

THE FUTURE OF RURAL HEALTHCARE

SRPC SUBMISSION TO
The COMMISSION ON THE FUTURE OF HEALTH CARE IN CANADA

AUGUST 14th, 2001

THE FUTURE OF RURAL HEALTHCARE [1](#)

About the Society of Rural Physicians of Canada [2](#)

Executive Summary [4](#)

Rural is Different [5](#)

Hospitals [5](#)

Sustainability [6](#)

Rural Primary Care Reform [7](#)

Specialisation [8](#)

Schools of Medicine [8](#)

Technology [9](#)

Barriers to Change [9](#)

Pan Canadian Approaches [10](#)

Conclusions [11](#)

References [12](#)

About the SRPC

The Society of Rural Physicians of Canada (SRPC) is the national voice of Canadian rural physicians. Founded in 1992, the SRPC's mission is to provide leadership for rural physicians and to promote sustainable conditions and equitable health care for rural communities.

On behalf of its members and the Canadian public, SRPC performs a wide variety of functions, such as developing and advocating health delivery mechanisms, supporting rural doctors and communities in crisis, promoting and delivering continuing rural medical education, encouraging and facilitating research into rural health issues, and fostering communication among rural physicians and other groups with an interest in rural health care.

The SRPC is a voluntary professional organization representing over 1200 of Canada's rural physicians and comprising 5 regional divisions spanning the country.

Executive Summary

"...We go to the people!... Look out the windows - a whole street of houses. That's where the doctor must go. Into every house, into every city, into every village. From door to door. We take medicine right down to the last individual..."
-Dr. Norman Bethune, 1935

Canada's vast land mass and the tendency of the majority of its' peoples to settle in densely populated, highly industrialised, urban centres, huddled along the 49th parallel, has produced a culture of neglect of the needs of Rural Canadians.

Low population density and isolation result in unique challenges in delivering health care to rural as compared to urban Canadians. In order to resolve these issues we must recognise and incorporate these differences into our planning. The health care system will be sustainable only if realistic changes are made based upon accurate information.

For one, the role of the small rural hospital needs to be better understood. It has been a place to be born, a place to die and many things in between. It has played a distinct but not well understood economically and socially-stabilising, community function that its larger counterparts do not. We must think very carefully before we take these institutions away from rural Canadians.

There is no single or simple panacea. Technology is an adjunctive tool for the practice of rural medicine; it is not a substitute for the skilled rural physician or nurse who can lay hands on.

The culture of neglect has allowed the pursuit of sub-specialisation to dominate the training programs of physicians and nurses. This serves the urban population relatively well. In Rural Canada isolation and low population density will always require generalist health professionals. We must begin to train them again. This should start by training those who want to work in Rural Canada. Medical schools must stop preferentially selecting urban student applicants and must create easier access for rural students.

There is already enough study to start the process of breaking the culture of neglect. To put the evidence of what works into practice we must avoid the pitfalls of urban planning of rural health care programs. Indeed only a National Rural Health Strategy has ever been shown to work to make significant changes in increasing access of the rural population to health care. Canada needs to develop one as a distinct entity in concert with all the provinces and territories and the Federal Government. It must have sufficient and ongoing funding and real power to make decisions.

The problem is not that there is a lack of working programs or models. The problem is that Canada lacks a mechanism to co-ordinate and implement even the simplest one.

Introduction

"Every citizen in Canada should have equal access to health care regardless of where they live."

- Mr. Justice Emmet Hall

There are many health care challenges for Canadians, but none are any greater than the challenge of providing care for those who live in remote and sparsely populated regions of this country. The Society of Rural Physicians of Canada has extensive experience in rural health care analysis.⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾⁽⁵⁾ In our presentation to the Standing Senate Committee on Social Affairs Science and Technology we explored rural health trends.⁽⁶⁾ Here we will discuss how these trends need to be addressed in a fashion to provide a sustainable and affordable health care system for rural Canadians.

Rural is Different

Non-metropolitan areas in Canada are often simply referred to as rural Canada, without enough attention paid to their inner differences. It is clear that non-metropolitan Canada is anything but homogeneous. More research is needed to bring out this diversity so that social policies can be better tailored to the needs of non-metropolitan Canadian populations.

-Howatson-Leo and Earl 1995

The future is grounded in the present. A keen appreciation of how rural health care is unique is important in determining possible models that will work and can be sustained.

