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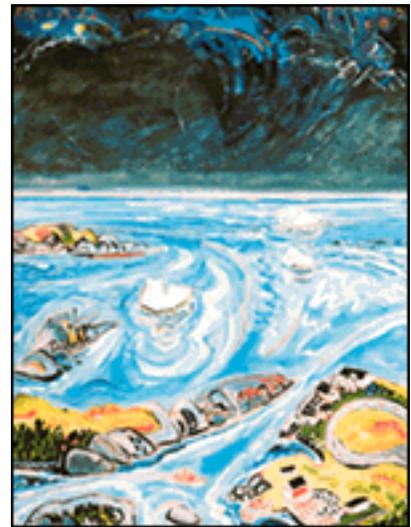
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Oil on canvas 48" × 36". 1998.

Artist: Anne Meredith Barry.

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The end of the beginning

Keith MacLellan, MD
Shawville, Que.

CJRM 1999;4(1):5

At the risk of sounding sententious, rural medicine is becoming important. If the increasing weight of successive issues of the Canadian Journal of Rural Medicine (CJRM) is any indication, more people are paying attention, writing, supporting, postulating and posturing. This is a healthy and fascinating indication that an organized voice for rural health care delivery is forming in Canada. It is, to paraphrase Churchill, the end of the beginning. Mechanisms are now in place that span the gamut from helping the individual practitioner in a rural community to changing policy at the national level. Now the task is to see that these mechanisms work smoothly, a task that the CJRM will foster assiduously.

Even a cursory reading of this and the last issue of the Journal will show readers that the topic of advanced skills for generalists features prominently. We do not want to bore you, but the issue stands out as one in which the local issues and the national ones come together. We are told that 60% of Canada's exports come from rural areas, and that 40% of our exports are raw materials. These raw materials are dug out, fished, logged and farmed by one-third of the country's population strung out in little towns across a huge geographic area. We are also told that health care is not a right in Canada, but surely rural people deserve access to proper medical care, including that most difficult of all medical care to provide: specialized services.

As medicine becomes increasingly complicated, proper care for even common conditions such as pregnancy, stroke, heart attack, bone fracture and general surgery is getting difficult to find. If our rather static and centralist medical system does not respond, then rural hospitals will become a combination of simple triage stations combined with public health systems. Scoop and run tactics will not serve our rural patients well. We need trained generalists produced under a comprehensive plan. It is wonderful to see rural doctors take the situation in hand (no-one else was doing it), and, by cajoling or leading the way in a positive manner, bring the involved players to the altar. In the end this will have an enormous effect on rural communities and on the individual practitioner.



La fin du début

Keith MacLellan, MD
Shawville (Québec)

CJRM 1999;4(1):6

Au risque de sembler sentencieux, je dois dire que la médecine rurale prend de l'importance. Si le poids croissant des numéros successifs du Journal canadien de la médecine rurale (JCMR) en est une indication, de plus en plus de gens accordent de l'attention à la question, écrivent, donnent leur appui, posent des hypothèses et gesticulent. Il s'agit là d'un signe sain et fascinant qui indique que la communauté des soins de santé en milieu rural commence à s'organiser au Canada. Pour reprendre le mot de Churchill, c'est la fin du début. On a maintenant mis en place des mécanismes divers, depuis la prestation d'aide aux praticiens en milieu rural jusqu'aux changements de politiques à l'échelon national. Il faut maintenant voir à ce que ces mécanismes fonctionnent sans problème, tâche à laquelle le JCMR s'activera assidûment.

Même une lecture superficielle de ce numéro du Journal et du numéro précédent montrera aux lecteurs que la question des connaissances spécialisées pour les généralistes a beaucoup d'importance. Nous ne voulons pas vous ennuyer, mais il s'agit d'un numéro où convergent les enjeux locaux et les grandes questions nationales. On a dit que 60 % des exportations du Canada proviennent des régions rurales et que 40 % de nos exportations sont constituées de matières premières. Ces matières premières sont extraites, pêchées, abattues et cultivées par le tiers de la population du pays, éparpillée dans de petites villes dispersées sur une vaste superficie géographique. On a dit aussi que les soins de santé ne sont pas un droit au Canada, mais la population rurale mérite sûrement d'avoir accès à des soins médicaux appropriés, y compris aux soins médicaux les plus difficiles à dispenser : les services spécialisés.

Plus la médecine devient complexe, plus il devient difficile de trouver les soins appropriés pour les accouchements, pour des problèmes communs comme les accidents vasculaires cérébraux, les crises cardiaques ou les fractures, ou encore pour les interventions de chirurgie générale. Si notre système médical plutôt statique et centraliste ne réagit pas, les hôpitaux ruraux deviendront alors de simples gares de triage greffées au système de santé publique. Les tactiques de rapiéçage ne serviront pas bien les patients ruraux. Nous aurons besoin de généralistes formés dans le contexte

d'un plan intégré. Il est magnifique de voir des médecins ruraux prendre contrôle de la situation (personne d'autre ne le faisait) et amener les convives à la table par la persuasion ou en prêchant par l'exemple. En bout de ligne, cela a un effet énorme sur les communautés rurales et sur chaque praticien.

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President's message: building bridges —
don't let them crumble!

Patricia Vann, MD
Dryden, Ont.
President, Society of Rural Physicians of Canada

CJRM 1999;4(1):7

The Executive of the Society of Rural Physicians of Canada (SRPC) and its regional and working committees continue to build bridges with political, medical and educational organizations.

Liaisons with Health Canada continue to improve with the appointment of Dr. John Wootton as Executive Director of Rural Health. We applaud his appointment by Health Canada and offer him our sincere congratulations. His job was created after the SRPC briefed the federal government on rural health issues last fall. We suggested the position to them and helped to write the job description. Dr. Wootton will help strengthen our connections with Health Canada and will definitely provide that "rural lens" needed in Ottawa.

In September 1998 the SRPC organized a meeting in Whitehorse to discuss forming a committee to advise the new Executive Director of Rural Health on how to improve access to health care in rural and remote areas. Representatives of the Association of Medical Colleges of Canada, the Federation of Medical Licensing Authorities of Canada, the Royal College of Physicians and Surgeons of Canada, the Canadian Medical Association (CMA), the College of Family Physicians of Canada (CFPC) and other interested parties attended. The committee is now a reality.

The newly formed Rural and Remote Practice Issue Advisory Group of the CMA held its first meeting in August 1998. Neil Leslie, SRPC representative, was elected chair. The committee includes rural physicians from many areas of Canada as well as representatives from Canadian Association of Internes & Residents, the faculties of medicine and the medical school residency programs across Canada. Issues of priority were identified: a nationally accepted definition of rural, development of a national on-line recruitment service for rural areas, more rural preceptors in the medical school system and further exploration and development of the issues concerning

frequency of call, as presented initially in the SRPC discussion paper (see [Can J Rural Med 1998;3\[3\]:139-41 \[full text / résumé\]](#)).

The fall council meeting of the SRPC was held in Saskatoon in conjunction with the 4th International Conference on Rural Health and Safety in a Changing World, which was sponsored by the Centre for Agricultural Medicine. The conference gave SRPC representatives an opportunity to discuss common issues with representatives from 22 countries.

Our working group on advanced skills continues to develop position papers on anesthesia, general surgery and maternity care training for rural physicians, which should be ready this spring. They are building bridges between rural medicine and the various specialist groups involved in teaching these skill sets, as well as with the CFPC.

All these bridges, being built on YOUR behalf, need to be maintained and strengthened. Unless our membership continues to increase, these bridges will crumble. Help us strengthen them by joining the SRPC today (see membership form on the carrier card insert).

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Message de la présidente :
Construire des ponts — et les entretenir!

Patricia Vann, MD
Dryden (Ontario)
Présidente, Société de la médecine rurale du Canada

CJRM 1999;4(1):8

Le comité exécutif de la Société de la médecine rurale du Canada (SMRC) et ses comités régionaux et comités de travail continuent de resserrer les liens avec des organisations des milieux de la politique, de la médecine et de l'éducation.

La liaison avec Santé Canada continue de s'améliorer avec la nomination de Dr Wootton au poste de directeur général de la santé rurale. Nous nous réjouissons que Santé Canada l'ait nommé à ce poste et nous le félicitons sincèrement. Son poste a été créé après que la SMRC ait présenté au gouvernement fédéral le dossier de la santé rurale l'automne dernier. Nous avons suggéré au gouvernement de créer le poste et nous l'avons aidé à en décrire les fonctions. Dr Wootton aidera à resserrer nos liens avec Santé Canada et fournira certainement le «point de vue rural» nécessaire à Ottawa.

En septembre 1998, la SMRC a organisé à Whitehorse une réunion portant sur la création d'un comité chargé de conseiller le nouveau directeur général de la santé rurale sur des façons d'améliorer l'accès aux soins de santé en régions rurales et éloignées. La réunion a attiré des représentants de l'Association des facultés de médecine du Canada, de la Fédération des ordres des médecins du Canada, du Collège royal des médecins et chirurgiens du Canada, de l'Association médicale canadienne (AMC), du Collège des médecins de famille du Canada (CMFC) et d'autres parties intéressées. Le comité est maintenant en place.

