Nature of Rural Medical Practice in Canada: An analysis of the 2001 National Family Physician Survey

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Executive Summary

To be effective, rural medical education must be in sync with the reality of rural medical practice. Rural physicians are much more likely than their urban counterparts to have a broader scope of practice and perform more procedures. Rural doctors are also much less likely to have access to support from other health practitioners and are much more likely to utilize a broader range of clinical skills.

Until quite recently, our understanding of rural medical practice in Canada has been based mostly on anecdotal evidence and empirical findings from small-scale or localized studies. In 1997, the College of Family Physicians of Canada commissioned the Centre for Rural and Northern Health Research (CRaNHR) at Laurentian University to conduct the first National Family Physician Survey (NFPS). Questionnaires were sent to a random sample of over 5,000 family physicians and general practitioners across Canada. In 2001, CRaNHR was commissioned to conduct the second NFPS. Unlike the first one, the second NFPS was a survey of all family physicians and general practitioners. With over 13,000 doctors responding, the survey achieved a response rate of 54.5%. Data from the two surveys were used to develop the National Family Physician Survey Database.

The approach undertaken in this research project was to conduct a secondary analysis of data from the National Family Physician Survey 2001 Database. Data were summarized for categories defined along a urban-rural continuum. This continuum was based on Statistics Canada's Statistical Area Classification, which is derived from commuter flow rates into major urban areas. The continuum used in this report includes: (1) highly urbanized areas (Census Metropolitan Areas (CMAs)); (2) suburban areas (Census Agglomerations (CAs)); (3) rural (strong or moderate metropolitan influence zone (MIZ)); and, (4) remote areas (weak or no MIZ).[1] Statistically significant results ($p \leq 0.05$) are summarized for physician characteristics, patient characteristics, practice profile and practice setting.

Physician Characteristics: Most family physicians (FPs) were male (61.2%). Proportionally fewer male and more female physicians were practising in the more urbanized areas (CMAs). The situation is reversed in all other geographic locations.

[1] The full name for MIZ is Census Metropolitan Area and Census Agglomeration Influenced Zones.

Mean age was 46 years. Family physicians in the highly urbanized areas were older than those FPs in the more remote areas. There were few differences in physician age for the intermediate areas located between the highly urbanized areas and the remote areas. The difference between urban and remote areas began to appear at about 45-54 years of age.

Male physicians were older in the highly urbanized areas (CMAs) and younger in the more remote areas. In general, the pattern for male physicians followed that for all survey respondents. The difference between urban and remote areas began to appear at 45-54 years of age. The pattern was similar for female family physicians, though there were some significant deviations in those intermediate areas located between the highly urbanized areas and the more remote areas.

Approximately 86% of family physicians were married or living with partners. Proportionally more married FPs were practising in the intermediate areas between the highly urbanized areas and the more remote areas. There were more single or separated/divorced FPs practising in the more urbanized areas. Physicians whose spouses were themselves physicians tended to be over-represented in the suburban areas (CAs) and in the more remote areas.

There were no significant differences among geographic categories for FPs who did not have a child(children) and/or a dependent(s). Differences did emerge when we examined: (1) FPs with children only (fewer in the urbanized areas, more in the suburbs or the remote areas); (2) dependents only, or (3) children and dependents (more in the urbanized areas and fewer in the suburbs or the remote areas). A higher proportion of children were younger in the remote areas than in the highly urbanized areas. Time spent caring for children and/or dependents tended to be the highest in the highly urbanized areas. Approximately 2.4% of family physicians stated that they did not have any dependents and/or children and there were no significant differences among geographic categories. Note that the analysis and interpretation was based on the 46 to 64% of FPs who responded unambiguously to these questions.

There were more English only practices in the remote areas than French only or bilingual practices. If patients spoke French only, then they would be less likely to find a physician who spoke French or was bilingual if the patient lived in the suburban or the remote areas. If a patient spoke English only, then they would be likely to find an English or bilingual physician in the suburban or rural areas. Family physicians who did not practice in any of Canada's official

languages were more likely to be found in the highly urbanized areas than elsewhere (but note that the number of these physicians was small, 0.4% overall).

Most family physicians received their undergraduate medical training in Canada. Proportionally fewer FPs who received training in Canada were practising in the remote areas.

Patient Characteristics: Proportionally more family physicians in the suburban, mostly rural and remote areas served children, adolescents, and seniors than their counterparts in the highly urbanized areas. There was no difference along the remote/urban continuum for the percentage of patient who were adults (aged 19-64 years).

Practices in urban areas tended to have either very low proportion of female patients (≤ 40%) or very high proportion (≥ 61%). The opposite was true for suburbs. Remote areas had a slight tendency towards a balance of male and female patients. There was a difference of 2 percentage points among the means and thus these differences were statistically rather than practically significant.

Proportionally more physicians practising in the suburban through to the remote areas served aboriginal peoples, low income earners, the unemployed, and transient or seasonal populations than urban physicians. More urban physicians served cultural minorities, recent immigrants, HIV or AIDS patients, and the homeless than did physicians practising in the suburban through to remote areas.

Practice profile: Family physicians in the more remote areas tended to offer many more services than their counterparts in the more urbanized areas. For many of these services, the differences started to appear in suburbs. Two services, alternative/complementary medicine and psychotherapy/counselling, did not show much difference by geography and one service, after hours clinic, was offered at proportionally higher rates in the highly urbanized areas (as one might expect) than in the remote areas.

Family physicians in the remote areas spent more time in the emergency department, either as the MD on duty or in seeing their patients as compared to FPs in the urban areas. Remote physicians spent more time providing hospital in-patient care as well as total professional activity (excluding on-call) relative to urban physicians.

Urban physicians spent an average of 1.6 weeks more on providing clinical or medical services than rural physicians who spent an average of 0.6 weeks more away from practice for CME and an average of 0.9 weeks more on vacation.

Proportionally more rural physicians performed more procedures than their urban counterparts. Refraction was the only procedure that did not exhibit a significant geographic distribution, probably because refraction was performed by only about 2% of the respondents.

Family physicians in the suburban areas (CAs) saw an average of 9 to 11 more patients than FPs in any other location. Proportionally more practices in the remote areas were completely open and fewer were conditionally closed or completely closed, relative to urban (CMA) and suburban (CA) practices.

Practice Setting: Fewer family physicians in the urbanized areas (CMAs) and more in the remote areas were in a family physicians group practice. More FPs in the urbanized areas and fewer in the remote areas were in a family physician or specialist group practice or solo practice.

Proportionally more rural physicians practised medicine in emergency departments, hospital in-patient units or wards, nursing homes or homes for the aged, private offices or clinics, and community clinics or community health centres than urban physicians. More urban physicians practised medicine in academic family medicine teaching units or free-standing walk-in clinics than rural physicians.

More rural physicians selected private offices/clinics or community clinics/community health centres as their main practice setting than urban physicians. Conversely, more urban physicians selected nursing homes or homes for the aged, emergency departments, hospital in-patient units or wards, or other places as their main practice setting than rural physicians.

Synopsis: The univariate analyses presented above confirm that there are differences along an urban-rural continuum in the (1) demographic and educational profile of physicians, (2) social, cultural and economic characteristics of patients, (3) medical practice, and (4) practice organization. It is not yet clear, how or if these differences are linked causally. Plausible stories can be constructed for how some of these differences could be related. For instance, some of the differences in medical practice might be a consequence of the health status and medical care seeking behaviours of the population that they serve. One example might be that the higher percentage of FPs who provide chronic disease management is due to the older patient

population in remote areas. Alternatively, this may reflect the personal preference or educational background of the physician who practices in remote areas. Multivariate analyses are proposed to tease out some of the relationships and to estimate how much of the variation is due to geography, to the patients and to the physicians.

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1 Nature of Rural Medical Practice in Canada

To be effective, rural medical education must be in sync with the reality of rural medical practice. For instance, in examining how to enhance the rural medical workforce in Australia, Strasser (1992) has emphasized, among other things, the need to strengthen training in procedural skills. This is because rural physicians, regardless of whether they are in Australia or Canada, are much more likely than their urban counterparts to have a broader scope of practice and perform more procedures. Thus, it is important to know the nature and characteristics of rural medical practice. But what characterizes rural medical practice? Rourke (1996, 1997) has described rural practice as medical practice in non-urban areas, where most medical care is provided by family physicians or general practitioners with limited access to specialist resources and sophisticated medical technology. As a result, many rural physicians must possess procedural and other skills not usually required by urban-based physicians. Similarly, Wise et al. (1994) have shown that in Australia, there are significant differences between rural and urban practices. Rural doctors are much less likely to have access to support from other health practitioners and are much more likely to utilize a broader range of clinical skills.

Until quite recently, our understanding of rural medical practice in Canada has been based mostly on anecdotal evidence and empirical findings from small-scale or localized studies. Since 1997, there is an important source of national data that could be used to study rural family physicians and the nature of their practice. The focus on family physicians is justifiable since, as Pitblado and Pong (1999) have shown in their study, specialists make up only about 3% of the complement of rural physicians.

In 1997, the College of Family Physicians of Canada commissioned the Centre for Rural and Northern Health Research (CRaNHR) at Laurentian University to conduct the first National Family Physician Survey (NFPS). Questionnaires were sent to a random sample of over 5,000 family physicians and general practitioners across Canada. In 2001, CRaNHR was commissioned to conduct the second NFPS. Unlike the first one, the second NFPS was a survey of all family physicians and general practitioners. With over 13,000 doctors responding, the survey achieved a response rate of 54.5% (Urajnik et al. 2002). Data from the two surveys were used to develop the National Family Physician Survey Database.

Given that there is postal code information from almost all of the NFPS respondents, it is possible to classify physicians according to the types of community (e.g., metropolitan, urban,

rural, remote) in which they worked (Pong and Pitblado 2001). This made it possible to examine the differences between rural physicians and their urban counterparts with respect to a number of factors. Such findings could then be used as a “reality check” for the analysis of rural/northern medical education by finding out the extent to which the preparation of rural physicians corresponds to the reality of rural practice. For example, if the survey data show that rural physicians have a much larger proportion of aboriginal patients, the finding could have important implications for undergraduate, post-graduate, and continuing medical education, particularly in relation to curriculum design and opportunities to learn about aboriginal culture and communities.

The approach was to conduct a secondary analysis of data from the National Family Physician Survey 2001 Database. Data were summarized for categories defined along a urban-rural continuum. This continuum was based on Statistics Canada's Statistical Area Classification, which is derived from commuter flow rates into major urban areas. Results are summarized for physician characteristics, patient characteristics, practice profile and practice setting.

2 Methodology

2.1 Choice of Geographic Descriptor

The NFPS 2001 survey provides two pieces of information about geographic location. The first source of information is a question that asks respondents to categorize the patient population served primarily by the physician's practice. Respondent's could chose "Inner City," "Urban/Suburban," "Small Town," "Rural," "Geographically Isolated/Remote," or "other: please specify." The second source of information was the six-digit postal code of the physician's main practice location. There are methodological issues to using either variable. The six categories for patient location were listed without definitions or examples and thus could mean different things to different respondents. Postal codes represent practice location, but they may not represent patient location. For example, a practice located just inside the boundary of a major city may serve a patient population that works and/or lives in agricultural areas. In this hypothetical situation, the physician's practice characteristics might reflect the medical need of the patient's rural location rather than the physician's urban location.

Despite the above-mentioned limitations, postal codes were used in subsequent analyses because they can be linked to specific geographic locations. This permits comparison of all sorts of data (e.g., socio-economic, health and wellbeing, policy) at the level of provinces/territories or, data permitting, regional health authorities. Postal codes were placed into discrete categories along a urban-rural gradient. This gradient was based on Statistics Canada's Statistical Area Classification (SAC), which is derived from commuter flow rates into major urban areas. It is argued, without proof, that commuter flows are related directly to access to health care services. In essence, it is assumed that high commuter flows indicate good access to health services, while low commuter flows indicate poor access. A comparison of SAC categories with patient population categories is presented in the final paragraphs of the methods section.

2.2 Urban-Rural Continuum

All geographic variables were derived from full postal codes using Statistics Canada's postal code conversion file for the 2001 Census (courtesy of Dr. Roger Pitblado, Dept. of Geography, Laurentian University). Postal codes were converted to census subdivisions (CSDs) which were in turn categorized based on the Statistical Area Classification, developed by Statistics Canada (McNiven et al. 2000; Rambeaut and Todd 2000). The Statistical Area Classification (SAC) categorizes census subdivisions according to whether they are a component of a census metropolitan area (CMA), a census agglomeration (CA), or a census metropolitan area and census agglomeration influenced zone (strong MIZ, moderate MIZ, weak MIZ or no MIZ), or the territories (Northwest Territories, Yukon Territory and Nunavut). MIZ categorizes are based on commuter flow rates to CMAs or CAs. The MIZ concept should be applied with care in the three territories because territorial CSDs are very large and sparsely populated and this weakens the work-population (commuter flow) relationship used to determine MIZ categories (Statistics Canada 2003) (Table 1).

