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Nostalgia, as Yogi Berra says, isn't what it used to be

Gordon Brock, MD, CCFP

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Much revered in our small town is Dr C, a family physician who practised here during the 1960s. According to the public memory, he was on call every night and every weekend, saw all patients at all hours, made house calls and throughout it all never lost either his smiling demeanour or the sharp crease of his suit.

I do not have to remind any of you that the number of nights we are on call — or should be on call — is a major issue and that dissatisfaction with on-call schedules is a major factor in physicians deciding to leave rural areas. Some of us are on call virtually every night or 1-in-2. (In our own town we are on call 1 night in 4.) There are more and more reports of physicians — both family physicians and specialists — refusing to work an on-call schedule they view as too frequent. Indeed, an arbitration decision in Quebec has ruled that a physician cannot be forced to be on call more often than 1 night in 5, and a 1 night in 7 maximum schedule has been proposed in Ontario.

There are several reasons that I can see for physicians being unhappy with — and starting to rebel against — a too-frequent on-call schedule: an increasingly litigious society makes errors due to acute or chronic fatigue less forgivable; political correctness makes it harder for us to deal with staff and patients when we are fatigued and short-tempered; the pay we receive for after-hours medical care is perceived to be inadequate; some of us (horrors!) want time we can call truly our own and more time with our long-suffering families and, finally, none of us gets younger as the years go by.

Many of us can recall a time when our towns received electricity from a local power company and the town's ambulance service was run by the local undertaker. Society has since decided that these services should be run as government services and should not be the sole responsibility of local entrepreneurs. Perhaps the time has come for deciding that providing 24-hour-a-day medical service is the responsibility of our governments and our rural hospitals, not the sole, individual responsibility of the men and women practising in our rural areas.

As rural physicians we must recognize our limitations and push for reasonable on-call schedules for ourselves. Society would neither expect nor tolerate overtired and overworked pilots flying a jumbo jet and should not expect overworked and overtired rural medical practitioners to provide medical care for a town. We must recognize our need to press for reasonable on-call schedules for the ultimate benefit of ourselves and our patients.

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Comme le disait si bien Yogi Berra, la nostalgie n'est plus ce qu'elle était

Gordon Brock, MD, CCMF

CJRM 1999;4(2):66

Le Dr C, médecin de famille qui a pratiqué ici au cours des années 1960, est très vénéré dans notre petite ville. De mémoire publique, il était de garde tous les soirs et toutes les fins de semaine, recevait tous les patients à toute heure du jour et de la nuit, faisait des visites à domicile : pendant toutes ces années, il n'a jamais perdu ni son sourire, ni le pli bien pressé de son costume.

Je n'ai pas à vous rappeler que le nombre de nuits où nous sommes — ou devrions être — de garde constitue un enjeu majeur et que l'insatisfaction face aux horaires de garde est un des grands facteurs qui poussent les médecins à quitter les régions rurales. Certains d'entre nous sont de garde à peu près tous les soirs, ou un soir sur deux (dans notre ville, nous sommes de garde un soir sur quatre). On signale que de plus en plus de médecins — autant médecins de famille que spécialistes — refusent des périodes de garde qu'ils jugent trop fréquentes. Un arbitre a décidé en fait au Québec qu'on ne peut forcer un médecin à être de garde plus souvent qu'une nuit sur cinq et l'on a proposé une nuit sur sept au maximum en Ontario.

Les médecins peuvent être insatisfaits de périodes de garde trop fréquentes — et commencer à s'y opposer — pour plusieurs raisons : une société de plus en plus litigieuse rend moins pardonnables les erreurs attribuables à la fatigue aiguë ou chronique. À cause de la rectitude politique, nous avons plus de difficulté à faire face au personnel et aux patients lorsque nous sommes fatigués ou de mauvaise humeur. La rémunération que nous touchons pour les soins médicaux dispensés en dehors des heures normales est jugée insuffisante. Certains d'entre nous (quelle horreur!) veulent avoir du temps qu'ils peuvent vraiment considérer comme le leur et passer plus de temps avec leur famille qui souffre depuis longtemps de leurs absences fréquentes. Enfin, personne d'entre nous ne rajeunit.

Beaucoup d'entre nous se rappellent l'époque où nos villes recevaient leur électricité d'une compagnie d'électricité locale et où les services ambulanciers municipaux étaient dirigés par l'entrepreneur local des pompes funèbres. La société a décidé depuis que ces services devraient

être des services publics et que la responsabilité ne devrait pas en incomber seulement à des entrepreneurs locaux. C'est peut-être le temps de décider que c'est au gouvernement et à nos hôpitaux ruraux, et non seulement aux hommes et aux femmes qui exercent la profession en milieu rural, qu'il incombe de fournir des services médicaux 24 heures sur 24.

Comme médecins ruraux, nous devons reconnaître nos limites et chercher à obtenir des horaires de garde raisonnables. La société ne s'attend pas que des pilotes épuisés et surchargés de travail soient aux commandes d'un gros porteur et elle ne le tolérerait pas non plus. Elle ne devrait pas s'attendre non plus à ce que des médecins ruraux surchargés et épuisés dispensent des soins médicaux à une ville. Il faut reconnaître que nous devons exercer des pressions afin qu'on établisse des calendriers raisonnables de garde pour le bienfait ultime de nos patients, et pour le nôtre aussi.

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President's message: building momentum

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CJRM 1999;4(2):67

See also:

- News: [SRPC takes the RCC to Cuba](#)
-

Being on the Executive of the Society of Rural Physicians of Canada (SRPC) is just like being on call in your rural emergency room or remote clinic! You never know quite what to expect next and must be ready to cope with each challenge as it arises, often feeling you are on your own and with limited resources. It also has its rewards— just like rural practice. Activities and efforts undertaken over the past year have started to pay off.

The Rural CME Locum Program has received a boost in the arm, with funding coming from the Canadian Medical Association to help further its development. A successful off-shore Rural Critical Care course was held this February in Cuba (see [page 99](#)) and another one is scheduled for St. John's during our Rural and Remote Medicine Conference in mid-April.

Presentations on the need for and the ideas behind advanced skills for rural physicians have been made to the Association of Canadian Medical Colleges, the Royal College of Physicians and Surgeons of Canada, the Canadian Medical Association's affiliated societies and at a meeting on a rural curriculum convened by the College of Family Physicians of Canada (CFPC). These organizations and others have been approached to form a rural medical forum that can speak in an advisory capacity and in a united way with governments on common issues related to rural health delivery

The most exciting news, however, is the announcement in the February 1999 federal budget of \$50 million being allotted to rural and community health over the next 3 years. The SRPC has

been urging the federal government to see rural health as a national concern that crosses all provincial and territorial governments. We have worked with members of the rural caucus, the Canadian Federation of Agriculture, the CFPC and others to put forward the need for a national rural health policy similar to that developed in Australia earlier this decade. The first step was the creation late last year at Health Canada of the Office of Rural Health, with Dr. John Wootton being named its executive director. Hopefully, the second step has now occurred with this budget announcement. Now more than ever it is important that all of us interested in equitable health for rural Canadians, whether as individuals or organizations, work together to make the most of this opportunity. Please come and join us and help shape the future of rural health in Canada.

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Message de la présidente : Prendre de la vitesse

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Voir aussi:

- Actualités: [SRPC takes the RCC to Cuba](#)
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Être membre de l'Exécutif de la Société de la médecine rurale du Canada (SMRC), c'est comme être de garde à la salle d'urgence en milieu rural ou à la clinique en région éloignée! On ne sait jamais tout à fait à quoi s'attendre et il faut être prêt à relever tous les défis à mesure qu'ils se présentent en se sentant souvent laissé seul avec des ressources limitées. Ce travail offre aussi des satisfactions — tout comme la pratique en milieu rural. Les activités et les efforts de l'année écoulée commencent à porter fruit.

Le programme d'EMC et de remplaçants en milieu rural a reçu une injection de fonds de l'Association médicale canadienne, qui veut l'aider à poursuivre son évolution. Un cours sur les soins critiques en région rurale organisé en février à Cuba (voir [page 99](#)) a connu un franc succès. Il y en aura un autre à St. John's au cours de notre Conférence sur la médecine en région rurale ou éloignée à la mi-avril.

Des exposés sur le besoin de compétences spécialisées avancées chez les médecins ruraux et les idées qui sous-tendent ce point de vue ont été présentés à l'Association des facultés de médecine du Canada, au Collège royal des médecins et chirurgiens du Canada, aux sociétés affiliées de l'Association médicale canadienne, ainsi qu'au cours d'une réunion sur un programme rural de formation organisée par le Collège des médecins de famille du Canada (CMFC). On a communiqué avec ces organisations notamment pour créer une tribune médicale rurale qui puisse faire fonction d'organe consultatif et présenter un front commun pour discuter avec les gouvernements d'enjeux communs portant sur la prestation des soins de santé en milieu rural.

La nouvelle la plus excitante est toutefois celle que contient le budget fédéral de février 1999, soit qu'on affectera 50 millions de dollars à la santé rurale et communautaire au cours des trois prochaines années. La SMRC exhorte le gouvernement fédéral à considérer la santé en milieu rural comme un enjeu national qui ne connaît pas de frontières provinciales et territoriales. Nous avons collaboré avec des membres du caucus rural, de la Fédération canadienne de l'agriculture, du CMFC et d'autres intervenants pour faire valoir le besoin d'une politique nationale sur la santé en milieu rural semblable à celle que l'Australie a élaborée plus tôt au cours de la décennie. La première étape a consisté à créer, vers la fin de l'année dernière à Santé Canada, le Bureau de la santé rurale dont le Dr John Wootton a été nommé directeur exécutif. Nous espérons que cette annonce dans le budget constitue le deuxième volet. Il importe maintenant plus que jamais que tous ceux d'entre vous qui s'intéressent à des soins de santé équitables pour les Canadiens en milieu rural, qu'il s'agisse de personnes ou d'organisations, se donnent la main pour tirer le maximum de cette possibilité. Veuillez vous joindre à nous et nous aider à orienter l'avenir de la santé en milieu rural au Canada.

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Decline of obstetrical services in northern Ontario

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[[résumé](#)]

This article has been peer reviewed.

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Abstract

Objectives: To describe patterns of hospital-based obstetrics in northern Ontario and to determine if there is an increase in the number of communities opting out of hospital-based obstetrics.

Design: Telephone survey.

Methods: The maternity services of all northern Ontario hospitals in urban and rural settings north of the French River were surveyed.

Results: Of 55 general hospitals surveyed in northern Ontario, a 100% response rate was obtained. The reported number of community hospitals that do not offer hospital obstetrical care has increased 500% since 1981. Remaining hospitals are evenly divided among those offering obstetrics without local cesarean-section capability, those that have GP/FP based cesarean-section capability, those that have general surgery based cesarean-section capability and those that have obstetrician based cesarean-section capability.

Conclusions: Programs to provide family practice trainees with the skills and attitudes that they need to practise obstetrics in rural Canada must be strengthened to halt the threat to maternity care for women in rural areas.

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Résumé

Objectifs : Décrire les tendances des soins obstétriques en milieu hospitalier dans le nord de l'Ontario et déterminer s'il y a augmentation du nombre des communautés qui se désengagent des services d'obstétrique en milieu hospitalier.

Conception : Sondage téléphonique.

Méthodes : On a sondé les services de maternité de tous les hôpitaux du nord de l'Ontario en milieu urbain et rural situés au nord de la rivière French.

Résultats : Sur les 55 hôpitaux généraux du nord de l'Ontario sondés, on a obtenu un taux de réponse de 100 %. Le nombre indiqué d'hôpitaux communautaires qui n'offrent pas de soins obstétriques en milieu hospitalier a augmenté de 500 % depuis 1981. Les autres hôpitaux sont répartis également entre ceux qui offrent des services d'obstétrique sans pouvoir pratiquer sur place de césarienne, ceux qui peuvent pratiquer des césariennes grâce aux services d'OP/MF, ceux qui peuvent effectuer des césariennes parce qu'ils ont un service de chirurgie générale et ceux qui peuvent le faire grâce aux services d'un obstétricien.

Conclusions : Il faut renforcer les programmes qui visent à doter les stagiaires en médecine familiale des compétences spécialisées et des attitudes dont ils auront besoin pour pratiquer l'obstétrique en milieu rural au Canada afin de protéger les soins obstétriques en région rurale.

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The decline in family practice obstetrics is well documented. Over the last 10 years, involvement in the case room by family practitioners (FPs) has dropped from a third to just a quarter of all practitioners. The rate of decline has been even steeper in rural Canada ([Fig. 1](#)). In urban centres this loss can be mitigated by having obstetricians and other family doctors take over the case load. In all of Canada's rural areas there are only 38 obstetricians, so generalists are often the only providers of maternity care, including cesarean sections ([Fig. 2](#)). If a rural doctor opts out of obstetrics and there is no one else available to provide obstetrical care, then women are forced to travel, often while in labour, to other centres.

Studies in the United States¹⁻³ and Norway⁴ consistently document significantly poorer outcomes for communities that lack maternity services, even when the referral centre is of excellent calibre. Children of women who are forced to travel have greater rates of perinatal death and prematurity and incur higher health care costs.¹⁻⁴

Chance and Campbell⁵ surveyed all 100 hospitals in Ontario in 1988 whose doctors performed fewer than 750 deliveries during 1986-87. Ten hospitals reported that they had discontinued or were discontinuing obstetrics. Obstetricians were available at 19 of the 82 hospitals that had fully completed their questionnaires. Nineteen hospitals were without cesarean-section capability. The authors predicted, based on the reported intent of physicians, that 6 more hospitals would be without obstetrical services in the following 2 years.⁵ There has been no follow-up, so it is uncertain if the reported expectations actually came to pass.

Rourke⁶ surveyed all 88 Ontario hospitals with fewer than 100 beds, excluding those administered by larger hospitals. In 1988 he found that 65 of 80 hospitals that responded to his survey were doing more than 10 deliveries a year.⁶ In 1995, in a follow-up survey of 46 of these hospitals, he found that 9 had stopped doing deliveries. In the remaining 37 hospitals that continued providing obstetrics there were fewer family doctors doing deliveries, fewer GP anesthetists and less cesarean-section availability (Dr. James Rourke, Goderich, Ont.: unpublished data).

