POSITION PAPER ON

TRAINING FOR FAMILY PHYSICIANS IN GENERAL SURGERY

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1. Introduction

The delivery of health care in Canada has changed significantly over the past twenty years. Rural health care, particularly rural surgical services, has been greatly affected. Shrinking hospital budgets, bed reductions, medical and surgical subspecialization and a worldwide shortage of rural physicians have left community hospitals struggling to maintain acceptable surgical services. Some general surgeons and general practice-surgeons (GP-surgeons), have already adapted in rural areas by practicing both surgery and family practice. Unfortunately, as these physicians retire and move on, many rural communities face the ramification of solo practice general surgeons or the complete loss of surgical services.

Most rural residents remain unaware they face significant restriction in access to health care. Recruitment of immigrant GP-surgeons, general surgeons, general surgeons practicing family practice and ad hoc training of GP's in surgical procedures has provided expedient, short term relief. A national strategy involving all concerned parties must be formalized to address this crisis in rural surgical services. It must proceed in a timely but responsible manner, consider the reality of Canadian geography and meet the healthcare needs of rural Canada.

2. Demographics

Canada's Rural Citizens

Canada has, and will always have, a significant rural population. 1991 Census data revealed that 31.6% of Canadians live in rural communities of up to 10,000 people. [Statistics Canada. Urban areas (population and dwelling counts - 1991 Census of Canada). Catalogue No. 93-305. Ottawa: Supply and Services Canada, 1992:62)] Although eight percent of the population lives greater than 120 km from a tertiary referral center, almost all of these live more than one and one-half hours transport time during ideal conditions. [Barer M, Stoddart G: Toward Integrates Medical Resource Policies for Canada, Manitoba Health, Winnipeg, 1991.] In Western Canada, the communities are generally smaller and more isolated [Chiasson P, Roy P. Role of the general practitioners in the delivery of surgical and anesthesia services in rural western Canada. CMAJ 1995; 153(10): 1447-52]. Low-marginal incomes and longer distances from specialists aggravate universality of health care in isolated areas [Martel R. Rural medicine needs help. Can Fam Physician 1995;41:974-6]. Discrepancies in spending of health care dollars for rural and urban clients are well documented.

Where Have All The Surgeons Gone?

Only four percent of specialists live and work in rural communities [Chiasson P, Roy P. Role of the general practitioner in the delivery of surgical and anesthesia services in rural western Canada. CMAJ 1995;153(10): 1447-52]. Although there are more general surgeons in rural areas than other specialists, there are still very few in communities of less than 10,000 people[Inglis F. Presidential Address, 1994. The community general surgeon. A time for Renaissance. Can J Surg 1995;38(2):123-9]. In 1988, the Canadian Association of General Surgeons predicted a decline in general surgeons, with 80 to 90 individuals retiring and 20 to 25 graduating annually[Blair L. Are general surgeons a dying breed? CMAJ 1991;145(1):46-8]. In 1990, 48% of these general surgeons were over the age of 55 with rural surgeons, on average, among the oldest. Although there is recent improvement in graduating general surgical residents relocating to rural areas, still few work in communities of less than 15,000 people.

A 1992 survey on Ontario hospitals with less than 100 acute care beds demonstrated that 30% were coping with a shortage of general surgeons and 61% predicted a shortage within five years [Walker D: The obstetric care crisis facing Ontario's rural hospitals. CMAJ 1993;149(10):1541-5]. At that time, there were very inconsistent surgical services. A 1988 survey of similar size Ontario hospitals reported that 40% had general surgery coverage available most of the time whereas 18% reported it was never

available; all of these were hospitals of less than 50 acute care beds [Rourke J. Small hospital medical services in Ontario. Can Fam Physician 1991;37:1897-1900].

Dr. Rourke repeated his survey, including the same small hospitals, in 1995. He documented, as had been forecast, large and significant decreases in the number of family practice anesthetists, the availability of general anesthesia, general surgery, cesarean section, and intra-partum maternity care services [Rourke J. Trends in Small Hospital Obstetric Services in Ontario. Can Fam Phys, (in press)].

The Future of the Community General Surgeon in Rural Canada

The wishful dreams of a return to the community general surgeon not withstanding, the reality is that changing educational and technological factors seem to have closed this door. The trend to subspecialization continues in the post-graduate training programs. If the present mix of post graduate training positions continues, this will result, over time, towards significantly fewer, not more, general surgeons.

A general surgeon wishing to locate in rural Canada requires a community sufficiently large to sustain a full-time general surgeon - usually at least 15,000-25,000. This solo general surgeon

faces expectations of accessibility 24 hours per day, 7 days per week, 52 weeks per year. He also faces professional isolation. His urban colleagues in rural general surgery consider him to be a lost soul. Other general surgeons who have also chosen a rural vocation are very few and totally unorganized to support each other.

The support of a full-time general surgeon has always been an expensive proposition - a full-time OR, with a nursing and support staff, committed to bowel surgery, plus some orthopedics, trauma, urology, etc. commits the hospital to several million dollars and a larger in-patient population that might otherwise be anticipated. With the introduction of minimally invasive technology, these costs have become several times greater. It is likely that many, if not most, of these small communities need something less than a laparoscopic bowel program - they need the facilities and skills to perform an appendectomy, a cesarean section, and an anesthetic. In a climate of budget constraints, a full-time community general surgeon is an expensive means to provide those basic services.

