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University College Cork, Ireland

**DEPARTMENT OF ECONOMICS
UNIVERSITY COLLEGE CORK
WORKING PAPER SERIES**

**General Practice in Ireland in 2010:
A Survey of Staff and Equipment Investment**

Working Paper: 10-07

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Acknowledgments

The authors of this paper would like to thank Prof. Stephen Roper, University of Warwick; and a number of GPs who provided invaluable assistance in relation to the design of the questionnaire. Valuable comments were also received from Dr. Brendan McElroy, Department of Economics, UCC.

Table of Contents

Executive Summary	3
Section 1: Introduction	5
Section 2: Structure of General Practice	7
2.1: Introduction	7
2.2: Location and Size of General Practices	7
2.3: Gender & Age Composition of GPs per practice	9
2.4: Nursing and Clerical Support	12
2.5: Solo-Practitioner Practices	14
Section 3: General Practices' Use of Medical Equipment	18
Section 4: General Practices' Use of Information Technology	22
4.1: General Practices' Use of IT for Patient Care Purposes	22
4.2: General Practices' Use of IT for Other Patient Care Purposes	24
4.3: General Practices' Use of IT for Administrative Purposes	26
Section 5: Discussion	29
Appendix 1: Survey Methodology	31
Appendix 2: Survey Response Rates	34
Appendix 3: Chi Square Tests of Association	35

Executive Summary

This report provides a profile of General Practice in Ireland in 2010 drawing on a national survey of General Practices. Conducted by the Departments of Economics and General Practice at University College Cork, 601 general practices responded to the survey which focussed on GP's use of medical equipment and information technology.

Structure of General Practice in Ireland in 2010

- Significant differences exist between Health Service Executive (HSE) areas in terms of the urban-rural locations of general practices. 70 per cent of practices in the HSE Dublin Mid Leinster and HSE Dublin North East are located in a city or large town, compared to 30 per cent of practices in the HSE West region.
- The average number of GPs in each general practice is 2.7. One in eight practices has 5 or more GPs. There are more male GPs per practice than female GPs. Approximately one-third of general practices include GPs of more than 60 years of age.
- More than four in five general practices in Ireland employ a nurse. However 19 per cent of general practices in Ireland have no nursing support. This figure is higher in the HSE West, where one in four practices are without a nurse.
- More than 90 per cent of practices employ clerical support. The HSE West has the highest proportion of general practices without clerical support – 15 per cent. More than half of all general practices in Ireland employ a practice manager.
- Around a quarter of GP practices are solo-practitioner practices and this figure increases to one-third in the HSE West region. A typical solo-practitioner general practice in Ireland consists of a male GP who is 50 years of age or older. Many solo-practitioner practices do not hire nursing or clerical support.

Use of Medical Equipment in General Practice in Ireland in 2010

- There is strong evidence that the majority of general practices invest in a broad range of medical equipment and devices, specifically ECG machines, 24 hour blood pressure monitors, spirometers, cryotherapy equipment, minor surgery equipment, and ultrasound/doppler foetal monitors.
- Group practices and practices with nursing support are more likely to have this range of medical equipment and devices.
- Across all six types of medical equipment, practices in the HSE West are more likely to have a higher proportion of this equipment than the national average.

Extent of Use of IT in General Practice in Ireland in 2010

- Over 60 per cent of practices in Ireland keep completely computerised consultations records. Group practices are more likely to have 'paperless' consultation records than solo-practitioners, as are practices with clerical support.
- General practices also use IT for patient care functions, such as recall of items and downloading hospital laboratory reports. However, general practices are less likely to use IT for coding of diseases and audit / quality assurance.
- Group practices use IT to a greater extent than solo-practitioners, as do practices with clerical support.
- The majority of general practices use IT for a wide range of administrative functions, such as patient registration, referral letters and appointments.
- Interestingly, less than one in three general practices have a practice website.

Section 1: Introduction

This report provides a profile of the nature of General Practice in Ireland and the extent to which general practices invest in medical equipment and Information Technology. The data used in this report was collected through a self-administered postal questionnaire, distributed to general practices in the four HSE regions in Spring 2010. 601 general practices returned completed questionnaires, representing a response rate of 42%.

Firstly, this report describes the structure of General Practice in Ireland, focussing on location and size of practices, the gender and age composition of GPs, and the support staff employed. These findings are reported for the four HSE areas – Dublin MidLeinster, Dublin North East, South and West. One in four general practices in Ireland are solo-practitioner led, and a detailed profile of these practices is also presented (Section 3).

Secondly, the range of medical equipment and devices in General Practice in Ireland is discussed. Differences in the use of this medical equipment by practice size and nursing support are also presented (Section 4).

Thirdly, the report focuses on general practices' use of information technology (IT). The extent to which IT is used in relation to consultation records is discussed. A comparison of IT use for patient care and administrative purposes is presented. Comparisons of IT use by HSE region, practice size and administrative support are also presented. (Section 5).

In the last decade, the Irish College of General Practitioners (ICGP) has carried out two major surveys of GPs in Ireland. In 2005, O' Dowd et al (2006) collected survey data on demographic and educational characteristics of GPs, the structure and organisation of their practices, service provision, and on a broad range of issues such as stress, morale and retirement plans¹². In 2003, ICGP members were

¹ A 22 per cent random sample of GPs was drawn from 2,477 GPs listed on the General Medical Service (GMS) and Mother-to-be and Infants (MIS) Schemes. Of the 545 GPs surveyed, 476 responded representing a response rate of 87 per cent. This sample size represents approximately 19 per cent of Irish GPs (0.22 random sample x 0. 87 response rate of 2,477 GPs)

² Similar studies had previously been carried out in 1982 and 1992.

surveyed on the extent of computerisation in their practices (ICGP, 2003)³. Where possible, we endeavour to compare this study's findings with this previous research and present changes and improvements in General Practices in Ireland over this five to eight year time frame. However, it is not always possible to make direct comparisons due to differences in research objectives and the survey instruments used⁴.