The current study was based on a geographical region that is mostly rural. It does, however, include urban areas in order to provide context and comprehensiveness. Neither service volume nor number of hospital beds remains constant over time. Limiting a study based on these parameters limits the interpretation, especially when survey responses are incomplete.

The region was chosen to take advantage of the fact that it had been surveyed previously by Black and Fyfe.⁷ The questionnaire was designed so that it could be applied quickly to a defined and accessible population in order to encourage high response rates. Data from Black and Fyfe's northern Ontario study⁷ indicated that in 1981 few rural hospitals lacked the ability to perform uncomplicated obstetrical care (less than 10%). This present study attempts to document the

nature of contemporary obstetrics in rural hospitals in northern Ontario and to determine if more communities have opted out of obstetrics, thereby forcing women to travel out of their communities for their obstetrical care.

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Methods

A MEDLINE search of the literature (1980-1997) was done using the key words "rural" and "obstetrics." The number of general hospital beds in a community was obtained from the 1997 Canadian Medical Directory.

Between Nov. 27, 1997, and Dec. 4, 1997, a telephone survey of all community hospitals in northern Ontario was conducted. The first 3 hospitals received a pilot questionnaire and were polled again when the final questionnaire was designed. The initial contact was with the switchboard operator who received a structured questionnaire. If obstetrics was unavailable to the community, the switchboard operator was asked what the land transfer time to the nearest maternity centre was and how many GPs were on staff. Otherwise the call was switched to the nurse in charge of maternity. The nurse was asked how many of the hospital's GPs attended deliveries and who did the cesarean sections. Those who provided cesarean section were further identified by number and specialty (if any) and the relative proportion of procedures that each did. If obstetrical services were offered and no cesarean sections were done, the road distance to the nearest centre with cesarean-section capability was recorded. If the respondent did not know the answer, the call was forwarded until someone knowledgeable was reached.

Community hospitals were divided into 5 classes according to the level of hospital service that each provided:

- level 0: no obstetrical services
- level 1a: low-risk obstetrical services but cesarean sections not available on site
- level 1b: obstetrical services provided with predominantly GP/FP based cesarean-section capability
- level 1c: obstetrical services provided with predominantly general surgeon based cesarean-section capability
- level 2+: obstetrical services provided with predominantly obstetrician based cesarean-section capability.

Analysis of variance was used to test the difference between the means of each level of hospital service.

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Results

All 55 hospitals in 39 communities responded to all applicable questions. Fifteen of these communities were identified as having no local obstetrical services. All were 1.5 hours or less from the next closest community that offered the service (average 45 minutes). Six communities were identified as offering obstetrics without local cesarean-section back-up. All were 2 hours or more from the nearest centre with cesarean-section capability (average 3 hours). Differences between 2 groups in reported total medical staff or number of beds were not statistically significant (ANOVA $p = 0.5$ and 0.3 respectively), but reported distance was highly significant (ANOVA $p < 0.001$).

Five (13%) communities offered cesarean sections, primarily performed by GPs. One of these communities (Sioux Lookout) had 2 hospitals that provided obstetrics. In an additional 7 communities cesarean sections were done primarily by general surgeons. There were 6 communities that had obstetricians. General characteristics of all 5 types of community hospital are listed in [Table 1](#). Overall, 48% of rural GPs/FPs with hospital privileges were reported by obstetrical nurses as attending deliveries.

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Discussion

A primary finding of the study was that 15 communities no longer offer obstetrical care in their local hospitals as opposed to the situation in 1981 where only 3 hospitals in the same area did not offer obstetrical care.⁷ This study confirms an alarming trend that may threaten the health of rural women.

In examining the characteristics of these hospitals the only statistically significant difference from the next group (1a) was the reported distance to the next obstetrical unit. It may be that in urban areas local proximity to alternative obstetrical care providers may encourage a given doctor to stop and in rural areas proximity of another hospital with a maternity service may encourage a given hospital to stop.

Blind River, 45 minutes from Elliot Lake (level 1b), may exemplify the decline in hospitals offering obstetrics where the transfer time to the next closest hospital offering obstetrics is less than 1.5 hours. In 1984, local Blind River physicians decided to stop offering obstetrical services. Many reasons were offered, among them the argument of safety. Although the hospital board and

community were outraged, several organizations, including the Ministry of Health, came out in support of the closure. The reasons for stopping maternity services can be many, and it is sometimes difficult to extract the real reason from the "spin" that is generated to placate the unhappy community. The stress of maternity care on one's lifestyle is not insignificant. Unlike city FPs, rural doctors are typically already on call at high frequency to cover emergencies: obstetrics is yet another commitment.

Despite Black and Fyfe's eloquent study⁷ that underlined the safety and viability of level 1a hospital obstetrical services in northern Ontario, the Blind River example was used to support the withdrawal of obstetrical care in nearby Espanola and in Petrolia in southwestern Ontario. Unfortunately, once women become used to travelling while in labour to "safer" hospitals, and local nurses and physicians lose confidence and experience, it can be very difficult to resume obstetrical services.⁸

For Little Current, Ont., there was a different outcome from that of Blind River. A personnel shortage in conjunction with the retirement of the surgeon threatened closure of obstetrical services on the island. This would have forced 100 women annually to travel up to 3 hours to Sudbury for their maternity care. In an effort to provide a sustainable service a group of 5 doctors combined the rota for emergency department and obstetrics for Manitoulin Island, with shared prenatal care.⁹

The characteristics of the hospitals in Blind River and Little Current are similar in terms of medical personnel and hospital size. The major difference, as with other level 0 and level 1a hospitals, is in the distance to the next available obstetrical unit. Although travelling a few minutes probably won't make a difference, the studies on women forced to travel further for maternity care¹⁻⁴ makes one worry about the safety of more distant care. A pressing research question is how close must a community be to another hospital providing obstetrical services for the 2 services to be safely consolidated? Would it be safe to close the obstetrics unit at Little Current or was the Blind River decision at the limit of safety?

The loss of maternity services is not inevitable and irreversible. In Marathon, Ont., obstetrical services were closed basically due to a lack of personnel. By the fall of 1995 a single doctor was providing care for a community of 5500 people. Marathon is 3 hours by road from Thunder Bay, Ont., and a minimum 2-hour transfer time by air. Impending crisis led to the formation of the Doctor Crisis Coalition Committee that acted at the political level to achieve success in quality-of-life issues, finances and obtaining professional support to help retain physicians (Dr. James Rourke, Goderich, Ont.: unpublished data).¹⁰

The Coalition Committee was able to attract 5 new doctors, including 2 with an interest and extra training in obstetrics. Restarting the program at a level 1a hospital has allowed them to set up new policies and protocols, most of which were derived, where applicable, from national guidelines. They have had excellent community support and one of the doctors wrote to me saying that, so

far, they have had 52 deliveries, only 2 of which had to be transferred out.

Data from Australia,¹¹ New Zealand¹² and Canada⁷ demonstrate the safety and desirability of situations such as Marathon. The recent "Joint position paper on rural maternity care" endorses care in rural centres even if they might lack cesarean-section capability.¹³ The question that is most pressing is to determine if shutting down obstetrical units will be associated with future bad obstetrical outcomes in Canada as elsewhere.¹⁻⁴ Which communities would do better with local cesarean-section support? The second research challenge is to study methods of training and patterns of practice that encourage sustainable and increased levels of physician participation in obstetrical care.

The strength of the present study is that the survey represents a comprehensive sample with a complete response rate. Its weakness is mostly based on its narrow focus. Regional variations of physician participation in obstetrics across Canada, as well as hospital distribution, may limit application of these results beyond the region studied.

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Conclusions

In northern Ontario, declining physician participation in obstetrics has been associated with a 500% increase in the number of community hospitals that report a lack of elective obstetrical care since 1981. The communities with remaining maternity services are evenly divided among communities that have an obstetrician(s), those that rely primarily on a general surgeon(s) to do cesarean sections, those that depend on a family doctor(s) to do cesarean sections and those that practise obstetrical care without on site cesarean-section capability. There is a great need to strengthen programs to provide family practice trainees with the skills and attitudes that they need to practise obstetrics in rural Canada.

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A program management model for the Nova Scotia telemedicine network

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[[résumé](#)]

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See also:

- Literature: [Effect of real-time teleradiology on the practice of the emergency department physician in a rural setting: initial experience](#)

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Abstract

Sustainable telemedicine networks are not the norm but rather the exception. Unless a formal program management model is in place, telemedicine cannot be integrated successfully into the mainstream of modern health care delivery. Critical factors in achieving sustainable telemedicine have been identified. The program management model, developed for the Nova Scotia Telemedicine Network, incorporated the following tools: a telemedicine self-assessment indicator, service modelling, technical design and integration, application development and validation, scheduling, ongoing network management and evaluation.

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Résumé

Les réseaux viables de télémédecine sont l'exception plutôt que la norme. À moins de mettre en place un modèle structuré de gestion de programme, on ne réussira pas à intégrer pleinement la télémédecine dans la prestation des soins de santé. On a dégagé les facteurs critiques qui permettraient de se doter d'une télémédecine viable. Le modèle de gestion de programme conçu pour le réseau de télémédecine de Nouvelle-Écosse comprend les outils suivants : un indicateur d'autoévaluation de la télémédecine, un modèle de service, une conception technique intégrée, l'élaboration et la validation d'applications, l'ordonnancement, et la gestion et l'évaluation continues.

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Health care restructuring has placed new requirements on service delivery models, which are already strained, yet demand continues to grow as information becomes a commodity shared by many, regardless of where they live. To those who have deployed telemedicine networks to support clinical services, it is clear that sustainable telemedicine is not only about computers, it is also about people and relationships. To define the proper solution to any problem, the problem must be determined by those in need and understood by the solution provider. Health care delivery models work best when the stakeholder is involved in the planning process. If the process is to be productive, the participants must all participate. Education, provided by peers, becomes a cornerstone in creating the environment for successful telemedicine.

The history of telemedicine is characterized by many systems that have failed or have only lasted a short time. Typically, enthusiastic physicians and other health care providers have promoted and sustained single point-to-point applications and, in rare cases, networks, offering 1 or 2 specific

services. Clearly, the evolution of technology has now made telemedicine possible as a solution for mainstream health care delivery problems. Improved access to health care will become the cause célèbre of stakeholders who feel marginalized by health care restructuring. Those who understand its limitations see telemedicine for what it is — a means of improving access to care for those who are denied it, either because of geography or limited resources, or both.

Notwithstanding the above observation, the Achilles heel of any telemedicine initiative is the failure to recognize that it is a clinical service delivered via a nontraditional medium. A service delivery structure needs to be incorporated into the health care model that will address the needs of all stakeholders.

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Three critical factors

There are 3 critical factors for achieving successful telemedicine.

1. Process guidelines. Foremost is the need to establish a process to identify essential stakeholders. This is closely followed by the need for a steering committee where all stakeholders are able to participate in the process to outline the goals of the project. Some principles guiding the committee are:
 - avoid central decision-making
 - avoid setting up a central bureaucracy
 - locate a local champion to lead the process
 - choose technology based on clinical needs
 - establish training protocols for both users and providers
 - incorporate evaluation criteria in all goals and objectives.
2. Telemedicine self-assessment indicators. Conducting a telemedicine self-assessment indicators analysis is largely about goal setting. Before setting out on any new endeavour there will be some expectations about what will be accomplished. In the current health care environment, a good deal more than that must be known before anyone is willing to spend the money on the endeavour. A well thought-out process will identify all the details and present the problems, possible solutions, outcomes and benefits to be gained. The essential points to determine if telemedicine has a part to play in meeting the needs of stakeholders will be flushed out. Critical to the success of any network is the fact that the expectations-setting process must be addressed to keep a program focused. Having identified the challenges, the team starts by considering potential solutions. A thorough understanding of telemedicine technologies should guide the process so that the proposed solutions are truly representative of telemedicine's capabilities. This is achieved by:
 - maximizing the expected results while minimizing expenditures
 - identifying personnel willing to commit their time and energy
 - identifying the financial and human resources needed to implement the program

- setting evaluation criteria
 - ensuring that both clinical and technical personnel serve on the same team
 - ensuring an open and flexible approach, but with a rigorous format designed to capture the perceived health care services needs that vary from provider to provider, facility to facility and community to community.
3. Service modelling. The risks of introducing information technologies and new modalities of communications on the health care sector must be clearly identified. Operational policies and procedures that are often rigid characterize this sector. At present, most of the difficulties in implementing the technologies required in telemedicine are not with the technology itself, but the impact that its use has on the day-to-day practices of the users. To implement telemedicine successfully, the impact must be considered in advance; it must then be quantified and accounted for in the planning and implementation of new systems. Change management becomes the driving force for successful telemedicine. Service modelling provides a structured environment for this to take place. The goal of telemedicine service modelling is to identify and quantify aspects of the delivery of health services via telemedicine. The output of this modelling will provide valuable information regarding the costing, planning and implementation processes involving:

- organizational design and major job functions
- financial considerations (capital and operating)
- operational considerations (e.g., scheduling, support, protocols and standards)
- functional technology architectures (interactive or store and forward)
- policy issues (e.g., licensure and reimbursement).

In addition, a simulated service model will provide details and rationale to the strategic planning process including:

- communications strategy for service providers and users
- implementation strategy on a provincial (state) and regional basis
- most effective use of capital and operating funding and
- potential benefits of particular service configurations.

The benefits of telemedicine service modelling are:

- it provides an understanding of the environment. The model answers the questions: "What do I do?" and "What resources do I need to do what I do?"
- it provides a means for communicating and presenting results since: everyone is looking at the same model, everyone is using the same definitions and everyone is talking about the same thing.
- it provides a tool for managing the environment by: providing structure for a team organization, enforcing a step-by-step approach, tracking the evolution from problem to solution and generating documentation.
- it identifies opportunities for improvements by revealing flow relationships, incongruities and redundant activities.

