

Evaluation of the Primary Health Care Strategy: Practice Data Analysis 2001-2005

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Glossary

ACC	Accident Compensation Corporation
Capitation	PHOs are paid on a capitation basis, ie an amount for each person enrolled with them
CSC	Community Services Card. Those eligible for a CSC are those on lower incomes. With a CSC, an individual is entitled to a government subsidy when they use primary health care services
Funding model	There are two main types of funding model for PHOs and practices. Access PHOs are those where 50% or more of the enrolled population is from high need groups, ie are Māori, Pacific or from a lower socio-economic area. Interim PHOs do not have such high needs populations enrolled with them
GMS	General Medical Service. This is usually the same as a “First Contact” service in capitation contracts
HealthPAC	Health funding administration body. Receives practice register and utilisation data from PHOs
HUHC	High User Health Card. Available to those who use many primary care services. With a HUHC, an individual is entitled to a government subsidy when they use primary health care services
NMDS	National Minimum Dataset. Provides information about hospital admissions in New Zealand
PHCS (E)	Primary Health Care Strategy (Evaluation)
PHO	Primary Health Organisation
PMS	Practice Management System. Manages data at the practice level
NZDep2001 Quintile	A summary measure of the socioeconomic deprivation of a geographical area (a meshblock, comprised of around 100 houses) based on nine measures from the 2001 Census. Quintile 1 is the least deprived group; Quintile 5 the most deprived.

Key Findings

In February 2001, the New Zealand government published the Primary Health Care Strategy (PHCS). The PHCS has two key goals – to improve health and to reduce inequalities in health. Implementation of the Strategy has involved three main changes in policy. First, government funding is being increased in order that the fees that patients pay when they use primary health care services can be reduced. Second, the Government is encouraging the development of Primary Health Organisations (PHOs) as local non-governmental organisations which serve the needs of an enrolled population. Third, public funding of primary care is changing from fee-for-service subsidies at the practitioner level to capitation funding of PHOs.

This report seeks to answer the following questions, for different population groups and funding models, for the period 2001/02 to 2004/05:

- Since the introduction of the PHCS, what changes have there been in the fees that patients pay when they use primary health care services? How are changes in fees related to government policy objectives?
- Since the introduction of the PHCS, what changes have there been in the use of primary health care services by New Zealanders?
- Are more patients being seen by nurses?
- What changes are there in the pattern of ACC claims made, before and after the PHCS? Are more new ACC claims being made?

The report is based on data collected from a random sample of 99 New Zealand general practices working within PHOs and focuses on the period between June 2001 and December 2005. The report considers general trends in the fees patients paid for primary health care services and in consultation rates (use of services), for general medical services delivered by both doctors and nurses over this period. In terms of the roll out of new funding provided through the Primary Health Care Strategy, the report therefore covers:

- the year before the first PHO was established in July 2002
- the roll out of new funding for Access PHOs as they were established after July 2002
- the roll out of new funding to Interim PHOs as they were established, and
- the roll out of new funding to Interim PHOs, for those aged 6-17 in October 2003 and those aged 65 years and over in July 2004.

We report separately on i) changes in the fees charged for general medical services provided by general practitioners (GPs) and nurses (i.e. services provided by nurses only, by GPs only or where both a GP and a nurse were seen by the patient), as well as for ii) services where a GP was seen by the patient (i.e. excluding nurse-only visits). Our focus is also on the actual fees charged to patients by general practices, whereas government policy has focused in particular on changes in scheduled fees, i.e. the fees that general practices set out in fee schedules to inform patients of standard charges for standard consultations.

As a result of the additional funding and the mechanisms used to implement the Strategy, we would expect that:

- increased funding will lead to a reduction in the fees patients pay when they use services, as the new funding is rolled out to PHOs
- new funding will lead to the development of new services, and
- New Zealanders will use more primary health care services as a result of the reduced cost of using services and as a result of the development of new services.

As many New Zealanders were already eligible for subsidies for primary health care services, those with the most to gain from the new funding are expected to be those who previously had not held a subsidy card. We would therefore expect fees for these New Zealanders to fall further, and for their consultation rates to increase more, than for those with CSCs and HUHCs.

It is also likely that a shift towards capitation will encourage greater use of nursing services, and this is also considered in this report. In addition, we hypothesise that a shift towards capitation for health services will encourage PHOs and practices, where they can, to shift some costs towards ACC, and that this would show up as an increase in the proportion of ACC claims over time.

This report shows that fees have generally fallen for the groups where new funding has been provided by government. In particular, fees have been falling for those in Access practices, and for those aged 65 years and over in Interim practices. Larger falls in fees are occurring for those without community services cards. The one group where fees are rising is for children, who have not benefited from higher capitation rates (other than through adjustments in 2002 for the general level of inflation between 1997 and 2002 and through annual adjustments since 2002 to maintain the value of the subsidies).

In terms of the roll out of new funding, the government aimed to have zero fees for children; fees of between \$7-\$10 for those aged 6-17 and fees of \$15-\$20 for adult consultations in Access practices, and, according to our analyses, other than for children, this is being achieved, both in terms of doctor and nurse consultations overall but also to consultations where a doctor is seen.

In terms of Interim practices, the data show that the roll out of new funding to those aged 6-17 lead to only a small reduction in the overall fees paid by those without cards and a small increase in fees paid by those with cards, although the increases in subsidies for this age group were less than for those in other age groups. Reductions in fees for those aged 65 years and over were much greater: in the year after the roll out, average fees for doctor visits fell by \$12.23 or 33% for those without cards and by \$3.34 or 13% for those with cards. The government was seeking falls in schedule fees of around \$26 for those without cards and of \$11 for those with cards.

In terms of consultations, it appears that the government's aim of increasing consultation rates for primary health care is being achieved. There have been increases in consultation rates across almost all age, funding model, CSC, deprivation and ethnic groups. Increases have been particularly high in Access practices, especially for those without community services cards; and for those aged 65 years with and without community services cards and those aged 45-64 with community services cards in Interim practices. Consultation rates have increased for all ethnic groups, with similar increases for Pacific, Māori and Other ethnic groups, and smaller increases for Asian populations.

The overall increase in average consultation rates appears to be relatively small in terms of the number of consultations, but increases for some groups in the population are over 20% for some in Access practices. Increases in Interim practices are generally lower, as might be expected given that new funding has not been allocated to all groups in Interim practices, although increases in consultation rates in Interim practices have increased by more than 20% for those aged 45-64 without CSCs and for those aged 65 years and over without and with CSCs.

In relation to whether more services are being provided by nurses, the researchers find an increase in the proportion of nursing visits over time, but this may be due to changes in reporting.

In terms of the impact on ACC, the researchers find that the proportion of ACC claims and the proportion of new ACC total claims does not show any change before and after the introduction of the PHCS. This suggests that practices are not shifting costs to ACC. The researchers suggest that although there may be a financial incentive to shift costs to ACC, the increases in overall funding may be leading to improvements in revenue and income which are off-setting financial incentives to shift costs, or there are other disincentives to claiming from ACC which are also off-setting the increased incentives to claim on ACC.

Overall, the Strategy is resulting in lower fees for primary health care for many New Zealanders, and consultation rates are also increasing over time. Further analyses of our data are required to identify the contribution of different factors to the changes we are seeing in our data, and in relation to identifying the implications for policies to reduce inequalities. These analyses will be undertaken as this evaluation progresses, including providing information on the impact on health (as measured by intermediate health outcomes) over time.

Executive Summary

Introduction

In February 2001, the New Zealand government published the Primary Health Care Strategy (PHCS). The PHCS has two key goals – to improve health and to reduce inequalities in health. Implementation of the Strategy has involved three main changes in policy. First, government funding is being increased in order that the fees that patients pay when they use primary health care services can be reduced. Second, the Government is encouraging the development of Primary Health Organisations (PHOs) as local non-governmental organisations which serve the needs of an enrolled population. Third, public funding of primary care is changing from fee-for-service subsidies at the practitioner level to capitation funding of PHOs.

Implementation of the PHCS has proceeded rapidly. Since July 2002, 81 PHOs have become established, covering 3.9 million New Zealanders, and the government is providing \$2.2 billion in funding over seven years to support the implementation of the PHCS.

This report presents findings from part of a five year evaluation of Strategy, funded by the Health Research Council, Ministry of Health and Accident Compensation Corporation (ACC). This report seeks to answer the following questions, for different population groups and funding models:

- Since the introduction of the PHCS, what changes have there been in the fees that patients pay when they use primary health care services? How are changes in fees related to government policy objectives?
- Since the introduction of the PHCS, what changes have there been in the use of primary health care services by New Zealanders?
- Are more patients being seen by nurses?
- What changes are there in the pattern of ACC claims made, before and after the PHCS? Are more new ACC claims being made?

This Executive Summary firstly presents background information on the PHCS and the evaluation of the PHCS, and describes the focus of this report and the methods used in this report. It then presents the main findings from this part of the evaluation and discusses the implications of the findings for government policy.

Background

In February 2001, the New Zealand government published the Primary Health Care Strategy (PHCS), with the aim of improving health and reducing inequalities in health. Implementation of the Strategy has involved: funding being increased for primary health care, in particular to reduce the fees that patients pay when they use primary health care services as well as to extend the range of services provided by primary health care providers; the development of Primary Health Organisations (PHOs) as local non-governmental organisations which serve the needs of an enrolled population; and a shift towards capitation funding for PHOs, in order that funding be allocated according to the needs of the populations being served by PHOs.

The PHCS signals a move away from a targeted approach where the government only provides funding to support primary health care for some New Zealanders to a universal approach where all New Zealanders are eligible for funding for primary health care. Prior to the introduction of the PHCS, the New Zealand government partially subsidised (funded) access to primary health care, with different subsidy rates available for different population groups. Access to subsidised care was provided for all children aged under six years of age, with subsidy rates (\$32.50 per visit in 2002) expected to mostly cover the cost of services provided to children, with patients generally expected not to have to pay a patient charge for child visits. For young people aged 6-17, and for adults, subsidised care was available to those families with community services cards (CSCs), a subsidy card available to those on lower incomes, and to those with a high user health card (HUHC), available for people who had an on-going health condition, and who had visited the GP 12 or more times in the previous 12 months. For young people, subsidies of \$15 and \$20 were available respectively for those without and with subsidy cards; for adults, subsidies of \$15 per visits were available for those with cards. In most cases, people with CSCs and HUHCs also paid a fee to the primary health care provider. Adults without a subsidy card paid the full cost of primary health care themselves.

To ensure that new funding set aside for the PHCS went to those most in need, the government chose, at first, to create two forms of funding – known as Access and Interim funding. Access PHOs generally serve higher needs population, and were defined as those PHOs where the PHO has more than 50% of its enrolled population as Māori, Pacific, or people from lower socio-economic areas. All other PHOs are Interim PHOs. At first, Access PHOs were funded at higher capitation rates than Interim PHOs. Since 2003, the government has provided further funding, increasing the capitation payment rates to Interim PHOs to the rates paid for those in Access PHOs, for particular groups in the population. New funding was provided to Interim PHOs, for those aged 6-17 years of age (from 1 October 2003), those aged 65 and over (from 1 July 2004), those aged 18-24 from 1 July 2005, those aged 45-64 from 1 July 2006, and those aged 25-44 from 1 July 2007.

Both types of PHOs were also eligible for other new funding, for services to increase access (SIA), management, and health promotion. In October 2006, a further change was made to the funding levels for PHOs, such that all those PHOs offering very low cost access (ie low fees) became eligible for even higher levels of subsidies.

As Access funding was rolled out to PHOs, the government noted that it expected that increased capitation payments should be reflected in low or reduced costs to patients (King 2003). In practice, this policy was implemented through discussions between Ministry of Health officials, DHB staff and PHO staff. These discussions focused on usual fees within specific communities, as well as a view that a 'low' fee is generally a zero fee for those aged six years and under; \$7-\$10 for those aged 6-17; and \$15-\$20 for adults.

New roll outs of funding for Interim PHOs occurred in October 2003 for those aged 6-17 years of age; in July 2004 for those aged 65 and over; July 2005 for those aged 18-24, July 2006 for those aged 45-64 and July 2007 for those aged 25-44. For the roll out of new funding for those aged 6-17 years of age, there was a signalled desire for fees to be reduced in line with the increase in subsidies. More detailed templates were developed relating to the roll out of funding for those aged 65 years and over in July 2004, where it was expected that PHOs would reduce their charges for those people without subsidy cards by \$26 and by \$11 for those with subsidy cards (including adjustments to maintain the value of the subsidies). It was also noted that there should no longer be a differentiation between fees for those with and without cards. Further guidelines were developed for the roll outs from 1 July 2005 onwards.

Focus of this Report

This report is based on data collected from a random sample of 99 New Zealand general practices working within PHOs and focuses on the period between June 2001 and December 2005. The report considers general trends in the fees patients paid for primary health care services and in consultation rates (use of services), for general medical services delivered by both doctors and nurses over this period, and in particular, the report focuses on the changes occurring as a result of specific allocations of new funding by the government over this period. The report therefore covers:

- the year before the first PHO was established in July 2002
- the roll out of new funding for Access PHOs as they were established after July 2002
- the roll out of new funding to Interim PHOs as they were established, and
- the roll out of new funding to Interim PHOs, for those aged 6-17 in October 2003 and those aged 65 years and over in July 2004.

Later reports will focus on the roll outs of new funding to Interim PHOs for those aged 18-24 in July 2005; those aged 45-64 in July 2006; and those aged 25-44 in July 2007.

The technical details of the analyses are provided in the full report. As our data relate to general practices, we discuss our findings in relation to Access and Interim practices. We also report separately on i) changes in the fees charged for general medical services provided by general practitioners (GPs) and nurses (i.e. services provided by nurses only, by GPs only or where both a GP and a nurse were seen by the patient), as well as for ii) services where a GP was seen by the patient (i.e. excluding nurse-only visits). Our focus is also on the actual fees charged to patients by general practices, whereas government policy has focused in particular on changes in scheduled fees, i.e. the fees that general practices set out in fee schedules to inform patients of standard charges for standard consultations.

Findings

As a result of the additional funding and the mechanisms used to implement the Strategy, we would expect that:

- increased funding will lead to a reduction in the fees patients pay when they use services, as the new funding is rolled out to PHOs
- new funding will lead to the development of new services, and
- New Zealanders will use more primary health care services as a result of the reduced cost of using services and as a result of the development of new services.

As many New Zealanders were already eligible for subsidies for primary health care services, those with the most to gain from the new funding are expected to be those who previously had not held a subsidy card. We would therefore expect fees for these New Zealanders to fall further, and for their consultation rates to increase more, than for those with CSCs and HUHCs.

It is also likely that a shift towards capitation will encourage greater use of nursing services, and this is also considered in this report. In addition, we hypothesise that a shift towards capitation for health services will encourage PHOs and practices, where they can, to shift some costs towards ACC, and that this would show up as an increase in the proportion of ACC claims over time.

We consider firstly changes in fees charged to patients, and secondly, changes in consultation rates over the past few years as new funding has been rolled out for primary health care in New Zealand. We then report on our findings relating to nurse visits, and finally, on the proportion of ACC claims over time.

Fees

Since the introduction of the PHCS, what changes have there been in the fees that patients pay when they use primary health care services? How are changes in fees related to government policy objectives?

In relation to doctor and nurse visits, we find that overall, across both Access and Interim practices, over the period from 2001/02 to 2004/05:

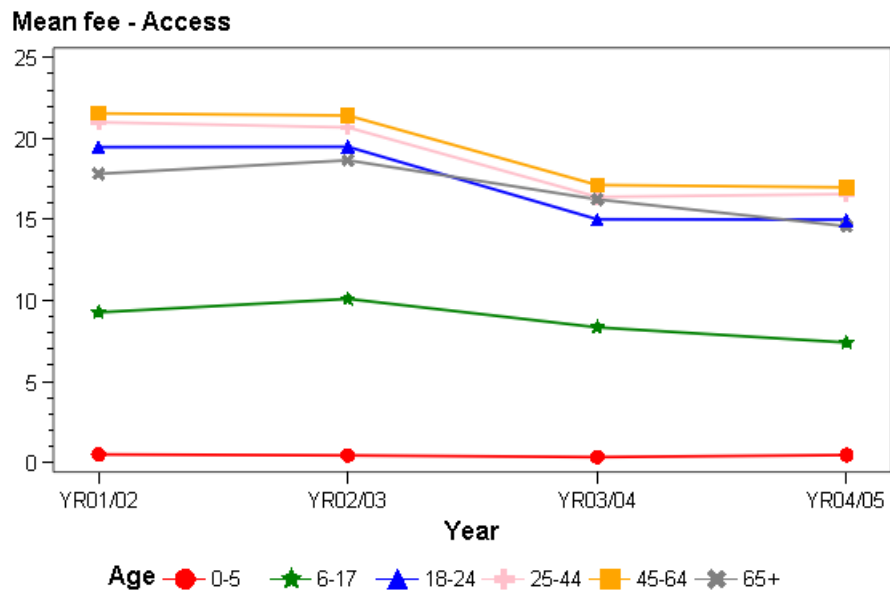
- Fees have been rising for children but the fees paid by other patients have fallen on average during the periods of time we expect them to fall and for the population groups which have benefited from new funding provided by the PHCS. Fees have fallen particularly for those aged 65 years and over.

However, because not all groups in the population have been eligible for the same increase in subsidies over time, and in order to understand the impact of increases in capitation payments on different population groups and to link the changes in fees to government policy, we need to break the data further, by funding model (Access or Interim) and by population group.

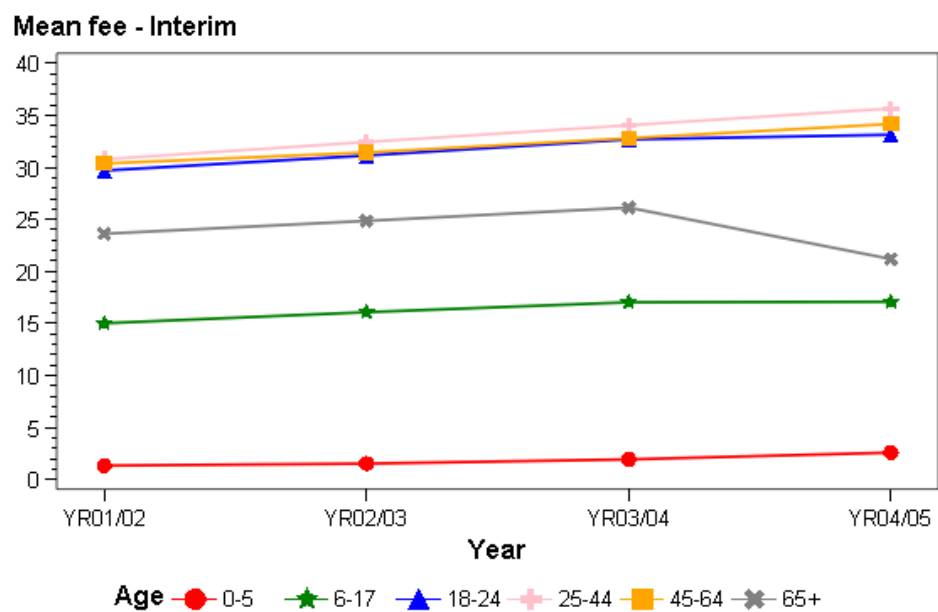
When we break the data down by funding model (see Figures i and ii and Table i below) we find that:

- In Access practices, across the entire study period, fees have fallen for all age groups. For those aged six years and under fees have fallen from an average of 50c per consultation in 2001/02 to an average of 46c in 2004/05, a fall of 4c per consultation (8%), with fees having risen in the last year of our study. For the other population groups, fees have fallen by between \$1.86 and \$4.57 per consultation, and by around 20%.
- In Interim practices, fees have risen for those aged six years and under. For those aged 6-17 years of age, fees rose slightly in the first and second years of the study, stabilising in the last year of the study, coinciding with the roll-out of new funding in October 2003. For those aged 18-64, fees have risen slightly in each year of the study. Fees rose slightly for the first two years of the study for those aged 65 years and over, before falling in the last year of the study as new funding was rolled out in July 2004. Fees averaged \$26.12 in 2003/04 prior to the roll out of new funding, falling to an average of \$21.18 in 2004/05 following the roll out, ie a fall of \$4.94 or 19%.

**Figure i Mean fees by age for all doctor and nurse encounters - Access practices
2001/02 – 2004/05**



**Figure ii Mean fees by age for doctor and nurse encounters – Interim practices
2001/02 – 2004/05**



**Table i Mean fees by funding model and age for doctor and nurse encounters
2001/02 – 2004/05**

Type	Age	2001/02	2002/03	2003/04	2004/05	Change 2001/02-2002/03	Change 2002/03-2003/04	Change 2003/04-2004/05	Change Whole Period 2001/02-2004/05
Access	0-5	0.50	0.44	0.33	0.46	-0.06 (-12%)	-0.11 (-25%)	0.13 (40%)	-0.04 (-8%)
	6-17	9.27	10.10	8.34	7.41	0.83 (9%)	-1.76 (-17%)	-0.93 (-11%)	-1.86 (-20%)
	18-24	19.47	19.49	15.02	15.00	0.02 (0%)	-4.47 (-23%)	-0.02 (0%)	-4.47 (-23%)
	25-44	21.01	20.69	16.40	16.57	-0.32 (-2%)	-4.29 (-21%)	0.17 (1%)	-4.44 (-21%)
	45-64	21.56	21.43	17.13	16.99	-0.13 (-1%)	-4.30 (-20%)	-0.14 (-1%)	-4.57 (-21%)
	65+	17.82	18.66	16.25	14.59	0.84 (5%)	-2.41 (-13%)	-1.66 (-10%)	-3.23 (-18%)
Interim	0-5	1.32	1.51	1.92	2.57	0.19 (15%)	0.41 (27%)	0.65 (34%)	1.25 (95%)
	6-17	15.01	16.07	17.02	17.07	1.06 (7%)	0.95 (6%)	0.05 (0%)	2.06 (14%)
	18-24	29.69	31.13	32.68	33.13	1.44 (5%)	1.55 (5%)	0.45 (1%)	3.44 (12%)
	25-44	30.77	32.43	34.04	35.66	1.66 (5%)	1.61 (5%)	1.62 (5%)	4.89 (16%)
	45-64	30.36	31.42	32.80	34.17	1.06 (3%)	1.38 (4%)	1.37 (4%)	3.81 (13%)
	65+	23.61	24.85	26.12	21.18	1.24 (5%)	1.27 (5%)	-4.94 (-19%)	-2.43 (-10%)

*All data are reported as \$ in this and following tables reporting on changes in fees. Percentage change is reported rounded to the nearest percent in this and all following tables.

When we break the data down further and consider the experiences of people with and without community services cards (CSCs) (determined by whether an individual as ever held a CSC), by different socio-economic circumstances and by ethnicity, we find that (see Table ii):

- In Access practices, within each age group, the data show that those with CSCs pay a lower average fee than those without cards; however, the larger falls in fees are occurring for those without CSCs, except for those aged six years and under where the falls in fees have been higher for those with CSCs.
- In Interim practices, within each age group, fees are also lower on average for those with cards than for those without cards. Fees are not rising as fast for children with cards as for those without cards and the increases in fees have been less for those without cards than for those with cards across the 6-64 year old age group. For those aged 65 years and over, fees have fallen further for those without community services cards.

Table ii Mean patient co-payments by funding model and CSC status
2001/02-2004/05

Funding Type	Age	C S C	2001/02	2002/03	2003/04	2004/05	Change 2001/02-2002/03	Change 2002/03-2003/04	Change 2003/04-2004/05	Change Whole Period 2001/02-2004/05
Access	0-5	N	0.74	0.66	0.49	0.7	-0.08 (-11%)	-0.17 (-26%)	0.21 (43%)	-0.04 (-5%)
		Y	0.37	0.32	0.25	0.33	-0.05 (-14%)	-0.07 (-22%)	0.08 (32%)	-0.04 (-11%)
	6-17	N	12.47	13.81	10.9	9.23	1.34 (11%)	-2.91 (-21%)	-1.67 (-15%)	-3.24 (-26%)
		Y	7.22	7.72	6.77	6.34	0.50 (7%)	-0.95 (-12%)	-0.43 (-6%)	-0.88 (-12%)
	18-24	N	23.2	24.6	17.44	17.09	1.40 (6%)	-7.16 (-29%)	-0.35 (-2%)	-6.11 (-26%)
		Y	17	16.57	13.6	13.85	-0.43 (-3%)	-2.97 (-18%)	0.25 (2%)	-3.15 (-19%)
	25-44	N	26.17	26.11	19.88	19.75	-0.06 (0%)	-6.23 (-24%)	-0.13 (-1%)	-6.42 (-25%)
		Y	15.93	15.57	13.24	13.91	-0.36 (-2%)	-2.33 (-15%)	0.67 (5%)	-2.02 (-13%)
	45-64	N	25.54	25.33	19.43	19.22	-0.21 (-1%)	-5.90 (-23%)	-0.21 (-1%)	-6.32 (-25%)
		Y	16.43	16.25	14.04	14.14	-0.18 (-1%)	-2.21 (-14%)	0.10 (1%)	-2.29 (-14%)
	65+	N	24.77	25	19.88	16.1	0.23 (1%)	-5.12 (-20%)	-3.78 (-19%)	-8.67 (-35%)
		Y	15.8	16.65	15.03	14.08	0.85 (5%)	-1.62 (-10%)	-0.95 (-6%)	-1.72 (-11%)
Interim	0-5	N	1.64	2	2.61	3.33	0.36 (22%)	0.61 (31%)	0.72 (28%)	1.69 (103%)
		Y	0.93	0.94	1.08	1.59	0.01 (1%)	0.14 (15%)	0.51 (47%)	0.66 (71%)
	6-17	N	16.95	18.26	19.06	18.75	1.31 (8%)	0.80 (4%)	-0.31 (-2%)	1.80 (11%)
		Y	12.5	13.26	14.43	14.91	0.76 (6%)	1.17 (9%)	0.48 (3%)	2.41 (19%)
	18-24	N	32.69	35.01	36.76	37.02	2.32 (7%)	1.75 (5%)	0.26 (1%)	4.33 (13%)
		Y	26.04	27.19	29.02	30.01	1.15 (4%)	1.83 (7%)	0.99 (3%)	3.97 (15%)
	25-44	N	33.95	35.99	37.51	39.08	2.04 (6%)	1.52 (4%)	1.57 (4%)	5.13 (15%)
		Y	24.42	25.52	27.5	29.44	1.10 (5%)	1.98 (8%)	1.94 (7%)	5.02 (21%)
	45-64	N	33.17	34.3	35.57	37.04	1.13 (3%)	1.27 (4%)	1.47 (4%)	3.87 (12%)
		Y	23.39	24.09	25.65	26.82	0.70 (3%)	1.56 (6%)	1.17 (5%)	3.43 (15%)
	65+	N	30.99	32.21	33.01	22.84	1.22 (4%)	0.80 (2%)	-10.17 (-31%)	-8.15 (-26%)
		Y	20.59	21.77	23.09	20.4	1.18 (6%)	1.32 (6%)	-2.69 (-12%)	-0.19 (-1%)

- In terms of changes in the average level of fees over time, in Access practices we see falls of between 4c for children with and without community services cards to falls of \$8.67 for those aged 65 years and over without community services cards. Percentage falls in fees range from 5% for children without community services cards, to between 11% and 26% for most other population groups, to 35% for those aged 65 years and over without community services cards. For doctor visits, we see similar patterns: in Access practices we see falls of between 8c for children with community services cards to falls of \$8.98 for those aged 65 years and over without community services cards. Percentage falls in fees range from 7% for those aged 65 years and over without community services cards, to between 11% and 27% for most other population groups, to 34% for those aged 65 years and over without community services cards.
- New funding was introduced for Interim practices in October 2003 for those aged 6-17 – with a \$5 increase in subsidy rates for those with CSCs and a \$10 increase in subsidy rates for those without CSCs. Although this policy relates to the scheduled fees for doctor only visits, we would expect to see a reduction in the fees actually charged to patients in our data (which covers both doctor and nurse visits). Average fees for those with CSCs rose slightly, while a slight fall in the average fees paid by those in this age group is noticeable between 2003/04 and 2004/05 for those without CSCs (where fees fell from an average \$19.06 to \$18.75; a fall of 31c or 2%). The fall in fees is more noticeable in Interim practices following the new subsidies introduced in July 2004 for those aged 65 years and over, with fees falling by an average of \$2.69 (12%) for those with CSCs and \$10.17 on average for those without cards (a fall of 31%) between 2003/04 and 2004/05. For doctor visits, average fees fell by \$12.23 or 33% for those without CSCs and by \$3.34 or 13% for those with CSCs. The government was seeking falls in schedule fees of around \$26 for those without CSCs and of \$11 for those with CSCs (including adjustments for inflation).
- In relation to deprivation, as measured by a deprivation index NZDep, the research shows that overall, fees are lower within each funding model for those in the more deprived communities. Reductions in fees are generally benefiting those in more deprived communities more than those in less deprived communities in Access practices. The pattern is more mixed in Interim practices.

- In relation to ethnicity, over the entire study period, average fees have reduced for Pacific patients by 12% and for Māori by 10%. Fees have increased slightly (by 3%) for the “Other” ethnic group (including New Zealand Europeans) and increased by 22% for Asian patients. Thus, changes in fees are benefiting Māori and Pacific ethnic groups by more than other ethnic groups, potentially reducing fees for two high needs groups relative to other groups in the population. This is likely to reflect the fact that Access practices have a higher proportion of Māori and Pacific people enrolled with them and it is these practices which have received new funding for all age groups over the study period. Asian populations have faced the highest increase in fees over time.

Consultations

Since the introduction of the PHCS, what changes have there been in the use of primary health care services by New Zealanders?

With an increase in funding available for primary health care services as a whole, and with many New Zealanders benefiting from reductions in fees, we would expect that consultation rates will increase as New Zealanders use more primary health care services. Certainly this is a key aim of the PHCS.

Across the population in our sample as a whole, we find that:

- The data show increases in consultation rates across all age groups over the 2001/02-2004/05 period, in particular amongst those aged 65 years of age and over, with an extra 1.68 consultations per annum (a 24% increase). The next highest increase is amongst those aged 45-64 years of age (0.73 consultations, a 17% increase), followed by those aged 0-5 years of age (0.65 consultations, a 14% increase). Lower increases occurred for those aged 18-24 (0.24, 11%), 25-44 (0.27, 10%) and 6-17 years of age (0.14, 7%).

When we break the data down by funding model we find that (see Figures iii and iv and Table iii below):

- The data show increases in consultation rates in Access practices across the entire study period. In these practices, greater increases in consultation rates have occurred amongst those aged 65 years and over (1.6 consultations, 22%); 18-24 (0.4 consultations, 22%); under six (0.8 consultations, 19%) and 45-64 years of age (0.8 consultations, 18%).

- In Interim practices, there has also been an overall increase in consultation rates across the entire study period, although the increases in percentage terms are lower in Interim practices for all age groups other than those aged 65 years and over, while being very close for those aged 45-64 years of age. The greatest increases in consultation rates is amongst those aged 65 years and over (1.7 consultations, 25%), 45-64 (0.7, 17%) and those aged under six (0.5, 11%).