³ 2,362 ICGP members were surveyed. 1,452 completed questionnaires were returned representing a response rate of 66 per cent of all GPs registered with the ICGP.

⁴ ICGP studies collected data at a GP level, whereas our study is at a general practice level.

Section 2: Structure of General Practice

2.1 Introduction

In this section we profile the structure of general practice in Ireland. Key issues covered are the geographical situation of each GP practice, the average size and number of GPs in each practice, the gender and age of GPs. We also profile the support staff employed by GPs, focussing on whether practices employ nurses and clerical and managerial support. Finally, we provide a profile of solo-practitioner practices in Ireland.

2.2 Location and Size of General Practices

Significant differences exist between HSE areas in terms of the urban or rural locations of GP practices (Table 2.1). The location of general practices follows a similar pattern in HSE Dublin Mid-Leinster and HSE Dublin North-East, with the breakdown between City/Large Town practices and Small Town/Village/Rural practices being approximately 70 per cent/30 per cent. In the HSE South, the breakdown of practices between City/Large Town practices and Small Town/Village/Rural practices is approximately 50/50. Finally, in the HSE West region approximately 30 per cent of practices are located in a City or Large Town, compared to 70 per cent in Small Town/Village/Rural practices.

Table 2.1: Main Location of Practice by HSE Region

	Number of Responses	City	Large Town	Small Town	Village/ Rural
HSE Dublin Mid Leinster	141	43.3%	27.7%	19.1%	9.9%
HSE Dublin North East	91	37.3%	27.5%	23.1%	12.1%
HSE South	211	29.4%	20.4%	31.7%	18.5%
HSE West	157	19.8%	12.7%	37.7%	30.0%
Ireland	600	32.5%	22.1%	27.9%	17.6%

The number of GPs in each practice also varies between HSE areas with urban practices generally being larger (Table 2.2). The average number of GPs per practice is 2.68. The predominantly urban practices of HSE Dublin Mid Leinster region (2.89) are largest with the smaller practices occurring in the more rural HSE West region (2.34).

Table 2.2: Average Number of GPs per practice by HSE Region

	Number of Responses	Average Number of GPs
HSE Dublin Mid Leinster	141	2.89
HSE Dublin North East	91	2.63
HSE South	211	2.87
HSE West	157	2.34
Ireland	600	2.68

Perhaps more importantly, however, one in four general practices in Ireland remain solo-practitioner practices (Table 2.3). This figure is slightly lower in the HSE Dublin Mid-Leinster, HSE Dublin North East and HSE South regions; compared to the HSE West region where one in three practices are solo-practitioner practices. Approximately, one in four practices have four or more practitioners in the HSE Dublin Mid-Leinster, HSE Dublin North East and HSE South regions compared to the HSE West region where less than 15% of practices have four or more practitioners. Section 2.5 provides a detailed profile of solo-practitioner practices.

Table 2.3: Number of GPs per practice by HSE Region

	Number of Responses	1 GP	2 GPs	3 GPs	4 GPs	5+ GPs
HSE Dublin Mid Leinster	139	23.0%	25.9%	25.2%	11.6%	14.4%
HSE Dublin North East	89	23.6%	28.1%	23.6%	15.8%	8.9%
HSE South	211	21.3%	30.3%	20.4%	11.4%	16.6%
HSE West	156	33.3%	32.1%	19.9%	7.1%	7.6%
Ireland	596	25.3%	29.1%	22.2%	11.5%	11.9%

2.3: Gender & Age Composition of GPs per practice

In Ireland, there are more male GPs than females GPs per practice. This pattern is consistent in all HSE regions (Table 2.4). On average, there are 1.4 male GPs per practice compared to 1.14 female GPs per practice. However, in the HSE West this pattern is more pronounced, with the average number of male GPs per practice being 1.3 and the average number of female GPs per practice being 0.89.

Table 2.4: Male and Female GPs per practice by HSE Region

	Number of Responses	Male GPs	Female GPs
HSE Dublin Mid Leinster	141	1.42	1.28
HSE Dublin North East	91	1.40	1.16
HSE South	210	1.46	1.23
HSE West	157	1.30	0.89
Ireland	600	1.40	1.14

In less than one in five practices, there are the same number of male GPs and female GPs in the practice (Table 2.5). In fact, 18 per cent of practices in Ireland have no difference in terms of the male and female GP composition in the practice. This figure is slightly higher in the HSE South, where 22 per cent of practices have the same number of male and female GPs, compared to 17 per cent in the HSE West.

In over 50 per cent of general practices, there is a greater proportion of male GPs to female GPs. In 30% of practices there is a greater proportion of female GPs to male GPs. This pattern is more prominent in the HSE West, where 57 per cent of practices are male dominated, compared to 26 per cent of practices being female dominated.

Table 2.5: Proportion of Male and Female GPs per practice by HSE Region

	Number of Responses	Balance of Males & Females	Greater Proportion of Males	Greater Proportion of Females
HSE Dublin Mid Leinster	141	17.0%	51.1%	31.9%
HSE Dublin North East	91	17.6%	50.5%	31.9%
HSE South	211	22.3%	45.9%	31.8%
HSE West	157	16.6%	57.3%	26.1%
Ireland	600	18.4%	51.2%	30.4%

In Ireland, there are no great discrepancies in terms of the GP age composition in general practices (Table 2.5). The majority of general practices comprise of GPs within the 30-60 age categories, with a slightly higher percentage in the 30-40 age category (78 per cent) compared to the 40-49 (71 per cent) and 50-59 (73 per cent) age categories.

Approximately, 11 per cent of general practices include GPs of less than 30 years of age. This figure is slightly lower in the HSE West (10 per cent), but not significantly so. Approximately, one-third of general practices include GPs of more than 60 years of age. Interestingly, this figure is highest in the HSE Dublin Mid-Leinster (38 per cent) and lowest in the HSE Dublin North East (31 per cent).