The SAC classification, as first obtained, has eight categories and the non-tracted Census Agglomeration (NTCAs) of Whitehorse and Yellowknife are considered as territories (Table 2). The condensed SAC classification, used in subsequent analysis, has four categories, which represent combinations of the original categories where sample size was less than 1000. The derived SAC classification maintains the labour-force commuting flows relationship while permitting some sub-classification based on other characterizes such as respondent

demographics. The inclusion of Whitehorse and Yellowknife NTCAs as territories instead of counting them with the rest of the CAs is based on the assumption that Whitehorse and Yellowknife NTCAs may resemble weak or no influence zones more so than CAs.

2.3 Statistical Analysis

Family physicians practice locations were categorized into SAC groups and compared with respect to demographic and educational characteristic (e.g., graduation from Canadian vs. overseas medical schools), practice setting (e.g., solo vs. group practice), patient population characteristic (e.g., Aboriginal people), practice profile (e.g., work in emergency department), scope of clinical services (e.g., procedures performed as part of practice), continuing medical education, etc. Analyses were descriptive, using Chi-squared tests of association (e.g., $\chi^2_{(df)}$) for the RxC contingency tables (where R= number of rows, and C= number of columns (typically the four geographic categories)). Numeric variables, such as number of patients per week or hours per week spent on professional activity, were analyzed with one-way ANOVAs and post hoc tests, such as Tukey's Honestly Significant Difference and Dunnett's C,[2] were used to detect statistically significant differences among geographic categories (Dunnett 1980a,b; SPSS 2001; Zar 1999). Transformations, such as arcsine for the percent of patients who are female and power transformations for age did not improve model fit (as measured by adjusted R^2) and so untransformed data were used in the one-way ANOVAs.

The findings provide a broader context for discussing and assessing rural/northern medical education, particularly in relation to learning needs, curriculum development, and continuing medical education activities.

[2] Used, respectively, for equal variances among groups or unequal variances. There were very few differences in results when using either post hoc means test.

Table 1. Abbreviations and Definitions of Geographic Categories[1]

Abbreviation	*Geographic Category*	*Explanation*
CSD	**C**ensus **Su**b**b**division	A municipality or an area treated as municipal equivalents
CMA	**C**ensus **M**etropolitan **A**rea	Area consisting of one or more adjacent municipalities centred on a large urban area. The population count of the urban core ≥ 100,000
CA	**C**ensus **A**gglomeration	Area consisting of one or more adjacent municipalities centred on a large urban area. The population count of the urban core ≥ 10,000
MIZ	**C**ensus Metropolitan Area and Census Agglomeration **I**nfluenced **Z**ones	Municipality not included in either a CMA or a CA. It is categorized as strong MIZ, moderate MIZ, weak MIZ and no MIZ according to the percentage of the municipality's residents who commute to work in any CMA or CA: Strong MIZ: ≥ 30% of residents commute Moderate MIZ: ≥ 5% & < 30% Weak MIZ: ≥ 0% & < 5% No MIZ: either fewer than 40 residents or no residents commute

[1] Source: on-line Census 2001 Dictionary, downloaded November 3, 2003 from: http://www.statcan.ca/english/census2001/dict/atoz.htm

Table 2. Number of Responses by Statistical Area Classification[1,2]

Original Category Name	*Original SAC Category (number of responses)*	*Derived SAC Category (number of responses)*	*Derived Category Name*
Census Metropolitan Area (CMA)	8370	8370	CMA "highly urbanized area"
Tracted Census Agglomeration (TCA)	771	2231	CA "suburban area"
Non-Tracted Census Agglomeration (N-TCA)	1460		
Strong MIZ	363	1267	Strong or Moderate MIZ "mostly rural area"
Moderate MIZ	904		
Weak MIZ	1077	1203 Includes Yellowknife & Whitehorse N-TCA	Weak or No MIZ or Territory "remote area"
No MIZ	87		
Territory	39 Includes Yellowknife & Whitehorse N-TCA		

[1] See Table 1 for abbreviations and definitions of geographic categories.
[2] Valid cases = 13071, missing cases = 17.

2.4 Comparing Patient and Practice Location

The geographic location of patients served by FPs who responded to the survey corresponds reasonably well to the Statistical Area Classification (SAC) developed by Statistics Canada (Table 3). The match is not perfect, given that the approaches to the classification schemes are different: the SAC is based on commuter flows from where the practice is located to the nearest CMA/CA, while the FPs' response is based on the population that they serve. The bolded numbers represent the most frequent matches between the two geographic classification schemes (e.g., 5659 matches between "urban/suburban" and "CMA"). It is interesting to note that next most frequent matches occur within one unit. For example, the next most frequent match to "urban/suburban" is CA (651 matches). The most frequent match to CMA is "inner city" (1394 matches) followed by "small town" (646 matches).

There are some interesting differences. Three “inner city” and 24 “urban/suburban” patient populations match to practices located in Weak or No MIZ or Territories. An examination of postal codes shows that the three practices that serve “inner city” patients are located in areas that surround regional centres such as Rouyn-Noranda, QC, and Cranbrook, BC. The 24 practices that serve mostly “urban/suburban” patients are located in: (1) smaller regional centres, such as Weyburn, SK, or Canmore, AB; (2) areas around regional centres (e.g., Springdale, NL); or (3) in Yellowknife, NWT, or Whitehorse, YK.

Twenty-six “geographically isolated” areas and 182 “rural” patient populations match to practices located in CMAs. An examination of postal codes shows that the 26 practices that are classified as CMA and serve geographically isolated patients are in regional centres such as Chicoutimi, QC (n=3). Interestingly, some practices are in major urban centres such as Winnipeg, MB (n=4), or Montreal, QC (n=3). A similar explanation is possible for the 182 practices that are classified as CMA and serve “rural” patients. These practices are located in: (1) smaller communities that are very close to or abut major urban areas (e.g., Conception Bay and St John’s, NL); (2) areas around regional centres (e.g., Trois Rivieres, QC); or, paradoxically, (3) in major urban centres such as Vancouver, BC (n=10), Halifax, NS (n=7), or Montreal, QC (n=7).

There are advantages and disadvantages to using the patient population geographic classification or the practice location geographic classification. The SAC will be used subsequent analyses because it is argued (without proof), that commuter flows are related directly to access to health care services.

Table 3. Primary Population Served versus Statistical Area Classification

Patient population served	*Statistical Area Classification*				*Subtotal*	*Missing*	*Total*
	CMA	*CA*	*Strong or Moderate MIZ*	*Weak or No MIZ or Territory*			
Inner city	1394	33	10	3	1440	1	1441
Urban/Suburban	**5659**	651	29	24	6363	12	6375
Small town	646	**1008**	358	301	2313	1	2314
Rural	182	214	**685**	**529**	1610	1	1611
Geographically isolated	26	77	40	189	332	0	332
Other	105	31	11	7	154	0	154
Subtotal	8012	2014	1133	1053	12212	15	12227
Missing	358	217	134	150	859	2	861
Total	8370	2231	1267	1203	13071	17	13088

2.5 Method for Summarizing and Presenting Results

Results are summarized in tables as counts and percentages, and the χ^2 statistic, degree of freedom (df) and probability (p) are given below the table. If the χ^2 statistic was significant at $p \leq 0.05$, then the adjusted residuals were examined for each cell in the table to determine which cell counts differed significantly from expected (as per Agresti 1996, pages 31-32). The cells with significant adjusted residuals are indicated by one or two arrows, with the direction of the arrow indicating whether the cell count is significantly higher than expected (up-arrow) or significantly lower than expected (down-arrow) (Table 4). The number of arrows indicates the statistical significance, with one arrow indicating $0.05 \leq p < 0.01$ and two arrows indicating $p \leq 0.01$. Note that a given cell must have a statistically significant adjust residual and a statistically significantly χ^2 value to warrant mention.

Table 4. Explanation of Arrows Used to Denote Statistical Significance

Symbol	*Description*	*Explanation*
↑↑	Adjusted Residual ≥ 3	Approximate 99% confidence level - the observed cell count was statistically significantly higher than the expected cell count (Agresti 1996)
↑	2 ≤ Adjusted Residual < 3	Approximate 95% confidence level - the observed cell count was significantly higher than the expected cell count
"No Arrow"	-2 < Adjusted Residual < 2	There was NO statistically significant difference between the observed cell count and the expected cell count
↓	-3 < Adjusted Residual ≤ -2	Approximate 95% confidence level - the observed cell count was significantly lower than the expected cell count
↓↓	Adjusted Residual ≤ -3	Approximate 99% confidence level - the observed cell count was significantly lower than the expected cell count

3 Results

3.1 Family Physicians

3.1.1 Gender of Family Physicians

Summary: Most family physicians (FPs) were male (61.2%). Proportionally fewer male and more female physicians were practising in the more urbanized areas (CMAs). The situation is reversed in all other geographic locations.

Details: The majority of FPs who responded to the 2001 survey were males (61.2%) (Table 5). In comparison with the survey total, fewer male FPs practised in Census Metropolitan Areas (CMAs) and more in Census Agglomerations (CAs), Strong or Moderate MIZ, and Weak or No MIZ or Territories. In comparison, more female FPs practised in CMAs than the survey total and less in other areas. Absolute differences between observed and expected ranged from 3.6 to 7.9 percentage points for male and female physicians.

Table 5. Family Physicians' Gender by Geographic Category[1]

Gender	*Number and Percentage of Family Physicians*				
	Total	*Geographic Category[2]*			
		CMA	*CA*	*Strong or Moderate MIZ*	*Weak or No MIZ or Territory*
Male	7969 61.2%	4798↓↓ 57.6%	1494↑↑ 67.2%	871↑↑ 69.1%	806↑↑ 67.1%
Female	5044 38.8%	3531↑↑ 42.4%	729↓↓ 32.8%	389↓↓ 30.9%	395↓↓ 32.9%

[1] Numbers with arrows were those with significant adjusted residuals. See Table 4 for explanation of arrows.
[2] See Table 1 for abbreviations and definitions of geographic categories.
[3] Valid cases = 13013, missing cases = 75; χ^2 = 130.136; df = 3; p <0.001.

3.1.2 Age of Family Physicians

Summary: Mean age was 46 years. Family physicians in the highly urbanized areas were older than those FPs in the more remote areas. There were few differences in physician age for the intermediate areas located between the highly urbanized areas and the remote areas. The difference between urban and remote areas began to appear at about 45-54 years of age.

Details: The mean age of FPs in the 2001 survey was about 46 years old and the mode was 47 years old. The majority of FPs were 35-44 years old (33.7%) or 45-54 years old (33.4%) (Table 6). Less than 6% of FPs were 65 years of age or older.

Physicians who were 44 years or younger tended to be under-represented in CMAs and over-represented in Weak or No MIZ or Territories. In contrast, physicians who were 55-64 years old or 65 years or older tended to be over-represented in CMAs and under-represented in Weak or No MIZ or Territories. Note that the absolute difference between observed and expected was 0.5 to 1.1 percentage points for physicians practising in CMAs and 2.6 to 7.7 percentage points for physicians living in Weak or No MIZ or Territories. Physicians aged 45-54 years tended to be under-represented in Weak or No MIZ or Territories.

Table 6. Family Physicians' Age by Geographic Category[1]

Age[3]	*Number and Percentage of Family Physicians*				
		Geographic Category[2]			
	Total	*CMA*	*CA*	*Strong or Moderate MIZ*	*Weak or No MIZ or Territory*
34 years or younger	1627 12.6%	949↓↓ 11.5%[4,5]	266 12.0%	174 13.8%	238↑↑ 19.9%
35 – 44 years	4348 33.7%	2716↓ 32.9%	777 35.1%	414 32.9%	441↑ 36.9%
45 – 54 years	4321 33.4%	2798 33.9%	760 34.3%	425 33.8%	338↓↓ 28.3%
55 – 64 years	1893 14.7%	1254↑ 15.2%	320 14.4%	177 14.1%	142↓ 11.9%
65 years or older	731 5.7%	535↑↑ 6.5%	92↓↓ 4.2%	67 5.3%	37↓↓ 3.1%
Mean Age Standard Deviation (SD)	46 (10.4)	47[a 6] (10.5)	46[b] (9.8)	46[ab] (10.4)	44 (10.0)

[1] Numbers with arrows were those with significant adjusted residuals. See Table 4 for explanation of arrows.
[2] See Table 1 for abbreviations and definitions of geographic categories.
[3] Responses were placed into five categories corresponding roughly to stages in a typical career.
[4] The percentage of respondents who provided their age.
[5] Valid cases = 12920, missing cases = 169; χ^2 = 119.180; df = 12; p <0.001.
[6] The numbers with the same subscript letter are not statistically significant different (based on post hoc means tests: Tukey's Honestly Significant Difference and Dunnett's C)

3.1.3 Gender and Age of Family Physicians

Summary: Mean age of male FPs was statistically significantly higher than that of female FPS for all geographic categories individually and for all geographic categories combined. A higher proportion of male physicians were older in the highly urbanized areas (CMAs) and more were younger in the remote areas. In general, the pattern for male physicians followed that for all survey respondents (described previously). The difference between urban and remote areas began to appear at 45-54 years of age. The pattern was similar for female family physicians, though there were some significant deviations in those intermediate areas located between the highly urbanized areas and the more remote areas.