Le nouveau Groupe consultatif du projet sur les enjeux de la pratique en régions rurales et éloignées a tenu sa première réunion en août 1998. Neil Leslie, représentant de la SMRC, a été élu à la présidence. Le comité regroupe des médecins ruraux de nombreuses régions du Canada, ainsi que des représentants de l'Association canadienne des internes et des résidents, des facultés de médecine et des programmes de résidence de facultés de médecine de toutes les régions du

Canada. Le comité a établi des priorités : une définition du mot rural acceptée à l'échelle nationale, la création d'un service national de recrutement en direct pour les régions rurales, l'augmentation du nombre de précepteurs ruraux dans le système scolaire médical et l'analyse et l'élaboration plus poussées des questions liées à la fréquence des périodes de garde décrite au début d'un document de discussion de la SMRC (voir Journal canadien de la médecine rurale 1998;3[3]:139-41 [[full text / résumé](#)]).

Le conseil de la SMRC a tenu sa réunion d'automne en Saskatchewan dans le contexte de la quatrième Conférence internationale sur la santé et la sécurité rurales dans un monde en évolution, parrainée par le Centre de médecine agricole. La conférence a permis aux représentants de la SMRC de discuter d'enjeux communs avec des représentants de 22 pays.

Notre groupe de travail sur les techniques avancées continue de préparer des énoncés de principes sur la formation des médecins ruraux en anesthésie, chirurgie générale et soins en maternité, qui devraient être prêts ce printemps. Il est en train d'établir des liens entre la médecine rurale et les divers groupes de spécialistes qui enseignent ces connaissances spécialisées, ainsi qu'avec le CMFC.

Il faut entretenir et renforcer tous ces ponts que l'on est en train de construire pour VOUS. Nous ne pouvons continuer sans votre aide. Si nos adhésions ne continuent pas d'augmenter, ces ponts s'effriteront. Aidez-nous à les renforcer en adhérant maintenant à la SMRC (voir la formule d'adhésion en encart).

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Chest pain guideline and continuous quality improvement system for Canadian rural emergency health care facilities

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CJRM 1999;4(1):9-19

[\[résumé\]](#)

This manuscript and the guideline were reviewed and approved by the CAEP as official CAEP policy, by the Society of Rural Physicians of Canada (SRPC), the National Emergency Nurses' Affiliation (NENA) and L'association des médecins d'urgence du Québec (AMUQ).

Contact person: Dr. Jim Thompson, Chair, Canadian Association of Emergency Physicians Rural & Small Urban Committee: June 1998; jimt@jimthompson.net

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Abstract

Purpose: To design a chest pain guideline and continuous quality improvement (CQI) system for rural emergency health care facilities (REHCFs) for the rapid identification and initial management of patients with possible acute coronary ischemic syndromes and acute myocardial infarction (AMI).

Reason for the program: REHCFs, like urban emergency departments, might have difficulty meeting the recommended objectives of 15 minutes to AMI diagnosis and 30 minutes thrombolysis "door-to-drug" time. Some opportunities to give thrombolysis are missed. Existing guidelines and CQI systems are not designed to account for emergency practice in the rural context.

Method of development: The Rural & Small Urban Committee of the Canadian Association of Emergency Physicians (CAEP) developed the guideline and CQI dataset in a series of teleconferences. They paid careful attention to emergency health care in the rural context in Canada. The guideline is based on evidence from published literature obtained with MEDLINE searches. Recommendations were classified by level of evidence. A software program called Country Minutes Matter (CMM) was developed for use in REHCFs based on the CQI data set.

Description of the program: The chest pain guideline assigns patient care tasks to nurses and physicians and provides quality assurance objectives. Key data points defined in the guideline match data elements in the CMM software. The CMM software can be used by REHCFs to generate feedback to identify and correct causes of delay.

Implementation: The guideline and CMM software system are being distributed to all REHCFs in Canada. Individual facilities can use the guideline to write protocols that fit resource availability appropriate to their community and to develop in-services to keep staff current.

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Résumé

Objet : Concevoir, pour les services d'urgence en milieu rural (SUMR), un guide sur les douleurs thoraciques et un système d'amélioration de la qualité (AQ) pour l'identification rapide et la prise en charge initiale des patients qui peuvent avoir des syndromes d'ischémie coronarienne aigue et un infarctus aigu du myocarde.

Justification du programme : Comme les services d'urgence en milieu urbain, il se peut que les

SUMR aient de la difficulté à respecter les objectifs recommandés de 15 minutes pour diagnostiquer un infarctus et de 30 minutes écoulées entre l'arrivée et l'administration d'un médicament thrombolytique. On rate quelques occasions d'administrer la thrombolyse. Les lignes directrices et les systèmes d'AC actuels ne sont pas conçus pour tenir compte de la médecine d'urgence en milieu rural.

Méthode d'élaboration : Le comité de la pratique en milieu rural et dans les petites villes de l'Association canadienne des médecins d'urgence a élaboré le guide et l'ensemble de données sur l'AQ au cours d'une série de téléconférence. Les participants ont tenu attentivement compte des soins de santé d'urgence en milieu rural au Canada. Le guide repose sur des données probantes tirées de documents publiés réunis à la suite de recherches effectuées dans MEDLINE. Les recommandations ont été classées en fonction du niveau des données probantes. On a créé, à l'intention des SUMR, un logiciel appelé Country Minutes Matter (CMM) fondé sur l'ensemble des données d'AQ.

Description du programme : Dans le guide sur les douleurs thoraciques, on confie le soin des patients à des infirmières et des médecins et on présente des objectifs d'amélioration de la qualité. Les principaux points de données définis dans le guide correspondent aux éléments de données du logiciel CMM que les SUMR peuvent utiliser pour produire de la rétroaction afin de définir et de corriger les causes des retards.

Mise en œuvre : On est en train de distribuer le guide et le logiciel CMM à tous les SUMR au Canada. Les établissements peuvent utiliser le guide pour rédiger des protocoles qui correspondent aux ressources disponibles dans leur communauté et pour rédiger des notes de service afin de tenir le personnel à jour.

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Chest pain is a common presenting problem in rural emergency practice.¹⁻⁸ Acute coronary ischemic syndromes (ACIS) and acute myocardial infarction (AMI) are 2 of the most important differential diagnoses in this group of patients.⁸ About 30% of Canadian residents and many travellers to rural Canada are served by rural emergency health care facilities (REHCFs); it is possible that up to one-third of Canada's ACIS/AMI patients are managed in rural facilities.⁹

Management for AMI must be rapid because delays clearly are associated with adverse outcomes in terms of both morbidity and mortality.⁷⁻¹² The Canadian Heart and Stroke Foundation's Emergency Cardiac Care Coalition and the Canadian Association of Emergency Physicians (CAEP) both recommend that patients suffering AMI should be treated with thrombolysis within 30 minutes of arrival at the facility.^{11,13} The CAEP also recommends that AMI be diagnosed within 15 minutes of patient arrival.¹³ Rapid response and recognition of all patients with AMI who are eligible for thrombolysis are difficult objectives to achieve in all emergency departments,

both rural and urban.¹⁴ "Door-to-drug" times longer than that recommended appear to be typical in all settings,^{10,15,16} and not all REHCFs offer thrombolysis.¹⁷⁻¹⁹ Myocardium begins dying soon after the onset of coronary occlusion, so all providers should strive to minimize the time from onset of symptoms to initiation of thrombolysis.¹⁶

Systematic, protocol-driven approaches to chest pain have been used to improve the initial management, in the emergency department, of patients suffering chest pain.^{7,20-22} Canadian courts have determined that protocols should be adhered to in managing patients with possible cardiac pain.²² Reduction in door-to-drug time can be achieved through continuous quality improvement (CQI).^{16,23,24}

To date all published approaches are designed for use in urban facilities and are not sensitive to the rural context. The CAEP recommended in 1997 that a chest pain guideline and audit process be developed that is sensitive to the rural context, and that it then be adopted by all REHCFs.⁹ This paper describes the guideline and CQI system that was developed to meet that recommendation.

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Method of development

The rural chest pain guideline and CQI dataset were developed from publications identified by MEDLINE searches, searches of reference lists and suggestions from individuals. The guideline and CQI dataset were discussed and revised through consensus-seeking teleconferences by the CAEP's Rural & Small Urban Committee. The CAEP Standards Committee reviewed the Rural & Small Urban Committee's third draft. The Rural & Small Urban Committee made revisions based on these reviews. The CAEP Executive then approved the fourth draft as official CAEP policy.

Supporting evidence for each recommendation was classified according to a system based on one proposed by the Canadian Task Force on the Periodic Examination ([Table 1](#)).²⁵ Evidence was graded with a 3-part notice showing the class of recommendation, the best level of evidence that we were able to verify to support the choice of class, and the best level of evidence that we were able to verify from a rural setting (indicated by the letter "R"). If a reference is not given for level III evidence, it can be read as the consensus opinion of the Rural & Small Urban Committee.