Table 2.6: Age Categories of GPs by HSE Region

	Number of Responses	< 30 yrs	30-39 yrs	40-49 yrs	50-59 yrs	60 yrs +
HSE Dublin Mid Leinster	141	11%	84%	75%	81%	38%
HSE Dublin North East	91	11%	81%	68%	71%	31%
HSE South	211	11%	81%	84%	74%	35%
HSE West	157	10%	65%	57%	67%	36%
Ireland	600	11%	78%	71%	73%	35%

2.4: Nursing and Clerical Support

The majority of general practices in Ireland employ nursing support (Table 2.7). More than four in five general practices employ a nurse (80.7 per cent). HSE Dublin North East and HSE South are above the national average with 86 per cent and 85 per cent of practices employing a nurse. In the HSE West, less than three in four practices employ a nurse.

However, there are still GPs in a large number of practices in Ireland working without nursing support. 19 per cent of general practices in Ireland do not employ a nurse. In the HSE West this figure is much higher with one in four practices without nursing support.

Table 2.7: GP Practices with Nursing Support by HSE Region

	Nursing Support	
	Number of Responses	Average
HSE Dublin Mid Leinster	140	77.1%
HSE Dublin North East	90	86.6%
HSE South	209	85.2%
HSE West	157	74.5%
Ireland	596	80.7%

The majority of general practices - 91 per cent - in Ireland employ clerical support (Table 2.8). In other words, 91 per cent of general practices in Ireland employ either a clerical worker or practice manager. However, there are a large number of general practices in Ireland working without clerical support. Over 8 per cent of general practices in Ireland do not have any clerical support. This figure is highest in the HSE West where 11 per cent of general practices do not have any clerical support.

Looking specifically at whether practices employ a practice manager or not, over half of all general practices in Ireland report employing a practice manager. This figure is higher in the HSE Dublin Mid Leinster and HSE Dublin North East regions with 58 per cent and 60 per cent of practices employing a practice manager. Only 44 per cent of general practices in the HSE West employ a practice manager.

Table 2.8: GP Practices with Clerical & Managerial Support by HSE Region

	Clerical Support		Practice Manager	
	Number of Responses	Average	Number of Responses	Average
HSE Dublin Mid Leinster	141	91.5%	138	57.9%
HSE Dublin North East	91	92.3%	90	60.0%
HSE South	211	92.4%	209	55.5%
HSE West	157	89.2%	157	44.0%
Ireland	600	91.3%	594	54.3%

Note: If a practice employs a clerical officer or practice manager, it is considered to have clerical support. Approximately 5 per cent of practices that do not employ a clerical worker; but do employ a practice manager.

2.5: Solo- Practitioner Practices

One in four general practices in Ireland are solo-practitioner practices (Table 2.9). This figure is much higher in the HSE West where one in three practices are solo-practitioner practices. This section profiles solo- practitioner practices, in terms of their gender and age profiles and the nursing and clerical support employed in these practices.

Table 2.9: Solo- Practitioner and Group Practices by HSE Region

	Number of Responses	Solo- Practitioners	Group Practices
HSE Dublin Mid Leinster	139	23.0%	77.0%
HSE Dublin North East	89	23.6%	76.4%
HSE South	211	21.3%	78.7%
HSE West	156	33.3%	66.6%
Ireland	595	25.3%	74.7%

(Table 3.3 provides a detailed breakdown of the number of GPs in group practice)

In Ireland, solo-practitioner practices are male dominated with three in four solo-practitioners GPs being male and just one in four being female (Table 2.10).

Almost half of the solo-practitioners in Ireland are in the 50-59 year age category. Nearly 30 per cent of solo-practitioners are 60 years of age and older. Only 4% of solo-practitioners are less than 40 years of age. There are no under 30 solo-practitioners (Table 2.11).

Therefore, we can infer that a typical solo-practitioner general practice in Ireland consists of male GP who is 50 years of age or older.

Table 2.10: Gender Profile of Solo-Practitioner General Practices

	Number of Responses	Solo – Practitioner Practice
Male GPs	114	76.0%
Female GPs	36	24.0%
Total Solo- Practitioners Practices	150	100.0%

Table 2.11: Age Profile of Solo-Practitioner General Practices

Age Category	Number of Responses	Solo – Practitioner Practice
Less than 30 years	0	0.0%
30-39 years	6	4.0%
40-49 years	29	19.0%
50-59 years	72	48.0%
60 years +	43	29.0%
Total	150	100.0%

Solo-practitioner general practices have less nursing and clerical support in comparison with group practices (Table 2.12). Less than 60 per cent of solo-practitioner general practices employ a nurse in comparison with 88 per cent of group practices.

79 per cent of solo-practitioner general practices employ clerical support, compared to 96 per cent of group practices. Less than one-third of solo-practitioner general practices employ a practice manager, compared with almost two-thirds of group practices employing a practice manager (Table 2.12).

Table 2.12: Nursing and Clerical Support in Solo-Practitioner General Practices

	Nursing Support	Clerical Support	Practice Manager
Solo-Practitioner	59.2%	78.7%	31.3%
Group Practice	87.6%	95.7%	61.4%

To conclude, many solo-practitioner general practices do not hire support staff. Four out of ten solo-practitioner GPs do not have any nursing support in their practice, and two out of ten solo-practitioner GPs do not have any clerical or administrative support in their practice. More than two in every three solo-practitioner practices do not employ a practice manager.

Structure of General Practice

Significant differences exist in terms of the urban-rural locations of General Practices in Ireland. General Practices in the HSE Dublin Mid Leinster and HSE Dublin North East areas are generally located in a city or large town, whereas General Practices in the HSE West are generally located in a small town, village or rural location.

One in four General Practices in Ireland are solo-practitioner practices. This is approximately a 10 per cent reduction from 2005 when 35 per cent of GPs were categorised as solo-practitioners (O'Dowd et al., 2006). A typical solo-practitioner general practice in Ireland consists of a male GP who is 50 years of age or older. Many solo-practitioner practices do not hire nursing or clerical support.

