Postgraduate Education for Rural Family Practice

Vision and Recommendations for the New Millennium

A Report of the Working Group on Postgraduate Education for Rural Family Practice*

The College of Family Physicians of Canada

Le Collège des médecins de famille du Canada

* Approved by the College of Family Physicians of Canada Board – May 12, 1999
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# Table of Contents

Executive Summary 5

Mandate 1
Knowledge, Skills & Attitudes Needed for Rural Family Practice 12

Mandate 2
Current Postgraduate Education Initiatives for Rural Family Practice 17

Mandate 3
Recommendations for Core Postgraduate Education for Rural Family Practice 21

Mandate 4
Recommendation for Postgraduate Education for Special/Advanced Rural Family Medicine Skills (Part I & II) 30

Appendix 1
JANUS Project 36

Appendix 2
Rural Family Medicine Problems and Associated Skills 42

Appendix 3
Rural Patient Stories/Physician Management Narratives/
Rural Clinical Decision-Making Skills 51

Appendix 4
Rural Family Medicine Resident Scenario/Issues 75

Appendix 5
Advanced Skills Performed by Canada’s Rural Family Physicians – CIHI data 77

Appendix 6
Background Paper “To Explore the Potential for Advanced Family Practice Procedural Training” 78

Appendix 7
Bibliography – Rural Medical Education References 83
Executive Summary

The Working Group on Postgraduate Education for Rural Family Practice of the College of Family Physicians of Canada was established in 1998 to review the current state of postgraduate education for rural practice in Canada and to outline an appropriate curriculum to prepare new family physicians for the challenges of rural practice. The Group’s mandate was as follows:

- To describe the knowledge, skills and attitudes needed for rural family practice.
- To describe the postgraduate training currently provided to prepare family medicine residents for rural family practice.
- To outline the core postgraduate curriculum for rural family practice.
- To explore the potential for an advanced skills postgraduate curriculum for rural family practice.

To meet this challenge a diverse group of College members and others was assembled including representation from the Society of Rural Physicians of Canada and the Royal College of Physicians and Surgeons of Canada. The group included practising rural physicians as well as physicians involved in teaching both students and residents for rural practice. As a group they represented rural and remote communities from across Canada and included in their practice profile special skills and interests in areas such as anaesthesia, obstetrics and emergency work. The group also included family medicine residents, rural program co-ordinators, postgraduate family medicine program directors, and an associate dean for postgraduate education. In an effort to insure that major stakeholders were aware of the work in progress, an external group of representatives from various organizations and universities was invited to participate as corresponding members.

The group was challenged to prepare its report within a one-year time frame. To accomplish this goal a series of two meetings and four teleconferences were held, however, the majority of the work was done by a hard-working group of individuals who volunteered their personal time to make this report possible. In addition to the meetings and teleconferences, presentations were made to the Board of Directors of the College of Family Physicians of Canada in December of 1998 and to an invitational meeting of representatives from major national medical organizations held to discuss education and training of rural family physicians and called by the College in January 1999.

The report, “Postgraduate Education for Rural Family Practice: Vision and Recommendations for the New Millennium” was presented to and approved by the College of Family Physicians of Canada’s Board of Directors in Victoria, BC on May 12, 1999.

With 10 million square kilometres and only 28.8 million people, Canada has vast rural areas where providing accessible quality health care is a major challenge. Canada has a very diverse population. More than 1 million Canadians of Aboriginal ancestry, 4% of the total population, are scattered from coast to coast. Nearly 300,000 live in isolated reserves. Fifty-six percent of Canada’s Aboriginal people live in rural areas including reserves: 35.2% on reserves and 20.3% in non-reserve rural areas. By any measure, Aboriginal people have poorer than average health.

Numerous primary industries are based in rural Canada – mining, forestry, fishing and farming. All of these industries pose a higher risk of accidental injury and death for both workers, and in some instances such as farming, their families. Canada's rural people are older and in general have a lower income and educational status than their urban counterparts, and these factors have been shown to correlate with poorer health status overall.

In addition to the above populations, rural family doctors provide care for the many tourists who visit Canada's rural and remote areas each year. These people present with a full range of illnesses from poison ivy dermatitis to myocardial infarction as well as with injuries specifically related to activities such as skiing. A remarkable example was the worst bus accident in Canadian history which occurred near Baie-St. Paul, a community of 4,000 people with a small hospital.

Canada's rural health care providers are challenged not only by the populations that they serve but also by the barriers to access to specialist and technological support. These barriers include the sometimes enormous distances to travel, the often harsh climactic conditions which can delay or prevent it completely, particularly in difficult geographical settings, from the Maritimes to the west coast mountains. To provide health care in these
settings requires a practitioner with a specific knowledge base, skills set and attitudes relevant to the setting and population.

A commonly used definition of “rural” in Canada includes communities of up to 10,000 people. By this definition, 8,740,847 Canadians (30.3%) are rural. Rural people can also be defined as those living outside census metropolitan areas and census agglomerations. By this counting method, 22.2% of Canadians (6,396,906) are rural people. A “Census Agglomerate” is defined as “a large urban area (known as the urban core) together with adjacent urban and rural areas (known as urban and rural fringes) that have a high degree of social and economic integration with the urban core. A CA has an urban core population of at least 10,000, based on the previous census.

Using the same definition of practice location, only 9.9% of Canada's doctors – 4,775 family doctors (16.5% of Canada's GP/GPs) and 756 specialists (2.8% of Canada's specialists) – can be considered rural. Rural practice can be defined as “practice in non-urban areas, where most medical care is provided by a small number of general practitioners/family doctors with limited or distant access to specialist resources and high technology health care facilities.” [Rourke J. In search of a definition of rural. Can J Rural Med 1997;2(3):113-115]. Another functional definition is “medical practice outside of urban areas where the location of practice obliges some general/family practitioners to have or acquire procedure or other skills not usually required in urban practice.” [Faculty of Rural Medicine, Royal Australian College of General Practitioners] Appropriate education must be provided for physicians to practice under these circumstances.

In Canada, rural education initiatives at the postgraduate level have developed almost totally within provincial regions. The forces for education reform at this level have come from grassroots rural physicians' input, pressure from rural practice groups within some provincial medical associations, educational leadership at some university medical school departments of family medicine, with some support from general medical organizations and governments. As a result, a variety of family medicine training programs have been developed in response to regional needs and resources available.

There have been, however, no national standards for curriculum for postgraduate education for rural family practice and especially for advanced skills for rural family medicine. This has made it difficult for residents to identify and select postgraduate education programs that will specifically prepare them for an anticipated career in rural family practice. Availability and structure of postgraduate and special/advanced skills education for rural family practice is an area of particular concern for both practising and prospective rural doctors.

Successful development of core postgraduate education for rural family practice and special and advanced skills training is required to meet the health care needs of rural Canadians. Producing more physicians with the knowledge, skills and attitude for rural family practice will require involvement, collaboration, co-operation, and support of governments, medical schools, medical organizations and rural doctors. Successful quality rural medical care requires an adequate number of appropriately trained rural doctors with an effective, supportive rural health care team. Providing appropriate education for rural family practice is essential. Better recruitment and support for rural physicians with strengthened rural health care teams and infrastructures is also crucial to improving rural health care.

This report provides both a vision and recommendations for “Postgraduate Education for Rural Family Practice.”

- Mandate #1, describes the “knowledge, skills and attitudes needed for rural family practice”. This section along with Appendix 3 “rural patient stories/physicians narratives” describes the essence of rural family practice.
- Mandate #2 describes the “current postgraduate education initiatives for rural family practice.
- Mandate #3 presents “recommendations for core postgraduate education for rural family practice”. This section provides 9 major and 41 specific recommendations for effective core education for rural family practice within the 2 year family medicine program. Important issues are highlighted in the discussion.
- Mandate #4 presents “recommendations for “postgraduate education for special/advanced rural family medicine skills.” This section provides 3 recommendations for special rural family medicine skills education and 13 for advanced rural family medicine skills education. Important issues are highlighted in the discussion.
The following are the specific recommendations of the working group taken from the body of the report and summarized here for the convenience of the reader. The first section “A” provides recommendations related to the core two-year family medicine residency program. Rural family medicine training streams are recommended as an appropriate choice for residents to develop competency in the knowledge, skills and attitudes for rural family practice.

Sections “B” and “C” provide recommendations for special and advanced skills training beyond the core 2-year family medicine residency. The second section “B” relates to special rural family medicine skills training that would address the need to upgrade skills or develop enhanced or additional skills needed in a particular community or by a specific physician. Such flexible 3-6 month programs might include skills such as mental health, Aboriginal health, intensive care, orthopaedics, emergency medicine and endoscopy. They are discussed fully in Mandate #3, pages 21 – 29. The third section, “C” refers to advanced skills normally acquired in nationally accredited programs conducted in accordance with recognized national standards. Graduates of such programs might receive a university diploma indicating that they have completed a nationally accredited program. Examples include FP/GP anaesthesia, advanced maternity care (including consultant and operative obstetrics), FP/GP surgery and may include psychiatry and other major skill sets where there is a demonstrated need. They are discussed fully in Mandate #4, pages 30 – 35.

Recommendations

A. Core Postgraduate Education

1. Core undergraduate rural educational experiences are necessary for all medical students.
   1.1. All undergraduate programs should include core rural family medicine rotations.
   1.2. Opportunities for interested medical students to pursue ongoing and extensive undergraduate education in rural, remote, and secondary medical settings for core specialty medicine or elective rotations need to be developed.

2. Core postgraduate rural/regional community based rotations are desirable within all programs along with sufficient rural elective opportunities for all residents.
   2.1. In family medicine these community rotations should be no less than eight weeks in duration and occur in rural or regional centres.
   2.2. All residents should have access to significant rural electives/selectives in family medicine and other disciplines.

3. Rural family medicine training streams should be developed as appropriate postgraduate training for rural family practice.
   3.1. The number of rural family medicine training stream positions should reflect rural health care requirements.
   3.2. Family medicine training programs which have identified community needs for rural family physicians should develop rural training streams for postgraduate trainees interested or intending to practice in a rural setting upon graduation.
   3.3. These rural streams should be recognizable to medical students upon CaRMS application (or alternate match in Quebec) and identify trainees upon entrance.
3.4. Postgraduate education specific to rural practice should continue to be offered within the present two-year time frame.

4. **Rural family medicine training streams should be community-based integrated programs with full academic support.**

   4.1. The four principles of family medicine provide the framework for the development of specific curricula.

   4.2. A minimum of six months of postgraduate education should occur in rural settings.

   4.3. Including rural rotations in both years of a residency are important.

   4.4. Rural family medicine postgraduate education should be based in settings where there is an active hospital.

   4.5. Residents should have first hand experiences in the provision of clinical services within communities without hospitals.

   4.6. The teaching of continuity of care is important and requires specific educational planning in order to incorporate this concept into rural postgraduate education and within each specific rural site. A minimum of four months should occur in at least one rural site.

   4.7. The incorporation of horizontal experiences to meet curriculum goals and resident specific learning objectives should be encouraged and explored.

5. **The learner-teacher dyad should be based on the preceptorship model for both family medicine and specialty-based educational experiences/rotations.**

   5.1. The guidance of a rural practitioner allows trainees to develop a confidence and belief in their own abilities necessary for safe rural practice.

   5.2. Faculty involved in the teaching of rural family practice residents must support the goals of the rural family practice program.

   5.3. Rural faculty must be supported and integrally involved in program development and evaluation.

   5.4. It is important throughout educational activities that the knowledge, skills, and attitudes required for effective team functioning be developed.

6. **Competency in the knowledge, skills and attitudes for rural family practice should be the goal for rural family medicine residency training.**

   6.1. Curricula and educational content should be based on the clinical realities of rural practitioners building on the template of problems and procedures (appendix).

   6.2. These curricula should be a collaborative effort between the departments of family medicine and the teaching specialties.

   6.3. Clear learning objectives based on the knowledge, skills and attitudes for rural family practice should be developed by rural family medicine training programs for their overall two-year program and are essential for each rotation within the program.
6.4. Rural family medicine residents should have the opportunity to develop their own specific additional learning objectives consistent with the principles of adult learning.

6.5. Formative (in-training) and summative (completion) evaluations should be based on the learning objectives identified by the program, the rotations and individual residents.

7. Hospital experiences or rotations should be appropriate for the residents' learning needs for future rural practice.

7.1. Patient presentations should closely resemble those encountered in and referred from rural practice.

7.2. Clinical workload and educational activities appropriate for the development of the knowledge, skills and attitudes for future rural practice are necessary.

7.3. The teaching obligation to rural family medicine residents is of equal importance to other teaching responsibilities (e.g. specialty residents).

7.4. Family physicians have a significant role in patient care and share a collegial role with specialists within the hospital teaching environment.

7.5. Specialty-based hospital rotations should be developed at regional hospitals.

7.6. Intensive high volume rotations in urban or tertiary hospitals may be required to attain knowledge, skills, and attitudes in areas such as obstetrics, management of trauma, critical care, or psychiatric emergencies.

7.7. Urban or tertiary training must be combined with extensive experience in a rural setting to develop an approach and confidence to manage these clinical problems outside the urban setting.

7.8. University specialty departments have a social responsibility to rural communities to provide appropriate training and referral backup to rural practitioners and their accreditation should include an assessment of their commitment to educating physicians for rural practice.

8. Universities should support and develop rural physician teachers as integral faculty members.

8.1. Funding and infrastructure support for rural physicians involved in teaching activities are essential.

8.2. Physicians involved in supervising and teaching rural training stream residents should receive university faculty appointments and appropriate funding.

8.3. Specialty preceptors should have appropriate faculty appointments ideally in both family medicine and their specialty departments.

8.4. Rural faculty should have ready access to library, Internet, and other long distance telecommunication technologies.

8.5. There must be a high degree of local input and control in the university/rural network providing the rural programming.

8.6. Faculty development activities specific to rural faculty are required.

8.7. Rural training programs require an identified co-ordinator with a clear mandate to collaboratively support rural faculty in their training roles and responsibilities.
9. **University faculty and programs should nurture and develop present and future rural family medicine residents.**

   9.1. Measures must be instituted/facilitated to allow those interested in working in rural practice to meet, mingle and empathize.

   9.2. Barriers such as transportation and additional accommodation costs should be minimized and resident support structures should be developed.

**B. Special Rural Family Medicine Skills**

1. Flexible additional postgraduate education for rural family practice should be provided to meet both learner and community needs.

2. Additional third year positions of flexible duration (usually 3-6 months) should be readily available for residents to develop special skills for rural family practice.

3. Rural physicians in practice should have ready access to appropriately funded special skills education opportunities of flexible duration (usually 3-6 months).

**C. Advanced Rural Family Medicine Skills**

1. Rural Canadians should have access to essential health services including anaesthesia, optimal maternity care, general surgery and other advanced skills such as psychiatry within or close to the communities.

2. Rural family physicians should continue to be trained in Advanced Rural Family Medicine Skills including general anaesthesia, general surgery, advanced maternity care including Caesarean section and other advanced skills such as psychiatry where there is a demonstrated need.

3. A defining principle of training programs in advanced skills for rural family physicians is the requirement that there be a single standard of care for both urban and rural Canada for the provision of these essential services for low-risk patients and procedures. The skill set is a shared one between family medicine and the specialty groups and the knowledge base within both programs should be rigorous.

4. The curriculum guidelines and standards for advanced rural family medicine skills should be recognized and developed by the College of Family Physicians of Canada, the SRPC and RCPS with input from appropriate specialists and associations.

5. The College of Family Physicians of Canada (and preferably conjointly with the Royal College with input from the licensing bodies) should accredit advanced rural family medicine skills training programs.

6. University medical schools should develop and provide advanced rural family medicine skills training programs based on both regional and national needs.

7. Advanced rural family medicine skills training programs should be developed with the appropriate resources and utilize regional and rural components and teachers as much as possible.

8. Advanced rural family medicine skills training positions should be accessible to committed applicants, both third year family medicine residents and re-entry (practising) physicians.

9. Training should be competency-based rather than solely time-based, but most often will require a range of 6-12 months.
10. Learning objectives based on nationally developed curriculum guidelines and standards should be used for formative (in training) and summative (completion) evaluations.

11. The individual physician's training program for advanced rural family medicine skills should also reflect the learner's and the community's needs.

12. Medical schools providing nationally accredited Advanced Rural Family Medicine Skills training should provide a certificate of competence to physicians who satisfactorily complete their program.

13. The medical schools providing Advanced Rural Family Medicine Skills Training Programs should develop nationally accredited CME and maintenance of competence programs.
Mandate #1
Knowledge, Skills & Attitudes Needed for Rural Family Practice

Rural family physicians in Canada are people who have chosen to live in small communities and accept the joys and challenges of a rural lifestyle, as well as the satisfactions and difficulties of the medical work they perform. These doctors possess a set of skills and attitudes, as well as a knowledge base that allows them to provide broadly based care to their communities. These are outlined below under the subheadings of the four principles of family medicine.

Rural family physicians, like all effective family physicians, incorporate the four principles of family medicine into their practice of medicine. These form part of the background upon which the curriculum for training rural practitioners must rest. (1)

1. The family physician is a skilled clinician:

   Rural practice in general is practice in non-urban areas where most of the medical care is provided by a small number of general practitioners/family doctors with limited or distant access to specialist resources and high technology health care facilities.

   Rural physicians must be involved in, and skilled at, both office based primary care, and also, to varying degrees, hospital based medical care in order to provide comprehensive and safe service to their patients locally. (3) In both office based service, and the hospital based services of emergency medicine, obstetrics and minor surgery, and orthopaedics, rural physicians must be competent in a core set of skills which allows them to deal with more complex medical problems than they would do if specialists were immediately and easily accessible. In addition to these core skills, some rural physicians acquire advanced skill sets which may include GP anaesthesia, operative obstetrics and GP surgery. Training for the core skills should be available during the standard family medicine residency time, while the advanced skill set could be acquirable after completion of the two year program. (1)

   The skills demanded for rural practice are numerous, and because of the difficulty accessing CME and the small number of occasions when some skills may be used, it can be difficult for physicians in rural areas to maintain their proficiency. (3) Some communities of physicians, therefore, choose to facilitate the development of particular skills in certain of their members. For example, in a community of 5 rural family doctors, there may be one who performs vasectomies and circumcisions, another who oversees chemotherapy, and one who feels especially competent in dealing with sexual assault cases. In addition to organizing themselves to facilitate maintenance of knowledge and skills, rural family doctors can benefit one another by providing creative local CME programs, including activities like "mock codes," and case based reviews of challenging patients and situations. While this takes time and energy, it helps to compensate for the limited access to relevant CME for rural physicians. Rural physicians in training must develop a commitment to the idea of lifelong learning, and, ideally, be exposed to creative ways of pursuing CME and maintaining their knowledge and skills in rural settings.

   “Appendix 2: Rural Family Medicine Problems and Associated Skills” provides a preliminary listing of patient problems and associated procedures that physicians need to proficiently manage and perform in a rural setting, often without local specialist back-up. Many of the problems listed will be encountered and managed by both urban and rural family physician. The management of the problems, however, is different for the rural doctor who will likely have to recognize and manage the emergent presentation more independently and provide more of the long term follow up with less specialist backup than their urban counterpart. In addition, the resident in training for rural family medicine may not have actually performed all of the skills listed. However, he or she
should have been taught an approach to the infrequent but critical skills, such that they are able to draw on a
background knowledge base should the situation arise where he or she has to perform that skill.

Acquisition of the knowledge, skills and attitudes listed in appendix 1 requires that: 1.) appropriate opportunities
are made available to access the skills, 2) that appropriate learning environments are utilized for the learning, 3)
that appropriate preceptors are involved with the teaching of the skills, and 4) that appropriate monitoring and
evaluation methodologies are employed.

Beyond the possession of a certain skill set however, there is the need for clinical judgement as to the safety of
applying those skills at any particular time. For example, a physician may feel quite skilled in induction of
labour and management of complications of labour and delivery, however because she is aware that the nurses
are short staffed, a "weather front" is moving in and the road has been closed numerous times this winter, she
may elect to safely transfer the patient to another centre where the patient may be induced in a more controlled
setting. The ability to do this requires an awareness of one's setting, health care team, and local resources. This
is something that is difficult to learn in a tertiary centre which is infrequently affected by questions of weather,
and support. Rural exposure during training allows residents to begin to develop a sensitivity to this issue, and
understand its impact on patient care decisions.

By contrast to the above, there will be times when the rural family doctor is called upon to go beyond the skill set
in which they feel confident, in order to provide much needed service. For example, when he has not performed
a chest tube insertion in a number of years and a patient presents who urgently requires one, the rural physician
may find himself with the "textbook at the bedside" in order to perform the skill. This willingness to push
beyond one's comfort zone when necessary requires what some have called an attitude of "clinical courage". (4)

Courage, is a necessary attitude for rural family physicians. They often find themselves facing situations outside
of the realm of anything they have ever done or seen. With limited facilities, and in emergent situations, the
rural physician may struggle with an uncertain diagnosis, and feel it is necessary to perform skills he has not
used recently, if ever. This uncertainty can be very stressful, particularly, because, in the face of uncertainty, the
physician is aware that what he is doing may not have a successful outcome. Ideally, during their training, rural
family medicine residents will have "clinical courage" modelled for them so that they can begin to understand its
necessity in the rural setting.