Hoffman-La Roche Ltd. developed the CQI software system Country Minutes Matter (CMM) based on the Rural & Small Urban Committee's recommended CQI dataset and advice. Hoffman-La Roche Ltd. provided unrestricted funding for the Rural & Small Urban Committee's work on the guideline and for disseminating the wall poster and software system. The Rural & Small Urban Committee followed the Canadian Medical Association's policy for interaction with the pharmaceutical industry throughout the project.²⁶

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The rural context of managing AMI

The CAEP recognizes that delivering emergency health care in the rural context has special features that must be considered in the design of clinical practice guidelines (B, III, R-III).⁸ Some key examples are the multiple roles of rural nurses who sometimes cover both inpatient wards and the emergency department, low rate of physician contact with AMI (about 2 to 4/yr), the call-back nature of physician and laboratory technician staff after hours, and variations in resource availability relative to REHCF size and function.^{9,27-29} These and other issues of context were considered in the design of the guideline and CQI dataset.

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Guideline overview

The guideline is divided into 4 clinical phases: "prefacility," "waiting room," "triage nurse" and "physician" ([Table 27](#),^{9-16,19, 20,23,24,30-61}). These phases are shown sequentially but can overlap. The fifth phase, "continuous quality assurance," includes a CQI mechanism to promote self-evaluation for identifying sources of delays that might be unique to individual REHCFs. ACIS and AMI must always be considered in any patient presenting to an emergency department with chest discomfort.^{7,22} The guideline emphasizes these disorders but does not preclude other entities in the differential diagnosis of chest pain or discomfort.

Prefacility phase

The inability of patients to recognize symptoms of AMI is a well-known cause for delay in treatment.^{11,19,62,63} Health system managers can have a variable but generally positive effect on reducing thrombolysis times, and therefore morbidity and mortality, by promoting adequate public education.^{30,34,35}

A significant proportion of rural patients with AMI arrive at REHCFs in private vehicles rather than by ambulance, the latter being the usual form of transport for urban patients.⁶² Ambulance transport, even at the basic life support level has many theoretical advantages over private transport: a supply of oxygen, transport in a semi-Fowler's position, administration of acetylsalicylic acid (ASA) and earlier notification of the REHCF staff. However, no research has been done to support a recommendation regarding ambulance use in rural settings. Some research from urban settings suggests that calling an ambulance can result in delayed arrival at the emergency department and that the risk of cardiac arrest in patients who travel by private vehicle

is very low.^{64,65} On the other hand, there is evidence that the presence of trained nurses and paramedics working in the prehospital environment can improve significantly the recognition of AMI and subsequently early thrombolysis.⁶⁶

Waiting room phase

Large-volume, urban emergency departments often employ a triage nurse, who interviews all patients as soon as they enter the waiting room to determine their priority. This level of staffing is not practical in many REHCFs, where special solutions are required for the waiting room phase. Participation in the CQI process can heighten the awareness of all staff who interact with patients in the waiting room or lobby.

Nursing phase (triage and initial management)

The guideline reminds nursing staff about key issues in triaging patients with chest pain and managing those with suspected ACIS and AMI.

Cummings²³ found that a team of at least 3 professionals at the bedside was required to speed response (A, II-3, R-III). In many REHCFs the triage nurse often has multiple roles, including caring for inpatients and maternity patients. A single nurse might cover the REHCF, particularly in low-volume periods. In these situations the nurse should be able to call other nurses for assistance, since many nursing functions should be carried out simultaneously. In many, and perhaps most, REHCFs the triage nurse will also be one of the nurses treating a patient with AMI; hence, we placed the triage and nursing management phases together.

Patients who might have coronary ischemia or infarction should be triaged to a very high urgency level owing to the risk that the patient will become unstable, the need for prompt thrombolysis, and the need to call in additional nurses, the on-call physician and the laboratory technician.

There is insufficient evidence to recommend a preferred sequence for nursing tasks when limited numbers of nurses are available to assist. The sequence we show is based on the Advanced Cardiac Life Support principle of managing the airway first, then breathing (oxygen) and then circulation (cardiac monitor and intravenous line).^{36,42} The importance of a cardiac monitor and intravenous line for patients with AMI in rural hospitals has been indirectly demonstrated by Hindle and associates.¹⁵ They documented a moderate rate of complications, such as hypotension and arrhythmia, in rural patients treated with thrombolysis. An electrocardiogram must be obtained and interpreted as soon as possible because it is critically important for diagnosing ACIS and AMI and for determining whether thrombolysis is indicated.^{42,43} Electrocardiography should be done by a registered nurse when a laboratory technician is not immediately available (A, III, R-III). The initial ECG should be shown or faxed to the on-call physician very early in the triage phase.

The dosage of oxygen in chest pain is controversial.^{67,68} There appear to be benefits from supplemental oxygen because hypoxemia can be associated with ongoing pain, ischemia, arrhythmia and myocardial dysfunction.^{36,69-74} However, there is also animal evidence that oxygen-free radicals can exacerbate both infarction and reperfusion injury.^{71,75-80} No direct connection has been made between administered oxygen dose and oxygen toxicity. The recommendation of the American Heart Association in Advanced Cardiac Life Support 1997-99 is to start oxygen at a rate of only 4 L/min by nasal cannula.³⁶ Therefore the practice of administering high-dose oxygen (10 to 15 L/min) to patients with chest pain but no other indication cannot be supported (D, II-2, R-III), but the administration of, at the least, low-dose oxygen can be (B, II-2, R-III).

Early administration of ASA is as effective as thrombolysis alone: together they produce added benefit, but how "early" ASA must be given has not been determined.^{36,53,81-83} For practical reasons, and because it seems logical to initiate ASA administration as early as possible, we recommend that ASA be given as soon as the patient is suspected of suffering an AMI, before the physician confirms the diagnosis. The precise timing deserves further research. Emergency department use of ASA is an established recommendation for AMI and unstable angina (A, I, R-III).^{7,12}

The role of sublingual nitroglycerin is controversial. Although it can relieve ischemia and pain in patients with angina and is widely used, its use in AMI has not been well studied. In fact until 2 decades ago nitroglycerin was contraindicated in AMI.⁴⁸ There is some evidence of beneficial hemodynamic effects of sublingual nitroglycerin in AMI comparable to intravenous nitroglycerin, although this comes with a significant increase in heart rate and decrease in systolic blood pressure.⁸⁴ Sublingual nitroglycerin can cause profound hypotension in patients with AMI, particularly inferior AMI, but the precise frequency of this complication is not well documented. One prehospital study found that sublingual nitroglycerin was associated with profound hypotensive bradycardia, hypotension or apnea/asystole in 4 of 300 cases.⁸⁵ Patients with inferior AMI and ST elevation in lead V4R on a 15-lead ECG often present with hypotension. In one study, 11% of such patients had cardiogenic shock.⁴⁷ Sublingual nitroglycerin can cause profound hypotension in these patients, although the precise risk has not been measured. Hindle and associates¹⁵ found that significant hypotension was present at some point in 23.1% of patients who received thrombolysis in rural Alberta. Although it is not known how many of those patients had hypotension as a result of right ventricular infarction, clearly the risk is present. Therefore sublingual nitroglycerin should be withheld, or used with caution, if right ventricular infarction is suspected (D, II-2, R-III). Certainly it should be withheld if the patient is hypotensive or bradycardic (E, II-1, R-III). The on-call physician might not be present when the decision to give or withhold nitroglycerin has to be made. This creates a conundrum for rural nurses who must manage a patient with chest pain before a physician can confirm the diagnosis. Further research is needed to determine the true risk of complications induced by the use of sublingual nitroglycerin in rural settings.

Physician phase (diagnosis and definitive treatment)

The guideline encourages early physician attendance and reminds physicians about key issues in assessing patients with chest pain with a view to ruling out or diagnosing ACIS and AMI and initiating appropriate treatment for AMI.

CAEP recommends that the decision to initiate thrombolysis should be made only on the advice of a qualified physician.^{9,13} This does not preclude thrombolysis in level 1 or 2 REHCFs if they are appropriately staffed with trained, qualified and experienced registered nurses and paramedics, and if a clear consultation process to a physician is established (A, II-2, R-III).^{9,37}

The short time objectives for initiating thrombolysis are controversial⁸⁶ and have not been verified with appropriate outcome research in any setting, either rural or urban. Although myocardial rescue is clearly time-dependent, the degree of improved outcome by shortening the objective is not clear from the literature.¹⁶ A number of rural physicians have reported during Internet discussions and teleconferences that these objectives seem unrealistic in REHCFs staffed by physicians on call-back rather than in-house, or in REHCFs where there are no physicians in the community. It has been emphasized, however, that the time frames are objectives, not standards of care.⁸⁷

We therefore recommend that the objectives for door-to-drug time should be 30 minutes for classic AMI presentations when the physician is immediately available in the REHCF (B, I, R-III). It should be 60 minutes when the AMI presentation is not classic, complications are present, or when the physician has to be called back to attend the patient (B, III, R-III).

Missed opportunities for coronary thrombolysis in rural facilities have not been studied, but they undoubtedly occur and the rate could be improved in some facilities. AMI diagnosis can be difficult when symptoms and the ECG are atypical, and atypical presentations of AMI are common.^{7,42,43} About 50% of initial ECGs are not diagnostic of AMI.⁴³ The rural nurse and physician can improve diagnosis and the rate of AMI recognition in these situations by re-evaluating the patient often, obtaining serial ECGs, using the 15-lead ECG and consulting with colleagues.^{42,43} When specialist physicians are not available in the rural community then specialist consultation should be available promptly by telephone and facsimile.¹³

The guideline reminds physicians of important concepts in the recognition and management of AMI. Hindle and associates¹⁵ found that adjunctive therapies with proven benefit in the management of AMI were used variably in REHCFs. ASA was given in 96.7%, but beta-blockers in only 59.8% of cases.¹⁵ The American Heart Association recommends nitroglycerin intravenously with thrombolysis. There is some evidence that intravenous nitroglycerin is beneficial in both AMI and unstable angina, although its precise role remains unclear.^{36,48,57-60} There is insufficient published information to provide practice standards for rate of use of these adjunctive therapies.