Rural Canada has about 20 percent of the employed Canadian workforce, 31.4 percent of the Canadian population and over 99.8 percent of the nation's territory.⁽⁷⁾

It is a highly diverse economy and society, from its coastal regions to its agrarian heartland. Canada's rural natural resources provide employment, forest products, minerals, oil and gas, food, tax revenue and much of our foreign exchange.

While 31 percent of Canadians live in rural areas, only about 17 percent of family physicians and about four percent of specialists practise there.⁽⁸⁾

A mean rural population density of one person per square creates unique and special requirements for the delivery of health care. This density coupled with the need to provide acute interventions in the "golden hour" of trauma, the 30 minutes for caesarean and the other time based standards that save lives, indicate that health facilities need to be located near the people.

Hospitals

A basic medical services infrastructure for rural and remote areas [should] be defined, such as hospital beds, paramedical staff, diagnostic equipment, transportation, ready access to secondary and tertiary services, as well as information technology tools and support.

-Recommendation no 27. CMA Rural and Remote Policy 2000

Hospitals were once fashionable in this country and stood as symbols to the public of accessible health care for everyone. Every enlightened charitable organisation and forward thinking government would be building more. Currently hospitals are considered obsolete and cost-inefficient and every forward thinking government is closing them.

There are two extremes in hospital distributions that need to be avoided. One is where there is a hospital on every corner, but no staff to provide services. The other extreme is to have one hospital in the centre of the country, which can provide every service, but most patients die or recover before getting to it.

Closing a hospital causes economic and civic hardship in rural communities. Jobs are lost, physicians move away and people have to travel to get care, often from strangers. The chronically ill and infirm elderly are at particular risk and will move away from their friends, families and homes.

The population keeps having babies and heart attacks. Since rural patients are often kept longer in city hospitals than city hospitals keep locals for any given diagnosis, and transportation and absenteeism costs are additional (even if borne just by the patient, family and employer) total costs for treating illness can be increased by hospital closure.

Then there is the hidden cost of adverse outcomes caused by having to ship patients for care. Obstetrics is an example where the absence of local maternity services is shown to increase prematurity of new-borns, hospitalisations and costs, even if the referral hospital is of the highest standard. [\(9\)\(10\)\(11\)](#)

This is not to say that there are not positive aspects of hospital closure. With decreasing hospitalisation rates and improved transportation there is little need to maintain hospitals under 10 acute beds unless they are very remote. Amalgamating such hospitals that are geographically linked will lead to 20 and 30 bed hospitals that will allow for maintenance of a breadth of services and improve working conditions for the staff. Some communities will lose out, but the hospital role, as an economic driver, will remain in the region.

The optimal number size and distribution of hospitals is not known. With inadequate information and evident concerns regarding access to care and quality we should be cautious in closing rural hospitals. Rural peoples are already underserved and should not have to take the brunt of cuts.

Sustainability

The real threat of two tiered health care in Canada is not rich and poor, nor have and have nots, its rural and urban.

-Allan Rock, Federal Minister of Health

Prophets of doom are indentured servants of groups that seek change. Thus it is hard for an organisation such as ours to agree with conventional wisdom that the health care system is in crisis and is no longer sustainable.

The health care sector has been growing, but so has the population and the rest of the economy thus the crisis of cost is overstated. The health care system is a complex paradigm that is constantly changing in response to economic, academic, demographic, political and technological pressures. Thus the crisis of structure is a continuous one, it is entirely normal and healthy.

The challenge of course, is in managing the change in such a complex system to maximise societal goals, as opposed to interests of pharmaceutical concerns, academia, technology, or various workers such as nurses, midwives and yes doctors, that would otherwise influence the system.

The goal of equal access to health care is a persisting societal goal of the Canadian public. In Canada the gap of access is the divide between urban and rural. We as a society cannot condone inaction in the face of such manifest inequity.

Rural Primary Care Reform

"The modest country doctor may furnish you the vital link in your chain"

-Dr. William Osler, 'The Teacher' pg. 199

Primary Care Reform is the mantra of every health care analyst and consultant for at least the last ten years. It is "in the box" thinking of the highest degree. Few have understood that it is hard to put the round peg of rural health into that box.

The concept of primary and specialist care reflects a division of labour that occurs in the big cities. Family doctors work in their offices, while specialists run the hospitals. This is not the way it is even 80Km away from the city. Few realise that the primary secondary and tertiary divisions of care are a conceptual schema based on context. There is no static answer to what services should be "in the basket" of primary care. The question "Is this patient suffering from acne clinic acne, dermatologist acne or 'just' family doctor acne?" makes sense in Vancouver but is humorous to a doctor in Cobalt whom for practical purposes does all of his or her dermatology.