More than four in five general practices in Ireland employ a nurse. Approximately 20 per cent of general practices in Ireland have no nursing support. Furthermore, in the HSE West there is still one in four practices without a nurse.

More than 90 per cent of practices employ clerical support. The HSE West has the highest proportion of general practices without clerical support – 15 per cent. More than half of all general practices in Ireland employ a practice manager. This is a significant increase from 2005 when approximately 30 per cent of practices employed a practice manager (O'Dowd et al., 2006).

Section 3: General Practices' Use of Medical Equipment

This section of the report focuses on a range of medical equipment and devices used in general practices. GPs were asked if their practice had the following equipment:

- An **ECG or Electrocardiogram machine** records the electrical activity of the heart. Electrodes are placed on the skin of the chest and connected in a specific order to the ECG machine which enables the measurement of electrical activity around the heart.
- A **24 hour Blood Pressure Monitor** is a portable battery-operated device, which continuously records a patient's blood pressure throughout the day and night over a 24-hour period.
- A **Spriometer** is a device for measuring flows and volumes inspired and expired by the lungs, thus assessing pulmonary function.
- **Cryotherapy** is the application of extreme cold, usually in the form of liquid nitrogen, to destroy abnormal or diseased tissue, such as warts, moles and skin tags. The liquid nitrogen may be sprayed on the diseased tissue, circulated through a tube called a cryoprobe, or simply dabbed on with a cotton or foam swab.
- A **Minor Surgery Equipment** kit contains the instruments necessary for minor surgical procedures. Such a kit would normally include scalpel, scissors, forceps, suture material and gauze pads.
- **Ultrasound and Doppler foetal monitors** are used to monitor a foetus' heartbeat and detect foetal abnormalities in prenatal care.

In this section, we discuss the range of medical equipment and devices in General Practice in Ireland, followed by a discussion of the differences in the use of medical equipment by practice size and nursing support.

A high proportion, 60-80 per cent, of general practices use a range of medical equipment to provide additional services to their patients (Table 3.1). Specifically, 83 per cent of practices have an ECG machine; 80 per cent have a 24 hour blood pressure monitor; 64 per cent have a spirometer; 84 per cent have cryotherapy equipment, 74 per cent have minor surgery equipment; and 80 per cent have an ultrasound/doppler foetal monitor.

Table 3.1: GP Practices with Medical Equipment by HSE Region

	Number of Responses	ECG Machine	24hr Blood Pressure Monitor	Spirometer	Cryotherapy	Minor Surgery Equipment	Ultrasound/ Doppler/ Foetal Monitor
HSE Dublin Mid Leinster	140	75.7%	79.3%	63.6%	82.9%	73.6%	77.1%
HSE Dublin North East	91	81.3%	81.3%	63.7%	83.5%	65.9%	79.1%
HSE South	211	83.4%	76.3%	59.2%	84.8%	79.6%	83.4%
HSE West	157	89.8%	83.4%	68.8%	84.7%	78.3%	82.2%
Ireland	599	82.5%	80.1%	63.8%	84.0%	74.3%	80.5%

Across all six types of medical equipment examined, practices in the HSE West have a higher proportion of this equipment than the national average. The reason for this is not entirely clear. Across all six types of medical equipment, practices in the HSE Dublin Mid Leinster region have a slightly lower proportion of the equipment than the national average.

Respondents to the questionnaire were also asked if the practice funded the purchase of this equipment. As is evident from Table 3.2, of those practices that have this equipment, it is generally the practice itself that purchases the equipment. 79 per cent of practices that have an ECG machine purchased it themselves. 56 per cent of practices that have a 24hr blood pressure monitor purchased it themselves. 76 per cent of practices with an ultrasound/Doppler/foetal monitor, it was the practice that purchased this equipment. There are similarly high figures of practices investing in the other equipment examined: spirometer (68 per cent); cryotherapy (94 per cent); and minor surgery equipment (94 per cent).

Table 3.2: Equipment solely funded Solely by Practice

ECG Machine	79.1%
24hr Blood Pressure Monitor	55.6%
Spirometer	67.7%
Cryotherapy	94.2%
Minor Surgery Equipment	94.4%
Ultrasound/Doppler/Foetal Monitor	75.8%

There is a lower penetration of medical equipment among solo-practitioner general practices than group practices (Table 3.4). This is evident for all six types of equipment examined. In fact, the percentage of solo-practitioner practices using this equipment is significantly lower than their group practice colleagues, in some cases over 20 per cent lower. There is a statistically significant relationship between solo/group practices and all six types of equipment examined (see Table A3a in Appendix). This finding may highlight the financial strain some solo-practitioner GPs face in terms of investing in medical equipment.

Table 3.4: GP Practices with Medical Equipment by Practice Size

	Number of Responses	ECG Machine	24hr Blood Pressure Monitor	Spirometer	Cryotherapy	Minor Surgery Equipment	Ultrasound/ Doppler/ Foetal Monitor
Solo - Practitioner	150	69.3%	60.0%	49.3%	66.7%	64.0%	70.0%
Group Practice	445	87.6%	86.0%	68.3%	90.1%	79.6%	84.7%

There is a significantly higher degree of penetration of medical equipment among practices with nursing support than practices with no nurse employed (Table 3.5). For instance, 88 per cent of practices with nursing support have a 24 hour blood pressure monitor compared to 44 per cent of practices without nursing support. This relationship between nursing support and all six types of medical equipment is statistically significant at the 1 per cent level (Table A3a).

Table 3.5: GP Practices with Medical Equipment by Nursing Support

	Number of Responses	ECG Machine	24hr Blood Pressure Monitor	Spirometer	Cryotherapy	Minor Surgery Equipment	Ultrasound/ Doppler Foetal Monitor
Nursing Support	481	89.8%	87.9%	69.8%	87.3%	81.5%	84.6%
No Nursing Support	115	53.9%	44.3%	38.3%	71.3%	53.1%	66.1%

Therefore, group practices are more likely to have a broader range of medical equipment than solo-practitioner practices, as are practices with nursing support compared to those without nursing support.