Role of GP Surgery

It has been left to GP-surgeons, combining family practice with a limited surgical skill set to fill in those needs not met by the general surgeons. Chiasson and Roy, in 1995, reported the demographics of surgical services in rural western Canada [Chiasson P. Roy P. Role of the general practitioner in the delivery of surgical and anesthesia services in rural western Canada. CMAJ 1995;153(10):1447-52]. At that time GP's provided surgical services at 87% of community hospitals and 27% relied completely on GP's. A substantial number of these GP-surgeons performed 20 or more different operations [Roos L. Supply, Workload and Utilization: A Population-Based Analysis of Surgery in Rural Manitoba. America Journal of Public Health 1983;73(4):414-21]. In rural western Canada, 30% of all appendectomies, tubal ligations, cesarean sections, umbilical and inguinal hernias are performed by GP-surgeons [Chiasson and Roy]. In rural southern Manitoba, 19% of surgical procedures are performed by general practitioners [Roos N, Black C, Wade J, Decker K. How many general surgeons do you need in rural areas? Three approaches to physicians resource planning in southern Manitoba. CMAJ 1996;155(4):1395-401].

Who Are These GP Surgeons?

The population of GP surgeons is made up of equal portions of physicians who received their additional training either in Canada (46 percent) or abroad. Of those trained abroad, the greatest proportions come from South Africa (32 percent) and the United Kingdom (14 percent) [Chiasson P. Roy P. Role of the general practitioner in the delivery of surgical and anesthesia services in rural western Canada. CMAJ 1995; 153(10): 1447-52]. This reliance on immigration to rural Canada of foreign-trained physicians to

provide surgical services is much greater than our reliance on the immigration of GP Anesthetists. Approximately 63 percent of rural GP anesthetists have been trained in Canada - a testimonial to the well-established training programs in many of Canada's medical schools.

For very complicated reasons, rural Canada has decreased access to the skills of foreign trained physicians. Consequently, as the present population of rural physicians with surgical skills ages and leaves practice, their communities face a crisis in how to replace them.

Current Trends

There is an alarming trend away from GP's performing procedures in both rural and non-rural areas. Saskatchewan physicians are performing less major therapeutic procedures, anesthesia and obstetrics [Report of the Ministers Advisory Committee on Rural Medical Practice 1986.

Saskatchewan:13-24]. Manitoba GP-anesthetists decreased from 180 to 64 between 1978 and 1989 [White IWC, Plalhniuk RJ, Biehl DR. Anesthesia Manpower in Manitoba, 1989. Physicians in Canada. Proceeding of the 4th and 5th Physicians Manpower Conferences, Vol. III. Ottawa: Canadian Medical Association, 1993:7-13]. There are less Canadian physicians who even hold active hospital privileges [Henderson, RW. Staffing rural hospitals. Can Fam Physician 1996; 42:1057-9]. Foreign graduates are relied on more and more to perform procedures such as tubal ligations, cesarean sections, vasectomies, forceps and vacuum deliveries [Michal P. Who is performing selected procedures in rural BC communities? A comparison of foreign and Canadian medical school graduates 1995. Unpublished Residents Report]. In general, graduates feel less prepared to perform major therapeutic procedures [The future of Family Medicine in Canada. Resident's Perspectives. Associate Member's Group. The College of Family Physicians of Canada - March 1994]. We referred earlier to Dr. Rourke's work in Ontario which as documented large and significant decreases in the number of family practice anesthetists, the availability of general anesthesia, general surgery, and maternity care [Rourke J. Trends in Small Hospital Obstetric Services in Ontario, Can Fam Phys, (in press)].

A National Research Project on Advanced Procedural Care in Rural Canada (in progress)

The Canadian Institute for Health Information is providing billing data, both nationally and by province, 1991/92-95/96, for surgical, obstetrical, and anesthetic services provided in rural Canada. This data will include the numbers of services provided, numbers of physicians providing these services, rates per physician, rates per population, frequencies of services per physician. Each of these data groupings will be sorted for family physicians or specialist as well as for age, gender, and foreign medical graduates. Data will be available in January 1999 and the preliminary results will be presented at the SRPC meetings in April in St. Johns.

3. Scope of Practice

The days when patients walked through the hospital doors and were cared for by their family physicians from beginning to end are rare. In 50 years, basic clinical skills, continuity of patient care and confidence in procedural ability have been replaced by the need for more detailed investigations and specialist referrals. This trend has impacted less on rural than urban medicine. Rural GP's perform more major surgery, make fewer referrals to specialists and fewer follow-up visits than their urban counterparts [Heaton P. Surgical Care in small Alberta Hospitals. Can Fam Physician 1983;29:1591-1601]. The former also provide far more hospital, obstetrical and emergency care than urban physicians [Carter R. Training for rural practice: What's needed? Can Fam Physician 1987; 33:1713-15]. Rural practice is a discipline of medicine which crosses barriers not trespassed by other specialties. Rural physicians deal with a broad base of procedural skills. They are experts in recognizing the boundaries and limitations of their communities. They practice this expertise during day to day comprehensive care, including surgery.

Most GP's in rural areas perform a specific number of procedures. These are usually dependent upon the GP's experience, available facilities, size and need of community. The most common procedures in

communities of 10,000 people or less are hernias, tubal ligations, appendectomies, breast biopsies, closed fracture reductions, anorectal surgery, varicose vein procedures, cholecystectomy, and hysterectomy [Inglis F. The Canadian Association of General Surgeons' Questionnaire: Results and Observations. Can Journal of Surg 1986;29(3):166-9]. Most GP-surgeons practice some or all of the first seven. After a six year training program, it is unlikely that graduating general surgery residents would be happy to be limited to these procedures [Blair L. Are general surgeons a dying breed? Can Med Assoc J 1991;145-46-8]. General surgeons should continue to practice what their residency program trains them to do best. Higher risk, more complicated surgeries lie in the domain of the general surgeon.