2. Family medicine is a community-based discipline:

"Family practice is based in the community and is significantly influenced by community factors." (1)

"The family physician is committed to the person (and the community) rather than to a particular body of
knowledge, group of diseases or special procedures...His or her practice is not even limited to strictly defined
health problems, the patient defines the problem. Patient needs within the community context define the
knowledge, skills and attitudes that their physician needs to acquire to serve their needs." (5)

Community needs define the skills, knowledge and attitudes that their team of family physicians
require and must continue to acquire.

Family physicians practising in a rural community are in an excellent position to assess the health care needs of
their community as a whole. They work as members of an interdisciplin ary team of health care providers to help
ensure that those needs are met by the local health care team as much as possible. They must be able to
recognize the limitations of local resources, the hospital setting and their own medical team in order to be able
to ensure that care is provided to the community in a safe, effective and efficient way. While helping to oversee
the provision of medical services to the community, rural doctors also have a responsibility to ensure that the
quality of health care services provided is adequate.

Rural doctors help to support the services provided within the community in a number of other ways. They are
often involved in hospital committees, and act as a resource to local service groups, patient support groups and
other community based groups. This provides wonderful opportunities to assess community needs and to
experience the rewards of making a significant contribution to the life of a medical community and the
community as a whole.
The potential demand for involvement in a number of organizations and committees can be huge and rural family doctors may benefit by working as a team to try to address the needs of the community. To thrive in a rural community the family doctor should be able to recognize their own personal needs and have the courage to address those, particularly as they pertain to identifying and alleviating the potential for excessive stress and burnout. The ability to recognize and subsequently address this often demands a creative problem solving ability on the part of the local physicians. Ideally, the rural based family physician is able to draw on the local hospital and community for support when addressing these issues.

Rural family medicine residents benefit from witnessing the breadth of service provided to the community by rural doctors, the challenges inherent within that work and some of the ways in which rural doctors develop the skills necessary to prioritize and meet those demands.(3)

3. **The family physician is a resource to a defined practice population:**

The rural family physician is a health care and information resource for the population that they serve. Rural family doctors are required to maintain a broad knowledge base and must be committed to pursuing their own life long education to allow themselves to acquire new information and assess its relevance to patients in their particular practice. This is particularly important because rural family physicians will have to follow patients in their community who have specific diseases which they may not have encountered in their training.

The rural family doctor must also be knowledgeable about the special medical needs of the practice population that they serve, often including groups such as miners, farmers, and loggers. Another special population often encountered in rural, and especially northern areas, which has significant, pressing health issues, is the aboriginal population. Rural family doctors have a responsibility to advocate for changes and services that will positively impact on the health of groups within their practice population. This includes identifying illnesses for which the population may be at risk and implementing office and community based strategies for screening and prevention of those diseases. Evidence based medicine is important in rural practice.

Rural family physicians are stewards of health care resources. They are to a great degree responsible for ensuring that local resources are used appropriately. In addition, because access to diagnostic and therapeutic services is limited in small towns, rural family physicians recognize that every test and service provided away from their community often requires additional financial resources and time for their patients to travel, disrupting both the patient's work and family life. Rural family doctors are responsible for selecting tests wisely, and providing efficient referrals. They also have the opportunity to identify services which would be better provided locally. The politically skilled rural physician will then promote these with local, regional and potentially national decision-makers.

An attitude of stewardship of resources should be modelled throughout the health care system; however, the issues impacting rural patients and rural health care settings are different from those impacting urban patients in cities. Family practice residents benefit from exposure to rural areas to understand the importance of this in the rural setting.

Family medicine residents who are interested in rural practice must have the opportunity to be exposed to rural family physicians during their training so that they can begin to develop an understanding and appreciation for all of the ways in which rural physicians are a resource to their patient population.

4. **The physician-patient relationship is central to the family physician:**

Rural family doctors like all family physicians have an "understanding and appreciation of the human condition, especially the nature of suffering and the patients' response to sickness” (1) Family physicians respect the commitment made to their relationships with patients, and work to provide continuing care to the patients in their practice. While this attitude is common to family physicians regardless of where they practice, there are some issues specific to rural family doctors.
In small communities the availability of information about a patient, their health and lifestyle, is in general, much more readily available than it is in a larger centre. For example, as there is usually only one emergency department in a small town, family physicians are often quickly aware of the visits that their patients make to that care resource. There is a chance as well that the physician will also either see the patient in the community setting, or hear about them from colleagues and nurses who have seen the patient in the community. While this can provide a tremendous amount of knowledge and insight about a patient, it can also lead to a blurring of "work" and "nonwork" time. This potential blurring requires an openness and insightfulness into one's work and social relationships. It also demands that the physician hold the patient relationship as a very private matter and be highly aware of possible areas wherein there is the potential for violation of confidentiality.

The converse is also true for the physician - patient relationship. Not only is the patient in the community under potential scrutiny, but so is the physician. Rural family doctors are visible to the populace of their communities while doing simple, non-medical things such as dining out or enjoying leisure activities. The perception of their demeanour while engaged in these activities may affect their practice and acceptance by the community. Their participation in non-office activities such as athletics and community service groups may have a positive effect on the health and well being of the members of their community. The price for this visibility is privacy and private time. A rural physician must be aware of this cost, but also must have the ability to utilize available resources to allow adequate freedom to pursue personal interests. There are benefits to the considerable contact with patients and their families that rural family physicians can have outside of the office.

Rural physicians, unless they choose to remain socially isolated, will experience times when their friends, neighbours, and colleagues, may be their patients. Even if one decides not to see friends as patients in the office setting, it is difficult to extend this to the less controllable setting of the emergency room. Rural physicians must be open enough to recognize the potential hazards of treating friends in any setting, and develop the skills necessary to allow themselves to successfully negotiate these encounters.(6)

One of the ways in which rural doctors can be prepared for the different aspects of relationships in small towns, is to have experience with a mentor during their training. Anecdotally, many family medicine residents who have not experienced "small town life" find their first exposure to a small town in residency an enlightening experience in this regard. One of the other benefits for residents of exposure to rural settings is the ability to begin to make realistic plans for their significant others.

And common to it all...

There are skills that the rural family doctor has which are needed in their work in all of the above areas. Perhaps the first of these is the ability to communicate well. Whether it is educating a patient, discussing a case over the telephone with a remote specialist, or debriefing the medical team after a critical incident, the rural physician must be able to communicate well.

Rural physicians must also recognize that they are perceived as leaders in their communities, and certainly are usually perceived as leaders of the health care team. Rural physicians in training should be given the opportunity to develop their communication and leadership skills and recognize what it is to take the mantle of leadership.

In addition, rural family physicians in training must be given the opportunity to begin to learn strategies to cope with the stress of the roles that they will play in future rural practice. (3) This may be especially important to women physicians in training who may have to cope with role strain as they learn to integrate family, professional, and personal experiences. (7)

The practice of rural family medicine can be very rewarding. It demands however adequate training wherein students and residents can be prepared for the broad knowledge and skill base which they will be expected to have. It also necessitates that trainees have the opportunity to be exposed to rural situations in order to assess whether they possess or can develop the attitudes necessary to thrive with rural life and rural work.

Appendix 3 presents 4 rural patient stories/physician management narratives and a rural clinical decision making model that illustrate the broad range of knowledge, skills and attitudes used by rural physicians.
Bibliography:

4. Personal communication.

Much of the content of this document was developed through discussions with rural physicians currently residing and working in small Canadian communities.
Mandate #2
Current Postgraduate Education Initiatives for Rural Family Practice

Introduction

Preparing residents for rural practice is a priority for many of the training programs in Canada. In all cases the university faculties of medicine must respond to the needs of the communities they serve as well as meet national standards and respond to the learning needs of the residents themselves who may already have relatively clear career objectives. In the face of all these pressures there has been a steady increase in the availability of training positions intended to prepare new physicians for rural practice.

A major limitation on the training programs is the length of the programs which may work against the ability of residents to acquire advanced skills that may be necessary in the communities they hope to work. There are a number of R3 opportunities for advanced skills training but their availability is variable and somewhat ad hoc in terms of funding and support. These programs are generally not accredited or standardized in terms of objectives and result from a need to meet individual needs rather than as part of a coherent approach to meeting needs of communities or physicians for extra training.

Rural Training within the Core Two-Year Programs

There are 16 accredited family medicine residency programs in Canada. In 1998 approximately 800 residents graduated from these programs of which about 150 or 19% had received training specific to rural practice. In calculating this figure all the programs were contacted with regard to opportunities they provide for a rural training stream as opposed to rural electives. Two programs (Queen’s and Memorial) promote themselves as rural training programs and argue that all their residents receive a two-year rural oriented program intended to prepare them for practice in rural communities. All the programs offer a rural experience of at least a one-month elective for all residents and all offer a structured rural stream of varying length and numbers of positions.

Table 2 is a summary of the rural training streams or programs and the numbers of residents in each program. This does not however represent the whole picture. Some programs did not report a rural stream but offer major opportunities for rural training on an elective basis. The University of Alberta, for example, does not have defined rural stream but has a great variety of rural oriented electives that are selected by the majority of residents in the program. This is not reflected in Table 2 since it is not a defined stream in the same way that the northern Ontario programs are. It still can amount to as much as 8-9 months of training in rural or small communities outside Edmonton in both family medicine settings and community hospitals. Over 50% of the residents in the Alberta program take a 5-month rural family practice rotation in their second year.

It is difficult therefore to identify actual numbers of trainees that undertake a rural oriented program but a conservative number is likely 19% and it may be as high as 25% when other variables are considered. One of the confounding issues is training objectives. Most programs with clearly defined rural streams have specific objectives for these streams that are in addition to or in place of the general family medicine training objectives. There are however no national standards by which to assess these objectives so it is not easy to compare the quality or appropriateness of the various rural streams. One measure of their effectiveness would be how well they do at placing their graduates in rural practice. The streams are all relatively new in terms of career lengths so the long-term effect is difficult to assess and programs have shown variable diligence in terms of follow-up on their graduates. Those who do report some success in placing their graduates in rural communities vary in their definition of rural for purposes of their reports so it is difficult again to assess overall success. It is clear however that the rural streams do tend to be successful in preparing residents for rural practice as outcomes suggest something like 50-75% of the graduates at least start their new careers in rural communities.

Another interesting factor to look at is the demand for the rural streams. The current CaRMS data suggests that there is not a greater demand for rural training than for training in family medicine in general. Although certain programs are definitely in demand this seems to relate more to their reputation among the students than to the fact that they promote themselves as preparing residents for rural practice. The factors that seem to motivate
program selection have much more to do with location or the perception that the program provides a good learning environment for family medicine in general. This is an area that should be investigated more thoroughly. It will require some tracking of applications to programs that proclaim themselves as ruraly oriented.

**Advanced Skills Training for Rural Family Practice**

This has been a very difficult area to get a handle on as the numbers of positions and the status of these programs is very ad hoc from year to year. There are, of course some R3 programs available in family medicine in emergency medicine and care of the elderly that are accredited and relatively stable in terms of objectives and numbers of positions. These programs are not however necessarily rural practice oriented. The market for qualified emergency physicians in major urban centres has had a definite impact on where the graduates of these programs end up even if the resident entered with rural or even just family practice as a career goal. The great majority of the graduates are in full time emergency practice in major urban teaching or community hospitals.

The Care of the Elderly programs are small in comparison and there is not much information about where the graduates have gone to practice. These programs tend to prepare graduates for very specific career objectives or even for very specific jobs. Both the Care of the Elderly programs and the Emergency Medicine programs could provide rural oriented family physicians with valuable skills but are not seen as ruraly oriented by most residents.

In addition to these two accredited programs there is a miscellany of other programs available that are unaccredited and of varying length and focus. Table 1 is a table listing these opportunities as of the fall of 1998. At present there are about 50 of these advanced skills positions in disciplines such as anaesthesia, obstetrics and other areas. Funding for these programs is from a variety of sources including small allotments of residency months left over from maternity leaves, sickness or unmatched positions to specific provincial government funds such as the Rural Physician Action Plan in Alberta. Some of these positions are true R3 opportunities and others are specifically designated re-entry positions. A number of these positions carry with them a return of service commitment.

Contrary to some reports less than half of the R3 special skills opportunities currently carry with them a return of service requirement. This is certainly not the case in some jurisdictions such as in Manitoba where all the R3 advanced skills positions require a return of service commitment and all but one of the accredited positions in Emergency Medicine and Care of the Elderly require return of service. On the other hand, the positions available in the Ontario schools are generally available with no strings attached.

These programs are generally not standardized but rather are customized to meet the learning need of the resident. In some cases there is some administrative support for the co-ordination of these programs with the Department of Family Medicine but for the most part the programs are not based in an academic department.

Interest in R3 training is relatively strong as indicated in surveys conducted by CaRMS and by the CFPC Section of Residents. The CaRMS survey is conducted at the conclusion of the match while residents complete the Section of Residents survey in their 1st and 2nd year of training. The CaRMS results indicate that about 40% of students hope to complete an R3 year with emergency medicine, obstetrics and anaesthesia leading the choices. These numbers seem to be consistent with the Section of Residents survey results which suggests a definite trend. In reality there are about 150 R3 positions total available for nearly 800 graduates or only about 19% or half the identified demand. Again not all these people plan to do rural practice. These numbers only reflect interest in additional training. Another interesting factor is that of the medical students surveyed in the CaRMS survey, there was a tendency for people who felt well prepared to make a choice for family medicine as a career were less likely to want an R3 year. This suggests that the more confidence one has in a career choice the better one feels prepared and therefore there is less perceived need for additional skills training. This emphasizes the importance of strengthening the clinical training we offer in the two year programs at least in terms of building clinical confidence as part of our preparation of residents for rural practice and practice in general.
Few programs do any tracking of the graduates of these R3 programs but those who do indicate that the graduates of the advanced skills programs generally find their way into rural practice and usually in the province in which they trained. This is a very small sample from which one should not generalize. One reason that these graduates are not tracked more carefully is that their training is not really centrally monitored. It falls usually to the specific specialty department or service providing the training to do this and there is neither the interest nor resources to track a relatively small number of people.

A good exception to this rule is the Department of Family Medicine at UBC. They are mentioned here not to put others to shame but rather to demonstrate what can be done with a central administrative structure to support such programs. Of 19 graduates of the R3 Enhanced Skills program at UBC from 1995-98, 15 have returned to work in rural BC communities. Of the 106 graduates of the core rural residency program at UBC over the last 15 years 60% are still in rural practice in Canada. More detailed analysis is available from the program but this seems to indicate that residents who choose to enter these programs do have a rural career in mind and so the support of these programs does at least result in service needs being met in the short term.

**Conclusion**

Clearly there is a move toward expanding the opportunities for rurally oriented training programs across Canada given the considerable expansion of these programs over the last 5-10 years. It is also clear that there is strong interest in such programs among medical students but not always because they wish to work in rural communities at the completion of their training. As with any educational program, you can lead the students to rural communities for training but you cannot always make them stay. There is likely a need to maintain rural electives for residents who do not match to a rural program so that we expose as many trainees as possible to the idea and nature of rural practice and we likely need to look at expanding the existing rural streams to respond to a clear interest among graduating medical students for these programs. We have not glutted the market as yet.

The issue of advanced skills training is also critical. There is a clear demand for this training although not all necessarily rural. We have good evidence however that emergency medicine, obstetrics and anaesthesia are the leading contenders and this suggest a bias to skills at least appropriate to rural practice. There is a need to better co-ordinate and standardize this training so that those in most need can get access to all the opportunities that are available in a relatively scarce resource and that the skills they acquire are nationally recognized to facilitate portability. There is clearly some good initiatives in place already for rural training but more work needs to be done in terms of standard setting and resources.
### Table 1 Training Positions for Advanced Skills for Family Medicine

<table>
<thead>
<tr>
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<th>Number of Positions</th>
<th>Length of Training</th>
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<td>Anaesthesia</td>
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<tr>
<td>Emergency</td>
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<td>12 months</td>
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<td>Obstetrics</td>
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<td>3-6 months</td>
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<td>Palliative Medicine</td>
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<td>6-12 months</td>
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<tr>
<td>Care of the Elderly</td>
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<td>6-12 months</td>
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Table 1 Training Positions for Advanced Skills for Family Medicine

### Table 2 Numbers of trainees in rural based programs

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<td>UBC Rural</td>
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<tr>
<td>Totals</td>
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<td>302</td>
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Table 2 Numbers of trainees in rural based programs
Mandate #3
Recommendations for Core Postgraduate Education for Rural Family Practice

The family physician is committed to the person and their community rather than to a particular body of knowledge, group of diseases, or special procedures. His or her practice is not limited to strictly defined health problems but rather the health issues are defined by the patient and his or her community.

-I. McWhinney, modified by J. Goertzen

Family medicine residency programs should provide appropriate training for rural practice in the present and future. Universities and residency programs have a shared social responsibility with communities, governments, and medical associations to provide appropriate postgraduate education for the rural practice needs of their region and Canada as a whole. Training programs should be based on the knowledge, skills, and attitudes required to practice in rural and remote settings where the majority of medical care is provided by family physicians with limited or distant specialist support. The process of education should be consistent with the concepts of adult learning.

Medical education is a continuum with undergraduate education providing a foundation for postgraduate programs. Rural practice is an ever changing field which requires the practitioner to examine, refresh, and update their knowledge, skill set, and linked attitudes on a continuous basis. Effective continuing medical education must foster the practitioners responsibility for a commitment to life long learning. Thus postgraduate education for rural practice must be cognizant of its place within the educational continuum.

Recommendations

1. Core undergraduate rural educational experiences are necessary for all medical students.

1.1. All undergraduate programs should include core rural family medicine rotations.

1.2. Opportunities for interested medical students to pursue ongoing and extensive undergraduate education in rural, remote, and secondary medical settings for core specialty medicine or elective rotations need to be developed.

Discussion

Educational experiences in the rural milieu are important in order to encourage an understanding of the nature of rural practice in all medical graduates regardless of ultimate specialty and provide a foundation for those who will pursue rural postgraduate training. Rural undergraduate medical experiences are essential in providing medical students with the opportunity to see rural practice as a viable career choice. Curricula must give rural settings the status allotted to the traditional divisions of medicine. Early and ongoing rural experiences in medical schools have been shown to increase the likelihood of rural practice upon graduation. All undergraduate programs should include core rural family medicine rotations. In addition, opportunities for interested medical students to pursue ongoing and extensive undergraduate training in rural, remote, and secondary medical settings for core specialty medicine or elective rotations need to be developed.
2. **Core postgraduate rural/regional community based rotations are desirable within all programs along with sufficient rural elective opportunities for all residents.**

   2.1. In family medicine these community rotations should be no less than eight weeks in duration and occur in rural or regional centres.

   2.2. All residents should have access to significant rural electives/selectives in family medicine and other disciplines.

**Discussion**

At the postgraduate level, the further development of specific rural training streams and rotations are necessary to provide educational opportunities for all interested trainees. Since conscripted rural experiences can result in disastrous educational experiences for both teachers and learners, all trainees should receive community training experiences outside urban teaching centres. These rotations may occur in rural or regional centres providing residents with a more diverse educational experience and broadening their potential practice considerations. These community experiences should be seen as core educational activities and in family medicine these should be no less than eight weeks in duration. All residents should have access to significant rural electives/selectives in family medicine and other disciplines. Elective rotations provide an opportunity for residents who are unable to commit themselves to a rural training stream to broaden their rural experiences as further interest develops during their training. Upon graduation these residents with appropriate training may choose to practice in a rural location.

3. **Rural family medicine training streams should be developed as appropriate postgraduate training for rural family practice.**

   3.1. The number of rural family medicine training stream positions should reflect rural health care requirements.

   3.2. Family medicine training programs which have identified community needs for rural family physicians should develop rural training streams for postgraduate trainees interested or intending to practice in a rural setting upon graduation.

   3.3. These rural streams should be recognizable to medical students upon CaRMS application (or alternate match in Quebec) and identify trainees upon entrance.

   3.4. Postgraduate education specific to rural practice should continue to be offered within the present two-year time frame.

**Discussion**

Accessible rural health care is dependent on an appropriate number of adequately trained rural family physicians. Rural training streams should be developed as appropriate postgraduate training for rural family practice. The number of rural family medicine training stream positions should reflect rural health care needs of communities for rural doctors. For most parts of the country, this will require a significant increase in the rural stream family medicine residency positions. Experience has shown that some residents completing rural family medicine training streams will choose to practice in mid-sized communities which need family physicians along with a few locating in large cities due to family or social circumstances. After a period of practice, some rural physicians relocate to a city. The reverse of urban doctor relocations to rural practice is rare. As a result of these factors, the number of rural stream residency positions needs to be larger than the percent of rural family physicians.
These rural family medicine training stream positions should be recognizable to medical students upon CaRMS applications or alternate match in Quebec. This will assist students who are interested or intending on rural practice to identify and select the most appropriate training program.

Effectively structured two-year rural family medicine training programs can provide learning opportunities for many residents to become competent in the knowledge, skills and attitudes required for rural family practice. There is, however, considerable diversity of opinion on this issue. Some rural physicians and educators feel that with the extensive knowledge, skills and attitudes that need to be developed for rural family practice, that three years would provide a better training length than two years for most residents. However, providing a longer training requirement for rural family practice than for urban family practice may actually be a deterrent to a rural family practice career choice for some residents.

This report recommends that rural family medicine training programs be two years in length, but provide opportunities for extended flexible training to meet both the needs of residents and the communities they plan to serve. All residents entering a rural family medicine training program should be assured they will have the funded opportunity to do up to an additional six months to develop additional expertise most appropriate to their eventual site of practice, or six to twelve months for advanced rural family medicine skill training. Please refer to mandate 4 for further discussion of extended and advanced skills training.

