

# A national general practice census: characteristics of rural general practices

Saoirse Nic Gabhainn, Andrew W Murphy<sup>a</sup> and Cecily Kelleher

Nic Gabhainn S, Murphy AW and Kelleher C. A national general practice census: characteristics of rural general practices. *Family Practice* 2001; **18**: 622–626.

**Objectives.** The aim of the present study was to describe, using a national census, the characteristics of rural general practices and compare these with city and town general practices.

**Methods.** A previously piloted, anonymous but linked, questionnaire was issued to all GPs in Ireland. A liaison network covering the country was developed to increase the response rate. Respondents were asked to designate the location of their main surgery as being city (>20 000 population), town (>5000) or rural (<5000). Each responding practice was asked to nominate one partner to complete a specific section on practice information.

**Results.** Completed individual questionnaires were returned from 2093 GPs (86% response rate). Information on 1429 practice centres was provided; 488 (34%) of these were designated as city, 405 (28%) as town and 536 (38%) as rural. Rural practices reported fewer private patients ( $P < 0.001$ ) and more socio-economically deprived patients ( $P < 0.001$ ) than those in towns or cities. The mean number (SD) of total scheduled hours per average week per GP was 77.95 (37.0) for city practices, 80.6 (35.9) for town and 103.6 (39.0) for rural ( $P < 0.001$ ). Rural practices are more likely, in comparison with those in cities and towns, to have attached staff working from purpose-built premises which are publicly owned. Rural practices also have more contacts with members of the primary care team such as Public Health Nurses, and the quality of these contacts is described more positively. The range of available services is broadly similar, with emergency medical equipment being available more frequently in rural practices.

**Conclusion.** This study suggests that rural practitioners and their practices differ from their urban counterparts in many important aspects. Consideration should be given to the development of formal under- and postgraduate rural general practice programmes to prepare new, and continue to enthuse present, rural GPs.

**Keywords.** Census, general practice, rural practice.

## Introduction

Discussion of the health and health care of rural populations focuses on two key areas: the relative health of rural populations and the impact of rurality on the quality of health care. For over a century, since the publication of the 25th Annual Report of the Registrar General in 1864 showing higher mortality in urban areas, it was generally accepted that rural people lived longer and experienced less morbidity during these lives.<sup>1</sup> More

recent research, however, suggests that such general assumptions mask important subtle variations. For example, in the UK, Chilvers<sup>2</sup> determined that some northern rural districts had higher mortality than southern urban districts, and Bentham<sup>3</sup> found a persistent tendency for mortality to be higher in the more 'truly' rural areas than the more 'urbanized' rural areas. Whilst patients living in rural areas have been found to be less likely to consult a GP than their urban counterparts, this may reflect different patterns of illness behaviour or health care accessibility rather than true variations in health.<sup>4,5</sup>

This paper addresses the second key area, that of the impact of rurality on the quality of health care. Information regarding the provision of rural health care has been identified as an urgent priority.<sup>6</sup> Accessibility,<sup>1</sup> the range of available services and equipment, choice of doctor<sup>7</sup> and working conditions of GPs<sup>8</sup> have all been suggested as possible influences on the quality of rural health care.

---

Received 28 November 2000; Revised 13 March 2001; Accepted 9 July 2001.

Department of Health Promotion and <sup>a</sup>Department of General Practice, National University of Ireland, Galway, Ireland. Correspondence to Professor Andrew W Murphy, Department of General Practice, National University of Ireland, Galway, Ireland.

Previous relevant comparative research either has been based in specific regions<sup>9-11</sup> or is anecdotal.<sup>7,12</sup> Furthermore, all were based on practitioners, rather than practices. This paper describes, using a national census, the characteristics of Irish rural general practices and compares these with city and town general practices. The use of responses from practice centres, rather than individual practitioners, ensures that responses from rural centres, which have fewer practitioners, are given equal consideration during analysis.