In a recent study, the authors carried out a MedLine search looking for relevant references to outcomes of advanced skill sets performed by rural family physicians [Iglesias S and Thompson J. Shared Skill Sets. CJRM (in press)]. They found evidence that for cesarean sections, colposcopy, colonoscopy, cardiac stress testing, fracture reduction, and gastroscopy, outcomes of procedures performed by family practice physicians with advanced skills meet or exceed national standards. A new Canadian study comparing outcomes of specialist and family physician appendectomies showed there to be no differences [Caron N, Webber E. Unpublished data].

The historical reality that some essential surgical skills, such as appendectomy and cesarean section, have been included in the scope of practice for rural family physicians, has sustained the provision of essential health care services in rural Canada. There has been no practical alternative in the context of Canadian climate, geography and transport where evacuation times can be 24 hours or more.

Rural communities are best served by family physicians with broad based skills who reside in that community [Henderson R. Staffing rural hospitals. Can Fam Physician 1996;42:1057-9]. Rural communities, compared to urban communities, require a broader scope of family practice encompassing more surgical procedures. Many areas have the facilities, staff, and community support to maintain the service. GP's have traditionally filled this role and need to continue. There is a growing support for the reemergence of the "generalist" GP-surgeon [Barer M, Stoddart G. Toward Integrated Medical Resource Policies for Canada. Manitoba Health, Winnipeg 1991]. The loudest voices in support of this service come from rural residents and physicians themselves. Unfortunately, these are usually the individuals far removed from today's policy-makers.

In Australia, the Faculty of Rural Medicine in the Royal Australian College of General Practitioners, developed a specialized training program for rural GP's with advanced skills in areas such as anesthesia, obstetrics and surgery [Strasser R. So you want to do rural practice? Aus Fam Physician 1994;23:735-6]. The level of skill is dependent upon the rurality of the trainees destination [Rural doctor's association of Australian surgical services position paper 1992:1-17].

South African medical schools train GP's with advanced surgical skills. The most common surgeries performed by South African GP-surgeons are tonsillectomy, D&C, appendectomy, closed fracture reduction, cesarean section, tubal ligation, breast lumps, and hysterectomies [Ellis CG. The present and future role of general practice surgery. S Afr Med J 1985;68:254-7]. It is often these individuals upon which Canadian health care has relied to fill existing gaps in rural surgical services. Great Britain offers diplomas in general surgery, obstetrics, and anesthesia. Wonca supports the reclaiming of advanced skills for rural practitioners [Wonca Working Party on Training for Rural Practice: Policy on Training for rural practice 1996;42:1181-3]. Several Canadian universities offer one year training programs in advanced obstetrics, anesthesia, and surgical skills.

4. Outcomes

Do GP Surgeons Obtain Good Outcomes?

There is little information regarding outcomes of GP-surgery. Lowy et al looked at complication rates of general practitioners practicing minor surgical procedures such as excision biopsy, ganglion or cyst

removal and wedge excisions [Lowy A, Brazier J, Fall M, Thomas K, Jones N, Williams B. Quality of minor surgery by general practitioners in 1990 and 1991. British Journal of General Practice 1994;44:364- 5]. Fear of increasing complications as GP's expanded their role were unfounded. Deutchman's retrospective study of all deliveries by Obstetricians and GP's over a 20 month

period reported a significantly lower cesarean rate among patients cared for by their family physicians [Deutchman ME, Sills D, Connor P. Perinatal Outcomes: A comparison between family physicians and Obstetricians. JAm Board Fam Pract 1995;8(6):440-7]. In a similar study, Deutchman reported perinatal and maternal outcomes retrospectively over a 15 year period. His study found similar patient outcomes from family physicians and specialists, even when adjusted for patient risk factors [Deutchman ME, Connor PD, Gobbo R, Fitzsimmons R. Outcomes of Cesarean sections performed by family physicians and training they received: A 15 year retrospective study. J Am Board Fam Pract 1995; 8:81-90]. These family physicians performed an average of only nine cesarean section per year.

Canadian data which specifically addresses GP-surgery outcomes is, for the most part, unpublished. Two literature searches were carried out at both the College of Physicians and Surgeons and the College of Family Physicians of Canada. No Canadian outcome data was retrieved. One five year retrospective study done by a general surgery resident at the University of British Columbia looked at appendectomy outcomes by GP-surgeon and on Board Certified general surgeon. Complication rates were comparable between the two groups [unpublished].

5. Potential Benefits to Rural Communities

Rural hospitals play a different role than urban institutions. A community hospitals is part of the economic base. It employs people of the community; it cares for the people of the community. It embodies the culture and feeling of the people, incorporating their philosophy into a patient-centered approach to health care. It is usually one of the major employers of skills workers resulting in an important infusion of wages into the local economy [Henderson RW. Staffing Rural Hospitals. Can Fam Physician 1996;42;1057-60]. Retirees locating to these communities along with their inherent economic benefits often depend upon the service level of the hospital [Henderson RW. Staffing Rural Hospitals. Can Fam Physician 1996:42;1057- 60]. It is an institution of which residents are proud. Residents often participate in local fundraising in order to update and purchase new equipment. Maintaining the service level of the hospital is an important issue. Decentralization of surgical services in rural Canada allows culturally appropriate care and fosters self sufficiency [Godwin M, Lailey J, Miller R, Moores D, Parsons E. Physician supply in rural Canada. Can Fam Physician 1996;42:1641-4].

Rural hospitals which are able to offer essential anesthetic and surgical services play a critical role in sustaining medical care both in their own communities and in neighboring towns which have not been able to maintain these services. Essentially, the health care team, including the physicians, the nursing staff, and the support personnel become accustomed to managing sick patients. Their skills, their confidence, and their trust in each other is maintained at a high level. Conversely, without the ability to perform a cesarean section or an appendectomy, and without anesthetic staff able to assist with airways, trauma, and the stabilization of the critically ill, these institutions, including their medical and nursing staff, lose their confidence and their inclination to take care of sick patients. The acuity of care in these institutions falls dramatically. They become accustomed to caring for the reasonably well patients.