Continuous quality improvement phase

The guideline encourages REHCF nonclinical and clinical staff to identify causes of delay soon after each case and to capture that information on a data-entry form.¹⁶ This approach has proven effective in urban settings. However, urban solutions appear to be too labour intensive for many REHCFs, so the Committee devised a shorter dataset, which includes physician call-back and interfacility transfer ([Table 3](#)).^{20,23} The CQI process requires that this information be entered into the CMM software. Both nurses and physicians should fill in a data collection form during and soon after the episode to ensure that accurate, complete information is collected. The CMM reporting module makes it easy for local managers to print tailored reports for prompt feedback to staff and managers.

The CMM software can be installed on a computer in each REHCF and data entered either by the emergency nurse or health records staff. All patients who are considered for the diagnosis of AMI in either the emergency department or in-patient wards should be entered.

REHCFs should set up regular in-services to ensure that all hospital staff remain current and understand the guideline (A, II-2, R-III).^{16,88,89} The CMM software reports can be used during in-services to improve guideline compliance.

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Implementation of the guideline and continuous quality improvement program in Canada

The summary wall poster and CMM software are being distributed to all Canadian rural hospitals with 24-hour emergency departments. The rural chest pain guideline was designed to be as generic as possible. However, so many variations exist in the staffing, inventory and layout of REHCFs and in the geography of rural communities in Canada, that some institutions will need to modify the guideline to suit their circumstances.^{13,17,18} This can be done by developing a chest pain care map. It can be inserted as part of the patient chart to remind staff about optimal care options and to record actual patient care for each individual.¹¹

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Further work

Obviously much research needs to be done in many areas of managing AMI and ACIS in rural settings. A chest pain care map should be devised for REHCFs. Research should be conducted to determine the effectiveness of our guideline and CQI program in REHCFs. The guideline will require modification, as new evidence becomes available regarding both the effectiveness of

specific interventions in the management of AMI and the organization, function and staffing of REHCFs. Data collected with the CMM software can be pooled to study AMI management by REHCFs over a wide area and to identify causes of delay. Since the same nurses and physician who cover the emergency department in many REHCFs also cover the in-patient wards, this chest pain guideline and CQI system can also be used to manage in-patients. We did not explore special issues that might need to be considered when using this system for in-patients. Evidence-based guidelines should be developed for the continued management of AMI and ACIS in REHCFs after initial emergency care, including guidelines for inpatient management and interfacility transfer.

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Air ambulance transports to Port McNeill,
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[[résumé](#)]

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Abstract

Objectives: To determine overtriage rates (where air ambulance transport could have been

avoided without compromising patient care) by reviewing the records of air ambulance transports from isolated coastal communities to the small rural hospital in Port McNeill, British Columbia, a remote coastal community on Vancouver Island. The category of patient being transported to this hospital by the air ambulance service was also examined.

Design: A 1-year chart review from Apr. 1, 1996, to Mar. 31, 1997.

Main outcome measures: Demographics of the study group, site of origin of each air ambulance transfer, whether the liaison was a community health representative (CHR) or a registered nurse, and the final diagnosis by the receiving physician were all determined. In addition, subsequent management and patient outcome were also noted. After reviewing all of this information, a subjective decision was made as to whether the air ambulance transport was necessary or not.

Results: Forty-eight separate air ambulance transfers were carried out, all by helicopter, transporting a total of 51 patients (43 adults, 8 children). Forty-eight percent of evacuations originated from 2 communities off Vancouver Island. The overtriage rate was calculated at 22%. The area of minor trauma was particularly prone to overuse of the air ambulance.

Conclusions: Just over 20% of emergency air ambulance transfers to Port McNeill Hospital probably were not necessary. This overtriage rate is consistent with that reported for air ambulance transports that take place between primary care hospitals and secondary or tertiary care hospitals.

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Résumé

Objectifs : Déterminer les taux de surtriage (cas où l'on aurait pu éviter le transport par ambulance aérienne sans compromettre la sûreté du patient) en examinant les dossiers des transports par ambulance aérienne de communautés côtières isolées vers le petit hôpital rural de Port McNeill (Colombie-Britannique), localité côtière éloignée située sur l'île de Vancouver. On a étudié aussi la catégorie de patients transportés à cet hôpital par le service d'ambulance aérienne.

Conception : Examen des dossiers d'un an, soit du 1er avril 1996 au 31 mars 1997.

Principales mesures de résultats : On a établi les caractéristiques démographiques du groupe étudié, le lieu d'origine de chaque transfert par ambulance aérienne, si l'agent de liaison était un représentant en santé communautaire (RSC) ou une infirmière autorisée, et le diagnostic final posé par le médecin d'accueil. On a aussi noté le traitement administré par la suite au patient et

ses résultats. Après avoir étudié tous ces renseignements, on a décidé subjectivement si le transport par ambulance aérienne était nécessaire ou non.

Résultats : Quarante-huit transferts distincts par ambulance aérienne ont été effectués, tous par hélicoptère : on a transporté au total 51 patients (43 adultes, 8 enfants). Quarante-huit pour cent des évacuations provenaient de deux localités en dehors de l'île de Vancouver. Le taux de surtriage a été établi à 22 %. Le domaine des traumatismes mineurs se prêtait particulièrement à l'utilisation excessive de l'ambulance aérienne.

Conclusions : Un peu plus de 20 % des transferts d'urgence par ambulance aérienne vers l'Hôpital de Port McNeill n'étaient probablement pas nécessaires. Ce taux de surtriage est conforme à celui qu'on a signalé dans le cas des transports par ambulance aérienne entre les hôpitaux de soins primaires et les établissements de soins secondaires ou tertiaires.

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It is believed that the 1870 Franco-Prussian War marked the start of medical air evacuation, when hot-air balloons were supposedly used to carry the wounded from the besieged city of Paris.^{1,2} Over the past century, air transportation has continued to gain prominence during military conflicts and was an integral component of both the Korean and the Vietnam wars.^{3,4} More recently, emergency air medical evacuation has established itself in the civilian medical forum particularly in the area of trauma, and its use has translated into a decrease in both morbidity and mortality.^{5,6} Air ambulance evacuations of ill or injured patients has become a common mode of medical transport in the 20th century throughout most of rural Canada.² Because air ambulance services continue to be expensive, guidelines on implementation need to be enforced to ensure reasonable, cost-effective use. Selecting patients requiring urgent/emergency air transport (as opposed to routine transport) is a challenge that faces the on-call physician in many rural communities across this country.⁷

Air ambulance transfers, particularly of trauma victims, from rural and community hospitals to tertiary centres has been studied.^{2,6,8} The literature on its use in the prehospital setting before direct patient-physician contact remains scarce. The purpose of this study was to determine the overtriage rate by reviewing, over a 1-year period, air ambulance transfers from surrounding, isolated communities to a small rural hospital located on northern Vancouver Island. In so doing it was possible to determine the accuracy of physician assessments by phone.

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Setting

Port McNeill & District General Hospital is located in the logging community of Port McNeill, British Columbia. Port McNeill is situated on Vancouver Island approximately 200 km north of Campbell River ([Fig. 1](#)). The Port McNeill & District Hospital is an acute care, 10-bed rural hospital, which is optimally staffed by 5 family physicians/general practitioners. There are no specialists working at the hospital.

The hospital serves a population of at least 5000 people, spread out over an area exceeding 10 000 km². This hospital is the natural referral site for emergency air ambulance transfers from numerous surrounding isolated communities located both on Vancouver Island, on small coastal islands and on the mainland coast. Access to Port McNeill for the inhabitants of these communities is by either logging roads or scheduled flights/boats. Noteworthy outpost communities include Oweekeno, Guilford, Sointula and Kingcome ([Fig. 1](#)). Oweekeno, a southern Kwakwaka'wakw settlement of approximately 50 individuals is the furthest and most isolated of the outpost communities, lying 120 km due north of Port McNeill. Guilford is a small island community, 45 minutes by boat from Port McNeill.

The decision to evacuate a patient to Port McNeill using the provincial air ambulance service is based on dialogue among the physician on call and the nurse, the community health representative (CHR) or (rarely) the patient. The CHR is typically someone who is appointed by a native band to organize and take care of medical matters. This person may or may not have rudimentary nursing or medical training. Once the decision to transfer has been made and a hospital bed secured, the British Columbia Ambulance Service in Victoria is notified. They then assume responsibility for the details of the evacuation: making decisions such as what kind of air ambulance to use (e.g., helicopter versus fixed-wing transport), and which emergency medical personnel to dispatch. The transport coordinator does not, as a general rule, question the appropriateness of the transfer.