## Methods

### *Description of the Irish health care system*

Free primary care and medications are available to 34.5% of the population of the Republic of Ireland;<sup>14</sup> they are described as GMS (General Medical Services) eligible. The other two-thirds, whose income is above a certain level (e.g. in 1999, IR£88 per week for a single person aged up to 66 who is living alone), are responsible for their own primary health care costs. GMS-eligible patients therefore represent the least affluent sector of the community. Community nursing is provided to GMS-eligible patients by Public Health Nurses (PHNs) who essentially combine the roles of health visitors and district nurses.

### *Participants*

As no central register exists of Irish GPs, various sources were employed to construct as comprehensive a database as possible. These were members of the Irish College of General Practitioners ( $n = 1978$ ) and doctors providing services under the Department of Health GMS scheme ( $n = 1626$ ). Advertisements were also placed in the medical press. After correction for duplications, the total was 2689. The database subsequently was refined, based on survey responses, revealing that a further 280 members of the original database were either deceased, retired, working in another speciality, had duplicate addresses or had emigrated. The total number of eligible respondents was therefore 2409, and their characteristics have been reported elsewhere.<sup>13</sup>

### *Instruments*

The study was conceived at a brainstorming session held at the 1996 Annual General Meeting of the Irish College of General Practitioners (ICGP). In order to identify issues relevant to a comprehensive review of general practice in the Republic of Ireland, representatives of the ICGP subsequently liaised with representatives of the Irish Medical Organization (IMO), the Department of Health and the Centre for Health Promotion Studies at the National University of Ireland, Galway. A 64-item self-completion questionnaire was designed and copy layout was professionally contracted. Two separate pilot studies, of a total of 30 GPs, were conducted addressing both procedural and content issues. A number of minor

amendments were made to layout and instructions following the piloting procedure. The final instrument comprised four main sections: personal information, attitudes and aspirations, links with other parts of the health service and practice information. This paper reports on the findings from the final two sections: links with other parts of the health service and practice information.

Each responding practice was asked to nominate one partner to complete the sections on practice information and links with other parts of the health service. No verification of these reported data was performed for two reasons. First, it would have added considerably to resource costs and, secondly, issues of confidentiality would also have arisen. These results, based on the main centre of practice rather than individual practitioners, are reported here. Obviously some centres may refer to one practitioner only. Respondents were asked to designate the location of their main surgery as being city (>20 000 population), town (5000–20 000) or rural (<5000).

### *Procedure*

In order to aid data collection, a liaison network covering the country was developed. This comprised 66 GPs who volunteered to act as local, regional or national co-ordinators. Their responsibility was to maximize response rates. The questionnaire was issued, in the same week, to all GPs included on the constructed database. Initial questionnaires were sent out with a covering letter and a 'Freepost' envelope. Procedures for ensuring confidentiality were outlined as follows. Questionnaires were posted from one organization but returned for data inputting and analysis to another. Each questionnaire had a detachable front cover on which was printed a unique number. As each completed questionnaire was received, the cover was removed prior to data entry and the unique number was linked with an individual GP. Each was then paid the equivalent of 1 day's study allowance. Thus, although respondents were identified, their individual questionnaire could not be linked to their name or address. This was considered necessary in order to ensure an optimal response rate within a competitive private health care system.

Three subsequent reminders were distributed over 3 months to non-responders, although the original questionnaire was not re-sent. At each reminder stage, the liaison network was alerted as to the identification of non-responders and was asked to contact them by telephone or letter in order to encourage them to comply. Finally, members of the liaison network provided a breakdown of known non-responders according to their status (e.g. retired, deceased, etc.), assisting the updating of the original database as described above.

All data were entered into an SPSSx database, with checks for inputting reliability. Subsequent descriptive and inferential analyses were conducted via SPSSx. As

not all questions were answered by all respondents, the valid percentages reported may reflect slightly different actual numbers. The statistical analyses presented below were performed using chi-square or parametric ANOVA (with *post hoc t*-tests) as appropriate.

## Results

A total of 2093 completed individual questionnaires were returned, reflecting a response rate of 86%. Response rates varied according to the original source of the GP; for example, 91% of those who were both members of the ICGP and provided GMS services replied, compared with 68% of those identified on an *ad hoc* basis.