The Nova Scotia Telemedicine Network (NSTN) is unique, not only for its innovative and technically superior design but also because it has adopted a formal management structure outside the Department of Health administrative structure. The model is built on a cooperative

relationship between partners: the telecommunication provider, MT&T; the provider of some of the clinical services and evaluation, Dalhousie University; the funding agency, the Nova Scotia Department of Health and TecKnowledge Health Care Systems Inc. The organizational chart (Fig. 1) outlines the reporting structure of the program management model (PMM). A Program Director is responsible for the overall project. Because telemedicine demands that stakeholders rethink how they will interact with the health care system, tremendous barriers can be overcome if credible people are chosen to fill the positions outlined in the PMM. We have adopted the philosophy that peers are more apt to be able to establish the relationships to not only effect change but sustain it through the formative periods.

Operational telemedicine functions in a different environment than pilot projects. The impact of possible changes to traditional work-flow patterns is paid little or no attention in a pilot, but in an operational situation every aspect of the interactions between patient and health care provider must fit into a grid. Service modelling, if done well, will identify barriers. The process is designed to mitigate gridlock; the PMM is designed to deal with gridlock by devising strategies to overcome the impasse, if it occurs. Only people with intimate knowledge of the workplace, the health care industry, the power (and limitations) of the technology and the motivational factors that permit most health care providers to function, can attend to the detail required to integrate telemedicine into mainstream health care.

The PMM has incorporated strategic people into an organizational structure. The Site Coordinator is the critical person in the organizational structure. This person must champion the cause of telemedicine in the institution. To achieve this, a high level of credibility with colleagues is essential, given that there is significant skepticism about telemedicine among pragmatic health care providers. Only positive experiences with the technique will change this attitude. Scheduling, evaluation and maintenance of the network from a manpower perspective are challenges implicit in telemedicine networks that can be overcome by an effective Site Coordinator.

Experience with the NSTN supports the observation that telemedicine has matured beyond the early adopter stage to the stage of mainstream health care use. Stakeholders expect the technology to be seamless and user friendly. Traditional telemedicine projects have not emphasized the need to have the clinical people closely integrated with the technical team. A PMM requires the representation of information technology, information services and telecommunication personnel integrated into a team environment where a knowledge transfer can occur easily between clinical and technical people. The Advisory Committee, representing the partners listed above and the community at large, provides the PMM with an accountability relationship. The pilot study that preceded the NSTN was successful in proving that telemedicine can be beneficial to rural stakeholders. We realized that a successful province-wide deployment would require a new paradigm to overcome the many operational issues identified in the pilot. Work-flow analysis, assuring user involvement and developing validation protocols (to ensure that clinical personnel have confidence in the proposed solution), requires the participation of health care professionals.

The Clinical Director, Regional Coordinator and Program Director positions are designated as clinical positions, critical not only to creating an environment of trust and support in the user group but also to providing a level of confidence for the payer group. Telemedicine is supposed to help close the gap in health care between stakeholders: the patient whose access to health care may be compromised by distance or limited resources and the provider of care whose ability to deliver services may be limited by misallocation of resources. This may take the form of a sole regionally-based nephrologist unable to reach patients in need of dialysis or a rural practitioner unable to access knowledge because of time or distance.

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Discussion

The Nova Scotia Telemedicine Network will connect 43 facilities to regional centres, tertiary care centres and to each other. The applications approved on the network are radiology, continuing medical education (CME), dermatology, psychiatry and emergency medicine. [Table 1](#) outlines the transactions between the first 16 sites from April to August 1998 and the projected transactions from September to December 1998, and for 1999. The remaining sites are expected to be operational by Mar. 31, 1999.

Activity on the network is dependent on the infrastructure available. For example, a sustainable dermatology clinic cannot occur unless the Regional Coordinator is able to schedule multiple sites to feed into the tertiary centre in a manner that will assure the efficient use of the dermatologists' time. Service modelling will prepare everyone, from the general practitioner's secretary to medical records personnel, to anticipate work loads and the challenges inherent in delivering the clinical service. The PMM adopted by the NSTN has overcome the barriers around work flow. However, the experience gained over the last 8 months continues to refine the skills required to bring telemedicine into environments often less than enthusiastic about welcoming new health care delivery models. A major lesson which we have learned is the realization that simple work-flow issues can stall implementation of a telemedicine solution for any clinical problem. Despite rapid processors, slick interfaces and committed designers, if the proposed solution does not take into consideration work-flow issues, unique to each institution, the resistance from the clinical personnel will be tremendous.

Acknowledgements: We thank Dorothy Spence, President and CEO of TecKnowledge Health Care Systems, Inc., for her help.

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Blood somewhere, blood nowhere, blood everywhere: Factor VIII inhibitor in a man in congestive heart failure

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[[résumé](#)]

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Abstract

Rural family medicine covers the breadth of medicine and occasionally involves rare disorders. One such rare and life-threatening disorder is that of Factor VIII inhibition. This paper describes the diagnosis and care of a 78-year-old man with this disorder in a rural setting. It involves values that are at the core of the art of family medicine and involves medicine that is at the cutting edge of clinical science. Despite the family practitioner's lack of experience with this condition, he was

able to use the skills and services at his disposal within the hospital and community to diagnose and treat the condition, to care for the patient in his community and to provide palliative care so that the patient could return home.

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Résumé

La médecine familiale en milieu rural couvre tout le champ d'application de la médecine et est confrontée à l'occasion à des troubles rares. Un de ces troubles rares, et qui peut être mortel, c'est l'inhibition du facteur VIII. Cet article explique comment on a diagnostiqué et traité un homme âgé de 78 ans atteint de ce trouble et vivant en milieu rural. Le traitement fait appel à des valeurs qui sont au cœur même de la médecine familiale et met à contribution des interventions médicales à la fine pointe des sciences cliniques. Même si le médecin de famille manquait d'expérience face à ce problème, il a pu recourir aux connaissances spécialisés et aux services mis à sa disposition dans l'hôpital et la communauté pour diagnostiquer et traiter le problème, traiter le patient dans sa communauté et lui prodiguer des soins palliatifs afin de lui permettre de rentrer chez lui.

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Family medicine is a discipline that involves the entire breadth of medicine. Common disease states may be the generalist's stock in trade, but all unusual and rare illnesses are seen first at the primary care level. Unlike a subspecialist colleague, the generalist will be unlikely to have a population skewed or biased into one for which s/he has direct expertise. As a result the generalist often lacks any warning of the nature of the "zebra." In a rural setting this often means caring for the patient for some time after the herd of zebras has stampeded.

A case of Factor VIII inhibition is presented, illustrating how a rural family doctor can encounter a diagnosis that s/he has never heard of before and be able to cope with it.

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Setting

Temiskaming Hospital at the time the patient presented had 65 active care and 38 chronic care beds. Its physician complement of 20 active staff included 2 surgeons but no other specialists. The nearest internist was 150 km away. The nearest medical school was over 500 km distant.

Case report

The patient was a 78-year-old man who was retired and had worked in the hospital's maintenance department. He had been living quietly with his Lebanese wife and doing some carpentry until 3 months before his illness. He suffered a large anterior myocardial infarction that was complicated by atrial fibrillation, occasional ventricular tachycardia and profound cardiogenic shock. I had him flown to Sudbury where he had invasive monitoring. It took 10 days to wean him off the dopamine that I had started. Further investigations failed to reveal surgically correctable lesions, and his cardiologist gave him a poor prognosis.

His congestive heart failure (grade IV ventricle) left him housebound. He was maintained on amiodarone, digoxin, benazepril, furosemide, acetylsalicylic acid, warfarin, lorazepam and oxygen. His treatment was monitored by home care and house calls. His condition improved somewhat (he teased his wife by saying he would bring his table saw into the living room).

He began to complain of vague epigastric symptoms and loose stools. When I saw him he was pale, short of breath and had coarse breath sounds. I readmitted him.

Admission bloodwork revealed a hemoglobin level of only 82 g/L. My first dilemma was: blood somewhere, but where?

The INR was 3. The stool was negative for occult blood. After blood transfusion of 2 units, the INR was 1.6 but the hemoglobin level only rose to 87 g/L. His dependent flank was slightly swollen and sore, but there was no bruising. Ultrasonography failed to reveal a retroperitoneal hemorrhage. A chest x-ray film revealed a left-sided effusion but not big enough to hide 2 units! This was blood nowhere!

Disseminated intravascular coagulation was ruled out by a normal platelet count and fibrinogen level. However, his partial thromboplastin time (PTT) was over 110 seconds. The only other test that our laboratory could do locally was to test for blood factor inhibitor. Getting the laboratory's textbooks out, I read that if the PTT was high because of lack of factor(s), it should correct itself with the addition of normal saline. The laboratory technician and I were willing to give it a try. We mixed control serum 1:1 with the patient's serum. The control serum partially corrected the PTT. I took this as encouragement and felt that no or little inhibitor was present and that we could reproduce the same result in vivo by pouring in Factor VIII. A simple deficit of Factor VIII should correct the PTT completely or almost completely, in such a mix. The fact that it did not completely correct the PTT predicted the failure of treatment with factor replacement.

Treatment with packed red blood cells, fresh frozen plasma and Factor VIII was initiated pending special tests (Figs. 1 and 2 [not available online, please refer to print copy]).

Where the blood went was now obvious — blood everywhere. The patient was now bruised all over his trunk and extremities and he oozed at each venipuncture site. Furthermore, he was short of breath and he didn't care if he lived or died.

His wife certainly cared and was having none of that attitude. Between the 3 of us we negotiated a compromise. No resuscitation, no transfer to the city but comfort measures and further investigations and treatment as might be indicated would be done.

Later the next day — great news. A Sudbury laboratory reported the presence of Factor VIII inhibitor and the absence of a detectable amount of Factor VIII. That evening, unable to reach anyone who had experience with the condition, I reviewed a computer database of the literature. I found several types of treatment and ordered the only one with which I had experience: prednisone.

I spoke in the morning with a hematologist from a teaching hospital in Hamilton, Ont. Over the span of a long career he had been involved with a few cases of Factor VIII inhibitor. He recommended a regimen of prednisone 60 mg/d and cyclophosphamide 100 mg/d. With this treatment the patient needed no further transfusions and his PTT fell gradually by 1 or 2 seconds each day (Fig. 2). Over time the patient expressed the wish to return home. With reinvolvement of home care, a visiting nurse, oxygen at home and house calls we could send him home. Much later we received a report that the Factor VIII inhibitor was assayed at 57 Bethesda units/mL (very high).

Unfortunately, our efforts were cut short as the patient suffered another heart attack and died shortly after his discharge home.

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Discussion

The spontaneous development of autoantibodies to Factor VIII in nonhemophiliac patients is a rare but life-threatening cause of bleeding. The condition can occur without warning post partum, as a drug reaction with neoplastic and rheumatologic conditions, and often, as in this case, from no obvious cause. The incidence of this disorder is unknown, but even in major centres only a handful of cases will be seen over a decade.

Such a rare and serious disorder naturally led to a discussion with an internist about transfer. My patient's preexisting heart disease already limited his prognosis. The opinion offered was that his

coagulopathy made the prognosis grim and transfer would not have improved it significantly (an accurate prediction). The family agreed to local treatment with distant advice. This reflected a trust in continuity of care, family and community centred care, despite my own confession that I was practising medicine on a level beyond my training.

Another problem was choosing from the many treatments in the literature. Treatment with Factor VIII just aggravates the condition by encouraging more antibodies to form (which I unwittingly demonstrated before arriving at the correct diagnosis). Some of the treatments tried include passing serum extracorporeally through a substrate that binds inhibitor, using porcine Factor VIII, or Factor IX complex¹ to circumvent the inhibitor, massive doses of Factor VIII to overwhelm the inhibitor or, as used here, immunosuppressive treatment^{2,3} to suppress the formation of inhibitor. Another hematologist I spoke to suggested giving gamma globulin⁴ and some other reports have suggested interferon alpha-2a.⁵ The family doctor's task of picking the right treatment still remains an art, if only in that of picking among expert choices.

Although this case is very unusual, such core values of trust, continuity of care, palliative care, family and community values, and the art of picking a right course, reflect the very nature of rural family practice.

Was this a success? The patient's wishes were respected. He was cared for in his community. I gave him palliative care to the best of my ability. Eventually he recovered enough to be able to return home to his wife. You can judge.

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Emergency intubation for the non-anesthetist rural physician

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The ability to manage the airway of a critically ill or injured patient appropriately is an invaluable skill for physicians working in rural emergency departments. When less invasive procedures fail,

the patient must be intubated tracheally to prevent further morbidity and death. In rural settings the physician often cannot rely on back-up and must be prepared to intubate.

Emergency intubation with neuromuscular blockade is safe and is the optimal way to capture the airway in critically compromised patients when performed in the emergency department.^{1,2} The advantages and methods of emergency intubation have been well documented.¹⁻¹⁰

This article describes an approach to emergency intubation that we think is suitable for appropriately trained and experienced non-anesthetist rural physicians. The protocol is based on our experience and on accepted principles of emergency airway management.^{2-4,6,7,11} Our article is meant to supplement appropriate training, experience and continuing education. The protocol we suggest will work most of the time and can be used as a quick reference when a rural physician occasionally has to intubate a patient. Physicians with additional training may use other drugs and procedures. Rural physicians should review the pharmacology of medications for emergency intubation regularly and rehearse both bag-valve-mask (BVM) ventilation and the manual skills.

This protocol is however not a "recipe" and should only be used by physicians who are thoroughly comfortable and familiar with the drugs employed and with the full spectrum of ventilation options available. It should be borne clearly in mind that this protocol includes patient paralysis, so the physician should be confident of her or his ability to deal with any drug-related complications and his or her ability to continue to safely ventilate the patient, should the intubation attempt fail.

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Indications

Emergency intubation should be used when securing the airway of a critically ill or injured patient and is required in a rural setting for the following reasons:

- there is an existing or high risk of respiratory failure
- the patient is unable to protect his or her own airway
- there is a need for controlled hyperventilation
- there is a need to stabilize a high-risk patient before interfacility transport.

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Contraindications

Absolute

Emergency intubation should not be used when examination reveals that it will be anatomically difficult to use a BVM to ventilate the patient.

Relative

Emergency intubation should not be used if less invasive measures appear to be adequate. Owing to the relative difficulty of performing emergency intubation in a transport vehicle, judicious use of emergency intubation in the rural hospital before transfer is appropriate when less invasive measures are marginally successful or the patient is at high risk of requiring emergency intubation during transport.

