

Spring 1997 / Printemps 1997

Can J Rural Med 1997; 2(2)

Peinture de la couverture : « Premiers jours du printemps »

Gilles Robitaille
Acrylique sur toile
20" by 24"

Gilles Robitaille 1119 Ferland
Saint-Félicien QC G8K 1H8

© Gilles Robitaille



Features • Articles

Editorials • Éditoriaux

- [Rural hospitals: We can't do without them!](#) -- John Wootton, MD
- [Les hôpitaux ruraux : Nous ne pouvons nous en passer!](#) -- John Wootton, MD
- [President's message: This is a hold-up](#) -- Keith MacLellan, MD
- [Message du président : C'est un braquage](#) -- Keith MacLellan, MD

Original Articles • Articles originaux

- [Introduction of laparoscopic removal of ectopic pregnancy at a rural surgical centre](#) Gary Soenen, MD, FRCSC
- [Are health care facilities in rural Newfoundland and Labrador prepared to handle cardiovascular emergencies?](#) Shaun Marshall, BMedSci, MD

Regional Review • Actualités régionales

- [Focus on Newfoundland and Labrador](#) Conleth O'Maonaigh, MB BCh, MPH, MICGP

The Practitioner • Le praticien

- [Country cardiograms case 4](#) -- Jim Thompson, MD
- [Country cardiograms case 4: Acute posterior myocardial infarction](#) -- Jim Thompson, MD
- [The occasional arterial line](#) -- Keith MacLellan, MD

Off Call • Détente

Destination • Destination

- [Canadian bacon on the barbie: a locum experience in rural Australia](#) -- Eugene Leduc, MD, CCFP

[Cryptic Crossword](#)

Departments • Chroniques

[Letters / Correspondance](#)

[Literature / Littérature scientifique](#)

[RuralMed](#)

[Reviews / Recensions](#)

© 1997 Canadian Medical Association



Rural hospitals: We can't do without them!

John Wootton, MD, CM, CCFP, FCFP
Shawville, Que.

Can J Rural Med vol 2 (2):59

In Alberta, Saskatchewan and Manitoba rural hospitals have been closed by the dozens. Ontario's Health Services Restructuring Commission has been blitzing communities, leaving confusion in its wake and the future of many rural hospitals in doubt.

Much of this activity is purportedly driven by economics, but closing rural hospitals for economic reasons can be short-sighted. There are persuasive clinical and demographic arguments that must be considered to understand fully the role of a rural hospital.

People should have access to emergency services within a minimum length of time, regardless of where they live. For example, in cases of myocardial infarction for which thrombolysis is necessary, 1 hour appears to be the maximum tolerable delay in treatment, although some might argue that it should be half this. As an indicator condition, myocardial infarction highlights the need for services and the concern that people living in rural areas feel when their local hospital is threatened.

The demographic argument, made recently in a popular management text,[1] is no less persuasive. As the effect of the baby boomer generation moves through the economy, hospitals will become increasingly important to rural communities competing to supply services to this group. As Foot1 explains,

"Over the next two decades, as 9.8 million baby boomers turn 50, we will witness a significant exodus from big-city Canada to small-town Canada. The participants in this exodus are going to need the same hospitals that provincial governments want to close in the mid-1990s. . . . A region that loses its local hospital may be losing its best chance for economic rebirth."

How best, then, to safeguard this precious resource? If our rural hospitals are to continue to play a central role in rural health care, they must play their trump card -- service -- effectively. They

must be accessible to their communities and dispense essential, high-quality services. Existing services should act as magnets for the development of new ones: our rural hospitals must develop to the maximum those services that human resources and infrastructure will allow. They must lobby government to create conditions that favour recruitment and pressure our universities to provide graduates with the appropriate training. They must pester their administrators to provide properly equipped facilities and encourage their physicians to share their expertise and to support each other. Although resources in urban centres must be planned to accommodate any necessary transfers from the field, rural hospitals must act to minimize the number of cases in which transfer is required. Scoop and run, and you're done!

As daunting as this task is to rural hospitals already stretched to provide 24-hour emergency care, the alternative is that if services are not provided they will be deemed not to be needed and will be lost.

The role of the rural hospital in our communities must become better understood by all players if changes are to be equitable and respectful of the right of rural residents to high-quality, accessible medical care. Otherwise, rural residents will find themselves inheriting a patchwork system, full of hazards.

Reference

1. Foot DK, with Stoffman D. Boom bust and echo. How to profit from the coming demographic shift. Toronto: Macfarlane Walter & Ross; 1996.

© 1997 Society of Rural Physicians of Canada



Les hôpitaux ruraux : Nous ne pouvons nous en passer!

John Wootton, MD, CM, CCFP, FCFP
Shawville (Québec)

Can J Rural Med vol 2 (2):59

On a fermé des dizaines d'hôpitaux ruraux en Alberta, en Saskatchewan et au Manitoba. La Commission de restructuration des services de santé en Ontario a entrepris une campagne éclair dans les communautés où elle a semé la confusion et laissé planer le doute au sujet de l'avenir de nombreux hôpitaux ruraux.

Cette activité semble dictée en grande partie par l'économie, affirme-t-on, mais fermer des hôpitaux ruraux pour des raisons économiques, c'est peut-être faire preuve de myopie. Il y a des arguments cliniques et démographiques persuasifs dont il faut tenir compte pour comprendre parfaitement le rôle d'un hôpital rural.

Il faut avoir accès à des services d'urgence le plus rapidement possible, peu importe où l'on vit. Dans les cas d'infarctus du myocarde où une thrombolyse s'impose, par exemple, l'administration du traitement peut attendre au maximum une heure, et même une demi-heure, disent certains. Comme problème indicateur, l'infarctus du myocarde met en évidence le besoin de services et démontre la préoccupation des populations rurales lorsqu'elles pensent que leur hôpital local est menacé.

L'argument démographique, invoqué récemment dans un manuel populaire de gestion¹, n'est pas moins persuasif. Pendant que les retombées de la génération du baby boom se répercutent dans l'économie, les hôpitaux deviendront de plus en plus importants pour les communautés rurales qui se feront concurrence pour fournir des services à ce groupe. Comme l'explique Foot[1],

«Au cours des deux prochaines décennies, 9,8 millions de membres de la génération du baby boom auront 50 ans et nous assisterons à un exode important des grandes agglomérations urbaines vers les petites villes du Canada. Ces personnes auront besoin des hôpitaux mêmes que les gouvernements provinciaux veulent fermer au milieu des années 90. (...) Une région qui perd son hôpital local perd peut-être sa meilleure chance de relance économique.»

Quelle est alors la meilleure façon de protéger cette ressource précieuse? Pour continuer de jouer un rôle central dans les soins de santé en milieu rural, les hôpitaux ruraux doivent jouer efficacement leur carte maîtresse -- le service. Ils doivent être accessibles pour la communauté environnante et fournir des services essentiels de grande qualité. Les services existants devraient en attirer d'autres: c'est pourquoi nos hôpitaux ruraux doivent développer au maximum les services que les ressources humaines et l'infrastructure leur permettent d'offrir. Ils doivent pousser le gouvernement à créer une conjoncture propice au recrutement et pousser aussi nos universités à produire des diplômés qui possèdent la formation nécessaire. Ils doivent harceler leurs administrateurs pour obtenir des installations équipées comme il se doit et encourager leurs médecins à mettre en commun leurs compétences spécialisées et à s'appuyer mutuellement. Même s'il faut planifier les ressources des centres urbains de façon à accepter tout transfert nécessaire en provenance de la périphérie, les hôpitaux ruraux doivent pour leur part réduire au minimum le nombre de cas de transfert. L'écroulement, c'est la fin!

Aussi intimidante cette tâche soit-elle pour les hôpitaux ruraux taxés à la limite pour fournir des soins d'urgence 24 heures par jour, la solution de rechange est inévitable : on jugera que les services qu'ils ne fournissent pas ne sont pas nécessaires et ces services disparaîtront.

Tous les intervenants doivent mieux comprendre le rôle de l'hôpital rural dans nos communautés si l'on veut que les changements soient équitables et qu'ils respectent le droit de la population rurale à des soins médicaux accessibles de grande qualité. Sinon, la population rurale se trouvera à hériter d'un système à la pièce où les dangers abonderont.

Référence

1. Foot DK, avec Stoffman D. Boom bust and echo. How to profit from the coming demographic shift. Toronto : Macfarlane Walter & Ross; 1996.

© 1997 Société de la médecine rurale du Canada



President's message: This is a hold-up

Keith MacLellan, MD
Shawville, Que.
President, Society of Rural Physicians of Canada

Can J Rural Med vol 2 (2):61

When asked by a "motivational speaker" to name the best thing about rural medicine, one of the members of the Society of Rural Physicians of Canada (SRPC) thought for a while, then broke up the meeting by saying, "Well, we get every third weekend off." But seriously, what is a decent on-call schedule? Has any research been done? The Canadian Association of General Surgeons states that no surgeon should work more often than a 1-in-5 call, which must generate real laughter among rural surgeons. Are such guidelines useful to rural physicians?

What are the minimum standards of proficiency for working in rural emergency departments, delivering babies, putting in pacemakers, anesthetizing patients and broaching the abdomen? Should the standards of care for common medical problems (such as myocardial infarction, stroke and croup) always be those of tertiary care centres? Who should be transported, and, given the impossibility of a fail-safe, 24-hour, all-weather transport system, how should the rural doc be trained?

These questions and many more have been plaguing rural doctors for decades. When we turn for guidance to our professional associations, universities and governments, we are often disappointed, because their structures have not been able to accommodate realistic rural concerns, but sometimes because of outright antipathy or perceived "turf" concerns. When we do get guidelines, they often make no sense when applied to conditions in the field, and they usually make life more difficult.

These are the reasons why the SRPC will make a major effort in the coming years to issue realistic, well-researched and specific guidelines and policies on a variety of rural practice topics. If these guidelines are based on the best available evidence, are sanctioned by a strict peer review process, are backed by expert consultation and conform to actual field conditions, then they will carry considerable weight with administrators, medicolegal authorities, training institutions and

colleagues in other fields. Many of these guidelines will overlap with the concerns of other bodies and, wherever possible, joint statements with other medical associations will be sought. Most importantly, SRPC guidelines will not only improve health care delivery for rural communities, but will also give the individual rural doctor support when fighting for improved working conditions or equipment, facing legal difficulties or saving a hospital from closure.

Guidelines can be a double-edged sword and may restrict as much as they facilitate. That is why we need you, the doctor at the coalface, and not the urban-based administrator, to help us to formulate them. If rural physicians don't do it, either nobody will, or guidelines will be imposed, as has been done in the past. On the other hand, no system for issuing practical, facilitating guidelines will function for long unless those doing the work are compensated, at least to some extent. Money is essential.

So this is a hold-up: give us your money, by joining and getting others to join the Society of Rural Physicians of Canada, or your time, by participating in a committee -- preferably both. The pay-off for you, your colleagues and your patients should be enormous.

© 1997 Society of Rural Physicians of Canada



Message du président : C'est un braquage

Keith MacLellan, MD
Shawville (Québec)
Président, Société de la médecine rurale du Canada

Can J Rural Med vol 2 (2):62

Lorsqu'un « motivateur » lui a demandé de préciser le meilleur aspect de la médecine rurale, un des membres de la Société de la médecine rurale du Canada (SMRC) a réfléchi un instant pour ensuite faire éclater l'assemblée en disant « Nous avons une fin de semaine de congé aux trois semaines ». Sérieusement, qu'est-ce qu'un horaire de garde décent? A-t-on fait la moindre recherche à ce sujet? L'Association canadienne des chirurgiens généraux affirme qu'aucun chirurgien ne devrait être de garde plus d'une journée sur cinq : les chirurgiens ruraux doivent vraiment s'esclaffer. De telles lignes directrices sont-elles utiles pour les médecins ruraux?

Quelles sont les normes minimales de compétence pour travailler dans un service d'urgence rural, effectuer un accouchement, implanter un cardiosimulateur, anesthésier un patient et ouvrir un abdomen? Les normes de traitement des problèmes médicaux communs (comme l'infarctus du myocarde, l'accident cérébrovasculaire et le croup) devraient-elles toujours être celles des centres de soins tertiaires? Qui faut-il transporter et, comme il est impossible de disposer d'un réseau de transport tout temps, 24 heures sur 24 et à l'épreuve de tout, comment faudrait-il former le médecin rural?

Ces questions et beaucoup d'autres assaillent les médecins ruraux depuis des décennies. Lorsque nous consultons nos associations professionnelles, les universités et le gouvernement, nous sommes souvent déçus, parce que leurs structures n'ont pas pu tenir compte des problèmes ruraux réalistes, mais parfois à cause d'une antipathie directe ou de problèmes perçus de « territoire ». Lorsque nous obtenons des lignes directrices, elles n'ont bien souvent aucun sens lorsqu'il faut les appliquer sur le terrain et elles compliquent habituellement la vie.