Figure iii Mean consultation rates for doctor and nurse encounters - Access practices 2001/02-2004/05

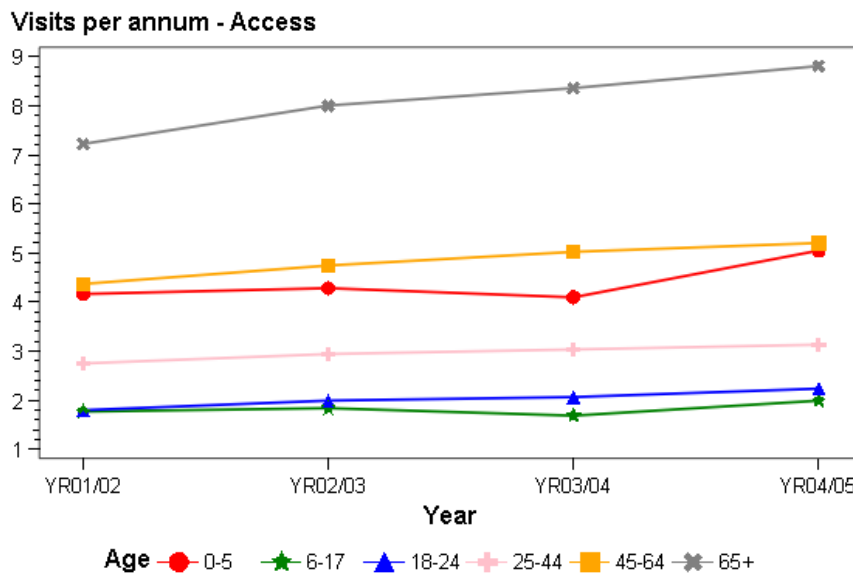


Figure iv Mean consultation rates for doctor and nurse encounters - Interim practices 2001/02-2004/05

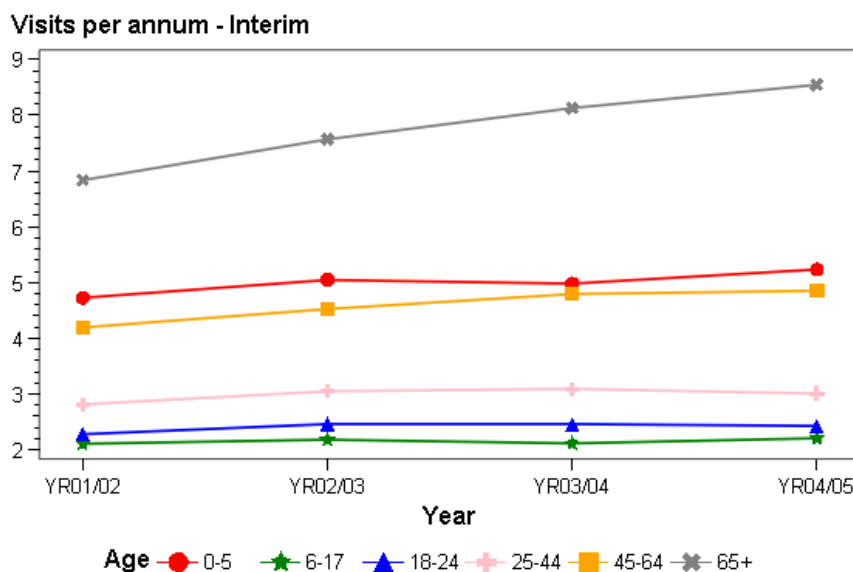


Table iii Mean consultation rates for doctor and nurse encounters by funding model and age – 2001/02-2004/05

Type	Age	2001/02	2002/03	2003/04	YR04/05	Change 01/02-02/03	Change 02/03-03/04	Change 03/04-04/05	Change 2001/02- 2004/05
Access	0-5	4.2	4.3	4.1	5.0	0.10 (2%)	-0.20 (-5%)	0.90 (22%)	0.80 (19%)
	6-17	1.8	1.8	1.7	2.0	0.00 (0%)	-0.10 (-6%)	0.30 (18%)	0.20 (11%)
	18-24	1.8	2.0	2.1	2.2	0.20 (11%)	0.10 (5%)	0.10 (5%)	0.40 (22%)
	25-44	2.7	2.9	3.0	3.1	0.20 (7%)	0.10 (3%)	0.10 (3%)	0.40 (15%)
	45-64	4.4	4.7	5.0	5.2	0.30 (7%)	0.30 (6%)	0.20 (4%)	0.80 (18%)
	65+	7.2	8.0	8.4	8.8	0.80 (11%)	0.40 (5%)	0.40 (5%)	1.60 (22%)
Interim	0-5	4.7	5.0	5.0	5.2	0.30 (6%)	0.00 (0%)	0.20 (4%)	0.50 (11%)
	6-17	2.1	2.2	2.1	2.2	0.10 (5%)	-0.10 (-5%)	0.10 (5%)	0.10 (5%)
	18-24	2.3	2.5	2.5	2.4	0.20 (9%)	0.00 (0%)	-0.10 (-4%)	0.10 (4%)
	25-44	2.8	3.1	3.1	3.0	0.30 (11%)	0.00 (0%)	-0.10 (-3%)	0.20 (7%)
	45-64	4.2	4.5	4.8	4.9	0.30 (7%)	0.30 (7%)	0.10 (2%)	0.70 (17%)
	65+	6.8	7.6	8.1	8.5	0.80 (12%)	0.50 (7%)	0.40 (5%)	1.70 (25%)

*All data are reported as numerical values in this and following tables reporting on changes in consultation rates. Percentage change is reported rounded to the nearest percent in this and all following tables.

When we break the data down further and consider the experiences of people with and without community services cards (CSCs) (determined by whether an individual as ever held a CSC) (see Table iv), on different socio-economic circumstances and by ethnicity, we find that:

- There are increases over the entire study period in consultation rates for all groups, except for those aged 18-24 in Interim practices and without CSCs.
- In Access practices, percentage increases in consultation rates are highest for those aged 0-5 without CSCs (41%), followed by those aged 65 and over (31%), 18-24 (28%) and 6-17 (25%) without CSCs. Within each age group, increases in consultation rates are higher for those without CSCs.
- In Interim practices, increases in consultation rates are highest for those in the older age groups (those aged 65 years and over without (28%) and with CSCs (26%) and those aged 45-64 without CSCs (22%)). Increases in consultation rates are slightly higher for those without CSCs than for those with CSCs for those aged 0-5 years of age, 6-17 years of age, and 65 years and over, while those with CSCs have had higher rates of increases than those without CSCs for those aged 18-64.

Table iv Mean consultation rates by funding model, age and CSC status
2001/02-2004/05

Funding Type	Age	CSC	2001/02	2002/03	2003/04	2004/05	Change 01/02-02/03	Change 02/03-03/04	Change 03/04-04/05	Change 2001/02-2004/05
Access	0-5	N	3.57	3.8	3.75	5.02	0.23 (6%)	-0.05 (-1%)	1.27 (34%)	1.45 (41%)
		Y	4.48	4.52	4.27	5.06	0.04 (1%)	-0.25 (-6%)	0.79 (19%)	0.58 (13%)
	6-17	N	1.44	1.52	1.42	1.8	0.08 (6%)	-0.10 (-7%)	0.38 (27%)	0.36 (25%)
		Y	1.99	2.05	1.85	2.1	0.06 (3%)	-0.20 (-10%)	0.25 (14%)	0.11 (6%)
	18-24	N	1.34	1.45	1.57	1.71	0.11 (8%)	0.12 (8%)	0.14 (9%)	0.37 (28%)
		Y	2.16	2.39	2.4	2.59	0.23 (11%)	0.01 (0%)	0.19 (8%)	0.43 (20%)
	25-44	N	2.18	2.31	2.36	2.47	0.13 (6%)	0.05 (2%)	0.11 (5%)	0.29 (13%)
		Y	3.39	3.61	3.7	3.77	0.22 (6%)	0.09 (2%)	0.07 (2%)	0.38 (11%)
	45-64	N	3.54	3.86	4.16	4.29	0.32 (9%)	0.30 (8%)	0.13 (3%)	0.75 (21%)
		Y	5.51	5.97	6.17	6.41	0.46 (8%)	0.20 (3%)	0.24 (4%)	0.90 (16%)
	65+	N	5.04	5.87	5.99	6.6	0.83 (16%)	0.12 (2%)	0.61 (10%)	1.56 (31%)
		Y	8.15	8.94	9.41	9.78	0.79 (10%)	0.47 (5%)	0.37 (4%)	1.63 (20%)
Interim	0-5	N	4.5	4.73	4.75	5.01	0.23 (5%)	0.02 (0%)	0.26 (5%)	0.51 (11%)
		Y	4.96	5.36	5.21	5.47	0.40 (8%)	-0.15 (-3%)	0.26 (5%)	0.51 (10%)
	6-17	N	1.86	1.89	1.84	1.98	0.03 (2%)	-0.05 (-3%)	0.14 (8%)	0.12 (6%)
		Y	2.38	2.51	2.43	2.46	0.13 (5%)	-0.08 (-3%)	0.03 (1%)	0.08 (3%)
	18-24	N	1.75	1.82	1.75	1.7	0.07 (4%)	-0.07 (-4%)	-0.05 (-3%)	-0.05 (-3%)
		Y	2.92	3.16	3.17	3.13	0.24 (8%)	0.01 (0%)	-0.04 (-1%)	0.21 (7%)
	25-44	N	2.36	2.53	2.54	2.46	0.17 (7%)	0.01 (0%)	-0.08 (-3%)	0.10 (4%)
		Y	3.72	4.05	4.15	4.03	0.33 (9%)	0.10 (2%)	-0.12 (-3%)	0.31 (8%)
	45-64	N	3.66	3.91	4.11	4.15	0.25 (7%)	0.20 (5%)	0.04 (1%)	0.49 (13%)
		Y	5.45	6.02	6.52	6.64	0.57 (10%)	0.50 (8%)	0.12 (2%)	1.19 (22%)
	65+	N	5.06	5.55	5.96	6.48	0.49 (10%)	0.41 (7%)	0.52 (9%)	1.42 (28%)
		Y	7.68	8.57	9.26	9.66	0.89 (12%)	0.69 (8%)	0.40 (4%)	1.98 (26%)

- In Access practices, increases in consultation rates are higher in lower socio-economic groups for those aged 6-17, 25-44, 45-64 and 65 years and over. The increase in visits to primary health care providers is higher amongst children from better off groups than for those from lower socio-economic groups while for those aged 18-24, both lower and higher socio-economic groups are benefiting from the PHCS.
- In Interim practices, increases in consultation rates are around the same for those aged 6-44 and those aged 65 years and over from both lower and higher socio-economic groups; with children in higher socio-economic increasing their use of services slightly more than children from lower socio-economic groups, and adults aged 45-64 from lower socio-economic groups increasing their consultation rates more than those from higher socio-economic groups.

- Consultation rates have increased for all ethnic groups. The increases are similar for Pacific, Māori, and “Other” (with 0.5, 0.6 and 0.6 more consultations on average per year, increases of around 16-18%). The smallest increase is amongst Asian populations (0.3 consultations on average per annum, or a 13% increase).

Nursing Services

Are more patients being seen by nurses?

As a result of changes in the reporting requirements, practices now need to record nursing visits. Although many will have been recording these visits accurately prior to the introduction of the PHCS, we cannot separate out from our findings an increase in the proportion of nursing visits over time from improved recording. We do, however, find an increase in the proportion of nursing visits over time. These analyses will be repeated in 2008 with data collected for a further year and we will explore the proportion of nursing visits at that time.

ACC

What changes are there in the pattern of ACC claims that GPs make, before and after the PHCS? Are more new ACC claims being made?

The proportion of ACC claims and the proportion of new ACC total claims does not show any change before and after the introduction of the PHCS. This suggests that practices are not shifting costs to ACC. Although they may have a financial incentive to shift costs to ACC, the increases in overall funding may be leading to improvements in revenue and income which are off-setting financial incentives to shift costs, or there are other disincentives to claiming from ACC which are also off-setting the increased incentives to claim on ACC. These other disincentives may include the paperwork requirements for an ACC claim versus a claim through capitation funding.

Conclusions

The overall goals of the PHCS are to improve health and to reduce inequalities. The government has introduced a number of new policies aimed at achieving these high level goals, including the introduction of new funding for primary health care, in part to enable reductions in fees that patients pay when they access services; the establishment of new organisations, PHOs, to manage the services for their enrolled populations; and the move from fee-for-service funding at the practitioner level to capitation funding of PHOs.

This is a second report from the Evaluation of the Implementation and Intermediate Outcomes of the Primary Health Care Strategy. It focuses on changes in the fees that patients are charged over time; changes in the use of services over time; changes in nursing consultation rates over time; and changes in ACC claims over time. The report does not directly measure health and inequalities; it is hoped that later work by the Evaluation team will explore issues relating to health and inequalities in more depth, focusing in particular on the impact of the Strategy on measurable intermediate outcomes.

This report shows that fees have generally fallen for the groups where new funding has been provided by government. In particular, fees have been falling for those in Access practices, and for those aged 65 years and over in Interim practices. Larger falls in fees are occurring for those without community services cards, as we might have expected. The one group where fees are rising is for children, who have not benefited from higher capitation rates (other than through adjustments in 2002 for the general level of inflation between 1997 and 2002 and through annual adjustments since 2002 to maintain the value of the subsidies).

We have also shown that the new funding is providing significant benefit for many New Zealanders given that we may have expected fees to have risen over the study period.

In terms of the roll out of new funding, the government aimed to have zero fees for children; fees of between \$7-\$10 for those aged 6-17 and fees of \$15-\$20 for adult consultations in Access practices, and, according to our analyses, other than for children, this is being achieved, both in terms of doctor and nurse consultations overall but also to consultations where a doctor is seen.

In terms of Interim practices, the data show that the roll out of new funding to those aged 6-17 lead to only a small reduction in the overall fees paid by those without cards and a small increase in fees paid by those with cards, although the increases in subsidies for this age group were less than for those in other age groups. Reductions in fees for those aged 65 years and over were much greater: in the year after the roll out, fees for doctor and nurse visits fell by an average of \$10.17 (31%) for those aged 65 years and over without cards and \$2.69 (12%) for those with cards. For doctor visits, average fees fell by \$12.23 or 33% for those without cards and by \$3.34 or 13% for those with cards. The government was seeking falls in schedule fees of around \$26 for those without cards and of \$11 for those with cards.

In terms of consultations, it appears that the government's aim of increasing consultation rates for primary health care is being achieved. There have been increases in consultation rates across almost all age, funding model, CSC, deprivation and ethnic groups. Increases have been particularly high in Access practices, especially for those without community services cards; and for those aged 65 years with and without community services cards and those aged 45-64 with community services cards in Interim practices. Consultation rates have increased for all ethnic groups, with similar increases for Pacific, Māori and Other ethnic groups, and smaller increases for Asian populations.

The overall increase in average consultation rates appears to be relatively small in terms of the number of consultations, but increases for some groups in the population are over 20% for some in Access practices. Increases in Interim practices are generally lower, as might be expected given that new funding has not been allocated to all groups in Interim practices, although increases in consultation rates in Interim practices have increased by more than 20% for those aged 45-64 without CSCs and for those aged 65 years and over without and with CSCs.

Overall, the Strategy is resulting in lower fees for primary health care for many New Zealanders, and consultation rates are also increasing over time. Further analyses of our data are required to identify the contribution of different factors to the changes we are seeing in our data, and in relation to identifying the implications for policies to reduce inequalities. These analyses will be undertaken as this evaluation progresses, including providing information on the impact on health (as measured by intermediate health outcomes) over time.

1. Introduction

Overview of the Primary Health Care Strategy Evaluation

In February 2001, the New Zealand government published the Primary Health Care Strategy (PHCS). The PHCS has two key goals – to improve health and to reduce inequalities in health. Implementation of the Strategy has involved three main changes in policy. First, government funding is being increased in order that the fees that patients pay when they use primary health care services can be reduced. Second, the Government is encouraging the development of Primary Health Organisations (PHOs) as local non-governmental organisations which each serve the needs of an enrolled population. Third, public funding of primary care is changing from fee-for-service subsidies at the practitioner level to capitation funding of PHOs.

The government has provided an additional \$2.2 billion in funding over the seven year period from 2002/03 for implementation of the Strategy, representing a major investment in primary care. The two first PHOs were established in July 2002; by the end of 2005, there were 81 PHOs in existence, covering 3.9 million New Zealanders.

The Health Research Council, Ministry of Health and Accident Compensation Corporation (ACC) have jointly funded an 'Evaluation of the Implementation and Intermediate Outcomes of the Strategy'. The Evaluation is being undertaken by a research team led by the Health Services Research Centre, Victoria University of Wellington and CBG Health Research (Auckland). The main objectives of the evaluation, with consideration to both health and injury-related services, are to:

- describe the implementation of Primary Health Care Strategy with a specific focus on PHOs
- evaluate the implementation of PHOs against the objectives of the Strategy
- analyse the net costs of the Strategy at the national and the PHO level, and the extent to which expenditure changes over time, by population group and service type
- identify positive and negative influences on PHO achievement and to identify the critical success factors for delivery of effective, accessible primary health care, and
- disseminate the results from the evaluation to government agencies, DHBs, PHOs, and other Primary Care Organisations.

The evaluation aims to:

- reach an in-depth understanding of the experience and activities of PHOs and their member providers in responding to the PHCS
- measure change in programmes, processes and intermediate health outcomes during the adoption and implementation of the PHCS, and
- assess the impact of the Strategy on reducing health inequalities between Māori, Pacific peoples, the socio-economically disadvantaged and other population groups.

The Evaluation is a complex project, involving both qualitative and quantitative methods. The qualitative research is assessing how implementation of the Strategy is progressing and what progress is being made towards meeting the goals of the Strategy. The quantitative analyses are measuring changes in the fees patients pay when they use primary health care services, changes in the use of services, and changes in intermediate health outcomes, before and after the introduction of the Strategy.

The research uses four main data sources – key informant interviews with PHO and practice staff and a range of national stakeholders; a postal questionnaire to all PHOs and general practices and a sample of practice staff; quantitative data on patient characteristics, fees and utilisation of services from a sample of general practices; and quantitative data from national data sources (for example, the national minimum data set held by the New Zealand Health Information Service) – and will provide both qualitative and quantitative assessments of the implementation and intermediate outcomes associated with the PHCS.

Evaluation Progress

A first report from the evaluation team covered the period from October 2003 to October 2004 (Cumming, Raymont et al. 2005). It reported on interviews undertaken with a sample of PHO and practice staff and those working in key stakeholder organisations. Since then, the research team has completed a further round of interviews, and has distributed a postal questionnaire to all PHOs and practices and a sample of practice staff, to quantify the extent to which experiences reported in the qualitative interviews are experienced across PHOs and practices nationally. In addition, we have also undertaken preliminary quantitative analyses using practice data, focusing on changes in fees and utilisation of services.

Results from the Evaluation are being presented as a series of reports, with the aim that results are available to policy makers and other stakeholders as soon as possible after data collection is complete for each phase of the research. This report sets out the findings from the quantitative analyses using data collected from a sample of New Zealand general practices, focusing on changes in the fees patients pay when they use general practice services and on utilisation of general practice services.

Later reports will link the findings from these quantitative analyses to findings from the key informant interviews and postal survey, and assess the impact of the PHCS on intermediate health outcomes. Separate reports will cover the experiences of Māori and Pacific peoples as a result of the PHCS and the experiences of Māori-led and Pacific-led PHOs.

This Evaluation of the PHCS is one of a number of evaluations being funded to research how key aspects of the PHCS are working to improve health and to reduce inequalities in New Zealand. Reports on other evaluations are available on the Ministry of Health website¹.

Scope of this Report

This report addresses a series of specific questions about the fees paid by New Zealanders when using general practice services and about use of general practice services. The research is focused on the period between June 2001 and December 2005, and seeks to answer the following questions:

- Since the introduction of the PHCS, what changes have there been in the fees that patients pay when they use primary health care? How are changes in fees related to government policy objectives?
- Since the introduction of the PHCS, what changes have there been in the use of primary health care services by New Zealanders?
- Are more patients being seen by nurses?
- What changes are there in the pattern of ACC claims made by general practices, before and after the PHCS? Are more new ACC claims being made?

These questions are examined for different population groups and funding models.

¹ See <http://www.moh.govt.nz/primaryhealthcare>

The structure of this report is as follows:

- Section 2 discusses the Primary Health Care Strategy and its implementation over the past five years.
- Section 3 describes the Evaluation of the Primary Health Care Strategy – Practice Data Analyses.
- Section 4 describes the research design for this aspect of the Evaluation.
- Section 5 sets out the Results from the research, focusing on changes in the fees that patients pay when they use general practice services; changes in the use of services; changes in the proportion of nursing consultations; and changes in the proportion of ACC claims, since the introduction of the Primary Health Care Strategy.
- Section 6 provides a Discussion on the results.
- Section 7 sets out our overall Conclusions from the research.
- Section 8 sets out the References in the report.

A number of Appendices are also included in this report:

- Appendix 1 provides detail on the power analysis which determined the sample size required for the research.
- Appendix 2 provides detail on the sample of practices used in these analyses.

2. The Primary Health Care Strategy

The Primary Health Care Strategy (PHCS) was introduced in February 2001. The PHCS aims to improve the health of New Zealanders and to reduce inequalities in health. Implementation has involved three major policy changes.

A first important change has seen a significant increase in the funding provided to support primary health care in New Zealand. The Strategy notes that there have been longstanding barriers which have made it difficult for some New Zealanders to access primary health care services and the government has committed itself to reducing cost barriers in particular by providing additional funding to support improved access to primary health care services. How this has worked in practice is discussed in more detail below.

A second important aspect of the Strategy is the development of Primary Health Organisations (PHOs). PHOs are:

- Funded by district health boards (DHBs) for the provision of essential primary health care services to an enrolled population.
- Required to develop services that will be directed towards improving and maintaining the health of the population as well as providing first-line services to those who are unwell.
- Required to involve their communities in their governing processes and be responsive to community needs.
- Required to involve all providers and practitioners in influencing decision-making.
- Required to be not-for-profit.
- Funded on a capitation basis (King 2001).

New Zealanders are encouraged to enrol with PHOs via their usual primary health care provider, but they can continue to choose not to enrol and they continue to have a choice over where they receive primary health care services. Likewise, practitioners can choose to affiliate with a PHO or not. However, those people or practitioners who remain outside the PHO system cannot access any of the new public funding for primary health care; thus there is a strong incentive for both to participate in the new arrangements.

A third change is the move to capitation payments for PHOs. One key rationale for moving to capitation is to reduce inequalities by ensuring that PHOs are funded according to the needs of population they are serving, rather than to the number of services being delivered (King 2001). A move to capitation is also considered important in encouraging multi-disciplinary, team approaches to care (including increasing the role of nursing in primary health care), and in promoting a focus on wellness as opposed to sickness (National Advisory Committee on Health and Disability 2000). Although the policy results in PHOs being paid by capitation, how PHOs pay practices and practitioners is left up to PHOs, practice owners and managers and practitioners to decide. With many of those using primary health care services still also paying a contribution to the cost of services through user charges, practices continue to receive funding from both public and private sources, and through a mix of payment types.

The Strategy also seeks to support the development of services by Māori and Pacific providers, and to facilitate transition to widespread patient enrolment with PHOs through a public information and education campaign (King 2001).

Implementation of the Primary Health Care Strategy

The shift from targeting to a universal approach

Prior to the introduction of the PHCS, the New Zealand government partially subsidised (funded) access to primary health care, with different subsidy rates available for different population groups. Access to subsidised care was provided for all children under six years of age. For other age groups, subsidised care was available to those families with community services cards (CSCs), a subsidy card available to those on lower incomes, and to those individuals with a high user health card (HUHC), available to those who had an on-going health condition, and who had visited the GP 12 or more times in the previous 12 months². The following arrangements applied in 2002:

- All children under six years of age received a subsidy of \$32.50 for each consultation and free prescriptions.
- For those with a CSC or a HUHC, those aged 6-17 received a subsidy of \$20 for each consultation and paid \$3 per prescription compared to non-card-holders who received a subsidy of \$15 per general practice consultation and paid \$10 per prescription item.

² See <http://www.maorihealth.govt.nz/moh.nsf/indexmh/phcs-funding-huhc>

- For those with a CSC or a HUHC, adults received a subsidy of \$15 for each consultation compared with non-card-holders who paid the full cost of general practice visits themselves, while card-holders paid only \$3 per prescription item compared to non-card-holders who paid \$15 per item³.

In most cases, people with subsidy cards also paid a fee to the primary health care provider, while adults without cards paid the full cost of general practice services themselves.

The PHCS signals a move away from the targeted approach, where the government only provides funding to support primary health care for some groups in the population, to a universal approach, where all New Zealanders are eligible for government funding for primary health care.

In order to move towards a universal approach and at the same time to ensure new funding set aside for the PHCS went to those most in need, the government chose, at first, to create two forms of funding – known as Access and Interim funding.

At first, Access PHOs or practices received a higher per capita rate per enrollee than Interim PHOs or practices⁴. Access PHOs were defined as those where the PHO had more than 50% of its enrolled population identifying as Māori or Pacific, or from lower socio-economic areas (as measured by a deprivation index (Crampton, Salmond et al. 2004)). Funding was targeted towards PHOs with a majority of its enrollees in these population groups on the grounds that they have poorer health status on average and higher needs than other New Zealanders (Ministry of Health 1999; Ministry of Health 2004b; Raymont 2004). The main reason for providing this new funding was to reduce the payments that patients pay when accessing primary health care. Access PHOs received their new funding as they became established. The first Access PHOs were established in July 2002.

Access PHOs also had access to new forms of funding for 'services to improve access' (SIA), to support management services, and for health promotion services. Before receiving the SIA and health promotion funding, PHOs must submit proposals as to how the additional funding will be used, and have these approved by their DHB. SIA and health promotion funding is also paid on a capitated basis, with higher rates for those individuals enrolled with the PHO who identify as Māori or Pacific, or from lower socio-economic areas. Management fees are also on a capitated basis, with slightly higher rates per enrollee for smaller and medium sized PHOs.

³ Although when the medicines themselves are only partly subsidised there would be additional charges. See <http://www.maorihealth.govt.nz/moh.nsf/indexmh/phcs-funding-csc>

⁴ Although the policies related to both PHOs and practices, we use 'Access PHOs' and 'Interim PHOs' as shorthand for 'Access PHOs/practices' and 'Interim PHOs/practices' respectively.

The first Interim PHOs were established in October 2002. At first, they were funded at lower capitation rates than Access PHOs. Since 2003, the government has provided further funding, increasing the capitation payment rates to Interim PHOs to the rates paid for those in Access PHOs. New funding was provided to Interim PHOs to reduce fees, for those aged 6-17 years of age (from 1 October 2003), those aged 65 and over (from 1 July 2004), those aged 18-24 (from 1 July 2005), those aged 45-64 (from 1 July 2006), and those aged 25-44 (from 1 July 2007). Interim PHOs were also eligible for the SIA, management, and health promotion funding, funded in the same way (and at the same capitation rates) as for Access PHOs.

In addition, all those eligible for the new, higher subsidy levels also became eligible for cheaper pharmaceutical services – with part charges for fully subsidised items falling to \$3 per prescription item.

In October 2006, a further change was made to the funding levels for PHOs, such that all those PHOs offering very low cost access (ie very low fees) became eligible for even higher levels of subsidies. At October 2006, this required zero fees for children under 6 years; \$10 maximum for children 6 -17 years and \$15 maximum for all adults 18 years and over. Additional funding was provided to very low cost access practices from a July 2007, with the aim of keeping child visits free, visits for those aged 6-17 at no more than \$10.50 and adult fees at a maximum of \$15.50 (Hodgson 2007).

As a result, all New Zealanders – regardless of the type of PHO they are in – are now subsidised at a higher level for primary care. Since July 2007, differences in the funding between Access and Interim PHOs no longer exist. However, higher capitation payments continue to be paid for health promotion and SIA services for people from lower socio-economic areas and for Māori and Pacific populations, as well as for those receiving services from ‘very low cost access’ practices⁵. Capitation payments are also now annually adjusted to maintain the value of the subsidies over time.

⁵ Details on the capitation rates are available on the Ministry of Health website, www.moh.govt.nz/primaryhealthcare

A number of other funding sources are also available for primary health care in New Zealand. In response to concerns that some New Zealanders with high needs not in Access PHOs might continue to miss out on higher subsidies while the new funding was rolled out, a separate funding arrangement has been established for those with chronic illnesses. Called Care Plus, this funding is targeted towards individuals who need to visit their GP or family nurse often, due to significant chronic illnesses or a terminal illness. Additional funding is also available to support rural practice, while the government is also introducing a performance management programme and funding to support clinical governance and continuous quality improvement in primary health care in New Zealand. Some PHOs have also had access to funding to support programmes to reduce inequalities, to promote innovations in nursing services, and to promote innovations in primary mental health care services⁶.

Further changes in funding are due for implementation from January 2008, when capitation payments for visits for children will be increased by \$6 to \$45.70 where PHOs and practices do not charge patients for child visits (Hodgson 2007).

Overall, the government has committed an additional \$2.2 billion over seven years from 2002/03 for implementation of the Strategy. This is a significant injection of funding for primary health care, providing around \$300 million additional new funding per annum on top of an annual spend on general practitioner services of about \$337 million in 2002/03 (Ministry of Health 2004a).

Potential impact of the Strategy

These reforms represent major changes in the way in which health care is funded and organised, in order to promote a new approach to primary health care access and service delivery in New Zealand. The focus on primary health care reflects its important role in the health care system, with most formal care provision occurring at this level (Green, Fryer et al. 2001). The changes also reflect the attention being paid to primary health care in international health policy (World Health Organisation 1978; World Health Assembly 2003). Primary health care reform is currently occurring in a number of countries, including the United Kingdom and Canada (Sibbald, Sheaff et al. 2004; Wilson, Shortt et al. 2004).

⁶ Detailed information on each funding source is available at www.moh.govt.nz/primaryhealthcare

In general, New Zealand evidence supports the need for additional resources to encourage greater use of primary health care services. New Zealand research has consistently shown significant inequities in access to and use of services (Ministry of Health 1999; Ministry of Health 2004b; Raymont 2004). The latest New Zealand Health Survey, for example, show variations in the utilisation of a range of services by age, gender and ethnicity, socio-economic status and health status (Ministry of Health 2004b). Descriptive analyses of health services utilisation data show a higher number of GP visits for those on low-to-medium incomes than those on medium-high or high incomes, for those in more highly deprived areas, for those who are older, and for those with poorer health status. Those in the more highly deprived areas, those on low-medium incomes, young people aged under 25 years of age and adults aged 25-44 year of age, Asian, Māori and Pacific peoples, those who use more services, and those in poorer health, are more also likely than other New Zealanders to forego visits as a result of the cost of primary health care (Raymont 2004). It has been argued that these population groups are not sufficiently using primary health care services given their higher levels of health need, and that this may result in inappropriate use of secondary care (hospital) services (Coster and Gribben 1999; Crengle 1999; Tukiotonga 1999; King 2000).

A number of studies have particularly focused on differences between Māori and non-Māori utilisation of health services (Davis 1986; Davis 1987a; Davis 1987b; Pomare, Keefe-Ormsby et al. 1995; Westbrooke, Baxter et al. 2001; Ministry of Health 2004b; Ministry of Health 2006). Overall, the results suggest that in many cases Māori have less access to primary health care, relative to the whole population, particularly when proxies for need (eg, mortality, hospital discharges) are taken into account. Poor access to primary health care for Māori is considered a key factor in higher than desirable rates of illness and hospitalisations among Māori, in generating poorer health outcomes for Māori and in relation to inequalities in health in NZ (Pomare, Keefe-Ormsby et al. 1995; Ministry of Health 2006). A variety of explanations have been put forward to explain differences in access, including cost, location, transport, attitudes of doctors, acceptability of the service, and knowledge of the importance of care (Pomare, Keefe-Ormsby et al. 1995; Crengle 1999).

There is also research available on Pacific peoples' experiences of health services (Tukiotonga 1999) (Bassett and Holt 2002). Recent quantitative research shows that Pacific peoples living in New Zealand generally have poorer health status than other New Zealanders; are more exposed to risk factors for poor health, and experience barriers in accessing health services (Pacific Health Research Centre 2003; Ministry of Health and Ministry of Pacific Island Affairs 2004). In relation to primary health care, Pacific peoples have been found to have similar experiences to other New Zealander in relation to having a usual carer (Ministry of Health and Ministry of Pacific Island Affairs 2004) and visiting a doctor in the previous year (Ministry of Health and Ministry of Pacific Island Affairs 2004), but there are mixed findings in relation to the number of visits Pacific peoples make to primary health care

compared with other New Zealanders (Ministry of Health and Ministry of Pacific Island Affairs 2004; Davis, Suaalii-Sauni et al. 2005). It has been suggested that the use of conventional providers does not appear to be proportionate to the need for Pacific peoples, and there is evidence of lower rates of some types of preventive care for Pacific peoples and of higher levels of unmet needs amongst Pacific communities, (Ministry of Health and Ministry of Pacific Island Affairs 2004; Davis, Suaalii-Sauni et al. 2005) and GPs have reported less rapport with Pacific peoples (Davis, Suaalii-Sauni et al. 2005). Pacific people have high rates of registration with PHOs, suggesting the potential for primary health care to improve its performance in terms of meeting the needs of Pacific peoples (Ministry of Health and Ministry of Pacific Island Affairs 2004).

International research also supports the focus that New Zealand is now taking in relation to primary health care. Starfield, for example, finds lower costs and better health outcomes (most notably in infancy and childhood) that are attributable to primary health care in countries with stronger primary health care systems (Starfield 1994; Starfield 1998). More recent and technically sophisticated studies, controlling for a range of health and socio-economic factors (Starfield 2004), have confirmed these associations for all cause mortality, life expectancy, infant mortality, potential years of life lost for all causes, pneumonia, influenza, asthma and bronchitis, cerebrovascular disease, heart disease amongst males and for all categories of potential years of life lost for females. The analyses showed the consistency of these relationships over time, from 1970 to 1998 (Macinko, Starfield et al. 2003). There is also evidence that better primary health care resourcing is associated with lower levels of social inequity, although there is very little research on this topic (Starfield 2004).

The international literature also provides us with an indication of changes which may occur as a result of reducing the charges that New Zealanders have to pay when using primary health care services. The literature suggests that although cost sharing can help to control expenditures by reducing utilisation of services (Rice and Morrison 1994), it has also been shown to discourage the use of appropriate and inappropriate care roughly equally (Lohr, Brook et al. 1986), especially for primary and preventive services as opposed to more costly hospital services, and particularly amongst those on lower incomes (Rice and Morrison 1994).

There is evidence from other universal comprehensive public systems that use of health services and expenditure on health care are strongly related to poor health status (associated with lower socioeconomic status) while most people make little use of health care (Roos, Forget et al. 2004). However, the literature suggests that it is likely that the lower user charges introduced in New Zealand as a result of the PHCS will, all other things being equal⁷, result in an increased demand for (and use of) services. Although the impact of lower charges on health status is less clear, there are indications that lower charges can benefit health status by encouraging visits that enable more preventive checks to be made, for example, for high blood pressure, prevention of communicable diseases, and other disease screening, again especially for those on low incomes (Rice and Morrison 1994).

Many of the above conclusions, however, are based on the findings from cross-sectional studies, and while cross-sectional studies tell us about the possible reasons for differences in access and utilisation, they cannot tell us how access and utilisation change when fees change. Very few studies have been undertaken that inform us as to the impact of changes in fees (Roos, Forget et al. 2004). International studies have shown reductions in demand with the introduction of co-payments (Scitovsky and Sneider 1972; Beck 1974; Scitovsky and McCall 1977; Beck and Horne 1980; Scheffler 1984; Cherkin, Grothaus et al. 1989; Cherkin, Grothaus et al. 1990; Cherkin, Grothaus et al. 1992) – and in some studies it was found that physician office visits fell while hospitalisations increased (Roemer, Hopkins et al. 1975; Helms, Newhouse et al. 1978) – although the findings from some of these studies need to be viewed cautiously due to problems with data (Rice and Morrison 1994). In Saskatchewan, use of primary medical services fell by around 6-7% when fees were introduced; when free health care was reintroduced in Saskatchewan in 1971, the use of services then returned to its predicted trend value (Richardson 1991). Other studies have shown an increase in the number of visits by the poorest groups, upon the introduction of the United Kingdom National Health Service (Stewart and Enterline 1961), and upon the introduction of Canadian Medicare to Quebec in 1970 (Enterline, Salter et al. 1973). Interestingly, both studies also showed a drop in visits for the relatively well off.