In British Columbia, specially trained paramedic ambulance personnel typically make up the air ambulance transport team. Physicians are expected to accompany the majority of neonatal transports and they tend to accompany about half the transports of older children. Paramedics typically manage the adult transports by themselves. With respect to air ambulance transports to Port McNeill, the usual scenario is that one of the local helicopter companies is chartered to do the pick up and delivery; a local ambulance attendant is sent to tend the patient. A physician may or may not go along depending on the severity or complexity of the problem. The patient is delivered to a helicopter landing pad located adjacent to the hospital.

Details of the emergency air medical evacuation are recorded by the paramedic or ambulance attendant on an "AirEvac" form. Details of the patient's emergency room visit are recorded on the emergency form by nursing and staff physicians. Details of a patient admission and hospital stay are recorded on the hospital chart.

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Methods

Air ambulance transfers from surrounding communities to Port McNeill & District Hospital over a 1-year period (April 1996 to April 1997) were reviewed retrospectively. Those few transports to Port McNeill organized from another hospital (e.g., Campbell River & District General Hospital, Port Hardy Hospital) where another physician obviously had already assessed the patient were excluded from the study. The "AirEvac" record, the emergency sheet and the admission history (for patients admitted to hospital) for each air ambulance transfer were reviewed. The demographics of the study group, site of origin of each air ambulance transfer, whether the liaison was a CHR or a registered nurse and the final diagnosis of the receiving physician were determined. In addition, subsequent management of the patients (i.e., admission versus immediate discharge, active management versus monitoring only, transfer to a tertiary facility) and patient mortality were noted. After reviewing all this information, a subjective decision was made as to whether the air ambulance transport was necessary or not. The chart audit was performed and the subjective judgement as to appropriateness of air ambulance use was made by the primary author (S.M.).

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Results

Between April 1996 and April 1997, there were 48 separate air ambulance transfers by helicopter to Port McNeill & District Hospital ([Table 1](#)). The sites initiating the greatest number of patient transfers were Oweekeno (27%) and Guilford (21%). Almost half of the air ambulance transfers from Guilford were for the same patient (an elderly woman).

In all, 51 patients, ranging in age from 15 months to 83 years, were transported; one particular incident involved the air ambulance transfer of 4 patients. Eight (16%) of the patients (4 girls, 4 boys) were under 14 years of age (mean 6.1 years, standard deviation 4.8 years), constituting the pediatric population. The adult population included 43 patients (15 [35%] women, 28 [65%] men) with a mean age of 43.4 years (standard deviation 17.3 years). Five patients were each air evacuated twice during the study period, in 3 cases for the same or a similar complaint. One patient, the elderly female from Guilford, was transported 4 times for the same complaint (congestive heart failure) and died after her last admission.

Data on patient outcome revealed that most transported patients were also admitted to Port McNeill Hospital ([Table 2](#)). Thirty-one patients (61%) were admitted, 25 of whom received some form of active treatment (e.g., thrombolysis, antibiotics) over an average hospital stay of 5.6 days (standard deviation 5.2 days). The remainder of admitted patients were hospitalized overnight for

observation and discharged the following day. Eleven patients (22%) were seen solely in the emergency department and discharged the same day. After initial stabilization at Port McNeill hospital, 4 adults and 1 child were transported on the same day to a tertiary centre for further management (10% of cases). Over the 1-year period, 4 patients (8%) died after air ambulance transfer to Port McNeill hospital, 3 on the day of transport and the fourth 5 days after admission to hospital. There was 1 pediatric fatality (drowning) and 3 adult deaths (aortic dissection, congestive heart failure, hepatorenal syndrome).

The most frequent physician diagnosis was that of minor trauma in 15 (29%) of the patients ([Table 3](#)). Seven patients (14%) presented with symptoms that necessitated work-up for myocardial infarction. Five patients (10%) manifested other cardiovascular complaints. Similarly, respiratory disease, abdominal pain and toxic ingestion accounted for 10% each of the diagnoses. Use of air ambulance transfer was deemed in retrospect inappropriate in 11 patients (22%), 5 of whom originated from Oweekeno. Nine of the patients had sustained very minor trauma that was neither life nor limb threatening. The other 2 cases of inadequate patient selection involved the transport of young men, one from Oweekeno whose condition was subsequently diagnosed as bronchitis and the other from Guilford who required nonurgent, routine transport only for cast and pin removal.

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Discussion

Our study found that air transport was inappropriate in 22% of the cases. Accepting overtriage rates as high as 25% to 74% has been advocated to avoid compromising patient care by undertriaging.⁹ However, these other reports on air ambulance use primarily dealt with interhospital transport.^{5,9} Our study appears to be the first describing the unique situation of a patient population that is being transported by air ambulance from isolated, coastal communities to a nearby rural hospital.

The relative acuity of disease in this patient population was not as high as in other studies on air ambulance transport.^{6,9} This finding is not unexpected given the unique prehospital environment in which this service functions in the Port McNeill area.

The physicians on call at Port McNeill & District Hospital do not have the luxury of properly screening those patients who present initially to outpost health centres, other than through rudimentary assessments by phone. This form of communication can be misleading and is fraught with biases. Limits in the training of a CHR or registered nurse, physician inexperience with rural medicine, physician lack of experience with the geography of the area, and physician inability to experience the "gestalt" of the patient over the phone are all factors that could contribute to early evacuation. As always, physicians must err on the side of caution; the onus is

on them to determine if emergency transport is, in fact, necessary.

Unfortunately, in this retrospective analysis, the indications that led to transport were inconsistently documented by the physician on the emergency/admission records. Factors that might have had an impact on decision-making include the perceived severity of the illness (as gauged over the phone) and its likelihood of progression, the age, medical history and premorbid state of the patient, their geographic isolation and, in the case of trauma, the mechanism of injury.

In cases in which the potential for serious consequences does exist, even remotely, patient transport becomes mandatory. For example, any patient complaining of chest pain questionably of cardiac origin quite rightly needed to be transported; opting for watchful waiting would have been irresponsible and indefensible. Similarly, those with significant abdominal pain were assessed as relatively urgent because of the occasional acute abdomen. Trauma patients complaining perhaps of only minor neck pain required, at minimum, physical examination by a physician to rule out a cervical-spine injury. Such a case, if films showed a fracture, would be upgraded to major trauma. However, the necessity of obtaining films might only have become apparent after direct physician contact. In contrast, other forms of minor trauma such as simple lacerations, low-back strain and potential closed extremity fractures should be, theoretically, less problematic. In reality, it is precisely in this diagnostic category that most cases of inappropriate air transport were documented (82%). Overtriaging in these cases appeared from the charts to be primarily a reflection of an overestimation of the severity of the trauma. Obvious abuse of the system was very rare, but did occur with the transfer of one patient for cast and pin removal who clearly did not require air ambulance service.

Once the decision to transport a patient is made, the dilemma of determining which patients would specifically benefit from air evacuation then arises. In fact, it was clear that, despite longer transport time, the services of a ground ambulance crew would have sufficed for many of the patients over the 1-year period. However, geographic constraints as in the case of island communities often made this option impossible. The physician would then have been faced with a choice between 2 extremes. Either transport without any medical back-up on a scheduled flight or boat (for example, the following day) or air ambulance evacuation with its advanced care and thus implicit financial costs. If the physician perceived the former as inadequate for patient care for whatever reason, the latter would then be the only recourse.

That communities isolated by water depend more heavily on air evacuation is certainly borne out in this study with Oweekeno and Guilford together accounting for 48% of the air evacuations over the study year. A confounding factor, however, is that both these sites rely on CHRs (rather than registered nurses) as their liaisons with the Port McNeill physicians. The advanced training of registered nurses and their presumably greater experience with various patient presentations would likely influence the accuracy of the report a physician receives by phone. As a result, in communities serviced by registered nurses, a physician may have a higher threshold before initiating transport and may more comfortably elect to have patients make their own way to either

the hospital or medical clinic on a nonurgent basis.

In light of the communication and geographic biases influencing air transport into Port McNeill, an overtriage rate of 22% is probably acceptable. As mentioned earlier, the area of minor trauma was most susceptible to overtriaging. This might be improved through case-by-case reviews and scheduled regular auditing sessions for CHRs, registered nurses and staff physicians. Teaching CHRs simple measures such as first aid wound care and the documentation of pulses in an extremity soft-tissue injury (query fracture) might reduce significantly any inappropriate air ambulance transports.

There are a number of limitations to this study. The 22% overtriage rate is determined by subjective means and not by any standardized triage measurement tool. A prospective study would have been preferable to a retrospective study, mainly because we could have asked physicians to indicate specifically the concerns that led them to initiate an air evacuation and their impressions upon receiving the patient. At the same time, the outcome when phone communications result in routine rather than air ambulance transport could also have been recorded and evaluated. This would also have allowed for determination of an undertriaging rate.

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Conclusions

This study shows that the air ambulance transport system is being used to transfer patients with a wide variety of problems. Just over 20% of emergency air ambulance transfers from surrounding, isolated, communities to Port McNeill & District Hospital were probably not necessary. Nonessential use of the air ambulance service is particularly prevalent in minor trauma. Geographic considerations, qualifications of liaison personnel at the referring site, and the experience of accepting physician probably play a role in rates of use.