General Practice's Use of Medical Equipment

The majority of General Practices invest in a broad range of medical equipment and devices. Since 2005, a significantly higher proportion of General Practices are investing in this equipment. For instance, in 2005 less than 60 per cent of GPs had access to ultrasound equipment; in 2010 80 per cent of practices report that their practice has ultrasound equipment. In 2005, 65 per cent of GPs had a 24 hour blood pressure monitor in their practices; this figure has increased to 80 per cent. Similarly, in 2010 more General Practices have minor surgery and cryotherapy equipment and ECG machines than in 2005 (O'Dowd et al., 2006).

Practices in the HSE West are more likely to have ECG machines, 24 hour blood pressure monitors, spirometers, cryotherapy equipment, minor surgery equipment, and ultrasound/doppler foetal monitors equipment than the national average. Group practices and practices with nursing support are also more likely to have a broader range of medical equipment and devices.

Section 4: General Practices' Use of Information Technology

This section of the report focuses on general practices' use of information technology (IT). GPs were asked whether they used IT for a range of patient care and administrative functions. The extent of computerised consultation records by HSE region is discussed, as are the differences in IT use given practice size and administrative support (4.1). A comparison of IT use for other patient care (4.2) and administrative (4.3) purposes across HSE regions is also presented, followed by a comparison of IT use by practice size and administrative support.

4.1 General Practices' Use of IT for Patient Care Purposes

We examined whether general practices keep computerised consultations records, paper consultations records or a combination of both (Table 4.1).

Table 4.1: Computerisation of Consultation Records by HSE Region

	Number of Responses	Completely Computerised Consultation Records	Computerised & Paper Consultation Records	Completely Paper Consultation Records
HSE Dublin Mid Leinster	136	52.2%	32.4%	15.4%
HSE Dublin North East	90	56.7%	31.1%	12.2%
HSE South	208	68.2%	25.0%	6.8%
HSE West	156	67.3%	19.2%	13.5%
Ireland	590	61.1%	26.9%	12.0%

61 per cent of practices in Ireland have completely computerised consultation records. However, this percentage is not consistent across all HSE regions. In the HSE Dublin Mid Leinster and Dublin North East regions, this figure is lower with 52 and 57 per cent of practices reporting the use of completely computerised consultation records respectively. In the HSE South and West regions this figure is much higher with 68 and 67 per cent of practices reporting the use of completely computerised consultation records respectively.

One in eight practices in Ireland report that their consultation records are completely paper based. The corresponding figures for the HSE Dublin Mid Leinster, Dublin North East and West regions are higher than the national average. However, practices in the HSE South region report less than 7% of practices' have paper consultation records.

32 per cent of solo-practitioner general practices keep completely paper-based consultation records compared to 5 per cent of group practices (Table 5.8). Less than 40 per cent of solo-practitioner general practices keep completely computerised records compared to 70 per cent of group practices. This finding is statically significant at the 1 per cent level (Table A3b).

Table 4.2: Computerisation of Consultation Records by Practice Size

	Number of Responses	Completely Computerised Consultation Records	Computerised & Paper Consultation Records	Completely Paper Consultation Records
Solo - Practitioner	148	39.1%	29.1%	31.8%
Group Practice	438	70.1%	25.3%	4.6%

More practices with administrative support have completely computerised consultation records than practices without administrative support (Table 4.3). 65 per cent of practices with administrative support have 'paperless' consultation records compared to 34 per cent of practices without administrative support. Only 8 per cent of practices with administrative support have paper consultation records compared to 46 per cent of practices without administrative support. A similar pattern is evident in relation to practices without practice managers, although the pattern is not as stark (Table 4.3). 5 per cent of practices with a practice manager have paper consultation records compared to 19 per cent of practices without a practice manager. These statistically significant relationships indicate that practices with admin support and/or a practice manager are more likely to have 'paperless' consultation records (Table A3b)

Table 4.3: Computerisation of Consultation Records by Admin Support & Practice Manager

	Number of Responses	Completely Computerised Consultation Records	Computerised & Paper Consultation Records	Completely Paper Consultation Records
Admin Support	541	65.1%	26.8%	8.1%
No Admin Support	50	34.0%	20.0%	46.0%
Practice Manager	315	70.5%	24.8%	4.7%
No Practice Manager	272	53.0%	27.9%	19.1%

4.2 General Practices' Use of IT for Other Patient Care Purposes

The majority of general practices use IT to recall items and download hospital laboratory reports (Table 4.4). 73 per cent of practices in Ireland use IT for recall of items. Recall of items means identifying and recalling patients for reasons such as preventative care or for the management of chronic illnesses. This figure is consistent across all four HSE regions.

78 per cent of practices in Ireland use IT to download hospital laboratory reports. This figure is higher in the more rural HSE South (84 per cent) and West (82 per cent) regions, and is lower in the HSE Dublin North East region (70 per cent).

The majority of general practices are not using IT for patient care functions, such as coding of diseases and audit/quality assurance. Only four in ten general practices in Ireland use IT to facilitate the coding of diseases. This application enables practices to classify patient's diseases and conditions and identify patterns in the practices population. Approximately, the same proportion of practices, 40 per cent, use IT for audit and quality assurance. In other words, only 40 per cent of general practices are using IT to review and evaluate current practices.

Table 4.4: General Practices' IT Use for Patient Care Purposes by HSE Region

	Number of Responses	Recall of Items	Download Hospital Lab Reports	Coding of Diseases	Audit / Quality Assurance
HSE Dublin Mid Leinster	141	71.6%	78.7%	43.3%	44.7%
HSE Dublin North East	91	72.5%	70.3%	39.6%	39.6%
HSE South	211	75.3%	84.4%	36.9%	42.7%
HSE West	157	72.6%	81.5%	41.4%	39.5%
Ireland	600	73.0%	78.7%	40.3%	41.6%

Similar to our finding that solo-practitioners are less likely to have 'paperless' consultation records than group practices, they also use IT less for other patient care purposes than group practices (Table 4.5). Practices with more than one GP are statistically more likely to use IT for recall of items, downloading hospital laboratory reports, coding of diseases and audit and quality assurance, than solo-practitioner practices (Table A3b).