⁷ A number of factors may determine whether or not use of services increases. In particular, if New Zealanders seek to use more services because the costs of care are cheaper, service use can only increase if service providers are able to provide more services. It is possible that providers do not have more time to provide services or that there are shortages of qualified staff available to increase the provision of services. This may be a particular problem in the short term, until additional staff become available. There may also be other constraints in the system as well; for example, a lack of space in buildings where services are delivered may also constrain providers' ability to deliver more services.

Two New Zealand studies have researched changes in utilisation of services following changes in user charges. The WaiMedCa study enabled researchers to explore changes resulting from the redesign of the user charge regime in New Zealand in 1992, with falls in utilisation of services following reductions in charges for community services card-holding groups – the counterintuitive result arising possibly from the negative publicity associated with the changes, the possibility that fees charged did not in fact fall as far as the subsidy changes might have allowed, access to private health insurance and, more speculatively, from problems in accessing the community services card required to access cheaper care (Davis, Gribben et al. 1994). An evaluation of the introduction of ‘free’ care for the under-sixes introduced in New Zealand in 1997 found that more children under six appeared to consult a GP following the introduction of the scheme, and that this may have reduced hospital use, in particular in relation to acute respiratory illnesses. However the data available were inadequate to evaluate the scheme fully (Dovey and Tilyard n.d.).

3. Evaluation of the Primary Health Care Strategy – Practice Data Analyses

The quantitative evaluation presented in this report has been designed to identify the impact of the PHCS on the fees people pay when they use primary health care services and on the use of services, and to explore how these have changed for different groups in the New Zealand population over time. As a result of the additional funding and the mechanisms used to implement the Strategy, we expect that:

- increased funding will lead to a reduction in the fees patients pay when they use services, as the new funding is rolled out to PHOs
- new funding will lead to the development of new services, and
- New Zealanders will use more primary health care services as a result of the reduced cost of using services and as a result of the development of new services.

It is also likely that a shift towards capitation will encourage greater use of nursing services, and this is also considered in this report.

In addition, this research is focused on a number of issues relating to claims for injury services funded by the Accident Compensation Corporation (ACC). ACC separately funds primary health care providers, including general practices, for services relating to injuries. With a shift towards capitation of primary health care services for non-injury related services, and hence a greater degree of capping and control over the total revenues and incomes that practices can earn from non-injury related services, there are increased incentives to shift costs from non-injury related services towards other services which remain outside the capitation formula. The most significant of these is ACC (although the same incentives arise for laboratory costs, pharmaceuticals and referrals into secondary care). We hypothesise that a shift towards capitation for health services will encourage PHOs and practices, where they can, to shift some costs towards ACC, and that this would show up as an increase in the proportion of ACC claims over time.

This report is focused on experiences during the period from June 2001 until December 2005. It therefore provides data on fees and use of services covered by:

- the year before the first PHO was established in July 2002
- the roll out of new funding for Access PHOs as they were established after July 2002
- the roll out of new funding to Interim PHOs as they were established, and
- the roll out of new funding to Interim PHOs, for those aged 6-17 in October 2003 and those aged 65 years in July 2004.

The data set we are using here has data until December 2005; however, this report does not provide analyses of the introduction of new funding to Interim PHOs for those aged 18-24 in July 2005, as this would allow only for six months of data collection beyond the roll out of new funding. Later reports will also focus on the later roll outs of funding to Interim PHOs for those aged 45-64 in July 2006; and those aged 25-44 in July 2007.

This report particularly focuses on the fees charged and consultation rates for primary health care visits provided by general practitioners (GPs) and nurses. The reason for this focus is that the PHCS is aiming to improve access to primary health care services generally (as opposed to GP services only), and it is expected that nurses will play an increasing role in service delivery over time. We also provide some separate analyses of the changes over time in the fees charged for visits where a GP is seen by a patient, as government policy settings have focused in particular on the fees charged for services provided by a GP. Although government policies have specifically focused on the fees charged for GP services, we do expect to see reductions in the average fees charged over time for GP and nurse visits, particularly as the largest proportion of visits are visits where a GP is seen by a patient (see Section 5, below). Our data, however, relate to the fees actually charged by primary health care service providers whereas government policy has focused on reducing the scheduled fees advertised to New Zealanders when they visit a primary health care provider. This distinction needs to be kept in mind in interpreting the results set out below.

The Analysis of Data from General Practices

Our original research plan involved collecting quantitative data from a sample of general practices working with a purposeful sample of the PHOs which participated in the qualitative research stream. This information would have been supplemented by national, routine data collection on use of services (such as consultation rates, by ethnicity and age groups). However, there have been considerable delays in the implementation of this routine collection of national data from PHOs, and, as a result, the evaluation team has not been able to access national historical data with which to measure the impact of the PHCS on the use of primary health care services. To provide this information, the research methodology was amended to include the collection of practice data from a national, random sample of general practices. This new methodology involved collecting data from 100 randomly selected general practices working with PHOs⁸.

The data sources we are using here – data supplied by general practices – have some limitations in assessing the impact of the PHCS on fees and use of services. The focus is on general medical services consultations – we have excluded consultations for maternity services and for immunisation services, which are funded differently from general medical services, and we report separately on ACC consultations. The data are focused on consultations provided by GPs and nurses, and the data cannot tell us about consultations provided by other practitioners (eg, community health workers). The data can also only tell us about the number of nursing consultations recorded over time and it is likely that new requirements from the Ministry of Health to report nursing consultations separately means that any increase in nursing services that we see may be related to improved recording as opposed to a real change in service delivery patterns. The general practice data systems may also miss new activities undertaken by PHOs (which are not covered in this data set) and by practices not recording some new activities, although we will learn about these from our qualitative and survey research, on which we will report later.

⁸ The small number of practices which remain outside of PHOs have not been included in the sample, as they now represent a seriously biased, unusual and shrinking group. It is estimated that these practices now provide care to less than 5% of the New Zealand population.

Evaluation Frameworks

This Evaluation has of necessity been developed as a before-and-after evaluation, and we have no means of knowing how fees and use of services would have changed in the absence of the PHCS. We can, however, refer to some research which might tell us how fees paid by patients might have changed over this time period, and we have done this later in this report.

A final key challenge relates to how we assess the impact of the PHCS given that new funding has been allocated to different groups in the population at different points in time. We therefore need to separate our analyses by population group and to consider when new funding was allocated to different parts of the sector, in order to better understand the impact of the Strategy on fees and use of services. The key issues are as follows:

- All enrollees in Access PHOs became eligible for higher subsidies and new funding at the time that they were established. Access PHOs were established at different points in time over the last few years.
- Enrollees in Interim PHOs became eligible for some new funding (eg, health promotion, SIA and management funding) as they were established. These PHOs were also established at different points in time over the last few years.
- Additional funding to bring the subsidies paid to Interim PHOs to Access capitation levels was rolled out in waves, by population group, at the following times, during the June 2001 to December 2005 period covered by this study:
 - 1 October 2003 – those aged 6-17 years of age
 - 1 July 2004 – those aged 65 and over.
- It is important also to remember that there will have been greater changes in the subsidy payments being made to those people who previously did not have a subsidy card, as those with cards were already eligible for higher subsidies prior to the introduction of the PHCS.

- In evaluating the implementation and impact of the PHCS, we also need to consider the impact of specific operational policies introduced by government as new funding has been rolled out to PHOs. For all those aged six years and under, subsidies increased from \$32.50 to \$35 in 2002 to adjust for inflation over the 1997 to 2002 period (King 2002). For those aged 6-17 years of age, subsidies increased from \$20 to \$25 for those holding subsidy cards and from \$15 to \$25 for those not holding these cards. For adults with cards, subsidies were increased from \$15 per consultation to \$25 per consultation; while for those without cards, subsidies increased from \$0 to \$25 per consultation (excluding any annual adjustments for inflation which also commenced in 2002).
- In addition, the following specific operational policies were used for each of the roll-outs of new funding, relating to how the new funding would be used to reduce the fees that patients pay when they use primary health care services. A fees review policy was also established to review fees where this was felt necessary by a DHB (King 2003).
- Access PHOs – As funding was rolled out to Access PHOs, the government noted that it expected that ‘enrolled patients will have access to low or reduced cost primary health services’ and that there should be ‘certainty that the increased payments...will be reflected in low or reduced costs to patients’. It was recognised that fees needed to be ‘fair to the providers and reasonable for the patients’ (King 2003). In practice, this policy was implemented through discussions between Ministry of Health officials, DHB staff and PHO staff. These discussions focused on the usual fees charged within specific communities, as well as a view that a ‘low’ fee is generally a zero fee for those aged six years and under; \$7-\$10 for those aged 6-17; and \$15-\$20 for adults (personal communication, Ministry of Health).
- Interim PHOs – New roll outs of funding for Interim PHOs occurred at the following times covered by this study:
 - 1 October 2003 – those aged 6-17 years of age
 - 1 July 2004 – those aged 65 and over.
- For the roll out of new funding for those aged 6-17 years of age, a similar policy to that in place for Access PHOs applied (personal communication, Ministry of Health). Subsidies increased from \$20 to \$25 for those with subsidy cards and from \$15 to \$25 for those without subsidy cards (Ministry of Health 2003).

- Templates were developed for DHBs relating to the roll out of funding for those aged 65 years and over. The templates discuss 'low or reduced patient fees for groups that receive higher levels of funding', and suggest that 'PHOs must demonstrate "how the fees have been informed by the currently known level of fees in the region, and how increased subsidy payments translate into low or reduced costs to patients, being both fair and reasonable to patients and providers". Thus, for the July 2004 roll out, it was expected that PHOs would reduce their charges for those people without subsidy cards by \$26 (ie the original 2002 \$25 capitation payment plus annual adjustments for inflation) and by \$11 for those with a card. It was suggested that where the proposed fees are a \$26 or a \$11 reduction, then this would indicate how increased fees have translated into low or reduced costs, and that no further discussion would be needed between DHBs and PHOs. It was also noted that there should no longer be a differentiation between fees for those with CSCs and those without CSCs.
- More specific guidelines were developed for the roll outs from 1 July 2005 onwards (Ministry of Health 2005). The guidelines noted that PHOs were to 'ensure that those increased subsidy payments will result in low or reduced fees'. For the roll out in July 2005, where agreement was reached between DHBs and PHOs and notified fees represent low or reduced fees, then capitation rates for Interim PHOs would be the same as for Access PHOs. It was also noted that the capitation rates were first set in 2002, at \$25 per the national expected consultation rate, and that capitation rates were now being increased to maintain their value over time. Thus, for the July 2005 roll out, it was expected that practices would reduce their charges for those people without community services cards by \$26 plus that year's annual adjustment for inflation (2.69%), ie by \$26.70. The document provided for discretion by DHBs, and suggested that (for those without subsidy cards):
 - 'A fee reduction of between \$24-\$26 is acceptable
 - A fee reduction of between \$22-\$24 may be acceptable if the PHO provides adequate supporting information such as utilisation rates that are significantly different from the national average⁹ or where the fees proposed are similar to those that already apply in access practices and PHOs.
 - A fee reduction of less than \$22 would only be acceptable in extra-ordinary circumstances. The DHB will need to examine detailed information from the practice that supports the proposed fee' (Ministry of Health 2005).

⁹ The Guidelines also noted that 'For practices that have utilisation rates similar to the national average, it is reasonable to expect that the entire \$26 per consultation subsidy (or very close to it) should be used to reduce patient fees. If the 18-24 population in a practice has utilisation rates that are significantly higher than the national averages, it may not be reasonable to expect the practice to reduce its charges to the same extent. However, where this is the case, it is important that PHOs provide supporting information to demonstrate that the utilisation rates are higher and how the increased funding is translating into low or reduced fees that are fair and reasonable to patients and providers in the light of GP fees in the region' (Ministry of Health, 2005).

It is important to note that the policies seeking reductions in the fees patients pay for services applied to the fees that practices set out in **fee schedules** (ie a list of fees) as a fee for a **'standard' consultation**. This research is focused on assessing changes in the fees that patients are charged for their consultations, which may not be the same as fees set out in fee schedules. There are a large number of reasons why schedule fees may differ from the fees actually charged for services (see Section 5).

Although an understanding of the policy settings required for each roll out of new funding is important to understanding how fees were expected to have changed over time, this report is not able to specifically evaluate the extent to which the policy settings were followed in practice, given that we are not reporting on schedule fees. However, it is still important to keep these specific policy settings in mind when interpreting the findings set out in this report, as we would expect the fees patients are charged for primary health care services to have fallen over time as new funding has been rolled out to PHOs and the policy settings reported here are the only guidelines we have around expected changes in fees over time.

4. Research Design

Sample

A power analysis (Appendix 1) showed that a sample of 100 general practices would provide adequate power to address key research questions, based upon known distributions of variables of interest.

The national sample of 100 practices was drawn from lists of all currently active practices that are members of PHOs. Practices were invited to take part in the research, and paid \$250 for participation. Practices were offered the opportunity to receive analyses comparing their fees, patterns of utilisation, and ACC claims with all other practices sampled.

The sample was constructed in two stages. Seventy-nine percent of New Zealand general practices run the MedTech 32 patient management system (PMS), used for managing consultation notes, writing prescriptions, recording referrals and investigations, and billing. A random sample of 95 of these practices had already been drawn for another project, stratified by DHB (HealthStat primary care intelligence, for further detail, see Appendix 2). A random sample of 79 of these practices was drawn and invited to participate in the PHCS Evaluation. All 79 practices agreed to take part,

This sample of 79 practices using the MedTech32 PMS was extended by a further 21 practices for the PHCS evaluation, by inviting randomly selected practices that use other practice management systems to participate in the research¹⁰. As with the sampling methodology used for the HealthStat sample, the probability of selection was proportional to DHB population. Random sampling continued until 21 non-MT practices had agreed to participate. This required inviting 36 practices to participate; the response rate from non-MT practices is therefore 21/36, or 58%.

The overall effect of this procedure is to construct a national random sample of 100 practices that provide geographic representation and is representative of all practice management systems.

The sample thus originally contained 100 practices. However, the data from one practice in the national sample arrived very late and was found on analysis to be unusable, so that the national sample contained 99 practices, instead of the planned 100. This results in a final sample of 99 practices. The practice sample is described in the following table:

¹⁰ In earlier testing, data could not be extracted from the Profile PMS system due to extremely long run times and occasional systems failures. Practices known to be using Profile (6% of practices) were therefore excluded from the sample.

Table 1 Sample Practice Characteristics

	<i>Number of Practices (% of Total Number of Practices)</i>
<i>Selected</i>	125
<i>Participated</i>	99
<i>Response rate</i>	79%
<i>Funding</i>	
<i>Interim</i>	55 (55.6%)
<i>Access</i>	44 (44.4%)
<i>Rural</i>	
<i>No</i>	41 (41.4%)
<i>Yes</i>	58 (58.6%)
<i>PMS</i>	
<i>MT32</i>	79 (79.8%)
<i>MP</i>	2 (2.0%)
<i>NG</i>	12 (12%)
<i>VIP</i>	6 (6%)

The number of practices within each DHB is in approximate proportion to the number of practices within each DHB district. Because sampling was by practice (not by registered patient), and practice sizes can vary by a factor of 10, the size of the patient sample from each DHB depends on which specific practices participated. The age, gender and ethnicity composition of the registered patients in the national sample is described in the following table together with the breakdown of the sample by DHB. The total population of registered patients in the final sample is 421,993, or 10.4% of the NZ population.

Table 2 Sample Population Characteristics

Sample	National	
	N	percent
Ethnicity		
Other	270821	64%
Maori	84478	20%
Pacific	39009	9%
Asian	27685	7%
All	421993	100%
Gender		
missing	103	0%
Female	216017	51%
Male	205873	49%
All	421993	100%
Age Group		
missing	3025	1%
0-5	33820	8%
6-17	85114	20%
18-24	40228	10%
25-44	119000	28%
45-64	94845	22%
65+	45961	11%
All	421993	100%
DHB*		
Auckland	40846	10%
Bay of Plenty	23423	6%
Canterbury	19858	5%
Capital & Coast	17063	4%
Counties Manukau	79191	19%
Hawkes Bay	35925	9%
Hutt Valley	23223	6%
Lakes	5832	1%
MidCentral	10726	3%
Nelson Marlborough	8646	2%
Northland	37343	9%
Otago	23248	6%
South Canterbury	10246	2%
Southland	1839	0%
Taranaki	3599	1%
Waikato	29595	7%
Wairarapa	8233	2%
Waitemata	31058	7%
West Coast	12099	3%
All	421993	100%**

Notes:

*There were no practices from Wanganui or Tairāwhiti DHBs in the national sample.

** Total may add to more than 100% due to rounding.

Over the evaluation period 2001-2005 practices have increased the size of their registers. There has been an increasing financial incentive to formally register patients as practice income has become more dependent on capitation payments. Patients have been invited to register with practices when they attend, and many practices sent out letters to patients inviting them to formally register with the practice. Registered patients receive the benefit of increased patient subsidies, with reduced fees, and practices get a greater monthly capitation payment the more patients they have on their register.

There has also been normal population growth over the 2001– 2005 period which tends to increase practice sizes, and in addition there is a separate trend to larger practices anyway, with smaller practices closing or merging with their neighbours.

The result of these processes is that the number of patients registered with practices has increased markedly over the study period, as shown in the following graph and table. The impact of this increasing patient base is likely to be that patients in later analysis periods may include more relatively transient patients.

Figure 1 Sample Population – Registrations 2001-2005

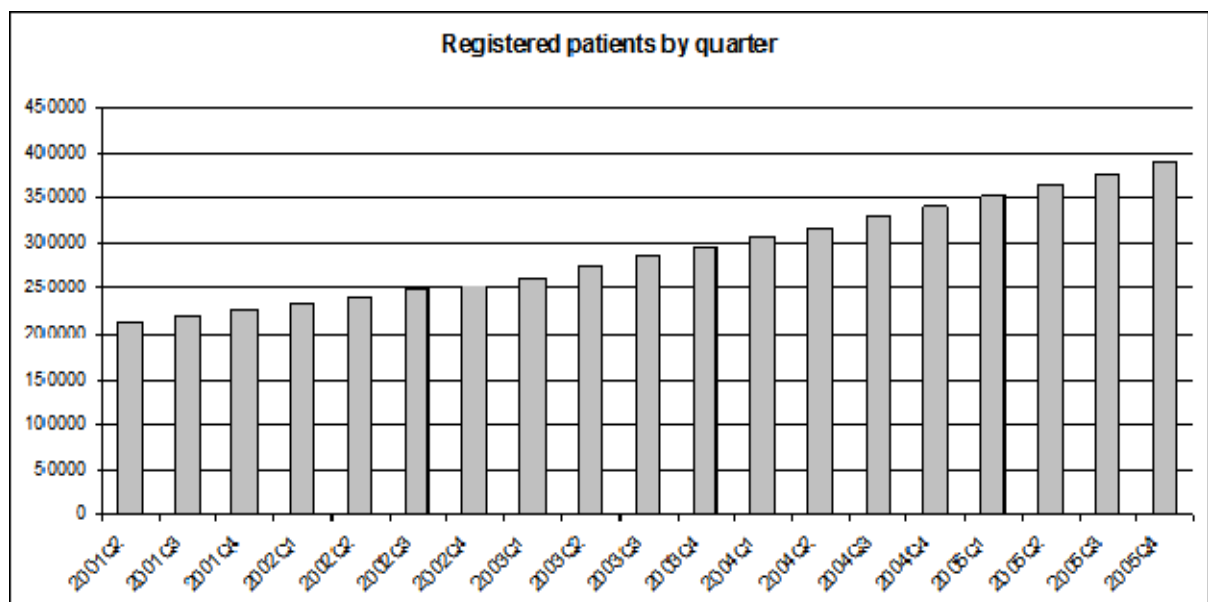


Table 3 Registrations 2001-2005

Quarter	Registrations
2001Q2	213918
2001Q3	220499
2001Q4	226491
2002Q1	233015
2002Q2	240200
2002Q3	247232
2002Q4	253933
2003Q1	261668
2003Q2	275588
2003Q3	285883
2003Q4	294926
2004Q1	306851
2004Q2	317992
2004Q3	330324
2004Q4	340004
2005Q1	351350
2005Q2	364927
2005Q3	378256
2005Q4	389977

Note: registration dates were not recorded for 32016 patients.

Data Collection

Data from general practices were collected using computerised queries from practice databases. In the case of MedTech32, queries were written by the research team; for other PMS systems, queries were written in consultation with each PMS vendor. Data were collected for the period 1 June 2001 to 31 December 2005. All transactions were downloaded, representing the primary care experience for 421,993 patients.

The data elements that were collected were:

- A register download of registration status, date of birth, gender, ethnicity, deprivation code, current CSC status and current HUHC status.
- Dates of consultations since 1 June 2001, with ACC45 number for any ACC consultations, and dates of ACC claims.
- The practitioner (doctor or nurse) seen at each encounter.
- Information on the fees charged to patients for each consultation.

Extracted data were returned to the research team via HealthLink (a secure electronic health information messaging system) or email if HealthLink was not available; or by courier (with data on a disk); and in some cases, data were collected from practices in person by a research nurse with the data loaded onto a portable hard drive.

Data Analysis Procedures

The analyses in this report describe the data collected and calculates:

1. Co-payments/fees paid by patients – for non-ACC consultations.
2. Utilisation rates – ie use of services, for a fixed cohort of patients registered from 1 year before the change to PHO funding.
3. Proportion of visits recorded with a nurse as the practitioner.
4. ACC claims proportion – proportion of encounters at which an ACC claim was made.
5. ACC new claims rate – proportion of ACC claims that are new, derived from ACC data.

These results are presented by age group, ethnicity, practice funding type, cardholder status and measures of socio-economic status (NZDep).

In future reports, we will report on the findings from regression analyses which will enable us to deepen our understanding of the association between fees, consultation rates and the different features of PHOs and socio-demographic characteristics of the patients using services. We will also examine the relationship between changes in fees over time and consultation rates by different population groups, in order to focus on how the changes in fees have affected changes in use of services, controlling for the range of other factors known to influence service use.

Ethics Approval

Ethics Approval was given for the study, including the collection of identifiable information (NHI, ARC45), on 25th April 2005, by the Multi Region Ethics Committee. A Memorandum of Understanding was signed between the researchers and each participating practice, describing data collection and analysis procedures.

5. Results

Patient co-payments (fees)

Technical considerations

Patient co-payments are recorded in general practice patient management systems as an invoiced fee to the patient. One of the complications in reporting co-payments is controlling for the service provided. Some minor surgical procedures cost hundreds of dollars (e.g. an ingrown toenail removal, or a vasectomy); other invoices show negative amounts, corresponding to a refund being issued to a patient. To eliminate the impact of extreme outliers, the co-payments data was censored, restricting co-payments to values between \$0 and \$100. The impact of this on measures of location and variability is illustrated in the following table, for the year 2005 and for patients aged 65 and over. This age group was chosen for analysis because both Access and Interim practices received the same payment for patients aged 65 years and over throughout 2005. The table shows that the effect of censoring is similar on co-payments data for all adults, ie the median and mode are unchanged but there is a small (approx 5%) reduction in means.

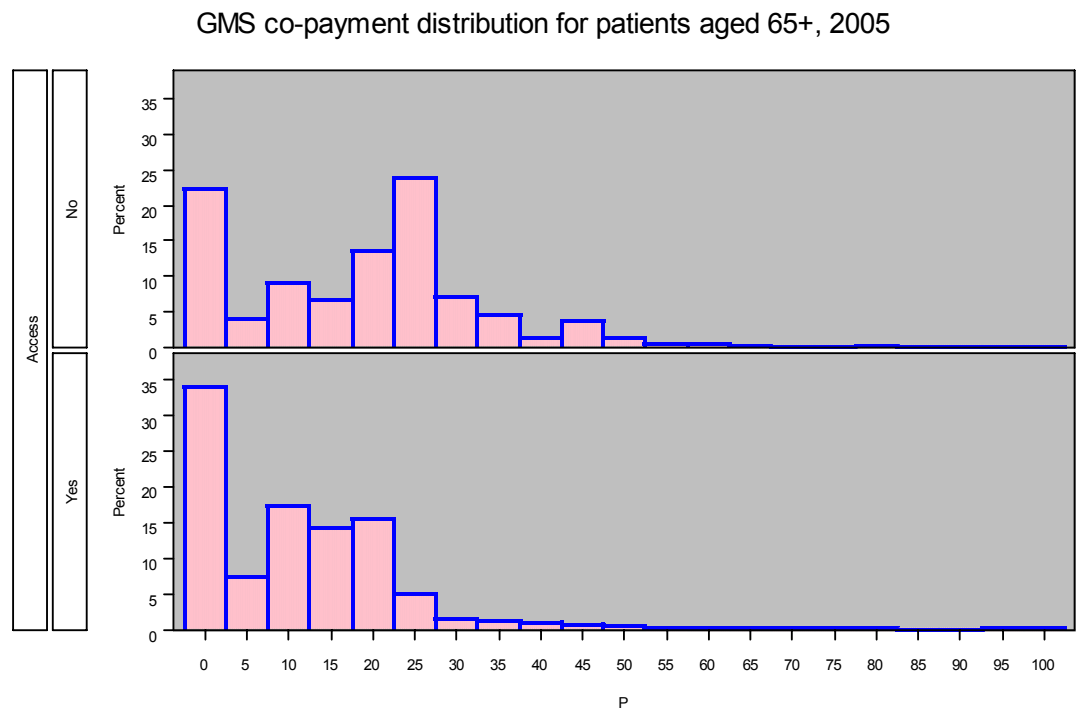
Table 4 Effect of censoring co-payments data

Adults aged 65+ GMS consultations 2005	Interim Practices		Access Practices	
Measure	All co- payments	0-100	All co- payments	0-100
n	158685	157063	170036	169027
Mean (\$)	20.62	19.29	12.15	11.58
Median (\$)	20.00	20.00	10.00	10.00
Mode ¹¹ (\$)	0.00	0.00	0.00	0.00
Std Deviation (\$)	24.68	15.44	16.19	12.75
Variance (\$)	609.23	238.38	262.23	162.48
Range (\$)	2342.00	100.00	811.00	100.00
Inter-quartile Range (\$)	21.00	21.00	19.00	19.00

¹¹ Mode is calculated on exact value. The next figure (distribution histogram) shows that the commonest fee charged by Interim practices is in the range of 22.50- 27.50.

To illustrate the variation in patient co-payments even in a relatively stable funding environment, the distribution of fees charged in 2005 for patients in Interim and Access practices is shown in the following histogram for adults aged 65 and over. This figure also gives an indication of the extent to which practices reduce, and often completely waive, consultation fees. If we assume that all Interim practices have a scheduled fee greater than zero for patients 65 and over, it can be seen that Interim practices (top graph) waive fees over 20% of the time. Access practices (bottom graph) may waive fees even more often, or they may have a scheduled fee of zero for patients aged 65 and over.

Figure 2 Co-payment distributions, 2005



As we noted above, patient co-payments are recorded in the patient management systems as an invoiced fee to the patient. Thus, our data are focused on the actual fees which the patient is invoiced for. Invoicing has not been distinguished from actual payment (for example, as some patients may default on their payments or dispute the payment total).

It is also worth noting that the fee that is invoiced may differ from the fees which practices set out in their fee schedules. There are many reasons why the fee actually invoiced to the patient may be lower than the fee that appears on a schedule, including the following:

- Shorter length consultation
- Nurse visit
- Restricted content of a visit, e.g. repeat prescription
- Follow-up visit
- Recognition of a patient's financial circumstances.

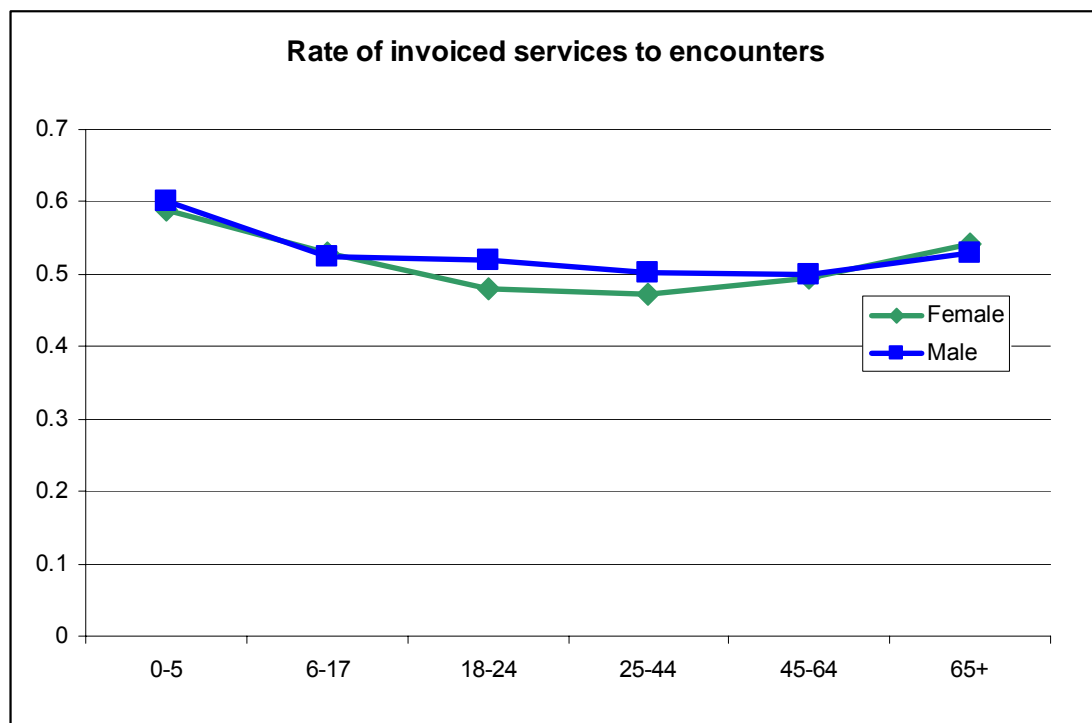
As noted above, practices may also charge more than the specified scheduled fee for a consultation if extra resources are required. Examples include extended consultations for complicated problems, consultations exceeding the normally allocated time, and consultations requiring the provision of special services, such as an ECG, dressings or liquid nitrogen.

With the exception of nursing visits, it is not possible to distinguish consultations with the data available in the downloads from practice computer systems and hence we cannot know which of the above differences in consultations applies – hence the need to censor the data as discussed above. This also means we cannot report on, for example, the services delivered by providers other than doctors and nurses, such as community health workers.

Another important consideration in this research is to recognise the difference between invoiced encounters and encounters for which there is no associated invoice. All data presented in the graphs and tables in this and the following section are for invoiced encounters only (which includes invoices where the charge is \$0). For an invoiced encounter to be recorded when a patient fee is not charged a “zero invoice” must be entered. This is typically for visits by young children or for people who use a lot of services, such as the elderly or patients with chronic conditions, and for visits with a nurse. However, “zero invoice” information is not entered reliably into practice management systems, and data collections based on invoiced encounters may therefore tend to underestimate overall consultation rates.

The following graph illustrates the difference between these two types of encounters, using the most recently available data (ie, all encounters in 2005). The difference between invoiced and non-invoiced services varies by age group and gender: overall, invoices are generated for 52% of recorded notes in the clinical record and the lowest ratio is for females aged 18-44 where less than 50% of clinical records are associated with an invoice. In this research, we have focused on invoiced encounters because this reduces the impact of practice variability in recording information in patient notes outside of consultations on calculated consultation rates, and the calculations of consultation rates may be compared with national data collections.

Figure 3 Rate of invoiced services to encounters by age, 2005



Findings

The following graphs and tables show the changes in mean invoiced fees for each year for the patients enrolled that were continually registered with a practice for each year, and over time for general medical consultations (ie, excluding maternity, immunisation and ACC consultations). All invoiced encounters, i.e. GP and nurse encounters aggregated together, are included in the first set of graphs and tables (that is, we are reporting on services provided by nurses only, by GPs only or where both a GP and a nurse were seen by the patient). All analyses are presented using the full July - June year so that the impact of changes in funding (which are usually implemented in July of any given year) can be clearly assessed. Reporting by full year also eliminates the confounding effects of seasonal variation.

Changes in patient fees overall

The first graph shows the mean fees paid for general medical services for all patients, regardless of whether they are in an Access or an Interim practice.