Following is a pictorial overview of the procedure in a trauma patient

[Fig. 1](#) [Fig. 2](#) [Fig. 3](#) [Fig. 4](#) [Fig. 5](#) [Fig. 6](#) [Fig. 7](#)

[Fig. 8](#) [Fig. 9](#) [Fig. 10](#) [Fig. 11](#) [Fig. 12](#) [Fig. 13](#) [Fig. 14](#)

Further detail is provided later in the text.

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Details of the procedure in a trauma patient

1. Airway: To every critically ill patient always apply the A,B,Cs: Airway, Breathing, Circulation.
2. Cervical spine: Always assume cervical spine fracture in trauma.
3. Intravenous access: Establish access with 1 large-bore cannula (14 to 18 gauge).
4. Monitors: Attach the blood pressure cuff, cardiac monitor and oxygen saturation monitor.
5. Assess the patient: ensure that facial injuries and anatomy will allow you to ventilate the patient with a BVM. Remove false teeth, check the patient's history and anatomy for risk of failed intubation (previous difficult intubation, previous airway surgery or trauma, limited jaw excursion, a short fat neck, prominent upper incisors, receding chin, cervical spine abnormalities and obesity).¹² A gentle look with a laryngoscope before induction can reassure you that the airway is obtainable. A good view of the posterior pharynx means that intubation is likely to succeed. A patient passes the "3-3-2" test if the mandible opens to allow 3 fingers between teeth, if the distance between the hyoid bone and mentum is 3 fingers wide, and if the distance between the hyoid bone and the chin-neck junction is 2 fingers wide. The risk of failed intubation, even in a patient with an apparently difficult airway, is low, so the probability that a rural physician in rural practice will encounter an airway that is impossible to intubate is very low.

6. Review your plan for subsequent steps and consider alternatives in the event of failed intubation. Alternatives include simply bagging if oxygenation can be maintained, insertion of a laryngeal mask or surgical cricothyrotomy.
7. Preoxygenate: Give oxygen (15 L/min) by mask or BVM, using an oropharyngeal airway as required if the patient cannot maintain an open airway spontaneously. Spontaneous ventilation is preferred to minimize the regurgitation and gastric distension that can be caused by BVM ventilation.
8. Prepare tools and assistants:
 - ET (7.0 to 7.5 for adult women, 8.0 to 8.5 for adult men, uncuffed tubes for children aged 10 years and under where size = age/4 + 4) with stylet. Always use a stylet and put a little hockey stick bend in the end of the tube.
 - 10 mL syringe for the cuff. If a cuff is present check that it inflates and stays inflated with a 10 mL syringe.
 - Lubricating gel.
 - Yankhauer suction.
 - ET suction.
 - Laryngoscope battery, blade and light bulb. The choice of a straight versus curved laryngoscope blade in adults and older children is discretionary.
 - Carbon dioxide detector.
 - Oxygen.
 - All drugs that you will use.
 - Check pediatric tube sizes and drug doses with a Broselow tape.
 - Prepare assistants: one to apply cricoid pressure (Sellick manoeuvre) to minimize regurgitation and aspiration as the patient becomes sedated and paralysed; another assistant will be needed, in the case of trauma, to stabilize the head. Always assume the patient has a full stomach.
9. Lidocaine: 100 mg intravenous push in adults or 1.5 mg/kg intravenous push in children if the patient has a head injury. Lidocaine is thought to blunt intracranial and intraocular pressure spiking during succinylcholine paralysis and intubation by suppressing laryngeal neurogenic reflexes.
10. Fentanyl (Sublimaze; Janssen-Ortho Inc., North York, Ont.): 50 to 100 µg intravenous push in adults and 2 to 3 µg/kg intravenous push in children for analgesia. Use the higher end of the dose range if the patient has good blood pressure and is awake when you start, lower if they are smaller or compromised. This is not needed if the patient is already moribund. Administer over 30 to 60 seconds rather than by intravenous push if the situation permits and if given with a benzodiazepine to avoid respiratory depression and hypotension.
11. Midazolam (Versed; Hoffmann-La Roche Ltd., Mississauga, Ont.) 2 to 5 mg intravenous push in adults and 0.1 to 0.2 mg/kg intravenous push in children for anxiolysis and amnesia. Use the higher end of the dose range if the patient has good blood pressure and is awake when you start, lower if they are smaller or compromised. This is not needed if the patient is already moribund. Administer over 30 to 60 seconds rather than by intravenous push if the situation permits and if given with an opiate to avoid respiratory depression and

hypotension.

12. Atropine for children under 5 years of age: 0.02 mg/kg intravenous push, minimum 0.1 mg, maximum 1.0 mg, to prevent vagal bradycardia and asystole from succinylcholine and tube stimulation.
13. Succinylcholine (Anectine; Glaxo Wellcome Inc., Mississauga, Ont.): 120 mg intravenous push for a large adult, 100 mg intravenous push for a 70-kg adult, 80 mg for a small adult (1.5 mg/kg) or 2.0 mg/kg intravenous push in children for full paralysis. The patient should be paralysed in 1 to 2 minutes and remain paralysed for up to 5 minutes. Paralysis will last longer at a higher dose.
14. Oxygenation/ventilation: Preoxygenate. A well-oxygenated, paralysed patient can sustain oxygenation for 3 to 5 minutes without ventilation, although the goal should be to complete intubation within 2 minutes. Do not bag the patient during succinylcholine paralysis, to avoid inflating the stomach and causing regurgitation or aspiration. An exception would be in a patient with decreasing oxygen saturation who cannot be intubated. That patient should be bagged until the succinylcholine wears off, but watch for regurgitation to prevent aspiration. Maintain cricoid pressure while the patient is paralysed to minimize the risk of aspiration.
15. Align airway: In trauma you can't bend the neck to line up the airway but you can insert the laryngoscope gently to help. You will need the anterior hockey stick bend in the end of the ET if the entrance to the trachea is not clearly visible. In non-trauma, flex the neck at C7 and extend the head at C1 to line up the airway before intubation. Put a small towel under the occiput in adults, except when cervical spine injury is a possibility.
16. Intubate when fasciculations cease. Intubate through the cords with the ET to 22 to 24 cm at the gums in adults, or (age + 10 cm) in children. Try to watch the tube pass between the cords.
17. Check tube placement: Watching the ET pass through the cords is optimal. Ask the assistant doing cricoid pressure if s/he can feel the tube pass into the trachea. Look for evidence of exhaled carbon dioxide with a detector device that attaches to the tube. Look for moist air in the tube on exhalation. Look for equal chest expansion at the apices and auscultate the apices, lateral chest and stomach with a stethoscope. Maintain cricoid pressure until tube placement is confirmed as correct, the cuff is inflated and the tube is secured. If oxygen saturation falls or there is doubt about tube placement immediately remove the tube, ventilate with a BVM and start over.
18. Check tube depth: If air entry is decreased in the left lung then consider intubating the right main-stem bronchus. Deflate the cuff and pull the tube back slightly then auscultate again.
19. Ventilate initially at the rates shown in [Table 1](#), then adjust based on blood gas results.
20. Maintain paralysis: Give pancuronium (Pavulon; Abbott Laboratories Ltd., St. Laurent, Que.) 8 mg intravenously (0.1 mg/kg intravenously in children).
21. Secure the tube. Check tube measurement at the teeth edge before and after securing the tube to ensure that the depth of insertion is maintained. Add a bite block if the patient is likely to bite the tube.
22. Ventilate: Adjust bagging to the bedside blood-gas-analyser results, if available. Ideally, ventilate the patient with a simple transport ventilator to ensure an even ventilation rate

and minute volume or just bag once every 5 seconds (count "thousands") in adults.

23. X-ray: Obtain a portable chest x-ray to confirm tube position.
24. The patient is now under full and optimal control physiologically. Treat hypotension with intravenous fluids. Put down a nasogastric tube. Put in chest tubes if pneumothorax is suspected. Insert a Foley catheter if the urethra appears to be intact and the rectal examination is normal. Titrate more fentanyl 50 µg intravenously in adults (1 to 2 µg/kg in children) and midazolam 1 to 2 mg intravenously every 10 to 15 minutes to ensure that the patient is comfortable while paralysed. Tachycardia in a paralysed patient can signify hypotension, psychological distress or pain.

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Managing complications

Failed intubation

Failed intubation is rare in the hands of trained and experienced emergency physicians.^{1,5} Ventilate the patient using a BVM and an oropharyngeal airway until the patient begins breathing spontaneously. Maintain cricoid pressure as long as the patient is paralysed. Rural physicians who can practise periodically with a laryngeal mask in a nearby operating room with an anesthetist might want to learn how to use this device. Always be prepared to obtain an airway surgically by cricothyrotomy; however, this is unlikely to be necessary because emergency intubation is so effective.

Difficult ventilation after intubation and paralysis

Consider tube or airway obstruction with secretions or blood, displacement of the tube, pneumothorax, bronchospasm, agitation due to sedatives wearing off, or muscular tension due to pancuronium wearing off. Suction and check the placement of the tube, then consider giving inhaled salbutamol (Ventolin; Glaxo Wellcome Inc., Mississauga, Ont.), additional doses of fentanyl or midazolam intravenously, or both, and small supplemental doses of pancuronium intravenously.

Arrhythmia

Treat arrhythmias with standard Advanced Cardiac Life Support measures.

Hypotension

Give boluses of 500 mL of normal saline as needed in an adult (20 mL/kg in children) to improve perfusion (bring systolic blood pressure over 100 mm Hg in adults).

Malignant hyperthermia

Malignant hyperthermia is a very rare complication of succinylcholine administration. The condition is a drug-induced increase in brain serotonin activity ("serotonin syndrome"). Early

recognition is crucial. Early signs include sudden tachycardia, tachypnea, unstable blood pressure, arrhythmia, cyanosis, profuse sweating, fever, and fasciculations or rigidity, or both. The treatment includes hyperventilation with 100% oxygen, administration of dantrolene sodium and emergent transfer. Call the malignant hyperthermia hotline at 1 800 644-9737 (1 800 MH-HYPER) and ask for "index zero" to obtain the name and phone number of an anesthesiologist on call for diagnosis and management advice.

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Notes

Fentanyl (Sublimaze)

Fentanyl is given for its analgesic and euphoric effect, because paralysis without analgesia and sedation causes unnecessary suffering, and to blunt the catecholamine surge caused by intubation. It is less likely to cause hypotension and has faster onset and shorter duration than morphine, but fentanyl-induced loss of sympathetic tone can cause hypotension in compromised patients. Treat hypotension with intravenous fluids. During a long transport expect to give about 50 µg in adults every 20 minutes to maintain adequate sedation and analgesia during paralysis. Give these additional doses depending on indications of distress, such as increased blood pressure and heart rate. Fentanyl can cause chest wall rigidity usually associated with rapid intravenous infusion, but this is rare. The rigidity can be relaxed with paralyzing agents. Some physicians prefer morphine, which lasts longer but may have a more hypotensive effect in hemodynamically unstable patients.

Midazolam (Versed)

Midazolam is given for its anxiolytic and sedative effects and it complements fentanyl. It is shorter acting than diazepam (Valium; Hoffmann-La Roche Ltd., Mississauga, Ont.). Combined with fentanyl, midazolam can cause respiratory depression and hypotension, which can be avoided when time permits by infusing the drug over 30 to 60 seconds. It can lower blood pressure in compromised patients or if larger doses are used. The hypotension responds to intravenous fluid boluses. A large dose of 8 to 10 mg causes deep sedation in a healthy patient but is likely to cause cardiorespiratory compromise in an ill patient, 4 to 5 mg causes moderate sedation and 2 to 3 mg promotes light sedation. Some physicians prefer diazepam, whose effect lasts longer.

Succinylcholine (Anectine)

You cannot give too much succinylcholine — its paralytic effect simply persists longer. It is relatively contraindicated in massive muscle damage and massive burns due to potassium release, but this is not a problem until 24 to 48 hours or more after injury. It can increase intraocular pressure causing further eye damage in open eye wounds. It usually causes bradycardia in children, who should be pretreated with atropine. Succinylcholine can be repeated once at the same dose if the first is ineffective. This can be associated with longer paralysis and with

bradycardia. Give atropine before the second dose. Pseudocholinesterase deficiency is rare and will only cause prolonged paralysis. Reactions owing to myotonia congenita and malignant hyperthermia are very rare and highly unlikely to occur during a rural physician's career.

Pancuronium (Pavulon)

The full paralytic dose of 0.1 mg/kg in adults and children lasts an hour. Supplemental doses as required of 2 mg in adults (0.05 mg/kg every 30 to 60 minutes in children) improve relaxation during transport and significantly increase the duration of paralysis. During a long transport expect to have to give supplemental doses about every half hour. Pancuronium can cause mild tachycardia.

Pediatrics

Major differences in children include airway dimensions, smaller doses of drugs, smaller tubes and a tendency to vagal bradycardia.⁶ Use a Broselow tape to determine doses and equipment sizes. When crash-intubating a child without intravenous access, for example as a result of loss of consciousness from deep hypoxia caused by airway obstruction, give atropine 0.02 mg/kg intramuscularly to relieve bradycardia if it occurs. When an intravenous line cannot be started, succinylcholine and midazolam can be given intramuscularly and lidocaine can be given by pharyngeal spray.

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Refinements and alternatives

Our suggested protocol gets the job done safely and effectively in most cases. Individual physicians might prefer a variety of refinements and alternative instruments or medications.^{6,8}

Acknowledgements: The authors are grateful to Grant Innes, MD, FRCPC, St. Paul's Hospital, Vancouver, and Cheri Nissjen-Jordan, MD, FRCPC, Alberta Children's Hospital, Calgary, for their review and comments.

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Country cardiograms case 12:

"I think this patient needs lidocaine. . . ."

Gordon Brock, MD, CCFP

Vydas Gurekas, MD, CCFP

Temiscaming, Que.