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The Ten Commandments of emergency airway management for the rural physician

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For most of us, airway management skills are needed infrequently, but when they are needed they are needed urgently and are potentially lifesaving. Roadblocks remain: the necessary skills are highly technical and relatively rarely used. Most of us have little chance to practise between critical cases. Patients may arrive with little or no advance warning and leave us no time to mobilize staff or extra help. Much of the literature and algorithms for airway management are aimed at the urban anesthesiologist or emergency room physician and are not as applicable to rural physicians. This paper presents an overall game plan and algorithm for emergency airway management by rural physicians.

Game Plan

Always remember: for infrequently used skills, keep things simple ([Table 1](#)). Even a small partial airway may be enough to keep your patient alive and avoid hypoxic brain damage until more help can be mobilized.

1. Have an organized game plan.

Know what things to do first, what to do if your plan works and what to do if it doesn't. Fig. 1 (not available online, please refer to print copy) shows a suitable algorithm for handling patients who need emergency airway management.¹

2. Remain calm.

These patients are always stressful for a rural physician to handle. We cannot have specialist-level skills in everything. All we can do for our patients is our very best. Sometimes even that will not be good enough.

3. First use bag-mask ventilation.

The first priority is always to use bag-mask ventilation with the patient's head positioned properly. If you are the most skilled person present, consider performing this vital procedure yourself until more help can be mobilized. Bag-mask ventilation is the vital skill in emergency airway management. It is your constant back-up and "rescue strategy." If bag-mask ventilation is adequately oxygenating your patient, don't rush to intubate. Not everyone with an airway or breathing problem needs to be intubated. Get your thoughts together, prepare your equipment and get an assistant if possible.

Within our role as rural physicians, the common indications for intubation are as follows:

- The patient will require ventilatory support, with a bag mask or mechanical ventilator, for more than a very short period.
- The patient is in a coma (usually with Glasgow Coma Scale score less than 8) due to drug overdose, metabolic disorder or trauma.
- To keep the airway open, when there has been facial trauma, burn injury or bleeding into the airway.
- To allow personnel to move on to other critical tasks in a marginal or critical situation, and to guarantee airway control during a transfer.

In a large American urban study,² the most common diagnoses in patients requiring emergency room intubations were: blunt trauma 38.0%, drug overdose or "altered mental status, not specified" 16.9%, cardiac arrest 19.9%, penetrating wounds 91.7% and seizures 5.6%.

4. Call for help early.

Call for help early before the situation deteriorates. Get an assistant to help you if possible. There's a lot to do.

5. If you can't ventilate: intubate.

If you can't ventilate the patient properly with a bag mask then intubate. If, for whatever reason, you are not getting proper ventilation with the bag mask, the next step is an endotracheal intubation.

6. Keep track of time.

Have your assistant tap you on the shoulder 30 seconds after you have begun attempting intubation. That adrenalin rush distorts our sense of time and gives us tunnel vision. If you haven't been successful, go back to bag-mask ventilation (your "rescue strategy") and again, get your thoughts together on what your next step will be.

7. If at first you don't succeed: try again.

If your first intubation attempt does not work, try a second time. Think about what you can do differently. A large urban emergency room review of 610 intubations found that emergency room physicians were able to intubate 81.4% of the patients on the first attempt and 13.3% on the second attempt.²

If you decide to make a second attempt, don't use the identical technique. It won't work any better. On the second attempt change something.³

- Reassess and possibly change the position of the head.
- Get an assistant to steady the head.
- Get an assistant to apply gentle cricothyroid pressure.
- Try using a smaller endotracheal tube.
- Use an intubation aid such as a stylet or light wand ([Fig. 2](#)).

8. If you can't intubate: ventilate.

If you cannot intubate on 2 tries, further attempts are probably futile. A more experienced intubator may have better luck. Go back to the bag mask, your "rescue strategy," and try to oxygenate this way.

9. If you can't ventilate with a bag mask and can't intubate: open the neck.

If you can't get enough ventilation with a bag mask and can't get an endotracheal tube in, you are — to put it mildly — in big-league trouble. You may have to "open the patient's neck." In one large study,² cricothyrotomy was required in 1% of all patients requiring the emergency establishment of an airway, most of them trauma victims, giving an overall rate of 2% for trauma patients ([Fig. 3](#)).

Other methods for handling the "can't ventilate, then intubate" scenario include the Combitube (Kendal Sheridan Catheter Corp., Argyle, NY) ([Fig. 4](#)) or "Jet-Air" ventilation ([Fig. 5](#)).^{4,5} The Combitube is a reasonable choice, especially in the nontrauma situation, where there is no anatomic damage to the airway, for example, a drug overdose. Although not in common use in rural areas, the laryngeal mask may be acceptable ([Fig. 6](#)), although trauma with the consequent risk of aspiration is listed as a relative contraindication.³ The mask can be easily applied and is unlikely to cause further damage.

10. Practise whenever you can. These are perishable skills.

Practise on mannequins, review the books and Web sites⁶ and accompany an anesthesiologist in the operating room if you have a chance: the time to learn how your equipment works is not in the middle of an airway emergency! Also be sure that your emergency room has the proper equipment instantly available, including a "survival kit" ([Table 2](#)).

To summarize.

IF YOU CAN'T VENTILATE: INTUBATE.

IF YOU CAN'T INTUBATE: VENTILATE.

IF YOU CAN'T INTUBATE, CAN'T VENTILATE: OPEN THE NECK.

Acknowledgement: Photographs by Keith MacLellan, MD, Shawville, Que.

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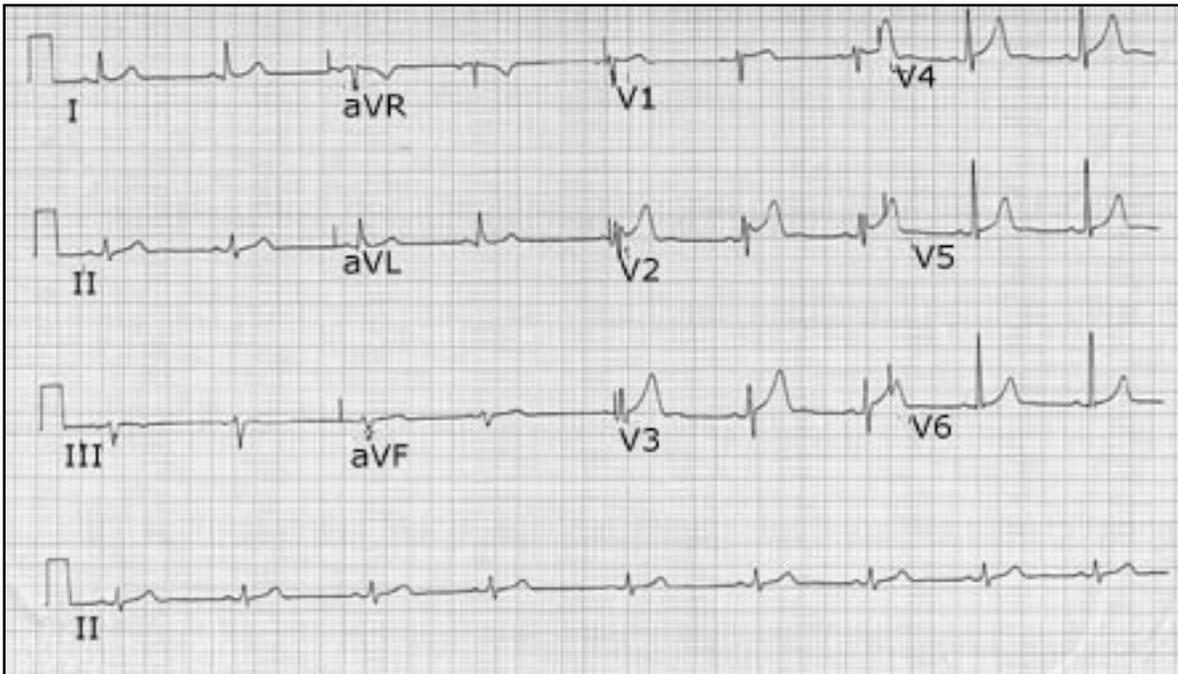
Country cardiograms case 11

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Case presentation

A 30-year-old roofer presented to the emergency department. He complained of an attack of left sternal pain and numbness in his arms, along with a feeling of wanting to belch that had occurred 2 hours earlier. The attack had lasted 5 to 10 minutes, but he had had a shorter 1- to 2-minute attack an hour later and decided to come to the hospital. He was a nonsmoker and said he had never been told he had cardiac disease. His electrocardiogram, obtained while he was pain free, is shown.



What is your differential diagnosis? [See answer on page 39.](#)

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"Country cardiograms" is a regular feature of the Canadian Journal of Rural Medicine. In each issue we will present an electrocardiogram and discuss the case in a rural context. Please submit cases to Ms Suzanne Kingsmill, Canadian Journal of Rural Medicine, Box 1086, Shawville QC J0X 2Y0

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The future of rural health: Comprehensive care or triage?

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Historically, community hospitals have provided comprehensive care to rural Canada. Strategically located close to smaller neighbouring communities and far from urban centres, they have offered a full range of essential surgical, obstetrical and anesthetic services. Within these hospitals rural family physicians with advanced skills have sustained the system of rural health care as we know it. Can we imagine the alternative as we witness the erosion of these skills?

How important are advanced skills?