Rural hospitals that maintain a broad base of services offer many advantages. A more stable physician base is possible with easier recruitment, retention and locum tenens. Physicians and health care staff able to practice a broader scope of practice tends to be happier. Higher levels of skills maintained in surgery tend to upkeep skills in other areas of medicine by all staff. Nearly all commissions investigating health care have recommended expanding the broad-based skills of physicians as well as physicians with enhanced skills. WONCA policies suggest "needs-driven, evidence-based, and learner-centered" education. The Barer-Stoddardt report also supports the need for enhanced training. The 1981 Edmonton Conference on Rural Health Care concluded that "appropriate" surgery - common procedures to treat common problems - should continue in smaller communities [Summary Report of the Conference on

Rural Health Care in Alberta, Edmonton, Alberta, College of Family Physicians of Canada, Alberta Chapter, November 1981].

The loss of medical services has a profound effect on rural communities. Residents are often aware of the problems with surgical and anesthesia coverage. Obvious is the strong desire for communities to have access to local obstetrical services [Guard MC. Letter. Can Medical Assoc Journal 1979:120;919]. The loss of obstetrical services results in a large community outcry. Expectant mothers, with their families and friends, usually suffer the greatest loss. Transferring labouring mothers to referral centers creates anxiety for expectant mothers, family, and staff. To discover the impact on women, Walker completed a survey by mailed questionnaire. Of the respondents, 87% felt that it was important to deliver in their community. All comments were extremely supportive of the personalized care they received in their own communities and provided unequivocal support for giving birth in their home towns [Walker D. The obstetrical crisis facing Ontario hospitals, CMAJ 1993;149(10):1541-5]. In addition, it is unfortunate for referral centers and obstetricians to provide service to women who, otherwise, could receive care in an appropriately staffed community hospital [Walker D. The obstetrical crisis facing Ontario hospitals, CMAJ 1993:149(10):1541-5].

The requirement that some women will have to travel long distances for maternity care represents more than a social and economic hardship. Studies from the U.S. showed that women who live in communities with poor local access (what Tom Nesbitt called high outflow communities) are more likely to bear infants who are premature and have prolonged hospitalizations with higher costs [Nesbitt TS, etal. Access to obstetric care in rural areas. Am J Pub Health 1990; 80(7):814-8].

Larimore and Davis showed a significant quantifiable increase in infant mortality due to lack of maternity caregivers in rural Florida [Larimore Wl, Davis A. Relationship of infant mortality to availability of care in rural Florida. J Am Board Fam Pract 1995;8:392-9].

The presence of a GP-surgeon in the community allows more mothers to deliver in their own communities. It is the right of every woman to obtain quality maternity care as close to home as possible. There are 125 hospitals that provide full time obstetrical service without cesarean section coverage (Gryzbowkski article). While these maternity care services deliver good outcomes [Joint Position Paper on Rural Maternity Care], lack of access to operative delivery skills puts in question the survival of these programs. The health care professionals, including the nursing and support staff, struggle with an ongoing crisis of confidence in their ability to manage the broad range of problems they might encounter.

Approximately 80% of women can expect to deliver in their community hospitals without operative backup. With developing intrapartum risk factors, unfortunately, this falls to 60% who actually remain locally [Black, DO, Fyfe I. The safety to obstetrical services in small communities in Northern Ontario. Can Med Assoc Journal 1984;130:571-6]. Surgical coverage decreases the number of intrapartum transfers and "en route" deliveries. It is less stressful for all involved. It allows for a higher level of maternity care within the community and a greater percent of women able to deliver at home. With access to local operative birth, 90% of maternity patients are able to deliver within their own communities [Keibel SH, Pitts J. Obstetrical outcomes in Rural Family Practice: An 8 year Experience. J Fam Practice 1988; 27(4): 377-8]. When 40% of Canadian hospitals perform less that 20 cesarean sections per year, it is unrealistic to expect this service be provided by obstetricians [Levitt C. Hanvey L, Avard D, Chance G, Kaczorowski J. Survey of Routine Maternity Care and Practice in Canadian Hospitals. Ottawa: Health and Canada and Canadian Institute of Child Health, 1995].

Patients, in general, wish to stay in their own community for health care. They prefer to have surgical procedures and anesthesia done by family practitioners with whom they have already established a relationship. The relationship between family physicians and patients is different than that between specialists and patients. Health care provided within the community allows

patients to recover in a familiar environment, be care for by professionals they know and supported by nearby friends and family. Community caring and concern significantly affects smaller hospitals, unlike in urban centers. Shorter

hospital stays, better discharge planning and better follow up care is a natural progression of this patient- centered approach.

The preconception of general surgeons that good surgery can only be performed in large centers is unfounded. A well rounded specialist surgeon, trained in common orthopedic, plastic, gynecological, cesarean section, trauma, and simple abdominal operations is simply rare [Rourke J. Small hospital Medical Services in Ontario. Can Fam Physicians 1991;37:1897-1900]. To find these physicians who also practice family medicine is also rare. But these physicians existed and practiced well. Every small community remembers their older physicians who did a little of everything. This is the type of health care to which rural residents have been accustomed and the type of health care which they want. It is only since the diminished presence of GP-surgeons that we have questioned their performance and integrity.

Transportation of patients to urban referral centers is a result of increasing centralization. It is expensive to the patient and to the health care system. Patients incur costs of ambulance, air evacuation, and overnight accommodations. They often have difficulty arranging transportation for diagnostic tests, consultations and return home from hospital stays at larger centers. Family members of ill patients also incur some of these expenses. The elderly, culturally sensitive, young, and individuals of low socioeconomic status bear the brunt of these problems. Unfortunately, these are also major users of the health care system.

