



## Do Consultation Charges Deter General Practitioner Use Among Older People? A Natural Experiment

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**Abstract:** **Background:** A change in the pricing of general practitioner care in the Republic of Ireland in 2001 provides a natural experiment of the influence of economic incentives on GP visiting. **Methods:** Social surveys (N=937 in 2000 & N=1053 in 2004) were carried out before and after the change in pricing arrangements. OLS and logistic regression were used to examine change in both the overall probability of attending the GP and the frequency of visiting in the previous year. **Results:** 93% in 2000 and 95% in 2004 visited their GP at least once. Where the proportion of those aged 65 to 69 visiting at least once fell by 1% between 2000 and 2004, the proportion aged 70 to 74 increased by 4.6%; those 75 to 79 increased by 6.3%; those aged 80 to 84 increased by 3.2%. Frequency of visiting remained stable at 5.3 visits per year but increased with age and worse health. Logistic regression models confirmed the increase in the probability of visiting for over 70s between 2000 and 2004.

**Keywords:** General practice; utilisation; equity

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## Introduction

Equity of access to health care is regarded as a key element of health system performance by the OECD (Hurst & Jee-Hughes 2001). Research on equity in the provision of general practitioner (GP) services has largely concentrated on the total population and there has been little research on the pattern of GP utilisation and levels of equity among older age groups. Older age is associated with a higher likelihood of visiting a GP and a higher frequency of service use (Layte et al. 2005), yet older people may face greater barriers to utilisation. Decreased mobility, poorer access to transport and information and lower income in retirement may all influence patterns of utilisation among older people. Such barriers are unlikely to be evenly distributed across older people and it is likely that wealthier older people may, paradoxically, have both better health status *and* greater access to services.

The Republic of Ireland has been distinctive among OECD countries in its pricing of GP services and this pricing structure may contribute to differentials in utilisation by income among older people in the Republic of Ireland. Twenty-six percent of the population qualify for free primary care via an income means test, through particular health needs, or participation in an approved Government training and employment scheme<sup>1</sup>. From July 1<sup>st</sup> 2001, all individuals aged 70 years and over were also entitled to a medical card, regardless of income and a further 3% of the population qualify on this basis<sup>2</sup>. The proportion of medical cardholders among those aged 65 or more increased from 65% to 88% between 2000 and 2004.

The expansion of the medical card scheme created an important ‘natural experiment’ which can be used to examine the impact of moving from a system of paid to freely available GP care for the population aged 70 or more. Previous research in Ireland has found a substantial differential in GP visiting behaviour between medical cardholders

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<sup>1</sup> A medical card scheme giving free access to GP services alone (i.e. it did not cover prescription charges) was instituted in October 2005 and added a further 1% of the population to the total eligible under what is termed the ‘medical card’ scheme.

<sup>2</sup> Not all those over 70 years availed of the medical card. Some continued paying for treatment by their GP (Fadden 2003).

and non-holders. Holders had a higher probability of going to their GP in the last year than non-holders and a higher frequency of visiting overall (Madden, Nolan, & Nolan 2005). Much of this higher level of utilisation could be explained by the poorer health profile of the medical card population, but neither poorer health status or a large set of other factors could fully explain the higher level of utilisation among medical cardholders. It was suggested that the lower level of utilisation among non-medical cardholders results from the price disincentive that they face. A recent study carried out among patients in GP practices in both Northern Ireland and the Republic of Ireland found that 26% of non-medical card patients in the Republic with a medical problem in the last year had not visited their GP because of cost. The odds of non-consultation were higher in the middle of the income distribution which lies above the medical card threshold (O'Reilly et al. 2006). Given this, the introduction of the medical card for all over 70s may well have increased utilisation among new cardholders after 2001.

In this paper we use data from two national surveys of older Irish people carried out before and after the change in policy (2000 & 2004) to examine whether the introduction of free GP care for over 70s in Ireland led to an increase in both the overall probability of seeking care and the frequency of visiting.