Voilà pourquoi la SMRC fera, au cours des années à venir, un effort d'envergure pour établir des directives et des politiques réalistes, bien étudiées et particulières sur toutes sortes d'aspects de la pratique rurale. Si ces lignes directrices sont fondées sur les meilleures données disponibles, sont

sanctionnées par un processus rigoureux d'examen critique par les pairs, ont l'appui d'experts et se conforment aux conditions sur le terrain, elles auront alors beaucoup de poids auprès des administrateurs, des autorités médico-légales, des établissements de formation et des collègues d'autres disciplines. Beaucoup de ces lignes directrices chevaucheront les préoccupations d'autres entités et, chaque fois que ce sera possible, on cherchera à énoncer, de concert avec d'autres associations médicales, des politiques conjointes. Sans compter que les lignes directrices de la SMRC amélioreront la prestation des soins de santé aux communautés rurales, elles appuieront aussi le médecin rural qui cherche à améliorer les conditions de travail ou le matériel, a des problèmes juridiques ou veut empêcher un hôpital de fermer. Voilà ce qui importe le plus.

Les lignes directrices peuvent être une arme à deux tranchants et contraindre autant qu'elles peuvent faciliter. Voilà pourquoi nous avons besoin de votre aide à vous, médecin de première ligne, et non de celle de l'administrateur urbain, pour les formuler. Si les médecins ruraux ne le font pas, ou bien personne ne le fera, ou bien on nous en imposera, comme c'est déjà arrivé. Par ailleurs, aucun système d'établissement de lignes directrices pratiques ne fonctionnera longtemps si ceux qui font le travail ne sont pas indemnisés, du moins jusque dans une certaine mesure. L'argent est le nerf de la guerre.

Je vous annonce donc un braquage. Donnez-nous votre argent en adhérant à la Société de la médecine rurale du Canada et en convaincant d'autres collègues d'y adhérer. Vous pouvez aussi faire don de votre temps en participant aux activités d'un comité -- nous préférons les deux. Les retombées pour vos collègues, vos patients et vous-mêmes devraient être énormes.

© 1997 Société de la médecine rurale du Canada



Introduction of laparoscopic removal of ectopic pregnancy at a rural surgical centre

Gary Soenen, MD, FRCSC
General Surgeon, Hinton General Hospital,
Hinton, Alta.

Can J Rural Med vol 2 (2):65

Correspondence and reprint requests to: Dr. Gary Soenen, Hinton General Hospital, 1280 Switzer
Dr., Hinton AB T7V 1V2

Contents

- [Introduction](#)
- [Abstract](#)
- [Résumé](#)
- [Methods](#)
- [Results](#)
- [Discussion](#)
- [Conclusions](#)
- [References](#)

Abstract

Objective and method: To examine the effect of introducing laparoscopic removal of ectopic pregnancy on patient care and hospital costs in a rural surgical centre by means of a retrospective comparative study of laparoscopic versus open removal. The charts of 27 consecutive patients presenting with ectopic pregnancy between Jan. 1, 1992, and Jan. 31, 1996, were reviewed. Length of hospital stay, use of analgesia and total hospital costs were analysed.

Results: Laparoscopic removal of ectopic tissue was associated with a significantly shorter hospital stay relative to open surgery (0.7 and 2.5 days respectively; $p < 0.0001$, Student's t-test).

The need for analgesia was similarly lower in laparoscopic cases (10.0 and 61.9 morphine equivalents respectively; $p < 0.0001$). Hospital costs were far lower for laparoscopic cases (\$570.26/case and \$1227.05/case respectively).

Conclusion: Laparoscopic removal of tissue is the surgical "gold standard" for the treatment of ectopic pregnancy and should be introduced in centres where open removal is already being practised.

Résumé

Objectif et méthode : Examiner l'effet de la mise en œuvre de l'ablation par laparoscopie de grossesse ectopique sur les soins des patientes et les coûts hospitaliers dans un centre rural de chirurgie au moyen d'une étude comparative rétrospective de l'ablation par laparoscopie par rapport à l'ablation sanglante. On a examiné les dossiers de 27 patientes consécutives qui se sont présentées en état de grossesse ectopique entre le 1er janvier 1992 et le 31 janvier 1993. On a analysé la durée du séjour à l'hôpital, l'utilisation d'analgésiques et le total des coûts d'hospitalisation.

Résultats : On a établi un lien entre l'ablation par laparoscopie de tissus ectopiques et un séjour à l'hôpital beaucoup plus court qu'à la suite d'une chirurgie sanglante (0,7 et 2,5 jours respectivement; $p < 0,0001$, test de Student). Le besoin d'analgésie a été moins élevé proportionnellement dans les cas de laparoscopie (10,0 et 61,9 équivalents de morphine respectivement; $p < 0,0001$). Les coûts d'hospitalisation ont été beaucoup moins élevés dans le cas de la laparoscopie (570,26 \$ et 1227,05 \$ par cas respectivement).

Conclusion : L'ablation des tissus par laparoscopie est l'«étalon or» chirurgical du traitement des grossesses ectopiques et il faudrait l'implanter dans les centres qui pratiquent déjà l'ablation sanglante.

[\[Contents\]](#)

Introduction

More than 1% of all pregnancies are ectopic.[1,2] Although medical treatment of ectopic pregnancy is evolving rapidly, surgery continues to be the primary treatment. Since the first description, by Shapiro and Adler in 1973,[3] of treatment of an ectopic pregnancy by laparoscopy, laparoscopic removal has gained popularity, particularly in Europe and the United States.[1,4-8] The advantages of the laparoscopic approach include a shorter hospital stay, less analgesia and a reduction in the total cost to the health care system.[1,2,4-13]

This article reports an analysis of the impact of the introduction of laparoscopic removal on length of stay, analgesia and cost at the Hinton General Hospital, a rural surgical centre serving a population of 10 000.

Methods

The hospital charts for 27 consecutive ectopic pregnancy removals at the Hinton General Hospital, carried out between Jan. 1, 1992, and Jan. 31, 1996, were reviewed. Cases of laparoscopic removal were compared with cases of open removal with respect to patient age, length of hospital stay, postoperative narcotic use, operating time and cost of postoperative stay. The calculation of the cost of the hospital stay was based on the per diem reimbursement by the Alberta Ministry of Health to rural hospitals (\$453), as well as the cost of the extra equipment used in laparoscopic surgery. Use of analgesia was calculated by conversion to morphine equivalents (50 mg Demerol [pethidine hydrochloride] = 5 mg morphine = 1 Tylenol no. 3 [acetaminophen with codeine]).

The technique of laparoscopic removal of ectopic pregnancy involved the placement of a 10-mm Hasson disposable surgical Reflex STR trocar (Richard Allen Medical, Richland, Mich.) through the umbilicus, as well as placement of two 5-mm Surgiport trocars (Autosuture, Ville-Saint-Laurent, Que.) in the right and left lower quadrants. A dilute solution of epinephrine was infiltrated into the broad ligament to reduce blood loss. Linear salpingotomy was performed by L-hook electrocautery, which was followed by extraction of the ectopic tissue and placement into an Endo Catch bag (Autosuture). A 5-mm, 30° laparoscope (Dyonics Smith & Nephew, Lachine, Que.) was used in all cases. Because the laparoscope could be placed in any of the trocar sites, it was possible to retrieve the ectopic tissue through the umbilical incision.

Data between the 2 groups were compared with Student's t-test.

[\[Contents\]](#)

Results

Twelve patients underwent laparoscopic removal, and 15 underwent open removal. In both groups, the average age was 26 years. The type of operative procedure was markedly different for laparoscopic and open procedures. Salpingotomy, with preservation of the uterine tube, was performed in 10 of the 12 patients who underwent laparoscopic removal but in only 2 of the 15 patients who underwent open removal. The average length of stay in hospital was significantly shorter for patients who underwent the laparoscopic procedure than for those who underwent open surgery (0.7 and 2.5 days respectively; $p < 0.0001$). Likewise, the use of analgesia was significantly lower among patients who underwent the laparoscopic procedure (10.0 and 61.9 morphine equivalents respectively; $p < 0.0001$).

Extra equipment costs for laparoscopic surgery amounted to \$211.36 per case. Despite this additional cost, the total hospital cost for a case of laparoscopic removal was only \$570.26, whereas the total cost for a case of open removal was \$1227.05.

Operating times were shorter for laparoscopic surgery than for open removal (47 and 59 minutes respectively), but this difference was not statistically significant.

[\[Contents\]](#)

Discussion

The number of cases in this study was small, and the conclusions should therefore be considered preliminary. However, our results do agree with those of many other studies demonstrating the benefits of laparoscopic surgery over laparotomy in the treatment of ectopic pregnancy.[1,2,4-11]

Few studies have addressed the direct financial benefits of laparoscopic surgery. For the 12 laparoscopic cases analysed in this study, the overall savings to the hospital amounted to \$7881.48. Given that ectopic pregnancy is a common condition for which surgery is frequently required, the financial benefits across Canada could be enormous. For example, the financial benefit of laparoscopic surgery for ectopic pregnancy in the United States has been estimated at more than US\$100 million per year.[2]

We observed a marked difference in the relative frequency of tubal salvage (salpingotomy) and tubal excision in the 2 groups of patients. This difference appears to represent the personal preferences of the surgeons, since either procedure can be performed easily in both laparoscopic and open removal. Certainly, a conservative surgical approach leaves the patient with the most options for future pregnancy, and it is clear that most women who have undergone linear salpingotomy go on to have a normal pregnancy.[10] Although another ectopic pregnancy occurs in many patients who have already had one ectopic pregnancy, many women wish to take that chance. Therefore, desire for future fertility should always be discussed with the patient before surgery.

Many rural surgical centres continue to offer only open removal or, where appropriate, referral to a larger centre where laparoscopy can be performed. The latter option is frequently not available, particularly in patients with ruptured or rupturing ectopic pregnancy. Given the obvious benefits to both the patient and the hospital, rural surgeons may wish to consider performing laparoscopic salpingotomy in this situation. It is the opinion of this author, a nongynecologist, that linear salpingotomy and extraction of ectopic pregnancy tissue is one of the easiest of laparoscopic operations to perform.

Although the clinical diagnosis of ruptured ectopic pregnancy is usually straightforward, confirmation with either ultrasound or diagnostic laparoscopy is necessary. If ultrasound imaging is not readily available, as in many rural communities, it would seem prudent to perform diagnostic laparoscopy first. If ectopic pregnancy is confirmed, the insertion of two 5-mm trocars is all that is required to change the procedure from a diagnostic to a therapeutic one. The amount of training needed to acquire the necessary skills depends almost entirely on the existing skill level of the surgeon and whether or not s/he already performs laparoscopic surgery. The cost of such training would vary accordingly.

The length of stay reported here is one of the lowest ever reported, likely because the presurgery stay at our hospital is minimal as a result of the usually immediate access to the rural operating room. This situation compares favourably with the usually much longer waiting period experienced in urban operating rooms, due to a backlog of cases. In this sense, the rural operating room is more efficient in handling surgical emergencies.

Although most ectopic pregnancies are amenable to treatment by laparoscopy, some cases, such as those involving cornual ectopic pregnancy with rupture and shock, may not be. For the stable patient, laparoscopic excision should be considered the procedure of choice.

[\[Contents\]](#)

Conclusions

Laparoscopic removal of ectopic pregnancy is the surgical "gold standard" of treatment for this condition. It is associated with markedly reduced hospital stay, use of analgesia and total hospital costs.

[\[Contents\]](#)

References

1. Murphy AA, Kettel L, Nage CW. Operative laparoscopy versus laparotomy for the management of ectopic pregnancy: a prospective trial. *Fertil Steril* 1992;57:1180-5.
2. Maruri F, Azziz R. Laparoscopic surgery for ectopic pregnancies: technology assessment and public health implications. *Fertil Steril* 1993;59:487-98.
3. Shapiro HI, Adler DH. Excision of an ectopic pregnancy through the laparoscope. *Am J Obstet Gynecol* 1973;1:472-5.
4. Brumsted J, Kessler C, Gibson C. A comparison of laparoscopy and laparotomy for the treatment of ectopic pregnancy. *Obstet Gynecol* 1988;71:889-92.
5. Zouves C, Urmen B, Gomel V. Laparoscopic surgical treatment of tubal pregnancy: a safe, effective alternative to laparotomy. *J Reprod Med* 1992;37:205-9.
6. Davidson JM, Park W, Penney LL. Comparative study of operative laparoscopy versus

- laparotomy. Analysis of financial impact. *J Reprod Med* 1993;38(5):357-60.
7. Bauman R, Magos AL, Turnbull A. Prospective comparison of videopelviscopy with laparotomy for ectopic pregnancy. *Br J Obstet Gynaecol* 1991;98(8):765-71.
 8. Sultana CJ, Easley K, Collins RL. Outcome of laparoscopic versus traditional surgery for ectopic pregnancies. *Fertil Steril* 1992;57(2):285-9.
 9. Kotarba DD, Claman P. Laparoscopic versus laparotomy treatment of ectopic pregnancy: a Canadian perspective. *J Soc Obstet Gynaecol Can* 1995;17:755-8.
 10. Schenker JG, Evron S. New concepts in the surgical management of tubal pregnancy and the consequent postoperative results. *Fertil Steril* 1983;40:709-23.
 11. Dubuisson JB, Aubriot FX, Cardone V. Laparoscopic salpingectomy for tubal pregnancy. *Fertil Steril* 1987;47:225-8.
 12. Lundorff P, Thornburn J, Hahlin M. Laparoscopic surgery in ectopic pregnancy. A randomized trial versus laparotomy. *Acta Obstet Gynaecol Scand* 1991;70:343-8.
 13. DeCherney AH, Romero R, Naftolin F. Surgical management of unruptured ectopic pregnancy. *Fertil Steril* 1981;35:21-4.