Practice information sections were returned by 1429 respondents; 488 (34%) of these were designated as city, 405 (28%) as town and 536 (38%) as rural. There were 2115 GPs reported as working from these centres. The mean (SD) GMS list per partner was 740 (472) for city

locations, 818 (512) for town and 865 (408) for rural ( $P < 0.001$ ). Sixty-five per cent of rural practices reported having <1000 private patients compared with 42% for town practices and 49% for city practices ( $P < 0.001$ ), and 39% had >1000 GMS patients compared with 39% for town practices and 29% for city practices ( $P < 0.001$ ). The mean number (SD) of total scheduled hours per average week per GP was 77.95 (37.0) for city practices, 80.6 (35.9) for town and 103.6 (39.0) for rural ( $P < 0.001$ ). Of these, the mean number (SD) of hours on-call outside surgery hours per GP was 40.1 (34.2) for city practices, 42.1 (30.9) for town and 66.3 (38.6) for rural ( $P < 0.001$ ).

Table 1 describes the out of hours cover and practice characteristics by main surgery location. Practitioners were able to specify more than one choice for each type of out of hours cover. Rural centres have more onerous weekday and weekend rotas relying predominately on inter-practice arrangements. Rural practices are more likely, in comparison with city and town, to have attached staff working from purpose-built premises which are

TABLE 1 Out of hours cover and practice structure by main surgery location

Characteristic (%)		City	Town	Rural
No. of respondents		488	405	536
Weekday cover**	None	11	9	26
	Deputizing	48	18	1
	In-practice	18	16	14
	Inter-practice	40	63	58
	Locum	6	6	6
Weekday rota**	1:2	24	19	41
	1:3	13	17	30
	less onerous	63	64	29
Weekend cover**	None	8	6	12
	Deputizing	47	19	1
	In-practice	16	14	12
	Inter-practice	42	66	71
	Locum	4	8	9
Weekend rota**	1:2	16	14	30
	1:3	15	14	30
	less onerous	69	72	40
Premises	Purpose-built**	28	32	49
	Attached to home*	41	42	53
	Publicly owned**	1	02	31
Record keeping	Lloyd George**	21	13	7
	A4**	36	42	54
	Age/Sex register**	23	20	30
	Disease register**	12	9	17
Branch surgeries	Mean (SD) number*	1.20 (0.56)	1.40 (0.77)	1.49 (0.76)
	Mean (SD) miles from main surgery*	4.17 (11.00)	5.38 (3.00)	6.53 (5.10)
	Mean (SD) number of sessions per week*	4.70 (2.90)	3.90 (4.20)	2.30 (2.50)
	Publicly owned**	19	66	71
<11 miles from acute general hospital**		98	66	24
Have sessional/formal attached practice staff (PHN, chiropodist, etc.)**		18	22	33
Non-medically qualified spouses involved in practice**		37	43	49

\* $P < 0.01$ ; \*\* $P < 0.001$ .

TABLE 2 *Links with other parts of the health service by main surgery location*

Link (%)	City	Town	Rural
No. of respondents	488	405	536
Weekly contact with Public Health Nurse**	30	38	70
Quality of contact described as excellent or good**	47	49	71
Weekly or monthly contact with Community Psychiatric Nurse**	30	39	54
Quality of contact described as excellent or good**	29	34	43
Weekly contact with A&E Department**	67	70	79
Quality of contact described as excellent or good	48	49	53
Weekly contact with public out-patient services	76	80	83
Quality of contact described as excellent or good	28	33	36
Weekly contact with public physiotherapy services**	43	69	75
Quality of contact described as excellent or good**	13	26	29
Weekly contact with in-patient acute medical services**	42	54	70
Quality of contact described as excellent or good**	69	52	53
Weekly contact with private out-patient services	62	67	57
Quality of contact described as excellent or good	72	76	73

\* $P < 0.01$ ; \*\* $P < 0.001$ .

publicly owned. Significantly higher numbers of rural practices use A4 records and have age/sex and disease registers; nevertheless, fewer than a third have such registers. Table 2 shows that rural practices have more contacts with members of the primary care team such as PHNs. The quality of these contacts is described more positively. There is an overall high level of contact with hospital services, with the quality of these contacts highest for private out-patient services. The range of available services is similar (Table 3), with the exceptions of minor surgery and well woman screening which are, respectively, more and less available in rural practices. Some medical equipment is available more frequently in rural practices (Table 3), including those items used in emergency care such as oxygen and ECG machines.