Details: Given that over 60% of the FPs who responded to the survey were males, it was not surprising that the pattern of responses for age and location for males (Table 7) was very similar to that of all responses (Table 6). Male physicians 44 years or younger were under-represented in CMAs and over-represented in Weak or No MIZ or Territories. The opposite pattern holds for males 55 years or older. Male physicians were distributed in CAs and Strong or Moderate MIZ as one might expect from looking at the average for the age group.

The pattern of responses for age and location for female FPs did overlap with that of male FPs. For example, female FPs aged 44 years or younger tended to be under-represented and those 55 years or older tended to be over-represented in CMAs, same as it was for male FPs. In Weak or No MIZ or Territories, female FPs were only over-represented in age class 34 years or younger and only under-represented in age class 45-54 years. In contrast to male FPs who were more or less distributed as expected in the Strong or Moderate MIZ category, female FPs tended to be over-represented in age class 34 years or younger and under-represented in age classes 45-54 and 55-64 years. Some of the lack of statistically significant differences for female FPs were likely due to low sample in these age classes.

In summary, young male and female FPs (aged 44 years or younger) tended to be under-represented in urban areas (e.g. CMAs). The balance of younger male FPs were in remote areas (e.g. Weak or No MIZ or Territories) whereas the balance of younger female FPs were in intermediate geographic locations (e.g. CAs, Strong or Moderate MIZ). Older male and female FPs (aged 55 years or older) tended to be over-represented in urban areas (e.g. CMAs). Older male and female FPs were under-represented in rural or remote areas but the difference was

only statistically significant for males as the small number of females in the oldest age class reduced the ability to detect statistically significant differences.

Table 7. Family Physicians' Gender and Age by Geographic Category[1]

Gender	*Age*[3]	*Number and Percentage of Family Physicians*					χ^2 *p df=12*
		Total	*Geographic Category*[2] *CMA*	*CA*	*Strong or Moderate MIZ*	*Weak or No MIZ or Territory*	
Male	34 years or younger	688 8.7%	366↓↓ 7.7%[4,5]	125 8.4%	70 8.1%	127↑↑ 15.8%	128.441 p<0.001
	35 – 44 years	2189 27.6%	1251↓↓ 26.3%	437 29.3%	238 27.5%	263↑↑ 32.8%	
	45 – 54 years	2854 36.0%	1696 35.6%	568 38.1%	335 38.6%	255↓ 31.8%	
	55 – 64 years	1547 19.5%	986↑↑ 20.7%	278 18.7%	160 18.5%	123↓↓ 15.3%	
	65 years or older	645 8.1%	465↑↑ 9.8%	81↓↓ 5.4%	64 7.4%	35↓↓ 4.4%	
	Mean (SD)	49 (10.6)	50 (10.8)	48 (9.8)	49 (10.4)	46 (10.4)	
Female	34 years or younger	937 18.8%	583↓↓ 16.7%	141 19.5%	102↑↑ 26.3%	111↑↑ 28.2%	82.048 p<0.001
	35 – 44 years	2159 43.3%	1465↓ 42.1%	340↑ 47.0%	176 45.4%	178 45.3%	
	45 – 54 years	1461 29.3%	1098↑↑ 31.5%	190 26.2%	90↓ 23.2%	83↓↓ 21.1%	
	55 – 64 years	345 6.9%	267↑↑ 7.7%	42 5.8%	17↓ 4.4%	19 4.8%	
	65 years or older	86 1.7%	70↑ 2.0%	11 1.5%	3 0.8%	2 0.5%	
	Mean (SD)	42 (8.7)	43 (8.9)	42 (8.5)	40 (7.7)	40 (8.0)	

[1] Numbers with arrows were those with significant adjusted residuals. See Table 4 for explanation of arrows.
[2] See Table 1 for abbreviations and definitions of geographic categories.
[3] Responses were placed into five categories corresponding roughly to stages in a typical career.
[4] The percentage of respondents who provided their age.
[5] Valid cases = 12911, missing cases = 177.

3.1.4 Marital Status of Family Physicians

Summary: Approximately 86% of family physicians were married or living with partners. Values ranged from 81% for female FPs to 89% for male FPs. Proportionally more married FPs were practising in the intermediate areas between the highly urbanized areas and the more remote areas. There were more single or separated/divorced FPs practising in the more urbanized areas. The pattern for male and female FPs was similar, but not identical, to that for all physicians (detailed data not presented). Physicians whose spouses were themselves physicians tended to be over-represented in the suburban areas (CAs) and in the more remote areas.

Details: In comparison with the survey total, FPs who were married or living with their partners tended to be under-represented in CMAs and over-represented in CAs and Strong or Moderate MIZ (Table 8). This was true for male and female FPs collectively or individually (detailed date not presented). In contrast, single FPs tended to be over-represented in CMAs and under-represented in CAs and Strong or Moderate MIZ (true for male FPs and to a lesser extent for female FPs). Separated or divorced FPs tended to be over-represented in CMAs and under-presented in Strong or Moderate MIZ. This pattern held for separated/divorced male FPs who were more or less distributed as expected. Note that the absolute difference between observed and expected was 0.5 to 1.4 percentage points for physicians practising in CMAs and 1.3 to 3.2 percentage points for those practising in Strong or Moderate MIZ. There was no statistically significant difference for widowed FPs and this was likely due to low sample size in this marital status category.

Approximately 13% of male FPs and 32% of female FPs reported that their spouse was also a physician (the overall value was 20%). FPs whose spouses or partners were physicians tended to be under-represented in CMAs and Strong or Moderate MIZ and over-represented in CAs and Weak or No MIZ or Territories (Table 9). This pattern held for male FPs whose spouses were also physicians, but only for CMAs and Weak or No MIZ, whereas for female FPs with physician spouses, the pattern held for CMAs, CA, and Strong or Moderate MIZ (detailed data not presented). Absolute differences between observed and expected ranged from 0.6 to 3.0 percentage points.

Table 8. Family Physicians' Marital Status by Geographic Category[1]

Marital Status	*Number and Percentage of Family Physicians*				
	Total	*Geographic Category[2]*			
		CMA	*CA*	*Strong or Moderate MIZ*	*Weak or No MIZ or Territory*
Single	926 7.2%	664↑↑ 8.0%[3,4]	98↓↓ 4.4%	66 ↓ 5.3%	98 8.2%
Married/Living with Partner	11087 85.9%	6976↓↓ 84.5%	1968↑↑ 89.2%	1116↑↑ 89.1%	1027 86.4%
Separated/Divorced	796 6.2%	552↑↑ 6.7%	124 5.6%	61 ↓ 4.9%	59 5.0%
Widowed	95 0.7%	66 0.8%	16 0.7%	9 0.7%	4 0.3%

[1] Numbers with arrows were those with significant adjusted residuals. See Table 4 for explanation of arrows.
[2] See Table 1 for abbreviations and definitions of geographic categories.
[3] The percentage of respondents who provided their marital status.
[4] Valid cases: 12904, missing cases = 184; χ^2 = 60.001; df = 9; p <0.001.

Table 9. Spouses/Partners' Status of Family Physicians by Geographic Category[1]

Is the spouse/partner a physician?	*Number and Percentage of Family Physicians*				
	Total	*Geographic Category[2]*			
		CMA	*CA*	*Strong or Moderate MIZ*	*Weak or No MIZ or Territory*
Yes	2131 19.7%	1296↓ 19.1%[3,4]	430 ↑↑ 22.5%	182↓ 16.7%	223↑ 22.4%
No	8661 80.3%	5496↑ 80.9%	1481↓↓ 77.5%	910↑ 83.3%	774↓ 77.6%

[1] Numbers with arrows were those with significant adjusted residuals. See Table 4 for explanation of arrows.
[2] See Table 1 for abbreviations and definitions of geographic categories.
[3] The percentage of respondents who provided their spouses'/partners' status.
[4] Valid cases = 10792, missing cases = 2296; χ^2 = 21.905; df =3; p <0.001.

3.1.5 Dependents of Family Physicians

Summary: Only 2.4% of family physicians indicated that they did not have any dependents and/or children and there were no significant differences among geographic categories. Differences did emerge when we examined: (1) FPs with children only (fewer in the urbanized areas, more in the suburbs or the remote areas); and (2) dependents only, or children and dependents (more in the urbanized areas and fewer in the suburbs or the remote areas). A higher proportion of children were younger in the remote areas than in the highly urbanized areas. Time spent caring for children and/or dependents tended to be the highest in the highly urbanized areas. Note that the analysis and interpretation was based on the 46 to 64% of FPs who responded unambiguously to these questions.

Details: In the 2001 survey, approximately 91.1% of FPs had children only (Table 10). In comparison with the survey total, FPs who had children only tended to be under-represented in CMAs and over-represented in CAs and Weak or No MIZ or Territories. In contrast, FPs who had other dependents or those who had both children and other dependents tended to be over-represented in CMAs and under-represented in CAs and Weak or No MIZ or Territories. The absolute difference between observed and expected was 0.4 to 1.3 percentage points for physicians practising in CMAs and 1.1 to 2.4 percentage points for those practising in Weak or No MIZ or Territories. There was no statistically significant difference for FPs without children and other dependents across the geographic areas.

Of FPs who specified the age of their youngest child, approximately 41.6% had a child under seven years old (Table 11). In comparison with the survey total, fewer FPs whose youngest child was six years or younger practised in CMAs and more practised in Weak or No MIZ or Territories. In contrast, more FPs whose youngest child was 7 to 12 years or above 18 years old practised in CMAs and fewer practised in Weak or No MIZ or Territories. Note that the absolute difference between observed and expected was 0.7 to 2.5 percentage points for physicians practising in CMAs and 3.7 to 11.7 percentage points for those practising in Weak or No MIZ or Territories.

Of FPs who specified the amount of time that they spent on caring or supervising their children or other dependents, approximately 46.3% spent less than 25 hours per week (Table 12). In comparison with the survey total, fewer FPs who spent less than 25 hours per week on care or supervision practised in CMAs and more practised in CAs or Strong or Moderate MIZ. In

contrast, more FPs who spent 49 to 96 hours per week practised in CMAs and fewer who spent 49 to 72 hours practised in CAs or Strong or Moderate MIZ. Fewer FPs who spent 73 to 96 hours practised in Strong or Moderate MIZ. These differences were statistically significant ($\chi^2_{(12)}$ = 26.702, p=0.009). There was no statistically significant difference for FPs who spent 25 to 48 hours and 97 to 168 hours on care or supervision across the geographic areas.

Furthermore, there were no significant differences among geographic categories when we examined FPs without any children and/or other dependents and those with a child and/or a dependent ($\chi^2_{(3)}$ = 1.092, p=0.779).

Results should be interpreted with caution as 36 to 54% of the 13088 surveys had missing or illegal values. Most of the coding problems were caused by FPs who had indicated that they had a child or a dependent but did not specify whether it was one or the other or both. Very few respondents (0.15% of FPs who indicated the hours) wrote that they provided more than 168 hours per week on caring for their child(ren) or dependent(s). A cursory examination of the missing values showed that their distribution crudely resembled the distribution of geographic categories (i.e. 64.7-65.9% of missing values were from the CMA category compared to the 64% of FPs who were from the CMA). No formal analysis of the distribution and potential impact of the missing values was conducted.

Gender-specific analyses were not conducted, but differences are anticipated given the prevailing opinion that women tend to take on more of the child-rearing duties than do men.

Table 10. Family Physicians' Dependents by Geographic Category[1]

Dependents	*Number and Percentage of Family Physicians*				
	Total	*Geographic Category[2]* *CMA*	*CA*	*Strong and Moderate MIZ*	*Weak or No MIZ or Territory*
No children or other dependents	204 2.4%	129 2.4%[3,4]	32 2.2%	24 2.8%	19 2.5%
Children	7616 91.1%	4737↓↓ 89.8%	1394↑↑ 93.7%	783 92.3%	702 ↑ 93.5%
Other dependents	155 1.9%	120 ↑↑ 2.3%	17 ↓ 1.1%	12 1.4%	6 ↓ 0.8%
Both children and other dependents	387 4.6%	289 ↑↑ 5.5%	45 ↓↓ 3.0%	29 3.4%	24 ↓ 3.2%

[1] Numbers with arrows were those with significant adjusted residuals. See Table 4 for explanation of arrows.
[2] See Table 1 for abbreviations and definitions of geographic categories.
[3] The percentage of respondents who indicated their dependents.
[4] Valid cases = 8362, missing cases = 4726; χ^2 =40.758; df =9; p <0.001.