Are health care facilities in rural Newfoundland and Labrador prepared to handle cardiovascular emergencies?

Shaun Marshall, BMedSci, MD*

First-Year Resident in Family Medicine, Queen's University, Kingston, Ont.

Marshall Godwin, MD, CCFP, FCFP

Associate Professor, Department of Family Medicine, Queen's University, Kingston, Ont.

Robert Miller, MD, CCFP, FCFP

Associate Professor, Discipline of Family Medicine, Memorial University of Newfoundland, St. John's, Nfld.

*Dr. Marshall was a second-year medical student at Memorial University of Newfoundland, St. John's, at the time the study was conducted.

Can J Rural Med vol 2 (2):68

Correspondence and reprint requests to: Dr. Shaun Marshall, Department of Family Medicine, 220 Bagot St., Kingston ON K7L 5E9

Contents

- [Introduction](#)
 - [Abstract](#)
 - [Résumé](#)
 - [Methods](#)
 - [Results](#)
 - [Discussion](#)
 - [Limitations](#)
 - [Conclusions](#)
 - [References](#)
-

Abstract

Objective: To determine the level of preparedness for handling cardiovascular emergencies, in terms of equipment and training, of rural treatment centres in Newfoundland and Labrador by comparison with recommendations in the literature.

Method: A questionnaire was mailed to all rural health care facilities in Newfoundland and Labrador located in small communities of 1000 to 2000 people and providing emergency care for a catchment area of approximately 7000 people. All of these facilities were located at least 1.5 hours (by road, boat or air) from a regional health care centre and did not have a specialist in internal medicine on site. The survey was designed to determine the availability of cardiac equipment and whether staff had training in advanced cardiac life support (ACLS).

Results: Thirty-one (91%) of the 34 facilities responded to the survey. In total, 52 (18%) of the 283 registered nurses and 82 (73%) of the 112 physicians at these facilities were trained in ACLS. Of the 31 facilities that responded, 28 had a 12-lead electrocardiograph, 26 had a defibrillator, 26 had facsimile machines, 23 had ACLS transport equipment and 21 had an intravenous pump. Twelve of the centres had pulse oximeters, 9 had transcutaneous pacemakers, 8 had automatic blood pressure cuffs, and only 6 had electrocardiographs with computer interpretation; at 15 of the centres, thrombolytic therapy was available, and at 9, central lines could be inserted.

Conclusions: Many of the rural facilities offering emergency care in Newfoundland and Labrador are well equipped, whereas others may need to consider updating or purchasing equipment. The level of ACLS training among staff members could be increased.

Résumé

Objectif : Déterminer dans quelle mesure les centres de traitement rural de Terre-Neuve et du Labrador sont prêts à traiter des urgences cardiovasculaires pour ce qui est du matériel et de la formation comparativement aux recommandations contenues dans les écrits.

Méthode : On a posté un questionnaire à tous les établissements ruraux de soins de santé de Terre-Neuve et du Labrador situés dans de petites communautés de 1000 à 2000 habitants et fournissant des soins d'urgence à un bassin d'environ 7000 personnes. Tous ces établissements étaient situés à au moins 1,5 heure d'un centre régional de soins de santé (de route, eau ou air) et n'avaient pas de spécialistes en médecine interne sur place. L'enquête visait à déterminer si le centre disposait de matériel cardiaque et si le personnel avait reçu de la formation en soins cardiaques spécialisés.

Résultats : Trente et un (91 %) des 34 établissements ont répondu au sondage. Au total, 18 % des infirmières autorisées et 73 % des médecins de ces établissements avaient reçu de la formation en soins cardiaques spécialisés. Sur les 31 établissements qui ont répondu, 28 disposaient d'un

électrocardiographe à 12 dérivations, 26, d'un défibrillateur, 26, d'un télécopieur, 23, de matériel de transport pour soins cardiaques spécialisés et 21, d'une pompe intraveineuse. Douze des centres disposaient de sphygmo-oximètres, 9, de cardiostimulateurs transcutanés, 8, de sphygmomanomètres automatiques et 6 seulement d'électrocardiographes à interprétation par ordinateur. À 15 des centres, on disposait d'une thérapie thromolytique et 9 pouvaient insérer des lignes centrales.

Conclusions : Beaucoup des établissements de Terre-Neuve et du Labrador qui offrent des soins d'urgence sont bien équipés, tandis que d'autres devront peut-être envisager de moderniser leur équipement ou d'en acheter. On pourrait rehausser le niveau de formation des membres du personnel en soins cardiaques spécialisés.

[\[Contents\]](#)

Introduction

In Newfoundland and Labrador, rural health care facilities provide emergency medical care for approximately 50% of the population. These facilities are, on average, 1.5 hours by road, boat or air from a secondary care centre that can offer internal medicine specialist support.[1] These smaller centres must provide the initial management and stabilization for any cardiovascular emergency that occurs in their respective areas, regardless of severity. Such responsibility necessitates that the rural centre be equipped adequately to handle most cardiovascular emergencies. As part of a study designed to assess the availability of thrombolysis in rural Newfoundland and Labrador, a survey was conducted to assess the preparedness of rural emergency departments to handle cardiac emergencies.

Emergency care in rural Newfoundland and Labrador is provided by 3 types of medical facilities: the small rural hospital, which on average has between 3 and 5 physicians and 14 beds; the 24-hour clinic, with 2 to 4 physicians and 2 holding beds; and the satellite clinic, usually staffed by a physician and a registered nursing assistant and open only during "business hours" with the physician on 24-hour call. These facilities are located in communities of 1000 to 2000 people and, on average, serve a catchment area of approximately 7000 people each.[1] The physicians in most of these facilities are on salary. Although in a few of the communities there may be a private general practitioner not working out of the hospital, nearly all emergency care is provided by the facilities just described.

Studies on the use of rural emergency departments support the assumption that they should be equipped to handle most cardiac emergencies.[2-4] In Newfoundland and Labrador, 31 rural facilities provided initial treatment for 390 people with acute myocardial infarction in 1992.[1] Regardless of the size, staffing and equipment available, personnel at these rural health facilities

are called upon to handle a variety of demanding cardiac emergencies and need to be prepared to do so.

Very little has been published on the equipment and services necessary to prepare a distinctly rural medical facility to deal with cardiac emergencies.[5] Resources such as the publication *Guidelines for Establishing Standards for Special Services in Hospital: Emergency Units*⁶ provide guidelines for equipping the general emergency room. However, these resources do not address directly the unique requirements that distance to referral hospitals imposes on equipping rural treatment centres. As a result, Thompson (a rural family physician) and Warnica (a cardiologist), both from Alberta, published a list of equipment that should be available to handle cardiac emergencies in the "well-equipped rural hospital emergency room." [5]

In our study we used these guidelines to determine the degree of preparedness of rural acute care facilities in Newfoundland and Labrador for handling cardiac emergencies. Specifically the study was designed to:

- determine the degree to which the equipment suggested by Thompson and Warnica[5] is available in rural hospital emergency departments in Newfoundland and Labrador
- determine the degree to which the physicians and nurses in rural Newfoundland and Labrador have received advanced cardiac life support (ACLS) training
- provide a reference against which facilities may compare themselves and which they can use in planning for future resource allocation.

Methods

A questionnaire survey using addresses from the 1992-1993 edition of the *Canadian Hospital Directory*⁷ was mailed to the chief medical officer and head nurse of all 14 rural hospitals, all 9 health centres with 24-hour emergency services and 11 satellite clinics in rural Newfoundland and Labrador. For the purposes of this study, a facility was defined as rural if it did not have a specialist in internal medicine on staff. All of the communities had far fewer than 10 000 people and were at least 80 km away from a regional referral centre. The larger communities that were excluded had 10 000 people or more and had a full range of specialists available to provide secondary or tertiary care.

The Dillman technique[8] for survey collection was employed to maximize the response rate. The article by Thompson and Warnica[5] was used as a guideline to determine whether the rural sites were prepared adequately to deal with cardiovascular emergencies. Only equipment and the availability of thrombolysis were assessed in this study. The questionnaire inquired about the availability of the following equipment and procedures: defibrillator, automatic defibrillator, 12-lead electrocardiograph (ECG), ECG with computer interpretation, facsimile machine, wall protocols, transcutaneous pacemaker, automatic blood pressure cuff, intravenous pump, ACLS transport equipment, insertion of central lines, pulse oximeter and thrombolysis. In Thompson

and Warnica's study,[5] ACLS training for physicians and nurses was also considered a requirement for the most effective management of these emergencies and was therefore included in the questionnaire.

The data were analysed with Epi-Info software;[9] the analysis consisted of measuring the frequency of availability of each of the recommended equipment and skills. The data were analysed as a whole, as well as by type of site (rural hospital, 24-hour clinic and satellite clinic). The availability of equipment as a function of ACLS training of physicians was also determined.

[\[Contents\]](#)

Results

Thirty-one (91%) of the 34 sites responded: all of the hospitals and 24-hour clinics, and 8 of the 11 satellite clinics. The responses represented 112 physicians and 283 nurses.

[Table 1](#) shows the number and percentage of facilities that had the recommended equipment, and [Table 2](#) the number and percentage of physicians and nurses with ACLS training. There was no relation between the rate of ACLS training and the availability of equipment at the sites, except in the case of defibrillators: at the 26 sites with defibrillators, a mean of 70% of the physicians had ACLS training, whereas at the 4 sites without defibrillators, none of the physicians had such training ($p = 0.001$, Student's t-test).

[\[Contents\]](#)

Discussion

ACLS training is not necessary for the provision of acute cardiac life support, but it does provide an indication of standardized training.[10] At the rural facilities from which we received responses, 18% of the nursing staff and 73% of the physicians reported having received ACLS training. At this level of ACLS training among nurses, it may not be possible to have an ACLS-qualified nurse on duty 24 hours a day or to find a nurse with enhanced training to call back to provide specialized care to a patient in a cardiac emergency.

Proficiency in the handling of acute cardiac emergencies is lost over time. As a result, the administrators at many rural facilities prefer that physicians, who usually provide emergency cardiac care, complete ACLS training. Nonetheless, only 73% of these physicians had such training.

Rural hospitals were the best-equipped facilities, followed by the 24-hour emergency clinics and satellite clinics respectively. Some of the hospitals and 24-hour emergency clinics had not availed

themselves fully of the more recently developed technology that can offer distinct advantages in the delivery of acute cardiac care in a rural setting, technology such as automatic defibrillation and computer-assisted ECG interpretation. Some 24-hour clinics and satellite clinics did not have equipment that might be considered necessary for the delivery of acute cardiac care, such as defibrillators, 12-lead ECGs and ACLS transport equipment.

The American Heart Association has stated that "Early defibrillation is the link in the chain of survival most likely to improve survival." [11] However, 3 of the 9 twenty-four-hour clinics and 2 of the 8 satellite clinics did not have the equipment necessary to provide this intervention. In many rural situations the on-call physician is not always "on site." In addition, facilities designed to provide transient acute care may be called upon to provide more prolonged and advanced care in times of inclement weather, when safe transport is not possible. In situations in which a physician is not readily at hand, the availability of an automatic defibrillator would allow a trained nurse to initiate treatment of ventricular arrhythmias. However, only 10 of the 31 facilities had automatic defibrillators available.

Twenty-eight of the 31 sites surveyed had a 12-lead ECG; however, only 6 sites had a computer interpretation feature on these machines. Thompson [12] concluded that ECG interpretation by computer alone is accurate often enough to warrant purchase of the necessary equipment by small rural hospitals. In addition, he reported that ECG interpretation by a physician with computer assistance is better than interpretation by either one alone. Twenty-six of the 31 facilities had fax machines, which allow an ECG to be sent to a consultant for help with interpretation.

Wall-mounted protocols that are updated regularly may be valuable in situations where ACLS skills are not used regularly enough to guarantee accurate memorization. Only 18 of the 31 facilities made use of this inexpensive, yet potentially valuable tool.

Emergency cardiac transcutaneous pacing is indicated in the treatment of symptomatic bradycardia and prophylaxis of conduction disturbances that occur during acute myocardial infarction. [10] This resource was available to 8 of the 14 rural hospitals and 1 of the 11 satellite clinics.

Automatic blood pressure monitors may be useful in rural situations where hands are few. This piece of equipment was found in only 8 of the 14 rural hospitals and in none of the other facilities.

An intravenous pump is necessary for the safe delivery of drugs such as heparin and streptokinase, for which carefully controlled infusion is needed. This device was available in all of the rural hospitals, 6 of the 24-hour clinics and only 1 of the satellite clinics.