Table 4.5: General Practices' IT Use for Patient Care Purposes by Practice Size

	Number of Responses	Recall of Items	Download Hospital Lab Reports	Coding of Diseases	Audit / Quality Assurance
Solo-Practitioner	150	50.6%	60.6%	22.0%	22.0%
Group Practice	446	81.3%	86.7%	45.7%	48.2%

A greater proportion of practices with administrative support use IT for the patient care functions examined than practices without administrative support (Table 4.6). A similar statically significant relationship is evident for practices employing a practice manager (Table A2). Clearly, human capital, whether GPs, administrators or practice managers, impacts on the use of IT in general practices.

Table 4.6: General Practices' IT Use for Patient Care Purposes by Administrative Support

	Number of Responses	Recall of Items	Download Hospital Lab Reports	Coding of Diseases	Audit / Quality Assurance
Admin Support	549	76.9%	82.7%	41.9%	43.5%
No Admin Support	52	36.5%	53.8%	21.2%	23.1%
Practice Manager	320	82.2%	86.8%	45.3%	47.2%
No Practice Manager	275	62.9%	72.4%	33.8%	35.6%

4.3 General Practices' Use of IT for Administrative Purposes

The majority of general practices use IT for a wide range of administrative functions, such as patient registration, referral letters and appointments (Table 4.7). 90 per cent of practices in Ireland use IT for patient registration. This figure is slightly lower in the HSE Dublin Mid Leinster and West regions. 88 per cent of practices in Ireland use IT for referral letters. Again, this figure is lower in the HSE Dublin Mid Leinster region.

Table 4.7: General Practices' IT Use for Administrative Purposes by HSE Region

	Number of Responses	Patient Registration	Referral Letters	Appointments	Practice Website
HSE Dublin Mid Leinster	141	87.9%	83.7%	75.2%	29.1%
HSE Dublin North East	91	92.3%	89.0%	79.1%	34.1%
HSE South	211	91.9%	90.5%	82.5%	29.9%
HSE West	157	89.2%	89.8%	72.0%	21.0%
Ireland	599	90.3%	88.3%	77.2%	28.5%

77 per cent of practices in Ireland use IT for appointments. This figure is slightly lower in the HSE Dublin Mid Leinster and West regions. Surprisingly, more than one in five general practices in Ireland do not use IT for appointments.

Irish general practices do use the internet to promote their practices. 29 per cent of practices in Ireland have a practice website. More than seven in ten general practices in Ireland do not have a practice website. This figure is higher in the HSE West region where approximately eight in ten general practices do not have a practice website.

We also examined differences in use of IT for administrative functions by practice size (Table 4.8). A lower proportion of solo-practitioners use IT for all administrative functions, patient registration, referral letters, appointments, and practice website, than group practices. This relationship between size of practice and administrative IT functions is statistically significant at the 1 per cent level (Table A3b).

Table 4.8: General Practices' IT Use by Practice Size

	Number of Responses	Patient Registration	Referral Letters	Appointments	Practice Website
Solo-Practitioner	150	74.7%	78.0%	49.3%	16.0%
Group Practice	446	95.5%	91.9%	86.7%	32.3%

The differences in use of IT by practices with and without administrative support and practice managers are also examined (Table 4.9). A greater proportion of practices with administrative support use IT for all administrative purposes examined than practices without administrative support. The same pattern is evident for practices employing a practice manager, with practices benefitting from the support of a practice manager using IT more than practices without such support. Again, these relationships are statically significant at the 1 per cent level for all administrative IT functions, with the exception of the administrative support and practice website association (Table A3b).

Table 4.9: General Practices' IT Use by Administrative Support

	Number of Responses	Patient Registration	Referral Letters	Appointments	Practice Website
Admin Support	549	93.2%	90.2%	80.9%	28.9%
No Admin Support	52	59.6%	71.2%	42.3%	21.2%
Practice Manager	320	95.9%	92.5%	87.8%	37.2%
No Practice Manager	275	84.0%	83.6%	64.5%	17.1%

General Practice's Use of Information Technology

More and more General Practices in Ireland are moving to 'paperless' consultation records. Over 60 per cent of practices keep completely computerised consultations records, with more than one quarter of practices keeping both computerisation and paper consultation records. This indicates a marked improvement on 2003 figures, when 51 per cent of GPs kept the majority of their notes on a computer, with 49 per cent of GPs in general using manual records (ICGP, 2003).

The majority of general practices use IT for a wide range of administrative and patient care functions, such as patient registration, referral letters, appointments, recall of items and downloading hospital laboratory reports. However, general practices are less likely to use IT to facilitate the coding of diseases or to perform audit / quality assurance. In fact, only four in ten General Practices in Ireland use IT for these important patient care functions. Interesting, less than one in three general practices has a practice website. However, this does indicate an increase from 2003 when only 16 per cent of GPs had a practice website (ICGP, 2003).

Group practices use IT to a greater extent than solo-practitioners, as do practices with clerical support.

Section 5: Discussion

Irish GPs represent the first point of contact with health services for the majority of patients. Irish GPs are in a somewhat unique position, whereby they have autonomy over where they set up practice, who they employ and, to a certain extent, what services they provide (Wren 2003; Ireland 2001). Our study clearly highlights that a high proportion of GPs are investing in medical equipment and IT for both patient care and administrative purposes. It is also extremely apparent that, in general, the purchase of such equipment is funded by the practice.