## Discussion

This study is based on the findings of a self-completed questionnaire, with a satisfactory response rate, for a postal survey of this size and sensitivity, of 86%. Previous studies have used many different definitions of rurality such as subjective assessment, population density (as in this study), indices of rurality, remoteness and socio-economic clusters.<sup>15</sup> Rousseau<sup>16</sup> has suggested that researchers should choose a definition most appropriate to their needs; for a self-completed questionnaire, population density was deemed the most appropriate.

The methodology of this study is an important development of previous work in that it is a national

TABLE 3 *Medical services and equipment available by main surgery location*

	City	Town	Rural
No. of respondents	488	405	536
Medical service available (%)			
Paediatric immunization	92	96	96
Paediatric development	44	53	45
Travel immunization	78	86	83
Minor surgery**	53	64	74
Family planning	86	90	88
Well woman screening**	73	78	63
Well man screening	48	47	40
Chronic disease	37	41	47
Smoking cessation groups	10	12	8
Equipment available (%)			
ECG machine**	44	52	68
Oxygen**	10	23	38
Defibrillator**	2	2	8
Minor surgery instruments**	73	85	87
Ambulatory BP monitor*	13	17	20
Foetal Doppler**	27	44	48
Glucometer**	54	70	83
Cryosurgery*	47	54	58

\* $P < 0.01$ ; \*\* $P < 0.001$ .

census based on practices, as well as on practitioners. The findings confirm that rurality does have a significant effect on the provision of health care. Rural GPs, in comparison with their urban colleagues, work longer hours,

have more socio-economically deprived patients, and participate more in, and depend financially to a greater extent on, the public health system. They also have improved record keeping and a larger available range of medical equipment. This census cannot describe the quality of care provided by these services or equipment, but the potential for providing quality health care is, at the very least, equal in both types of practices.

It is important to consider the international generalizability of these results. Comparisons of studies of rural practice are complicated by differing, and sometimes subjective, definitions of rurality.<sup>16</sup> An additional difficulty in the interpretation of national studies is the impact of different health care systems. Accepting these reservations, it is striking that smaller regional studies of rural practice, utilizing practitioner data, from largely public (UK<sup>9,15</sup>), mixed (New Zealand<sup>11</sup> and Australia<sup>10,17</sup>) and private (USA<sup>18</sup>) funded health care systems have found broadly similar results to those reported here. This suggests that, irrespective of the prevalent health care system, rural practice has distinctive characteristics. Further research is required to relate these characteristics to patient health-seeking behaviours and morbidity patterns.

Rural poverty, whilst sometimes hidden, has detrimental effects on health<sup>19</sup> and the subsequent daily workload of GPs. The distance which patients live from a local acute hospital and the number, and distance from the main surgery, of branch surgeries (Table 1) may exacerbate this workload. Such a workload possibly contributes not only to professional isolation but also to the ability of practitioners to participate in continuing education.<sup>20</sup> Guaranteed locum coverage and distance learning programmes would help to overcome these difficulties. Such working hours also hinder recruitment to rural practices.<sup>21</sup> Non-medically qualified spouses are more likely to be involved in rural practices. This may disguise the fact that work opportunities, appropriate to the skills of the spouse, are less readily available in rural areas.

This study suggests that rural practitioners and their practices differ from their urban counterparts in many important aspects. Recognizing this, considerable energy and thought has been expended in Australia,<sup>22,23</sup> Canada<sup>24,25</sup> and the USA<sup>26,27</sup> on how best to encourage, recruit and retain rural GPs. Consideration should be given to the development of formal under- and post-graduate rural general practice programmes to prepare new, and continue to enthuse present, rural GPs.

## Acknowledgements

We are grateful to the Irish College of General Practitioners and the liaising and responding GPs, the Irish Medical Organization and the Department of Health for their support of this work.

