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Advanced skills by Canada's rural physicians

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[résumé]

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Abstract

The National Physician Database at the Canadian Institute for Health Information provided both services and demographic information for those physicians providing fee-for-service care in rural Canada in 1995/96. Anesthetic services were provided by 498 GP anesthetists and 123 FRCS anesthetists. Together they provided 6.3% of all anesthetic services in Canada. Of these services, 60.6% were provided by GP anesthetists, of whom 315 (63.3%) were Canadian trained. Appendectomies were provided by 121 GP surgeons and 151 general surgeons. Together they performed 2605 procedures representing 9.5% of all appendectomies in Canada. Of these, 669 (25.7%) were performed by GP surgeons, of whom 47 (38.8%) were Canadian trained. Cesarean sections in rural Canada were provided by 200 GP obstetricians and 131 specialists (100 general surgeons, 31 obstetricians). Together they performed 4292 procedures representing 6.9% of all cesarean sections in Canada. Of these, 1838 (42.8%) were performed by GP obstetricians, of whom 108 (54.0%) were trained in Canada.

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Résumé

La base de données nationale sur les médecins de l'Institut canadien d'information sur la santé a fourni de l'information sur les services et les caractéristiques démographiques des médecins dispensant des soins rémunérés à l'acte en milieu rural au Canada en 1995-1996. Des services d'anesthésie ont été fournis par 498 OP anesthésistes et 123 anesthésistes FRCS. Ensemble, ils ont dispensé 6,3 % du total des services d'anesthésie au Canada. De ce total, 60,6 % ont été fournis par des OP anesthésistes, dont 315 (63,3 %) ont reçu leur formation au Canada. Des appendicectomies ont été pratiquées par 121 OP chirurgiens et 151 chirurgiens généraux. Ensemble, ils ont pratiqué 2605 interventions représentant 9,5 % du total des appendicectomies réalisées au Canada. De ce total, 669 (25,7 %) ont été réalisées par des OP chirurgiens, dont 47 (38,8 %) ont reçu leur formation au Canada. Des césariennes pratiquées en région rurale au Canada ont été réalisées par 200 OP obstétriciens et 131 spécialistes FRCS (100 chirurgiens généraux, 31 obstétriciens). Ensemble, ils ont réalisé 4292 interventions représentant 6,9 % du total des césariennes pratiquées au Canada. Sur ce total, 1838 (42,8 %) ont été réalisées par des OP obstétriciens, dont 108 (54 %) ont reçu leur formation au Canada.

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Historically, advanced skills in rural Canada have been provided by two types of physicians. Sometimes, it has been the generalist specialist, the true general surgeon, training in multiple surgical fields that include abdominal, orthopedic, trauma, urologic and plastic surgery. Other times it has been the generalist family physician (FP) who, although trained and practising as an FP, has acquired advanced skills in anesthesia, surgery and operative obstetrics. The goal of this study is to document, using physicians' billing data, the role played by Canada's rural FPs in the delivery of these advanced skills.

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Methods

The National Physician Database (NPDB) at the Canadian Institute for Health Information (CIHI) provided the data source. NPDB contains information not only on services and billings but also on some demographic characteristics of these physicians, including gender, age and place of graduation. This database is used widely by governments, professional associations, consulting firms, pharmaceutical companies and the media for medical resource planning and

utilization analysis.

How to define a rural physician has always been problematic. We have used a definition of rural developed elsewhere in work by the Society of Rural Physicians of Canada (see article on page 209):

Rural Canada can be operationally defined as areas where general practitioners provide most or all medical services, including maternity care. As a direct result of a relative lack of specialists in these communities, rural FPs have to provide a broader scope of practice than their urban counterparts.

A listing of postal codes for each physician on the NPDB by census metropolitan area (CMA), census agglomerate (CA) and other areas (OA) outside of CMA or CA was prepared. In the past, a selection for "rural" simply selected the "other rural" (a "0" as the second letter in the postal code). However, this excludes many small towns, often with a small hospital. Sometimes these areas function either exclusively or almost exclusively without specialist services and meet our functional definition of rural. Consequently, a manual review of postal codes in the OA-urban and CA-rural added many postal codes, and physicians, that we considered rural. This manual review was conducted by representatives of the Society of Rural Physicians of Canada in each province, assisted by a listing of acute care hospitals, the Canadian Medical Association directory, which identified specialist physicians, and the reviewer's knowledge of the area and the hospital.