4. **Rural family medicine training streams should be community-based integrated programs with full academic support.**

   4.1 The four principles of family medicine provide the framework for the development of specific curricula.

   4.2 A minimum of six months of postgraduate education should occur in rural settings.

   4.3. Including rural rotations in both years of a residency are important.

   4.4. Rural family medicine postgraduate education should be based in settings where there is an active hospital.

   4.5. Residents should have first hand experiences in the provision of clinical services within communities without hospitals.

   4.6 The teaching of continuity of care is important and requires specific educational planning in order to incorporate this concept into rural postgraduate education and within each specific rural site. A minimum of four months should occur in at least one rural site.

   4.7. The incorporation of horizontal experiences to meet curriculum goals and resident specific learning objectives should be encouraged and explored.

**Discussion**

Rural experiences should form the core of training activities with early and repeated exposure of trainees to varying rural settings in order to provide a clinical basis for learning. Educational experiences should be patterned on the community based/experiential learning model with appropriate academic monitoring and evaluation. A minimum of six months of training should occur in rural settings. Consistent with the principles of adult education, clinical activities within a rural setting will motivate and direct the resident in their learning. Including rural rotations in both years of a residency are important: in the first year these experiences prime and direct educational activities on other rotations by clarifying the context in which new knowledge and skills will be applied. In the second year extended rural rotations allow residents to consolidate their learning and complete the transition to independent practice. The integration of the rural context into formal educational sessions through the two years of training is important with the four principles of family medicine providing the framework for the development of specific curricula.
Rural family medicine training should be based in settings where there is an active hospital providing opportunities to move curricula from traditional discipline specific rotations to possible horizontal integration optimizing educational activities and paralleling the clinical activities of rural practitioners. Optimal rural hospital settings provide opportunities to integrate clinic activities with coverage of the emergency department, obstetrical care, inpatient management, FP/GP anaesthesia, and surgical activities. These initiatives should be encouraged and collaboration with licensing bodies in the recognition of horizontal experiences for licensure are necessary. Local and visiting consultation clinics should be developed as learning resources providing residents with the opportunity to learn more advanced management from specialists knowledgeable of the rural context or family physicians with advanced skills.

As health care in rural Canada is regionalized, family physicians are increasingly providing clinical services in communities without a local hospital. In these communities, family physicians must be able to manage patient problems with extremely limited local resources or provide integrated services with the nearest hospital through shared call and clinical responsibilities. In northern Canada, family physicians may act as consultations for nurse practitioners providing primary care services. It is important for residents to have first hand experiences in the provision of clinical services within communities without hospitals as part of a rural rotation, horizontal enrichment, or outreach experience.

The teaching of continuity of care is important and requires specific educational planning in order to incorporate this concept into rural training and within each specific rural site. This can best be accomplished by ensuring that the majority of a resident’s rural rotations are within one geographical area which reflects the reality of rural practice. A minimum of four months within one rural family practice settings is necessary to provide residents with the opportunity to follow a sufficient number of patients through a significant portion of their illness experiences. Within this four month block, it is expected that residents would be involved in the care of individual patients in a variety of settings including the office, emergency department, hospital, and home. Both family medicine and specialty based rotations can be utilized to teach this important concept. Innovative curriculum developments including horizontal experiences can also provide opportunities to experience the various aspects of continuity of care.

5. **The learner-teacher dyad should be based on the preceptorship model for both family medicine and specialty-based educational experiences/rotations.**

5.1. The guidance of a rural practitioner allows trainees to develop a confidence and belief in their own abilities necessary for safe rural practice.

5.2. Faculty involved in the teaching of rural family practice residents must support the goals of the rural family practice program.

5.3. Rural faculty must be supported and integrally involved in program development and evaluation.

5.4. It is important throughout educational activities that the knowledge, skills, and attitudes required for effective team functioning be developed.

**Discussion**

The practice of medicine in rural settings places high demands on the practitioner to be clinically competent and an effective communicator along with being professionally and socially integrated into the community. To attain the ability to perform in this special environment the learning experience requires a similar integration of knowledge, skills, and attitudes. The preceptor framework of teaching is ideal to attain this outcome through role modelling, experiential learning, and the integration of evidence based medicine. It is often only under the guidance of a rural sensitive practitioner that trainees develop a confidence and belief in their own abilities necessary for safe rural practice. Thus, the learner-teacher dyad should be based on the preceptorship model for both family medicine and specialty-based educational experiences/rotations.
During family medicine centred learning experiences, a family physician will likely function as the primary preceptor. It is advantageous for the primary preceptor to be paired with a second physician who will work collaboratively in supervising each resident. This will broaden the resident’s educational experience through varying styles and access to a larger patient population. It will also benefit the preceptors who will be able to ensure meeting their own professional and personal demands through this shared responsibility. It is important that each preceptor’s role in the various supervisory responsibilities (orientation, learning objectives, feedback, evaluation) are clear to the resident, preceptor, and program. Family medicine should be taught by family physicians whose philosophy and practice are consistent with the four principles of family medicine. Family physicians with advanced skills, family practice-oriented specialists, and other health care professionals provide valuable learning experiences and opportunities for residents to attain competency in core and advanced skills. The teaching by specialist physicians is optimized if they are familiar with the problem-solving skills and orientation of rural family practice and directly involved with rural family physicians in their daily practice. (1) Specialty-based education experience/rotations can also benefit from a preceptor-based model with primary and secondary preceptors sharing teaching responsibilities.

All faculty involved in the teaching of rural family practice residents must support the goals of the rural family medicine education and be accountable to the rural family medicine training program. Collaboration between preceptors from different disciplines is necessary for effective training. It is important throughout educational activities that teamwork and the knowledge, skills, and attitudes required for effective team functioning are developed. These could include negotiation, conflict resolution, and other leadership skills essential to effective rural practice.

6. Competency in the knowledge, skills and attitudes for rural family practice should be the goal for rural family medicine residency training.

6.1. Curricula and educational content should be based on the clinical realities of rural practitioners building on the template of problems and procedures (appendix 2).

6.2. These curricula should be a collaborative effort between the departments of family medicine and the teaching specialties.

6.3. Clear learning objectives based on the knowledge, skills and attitudes for rural family practice should be developed by rural family medicine training programs for their overall two-year program and are essential for each rotation within the program.

6.4. Rural family medicine residents should have the opportunity to develop their own specific additional learning objectives consistent with the principles of adult learning.

6.5. Formative (in-training) and summative (completion) evaluations should be based on the learning objectives identified by the program, the rotations and individual residents.

Discussion

Rural family practice training should be based on the clinical realities of rural practitioners. The development of clear learning objectives provide a framework for residents, programs and teachers to base their educational plans and corresponding evaluations. The knowledge, skills and attitudes required for rural family practice are extensive and discussed in Mandate #1. Over time, as more research is done in rural family practice, they will become further defined and delineated. It is well recognized but not widely accepted that the regional variations in the provision of primary and secondary care are so diverse that they cannot be met by a rigid set of knowledge and skills. In addition, there are limits to what can be incorporated into two years of postgraduate training. A rural curriculum must recognize regional variations in the scope and depth of practice by family physicians and incorporate attitudes supportive for rural practice including life long learning, future acquisition of new knowledge and skills, along with adapting practice to

1 Reference: [1. The College of Family Physicians of Canada. The postgraduate family medicine curriculum: an integrated approach, 1995.]
the specific rural community needs. The development of appropriate curricula and content should be a collaborative effort between the departments of family medicine and the various teaching specialties.

The learning objectives of rural family practice training programs should be such that the residents achieving these learning objectives are competent to practice in most rural Canadian family practice settings. Rotation-specific objectives that are tied to the overall rural family medicine program objectives are essential and important in developing relevant rotations that provide the appropriate clinical workload/educational opportunities for the development of the overall required knowledge, skills and attitudes. Clearly defined learning objectives, appropriate corresponding educational activities, and a linked evaluation system form the basis for rotation and program accreditation.

Residents themselves have very different levels of experience, knowledge, skills, and interests. Consistent with the principles of adult learning, programs should provide opportunities for residents to develop their own specific additional learning opportunities in order that educational activities can be tailored to future anticipated practice.

Formative (in-training) evaluations based on these clearly identified objectives (program, rotation, and individual) should provide important constructive feedback to the residents. Summative (completion) evaluations based on these clearly identified objectives can form the basis for fairly ensuring competence.

7. **Hospital experiences or rotations should be appropriate for the residents' learning needs for future rural practice.**

7.1. Patient presentations should closely resemble those encountered in and referred from rural practice.

7.2. Clinical workload and educational activities appropriate for the development of the knowledge, skills and attitudes for future rural practice are necessary.

7.3. The teaching obligation to rural family medicine residents is of equal importance to other teaching responsibilities (e.g. specialty residents).

7.4. Family physicians have a significant role in patient care and share a collegial role with specialists within the hospital teaching environment.

7.5. Specialty-based hospital rotations should be developed at regional hospitals.

7.6. Intensive high volume rotations in urban or tertiary hospitals may be required to attain knowledge, skills, and attitudes in areas such as obstetrics, management of trauma, critical care, or psychiatric emergencies.

7.7. Urban or tertiary training must be combined with extensive experience in a rural setting to develop an approach and confidence to manage these clinical problems outside the urban setting.

7.8. University specialty departments have a social responsibility to rural communities to provide appropriate training and referral backup to rural practitioners and their accreditation should include an assessment of their commitment to educating physicians for rural practice.

**Discussion**

The rural family physician is a generalist physician, able to function in the birthing room, operating theatre, emergency department or medical ward in addition to office-based family medicine. This extensive hospital role for rural physicians is usually in a setting where there is limited or distant specialist back-up. It is essential that rural physicians in most rural settings have strong hospital-based skill sets.

Hospital experiences must be focused on the residents’ learning needs for future rural practice. Important characteristics include patient presentations that closely resemble those encountered in and referred from rural practice. Family medicine residents should have a major role and responsibility in the care of these
patients in order to develop appropriate knowledge, skills and attitudes. These learning needs should be emphasized in the specific learning objectives and educational activities of the experience or rotation. The teaching of rural family medicine residents needs to be made a high priority by both family physicians and specialists working within the hospital setting.

Hospital-based educational opportunities should take place in community hospital experiences where family physicians continue to function collaboratively with their specialist physician colleagues. Within this training context, family practice residents will acquire competence and confidence at the same time as they are immersed in appropriate role modelling for interdisciplinary patient care. The resources and objectives of various regions will dictate wide variations in the type of sites utilized for hospital-based learning.

For rural training to occur in sites which are relevant and appropriate to rural family medicine, most, if not all, of this training will occur in regional hospitals away from the university tertiary care centres. However, in some university centres, specialty departments fulfil the criteria for appropriate and relevant rural education. This present involvement should continue. Some university departments who do not presently meet these criteria place considerable importance on the presence of family medicine within their department and will make the changes necessary to provide appropriate learning experiences for rural family medicine residents. Clearly, this should be encouraged.

Of the essential learning activities, only those experiences unable to be reasonably delivered in the rural or regional setting should be assigned to the urban milieu. Intensive high volume urban rotations maybe required to attain knowledge, skills, and attitudes in areas such as obstetrics, management of trauma, critical care, or psychiatric emergencies which are important for future rural practice but of insufficient frequency to master in rural rotations. Since these experiences will require collaboration with specialty departments, it is important that these departments embrace a vision that is broader than simply reproducing another generation of specialists. Instead, it is important for their vision to reflect a larger responsibility to patient care that mandates appropriate education and training for all health care professionals who require the shared knowledge and skill set. Speciality departments have a social responsibility to rural communities to provide appropriate training and referral backup to rural practitioners.

Urban-based training must be combined with extensive experience in rural settings to develop an approach and confidence to manage these clinical problems outside the tertiary centre. Thus although a trauma patient from a motor vehicle accident presenting to the doorsteps of a large urban or small rural hospital will require assessment and treatment following the same principles of Advanced Trauma Life Support, the available local resources will be quite different mandating a parallel but different approach. Thus teaching within the urban settings must provide experiences which can be applied back to the future rural practice setting.

We have identified a preliminary skill set in the section “Knowledge, Skills and Attitudes for Rural Family Practice” - Appendix 2 - as appropriate to the scope of rural family medicine and expect that these will be successfully acquired within a 2-year rural family medicine training stream program. Some of these, however, require particular attention because there is a concern that without due diligence these will disappear from the scope of rural family medicine. The two skill sets in greatest danger are maternity care and orthopaedics. Rural family physicians, historically, have been the major players in both maternity care and orthopaedics.

While there has been a decline in both urban and rural Canada in the involvement of family physicians in intrapartum care, we recognize that in rural Canada there is usually no local alternative (specialist or midwife) to the preservation of local family physician maternity care services. Rural family physician skills in low-risk maternity care, including where the appropriate use of induction to assist in delivery have allowed the large majority of rural women to be delivered within or close to their own community. Equally their skill sets in the closed reduction and management of simple fractures including Colles’ fractures have provided rural Canadian families with effective local care.

While the reasons that fewer family physicians are providing these and other basic skill sets are complex, one of the significant factors is the inability of training programs to consistently develop the competence and confidence in the skill sets among the family medicine residents. The acquisition of competence and confidence requires, along with a rigorous definition of the skill set and an appropriate curriculum, that
competence be verified either by in-training evaluation or examination. The successful accreditation of these specialty-based rotations should require the evidence of a defined curriculum and a documented process by which competency is assessed. There also needs to be a recognition by licensing bodies and specialists that these skills are appropriate for rural family practice.

8. **Universities should support and develop rural physician teachers as integral faculty members.**

8.1. Funding and infrastructure support for rural physicians involved in teaching activities are essential.

8.2. Physicians involved in supervising and teaching rural training stream residents should receive university faculty appointments and appropriate funding.

8.3. Specialty preceptors should have appropriate faculty appointments ideally in both family medicine and their specialty departments.

8.4. Rural faculty should have ready access to library, Internet, and other long distance telecommunication technologies.

8.5. There must be a high degree of local input and control in the university/rural network providing the rural programming.

8.6. Faculty development activities specific to rural faculty are required.

8.7. Rural training programs require an identified co-ordinator with a clear mandate to collaboratively support rural faculty in their training roles and responsibilities.

**Discussion**

As family medicine training becomes increasingly decentralized, the development and support of rural faculty becomes immensely important. Rural physicians involved in supervising and teaching residents should receive university faculty appointments with ready access to library, Internet, and other long distance telecommunication technologies. Thus rural faculty should not be disadvantaged since ready access will require innovation and financial support from the University. All faculty and administrative staff of a supporting university must function as meaningful resources to the rural clinical faculty. Key to this principle is the development within tertiary care settings of a sensitivity to rural issues and training requirements. A type of “rural supportive/sensitive culture.” Meaningful ways of exposing urban faculty to the rural community settings need to be explored in order to develop meaningful partnerships. Support for rural faculty not only enhances their ability to teach, but improves their professional satisfaction which positively influences recruitment and retention. Rural medical faculty will generally be part-time faculty with their respective programs. This requires a considerable commitment of time away from direct patient care for faculty development and program development activities as well as student supervision and resident teaching. Ideally, rural preceptors’ income should be not more nor less than when they were not involved with teaching, but will obviously have a different balance of direct patient care and teaching commitments.

University centres must acknowledge their shared responsibilities in providing the best care possible for all rural communities within their geographical catchment area. This is an important issue since rural practitioners may look to university centres for assistance in both their clinical and teaching responsibilities. There are wide variations in the local requirements for rural practice. These vary depending on location and change over time. Ownership of the responsibilities of providing regional resources should rest with those who have the most immediate stake in the provision of regional health care. Hence, there must be a high degree of local input and control in the university/rural network providing the rural programming. Principle agreements, committee structure, financial resources, and governance agreements should reflect this philosophy.
Faculty development activities specific to rural faculty are required. The incorporation of rural needs assessments is essential in order to provide educational activities timed and sited to promote excellent teaching standards in the rural setting. The development of rural training programs requires the involvement of rural physicians in the planning and co-ordination of these activities. Adequate funding and resources are required so that quality rural teaching and academic development are not disadvantaged financially and rural faculty are supported in their administrative and teaching responsibilities.

Rural training programs require an identified co-ordinator with a clear mandate to collaboratively support rural faculty in their training roles and responsibilities. Experience and knowledge of rural practice are important for the co-ordinator to be effective in assisting faculty in developing curricula and problem solving when difficulties or challenges of resident teaching arise. Regular communication along with face to face contact with rural faculty are essential.

9. **University faculty and programs should nurture and develop present and future rural family medicine residents.**

9.1. Measures must be instituted/facilitated to allow those of rural orientation to meet, mingle and empathize.

9.2. Barriers such as transportation and additional accommodation costs should be minimized and resident support structures should be developed.

**Discussion**

In the University setting measures must be instituted/facilitated to allow those of rural orientation to meet, mingle and empathize, creating a rural friendly environment. Rural medicine clubs supporting academic, social and administrative activities are one means of doing so along with involving rural teachers in programs by giving rural faculty a significant presence in the academic curriculum of learners. This may involve visiting lectureships to the central university setting, rural sited workshops and conferences, mixed faculty involvement through long distance technology, along with the utilization of rural faculty in program reviews and accreditation.

Training for rural family practice should nurture the future physicians of rural Canada. Many current rural programs impose a transient lifestyle. Among other problems, this can serve as a major deterrent to residents whose spouses are seeking regular employment or who have children in school. Rural family practice residents may face additional barriers of time, distance, and isolation from their peers, family, or friends. This can be a source of additional stress and disillusionment if not supported and addressed by training programs. Barriers such as transportation and additional accommodation costs should be minimized and resident support structures should be developed. Incorporation of appropriate information technology within training programs to support and prepare residents for future practice is essential. However, this should not replace personal face to face contact with residents and faculty throughout a program.
Mandate #4
Recommendation for Postgraduate Education for Special/Advanced Rural Family Medicine Skills (Part I & II)

Introduction

This report recommends that the core postgraduate training for rural family practice be a 2-year rural family practice training stream. The option of acquiring special or advanced rural family medicine skills upon completion of the 2-year rural family medicine stream, or after a period of rural practice are essential to individual family physicians and rural communities. Such additional postgraduate education must allow flexibility to accommodate learner and community needs, balanced with educational standards which will satisfy credentialling and licensing bodies.

Advanced rural family medicine skills include FP/GP anaesthesia, advanced maternity care (including consultant and operative obstetrics), FP/GP surgery and may include psychiatry and other major skill sets where there is a demonstrated need. Postgraduate education for these advanced rural family medicine skill sets will be competency-based, have a national curriculum, and will usually require funding for 6-12 months.

Additional postgraduate training of flexible duration should be readily available for residents and practising rural physicians to develop special skills most appropriate to their present or eventual site of practice. Examples may include but not be limited to mental health, aboriginal health, intensive care, orthopaedics, emergency medicine, endoscopy, obstetrics and women’s health. This will usually require funding for up to 6 months as additional third year positions for residents and for practising physicians. Special skills education opportunities for practising physicians which are flexible in duration can logically be a lifelong extension of the residency training program, providing continuing medical refreshment and acquisition of additional special skills required for practice in specific communities.

A. Special Rural Family Medicine Skills

Recommendations

1. Flexible additional postgraduate education for rural family practice should be provided to meet both learner and community needs.

2. Additional third year positions of flexible duration (usually 3-6 months) should be readily available for residents to develop special skills for rural family practice.

3. Rural physicians in practice should have ready access to appropriately funded special skills education opportunities of flexible duration (usually 3-6 months).

Discussion

All residents entering a postgraduate rural family medicine education stream should be sure they will have the funded opportunity to do up to an additional 6 months to develop special skills most appropriate to their eventual site of practice or 6-12 months for postgraduate advanced rural family medicine skills education.

Residents can start to acquire these skills within the core 2 years. They may be most suited to returning for special skills education after a period of time in practice. Such additional training may also be invaluable to residents training in an urban setting who decide, perhaps based on their rural elective, to pursue rural family practice as a career or for locum positions.
B. Advanced Rural Family Medicine Skills

Recommendations

1. Rural Canadians should have access to essential health services including anaesthesia, optimal maternity care, general surgery and other advanced skills such as psychiatry within or close to the communities.

2. Rural family physicians should continue to be trained in Advanced Rural Family Medicine Skills including general anaesthesia, general surgery, advanced maternity care including Caesarean section and other advanced skills such as psychiatry where there is a demonstrated need.

3. A defining principle of training programs in advanced skills for rural family physicians is the requirement that there be a single standard of care for both urban and rural Canada for the provision of these essential services for low-risk patients and procedures. The skill set is a shared one between family medicine and the specialty groups and the knowledge base within both programs should be rigorous.

Discussion

In the past and in the foreseeable future, there is an undoubted need for some family physicians in rural areas to have advanced skills to provide the population with appropriate access to vital services. Four important examples are FP/GP anaesthesia, advanced maternity care skills (consultant and operative obstetrics), FP/GP surgery and psychiatry. For the foreseeable future there will not be specialists available to provide for these services in many of the rural communities where they are needed.

General practice anaesthesia is the most clearly recognized, accepted and identified advanced rural family medicine skill. Over a decade ago the CMA, the CFPC, the RCPS and ACUDA recognized the need for FP/GP anaesthetists to provide anaesthetic services in rural Canada and the need for specific FP/GP anaesthesia training programs (Canadian Medical Association. Report of the invitational meetings on the training of general/family practitioners to provide anaesthesia services. Ottawa, Ont.: Canadian Medical Association, May 1988). Nevertheless, there currently is a worsening shortage of FP/GP anaesthetists. Considerable effort is now needed to effectively train and support and maintain adequate numbers of FP/GP anaesthetists to provide anaesthetics for emergency and scheduled procedures done by family physicians and specialists such as general surgeons in many rural communities across Canada.