Analyses of the equity of GP care across countries show that across a wide range of European countries, Canada and the US, lower income groups use GP services significantly more often than higher income groups (van Doorslaer, Koolman, & Puffer 2002). However, this unequal distribution largely coincides with the distribution of health 'need' in the sense that lower income groups have poorer health. This means that once standardisation is carried out for health need, relatively few countries have a distribution of GP consultations which is significantly different from equitable. Studies of the equity of GP utilisation among older age groups are less common. However, research does suggest that higher education and income among older age groups is associated with higher utilisation and inequity in utilisation in favour of wealthier individuals (Nelson et al. 2002); (Hakkinen & Luoma 1995); (Allin, Masseria, & Mossialos 2006).

## **Methods**

The first Health and Social Services for Older People survey (HeSSOP 1) was carried out in the year 2000 with the aim of providing representative data on the health and health and social service provision of Irish people aged 65 or more in private households in the Western Health Board (WHB) and Eastern Region Health Authority (ERHA)<sup>3</sup>. Approximately one third of the population of the Republic of Ireland lived in the areas covered by the ERHA and WHB and the two boards were chosen because they represented the most urban and rural areas of the country respectively. A random sample of 6640 addresses were drawn from the Register of Electors and where households were found to contain a person aged 65 or more, the individual was asked to participate. Where households contained more than one person over 65, the individual whose birthday fell closest to the interview date were asked to participate. A person over 65 was present in 1438 (23%) of initial sample households. 943 (861 in person and 82 by proxy) or 66% agreed to take part in the survey and all but 6 of these finished the face-to-face interview schedule.

The 2004 HeSSOP 2 study included many of the questions used in the previous survey to facilitate comparison including questions on health status and health care utilisation. In 2004, 1053 of 1,858 people invited provided a complete interview (57% response). Data were statistically weighted using a minimum distance algorithm and area population norms to provide a representative sample of the population sampled.

### *Measures Used*

Both surveys included questions on the net income of the household in total after the deduction of tax and statutory deductions. Net income was equivalised using the ‘modified’ OCED equivalence scale which weights the first adult (14+) at unity and each additional adult by 0.5 and each child by 0.3.

Health status is measured using three variables. The first is the general health question – “In general, how would you describe your health?” with outcome categories excellent, good, fair, poor and very poor. The second is the Stanford Health Assessment Questionnaire - Disability Index (HAQ-DI) (Fries 1982). The HAQ-DI is

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<sup>3</sup>The Health Board Structure in the Republic of Ireland was replaced with a single Health Services Executive divided into four regions on the 1<sup>st</sup> of January 2005.

used to measure levels of physical ability in the general population, in terms of the activities that are performed on a daily basis. Participants are asked to rate on a four point scale (without difficulty, with some difficulty, with much difficulty or unable to do) their ability to perform seventeen daily tasks within eight activity categories in the past week. An overall measure of independence is calculated from these responses. The third measure is the Hospital Anxiety and Depression Scale which is a short questionnaire Instrument designed to detect the presence and severity of mild degrees of mood disorder, specifically anxiety and depression.

The measure of GP utilisation is based on a question which asks “In the last 12 months, how many times have you seen any GP?”. This is used in two forms. The first is the frequency of visits in the last year in the form of a positive integer. The second transforms this measure into a dichotomous variable representing whether the respondent had one or more visits in the last year.

Questions were also asked as to whether the individual had or was covered by privately funded medical insurance (38% in 2000 and 39% in 2004) and/or a ‘medical card’ (65% in 2000 and 84%)

Health status and use of primary care are strongly related to demographic factors such as age, sex, marital status and geographical location. Age was categorised into groups- 65-69, 70-74, 75-79, 80-84 and 85+; marital status was divided into the never married, married/cohabiting, separated/divorced and widowed; location was defined as rural/urban using a location size of up to 1500 inhabitants and over 1500 inhabitants.