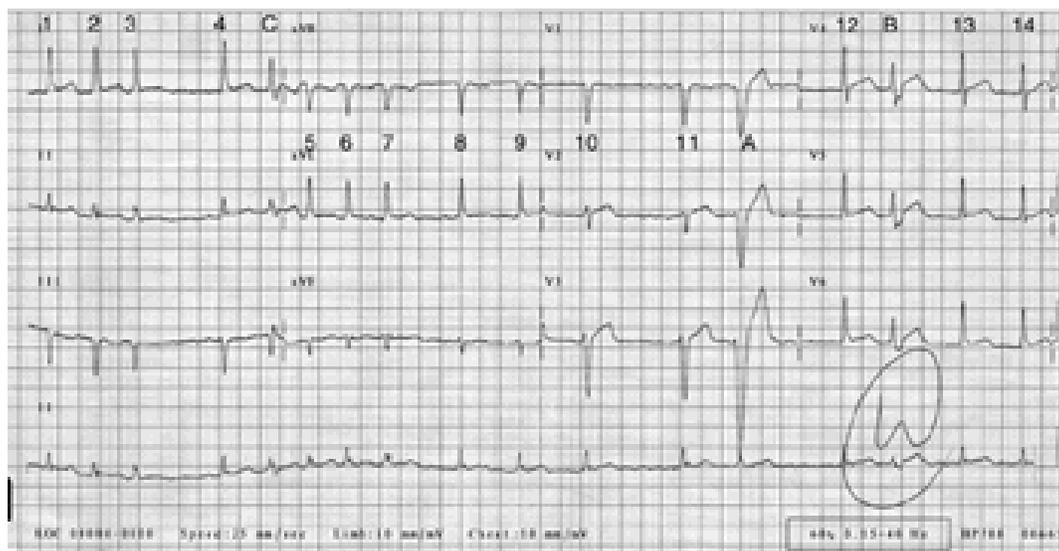
CJRM 1999;4(2):95

Case presentation

This 49-year-old man, from "Elsewhereville" had a history of atrial fibrillation and was taking sotalol, 80 mg bid, and Entrophen, 300 mg every morning. He had had no cardiac symptoms for months. While vacationing in our town he started to have irregular and, it seemed to him, rapid palpitations. He was brought to the hospital, given oxygen and placed on a cardiac monitor.

His wife, who is an ICU nurse, noted intermittent wide beats on the cardiac monitor and thought he should be given lidocaine intravenously. The monitor did indeed show occasional single beats that appeared to be wide. The patient was comfortable and in no distress. The 12-lead electrocardiogram is shown.

What do you think about the wife's demand for lidocaine? See answer on [page 110](#).



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This paper has been peer reviewed.

"Country cardiograms" is a regular feature of the Canadian Journal of Rural Medicine. In each issue we will present an electrocardiogram and discuss the case in a rural context. Please submit cases to Ms Suzanne Kingsmill, Canadian Journal of Rural Medicine, Box 1086, Shawville QC JOX 2Y0.

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Friends and family and the rural doc

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This article has been peer reviewed.

Like most of you, I am a family physician enticed and captured by the special joys of living and working in a rural setting. I remember well the time when I first discovered this. I was walking home in the wee hours, during my first clinical experience, a family practice elective in a small town in northern British Columbia. I had just witnessed one of the special joys of being a physician, that of attending the birth of a very welcome infant. I walked from the hospital to my quarters on the night of the summer equinox, at a time when it would usually be very dark. Instead I saw a blush of peach-coloured light above the spectacular mountains that dominated the scenery. It was neither sunset nor sunrise, but that special northern light that is both. Euphoric as I was from witnessing a life-changing event, it seemed almost a mystical experience to me, one I know I never would have witnessed had my path been that of a 9-to-5 job. I was hooked.

Some years have passed, and I have more knowledge and experience. I now live and work in a very interesting small community just down the road from my first elective. Sometimes, when I am up very late walking to the hospital in the crisp night of fall or winter, I see spectacular northern lights — red and green curtains that dance and flutter in the breeze. And my strength is renewed. Truly there is a silver lining.

An interesting and challenging aspect of my job now is one I would not have anticipated, something that never came up in my rural family practice residency. I speak of giving and receiving medical care to and from family and friends. It is an inescapable part of living and working in a small community, and a potentially stressful one. Yet surprisingly, the issue remains

largely unnoticed.

I was asked by Tina to be her family doctor at the birth of her third child. Although gratified by such a request, I felt that this particular situation needed to be approached with care and consideration. Tina's husband Marlowe was my very respected and admired colleague, (as well as my own doctor). He was also the only doctor in town who performed cesarean sections.

Tina and Marlowe already had 2 children. Joshua was born vaginally and uneventfully at term, after spontaneously turning from the occiput posterior position. Joshua's sister Bryanne was born by cesarean section following failure to progress secondary to a persistent occiput posterior presentation. The section was performed by another GP-surgeon living in the community at the time. Currently, we are down to one GP with those extra skills.

It was a very interesting process, the discussions that led to the development of a birth plan. Tina was eager to have her third child in her own community, and I was very keen to facilitate this. It seemed unjust that this couple should have to travel to access the same services that Marlowe provided for the rest of us with such commitment and dedication. At first we hoped another colleague acquiring the necessary surgical skills would solve the problem, something that had been in the works for a while. When this did not unfold, we looked into having a locum with the needed surgical skills for the summer, but this too fell through.

Next we explored the idea of inducing Tina on a day when a visiting specialist, either a general surgeon or obstetrician, was in the community. Our local specialists were supportive, but due to summer staffing shortages, it could not be arranged. Our nearest neighbour GP-surgeon agreed to get involved if necessary, either at his hospital or at ours. This would have required one party or the other to travel a distance of 75 km.

My guiding principles in our planning sessions were twofold. The first, and obvious, was that our decision could not compromise maternal or fetal well-being. Second, I thought it imperative that Marlowe not be involved in giving medical care at any time. Thus, we had to avoid the possibility of an emergency cesarean section in our local hospital. For this reason, I thought calling in the neighbouring GP-surgeon was not the best option.

Tina then had the innovative idea that perhaps I could obtain privileges at the nearest referral hospital to attend the birth there. I thought that this was a marvellous solution to our problem, and luckily the referral hospital was supportive. We also arranged for a local family physician to be available in case I couldn't be.

Although we were all aware that the literature does not support induction for large babies, Tina was very keen to be induced as her due date neared. Logically, she was hoping that an induction at an early date would enable her to have a smaller baby and thus a vaginal delivery.

At about this time, I began to have some difficulty with my position in all this. I have learned from previous experience that one must remain objective in order to provide competent care. I have found that if I lose my objectivity, I tend to overidentify with the wishes of the patient, and I believe that the patient suffers because of it. Not being objective blinds me to the rational process of evidenced-based decision-making. And in the practice of obstetrics, where we have little in the way of evidence in the first place, objectivity is even more important. I fear that caring for friends obstructs this process. I must admit that when Tina was asking to be induced my resolve to be objective began to waiver, but this experience has reconfirmed for me the error of that path.

Tina's due date came. And went. Tina began to have contractions that came, and came, and came . . . but there was no real labour. Just when she was starting to make jokes about sitting on a knitting needle she went into labour. At the time, Marlowe couldn't get through to me on the phone. However, he called my neighbour, who came over with the message. (The joys of country living!) As we all headed off to our destination, a 90-minute drive, I began to have second thoughts about what we were attempting. Poor Tina, destined to have her baby along the side of Highway 97? I stopped off at the ER and loaded up my car with supplies. Just in case.

As it was we had lots of time to get settled in the referral hospital. Eventually Tina was fully dilated and began to push. Not surprisingly, the baby's presentation was occiput posterior. There was no progress. After an adequate trial of labour with an epidural anesthetic, the obstetrician was called in and we "went to section." At the cesarean section, in which I assisted, we discovered that the persistent occiput posterior presentation was secondary to a maternal contracted pelvis. The delivery of the head was difficult and complicated by a midline tear in the lower uterus. This was repaired without difficulty and mum and baby Mattias had an uncomplicated postoperative course.

In light of all that transpired, Tina, Marlowe and I each felt that our decision to travel had been the right one. Although our hopes for a vaginal birth at our local hospital did not come to pass, the exercise was worthwhile. I feel that looking at options to meet the special needs of the situation empowered Tina, protected Marlowe from having to act in a capacity other than husband and father, and offered an interesting element to my work.

Beyond that I came to realize that rural medicine has implications for me and my family that I had not considered in my career planning — that of the necessity of caring for family and friends (and being cared for by them). I have noticed that many family practice residents and new graduates find that this issue is a significant source of stress. It is, however, an issue that cannot be avoided in rural practice. I feel it must be approached with careful thought and an honest assessment of our ability to remain objective in the situation. It is imperative that we not provide elective medical care when we cannot meet the criteria of objectivity. However, caring for friends can be a challenge that can provide a special sense of satisfaction. I think that as I gain experience in this area, I will be able to maintain my objectivity with people who are closer to me.

As rural physicians who are also rural patients, we would be well served by addressing this issue early and carefully. The ideal would be to introduce it in the training phase of rural family physicians, before the situation arises in practice. Also a little astronomy . . . I would have liked to learn a little more about that to prepare me for those late nights on call under fabulous northern skies.

Editor's note: Please send us your stories on issues relating to rural docs caring for family and friends for a future issue of CJRM.

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SRPC takes the RCC to Cuba

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Fidel Castro may not have thrown the first pitch at the Cuban docs versus Canadian docs baseball game during the Society of Rural Physicians of Canada's Rural Critical Care (RCC) course in Cuba this February, but both the baseball game and the RCC course were highly successful nonetheless. Eight RCC modules were offered to an enthusiastic group of 50 rural docs (accompanied by 70 spouses and other relatives) representing all provinces and territories of Canada (except Prince Edward Island and the Yukon), New Zealand and Cuba. The equipment and vast amounts of medical donations brought into the country bemused the Cuban customs officers as they unpacked rubber skeletons, arms, torsos, rib cages, masses of bottles of pills, needles, chicken legs and sundry other equipment that would have had Canadian customs on the phone to some higher authority. The Cubans patiently went through each box until a highly popular Venezuelan soap opera came on and their relentless search eased up.

By all accounts it was a wildly successful course in a wildly beautiful location at the isolated Sierra Mar resort in the Sierra Maestro Mountains where Fidel Castro and Che Guevarra fought the revolution. Sprawled on a palm-tree-speckled, terraced hillside it cascaded down to the Caribbean. As one participant said, "What other course have you ever gone to in such a beautiful setting and seen this kind of participation in the courses offered?" Indeed, all the workshops were well attended despite the temptations of the beach, the sun, snorkelling, sailing and much more. This is perhaps an indication of rural doc flexibility, since course schedules were changed a number of times to accommodate everyone's desire to also go snorkelling or just laze on the beach drinking Hemingway's drink, the lime laced rum mojita.

It wasn't just the rural docs who were flexible. Sierra Mar Resort, 70 km from Santiago de Cuba, the nearest city, had never mounted such a large conference. Upon our arrival it was discovered that there were not enough conference rooms to run all the courses. In true rural fashion the hotel improvised and gave up the manager's office for the EKG and radiology workshops and the tours and tourism office moved their desks out into the lobby to accommodate "arterial lines" and

"chest tubes." Both Cubans and Canadians took it all in stride. SRPC Past President and RCC Coordinator Keith MacLellan suggested that although the SRPC has no motto it could be "quid propro: whatever works." He also noted that we have perhaps more in common with rural Cuba than we do with urban Canada, the common bond making for much joking and teasing among Cubans and Canadians. Even when the power went out for a few hours there was a note of familiarity: it felt just like being at home.

Mid-week many rural docs hopped on a specially rented bus to visit the 55-bed rural hospital in Chivirico, population 7000, just down the road from the resort. We were all ushered into a room, and the hospital's doctors fielded questions, which were translated with considerable flair and wit by their hospital psychiatrist, Eloy Asanza, and Ivett Perdomo Ayarde, Guest Relations Manager from Sierra Mar. After some discussion about obstetrics ("Don't ask me, I'm a psychiatrist"), he was asked how common vasectomies were. "Very rare." He paused, then did a double take. "They're common in Canada?" he asked in disbelief, looking to Ivett to make sure he had understood. Shaking his head he said, "Machismo is too strong in Cuba." To which Ivett added, "It'll be another 20 years for Cuban men to think your way." Canada's Dale Dewar then quipped, "Just tell them if they don't get cut they don't get in. . . ." Finally someone relented and asked a psychiatric question: "If Hemingway came to your clinic what would you say?" "I'd speak to him about many things," replied Asanza, "but not about his illness. I'd have asked him about the years he spent in Paris."

The hospital in Chivirico where Asanza works functions in the same role as a polyclinic in the city. They treat lacerations and do suturing, but if surgery is needed the patient is sent to the city, 45 minutes to an hour away. They do not give anesthetics or deliver babies (except by accident), but they have a handwritten poster with WHO's "baby friendly hospital" guidelines on the wall. They have trouble getting antibiotics. There is, for this reason, an interest in natural remedies for the treatment of patients. They desperately need an ambulance as there are not enough ambulances in the area to service the population. The most common problems are high blood pressure, infections and trauma. There are always 2 doctors on call in 24-hour shifts and they take call every 5 to 6 days. Each doctor gets two 15-day holidays a year and is paid approximately Can\$15 a month.

Each of Cuba's 14 provinces has a medical school and trains its own doctors. Doctors can stay 2 to 5 years or longer. If they want to transfer they can ask to be moved, but sometimes there is no possibility to do that because there is no replacement. They tend to assign the men to the more remote areas because of the rigours involved with access — rivers needing fording and villages accessible only on horseback.

There are 6400 doctors in Cuba, which has a population of 11.5 million: 1 doctor for every 120 families in urban areas and 1 for every 200 families in rural areas. All of Cuba's doctors are trained in Cuba. Some do go to Canada or other countries for specialties such as cardiovascular surgery. All their medical books are American, despite the embargo.

Other highlights of the week included the Thursday night rural doc's musical show, helicopter trips, walking tours and tracking down our cover artist to get his permission to use his work. And then there was the baseball game at the medical school in Santiago de Cuba. The brainchild of MacLellan it was conceived as a game between Canadian rural doctors and Cuba's doctors, with the odds at 100:1 for the Cubans. Several of our trusty female docs/spouses took to the field as well, much to the undisguised delight of the Cuban women watching and the bemusement of the Cuban men. When the virile Cuban med-student team arrived on the scene in full uniform, that wonderful rural flexibility took hold big time: we improvised on the spot and negotiated a mixed Cuban-Canadian team with no public score keeping! After all, quid prospero. . . .

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Letters / Correspondance

CJRM 1999;4(2):103-4

Please send us your comments and opinions.