Advanced maternity care skills (consultant and operative FP/GP obstetrics) is needed in many rural communities where there are not specialists available to do either obstetrical consultations or Caesarean sections. Many of these rural communities have been able to provide local emergency operative obstetrical care because one or two FP/GPs have had further training in obstetrics, including Caesarean sections. (“Rural Obstetrics: Joint position paper on rural maternity care” by the Joint Working Group of the SRPC, CFPC and SOGC) This advanced rural family medicine skill, however, has been less well recognized and identified both in role and training as well as credentialling. Considerable progress has been made in a few centres in Canada towards developing a structured training program for consultant and operative FP/GP obstetrics. A collaborative position paper on training for Advanced Maternity Care Skills including Caesarean section is currently being developed. (See subsection on Advanced Maternity Care for more detailed discussion and recommendations.)

FP/GP Surgery: The FP/GP surgeon is less clearly defined and identified both in role and in training. In many rural communities, particularly in Western Canada, the FP/GP surgeon is the one who does the appendectomies and Caesarean sections and provides trauma care and other common operations such as hernia repair. The range of procedures done by FP/GP surgeons is extremely variable, depending on a large part both on the person and the community and the distance and availability of specialist general surgery. (See subsection on FP/GP Surgery for more detailed discussion and recommendations.)

Advanced Family Practice Psychiatry: Psychiatrists, as specialists, are among the most mal-distributed of all specialists. The population in huge areas of the country face difficult access to psychiatrists. For example in
northern Ontario the population to psychiatrist ratio is just 1:16,972 Compared to Ottawa-Carleton where it is 1:3,031. In most of rural Canada there will continue to be a maldistribution of psychiatrists and a difficult access to needed psychiatric services for most rural Canadians. Extensive psychiatric care will continue to fall on the shoulders of family physicians in most rural communities. Although not a procedural skill, consultative psychiatry, dealing with serious mental illness, can clearly be seen as an advanced rural family medicine skill that requires the development of appropriate expertise. This is a field of medicine that in many areas is often provided by physicians who, as they age through the life cycle, find it increasingly difficult to withstand the rigors of the heavy night call of obstetrics, emergency department work and GP anaesthesia. They have correspondingly developed a significant practice-learned expertise in psychiatry and successfully focus and provide more of their time and ability to providing advanced psychiatric care.

It is vital that family physicians be appropriately trained for these roles, credentialed and supported in the provision of these roles and the maintenance of their competency. The current system is inadequate in all of these regards. A more detailed discussion is provided in the attached paper, “To explore the potential for Rural Family Practice Procedural Training” by Stu Iglesias 11/22/98. (Appendix 4) There is clearly a need to develop guidelines for the training, credentialling and maintenance of competence of advanced family medicine skills. This issue, more than the other mandates, needs the greatest effort in developing consensus and sustainable working relationships between all potential groups involved.

The creation of national portable accredited training programs in advanced skills requires core curricula with rigorous evaluation. However, there will always be substantial regional variation in the needs for advanced skills in rural Canada. The challenge to curriculum formulation will be to define the core problems and procedures requiring national programs, while preserving the autonomy of individual physicians, their communities, and their training programs to design the education to fit the needs.

Historically, some rural physicians have acquired more than one advanced skill set. For example, GP surgeons often receive training in operative obstetrics and GP obstetricians are sometimes trained in obstetrical anaesthesia. Clearly, this acquisition of complementary advanced skills should be encouraged. Unfortunately, little is known about how to educate these rural generalists. In particular, there is no evidence-based information detailing the length of time that it takes a rural family physician to acquire these skills, either singly or in various combinations. In the absence of good evidence, the bar in each of the training programs should not be set so high that the training goals of the rural practitioners become unattainable.

**Curriculum Development**

**Recommendation**

4. The curriculum guidelines and standards for advanced rural family medicine skills should be recognized and developed by the College of Family Physicians of Canada, the SRPC and the RCPS with input from appropriate specialists and associations.

**Discussion**

Considerable collaborative effort is required for curriculum development and recognition for Advanced Rural Family Medicine Skills to be successful and sustainable. Because the skill sets will involve family physicians training under the umbrella of the College of Family Physicians of Canada, the CFPC will need to be involved in this process. The members of the Royal College of Physicians and Surgeons and its affiliated specialist organizations will need to be significantly involved in the training. Because the skill sets are limited to rural practice it is important that the SRPC, a rural physician organization, be involved in the development of the curriculum.
Accreditation

Recommendation

5. The College of Family Physicians of Canada (and preferably conjointly with the Royal College with input from the licensing bodies) should accredit advanced rural family medicine skills training programs.

Discussion

It is essential that the training programs for Advanced Rural Family Medicine Skills be accredited. The College of Family Physicians of Canada is in the best position to do this nationally as the training is being provided for future family physicians. Nevertheless, a major portion of the training will be provided by specialists and the skill set will be shared with specialists. From that perspective it is important that the Royal College of Physicians and Surgeons be involved in establishing accreditation guidelines and potentially in accreditation. The joint Palliative Care Program that has been developed forms a useful model.

University Training Programs

Recommendation

6. University medical schools should develop and provide advanced rural family medicine skills training programs based on both regional and national needs.

Discussion

Advanced Rural Family Medicine Skills Training Programs should be based on both regional and national needs. It may be better to strategically develop these programs at several medical schools rather than attempting to include all medical schools. It will be important, however, that the programs reflect the national curriculum and accreditation standards so that physicians completing Advanced Rural Family Medicine Skills Training have portability.

Urban/Regional/Rural Components and Resources

Recommendation

7. Advanced rural family medicine skills training programs should be developed with the appropriate resources and utilize regional and rural components and teachers as much as possible.

Discussion

The learning experience should be developed with the appropriate clinical workload to provide sufficient volume for knowledge and skills acquisition. High volume hands-on rotations are required to learn Advanced Rural Family Medicine Skill Sets. Community and regional settings that are oriented towards rural family practice should be utilized as much as possible. Depending on the experience of the resident, some time should be spent in rural settings similar to the eventual practice location in order to integrate the knowledge, skills and attitudes and develop an approach and confidence to manage these clinical problems outside the tertiary centre in the rural setting of limited resources and local specialist support.

The teaching of Advanced Rural Family Medicine Skills Sets needs to be accorded high priority with teaching obligation of equal importance to other teaching responsibilities (i.e. specialty residents).
Access to Advanced Rural Family Medicine Training Positions

Recommendation

8. Advanced rural family medicine skills training positions should be accessible to committed applicants, both third year family medicine residents and re-entry (practising) physicians.

Discussion

Training positions should be accessible to committed applicants including third year family medicine residents and (practising) re-entry physicians who are likely to use these advanced rural family medicine skills in practice. Applicants should be evaluated for previous training, existing skills, community resources and support. Membership in the Royal College or CFPC should not be a factor in the selection process. Many earlier rural physicians, after several years in practice, identified a specific need for further skills and returned for further residency training. Such re-entry physicians are a good position to clearly identify specific learning needs and bring their clinical experience into training. This pathway is important, not only to rural physicians but also to the communities they serve. Re-entry should not necessarily be tied to return-of-service, particularly as Advanced Rural Family Medicine Skills Training is specific training for rural settings.

Competency-Based Training with Defined Learning Objectives

Recommendations

9. Training should be competency-based rather than solely time-based, but most often will require a range of 6-12 months.

10. Learning objectives based on nationally developed curriculum guidelines and standards should be used for formative (in training) and summative (completion) evaluations.

11. The individual physician’s training program for advanced rural family medicine skills should also reflect the learner’s and the community’s needs.

12. Medical schools providing nationally accredited Advanced Rural Family Medicine Skills training should provide a certificate of competence to physicians who satisfactorily complete their program.

Discussion

The length of time required to acquire competency in Advanced Rural Family Medicine Skill Sets will vary with the pre-existing capabilities of the students, their own capacities to learn, and the anticipated roles that these physicians will play in the communities. Physicians returning from practice to develop Advanced Rural Family Medicine Skills may require less time to achieve competency. Training for these Advanced Rural Family Medicine Skill sets is competency rather than time-based, but most often will require a range of 6-12 months of dedicated additional training. Competency should be assessed at the beginning and the end of the training for advanced rural family medicine skills. There is a group of practising physicians with significant prior training and practice experience. Advanced rural family medicine skills training programs should be able to assess the candidates competence and structure the content and length of rural family medicine skills training accordingly. The final amount of training will vary with the pre-existing capabilities of the student, his/her own capacity to learn, the intensity of the training experience, the complementary skill sets to be acquired, and the anticipated role these physicians will serve in their communities. Any training program must be sufficiently flexible in duration and curriculum to accommodate the breadth of talent and needs in rural Canada and sufficiently rigorous to ensure safe and competent graduates.
Flexibility is important to enable individual physicians training programs to reflect the learner’s needs and the community’s needs. For example, a physician may take the advanced maternity care program with operative obstetrics training and also add some GP surgery and/or anaesthesia components. The use of clearly defined objectives based on the nationally developed curriculum provides a clear basis for the structure and development of training programs and assessment. Formative (in-training) evaluations based on these clearly identified objectives should provide important constructive feedback to the residents. Summative (completion) evaluations based on these clearly identified objectives can form the basis for fairly ensuring competence.

Residents who satisfactorily complete the program should be given a certificate of competence in the Advanced Rural Family Medicine Skill Set by the medical school providing the training. Such certificates will provide evidence that the resident has attained the necessary level of competence in an accredited training program based on nationally developed Advanced Rural Family Medicine Skills curriculum. This should ensure portability for both licensure and hospital credentialling. Alternative measures including provincial licensure examination or national certification examination for Advanced Rural Family Medicine Skill Sets are alternate routes but are more costly and unwieldy mechanisms that could be considered.

Maintenance of Competence

Recommendation

13. The medical schools providing Advanced Rural Family Medicine Skills Training Programs should develop nationally accredited CME and maintenance of competence programs.

Discussion

It is essential that physicians with Advanced Rural Family Medicine Skills be able to maintain their competence. This will require continued medical education support. The medical school training programs are the best suited to collaborate both regionally and nationally in supporting such essential CME and maintenance of competence programs.
APPENDIX 1

College of Family Physicians of Canada JANUS Project

The JANUS Project of the College of Family Physicians of Canada and other databases, including the Canadian Medical Association Masterfile and the Canadian Institute of Health Information, provides a unique perspective on rural physicians and rural practice patterns. There will be considerably more useful information produced from these databases over the course of 1999. The following provides some initial analysis that is particularly relevant to this report.

There is a maldistribution of physicians in Canada with rural areas having a shortage of physicians compared to their urban counterparts. Using CMA and CA data analysis, 6,393,906 people (22% of Canada’s population) can be considered “rural.” *(Table 1)* Using the same definition of practice location, only 9.9% of Canada’s doctors - 4775 family doctors (16.5% of Canada’s FP/GPs) and 756 specialists (2.8% of Canada’s specialists) - can be considered rural. *(Tables 2 & 3)*

The JANUS ** Study by the College of Family Physicians of Canada establishes a broad profile of general practitioner/family physician activity in Canada.* The study projected an overall denominator of 27,324 family physicians/general practitioners in Canada.

Further analysis of the Janus data, excluding responses with confounding variables for population served, i.e. “other” or “urban and rural” or “urban and small town” provides a denominator of 25,956 FP/GPs with 4,179 (16.1%) of physicians self-identified as primarily serving rural and/or remote populations. This number is lower than the number identified by the Canadian Medical Association master database. Note, however, an additional 17.8% (4,630) identified themselves as serving a small town population, and depending on the size of the small town population served, some would also be considered rural physicians.

Using the JANUS data for 4,179 family physicians/general practitioners that self-identified as primarily serving rural and/or remote populations, 28% are female, 32.6% provide on-call coverage for obstetric deliveries and 8.6% identified themselves as GP anaesthetists. *(See Table 4 for rural/urban comparison)*

Family physicians/general practitioners serving primarily rural/remote populations in Canada provide a broad range of health care services. *(Table 5)* Of note, 61% provide Aboriginal health care and 18% devote over 10% of their practice time to Aboriginal health care. Further analysis of rural-based family physician services and comparison with urban-based services will be published in the Canadian Family Physician.

* A Census Agglomerate is defined as “a large urban area (known as the urban core) together with adjacent urban and rural areas (known as urban and rural fringes) that have a high degree of social and economic integration with the urban core. A CA has an urban core population of at least 10,000, based on the previous census.

** Acknowledgements: The study described in this report was conducted utilizing original data collected for the College of Family Physicians of Canada's National Family Physician Workforce Database. This database is part of the College of Family Physicians of Canada's JANUS Project: Family Physicians Meeting the Needs of Tomorrow's Society. Principal investigators for this study were: Dr. Calvin Gutkin, MD, FCFP, and Dr. Raymond Pong, PhD. The JANUS Project Co-ordinating Committee was chaired by Dr. Nick Busing, MD, FCFP, and the Database Working Group was chaired by Dr. Tim Kerr, MD, FCFP. The Centre for Rural and Northern Health Research (Director: Dr. Raymond Pong, PhD; Senior Project Researcher: Mr. Andrew Irvine, MA) was contracted to design the research strategy, assist in survey design and conduct the 1997 survey. The study was also supported by Associated Medical Services (AMS), the Canadian Medical Association (CMA), the Royal College of Physicians and Surgeons (RCPS), and Scotiabank.

Table 1  Population Counts, Showing Distribution Outside Census Metropolitan Areas and Census Agglomerations for Canada, Provinces and Territories, 1996 Census

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<th></th>
<th>Rural Population</th>
<th>%</th>
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Table 2  Active Physicians in Canada, January 1988, by Province and Broad Specialty  
(CMA Masterfile Data)

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<th>Surgical Specialist</th>
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<tr>
<td>Northwest Territories</td>
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</tr>
<tr>
<td>(Western Arctic and Nunavut)</td>
<td>41</td>
<td>8</td>
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Table 3  Active Rural Physicians in Canada, January 1998, by Province and Broad Specialty (CMA Masterfile Data)

<table>
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<tr>
<th>Broad Specialty (Western Arctic and Nunavut)</th>
<th>GP/FP</th>
<th>Medical Specialist</th>
<th>Surgical Specialist</th>
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<td>CANADA</td>
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<tr>
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<td>60</td>
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<td>New Brunswick</td>
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<td>Quebec</td>
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<td>Northwest Territories (Western Arctic and Nunavut)</td>
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Table 4  FP/GPs in Canada by Population Served
CFPC JANUS Data Analysis

<table>
<thead>
<tr>
<th></th>
<th># Rural</th>
<th>% Rural</th>
<th># Small Town</th>
<th>% Small Town</th>
<th># Urban</th>
<th>% Urban</th>
<th># Total</th>
<th>% Total</th>
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<td>28.5</td>
<td>1,295</td>
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<td>376</td>
<td>1.4</td>
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Table 5  Medical Services Provided by FP/GPs Serving Rural/Remote Populations in Canada
CFPC JANUS Data Analysis

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<th>Service</th>
<th>Provide Service</th>
<th>&gt; 10% of Time</th>
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<td>Adult Health</td>
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<td>Anaesthesia</td>
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<tr>
<td>Care of Elderly</td>
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<td>Child Health</td>
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<td>Chronic Disease</td>
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<td>Emergency Medicine</td>
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<td>HIV/AIDS Care</td>
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<td>Immigrant Health</td>
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<td>Occupational/Industrial</td>
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<tr>
<td>Palliative Care</td>
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<tr>
<td>Preventative Medicine</td>
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<tr>
<td>Sports Medicine</td>
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<tr>
<td>Surgery (Minor)</td>
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<tr>
<td>Surgery (Assisting)</td>
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<td>Surgery (Major)</td>
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<td>Other</td>
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APPENDIX 2

Rural Family Medicine Problems and Associated Skills

The following is a preliminary listing of patient problems and associated skills that family physicians need to proficiently manage and perform in a rural setting, often without local specialist back-up. It is by no means exhaustive or definitive, but covers the broad and main areas with particular attention to problem frequency and severity or critical nature of problems that must be managed. This involves not only recognition and treatment of acute crises, but also appropriate investigation, referral/transfer when necessary and long-term management in consultation as needed with specialists who may be at a distance. Many patient problems such as myocardial infarction are managed by family physicians in all settings, but in the rural context, acute myocardial infarctions and its complications must be managed with limited or distant specialist back up. Similarly psychiatric care, cancer care, in fact almost every facet of medicine is affected by the rural context. Effective application of the knowledge and skills to manage these problems in a rural context requires the development of a rural problem-solving approach that is the key component of training for rural family practice.

The current Canadian literature on the problems managed by rural physicians and the associated procedures has been limited and reflects the general paucity of rural research that has been done in this country. {Whiteside C, Identifying the need for curriculum change: When a rural training program needs reform. Canadian Family Physician 1997;43:1390-1394. VandenGoes et al. Procedural skills training. Canadian Family Physician 1998;45:78-85. Thompson J et al. “Recommendations for the Management of Rural, Remote and Isolated Emergency Health Facilities in Canada. Canadian Association of Emergency Physicians, Ottawa, 1997.”} Clearly more research needs to be done to develop a larger evidence base on rural patient problems and their management. The list of patient problems and associated skills highlights some important aspects of rural practice. Because of the concern regarding the provision of adequate obstetrical, orthopaedic, paediatric and psychiatric care, these sections are more detailed and inclusive.

Clearly more work needs to be done to develop a listing based on detailed studies of what rural family physicians do. Even the, uniform consensus will be difficult because of differing opinions as to what rural physicians should do.

We put this list forward as a starting point that will hopefully generate discussion and progress in this process.
Rural Family Medicine Problems and Associated Skills

1. **Anaesthesia**
   1.1 Airway management
      1.1.1 Oral airways
      1.1.2 Intubation
         1.1.2.1 During resuscitation
         1.1.2.2 Rapid sequence
         1.1.2.3 Awake (i.e. CHF, asthma)
      1.1.3 Ventilation
         1.1.3.1 Manual
         1.1.3.2 Mechanical
   1.2 Local and regional blocks
      1.2.1 Digital/MTP/MCP blocks
      1.2.2 Dental blocks
      1.2.3 Intercostal blocks
      1.2.4 Hematoma blocks
   1.3 Conscious sedation and reversal

2. **Cardiology**
   2.1 Hypertension including emergency management
   2.2 Hypotension
   2.3 Congestive heart failure
   2.4 Arrhythmias - including ACLS
   2.5 Acute myocardial infarction including thrombolysis
   2.6 Angina - stable and unstable
   2.7 Deep vein thrombosis and pulmonary embolism
   2.8 Electrocardiogram interpretation

3. **Cross-cultural health**
   3.1 Aboriginal
   3.2 Immigrant
   3.3 Visible/ invisible minorities

4. **Dermatology**
   4.1 Biopsy techniques
   4.2 Care of the diabetic foot
   4.3 Common and serious skin conditions
   4.4 Hypersensitivity reactions
   4.5 Nails
      4.5.1 Removal - with or without nail bed ablation
      4.5.2 Sub-ungual hematomas
   4.6 Ulcer care

5. **Emergency Medicine**
   5.1 ACLS
   5.2 ATLS
5.3 Arterial blood gases
5.4 Laceration closure- simple; in layers; “glue”
5.5 Vascular access
  5.5.1 Intravenous placement
  5.5.2 Central lines
  5.5.3 Arterial lines
  5.5.4 Interosseous
5.6 Anaphylaxis
5.7 Dehydration - recognition and management
5.8 Electrolyte abnormalities
5.9 Head injuries
5.10 Medevac - preparing the patient for transfer
5.11 Overdose
5.12 Poisoning
5.13 Shock - recognition and stabilization
5.14 Triage
5.15 The unconscious patient

6. **Endocrinology**
   6.1 Diabetes mellitus - and complications
   6.2 Thyrotoxicosis

7. **Gastroenterology**
   7.1 Nasogastric tube insertion
   7.2 Paracentesis
   7.3 Proctoscopy
   7.4 Rigid and/or flexible sigmoidoscopy
   7.5 Assessment & management of abdominal pain; the acute abdomen
   7.6 Cholecystitis, biliary colic, cholangitis
   7.7 GI bleeding
   7.8 Hepatitis and jaundice
   7.9 Pancreatitis

8. **Geriatrics**
   8.1 Dementia
   8.2 Falls
   8.3 Polypharmacy

9. **Hematology**
   9.1 Anaemia/transfusion
   9.2 Coagulopathies
   9.3 Leukaemia; lymphoma
   9.4 Thrombocytopenia

10. **Infectious Disease**
    10.1 Lumbar puncture
    10.2 HIV/AIDS
    10.3 Meningitis and encephalitis
    10.4 STD’s
11. **Internal Medicine** - covered in specific sections

12. **Minor surgery**
   12.1 I&D of abscesses, hematomas
   12.2 “Lumps and bumps”
   12.3 Removal of foreign bodies i.e. slivers, fishhooks

13. **Neurology**
   13.1 Cerebrovascular disease
      13.1.1 TIA’s
      13.1.2 CVA’s
      13.1.3 Subarachnoid haemorrhage
      13.1.4 Cerebral aneurysm
   13.2 Degenerative disorders
   13.3 Headaches
   13.4 Seizure disorder
   13.5 Tumours - benign and malignant

14. **Nephrology**
   14.1 Dialysis - common complications of hemo and abdominal
   14.2 Glomerulonephritis
   14.3 Renal failure - acute and chronic