Table 11. Age of Youngest Child of Family Physicians by Geographic Category[1]

Age of Youngest Child[3]	*Number and Percentage of Family Physicians*				
	Total	*Geographic Category[2]* *CMA*	*CA*	*Strong or Moderate MIZ*	*Weak or No MIZ or Territory*
6 years or younger	3301 41.6%	1952↓↓ 39.1%[4,5]	621 43.6%	343 42.6%	385↑↑ 53.3%
7-12 years old	2282 28.7%	1483↑ 29.7%	398 27.9%	222 27.6%	179↓ 24.8%
13-18 years old	1751 22.0%	1135 22.7%	311 21.8%	175 21.7%	130↓ 18.0%
19 years or older	609 7.7%	421↑↑ 8.4%	94 6.6%	65 8.1%	29 ↓↓ 4.0%
Mean age (yrs) (SD)	9.0 (6.4)	9.3[a 6] (6.4)	8.6[b] (6.2)	9.0[a,b] (6.5)	7.3 (6.1)

[1] Numbers with arrows were those with significant adjusted residuals. See Table 4 for explanation of arrows.
[2] See Table 1 for abbreviations and definitions of geographic categories.
[3] Responses were placed into 4 categories corresponding roughly to pre-school age, primary school age, secondary school age, and post-secondary school age.
[4] The percentage of respondents who specified their youngest child's age.
[5] Valid cases = 7943, missing cases = 5145; χ^2 =64.264; df =9; p <0.001.
[6] The numbers with the same subscript letter are not statistically significant different (based on post hoc means tests: Tukey's Honestly Significant Difference and Dunnett's C)

Table 12. Hours Family Physicians Spent on Children/Other Dependents per Week by Geographic Category[1]

Hours FPs Spent on Dependents per Week[3]	*Number and Percentage of Family Physicians*				
	Total	*Geographic Category*[2] *CMA*	*CA*	*Strong or Moderate MIZ*	*Weak or No MIZ or Territory*
Under 25 hours	2805 46.3%	1702↓↓ 44.4%[4,5]	526↑ 49.3%	296↑ 50.6%	281 49.3%
25-48 hours	1461 24.1%	926 24.2%	254 23.8%	147 25.1%	134 23.5%
49-72 hours	1264 20.9%	858↑↑ 22.4%	195↓ 18.3%	103↓ 17.6%	108 18.9%
73-96 hours	326 5.4%	223↑ 5.8%	56 5.2%	20 ↓ 3.4%	27 4.7%
97-168 hours	198 3.3%	123 3.2%	36 3.4%	19 3.2%	20 3.5%
Mean hours (SD)	35 (32)	36[a 6] (34)	33[a,b] (30)	31[b,c] (28)	33[a,c] (30)

[1] Numbers with arrows were those with significant adjusted residuals. See Table 4 for explanation of arrows.
[2] See Table 1 for abbreviations and definitions of geographic categories.
[3] Responses were placed into five categories (four 24-hour categories and one 72-hour category).
[4] The percentage of respondents who indicated the hours that they provided care/supervision for their children or other dependents per week.
[5] Valid Cases = 6054, missing cases = 7034; χ^2 =26.702; df =12; p =0.009.
[6] The numbers with the same subscript letter are not statistically significant different (based on post hoc means tests: Tukey's Honestly Significant Difference and Dunnett's C)

3.1.6 Language Use in Medical Practice

Summary: There were more English only practices in the remote areas than French only or bilingual practices. If patients spoke French only, then they were less likely to find a physician who spoke French or was bilingual if the patient lived in the suburban or the remote areas. If a patient spoke English only, then they were less likely to find an English or bilingual physician in the suburban or rural areas. Family physicians who did not practice in any of Canada's official languages were more likely to be found in the highly urbanized areas than elsewhere (but note that the number of these physicians was small, 0.4% overall).

Details: In comparison with the survey total, FPs who spoke both official languages (including those who spoke other languages) tended to be over-represented in CMAs and under-represented in CAs and Weak or No MIZ or Territories (Table 13). FPs who spoke English only (including those who spoke other languages excluding French) tended to be over-represented in CAs and Weak or No MIZ or Territories and under-presented in Strong or Moderate MIZ. FPs who spoke French only (including those who spoke other languages excluding English) tended to be under-represented in CMAs and Weak or No MIZ or Territories and over-represented in CAs and Strong or Moderate MIZ. Forty-six out of 49 FPs who spoke neither English nor French practised in CMAs. The absolute difference between observed and expected was 0.2 to 1.9 percentage points for physicians practising in CMAs and 3.0 to 8.2 percentage points for those practising in Weak or No MIZ or Territories.

Those who spoke French only or were bilingual tended to be under-represented in CAs and Weak or No MIZ or Territories and over-represented in Strong or Moderate MIZ as compared to the survey total. These differences were statistically significant ($\chi^2_{(3)} = 81.295$, $p<0.001$).

Those who spoke English only or were bilingual tended to be over-represented in CMAs and Weak or No MIZ or Territories and under-represented in CAs and Strong or Moderate MIZ as compared to the survey total. These differences were statistically significant ($\chi^2_{(3)} = 124.249$, $p<0.001$).

FPs who spoke a non-official language and/or official languages tended to be over-represented in CMAs and under-represented in other geographic areas (Table 14). The absolute difference between observed and expected was 4.1 percentage points for physicians practising in CMAs and 4.9 percentage points for physicians practising in Weak or No MIZ or Territories.

Comparison of the language of practice to the language of the population as a whole had not yet been made.

Table 13. Family Physicians' Language Use in Medical Practice by Geographic Category[1]

Language	*Number and Percentage of Family Physicians*				
	Total	*Geographic Category[2]* *CMA*	*CA*	*Strong or Moderate MIZ*	*Weak or No MIZ or Territory*
English (but not French)[3]	8615 66.2%	5470 65.6%[4,5]	1522↑ 68.4%	731↓↓ 57.9%	892↑↑ 74.4%
French (but not English)[3]	1513 11.6%	842↓↓ 10.1%	319↑↑ 14.3%	249↑↑ 19.7%	103↓↓ 8.6%
English and French[3]	2843 21.8%	1977↑↑ 23.7%	383↓↓ 17.2%	282 22.3%	201↓↓ 16.8%
Other language only	49 0.4%	46 ↑↑ 0.6%	0 ↓↓ 0.0%	0 ↓ 0.0%	3 0.3%

[1] Numbers with arrows were those with significant adjusted residuals. See Table 4 for explanation of arrows.
[2] See Table 1 for abbreviations and definitions of geographic categories.
[3] Includes FPs who spoke other languages in addition to one of Canada's official languages.
[4] The percentage of respondents who provided their language use in their medical practice.
[5] Valid Cases = 13020, missing cases = 68; χ^2 =208.914; df =9, p <0.001.

Table 14. Family Physicians' Language Use in Medical Practice by Geographic Category[1]

Language	*Number and Percentage of Family Physicians*				
	Total	*Geographic Category[2]* *CMA*	*CA*	*Strong or Moderate MIZ*	*Weak or No MIZ or Territory*
Official languages only	9768 75.0%[3,4]	5907↓↓ 70.9%	1861↑↑ 83.7%3	1042↑↑ 82.6%	958 ↑↑ 79.9%
Official languages and/or non-official languages	3252 25.0%	2428↑↑ 29.1%	363 ↓↓ 16.3%	220 ↓↓ 17.4%	241 ↓↓ 20.1%

[1] Numbers with arrows were those with significant adjusted residuals. See Table 4 for explanation of arrows.
[2] See Table 1 for abbreviations and definitions of geographic categories.
[3] The percentage represented the proportion of respondents in the same area who provided their language use in their medical practice.
[4] Valid cases = 13020, missing cases = 68; χ^2 =219.183; p <0.001; df =3.

3.1.7 Undergraduate Medical Education

Summary: Most family physicians received their undergraduate medical training in Canada. Proportionally fewer FPs who received training in Canada were practising in the remote areas.

Details: The majority of FPs received their undergraduate medical training in Canada (81.5%) (Table 15). In comparison with the survey total, fewer FPs practising in Weak or No MIZ or Territories received their undergraduate medical training in Canada. The absolute difference between observed and expected was 4.4 percentage points for physicians practising in Weak or No MIZ or Territories.

Table 15. Undergraduate Medical Training Family Physicians Received, by Geographic Category[1]

Undergraduate Medicine Training	*Number and Percentage of Family Physicians*				
	Total	*Geographic Category*[2] *CMA*	*CA*	*Strong or Moderate MIZ*	*Weak or No MIZ or Territory*
Canada	10502 81.5%	6750 81.8%[3,4]	1811 82.3%	1030 82.1%	911↓↓ 77.1%
Other countries	2382 18.5%	1498 18.2%	389 17.7%	224 17.9%	271↑↑ 22.9%

[1] Numbers with arrows were those with significant adjusted residuals. See Table 4 for explanation of arrows.
[2] See Table 1 for abbreviations and definitions of geographic categories.
[3] The percentage of respondents who indicated their undergraduate medical training.
[4] Valid cases = 12884, missing cases: 204; χ^2 =17.313; df =3, p =0.001.

3.2 Patients

3.2.1 Patient Age

Summary: Proportionally more family physicians in the suburban mostly rural and the more remote areas served children, adolescents, and seniors than their counterparts in the highly urbanized areas. There was no difference along the remote/urban continuum for the percentage of patient who were adults (aged 19-64 years).

Details: A lower percentage of FPs in CMAs and a higher percentage of FPs in other geographic areas responded that they generally served children and adolescents who were 18 years or younger and seniors who were 65 years or older as compared to the survey average (Table 16). Statistically significant differences between the percentage of FPs in CMAs and the survey average were between 1.9 and 3.5 percentage points. Statistically significant differences between the percentage of FPs in Weak or No MIZ or Territories and the survey average were between 3.2 and 8.0 percentage points. There were no significant differences among geographic areas for FPs who served adults who were 19 to 64 years old.

Table 16. Patient Age by Geographic Category[1]

Patient Age[3]	*Number and Percentage of Family Physicians*					χ^2 *p df=3*
	Total	*Geographic Category*[2] *CMA*	*CA*	*Strong or Moderate MIZ*	*Weak or No MIZ or Territory*	
Children (12 years or younger)	10599 81.1%	6496↓↓ 77.6%[4,5]	1900↑↑ 85.2%	1131↑↑ 89.3%	1072↑↑ 89.1%	195.912 p<0.001
Adolescents (13-18 years)	10859 83.1%	6724↓↓ 80.3%	1927↑↑ 86.4%	1135↑↑ 89.6%	1073↑↑ 89.2%	132.169 p<0.001
Adults (19-64 years)	12636 96.7%	8074 96.5%	2154 96.5%	1234 97.4%	1174 97.6%	6.444 p=0.092
Seniors (65 years or older)	11654 89.2%	7310↓↓ 87.3%	2034↑↑ 91.2%	1199↑↑ 94.6%	1111↑↑ 92.4%	90.039 p<0.001

[1] Numbers with arrows were those with significant adjusted residuals. See Table 4 for explanation of arrows.
[2] See Table 1 for abbreviations and definitions of geographic categories.
[3] Respondents chose from the following categories.
[4] Counts were numbers of respondents who answered "Yes." The percentage of respondents who answered "Yes." Column percent totals are more than 100% because multiple responses were permitted.
[5] Valid cases – 13071, missing cases = 204.

3.2.2 Proportion of Female Patients

Summary: Practices in urban areas tended to have either very low proportion of female patients (≤ 40%) or very high proportion (≥ 61%). The opposite was true for suburbs. Remote areas had a slight tendency towards a balance of male and female patients. Mean percent of patients who were female ranged from 58% to 60%, with an overall mean of 60%.

Details: In comparison with the survey total, FPs who served 51 to 60% female patients tended to be under-represented in CMAs and over-represented in other geographic categories (Table 17). In contrast, FPs who served more than 70% female patients tended to be over-represented in CMAs and under-represented in other geographic categories. Similarly, FPs who served 40% or fewer and 61 to 70% female patients tended to be over-represented in CMAs and under-represented in CAs. FPs who served 41 to 50% female patients tended to be over-represented in Strong or Moderate MIZ. The absolute difference between observed and expected was 0.6 to 2.7 percentage points for physicians practising in CMAs and 2.5 to 2.6 percentage points for those practising in Weak or No MIZ or Territories. The absolute difference in mean percent was about 2 percentage points.

Table 17. Proportion of Patients that are Female, by Geographic Category[1]

Proportion of FPs' Female Patients[3]	*Number and Percentage of FPs*				
	Total	*Geographic Category*[2] *CMA*	*CA*	*Strong or Moderate MIZ*	*Weak or no MIZ or Territory*
0-40%	925 7.2%[4,5]	637↑↑ 7.8%	122↓↓ 5.6%	75 6.0%	91 7.7%
41-50%	3439 26.9%	2157 26.3%	597 27.5%	365↑ 29.3%	320 26.9%
51-60%	3986 31.1%	2333↓↓ 28.4%	783↑↑ 36.0%	470↑↑ 37.8%	400↑ 33.7%
61-70%	2266 17.7%	1513↑↑ 18.4%	335↓↓ 15.4%	215 17.3%	203 17.1%
71-100%	2192 17.1%	1564↑↑ 19.1%	335↓ 15.4%	119↓↓ 9.6%	174↓ 14.6%
Mean percentage (SD)	60 (13.6)	60[a 6] (14.2)	60[a] (12.9)	58[b] (11.4)	59[a,b] (12.7)

[1] Numbers with arrows were those with significant adjusted residuals. See Table 4 for explanation of arrows.
[2] See Table 1 for abbreviations and definitions of geographic categories.
[3] Responses were placed into five categories (of unequal width) that included two 10% wide categories around the 50% mark. A third 10% category and the width of outer categories were determined by the data.
[4] The percentage of respondents who indicated the proportion of female patients.
[5] Valid cases = 12808, missing cases = 280; χ^2 =150.948; df =12; p <0.001.
[6] The numbers with the same subscript letter are not statistically significant different (based on post hoc means tests: Tukey's Honestly Significant Difference and Dunnett's C)

3.2.3 Characteristics of Patients

Summary: Proportionally more physicians practising in the suburban through to the remote areas served aboriginal peoples, low income earners, the unemployed, and transient or seasonal populations than urban physicians. Urban physicians served cultural minorities, recent immigrants, HIV or AIDS patients, and the homeless relative to physicians in the suburban through to the remote areas.