Team work with a variety of health professionals also comes naturally to a rural doctor who is the interface between the patient and the hospital ward, the home care nurse, the dietician physiotherapist, the mental health worker, the diabetic clinic, the specialists and everyone else. Most groups of rural doctors already provide 24-hour access to care for a wide basket of services.

With well-defined and almost captive populations and health professionals who are already structured to work in teams, you would think that rural centres would be ideal test subjects for primary care reform pilots. However trying to impose an urban model of primary care reform on Wawa Ontario was dramatically unsuccessful. Despite generous funding to capture a typical urban "basket" of services, there was no consideration that the GP's ran a hospital with internal medicine, obstetrical, and some surgical services. After months of negotiations both the doctors and the government realised that the offered model did not fit. In fact no successful rural pilots of PCR have occurred to date in Ontario. After years of negotiations a similar fate appears to have happened to a rural PCR proposal in Newfoundland.

This is not to say that there have not been successful rural models in Ontario. It's just that they are not considered primary care reform. One example would be Little Current on Manitoulin Island. There doctors have been attracted by contract positions to cover a basket of services for a defined population that includes office and inpatient work, with incentives for emergency room work, obstetrics, anaesthesia and surgical procedures. While there has been some problem in integrating midwifery into the system, the program has been so successful that there continue to be more doctors interested than positions available. With modification to the contract to allow for integration of allied health professionals one would have a generic "rural" primary care reform template.

Specialisation

"For 25 years, rural obstetrics and surgery have existed almost as an anathema to specialist colleges, defying rules, regulations, designations and restrictive teaching programs based on the flimsiest or (non-existent) evidence."

-Dr. John Shepherd in Maximising the Use of Clinical Skills in Rural Practice

There is no question that specialisation has significantly increased physician incomes. The high cost of care per capita in Canadian cities can be directly related to multiple doctors consulting on one case. That this specialisation has resulted in improved health of the population is a reasonable hypothesis but is more difficult to show.

Certainly attending births [\(12\)\(13\)\(14\)](#), providing caesareans [\(15\)\(16\)\(17\)](#), administering anaesthetics [\(18\)\(19\)](#), and doing appendectomies [\(20\)](#) have been shown to be done as competently by rural GP's as urban specialists. All these common services are important for rural populations and can be delivered by broadly skilled GP's.

Put another way, while specialists can do some bread and butter work, the system benefits primarily from funnelling rare and unusual cases to them. And, in so far as there is effective treatment for those rare cases, health outcomes should be improved. This rarity of case and the surprisingly common lack of effective treatment leave proof of the virtue of specialists to be limited to specific subpopulations. By example while most rural obstetrics can and should be done close to the consumer of care, the care of the premature newborn, should be routinely delegated to specialised nurseries.

Schools of Medicine

In sparsely populated Canada the 14 largest cities are home to 14 of our 16 medical schools. Is it any wonder that recruiting and retaining physicians for rural/remote areas is a chronic national, as well as provincial, problem?

-McKendry 1999

It is common knowledge that the medical school that produces the most Canadian rural doctors is the University of Johannesburg. That is probably strictly untrue, but it illustrates the point that in a province such as Manitoba 36.5% of all rural doctors has been trained in South Africa⁽²¹⁾. Overlooking the moral jeopardy of depleting third world resources to deal with first world problems, there is a fundamental problem with this strategy. While initially these doctors of international origin are working exclusively in areas of unmet need, over time they preferentially migrate to ethnic concentrations found in Canadian cities. In Ontario, which stopped recruiting overseas over 10 years ago, well over 90% of International Medical Graduates are found in the cities. Ultimately when the South Africa's high commissioner comes and asks why a country as affluent as Canada can not train its own rural doctors⁽²²⁾, its hard to know what to say.

It's not that we don't know how. Research shows that training experience in rural medicine is important and that rural origin applicants are the most likely to practice in rural settings.⁽²³⁾⁽²⁴⁾⁽²⁵⁾⁽²⁶⁾ The current system of training physicians is capable of producing such research but is unable to implement the lessons learned.