15. **Obstetrics**
   15.1 Abortion - spontaneous and therapeutic
   15.2 Antenatal care
      15.2.1 Normal
      15.2.2 Gestational diabetes
      15.2.3 Prenatal screening
      15.2.4 PIH
      15.2.5 Pre-eclampsia and eclampsia
      15.2.6 Small for dates/IUGR
   15.3 Ectopic pregnancy
   15.4 Labour and delivery
      15.4.1 Normal labour and delivery
      15.4.2 ALARM/ALSO
      15.4.3 Abnormal presentations
      15.4.4 Cord accidents
      15.4.5 Emergency breech/twin delivery
      15.4.6 Episiotomy, tears and repairs
      15.4.7 Failure to progress
      15.4.8 Fetal health surveillance
      15.4.9 Induction/Augmentation – medical/surgical
      15.4.10 Instrumented delivery – forceps/vacuum
      15.4.11 Obstetrical analgesia – incl. pudendal block
      15.4.12 Post partum haemorrhage-immediate/delayed
      15.4.13 Retained placenta - manual removal
      15.4.14 Shoulder dystocia
15.4.15 VBAC
15.5 Post partum care
  15.5.1 Breast feeding; breast care
  15.5.2 Endometritis
  15.5.3 Post partum depression

16. **Occupational Medicine**
   16.1 Prevention of injuries/workplace safety

17. **Oncology**
   17.1 Screening
   17.2 Chemotherapy - common agents and side effects
   17.3 Radiotherapy - complications

18. **Ophthalmology**
   18.1 Arterial and venous occlusion
   18.2 Corneal abrasions
   18.3 Foreign body removal
   18.4 Glaucoma - tonometry
   18.5 Penetrating injuries
   18.6 The red eye
   18.7 Slit lamp operation

19. **Orthopaedic Surgery**
   19.1 Fracture recognition and classification
      19.1.1 Closed
      19.1.2 Open
      19.1.3 Comminuted
      19.1.4 Paediatric/growth plate related
      19.1.5 Need for referral
   19.2 Reduction of common fractures
      19.2.1 Wrist/forearm - including Colles
      19.2.2 Humerus
      19.2.3 Tib-fib/ankle
      19.2.4 Digits
   19.3 Reduction of common (shoulder, digit) and critical (ankle, hip, elbow) dislocations
   19.4 Recognition and management of complications; acute and delayed
      19.4.1 Neurovascular
      19.4.2 Compartment syndrome
   19.5 Casting techniques
      19.5.1 Plaster and fibreglass
      19.5.2 Post-cast care
      19.5.3 Cast splitting/windowing
   19.6 Stabilization/immobilization for transfer
   19.7 Tendon injuries including extensor tendon repair
   19.8 Aspiration, injection of joints
   19.9 Examination of joints; common joint injuries/diseases
   19.10 Assessment of gait; common foot problems
19.11 Closed fist injuries including fight bites
19.12 Low back pain
19.13 Osteoporosis
19.14 Spinal injuries
19.15 Rheumatological diseases

20. **Otolaryngology**
20.1 Epistaxis - including packing, cautery
   20.1.1 Anterior
   20.1.2 Posterior
20.2 Laryngoscopy - indirect
20.3 Nasal fracture including reduction
20.4 Pharyngeal abscess, quinsy
20.5 Removal of foreign bodies ear, nose and throat; ear syringing
20.6 Common infections
20.7 Deafness
20.8 Vertigo; dizziness

21. **Palliative care**
21.1 Home
21.2 Hospital
21.3 Pain management
21.4 Family issues; advance directives

22. **Paediatrics**
22.1 NALS/NRP
22.2 PALS
22.3 Supervision of the nursery
22.4 Well baby and child care
22.5 Common childhood illnesses
22.6 Chronic illness and its effects on the family
22.7 Genetic disorders; multiple disabilities
22.8 Growth abnormalities
22.9 Murmurs
22.10 Normal/abnormal development
22.11 Nutrition
22.12 Parental education - child safety issues; poison control
22.13 Attention deficit disorder
22.14 Autism
22.15 Behaviour problems
22.16 Constipation
22.17 Enuresis
22.18 School problems; peer relations
22.19 Screening - vision, hearing and speech
22.20 Sexual abuse
22.21 Adolescent development, sexuality
22.22 Puberty
23. **Preventative Health Care**
   23.1 Determinants of rural health and disease
   23.2 Immunizations
   23.3 Screening/early disease detection

24. **Psychiatry**
   24.1 The agitated patient
   24.2 Commitment for evaluation and treatment
   24.3 The suicidal patient
   24.4 Alcohol abuse
   24.5 Anxiety disorders
   24.6 Bipolar disease
   24.7 Depression
   24.8 Family/marital issues
   24.9 Psychotherapy/counselling
   24.10 Schizophrenia
   24.11 Sexuality issues

25. **Radiology**
   25.1 Interpretation of common X-rays
   25.2 IVP
   25.3 Hysterosalpingogram
   25.4 Appropriate ordering of imaging procedures (MRI, U/S, CT, nuclear medicine, etc.)

26. **Respirology**
   26.1 Thoracentesis
   26.2 Pneumothorax
   26.3 Asthma
   26.4 COPD
   26.5 Pneumonia

27. **Urology**
   27.1 Catheterization - including suprapubic
   27.2 Cystitis; pyelonephritis
   27.3 Impotence
   27.4 Prostatitis; prostate cancer
   27.5 Reduction of paraphymosis
   27.6 Urolithiasis

28. **Women’s Health**
   28.1 Breast lumps - including fine needle aspiration
   28.2 Endometrial biopsy
   28.3 Family planning including IUD insertion
   28.4 PAP testing
   28.5 Abnormal uterine bleeding
   28.6 Breast cancer
   28.7 Hormone replacement therapy
   28.8 Infertility
   28.9 Menopause
27.7 Ovarian disease (PCO, cysts, cancer)
27.8 Pelvic pain
27.9 Pelvic inflammatory disease
27.10 Sexual assault
   27.10.1 Counselling
   27.10.2 Sexual assault kit
27.11 Spousal abuse
Rural Family Medicine Management Skills

1. Communication
   1.1 Office
   1.2 Consultations
      1.2.1 Appropriate use
      1.2.2 Appropriate choice of consultant
      1.2.3 Effective exchange of relevant information
   1.3 Colleagues
   1.4 Allied health care workers
   1.5 Effective committee work
   1.6 Leadership skills

2. Computer Skills
   2.1 Continuing medical education
   2.2 Literature searching
   2.3 Internet discussion groups; maintaining contact with peers
   2.4 Medical records/billing

3. Cost Effective Decision-making
   3.1 Appropriate and evidence-based use of health care

4. Critical Appraisal of the Literature
   4.1 Evidence-based therapeutic management decision-making
      4.1.1 Pharmacotherapeutic
      4.1.2 Non-Pharmacotherapeutic

5. Management
   5.1 Office/professional
      5.1.1 Scheduling self
      5.1.2 Staff hiring/scheduling
   5.2 Hospital and other organizations
   5.3 Community resources
   5.4 Maintaining adequate personal/family time
   5.5 Personal/professional help resources
Appendix 3

Rural Patient Stories/Physician Management Narratives/
Rural Clinical Decision-Making Skills Model

The patient stories/physician management narratives in this section illustrate the broad range of knowledge, skills and attitudes used by rural family physicians in responding to the needs of their patients. These are based on real-life dramas from diverse rural locations from coast to coast. They span the range from rural maternity care, mental health care, long-term paediatric genetic disease care to trauma care. Certain details of these patient stories/physician management narratives have been altered or based on composite examples to protect the identity of the individuals involved.

The fifth patient story/physician narrative (a pioneering work by Carl Whiteside) has been developed into an in-depth Rural Clinical Decision-Making Skills Model that illustrates the extensive learning and teaching that can evolve around a patient presentation.

Rural Patient Stories/Physician Management Narratives:

1. maternity care p. 52
2. mental health care p. 54
3. long-term paediatric genetic disease care p. 55
4. trauma care p. 58
5. headache/fever
   (rural clinical decision-making skills) p. 60
Rural Maternity Care

Setting: 20 bed hospital with anaesthesia backup but GP surgeon is away. Nearest referral centre is 2 hours away by road and 45 min by air (total transfer arrangement time is 1.75 hours).

Case: 33 year old, 1ppd smoker, GiiiPiAi presents at 41 weeks and 5 days GA with regular contractions. The contractions are strong and q 4 minutes, lasting 45-60s in duration and have been ongoing for 2 hours.

Obs history: Normal pregnancy to date. Dates are accurate, and there have been no complications thus far. There were no complications in here prior delivery (Stage 1 was 10 hours, stage 2 was 1.5 hours and stage 3 was normal with no post partum haemorrhage.)

Exam findings: Vertex presentation, 4 cm dilatation, small bulge in membranes, station -2. Fetal heart: baseline 125 bpm, good variability, no accelerations, occasional variables.

Decisions:
1. Should she be kept in this setting or transferred (no Caesarean section backup.)
2. Should she have and ARM?
3. Should she be sent home?
4. Should she have continuous or intermittent fetal monitoring?

Knowledge: normal progress of labour, ability to identify antenatal risk factors, monitoring fetal well-being in labour

Skills: pelvic examination, interpretation of FH, management of labour, ability to communicate with patient

Attitude: awareness of surroundings, and of limitations of setting with no c/s backup; awareness of principles of risk management in rural obstetrics

Plan: Because of history of smoking, and because she is past her due date, MD recognizes the risks for possible placental maturity. No other risk factors, so decision is made to intermittently monitor with 1:1 nursing care (extra nurse has to be called in ). MD communicates well with mother to make here aware that there is no c/s backup, and to give her the option of transfer at this time or to stay in community and continue to labour. MD also offers the option of ARM. Decision is made for her to stay in hospital locally, and not to do ARM at this point in time, as labour is early.

Labour progresses slowly. She is at 5 cm dilatation 2.5 hours later. No late decelerations are noted with intermittent monitoring and the FH baseline is 120-125 bpm. Membranes are still intact.

Decision:
1. Should her labour be augmented? If so, what is the best way to do this?

Knowledge: Active management of labour

Skills: ARM

Attitude: Risk management

Plan: ARM performed because of ease of manoeuvre, evidence to support same as technique for augmentation, and because MD would like the labouring mother to be able to continue to walk.

When ARM is performed, there is meconium noted. Continuous fetal monitoring is initiated because of concerns regarding fetal well being. Fetal heart demonstrates baseline of 120 with variables which are slow to recover.

Decision:
1. Should she be allowed to continue to labour here?
2. Should another MD be consulted?
Knowledge: indicators of fetal well being, and non-reassuring signs
Skills: ability to interpret fetal heart tracing, and possibly to do fetal scalp pH
Attitudes: Clinical courage, knowledge of surroundings and local resources and awareness of transfer options and difficulties.

Plan: Another local MD is consulted and asked to remain "on standby" for delivery for neonatal resuscitation if delivery occurs before transfer is arranged. Transfer to referral centre is discussed with ambulance base and consulting obstetrician. Weather conditions preclude air transfer. Decision is made to reassess progress in 30 minutes and if no progress, or if foetal well being appears to be less reassuring, to transfer by road with MD in attendance.

30 min later, she is 8 cm dilated, fetal heart is 115 bpm with variables with every contraction with slow onset and slow recovery. Scalp pH is 7.23.

A decision is made to keep her because of rapid progress since ARM. Second MD is notified of progress thus far and of pH results.

15 min later, she is fully dilated with urge to push.

Stage 2: 40 minutes in duration with reasonable progress. Deep variables with slow recovery to new baseline of 90 bpm.

Decisions:
1. When should the second MD be called in?
2. Should a vacuum extraction be attempted?

Knowledge: normal pattern of second stage of labour, fetal heart interpretation
Skills: operative delivery (vacuum or forceps), pudendal block
Attitude: clinical courage, commitment to optimize health of both babe and mom, and willingness to use local resources

Plan: Second MD is called to ensure neonatal resuscitation tools are in working order, and appropriate meds are drawn up. Decision to perform vacuum is discussed with second MD and decision is made to expedite delivery because of meconium, and deep variables with slow recovery and new baseline bradycardia.

Vacuum extraction is performed with easy delivery, and intact perineum. Neonate is suctioned on the perineum but is limp and does not cry with delivery. Neonate is given to second family doctor who views the cords and suctions oropharynx for small amount of meconium. No meconium is visualized below the cords. With 100% O2 and stimulation, the neonate breathes spontaneously, and heart rate remains >100 bpm.

Knowledge: management of stage 2
Skills: vacuum extraction, neonatal resuscitation
Attitude: co-operative support of both MD's to one another, good communication between MD's and RN's and with parents.

Decisions:
1. How can complications now be prevented for the mother?
2. How can complications be prevented for the neonate?
3. How can the health care team be cared for after this delivery?

Knowledge: prevention of complications in mother (i.e. with use of syntocinon at time of delivery), appropriate management of stage 3; evidence for ophthalmic antibiotics, and vitamin K for the new-born Skills: new-born exam, postpartum examination of vagina, perineum, etc; ability to communicate with the health care team to debrief

Attitude: importance of prevention, recognition of importance of communication with health care team, dedication to continuity of care to new family.
**Rural Mental Health Care**

Sally was brought in to the Rural Emergency Department by the volunteer ambulance crew on call Friday evening. They were called to a house party where she had downed a bottle of acetaminophen following an evening of drinking. Sally’s husband had appeared at the house party physically threatening her which was apparently a common occurrence in their relationship. Upon arrival in emergency the charge nurse noted that she smelled of alcohol, was drowsy, but was easily awoken. An accompanying girlfriend confirmed that Sally had consumed about a half dozen beers along with the contents of the bottle of acetaminophen (100 tabs of 325 mg.).

The on-call family physician arrived approximately five minutes after his stat call to the emergency department. As he approached the patient, the charge nurse quickly relayed the available history along with the admission vitals - - RR 15/min, BP 110/70. HR 70/min, T 36.9 C. In addition, the family physician noted that an IV of N/S had been established, nasal prongs initiated at 3 L/min, and the attached cardiac monitor confirmed a sinus rate with a periodic ectopic beat. A Glasgow coma scale of 13/15 was quickly determined. Upon rousing Sally, portions of the history were confirmed - - the acetaminophen had been consumed about two hours earlier. As the family physician paused briefly after completing the physical examination, the laboratory technician appeared, called in by the charge nurse for the expected laboratory investigations - - CBC, RBS, Na, Bun, Cr, LFTs, osmolality, acetaminophen and salicylate levels. Preparations for the arterial blood gas followed.

**Knowledge:** management of poisonings including acetaminophen overdose  
**Skills:** tailored physical examination, interpreting Glasgow Coma Scale, effective team communication  
**Attitudes:** comfort in limits of knowledge in reviewing management in textbook, confidence in skills of nursing staff

As the nursing staff prepared activated charcoal, the family physician slipped briefly into the nearby doctor’s lounge where the protocol for management of an acetaminophen overdose was reviewed. Sally reluctantly drank the charcoal slurry while the acetylcysteine infusion was initiated. She was admitted to a critical bed in the hospital and remained stable overnight. Acetaminophen levels peaked four hours after admission and confirmed the necessity of the acetylcysteine.

Saturday morning, Sally’s family and social situation were briefly reviewed by the on-call family physician. Her psychiatric assessment revealed previous treatments for depression, mood complaints, and vegetation symptoms supporting the diagnosis of a current depression. Sally was feeling safe in hospital and although overwhelmed, she was not suicidal. She agreed to the management plan of remaining in hospital over the weekend, starting an antidepressant, and further involvement with a supportive counsellor. Sally was transferred to the medical ward (no designated psychiatric beds in the hospital) and a referral was made to the on-call community mental health worker. Later Saturday afternoon a thorough family, social, and psychological assessment were carried out by the on-call worker.

**Knowledge:** spousal abuse, suicide risk, depression  
**Skills:** obtaining psychiatric, family and social history; effective team communication, patient-centred counselling skills, crisis management  
**Attitudes:** comfort and sensitivity with spousal abuse victims, confidence in role of team

Monday morning a hospital discharge was arranged. Sally would be spending the next two weeks in the Women’s Shelter where she would be safe from her husband. Follow-up visits with the community mental health worker and family physician were scheduled. Over the month, Sally’s depression improved as a result of the supportive counselling and medication. With new insight into her abusive relationship, she was able to initiate divorce proceedings and apply for an upgrading employment program.

**Knowledge:** community resources for spousal abuse, management of depression  
**Skills:** patient-centred counselling skills  
**Attitudes:** sensitivity to spousal abuse victims
Rural Long-Term Paediatric Genetic Disease Care

This is a narrative based on real cases but composit ed to capture the range of experience a rural doctor has to be prepared to deal with and also live with.

A young G3P2 presents in labour. She progresses to an uncomplicated delivery. Soon afterward the neonate is noted by the delivering MD to be "grumpy", and a meconium ileus is also diagnosed. The baby is resuscitated with i/v lines, ventilatory support and antibiotics. Following stabilisation the infant is air medivac ed to a tertiary care paediatric centre. The rural MD explains the possible diagnoses to the parents who cannot travel for 24hrs.

**Knowledge:**
1. Normal low risk obstetrics
2. Signs of respiratory distress in the newborn
3. Causes of early onset respiratory distress
4. Of local resources for support of an sick neonate vs. those of the tertiary centre.
5. Issues involved in transfer.

**Skills:**
1. Ability to perform a normal delivery in the absence of surgical support
2. Neonatal venous access including umbilical lines
3. Use of the neonatal incubator for transport
4. Ability to communicate well with both tertiary team, with local staff who need to provide interim support to neonate, and with parents.

**Attitudes:**
1. Vigilance for the unexpected.
2. Willingness to recognise that the parents are patients too, and in need of support.
3. Clinical courage to deal with a difficult and unexpected situation.

In the ensuing year the infant's medical progress is a stormy one with long periods of mechanical ventilation and episodes of severe extremis while in the Paediatric facility. The rural MD becomes the channel for information for the parents who cannot be with the child for long periods of time. Eventually the infant is discharged home to her rural community with a confirmed diagnosis of cystic fibrosis. The plan is for her future care to be managed by the local rural family physicians, to maximize the time the family's time together, and at times by the tertiary centre paediatricians.

The next number of years of the child's life is a long course of exacerbations of her illness, delay in growth and development, nutritional problems, repeated hospital admissions and repeated long courses of i/v antibiotics and physiotherapy. The rural family physician spends long periods of time with the parents reassuring them and keeping them abreast of any new developments in the management of this illness. The child experiences numerous acute exacerbations of her condition, in addition to pneumonia, and septicemia. She frequently needs iv treatment requiring central lines, cut downs, and jugular access. Decisions are repeatedly made as to when she needs intervention and whether the interventions could be delivered locally versus those requiring tertiary support. The rural MD, remains in close and frequent contact with the appropriate specialists who also know this patient well.

**Knowledge:**
1. Of Cystic Fibrosis and complications - developed as part of the MD's commitment to lifelong learning.
2. Normal and abnormal growth and development.
3. Medical emergencies such as sepsis.
4. Of local centre and local capabilities vs. those of the tertiary centre.
Skills:
1. Communication.
2. Venous access in a child.
3. Physical assessment in order to diagnose illness.
4. Team co-ordinator: Organizing and co-ordinating the team from home care workers to physiotherapists to the tertiary specialists to ensure optimal delivery of care.

Attitudes:
1. Commitment to lifelong learning.
2. Commitment to continuity of care.

Despite genetic counselling resulting in a decision to undergo tubal ligation, the couple becomes pregnant seven years later...the result of a failed tubal ligation. Antenatal diagnosis is offered but because of religious convictions, is declined. Fortunately, the child is born safely, in the tertiary care centre in anticipation of the possibility of CF, however, has no neonatal respiratory problems, and is later diagnosed as not having CF. The family which has limited financial resources, continues to live in their rural setting, struggling to deliver care to their seven year old with Cystic Fibrosis and to respond to the needs of their other children. Because it is too difficult and too costly to see the specialists in town frequently, the care and supervision of care is taken on by the rural mds and the small rural hospital and staff. There are multiple long in hospital stays for the daughter with CF, with frequent physiotherapy, inhalation therapy, and i/v therapy delivered via scalp i/v`s, saphenous i/vs, and central lines. She experiences recurrent infections, slow malnourishment, constipation & rectal prolapse all of which are dealt with locally.

A decision is made to get a permanent indwelling line inserted. While in the paediatric ICU however, she becomes septic, has a respiratory arrest and is resuscitated with a prolonged stay in the ICU on the ventilator. The line is found to be colonized, is withdrawn and is a decision is made not to reinsert it. While the mother has been in the tertiary centre for the duration of the child’s stay, the father has stayed home with the other children and it has fallen to the rural family doctor to interpret and relay information provided by ICU staff to the family in the community.

Knowledge:
1. Management of complications of CF.
2. Interventions that can minimize need for repeated iv access (ie. indwelling lines) and the complications of these.
3. Of local resources one could involve to support family ie. social worker, clergy, etc.

Skills:
1. Communicating bad news.
2. Communication with tertiary centre specialists.

Attitudes:
1. Commitment to continuity of care for the family.