Transportation is not always possible. Due to Canadian geography and the isolation of many rural communities, access can be limited. Many areas have no airports or airports with limited daytime function. Hazardous road conditions often complicate the issue. A three hour evacuation in ideal conditions can easily become six hours or impossible. Emergencies are not time or weather dependent. With regards to surgical services in obstetrics, it is almost impossible to identify all women who may need operative delivery [Heaton P. Surgical Care in Small Alberta Communities. Can Fam Physicians, 1983:219; 1591- 1601]. When considering centralization of surgical services, one needs to consider not only the patients referred for definitive surgery but all the others who are transferred for assessment and observation. Is it prudent or even fiscally responsible for every right lower quadrant pain to be transferred to a larger center?

Patients in rural communities often seek medical care later than those in urban centers. They suffer a greater degree of ill health before consulting a physician [Chatervedi N, Ben-Shlorne Y. From the surgery to the surgeon; Does deprivation influence consultation and operative rates? British Journal of General Practice 1995:45;127-32]. Easier access to surgical services may allow more expedient treatment and fewer complications.

There are few studies which document the impact of GP-surgery in the communities. The West Kent Health Authority expanded the role of GP-surgery and studied its affects. The referral system to specialists became faster and the time between diagnosis and treatment was shortened. Patients were satisfied with having procedures carried out in a small friendly environment geared to patient satisfaction. Physicians reported increased job satisfaction and an increase in the skill level of support staff. Patients, overall, preferred to be treated in their own communities by their own physicians [Brown J, Smith R, Cantor J, Chesover D, Yearsley R. General Practitioners as providers of minor surgery - a success story? British Journal of Gen Practice 1997;47:205-10]. Other studies evaluating patients choice have all shown a strong preference of GP-surgery [Johnson D. Audit of surgical practice in a community hospital. Br Med J 1984;288:1293-4]. [Coopers and Lybrand Associated. The cost of effectiveness of general practice. A General Medical Services Committee discussion document. London:British Medical Association, 1983]. [Sharman J. Patient's response to a general practitioner minor surgery

service. Practitioner 1986; 230:27- 9]. Johnson surveyed 488 patients who overwhelmingly preferred surgery by general practitioners. [Johnson D. GP-surgery. The Community Hospital. Physicians 1985;4:26-8]. Sharman elicited a 100% satisfaction rate in his series of 100 minor operations. Coopers and Lybrand reported many advantages of GP-surgery. "Waiting time was shortened, patients preferred general practice treatment, general surgeons were free for more complex surgery, general practitioners would have satisfaction in exercising their skills, patients have less traveling time and more continuity of care".

6. Training

Who Will Be Trained?

Training programs in general surgery for rural family practice must appreciate two different groups of physicians seeking entry into these programs. Firstly, some family medicine residents, with a commitment to rural practice, will attempt to acquire these skills as an add-on to the current program in Family Medicine. A few Canadian medical schools have instituted very small formal programs to accommodate these residents.

Secondly, some family physicians, already established in rural practice, wish to upgrade their skill base to include some general surgical skills. These "re-entry" physicians are in a unique position. They have a reality-based knowledge of the actual needs to their communities. Their request for advanced training represents a partnership with their community rather than a personal needs. While there have been several informal and ad-hoc training programs to try to meet these needs, very few have survived. They have suffered from problematic barrier to access - both financial and geographic - as well as from considerable skepticism on the part of specialists who have been reluctant to participate in the production of what some feel is a less than complete specialist.

In addition, we recognize that much of rural Canada continues to be dependent on the immigration of physicians trained outside of Canada. The evaluation of their training and competence and the process of their credentialling is, as always, problematic. Canadian training programs in family practice surgery should include a formal, realistic mechanism for the evaluation and certification of physicians who received their surgical training elsewhere. This is particularly true for those candidates whose clinical experience is large, but whose formal training might be less than most Canadian graduates.

How Much Is Enough?

The amount of training required varies with the pre-existing capabilities of the student, their own capacity to learn, and the anticipated role that these physicians will serve in their communities. Physicians wishing to undergo training should realize there is no set number, but that acquiring advanced surgical skills is a task for which a significant commitment is required. For a few physicians, mastering will come relatively quickly, but others might not be ready for independent practice even after any large suggested number. Training is competency-based. Training is complete when both the family physician and those responsible for his/her training are confident in the skills acquired and when a formal evaluation is successfully completed.

There is no experimental evidence that describes the learning curve for a family physician to acquire surgical skills. For cesarean sections, the American ACOG-AAFP Core Curriculum specifies 10 or more in a 3-month training block. The Australian curriculum suggests 6 months of training and a minimum of 23 cesarean sections as the primary surgeon. An American study noted that the training volumes for family doctors who currently perform cesarean sections range from 25 to 100 with the average completed in training to be 46.

Similar data for appendectomies is not available. For those wishing to investigate this further, we would suggest exploring the approach taken by the Saskatchewan program to train rural family physicians in cesarean section. When deliberating on the size of the required clinical experience, they consulted their house staff - especially the PGY1 students. They were surveyed to measure the extent of the clinical experience they had before they were sufficiently secure to adopt the role of primary surgeon and sufficiently confident that they would/could perform the procedure, in an emergency, without supervision. The answers, and it was done only for OBGYN procedures, approximated the little evidence there is in the literature.

Where Should Training Occur?