Details: Compared to the survey average, a lower percentage of FPs in CMAs and a higher percentage of FPs in other geographic categories indicated that aboriginal peoples, low income earners, the unemployed, and transient or seasonal populations were a significant proportion of their practice populations (Table 18). A higher percentage of FPs in CMAs and a lower percentage of FPs in other geographic categories indicated cultural minorities, recent

immigrants, HIV or AIDS patients, and the homeless as a significant proportion of their practice population. More FPs in CMAs and fewer FPs in Strong or Moderate MIZ or Weak or No MIZ or Territories indicated that none of listed characteristics could be treated as a significant proportion of their practice population. Statistically significant differences between the percentage of FPs in CMAs and the survey average were between 0.8 and 9.1 percentage points. Statistically significant differences between the percentage of FPs in Weak or No MIZ and Territories and the survey average were higher at 1.5 and 20.3 percentage points.

Those patients with substance or drug abuse, chronic mental illness, and permanent physical disabilities were more or less at the same proportion across the rural-urban continuum.

Table 18. Characteristics of Patients by Geographic Category[1]

Population Group	*Number and Percentage of Family Physicians*					χ^2 *p df=3*
	Total	*Geographic Category[2]* *CMA*	*CA*	*Strong or Moderate MIZ*	*Weak or No MIZ or Territory*	
Significantly lower percent in CMA						
Aboriginal peoples	1584 12.1%[3]	591↓↓ 7.1%	416 ↑↑ 18.6%	187↑↑ 14.8%	390↑↑ 32.4%	764.110[4,5] p<0.001
Low income earners	5636 43.1%	3228↓↓ 38.6%	1083↑↑ 48.5%	675↑↑ 53.3%	650↑↑ 54.0%	209.195 p<0.001
The unemployed	3164 24.2%	1757↓↓ 21.0%	640↑↑ 28.7%	362↑↑ 28.6%	405↑↑ 33.7%	143.387 p<0.001
Transient/Seasonal populations	919 7.0%	403↓↓ 4.8%	167 7.5%	154↑↑ 12.2%	195↑↑ 16.2%	269.528 p<0.001
Significantly higher percent in CMA						
Cultural minorities	3277 25.1%	2859↑↑ 34.2%	238 ↓↓ 10.7%	80 ↓↓ 6.3%	100↓↓ 8.3%	1031.406 p<0.001
Recent immigrants	1714 13.1%	1606↑↑ 19.2%	61 ↓↓ 2.7%	26 ↓↓ 2.1%	21 ↓↓ 1.7%	754.498 p<0.001
HIV/AIDS patients	256 2.0%	231 ↑↑ 2.8%	14 ↓↓ 0.6%	5 ↓↓ 0.4%	6 ↓↓ 0.5%	78.062 p<0.001
The homeless	364 2.8%	308 ↑↑ 3.7%	35 ↓↓ 1.6%	9 ↓↓ 0.7%	12 ↓↓ 1.0%	71.286 p<0.001
NONE of the above	4180 32.0%	2847↑↑ 34.0%	710 31.8%	357↓↓ 28.2%	266↓↓ 22.1%	78.234 p<0.001
No significant difference						
Substance/Drug abusers	1332 10.2%	871 10.4%	221 9.9%	102↓ 8.1%	138 11.5%	9.119 p=0.028
Patients with chronic mental illness	2507 19.2%	1635 19.5%	430 19.3%	213↓ 16.8%	229 19.0%	5.291 p=0.152
Patients with permanent physical disabilities	1983 15.2%	1274 15.2%	323 14.5%	192 15.2%	194 16.1%	1.703 p=0.636

[1] Numbers with arrows were those with significant adjusted residuals. See Table 4 for explanation of arrows.
[2] See Table 1 for abbreviations and definitions of geographic categories.
[3] Counts were numbers of respondents who answered "Yes." The percentage of respondents who answered "Yes." Column percent totals are more than 100% because multiple responses were permitted.
[4] Chi squared statistics was calculated based on "Yes" and "No" responses for each medical service offered.
[5] Valid cases = 13071, missing cases = 17.

3.3 Practice Profile

3.3.1 Medical Services Offered

Summary: Family physicians in the more remote areas tended to offer many more services than their counterparts in the more urbanized areas. For many of these services, the differences started to appear in suburbs. Two services, alternative/complementary medicine and psychotherapy/counselling, did not show much difference by geography and one service, after-hours clinic, was offered at proportionally higher rates in the urbanized areas (as one might expect) than in the remote areas.

Details: FPs in remote areas offered a mean of 12 services (out of 19 listed) and this was statistically significantly higher than the 11 services offered in suburban (CA) and mostly rural areas (Strong or Moderate MIZ) and significantly higher than the 9 services offered in urban areas (CMA) (Table 19).[2] Medical services could be categorized into three broad groups based on whether the percentage of FPs offering the indicated service was significantly below average, average or significantly above average for the survey, based on χ^2 analysis of service (offered or not offered) by geographic category (CMA, CA, Strong or Moderate MIZ, Weak or No MIZ or Territory).

For 16 of the 19 medical services listed, a lower percentage of FPs in CMAs and a higher percentage of FPs in Weak or No MIZ or Territories responded that they had provided the services as compared to the survey average (Table 19). FPs in CAs and in Strong or Moderate MIZ tended to offer the services at a rate higher or equal to the average. These services included in-patient hospital care, emergency medicine, visits to nursing/senior homes, palliative care, and a dozen other services. Statistically significant differences between the percentage of FPs in CMAs and the survey average were between 1 and 12 percentage points. Statistically significant differences between the percentage of FPs in Weak or No MIZ or Territories and the survey average were much higher at 5 to 34 percentage points.

Two of the medical services, alternative/complementary medicine and psychotherapy/counselling were offered at about the same rate, regardless of where the FP was located. One service, after hours clinic, was offered by a higher percentage of FPs in CMAs than FPs in Weak or No MIZ or Territories.

Results must be interpreted with some caution as 5 to 16% of the 13088 surveys had missing responses for one or more of these questions. A cursory examination of the missing values revealed that their distribution crudely resembled the distribution of geographic categories (i.e. 60-70% of missing values were from the CMA category compared to the 64% of FPs who were from the CMA). No formal analysis of the distribution and potential impact of the missing values was conducted.

Table 19. Number of Family Physicians Offering the Medical Service by Geographic Category[1]

Offered Medical Service	*Number and Percentage of Family Physicians*					*N of Valid Cases (Missing Values[2])*	χ^2 *p df=3*
	Total	*Geographic Category[3] CMA*	*CA*	*Strong and Moderate MIZ*	*Weak or No MIZ or Territory*		
Significantly Lower Percent in CMA							
In-patient hospital care	7535 63.3%[4]	38614↓↓ 51.9%	1810↑↑ 85.5%	819↑↑ 69.8%	1045↑↑ 89.4%	11902 (1186)	1230.9[5] p<0.001
Emergency medicine	6433 55.0%	3325 ↓↓ 45.4%	1192↑↑ 59.0%	883↑↑ 74.8%	1033↑↑ 88.7%	11689 (1399)	1007.7 p<0.001
Home for the aged/ Nursing home visits	6451 54.9%	3230↓↓ 44.0%	1451↑↑ 70.2%	907↑↑ 76.0%	863 ↑↑ 75.3%	11752 (1336)	956.4 p<0.001
Palliative care	9083 75.4%	5130↓↓ 67.7%	1799↑↑ 85.5%	1079↑↑ 89.7%	1075↑↑ 92.2%	12045 (1043)	664.7 p<0.001
Occupational/industrial medicine	3128 28.1%	1745↓↓ 24.7%	636↑↑ 32.9%	329 ↑ 30.7%	418 ↑↑ 39.2%	11135 (1953)	131.9 p<0.001
Chronic disease management	11151 90.7%	6931↓↓ 88.7%	1950↑ 92.2%	1155↑↑ 95.5%	1115↑↑ 96.0%	12297 (791)	112.0 p<0.001
Other mental health care	9920 83.5%	6139↓↓ 81.6%	1742↑ 85.0%	1015↑↑ 87.0%	1024↑↑ 89.6%	11881 (1207)	63.41 p<0.001
Anaesthesia	677 6.1%	284 ↓↓ 4.0%	140↑ 7.2%	85 ↑ 7.8%	168 ↑↑ 15.8%	11154 (1934)	239.1 p<0.001
Surgical assisting	4293 37.2%	2108↓↓ 29.0%	1166↑↑ 56.9%	421 37.4%	598 ↑↑ 54.1%	11543 (1545)	683.8 p<0.001

[2] Adjusting the count by treating unchecked boxes as "No" yielded slightly lower means (0.2-0.5 units lower) but did not change the relative magnitude of the means nor the statistical significance of differences among means.

Offered Medical Service	*Number and Percentage of Family Physicians*					*N of Valid Cases (Missing Values[2])*	*χ^2 p df=3*
	Total	*Geographic Category[3] CMA*	*CA*	*Strong and Moderate MIZ*	*Weak or No MIZ or Territory*		
Substance abuse/Addiction medicine	5245 46.0%	3007🡻🡻 41.7%	1029🡹🡹 51.8%	536 48.4%	673 🡹🡹 61.1%	11413 (1675)	184.4 p<0.001
Sports medicine	6634 57.7%	4076🡻🡻 55.9%	1194🡹 59.9%	645 57.5%	719🡹🡹 65.5%	11500 (1588)	40.55 p<0.001
Performing major surgery in hospital	223 2.0%	56 🡻🡻 0.8%	41 2.1%	37🡹🡹 3.4%	89 🡹🡹 8.4%	11103 (1985)	283.1 p<0.001
Walk-in care during regular hours, without pre-arranged appointment	8221 69.0%	5107🡻🡻 67.3%	1397 68.6%	861🡹🡹 73.2%	856🡹🡹 76.6%	11916 (1172)	49.89 p<0.001
Coordination of patient's use of other health care services	9363 79.7%	5840🡻🡻 78.4%	1618 80.2%	909 78.4%	996🡹🡹 88.1%	11754 (1334)	58.81 p<0.001
Preventive medicine	10434 86.5%	6555🡻🡻 85.6%	1778 86.0%	1032 87.5%	1069🡹🡹 92.9%	12057 (1031)	47.27 p<0.001
House calls	8990 74.0%	5415🡻🡻 70.4%	1648🡹🡹 78.7%	1054🡹🡹 86.7%	873 75.8%	12156 (932)	179.09 p<0.001
No significant difference							
Alternative/ complementary medicine	1581 13.9%	1004 13.9%	248 12.6%	156 9.9%	173 🡹 16.1%	11403 (1685)	7.16 p=0.067
Psychotherapy/ counselling	11068 89.7%	7034 89.4%	1890 89.3%	1104🡹 91.5%	1040 90.0%	12345 (743)	5.51 p=0.138
Significantly Higher Percent in CMA							
After hours clinic	5104 44.6%	3401🡹🡹 46.7%	891 44.7%	493 44.8%	319🡻🡻 30.1%	11432 (1656)	103.70 p<0.001
Mean number of services[6] (SD)	10.1 (3.4)	9.4 (3.4)	11.1[a 7] (3.4)	11.1[a] (3.0)	12.0 (2.9)		

[1] Numbers with arrows were those with significant adjusted residuals. See Table 4 for explanation of arrows.
[2] Missing Values: Unknown responses were grouped as missing values.
[3] See Table 1 for abbreviations and definitions of geographic categories.
[4] Counts were numbers of respondents who answered "Yes." The percentage of respondents who answered "Yes." Column percent totals are more than 100% because multiple responses were permitted.
[5] Chi squared statistics was calculated based on "Yes" and "No" responses for each medical service offered.
[6] Maximum of 19 services
[7] The numbers with the same subscript letter are not statistically significantly different (based on post hoc means tests: Tukey's Honestly Significant Difference and Dunnett's C).

3.3.2 Workload: Hours per Week

Summary: Family physicians in the remote areas spent more hours per week in the emergency department, either as the MD on duty or in seeing their patients as compared to FPs in the urban areas. Remote physicians spent more time providing hospital in-patient care as well as total professional activity (excluding on-call) relative to urban physicians.

Details: There were several statistically significant differences among geographic categories for mean number of hours per week spent on various professional activities (Table 20). There were four professional activities where there was more than a one hour difference between means: MD on duty in the emergency room, in emergency room to manage own patients only, hospital in-patient care, and total professional activity (excluding on-call time). Hours spent as MD on duty in the emergency room or in the emergency room to manage their own patients increased along the urban-rural continuum. Hours spent on hospital in-patient care and total professional activity (excluding on- call time) were significantly lower in CMAs than in other geographic categories. These hours tended to be the highest in CAs but the means were not statistically significantly different from Strong or Moderate MIZ or from Weak or No MIZ or Territories.

There was no statistically significant difference on hours spent on administration activities for FPs in different geographic categories.