Over the next year, the daughter deteriorates requiring home oxygen, nasogastric feeding and treatment for repeated pseudomonal infections. She subsequently develops rapidly progressing pulmonary hypertension and cor pulmonale. Despite intensive treatments and long counselling sessions she deteriorates physically and slowly gives up. She eventually is admitted in extremis, hope and all will to live since faded. Both parents are totally drained by the previous years of care. Given the clinical state of the child, a decision is made not to transfer out. Shortly after her admission, she is assessed as cyanosed, limp, and is noted to be tachypnoeic. There has been no improvement despite aggressive treatments. The rural MD discusses issues of palliative care with the parents and family and a decision is made to keep the child comfortable and minimize aggressive measures at that time. When it is apparent that she is about to die, the rural MD disconnects all lines and lifts the frail child into her father’s arms. He rocks her, hugging her tightly and in time she slips away... The sadness is all consuming. The hospital a morgue...... All that could be done was done. The physician’s feet of clay now feel very apparent. A lifetime of counselling for the parents and the remaining siblings. Again the RMDs
become the care givers. Although a player in the tragedy, a counsellor in dealing with it the price of continuity of care and devolved care for their patients lifetime of counselling for the parents and the remaining siblings has gone by, but the rural MD knows how this tragedy will continue to affect them and the rest of their small community. The family physician seeks support from other sources once again, for the family, the hospital staff who have grown to be very involved in the life of the little girl, and for himself.

**Knowledge:**
1. Palliative care and end of life issues.
2. Natural history of CF.
4. Of the grief process for parents and siblings.

**Skills:**
1. Communicating bad news.
2. Grief counselling.
3. Ability to support the health care team as team leader.

**Attitudes:**
1. Ongoing commitment to care for the family.
2. Willingness to recognize the toll that the death of such a patient can take on one's own psyche, and seek measures to prevent burnout.
Rural Trauma Care

A Practical Example of Skills Needed in Rural Practice – Mr. T.

Mr. T., a 52-year-old male was travelling eastbound on a motorcycle when he was struck by a westbound half ton truck whose driver was blinded by the setting sun and crossed over the median. An ambulance was summoned from the nearest hospital which was 40 km. away. A first responder from a nearby village was also called and arrived shortly thereafter with the local doctor. An i.v. was started on site and the patient transferred by ambulance with a diagnosis of a probable flail chest, crushes to the left arm and leg along with loss of the left foot.

Mr. T. arrived with his left arm and leg in a bulky dressing, the foot in a bag and his i.v. running slowly. Mr. T. was talking normally and fully alert and aware. Vital signs showed him to be slightly tachycardic with a heart rate of 116, but that he was maintaining blood pressure at 135/75. Respiratory rate was 32. SaO2 on 10 l. was 89%. A flail chest was not noted, but creps were heard over the left chest wall. Air entry was diminished on the left side. Further initial survey did not show any other significant injuries.

Knowledge: ATLS
Skills: Initial survey, assessment of the acute chest
Attitude: On call MD, and especially village MD, accept responsibility of managing acute trauma with no local specialist support

Initial treatment was aimed at obtaining better vascular access and assessing bony damage and respiratory compromise. Blood gases were drawn by the attending physician while nursing staff were attempting further i.v.’s and X-ray was being called in. Mr. T. was maintained on 10 l. O2 by face mask and remained alert. Morphine 5 mg. was given i.v. for analgesia. Lab was called and drew blood for a CBC, group and match and baseline chemistry.

Test results showed a low haemoglobin of only 86 on CBC. This did not seem in keeping with the acuity of his injuries or his clinical condition. A haemoglobin from his ABG was noted to be 136, so the CBC was felt to be in error. It was taken from the same arm as the i.v. and despite assurances that the i.v. was off at the time, must not have been. The ABG did confirm hypoxemia, but there was no acid-base imbalance. X-rays showed fractured ribs on the left side with a pneumothorax. The upper limb was noted to have severely comminuted fractures of the radius and ulna. The lower limb showed similarly severely comminuted fractures of the tibia and fibula and that the foot was amputated just above the ankle.

Vascular access was difficult to obtain. Nurses and the attending physician were unable to gain another i.v. site. The GP-anaeesthetist was called in for his expertise in venipuncture. This was finally gained in the right arm. He then placed a chest tube on the left while the attending performed a cut down of the saphenous vein at the ankle and cannulated it. The attending then placed a chest tube in the right side as prophylaxis against collapse during transfer to the tertiary care centre. Repeat chest X-rays showed acceptable tube placement and a resolution of the pneumothorax. Oxygen saturation improved to 97%.

Knowledge: ATLS, complications of air medevac and their prevention, laboratory interpretation (ABG’s, conflicting haematology), X-ray interpretation, local “specialists”
Skills: Chest tube placement, ABG’s, venous cut down, leading, maintaining calm in ER
Attitude: Clinical courage, working with a team for best patient outcome

A tertiary care trauma centre was contacted and transfer arranged. Further stabilization and preparation for transfer included the insertion of a foley catheter after checking for urethral rupture. The dressings were left intact on the injured arm and leg as there was no sign of any seepage through the dressings and the damage appeared such that nothing could be done to improve the areas prior to transfer. The avulsed foot was rinsed and put on ice although there was little hope of reattaching it. Morphine was given as needed for analgesia. A blood transfusion was started after the second litre of crystalloid had been given.
Transfer by air ambulance was complicated by the unpreparedness of the air ambulance crew. They had been told to expect a routine MVA transfer and not told of the chest tubes, i.v.’s, foley or oxygen. The attending went on the medevac while another physician took over emergency room duties until the original doctor returned and resumed duties.

**Knowledge:** Fracture stabilization, care of amputated body parts

**Skills:** Effective transfer of pertinent information on patient condition to an unprepared medevac crew

**Attitude:** Accept risk to self in going on medevac, MD covering accepted disruption to what should have been a day off in order to provide service to community

Mr. T. was taken to the operating room in the tertiary care centre where he underwent an above elbow and below knee amputations. He recovered otherwise without incident.

This case highlights several issues in rural medicine. There were good communication and bad. The first response team and on site doctor provided useful information to the receiving hospital. Central dispatch, however misinformed the air ambulance which fortunately had the appropriate equipment on board to effect the transfer of Mr. T.. Some aircraft used for transfer are not so equipped. Team skills were needed and involved the attending physician and nurses initially, then other local physicians with special skills and finally the ambulance and medevac crews. Invasive testing and line/tube placement were vital to the survival of Mr. T.. Most urban family physicians would not ever use or need the majority of these skills, but for a rural family physician, isolated from specialized centres and care they are essential.
Patient Stories & Rural Clinical Decision-Making Skills Model

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Patient Stories and Rural Clinical Decision Making

In 1979, McWhinney identified the components of clinical decision making which we as Family Physicians and Preceptors use on a daily basis as patient problems are presented to us. Family Physicians are experts in identifying cues, forming hypotheses, incorporating probabilities and payoffs into our hypotheses testing and reaching appropriate management decisions. More recently we have been faced with the challenge of incorporating evidence based information into this process.

This clinical decision making model must be a core learning object for our residents. We, as preceptors, must understand how it works and improve our abilities in transferring this skill to our residents.

Family practice decision making involves more than the immediate management of acute illness. The continuum of family practice responsibility with patients requires us to incorporate these acute episodes into ongoing stories which within themselves carry many hypotheses – many of which may affect our decisions during acute illness.

It is hoped that by using patient stories, preceptors and residents will have the opportunity to dissect and verbalize the reasoning behind their clinical decisions. This model may also serve as a template for incorporating evidence based information into our decisions. It may, at the same time, serve to identify areas where evidence is not available and assist in focusing evidence based researchers into areas of clinical relevance.

It is vital that both residents and preceptors are open to constructive challenges in their decision making and willing to incorporate “trusted” clinically relevant, evidence based medicine into the process.
Patient Story – Headache/Fever

You are on call for your rural community and have invited your resident over to your home for the evening to share call with you. He has expressed an interest in better understanding the process you use in clinical decision making when you are on call. Specifically he would like you to DISSECT & VERBALIZE the process – explain what cues you incorporate into the process; how you use probability and payoffs in forming and testing hypotheses; how you ultimately and mysteriously seem to emerge with appropriate clinical decisions.

At 10 PM you receive a call from Emergency regarding an 8 year old Native child who has been brought into the hospital by her mom. The nurse tells you that the child has had a headache and fever for about 12 hours and that the headache has become more severe this evening. The nurse indicates that the child seems quite sick. You ask the nurse what she means by “quite sick” and she indicates that the child seems lethargic but is rousable. Her temp is 37.8(C, pulse 100, respirations are 20/min. You tell the nurse to call in the lab and that you are on your way.

During the 10 minute drive to Emergency through the snow, the resident asks you to explain your decision making process to this stage. You indicate that the initial decision is based on deciding if this case is serious or not serious; does it require me to go into the hospital. The answer to this is yes. The cues indicating this could be serious are: fever and headache. I asked myself could this be meningitis, although the probability is low, the payoff of diagnosis of meningitis is high? With the added information that the child was drowsy and that the nurse, who is very reliable, felt the child was quite sick, my suspicions increased. For a moment, I wondered if the drowsiness could be related to trauma or an overdose, but I eliminated these hypotheses because of the fever and increasing headache. My hypothesis at present is that the drowsiness could be related to increased intracranial pressure secondary to meningitis. I also incorporated my knowledge of this family into my decision to go in and that it could be serious. They rarely come in unless they are really concerned. As well this is a Native child and it is my experience that they are more likely than Caucasian children to have complications from infections. Although I am not sure if they have an immunological susceptibility or if it is based on socio-economic issues, it certainly is added into my decision making. [Q1] So my working hypothesis at this point is meningitis with the possibility of increased I.C.P.

[Resident]: “I notice that you asked the nurse to call in the lab. Shouldn’t we wait to see the child before we get the lab in?”

[Preceptor]: “In this cost-effective environment that could be, but based on the probability and payoff that we will need the lab sooner than later and the fact that the lab person lives ½ hour away, I want to ensure that they are available ASAP. There is no doubt in my mind that we will need them.”

[Resident]: “Anything else going through your mind?”

[Preceptor]: “Yes, this snow storm is increasing and if we need to transfer the child out, we should start to think about making these arrangements as soon as possible after we assess her. The main reason for a transfer out would be because of increasing I.C.P. [Q28] What do you know about signs and symptoms of increasing I.C.P.?”

[Resident]: “Well as the pressure increases, the level of consciousness decreases and I just happen to have my Glasgow Coma Scale with me. The pulse initially increases, then as the pressure increases, it becomes slower and the same thing happens to the respiration. I am not sure what happens to the B.P., but I think the pulse pressure increases.” [Q2]

[Preceptor]: “Let’s look it up later, but the important thing is that these changes are late changes. Our most sensitive clinical evaluations are related to her level of consciousness and other early signs of ( I.C.P.” [Q3]

As you enter the hospital, you pass a few anxious looking relatives outside of Emergency. You next approach the Emergency desk and the nurse, who looks worried, hands you the chart. The mother is standing by her daughter, who is lying on a stretcher and does indeed “look sick”. Later the resident asks you what you were thinking based on these cues. You indicate that all combined together contribute to validate that this is a serious problem and that our hypothesis of meningitis now needs further testing. You explain that although they are
secondary cues, they do reflect the seriousness of the situation and add to the pressure of dealing with the patient. The resident then asks you what you and the nurse mean by the child appearing “really sick”. [Q4]

You ask the nurse what the last vital signs are. The temp is 38°C, pulse 100, she has not done the B.P. You indicate to the resident that your next job is to focus on testing your meningitis hypothesis while at the same time ruling out less likely hypotheses. You note that the child is a bit resistant to moving around because her neck hurts. She has a bit of photophobia when the nurse turns on the overhead lights.

You next do a focused examination to test your hypothesis of meningitis and look for a possible source of infection. Her ears are a little dark and there is a thick discharge from her nose. The throat looks red, her pupils are responsive to light and accommodation, but she has obvious photophobia which makes it difficult to examine her fundi. As you examine the head and neck, you explain that you are looking for evidence of injury which could possibly explain the drowsiness or adenopathy to explain the neck tenderness (meningimus). Finding none you feel comfortable that you are not missing other causes of the problem. You next bend the child’s knees and flex her hips. It becomes clear that in this position when her neck is flexed slightly that she has evidence of meningeal initiation. The resident agrees but suggests that it is necessary to look at the fundi to assess the intracranial pressure. You agree but because of the photophobia, it is difficult and you are using the patient’s level of consciousness to assess the pressure. [Q3]

Next you listen to her chest, heart and feel her abdomen but find no abnormalities. The resident wants to know why you examined these areas. You explain that you were looking for other (less likely) sources of infection and that by listening to the heart, you are now assured that there is not a murmur present. If one appears later, then we need to think of sub-acute bacteria endocarditis especially since this child will probably have a bacteriemia.

[Resident]: “Now what are you thinking?”

[Preceptor]: “Meningitis, rule out viral or bacterial. I would like to have the lab do a W.B.C. and differential to help us differentiate between viral and bacterial. While she is taking the blood, we should also take a blood culture. In order not to miss a source of infection, we should also culture the nasal discharge, her throat and her urine.”

[Resident]: “Why do you want to do these cultures? Is there evidence that the infective agent causing the meningitis is going to be the same one you identify from the cultures?”

[Preceptor]: “My main objective is to identify any possible source and agent which may be reflective of the organism causing the meningitis, but your point is well taken. We need to look up the evidence around this issue.” [Q5]

[Resident]: “I am also not sure why you are doing a C&S on the urine. She has not had any history and I doubt that if her micro is normal that she needs a C&S.”

[Preceptor]: “OK, let’s do a C&S only if her micro shows WBC’s.” [Q6]

[Resident]: “I agree that we should do a blood culture, but what is the evidence that if growth occurs, it reflects the causative organism.” [Q7]

[Preceptor]: “Seems logical to me that they would be the same organism, but let’s look this up later.”

[Resident]: “What are your thoughts now?”

[Preceptor]: “1) We need to get an I.V. going and maybe even at two sites since we don’t want to lose it especially if we are going to transfer her. The lab can take their blood from our lines. 2) Should we do a lumbar puncture? It will verify meningitis and identify the organism. 3) Does she have increasing intracranial pressure? If so, how should we deal with it and should we do a L.P. if it’s up? 4) What antibiotics should we use since it will take at least 12 hours to get culture back?” [Q8] 5) My last thought is that we need to talk to the family.”

[Resident]: “What are you going to say to the family?”
[Preceptor]: “Well, we have to be honest with them and indicate the seriousness of the situation. We need to avoid medical terminology and at the same time deal with their fears. We need to explain to them what our next steps are and on what we base these decisions.”

[Preceptor]: “Right now we need to decide if we will do a lumbar puncture, but I think I will hold off until I see the WBC.”

[Resident]: “Why wait?”

[Preceptor]: “If it’s a viral shift, I will not be so concerned about identifying the actual organism. If it is a high WBC with a left shift, I will be more interested in doing the puncture before we start the antibiotic.”

[Resident]: “Is it possible that she could have a low WBC and a right viral shift, but still have a bacterial infection?” [Q9]

[Preceptor]: “I would not think so, but we should look for the evidence based information on the topic later. Do you know what percentage of meningitis are viral vs. bacterial?”

[Resident]: “Apparently 90% are viral and the rest are bacterial/if bacterial most will be Strep pneumonia.

[Preceptor]: “Right.”

[Resident]: “The WBC has been done and it is 14,000 with 80% polys. Now what are you thinking?”

[Preceptor]: “Do we or don’t we do a lumbar puncture in order to get a culture?” We both agree that it is vital to know what the bacteria is in order to choose the most appropriate antibiotics.

[Resident]: “Yes, I agree but I have a book with me that tells you what the most likely organism is and which antibiotics are most appropriate choice. Apparently it is evidence based?” [Q10]

[Preceptor]: “I would predict that the organism will be H. influenza because the last 3 cases I have seen over 20 years grew H. influenza.”

[Resident]: “Well, according to this book, Strep pneumonia is the most likely followed by meningococci. It says here that H. influenza is now very rare – I imagine because of the vaccine.” R2,R3

[Preceptor]: “OK! What antibiotics do they suggest?”

[Resident]: “Cefotaxime (200mg/kg/24 hours, I.V. given in divided doses q6h) or Ceftriaxone (100mg/kg/day, I.V. given in divided doses q12h) + Vancomycin (60mg/kg/day, I.V. given in divided doses q6h) (Dexamethasone.” R3

[Preceptor]: “What do the cephalosporins cover?”

[Resident]: “They cover Strep pneumonia, H. influenza and Meningococcus.”

[Preceptor]: “Why the vancomycin?”

[Resident]: “Covers penicillin resistant Strep pneumonia.”

[Preceptor]: “OK, thanks! But I am concerned that if we miss the causative organism in this patient that we will be treating her inappropriately, so I am going to do a tap.”

[Resident]: “But do you really need to do it if you know what the most likely organisms are?” [Q11] In the city they would do a CAT Scan.” [Q12]
[Preceptor]: “We don’t have one of those things, so I want to make sure that there is no increasing intracranial pressure, because if there is I do not want to suddenly decompress the fluid and cause coning. So let’s re-evaluate to see if there is evidence of increased intracranial pressure.”

[Resident]: “How are you going to do that?”

[Preceptor]: “Look at the patient, use the coma scale, do vital signs and look at the fundi.”

[Resident]: “Is there some threshold of findings which would tell you not to do a puncture?”

[Preceptor]: “Well, I would base it on coma scale and lack of pulsation in the fundi.”

[Resident]: “Is that evidence based?” [Q13]

[Preceptor]: “No, it is experience based.”

Finding no signs or major symptoms of increased intracranial pressure, the patient is prepared and the equipment set out for the procedure.

[Preceptor]: “Let’s open two trays and while they are preparing the patient, we can practice on this model. Pay attention to where we are inserting the needle on the model. Note that we want to go into the widest space and at the same time avoid going so high that we hit the cord. L3-L4, L5-S1 are ideal spaces. Note how we identify these spaces when we go to the patient. Also note how we need to insert the needle much more horizontally and towards the umbilicus than you would expect. Make sure all the equipment and assistants are available for you to accomplish your objective. You will need sterile bottles and someone from the lab present to do the stains micro and cultures. Any questions?”

[Resident]: “I will watch you do it on the patient.”

After explaining the procedure to the patient and her mom, the procedure is successfully carried out. Cultures and micros are taken. The fluid is murky and obviously infected. The patient is made comfortable and the parents are notified of the findings. The resident and preceptor retreat to the doctors room.

[Resident]: “Well, it sure looks like bacterial meningitis and the patient seems stable for the moment. How long does it take for a culture to grow [Q8] and why did you do the CSF sugar and protein levels, and cell count?” [Q14]

[Preceptor]: “The culture usually takes at least 12 hours but stains will be done quicker. The sugar levels in bacterial meningitis will be low and protein high. It just helps verify bacterial infection as does an increase in the poly. cell count.”

[Resident]: “Can you depend on the stains to decide what antibiotic we should use?” [Q15]

[Preceptor]: “Don’t think so, but it may help us to differential S. pneumonia from meningococci.”

[Resident]: “Does it really matter which it is since the Rx will be the same?”

[Preceptor]: “Probably not, but the stains may tell us if it is something rare. Anyway let’s look up the evidence around causative organisms later. Let’s get those antibiotics going and decide if we should admit her or transfer her to our regional hospital?”

[Resident]: “Right. What would make your transfer?”

[Preceptor]: “Signs/symptoms of worsening generally and increasing ICP and to be honest possibly pressures from the parent. Presently she is doing fine and her mother seems confident in our skills, so let’s arrange for admission.”
[Resident]: “Now what? Should we treat the ICP?”

[Preceptor]: “I can’t see pulsation in the fundi and the manometer indicated a slightly elevated pressure, so I think the benefit outweighs the harm. What do you know about when to treat (ICP)?” [Q16]

[Resident]: “There are 3 ways that I know about: Mannitol, Hyperventilation or Steroids.”

[Preceptor]: “Do you know which is the most effective and satisfactory?” [Q17]

[Resident]: “No, but I have seen all tried in the city. We don’t have time to look up the evidence but I could phone a friend of mine in Neuro-Surgery in the city who knows.”

[Preceptor]: “OK, but I think I will start Decadron. When we have time we need to critically look at the studies done on these different agents. Hopefully they would have compared each using Double Blind Randomized control trials. Do you think they would compare active interventions with placebo?”

[Resident]: “Doubt that ethics committee would allow it.”

While the patient is being admitted, the resident and preceptor go to write the orders.

[Preceptor]: “Why don’t you write the orders?”

[Resident]: “OK, when I am writing orders, I think of diet, activity, investigations, treatments, and things I want the nurses to do and others to do like physio etc. Then lastly I like to think of what we can add to make the patient more comfortable.”

[Preceptor]: “OK, sounds good. Let’s start with diet.”

[Resident]: “I would suggest diet as tolerated.”

[Preceptor]: “What happens if she gets increased ICP and starts vomiting?”

[Resident]: “She could vomit and aspirate, so maybe only sips and we can give her fluid by I.V.”

[Preceptor]: “OK, what fluid and how much?”

[Resident]: “Probably 2/3 1/3 at daily requirement since she is not dehydrated.”

[Preceptor]: “I suppose the fluid we give her really doesn’t matter as long as it does not contribute to increasing the ICP. I have never been great on understanding the place for different I.V. fluids, so maybe we can discuss this later.” [Q18]

[Resident]: “Activity. Clearly she is a sick girl, so probably she will not want to be getting up much tonight. I don’t think she should be going to the bathroom, even with help, so I will order bed rest and they can use a bed pan if she needs it. Now investigation, I want to repeat the WBC in the morning to see if she is responding to the treatment, BUN SC, Electrolytes, Urinalysis, Chest x-ray in the AM.”