### **Analyses**

Ordinary least squares (OLS) regression is used to assess change in the frequency of GP visiting between 2000 and 2004. Individual observations from 2000 and 2004 are pooled and the frequency of visiting estimated dependent upon sex, age, marital status, highest education, income, self-assessed health, HAQ-DI and HADS measures of health and rurality. Change in number of visits is assessed using a term for the year 2004 and the interaction of this variable with age categorised as above. If the interactions for groups aged over 70 are significant and positive, this is evidence that

the change in medical card status has led to an increase in the frequency of visiting by 2004. Finally, a variable indicating medical card status is introduced into the model. If the age/year interactions become insignificant with the addition of the medical card variable this is further confirmation of the medical card effect.

Logistic regression models predicting the probability of visiting the GP one or more times in the last year are also estimated. The variables used in this model are identical to those used in the OLS model.

## **Results**

### *Age, Sex and Health Profile 2000 & 2004*

Table 1 gives descriptive statistics of the samples in 2000 and 2004 and shows that women in the sample were older on average than their male peers in each year, a pattern which may also be linked with the poorer health profile of women who were more likely to have poorer self-assessed health as well as higher levels of physical health problems. Between 2000 and 2004, the health profile of the population improved marginally with respondents more likely to report excellent and very good self-assessed health and less likely to report severe difficulties. However, in 2004 respondents were more likely to report minor difficulties and less likely to report no difficulties.

Older women have lower incomes on average than older men (Whelan et al. 2003). This was reflected in the higher numbers of women in both years who were in receipt of a medical card. The difference in the proportion with a card fell substantially after 2001 as men aged 70 years+ became eligible on age grounds for a card. This is reflected in Table 1 where the proportion of men with a medical card increasing by 26% from 53% to 79% whilst the level among women increased by 12% from 73% to 88%. The proportion with private medical insurance decreased marginally among men between 2000 and 2004, but increased by 5% among women.

### *GP Utilisation*

Table 2 shows that the mean number of GP consultations remained stable between the years at 5.3 with a median of 4 visits per year. Over the period however the variance in the number of visits did increase as shown by the standard deviation which

increased from 4.4 to 5.4. The medical card population in 2000 was drawn largely from lower income groups who were more likely to have a poorer health status and thus were more in need of GP care compared to 2004. In 2004 the availability of medical cards to all over 70s meant that the medical card holding group became more diverse. In 2000, medical cardholders had 6.2 consultations on average per year with a median of 5, whereas those without a medical card had 3.5 with a median of 2. In 2004, the mean number of visits among medical card holders fell to 5.9 visits per year with a median of 4 compared to 2.7 with a median of 2 among non-medical card holders. Across the different age groups we see marginal increases and decreases in frequency of visiting, but no definite pattern for over/under 70s.

Table 2 also shows that although the overall number of GP visits did not change 2000-2004,

The probability of visiting the GP one or more times in the last year did. The proportion of the overall population having one or more visits increased by 2.5% between 2000 and 2004. Meanwhile the proportion of the medical card population having one or more consultations increased by 3.4% between 2000 and 2004. If the increase in the overall proportion having one or more visits is associated with the widening of eligibility criteria to all over 70 in 2001, this should be reflected in the pattern across age groups. Table 2 shows that it is with an increase of 4.6% among those 70-74, 6.3% for those 75 to 79 and 3.2% among those 80 to 84. The proportion of those aged 65 to 69 with one or more visits decreased by 1% whilst the proportion above age 85 remained largely stable.

#### *Modelling Change in Utilisation 2000-2004*

Multivariate models are required to control for changes in the distribution of the factors which predict GP utilisation between the two survey years to establish the independent impact of the change in medical card availability. Table 3 gives the coefficients and their significance for an ordinary least squares regression of number of visits to the GP in the last year. The first model fits a large number of explanatory variables including interactions between age groups and the year 2004. The main term for the year 2004 and all of the interactions with 2004 for ages over 69 are insignificant in Model 1 confirming the descriptive result from Table 2 that there was no increase in the frequency of visiting after 2001 for over 70s.