Training should be by both FRCP surgeons and GP surgeons in both urban and rural centers. Depending upon the skill set required and individual needs, flexibility should exist within this system. Consideration should be given to the research which indicates that it is very important to locate as much of this training as possible to a rural setting [Carter RG. Relationship between personal characteristics of physicians and their practice location in Manitoba. Can Med Assoc J 1987;301: 360-8] [Aaron PR, Somes GW, Marx MB, et al. Relationship between traits of Kentucky physicians and their practice areas. Inquiry 1980;17:128-36] [Grimes RH, Lee JM, Lefkola LA, et al. Study of factors influencing the rural location of health professionals. J Med Education 1977;52:771-3].

Rural locations also allow study of relevant pathology and often facilitate trainee relocation to rural areas [Mulimba JOA. Training of surgeons for primary health care. SAJS 1997;35(3):142-3]. Rourke addressed this issue evaluating rural training of family physicians [Rourke TB. Postgraduate training for rural family practice. Can Fam Physician 1996;42:1133-8]. Patient presentation and treatments seen during tertiary care rotations are often very different than those in rural hospitals. Secondary level regional hospitals are often a compromise between rural generalist medicine and sufficient teaching volume.

Curriculum

Curriculum should include classic teaching methods, patient consultation, corridor consultation, bedside teaching, chart review, didactic teaching sessions and case presentation similar to other rural residency programs [Kelly L. Integrating family medicine residents into a rural practice. Can Fam Physician 1997;43:277-86]. An academic curriculum should correspond to procedural skills. This can be completed by the trainee throughout the program in blocks in order to correspond to the clinical cases which arise. Final evaluations will occur both for the academic and procedural components. Final academic examinations should be performed by independent examiners to ensure unbiased evaluations. Procedural skills should be evaluated by the primary preceptor on three or four occasions throughout the program. A final exam in procedural skills is unlikely to be meaningful.

A training program should consider "worst possible" scenarios as well as common simple surgical procedures. Skill sets should be derived based on collateral skills using in similar procedures i.e. blunt and sharp dissection, hernia mesh placement and fixation, and laparoscopic techniques.

Evaluation

Evaluations, as with other training programs, are completed by the preceptor and trainee throughout the program. A more thorough mid-program evaluation should occur to avoid deficiencies in the program. These can usually be corrected in the second half of the program. Because of regional and seasonal variation in some surgical illnesses, this is essential to ensure a balanced training.

Procedural evaluation should have a minimum number of procedures completed before competency. However, with varying backgrounds of trainees, there must be flexibility within the system to accommodate this scenario. Number alone cannot be the criteria for competency. Procedures should also be evaluated in the context of a rural center with fewer resources and less skilled support staff. This will ensure an easier transition of trainee to independent surgical practice.

Successful candidates will receive a diploma in general surgery from the appropriate university. A letter from the program director stating the procedures in which the candidate was found to be competent should accompany this in order to facilitate later credentialling. It is relatively impossible to guarantee that every individual will graduate with an identical list of surgical skills. There will also be individuals who exceed the goals of the program. These individuals should be given the opportunity to become credentialled to practice all the skills in which they obtained competence.

7. Canadian Training Programs for GP Surgeons

In 1997/98, there are two physicians enrolled in 12 month family practice surgery training programs. Both are enrolled at the University of Alberta, which began a few years ago to offer two positions, founded by the Rural Physicians Action Plan. Trainees, at a PGY3 level, spend six months in general surgery and six months in obstetrics at a regional hospital.

The University of British Columbia began a similar program, again for twelve months, using northern regional hospitals. To date, it has produced three graduates, all of whom are working as GP-surgeons in rural BC.

8. New Technology

Minimally invasive surgical technology has changed the delivery of surgical services in urban Canada, e.g. cholecystectomy and hysterectomy. Similar technology is available for appendectomy and salpingostomy for ectopic pregnancy. Should these procedures become the standard of care in urban Canada, and it appears they soon will be, then it is important that rural Canada have equal access to this technology. While appreciating the added expense, we adhere strongly to the view that there be a single standard of care for all Canadians. The delivery of high quality surgical care requires a large commitment of human, technical, and financial resources. Community hospitals, and their political masters, must be prepared to underwrite these services with standards equal in quality to similar urban services. Rural Canada will not tolerate inferior care.

Interestingly, the prospect of minimally invasive surgery for appendectomy and removal of ectopic pregnancy offers considerable reassurance to those who might be skeptical of rural family practice surgery. One of the biggest concerns is the appendicitis that, at laparotomy, turns out to be something much more complicated that requires transfer or definitive care. With laparoscopic technology, the rural surgeon has an opportunity to appreciate the new diagnosis visually and retreat safely with minimal delay or consequences.

9. Principles of Training Programs for Rural Canada

During the process of the preparation of the three Position Papers (Maternity Care, Anesthesia, and Surgery) on advanced skills training programs for rural family physicians, we have evolved a set of principles, shared by all programs.

Patient Selection and Regionalization

We emphasize that the capability to perform advanced skills, including advanced surgical skills, does not imply that all patients requiring a laparotomy, for example, can or should be managed locally. The relevant model is the Canadian perinatal system where a proportion of the pregnant population is identified as high risk and transferred for birth to the closest center competent in the level of care required.

Not every community will have the will and the anesthetic and nursing support required to sustain a local surgical program. The practice of surgery requires a health care team approach with a high intensity of commitment and resources. Many rural communities will choose to offer medical care at a lower level of intensity and choose to transfer surgical patients elsewhere. **This curriculum specifically addresses the needs of communities continuing or replenishing a service traditionally provided locally.**

Regional and Rural Centers

The relationship between GP-Surgeons and General Surgeons is key to the success and maintenance of GP-Surgery in rural communities. GP-Surgeons are often the sole surgeon in their community. They feel, for the most part, isolated from changes in surgical techniques and management and from other

surgeons. There is also a general feeling of lack of support from general surgeons. Most GP-surgeons would prefer, but seldom find, the opportunity to enhance their relationship with surgeons at larger centers.