This study has not addressed whether disparities in equipment and training affect outcomes. A study comparing outcomes at the more poorly equipped sites and the better-equipped sites would be both interesting and important.

[\[Contents\]](#)

Limitations

There were several limitations to this study. The data were gathered by means of self-reporting questionnaires, so participants may have overstated or understated the actual situation. However, data were often available from 2 sources at each site, which allowed for double-checking. The question about ACLS training asked only what percentage of the physicians and nurses had received ACLS training. There was no differentiation between those who had recently completed training and those who may have been trained years ago; responders may have taken current accreditation to be the critical issue rather than training at any time. Thompson and Warnica's[5] recommended equipment list was designed primarily for "equipping rural hospitals for cardiovascular emergencies." Parts of their list may be inappropriate for the satellite clinic setting, but we hope that it serves as an initial discussion point.

[\[Contents\]](#)

Conclusions

Health care facilities are facing significant cutbacks in financial resources, and it is therefore difficult to recommend spending money for equipment and training that may not be used every week. However, research has demonstrated that the time to delivery of ACLS, especially defibrillation and thrombolysis, plays a major role in determining the outcome of a cardiac emergency.[10,13,14] GPs can diagnose acute myocardial infarction effectively,[15] safely perform thrombolysis in rural settings[16-19] and transport affected patients.[20,21] Therefore, it seems reasonable that all health care facilities that deal with acute cardiac emergencies should have, or make plans to acquire, a 12-lead ECG (preferably with computer interpretation), a defibrillator with automatic options, basic ACLS equipment, a facsimile machine and ACLS training for their staff.

This study was not done to identify individual facilities having inadequate resources for the delivery of emergency cardiac care. Rather, it was designed to provide a means by which individual facilities can compare themselves to an established standard and to other facilities. It is hoped that this paper will be used by physicians and administrators to audit their facilities and resources and to assist them in the necessary planning to ensure that they are spending their resources in a manner that will best meet the needs of the population they serve.

Acknowledgements: Financial support for this project was provided by the Department of Family Medicine at Memorial University of Newfoundland, the Rural Research and Development Network of Newfoundland and Labrador, and the General Hospital Corporation, St. John's.

References

1. Marshall SA, Godwin NM, Miller RT. Availability of thrombolytic therapy in rural Newfoundland and Labrador. *Can Med Assoc J* 1995;152(2):177-81.
2. Thompson JM, Ratcliff MJ. Use of emergency outpatient services in a small rural hospital. *Can Fam Physician* 1992;38:2322-31.
3. Rourke J. Small hospital medical services in Ontario. Part 2: Emergency medical services. *Can Fam Physician* 1991;37:1720-4.
4. Bross H, Wiygul FM, Rushing SK. The role of the rural hospital emergency department. *Fam Med* 1991;23:351-3.
5. Thompson JM, Warnica JW. Equipping rural hospitals for cardiovascular emergencies. *Can J Contin Med Educ* 1992;Aug-Sept:23-33.
6. Health Services Directorate. Guidelines for establishing standards for special services in hospital: emergency units. Ottawa: Health and Welfare Canada; 1988.
7. Canadian Hospital Association. Canadian hospital directory 1992-1993. Ottawa: The Association; 1992.
8. Dillman DA. Mail and telephone surveys: the total design method. New York: John Wiley and Sons; 1978.
9. Dean AG, Dean JA, Burton AH, Dicker RC. Epi-Info, version 5: a word processing, database, and statistics program for epidemiology on microcomputers. Stone Mountain (GA): USD, Inc; 1990.
10. American Heart Association. Textbook of advanced cardiac life support. Dallas: The Association; 1987. p. 5-8.
11. Emergency Cardiac Care Committee and Subcommittees, American Heart Association. Guidelines for cardiopulmonary resuscitation and emergency cardiac care, IX: Ensuring effectiveness of communitywide emergency cardiac care. *JAMA* 1992;268(16):2289-95.
12. Thompson JM. Computer interpretation of ECGs in rural hospitals. *Can Fam Physician* 1992;38:1645-53.
13. Gruppo Italiano per lo Studio della Sopraccidenza nell Infarto Miocardio (GISSI-1). Effectiveness of intravenous thrombolytic treatment in acute myocardial infarction. *Lancet* 1986;1:397-402.
14. Midgette AS, O'Connor GT, Baron JA, Bell J. Effect of intravenous streptokinase on early mortality in patients with suspected acute myocardial infarction: a meta-analysis by anatomic location of infarction [published erratum appears in *Ann Intern Med* 1991;114:522]. *Ann Intern Med* 1990;113:961-8.
15. Pai GR, Haites NE, Rawles JM. One thousand heart attacks in Grampian: the place of cardiopulmonary resuscitation in general practice. *BMJ* 1987;294:352-4.
16. Epplin JJ, Wujek RA, Laughlin LD. The use of intravenous streptokinase in a rural community hospital. *J Am Board Fam Pract* 1988;1:87-9.
17. Henry R, deGruy F. Intravenous streptokinase for treatment of acute myocardial infarction in small hospitals. *J Fam Pract* 1988;26(4):438-42.

18. McNamara CA, Burket MW, Brewster PS, Leighton RF, Fraker TD. Comparison of thrombolytic therapy for acute myocardial infarction in rural and urban settings. *Am J Med* 1987;82:1095-101.
19. GREAT Group. Feasibility, safety, and efficacy of domiciliary thrombolysis by general practitioners: Grampian region early anistreplase trial. *BMJ* 1992;305:548-53.
20. Bellinger RL, Califf RM, Mark DB, Weber RA, Collins P, Stone J, et al. Helicopter transport of patients during acute myocardial infarction. *Am J Cardiol* 1988;61:718-22.
21. Fromm RE, Hoskins E, Cronin L, Pratt C, Spenser WH, Roberts R. Bleeding complications following initiation of thrombolytic therapy for acute myocardial infarction: a comparison of helicopter-transported and non-transported patients. *Ann Emerg Med* 1991;20:892-5.

© 1997 Society of Rural Physicians of Canada



Focus on Newfoundland and Labrador

Conleth O'Maonaigh, MB BCh, MPH, MICGP
Chief of Staff, Fogo Island Hospital, Fogo, Nfld.
conleth@morgan.ucs.mun.ca

Can J Rural Med vol 2 (2):73

A review of the current state of rural medicine in Newfoundland and Labrador requires some reference to recent events that have had a direct impact on all rural physicians. Given the nature of the province's geography, this includes the majority of doctors working outside St. John's (population greater than 100 000) and Corner Brook (population 30 000). Thirty percent of Newfoundland's population of approximately 568 000 lives in St. John's and adjoining communities. Others live in 13 communities of population sizes greater than 5000, and the rest are scattered around the province in 379 communities of variable remoteness.[1] A significant amount of medical care, both primary and above, is thus being provided by rural physicians in clinics and small cottage hospitals. Small wonder, then, that any alteration in medical services, including funding, has a direct impact on medical care in rural areas.

There is a sense of fatigue, resignation and disillusionment among many rural doctors, particularly those who have served in outport communities for a long time. This sense was exacerbated by events in 1993, when the provincial government passed legislation restricting the mobility of physicians.[2] At the same time it established the Needs Assessment Committee (NAC), which was foisted on the medical establishment with the cooperation, if not the collusion, of the Newfoundland and Labrador Medical Association (NLMA). Its existence and restrictive powers were supposed to be of 6 months' duration and it was meant to monitor the new regulation that restricted the mobility of physicians and new graduates. A 50% billing rate was introduced for any physician who established a new practice in St. John's. In effect, this was a slap in the face to all rural doctors and prevented any from relocating if they so wished, regardless of the years they had served in the outports. The intention of these changes was to encourage physicians to set up practice in rural areas, where the need for medical doctors was acute. Four years later this "temporary" measure is still in effect. This, despite the fact that there is no evidence that it resulted in any influx of physicians into rural areas. The NLMA is no longer cooperating with the NAC in its activities.

Contemporaneous with the establishment of the NAC, the provincial government, through the Joint Management Committee (JMC), created the Physician Resource Advisory Group (PRAG).[3] Their mandate was to "develop a long-term plan for the management of physicians' resources in Newfoundland and Labrador." The committee had representation from the NLMA, the Department of Health, the Newfoundland Hospital and Nursing Home Association, the medical school, the Newfoundland Medical Board, the Newfoundland Association of Interns and Residents, and the medical student body. Over the course of 18 months the committee members did a comprehensive review of medical services and physician distribution in the province to determine the appropriate number of physicians required to deliver the services and where and how they should be distributed. Their report was presented to the Ministry of Health in November 1994, by which time the restrictions placed on mobility were to be lifted, as the minister proceeded to act on the contents of the PRAG report.

For those of us used to living in the real world it came as no surprise to find the NAC restriction extended and to see that, despite the laudable and intelligent recommendations of the PRAG report, the Ministry of Health has yet to implement or act on the PRAG report in any substantial way. The report was comprehensive and, if acted on, would have improved the lot of rural physicians in the province significantly.

Instead, the state of rural medical services in Newfoundland continued to decay. Problems of physician turnover and retention and recruitment, specifically in the salaried physician body (which constitutes approximately 300 doctors, the majority of whom make up the core of rural physicians' supply), continued to plague rural areas. The government yet again responded to the increasing problems of rural medicine in a truly Canadian way: it commissioned another report in 1996. This report was a review of the rural salaried system and was carried out by Dr. Peter Roberts,[4] who had extensive experience with the salaried system from his work with the Grenfell Association. Until quite recently, this body delivered all medical services to coastal Labrador and the northern peninsula of the province. Roberts thus had intimate experience with the problems of rural physicians. His report was submitted to the Ministry of Health in July 1996. Its contents reflect many of the PRAG recommendations as they pertain to rural doctors, their workload, their call responsibility and their remuneration. So far the minister has made no reference as to what will be done with this report.

In the autumn of 1996 the Salaried Physicians Negotiating Committee, which negotiates for all salaried rural doctors, entered into negotiations with the Newfoundland and Labrador Health Care Association (NLHCA). These negotiations collapsed in November when it became apparent that of the two purse-string holders, the Medical Care Plan (MCP) was adamant that it had no new money to inject into the salaried system and the government had no intention of finding any. This intransigent response was made with full knowledge of the fact that rural medical services have been recognized as being dysfunctional and that the province's rural physicians are the lowest paid doctors in the country.[4]

As with all trends emanating from the mainland, Newfoundland will not be found wanting. True to the current paradigm of less being more, Newfoundland has restructured its health care boards and reduced the number from 31 to 8. Inevitably this means centralization, although it is called regionalization. These boards are of course larger and may prove unwieldy. Since all of them are working under a fixed 3-year budget and since it appears that a good number are already overextended, the inevitable trimming and cutting have begun. As with even the leanest pork roast, the trimming always begins at the periphery. The consequence of this has been the reduction of activity in many of the smaller and less remote rural facilities. Some of them have been downgraded to ambulatory services with holding beds only.

At the same time many solo salaried practices continue despite the recognition that these physicians work untenable call hours and are often professionally isolated. In both the comprehensive PRAG report and a report commissioned by the JMC on the role of the family physician in Newfoundland and Labrador,¹ strong recommendations were made to consolidate solo practices in rural areas. Very few boards have acted to do so because of the possibility of community resistance to the loss of facilities. In many situations, solo positions are staffed by a series of short-term locums delivering an intermittent medical service. Once again the will to act on these recommendations has been deferred, pending ... yes ... another report! A medical consultant currently is undertaking a medical service review of the whole province in order to assist with medical manpower planning. This is to be completed by Mar. 31, 1997, thus doing in 12 weeks what the PRAG had taken 18 months to do. It is no coincidence that the joint management agreement between the government and the NLMA expires on the same date.

From this litany of events it is little wonder that any efforts that are made to enhance the status of rural medicine are increasingly viewed as an elaborate form of lip service. However, there have been some major attempts to raise the profile of rural medicine (both in the public eye and that of the student body) over the past number of years. The Memorial University Medical School, through the Working Group of Rural Medicine, has run a rural medical forum in the fall for the past 5 years. This has been a venue for rural doctors, administrators, students and faculty to discuss (possibly ad nauseum) the problems and unique qualities of rural medicine. The inevitable list of recommendations that result from these gatherings year after year would not be considered new, novel or unreasonable by any rural physician.

In 1995, as a result of the medical school retreat, major proposals to revamp the whole undergraduate curriculum were made with the intention of placing a greater emphasis on rural medicine and of exposing students more fully to it, in the hope and possibly the belief that this would encourage more to choose it as a career path. At present, first-year medical students spend 2 weeks and clinical clerks spend 1 month of their clerkship in a rural site. Dr. Ian Bowmer, the new dean of medicine, who took over in 1995, is exploring the possibility of using telemedicine technology to allow rural preceptors to be active teachers in the university setting. Also, the possibility of more rural academic sites throughout the province is being explored. To evaluate the success of the medical school in acting on the recommendations arising from the retreat a

monitoring committee has been established. One rural family doctor sits on this committee of 5.