Medical schools preferentially select people from urban neighbourhoods with an average income of over \$80,000⁽²⁷⁾, train them in an urban environment that promotes and emphasises subspecialisation, research and academia separate from the larger community. Graduates of the educational system are thus increasingly interested in subspecialisation and urban practice. Family medicine training positions are increasingly unfilled⁽²⁸⁾, and even those that fill do not train to the skills needed for rural practice. Only eleven percent of current medical school graduates choose to practice in rural areas.⁽²⁹⁾

While there is money to be got from training researchers, academic pleasure from training new teachers, there is no gain for a Canadian university to train rural doctors.

This needs to change, and it needs to change across the country.

Technology

"I'm not a magician, I'm just an old country doctor."

Dr Leonard H. McCoy - "The Deadly Years" Star Trek Episode 41. Dec 8 1967

There has always been allure to snake oil salesmen, and Graham Bell with his work of the telephone-invented telemedicine. Things haven't changed much by the early twenty first century. Cyber salesmen are knocking on the doors and offering to cure the ails of even rural medicine, for just a little coin. Don't you know that sceptics of these truths are techno Luddites so should not be trusted? Strange how so much coin has changed hands and yet nothing seems to have happened. How much tele video equipment gathers dust unused in the hospital administrator's office?

The potential of telehealth lies in supplementing the skills and abilities of existing rural health workers to deal with problems that would otherwise require patients to travel out of the community to access care. There appears to be some usefulness for teleradiology, telepsychiatry and teledermatology, professions where conventional practitioners do not touch the patient. However the potential for improving health outcomes is marginal over existing systems. Most medicine that counts is "hands on" and physicians, even with gadgets, are not magicians.

Barriers to Change

Manpower planning in Canada will continue to be seriously compromised unless the medical needs of the Canadian people can be met by Canadian physicians through appropriate social, economic, organizational, and educational incentives to prepare and retain physicians in our non-urban communities.

-1988 CMA Meetings on the Training of GP/FPs to Provide Anesthesia Services

It has been said that any system is perfectly designed to produce the effects that it does. It is thus not surprising that access to care in rural Canada suffers from our medical system - including the government, medical bodies, training system and para-medical organisations - being organised in a highly centralised manner better suited to countries with dense populations and short distances.

When centralised policies do not fit rural realities, as they so often do not, the rural side is swept under the carpet. This is why, for example, Canada's world-leading and much envied medical training, accrediting and licensing system, built with a dense population in mind, has been unable to produce more than 11% of its graduates for rural practice.

The training, the clinical standards, the licensing and the support all are urban oriented and the rural demographics and geography do not fit well into the system.

The office of Rural Health Canada was established by the Federal Government only three years ago. It arose from specific lobbying by the SRPC and other rural organisations and was established by order of the Federal Minister of Health. It is fair to say that without political action, the federal bureaucracy would never have created such an entity. It is also fair to say that it the ORH has had a hard row to hoe within Health Canada.

Since the 1970's, Health Canada has been trying to conform to Marc Lalonde's celebrated "White Paper" and to divest itself of any "service" or "health care administration" function. While rural health care issues are ideal for studies and policies in such things as determinants of health and population health, the systemic problems of delivering health care to such a large area inevitably lead to issues generally allocated to the provinces and having to do with "service" issues.

Yet the provinces' options to fully address these issues are severely limited without Federal involvement, as undeniably argued by the F/P/T governments' own consultants. Bureaucratic obstruction and lack of vision, compounded perhaps by the murky waters of federal-provincial jurisdictional waters, are therefore the first major specific obstacles to change.

What is needed in general, in our opinion, is for rural health care to be treated not as a difficult child of the present system, but as a distinct entity, with its own specific challenges and solutions. The SRPC suggests a specific focus on "rural" at each level of our health system.

Pan Canadian Approaches

Why another report about health care? It's a good question. The system seems in almost constant review; barely six months goes by without another major report from one province or another.

-Fyke Commission on Medicare 2001

Watching the provinces and federal government posture makes most Canadian's eyes roll almost as much as royal commissions. Yet only through a pan Canadian approach can we make further progress. There is a constantly changing landscape in health professional education systems, hospitals, clinical standards and incentives that occur just outside the jurisdiction of any given province. Thus it is not surprising that all provinces have been unable to equitably distribute health human resources across their own geography.

The results of a comparatively small amount of funding could have large results. The Australian success in employing a national rural health strategy has increased the number of doctors practising in rural and remote areas in Australia from around 5,400 in 1995-96 to over 6,200 in 1999-2000.⁽³⁰⁾ Surely we can do as well?