In rural western Canada, general practitioners provide surgical services in 87% of the hospitals, and 16% of hospitals rely exclusively on general-practitioner surgeons.¹ Thirty percent of all appendectomies are performed by general-practitioner surgeons.¹ In Canada in 1991, 4884 cesarean sections were performed by family physicians, virtually all in rural Canada. This represents 7% of all cesarean sections done.²

In rural British Columbia, general-practitioner anesthesiologists represent 97% of anesthesia personnel in hospitals having fewer than 50 beds and 88% in hospitals having 50 to 99 beds.³ Canada's general-practitioner anesthesiologists, practising almost exclusively in rural Canada, provide 20% of all anesthetics in Canada.⁴

Who provides these services?

Rural Canada has relied heavily on the graduates of foreign medical schools to provide advanced procedural care to its citizens. Approximately one-half of Canada's rural general-practitioner surgeons and one-third of general-practitioner anesthesiologists have been trained elsewhere.¹ Of these foreign graduates, the largest group were trained in South Africa, the next largest group were trained in the United Kingdom.¹ These physicians represent 2 distinct populations: some are family physicians who received extra training to acquire advanced skills; the others were

trained as specialists, but the Royal College of Physicians and Surgeons of Canada does not recognize their specialty certificates. Nonetheless they chose to stay and combine a limited procedural practice with a family practice in rural Canada.

What would we do without these foreign graduates?

The door through which these rural physicians immigrated has now largely been closed. Faced with important human rights issues, the provincial licensing bodies decided a few years ago that the preferential recognition of equivalency in training between Canada and the United Kingdom, South Africa and some other Commonwealth countries would be discontinued. Graduates of these foreign medical schools are no longer eligible to practise medicine in Canada. [This decision by the licensing bodies should not be confused with the decision by the Royal College to stop recognizing the equivalency of specialty training in these countries. Immigration by foreign specialists intending to practise their specialties is an urban issue, with these physicians filling niche roles, such as in the transplant programs, which are located in urban areas.]

Where is the Canadian supply?

Clearly, rural Canada will not attract Canadian-trained specialist physicians prepared to provide advanced skills. The specialties of anesthesia, general surgery and obstetrics are facing their own serious supply problems. For the most part, the graduates of these programs are not interested in working in a community hospital. The volume and complexity of cases is low and the proportion of night and weekend call is excessive. It is often necessary for them to supplement their income with earnings from a general practice. Moreover, a specialty service in rural Canada, with limited nursing and technical support, is often inappropriate. From a purely fiscal viewpoint, a laparoscopic bowel program to attract a specialist general surgeon is a very expensive way to provide the community with essential surgical services, such as appendectomy and cesarean section.

So, if there is to be a Canadian solution to the provision of advanced procedural care in the rural setting, it will have to be provided by rural family physicians trained in Canadian programs. The brightest hope is in anesthesia. Canada has a long history of training family physicians in anesthesia, which is why we are less reliant on foreign graduates for anesthesia services (one third) than we are for surgical services (one half).¹ However, several of the training positions have remained unfilled in recent years. The problem is multifactorial. The decision, made without any evidence to support it, to change the training program from 6 to 12 months has set the bar too high.⁴ Without adequate provision for continuing medical education, maintenance of competence programs and professional support, the graduates endure a significant degree of professional isolation. The general malaise in rural medicine is amplified by the additional responsibilities of providing coverage for advanced skills to a community hospital. Without recognition and remuneration, and without creative provision for off-call interludes, there will be diminished interest by rural physicians in acquiring anesthesia training and other advanced skills.

We also face increased attrition rates amongst rural physicians currently in practice.

The situation with Canadian training programs in general surgery and operative obstetrics is more discouraging. The only training programs for general-practitioner surgery are at the University of Alberta and the University of British Columbia. These are very new and small, producing a maximum of 2 graduates each from the 12-month program each year. Both universities offer similar programs, as do a few others, to teach cesarean section skills to rural family physicians. Again, the numbers are small. There also exists, in operative obstetrics, an underground, informal training program whereby applicants, standing "shoulder to shoulder." with their preceptor, acquire a special one-time only training arrangement.

Physicians working for the United Church of Canada on the west coast have been trained in this manner for years. Naturally, all of the difficulties faced by anesthesia graduates — continuing medical education, maintenance of competence, professional isolation, burnout — are endured by the few Canadian graduates in obstetrics and general surgery.

What is the future without advanced procedural care?

The availability within community hospitals of rural family physicians with advanced skills in anesthesia, operative obstetrics and general surgery has sustained rural medical care as we know it. The opportunities and the responsibilities to provide care for seriously ill or injured patients affords teams of physicians, nurses and support staff the opportunity to practise teamwork and to maintain their skills and confidence. When these same professionals are deprived of essential anesthetic and surgical services, and are required to transfer ill patients for definitive care, they lose both the ability and the inclination to care for anything but reasonably well patients. Their communities will not attract physicians with ambitions to provide comprehensive care. Rural medicine will face the prospect of providing ambulatory care, triage, transport services, and not much more.

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A tractor tale

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There is an old adage "you can take the boy out of the farm, but you can't take the farm out of the boy." This should be well remembered by the powers that be when discussing the recruitment and retention of rural doctors. The "happy boy" in the picture has been a rural doc for 25 years and the picture speaks volumes on the reasons why. There is just so much to do and enjoy in the country: wood to be split and put in for the winter, gardens to be tilled, trees to be tended . . . and tractors to be rescued and revived.



Now my husband, Syd, the boy on the tractor, has always had a fascination and affection for engines. In "med" school, to make a bit of extra money, he fixed up and sold old cars. As a young doctor he built a plane. Now he maintains a flock of AMC "Eagles" on the road for his athletic, skiing, hiking, kayaking children. To his joy he inherited a "Tractor" — a 1941 Farmall Cub — from a maternity patient whose Dad had died, leaving it sitting inactive in the back field for 10 years. The price was right — free for the pick-up, in the Kootenays.

After seeing a picture of this antique tractor, Syd mentioned it to a like-minded friend (a machinist) and patient (injured shoulder, mountain biking) who immediately offered to drive down with his new 4-wheel drive Ford truck, with a hitch, to help retrieve it. Now this friend only works when there is nothing more fun to do, so he is a great friend for a busy rural doc. He is always ready and willing to ski, hike, fish and forage, plus he loves old equipment. The problem for the "boys" over the next 2 weeks was securing a trailer, but the word went out. Lo and behold another patient came forth with a trailer, and the expedition was on.

Since it is a long day's drive to and from the Kootenays, they were up at dawn and away. Numerous tractors, mountains and animals were sighted on this fun-filled trip. At their destination the Mrs., of course, wanted them to stay for lunch and chat, but after a quick bite they

had to up and away with their tractor.

Meanwhile, we girls decided we would go for dinner since we had no men to feed. As we congregated on our back porch the 2 proud boys pulled up in the truck with their new found tractor treasure in tow. So, naturally, we girls had to go and admire their prize. Out the back we went to check it out, grins on all faces. A comment was required. At a loss for words I said, "A thing of beauty." Cathy eye-balled me, so I explained, "Beauty is in the eye of the beholder." After a weary and wonderful day, the boys and the girls went out for Chinese food.

Now the tractor, which had sat under a pine tree unmoving for 10 years, sat unmoving still. Syd had a problem to solve that was eager to occupy a resting neuron. He started puttering immediately (one has to have priorities) and dissected the engine. After dismantling half of it, he diagnosed the primary problem, "the manifold."

A country doc fascinated by tractors always has a topic of conversation for those serious occasions when no one wants to talk. Syd phoned up Charley, a cardiac patient, and a rural fixer and scrounger supreme, to see if he just might have a manifold for a '41 Farmall. This was obviously a reasonable request for the right person, because in a half hour he phoned back to see if it was clockwise or counter-clockwise. He came over shortly after with the manifold. After much discussion, a bit of grease and work, lo and behold Syd was proudly driving his new old tractor round the neighbourhood. All the men in the neighbourhood arrived and the evening was spent around the tractor.

A new-used tractor is mostly good for one thing, to be taken apart. Next Syd and his helpers started disassembling the tractor. Various milestones were reached. The original cherry red paint was found intact under an oil leak. Antique tractor books were searched out at the Calgary stampede. Numerous former farmers were consulted and gave their words of wisdom. Meanwhile the tractor lay in various piles on the garage floor.

Male bonding is a strange thing, not that I know much about it, not being male, but I have seen it in action many times. Discussing and dissecting and refurbishing a worn-out tractor is a great way to bring out rural male bonding. It generates many discussions, with a multiple of helpful hints and interest shown. When Dr. Syd was sewing up a laceration, the lady asked how his tractor was coming along. "And where did you hear about that?" asked Syd. "Why in the drugstore," she replied. Any time you are out and about, they ask how the tractor is. Good for deflecting discussion on the state of your health and theirs. Now rural males do not talk about fashion or "what's hot?" but they can spend many hours on tractors, and through it all you can discern their marital status, financial state and level of health.

Tractor talk is also useful when you're invited out, even in the big city, as you never know where lurks a tractor lover. At a very "up-scale" stampede breakfast with the oil crowd, tractors were our common ground for conversation. Our colleague proudly brought Syd back a Farmall

catalogue from the transportation museum.

Meanwhile, winter is approaching, so now the wood needs to be split and moved in, and of course the tractor motor has moved into the family room for further work on long winter nights.

