532
Non-fungal infection of skin and subcutaneous tissue	2.9	6.0	0.009
Type 2 diabetes without major complications	1.8	5.3	0.002

*Analysis limited to those visits records with disease data coded. There were up to 4 diagnoses per visit