Many have called for such a pan Canadian solution. The rationale for a united approach to physician distribution was argued in 1999 by consultants to the federal and provincial health ministers, Barer and Stoddart:

"It seems important to reinforce the idea that such a restructuring would need to be pan-Canadian if it is to be expected to provide an effective remedy to the problems of rural and remote communities. Absent such cross-country agreement, provinces and territories would likely be faced with whipsawing and increased migration between jurisdictions."⁽³¹⁾

The SRPC is calling for a National Rural Health Strategy with significant stable and recurrent funding and supported by rural-specific data and research from the CIHR. However such an idea will go nowhere unless the system is first changed to allow for it.

We need a specific rural health focus to appear within the higher Federal bureaucracy, then to have that focus be housed in a committee that, along with provincial public service membership, reports directly to the combined Federal/Provincial/Territorial Ministers and Deputy-Ministers of Health. This "F/P/T" Advisory Committee on Rural Health (of which there are precedents within the bureaucracy on other health matters) would be required to work solely on rural health issues and look for creative co-operative policies and pan-Canadian solutions.

Furthermore, and just as importantly, our national and provincial medical bodies (universities, accrediting institutions, licensing bodies and physician associations) if they recognise "rural" at all, usually do so by annexing a rural policy onto a larger national policy. We have seen that this does not often work and has predictably desultory results in training and physician recruitment and retention. This system also needs to be brought together to focus exclusively on rural health care. Our view is that the federal government should be generously funding a "Rural Medical Forum" to produce helpful and realistic training and licensing policies for rural Canada to provide training specifically to allow for rural service delivery for which we have been depending on international talent to fill.

Conclusions

"On his own skill, knowledge, resourcefulness, the welfare of his patient altogether depends. The rural district is therefore entitled to the best trained physician that can be induced to go there."

-Dr. Abraham Flexner 1910 in "Advancement of Teaching Medical Education in the United States and Canada"

The issue of servicing the health care needs of the rural population is a difficult issue with a long story. This is an issue of fundamental justice and equality that the provinces have wrestled with, probably to their maximal ability on an individual basis. Hospital closures and technology are not the solution. People are needed and primary care reform will help only if done properly with an understanding of rural realities. There is opportunity for the federal government with the provinces to achieve further improvement as in Australia. This is especially true with reform of the medical education system, which is best done nation wide. To do this the federal government has to have the bureaucratic structures in place to develop, promote and enact a national rural health strategy in conjunction with the provinces.

References

1. Babey K, Barrett S, Bury L, Dawes R, Gaid S, Galea S, Hutten-Czapski P, Mann R, Park I, Pong P, Rourke J, Tepper J, Thoburn M, Whiteside C; From education to sustainability - a blueprint for addressing physician recruitment and retention in rural and remote Ontario. SRPC - Ontario and PAIRO December 1998 <http://www.srpc.ca/librarydocs/toc.html>
2. The Society of Rural Physicians of Canada. Comment on "Improving Access to Needed Medical Services in Rural and Remote Canadian Communities: Recruitment and Retention Revisited" by Morris L. Barer and Greg L Stoddart The Society 1999 <http://www.srpc.ca/librarydocs/Comonbs.PDF>
3. Hutten-Czapski P, Park I, Arif S, Dawes R, Mann R, Rourke J, Henderson B, Kelly L. A fair share for rural health at the millennium The Society of Rural Physicians 2000 <http://www.srpc.ca/librarydocs/ONprogam.htm>
4. Hutten-Czapski P. Primary health care reform - A rural perspective. The Society of Rural Physicians 2000 <http://www.srpc.ca/librarydocs/hsrcpcr.htm>
5. O'Neil D. Response to the Fyke Report. The Society of Rural Physicians 2001 <http://www.srpc.ca/librarydocs/CentralFyke.html>
6. Hutten-Czapski P State of Rural Health Care. The Society of Rural Physicians of Canada 2001 <http://www.srpc.ca/shelf.html#Kirby>
7. Statistics Canada Population structure and change in predominantly rural regions The Daily Jan 16, 2001 Catalogue 21-006 XIE <http://www.statcan.ca/english/freepub/21-006-XIE/21-006-XIE00002.pdf>
8. The Canadian Medical Association, physician resources data base, the Association 2000
9. Larimore WL, Davis A. Relationship of Infant Mortality to Availability of Care in Rural Florida. J Am Board Fam Pract 1995; 8:392-399
10. Nesbitt TS, Connell FA, Hart LG, Rosenblatt RA. Access to Obstetric Care in Rural Areas: Effect on Birth Outcomes. AJPH 1990;80(7):814-818.