[Preceptor]: “That is a lot of tests. I agree with the WBC but what is the likelihood that a previously healthy person will have kidney damage from meningitis especially with the normal urinalysis which we have.”

[Resident]: “Well, we do it in the city on most inpatients and it is good to have if she is receiving antibiotic especially Vancomycin since it is nephrotoxic.”

[Preceptor]: “How nephrotoxic is Vancomycin? [Q19] I don’t think we need it but let’s do it as an academic exercise.”

[Resident]: “OK.”
[Preceptor]: “Same with Electrolytes, I agree she is going to receive I.V.’s and that may change them, but my hypothesis is that she can metabolically handle the fluids on her own. Let’s do it and learn from our actions. The chest x-ray is not necessary, in my opinion, she has no chest findings, no cardiac abnormality etc. You are going to have to move her to x-ray when she is not feeling well, so let’s not do it.”

[Resident]: “Well, I think we should. Why don’t we do a portable. I don’t want to miss a pneumonia or something.”

[Preceptor]: “Portables are not accurate. [Q20] As for the pneumonia, does she have any respiratory symptoms? Did you find any signs when you examine her?”

[Resident]: “No.”

[Preceptor]: “So it is always important to ask yourself: is this investigation going to change my management or the outcome of the illness.”

[Resident]: “Probably not, thanks! Other investigations. I would like to do another blood culture if she spikes a temp.”

[Preceptor]: “I agree. Do you want a second culture if she does not spike a temp?”

[Resident]: “No, you only grow something if they are having a bacteria associated with a spike.”

[Preceptor]: “I am not so sure about that. Let’s put that on our list to look up, but I think based on the seriousness of the illness, we want to make sure we don’t miss the culture, so let’s do another [Q21] even if she does not spike.”

[Resident]: “Now treatment. We have started the antibiotics recommended by our evidence based source. Cefotaxime 200mg/kg/day, given in divided doses q6h + Vancomycin 60mg/kg per day, divided dose I.V. q6h to cover any strep resistant organisms. They recommend Dexamethasone probably to decrease the inflammatory process and it can double its use by helping to control the possible (ICP.” [Q17]

[Preceptor]: “OK, but we should look up the evidence. You should know the hospital formulary does not carry Cefotaxime because of cost they made a deal with the Ceftriaxone group and get it cheaper.”

[Resident]: “That is interesting. Our city hospital gets Cefotaxime because it costs them less.”

[Preceptor]: “What does that say about evidence based therapy and the influence of the pharmaceutical industry on prescribing?”

[Resident]: “I am aware of the problem and my research project is on this issue.” [Q22]

[Preceptor]: “Well done, so let’s order Ceftriaxone (100gm/kg/day, I.V. in divided doses q12h).”

[Resident]: “How long should we give this dose and when can we give the medications orally?”

[Preceptor]: “This a pretty serious illness. I think we should over use rather than under use. Let’s decide based on clinical response, move to 1/2 dose when things look better, i.e. WBC near normal, temp down, patient looks better.”

[Resident]: “Wonder what the evidence is about this? [Q23] Let’s put it on our list.”

[Preceptor]: “She will probably be in for a week at least, then I would send her home on some oral medications if we culture Strep pneumonia and it is not resistant to pen. I would send her home on 300 mg Penv TID x 10 days.”
[Resident]: “Is that evidence based?” [Q24]

[Preceptor]: “Probably not, and we can look up the evidence but this illness strikes fear into my heart and I am sure the parents, they live 20 miles from town and occasionally have a hard time with transport in, so I am not taking a chance. What if she had a sub clinical infection remaining?”

[Resident]: “Is there such a thing? [Q25] There are lots in the literature on antibiotic resistance these days! [Q26] Now the nurses should keep an eye on her.”

[Preceptor]: “Why? What do you fear most?”

[Resident]: “Well, the patient could get worse, i.e. (ICP secondary to progressive meningitis, so I will tell them my concerns and have them check her V.S. and level of conscious. Q ½ hour over night. Any concerns they should call?”

[Preceptor]: “I think they will agree with this especially if you talk with them and share your concerns.”

[Resident]: “Last thing I think about when ordering is what can we do to make the patient comfortable? For pain control, I would use acetaminophen without codeine as I don’t want to sedate her and confuse us with changes in level of consciousness. I would not use any form of sedation because of this.” [Q27]

[Preceptor]: “OK. Let’s talk to the mother and then hit the sack.”

[Resident]: “OK, I have not seen the father around?”

[Preceptor]: “Ya, interesting, isn’t it? Wonder what that is about.”

No calls over night. At hospital rounds in the AM, the patient appears to have improved. The WBC is down 12,000, 68% polys. Examination reveals reduced knuckle rigidity, cultures are not complete yet.

[Preceptor]: “Want to keep or transfer out?”

[Resident]: “I think I feel OK about keeping but I would like to review the thought process you would have gone through if she was worse. What would make you think of sending her out? [Q28] How would you arrange her transfer? What would you do to prepare her for air evacuation?”

[Preceptor]: “OK, let’s talk about that later.”

[Resident]: “How long should we treat her with the I.V. antibiotics if she continues to improve?” [Q23]

[Preceptor]: “Well, I am not sure what the evidence is but I would treat her for 10 days in the hospital and even consider sending her home on antibiotics as I mentioned before.”

[Resident]: “Isn’t that over kill?”

[Preceptor]: “Serious disease needs serious RX but let’s look up the evidence.” [Q24]

[Resident]: “OK.”

[Resident]: “You know, this has been a great case. We have learned a lot and the patient is getting better.”

[Preceptor]: “Now we need to watch her in the hospital for a few days resisting the pressure of the Audit Committee to move her home and then decide when we need to see her in the office.”

[Resident]: “What would you be looking for when she sees you in the office?”

[Preceptor]: “Well. What would you be worried about?”
[Resident]: “Obviously if she was getting worse and possibly looking for any neurological deficits as a consequence of the meningitis.” [Q31]

[Preceptor]: “Right. Should we be warning the community nurse about this?” [Q29]

[Resident]: “Yes, especially if it is meningococcal. Don’t know if it’s reportable of its S. pneumonia.” [Q29]

[Preceptor]: “Let’s do it and then send the culture results to them.”

[Resident]: “What if it is meningococcal? Who looks after the vaccination?” [Q30]

[Preceptor]: “We communicate with the Health Office and they take it from there.”

[Resident]: “I was wandering again where the father has been during this illness?”

[Preceptor]: “Well, it is a long story. Let’s sit down and talk.”

**Patient Stories and Rural Clinical Decision Making Questions and Answers**

**Clinical Question #1**
Are Native children more likely to develop complications from infections than the general population? If so, is it because of immunological differences or socio-economic reasons?

Family Practice Opinion - Yes, maybe combination – socio-economic and immunological.


Evidence Based Studies show no difference in immunoglobulins.

R4 - No studies to evaluate H. influenza influence in First Nations – i.e. vaccination rate.

**Clinical Question #2**
What happens to V.S. as intracranial pressure increases? (Pulse/Respiration/Blood Pressure)

Family Practice Opinion - Late sign:pulse ( initially ( down as pressure increases resp. ( initially ( down as pressure increases B.P. ( P.P. ( down

Expert Opinion - Same.

Evidence Based Cushing response.

R5 - Clinical

**Clinical Question #3**
What are the earliest signs and symptoms of (ICP?)

Family Practice Opinion - Drowsiness-lethargy increasing headache photophobia vomiting. Venous engorgement in fundal veins then papilledema..

Expert Opinion - Appearance that this is a sick child. Changes in levels of consciousness, photophobia may belate, vomiting may also be late. Inimitability, delirium, convulsions.

Evidence Based Fever, chills, headache, vomiting, photophobia, lethargy, convulsions, venous congestion (fundal vessels), papilledema, vs charges.

R6

**Clinical Question #4**
What is meant by a “sick child”?

Family Practice Opinion - Lethargic, pale, reduced responsiveness.

Expert Opinion - Lethargic, pale, reduced responsiveness.

Evidence Based No description.
Clinical Question #5
Is there a relationship between extra meningeal causes of infections and the organism causing the meningitis?
Family Practice Opinion - Could be because of culture.
Expert Opinion - No, not reliable. Cultures from nose/ear/throat are not accurate; therefore predicting meningitis organism is not reliable.
Evidence Based Textbook suggests that organisms originate from bacteria which have colonized mucous membrane R6 and spread to blood then to meninges or if head trauma and fracture, then can spread by direct extension (sinus/mastoiditis).

Clinical Question #6
Can a micro urinalysis be normal in the presence of a symptomatic UTI. (due to bacteria)?
Family Practice Opinion - No. If micro negative, no infection.
Expert Opinion - Occasionally through dilution of urine as a result of patient fluid input. Dip sticks are inaccurate reflection of UTI.
Evidence Based - Reference for above dip stick statement.
R7

Clinical Question #7
Is there a relationship between the bacteria grown on a blood culture and the causative organism of meningitis?
Family Practice Opinion - Yes, if positive blood culture, accurate reflection of causative organism.
Expert Opinion - Yes, very accurate but only 25-30% of meningitis caused by bacteria will have a positive blood culture.
Evidence Based If positive, 90% accurate.
R8

Clinical Question #8
How long does it take to grow a blood culture and identify the causative organism and its sensitivity?
Family Practice Opinion - 12 hours to identify on culture plate, 24 hours sensitivity.
Expert Opinion - To identify from culture plate, 8-16 hours. To sensitivity, 24 hours beyond identifying of organism, thus 32-40 hours.
Evidence Based Antigen identify of bacteria not of great help clinically.
R9

Clinical Question #9
Is it possible to have viral WBC and a bacterial CSF infection?
Family Practice Opinion - No.
Expert Opinion - Yes, occasionally, overwhelming infection in kid, peripheral overuse (consumption) and central under-production (bone marrow), lymphs-dominate peripheral blood picture.
Evidence Based - Do not depend on WBC to differentiate viral from bacterial.

Clinical Question #10
Can we trust the guideline to anti microbial therapy? Does it apply to my community (most likely organism and therapy)?
Family Practice Opinion - Yes.
Expert Opinion - For the most part.
Evidence Based Resistance varies in different settings.
Clinical Question #11
Is it really necessary to do a lumbar puncture in meningitis if you know what the most likely organism is and what the therapy of choice is?
Family Practice Opinion - As on chart.
Expert Opinion - No, (Paediatrician Neurologist) no urgency, risk, benefit, identify bacteria (Paediatrics Neurologist) from blood predict from evidence, only in unresponsive cases. Yes, (Bacteriologist) identify the bacteria accurately, rare organism, Listeria, staphylococcic. Yes, (Paediatrician) infectious disease, absolutely, do early, Rx early, necessary to differentiate viral (90%) from bacterial (10%).
Evidence Based Lots of controversy.
R6,R10

Clinical Question #12
What is the sensitivity and specificity of CAT scans in detecting (ICP?)
Family Practice Opinion - Clinical SS more accurate.
Expert Opinion - Not much help.
Evidence Based - Sensitivity very poor, 100 cases of meningitis with clear (ICP). 90% not detected by CAT can be used to evaluate cerebral edema or space occupying lesion.
R11

Clinical Question #13
When not to do lumbar puncture in meningitis with (ICP?)
Family Practice Opinion - Decreased level of consciousness evidence of papilledema.
Expert Opinion(Paediatrician) infectious disease, always do it, never seen conning!
Evidence Based Space occupying lesion.

Clinical Question #14
Sugars and proteins in CSF as predictors of viral vs. bacterial cause?
Family Practice Opinion - Helpful in differentiating bacterial from viral.
Expert Opinion - Bacterial – sugars are down because bacteria and phagocytes consume sugar. Proteins are up in bacterial meningitis because ( cell destruction. Cells up (polys because of bacteria).
Evidence Based CSF sugars if less than ½ serum glucose, suggests bacteria. Protein @ <40mg/dl if >100mg/dl suggest bacterial meningitis. CSF Cells @0-6 cells/mm3 bacterial meningitis with ( polys. >1000WBC/mm3. CSF pressure @ 80-90 mm H2O meningitis, 150-200 mm H2O
R6 (Infectious Diseases of Children. 9th Edition, pp. 246-259.)

Clinical Question #15
Can you identify the causative organism accurately by doing a grams stain on the CSF?
Family Practice Opinion - Yes.
Expert Opinion - Yes, properly done by technician. Quite easy to predict organism by differentiating bacilli from cocci (GRM positive, Strep from Staph and GM negative diplococci).
Evidence Based Taken 30 minutes at most. Good predictor of causative bacteria.

Clinical Question #16
When to treat (ICP?)
Family Practice Opinion - When you suspect.
Expert Opinion - Not much help, whatever you do.
Evidence Based Sedate and hyperventilate or mannitol.
R12
**Clinical Question #17**
Most effective method of ICP in meningitis?
Family Practice Opinion – Dexamethasone
Expert Opinion - None help. Dexamethasone did not reduce 20% deafness complication in hemophilia Strep (fluid restrict best plan.
Evidence Based (poor studies, no evidence of effect.
R13,R14

**Clinical Question #18**
What is the best I.V. fluid to use in a child with meningitis?
Family Practice Opinion - For maintenance does not matter
Expert Opinion - For re-hydrate – Ringer’s/saline. For maintenance, 2/3 1/3 not 5% D&W.
Evidence Based Maintenance, give only 75% of maintenance, water overload in sick kids (Na (convulsions.
R15

**Clinical Question #19**
Is Vancomycin nephrotoxic?
Family Practice Opinion - Yes.
Expert Opinion - Minimally mild and self limiting.
Evidence Based When given with aminoglycoside (problem renal.
R16,R17,R18

**Clinical Question #20**
What is the accuracy of portable chest x-rays?
Family Practice Opinion - Not accurate.
Expert Opinion - Depends on patient habitus, CHF OK, others no.
Evidence Based

**Clinical Question #21**
When to take blood cultures? Is it necessary to do them during temp spikes?
Family Practice Opinion - Yes, 3 samples, time separated during spike.
Expert Opinion - No. only need one session. Taking blood from two separate locations, making sure that each sample is between 10-15 cc blood not during spike. Spike is due to macrophages are releasing interleukin, (prostaglandins (spike, because (number of bacteria available for positive culture.
Evidence Based Volume of blood must be 10-15 cc/sample. Each cc of infected blood has 3.5% chance of positive growth; therefore the more blood the better the chances of picking up infection. R19

**Clinical Question #22**
Does the pharmaceutical industry offer special deals for the same different hospitals?
Family Practice Opinion - Yes.
Expert Opinion – Yes.
Evidence Based TPA – Paper available.

**Clinical Question #23**
How long should I.V. antibiotics be given in a case of meningitis?
Family Practice Opinion - 10 days serious disease.
Expert Opinion - 7 days – 10 days serious disease.
Evidence Based No good evidence on duration of I.V. treatment.
R20,R21
Clinical Question #24
Should patients be sent home on oral antibiotics if recovered at hospital discharge?
Family Practice Opinion - Yes.
Expert Opinion - No.
Evidence Based Smoldering infection rare. (meningical irritation; therefore antibiotics don’t cross BBB.
R6

Clinical Question #25
Smoldering infections – do they occur?
Family Practice Opinion - Yes.
Expert Opinion - Rare.
Evidence Based - Rare, above neonatal age groups (>2M), but watch in neonates with B. hemophilia Strep.
R6

Clinical Question #26
Do children receiving antibiotics develop a micro-organism resistance to those antibiotics short term? Long term?
Family Practice Opinion - Yes.
Expert Opinion - Absolutely. 6 weeks resistance following therapy.
Evidence Based - David Spreet – reference attached. Kids on long term antibiotics ampicillin. After stopping have up to 5M pen. resist Strep pneumonia.
R22,R23

Clinical Question #27
Analgesic’s in meningitis?
Evidence Based

Clinical Question #28
When to transfer out?
Family Practice Opinion - Unresponsive. (ICP (coma – signs of progressive decreasing level of consciousness.
Expert Opinion - Depends equipment to support respiratory arrest or development of disseminated intravascular coagulopathy.
Evidence Based

Clinical Question #29
Reporting of meningitis to health officer?
Family Practice Opinion - Yes, report all cases to medical health officer.
Expert Opinion - Not all. Meningococci (yes), Hemophilia (no), Strep pneumonia (yes). Vaccine coming are under-serviced vaccinated.
Evidence Based - Control of communicable diseases manual (Beninson). Meningococci with 24 hours of identification.
R24
Clinical Question #30
Prophylaxis for community – When? How?
Family Practice Opinion - Yes, meningococci contact.
Expert Opinion - Yes, meningococci close contact.
Evidence Based Contact MHO ( PHN ( Prophylaxis for close contacts. Refampin can lead to resistant meningococci.
R24

Clinical Question #31
What to watch for at post discharge visit?
Family Practice Opinion - Neurological complications.
Expert Opinion - Neurological especially deafness, hearing test at 6M post meningitis can develop disseminated intravascular coagulopathy but usually during acute episode and with Strep. pneumonia.
Evidence Based About 1/5 develop neuro deficit neuro deafness mot common. Sub dural effusions, about 1/3develop, most resolve spontaneously most common <2M.
R6

Patient Stories and Rural Clinical Decision Making References
R4 *Immuno. Evidence
R7 *Dip Stx
R8 *Accuracy of Blood Culture
R9 *Antigen for Identify Organism
R11 *Cat Sentivity
R15  *Fluids


R19  *Blood Volume for C&S


Appendix 4

Rural Family Medicine Resident Scenario/Issues

In addition to clinical knowledge and skills, a rural residency training program offers specific personal and social challenges to its participants. While, a lot of important and ground breaking effort has gone into the 'professional' development of rural programs, it is equally important to address the day to day realities of living in these programs. Failure to do so runs the risk of unfilled programs or unhappy residents who move away from rural practice upon the completion of residency.

What follows is a piece, fictional as a body but riddled with true anecdotes, that highlights some of the personal challenges alluded to the above. Although the story covers only the first few hours of a rural rotation it would have been easy to extend the piece along several days or even weeks. It should also be noted that in the future there is probably a role for a similar piece written from the perspective of a resident's partner, a rural preceptor, a resident's child, a nurse in the hospital, or a patient who receives care from the ever changing face of the visiting resident.

Arriving

With a sense of both fatigue and relief I open the door to the one bedroom house. It has been a long 8 hour drive from my last community (also a 4 week family medicine rotation) and I am hoping to find the place liveable. I am not disappointed. The apartment has clearly been well cleaned since the last resident left with clean dishes in the drying rack and fresh linen on the bed.

There is a friendly note on the kitchen table. It tells me that there is peanut butter and jelly in the cupboard and a great bakery on the street behind the house. I am warned that the toilet tends to jam but the plunger is under the sink. Finally, it is also suggested that I try to work a lot with Dr. T 'who is excellent'. I recognize the note to be authored by a resident in the program who is in 2nd year, however our paths have rarely crossed since the times are rare when all the residents (in this albeit small program) get together.

I move my 'life' from the car to the house in the form of a large duffel bag and a milk crate of textbooks, unread journals, and review questions for the licensing exam. I rifle through the information package which was sent to my last placement. Unlike other occasions, the material arrived in good time and had an excellent map of the town (with specific directions of how to get from the main highway to my apartment), some information about the town and hospital and a welcoming letter from my preceptor which includes her phone number.

I dial her phone number and am told that she was called in to see a patient in emerge, but was expecting my call and I should just phone the hospital. I use the given number and in a few minutes am talking to Dr. S. She is very friendly and invites me to come and meet her in the hospital in 15 minutes. Frankly, after the long drive all I want to do is shower, grab a bite and sleep. However, 'first impressions are lasting impressions' and I know that tomorrow morning will probably debut with a busy clinic. I ask for 30 minutes, take my shower, and easily find the hospital even without the map.

Dr. S. is warm and friendly and introduces me to the nursing staff who are doing the ER triage that evening. Everyone seems friendly and used to the idea of residents. Dr. S. gives me a quick tour of the hospital and clinic. It is a nice building with the clinic recently built onto the end of the hospital. All five of the community physicians work in the group clinic. Although small, I find it hard to keep straight all the information I need to know: different codes for the xray room and the small lab, location of the key for the after hours pharmacy, name of the administrator who I have to meet with to get admitting privileges, schedule for the visiting specialists (psych, ENT, Gen Sx), name of the secretary who will book my clinic patients, well hidden location of the crash cart and the casting material half way between the clinic and the ER etc. I am hoping that there will be a welcome package with all the names, codes, schedules etc, otherwise I'll spend most of my first week asking dumb questions.
As we finish our detailed tour there is another patient who has arrived in the emergency room. Dr. S. asks if I want to see this patient. I must have visibly blanched at the idea of leaping straight into work 2 hours after arriving. Dr. S. quickly retracts the suggestion and offers instead to have me over for dinner. I wait while she assesses the patient. The nurses are very friendly and promise me that all the residents have a great experience. They start to talk about the different preceptors, and I try to steer the conversation in other directions. Although it can be helpful to have an inside scoop, it is also nice to be able to form my own opinion and to avoid becoming embroiled in the local politics inevitable in any hospital of any size.

Dr. S. finishes up and discharges the patient. She asks if I would like to come over for dinner or if I would prefer to have an evening to settle in and rest. I politely accept the latter option and accept her follow up offer for dinner the following night. We plan to meet the next morning an hour before clinic opens. We agree to discuss my learning objectives for the rotation, my experiences to date, their expectations, timing and format of evaluation, and to set up a call schedule (I am happy that unlike other places they have waited to have my input before slotting me into the call schedule). She points me towards a convenience store for some basic groceries and we part company.