More understanding between general surgeons and GP-Surgeons is required. This could easily be achieved by increasing the links between peripheral hospitals and tertiary referral hospitals. Journal clubs, teleconferences, case reviews and presentations are all opportunities for developing this relationship and increasing the communication between rural and regional centers. Itinerant surgery by referral surgeons, for larger cases, would also allow GP-Surgeons to maintain their competence, enhance the relationship between rural and regional centers and provide more closer to home patient care.

Standards of Care

With rigorous training standards, in a screened low-risk population, rural generalists with advanced skills in maternity care, anesthesia, and surgery must, and do deliver a standard of care which is identical to care provided by a specialty group to the same population. The skill set is shared. The standard of care is identical. The rural generalist, properly trained, becomes an expert in recognizing the boundaries for those procedures and patient selection beyond which he or she will transfer care. What distinguishes the specialty group is their ability to extend the skill set to include more complicated procedures in a population of higher risk [Iglesias S. Thompson J. Shared Skill Sets, CJRM (in press)].

Guidelines have not emerged in surgical practice to the extent that they are prevalent in obstetrical and anesthetic care. However, where they do exist, they should reflect our commitment to a single standard of care across urban and rural Canada. Guidelines should be evidence-based, should be developed jointly between specialty and family practice surgeons, and should acknowledge the realities of rural practice.

Disclosure and Informed Consent

Patients for whom surgical care is considered should be partners in choice. Informed consent requires full disclosure of the advantages and limitations of the local surgical service. This should include a discussion of anticipated risk as well as the options of transfer to another center. This

process of disclosure and consent must continue through the post-op period as risk is periodically re-evaluated.

10. Maintenance of Competence

i) Numbers

Training programs in rural anesthesia and in rural maternity care have paid considerably attention to the question whether a minimum caseload was essential to maintain competence. In both instances, the proposal for a minimum yearly caseload was discarded. This partly reflects the absence of any evidence in the literature linking competency, outcomes, and caseload. It also reflects an attitude towards competency which emphasizes continuing education, audit, and peer review.

There is some evidence in the literature that rural family physicians who have acquired competence in a procedural skill (cesarean section) can maintain their skills with relatively few annual cases - as little as 5 per year [Deutchman M, et al. Outcomes of Cesarean Sections J Am Board from Proc 1995, 8(2); 81-90]. It seems to be the extent to which the skill was practiced during the initial learning phase - i.e. repetition past the point of learning - that protects the erosion of the skills [Jackson W and Diamond MR. Procedural Medicine: Is Your Number Up? Australian Family Physician. 1993;2219:1633-39].

The Society of Obstetricians and Gynecologists does not require a minimum number of deliveries to maintain competence [SOGC Guidelines - Number of Deliveries to Maintain Competence - November 1996]. They do require evidence of continuing medical education and quality assurance programs.

ii) Professional Development and Continuous Quality Improvement

Once trained, these rural family physicians with surgical skills require continuing professional support and education. We have much to learn from the history of training programs for rural family practice anesthesia. These physicians are superbly trained but leave the university without plans for support to sustain their competence, to refresh their clinical skills, and to retain them in rural clinical practice. Once trained, they are "orphaned". Although specialists provide the training, these graduates have no home in the department, nor in the specialist society, nor in the Royal College. Although training in Family Medicine, their continuing educational needs in anesthesia and initial care are not usually attended to by the events organized by the departments or College of Family Practice. As a result, opportunities for continuing medical education are scarce. The trainees feel isolated. Occasions for interaction, shared experiences, and mutual support are rare or non-existent. Burn-out, the subsequent exit from the anesthetic and/or rural practice, is frequent.

If we are to succeed with formal programs to train rural family physicians with surgical skills, we must anticipate and provide for the continuing education, organizational needs, and professional support of the graduates. We considered several possibilities.

1. Departments of General Surgery might, on an informal or formal basis, open their clinical practices to rural GP-surgeons wishing a short opportunity to refresh their training. This has worked well for GP- anesthetists.

2. GP-surgeons might record their clinical work in a log-book which could be reviewed formally at regular intervals. This review should be educational, helpful, and non-threatening. This suggests some participation by the rural faculty of Family Medicine and General Surgery without inclusion of the licensing body.

3. Nova Scotia has a unique, voluntary program designed to provide support and peer-review for GP- anesthetists in community hospitals. It's success makes us wonder whether a similar program for GP- surgery would be helpful. The objectives of the Anesthetic Services Program Encompassing Nova Scotia (ASPENS) are

a) provide a peer review system
b) maintain a resource library
c) staff a "hot line" for urgent and emergency consultation
d) promote and coordinate access to continuing medical education e) provide advice on new equipment, maintenance, repairs

Our view is that each of these programs has a large potential contribution to the continuing support and development of rural GP surgeons. Individual training programs should be encouraged to select that which seems most appropriate. However, we do recommend that the accreditation of these surgical training programs should require some formal maintenance of competence programming.

11. Summary

Essential surgical skills belong historically in the scope of rural family practice. Clearly, this is appropriate. The availability of practitioners with these skills has sustained the ability and the inclination of rural health care workers to provide local care for the ill and the injured. Without this infrastructure of strategic

community hospitals providing surgical and anesthetic care, rural medical care as we know it will disappear.

What is required is a joint commitment from the disciplines of Family Medicine and General Surgery to design and deliver formal, accessible training programs for surgical skills, including appendectomy, to rural family physicians. Academic departments must organize these programs, health ministries must fund the training, the CFPC must accredit the training programs, and the provincial licensing authorities must recognize the skills.

12. Recommendations

1. Rural Canadians should have access to family practice surgery services within, or close to, their home communities. Local access is particularly important for essential surgical services such as appendectomy and cesarean section.