Figure 4 Mean patient co-payments 2001/02-2004/05

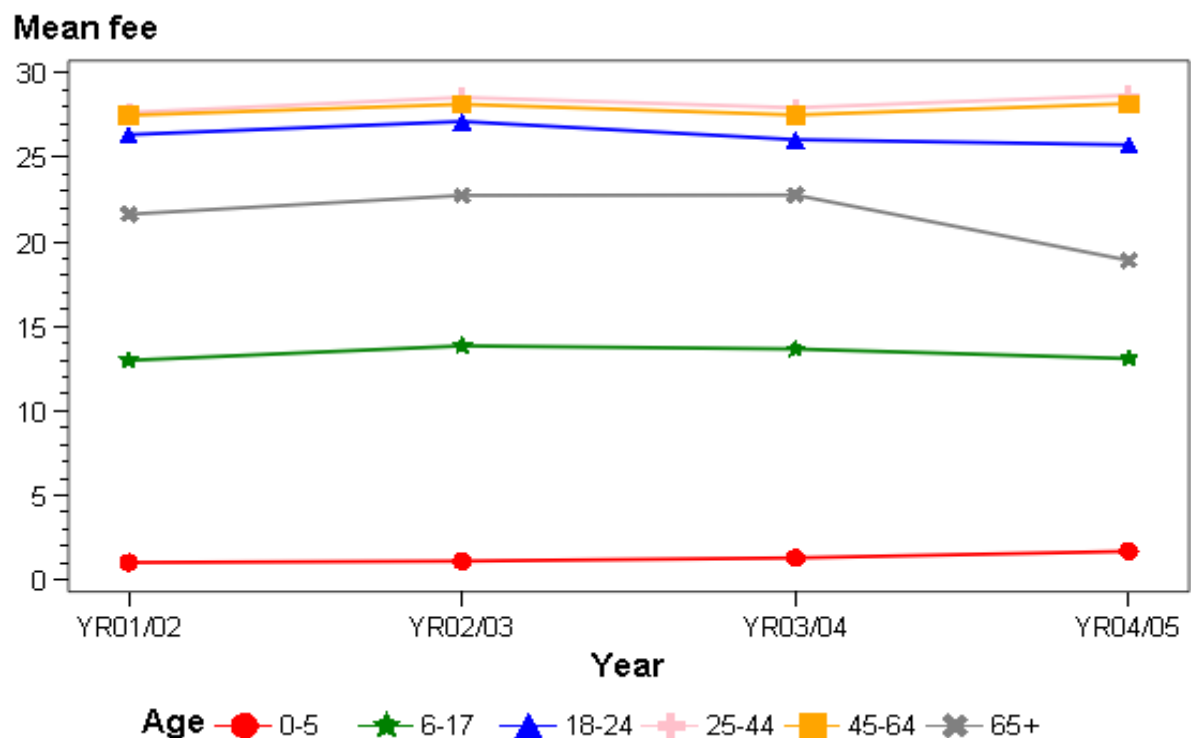


Table 5 Mean patient co-payments 2001/02-2004/05*

Age	2001/02	2002/03	2003/04	2004/05	Change 2001/02- 2002/03	Change 2002/03- 2003/04	Change 2003/04- 2004/05	Change Whole Period 2001/02- 2004/05
0-5	1.02	1.11	1.3	1.69	0.09 (9%)	0.19 (17%)	0.39 (30%)	0.67 (66%)
6-17	12.99	13.84	13.66	13.09	0.85 (7%)	-0.18 (-1%)	-0.57 (-4%)	0.10 (1%)
18-24	26.34	27.12	26.05	25.74	0.78 (3%)	-1.07 (-4%)	-0.31 (-1%)	-0.60 (-2%)
25-44	27.66	28.55	27.94	28.67	0.89 (3%)	-0.61 (-2%)	0.73 (3%)	1.01 (4%)
45-64	27.49	28.14	27.51	28.18	0.65 (2%)	-0.63 (-2%)	0.67 (2%)	0.69 (3%)
65+	21.64	22.75	22.77	18.9	1.11 (5%)	0.02 (0%)	-3.87 (-17%)	-2.74 (-13%)

*All data are reported as \$ in this and following tables reporting on changes in fees. Percentage change is reported rounded to the nearest percent in this and all following tables.

We firstly report the general trends in fees and then consider how specific roll outs of new funding were expected to impact on the average fees paid and what the data show us in relation to this roll out of new funding.

The data show that the mean fee for children under 6 years of age is very low. Fees rose in each year of our study, with a noticeable increase between 2003/04 and 2004/05. Across the entire study period, fees rose from \$1.02 to \$1.69 on average, an increase of 67c (a 66% increase).

The mean fee charged for those aged 6-17 years of age increased over the first year of our study. It then fell slightly between 2002/03 and 2003/04, and again between 2003/04 and 2004/05. Fees averaged \$12.99 for this age group in 2001/02, increasing overall to \$13.09 in 2004/05 (an increase of 10c or 1%).

For those aged 18-24 years of age, the average fee charged rose by a small amount between 2001/02 and 2002/03, and fell by small amounts across the following years of our study. Over the entire study period, fees have fallen for this age group, from \$26.34 to \$25.74 (60c or 2%).

Fees rose slightly between 2001/02 and 2002/03 for those aged 25-44, fell slightly between 2002/03 and 2003/04, and rose again slightly between 2003/04 and 2004/05. Over the entire study period, fees have risen from \$27.66 to \$28.67 (\$1.01 or 4%) for this age group. A similar pattern is seen in the data for those aged 45-64, with the overall change in fees being a small increase of 69c (3%) over the entire study period (with fees rising from an average \$27.49 to \$28.18).

Fees for people aged 65 years and over averaged \$18.90 in 2004/05 compared with \$21.64 in 2001/02. Fees have therefore fallen by an average of \$2.74 (13%) over the study period for those aged 65 years and over, with the fall in fees occurring between 2003/04 and 2004/05 (a fall of \$3.87 or 17%).

In terms of the PHCS and the roll out of new funding since July 2002, the data show that overall, average fees for children aged six years and under remain low, but they have increased over the study period, more so than for other age groups, and the increase is quite significant over the last year of this study. Capitation payments to PHOs and practices have not increased for this age group over the study period, other than through an increase in subsidy from \$32.50 to \$35 in 2002 to account for general inflation between 1997 and 2002, and the annual adjustments which the government has provided since 2002 to maintain the value of the subsidies.

For those aged 6-17, fees rose between 2001/02 and 2002/03 and have fallen slightly each year since, coinciding with the on-going establishment of Access PHOs and with the new funding rolled out to this age group in Interim practices in October 2003. The same pattern is shown for those aged 18-24, again as Access PHOs became established. The new funding allocated to Interim PHOs in July 2005 for 18-24 year olds is, however, beyond our current data collection period.

For those aged 25-44 and 45-64, fees rose by a small amount in 2001/02-2002/03, decreased slightly between 2002/03 and 2003/04, and then rose again slightly between 2003/04 and 2004/05. Only those in Access PHOs have had access to new funding during the study period.

The greatest impact on fees is shown for those aged 65 years and over, with fees rising between 2001/02 and 2002/03, stabilising between 2002/03 and 2003/04 as Access PHOs began to be established, and falling between 2003/04 and 2004/05 as additional Access PHOs were established and as new funding was rolled out to this age group to those in Interim practices in July 2004. Between 2003/04 and 2004/05 fees fell from an average \$22.77 to \$18.90, a fall of \$3.87 (17%).

Overall, fees have been rising for children but the fees paid by other patients have fallen on average slightly during the periods of time we expect them to fall and for the population groups which have benefited from new funding. Fees have fallen particularly for those aged 65 years and over. However, because not all groups in the population have been eligible for the same increase in subsidies over time, and in order to understand the impact of increases in capitation payments on different population groups and to link the changes in fees to government policy, we need to break the data further, by funding model (Access or Interim) and by population group. These analyses are set out in the sections which follow.

Changes in patient fees by funding model

The following graphs and table show mean fees by practice funding model by age group. The allocation of a practice to a particular funding model is based upon the funding at the time the data was collected. Before the date that practices joined PHOs, they would not have been in either funding model. It should also be noted that practices joined PHOs throughout the study period, both before and after subsidy changes were implemented. The impact of subsidy changes may therefore be greater than that recorded here due to practices not having yet joined a PHO in the immediate period following the subsidy increase (and therefore having not received the subsidy increase).

Figure 5 Mean patient co-payments at Access practices 2001/02-2004/05

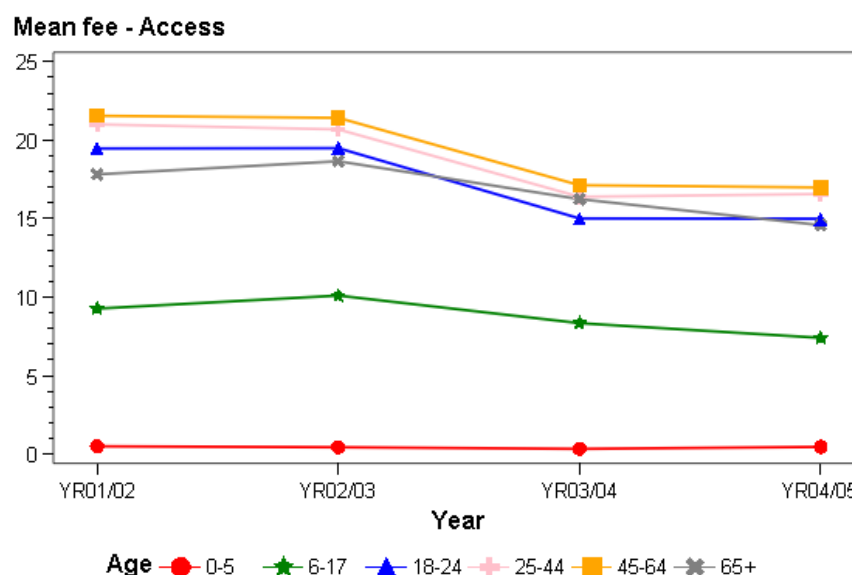


Figure 6 Mean patient copayments at interim practices 2001/02-2004/05

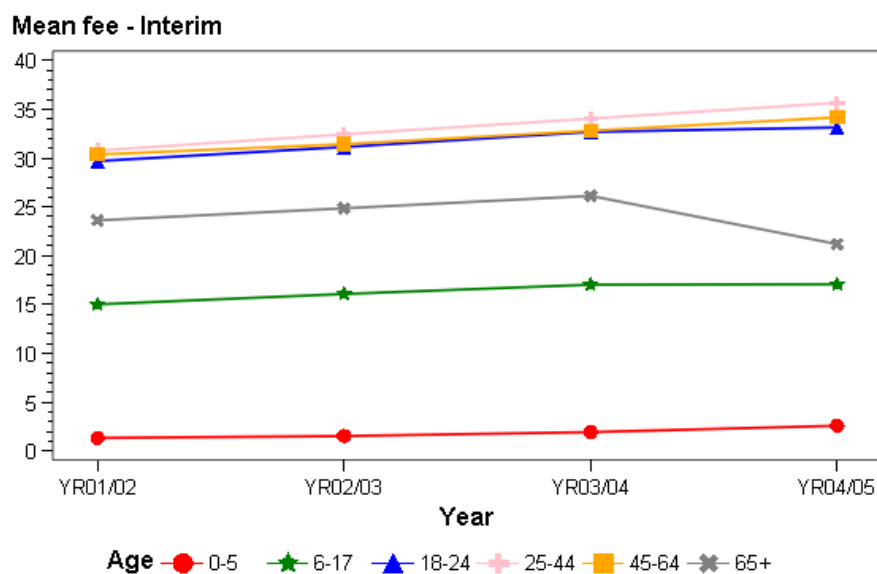


Table 6 Change in mean patient co-payments by funding model and age
2001/02-2004/05

Type	Age	2001/02	2002/03	2003/04	2004/05	Change 2001/02- 2002/03	Change 2002/03- 2003/04	Change 2003/04- 2004/05	Change Whole Period 2001/02- 2004/05
Access	0-5	0.50	0.44	0.33	0.46	-0.06 (-12%)	-0.11 (-25%)	0.13 (39%)	-0.04 (-8%)
	6-17	9.27	10.10	8.34	7.41	0.83 (9%)	-1.76 (-17%)	-0.93 (-11%)	-1.86 (-20%)
	18-24	19.47	19.49	15.02	15.00	0.02 (0%)	-4.47 (-23%)	-0.02 (0%)	-4.47 (-23%)
	25-44	21.01	20.69	16.40	16.57	-0.32 (-2%)	-4.29 (-21%)	0.17 (1%)	-4.44 (-21%)
	45-64	21.56	21.43	17.13	16.99	-0.13 (-1%)	-4.30 (-20%)	-0.14 (-1%)	-4.57 (-21%)
	65+	17.82	18.66	16.25	14.59	0.84 (5%)	-2.41 (-13%)	-1.66 (-10%)	-3.23 (-18%)
Interim	0-5	1.32	1.51	1.92	2.57	0.19 (15%)	0.41 (27%)	0.65 (34%)	1.25 (95%)
	6-17	15.01	16.07	17.02	17.07	1.06 (7%)	0.95 (6%)	0.05 (0%)	2.06 (14%)
	18-24	29.69	31.13	32.68	33.13	1.44 (5%)	1.55 (5%)	0.45 (1%)	3.44 (12%)
	25-44	30.77	32.43	34.04	35.66	1.66 (5%)	1.61 (5%)	1.62 (5%)	4.89 (16%)
	45-64	30.36	31.42	32.80	34.17	1.06 (3%)	1.38 (4%)	1.37 (4%)	3.81 (13%)
	65+	23.61	24.85	26.12	21.18	1.24 (5%)	1.27 (5%)	-4.94 (-19%)	-2.43 (-10%)

The data show that fees for those aged under six years of age fell in Access practices between 2001/02 and 2002/03 and between 2002/03 and 2003/04, before rising in the final year. The average fee charged to those aged 6-17 rose in the first year our study, before falling in the second and third years. Fees were stable for those aged 18-24 in the first year, falling in the second and falling very slightly in the third year of this study. For those aged 25-44 and 45-64, the average fee fell slightly in the first year of the study, fell more significantly in the second year and stabilised in the last year of this study. Fees rose for those aged 65 years and over in the first year of the study before falling in the second and last years of the study period.

In Access practices, across the entire study period, the fall in fees for those aged under 6 years of age is around 8%, while fees have fallen for those in all the other age groups in Access PHOs by around 20%. For those aged under six years of age, fees averaged 50c in 2001/02, and averaged 46c in 2004/05; for those aged 6-17, fees averaged \$9.27 in 2001/2, falling to \$7.41 in 2004/05. For the other age groups, fees averaged between \$17.82 and \$21.56 in 2001/02 and have fallen to between \$14.59 and \$16.99 in 2004/05.

In Interim practices, fees have risen for those aged six years and under, from \$1.32 in 2001/02 to \$2.57 in 2004/05 (an increase of 95%). For those aged 6-17 years of age, fees rose slightly in the first and second years of the study, stabilising in the last year of the study, coinciding with the roll-out of new funding in October 2003. For those aged 18-64, fees have risen slightly in each year of the study. Fees rose slightly for the first two years of the study for those aged 65 years and over, and then fell in the last year of the study as new funding was rolled out in July 2004. Fees fell from an average of \$26.12 in 2003/04 to \$21.18 in 2004/05, a fall of \$4.94 (19%). At the end of the study period, fees in Interim practices ranged from \$2.57 on average for those aged six years and under, to \$17.07 for those aged 6-17, and to \$21.18 for those aged 65 years and over. Fees averaged around \$33-\$35 for those aged 18-64 in Interim practices, that is, for the group which has yet to benefit from additional government funding.

Changes in patient fees by funding model and by socio-economic status

The following graphs and table show mean fees by a) practice funding model by age group by CSC status; and b) practice funding type by age group by NZDep2001 quintile. The purpose of these analyses is twofold. First, it enables us to identify the specific changes in fees over time based on CSC status given that we expect to see greater falls in the level of fees charged to those without CSCs, as, prior to the roll out of new funding, those with CSCs were already eligible for government subsidies for primary health care. Second, CSC status and NZDep act as proxy measures for socio-economic status. A key goal of the PHCS is to reduce inequalities in health and assessing the changes in fees by CSC and NZDep status enables us to identify how the PHCS policies appear to be affecting different socio-economic groups. CSCs are available to households on lower incomes, while NZDep measures deprivation at an area level. These are the only measures of socio-economic status available in our data set. Some caution is needed in interpreting the results, however, given that the two measures in use (CSC status and NZDep) are proxy measures for socio-economic status only. For example, in relation to NZDep measures, some individuals in areas with high measured socio-economic status (NZDeps 1-4) may in fact have low socio-economic status while some individuals in areas with low measured socio-economic status (NZDep 5) may in fact have high socio-economic status.

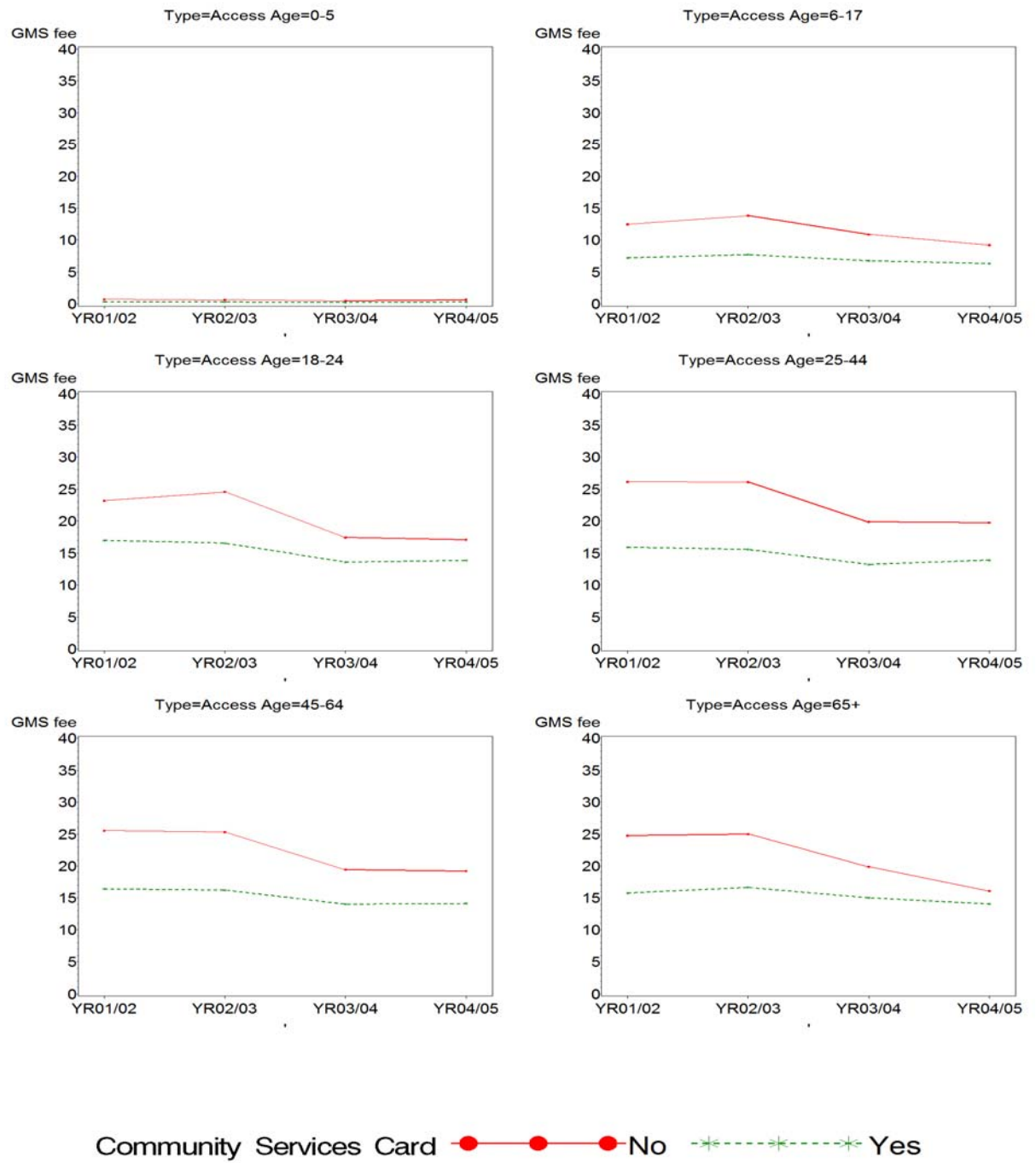
Because it is not possible from data in the patient management systems to establish a patient's CSC status in a given time period, the CSC classification is based upon an individual ever having held a CSC. The analyses may therefore classify some people who no longer have or are eligible for CSCs within the CSC group. Some people eligible for CSCs may also fall within the non-CSC status group, given that it is the CSC now plays a lesser role in ensuring access to subsidised care and that fewer people now have CSCs. The NZDep2001 quintile is the one recorded in the latest register download; thus it may not include some people in the correct quintile if they have moved during the study period.

In Access practices, within each age group, the data show that those with CSCs pay a lower average fee than those without cards. Within each age group, the larger falls in fees, however, are occurring for those without CSCs, except for those aged six years and under where the falls in fees have been higher for those with CSCs.

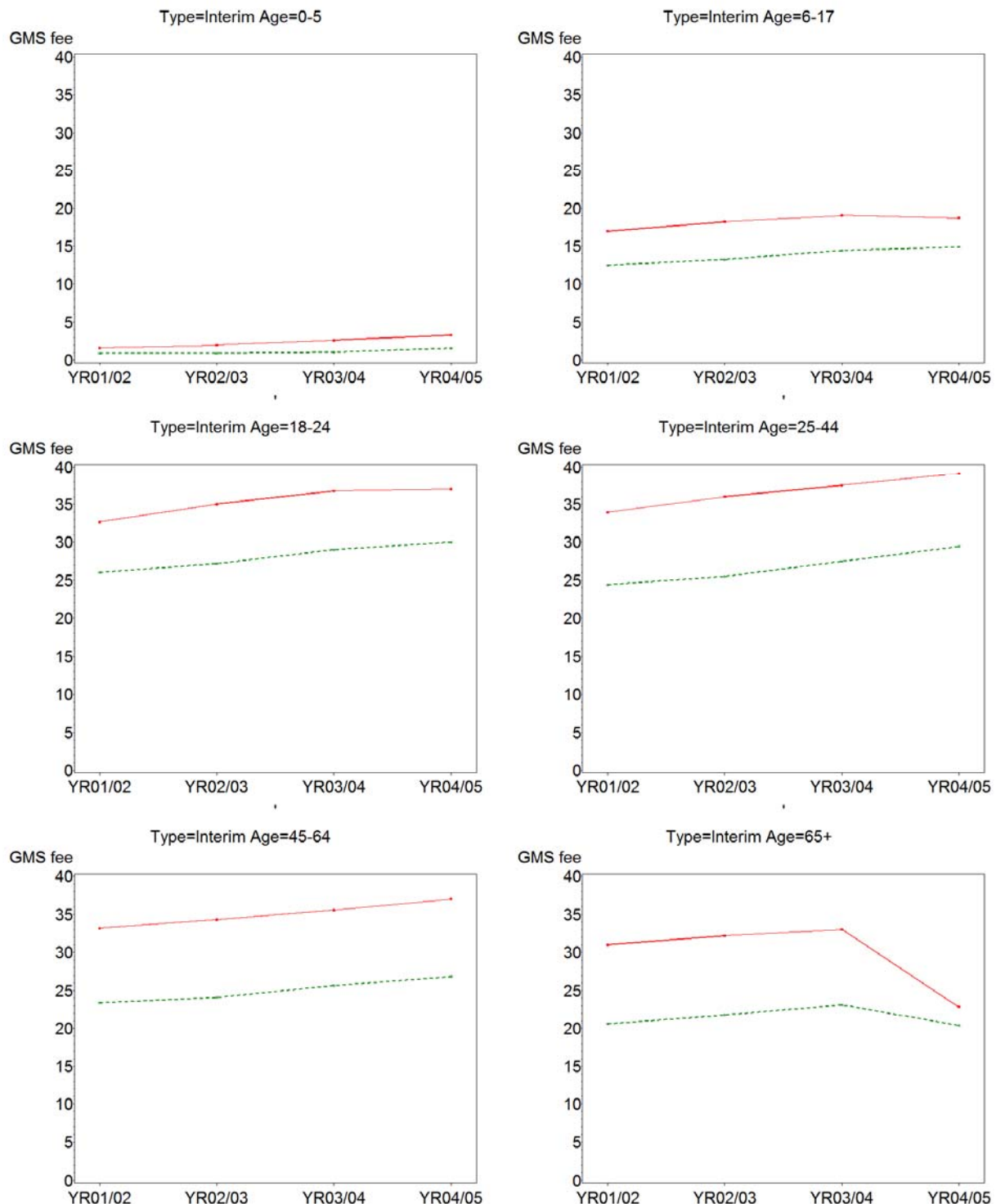
In Interim practices, within each age group, fees are also lower on average for those with cards than for those without cards. Fees are not rising as fast for children with CSCs as for those without cards; and the increases in fees have been less for those without cards than for those with cards across the 6-64 year old age group. For those aged 65 years and over, fees have fallen further for those without CSCs.

Figure 7 Change in patient co-payments by funding model, age and CSC status
2001/02-2004/05

GMS fees at Access funded Practices



GMS fees at Interim funded Practices



Community Services Card —●—●—● No —*—*—* Yes

Table 7 Mean patient co-payments by funding model and CSC status
2001/02-2004/05

Funding Type	Age	CSC	2001/02	2002/03	2003/04	2004/05	Change 2001/02-2002/03	Change 2002/03-2003/04	Change 2003/04-2004/05	Change Whole Period 2001/02-2004/05
Access	0-5	N	0.74	0.66	0.49	0.7	-0.08 (-11%)	-0.17 (-26%)	0.21 (43%)	-0.04 (-5%)
		Y	0.37	0.32	0.25	0.33	-0.05 (-14%)	-0.07 (-22%)	0.08 (32%)	-0.04 (-11%)
	6-17	N	12.47	13.81	10.9	9.23	1.34 (11%)	-2.91 (-21%)	-1.67 (-15%)	-3.24 (-26%)
		Y	7.22	7.72	6.77	6.34	0.50 (7%)	-0.95 (-12%)	-0.43 (-6%)	-0.88 (-12%)
	18-24	N	23.2	24.6	17.44	17.09	1.40 (6%)	-7.16 (-29%)	-0.35 (-2%)	-6.11 (-26%)
		Y	17	16.57	13.6	13.85	-0.43 (-3%)	-2.97 (-18%)	0.25 (2%)	-3.15 (-19%)
	25-44	N	26.17	26.11	19.88	19.75	-0.06 (0%)	-6.23 (-24%)	-0.13 (-1%)	-6.42 (-25%)
		Y	15.93	15.57	13.24	13.91	-0.36 (-2%)	-2.33 (-15%)	0.67 (5%)	-2.02 (-13%)
	45-64	N	25.54	25.33	19.43	19.22	-0.21 (-1%)	-5.90 (-23%)	-0.21 (-1%)	-6.32 (-25%)
		Y	16.43	16.25	14.04	14.14	-0.18 (-1%)	-2.21 (-14%)	0.10 (1%)	-2.29 (-14%)
	65+	N	24.77	25	19.88	16.1	0.23 (1%)	-5.12 (-20%)	-3.78 (-19%)	-8.67 (-35%)
		Y	15.8	16.65	15.03	14.08	0.85 (5%)	-1.62 (-10%)	-0.95 (-6%)	-1.72 (-11%)
Interim	0-5	N	1.64	2	2.61	3.33	0.36 (22%)	0.61 (31%)	0.72 (28%)	1.69 (103%)
		Y	0.93	0.94	1.08	1.59	0.01 (1%)	0.14 (15%)	0.51 (47%)	0.66 (71%)
	6-17	N	16.95	18.26	19.06	18.75	1.31 (8%)	0.80 (4%)	-0.31 (-2%)	1.80 (11%)
		Y	12.5	13.26	14.43	14.91	0.76 (6%)	1.17 (9%)	0.48 (3%)	2.41 (19%)
	18-24	N	32.69	35.01	36.76	37.02	2.32 (7%)	1.75 (5%)	0.26 (1%)	4.33 (13%)
		Y	26.04	27.19	29.02	30.01	1.15 (4%)	1.83 (7%)	0.99 (3%)	3.97 (15%)
	25-44	N	33.95	35.99	37.51	39.08	2.04 (6%)	1.52 (4%)	1.57 (4%)	5.13 (15%)
		Y	24.42	25.52	27.5	29.44	1.10 (5%)	1.98 (8%)	1.94 (7%)	5.02 (21%)
	45-64	N	33.17	34.3	35.57	37.04	1.13 (3%)	1.27 (4%)	1.47 (4%)	3.87 (12%)
		Y	23.39	24.09	25.65	26.82	0.70 (3%)	1.56 (6%)	1.17 (5%)	3.43 (15%)
	65+	N	30.99	32.21	33.01	22.84	1.22 (4%)	0.80 (2%)	-10.17 (-31%)	-8.15 (-26%)
		Y	20.59	21.77	23.09	20.4	1.18 (6%)	1.32 (6%)	-2.69 (-12%)	-0.19 (-1%)

Thus, the level of fees charged to different groups may support government moves to reduce inequalities (as measured by CSC status), with fees lower on average for those with CSCs. However, the changes in fees over time may not be supportive of government moves to reduce inequalities – in Access practices, much of the benefit of the new funding is, as expected, going to those without CSCs, while in Interim practices, fees are generally not rising as fast for those without cards, ie benefiting those in better socio-economic positions (except for children), while they have fallen further for those aged 65 years and over without CSCs.

In terms of changes in the average level of fees over time, in Access practices we see falls of between 4c for children with and without community services cards to falls of \$8.67 for those aged 65 years and over without community services cards. Percentage falls in fees range from 5% for children without community services cards, to between 11% and 26% for most other population groups, to 35% for those aged 65 years and over without community services cards.

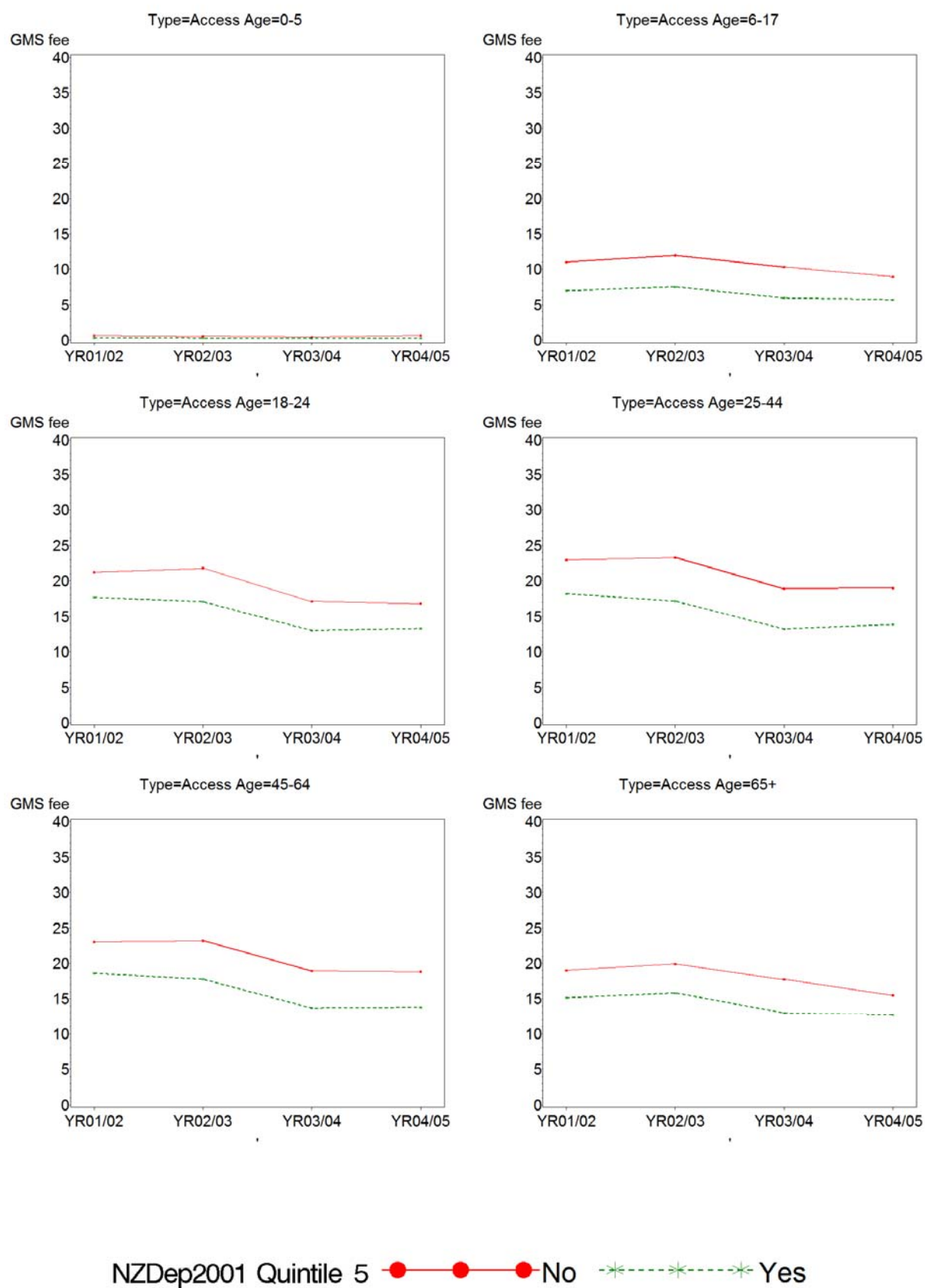
New funding was introduced for Interim practices in October 2003 for those aged 6-17 – with a \$5 increase in subsidy rates for those with CSCs and a \$10 increase in subsidy rates for those without CSCs. Although this policy relates to the scheduled fees for doctor only visits, we would expect to see a reduction in the fees actually charged to patients in our data. Average fees for those with CSCs rose slightly, while a slight fall in the average fees paid by those in this age group is noticeable between 2003/04 and 2004/05 for those without CSCs (where fees fell from an average \$19.06 to \$18.75; a fall of 31c or 2%). The fall in fees is more noticeable in Interim practices following the new subsidies being introduced in July 2004 for those aged 65 years and over, with fees falling by an average of \$2.69 (12%) for those with CSCs and \$10.17 on average for those without cards (a fall of 31%) between 2003/04 and 2004/05. Subsidy increases for this group (including adjustments for inflation) were \$11 for those with cards and \$26 for those without cards, although these data relate to expected changes in schedule fees for doctor visits.