Table 20. Hours per Week Spent on Professional Activity by Geographic Category

Professional Activity	*Mean Number of Hours per Week Spent on Professional Activity*					*Adjusted R Squared*
		Geographic Category[1]				
	Total (N)	*CMA*	*CA*	*Strong or Moderate MIZ*	*Weak or No MIZ or Territory*	
Emergency room as MD on duty	8.4 (7115)	5.7	8.5	13.0	16.1	0.089
Emergency room to manage own patients only	0.9 (6077)	0.4	1.1	1.7a [2]	2.2[a]	0.049
Professional activity excluding on-call time	41.1 (12326)	40.2	42.9[a]	42.6[a]	42.3[a]	0.004
Direct patient care in office/clinic	30.3 (11972)	30.8	29.9[a]	29.6[a,b]	28.6[b]	0.003
Managing the practice	2.0 (9284)	2.2	1.7[a]	1.8[a]	1.6[a]	0.009
Research-related activities	0.8 (5830)	1.1	0.4[a]	0.4[a]	0.3[a]	0.012
House calls	1.8 (9094)	1.9[a]	1.4[b]	2.2[a]	1.2[b]	0.007
In-patient care in other types of institutions	2.1 (7499)	2.2[a,b]	1.9[a,c]	2.4[b]	1.7[c]	0.002
Indirect patient care	5.6 (11357)	5.6[a]	5.5[a]	5.2	5.7[a]	0.001
Teaching	1.8 (6655)	2.0[a]	1.2[b]	1.1[b]	1.8[a]	0.008
Continuing medical education	2.9 (11619)	3.0[a]	2.8[b]	2.7[b]	2.9[a,b]	0.002
Other professional activities	1.8 (6416)	1.9[a]	1.7[a,b]	1.4[b]	1.5[a,b]	0.001
Administration activities	1.8 (7828)	1.9[a]	1.8[a]	1.6[a]	1.7[a]	<0.001

[1] See Table 1 for abbreviations and definitions of geographic categories.
[2] The numbers with the same subscript letter are not statistically significantly different (based on post hoc means tests: Tukey's Honestly Significant Difference and Dunnett's C).

3.3.3 Weeks Spent on Professional Activities

Summary: Urban physicians spent an average of 1.6 weeks more on providing clinical or medical services than rural physicians who spent an average of 0.6 weeks more away from practice for CME or an average of 0.9 weeks more on vacation.

Details: Weeks spent on clinical services or medical care were significantly lower in Weak or No MIZ or Territories than in other geographic categories (Table 21). The difference between means was more than one week. These weeks tended to be the highest in CMAs but the means were not statistically significantly different from CAs or from Strong or Moderate MIZ. Weeks spent on being away from practice for CME purposes and vacation were significantly higher in Weak or No MIZ or Territories than in other geographic categories. There was more than half a week difference between means. These weeks tended to be the highest in CAs but the means were not statistically significantly different from Strong or Moderate MIZ.

There was no statistically significant difference of other activities for FPs in different geographic categories and this was likely due to low sample size in this category.

Table 21. Weeks per Year Spent on Professional Activity and Non-professional Activity by Geographic Category

Activity	*Mean Number of Weeks per Year Spent on Professional Activity and Non-professional Activity*					*Adjusted R Squared*
	Total (N)	*Geographic Category*[1]				
		CMA	*CA*	*Strong or Moderate MIZ*	*Weak or No MIZ or Territory*	
Clinical services/medical care	46.0 (12153)	46.3a [2]	45.8[a]	46.1[a]	44.7	0.01
Away from practice for CME purposes	1.4 (10762)	1.3[a]	1.4[b]	1.4[a,b]	1.9	0.026
Vacation	4.1 (12197)	4.0[a]	4.2[b]	4.1[a,b]	4.8	0.01
Other activities	1.5 (3649)	1.5[a]	1.5[a]	1.2[a]	1.5[a]	<0.001

[1] See Table 1 for abbreviations and definitions of geographic categories.
[2] The numbers with the same subscript letter are not statistically significant different .

3.3.4 Procedures Performed

Summary: Proportionally more rural physicians performed more procedures than their urban counterparts. Refraction was the only procedure that did not exhibit a significant geographic distribution, in part due to the fact that refraction was performed by only about 2% of the respondents.

Details: The mean number of procedures ranged from a low of 6 (out of 18 listed) for FPs practising in urban areas to a high of 9 for FPs practising in remote areas. These means were all statistically significantly different from one another.[3] Procedures were categorized into two broad groups based on whether the percentage of FPs performing the indicated procedure was significantly below average, average or significantly above average for the survey, based on χ^2 analysis of services (performed or not performed) by geographic category.

For 15 of the 18 performed procedures listed, a lower percentage of FPs in CMAs and a higher percentage of FPs in the combined category of Weak or No MIZ or Territories responded that they had performed procedures as compared to the survey average (Table 22). FPs in CAs and Strong or Moderate MIZ tended to perform the procedures at a rate higher or equal to the average except that a lower percentage FPs in CAs performed ECG interpretation and anoscopy as compared to the survey average. These procedures included casting or splinting, lumbar puncture, skin biopsy and a dozen other procedures. Statistically significant differences between the percentage of FPs in CMAs and the survey average were between 0.8 and 11.5 percentage points. Statistically significant differences between the percentage of FPs in Weak or No MIZ or Territories and the survey average were between 0.8 and 20.8 percentage points.

Proportionally more FPs tended to perform pulmonary function testing and audiometry in Weak or No MIZ or Territories as compared to the survey average. One procedure, refraction was performed at the same rate, regardless of where the FP was located.

[3] Adjusting the count by including unchecked boxes that had a procedure specified increased the means by 0.1 to 0.2 units but did not change the relative magnitude of means nor the statistical significance of differences among means. The flip-side correction, of including checked boxes that did not have a procedure specified was not done.

Table 22. Number of Family Physicians Performing the Procedure by Geographic Category[1]

Performed Procedure	*Number and Percentage of Family Physicians*					χ^2 *p df=3*
	Total	*Geographic Category*[2]				
		CMA	*CA*	*Strong or Moderate MIZ*	*Weak or No MIZ or Territory*	
Significantly Lower Percent in CMA						
Casting/Splinting	5940 45.4%	2834 ↓↓ 33.9%[3]	1246↑↑ 55.8%	839 ↑↑ 66.2%	1021↑↑ 84.9%	1525.397[4,5] p<0.001
Lumbar puncture	2632 20.1%	971↓↓ 11.6%	648 ↑↑ 29.0%	347↑↑ 27.4%	666 ↑↑ 55.4%	1458.925 p<0.001
Skin biopsy	7196 55.1%	3870↓↓ 46.2%	1466↑↑ 65.7%	881↑↑ 69.5%	979 ↑↑ 81.4%	809.671 p<0.001
Musculoskeletal (includes joint) injection/aspiration	8615 65.9%	4833↓↓ 57.7%	1645↑↑ 73.7%	1067↑↑ 84.2%	1070↑↑ 88.9%	782.322 p<0.001
Needle aspiration (for diagnosis/biopsy)	5143 39.3%	2831↓↓ 33.8%	967 ↑↑ 43.3%	604↑↑ 47.7%	741 ↑↑ 61.6%	408.270 p<0.001
Suturing	10584 81.0%	6407↓↓ 76.5%	1890↑↑ 84.7%	1166↑↑ 92.0%	1121↑↑ 93.2%	343.631 p<0.001
Other minor surgery[6]	6197 47.3%	3645↓↓ 43.5%	1125↑↑ 50.4%	738↑↑ 58.2%	671 ↑↑ 55.8%	151.161 p<0.001
Pap smears	11365 86.9%	7070↓↓ 84.5%	1992↑↑ 89.3%	1165↑↑ 91.9%	1138↑↑ 94.6%	146.056 p<0.001
IUD insertion	5688 43.5%	3223↓↓ 38.5%	1068↑↑ 47.9%	599↑ 47.3%	798 ↑↑ 66.3%	364.789 p<0.001
Other procedures[7]	3555 27.2%	2116↓↓ 25.3%	652 ↑ 29.2%	365 28.8%	422 ↑↑ 35.1%	59.560 p<0.001
D+C aspiration	916 7.0%	364 ↓↓ 4.3%	159 7.1%	129↑↑ 10.2%	264↑↑ 21.9%	522.324 p<0.001
Other endoscopy[8]	901 6.9%	437 ↓↓ 5.2%	167 7.5%	132↑↑ 10.4%	165↑↑ 13.7%	149.465 p<0.001
Other biopsy[9]	967 7.4%	493 ↓↓ 5.9%	164 7.4%	142↑↑ 11.2%	168↑↑ 14.0%	130.359 p<0.001
ECG interpretation	5634 43.1%	3369↓↓ 40.3%	918 ↓ 41.1%	658↑↑ 51.9%	689 ↑↑ 57.3%	170.029 p<0.001
Anoscopy	4184 32.0%	2609 ↓ 31.2%	661 ↓ 29.6%	416 32.8%	498↑↑ 41.4%	57.621 p<0.001

Performed Procedure	*Number and Percentage of Family Physicians*					χ^2 *p df=3*
	Total	*Geographic Category*[2]				
		CMA	*CA*	*Strong or Moderate MIZ*	*Weak or No MIZ or Territory*	
No significant difference in CMA						
Pulmonary function testing	2585 19.8%	1652 19.7%	328↓↓ 14.7%	284↑ 22.4%	321↑↑ 26.7%	77.951 p<0.001
Audiometry	830 6.3%	519 6.2%	144 6.5%	62 ↓ 4.9%	105↑↑ 8.7%	16.316 p=0.001
No significant difference						
Refraction	242 1.9%	162 1.9%	35 1.6%	19 1.5%	26 2.2%	2.805 p=0.423
Mean number of procedures (SD)[10]	6.4 (3.3)	5.7 [11] (3.1)	6.8 (3.2)	7.6 (3.3)	9.0 (3.2)	

[1] Numbers with arrows were those with significant adjusted residuals. See Table 4 for explanation of arrows.
[2] See Table 1 for abbreviations and definitions of geographic categories.
[3] Counts were numbers of respondents who answered "Yes."
[4] Chi squared statistics was calculated based on "Yes" and "No" responses for each performed procedure.
[5] Valid cases = 13071, missing cases = 17, for all tests.
[6] See Appendix 1 for frequencies of specified other minor surgery.
[7] See Appendix 2 for frequencies of specified other procedures.
[8] See Appendix 3 for frequencies of specified other endoscopy.
[9] See Appendix 4 for frequencies of specified other biopsy.
[10] Maximum of 18 procedures.
[11] The numbers with the same subscript letter are not statistically significantly different (based on post hoc means tests: Tukey's Honestly Significant Difference and Dunnett's C). All four means were statistically significantly different from one another.

3.3.5 Number of Patients per Week

Summary: Family physicians in the suburban areas (CAs) saw an average of 9 to 11 more patients per week than FPs in any other location.

Details: More patients were seen by FPs in CAs in an average week than those in other geographic categories. The significant difference between means was 8.8 to 11.4 patients (Table 23). The number of patients tended to be the second highest in CMAs but the means were not statistically significantly different from Strong or Moderate MIZ or Weak or No MIZ or Territories.

Table 23. Number of Patients per Week by Geographic Category[1]

	Mean Number of Patients per Week Excluding Patients Seen While On-call					*Adjusted R Squared*
		Geographic Category[1]				
	Total (N)	*CMA*	*CA*	*Strong or Moderate MIZ*	*Weak or No MIZ or Territory*	
Number of Patients	123.7 (12743)	122.6[a 2]	131.4	120.7[a]	120.0[a]	0.003

[1] See Table 1 for abbreviations and definitions of geographic categories.
[2] The numbers with the same subscript letter are not statistically significant different among different.

3.3.6 Acceptance of New Patients

Summary: Proportionally more practices in the remote areas were completely open and fewer were conditionally closed or completely closed, relative to urban (CMA) and suburban (CA) practices.

Details: In comparison with the survey total, FPs who completely accepted new patients tended to be under-represented in CMAs and CAs and over-represented in Strong or Moderate MIZ and Weak or No MIZ or Territories (Table 24). In contrast, FPs who conditionally accepted new patients, including those who accepted patients' or other physicians' friends or family members, those closed to patients in certain age ranges or with medical problems, and those accepted patients for other reasons, tended to be over-represented in CMAs and/or CAs and under-represented in Strong or Moderate MIZ or Weak or No MIZ or Territories. Similarly, FPs who completely closed to all new patients tended to be over-represented in CAs and under-represented in Weak or No MIZ or Territories. The absolute difference between observed and expected was 0.3 to 1.5 percentage points for physicians practising in CMAs but 2.1 to 21.1 percentage points for those practising in Weak or No MIZ or Territories.

Results must be interpreted with some caution as 14% of the 13088 surveys had missing responses. A cursory examination of the missing values revealed that their distribution crudely resembled the distribution of geographical categories (i.e. 59% of missing values were from the CMA category compared to the 64% of FPs who were from the CMA). No formal analysis of the distribution and potential impact of the missing values was conducted.