2. There should be a single standard of care in urban and rural Canada for the provision of community surgical services for low-risk patients and procedures. The skill set is a shared one between certified and family practice surgeons. The knowledge base within both training programs would be of equal rigor.

3. The requirements that urban and rural care for the shared skill set be identical also requires that minimally invasive technology be equally accessible in rural Canada.

4. Training programs in family practice surgery should ensure that sufficient Canadian graduates will be available to meet the needs of rural Canada. This requires that provincial funding authorities provide appropriate level of support to the applicants, the preceptors, and the department of family medicine and surgery.

5. Training programs should be accredited by the College of Family Physicians which should include collaboration with the specialty committee of General Surgery of the Royal College.

6. As in other areas of advanced skills for rural family physicians, the amount of training should be competency based. There is no predetermined length of time required to acquire competency. This will vary with the pre-existing capabilities of the student, their own capacity to learn, and the anticipated role that these physicians will play in their communities.

7. Accredited training programs for rural family practice surgery should include regional and community hospitals and faculty.

8. Training should be accessible to third year Family Medicine residents and to re-entry physicians. In principle, subject to availability of mentors and teaching opportunities, these skills could be acquired in a teaching center, a regional hospital, or a rural hospital.

9. Training programs in family practice surgery should have a formal realistic mechanism for the evaluation and certification, that includes the observation of in-hospital clinical work, of physicians who have received their surgical training elsewhere. This is particularly true for immigrating physicians whose clinical experience is large but whose formal training might be less than is usual in the Canadian context.

10. Applicants for training should be evaluated for previous training, existing skills and community resources and support. Membership in the Royal College or CFPC should not be a factor in the selection process.

11. Accreditation of family practice surgical training programs should be contingent on the institution of formal CME and maintenance of competence programs.

12. Regional databases should be created to provide for the effective comparison of outcomes within rural family practice surgery and between it and the practice of certified surgeons.

13. Guidelines for surgical care within the shared skill set should be subject to an expeditious and effective process of joint consultation and approval between the SPPC, CFPC, and CAGS.

14. The principles of risk management, regionalization, disclosure, informed consent and patient choice in the Joint Position Paper on Rural Maternity Care apply without qualification to family practice surgery services.

13. APPENDIX

CURRICULUM FOR A NATIONAL TRAINING PROGRAM IN ADVANCED SURGICAL SKILLS FOR RURAL FAMILY PHYSICIANS

COMMON SURGICAL SKILLS

For each condition listed, the resident should be able to comprehensively assess, devise a management plan and provide acceptable post-operative care and follow-up. Within the management plan, the resident must be able to decide whether management should be local, local with consultation or involve referral and transfer.

Abscesses, hematomata
Acute abdominal pain
Abdominal trauma

Abdominal masses
Facial injuries - zygoma fractures, nasal bone fracture
Acute gynecological problems - PID, ovarian cyst, ectopic pregnancy Cesarean section

Circumcision - adult and child
Chronic tonsillitis, tonsillar abscesses
Breast lumps and infections
Burns - with and without skin grafting
Compartment syndrome
Hand injuries - extensor tendons, flexor tenosynovitis, partial amputations, metacarpal fractures
Hand pain - ganglion, trigger finger, carpal tunnel syndrome
Ingrown toenails

Leg ulcers
Groin lumps and pain
Neck lumps
Nerve and tendon entrapment
Pilonidal abscess/sinus
Scrotal swelling
Sterilization - male, female
Laparoscopic skills
Endoscopic skills
GI bleeding, altered bowel habits
Hemorrhoids, rectal pain
Z-plasty, full and split thickness skin grafts
Repair and treatment complex wounds and infections Venous incompetence
Abdominal uterine bleeding

ADVANCED SKILLS FOR RURAL COMMUNITIES

The population base required to support a general surgeon was, at one time, 8,000 people. Currently, it is at least double this number. Communities of ten to fifteen thousand need surgical services. They need easy access to the same standard delivered in urban centers. The clinicians currently providing this service need to be supported, those retiring need to be replaced, and communities which have lost these physicians need to have the opportunity to recruit Canadian trained physicians. A national GP-surgery program would address these needs and likely impact little on current general surgery practice trends. A Canadian-based training program standardizes, regulates and maintains a system which has existed for decades and is at the threshold of extinction.

Planning curriculum for GP-surgeons must take into account distance from specialists as well as transportation abilities. There will be some flexibility outside of the core learning objectives, to account for the highly variable work environment of the rural practitioner. There are some communities which are extremely remote and may require additional surgical services. These additional skills should be offered to GP's already practicing in a remote area or those already practicing surgery who wish to upgrade their skills for more isolated areas. Emergency stabilization and transport will already be assumed at the start of the program, i.e. ATLS or equivalent.

LEARNING OBJECTIVES

Communication Skills and Patient-Doctor Relationship

The resident will be able to:

* as part of a multi-disciplinary surgical team effectively communicate the differences in having a surgical procedure in a rural community to a patient.

* adequately obtain informed patient consent for surgical procedures.

* establish a comprehensive professional referral network including a well-developed relationship with tertiary-based referral general surgeons.

Professional Knowledge and Skills The resident will be able to:

* have a sound knowledge of anatomy, physiology and pathology for common surgical conditions and less common conditions as they relate in differential diagnoses.

* take an accurate surgical history, perform a physical examination, diagnose, investigate and manage common surgical conditions given the differences of rural medicine.

* competently perform common surgical procedures, both elective and emergency.

* demonstrate knowledge of pre and post operative management of common surgical conditions with specific attention to the differences in resources in rural communities.

* demonstrate a commitment to continuing education and self-directed learning

* identify the limitations of surgical procedures in rural communities and explain how they affect different aspects of patient care.