The next series of graphs and table shows the same data broken down by NZDep2001 Quintile.

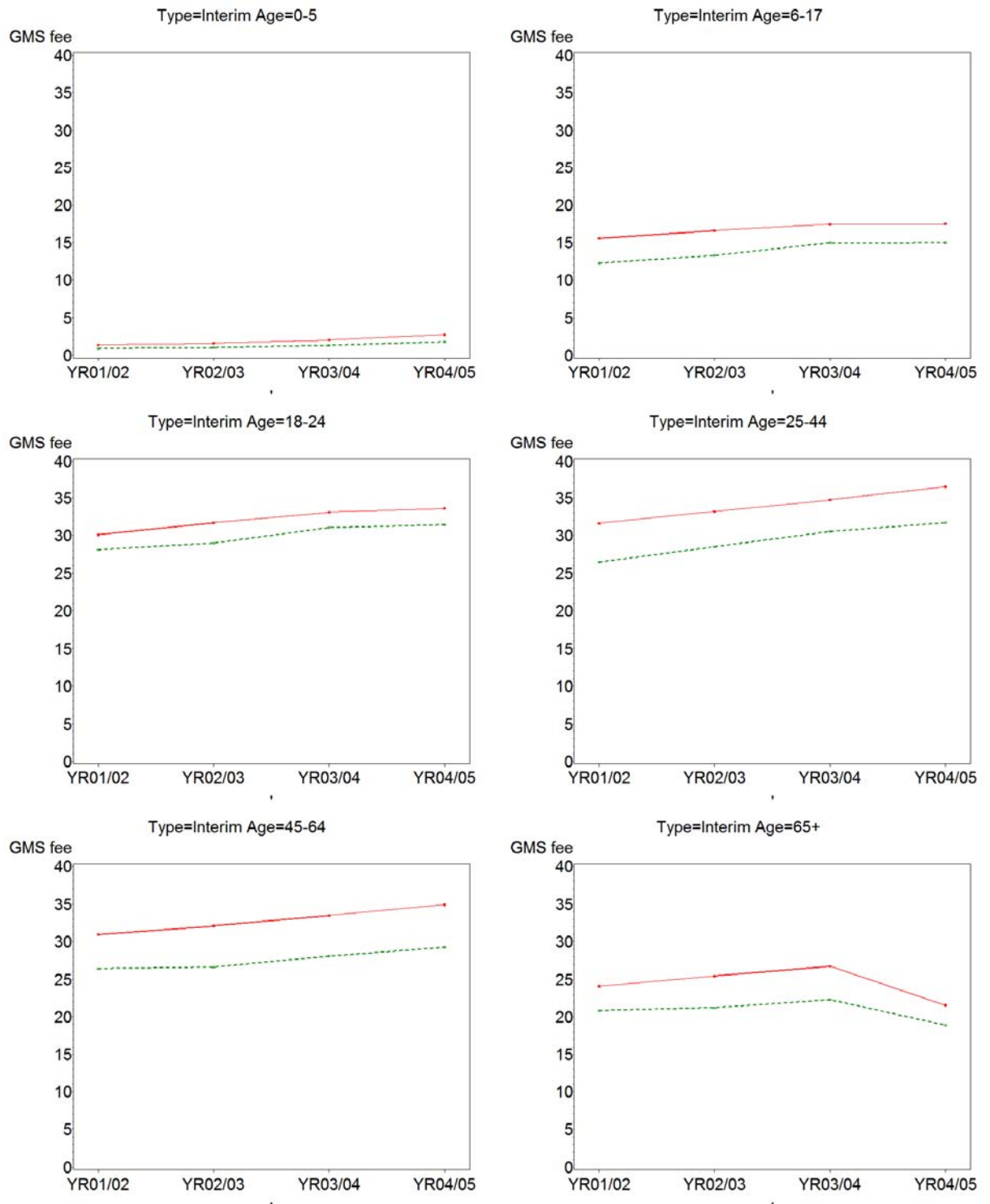
Figure 8 Change in patient co-payments by funding model, age and deprivation

2001/02-2004/05

GMS fees at Access funded Practices



GMS fees at Interim funded Practices



NZDep2001 Quintile 5 —●—●—● No —*—*—* Yes

Table 8 Mean patient co-payments by funding model and deprivation as measured by NZDep quintiles 2001/02-2004/05

Funding Type	Age	NZ Dep 5	2001/02	2002/03	2003/04	2004/05	Change 2001/02-2002/03	Change 2002/03-2003/04	Change 2003/04-2004/05	Change Whole Period 2001/02-2004/05
Access	0-5	N	0.65	0.58	0.44	0.67	-0.07 (-11%)	-0.14 (-24%)	0.23 (52%)	0.02 (3%)
		Y	0.35	0.31	0.24	0.29	-0.04 (-11%)	-0.07 (-23%)	0.05 (21%)	-0.06 (-17%)
	6-17	N	11	11.98	10.29	8.98	0.98 (9%)	-1.69 (-14%)	-1.31 (-13%)	-2.02 (-18%)
		Y	6.98	7.55	5.96	5.7	0.57 (8%)	-1.59 (-21%)	-0.26 (-4%)	-1.28 (-18%)
	18-24	N	21.21	21.8	17.1	16.8	0.59 (3%)	-4.70 (-22%)	-0.30 (-2%)	-4.41 (-21%)
		Y	17.67	17.05	13.01	13.29	-0.62 (-4%)	-4.04 (-24%)	0.28 (2%)	-4.38 (-25%)
	25-44	N	22.98	23.29	18.91	18.99	0.31 (1%)	-4.38 (-19%)	0.08 (0%)	-3.99 (-17%)
		Y	18.2	17.13	13.23	13.87	-1.07 (-6%)	-3.90 (-23%)	0.64 (5%)	-4.33 (-24%)
	45-64	N	23.03	23.21	18.95	18.82	0.18 (1%)	-4.26 (-18%)	-0.13 (-1%)	-4.21 (-18%)
		Y	18.62	17.77	13.69	13.8	-0.85 (-5%)	-4.08 (-23%)	0.11 (1%)	-4.82 (-26%)
	65+	N	19.01	19.92	17.75	15.5	0.91 (5%)	-2.17 (-11%)	-2.25 (-13%)	-3.51 (-18%)
		Y	15.16	15.82	12.97	12.66	0.66 (4%)	-2.85 (-18%)	-0.31 (-2%)	-2.50 (-16%)
Interim	0-5	N	1.41	1.63	2.06	2.76	0.22 (16%)	0.43 (26%)	0.70 (34%)	1.35 (96%)
		Y	0.95	1.05	1.35	1.82	0.10 (11%)	0.30 (29%)	0.47 (35%)	0.87 (92%)
	6-17	N	15.55	16.61	17.44	17.51	1.06 (7%)	0.83 (5%)	0.07 (0%)	1.96 (13%)
		Y	12.27	13.29	14.99	15	1.02 (8%)	1.70 (13%)	0.01 (0%)	2.73 (22%)
	18-24	N	30.11	31.72	33.12	33.61	1.61 (5%)	1.40 (4%)	0.49 (1%)	3.50 (12%)
		Y	28.15	29.01	31.07	31.46	0.86 (3%)	2.06 (7%)	0.39 (1%)	3.31 (12%)
	25-44	N	31.63	33.21	34.75	36.5	1.58 (5%)	1.54 (5%)	1.75 (5%)	4.87 (15%)
		Y	26.49	28.53	30.56	31.73	2.04 (8%)	2.03 (7%)	1.17 (4%)	5.24 (20%)
	45-64	N	30.93	32.09	33.48	34.91	1.16 (4%)	1.39 (4%)	1.43 (4%)	3.98 (13%)
		Y	26.43	26.64	28.08	29.27	0.21 (1%)	1.44 (5%)	1.19 (4%)	2.84 (11%)
	65+	N	24.08	25.42	26.73	21.55	1.34 (6%)	1.31 (5%)	-5.18 (-19%)	-2.53 (-11%)
		Y	20.86	21.24	22.3	18.91	0.38 (2%)	1.06 (5%)	-3.39 (-15%)	-1.95 (-9%)

Looking at the experiences of people in different age groups, by Access and Interim funding and by deprivation, those in more deprived communities pay lower fees on average in both types of funding model.

In Access practices, fees have risen for those aged 0-5 years of age in NZDep 1-4 over the full study period while falling for those in NZDep 5. Fees have changed at the same rate for 6-17 year olds regardless of NZDep status. For those aged 18-64, fees have tended to fall by slightly more in NZDep 5 population groups than for those in NZDep 1-4. For those aged 65 years and over, fees have fallen slightly further for those in NZDep 1-4 than for those in NZDep 5.

In Interim practices, increases in fees have been slightly lower for those aged under 6 years of age and for 45-64 year olds in NZDep 5 than for those in NZDep 1-4, while 6-17 and 25-44 year olds in NZDep 5 have faced higher increases than those in NZDep 1-4. Increases are similar across the socio-demographic scale for 18-24 year olds. Falls in fees are higher for those in NZDep 1-4 than in NZDep 5 for those aged 65 years and over.

In relation to deprivation, the research shows that overall, fees are lower within each funding model for those in the more deprived communities. Reductions in fees are generally benefiting those in more deprived communities more than those in less deprived communities in Access practices. The pattern is more mixed in Interim practices.

Changes in patient fees by ethnicity

The government also has a goal of reducing inequalities in health between different ethnic groups, in particular, improving the health status of Māori and Pacific populations and of those in lower socio-economic groups. Reducing fees for primary health care, improving access to services and increasing utilisation of services may all contribute to the achievement of the goals of reduced inequalities. Hence, our analyses consider how fees are changing for different ethnic groups.

Ethnicity data was available for 93% of patients in our sample; ethnicity is through self-identification when a patient enrolls with a PHO or practice. We report on Māori, Pacific, Asian and “Other” ethnic groups, where “Other” includes all other categories, including where ethnicity is not recorded. The graph below shows the changes in fees for all age groups by ethnic group, over the 2001-2005 period.

Figure 9 Changes in co-payments by ethnicity 2001/02-2004/05

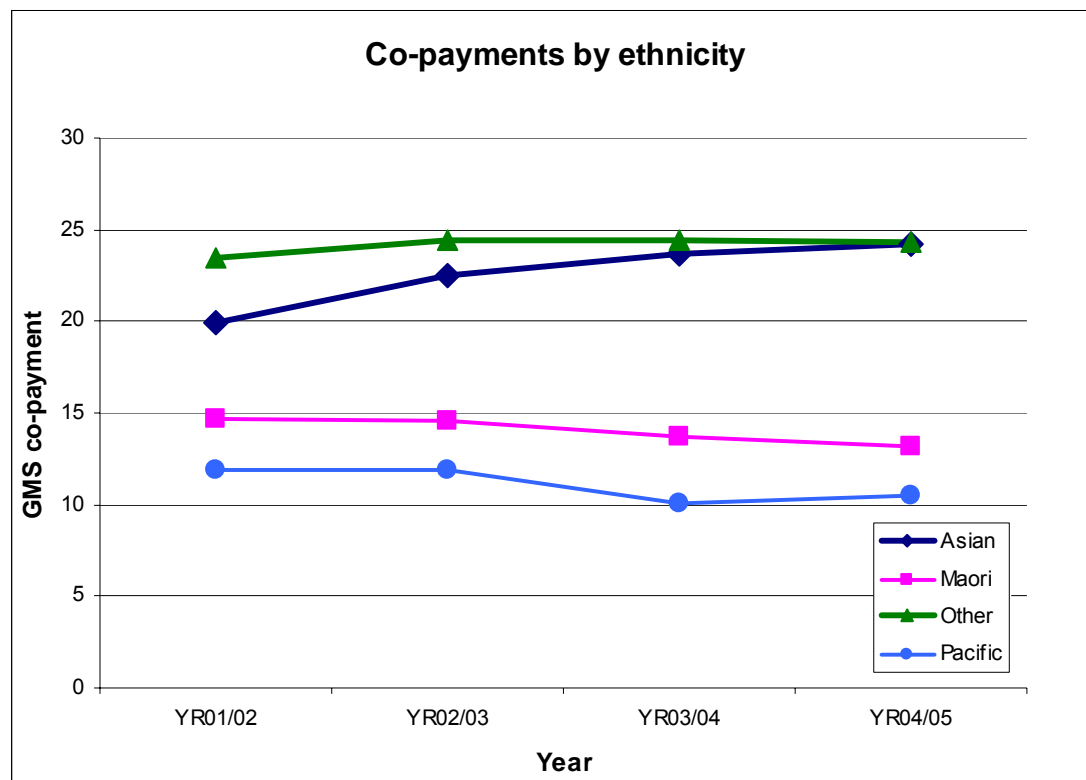


Table 9 Changes in co-payments by ethnicity 2001/02-2004/05

Year	2001/02	2002/03	2003/04	2004/05	Change 01/02-02/03	Change 02/03-03/04	Change 03/04-04/05	Change Whole period 2001/02- 2004/05
Asian	19.9	22.48	23.71	24.22	2.58 (13%)	1.23 (5%)	0.51 (2%)	4.32 (22%)
Maori	14.63	14.56	13.76	13.13	-0.07 (0%)	-0.80 (-5%)	-0.63 (-5%)	-1.50 (-10%)
Other	23.5	24.46	24.47	24.28	0.96 (4%)	0.01 (0%)	-0.19 (-1%)	0.78 (3%)
Pacific	11.84	11.9	10.04	10.46	0.06 (1%)	-1.86 (-16%)	0.42 (4%)	-1.38 (-12%)

Over the entire study period, average fees have reduced for Pacific patients by 12% and for Māori by 10%. Fees have increased slightly for the “Other” ethnic group (by 3%) and increased by 22% for Asian patients. Thus, changes in fees are benefiting Māori and Pacific groups by more than other ethnic groups, potentially reducing fees for two high needs groups relative to other groups in the population. This is likely to reflect the fact that Access practices have a higher proportion of Māori and Pacific people enrolled with them and it is these practices which have received new funding for all age groups over the study period. Asian populations have faced the highest increase in fees over time.

Fees charged for GP encounters

One of the key drivers of the PHCS has been the recognition that primary health care is best delivered by doctors, nurses and other providers contributing to patient care as a team. However, most practices still maintain different fees for doctor and nurse visits. This section considers how fees that patients are charged for seeing doctors have changed since 2001.

To undertake this analysis it was necessary to identify invoiced encounters at which a doctor was seen – “definite GP” encounters (a nurse may also have been seen at the same consultation). In some practices this is not possible, as nurse encounters are recorded under doctor provider codes. To make sure that the analysis reflected what was actually happening in practices we asked each practice to complete a brief questionnaire regarding their business processes. All 99 practices completed the questionnaire. Of these, 93 practices had a practice policy that meant that an encounter recorded as being provided by the doctor was always an encounter where a doctor was seen. It should be noted that in the six practices where the distinction between nurse and doctor visits could not be made, doctor and nurse consultations may still be distinguished within the text of the consultation note; however, we have not been able to analyse these notes in order to extract information on doctor and nurse visits. Hence, only 93 practices contributed to the following analysis.

The average fees at encounters where we can be certain a doctor was seen are slightly higher than for all invoiced visits, reflecting the fact that most encounters are doctor encounters (see Section 5).

The changes in fees are shown for Access and Interim practices in the following tables and graphs.

Figure 10 Changes in co-payments for GP consultations – Access practices
2001/02-2004/05

Mean fee - Access

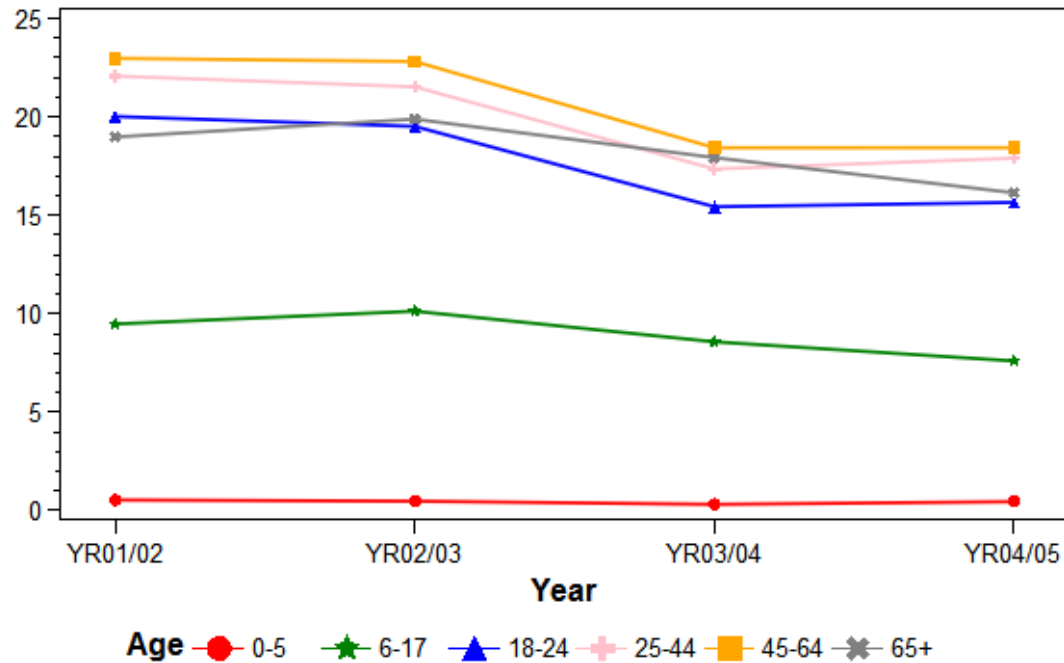


Figure 11 Changes in co-payments for GP consultations – Interim practices
2001/02-2004/05

Mean fee - Interim

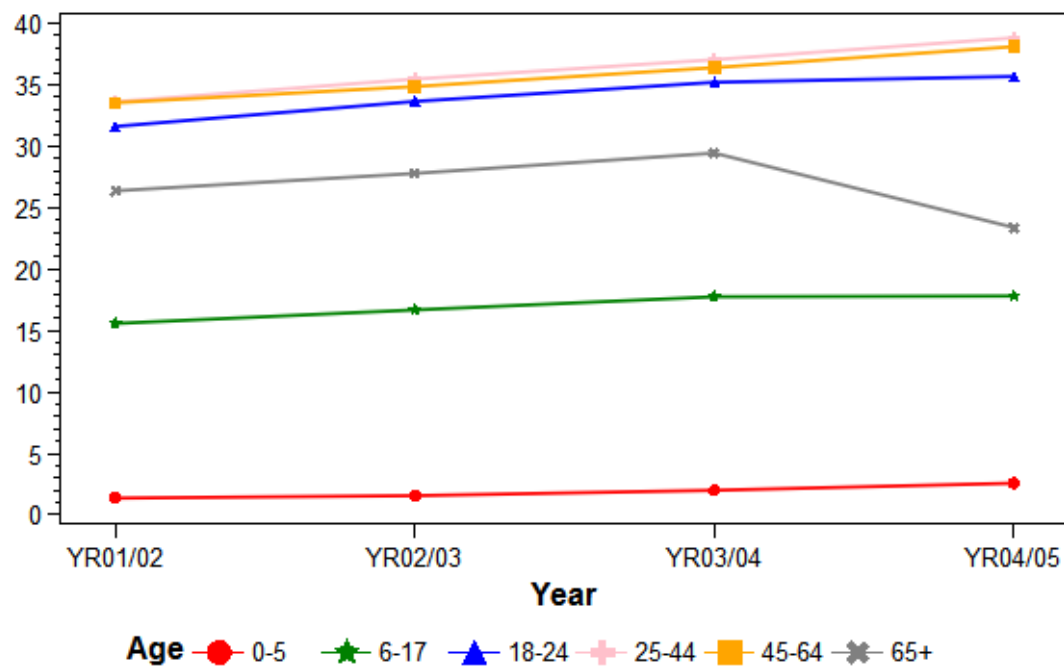


Table 10 Changes in co-payments for GP consultations 2001/02-2004/05

Type	Age	2001/02	2002/03	2003/04	2004/05	Change 01/02-02/03	Change 02/03-03/04	Change 03/04-04/05	Change Whole period 2001/02-2004/05
Access	0-5	0.54	0.48	0.32	0.45	-0.06 (-11%)	-0.16 (-33%)	0.13 (41%)	-0.09 (-17%)
	6-17	9.48	10.13	8.57	7.6	0.65 (7%)	-1.56 (-15%)	-0.97 (-11%)	-1.88 (-20%)
	18-24	20.02	19.52	15.44	15.65	-0.5 (-2%)	-4.08 (-21%)	0.21 (1%)	-4.37 (-22%)
	25-44	22.07	21.52	17.35	17.9	-0.55 (-2%)	-4.17 (-19%)	0.55 (3%)	-4.17 (-19%)
	45-64	22.97	22.81	18.43	18.43	-0.16 (-1%)	-4.38 (-19%)	0.00 (0%)	-4.54 (-20%)
	65+	18.98	19.89	17.93	16.14	0.91 (5%)	-1.96 (-10%)	-1.79 (-10%)	-2.84 (-15%)
Interim	0-5	1.36	1.56	2	2.58	0.2 (15%)	0.44 (28%)	0.58 (29%)	1.22 (90%)
	6-17	15.57	16.68	17.75	17.81	1.11 (7%)	1.07 (6%)	0.06 (0%)	2.24 (14%)
	18-24	31.61	33.64	35.2	35.67	2.03 (6%)	1.56 (5%)	0.47 (1%)	4.06 (13%)
	25-44	33.62	35.46	37.04	38.82	1.84 (5%)	1.58 (4%)	1.78 (5%)	5.2 (15%)
	45-64	33.54	34.85	36.39	38.1	1.31 (4%)	1.54 (4%)	1.71 (5%)	4.56 (14%)
	65+	26.37	27.79	29.44	23.38	1.42 (5%)	1.65 (6%)	-6.06 (-21%)	-2.99 (-11%)

The pattern is very similar to the changes in fees shown earlier for all invoiced encounters, although fees for child visits have fallen further for GP consultations than for GP and nurse consultations in Access practices.

The table below shows these changes in invoiced fees broken down by CSC status.

Table 11 Changes in co-payments at GP consultations by CSC status
2001/02-2004/05

Funding Type	Age	CSC Status	2001/02	2002/03	2003/04	2004/05	Change 01/02-02/03 Change 01/02-02/03	Change 02/03-03/04 Change 02/03-03/04	Change 03/04-04/05 Change 03/04-04/05	Change Whole period 2001/02-2004/05
Access	0-5	N	0.83	0.71	0.45	0.7	-0.12 (-14%)	-0.26 (-37%)	0.25 (56%)	-0.13 (-16%)
		Y	0.39	0.36	0.25	0.31	-0.03 (-8%)	-0.11 (-31%)	0.06 (24%)	-0.08 (-21%)
	6-17	N	12.74	13.89	11.2	9.44	1.15 (9%)	-2.69 (-19%)	-1.76 (-16%)	-3.3 (-26%)
		Y	7.37	7.68	6.95	6.51	0.31 (4%)	-0.73 (-10%)	-0.44 (-6%)	-0.86 (-12%)
	18-24	N	24.27	24.87	18	17.64	0.6 (2%)	-6.87 (-28%)	-0.36 (-2%)	-6.63 (-27%)
		Y	17.23	16.44	13.88	14.55	-0.79 (-5%)	-2.56 (-16%)	0.67 (5%)	-2.68 (-16%)
	25-44	N	27.52	27.04	21.02	21.39	-0.48 (-2%)	-6.02 (-22%)	0.37 (2%)	-6.13 (-22%)
		Y	16.78	16.31	14.06	14.96	-0.47 (-3%)	-2.25 (-14%)	0.9 (6%)	-1.82 (-11%)
	45-64	N	27.19	26.98	20.93	20.95	-0.21 (-1%)	-6.05 (-22%)	0.02 (0%)	-6.24 (-23%)
		Y	17.48	17.2	15.04	15.16	-0.28 (-2%)	-2.16 (-13%)	0.12 (1%)	-2.32 (-13%)
	65+	N	26.7	27.07	22.3	17.74	0.37 (1%)	-4.77 (-18%)	-4.56 (-20%)	-8.96 (-34%)
		Y	16.69	17.6	16.48	15.59	0.91 (5%)	-1.12 (-6%)	-0.89 (-5%)	-1.1 (-7%)
Interim	0-5	N	1.67	2.06	2.71	3.31	0.39 (23%)	0.65 (32%)	0.6 (22%)	1.64 (98%)
		Y	0.96	0.97	1.12	1.6	0.01 (1%)	0.15 (15%)	0.48 (43%)	0.64 (67%)
	6-17	N	17.7	19.09	19.91	19.55	1.39 (8%)	0.82 (4%)	-0.36 (-2%)	1.85 (10%)
		Y	12.76	13.5	14.96	15.5	0.74 (6%)	1.46 (11%)	0.54 (4%)	2.74 (21%)
	18-24	N	34.83	37.58	39.3	39.35	2.75 (8%)	1.72 (5%)	0.05 (0%)	4.52 (13%)
		Y	27.67	29.51	31.43	32.66	1.84 (7%)	1.92 (7%)	1.23 (4%)	4.99 (18%)
	25-44	N	36.95	39.23	40.68	42.26	2.28 (6%)	1.45 (4%)	1.58 (4%)	5.31 (14%)
		Y	26.7	27.97	30.04	32.44	1.27 (5%)	2.07 (7%)	2.4 (8%)	5.74 (21%)
	45-64	N	36.46	37.85	39.26	41.1	1.39 (4%)	1.41 (4%)	1.84 (5%)	4.64 (13%)
		Y	25.97	26.86	28.73	30.17	0.89 (3%)	1.87 (7%)	1.44 (5%)	4.2 (16%)
	65+	N	34.7	36.28	37.26	25.03	1.58 (5%)	0.98 (3%)	-12.23 (-33%)	-9.67 (-28%)
		Y	22.82	24.08	25.93	22.59	1.26 (6%)	1.85 (8%)	-3.34 (-13%)	-0.23 (-1%)

In terms of both fees charged and changes in fees over time, the patterns we see in these data match exactly those seen in the earlier data relating to both GP and nurse visits. Thus, in Access practices, within each age group, the data show that those with CSCs pay a lower average fee than those without cards. Within each age group, the larger falls in fees, however, are occurring for those without CSCs, except for those aged six years and under where the falls in fees have been higher for those with CSCs.

In Interim practices, within each age group, fees are also lower on average for those with cards than for those without cards. Fees are not rising as fast for children with CSCs as for those without cards; and the increases in fees have been less for those without cards than for those with cards across the 6-64 year old age group. For those aged 65 years and over, fees have fallen further for those without CSCs.

Thus, as noted earlier in relation to the fees charged for doctor and nurse visits, the level of fees charged to different groups may support government moves to reduce inequalities (as measured by CSC status), with fees lower on average for those with CSCs. However, the changes in fees over time may not be supportive of government moves to reduce inequalities – in Access practices, much of the benefit of the new funding is, as expected, going to those without CSCs, while in Interim practices, fees are generally not rising as fast for those without cards, ie benefiting those in better socio-economic positions, except for children, while they have fallen further for those aged 65 years and over without CSCs.

In terms of changes in the average level of fees over time, in Access practices we see falls of between 8c for children with community services cards to falls of \$8.98 for those aged 65 years and over without community services cards. Percentage falls in fees range from 7% for those aged 65 years and over without community services cards, to between 11% and 27% for most other population groups, to 34% for those aged 65 years and over without community services cards.

As noted earlier, new funding was introduced for Interim practices in October 2003 for those aged 6-17 – with a \$5 increase in subsidy rates for those with CSCs and a \$10 increase in subsidy rates for those without CSCs. The policy applies to scheduled fees for GP visits and hence the impact of these changes will be more clearly seen in the data relating to doctor encounters, although again it must be remembered that our data relate to the fees actually charged to patients while government policy has focused on scheduled fees. In the Table above, fees rose slightly for those aged 6-17 with CSCs between 2003/04 and 2004/05 by 54c or 4%) while a slight fall in the average fees paid by those in this age group is noticeable between 2003/04 and 2004/05 for those without CSCs (where fees fell from an average \$19.91 to \$19.55; a fall of 36c or 2%). The fall in fees is again more noticeable in Interim practices following the new subsidies being introduced in July 2004 for those aged 65 years and over, with fees falling by an average of \$3.34 (13%) for those with CSCs and \$12.23 on average for those without cards (a fall of 33%). Subsidy increases for this group (including adjustments for inflation) were \$11 for those with cards and \$26 for those without cards.

Table 12 Changes in co-payments at GP consultations by NZDep score
2001/02-2004/05

Funding Type	Age	NZ Dep5	2001/02	2002/03	2003/04	2004/05	Change 01/02-02/03	Change 02/03-03/04	Change 03/04-04/05	Change 2001/02-2004/05
Access	0-5	N	0.74	0.65	0.4	0.69	-0.09 (-12%)	-0.25 (-38%)	0.29 (73%)	-0.05 (-7%)
		Y	0.37	0.33	0.25	0.28	-0.04 (-11%)	-0.08 (-24%)	0.03 (12%)	-0.09 (-24%)
	6-17	N	11.27	12.05	10.66	9.35	0.78 (7%)	-1.39 (-12%)	-1.31 (-12%)	-1.92 (-17%)
		Y	7.22	7.63	6.12	5.8	0.41 (6%)	-1.51 (-20%)	-0.32 (-5%)	-1.42 (-20%)
	18-24	N	21.65	21.58	17.8	17.45	-0.07 (0%)	-3.78 (-18%)	-0.35 (-2%)	-4.2 (-19%)
		Y	18.45	17.48	13.25	14.02	-0.97 (-5%)	-4.23 (-24%)	0.77 (6%)	-4.43 (-24%)
	25-44	N	23.97	24.11	20.23	20.65	0.14 (1%)	-3.88 (-16%)	0.42 (2%)	-3.32 (-14%)
		Y	19.5	18.07	13.91	14.95	-1.43 (-7%)	-4.16 (-23%)	1.04 (7%)	-4.55 (-23%)
	45-64	N	24.57	24.71	20.51	20.6	0.14 (1%)	-4.2 (-17%)	0.09 (0%)	-3.97 (-16%)
		Y	19.84	19.01	14.59	14.74	-0.83 (-4%)	-4.42 (-23%)	0.15 (1%)	-5.10 (-26%)
	65+	N	20.3	21.37	19.74	17.19	1.07 (5%)	-1.63 (-8%)	-2.55 (-13%)	-3.11 (-15%)
		Y	16.08	16.56	14.06	13.93	0.48 (3%)	-2.50 (-15%)	-0.13 (-1%)	-2.15 (-13%)
Interim	0-5	N	1.44	1.66	2.12	2.74	0.22 (15%)	0.46 (26%)	0.62 (29%)	1.3 (90%)
		Y	0.98	1.12	1.46	1.86	0.14 (14%)	0.34 (30%)	0.4 (27%)	0.88 (90%)
	6-17	N	16.11	17.24	18.13	18.15	1.13 (7%)	0.89 (5%)	0.02 (0%)	2.04(13%)
		Y	12.59	13.45	15.71	15.99	0.86 (7%)	2.26 (17%)	0.28 (2%)	3.4 (27%)
	18-24	N	31.89	34.03	35.38	35.88	2.14 (7%)	1.35 (4%)	0.5 (1%)	3.99 (13%)
		Y	30.53	32.1	34.48	34.92	1.57 (5%)	2.33 (7%)	0.44 (1%)	4.39 (14%)
	25-44	N	34.33	36.09	37.52	39.46	1.76 (5%)	1.43 (4%)	1.94 (5%)	5.13 (15%)
		Y	29.74	32.02	34.51	35.64	2.28 (8%)	2.49 (8%)	1.13 (3%)	5.90 (20%)
	45-64	N	33.97	35.36	36.87	38.61	1.39 (4%)	1.51 (4%)	1.74 (5%)	4.64 (14%)
		Y	29.99	30.46	32.54	34.16	0.47(2%)	2.08 (7%)	1.62 (5%)	4.17 (14%)
	65+	N	26.77	28.26	29.77	23.58	1.49 (6%)	1.51 (5%)	-6.19 (-21%)	-3.19 (-12%)
		Y	23.32	23.82	26.78	21.83	0.5 (2%)	2.96 (12%)	-4.95 (-18%)	-1.49 (-6%)

Again, the patterns seen in the earlier data assessing levels and changes in fees for GP and nurse visits are generally also seen in the doctor encounter data set out in the table above.

Looking at the experiences of people in different age groups, by Access and Interim funding and by deprivation, those in more deprived communities pay lower fees on average in both types of funding model.

In Access practices, fees have fallen over the entire study period for those aged 0-5 years of age in NZDeps 1-4 and NZDep 5, with the fall in fees greater for those in NZDep 5. Fees have reduced at a slightly higher rate for 6-17 year olds in NZDep 5. For those aged 18-64, fees have tended to fall by more in NZDep 5 population groups than for those in NZDep 1-4. For those aged 65 years and over, fees have fallen slightly further for those in NZDep 1-4 than for those in NZDep 5.

In Interim practices, increases in fees have been the same for both NZDep groups for children, and very similar for those aged 18-24 and 45-64, while 6-17 year olds and 25-44 year olds in NZDep 5 have faced higher increases than those in NZDep 1-4. Falls in fees are higher for those in NZDep 1-4 than in NZDep 5 for those aged 65 years and over.