Table 24. Acceptance of New Patients by Geographic Category[1]

Acceptance of New Patients into Main Practice[2]	*Number and Percentage of Family Physicians*				
	Total	*Geographic Category*[3] *CMA*	*CA*	*Strong or Moderate MIZ*	*Weak or No MIZ or Territory*
Yes[4,5]					
Completely open	3096 27.6%	1898↓↓ 26.1%	310↓↓ 17.0%	370↑↑ 34.7%	518↑↑ 48.7%
Conditional Yes					
Closed, but will accept patients'/other physicians' friends or family members	4895 43.6%	3286↑↑ 45.1%	894↑↑ 49.0%	392↓↓ 36.8%	323↓↓ 30.4%
Closed to patients in certain age ranges or with medical problems	1110 9.9%	766↑↑ 10.5%	181 9.9%	92 8.6%	71↓↓ 6.7%
Closed, but will accept patients for other reasons	1434 12.8%	898 12.3%	279↑↑ 15.3%	143 13.4%	114↓ 10.7%
No					
Completely closed	698 6.2%	433 5.9%	159↑↑ 8.7%	68 6.4%	38↓↓ 3.6%

[1] Numbers with arrows were those with significant adjusted residuals. See Table 4 for explanation of arrows.
[2] Multiple responses were converted to mutually exclusive responses. Completely open and completely closed had no other responses. Otherwise responses were allocated to the remaining conditionally open practice categories.
[3] See Table 1 for abbreviations and definitions of geographic categories.
[4] FPs who indicated they would accept patients conditionally but did not specify reasons were treated as missing values.
[5] Valid cases = 11233, missing cases = 1855; χ^2 =403.358; df =12; p <0.001.

3.3.7 Organization of Main Practice

Summary: Fewer family physicians in the urbanized areas `and more in the remote areas were in a family physicians group practice. More FPs in the highly urbanized areas and fewer in the more remote areas were in a family physician or specialist group practice or solo practice.

Details: In the 2001 survey, approximately 63.4% family physicians (FPs) were in a family physician group practice (Table 25).

In comparison with the survey total, FPs who were in a family physician group practice tended to be under-represented in CMAs and CAs and over-represented in Weak or No MIZ or Territories. In contrast, FPs who were in a family physician or specialist group practice tended to be over-represented in CMAs and under-represented in Strong or Moderate MIZ and Weak or No MIZ or Territories. FPs who were in solo practice tended to be over-represented in CAs and Strong or Moderate MIZ and under-represented in Weak or No MIZ or Territories. These differences were statistically significant ($\chi^2_{(6)} = 123.501$, $p<0.001$). The absolute difference between observed and expected was 1.4 to 1.5 percentage points for physicians practising in CMAs and 5.4 to 12.1 percentage points for those practising in Weak or No MIZ or Territories.

Results must be interpreted with some caution as approximately 13% of the 13088 surveys were treated as missing values. A cursory examination of the missing values showed that their distribution crudely resembled the distribution of geographic categories (i.e. 68.1% of missing values were from the CMA category compared to the 64.0% of FPs who were from the CMA). No formal analysis of the distribution and potential impact of the missing values was conducted.

Table 25. Organization of Main Practice Setting of Family Physicians by Geographic Category[1]

Organization of Main Practice Setting	*Number and Percentage of Family Physicians*				
	Total	*Geographic Category[2]*			
		CMA	*CA*	*Strong or Moderate MIZ*	*Weak or No MIZ or Territory*
Family physician group practice	7214 63.4%	4474↓↓ 62.0%[3,4]	1183↓ 61.0%	751 64.9%	806↑↑ 75.5%
Solo practice	2903 25.5%	1837 25.4%	532↑ 27.4%	334↑ 28.9%	200↓↓ 18.7%
Family physician/specialist group practice	1265 11.1%	908↑↑ 12.6%	224 11.6%	72 ↓↓ 6.2%	61↓↓ 5.7%

[1] Numbers with arrows were those with significant adjusted residuals. See Table 4 for explanation of arrows.
[2] See Table 1 for abbreviations and definitions of geographic categories.
[3] The percentage of respondents who indicated the organization of main practice setting.
[4] Valid cases = 11382, missing cases = 1706; χ^2 =123.501; df =6, p <0.001.

3.3.8 Practice Settings

Summary: Proportionally more rural physicians practised medicine in emergency departments, hospital in-patient units or wards, nursing homes or homes for the aged, private offices or clinics, and community clinics or community health centres than urban physicians. More urban physicians practised medicine in academic family medicine teaching units or free-standing walk-in clinics than rural physicians.

Details: A lower percentage of FPs in CMAs and a higher percentage of FPs in other geographic categories practiced in emergency departments, hospital in-patient units or wards, nursing homes or homes for the aged, and private offices or clinics as compared to the survey average (Table 26). Similarly, a lower percentage of FPs in CMAs and CAs and a higher percentage of FPs in Strong or Moderate MIZ and Weak or No MIZ or Territories practiced in community clinics or community health centres.

A higher percentage of FPs in CMAs and a lower percentage of FPs in CAs and Strong or Moderate MIZ practised in academic family medicine teaching units as compared to the survey average. Similarly, a higher percentage of FPs in CMAs and CAs and a lower percentage of FPs in Strong or Moderate MIZ and Weak or No MIZ or Territories indicated free-standing walk-in clinics as their practice setting. Statistically significant differences between the percentage of FPs in CMAs and the survey average were between 0.7 and 11 percentage points. Statistically significant differences between the percentage of FPs in Weak or No MIZ and Territories and the survey average were between 8.7 and 38.4 percentage points.

Unspecified, other practice setting was indicated at about the same rate, regardless of where the FP was located.

Table 26. Practice Settings of Family Physicians by Geographic Category[1]

Practice Setting	*Number and Percentage of Family Physicians*					χ^2 *p df=3*
	Total	*Geographic Category[2]* *CMA*	*CA*	*Strong or Moderate MIZ*	*Weak or No MIZ or Territory*	
Significant lower percent in CMA						
Emergency department	3280 25.1%	1191↓↓ 14.2%[3]	768↑↑ 34.4%	557↑↑ 44.0%	764↑↑ 63.5%	1813.31[4,5] p<0.001
Hospital in-patient unit/ward	4629 35.4%	2041↓↓ 24.4%	1219↑↑ 54.6%	610↑↑ 48.1%	759↑↑ 63.1%	1298.38 p<0.001
Nursing home/Home for the aged	3126 23.9%	1372↓↓ 16.4%	741↑↑ 33.2%	575↑↑ 45.4%	438↑↑ 36.4%	790.47 p<0.001
Private office/clinic (excluding free standing walk-in clinics)	10265 78.5%	6410↓↓ 76.6%	1880↑↑ 84.3%	1035↑ 81.7%	940 78.1%	69.99 p<0.001
Significant lower percent in CMA and CA						
Community clinic/Community health centre	1628 12.5%	915↓↓ 10.9%	207↓↓ 9.3%	251↑↑ 19.8%	255↑↑ 21.2%	185.64 p<0.001
Significant higher percent in CMA						
Academic family medicine teaching unit	772 5.9%	556↑↑ 6.6%	85↓↓ 3.8%	48↓↓ 3.8%	83 6.9%	38.172 p<0.001
Significant higher percent in CMA and CA						
Free-standing walk-in clinic	2424 18.5%	1615↑ 19.3%	515↑↑ 23.1%	197↓ 15.5%	97↓↓ 8.1%	128.57 p<0.001
No significant difference						
Other practice setting[6]	1909 14.6%	1239 14.8%	351 15.7%	163 12.9%	156 13.0%	8.200 0.042

[1] Numbers with arrows were those with significant adjusted residuals. See Table 4 for explanation of arrows.
[2] See Table 1 for abbreviations and definitions of geographic categories.
[3] Counts were numbers of respondents who answered "Yes." Column percent totals are more than 100% because multiple responses were permitted.
[4] Chi squared statistics was calculated based on "Yes" and "No" responses for each practice setting.
[5] Valid cases = 13071, missing cases = 17.
[6] See Appendix 5 for frequencies of specified other practice setting.

3.3.9 Main Practice Setting

Summary: More rural physicians selected private offices/clinics or community clinics/community health centres as their main practice setting than urban physicians. More urban physicians selected nursing homes or homes for the aged, emergency departments, hospital in-patient units or wards, or other places as their main practice setting than rural physicians.

Details: In the 2001 survey, approximately 73.6% of FPs indicated that they used private offices or clinics as their main practice setting (Table 27). In comparison with the survey total, FPs who used private offices or clinics tended to be under-represented in CMAs and over-represented in CAs and Strong or Moderate MIZ. Similarly, FPs who used community clinics or community health centres tended to be under-represented in CMAs and CAs and over-represented in Strong or Moderate MIZ or Weak or No MIZ or Territories. In contrast, FPs who used nursing homes or homes for the aged, emergency departments, hospital in-patient units or wards, and other places as their main practice setting tended to be over-represented in CMAs and under-represented in other geographic categories. FPs who used academic family medicine teaching units as their main practice setting tended to be under-represented in Weak or No MIZ or Territories. These differences were statistically significant ($\chi^2_{(21)} = 349.779$, $p<0.001$). The absolute difference between observed and expected was 0.3 to 2.3 percentage points for physicians practising in CMAs and 0.7 to 5.6 percentage points for those practising in Weak or No MIZ or Territories.

Results must be interpreted with some caution as approximately 6.7% of the 13088 surveys were treated as missing values. A cursory examination of the missing values showed that their distribution crudely resembled the distribution of geographic categories (i.e. 61.4% of missing values were from the CMA category compared to the 64.0% of FPs who were from the CMA). No formal analysis of the distribution and potential impact of the missing values was conducted.

Table 27 Main Practice Setting of Family Physicians by Geographic Category[1]

Main Practice Setting	*Number and Percentage of Family Physicians*				
	Total	*Geographic Category[2]*			
		CMA	*CA*	*Strong or Moderate MIZ*	*Weak or No MIZ or Territory*
Private Office/clinic (excluding free standing walk-in clinics)	8988 73.6%[3,4]	5592↓↓ 71.3%	1648↑↑ 79.5%	919↑↑ 77.7%	829 74.3%
Community clinic /Community health centre	882 7.2%	510↓↓ 6.5%	91↓↓ 4.4%	138↑↑ 11.7%	143↑↑ 12.8%
Academic family medicine teaching unit	776 6.4%	511 6.5%	151 7.3%	63 5.3%	51↓ 4.6%
Nursing home/Home for the aged	383 3.1%	265↑ 3.4%	64 3.1%	16↓↓ 1.4%	38 3.4%
Emergency department	364 3.0%	312↑↑ 4.0%	26↓↓ 1.3%	15↓↓ 1.3%	11↓↓ 1.0%
Hospital in-patient unit/ward	282 2.3%	260↑↑ 3.3%	15↓↓ 0.7%	1↓↓ 0.1%	6↓↓ 0.5%
Free-standing walk-in clinic	80 0.7%	56 0.7%	8 0.4%	10 0.8%	6 0.5%
Other[5]	459 3.8%	338↑↑ 4.3%	69 3.3%	20↓↓ 1.7%	32 2.9%

[1] Numbers with arrows were those with significant adjusted residuals. See Table 4 for explanation of arrows.
[2] See Table 1 for abbreviations and definitions of geographic categories.
[3] The percentage of respondents who indicated their main practice setting.
[4] Valid cases = 12214, missing cases = 874; χ^2 =349.779; df =21; p <0.001.
[5] See Appendix 6 for frequencies of specified other main practice setting.

4 Considerations

The univariate analyses presented above confirm that there are differences along an urban-rural continuum in the (1) demographic and educational profile of physicians, (2) social, cultural and economic characteristics of patients, (3) medical practice, and (4) practice organization. It is not yet clear, how these differences are causally linked, through plausible scenarios can be constructed. For instance, some of the differences in medical practice might be a consequence of the health status and medical care seeking behaviours of the population that they serve. One example might be the higher percentage of FPs who provide chronic disease management do so because of the older patient population in remote areas. Alternatively, this may reflect the personal preference or educational background of the physician who practices in remote areas. Multivariate analyses are proposed to tease out some of the relationships and to estimate how much of the variation is due to geography, to the patients and to the physicians.

5 References

Agresti, A. (1996). *An Introduction to Categorical Data Analysis*. New York: John Wiley & Sons, Inc.

Dunnett, C.W. (1980a). Pairwise multiple comparisons in the homogeneous variance, unequal sample size case. *Journal of the American Statistical Association, 75(372)*, 789-795.

Dunnett, C.W. (1980b), Pairwise multiple comparisons in the unequal variance case. *Journal of the American Statistical Association, 75(372)*, 796-800.

McNiven, C., Puderer, H. & Janes, D. (2000). Census Metropolitan Area and Census Agglomeration Influenced Zones (MIZ): a description of the methodology. Geography Working Paper Series, No. 2000-2. Catalogue no. 92F0138MIE, no. 2000-2 (January 2002) Ottawa, Ontario: Statistics Canada. http://www.statcan.ca/cgi-bin/downpub/listpub.cgi?catno=92F0138MIE

Pitblado, J. R. & Pong, R.W. (1999). Geographic Distribution of Physicians in Canada. Sudbury, Ontario: Centre for Rural and Northern Health Research, Laurentian University.

Pong, R.W. & Pitblado, J.R. (2001). Don't take "geography" for granted! Some methodological issues in measuring geographic distribution of physicians. *Canadian Journal of Rural Medicine, 6(2),* 103-112.