Table 4 reports the results of logistic regression models of the probability of having one or more visits to the GP in the last year. Model 1 in Table 4 shows significant positive increases in the odds ratio of attending for those aged 70 to 79 in 2004 compared to those aged 65 to 69. The odds for those aged 70 to 74 increase 340% in 2004 compared to those under 70. The odds for those aged 75 to 79 increase by over 1600%. The main age terms that now relate to the year 2000 alone, show that there was no significant differences between the age groups in 2000. Further evidence of an increase in the probability of visiting in 2004 for over 70s is given by the impact of adding a term for holding a medical card in Model 2. The term for having a medical card is significantly greater than one and leads to the age/year interactions becoming insignificant. Models 1 and 2 provide good evidence of an increase in visiting among over 70s in 2004 compared to 2000 due to greater access to medical cards.

The results in Table 4 confirm the descriptive findings in Table 2.

### **Discussion**

The results of this paper suggest that the introduction of the medical card for the population over the age of 70 years in Ireland did not increase the frequency with which individuals aged 70 or more visited their GP, but it did increase the overall probability of seeking GP care. This is important as standard economic models assume that the overall probability of seeking care largely reflects the choice of the individual given their characteristics such as health, income and preference for care. The frequency of visiting on the other hand is more complex since it is also influenced by the GP. The increase in the availability of free care may thus have led a significant proportion of over 70s to seek care without increasing the overall frequency of consultation. This could suggest that there was an unmet need for care before the widening of medical card eligibility, although it is not possible to discount what is known as ‘moral hazard’ in the health economics literature, i.e. the increased tendency to use a service at a low or zero price. In Model 2 in both Tables 3 and 4, the coefficient for having a medical card was significant and positive even after controlling for self-assessed health, HAQ-DI and HADS measures of health. This would suggest that utilisation among medical card holders did not just reflect their



health needs, although it is entirely possible that our measures of health status may not have perfectly measured health need.

In conclusion, the increase in the proportion eligible for free care after 2001 led to a significant increase in the proportion seeking care suggesting that consultation charges deter health seeking behaviour.

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Table 1: Descriptive statistics of general older population samples in 2000 and 2004				
	2000		2004	
%	Men	Women	Men	Women
All	45.7	54.3	44.2	55.8
<b>AGE</b>				
Aged 65-69	35.1	22.8	35.2	29.0
Aged 70-74	29.0	25.7	28.6	25.8
Aged 75-79	19.2	23.4	19.7	20.9
Aged 80-84	10.8	14.0	11.3	15.0
Aged 85+	6.1	14.2	5.3	9.3
<b>HEALTH FINANCE</b>				
Covered by (public) Medical Card	53.2	75.6	79.2	87.5
Covered by private medical insurance	43.1	32.8	40.2	38.0
<b>SELF-RATED HEALTH</b>				
Excellent Health	19.4	14.0	21.6	16.8
Very Good Health	52.6	48.5	55.2	49.7
Good Health	22.9	28.2	18.3	25.7
Fair Health	4.0	6.3	3.3	6.6
Poor Health	1.2	3.0	1.6	1.2
<b>PHYSICAL CAPACITY (HAQ-HI)</b>				
On Health Assessment Questionnaire:				
No Difficulties	87.4	74.2	84.9	76.2
Minor Difficulties	5.8	9.9	7.4	11.9
Major Difficulties	3.3	7.3	4.2	6.7
Severe Impaired	3.5	8.5	3.4	5.1