In relation to deprivation, the research shows that overall, fees are lower within each funding model for those in the more deprived communities. Changes (reductions) in fees are generally benefiting those in more deprived communities more than those in less deprived communities in Access practices. The pattern is more mixed in Interim practices.

Thus, the analyses relating to doctor encounters show a very similar picture to that gained when assessing both doctor and nurse visits. The reason for this is that the majority of visits are visits where a doctor was seen (see Section 5), and the differences in average fees charged when nurse visits are removed are small, as can be seen in Table 13 below. Generally, fees for GP encounters with GPs are higher than fees for all encounters.

Table 13 Differences in fees between Definite GP invoiced encounters and All invoiced encounters (Average GP fee less All fee) 2001/02-2004/05

Funding type	Age	CSC	Difference 2001/02	Difference 2002/03	Difference 2003/04	Difference 2004/05
Access	0-5	N	0.09	0.05	-0.04	0.00
		Y	0.02	0.04	0.00	-0.02
	6-17	N	0.27	0.08	0.30	0.21
		Y	0.15	-0.04	0.18	0.17
	18-24	N	1.07	0.27	0.56	0.55
		Y	0.23	-0.13	0.28	0.70
	25-44	N	1.35	0.93	1.14	1.64
		Y	0.85	0.74	0.82	1.05
	45-64	N	1.65	1.65	1.50	1.73
		Y	1.05	0.95	1.00	1.02
Interim	0-5	N	1.93	2.07	2.42	1.64
		Y	0.89	0.95	1.45	1.51
	6-17	N	0.03	0.06	0.10	-0.02
		Y	0.03	0.03	0.04	0.01
	18-24	N	0.75	0.83	0.85	0.80
		Y	0.26	0.24	0.53	0.59
	25-44	N	2.14	2.57	2.54	2.33
		Y	1.63	2.32	2.41	2.65
	45-64	N	3.00	3.24	3.17	3.18
		Y	2.28	2.45	2.54	3.00
	65+	N	3.29	3.55	3.69	4.06
		Y	2.58	2.77	3.08	3.35
	65+	N	3.71	4.07	4.25	2.19
		Y	2.23	2.31	2.84	2.19

Consultation rates

This section of the report focuses on changes in consultation rates over time, ie changes in the use of primary health care services over time. To calculate changes in consultation rates, we need to define a denominator – a population whose number of consultations we will be counting, and a numerator – the number of consultations made by this population in a given time period. Each of these presents some problems.

Technical considerations

Denominators

The population that could use a primary health care service in any given time period may be defined by the patient register; by restricting the register to all patients formally registered at the practice in any given time period. This could be achieved by excluding casual, transferred and deceased patients. However, a difficulty arises with this procedure, because practice registers record only the date a patient enrolled with a practice and their current status – there is no historical record, and therefore there is no way of determining the date at which a patient became ineligible for inclusion in the denominator (eg, because they have since registered with another practice).

When registers are downloaded each quarter, as is the case with national reports on use of services, consultation rates can be tracked over time for the entire population, with relatively little error. In a one-off study focused on a sample of practices, and where historical data on registrations are not available, the denominator changes over time. As patients join a practice the denominator increases, while patients who have left the practice do not contribute to the analysis. This approach has the disadvantage that the cohort being followed is then under-representative of patients who are relatively transient, that is, those patients more likely to change providers in the period under investigation. It also excludes the consultations of patients who have died during the study period.

Numerators

The definition of a consultation is also surprisingly difficult. As we understand it, the national reporting from PHOs to HealthPAC is currently based on information from the “invoices” tables in the PMS. As we noted earlier, for an encounter to be recorded when a patient fee is not charged, a “zero invoice” must be entered. This does not happen reliably, and national data collections may therefore tend to underestimate consultation rates.

Prescribing behaviour within a practice can introduce a further complication. If a repeat prescription is written, but a patient is not seen, an encounter is recorded. Typically a fee will also be charged, and an invoice will also be generated (any such events would be counted in national PHO utilisation data as a consultation). A zero invoice may also be generated where no fee is charged. As there is no way of determining if a patient was seen or not without examining the consultation note, these events have been counted as consultations in the following analyses. Similar considerations apply when a clinician records a note without seeing a patient for other reasons, for example when commenting on a laboratory test result.

On the other hand, it is possible for a clinician to enter data without entering a consultation note (and thus having an encounter recorded). This can happen if a nurse uses a screening template without opening a patient’s consultation notes.

Some practices reliably record whether a consultation was a telephone consultation or not. If a consultation is recorded as a telephone consultation, it has been excluded from our calculations. In our sample, three percent of consultations were recorded as telephone consultations.

We collected data from both the “encounters” and “invoices” tables of practice management systems. To maintain the maximum comparability with national data sets we have restricted our numerator to encounters with an associated invoice generated on the same day. Overall, as noted earlier, 52% of encounters have an associated invoice.

Finally, it should be noted for completeness that consultations at other providers will not be counted, for example after-hours consultations or consultations at providers at other locations in normal working hours. Practices will typically have to fund these consultations via “claw back” mechanisms, in which the proportion of their capitation payment that was allocated to cover these consultations is deducted from their next month’s capitation payment.

Calculating rates

When numerators and denominators have been defined, consultation rates can be calculated. Consultation rates are only calculated for registered patients; both the numerator and denominator are restricted to registered patients only. The graphs show consultation rates for patients in the national random sample of practices, regardless of practice type. Graphs are presented by real time, ie by actual date. Data are recorded for all patients registered with a practice since June 2001.

Changes in consultation rates

Figure 12 Mean consultation rates 2001/02-2004/05 by age

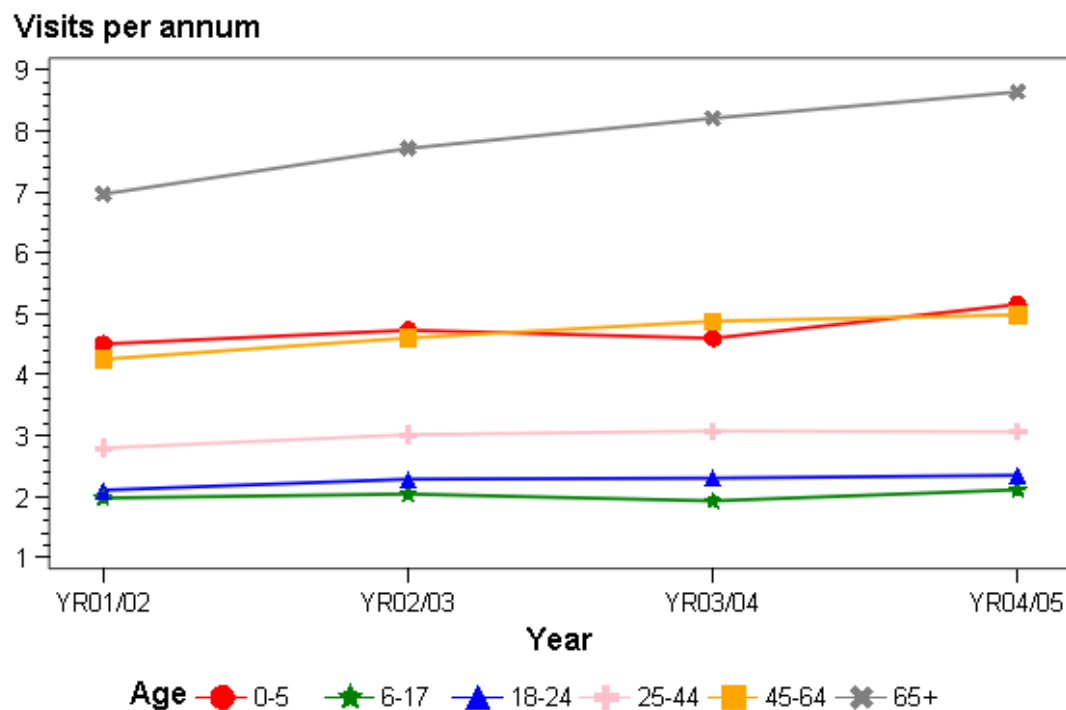


Table 14 Mean consultation rates 2001/02-2004/05 by age*

	2001/02	2002/03	2003/04	2004/05	Change 01/02-02/03	Change 02/03-03/04	Change 03/04-04/05	Change 2001/02- 2004/05
0-5	4.5	4.73	4.59	5.15	0.23 (5%)	-0.14 (-3%)	0.56 (12%)	0.65 (14%)
6-17	1.97	2.04	1.92	2.11	0.07 (4%)	-0.12 (-6%)	0.19 (10%)	0.14 (7%)
18-24	2.1	2.28	2.3	2.34	0.18 (9%)	0.02 (1%)	0.04 (2%)	0.24 (11%)
25-44	2.79	3.01	3.07	3.06	0.22 (8%)	0.06 (2%)	-0.01 (0%)	0.27 (10%)
45-64	4.25	4.6	4.87	4.98	0.35 (8%)	0.27 (6%)	0.11 (2%)	0.73 (17%)
65+	6.96	7.71	8.21	8.64	0.75 (11%)	0.50 (7%)	0.43 (5%)	1.68 (24%)

*All data are reported as numerical values in this and following tables reporting on changes in consultation rates. Percentage change is reported rounded to the nearest percent in this and all following tables.

The data show increases in consultation rates across all age groups over the 2001/02-2004/05 period, in particular amongst those aged 65 years of age and over, with an extra 1.68 consultations per annum (a 24% increase). The next highest increase is amongst those aged 45-64 years of age (0.73 consultations, a 17% increase), followed by those aged 0-5 years of age (0.65 consultations, a 14% increase). Smaller increases occurred for those aged 18-24 (0.24, 11%), 25-44 (0.27, 10%) and 6-17 years of age (0.14, 7%).

Consultation rates by age and funding model

The previous graph shows consultation rates for all patients, from all practices. However, aggregating the data in this way obscures how consultation rates may be changing for different groups in the population. The next series of graphs look at consultation rates by practice funding model, for all age groups. A table gives the actual values and percentage changes over time.

Figure 13 Consultation rates at Access practices 2001/02-2004/05

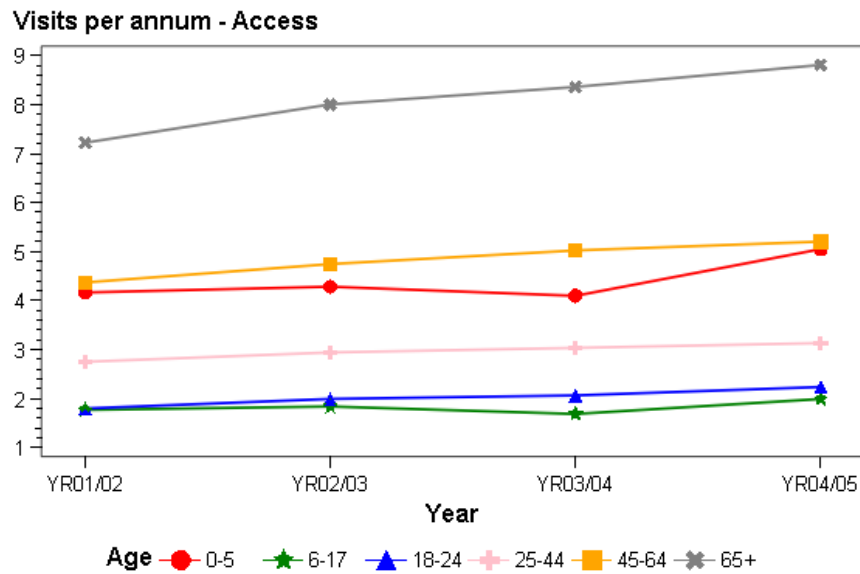


Figure 14 Consultation rates at Interim practices 2001/02-2004/05

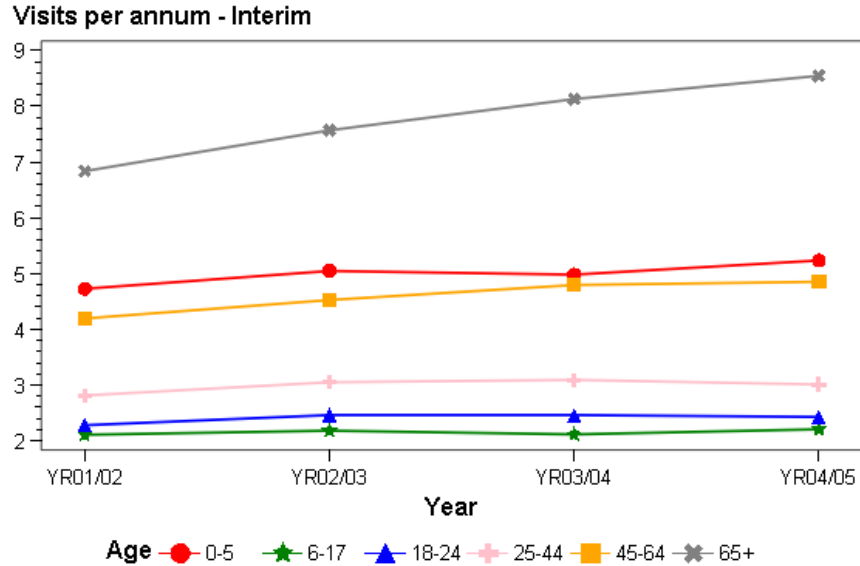


Table 15 Consultation rates by funding model and age 2001/02-2004/05

Type	Age	2001/02	2002/03	2003/04	2004/05	Change 01/02-02/03	Change 02/03-03/04	Change 03/04-04/05	Change 2001/02- 2004/05
Access	0-5	4.2	4.3	4.1	5.0	0.10 (2%)	-0.20 (-5%)	0.90 (22%)	0.80 (19%)
	6-17	1.8	1.8	1.7	2.0	0.00 (0%)	-0.10 (-6%)	0.30 (18%)	0.20 (11%)
	18-24	1.8	2.0	2.1	2.2	0.20 (11%)	0.10 (5%)	0.10 (5%)	0.40 (22%)
	25-44	2.7	2.9	3.0	3.1	0.20 (7%)	0.10 (3%)	0.10 (3%)	0.40 (15%)
	45-64	4.4	4.7	5.0	5.2	0.30 (7%)	0.30 (6%)	0.20 (4%)	0.80 (18%)
	65+	7.2	8.0	8.4	8.8	0.80 (11%)	0.40 (5%)	0.40 (5%)	1.60 (22%)
Interim	0-5	4.7	5.0	5.0	5.2	0.30 (6%)	0.00 (0%)	0.20 (4%)	0.50 (11%)
	6-17	2.1	2.2	2.1	2.2	0.10 (5%)	-0.10 (-5%)	0.10 (5%)	0.10 (5%)
	18-24	2.3	2.5	2.5	2.4	0.20 (9%)	0.00 (0%)	-0.10 (-4%)	0.10 (4%)
	25-44	2.8	3.1	3.1	3.0	0.30 (11%)	0.00 (0%)	-0.10 (-3%)	0.20 (7%)
	45-64	4.2	4.5	4.8	4.9	0.30 (7%)	0.30 (7%)	0.10 (2%)	0.70 (17%)
	65+	6.8	7.6	8.1	8.5	0.80 (12%)	0.50 (7%)	0.40 (5%)	1.70 (25%)

The data show increases in consultation rates in Access practices across the entire study period. In these practices, greater increases in consultation rates have occurred amongst those aged 65 years and over (1.6 consultations, 22%); 18-24 (0.4 consultations, 22%); under six (0.8 consultations, 19%) and 45-64 years of age (0.8 consultations, 18%).

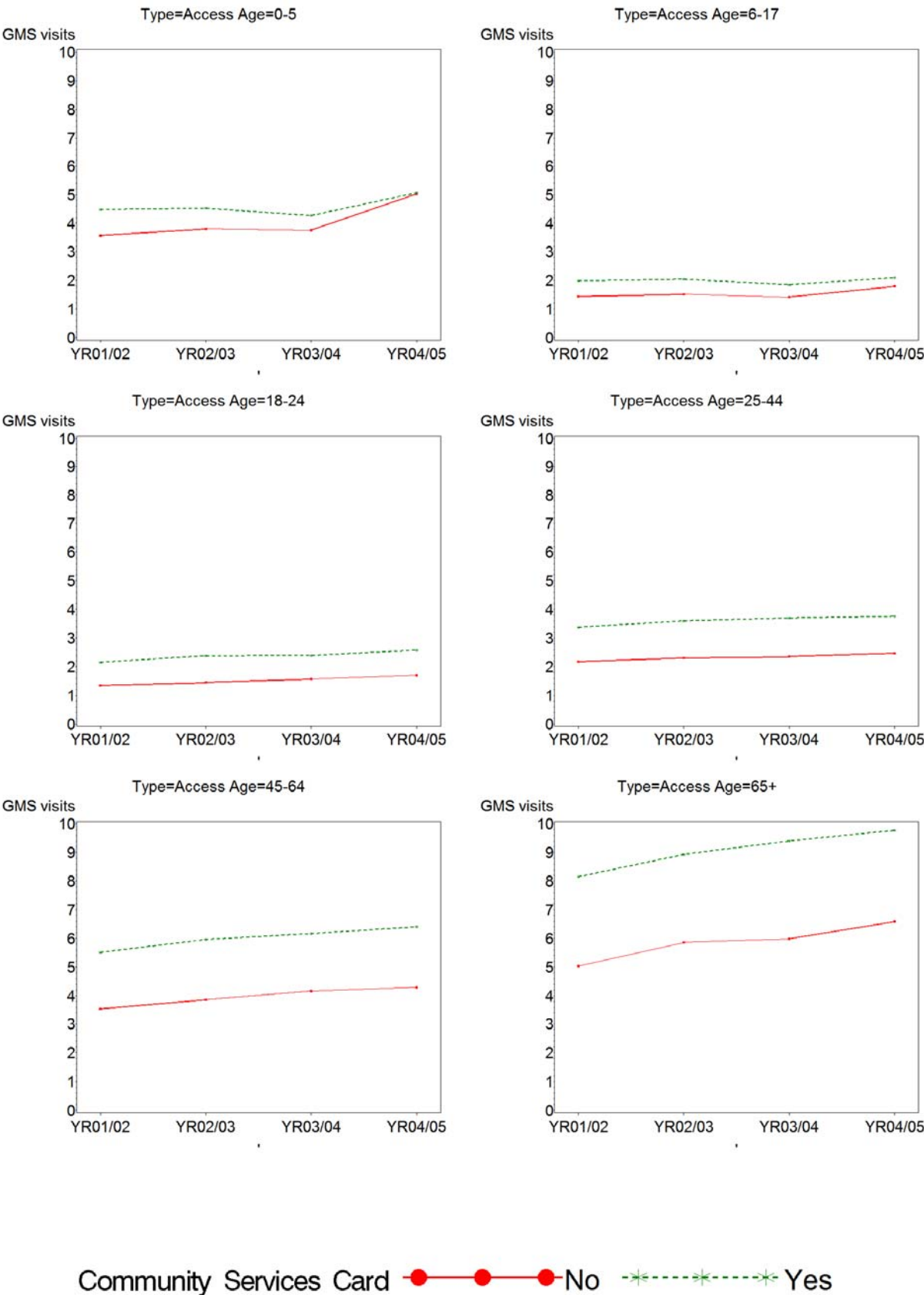
In Interim practices, there has also been an overall increase in consultation rates across the entire study period, although the increase in percentage terms is lower in Interim practices than for those in Access practices for all age groups other than those aged 65 years and over, while being very similar in Interim and Access practices for those aged 45-64 year olds. The greatest increases in consultation rates is amongst those aged 65 years and over (1.7 consultations, 25%), 45-64 (0.7, 17%) and those aged under six (0.5, 11%).

Consultation rates by age, funding model, community services card status and NZDep status

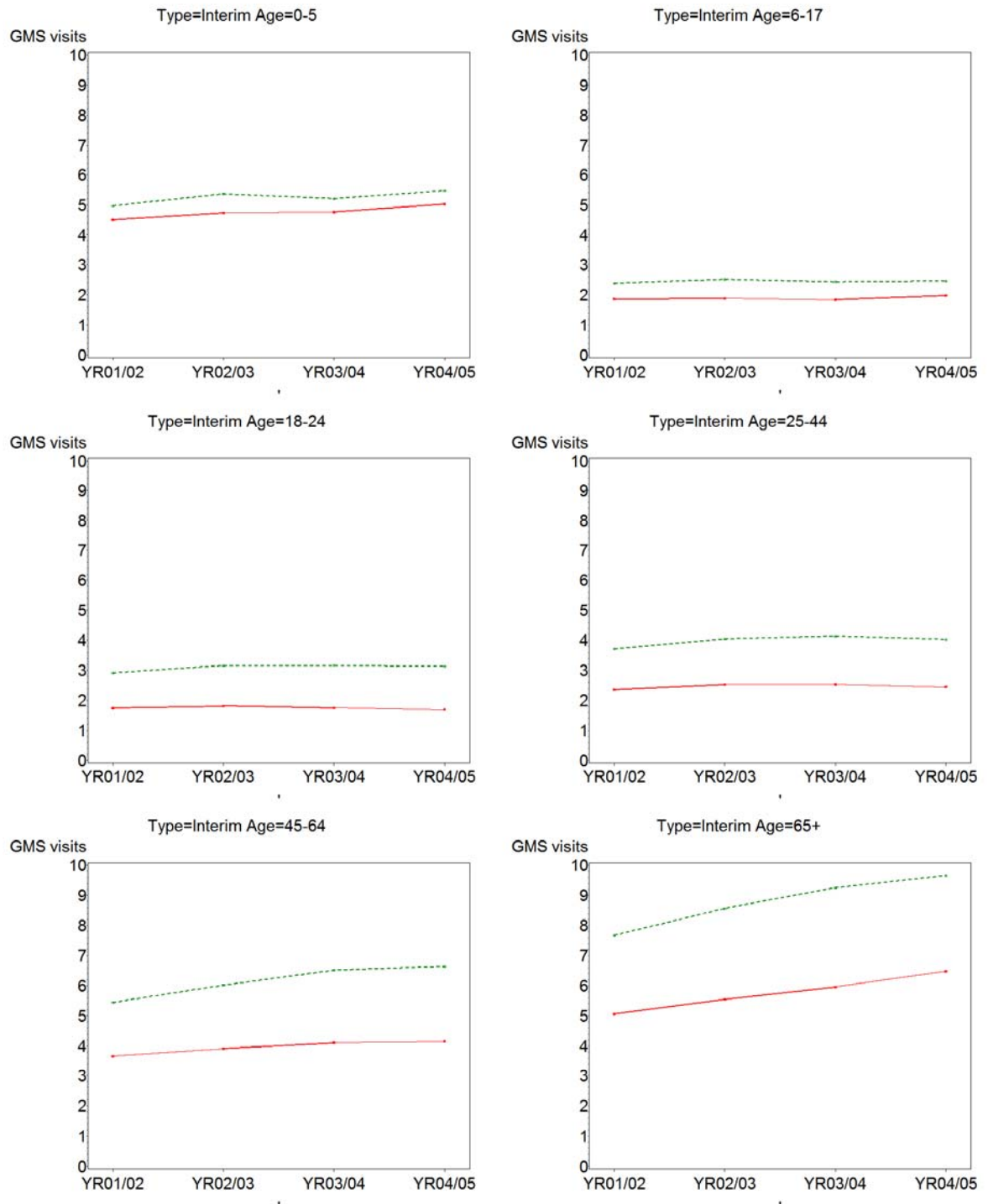
When we break the data down further to consider the experiences of those with and without CSCs, we see increases over the entire study period in consultation rates for all groups, except for those aged 18-24 in Interim practices and without CSCs. In Access practices, percentage increases in consultation rates are highest for those aged 0-5 without CSCs (41%), followed by those aged 65 and over (31%), 18-24 (28%) and 6-17 (25%) without CSCs. Within each age group, increases in consultation rates are higher for those without CSCs. In Interim practices, increases in consultation rates are highest for those in the older age groups (those aged 65 years and over without (28%) and with CSCs (26%) and those aged 45-64 without CSCs (22%)). Increases in consultation rates are slightly higher for those without CSCs than for those with CSCs for those aged 0-5 years of age, 6-17 years of age, and 65 years and over, while those with CSCs have had higher rates of increases than those without CSCs for those aged 18-64.

Figure 15 Consultation rates by funding model, age and CSC 2001/02-2004/05

GMS visits at Access funded Practices



GMS visits at Interim funded Practices



Community Services Card ●—●—●—● No *--*--*--* Yes

Table 16 Mean consultation rates by funding model, age and CSC status
2001/02-2004/05

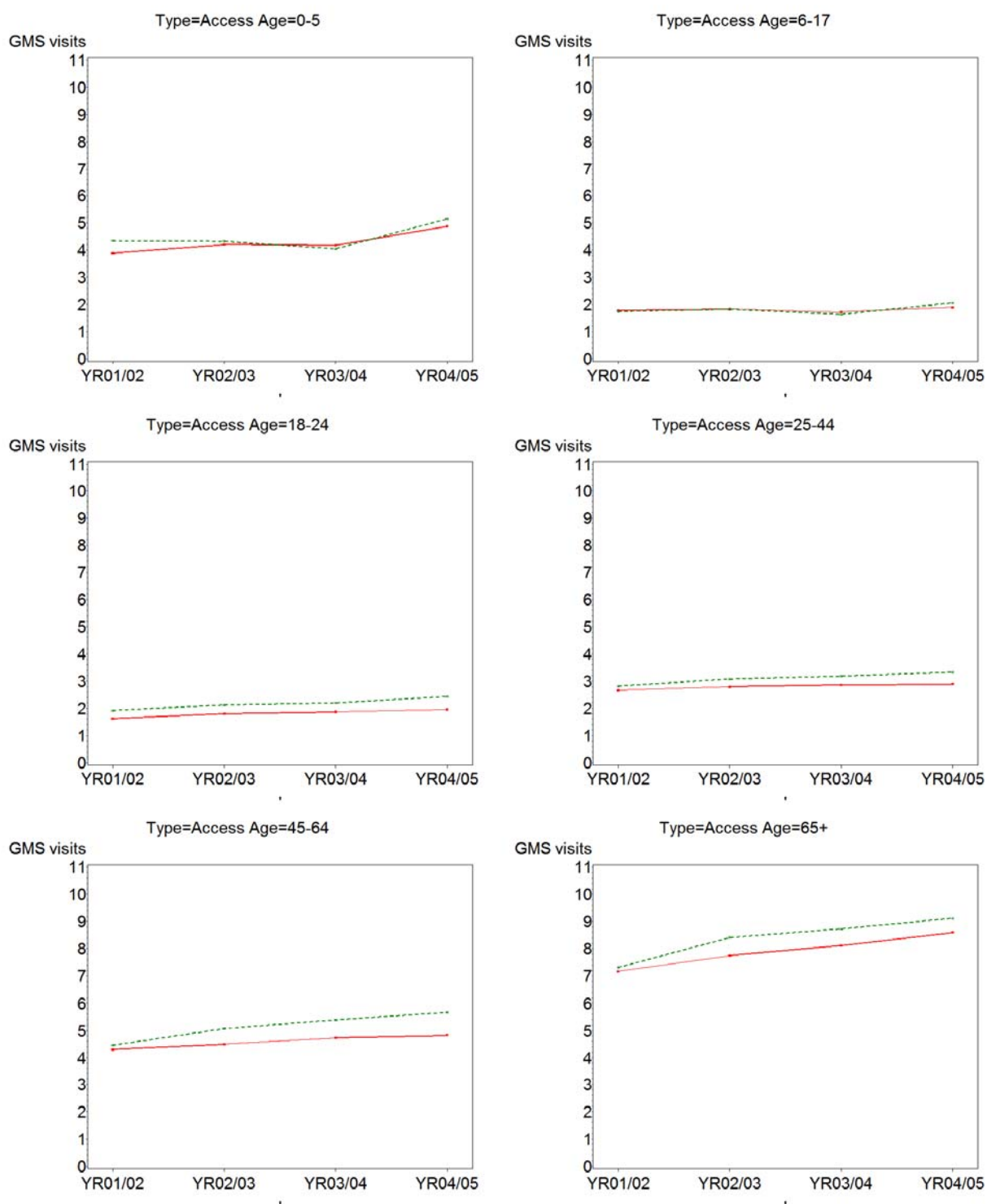
Funding Type	Age	CSC	2001/02	2002/03	2003/04	2004/05	Change 01/02-02/03	Change 02/03-03/04	Change 03/04-04/05	Change 2001/02-2004/05
Access	0-5	N	3.57	3.8	3.75	5.02	0.23 (6%)	-0.05 (-1%)	1.27 (34%)	1.45 (41%)
		Y	4.48	4.52	4.27	5.06	0.04 (1%)	-0.25 (-6%)	0.79 (19%)	0.58 (13%)
	6-17	N	1.44	1.52	1.42	1.8	0.08 (6%)	-0.10 (-7%)	0.38 (27%)	0.36 (25%)
		Y	1.99	2.05	1.85	2.1	0.06 (3%)	-0.20 (-10%)	0.25 (14%)	0.11 (6%)
	18-24	N	1.34	1.45	1.57	1.71	0.11 (8%)	0.12 (8%)	0.14 (9%)	0.37 (28%)
		Y	2.16	2.39	2.4	2.59	0.23 (11%)	0.01 (0%)	0.19 (8%)	0.43 (20%)
	25-44	N	2.18	2.31	2.36	2.47	0.13 (6%)	0.05 (2%)	0.11 (5%)	0.29 (13%)
		Y	3.39	3.61	3.7	3.77	0.22 (6%)	0.09 (2%)	0.07 (2%)	0.38 (11%)
	45-64	N	3.54	3.86	4.16	4.29	0.32 (9%)	0.30 (8%)	0.13 (3%)	0.75 (21%)
		Y	5.51	5.97	6.17	6.41	0.46 (8%)	0.20 (3%)	0.24 (4%)	0.90 (16%)
	65+	N	5.04	5.87	5.99	6.6	0.83 (16%)	0.12 (2%)	0.61 (10%)	1.56 (31%)
		Y	8.15	8.94	9.41	9.78	0.79 (10%)	0.47 (5%)	0.37 (4%)	1.63 (20%)
Interim	0-5	N	4.5	4.73	4.75	5.01	0.23 (5%)	0.02 (0%)	0.26 (5%)	0.51 (11%)
		Y	4.96	5.36	5.21	5.47	0.40 (8%)	-0.15 (-3%)	0.26 (5%)	0.51 (10%)
	6-17	N	1.86	1.89	1.84	1.98	0.03 (2%)	-0.05 (-3%)	0.14 (8%)	0.12 (6%)
		Y	2.38	2.51	2.43	2.46	0.13 (5%)	-0.08 (-3%)	0.03 (1%)	0.08 (3%)
	18-24	N	1.75	1.82	1.75	1.7	0.07 (4%)	-0.07 (-4%)	-0.05 (-3%)	-0.05 (-3%)
		Y	2.92	3.16	3.17	3.13	0.24 (8%)	0.01 (0%)	-0.04 (-1%)	0.21 (7%)
	25-44	N	2.36	2.53	2.54	2.46	0.17 (7%)	0.01 (0%)	-0.08 (-3%)	0.10 (4%)
		Y	3.72	4.05	4.15	4.03	0.33 (9%)	0.10 (2%)	-0.12 (-3%)	0.31 (8%)
	45-64	N	3.66	3.91	4.11	4.15	0.25 (7%)	0.20 (5%)	0.04 (1%)	0.49 (13%)
		Y	5.45	6.02	6.52	6.64	0.57 (10%)	0.50 (8%)	0.12 (2%)	1.19 (22%)
	65+	N	5.06	5.55	5.96	6.48	0.49 (10%)	0.41 (7%)	0.52 (9%)	1.42 (28%)
		Y	7.68	8.57	9.26	9.66	0.89 (12%)	0.69 (8%)	0.40 (4%)	1.98 (26%)

The next set of graphs and table show the mean number of consultations by age, funding and deprivation as measured by NZDep quintiles.