11. Allen DI, Kamradt JM. Relationship of Infant Mortality to the Availability of Obstetrical Care in Indiana J Fam Prac 1991;33(6):609-613.
12. Rural Obstetrics. Joint position paper on rural maternity care CJRM 1998;3(2):75
<http://www.cma.ca/cma/staticContent/HTML/N0/I2/cjrm/vol-3/issue-2/0075.htm>
13. Black DP, Fyfe IM. The safety of obstetric services in communities in Northern Ontario. CMAJ 1984;130:571-6.
14. Grzybowski SC, Cadesky AS, Hogg WE. Rural obstetrics: a 5-year prospective study of the outcomes of all pregnancies in a remote northern community. CMAJ 1991;144(8):987-94.
15. Hutten-Czapski P, Iglesias S. Joint position paper on training for rural family practitioners in advanced maternity skills and cesarean section. CJRM 1999;4(4):209-16.
<http://www.cma.ca/cma/staticContent/HTML/N0/I2/cjrm/vol-4/issue-4/0209.htm>
16. Deutchman M, Conner P, Gobbo R, Fitz Simmons R. Outcomes of cesarean sections performed by family physicians and the training they received; a 15-year retrospective study. J Am Board Fam Pract 1995;8(2):81-90.
17. Kriebel SH, Pitts, JD. Obstetrical Outcomes in Rural Family Practice: An Eight-Year Experience. J Fam Prac 1988; 27(4):377-384.
18. Webb RJ, Kantor GS Obstetrical epidural anaesthesia in a rural Canadian hospital. Can J Anaesth 1992 Apr;39(4):390-3
19. Chiasson PM, Roy PD. Role of the General Practitioner in the Delivery of Surgical and Anesthesia Services in Rural Western Canada. Can Med Assoc J, 1995, 153(10): 1447-53.
20. Iglesias S, Saunders D, Traci S, Jones L Outcomes of Appendectomies Performed in Rural Hospitals by Specialist and GP Surgeons(in press)
21. Love M. Manitoba reverses its physician decline, The Medical Post 2001; 37(5):46
<http://www.medicalpost.com/mdlink/english/members/medpost/data/3705/46C.HTM>
22. Ehman AJ, Sullivan P. South Africa appeals to Canada to stop recruiting its Mds, CMAJ 2001;164(3):387-8 <http://www.cma.ca/cma/staticContent/HTML/N0/I2/cmaj/vol-164/issue-3/0387.htm>
23. Easterbrook M, Marshall G, Wilson R, Hodgetts G, Brown G, Pong R, Najgebauer R: Rural background and clinical rural rotations during medical training: effect on practice location CMAJ 1999;160:1159-63 <http://www.cma.ca/cma/staticContent/HTML/N0/I2/cmaj/vol-160/issue-8/1159.htm>
24. Rabinowitz HK; Paynter NP The role of the medical school in rural graduate medical education: pipeline or control valve? J Rural Health 2000 Summer;16(3):249-53
25. Pathman DE; Steiner BD; Jones BD; Konrad TR Preparing and retaining rural physicians through medical education. Acad Med 1999 Jul;74(7):810-20
26. Rolfe IE; Pearson SA; O'Connell DL; Dickinson JA Finding solutions to the rural doctor shortage: the roles of selection versus undergraduate medical education at Newcastle. Aust N Z J Med 1995 Oct;25(5):512-7

27. Harris R as quoted in Students, university at odds over tuition's effect on med school class Medical Post 2001; 37(18) <http://www.medicalpost.com/mdlink/english/members/medpost/data/3718/02C.HTM>
28. Walker AG. Medical students across country shun family medicine residencies. Medical Post 2000; 36(13) <http://www.medicalpost.com/mdlink/english/members/medpost/data/3613/02C.HTM>
29. Hutten-Czapski P, Thurber D. Who Makes Canada's Rural Doctors? Can J Rural Med 2002; 7(2):95-100 <http://www.cma.ca/cma/staticContent/HTML/N0/12/cjrm/vol-7/issue-2/0095.htm>
30. Hutten-Czapski P.. but the Rural-Urban Gap is Closing in Oz The Rural News 2001 3(14)<http://www.srpc.ca/issue314.html>
31. Barer and Stoddart Sept 16th 1999, Improving Access to Needed Medical Services in Rural and Remote Canadian Communities: Recruitment and Retention Revisited. <http://www.srpc.ca/librarydocs/BarSto99.htm>