A number of geographical discrepancies are identified in this study in relation to investments in staff and equipment. Firstly, the HSE West is identified as the most rural of the four HSE regions, with a higher proportion of solo-practitioners and older GPs. Practices in the West are less likely to hire administrative and nursing support than the other HSE regions. However, practices in the HSE West are more likely to have ECG machines, 24 hour blood pressure monitors, spirometers, cryotherapy equipment, minor surgery equipment, and ultrasound/doppler foetal monitors equipment than the national average. A previous Irish study also found that medical equipment is available more frequently in rural practices than in city and town practices (Nic Gabhainn, Murphy, and Kelleher 2001). These smaller, more rural practices may be acquiring this equipment to recompense for less access to secondary care services (Ni Shuilleabhain et al. 2007). While our study cannot describe the quality of care provided by this equipment, however, it is clear that general practices in the HSE West are equipped to provide quality primary health care. On the other hand, across all six types of medical equipment, practices in the HSE Dublin Mid Leinster region have a slightly lower proportion of the equipment than the national average. A number of factors may be at play here: a high concentration of hospitals in the area; and the higher costs of setting up a practice in the Greater Dublin area.

While there is evidence that the number of solo-practitioner practices is reducing in Ireland, 25 per cent of practices are still one GP practices. A typical solo-practitioner general practice in Ireland consists of a male GP who is 50 years of age or older. Many solo-practitioner practices do not hire nursing or clerical support. Solo-practitioners are less likely to invest in medical and IT equipment than group practices.

Similarly, there is strong evidence that general practices with clerical support are more likely to use IT to a greater extent. Likewise, general practices with nursing support are more likely to have a broad range of medical equipment. However, 10 per cent and 20 per cent of practices do not employ clerical or nursing support respectively. These are further indications of inconsistency in relation to general practice service provision in Ireland.

Government policy in Ireland has clearly identified primary health care as the central focus of the delivery of health and personal social services in Ireland. Government policy dictates that primary health care is the appropriate setting to meet 90-95 per cent of the delivery of these services (Ireland 2001, 2001). Given that the decision to invest in staff and equipment is at a practice level as opposed to a system level, there are obvious inconsistencies in terms of the development of general practices in Ireland. This is something that clearly needs to be considered in Ireland in order to ensure access to the same level of health care across the HSE.

Health economics literature frequently profiles GPs as economic agents who respond to economic incentives (Scott 2000; Kann, Biorn, and Luras 2010; Bosanquet and Leese 1988). Specifically, there is prior evidence of Irish GPs responding to system level monetary incentive schemes. In the early 1990s, the Irish government developed the Indicative Drug Treatment Scheme (IDTS) to try to contain prescribing costs, whereby GPs were set indicative budgets for prescribing for their public patients. GPs were entitled to keep a proportion (40-60 per cent) of savings for projects benefitting their patients and practices. In the first year alone of the IDTS, this scheme resulted in savings of IR£13.5 million (€17million) (Walley et al. 2001). Incentive structures could be a means of ensuring consistency of service provision across the HSE.

In general, this survey report finds that investments in staff and equipment in general practice in Ireland is improving. However, there are inconsistencies in the provision of general practice care across Ireland, which need to be considered at a systems level to ensure that the Irish Health Strategy, that aims to ensure that primary care is the cornerstone of health care delivery, can be met.

Limitations of Study

The data used in this report was collected through a self-administered postal questionnaire, distributed to general practices in the four HSE regions in Spring 2010. Designing a sampling frame of all general practices in Ireland is complicated by the fact that there is no official register of Irish GPs (O'Dowd, O'Kelly, and O'Kelly 2006; Nic Gabhainn, Murphy, and Kelleher 2001). The Golden Pages website provided the sampling frame for this study, which provided contact details for 1417 General Practices⁵. 601 general practices returned completed questionnaires, representing a response rate of 42%.

It is estimated that there are approximately 1650 General Practices in Ireland (Wren 2003). Allowing for the fact that our final sampling frame may not be a complete list of all general practices in Ireland, we are confident our sample size of 601 represents over one-third of all general practices in Ireland. Given the size and geographical spread of the sample, we can conclude that this study is representative of General Practices in Ireland⁶. However, there is always self-selection bias with a self-administered survey, and we ought to assume that a large proportion of respondents to the survey are those GPs who are interested in equipment provision and investment in general practice. A higher response rate would perhaps negate this issue. Furthermore, self-reported data can result in socially desirable responding. It is unclear to what extent these two factors have biased the results of the study.

⁵ At the outset, 1501 questionnaires were sent to general practices, 84 questionnaires were returned due to incomplete addresses or retired or deceased GPs.

⁶ A more detailed discussion of the sampling frame, the survey instrument pack, and administration of the survey is available in Appendix 1. Response rates by HSE region are available in Appendix 2.

Appendix 1: Survey Methodology

A1: Sampling Frame

An objective of the data collection was to ensure that the data is representative of all general practices in Ireland. Designing a sampling frame of all general practices in Ireland is complicated by the fact that there is no official register of Irish GPs. The Golden Pages website (www.goldenpages.ie) provided the sampling frame for this study. It is reasonable to assume that almost all GPs in Ireland would be listed in the Golden Pages. It is estimated that there are approximately 2,500 GPs practicing in Ireland (Barry et al. 2009). A total of 2,527 GP names and addresses were downloaded from the Golden Pages website. There was some duplication of cases, i.e. where a GP name and practice location was entered twice or a home and practice address given. These duplicates were removed. Where a number of GPs were listed as practicing from the same address, the sampling frame was amended to account for one GP per practice. This ensured that each practice in the sample frame received only one questionnaire per practice. The amended sampling frame consists of 1501 GP practices.

A2: The Survey Instrument Pack

The survey instrument pack contained a cover letter, the **Medical Equipment and IT in General Practice** questionnaire and a FreePost envelope. The cover-letter, addressed to a GP in the practice, explained the purpose of the study, encouraged the practice's participation in the study, and explained that ideally a principal in the practice should complete the questionnaire. The cover letter assured the participant that any data provided would be treated confidentially and would be published only in aggregate form.