Figure 16 Consultation rates by funding model, age and NZDep score

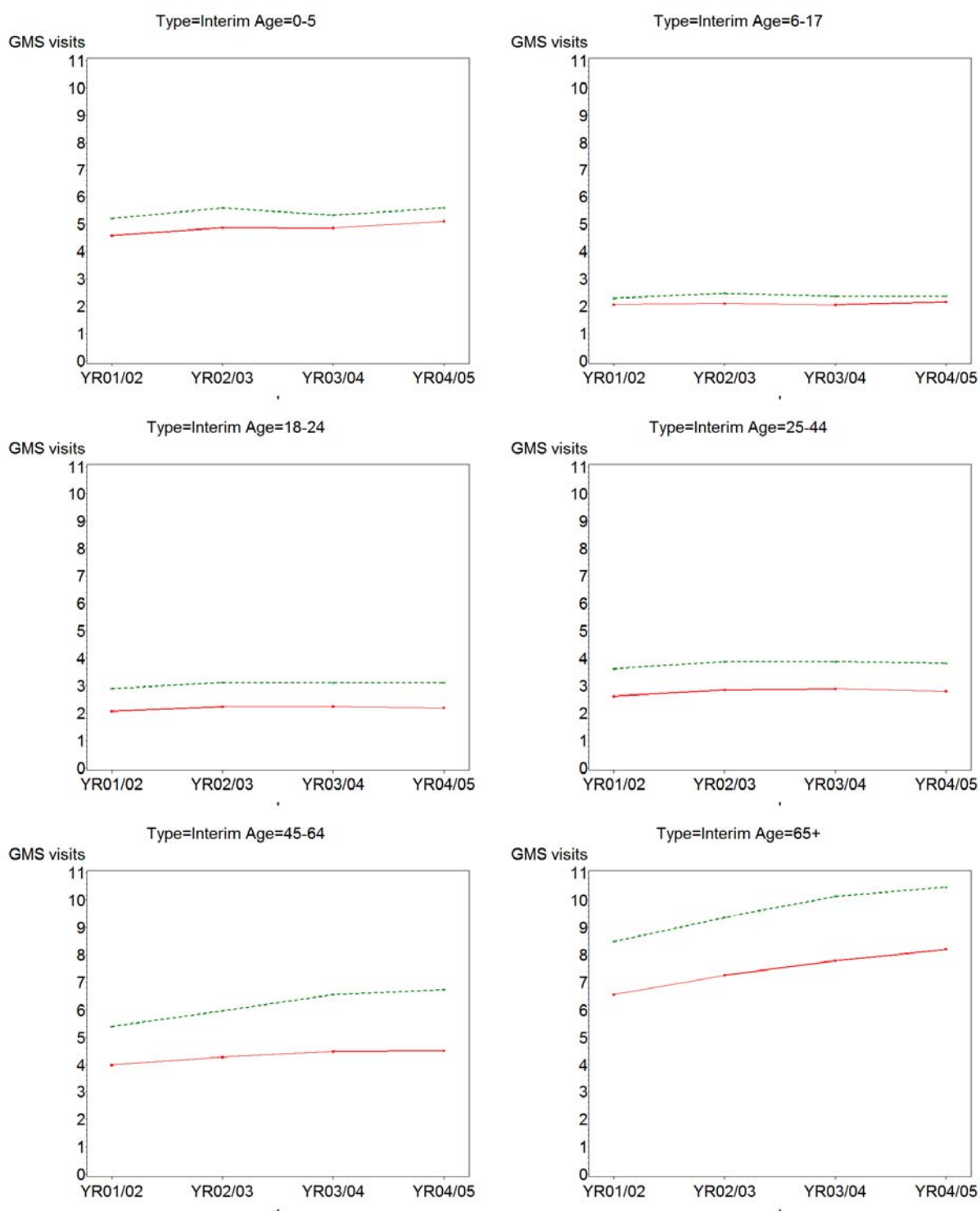
2001/02-2004/05

GMS visits at Access funded Practices



NZDep2001 Quintile 5 —●—●—●— No —*—*—*—*— Yes

GMS visits at Interim funded Practices



NZDep2001 Quintile 5 —●—●—●— No —*—*—*—*— Yes

Table 17 Mean consultation rates 2001/02-2004/05 by age, funding and NZDep 2001 status

Funding Type	Age	NZDep5	2001/02	2002/03	2003/04	2004/05	Change 01/02-02/03	Change 02/03-03/04	Change 03/04-04/05	Change 2001/02-2004/05
Access	0-5	N	3.9	4.2	4.2	4.9	0.30 (8%)	0.00 (0%)	0.70 (17%)	1.00 (26%)
		Y	4.4	4.3	4.1	5.2	-0.10 (-2%)	-0.20 (-5%)	1.10 (27%)	0.80 (18%)
	6-17	N	1.8	1.8	1.7	1.9	0.00 (0%)	-0.10 (-6%)	0.20 (12%)	0.10 (6%)
		Y	1.8	1.8	1.6	2.1	0.00 (0%)	-0.20 (-11%)	0.50 (31%)	0.30 (17%)
	18-24	N	1.6	1.8	1.9	2.0	0.20 (13%)	0.10 (6%)	0.10 (5%)	0.40 (25%)
		Y	1.9	2.1	2.2	2.4	0.20 (11%)	0.10 (5%)	0.20 (9%)	0.50 (26%)
	25-44	N	2.7	2.8	2.9	2.9	0.10 (4%)	0.10 (4%)	0.00 (0%)	0.20 (7%)
		Y	2.8	3.1	3.2	3.3	0.30 (11%)	0.10 (3%)	0.10 (3%)	0.50 (18%)
	45-64	N	4.3	4.5	4.7	4.8	0.20 (5%)	0.20 (4%)	0.10 (2%)	0.50 (12%)
		Y	4.5	5.1	5.4	5.7	0.60 (13%)	0.30 (6%)	0.30 (6%)	1.20 (27%)
	65+	N	7.2	7.8	8.1	8.6	0.60 (8%)	0.30 (4%)	0.50 (6%)	1.40 (19%)
		Y	7.3	8.4	8.7	9.1	1.10 (15%)	0.30 (4%)	0.40 (5%)	1.80 (25%)
Interim	0-5	N	4.6	4.9	4.9	5.1	0.30 (7%)	0.00 (0%)	0.20 (4%)	0.50 (11%)
		Y	5.2	5.6	5.3	5.6	0.40 (8%)	-0.30 (-5%)	0.30 (6%)	0.40 (8%)
	6-17	N	2.1	2.1	2.1	2.2	0.00 (0%)	0.00 (0%)	0.10 (5%)	0.10 (5%)
		Y	2.3	2.5	2.4	2.4	0.20 (9%)	-0.10 (-4%)	0.00 (0%)	0.10 (4%)
	18-24	N	2.1	2.2	2.2	2.2	0.10 (5%)	0.00 (0%)	0.00 (0%)	0.10 (5%)
		Y	2.9	3.1	3.1	3.1	0.20 (7%)	0.00 (0%)	0.00 (0%)	0.20 (7%)
	25-44	N	2.6	2.8	2.9	2.8	0.20 (8%)	0.10 (4%)	-0.10 (-3%)	0.20 (8%)
		Y	3.6	3.9	3.9	3.8	0.30 (8%)	0.00 (0%)	-0.10 (-3%)	0.20 (6%)
	45-64	N	4.0	4.3	4.5	4.5	0.30 (8%)	0.20 (5%)	0.00 (0%)	0.50 (13%)
		Y	5.4	6.0	6.6	6.7	0.60 (11%)	0.60 (10%)	0.10 (2%)	1.30 (24%)
	65+	N	6.6	7.3	7.8	8.2	0.70 (11%)	0.50 (7%)	0.40 (5%)	1.60 (24%)
		Y	8.5	9.4	10.2	10.5	0.90 (11%)	0.80 (9%)	0.30 (3%)	2.00 (24%)

In Access practices, increases in consultation rates are higher in lower socio-economic groups for those aged 6-17, 25-44, 45-64 and 65 years and over. The increase in visits to primary health care providers is higher amongst children from better off groups than for those from lower socio-economic groups while for those aged 18-24, both lower and higher socio-economic groups are benefiting from the PHCS.

In Interim practices, increases in consultation rates are around the same for those aged 6-44 and those aged 65 years and over from both lower and higher socio-economic groups; with children in higher socio-economic increasing their use of services slightly more than children from lower socio-economic groups, and adults aged 45-64 from lower socio-economic groups increasing their consultation rates more than those from higher socio-economic groups.

Consultation rates by ethnicity

Another important trend that is obscured in pooled data is the pattern of consultation rates by ethnicity. The graph shows consultation rates for all age groups by ethnic group.

Figure 17 Consultation rates by ethnicity 2001/02-2004/05

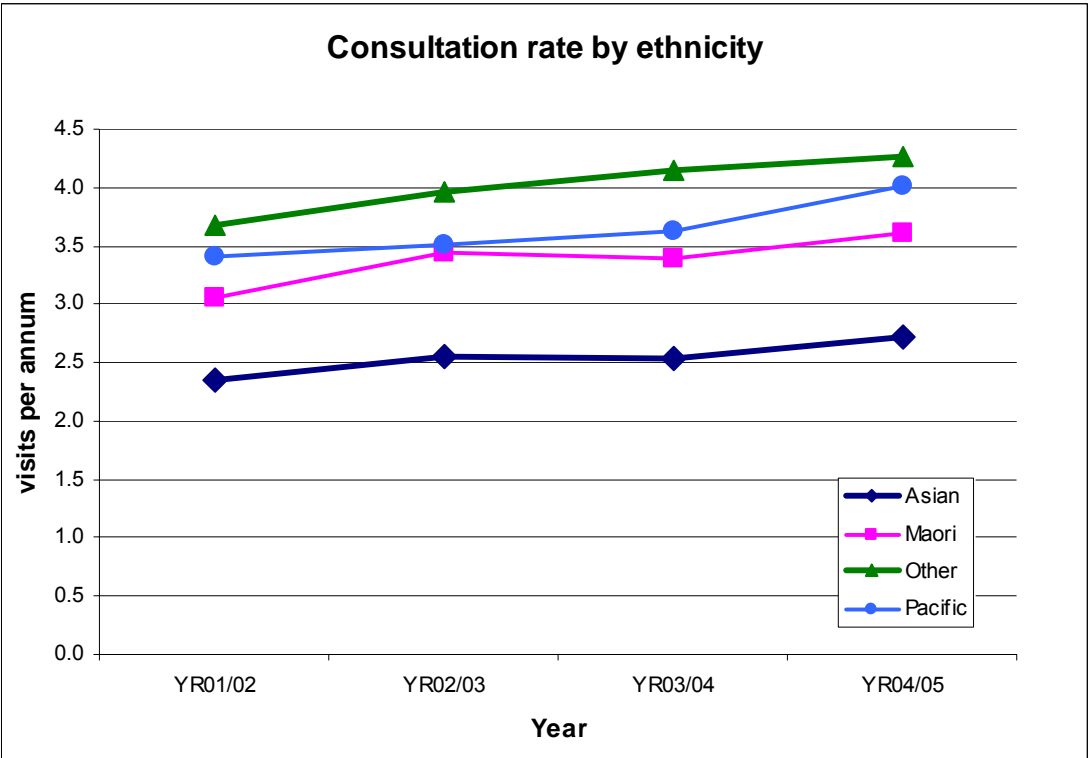


Table 18 Consultation rates by ethnicity 2001/02-2004/05

Year	2001/02	2002/03	2003/04	2004/05	Change 01/02-02/03	Change 02/03-03/04	Change 03/04-04/05	Change 2001/02- 2004/05
Asian	2.4	2.5	2.5	2.7	0.10 (4%)	0.00 (0%)	0.20 (8%)	0.30 (13%)
Māori	3.1	3.4	3.4	3.6	0.30 (10%)	0.00 (0%)	0.20 (6%)	0.50 (16%)
Other	3.7	4	4.1	4.3	0.30 (8%)	0.10 (2%)	0.20 (5%)	0.60 (16%)
Pacific	3.4	3.5	3.6	4	0.10 (3%)	0.10 (3%)	0.40 (11%)	0.60 (18%)

Consultation rates have increased for all ethnic groups. The increases are similar for Pacific, Māori, and “Other” (with 0.5, 0.6 and 0.6 more consultations on average per year, increases of around 16-18%). The smallest increase is amongst Asian populations (0.3 consultations on average per annum, or a 13% increase).

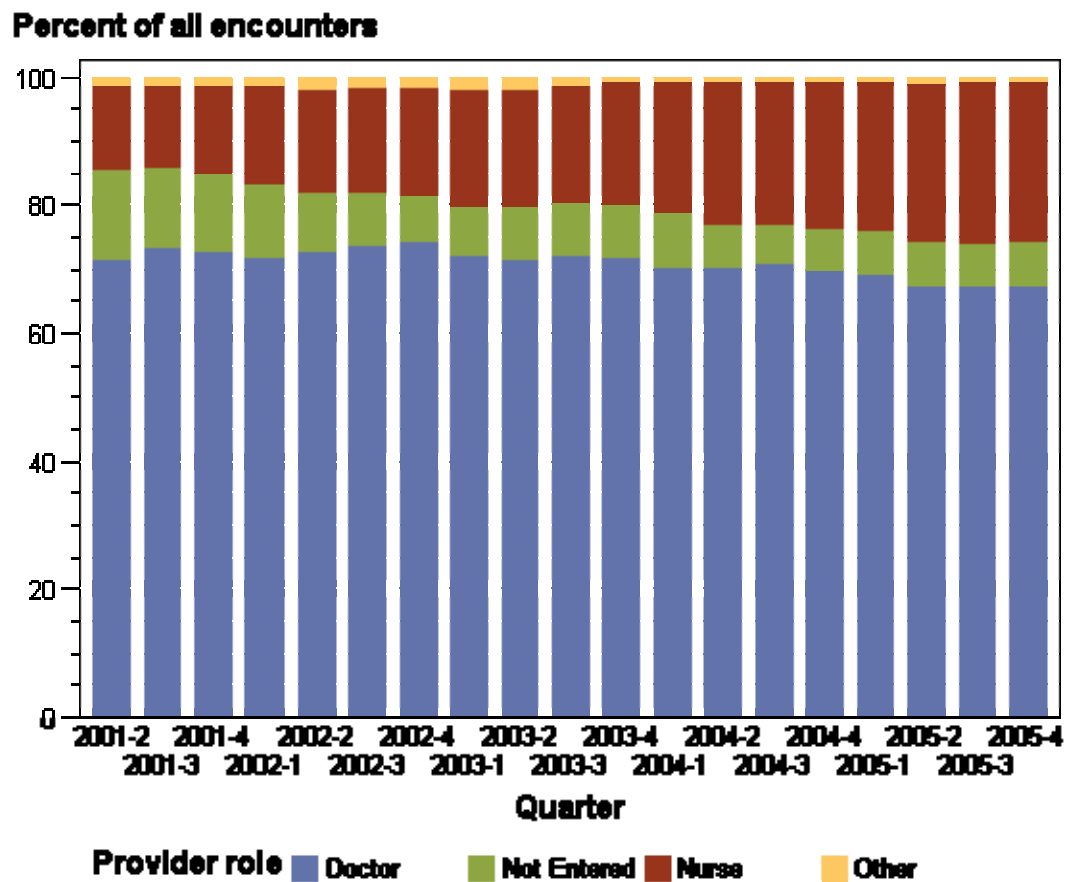
Nursing consultations

Capitation funding models reduce the linkage between practice income and seeing a specific practitioner. Under these circumstances it is possible that practices will move to using nurses in increasingly independent roles, and this is a key aim of the PHCS. The extent that this is occurring can be tracked by measuring the proportion of consultations at which a nurse was recorded in the PMS as providing care, even though a doctor may also have seen the patient.

It is important to note that over the period of this study, this measure may reflect changes in documentation behaviour as opposed to real changes in patterns of care provision. This is because there are now new requirements to record nurse visits separately. Nevertheless, such a change in documentation behaviour would at the very least be a reflection of the changing status of nurses within general practice.

The graph shows the proportion of all encounters (whether invoiced or not) by provider type, including doctor, not entered, nurse and other categories. The “Not Entered” classification means that there was no role specified for a particular provider code. ‘Other’ includes administration and other professionals, for example dieticians.

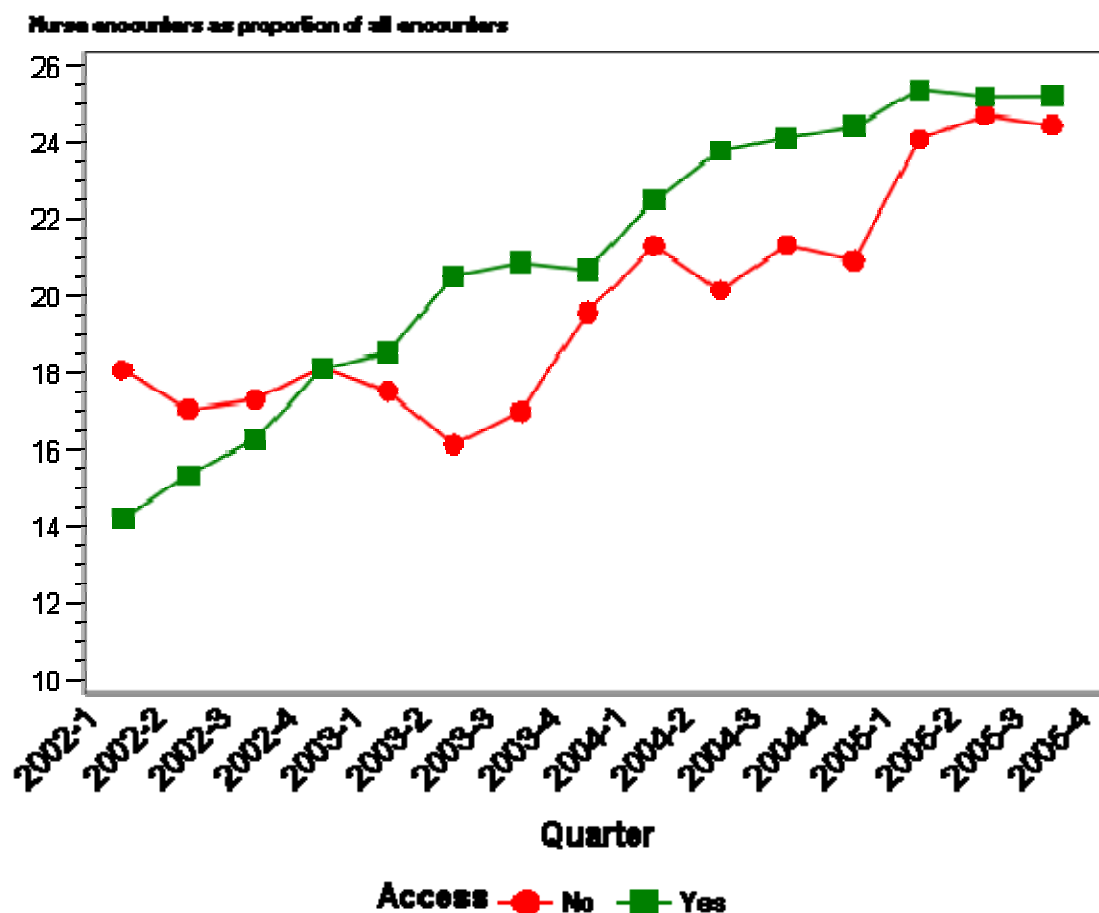
Figure 18 Nurse encounters as a proportion of all encounters 2001/02-2004/05



The graph shows that practitioners where the service is coded to a nursing code are involved in a higher proportion of encounters in 2005 than before the PHCS started to be implemented. However, the fact that the proportion of encounters where the provider could be identified as a doctor (blue) decreased only slightly suggests that most of the increase in apparent nurse consultations is due to the recording of previously unrecorded activity.

As shown in the next graph, these changes are more marked in Access practices, but the trend is apparent in both practice funding models, and started before the introduction of the PHCS.

Figure 19 Recorded nurse encounters as a proportion of all encounters
2001/02-2004/05



ACC claims as a proportion of all claims

As noted earlier, with an increased proportion of practice income being derived from government subsidies delivered via capitation funding arrangements, it is possible that practices might alter ACC claiming behaviour. This section examines overall ACC claiming rates, and the following section looks at new claims.

The term “ACC claim” is used in different ways by general practices and by ACC. General practices often use the phrase “make an ACC claim” to mean “invoice ACC for the provision of this service”. This is the sense in which we use the term. In other contexts “make an ACC claim” means “register this accident with ACC so that this, and future services can be invoiced to them”, i.e. register a “new claim”

The proportion of encounters at which an invoice was generated for ACC to pay can be calculated by examining “invoice” data. Practices have a financial incentive to make a claim for the provision of an ACC service and data entry is likely to be reasonably complete. Invoiced encounters were classified according to the funding source that was invoiced.

There were over 5000 different claim codes specified in NextGen PMS systems downloads. Each of these was examined by a GP researcher to determine whether they represented ACC, maternity, immunisation, “other” or GMS codes.

Three major possible sources can be identified in all PMS systems – ACC, maternity claims and immunisation claims. Some funding sources could be classified as “other”, for example dental services and veterans’ health services. When no other funding source was identified, or a visit was specifically classified as “GMS” (in VIP / Houston systems), “G” (in MedTech32) or by an identifiable code in NextGen or MyPractice systems, the visit was classified as “GMS” (a so-called “General Medical Service”).

The proportion of ACC claims was calculated as a proportion of all invoiced services, ie including immunisation, maternity, other and “GMS” services.

The following figures show the proportion of ACC claims for Access and Interim practices, by quarter, and by quarter relative to joining a PHO. They illustrate that the claiming proportion, while higher in Interim practices, has remained stable over the last 5 years. The data therefore suggest there has been no change in ACC claiming behaviour since the introduction of the PHCS, in spite of their being a financial incentive to increase the proportion of claims to ACC.

Figure 20 Proportion of ACC claims 2001/02-2004/05, percentage of all invoices

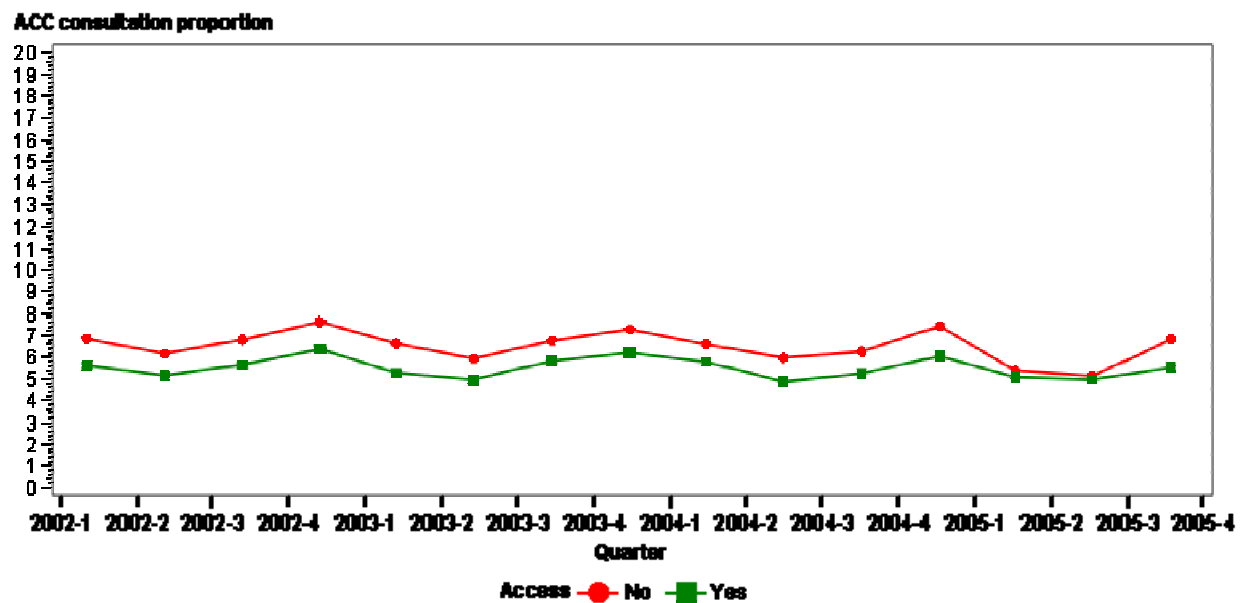
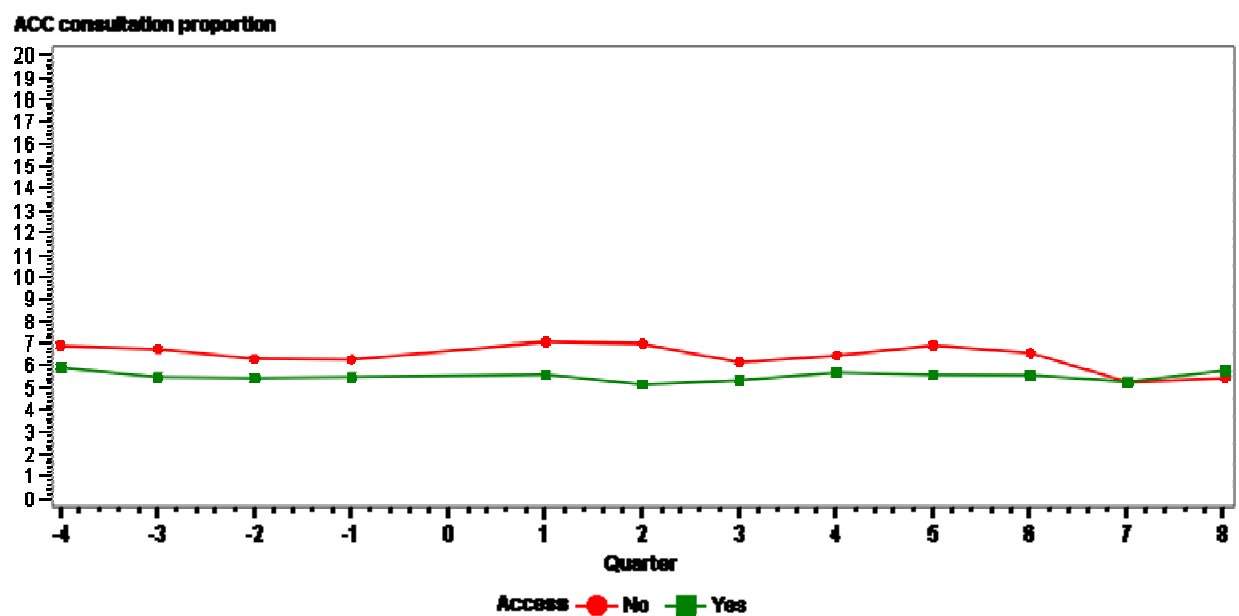


Figure 21 Proportion of ACC claims relative to joining a PHO

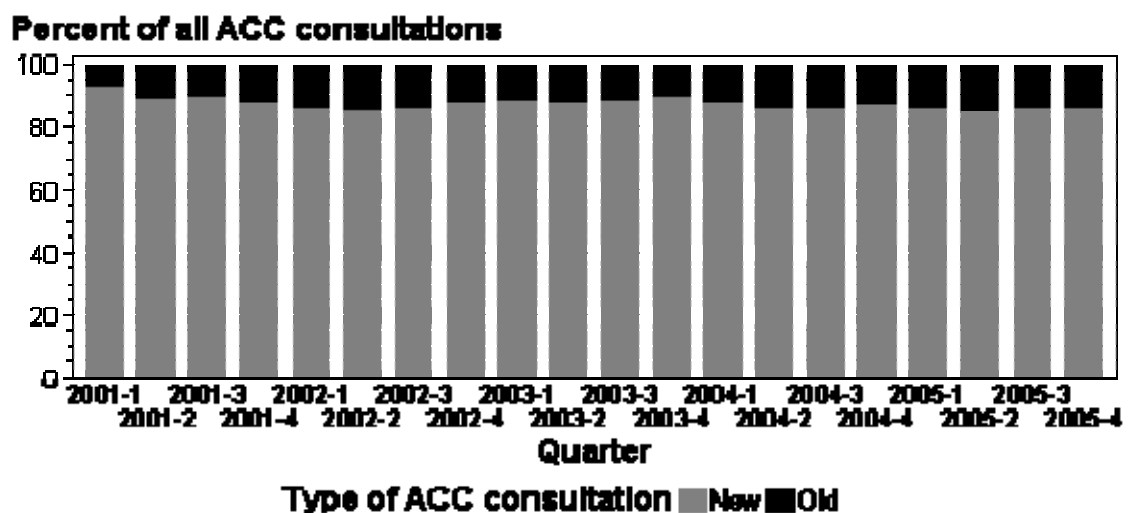


ACC new claims rate

To assess whether an ACC claim was a new claim or not we initially planned to check the ACC45 numbers in each ACC claimed consultation against ACC central records, to determine if a service was a new claim or not. Ethics Committee approval was gained for this procedure. However it transpired that over 99% of ACC claims records in the PMS also record the date of the accident. This information could be compared with the date of the consultation to see if the claim was a new claim. If an accident occurred within one month (30 days) of the first claim to ACC being recorded in the PMS the ACC claim was regarded as a new claim.

The following graph shows this proportion has been reasonably static (around 90%) since January 2002. Again, the data suggest there has been no change in ACC claiming behaviour in relation to new claims since the introduction of the PHCS, in spite of their being a financial incentive to increase the proportion of claims to ACC.

Figure 22 Proportion of 'new" ACC claims 2001/02-2004/05



6. Discussion

This report seeks to answer the following questions, for different population groups and funding models:

- Since the introduction of the PHCS, what changes have there been in the fees that patients pay when they use primary health care services? How are changes in fees related to government policy objectives?
- Since the introduction of the PHCS, what changes have there been in the use of primary health care services by New Zealanders?
- Are more patients being seen by nurses?
- What changes are there in the pattern of ACC claims that GPs make, before and after the PHCS? Are more new ACC claims being made?

The following sections consider the findings from these analyses in relation to each of these questions, and then draws some overall conclusions from the analyses.

Fees

Since the introduction of the PHCS, what changes have there been in the fees that patients pay when they use primary health care services? How are changes in fees related to government policy objectives?

A key aim of the PHCS has been to reduce the barriers that New Zealanders face when using primary health care services. The government has provided significant funding for primary health care over the past few years, with the aims of increasing the services available in primary health care and of reducing the fees that patients pay when using primary health care services. The government has provided additional funding as, firstly, Access PHOs came on stream between 2002 and 2005 and, secondly, as new funding was rolled out to cover different age groups in Interim PHOs over time. Our analyses provide a sufficient time series to assess the impact of new funding for those in Access PHOs; for those in Interim PHOs aged 6-17 years of age (who received new funding from 1 October 2003); and for those in Interim PHOs aged 65 years and over (who received new funding from 1 July 2004). Increased capitation payments for other population groups had not been in existence for long enough to show up here; our analyses in 2008 will look at the experiences of these population groups.

Across the population in our sample as a whole, in relation to doctor and nurse visits, we find that:

- Overall, fees have been rising for children but the fees paid by other patients have fallen on average slightly during the periods of time we expect them to fall and for the population groups which have benefited from new funding. Fees have fallen particularly for those aged 65 years and over.

However, because not all groups in the population have been eligible for the same increase in subsidies over time, and in order to understand the impact of increases in capitation payments on different population groups and to link the changes in fees to government policy, we need to break the data further, by funding model (Access or Interim) and by population group.

When we break the data down by funding model we find that:

- In Access practices, across the entire study period, fees have fallen for all groups. For those aged six years and under fees have fallen from an average of 50c per consultation to an average of 46c, a fall of 4c per consultation (8%), with fees having risen in the last year of our study. For the other population groups, fees have fallen by between \$1.86 and \$4.57 per consultation, and by around 20%.
- In Interim practices, fees have risen for those aged six years and under. For those aged 6-17 years of age, fees rose slightly in the first and second years of the study, stabilising in the last year of the study, coinciding with the roll-out of new funding in October 2003. For those aged 18-64, fees have risen slightly in each year of the study. For those aged 65 years and over, fees rose slightly for the first two years of the study for those aged 65 years and over, before falling in the last year of the study as new funding was rolled out in July 2004. Fees averaged \$26.12 in 2003/04 prior to the roll out of new funding, falling to an average of \$21.18 in 2004/05 following the roll out, ie a fall of \$4.94 or 19%.

When we break the data down further and consider the experiences of people with and without community services cards (CSCs), by different socio-economic circumstances and by ethnicity, we find that:

- In Access practices, within each age group, the data show that those with cards pay a lower average fee than those without cards; however, the larger falls in fees are occurring for those without cards, except for those aged six years and under where the falls in fees have been higher for those with cards.
- In Interim practices, within each age group, fees are also lower on average for those with cards than for those without cards. Fees are not rising as fast for children with cards as for those without cards; and the increases in fees have been less for those without cards than for those with cards across the 6-64 year old age group. For those aged 65 years and over, fees have fallen further for those without community services cards.

Thus, the level of fees charged to different groups may support government moves to reduce inequalities (as measured by CSC status), with fees lower on average for those with CSCs. However, the changes in fees over time may not be supportive of government moves to reduce inequalities – in Access practices, much of the benefit of the new funding is, as expected, going to those without CSCs, while in Interim practices, fees are generally not rising as fast for those without cards, ie benefiting those in better socio-economic positions (except for children), while they have fallen further for those aged 65 years and over without CSCs, ie again benefiting those in better socio-economic positions.

- In terms of changes in the average level of fees over time, in Access practices we see falls of between 4c for children with and without community services cards to falls of \$8.67 for those aged 65 years and over without community services cards. Percentage falls in fees range from 5% for children without community services cards, to between 11% and 26% for most other population groups, to 35% for those aged 65 years and over without community services cards.

- New funding was introduced for Interim practices in October 2003 for those aged 6-17 – with a \$5 increase in subsidy rates for those with CSCs and a \$10 increase in subsidy rates for those without CSCs. Although this policy relates to the scheduled fees for doctor only visits, we would expect to see a reduction in the fees actually charged to patients in our data on doctor and nurse visits. Average fees for those with cards rose slightly, while a slight fall in the average fees paid by those in this age group is noticeable between 2003/04 and 2004/05 for those without cards (where fees fell from an average \$19.06 to \$18.75; a fall of 31c or 2%). The fall in fees is more noticeable in Interim practices following the new subsidies being introduced in July 2004 for those aged 65 years and over, with fees falling by an average of \$2.69 (12%) for those with cards and \$10.17 on average for those without cards (a fall of 31%) between 2003/04 and 2004/05. Subsidy increases for this group (including adjustments for inflation) were \$11 for those with cards and \$26 for those without cards, although these rates applied to scheduled fees for doctor visits.
- In relation to deprivation, the research shows that overall, fees are lower within each funding model for those in the more deprived communities. Reductions in fees are generally benefiting those in more deprived communities more than those in less deprived communities in Access practices. The pattern is more mixed in Interim practices.
- In relation to ethnicity, over the entire study period, average fees have reduced for Pacific patients by 12% and for Māori by 10%. Fees have increased slightly for the “Other” ethnic group (by 3%) and increased by 22% for Asian patients. Thus, changes in fees are benefiting Māori and Pacific groups by more than other ethnic groups, potentially reducing fees for two high needs groups relative to other groups in the population. This is likely to reflect the fact that Access practices have a higher proportion of Māori and Pacific people enrolled with them and it is these practices which have received new funding for all age groups over the study period. Asian populations have faced the highest increase in fees over time.