Letters to the editor should be addressed to: Canadian Journal of Rural Medicine, Box 1086, Shawville, QC J0X 2Y0; cjrm@fox.nstn.ca; fax 819 647-2845

Return-for-service contracts

It's interesting to note the cyclical nature associated with the return-of-service contracts for rural physician recruitment. Here at Dalhousie University, the medical student society was approached a few years ago by a hospital administrator from Canso, NS, a small community desperate for new doctors. Many students were very excited about the idea of being paid in exchange for promising a few years of service, so we approached the administration to ask their opinion.

We were told, first, that it was not a new idea. In fact, even in the years before there was a medical school in Newfoundland, the Newfoundland government would fund students to study at Dalhousie in exchange for returning to work in underserved areas. This program was eventually cancelled because it was not considered cost-effective by the Newfoundland government — too many students defaulted on their agreements. A few years ago Memorial University of Newfoundland (MUN) considered implementing a program similar to what is being proposed now in government — tuition hikes for all medical students except those who promise to work in underserved areas. (I even heard rumours of a plan in which unsuccessful medical school applicants would be allowed into medical school as long as they agreed to work in underserved areas.) The proposal by MUN was shot down following large student protests against the coercive and generally unworkable logistics of the plan.

A similar idea was floated by Nova Scotia politicians shortly after, in what was generally seen as an attempt to test public reaction. There was some public support for the idea, based on the premise that as long as medical students have their education subsidized by the government they are morally obligated to work in underserved areas. However, other arguments were made

regarding the money the public also pays to educate engineers, business managers, etc. The medical school also objected to the idea of tuition hikes, and eventually the Nova Scotia plan was also shelved.

The arguments I've heard against return-of-service contracts are the following:

1. These contracts generally aren't cost-effective, since so many people default on the agreement. If financial penalties are enacted sufficient to deter default, then most students generally avoid signing the contracts in the first place. This is why so many medical schools have experimented with these contracts in the past and ended up rejecting them. The only solution is to make tuition so high that medical students are essentially forced to sign, but high tuition costs raise a variety of other issues (e.g., only the "well-off" being able to go to medical school).
2. These arguments carry with them the implication that receiving a medical education (as opposed to another kind of higher education) is an act of selfishness on the part of the student, and that a debt to society must therefore be paid in return — an idea that offends some students and physicians.
3. Students are arguably not able to provide "informed consent" when they sign these contracts during medical school. The idea of quick money is appealing, but it is unfair to make a commitment to live in a specific community for 5 years after residency training when the medical student in question will, in the interim, possibly get married to someone who has his or her own geographic requirements (job-related, etc.).
4. These contracts generally require the signee to pursue training in family medicine. Thus, if medical students are asked to sign such contracts they may be committing to a certain medical specialty before they've had the opportunity to explore others that may interest them more.
5. Often, the students who go to work in rural communities are simply counting time until they can leave, and this lack of long-term commitment is obvious to both the local physicians and the community itself.

I find the above arguments fairly convincing and although I am not against return-of-service contracts, I think they should only be offered to people in their residency training, when they are free to make a more informed decision. In any case, I wonder how good these contracts are in the long term. Maybe the money would be better spent in the following ways:

- encouraging students from rural communities to apply to medical school
- implementing more rural medical education into the curriculum at both the medical school and the residency level
- improving the working conditions of physicians who are already working in rural communities (e.g., a better locum tenens program, a replacement for the fee-for-service program, more nursing support, etc.).

Jacob Pendergast
4th year medical student
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Halifax NS

Rural Experience Access Program

I have been receiving your publication now for some time. It is an excellent little journal. Very interesting and full of excellent articles. In fact it is far more interesting for the average doc to read than, for example, the Canadian Family Physician. The letter from the medical student (Can J [Rural Med 1999;4\[1\]:40 \[letter\]](#)) about starting a registry listing rural areas Canada wide where rural students could go was of particular interest to me. We have a small town practice in rural Saskatchewan and often have medical students out for periods of training. The students really enjoy the non-threatening rural type of practice, but most importantly they get to perform procedures and get practical training that they often can't get in the larger hospitals. Often medical students are not fully aware of the opportunity they may be missing by not experiencing real rural practice. So the idea of a registry for rural training posts is a most timely one.

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Reviews / Recensions

CJRM 1999;4(2):105-6

Please send us your comments and opinions.

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Clinical Scenarios in Intensive Care. 1st edition, 106 pp. Oxford University Press, Don Mills, Ont. 1998. Can\$40.50. ISBN 1-900-151650

This book would not, unfortunately, meet the needs of a busy rural GP who is involved in the intensive care or the management of acutely ill patients — unless s/he is a masochist.

The authors present 21 different cases that might present to an intensive care unit. The cases are well presented and are followed by several questions. No answers are provided and this scenario continues throughout: more questions, no answers. However, there are some very current references.

Specific criticisms of the book by a physician practising critical care in a rural hospital should be mentioned. There are frequent references in the text to consultations with various specialists on site. This is not a reality in rural Canada. There are references to CT scans in some of the cases in which the CT scans direct the logical evolution of the case. This is irrelevant in rural areas where CT is generally nonexistent. In the evolution of a patient's illness there is discussion of the information supplied by the Swan-Ganz catheter. Again this would tend to exclude the majority of rural hospitals.

I believe that this book may be a useful teaching tool for some physicians in rural practice but it does not meet the needs of physicians who require rapid access to useful information in order to help a critically ill patient. In their defence the authors, in their introduction, state that this book offers only a framework for intensive care. Nonetheless, the book poses too many questions and not enough answers. I would not recommend it to rural physicians as a reference text for critical

care cases.

Thomas C. O'Neill, MD, CCFP
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Gadget review

Inmarsat's WorldPhone

You're on call for obstetrics and you have a "first timer" overdue by 6 days. But it's Saturday and you have a golf game and she's in early labour. Your cell phone, if you have one, doesn't work very well in your rural area, and the pager sets up the possibility of being on the 9th hole and farthest away from a phone if and when a page comes through. You finally phone and cancel your golf game.

New technology may now allow you to play golf and stay in voice contact with the hospital no matter how remote the golf course is. We checked out Inmarsat's WorldPhone, which allows users to telephone worldwide from just about anywhere in the world. The phone is not dependent on line-of-sight towers (practically nonexistent in most of rural Canada it seems) but on satellites. Inmarsat claims its phone covers 95% of the world, a far sight more than any cell phone, as many a rural resident has learned.

Inmarsat first got into the business as a provider of marine telecommunications, but this phone would be useful for anyone working in remote or rural areas. In fact, Inmarsat bills the phone as a unit that will provide service "in areas where other telecommunications facilities are poor, unreliable or nonexistent."

I drove out to Charteris, Que., and tested the WorldPhone in the bush where no cell phone has ever worked for me. The unit is the size of a lap-top computer, weighs 2.7 kg and is contained in a hard, rain-resistant plastic case. It comes with a carrying case and a universal AC adapter. The unit includes a flat antenna and an RF transceiver, which are housed in the lid of the case. The actual telephone and battery pack can be taken out of the case but remain attached to the antenna by a 9-m coaxial cable (or longer if needed). There is a screw socket in the lid so that the unit can be mounted onto a tripod or suctioned to a window.

I opened the unit so that the lid with the antenna was at about a 45° angle and turned the phone on. It prompted me to input the PIN that was allocated to me. I did and pressed OK, and the unit told me it was searching for a satellite. It found one but the strength of the satellite connection in the shaded signal bar on the LCD display showed it was not strong enough for good reception. I turned the antenna in a slow arc as it searched for a better satellite. It found one that it liked and logged onto the satellite and the base station. I was then prompted to make a call. For the first time from deep in the woods of west Quebec I was actually able to have a clear conversation with

someone in Shawville, 5 km away, without the connection being cut or extraneous noise making conversation impossible, as has always happened with a cell phone here.

One drawback with the phone is that there is sometimes a delay similar to that of radio telephones, where transmission is not instantaneous. According to Andrew Ivey, Inmarsat's marketing manager, this may be due to how the call is routed by the network provider once the signal is received from the satellite. If the call is routed through a terrestrial network it can compound the delays so that they become noticeable. "Some delay under these circumstances," he says, "can and should be anticipated."

The phone itself is not cheap. It starts at US\$3000 and up, depending on the bells and whistles. Some of those bells and whistles include being able to connect to the Internet and send and receive email by hooking the unit up to your computer, but not if you are a MacIntosh user — it's not compatible with Macs, so I was unable to check out their claims in this area. Charges for phone calls start at US\$2.75, and all outgoing calls require you to dial 00 then the country code, area code and number. The phone works with an SIM (subscriber information module) card, which contains subscription information from either your Net service provider or your Inmarsat service provider.

The WorldPhone lives up to its billing: "out of reach, still in touch." It would be a good investment for a hospital or a group practice where overworked surgeons, GP anesthetists and GPs taking call away from the hospital can actually do something such as play golf without worrying about whether the cell phone will fizzle or the pager will beep on the 9th hole. Of course, an even better solution for rural doctors would be to make their call schedules "doctor friendly."

NERA WorldPhone is available from: Stratos Mobile Network in Toronto, Ottawa and St. John's or from the distributor: Network Innovations in Toronto with head office in Calgary. Web site: www.nera.satcom.no

Suzanne Kingsmill, BA, MSc
Shawville, Que.

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Literature / Littérature scientifique

CJRM 1999;4(2):108-9

Effect of real-time teleradiology on the practice of the emergency department physician in a rural setting: initial experience. Lee JK, Renner JB, Saunders BF, Stamford PP, Bickford TR, Johnston RE, et al. Acad Radiol 1998;5(8):533-8.

How about this tongue twister? Peter Piper picked a peck of pilot projects, how many pecks of pilot projects did Peter Piper pick before he got off his duff and did something?!

The rural literature is slowly (emphasis on slowly) developing a case for teleradiology. One might argue that the case has been proven, that the judge has gone home and that the defence is droning on in an empty courtroom. Unfortunately, in spite of accumulating evidence, interest and evolving technology, implementation of this idea remains patchy and half-hearted, both in Canada and in the United States (see also the paper by Campbell and Martel in this issue [page 77](#)).

In this article the authors document that a teleradiology link between a rural site and a university site was both used and useful. On a scale of 1 to 7, the participating physicians rated their satisfaction level at 5.4 and their comfort level (confidence in the result) at 5.6. Formal comparison of the teleinterpretation revealed no major discrepancies between the teleinterpretation and a later interpretation of the original hard copy. Of significant importance was the finding that "the teleradiology consultations led to changes in the emergency department physician's initial diagnosis in 27 of 90 cases." In addition the study documented a mean turnaround time for the consultation of 1.3 hours.

It's time people!

Rural childhood immunization. Rates and demographic characteristics. Lowery NE, Belansky ES, Siegel CD, Goodspeed JR, Harman CP, Steiner JF. J Fam Pract 1998;47(3):221-5.

It is commonly claimed that access to health services is poor in rural areas and that geographic

barriers result in reduced access to, and participation in, programs of proven efficacy. Childhood immunization is an example of such a program. In this study the authors document that although childhood immunization rates are suboptimal in American rural areas, they are in fact no worse than rates in urban areas. They analysed 2 nationally representative surveys, the 1991 National Maternal and Infant Health Survey (NMIHS) and the 1993 National Health Interview Survey (NHIS). They found that "there were no significant differences in immunization rates between rural and urban children. In urban areas, immunization rates were 63.3% (NMIHS) and 65.5% (NHIS) compared with 63.0% (NMIHS) and 67.8% (NHIS) in rural areas." In both areas the factors associated with underimmunization were poverty, unemployment and low family education, among others. These findings, although of concern, leave room for optimism. Rural communities have every right to expect that preventive measures of this kind will not be denied their children by virtue of where they live.

Rural trauma care: role of the general surgeon. Bintz M, Cogbill TH, Bacon J. *J Trauma* 1996;41(3):462-4.

General surgeons in rural areas face significant practice challenges, not the least of which are those times when patients having major trauma present to their hospital. Although the frequency may be low, the acuity may be high — at least as high as in urban areas.

The authors of this study present the 7-year experience with trauma of a solo general surgeon at his rural Wisconsin hospital. Among the 43 308 patients who presented to the emergency department during this period, 84 patients with Injury Severity Scores ranging from 8 to 43 were selected for study. Of these, 4 died in the emergency department, 54 (64%) were transferred to a trauma centre and 26 (31%) were admitted to the local hospital. In reflecting on this experience the authors identified 4 central roles for the rural general surgeon in this setting: "(1) to coordinate trauma care in the community, including educational and organizational efforts; (2) to perform the necessary techniques in the ED to achieve optimal resuscitation and stabilization; (3) to rationally prioritize patients for transfer to a referral trauma centre based upon assessment of patient injuries and institutional capabilities; and (4) to provide definitive care for a subset of patients with no need for subspecialty intervention."

Needs assessment of rural and remote women travelling to the city for breast cancer treatment. Davis C, Girgis A, Williams P, Beeney L. *Aust N Z J Public Health* 1998; 22(5):525-7.

The authors studied the needs of 80 women from rural New South Wales and South Australia who had to travel to the city for breast cancer treatment. They documented that in 90% of cases the reason for travel was the unavailability of treatment closer to home. On average they spent 6.79 weeks away from home, 61% received no financial assistance and of those who did, 19% experienced difficulty in collecting it. Eighty-nine percent identified specific social and practical

needs.

Rural women in other countries likely experience similar challenges and policy makers in Canadian jurisdictions might profitably study this area.