In summary, the sample group consisted of physicians in the following: CA-rural, excluding physicians with significant access to specialist services; OA-urban, excluding physicians with significant access to specialist services; OA-rural, all physicians.

How does this compare with historical definitions of rural? In our 1995/96 data run we identified 4866 rural physicians using the methodology described. Using CMA categories of rural without scrutinizing postal codes, we found that the numbers of physicians providing fee-for-service in OA-rural was only 3415. There were an additional 1990 (OA-urban) and 302 (CA-rural) that we could potentially have included when we reviewed these postal codes looking for areas where FPs provided all, or almost all, of the essential services. Of this potential additional physician supply (2292), we added only 1451 (63.3%) to OA-rural (3415) to have a sample size of 4866 rural physicians in 1995/96.

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Results

In 1995/96, anesthetic services in rural Canada were provided by 498 general practitioner (GP)

anesthetists and 123 specialty anesthetists. Together, they provided 249 364 services, representing 6.3% of all anesthetic services in Canada. Of these, 151 168 (60.6%) were provided by 498 GP anesthetists, mostly in Ontario, the West and British Columbia (Table 1). Of these 498 GP anesthetists, 315 (63.3%) were Canadian trained. The West is more heavily dependent on the recruitment of international medical graduates (IMGs) for anesthetic services -- 46.9% (Table 2).

Using the same definition of rural Canada, appendectomies were performed by 121 GP surgeons and 151 specialty surgeons. Together they performed 2605 procedures, representing 9.5% of all these procedures in Canada. Of the 2605 procedures, 669 (25.7%) were performed by GP surgeons, mostly in the West and in British Columbia (Table 3). Where were these GP surgeons trained? Of the 121 who performed appendectomies, 47 (38.8%) received their training in Canada (Table 4).

Cesarean sections in rural Canada were provided by 200 GP obstetricians and 131 specialists (only 31 of whom were obstetricians/gynecologists). Together, they performed 4292 procedures representing 6.9% of all cesarean sections in Canada. Of these 4292 procedures, 1838 (42.8%) were provided by GP obstetricians, mostly in Ontario, the West and British Columbia (Table 5). Of the 200 GP obstetricians, 108 (54.0%) were Canadian trained. Only Ontario and Quebec did not rely to a great extent on IMGs trained in cesarean section (Table 6).

Intrapartum maternity care was provided by 1704 FPs and 31 specialty obstetricians. Together, they attended 28 755 deliveries representing 9.5% of all deliveries in Canada. Of these deliveries, 25 602 (89.0%) were attended by FPs. Overall, 35.0% of Canada's rural FPs provided intrapartum maternity care (Table 7). The cesarean section rate in rural Canada was 20.4%.

In Table 8, we show the surgical manpower in rural Canada. In 1995/96, there were 223 FPs perform-
ing surgical procedures in the peritoneal cavity, 117 (52.5%) of whom were Canadian trained. A significant portion, trained in advanced obstetrics, did only cesarean sections (81 [36.3%]). Of the remainder, who were trained in surgical programs, 21 (13.6%) did only appendectomies and 66 (29.6%) did both cesarean sections and appendectomies. Surprisingly, a large portion, (55 [24.7%]) did both anesthesia and one or both of cesarean section and appendectomy. In total, 121 (54.3%) of the 223 FPs trained to perform intra-abdominal surgery had acquired at least 2 of the 3 principal advanced skill sets.

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Discussion

Clearly, advanced skills in rural Canada are delivered by different systems in each of Canada's

regions. In the East, rural FPs share the provision of advanced skills (anesthesia, surgery and obstetrics), with a significant number of specialty physicians. In Quebec, as in the East, both FPs and specialists share the anesthesia services. However, although there is a small role for rural FPs performing cesarean sections in Quebec (15 GPs versus 45 specialists), there are virtually no GP surgeons performing ap-pendectomies (1 versus 50 specialists). In Ontario, GP anesthesia begins to be the predominant pro-vider of these services (127 versus 23 specialists). But Ontario does have a good supply of rural generalist specialist surgeons providing appendectomy (43 versus 10 FPs) and cesarean section (33 versus 20 FPs). How does this mix of rural generalist FPs and specialist general surgeons work in the field? Partly, it doesn't. If we had the ability to distinguish northern from southern Ontario, we suspect that the rural FPs with advanced skills would predominate in the north where the geography approximates that of the West and British Columbia. In southern Ontario, the predominant provider of advanced surgical skills is likely the generalist surgeon. However, it is possible that in some communities there is a working arrangement whereby rural GP surgeons collaborate with and support the presence of a single generalist surgeon.