In May 1996 the Faculty of Medicine established the Office of Rural Medicine. Its brief is to:

- develop programs to recruit physicians to rural areas of the province. Programs have been developed for high school students, medical students and postgraduates.
- oversee the various bursary programs that have been introduced over the past number of years. The success or failure of these will be evaluated as the first group of bursary residents finishes in June 1997.
- take on the responsibility of developing appropriate continuing medical education for rural physicians.

The medical school has yet to develop any comprehensive program to offer advanced skills to rural physicians or graduates from the family practice residency program, specifically in areas of rural surgery and obstetrics and gynecology.

In the summer of 1996, the NLMA established a rural physicians committee, which hopes to bring to the NLMA board issues of direct concern to rural MDs. The committee recently produced a survey of international medical graduates, working in Newfoundland (many of whom worked in rural areas). Results revealed a significant level of dissatisfaction with the current status quo. Of note is that 47% of respondents indicated that rural medicine was not their primary choice of work (Survey of international medical graduates. Rural Physicians Section, Newfoundland and Labrador Medical Association: unpublished data, 1997 Feb.). Many of these international medical graduates, have great difficulty in obtaining full licence, either in this province or in the rest of Canada, and some are constrained to work in rural areas because of their limited mobility (see also the discussion of this topic in RuralMed, [page 92](#)).

Currently, the Newfoundland Medical Board is planning to issue guidelines on continuity of care and the availability of physicians to their patients. It is also issuing guidelines on the responsibility of the on-call physician. The intent is to ensure that physicians provide coverage for their patients. The impact may be to constrain rural physicians to unreasonable call hours, if locums cannot be found.

Finally, the 1998 annual meeting of the Society of Rural Physicians of Canada is being planned for Newfoundland: mark your calendar now!

References

1. Patey P, Harvey N, King S, Moulton W. The role of the family physician in

Newfoundland and Labrador. Report of the Joint Management Committee on the Role of the Family Physician. 1995 May.

2. Physicians & Fees Regulations, Nfld Reg 50/93. Amendment to section 4.
3. Reid I, Hogan TG, White G, Ludlow N, Robbins C, Young R, et al. Report of the Physician Resource Advisory Group to the Newfoundland Ministry of Health. 1994 Nov.
4. Roberts P. Salaried physician service. "Making it better." Report to the Newfoundland Ministry of Health. 1996 July.

© 1997 Society of Rural Physicians of Canada



Country cardiograms case 4

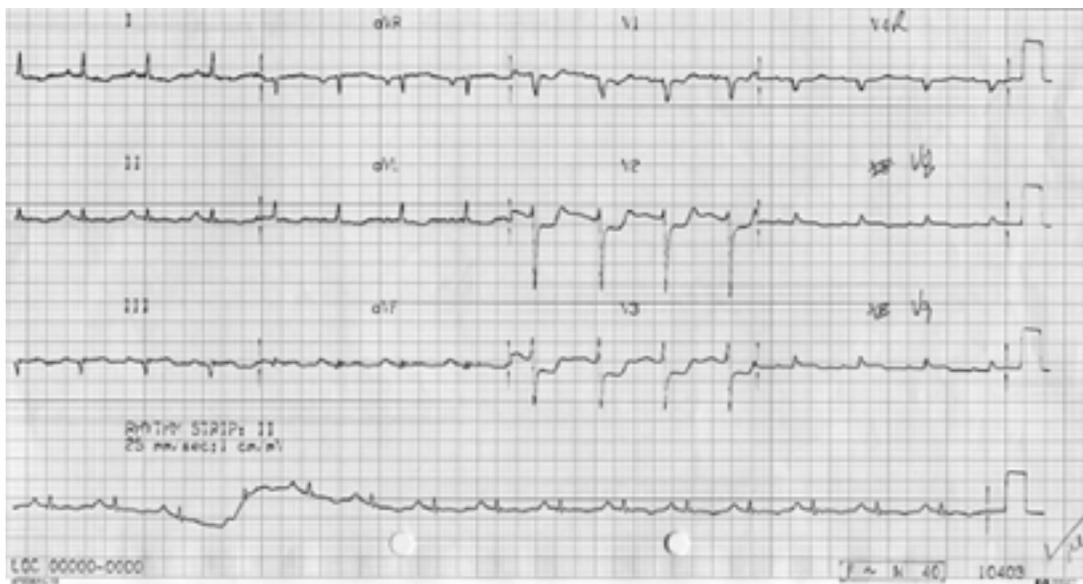
Jim Thompson, MD, CCFP(EM), FCFP
Sundre, Alta.

Clinical Associate Professor, Department of Family Medicine, University of Calgary, Calgary, Alta.

Can J Rural Med vol 2 (2):76

Case presentation

A 69-year-old man presented to a rural emergency department (ED) with a 1-hour history of severe epigastric pain that seemed to radiate between his shoulder blades. His arms felt tingly. The electrocardiogram shown below was obtained by the ED nurse soon after he arrived at the hospital Fig. 1.



What would you do next in your rural setting? See answer and discussion on [page 87](#).

Country cardiograms case 4: Acute posterior myocardial infarction

Can J Rural Med vol 2 (2):87

Findings

The electrocardiogram (ECG) presented on [p. 76](#) showed marked ST depression anteriorly, along with nonspecific ST depression and T-wave inversion laterally. These changes could be due to anterior ischemia or acute posterior myocardial infarction (MI).

A 15-lead ECG was obtained by moving the V4 lead from the left precordium to the same position on the right anterior chest (V4R), the V5 lead to just below the tip of the scapula on the left back (V8), and the V6 lead to a point halfway between V8 and the spine (V9), as shown in Fig. 1.

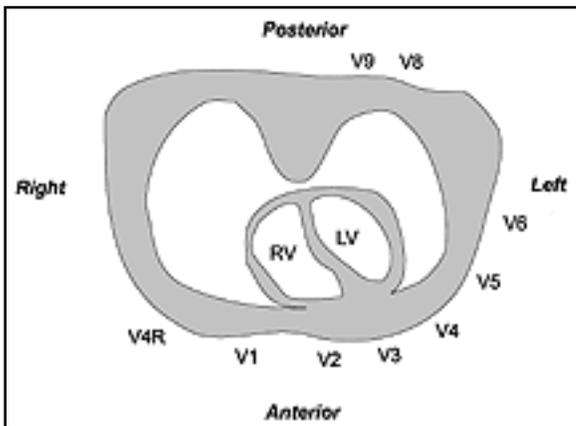


Fig. 1. Transverse view of the thorax, showing positions of the chest leads relative to the heart chambers (RV = right ventricle, LV = left ventricle).

Figure 2 shows the QRS complexes in V8 and V9. There was a 1-mm ST segment elevation in both leads, which is direct evidence of acute posterior MI. The ST depression seen anteriorly (V1 to V4) was therefore reciprocal ST depression, given that these leads face the opposite side of the heart from the current of injury that caused ST elevation in the two posterior leads (Fig. 1).

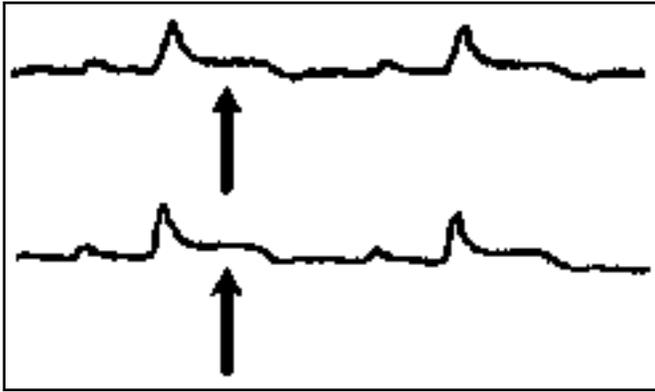


Fig. 2. Tracings from leads V8 and V9. ST elevation is clearly visible (arrows).

Discussion

Acute MI must be diagnosed immediately by rural physicians, because the goal is to start thrombolysis within 30 to 60 minutes from the time the patient enters the hospital.[1] Acute posterior and far right MI are difficult to diagnose from a 12-lead ECG, because the 12 leads do not face those areas of the heart.

A 15-lead ECG is indicated when a standard 12-lead ECG fails to give good evidence for acute MI in cases in which posterior or right ventricular MI is suspected, and when the extent of damage in the right ventricle must be determined in cases of inferior MI. ST elevation in lead V4R would be evidence for right ventricular infarction and in leads V8 and V9 for posterior MI. The presence of the anterior reciprocal ST depression significantly improves the positive predictive value of the ECG for acute MI.

There have been no randomized trials showing any benefit of thrombolysis in acute posterior MI. In this case, the ECGs were sent immediately by fax to a cardiologist, who agreed with the diagnosis and recommended immediate thrombolysis during a telephone consultation. He documented his support in a note faxed back to the rural physician. The patient was given tissue plasminogen activator without incident. The creatine kinase level peaked at 500 U/L, and the patient has done well since.

The patient was transferred subsequently to an urban hospital for further care. Rural hospitals differ in their ability to care for acute MI patients after thrombolysis.[2,3] This particular rural hospital usually transfers such patients, because the on-call physician does not stay in the hospital and the nursing staff are not able to recognize and treat critical complications of acute MI rapidly enough, given the staffing pattern they have to use. The main complication that cannot be managed satisfactorily is hemodynamically unstable ventricular fibrillation or tachycardia. No research has been done in rural hospitals to determine which patients might suffer sudden severe complications after thrombolysis.

References

1. Heart and Stroke Foundation of Canada, Canadian Cardiovascular Society and Canadian Association of Emergency Physicians, for the Emergency Cardiac Care Coalition. Recommendations for ensuring early thrombolytic therapy for acute myocardial infarction. *Can Med Assoc J* 1996;154(4):483-7.
2. Hindle H, Norheim J, Renger R. Rural Alberta thrombolysis study. Survey of practice patterns for managing acute myocardial infarction. *Can Fam Physician* 1995; 41:1180-7.
3. Marshall SA, Godwin NM, Miller RT. Availability of thrombolytic therapy in rural Newfoundland and Labrador. *Can Med Assoc J* 1995;152(2):177-81.

© 1997 Society of Rural Physicians of Canada



The occasional arterial line

Keith MacLellan, MD

Pontiac Community Hospital Inc., Shawville, Que.; Assistant Professor in Family Medicine, McGill University, Montreal, Que.

Can J Rural Med vol 2 (2):77

Correspondence to: Dr. Keith MacLellan, PO Box 609, Shawville QC J0X 2Y0

Arterial cannulation can be easier than venipuncture. It is safe and it greatly expands the therapeutic and monitoring capabilities of doctors caring for acutely ill patients. It is ideal for monitoring blood pressure continuously and accurately in unstable patients even during transport, when other methods, as rural doctors know, are dangerously inaccurate or impossible to perform. Arterial lines are also the kindest and most useful technique when multiple blood sampling is required, either for blood gas determination or for venous measurements when the patient has poor veins or simply cannot tolerate repeated needling.

Although this technique is not used widely outside urban intensive care units, it is safe and simple, and its rapid effectiveness is tailor-made for some situations in rural hospitals when transporting or caring for moderately or severely ill patients. A minimum of nursing training (less than 1 week per nurse for a group of 3 nurses, the other nurses being certified "in house," as we did in our hospital), a modest equipment investment (about \$10 000 for a transport monitor with hemodynamic capabilities and \$200 for transducers and catheters) and rural doctors showing their usual initiative are all that is needed. One half-day with a cardiac anesthetist in a tertiary centre is more than enough basic training for a rural doctor, although further subtleties and applications could be picked up during a week in an urban intensive care unit. These could then be taught to others.

Materials

Equipment needs are as follows:

- a 500-mL bag of normal saline with 1000 units of heparin mixed in

- a pressure bag (a blood pressure cuff will do in a pinch)
- disposable pressure tubing with a transducer
- a cardiac monitor with a pressure cassette
- an arterial cannulation catheter and needle (a standard 20-gauge intravenous catheter and needle will also do)
- 2% lidocaine without adrenaline in a 27-gauge tuberculin syringe
- povidone-iodine prep and gel
- tape or 5-0 nylon suture, or both.

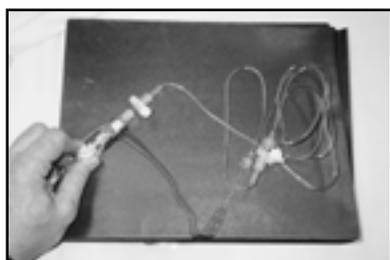
Procedure

Step 1



Insert the pressure tubing with the transducer into the heparinized saline bag. Place the saline bag into the pressure bag, then inflate to a pressure higher than the patient's systolic pressure, usually around 300 mm Hg. All pressure bags have a lock to ensure that the bag does not deflate suddenly. If using a blood pressure cuff, place a clamp around its tubing to ensure the same effect.

Step 2



Flush the tubing of the pressure/transducer line and remove all air in the system by pulling or squeezing the flush valve, found either on the transducer or on the tubing. This valve, when not opened, still allows 2 to 3 mL/h of infusate to drip into the artery, ensuring catheter patency.