The **Medical Equipment and IT in General Practice** questionnaire contains 20 categorical questions and was printed, double-sided, on a green sheet of paper. The questionnaire was designed in this way to encourage a high response rate. The questionnaire included questions relating to practice structure, size & location, the adoption of medical equipment and IT, interaction and learning, and prescribing decisions.

A3: Administering the Survey

In February and March 2010, survey instrument packs were posted to 1500 general practices. 83 questionnaires were returned unanswered due to incomplete contact details or the GP in question was retired or deceased. A total of 601 completed questionnaires were received. An overall response rate of 42 per cent was achieved. Response rates by HSE region are presented in Appendix 2.

Appendix 2: Response Rates

Table A2: Response Rates by HSE Region

	Distributed Questionnaires	Returned Questionnaires	Response Rate
HSE Dublin Mid-Leinster	385	141	37%
HSE Dublin North-East	235	91	39%
HSE South	412	211	51%
HSE West	385	157	41%
HSE - Ireland	1417	600*	42%

* One questionnaire was returned without an identifier

Appendix 3: Chi- Square Tests of Association

Table A3a: Practice Structure and Medical Equipment

		Chi- Square Test Test of Association	Phi Test – Strength of Association
Nurse Support	ECG	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 81.57$	$p < 0.01$; $\phi = 0.376$
Nurse Support	24hr BPM	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 105.4$	$p < 0.01$; $\phi = 0.426$
Nurse Support	Spirometer	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 38.5$	$p < 0.01$; $\phi = 0.259$
Nurse Support	Cryotherapy	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 16.6$	$p < 0.01$; $\phi = 0.173$
Nurse Support	Minor Surgery	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 39.5$	$p < 0.01$; $\phi = 0.263$
Nurse Support	Ultrasound/Doppler, Foetal Monitor	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 19.5$	$p < 0.01$; $\phi = 0.186$
Solo Practitioner	ECG	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 26.3$	$p < 0.01$; $\phi = 0.211$
Solo Practitioner	24hr BPM	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 45.0$	$p < 0.01$; $\phi = 0.280$
Solo Practitioner	Spirometer	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 16.5$	$p < 0.01$; $\phi = 0.171$
Solo Practitioner	Cryotherapy	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 44.4$	$p < 0.01$; $\phi = 0.279$
Solo Practitioner	Minor Surgery	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 13.8$	$p < 0.01$; $\phi = 0.157$
Solo Practitioner	Ultrasound/Doppler, Foetal Monitor	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 14.7$	$p < 0.01$; $\phi = 0.163$

Table A3b: Practice Structure and Information Technology

		Chi- Square Test Test of Association	Phi Test – Strength of Association
Information Technology – Patient Care Functions			
Admin	Consultation Records	$p < 0.01$; $df = 2$; $\chi^2 = 65.6$	$p < 0.01$; $\phi = 0.333$
Manager	Consultation Records	$p < 0.01$; $df = 2$; $\chi^2 = 35.0$	$p < 0.01$; $\phi = 0.240$
Solo	Consultation Records	$p < 0.01$; $df = 2$; $\chi^2 = 88.8$	$p < 0.01$; $\phi = 0.390$
Admin	Recall of Items	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 37.4$	$p < 0.01$; $\phi = 0.256$
Admin	Download Lab Reports	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 23.0$	$p < 0.01$; $\phi = 0.203$
Admin	Coding of Diseases	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 7.6$	$p < 0.01$; $\phi = 0.119$
Admin	Audit/Quality Assurance	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 7.3$	$p < 0.01$; $\phi = 0.116$
Manager	Recall of Items	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 26.9$	$p < 0.01$; $\phi = 0.216$
Manager	Download Lab Reports	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 18.5$	$p < 0.01$; $\phi = 0.181$
Manager	Coding of Diseases	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 7.5$	$p < 0.01$; $\phi = 0.115$
Manager	Audit/Quality Assurance	$P < 0.01$; $df = 1$; $\chi^2_{Yates} = 7.4$	$p < 0.01$; $\phi = 0.115$
Solo	Recall of Items	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 52.8$	$p < 0.01$; $\phi = 0.302$
Solo	Download Lab Reports	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 46.3$	$p < 0.01$; $\phi = 0.284$
Solo	Coding of Diseases	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 46.3$	$p < 0.01$; $\phi = 0.284$
Solo	Audit/Quality Assurance	$P < 0.01$; $df = 1$; $\chi^2_{Yates} = 25.1$	$p < 0.01$; $\phi = 0.210$
Information Technology – Administrative Functions			
Admin	Patient Registration	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 57.7$	$p < 0.01$; $\phi = 0.320$
Admin	Referral Letters	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 15.0$	$p < 0.01$; $\phi = 0.167$
Admin	Appointments	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 38.3$	$p < 0.01$; $\phi = 0.260$
Admin	Website	$p > 0.10$; $df = 1$; $\chi^2_{Yates} = 0.98$	$p < 0.01$; $\phi = 0.047$
Manager	Patient Registration	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 22.9$	$p < 0.01$; $\phi = 0.202$
Manager	Referral Letters	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 10.4$	$p < 0.01$; $\phi = 0.138$
Manager	Appointments	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 40.8$	$p < 0.01$; $\phi = 0.266$
Manager	Website	$P < 0.01$; $df = 1$; $\chi^2_{Yates} = 28.2$	$p < 0.01$; $\phi = 0.222$
Solo	Patient Registration	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 53.0$	$p < 0.01$; $\phi = 0.305$
Solo	Referral Letters	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 19.8$	$p < 0.01$; $\phi = 0.189$
Solo	Appointments	$p < 0.01$; $df = 1$; $\chi^2_{Yates} = 87.4$	$p < 0.01$; $\phi = 0.388$
Solo	Website	$P < 0.01$; $df = 1$; $\chi^2_{Yates} = 13.7$	$p < 0.01$; $\phi = 0.156$

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