## References

- 1 Watt IS, Franks AJ, Sheldon TA. Health and health care of rural populations in the UK: is it better or worse? *J Epidemiol Community Health* 1994; **48**: 16–21.
- 2 Chilvers C. Regional mortality 1969–73. *Population Trends* 1978; **11**: 16–20.
- 3 Bentham GG. Mortality in the more rural areas of England and Wales. *Area* 1984; **16**: 219–26.
- 4 Haynes R. Inequalities in health and health service use: evidence from the general household survey. *Soc Sci Med* 1991; **33**: 361–368.
- 5 Watt IS. Health needs of rural residents. In Cox J (ed.). *Rural General Practice in the United Kingdom, Occasional Paper 71*. London: Royal College of General Practitioners, 1995.
- 6 Cox J. Rural general practice [editorial]. *Br J Gen Pract* 1994; **44**: 388–389.
- 7 Mungall IJ. Qualitative differences between urban and rural practice. In Cox J (ed.). *Rural General Practice in the United Kingdom, Occasional Paper 71*. London: Royal College of General Practitioners, 1995.
- 8 Murray TS. Education for rural primary health care workers. In Cox J (ed.). *Rural General Practice in the United Kingdom, Occasional Paper 71*. London: Royal College of General Practitioners, 1995.
- 9 Fearn RMG. Norfolk general practice: a comparison of rural and urban doctors. *J R Coll Gen Pract* 1988; **38**: 270–273.
- 10 Moorhead B. Some differences between Australian country and city practice. *Aust Fam Physician* 1990; **19**: 533–537.
- 11 Gribben B, Bonita R, Broad J, Mc Evoy B, Raymont A. Geographical variations in the organisation of general practice. *NZ Med J* 1995; **108**: 361–363.
- 12 Walton VA, Romans-Clarkson SE, Herbison GP. Variety and views in general practice. *NZ Med J* 1990; **103**: 287–290.
- 13 Nic Gabhainn S, Kelleher CC. *Report on the National General Practice Survey*. Dublin: Irish College of General Practitioners, 1998.
- 14 Department of Health and Children. *Health Statistics 1999*. Information Management Unit of the Department of Health: Government Publications.
- 15 Rousseau N, Mc Coll E. *Equity and Access in Rural Primary Care*. University of Newcastle upon Tyne: Centre for Health Services Research Report No. 83, 1997.
- 16 Rousseau N. What is rurality? In Cox J (ed.). *Rural General Practice in the United Kingdom, Occasional Paper 71*. London: Royal College of General Practitioners, 1995.
- 17 Britt H, Miles DA, Bridges-Webb C, Neary S, Charles J, Traynor V. A comparison of country and metropolitan general practice. *Med J Aust* 1993; **159**: S9–S64.
- 18 Hecht RC, Farrell JG. Comparative profiles of rural and urban family physicians. *Wis Med J* 1983; **82**: 21–14.
- 19 Cox J. Poverty in rural areas [editorial]. *Br Med J* 1998; **316**: 722.
- 20 Macleod JAJ. Recruitment to rural practice. In Cox J (ed.). *Rural General Practice in the United Kingdom, Occasional Paper 71*. London: Royal College of General Practitioners, 1995.
- 21 Ross S, Gillies JCM. Characteristics and career intentions of Scottish rural and urban GP registrars: cause for concern? *Health Bull* 1999; **57**: 44–52.
- 22 Kamien M. Undergraduate rural incentives program. *Med J Aust* 1995; **162**: 228–229.
- 23 Western Australia Health Department. *Report of the Ministerial Enquiry into Recruitment and Retention of Country Doctors in Western Australia*. Perth, 1987.
- 24 Rourke JTB, Strasser R. Education for rural practice in Canada and Australia. *Acad Med* 1996; **71**: 464–468.
- 25 Rourke JTB. Postgraduate training for rural family practice. *Can Fam Physician* 1996; **42**: 1133–1138.
- 26 Rabinowitz R. Recruitment, retention and follow-up of graduates of a program to increase the number of family physicians in rural and underserved areas. *N Engl J Med* 1993; **328**: 934–939.
- 27 Rosenblatt RA, Whitcomb ME, Cullen TJ, Lishner DM, Hart LG. Which medical schools produce rural physicians? *J Am Med Assoc* 1993; **268**: 1559–1565.