Table 2: Descriptive Statistics for GP Utilisation in the Last Year

	GP Visits	
	2000	2004
<hr/>		
Number of Visits in the Last Year		
0	7.3%	4.8%
1 to 5	53.9%	61.9%
6 to 10	22.8%	18.8%
11 to 20	15.2%	13.3%
21 to 50	0.9%	1.2%
50+	0.0%	0.1%
Mean Visits (All)	5.30	5.32
Standard Deviation of Visits (All)	4.4	5.4
Median Number Visits (All)	4	4
Mean Visits (Medical Card Holders)	6.18	5.85
Standard Deviation of Visits (Medical Card Holders)	4.59	5.64
Median Number Visits (Medical Card Holders)	5	4
Mean Visits by Age Group		
Aged 65-69	4.2	4.0
Aged 70-74	5.3	5.6
Aged 75-79	5.8	5.6
Aged 80-84	6.3	7.2
Aged 85+	5.8	6.1
1+ Visits in Last Year (All)	92.7%	95.2%
1+ Visits in Last Year (Non-Medical Card Holders)	89.3%	84.0%
1+ Visits in Last Year (Medical Card Holders)	94.4%	97.8%
1+ Visits Last Year by Age Group		
Aged 65-69	90.7%	89.7%
Aged 70-74	92.5%	97.1%
Aged 75-79	92.5%	98.8%
Aged 80-84	94.7%	97.9%
Aged 85+	96.8%	96.6%

Table 3: Ordinary Least Squares Regression Model of Number of GP Visits in the Last Year

	Model 1				Model 2			
	B	Sig.	95% CI		B	Sig.	95% CI	
Male	Ref.				Ref.			
Female	0.67	0.005	0.20	1.13	0.56	0.017	0.10	1.02
Aged 65-69	Ref.				Ref.			
Aged 70-74	0.64	0.116	-0.16	1.43	0.43	0.281	-0.35	1.22
Aged 75-79	0.98	0.026	0.11	1.84	0.61	0.163	-0.25	1.47
Aged 80-84	0.72	0.183	-0.34	1.78	0.27	0.621	-0.79	1.32
Aged 85+	-0.14	0.823	-1.35	1.07	-0.49	0.419	-1.70	0.71
Married/Cohabiting	Ref.				Ref.			
Never Married	-0.79	0.086	-1.70	0.11	-0.83	0.068	-1.73	0.06
Separated/Divorced	-0.91	0.095	-1.97	0.16	-0.93	0.085	-1.98	0.13
Widowed	0.08	0.827	-0.64	0.80	-0.16	0.669	-0.87	0.56
Primary Education	-0.01	0.989	-0.81	0.80	-0.04	0.929	-0.84	0.76
Lower Secondary	-0.25	0.578	-1.13	0.63	-0.25	0.571	-1.12	0.62
Upper Secondary	-0.76	0.091	-1.63	0.12	-0.68	0.126	-1.55	0.19
Third Level	Ref.				Ref.			
Log Equivalent Income	0.17	0.298	-0.15	0.48	0.21	0.182	-0.10	0.52
Good to Excellent SAH	Ref.				Ref.			
Less than Good SAH	2.00	<0.001	1.00	3.00	2.04	0.000	1.06	3.02
HAQ-DI	0.47	0.028	0.05	0.89	0.44	0.036	0.03	0.85
HADS	0.18	<0.001	0.10	0.27	0.19	0.000	0.10	0.27
Urban Dweller	Ref.				Ref.			
Rural Dweller	0.86	<0.001	0.41	1.31	0.88	0.000	0.43	1.32
No Medical Insurance	Ref.				Ref.			
Medical Insurance	-1.02	<0.001	-1.54	-0.50	-0.45	0.113	-1.00	0.11
Year 2000	Ref.				Ref.			
Year 2004	-0.35	0.570	-1.55	0.85	-0.65	0.286	-1.84	0.54
Aged 65-69 + 2004	Ref.				Ref.			
Aged 70-74 + 2004	0.30	0.602	-0.81	1.41	-0.09	0.873	-1.19	1.01
Aged 75-79 + 2004	-0.08	0.901	-1.30	1.14	-0.26	0.676	-1.46	0.95
Aged 80-84 + 2004	0.05	0.951	-1.41	1.50	-0.03	0.968	-1.46	1.40
Aged 85+ + 2004	0.69	0.425	-1.00	2.38	0.58	0.499	-1.10	2.25
No Medical Card	Ref.				Ref.			
Medical Card					1.69	<0.001	1.07	2.31
Constant	2.47	0.01	0.59	4.35	1.32	0.17	-0.56	3.20
N								
Adjusted R <sup>2</sup>								