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Cryptic crossword # 12

Lee Teperman

Charteris, Que

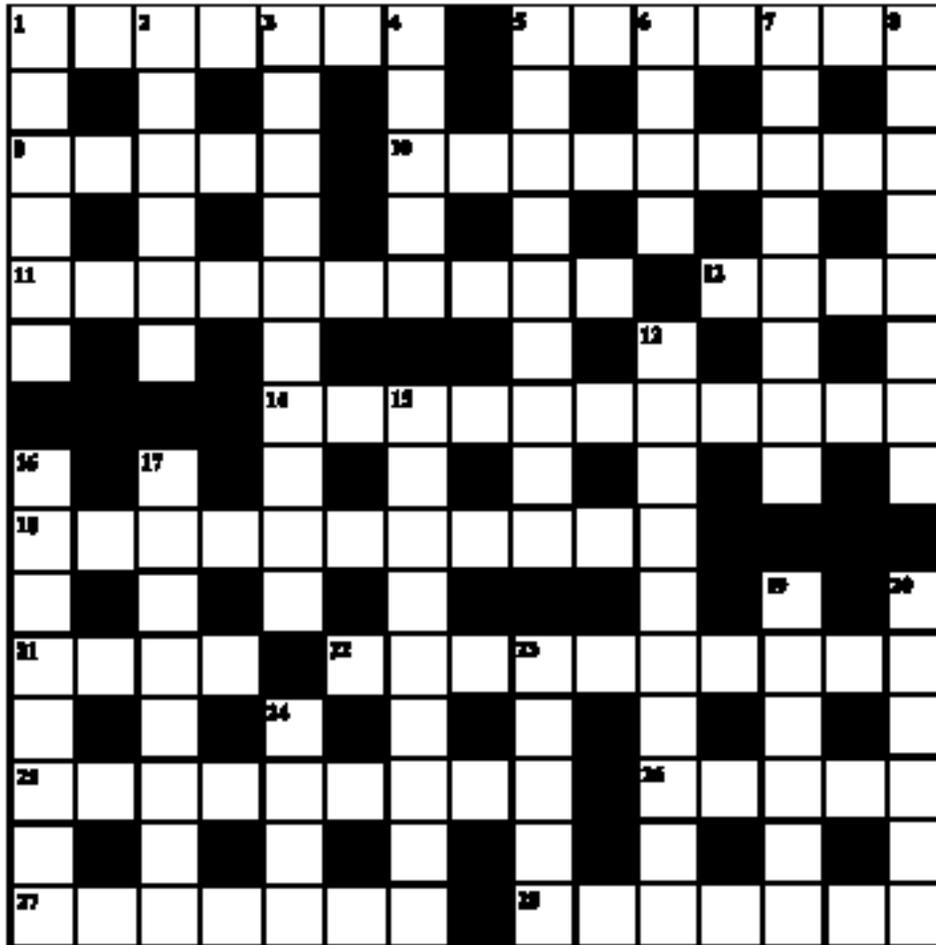
CJRM 1999;4(2):128

Presented in part by an unrestricted educational grant from:



For instructions on how to tackle a cryptic crossword, please see the first issue of CJRM (1996;1:34-5) or correspond with Lee Teperman, RR 5, Shawville QC J0X 2Y0; 819 647-3971 (tel and fax); bullhits@infonet.ca

Readers can find the answers to cryptic crossword # 12 in the next issue of the journal.



Across

- 1. Article on pronounced tumours helps (7)
- 5. Appropriately trimmed halfway through (3-4)
- 9. Three-man clinical study (5)
- 10. Strangely sensual, he lets go (9)
- 11. Clubs one joined in loneliness and concern (10)
- 12. Cultural medium and general anesthesia requiring starters (4)
- 14. Form of angina found in small birds and larks (11)
- 18. Thing scared off by organizing! (7,4)
- 21. Use chemical irritant course to apply for M1 (4)

Down

- 1. A condition, I must have a condition! (6)
- 2. Abilities possessed by short stops (6)
- 3. Colic is set off by mistaken application (10)
- 4. Nothing short of . . . (5)
- 5. . . . excessive emotion I look forward to with doctor and provincial association (9)
- 6. Tie up 24 (4)
- 7. Result of sounding like European farm animals (8)
- 8. Heart attack and associated test for woman in charge (8)
- 13. Peer's civil yet somehow insincere words (3,7)

- | | |
|--|--|
| 22.Sad zebra, it would appear, to corrupt (10) | 15.English sort of lunatic making lasting impression (9) |
| 25.Peeled fruit — the country's downfall (9) | 16.Melted ice harms these monsters (8) |
| 26.Troy, it's said, is in one's guts (5) | 17.The perfect job? (8) |
| 27.Something used to pull legs, odd as can be (4,3) | 19.Second way to finish a cake, on second thought, use muscles (6) |
| 28.Cross-purpose of high crime (7) | 20.Embryo and a new type of measles (6) |
| 27.Change back to first draft as if carried by the current (5) | 23.Principle of reciprocity (5) |
| 28.To an outrageous degree TNT is a cleanser (9) | 24.Battle over key to hospital room (4) |

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Decline of obstetrical services in northern Ontario

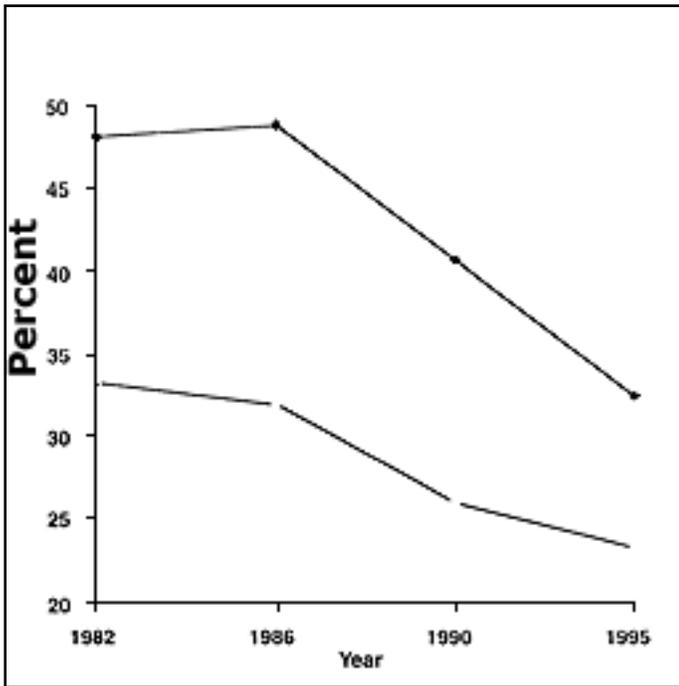


Fig. 1. Percentage of general practitioners/family practitioners providing maternity care in Canada. (Source: CMA masterfile, 1995.) Solid line = rural physicians, broken line = urban physicians.

[Return to text](#)



Decline of obstetrical services in northern Ontario

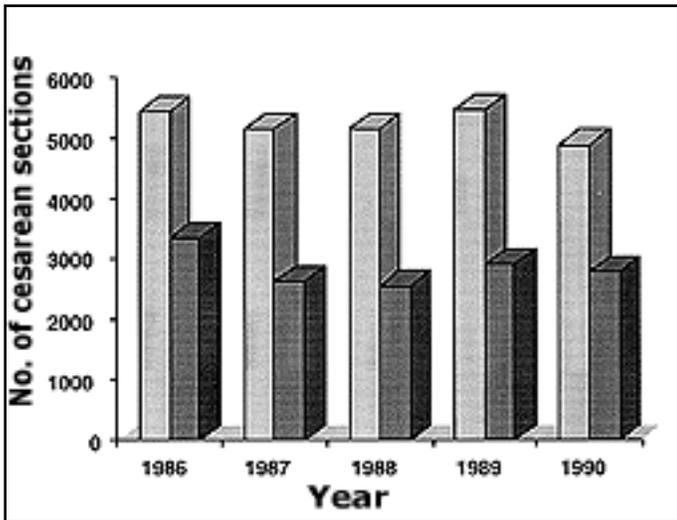


Fig. 2. Non-obstetricians / gynecologists, by specialty, performing cesarean sections. (Source: Health Canada, Medical Care Database, 1995.) Light bars = general practice, dark bars = general surgery.

[\[Return to text\]](#)



Decline of obstetrical services in northern Ontario

Table 1. General characteristics of the 5 levels of community hospital

Characteristic	Level of community hospital				
	0	1a	1b	1c	2+
No. of communities in group	15	6	5	7	6
No. of beds					
Average	35	45	102	73	504
Range	0-66	18-60	31-109	44-98	74-621
No. of births/yr					
Average	0.9	48	263	129	1215
Range	0-1329	118-60	60-393	78-176	300-2100
No. of GPs on staff					
Average	3.9	4.5	14	9	54.8
Range	2-10	3-7	5-20	4-16	8-109
No. of GP accoucheurs (as % of total GPs)					
Average	0	3 (66)	10.2 (73)	5 (56)	6.5 (12)
Range		2-5	5-17	3-11	2-11
No. of GP cesareanists					
Average			1.8	0.1	0
Range			1-3	0-1	
No. of general-surgeon cesareanists					
Average			1.2	1	0.2
Range			2	1	0-1
No. of obstetrician-gynecologists					
Average			0	0	4.7
Range					1-9

[\[Return to text\]](#)

A program management model for the Nova Scotia telemedicine network

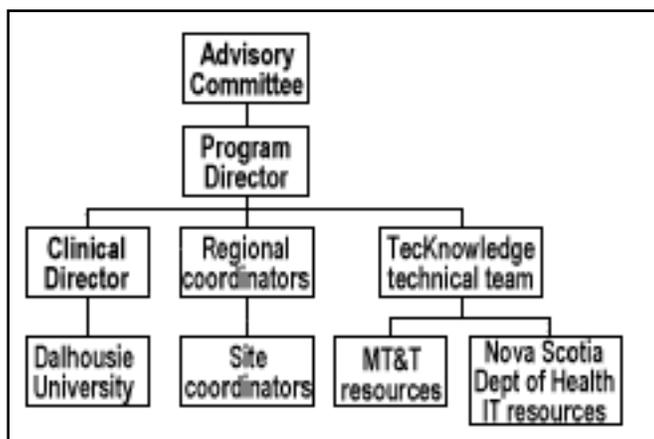


Fig. 1. Program management model for the Nova Scotia Telemedicine Network.

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A program management model for the Nova Scotia telemedicine network

Table 1. Transaction report

	Radiology	CME	Dermatology	Psychiatry	Emergency
August 1998	1 450	52	30	—	—
December 1998*	5 500	88	110	25	30
1999*	12 000	175	250	60	125

*Projected transactions

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Emergency intubation for the non-anesthetist rural physician



Fig. 1. Rural hospital resuscitation room equipment and wall posters. Note the airway roll and BVM on a plastic hook.

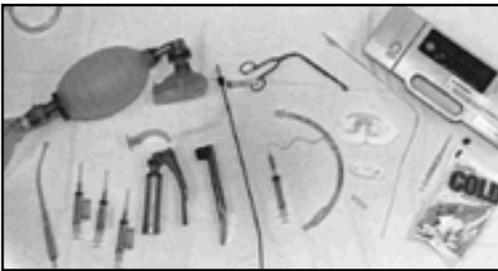


Fig. 2. Intubation equipment showing nasogastric tube, BVM, Yankhauer suction, drug syringes, oropharyngeal airway, laryngoscope and blades, stylette for endotracheal (ET) tube, Magill forceps, ET tube with cuff syringe, device to stabilize the ET tube, ET tube suction catheter and blood gas machine.

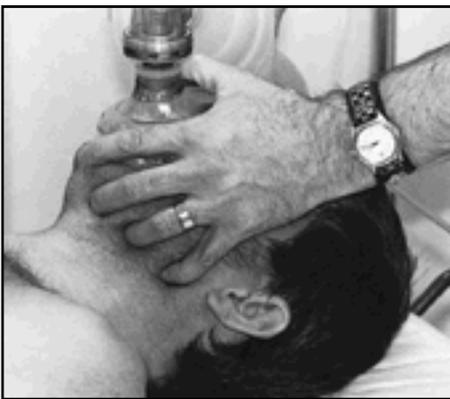


Fig. 3. BVM use prior to intubation.

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Emergency intubation for the non-anesthetist rural physician

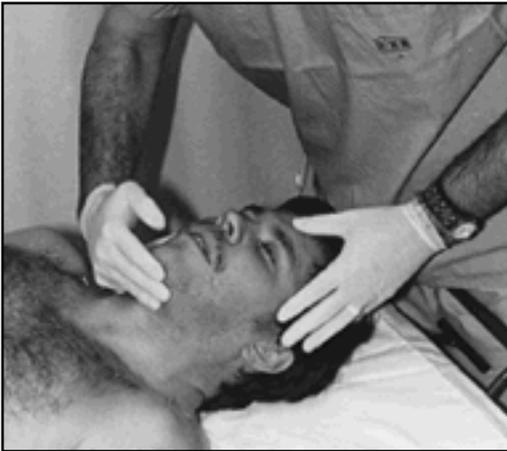


Fig. 4. Assessing the airway.



Fig. 5. A physician is ventilating, an emergency medical technician is providing the Sellick manoeuvre (cricoid pressure) and a nurse is injecting medication.



Fig. 6. The Sellick manoeuvre helps to prevent aspiration of gastric contents.

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Emergency intubation for the non-anesthetist rural physician

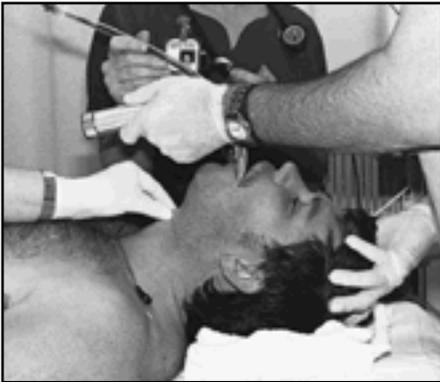


Fig. 7. Head position when cervical spine trauma is not suspected. Neck is slightly flexed at C7 and extended at C1. This position lifts the tongue and aligns the airway axes to permit direct visualization of the tracheal entrance. A nurse is holding the ET tube for the physician.



Fig. 8. A nurse is stabilizing the cervical spine in trauma during intubation with the spine in neutral position while another nurse passes the ET tube to the physician, who is watching the laryngoscope and airway.



Fig. 9. A physician checks the tube insertion depth at the teeth or gums and bags the patient while a nurse inflates the cuff and performs the Sellick manoeuvre until the cuff is inflated.

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Emergency intubation for the non-anesthetist rural physician



Fig. 10. Auscultating the chest to check tube placement.



Fig. 11. Securing the tube.