In the West and in British Columbia, a large proportion of anesthesia, appendectomies and cesarean sections is performed by rural FPs. Why should Ontario and regions east of Ontario find it easier
to locate specialty services in rural Canada? In
our view, geographic factors predominate. In some areas, the geography is smaller and the population density greater, allowing specialist surgeons and anesthetists to draw from large surrounding populations. In Ontario, there are a significant number of towns in the 15 000- to 25 000-population range, encouraging one or more specialist surgeons to es-tablish practice. In the West and in British Colum-bia, outside the very large regional centres, most of the communities fall into the 5000 to 15000-population range, usually too small for a successful specialty practice.

We were surprised to find that there is a strong presence of Canadian-trained rural FPs in the delivery of advanced surgical and obstetric skills. Whereas Canada has long enjoyed established and successful training programs for GP anesthesia, rural physicians have not enjoyed the same access to training in surgical or obstetrical departments. To our knowledge, there are only 2 recognized programs, each relatively new and each training only 2 rural physicians per year in advanced surgery and obstetrics. However, 117 of 223 rural FPs with advanced surgical and obstetrical skills were Canadian trained. Presumably, there is, or has been, an ad hoc, opportunistic, nonaccredited, needs-driven "underground" postgraduate training system, preparing a select group of rural FPs for advanced procedural work in rural Canada.

How do our findings compare with those of others who have studied the provision of advanced skills by rural FPs? Our count of 498 GP anesthetists is almost identical to that obtained by a 1996 survey (Canadian Anesthetists' Society. Unpublished data). The Janus Project of the College of Family Physicians of Canada (unpublished data) estimated, again by survey, approximately 604 GP anesthetists (rural and small town). It is likely that some of these GP

anesthetists who self-identified themselves as "small town" would not meet our criteria for inclusion in our rural sample. The same Janus Project estimated 193 GP surgeons, similar to our estimate of 223.

Chiasson and Roy1 surveyed small hospitals in Alberta, British Columbia and the Yukon and Northwest Territories in 1992. They found 105 GP surgeons, 35 of whom were fully trained specialists (IMGs) practising as rural FPs. Of the remaining 70 GP surgeons, 46% were Canadian trained. These numbers are similar to our own. The same authors found 95 GP anesthetists of whom 63% were Canadian trained. Our findings with respect to origin of training are almost identical.

Limitations of our study

The NPDB provides information only on the fee-for-service activities of rural physicians. It does not include either of the Territories. Consequently, some of the rural delivery systems of advanced skills are excluded from this study. In particular, the Yukon, Northwest and Nunavut territories are excluded. So are the medical services organized through Canada's voluntary organizations, such as the United Church, usually in the most isolated of parts of Canada. The Canadian Medical Association found that 18% of rural physicians report that 90% or more of their earnings come from a source other than fee-for-service.2 A second limitation is our definition of rural. One of the criteria for inclusion into our sample was the decision by rural physicians familiar with the community that most or all of the essential services provided within the community hospital (if there was one) were provided by rural FPs. Some small specialist presence was allowed. How much? The end points were soft and not verified by others for accuracy or for cross-regional consistency. It would be useful to attempt to make end points both verifiable and consistent.

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Conclusions

Canada's rural FPs play an important role in the delivery of advanced skills in anesthesia, general surgery and operative delivery. Although present to some extent everywhere in Canada, this role is hugely important in the West, in British Columbia and possibly in northern Ontario. The billing data confirm the widely held belief that the continued provision of these skills relies on the recruitment of IMGs. The Canadian training programs in GP anesthesia provide 66.4% of rural Canada's GP anesthetists. Surprisingly, there seems to exist within the institutions of Canadian medical education, an underground heretofore-unrecognized system to complement the recruitment of IMGs with Canadians trained in advanced surgical and obstetrical skills. These informal programs produced 52.5% of rural FPs performing intraperitoneal procedures such as appendectomy and cesarean section.

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