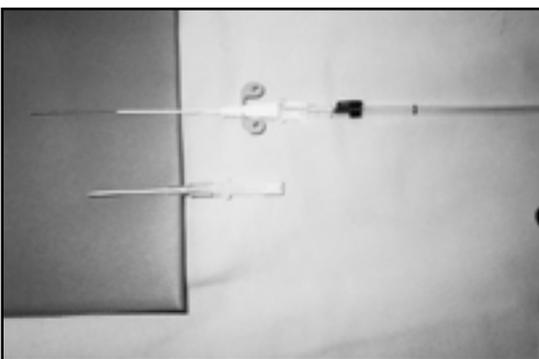
Perform the Allen test to ensure that the patient has good ulnar artery hand circulation before you catheterize the radial artery at the wrist. This simple test is described in all standard texts. Some doctors simply occlude the radial artery at the wrist and watch for a drop in the SaO₂ or pulse wave-form using an SaO₂ monitor clipped onto a finger of the patient's hand. Other arteries that can be used for catheterization include the femoral (more risks of infection and distal embolization), the brachial (the sole supplier of blood to the forearm and therefore potentially a greater risk) and the dorsalis pedis (difficult to catheterize). Even the temporal artery can be used.

Step 3



Place the wrist in dorsiflexion to straighten the artery. It is a good idea to place a roll of gauze under the wrist and tape the hand to maintain dorsiflexion. Prep the area with povidone-iodine, infiltrate liberally with the lidocaine, and puncture the artery with the catheter-needle assembly at about a 30° angle.

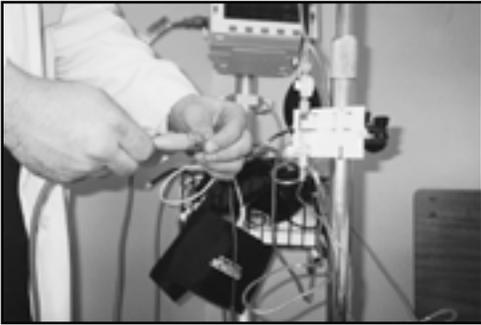
Step 4



When arterial blood flows back, advance the catheter into the artery and remove the needle. This step is exactly the same as starting an intravenous line, and indeed a standard 20-gauge intravenous catheter-needle can be used. To make everything even easier, companies make an arterial catheter-needle assembly that has a guidewire which is first advanced into the artery after initial arterial puncture. The catheter can then be slid over the wire, ensuring foolproof catheterization. When the needle is removed from a properly placed catheter, blood will spurt out

from the catheter. This can be minimized by pressing firmly with your thumb distal to the catheter site.

Step 5



Connect the pressure tubing to the catheter.

Step 6



Tape or suture the catheter in place after dabbing the skin puncture with povidone-iodine gel. Ensure that the line is open from the pressurized saline bag to the catheter. Replace all the white caps (vented) with solid, non-vented yellow ones. Change the dressing and apply new disinfectant every day. Keep the catheter in place as short a time as possible, preferably less than 3 days.

Place the transducer on a pole at about the level of the patient's mid-axillary line. Connect the cable from the pressure cassette of the monitor to the wires from the transducer and turn on the monitor. A good arterial tracing should be seen ([Fig.1A](#)). Abnormal wave forms ([Figs. 1B and 1C](#)) imply either air in the system or kinking of the catheter.

Calibrate the system by following the manufacturer's instructions.

Complications appear to be independent of operators. Multiple punctures, prolonged catheterization and low cardiac output all increase the rate of complications. Twenty-gauge radial

artery catheters in place for 3 days or less have an 11% thrombosis rate. Recanalization of the artery usually takes place. Embolization, either distally or centrally (with long flushes), is rare. Infection remains the most common and severe problem and underlines the importance of good asepsis. Despite these complications very little permanent impairment results from radial artery cannulation.[1]

This simple technique will make a big difference in managing certain cases in rural hospitals. Our own nurses were extremely proud of their new capabilities. Our doctors are comfortable with the technique and our patients, we believe, receive better care.

Reference

1. Taylor RW, Civetta JM, Kirby RR, editors. Techniques and procedures in critical care. Philadelphia: JB Lippincott; 1990. p. 225-231. [This book provides a good overview of technique and complications with an excellent bibliography.]

© 1997 Society of Rural Physicians of Canada

Canadian bacon on the barbie: a locum experience in rural Australia

Eugene Leduc, MD, CCFP
Creston, BC

Can J Rural Med vol 2 (2):82

Correspondence to: Dr. Eugene Leduc, Box 2010, Creston BC, V0B 1G0
eleduc@kootenay.awinc.com

Doc, I'm crook in me gut!" comes the strained reply to my greeting.

Sitting in my surgery, the husky bloke wearing a grease-stained singlet, shorts and thongs is dramatic in his suffering. After a history and exam indicating viral gastroenteritis, he asks me, "Got the wog, you reckon?"

I confirm his diagnosis, advise him he may soon get the gastric and, if he doesn't drink enough, will certainly get the wobbles, especially if he continues on the grog. I tell him that if he follows my advice, he'll be fair dinkum by this avo and right into his tucker within a fortnight. No worries.

Reflecting on this encounter and many other colourful experiences my family and I have had during our 6-month locum in rural Australia, we feel very fortunate. This evening, as I sit by our kitchen window, tapping on my keyboard to the sounds of crickets and the warm breeze rustling the palm trees, Canada is very far away. It is hard to believe that exactly 1 year ago we were on the other side of the world, pondering whether to come here. There were many reasons for our decision to do so, chief among them the desire to travel and to educate our 3 children about the world outside our own small town in British Columbia.

After we decided to go, the first step was to find someone to replace me. Through an advertisement, I found a South African-trained GP/anesthetist from Manitoba who was available for a long-term locum and who was soon confirmed as my temporary replacement.

Once I could give the agency coordinating my own locum a tentative departure date, I filled in the application form and mailed copies of my CV, diplomas and references. The agency even did some background checks by telephone, but thankfully my colleagues, anxious to be rid of me, gave glowing reviews.

Because of restrictions on the registration of foreign-trained medical graduates in Australia, the only locum opportunities are in rural areas. Most placements involve moving every few weeks, but because we had our school-aged children with us, we preferred to stay in one place for most of our stay. This preference limited our choice, but we were very happy with our ultimate placement in Emerald, Queensland, on the Tropic of Capricorn.

Two months before we left, I started informing my patients about our plans. It was reassuring to many that I had personally selected my replacement. It was difficult saying goodbye to those who were seriously ill and unlikely to survive until my return. However, most were very encouraging about our venture and wished us the best. In fact, a few seemed a bit too happy to see me go.

We left Creston on a rainy day in early spring, driving through snow flurries to get to Vancouver. Just a few days later we arrived in Emerald, where the seasons were reversed. We were sweating in our shorts and T-shirts while the natives complained about the autumn chill in the air and donned their jumpers.

On the day of our arrival, our first social event was a traditional Aussie "barbie." We gathered in our host's backyard. The men chatted, each holding a "stubby" beer in one hand and barbecue tongs in the other. The women conversed while preparing the salads and desserts, and the children ran among everyone, shouting and playing. This scene has replayed itself many times during our stay.

The friendliness in this rural area is evident in the way strangers acknowledge each other on the walking path. I first noticed this when I went jogging one morning. As I passed people, they shook their heads. At first I thought they just couldn't believe that anyone would want to run on a "cold" winter morning, but then I realized that the Australian head shake was equivalent to the North American nod; I was actually being greeted!

We have frequently been surprised by the frank and unassuming nature of many Australians. On one occasion, we were passing through a dusty outback town on a hot day and stopped to buy ice cream at the general store. The elderly proprietor noticed our accent and asked where we were from. When he discovered that I was a physician, he exclaimed with pride, "I'm a paranoid schizophrenic! I reckon you couldn't tell 'cause I take me medication."

I have found the patients equally welcoming and genuinely interested in how I came to Emerald. As an assistant to a busy private GP, I have quickly become busy myself in this under-doctored and growing town of 10 000. The practice of medicine here is much the same as in rural Canada.

The illnesses are the same, and there are no specialists for 300 km, so the local GPs must be skilled in procedures such as anesthesia and emergency surgery.

Emerald has four private GPs. Their patients pay the full Australian Medical Association suggested fee (\$34 for a standard consultation) at the time of the visit, then apply to Medicare for the rebate (\$21). This results in extra-billing of approximately \$13 per visit. The only exceptions are pensioners (over 65 years of age) and those on social assistance, for whom the GPs here accept the Medicare payment of \$21 directly from the government, a process called "bulk-billing" and one with which Canadian doctors are very familiar. Because there is more competition in the cities, most urban Australian GPs bulk-bill for all their patients.

Emerald Hospital is a public hospital staffed by 3 salaried GPs, 2 of whom are trainees. In addition to providing 24-hour medical coverage for the hospital, they run a free daytime outpatient clinic that is booked weeks in advance. Because of the wait, many "public" patients come to the private surgeries and pay the price of a prompt consultation. But if they need admission, they usually prefer to return to the care of the hospital doctor. Consequently, my hospital work has been limited to occasional anesthetic or inpatient care for those few who are privately insured.

The GP with whom I am working prefers to do most of his own on-call work, so I have plenty of time to get involved in the community. We attend educational meetings, as well as church, school and musical functions. The children have adapted well to their new primary school, wear their uniforms proudly and have made many new friends. My wife and I enjoy playing with the Emerald Town Band.

Without a doubt, though, the most popular pastime in this land of endless summer is sports, whether it be participating in, watching or betting on them. In Emerald, there are facilities for playing just about any sport, except those on ice. My wife is in the 10-pin bowling league and fitness club, I do a daily run in the morning, and our kids play cricket. Our oldest boy, Marc, attended a free cricket lesson given by Merv Hughes, a famous Australian cricket player. Merv, obviously not thrilled with Marc's technique, said, "Where are you from, mate? You're swinging that thing like a baseball bat!"

Around Emerald, there is much to discover in the way of flora and fauna. Along with the common gum tree, we see many different types of palm, beautiful flowering bushes, ferns and cacti native to this region. We often awaken in the morning to the mocking laughter of the kookaburra or the whistling of the magpies. In the evening, the brightly coloured green and orange lorikeets gather in the trees and chatter noisily.

Fortunately, the medical business has not kept us confined to town. During our weekend and holiday camping expeditions to places like the outback, Carnarvon Gorge, the Great Barrier Reef and the Daintree Rainforest, we have had close encounters with kangaroos, wallabies, dingoes

and possums. Other animals, such as emus, cassowaries and crocodiles, are more elusive, but we have seen them from a distance. At the seaside we were able to view dolphins jumping and humpback whales breaching, and to swim among the coral with sea turtles, stingrays and schools of colourful fish.

As my term of service nears an end I reminisce with satisfaction on a very rewarding experience, both professionally and personally. We will miss the sunny days and starry nights, the beautiful orange sunsets and all the things I have mentioned here. But most of all we will miss our new friends in Australia. In a short time, we will be back in the Great White North. Until then, no worries, mate!

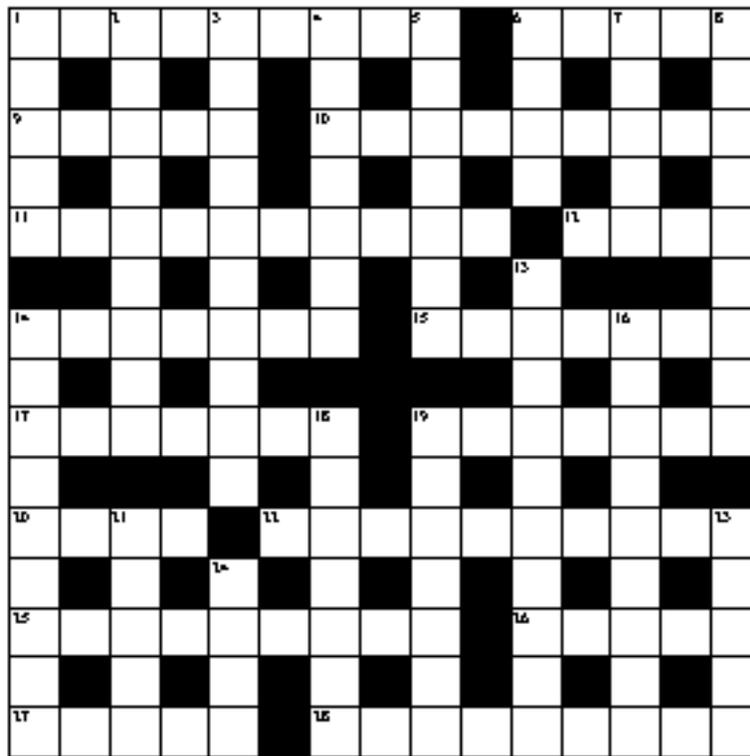
© 1997 Society of Rural Physicians of Canada



Cryptic Crossword

Lee Teperman
Charteris, Que.