Table 4: Logistic Regression Model of Visiting the GP One or More Times in the Last Year

	Model 1				Model 2			
	OR	Sig.	95% CI		OR	Sig.	95% CI	
Male	Ref.				Ref.			
Female	2.74	0	1.63	4.62	2.55	0.001	1.49	4.36
Aged 65-69	Ref.				Ref.			
Aged 70-74	1.06	0.879	0.53	2.10	0.91	0.781	0.45	1.82
Aged 75-79	0.98	0.95	0.45	2.09	0.78	0.542	0.36	1.72
Aged 80-84	1.17	0.77	0.41	3.38	0.88	0.812	0.30	2.60
Aged 85+	1.68	0.512	0.36	7.90	1.23	0.797	0.26	5.90
Married/Cohabiting	Ref.				Ref.			
Never Married	0.62	0.208	0.29	1.31	0.64	0.250	0.30	1.37
Separated/Divorced	1.26	0.68	0.42	3.76	1.19	0.754	0.40	3.59
Widowed	0.87	0.717	0.42	1.81	0.83	0.629	0.39	1.75
Primary Education	0.79	0.572	0.35	1.80	0.82	0.638	0.35	1.89
Lower Secondary	0.67	0.381	0.28	1.63	0.67	0.379	0.27	1.64
Upper Secondary	0.59	0.226	0.26	1.38	0.61	0.253	0.26	1.43
Third Level	Ref.				Ref.			
Log Equivalent Income	1.10	0.529	0.82	1.47	1.08	0.619	0.80	1.44
Good to Excellent SAH	Ref.				Ref.			
Less than Good SAH	2.25	0.441	0.29	17.79	2.07	0.490	0.26	16.28
HAQ-DI	2.19	0.078	0.91	5.24	2.07	0.100	0.87	4.91
HADS	1.16	0.003	1.05	1.27	1.15	0.005	1.04	1.27
Urban Dweller	Ref.				Ref.			
Rural Dweller	1.14	0.597	0.71	1.82	1.10	0.688	0.68	1.79
No Medical Insurance	Ref.				Ref.			
Medical Insurance	1.11	0.689	0.66	1.88	1.81	0.050	1.00	3.28
Year 2000	Ref.				Ref.			
Year 2004	0.45	0.155	0.15	1.36	0.45	0.174	0.14	1.42
Aged 65-69 + 2004	Ref.				Ref.			
Aged 70-74 + 2004	3.40	0.042	1.05	11.08	2.26	0.188	0.67	7.64
Aged 75-79 + 2004	16.50	0.029	1.32	205.87	11.58	0.059	0.91	147.39
Aged 80-84 + 2004	1.36	0.721	0.26	7.18	1.05	0.959	0.19	5.71
Aged 85+ + 2004	0.61	0.667	0.06	5.84	0.48	0.531	0.05	4.73
No Medical Card	Ref.				Ref.			
Medical Card					2.84	0.001	1.57	5.12
Constant	3.15	0.205	0.53	18.54	2.03	0.445	0.33	12.39
N	1648				1631			
Adjusted R <sup>2</sup>	0.1214				0.1386			

<b>Year</b>	<b>Number</b>	<b>Title/Author(s)</b> <i>ESRI Authors/Co-authors Italicised</i>
<b>2007</b>	193	An Analysis of the Impact of Age and Proximity of Death on Health Care Costs in Ireland <i>Richard Layte</i>
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