Rambeau, S. & Todd, K. (2000). Census Metropolitan Area and Census Agglomeration Influenced Zones (MIZ) with Census Data. Geography Working Paper Series, No. 2000-1. Catalogue no. 92F0138MIE, no. 2000-1 (January 2002) Ottawa, Ontario: Statistics Canada. http://www.statcan.ca/cgi-bin/downpub/listpub.cgi?catno=92F0138MIE

Rourke, J.T.B. (1996). Education for Rural Medical Practice: Goals and Opportunities: An Annotated Bibliography. Moe, Victoria: Monash University.

Rourke, J.T.B. (1997). In search of a definition of rural. *Canadian Journal of Rural Medicine, 2(3)*, 113-115.

SPSS. 2001. *SPSS® Base 11.0 User's Guide*. Chicago, IL: SPSS Inc.

Statistics Canada. (2003). Geographic Classifications: Statistical Area Classification (SAC). Last modified: April 22, 2003. Retrieved June 20, 2003, from: http://www.statcan.ca/english/census2001/dict/geo045.htm

Strasser, R. (1992). How can we attract more doctors to the country? *Australian Journal of Rural Health, 1(1)*, 39-44.

Urajnik, D., Pong, R.W. & Liboiron-Grenier, L. (2002). The 2001 National Family Physician Survey: Summary Report. Sudbury, Ontario: Centre for Rural and Northern Health Research, Laurentian University.

Wise, A.L., Hays, R.B. et al. (1994). Training for rural general practice. *Medical Journal of Australia, 161*, 314-318.

Zar, J.H. (1999). Biostatistical Analysis. Upper Saddle River, NJ: Prentice Hall.

6 Appendices

Appendix 1. Frequencies of Specified Other Minor Surgery

Performed Procedure	*Frequency*	*Percent*
Mole removal/Skin lesions/Lumps and bumps/Cysts/Skin tags, papilloma/Papillomata, nevi (naevi), dysplastic nevus, boils superficial lesions, growths, skin Ca/Basal cell Ca, ganglion (ganglia), dermatological, lipoma(ta), skin grafting, callus paring, scar revision, lumpectomy, keratosis(es)/Warts/Verruccas	3413	58.2
I & D (IND) abscess/Incision & drainage/Pylonidal aspiration	757	12.9
Nails & toenails/Wedge resection/Onychectomy/Avulsions	628	10.7
Vasectomy/Tubal ligation	221	3.8
Cryotherapy (liquid nitrogen/N2/LN2)/Cryosurgery/Cautery/Electrocautery, hyphercation	136	2.3
Foreign body removal/FB removal/Splinter	126	2.1
Circumcision/Newborn circumcision	97	1.7
Wound care/Debriding/Debridement/Burns/Dressing change	90	1.5
Tendon suturing/Extensor tendon repair/Carpal tunnel release	58	1.0
Cosmetics/Plastics/Aesthetics/Laser removal/Electrolysis	50	0.9
Fracture reduction/# reduction, digit amputation, dislocation, reduction	48	0.8
Chest tube/Thoroctomy/Thorocentesis/Paracentesis	33	0.6
D & C/DNC/Therapeutic abortion	24	0.4
Corneal/Chalazion/FB in cornea	21	0.4
Haemorrhoids/Haemorrhoidal banding/Thombosed haemorrhoids	21	0.4
Episiotomy repair	7	0.1
Central line	4	0.1
Cervical Polypectomy	2	0.0
Other	127	2.2
Total specified (Number of respondents)	5863[1]	100.0
Not specified (Number of respondents)	3234[2]	
Total number of respondents	9097	69.5 (out of 13088)
Number of respondents who did not check box or specify a procedure	3991	30.5 (out of 13088)
Grand total	13088	

[1] 2913 (49.7%) of the 5863 who specified “Other Minor Surgery” did not check box.
[2] These 3234 respondents checked the box but did not specify a type of minor surgery.

Appendix 2. Frequencies of Specified Other Procedures

Procedure	*Frequency*	*Percent*
Cryotherapy (liquid nitrogen/N2/L N2, CO2, chalazian)/cryosurgery/cautery/electrocautery/hyphercation, chemocautery, histofreeze	622	14.5
Advanced life saving procedures (e.g. chest tubes, intubation, critical care, trauma care, paracentesis, thorocentesis, ANS, ACLS, ANLS, venipuncture, cricothyroidomy), cardioversion, central line, temporary pacemakers, IV and ABG, abdominocentesis, pleural tap, resucitation	576	13.4
Fracture reduction, dislocation reduction, Colles' fracture, low back manipulations/orthopaedic medicine manipulation, joint manipulation, casting	339	7.9
Ears/Eyes/Nose/Throat procedures [e.g. slit/split lamp, remove objects from eye, tympanometry, tonometry], ear syringing/irrigation, corneal foreign body (FB) removal, ocular foreign bodies	316	7.4
Skin procedures - skin lesion/cyst removal, wart treatment/plantar wart, tenosynovial cysts, arthrosynovial cysts	244	5.7
Epidurals/nerve block/intrathecal analgesia, paracervical block, general anesthesia, regional anesthesia, GP anesthesia	210	4.9
Endometrial biopsy, cervical polyp removal, hysterosalpingogram	190	4.4
Deliveries, vacuum deliveries, epidural repair, obstetrical repairs, labial repairs, vaginal deliveries, low risk, obstetrics	178	4.2
Lab procedures/investigative procedures [e.g. lumbar puncture, x-ray interpretation, cultures, stains, stress testing, exercise treadmill, ultrasound], ultrasound (US) for gestational dating hemoglobins, venipuncture	159	3.7
Cyst aspiration/breast cyst	118	2.8
Circumcision, newborn	109	2.5
Toe nails, ingrown toe nails, wedge resections, foot care	93	2.2
Acupuncture	89	2.1
Major surgery, appendectomies, hernias, laps, hysterectomies, vascular surgery, laparoscopic cholecystectomies, tubal ligation, laparoscopic tubal ligations/T & L	88	2.1
ER care (general)/Emergency care	79	1.8
Vasectomy	75	1.7
Injections, IVP contrast injection, joint injections/aspiration	71	1.7
Caesarean section	66	1.5
Sclerotherapy/varicose veins, collagen injections	64	1.5
Surgical assisting	63	1.5
Allergy testing, shots and consults, patch testing	63	1.5

Procedure	*Frequency*	*Percent*
Contraception- diaphragm fitting, IUD insertion/removal/norplant, cervical cap fitting	63	1.5
Procedure	*Frequency*	*Percent*
Wound care/debriding/debridement/burns/dressing change	62	1.4
Hypnotherapy	51	1.2
D & C, abortions	36	0.8
Vaccinations, travel vaccinations, immunizations	33	0.8
Thrombosed haemorrhoids, haemorrhoid banding	26	0.6
Tendon suturing/extensor tendon repair/carpal tunnel release, compartiment pressure measurement, minor muscle repair	14	0.3
Tonsillectomy and adenoidectomy/T & A	14	0.3
Chemotherapy	12	0.3
Post mortem eye enucleation	6	0.1
Addictions, substance abuse, methadone treatment, rapid alcohol/substance detox	5	0.1
BP/blood pressure monitoring- 24 hour	4	0.1
Sexual assault response team	3	0.1
Ear piercing	3	0.1
Nocturnal polysomnograms	2	0.1
Other procedures	142	3.3
Total Specified (includes multiple responses)	4288[1]	100.0
Not Specified (number of respondents)	333[2]	
Total number of respondents	3560	27.2 (out of 13088)
Number of respondents who did not check box or specify a procedure	9528	72.8 (out of 13088)
Grand Total	13088	

[1] 661 FPs specified two different procedures and 100 specified three different procedures.
[2] These 333 respondents checked the box but did not specify a procedure.

Appendix 3. Frequencies of Specified Other Endoscopy

Performed Procedure	*Frequency*	*Percent*
Sigmoidoscopy/Rigid sigmoidoscopy/Proctosigmoidoscopy	643	66.4
Flexible sigmoidoscopy	134	13.8
Laryngoscopy/Rhinolaryngoscopy/Nasopharangoscopy/Upper airway	78	8.1
Colonoscopy	53	5.5
Gastroscopy	39	4.0
Bronchoscopy	10	1.0
Cystoscopy	6	0.6
Laporoscopy	5	0.5
Total specified (Number of respondents)	968[1]	100.0
Not specified (Number of respondents)	770[2]	
Total number of respondents	1738	13.3 (out of 13088)
Number of respondents who did not check box or specify a procedure	11350	86.7 (out of 13088)
Grand total	13088	

[1] 835 (86.3%) of the 968 who specified “Other Endoscopy” did not check the box.
[2] These770 respondents checked the box but did not specify an endoscopic procedure.

Appendix 4. Frequencies of Specified Other Biopsy

Performed Procedure	*Frequency*	*Percent*
Endometrial	366	39.0
Excision biopsy of skin and subcutaneous lesions, mole removal, lumps and bumps, superficial lesions, punch biopsies, lipomas, cysts, tumours, shave biopsy, nevi, nodules, growth	320	34.1
Fine needle aspiration, breast, thorocentesis	64	6.8
All types of biopsy	46	4.9
Cervical biopsy, cervix, labial, cervical polyps	35	3.7
Bone marrow	31	3.3
Gastrointestinal, polyps, mucosal	15	1.6
Lymph node	5	0.5
Muscle	4	0.4
Temporal artery	1	0.1
Thyroid	1	0.1
Other	50	5.3
Total specified (Number of respondents)	938[1]	100.0
Not specified (Number of respondents)	871[2]	
Total number of respondents	1809	13.8 (out of 13088)
Number of respondents who did not check box or specify a procedure	11279	86.2 (out of 13088)
Grand total	13088	

[1] 841 (89.7%) of the 938 who specified “Other Biopsy” did not check the box.
[2] These 871 respondents checked the box but did not specify a type of biopsy performed.

Appendix 5. Frequencies of Specified Other Practice Setting

Other Practice Setting	*Frequency*	*Percent*
OR/OR assist/Surgical assistant	206	10.4
Patient's homes	172	8.7
University/College/School	141	7.1
Family medicine clinic (FMC)	132	6.7
Industrial/Occupational/WCB	129	6.5
Hospital based - outpatient	125	6.3
Public health	110	5.6
Sexual health/Reproductive health clinic	107	5.4
Geriatric/Nursing/Chronic care	71	3.6
Palliative care	59	3.0
Mental health centre/Psychiatric hospital	56	2.8
Prison/Jail health services	56	2.8
Rehabilitation	56	2.8
Military-based clinic	51	2.6
Emergency room	46	2.3
Locum work (i.e., no permanent practice setting)	44	2.2
Addiction clinic, substance/Alcohol/Drug abuse clinic	41	2.1
Outpost/Remote medical setting	40	2.0
Cancer care clinic	24	1.2
After-hours clinic	20	1.0
Hospitalist	18	0.9
Coroner work	17	0.9
Sports medicine	15	0.8
Disabled/Special needs	12	0.6
STD (Sexually transmitted disease) clinic	9	0.5
HIV/AIDS clinic	3	0.2
Other	213	10.8
Total Specified (Number of respondents)	1973[1]	100.0
Not Specified (Number of respondents)	1545[2]	
Total number of respondents	3518	26.9 (out of 13088)
Number of respondents who did not indicate and specify other practice setting	9570	73.1 (out of 13088)
Grand total	13088	

[1] 1609 (81.6%) of the 1973 who specified "Other practice setting" did not check the box.
[2] These 1545 respondents checked the box but did not specify a practice setting.

Appendix 6. Frequencies of Specified Other Main Practice Setting

Main Practice Setting	*Frequency*	*Percent*
OR/OR assist/Surgical assistant	80	0.6
Hospital based - outpatient	57	0.4
University/College/School	55	0.4
Family medicine clinic (FMC)	42	0.3
Public health	38	0.3
Industrial/Occupational/WCB	37	0.3
Other	37	0.3
Military-based clinic	34	0.3
Geriatric/Nursing/Chronic care	24	0.2
Emergency room	23	0.2
Rehabilitation	21	0.2
Mental health centre/Psychiatric hospital	20	0.2
Patient's homes	19	0.1
Locum work (i.e., no permanent practice setting)	13	0.1
Cancer care clinic	12	0.1
Hospitalist	9	0.1
Outpost/Remote medical setting	9	0.1
Palliative care	7	0.1
Prison/Jail health services	7	0.1
Addiction clinic, substance/Alcohol/Drug abuse clinic	6	0.0
Sexual health/Reproductive health clinic	6	0.0
Sports medicine	5	0.0
STD (Sexually transmitted disease) clinic	2	0.0
Disabled/Special needs	1	0.0
HIV/AIDS clinic	1	0.0
Total specified (Number of respondents)	565[1]	100.0
Not specified (Number of respondents)	489[2]	
Total number of respondents	1054	8.1 (out of 13088)
Number of respondents who did not check box or specify a procedure	12034	91.9 (out of 13088)
Grand total	13088	

[1] 518 (91.7%) of the 565 who specified "Other Main Practice Setting" did not check the box.
[2] 489 respondents checked the box but did not specify a main practice setting.