Can J Rural Med vol 2 (2):86



Across	Down
1. & 6. Conduits for growing pains of a bullet (9,5)	1. Forehead and derrière of a dowdy soul (5)
9. Call of capitulation by one in Québec with clear majority (5)	2. Milk production total I can alter (9)

10. Operation favouring remedy editor received (9)	3. Love Europe has developed for the Met (5,5)
11. Fractured leg? Ha! A plan made of bones (10)	4. Bad jokes about good after I am given challenges (7)
12. Piece of bread eliminated from some sandwiches (4)	5. Baby with Consumer's Gas? (7)
14. Operating area one issues with prayers (7)	6. Kid's pronunciation of certain letters (4)
15. High-minded francophone and opening remark on state of the Union (7)	7. Estrus in live animal (5)
17. Evil exploits in certain recesses (7)	8. Rural medicine, e.g., as it affected city's plea (9)
19. Strength of drug listed by abbreviated reference book (7)	13. Sap who'd cut this bugs the question to a G.P. (5,2,3)
20. English pound and a Mediterranean island (4)	14. Crib to set in place of childbirth (9)
22. Unusual union tenor! (10)	16. Prerequisite for a state of health (9)
25. Reordered order to order up, e.g. (9)	18. Track event, such as an expired option? (4,3)
26. Doctor I have to tee off (5)	19. Anomaly that may double physicians on call (7)
27. Doctrine that's like a toilet running (5)	21. Former health minister's institute (5)
28. Poisons to cross the line on lists (9)	23. Urns for a Royal in sheep's clothing (5)
	24. Good, say, for a city (4)

Answers to the cryptic crossword appear on [page 96](#)

For instructions on how to tackle a cryptic crossword, please see the first issue of CJRM (1996;1:34-35) or correspond with Lee Teperman, RR 5, Shawville QC J0X 2Y0; email bullhits@infonet.ca



Letters / Correspondance

Can J Rural Med vol 2 (2):61

Preceptors and residents

Rural community settings increasingly are being used for the training of physicians, in an attempt to address physician resource issues and broaden the clinical experiences of physicians-in-training. Rural family physicians are pivotal resources for the training of medical students and family practice residents. As rural preceptors continue to take on further responsibilities in the area of medical education, articles such as Rourke and Rourke's "Practical tips for rural family physicians teaching residents" ([Can J Rural Med 1996;1\[2\]:63-9](#)) provide useful advice and suggestions.

Although there is a limited number of such articles, my own experience has provided valuable data.[1] An analysis of 120 telephone interviews, involving medical students on rural rotations and their family practice preceptors, identified 7 effective teaching strategies.

1. Actively involve the student by providing adequate supervision and appropriate independence.
2. Develop and foster a supportive interpersonal relationship with the student to facilitate learning.
3. Emphasize problem-solving and the understanding of general principles.
4. Balance clinical and teaching responsibilities.
5. Demonstrate clinical and professional competence.
6. Use an organized approach, including goal setting and summation.
7. Provide the student with ongoing feedback, assessments and evaluations.

These strategies, endorsed by both rural preceptors and medical students, support a number of the tips recommended by Rourke and Rourke. It is hoped that further study of rural-based clinical teaching will validate the role of rural practitioners in medical education and encourage them to expand their responsibilities within the medical curriculum.

James Goertzen, MD,MCISc, CCFP

Director
Department of Family Medicine
University of Manitoba
Winnipeg, Man. Reference

1. Goertzen J, Stewart M, Weston W. Effective teaching behaviours of rural family medicine preceptors. *Can Med Assoc J* 1995;153(2):161-8.

Split-thickness skin grafting

After recently having had the opportunity to work with some talented colleagues in plastic surgery, in preparation for isolated rural practice, I would like to add to Keith MacLellan's article on split-thickness skin grafting for clean fingertip avulsions ([Can J Rural Med 1996;1\[2\]:83-5](#)). In addition to specific healing time after split-thickness skin grafting, another consideration not mentioned in the article is residual sensation. With the scar contraction that occurs in association with secondary healing, the resulting area may be smaller than if the defect had been grafted primarily -- an issue of importance to those who rely on their fingertip sensation for occupation or recreation. A suggested rule of thumb is to leave defects the size of a dime or smaller to heal by secondary intention and to graft primarily any defects larger than that. In my experience, patients consider residual sensation more important than a shorter period of convalescence; however, the decision should be individualized.

Andrew Kotaska, MD
Waglisla, BC

Recruiting graduates to isolated communities I would like to join others who have congratulated you on the founding of the Canadian Journal of Rural Medicine. It will fill a need in Canadian medicine.

Recently, I had the pleasure of attending the annual general meeting of the Yukon Medical Association. Before the meeting I was well aware of the difficulties in recruiting Canadian medical graduates to serve in isolated and remote communities and, in particular, the difficulty of recruiting female graduates. Much to my surprise, I found that the Yukon was having no such problems. They are currently in no need of additional physicians, 40% of their practising physicians are female, and they appear to have little or no problem attracting quality locums.

I was also impressed with the incredible sense of community enjoyed by the 40 or so physicians who provide services in the Yukon. I am not sure what lessons there are to be learned from their situation, but it seems to me that they have solved some of the most vexing problems that other isolated and rural communities in northern Canada continue to face.

Since I note that one of the goals of the Society of Rural Physicians of Canada (SRPC) is to encourage and facilitate research into world health questions, it strikes me that this is an area worthy of investigation that could be of tremendous benefit to the rest of Canada.

I look forward to seeing great things from the SRPC.

Derryck H. Smith, MD
President
British Columbia Medical Association

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
email cjrm@fox.nstn.ca
fax 819 647-2845

© 1997 Society of Rural Physicians of Canada



Literature / Litterature scientifique

Can J Rural Med 1997; 2 (2):90

The management of trauma in rural hospitals is an issue that keeps recurring in the literature. Issues of assessment, treatment, transport and outcome continue to be debated, with evidence from both sides either supporting or questioning the efficacy of trauma management systems.

One frequent element of trauma care planning is the Advanced Trauma Life Support Course (ATLS). Its historical roots can be traced to rural primary care. The course was initiated in 1978 in an attempt to provide a structured approach to trauma care in rural areas. Its popularity has grown such that it is now the course most often recommended for ER physicians working in urban as well as rural areas. In 1993 the experience with the course was reviewed in Manitoba.

The Advanced Trauma Life Support Program in Manitoba: a 5-year review.

Ali J, Howard M.

Can J Surg 1993;36(2):181-3.

This review determined that the course enjoyed a high level of popularity among participants. Subjectively, 93% of registrants reported that the course increased their confidence, and some department of surgery heads (both urban and rural) had the impression that the timeliness and appropriateness of consultations improved and that mortality and morbidity were decreased when care was provided by ATLS-trained physicians. These impressions were not, however, documented objectively. The review also showed that the great majority (207/302) of registrants for this course were from urban areas.

ATLS does not, by itself, a trauma system make. Although the specific training of providers is important, the following study from the Department of Emergency Medicine, University of Kentucky, documents the importance of the facilities at the front line of rural trauma care.

Factors associated with the higher traumatic death rate among rural children.

Svensen JE, Spurlock C, Nypaver M.

Ann Emerg Med 1996;27(5):625-32.

This study examined all traumatic pediatric deaths in Kentucky between 1988 and 1992. Results showed that death rates were highest in rural Kentucky, but were lower where 24-hour emergency services and advanced pre-hospital support were available. The authors stated: "Increased access to quality care and training of pre-hospital providers in advanced life support should be priorities in the planning of trauma systems for this state." This study supports the position that rural hospitals are a vital link in the chain of survival for trauma patients.

The preoccupation with trauma care systems is evident elsewhere in the literature. The following article, from the Division of Neurological Surgery, University of Vermont, Burlington, examined neurologic trauma in rural Vermont.

The effect of secondary insults on mortality and long-term disability after severe head injury in a rural region without a trauma system.

Wald SL, Shackford SR, Fenwick J.

J Trauma 1993;34(3):377-81; discussion: 381-2.

This study of trauma patients hypothesized that outcomes of severe head injury would be worse if these patients presented to rural hospitals that did not have an organized system for trauma care. It was felt that in these cases patients would have an increased incidence of secondary insults such as hypoxia or hypotension, and that this would lead to poorer outcomes.

The study succeeded in confirming the importance of secondary insults and did in fact identify a group of patients at increased risk of a poor outcome. But the authors also found that "there was no difference in outcome of patients similarly grouped according to the presence or absence of secondary insults between Vermont's rural cohort and the urban cohort." This suggested to the authors that significant brain injury often occurs too early in the course of trauma for the outcome to be affected significantly by even the most efficient trauma system.

In an era of increased emphasis on quality assurance and outcomes measurement, the problems associated with interhospital transfers can be a source of subtle pressures on the system.

Impact of interhospital transfers on outcomes in an academic medical center. Implications for profiling hospital quality.

Gordon HS, Rosenthal GE.

Med Care 1996;34(4):295-309.

This study from a Midwestern academic centre -- the Division of General Internal Medicine, Department of Medicine, University Hospitals of Cleveland, Ohio -- demonstrated that, in

general, transferred patients had higher severity-of-illness scores than those admitted directly and that this difference was reflected in the hospital's outcome profile.

The authors estimated that "independent of quality of care, severity adjusted mortality and length of stay would appear to be 17% and 8% higher, respectively, for hospitals in which 20% of patients were interhospital transfers than for hospitals in which 2% of patients were transfers."

This study highlights not only the fact that transferred patients are sicker than the norm, but also that unless this fact is taken into account when producing outcome profiles, it may create "disincentives for hospitals to accept transfers from other acute care facilities."

The consideration of the global care of critically ill patients, including trauma victims, has led to the development of practice guidelines for their safe transfer, as reported in the following paper.

Guidelines for the transfer of critically ill patients.

Guidelines Committee, American College of Critical Care Medicine, Society of Critical Care Medicine and the Transfer Guidelines Task Force.

Am J Crit Care 1993;2(3):189-95.

The authors present their guidelines as being evidence-based. They address critical elements of the transfer process: coordinating pre-transport, proper communication, transport equipment, accompanying personnel, monitoring during transport and documentation. However, they stress that there is a relative lack of "well designed clinical outcome studies" in the literature and that, therefore, guideline implementation such as they suggest should be subject to the process of "continuous quality improvement."

© 1997 Society of Rural Physicians of Canada



Royal College rule changes

Can J Rural Med vol 2 (2):92

There was spirited correspondence on RuralMed in January about the changes to the rules governing foreign-trained specialists proposed by the Royal College of Physicians and Surgeons of Canada. The Royal College intends to discontinue accreditation of physicians who have received their training outside Canada and the US. As of July 1, 1997, these doctors will no longer be eligible to write the Royal College exams unless they have repeated their residency training in Canada. The College has never given credit for residency training undertaken in most countries, but an exception has been made for some Commonwealth countries. The College is now closing that loophole. It claims that it simply does not have the means to assess the quality of every country's training.

One RuralMedder characterized this move as a knee-jerk reaction to the oversupply of physicians in urban areas and stated that it will adversely affect rural patients and their access to health care. The consensus was that it would mean the end of specialist care in rural Canada, because rural areas have for years depended upon foreign-trained doctors. This change would have a domino effect: with no specialists, there would be no elective surgery, and GPs would no longer be able to maintain their expertise for any but the most uncomplicated cases involving surgery or obstetrics. As one RuralMedder wrote, "We will face a future of coordinating ambulance traffic to and from the urban centres."

The Newfoundland medical community was so concerned with the proposed rule changes that a joint letter was sent to the College from the Department of Health, the Newfoundland Medical Board, the Faculty of Medicine of Memorial University of Newfoundland, the Newfoundland and Labrador Health Care Association, and the Newfoundland and Labrador Medical Association, 5 groups that have not had a history of unanimous agreement. They argued that the College has sufficient experience concerning training in some countries that a blanket restriction is unnecessary. They warned of Newfoundland's inability to ensure availability of medical services throughout the province if the new rule goes forward.

The Royal College sees no reason why Canada cannot be self-sufficient in terms of specialists in rural areas and insists that Canadian graduates must be served first. The College believes that

relying on the "easy entrance" of foreign-trained doctors is counterproductive, because other solutions are ignored. RuralMed sees no problem in serving Canadian graduates first, but such statements ignore the facts: for whatever reason, Canadian graduates don't want these jobs. Writes one RuralMedder, "If the College now virtually turns off the supply of trained foreign specialists without being able to check the drain of Canadian-trained specialists to the US, there can be only one result: northern deprivation in the future."

The Royal College suggests that there are not enough doctors being trained and that the federal government has some responsibility. The government has set a cap of 1 medical student per 20 000 population (on par with Albania; Australia has 1 for every 12 000). RuralMed agrees that the government has responsibility, but this does not negate the fact that the Royal College rule change will be detrimental to rural medicine.

Solutions to generate made-in-Canada specialists need to be found before the plug is pulled on foreign graduates, solutions such as allowing GPs to return to university for training in anesthesia, surgery and other specialties. This used to be a good route for rural doctors, one that yielded specialists who returned to the north after their training knowing the conditions they would face. Medical schools are not training replacements for rural Canada's slowly ageing GP anesthetists and general surgeons. The Royal College and Canada's universities have never, for example, considered rural general surgery or rural anesthesia as disciplines. It's time they did.