Overall, we find that fees have been falling particularly in Access practices over time for doctor and nurse visits. Fees have increased over time for many in Interim practices, but they have fallen for those aged 65 years and over as new funding has been provided for this age group in Interim practices. Thus, at one level, the government’s goal of increasing funding to PHOs in order to reduce the fees patients pay is being achieved – fees have generally fallen where we would have expected them to fall (for those in Access practices and for those aged 65 years and over in Interim practices).

In terms of the roll outs which have occurred during our study period, for those in Access practices, and for those in Interim practices aged 6-17 and 65 years and over, a key question is whether the changes in fees have met the operational policy settings set out by the Government as new funding was provided to the primary health care sector. In our first set of analyses, we focused on doctor and nurse visits aggregated together. In terms of these roll outs, the general expectation was that fees would be 'low' or reduce as new funding was rolled out to PHOs and practices. In Access practices, the government was looking for a zero fee for those aged six years and under; \$7-\$10 for those aged 6-17; and \$15-\$20 for adults. Fees have clearly been falling in Access practices over the study period. By the end of the study period, average fees in Access practices are shown here to be 46c for those aged six years and under; \$7.41 for those aged 6-17; and below \$20 for adults. For doctor consultations, we see a similar pattern of fees. Thus, the government's policy objectives are close to being met for children in Access practices and are being met for those aged 6-17 and for adults.

In terms of Interim practices, the data show that the roll out of new funding to those aged 6-17 lead to only a small reduction in the overall fees paid by those without cards and a small increase in fees paid by those with cards. This result stands whether we consider both doctor and nurse visits and doctor visits. Part of the explanation for fees not reducing much in this group would relate to the fact that new subsidies would only be around \$5 (for those with cards) to \$10 per consultation (for those without cards), as prior to the PHCS those in this age group already received a government subsidy for primary health care of \$20 and \$15 respectively. Reductions in fees for those aged 65 years and over were much greater: in the year after the roll out; fees for doctor and nurse visits fell by an average of \$10.17 (31%) for those aged 65 years and over without cards and \$2.69 (12%) for those with cards. For doctor visits, average fees fell by \$12.23 or 33% for those without cards and by \$3.34 or 13% for those with cards. The government was seeking falls in schedule fees of around \$26 for those without cards and of \$11 for those with cards.

In interpreting these findings, it is important to remember that our data relate to the fees actually charged to patients, and, if scheduled fees did fall by the amounts required by the government, our findings reflect likely considerable differences between scheduled and actual fees charged to patients. This may arise from consultations being shorter on average than expected for the standard consultation assumed for the scheduled fees, or significant amounts of discounting of fees for this age group by general practices. As we showed earlier, in 2005, it appeared that Interim practices charged a zero fee for around 20% of consultations, confirming that this discounting occurs quite frequently.

The government has also signalled that it wishes to see fees for those with CSCs and those without CSCs at the same level. This may be the case for scheduled fees, but our data continue to show that those with cards are charged lower fees than those without cards, in both Access and Interim practices. This may, however, be a response by general practices to the economic circumstances of different groups in the population, and may work towards reducing inequalities in health by enabling cheaper access to care for more disadvantaged groups.

By necessity, with almost all practices becoming members of PHOs and with almost all New Zealanders now enrolled in a PHO, this evaluation has had to take a before-and-after approach to the analysis. This means we have no counter-factual in this research – that is, no way of knowing how fees might have changed in the absence of the PHCS and in the absence of increased funding being provided by the government for primary health care. Recent research by Cumming and Stillman, however, shows that nominal fees paid by patients rose by 39.96% between 1996/97 and 2002/03, ie around 5.76% per annum over this period, across all population groups.

How does the experience within the study period compare with the increases in fees which we might have expected without the introduction of the PHCS? Assuming that the 1996/97-2002/03 period reflects a 'usual' period of time in New Zealand in relation to the costs of general practice services, we might have expected fees to have risen by around 5.76% per annum in the absence of the PHCS¹².

Our data show that fees have been falling in Access practices as they became part of PHOs – by between 8 and 20% between 2001/02 and 2004/05; when we might have expected fees to have risen over this period by around 18.3%. This shows that those in Access practices are benefiting significantly from the PHCS expenditure.

In Interim practices, other than for children, we see that fee increases across the study period are within the likely 5.76% per annum increase we may have expected without the PHCS, with fee increases possibly lower than we may have expected between 2002/03 and 2003/04. Over the entire period, fees have, however, not fallen to the extent that may have been expected for those aged 6-17, while they have fallen for those aged 65 years and over (by between 12% and 33%, when we may have expected an overall increase of about 18.3%).

¹² Since July 2002, the government has been adjusting the capitation payment rates to PHOs for inflation each year. Such adjustments did not regularly occur before this time. Thus, prior to this, the increases in patient fees each year may have in part compensated for the lack of adjustments occurring in government subsidy levels. The percentage increases over time may have been slightly less if inflation adjustments had in fact been made during the 1996/07-2002/03 period.

Consultations

Since the introduction of the PHCS, what changes have there been in the use of primary health care services by New Zealanders?

With an increase in funding available for primary health care services as a whole, and with many New Zealanders benefiting from reductions in fees, we would expect that consultation rates will increase as New Zealanders use more primary health care services. Certainly this is a key aim of the PHCS.

Across the population in our sample as a whole, we find:

- Increases in consultation rates across all age groups over the 2001/02-2004/05 period, in particular amongst those aged 65 years of age and over, with an extra 1.68 consultations per annum (a 24% increase). The next highest increase is amongst those aged 45-64 years of age (0.73 consultations, a 17% increase), followed by those aged 0-5 years of age (0.65 consultations, a 14% increase). Lower increases occurred for those aged 18-24 (0.24, 11%), 25-44 (0.27, 10%) and 6-17 years of age (0.14, 7%).

When we break the data down by funding model we find:

- Increases in consultation rates in Access practices across the entire study period. In these practices, greater increases in consultation rates have occurred amongst those aged 65 years and over (1.6 consultations, 22%); 18-24 (0.4 consultations, 22%); under six (0.8 consultations, 19%) and 45-64 years of age (0.8 consultations, 18%).
- In Interim practices, there has also been an overall increase in consultation rates across the entire study period, although the increase in percentage terms is lower in Interim practices for all age groups other than those aged 65 years and over while being very similar in Interim and Access practices for those aged 45-64 year olds. The greatest increases in consultation rates is amongst those aged 65 years and over (1.7 consultations, 25%), 45-64 (0.7, 17%) and those aged under six (0.5, 11%).

When we break the data down further and consider the experiences of people with and without community services cards (CSCs) (determined by whether an individual as ever held a CSC), on different socio-economic circumstances and by ethnicity, we find:

- There are increases over the entire study period in consultation rates for all groups, except for those aged 18-24 in Interim practices and without CSCs.

- In Access practices, percentage increases in consultation rates are highest for those aged 0-5 without CSCs (41%), followed by those aged 65 and over (31%), 18-24 (28%) and 6-17 (25%) without CSCs. Within each age group, increases in consultation rates are higher for those without CSCs.
- In Interim practices, increases in consultation rates are highest for those in the older age groups (those aged 65 years and over without (28%) and with CSCs (26%) and those aged 45-64 without CSCs (22%)). Increases in consultation rates are slightly higher for those without CSCs than for those with CSCs for those aged 0-5 years of age, 6-17 years of age, and 65 years and over, while those with CSCs have had higher rates of increases than those without CSCs for those aged 18-64.
- In Access practices, increases in consultation rates are higher in lower socio-economic groups for those aged 6-17, 25-44, 45-64 and 65 years and over. The increase in visits to primary health care providers is higher amongst children from better off groups than for those from lower socio-economic groups while for those aged 18-24, both lower and higher socio-economic groups are benefiting from the PHCS.
- In Interim practices, increases in consultation rates are around the same for those aged 6-44 and those aged 65 years and over from both lower and higher socio-economic groups; with children in higher socio-economic increasing their use of services slightly more than children from lower socio-economic groups, and adults aged 45-64 from lower socio-economic groups increasing their consultation rates more than those from higher socio-economic groups.
- Consultation rates have increased for all ethnic groups. The increases are similar for Pacific, Māori, and "Other" (with 0.5, 0.6 and 0.6 more consultations on average per year, increases of around 16-18%). The smallest increase is amongst Asian populations (0.3 consultations on average per annum, or a 13% increase).

Nursing Services

Are more patients being seen by nurses?

As a result of changes in the reporting requirements, practices now need to record nursing visits. Although many will have been recording these visits accurately prior to the introduction of the PHCS, we cannot separate out from our findings an increase in the proportion of nursing visits over time from improved recording. We do, however, find an increase in the proportion of nursing visits over time. These analyses will be repeated in 2008 with data collected for a further year and we will explore the proportion of nursing visits at that time.

ACC

What changes are there in the pattern of ACC claims that GPs make, before and after the PHCS? Are more new ACC claims being made?

The proportion of ACC claims and the proportion of new ACC total claims does not show any change before and after the introduction of the PHCS. This suggests that practices are not shifting costs to ACC. Although they may have a financial incentive to shift costs to ACC, the increases in overall funding may be leading to improvements in revenue and income which are off-setting financial incentives to shift costs, or there are other disincentives to claiming from ACC which are also off-setting the increased incentives to claim on ACC. These other disincentives may include the paperwork requirements for an ACC claim versus a claim through capitation funding.

Limitations

In interpreting these findings it is worth noting a number of limitations to these analyses. This is a complex analysis, and the design of the research has had to take into account a number of limiting factors.

First, this evaluation of the PHCS focuses on assessing the impact of the PHCS on the fees that patients pay when using primary health care services and on the use of services in primary health care. We have focused on both doctor and nurse consultations in particular, but have also reported on changes in fees over time for doctor consultations. We have no way, however, of controlling for the content of consultations. For the fees research, we have censored the fees data in order to reduce the impact of higher cost services on the analyses, but even then, the fees reported here may represent a wide range of different types of consultations, including the provision of special procedures or a number of services at one visit, or a longer consultation. The estimates of changes over time that we report here in relation to fees and consultations also assume that there is no change in the nature or length of consultations over time.

Second, the focus of the research has been on invoiced encounters, ie encounters where there is also an invoice generated, including encounters where the invoiced charge to the patient is \$0. However, not all encounters have an associated invoice and we may have under-estimated the number of consultations taking place as a result of this (eg, consultations for young children, nurses visits, or visits by high users, as well as consultations for repeat prescriptions). We may therefore also have over-estimated the average fees paid by patients, as encounters where there is no invoice generated have not been included in the calculations of average fees (although encounters where a zero invoice was noted are included).

Third, the analyses here enable us to provide some information about the progress of the PHCS over the last few years. However, government policy has focused on reducing the fees which are set out in fee schedules for 'standard' consultations, whereas our research is based on the actual fees which patients are charged when using services. We therefore cannot assess how successful the PHCS has been in reducing schedule fees to the extent the government desired but this evaluation does tell us how fees charged to patients have changed over time. In addition, this evaluation involves, of necessity, a before and after analysis, given that very few practices are working outside of the PHCS and PHOs, and we therefore have no control group with which to compare experiences. We cannot be sure what might have happened to both fees and consultation rates in the absence of the PHCS and of new funding allocated by government to primary health care. We have indicated here how fees may have changes in the absence of the PHCS, but this can only be an approximation of what may have occurred in the absence of the PHCS.

Fourth, our findings are based on an analysis of data from 99 general practices. The sample may, however, over-represent Access practices. We have also had to limit the data to the experiences of patients who were registered with a particular practice at the time of this analysis, and as such the findings here reflect only the experiences of these groups. Groups which have shifted between practices may have different experiences. Our analyses by CSC and NZDep population groups are also dependent on data availability. The analyses here assign a CSC to anyone who ever held a CSC. The analyses may therefore classify some people who no longer have or are eligible for CSCs within the CSC group. The NZDep2001 quintile is the one recorded in the latest register download; thus it may not include some people in the correct quintile if they have moved during the study period.

Finally, there are potential gaps in our data set. There may be some services which are not recorded here, either because they are organised by the PHOs or because not all services delivered by practices are recorded. Changes in recording may also impact on our findings (for example, nursing services may simply be being recorded more).

7. Conclusions

The overall goals of the PHCS are to improve health and to reduce inequalities. The government has introduced a number of new policies aimed at achieving these high level goals, including the introduction of new funding for primary health care, in part to enable reductions in fees that patients pay when they access services; the establishment of new organisations, PHOs, to manage the services for their enrolled populations; and the move from fee-for-service funding at the practitioner level to capitation funding of PHOs.

This is a second report from the Evaluation of the Implementation and Intermediate Outcomes of the Primary Health Care Strategy. It focuses on changes in the fees that patients are charged over time; changes in the use of services over time; changes in nursing consultation rates over time; and changes in ACC claims over time. The report does not directly measure health and inequalities; it is hoped that later work by the Evaluation team will explore issues relating to health and inequalities in more depth, focusing in particular on the impact of the Strategy on measurable intermediate outcomes.

This report shows that fees have generally fallen for the groups where new funding has been provided by government. In particular, fees have been falling for those in Access practices, and for those aged 65 years and over in Interim practices. Larger falls in fees are occurring for those without community services cards, as we might have expected. The one group where fees are rising is for children, who have not benefited from higher capitation rates (other than through adjustments in 2002 for the general level of inflation between 1997 and 2002 and through annual adjustments since 2002 to maintain the value of the subsidies). We have also shown that the new funding is providing significant benefit for many New Zealanders given that we may have expected fees to have risen over the study period.

In terms of the roll out of new funding, the government aimed to have zero fees for children; fees of between \$7-\$10 for those aged 6-17 and fees of \$15-\$20 for adult consultations in Access practices, and, according to our analyses, other than for children, this is being achieved, both in terms of doctor and nurse consultations overall but also to consultations where a doctor is seen.

In terms of Interim practices, the data show that the roll out of new funding to those aged 6-17 lead to only a small reduction in the overall fees paid by those without cards and a small increase in fees paid by those with cards, although the increases in subsidies for this age group were less than for those in other age groups. Reductions in fees for those aged 65 years and over were much greater: in the year after the roll out, fees for doctor and nurse visits fell by an average of \$10.17 (31%) for those aged 65 years and over without cards and \$2.69 (12%) for those with cards. For doctor visits, average fees fell by \$12.23 or 33% for those without cards and by \$3.34 or 13% for those with cards. The government was seeking falls in schedule fees of around \$26 for those without cards and of \$11 for those with cards.

In terms of consultations, it appears that the government's aim of increasing consultation rates for primary health care is being achieved. There have been increases in consultation rates across almost all age, funding model, CSC, deprivation and ethnic groups. Increases have been particularly high in Access practices, especially for those without community services cards; and for those aged 65 years with and without community services cards and those aged 45-64 with community services cards in Interim practices. Consultation rates have increased for all ethnic groups, with similar increases for Pacific, Māori and Other ethnic groups, and smaller increases for Asian populations.

The overall increase in average consultation rates appears to be relatively small in terms of the number of consultations, but increases for some groups in the population are over 20% for some in Access practices. Increases in Interim practices are generally lower, as might be expected given that new funding has not been allocated to all groups in Interim practices, although increases in consultation rates in Interim practices have increased by more than 20% for those aged 45-64 without CSCs and for those aged 65 years and over without and with CSCs.

Overall, the Strategy is resulting in lower fees for primary health care for many New Zealanders, and consultation rates are also increasing over time. Further analyses of our data are required to identify the contribution of different factors to the changes we are seeing in our data, and in relation to identifying the implications for policies to reduce inequalities. These analyses will be undertaken as this evaluation progresses, including providing information on the impact on health (as measured by intermediate health outcomes) over time.

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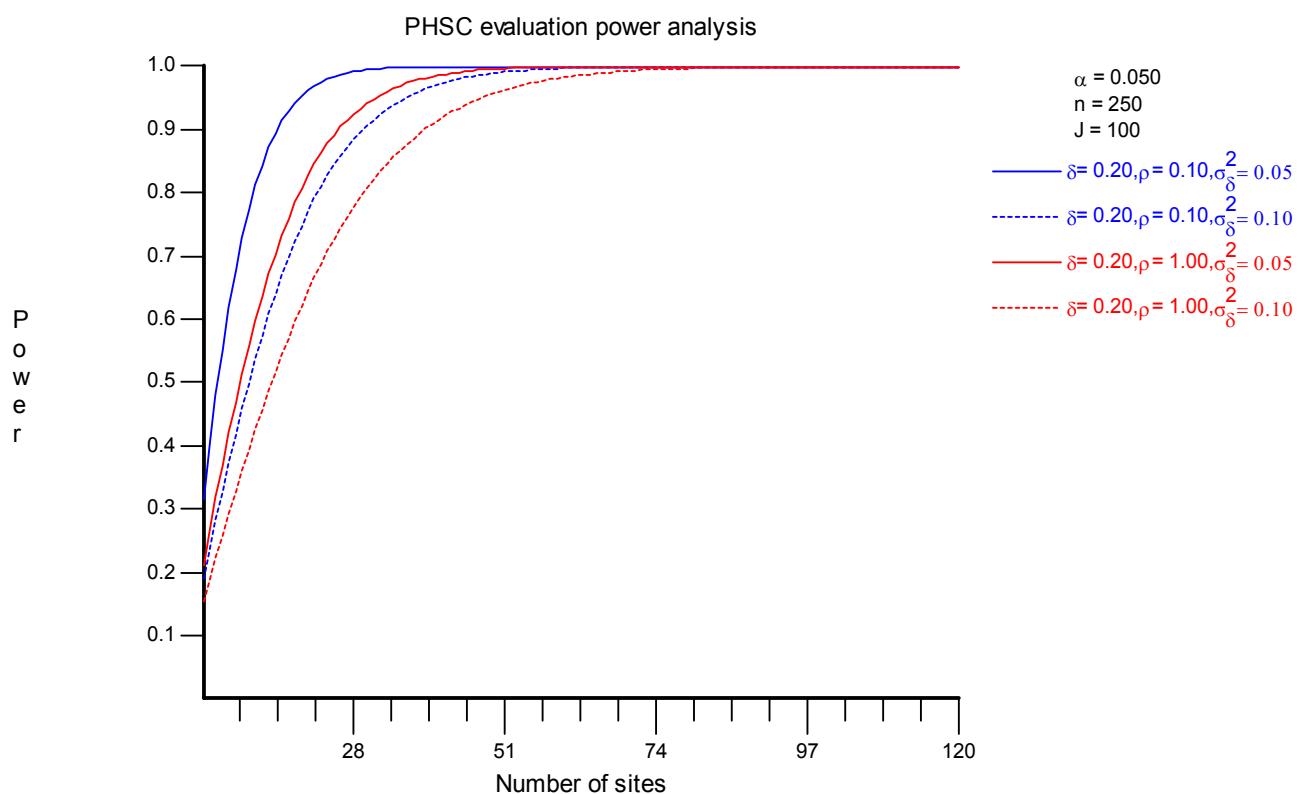
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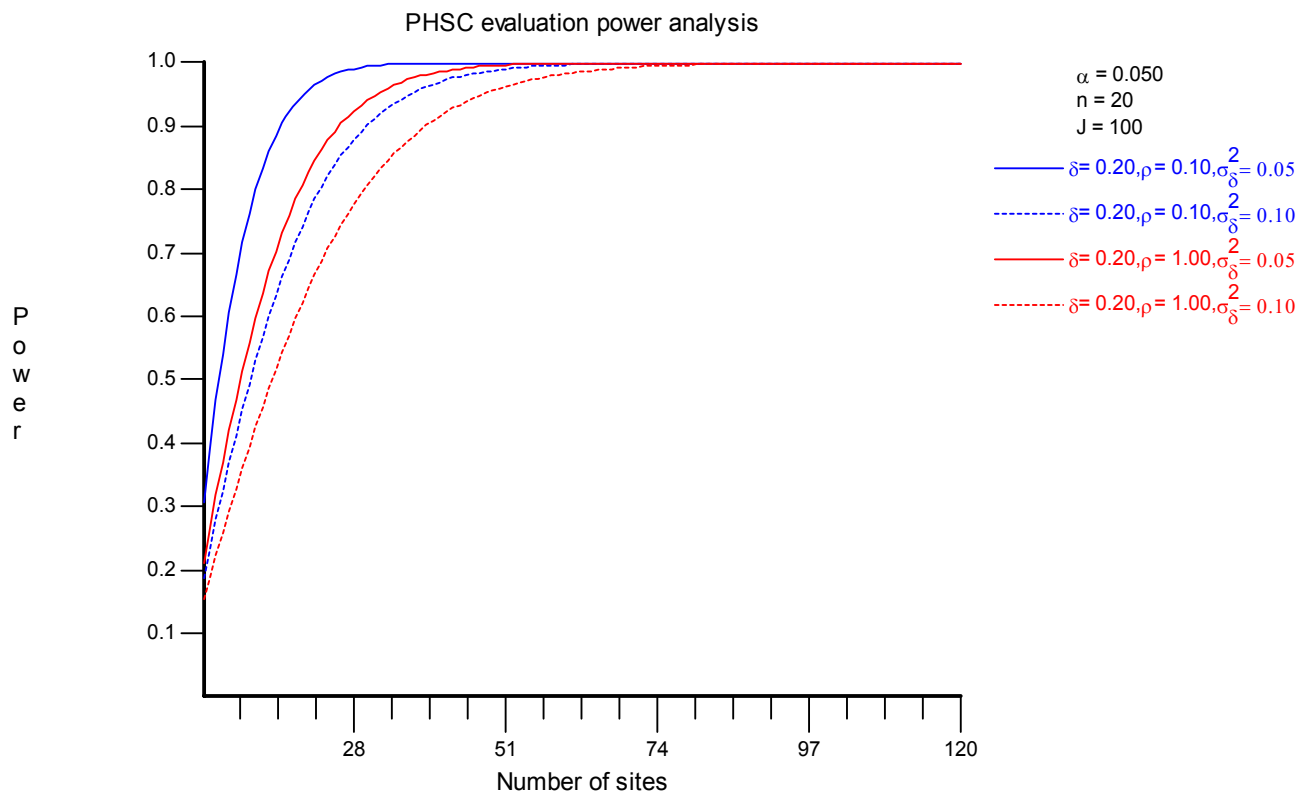
Appendix 1 – Power Analysis

The following graphs summarise the power analysis. For the purposes of setting sample sizes the effect size was set at 0.2, a small effect, representing a shift of a fifth of a standard deviation. For example, considering the case of fees paid by adults 65+ this represents a change in fee paid of approximately \$2.50.

The first graph shows power to detect changes of this magnitude for a sample of 250 patients from clusters (practices) of various sizes. The intra-class correlation is set at 0.1, based on previous analyses. There is ample power to look at these changes within Access and Interim practices independently with power being greater than 0.8 at 50 sites (i.e. approximately equal numbers of practices in each group)



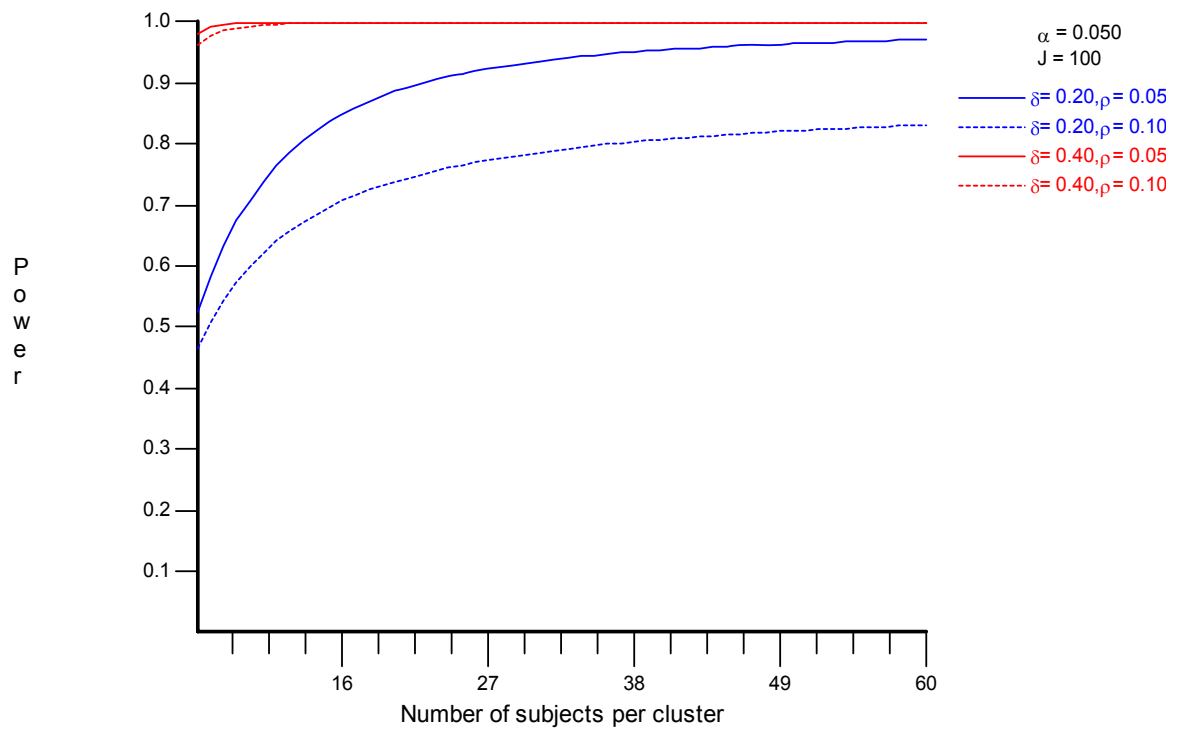
The next graph shows that power is relatively insensitive to number of patients at each site, graphing power for a sample size of 20 per cluster. This shows we maintain adequate power even when examining subsets of the data, for example children aged <6 (9% of population) in Access practices. For interest the effect of an ICC of 1 (no variation within practices) is also illustrated.



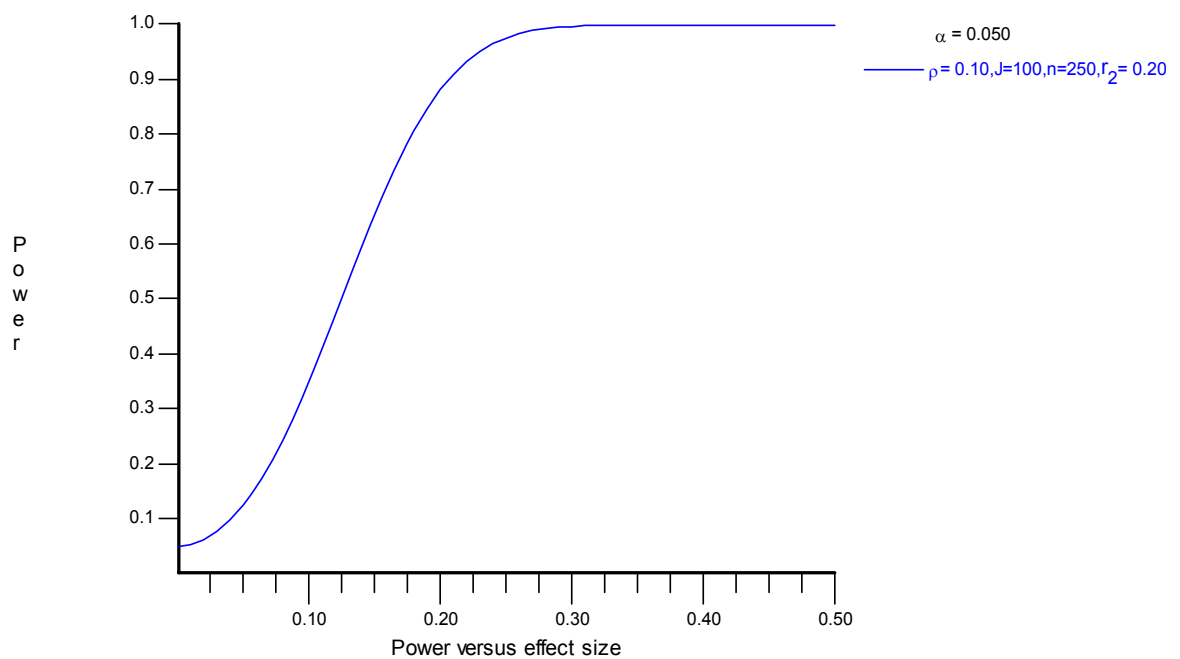
The two graphs on the following page show (a) the limited returns in power of increasing number of patients per practice (beyond about 25, the smallest cell size we would be interested in) and (b) the power of the proposed design to detect effects of various sizes.

The analysis suggests the proposed design is an efficient way of meeting the evaluation aims described in the text, with the sampling strategy ensuring a representative, random sample is obtained.

Power versus number of subjects per cluster
(showing little gain past 30 patients per cluster)



Power versus effect size
(0.2 = change of \$2.50 will be significant at 0.05, from one quarter to the next)



Appendix 2 – HealthStat Sample

Construction of the HealthStat Panel

The HealthStat panel was randomly selected from a list of all active practices (providing general primary care services to a registered population) using the MedTech32 Practice Management System (PMS) in New Zealand, maintained by CBG Health Research Ltd. The database contains 1267 practices. Accident and Medical services are included if they provide general medical services to a registered population. A random sample was drawn from this database, stratified by DHB. The sampling methodology was designed to deliver a geographically representative random sample of 100 practices.

To stratify by DHB a quota was set for each DHB, in proportion to the population of the DHB (the same required number for each DHB result when the number of practices is used instead of DHB population). To choose the random sample in each DHB the practices in a DHB were listed in suburb or town order. A random start point was chosen using the Excel random number generator, and every “nth” practice was chosen, with “n” being the reciprocal of the required sampling fraction to achieve a sample of the required size.

Practices were then contacted and invited to participate in HealthStat. Typically this involved a visit to a practice meeting, or a teleconference, to discuss the HealthStat concept. In return for participating in HealthStat practices receive web-based analyses of their practice clinical and business activity, in comparison to the pooled national HealthStat data, and payment each time a client accesses the HealthStat dataset.

HealthStat is based on three key principles:

1. Anonymity. At no time are patients, clinicians or practices to be identified in any HealthStat reporting. Practices agree that data can be presented at a DHB level of aggregation.
2. Transparency. No information is provided to any client without explicit permission being given by a practice that their data can contribute to the analysis. Practices are informed of the analyses that will be undertaken and the purpose of the analysis.
3. Facilitation. Wherever possible HealthStat works with existing health information standards for data coding and analysis. HealthStat aims to help policy makers make better decisions.

HealthStat has signed memoranda of understanding with all participating practices guaranteeing these conditions. In return practices have undertaken to Read code to an agreed set of 12 Read codes, to identify patients with common chronic conditions, and incident cases of gastroenteritis and influenza.

The sample was recruited between March and June 2005. One hundred and fourteen practices were invited to participate and 96 agreed, although one practice subsequently withdrew (citing lack of financial return) leaving 95 participating practices, an 83% response rate. In the event of a practice declining participation the next practice (in the sorted list from each DHB) from the same suburb or town was invited to take part to maintain geographic representativeness as far as possible.

Some of the 95 practices in the sample shared computer systems with other practices. Where these practices provided increased geographical coverage to the HealthStat panel, by adding practices from other towns, these practices were added to the panel. This enhanced panel is useful for surveillance; this added a further eight practices to the sample, bring the total number of practices supplying data weekly to 103.

The first weekly practice downloads started on 1 July 2005 and the last of the 103 panel practices to start supplying data commenced downloads on 23 October 2005.

The collection of data using HealthStat is completely automatic. Data is downloaded from each practice every week, using the secure HealthLink messaging system. The practice downloads are spread over the working week, so that data is received from 20% of practices each day. This reduces the daily traffic maximum volumes that HealthLink has to handle. Registers are downloaded from each practice every three months, to provide up-to-date denominators for rate calculations. Downloads are spread over the three months; the pooled register data thus estimates the HealthStat denominator at the midpoint of a quarterly reporting period.

One doctor's organisation holds the license for the MedTech32 software used by its members. As the license owner for MedTech32, this organisation was invited directly to participate in HealthStat but declined, and therefore the HealthStat panel does not include any practices from this organisation. Practices from this organisation were also drawn in the national random sample and this organisation was invited to participate in this evaluation but was not able to be engaged. In all other cases contact was made directly with practices, with PHOs informed of the project.

Representativeness of the HealthStat Panel

In general HealthStat over-represents Maori and Pacific patients, and patients from Access practices. The response rate from low-decile, high Maori and Pacific practices that appeared in the random sample was 100% and the sample is therefore biased in favour of these populations.

HealthStat collects information on all practice encounters, with doctors or nurses (or other professionals) and for all patients, whether or not they are registered with a practice. This information on casual patients is a strength of HealthStat that may be of considerable importance in policy development. However, the standard analyses provided to practices and HealthStat clients report activity for registered patients only. The following table describes the demographic profile of registered patients.

Demographic features of HealthStat sample

		N	Percent
Age group	0-5	39382	9.51
	6-18	92749	22.39
	19-24	34178	8.25
	25-44	118493	28.6
	45-64	87222	21.06
	65+	42220	10.19
	Total	414244	100
Gender	Female	214933	51.89
	Male	199311	48.11
	Total	414244	100
Ethnicity	Other	218881	52.84
	Maori	92652	22.37
	Pacific	48938	11.81
	Asian	27894	6.73
	Missing	25879	6.25
	Total	414244	100

Note: Registered patients. Sample as of 1 October 2006