At the convenience store (which is a block from my house) the cashier identifies me as 'the new doctor for the month'. We have a very pleasant chat and I find out about the great local hiking trails. By the end of the conversation we have a tentative agreement to do some jogging together during the coming week. The cashier has also offered to introduce me to some friends who do a lot of hiking (I am sure at least one of them will end up being my patient).

Back in the apartment I try to call my partner. Being in a same sex relationship is often very challenging when travelling in smaller communities since the level of reception is mixed. I am hoping to feel comfortable enough that I can invite him up for a couple of weekends. He is an excellent hiker who would love the trails here and it has also been several weeks since our last visit.

I have a hard time making a long distance call. A quick review of my welcome package points out that due to a history of unpaid long distance phone bills on the part of visiting residents the line is blocked except to calling card calls. This is not an uncommon situation and I happily use my calling card and connect with a friendly voice.

The next morning……
Appendix #5

Advanced Skills Performed by Canada’s Rural Family Physicians – CIHI Data

DEFINITION OF RURAL

We have used a definition of rural developed elsewhere in work by the Society of Rural Physicians:

- “Rural Canada can be operationally defined as areas where general practitioners provide most or all medical services including maternity care.”
- [Position Paper on Training for Rural Family Practitioners in Advanced Maternity Skills and Caesarean Section, SRPC, CFPC, SOGC, in press]
- A listing of postal codes for each physician on the National Physician Data Base (NPDB) by Census Metropolitan Area (CMA), Census Agglomerate (CA) and Other Areas was prepared.
- A manual review of postal codes in the Other-Urban and CA-Rural added 1451 physicians whom we considered to be rural to the 3415 physicians in Other-Rural.
- Our total sample size, using 1995/96 data, was 4866 rural physicians.

NATIONAL PHYSICIAN DATA BASE

- The National Physician Data Base at the Canadian Institute for Health Information contains information not only on services and billings, but also on some demographic characteristics of these physicians, including gender, age, and place of graduation.
- In 1995/96, anaesthetic services in rural Canada were provided by 498 GP Anaesthetists and 123 FRCS Specialty Anaesthetists. Together, they provided 6.39% of all anaesthetic services in Canada. Of these services, 60.1% were provided by GP Anaesthetists, of which 315 (63.3%) were Canadian trained.
- 121 GP Surgeons and 151 FRCS General Surgeons performed 2605 appendectomies in rural Canada (9.5% of all appendectomies). Of these, 669 (25.7%) were performed by GP Surgeons. Of these, 47 (38.8%) were Canadian trained.
- Caesarean sections in rural Canada were provided by 200 GP Obstetricians and 131 FRCS specialists (100 were FRCS General Surgeons, 31 were FRCS Obstetricians). Together, they performed 4292 procedures representing 6.9% of all caesarean sections in Canada. Of these, 1838 (42.8%) were performed by GP Obstetricians, of which 108 (54%) were Canadian trained.
- In total, there were 223 rural family physicians performing major intra-abdominal surgery. Of these, 117 (52.5%) were Canadian trained. Of interest, 121 (54.3%) performed at least 2 of the three major skills appendectomy, anaesthesia, and Caesarean section. These GP Surgeons were supported by 440 GP Anaesthetists (58 practitioners performed both anaesthesia and surgery).
- Although there is some presence of GP Anaesthetists and GP Surgeons across Canada, the large majority of GP Anaesthetists are located in Ontario and the West, with most of the GP Surgeons in Western Canada.

S. Iglesias
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Appendix 6

Background Paper “To Explore the Potential for Advanced Family Practice
Procedural Training”

Background Paper prepared for the Rural Family Medicine Education Working Group of the College of Family Physicians of Canada on request and submitted by S. Iglesias on behalf of the Society of Rural Physicians of Canada.

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, including abdominal, orthopaedic, trauma, urologic and plastic surgery. Other times, it has been the generalist family physician who, although trained and practicing as a family physician, has acquired advanced skills in anaesthesia, surgery, and operative obstetrics.

How Important Are Advanced Skills Performed by Family Physicians?

In rural Western Canada, 30 percent of all appendectomies are performed by GP surgeons [Chiasson P, Roy P. Role of the General Practitioner in the Delivery of Surgical and Anaesthetic Services in Rural Western Canada. CMAJ 1995;153(10): 1447-52]. GP surgeons provide surgical services in 87 percent of these same rural hospitals in Western Canada. In all of Canada in 1991, there were 4884 caesarean sections performed by family physicians, virtually all in rural Canada. These represented 7 percent of all caesarean sections [Medical Care Data Base, Health Information Division, Policy and Consultation Branch, Health Canada. March 1995]. In rural British Columbia, GP Anaesthetists represent 97 percent of anaesthetic personnel in hospitals under 50 beds and 88 percent in hospitals 50-99 beds [Lubin S. Family Practice Anaesthesia in British Columbia. Can Fam Phys Vol 33; July 1987, pg 1607-12]. Together, Canada's GP Anaesthetists practising almost exclusively in rural Canada, provide 20 percent of all anaesthetics in Canada [Position Paper on Training for Family Practitioners in Anaesthesia, Society of Rural Physicians of Canada and the College of Family Physicians of Canada, 1998, unpublished].

Presently, approximately 1/3 of rural Canada's GP Anaesthetists and more than 1/2 of its GP surgeons are foreign medical graduates, with the largest proportion coming from South Africa [Chiasson and Roy]. Representatives of governments (Manitoba) and registrars (Alberta) made recruiting trips in 1998 to South Africa to find skills for rural health care.

CIHI Study

CIHI will provide billings data, both nationally and by province, 1989/90-1995/96, for surgical, anaesthetic, and obstetrical services in rural Canada. The data will provide the number of services provided, number 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 FP or Specialist, as well as for age, gender, and foreign medical graduates. Data should be available in January and I intend to have a draft of the study results available for our February meeting.

It is clear that rural Canada will not attract specialist physicians. The specialties of anaesthesia, general surgery, and obstetrics are facing their own services supply problems. For the most part, specialists are not interested in working in a community hospital. The volume and complexity of cases is low; the proportion of night and weekend call is excessive. There is often a necessity to supplement one's income with earning from a general practice. Moreover, a specialty service in rural Canada, with limited nursing and technical support, is often inappropriate. From a purely fiscal view point, a laparoscopic bowel program to attract a specialist general surgeon is a very expensive way to provide the community with essential surgical services such as appendectomy and caesarean section.
If there is to be a Canadian solution to the provision of advanced skills in rural Canada, it will have to come from Canada's family physicians.

The Future of Rural Health Care Without Advanced Skills?

The availability within community hospitals of rural family physicians with advanced skills in anaesthesia, operative obstetrics, and general surgery has sustained rural medical care as we know it. Rural hospitals which are able to offer essential anaesthetic, obstetrical, and surgical services play a critical role in sustaining medical care both in their own communities and in neighbouring towns which have not been able to maintain these services. 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 caesarean section or an appendectomy, and without anaesthetic 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 drastically. They become accustomed to caring for the reasonably well. These communities will not attract physicians with ambitions to provide comprehensive care. Rural health care becomes only ambulatory care; triage, and transport services.

Does it matter? Would the ensuing centralization of essential medical services in urban Canada matter? If the obligation to travel for care anything more than an inconvenience? Studies from the United States have shown that women who live in communities with poor local access to maternity care programs are more likely to bear premature infants or have prolonged hospitalization with higher costs, or both [Nesbitt TS et al. Access to Obstetric Care in Rural Areas: Effect on birth outcomes. Am J Public Health 1990; 80(7): 814-8]. Larimore and Davis showed a quantifiable increase in infant mortality due to a lack of maternity caregivers in rural Florida [Larimore WL, Davis A. Relationships of Infant Mortality to Availability of Maternity Care in Rural Florida. J Am Board Fam Pract 1995; 8(5): 392-9].

Optimum obstetrical, surgical, anaesthetic, and emergency care in rural Canada requires that essential services, such as appendectomy and caesarean section, be available in community hospitals. The experience of the Americans in Viet Nam suggested that, in special circumstances, a system of stabilization and evacuation for definitive surgical treatment might be an acceptable alternative to local surgical and anaesthetic services in community hospitals. However, the special circumstances of Vietnam do not exist in Canada. In Vietnam, the average time from injury to definitive treatment was 32 minutes. The realities of Canadian geography, climate, and transport oblige us to consider evacuation times that are sometimes 24 hours or more. Emergency and essential obstetrical, surgical, and anaesthetic services will always be required in rural hospitals.

In summary, the supply in rural Canada for family physicians with advanced skills stabilizes and supports the delivery of rural health care in their own and surrounding communities. There are clear health benefits to providing these services within rural communities. The realities of our Canadian geography require that these essential services be available at least some of the time. Lastly, we would argue that a central component to rural living is the sense of belonging to a community. Rural Canadians have the right, where it can be shown that outcomes are as good or better when compared with travel to an urban centre, to be cared from within their circle of family and friends in their own communities.

Advanced Skill Sets and the Scope of Family Practice

The rural family physician with advanced skills is a true generalist. He or she represents the closest simulation of the generalist family physician originally conceived by the founders of the College of Family Physicians of Canada. The defining difference between urban and rural family physicians is their scope of practice. The organization of urban medical care, where family physicians coexist with a plethora of specialist physicians, has restricted the scope of urban family practice. Excluded are major surgery, general anaesthesia, and operative obstetrics. By contrast, the organization of rural medical care requires that rural family physicians maintain a broad scope of practice, including the acquisition of advanced skill sets. From this perspective, rural medicine is not a new specialty, as some have suggested, but the preservation in its most complete form, of the vision of family medicine.
These generalists in rural family medicine have a historical scope of practice claim to a wide range of skill sets in anaesthesia, general surgery, and operative obstetrics. With rigorous training standards, in a screened low-risk population, they believe they deliver a standard of care which is identical to the standard of 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 at higher risk.

The most visible example of a shared skill set is maternity care. It is formally recognized by both the Society of Obstetricians and Gynaecologists of Canada and the College of Family Physicians of Canada that, for a carefully selected low-risk parturient, an identical standard of care is provided whether she is attended by a specialist or rural generalist [Position Paper on Rural Maternity Care, CJRM, Spring 1998]. Similarly, a family practice anaesthetist delivers the same standard of care in a community hospital when he provides an anaesthetic for a D&C to a healthy patient as does a certified anaesthetist to the same patient for the same procedure in an urban tertiary care hospital.

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 caesarean 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. There is no peer-reviewed published studies that measure outcomes of other surgical procedures of family practice anaesthesia. However, equally important, they found no evidence for any procedures or skills that specialists achieve superior outcomes to rural family physicians.

**Existing Training Programs**

Rural family physicians have always supplemented their training programs to include skills sets from the fields of anaesthesia, obstetrics, general surgery, plus a variety of miscellaneous skills - endoscopy, ultrasound, cardiac stress testing, and colposcopy.

How were these skill sets acquired? Some were acquired in the Rotating Internship before the new Family Medicine residencies replaced them. Some were acquired by physicians who trained overseas. Others were acquired by rural physicians standing "shoulder to shoulder" in the operating room with a specialist colleague. Some years ago, anaesthesia initiated a formal 6 or 12 month program to train GP Anaesthetists for rural practice. More recently, a few Family Medicine departments created a third year (PGY3) for advanced skill for rural family physicians.

The most established of the advanced skills training programs, anaesthesia, is struggling. Data from the 1996 survey by the Canadian Anaesthetists Society document a dramatic decline in the numbers of GP Anaesthetists [Donen N. 1996 CAS Survey, unpublished]. The same study found the average practice life of a GP Anaesthetist to be approximately 5 years. The problem is multifactorial. With adequate provision for CME, maintenance of competence programs, and professional support, these graduates endure a significant degree of professional isolation. The general malaise in rural medicine is amplified by the additional responsibilities of providing coverage for advanced skills to a rural community hospital - "20 percent of my practice, for 5 percent of my income, and 80 percent of my stress". Without proper recognition and remuneration, and without creative provision for off-call interludes, we face diminished interest in acquiring anaesthesia training, and other advanced skills, and increased attrition rates amongst those currently in practice.

The situation with Canadian training programs in general surgery and operative obstetrics is more discouraging. The only training programs for GP Surgery are at the University of Alberta and the University of British Columbia. These are very new and small, producing a maximum of 2 graduates each from a 12 month program each year. Both universities, as do a few others, offer similar programs to teach caesarean section skills to rural family physicians. Again, the numbers are small. There also exists, in operative obstetrics, an underground informal training program whereby applicants, standing "shoulder to shoulder" with their preceptor, acquire a one-off special training arrangement. Physicians working the United Church of Canada on Canada's West Coast have been trained in this manner for years. Naturally, all of the difficulties faced by anaesthesia graduates -
CME, MOC, professional isolation, burn-out - are endured by the few Canadian graduates in obstetrics and general surgery.

There is also emerging a demonstrated need for advanced skill programs in other fields of medicine - gastroenterology, radiology, and psychiatry, for example. Already, in endoscopy, there is good outcome evidence that these procedures, when performed by family physicians, achieve the same standards as when performed by their specialty colleagues. Yet strong resistance is encountered from our specialist colleagues with whom we share the skill set. Constrained by funding and burdened with their own residency programs, they are sometimes reluctant to support the "re-entry" applications of rural physicians seeking advanced skills. Some of the reluctance arises from the belief, not supported by the evidence, that these technical and procedural skills can only be performed solely by those with a broader base of training achieved in an extended residency training program i.e. the specialty training program is indivisible.

The universities, which have been the keepers of the skill set, have not been prepared to accept their obligations to rural Canada. The rural generalist has the same right to university-based teaching and certification programs for an established scope-of-practice skill set as does the urban specialist. Although consensus among those who share the skill set is the preferred model, no individual claim to exclusive ownership of a skill set, without evidentiary support, should ever be allowed to block access by others to the same skill set.

As a result, these exists across the country, an ad-hoc patchwork of advanced skills training programs which, when combined with a large infusion of foreign medical graduates, are barely sustaining the delivery systems of rural health care. With the exception of anaesthesia, neither the funding nor the training are portable across rural communities and provincial boundaries. Training is not standardized, programs are not accredited, and competence is certified only on an occasional basis. Licensing bodies face on-going dilemmas with respect to privileging. There is no provision for CME, maintenance of competence programming, or professional support for the graduates. There is no accountability. What is required of the CFPC is the initiation of formal, accredited training, complete with the provision of CME and maintenance of competence programs, providing standardized portable skills for rural family physicians.

These training programs should provide a sufficient, predictable, reliable supply of rural physicians training in advanced skills...not unlike the specialty training programs provide for urban Canada. In a delivery system of medical care in rural Canada that is stabilized only by the active recruitment overseas by provincial governments (Alberta and Manitoba, 1998), the "need" for these advanced skills is clearly demonstrated.

Historically, there has been some interest in training rural physicians in advanced skills only when a specific community identifies a specific manpower "need". This fails to appreciate the crisis in health care face by these communities when their GP Surgeon/Obstetrician/Anaesthetist leaves or retires. The anaesthetic and surgical team is completely interdependent in those communities. Without a surgeon, the anaesthetist will leave, and the OR nurses are not replaced. Without an OR, the maternity care is transferred. The 2 year timeline to apply, train, and return to a rural community with special skills, combined with the associated rigidities in the supply of rural physicians with advanced skills, ensure that a training policy of custom orders to fit individual communities will close the door on the future of advanced skills in rural Canada. What is required of the CFPC is the initiation of formal standardized training programs to support a sufficient, portable supply of advanced skills for rural Canada.

In a similar vein, the Return of Service Agreements (ROSA) introduce supply rigidities, raise barriers to re-entry, and discriminate against rural Canada and their medical personnel. When an obstetrician is trained in a specialty program in urban Canada, he is not expected to sign a ROSA. Yet, the prospect of losing him to the United States is great. When a rural family physician is trained to provide advanced skills, he is often expected to sign a ROSA. Yet the prospect of his emigrating to the United States is exceedingly small, and of his relocation to urban Canada, non-existent. What is required of the CFPC is the initiation of formal accredited training designed exclusively for rural Canada that will provide suitable candidates with appropriate skills that are portable throughout rural Canada without discriminatory requirements for service location.
Conclusion

This College is entrusted with the responsibility for the health care of Canadian families. If these families in rural Canada are to receive quality health care, equal in standards to their urban counterparts, rural family physicians need to deliver a full range of clinical services, including advanced skills. The attenuation of these services in rural Canada needs to be stopped and the trend reversed. It is necessary, and appropriate, that the College of Family Physicians of Canada show aggressive leadership to initiate formal, accredited programs, complete with the institution of CME and maintenance of competence programs, providing a sufficient, reliable supply of rural physicians with training in advanced skills which is portable nationally. It is equally important that the College pursue vigorously with national and provincial funding authorities, the required financial support for the applicants, their preceptors and the university departments.
Appendix 7

Bibliography

Key Rural Medical Education References

Reports and Books

1999

1998

1997


1996
Rourke J. Education for rural medical practice: goals and opportunities: An annotated bibliography. Moe, Victoria, Australia: Monash University, 1996. *

1995


1993

1992

1991

1988

Articles

*The following is a listing of some key articles on rural family medicine practice. For a detailed listing with annotations see Education for rural medical practice: goals and opportunities: An annotated bibliography. 324-page text with annotations of 326 articles on education for rural practice. and also 1996 Supplement, edited by Dr. James Rourke. Available through SWORM, 53 North Street, Goderich, Ontario.

ADAMS 1998

ANONYMOUS 1999

ANONYMOUS 1998

ANONYMOUS 1997

BALDWIN 1995

BLONDELL 1992

BLONDELL 1989

BOULGER 1991

CANADIAN MEDICAL ASSOCIATION
CARTER 1987

CHANCE 1992

CHENY 1996

CHIASSON 1995

CHIASSON 1995A

CHIASSON 1995B

COYTE 1997

CRANDALL 1978


DICKINSON 1995

EASTERBROOK 1999

FIELD 1995

FIELD 1987

FINE 1990

FINNEMORE 1988
FOLEY 1994
Foley AE. A strategy to increase the number of urban family practice resident physicians who enter rural practice. Journal of Rural Health 1994;10(2):119-121.

FRY 1995

FRYER 1994

FRYER 1993
Fryer GE, JR, Miyoshi JT, Stine C, Krugman RD. Colorado’s decentralized medical education to increase the number of graduates practising primary care in rural areas. Academic Medicine 1993;68:310-311.

GODWIN 1998

GOERTZEN 1995

GRAY 1994

GUTKIN 1998
Gutkin C. Tis the season for rural training. Canadian Family Physician 1998;44:2812

HARPER 1997

HATCH 1994

HAYS 1992

HENNEN 1970

HIGGINS 1995

HIRSH 1990

HUTTEN-CZAPSKI 1998
HUTTEN-CZAPSKI 1998A

HUTTEN-CZAPSKI 1998B

IGLESIAS 1999

IGLESIAS 1998

IGLESIAS 1998A

JONG 1997

KENNEDY 1981

KENNEDY 1980
Kennedy VC. Exposure to a rural population in a rural residency training program. Journal of Community Health 1980;5:261-269.

KENNEDY 1979

KINGSMILL 1997

KINGSMILL 1997A

LEDUC 1997

LEWIS 1995

MOORES 1998

NORRIS 1993

Report of the Working Group on Postgraduate Education for Rural Family Practice 87
NORRIS 1988

ODRISCOLL 1999

PATHMAN 1992

PATHMAN 1994

PATHMAN 1994A

PINCOTT 1987

POPE 1998

POPE 1995

PRICE 1996

RABINOWITZ 1999
Rabinowitz HK., Diamond JJ, Markham FW, Hazelwood C. A program to increase the number of family physicians in rural and underserved areas: impact after 22 years. *JAMA* 1999;281(3):255-260.

RABINOWITZ 1993
Rabinowitz HK. Recruitment, retention, and follow up of graduates of a program to increase the number of family physicians in rural and underserved areas. *New England Journal of Medicine* 1993;328:934-939.

RABINOWITZ 1988A

RABINOWITZ 1988

RAFUSE 1994

REDDOCH 1998
Reddoch A. A warm place to practise: meeting the challenges of medicine in the North. *CMAJ* 1998;158(3):337-338.

RODNEY 1990

ROSENBLATT 1992

ROSENTHAL 1992

ROSENTHAL 1989

ROURKE 1998

ROURKE 1998A

ROURKE 1998B

ROURKE 1997

ROURKE 1996

ROURKE 1996A

ROURKE 1996B

ROURKE 1996C

ROURKE 1995
Rourke JTB, Rourke LL. Rural family medicine training in Canada. Canadian Family Physician 1995;41:993-1000.

ROURKE 1993
ROURKE 1991

ROURKE 1991A

ROURKE 1991B

ROURKE 1991C

ROURKE 1991D

ROURKE 1991E

SIBBALD 1999

SIBBALD 1998

SNIDER 1989

STEFANU 1981

STRASSER 1995

STRASSER 1994
Strasser RP. So you want to do rural practice?. *Australian Family Physician* 1994;23(4):725-726.

STRASSER 1992

TALLEY 1990

TEPPER 1999

ANN 1998
VANDENGOES 1998

VERBY 1988

WATANABE D1995

WETMORE 1999
Wetmore S, Stewart M. Is there a link between procedural skills, confidence and practice location? (unpublished)

WETMORE 1998

WHITESIDE 1997

WHITESIDE 1997

WHITESIDE 1987

WIESE 1979
Wiese WH, Howard CA, Stephens JA. Augmentation of clinical services in rural areas by health sciences students. *Journal of Medical Education* 1979;54:917-924.