© 1997 Society of Rural Physicians of Canada



Book reviews

Can J Rural Med vol 2 (2):95

Oxford Handbook of Critical Care. Mervyn Singer and Andrew Webb. 554 pp. Illust. Oxford University Press, Don Mills, Ont. 1997. \$45.95. ISBN 0-19-262542-X

The Oxford Handbook of Critical Care is a dandy little book for those caring for severely or moderately ill adult patients. It covers most bases, fits in your pocket, has thoughtful bookmark ribbons and boasts waterproof covers, so if the patient vomits all over you or the pressure bag bursts, you can still look up what to do next.

I like the way in which critical care -- that mysterious, clannish and elitist discipline -- has been reduced to some 500 pages of well-organized, clear, succinct prose that even residents in obstetrics could understand. (There is a section on obstetric emergencies such as HELLP [hemolysis, elevated liver enzymes and low platelet count], amniotic fluid embolus, eclampsia and postpartum hemorrhage.) Of course, this is a handbook and therefore does not replace what can be learned from a full textbook or picked up by hanging around a busy ICU for a few weeks. Nonetheless, it is an excellent reference and does deliver on its promise to provide immediate guidance and practical information for any situation likely to be encountered -- all in a book smaller than the Book of Common Prayer (another useful ICU reference).

Some lab units of measure (such as kPa [kilopascal] for blood gases) and some medications mentioned in this handbook are unfamiliar to me, but this is a minor hindrance. The arrhythmia section is weak, and other texts address this worrisome problem better.

If you are caring for critically ill patients in your hospital, this is one of the books to have. Even if such patients don't remain in your hospital, the Oxford Handbook of Critical Care will help you in asking your referral hospital or consultants to do the next indicated step, so that you can avoid dumping an undifferentiated mess on their doorstep. Buy it.

Keith MacLellan, MD
Shawville, Que.

Anyone Can Intubate. 4th edition. Christine E. Whitten. 237 pp. Illust. KW Publications, PO Box 26455, San Diego CA 92196, USA; tel 619 566-6489, fax 619 271-1425. 1997. US\$19.95 (plus US\$3 shipping and handling). ISBN 0-929894-14-6

This soft-cover book, written by an anesthesiologist at the Kaiser Permanente Hospital in San Diego, Calif., is billed as "a practical step-by-step guide for health professionals."

The first 5 chapters cover the basics: anatomy, pulmonary physiology and assessing respiration, establishing an airway (including the topic of bag-mask ventilation), pre-intubation and predicting the "difficult" airway, and equipment. The author then proceeds to the main emphasis of the book: oral intubation of the adult patient.

In step-by-step fashion, Whitten discusses equipment choices, positioning of the patient and the operator, proper technique and avoidance of common errors. A supplemental chapter, "Studies in difficult intubation," deals with such matters as intubating the obese patient and intubating a patient who is lying supine on the floor, as is sometimes necessary in cardiac arrest. Intubation of children and nasal intubation are also discussed, although these topics are not the main thrust of the book. There is also a chapter on induction agents and muscle relaxants (for rapid sequence induction).

The book is an easy-to-read and enjoyable educational tool. Whitten's writing style is clear and concise, and the line drawings illustrate their intended points well. The book is strong on the details that are often overlooked in published works, such as how to properly tape the endotracheal tube to a patient's face. Whitten anticipates common errors in technique in a section that I found very useful; many of these errors have the sad ring of familiarity.

To those of us in rural areas, orotracheal intubation is one of the few genuinely life-saving skills in medicine. Only by intubating a few hundred patients under supervision is it possible to truly master this technique, but such practice is a luxury most of us lack. This book is the next best thing and should be on the shelf of every rural physician in Canada. Chain up your copy!

Gordon Brock, MD, CCFP
Temiscaming, Que.

CD-ROM review

Management of the Difficult Airway. Thomas P. Engel, Richard L. Applegate II, Deborah Chung and Antonio Sanchez. Available from Cook Critical Care (Canada) Inc., 111 Sandiford Dr., Stouffville ON L4A 7X5; tel. 905 640-7110. 1995. \$55. Requirements: 486 or Pentium PC

compatible computer with 8 megabyte RAM, colour display, Microsoft Windows 3.1; or Apple Macintosh or Power Macintosh with 8 megabytes RAM, colour display, system 7

This CD-ROM was created by four anesthesiologists in California for Cook Critical Care, a manufacturer of medical equipment. The authors have assumed that the user has a knowledge of basic orotracheal intubation technique. The CD-ROM seems intended as a showcase for airway management and intubation aids and cricothyroidotomy kits.

There is a short opening chapter on the relevant anatomy and pathological conditions, and a good chapter on recognition of the "difficult airway." For most of us, one of the most useful chapters would be the one covering airway options. This chapter contains good, 1-page descriptions and photos of 11 types of intubation aids, such as gum rubber bougies, lighted stylets and laryngeal mask airways. The ASA (American Society of Anesthesiologists) algorithms on airway management are included, but they seem to be designed more for the urban anesthesiologist than for the rural family physician: I found them overly complicated and designed mostly from the point of view of elective surgery, where the patient can be awakened if intubation fails or a more experienced intubator can be called in immediately.

The CD-ROM concludes with videos demonstrating, on mannequins, how to use the 3 cricothyroidotomy kits produced by Cook Critical Care -- the Patil, Arndt and Melker kits. Retrograde intubation and the Cook airway exchange catheter are also shown, but these techniques and equipment are more in the province of the anesthesiologist. There is a description of commercial jet-air ventilation equipment, but, unfortunately, no video showing how to perform this procedure with a simple no. 14 catheter.

Although Management of the Difficult Airway does emphasize the products of a single company, the content is well presented and the disk would be useful if you are familiar with basic endotracheal intubation and wish to learn about the various aids available. The demonstrations of cricothyroidotomy are helpful: this is an important technique for the rural physician and it would seem prudent for all rural hospitals to stock at least one type of cricothyroidotomy kit. Not many of our patients need cricothyroidotomy, but those who do, need it very, very badly indeed!

Gordon Brock, MD, CCFP
Temiscaming, Que.

© 1997 Society of Rural Physicians of Canada



Are health care facilities in rural Newfoundland and Labrador prepared to handle cardiovascular emergencies?

Table 1. Equipment available at rural facilities providing emergency cardiac care in Newfoundland and Labrador

Equipment (and cost)	Type of facility; no. (and %) with equipment			
	Rural hospital (n = 14)	24-h emergency clinic (n = 9)	Satellite clinic (n = 8)	All facilities (n = 31)
Defibrillator (\$8000)	14 (100)	6 (67)	6 (75)	26 (84)
Automatic defibrillator (\$8000)	5 (36)	1 (11)	4 (50)	10 (32)
12-lead ECG*	14 (100)	7 (78)	7 (88)	28 (90)
12-lead ECG with computer interpretation (\$12 000)	5 (36)	1 (11)	0 (0)	6 (19)
Facsimile machine (\$400)	14 (100)	8 (89)	4 (50)	26 (84)
Wall protocols	11 (78)	5 (56)	2 (25)	18 (58)
Transcutaneous pacemaker (\$7000)	8 (57)	0 (0)	1 (12)	9 (29)
Automatic blood pressure cuff (\$3500)	8 (57)	0 (0)	0 (0)	8 (26)
Intravenous pump (\$3500)	14 (100)	6 (67)	1 (12)	21 (68)
ACLS transport equipment†	12 (86)	6 (67)	5 (62)	23 (74)
Resuscitation bed‡ (\$8000)	12 (86)	4 (44)	2 (25)	18 (58)
Central lines (\$28)	8 (57)	1 (11)	0 (0)	9 (29)
Pulse oximeter (\$5000)	11(78)	1 (11)	0 (0)	12 (39)
Thrombolysis§	13 (93)	2 (22)	0 (0)	15 (48)

*ECG = electrocardiograph.

†For use during interhospital transfer by qualified personnel when the ambulance service is not staffed to advanced life support level.[5]

‡Side-rails fold out horizontally to support limbs and procedure trays.[5]

§Streptokinase or tissue plasminogen activator available in the emergency department.

[[Return to text](#)]



Are health care facilities in rural Newfoundland and Labrador prepared to handle cardiovascular emergencies?

Table 2. Advanced cardiac life support (ACLS) training among physicians and nurses in rural facilities in Newfoundland and Labrador

Type of facility	Practitioner group; no. (and %) with ACLS training	
	Physicians	Nurses
Rural hospital	53/71 (75)	41/221 (18)
24-hour emergency clinic	15/24 (62)	11/58 (19)
Satellite clinics	14/17 (82)	0/4 (0)
All facilities	82/112 (73)	52/283 (18)

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



The occasional arterial line

Fig. 1. A:

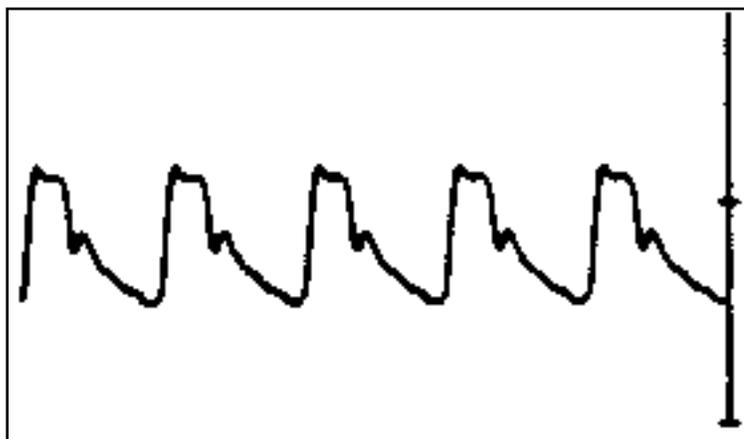


Fig. 1. B:

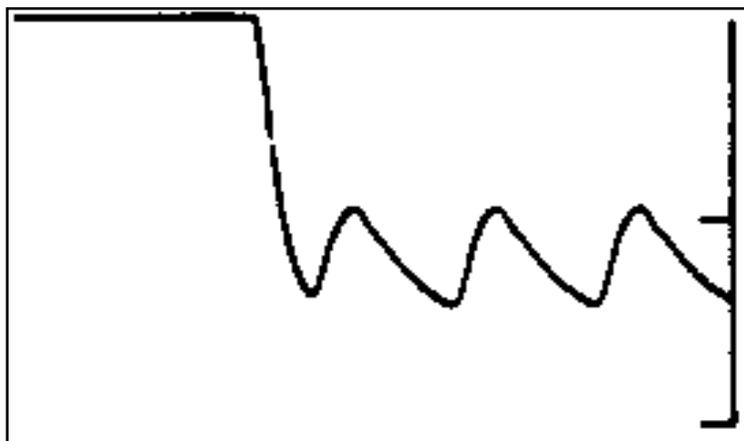


Fig. 1. C:

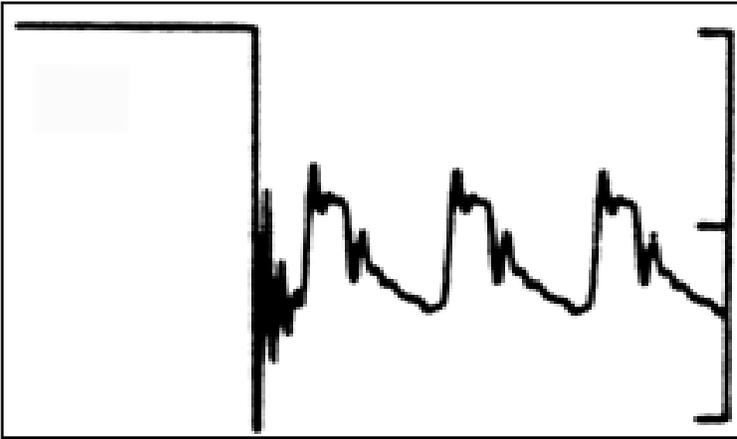


Fig. 1. A: Good tracing with dicrotic notch. B: Overdamping, usually caused by an air bubble in the line, leaks or cannula thrombosis or kinking. C: Underdamping, usually caused by an artifact being amplified, air in the transducer or excessive tubing length. In the next issue: The Practitioner will cover calibration and drawing blood from the system.

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



Cryptic crossword solution

Can J Rural Med 1997; 2 (2)96

Across

Down

- | | |
|-------------------------|--------------------|
| 1. & 6. Fallopian tubes | 1. Frump |
| 9. Uncle | 2. Lactation |
| 10. Procedure | 3. Opera house |
| 11. Phalangeal | 4. Impugns |
| 12. Deli | 5. Neonate |
| 14. Orisons | 6. Tees |
| 15. Ethical | 7. Brute |
| 17. Sinuses | 8. Specialty |
| 19. Potency | 13. What's up doc? |
| 20. Elba | 14. Obstetric |
| 22. Nonroutine | 16. Condition |
| 25. Regrouped | 18. Shot put |
| 26. Drive | 19. Paradox |
| 27. Canon | 21. Begin |

28. Toxicants

23. Ewers

24. Bonn

[\[Return to Cryptic crossword\]](#)

© 1997 Lee Teperman