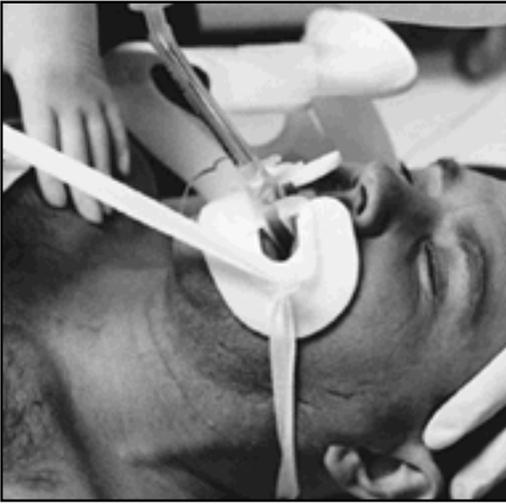


Fig. 12. Performing oropharyngeal suction through the securing device.

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Emergency intubation for the non-anesthetist rural physician



Fig. 13. The nasogastric tube is inserted and secured.

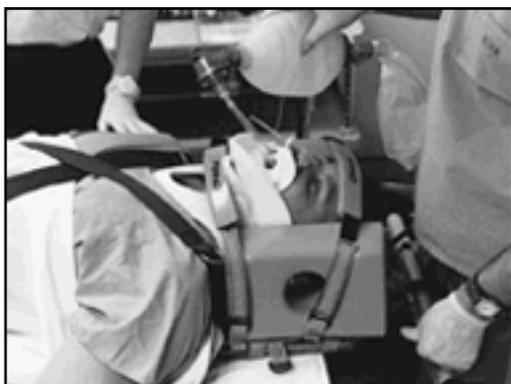


Fig. 14. The trauma patient is ready for transport.

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Emergency intubation for the non-anesthetist rural physician

Table 1. Initial ventilation rates

Age, yr	Breaths/min
Newborn	30–40
1	20
4	16
10	14

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Country cardiograms case 12: Aberrant conduction

CJRM 1999;4(2):110

The electrocardiogram shows atrial fibrillation with a rate of about 110 beats/min. Three beats clearly are wider, most markedly beat A, also beat B and to a lesser extent beat C. The differential here is between PVCs and aberrantly conducted beats.

The key to understanding this electrocardiogram is to realize that, as the heart rate speeds up, the refractory period of the heart muscle decreases. (If this were not the case, the heart wouldn't be able to speed up, if you think about it.) The "heart rate" for this purpose is set beat-to-beat. The refractory period following any given beat is determined by how long before it the previous beat occurred. If this interval (the R-R interval) is relatively short, the refractory period following that beat will be relatively short, and vice versa.

Examine the electrocardiogram. Note that the most abnormal beats, A, B and C all follow a beat (beats 4, 11 and 12) that occurs at a long R-R interval from the previous beat (beats 3, 10 and A). According to the rule above, the refractory periods after beats 4, 11 and 12 will be relatively long and will cause impaired conduction, which will account for the widened appearances of beats C, A and B respectively.

This is called the Ashman phenomenon, after the cardiologist who described it. The fact that the most abnormal beats in this electrocardiogram all follow beats with long R-R intervals makes it very likely that these are aberrantly conducted Ashman beats and not PVCs. The Ashman phenomenon is especially common in atrial fibrillation where R-R intervals change with every beat. The fact that the widened beats A, B and C have the same initial deflections as the surrounding beats also supports the fact that they arise from the same source.

Accordingly, there is no indication that these abnormal beats require treatment. It is true that one can never be 100% sure if a wide beat represents aberrant conduction or a PVC; one can only state a probability. The patient's history, lack of distress, his atrial fibrillation and the long R-R intervals make it sufficiently likely that these are aberrant beats.

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1. Phipps BP. Advanced EKG: boards and beyond. Boston: Little, Brown; 1997.
2. Braunwald E. Heart disease. Philadelphia: WB Sanders; 1980. chapter 19.

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Letters / Correspondance

CJRM 1999;4(1):40

Please send us your comments and opinions.

Letters to the editor should be addressed to: Canadian Journal of Rural Medicine, Box 1086, Shawville, QC J0X 2Y0; cjrm@fox.nstn.ca; fax 819 647-2845

Rural Experience Access Program (REAP)

See also:

- Letter: [Rural Experience Access Program](#)
-

The SRPC has recently embarked on a new and innovative project known by the catchy acronym of REAP, the Rural Experience Access Program. The Program is designed to increase access by medical students and residents to rural clinical experiences. REAP is developing a registry of rural physicians and communities interested in hosting students. We see this as perhaps the most positive way to increase exposure to rural practice for medical students and to increase recruitment of young doctors to rural areas.

I have been fortunate enough to have had fantastic rural experiences, after my first and second years in medical school, through the North-Eastern Ontario Electives Program (NEP) and the Queen's Moose Factory Program. Since then I have been asked many times by other students how they can tap into similar opportunities. Unfortunately the programs presently available, as in all areas of medical education, have very limited funds and resources. Students must often apply up to a year in advance for a limited number of positions. It is our hope that through REAP all medical students will have access to quality rural experiences that will benefit both the student and the community. From my experiences, rural electives are the best way to raise the profile of rural practice and the advantages and opportunities it offers.

At present, the committee has 2 ground-breaking projects on the go:

1. We are in the process of surveying all Canadian medical schools to find out what resources and assistance are available to students and residents for setting up electives through their own and other medical schools. The resulting database will be compiled onto our new Web site (at www.srpc.ca) by January 1999.
2. We are also developing a comprehensive information package that will be available to rural communities across Canada interested in hosting medical students. This package will present a framework for developing a program/ experience that will benefit both the student and the community. In it we shall also address issues such as accommodation, funding and standards for preceptorship.

A major long-term goal is to have an up-to-date Online registry of programs, communities and preceptors willing to host medical students and residents. Not only would this increase opportunities for learners but it would also allow a whole new group of rural docs to pass on their knowledge and love of rural medicine.

So let your colleagues know that we're coming, and in January 1999 visit our Web site and "REAP" the benefits!

Amanda Hanson
Medical Student
University of Alberta
ahanson@gpu.srv.ualberta.ca
SRPC Rural Experience Access Program

The occasional skin graft

I am enjoying the Journal, including the back issues available on the CMA Web site [www.cma.ca/cjrm].

Just a couple of tips about "[The occasional skin graft](#)" (CJRM 1996;1(2):83-5).

I suggest that patients be given a choice as to whether or not they want a graft when the avulsed piece of skin is not available. Some controversy still exists about whether the ultimate result is better when healing by secondary intention is permitted. The trade-off is much quicker healing time with a graft.

The best donor site for fingertip skin grafts (volar pulp) is the volar aspect of the hand (palmar

skin). "Like" skin is best (volar forearm skin is not the same as palmar skin). My favourite spot to use is the mid- to distal hypothenar eminence where the dermis is reasonably thick.

I hope these suggestions are helpful.

Karen E. Joughin, MD, FRCSC
Division of Plastic Surgery Department of Surgery
University of Calgary
Rockyview General Hospital
Calgary, Alta.

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Letters / Correspondance

CJRM 1999;4(2):103-4

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Return-for-service contracts

It's interesting to note the cyclical nature associated with the return-of-service contracts for rural physician recruitment. Here at Dalhousie University, the medical student society was approached a few years ago by a hospital administrator from Canso, NS, a small community desperate for new doctors. Many students were very excited about the idea of being paid in exchange for promising a few years of service, so we approached the administration to ask their opinion.

We were told, first, that it was not a new idea. In fact, even in the years before there was a medical school in Newfoundland, the Newfoundland government would fund students to study at Dalhousie in exchange for returning to work in underserved areas. This program was eventually cancelled because it was not considered cost-effective by the Newfoundland government — too many students defaulted on their agreements. A few years ago Memorial University of Newfoundland (MUN) considered implementing a program similar to what is being proposed now in government — tuition hikes for all medical students except those who promise to work in underserved areas. (I even heard rumours of a plan in which unsuccessful medical school applicants would be allowed into medical school as long as they agreed to work in underserved areas.) The proposal by MUN was shot down following large student protests against the coercive and generally unworkable logistics of the plan.

A similar idea was floated by Nova Scotia politicians shortly after, in what was generally seen as an attempt to test public reaction. There was some public support for the idea, based on the premise that as long as medical students have their education subsidized by the government they are morally obligated to work in underserved areas. However, other arguments were made

regarding the money the public also pays to educate engineers, business managers, etc. The medical school also objected to the idea of tuition hikes, and eventually the Nova Scotia plan was also shelved.

The arguments I've heard against return-of-service contracts are the following:

1. These contracts generally aren't cost-effective, since so many people default on the agreement. If financial penalties are enacted sufficient to deter default, then most students generally avoid signing the contracts in the first place. This is why so many medical schools have experimented with these contracts in the past and ended up rejecting them. The only solution is to make tuition so high that medical students are essentially forced to sign, but high tuition costs raise a variety of other issues (e.g., only the "well-off" being able to go to medical school).
2. These arguments carry with them the implication that receiving a medical education (as opposed to another kind of higher education) is an act of selfishness on the part of the student, and that a debt to society must therefore be paid in return — an idea that offends some students and physicians.
3. Students are arguably not able to provide "informed consent" when they sign these contracts during medical school. The idea of quick money is appealing, but it is unfair to make a commitment to live in a specific community for 5 years after residency training when the medical student in question will, in the interim, possibly get married to someone who has his or her own geographic requirements (job-related, etc.).
4. These contracts generally require the signee to pursue training in family medicine. Thus, if medical students are asked to sign such contracts they may be committing to a certain medical specialty before they've had the opportunity to explore others that may interest them more.
5. Often, the students who go to work in rural communities are simply counting time until they can leave, and this lack of long-term commitment is obvious to both the local physicians and the community itself.

I find the above arguments fairly convincing and although I am not against return-of-service contracts, I think they should only be offered to people in their residency training, when they are free to make a more informed decision. In any case, I wonder how good these contracts are in the long term. Maybe the money would be better spent in the following ways:

- encouraging students from rural communities to apply to medical school
- implementing more rural medical education into the curriculum at both the medical school and the residency level
- improving the working conditions of physicians who are already working in rural communities (e.g., a better locum tenens program, a replacement for the fee-for-service program, more nursing support, etc.).

Jacob Pendergast
4th year medical student
Dalhousie University
Halifax NS

Rural Experience Access Program

I have been receiving your publication now for some time. It is an excellent little journal. Very interesting and full of excellent articles. In fact it is far more interesting for the average doc to read than, for example, the Canadian Family Physician. The letter from the medical student (Can J Rural Med 1999;4[1]:40 [[letter](#)]) about starting a registry listing rural areas Canada wide where rural students could go was of particular interest to me. We have a small town practice in rural Saskatchewan and often have medical students out for periods of training. The students really enjoy the non-threatening rural type of practice, but most importantly they get to perform procedures and get practical training that they often can't get in the larger hospitals. Often medical students are not fully aware of the opportunity they may be missing by not experiencing real rural practice. So the idea of a registry for rural training posts is a most timely one.

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Literature / Littérature scientifique

CJRM 1999;4(2):108-9

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In this article the authors document that a teleradiology link between a rural site and a university site was both used and useful. On a scale of 1 to 7, the participating physicians rated their satisfaction level at 5.4 and their comfort level (confidence in the result) at 5.6. Formal comparison of the teleinterpretation revealed no major discrepancies between the teleinterpretation and a later interpretation of the original hard copy. Of significant importance was the finding that "the teleradiology consultations led to changes in the emergency department physician's initial diagnosis in 27 of 90 cases." In addition the study documented a mean turnaround time for the consultation of 1.3 hours.

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Rural childhood immunization. Rates and demographic characteristics. Lowery NE, Belansky ES, Siegel CD, Goodspeed JR, Harman CP, Steiner JF. J Fam Pract 1998;47(3):221-5.

It is commonly claimed that access to health services is poor in rural areas and that geographic

barriers result in reduced access to, and participation in, programs of proven efficacy. Childhood immunization is an example of such a program. In this study the authors document that although childhood immunization rates are suboptimal in American rural areas, they are in fact no worse than rates in urban areas. They analysed 2 nationally representative surveys, the 1991 National Maternal and Infant Health Survey (NMIHS) and the 1993 National Health Interview Survey (NHIS). They found that "there were no significant differences in immunization rates between rural and urban children. In urban areas, immunization rates were 63.3% (NMIHS) and 65.5% (NHIS) compared with 63.0% (NMIHS) and 67.8% (NHIS) in rural areas." In both areas the factors associated with underimmunization were poverty, unemployment and low family education, among others. These findings, although of concern, leave room for optimism. Rural communities have every right to expect that preventive measures of this kind will not be denied their children by virtue of where they live.

Rural trauma care: role of the general surgeon. Bintz M, Cogbill TH, Bacon J. *J Trauma* 1996;41(3):462-4.

General surgeons in rural areas face significant practice challenges, not the least of which are those times when patients having major trauma present to their hospital. Although the frequency may be low, the acuity may be high — at least as high as in urban areas.

The authors of this study present the 7-year experience with trauma of a solo general surgeon at his rural Wisconsin hospital. Among the 43 308 patients who presented to the emergency department during this period, 84 patients with Injury Severity Scores ranging from 8 to 43 were selected for study. Of these, 4 died in the emergency department, 54 (64%) were transferred to a trauma centre and 26 (31%) were admitted to the local hospital. In reflecting on this experience the authors identified 4 central roles for the rural general surgeon in this setting: "(1) to coordinate trauma care in the community, including educational and organizational efforts; (2) to perform the necessary techniques in the ED to achieve optimal resuscitation and stabilization; (3) to rationally prioritize patients for transfer to a referral trauma centre based upon assessment of patient injuries and institutional capabilities; and (4) to provide definitive care for a subset of patients with no need for subspecialty intervention."

Needs assessment of rural and remote women travelling to the city for breast cancer treatment. Davis C, Girgis A, Williams P, Beeney L. *Aust N Z J Public Health* 1998; 22(5):525-7.

The authors studied the needs of 80 women from rural New South Wales and South Australia who had to travel to the city for breast cancer treatment. They documented that in 90% of cases the reason for travel was the unavailability of treatment closer to home. On average they spent 6.79 weeks away from home, 61% received no financial assistance and of those who did, 19% experienced difficulty in collecting it. Eighty-nine percent identified specific social and practical

needs.

Rural women in other countries likely experience similar challenges and policy makers in Canadian jurisdictions might profitably study this area.

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