When Syd gets the tractor reassembled and working and painted Farmall Red then I will drive it in our Canada Day parade.

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How do we recruit new physicians?

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After 16 years of practice in an isolated northern Ontario community I firmly believe that there are certain principles to recruitment:

- The process should never end; always be on the look out.
- Treat EVERY physician that comes through town as a potential recruit. This includes a steady stream of students and residents, visitors, friends of colleagues and visiting specialists. The word will get out that you are hospitable and have a welcoming environment in which to work.
- Set up teaching connections with the nearest medical school and accept first year students right through to last year residents. It is surprising how many will come back knocking on your door.
- DO NOT set up a differential system based on seniority in your office practice. You will all be partners working together, needing assistance from each other and covering each other. This means overhead on an equal basis, a full vote in how the office is run and a position in the hospital, once past the requisite probationary period.
- Treat new physicians like royalty. Offer back-up for any on-call questions or anxieties they may have. Be open to lots of phone calls and chats and come in whenever you are asked for support.
- When you are short of physicians, advertisements usually don't work very well. Phone calls to colleagues and follow-up on all leads does work. If your potential recruits are not interested, they may have had a locum or resident recently who was good and who might be interested.
- Don't settle for warm bodies; be sure you get someone who fits in with the ambience of your group. If they are not happy they will leave in the end and may "bad mouth" their experiences.

These tips have worked well for us over the last 16 years. We have never been at a loss for a

colleague for more than 6 months and we usually have people knocking on our door to let us know that they would be interested in working with us. I know this is not a simple cook book "how to," but I believe that the effort these tips entail is well worth it in the long term.

Correspondence to: Dr. Teresa O'Driscoll, The Clinic, PO Box 489, Stn Main, Sioux Lookout ON P8T 1A8

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Cryptic Crossword

Lee Teperman
Charteris, Que

CJRM 1999;4(1):60

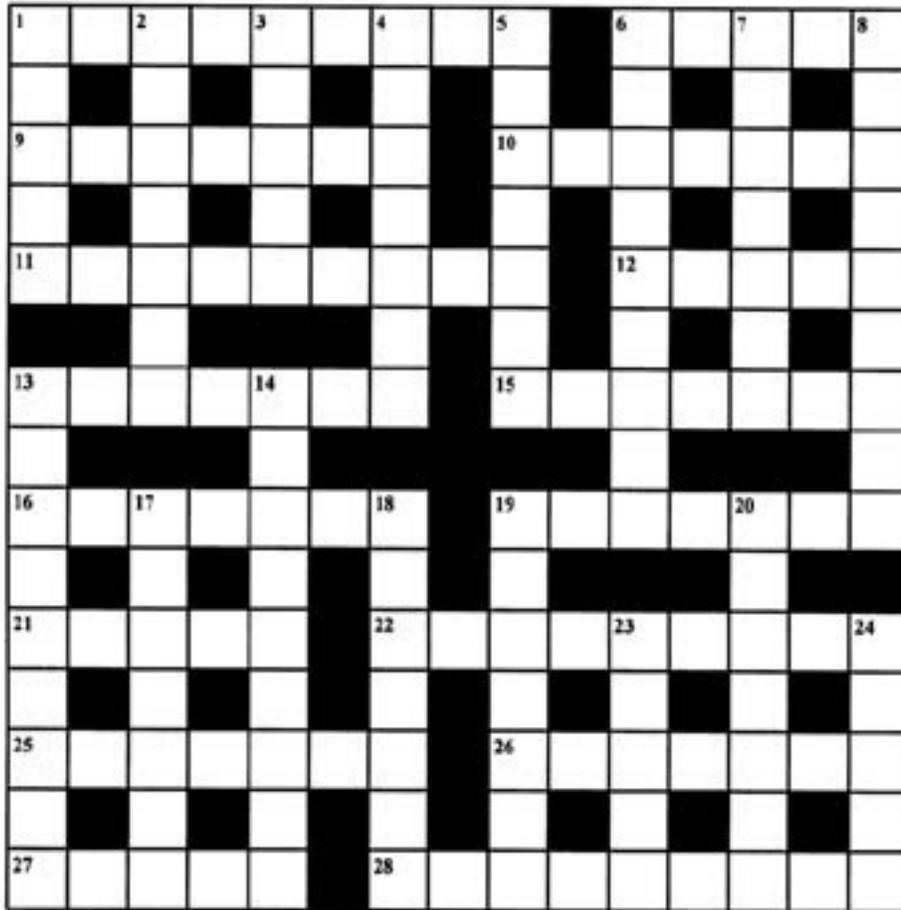
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For instructions on how to tackle a cryptic crossword, please see the first issue of CJRM (1996;1:34-5) or correspond with Lee Teperman, RR 5, Shawville QC J0X 2Y0; 819 647-3971(tel and fax); bullhits@infonet.ca

Readers can find the answers to this cryptic crossword in the next issue.



Across

- 1. Adage about endless crime, silence and product of the ivory trade (9)
- 6. Not all, happy to say, give a rundown (3,2)
- 9. Same, in a different way, disorder (7)
- 10. Guts needed to commit original sin during Victorian age (7)
- 11. In terrible pinch? Rest this muscle (9)
- 12. Kicking drink with intravenous injection (5)
- 13. Copper arrested by joyful messenger (7)
- 15. Deficiency to which doctor should respond (7)
- 16. Drives for sexual liberation and identification, so revolutionary (7)
- 19. Dali's un-unorthodox timepiece (7)

- 1. Wipes lower quadrant muscles (5)
- 2. Wealthier one replaced by an agricultural producer (7)
- 3. Tradesperson whose mother is correct (5)
- 4. Well, hell, you say (7)
- 5. Had doubts about vow to marry (7)
- 6. Paratroopers also stationed in Kansas city (9)
- 7. Satisfying encounter (7)
- 8. Location and Latin name, we recall, of an organ (9)
- 13. Bumbling admiral to confuse (9)
- 14. A french knight indeed not welcomed (9)

Down

- | | |
|--|--|
| 21. Refuse to be doctor on Loveboat (5) | 17. Disapproval, understanding and key support for literature? (7) |
| 22. A symbol for sodium and symbol for corporate America that's comparable (9) | 18. Pens and letters otherwise crossed (7) |
| 25. Misquoted the Raven or invaded with more than could be handled (7) | 19. Silence to ration as if it were an herb (7) |
| 26. Sugar structure to scale (7) | 20. Example of element that is holding so-lid? (7) |
| 27. Change back to first draft as if carried by the current (5) | 23. Medal on a mongrel may come to mind (5) |
| 28. To an outrageous degree TNT is a cleanser (9) | 24. First, enthusiastically displayed, impression (5) |



Letters / Correspondance

CJRM 1999;4(1):40

Please send us your comments and opinions.

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

Rural Experience Access Program (REAP)

See also:

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

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

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

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

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

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

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

Amanda Hanson
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SRPC Rural Experience Access Program

The occasional skin graft

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

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

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

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

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

I hope these suggestions are helpful.

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Reviews / Recensions

CJRM 1999;4(1):42-3

Please send us your comments and opinions.

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

The 3 a.m. Handbook. The Most Commonly Asked Questions About Your Child's Health. Edited by William Feldman. Produced in conjunction with The Hospital for Sick Children. Coauthored by 16 pediatricians of the General Pediatric Division. Key Porter Books Ltd., Toronto. 1997. \$24.95. ISBN 1-55013-917-0

This book was produced by the General Pediatric Division of the Hospital for Sick Children in Toronto. Its purpose is clearly identified in the introduction: "to provide parents with general information about their children's health, based not just on opinion but on sound scientific evidence." It is not a book that attempts to describe all childhood illnesses. Rather its focus is on troublesome aspects of "normal" childhood activities, such as crying, feeding and sleeping. The information provided, which is evidence based rather than anecdotal, will be very useful for parents of infants and young children. It will also be useful for the general practitioner in providing advice and reassurance in the office.

After starting with a chapter "Choosing your child's doctor" (where an urban bias toward pediatricians is evident), the book focuses on various infant and childhood behaviours and symptoms that may alarm parents.

Written in a calm and reassuring manner in a question-and-answer format, this text includes chapters on fever, toilet training, feeding and behaviour problems. More specific childhood diseases are described in a chapter on skin rashes and one on ear and eye problems. Each chapter gives parents up-to-date and reassuring information on its topic, making it very clear when a doctor should be called and in what time frame.

One chapter entitled "Diseases and medical conditions" attempts to describe, in 15 pages, 17 different common illnesses including asthma, chicken pox, hepatitis and pneumonia. This is the least helpful chapter in the book because the information provided is just too brief to be of much benefit to parents, especially at 3 a.m.!

I found the book extremely easy to read. In general, the language used is not too scientific or sophisticated to be above the heads of the intended audience, parents. I have found it useful in my practice when dispensing advice and have recommended it to my patients. The book will likely help parents decide whether or not they need to take their child to the emergency department at 3 a.m. For a tired, rural general practitioner, that can only be a good thing.

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Hanover Medical Group
Hanover, Ont.

Do I Need to See the Doctor? A Guide for Treating Common Minor Ailments at Home. Brian Murat and Greg Stewart. 74 pp. Illust. Doc N' A Book Publishing, Huntsville, Ont. 1998. \$16.95. ISBN 0-968656-0-X

If you have ever wanted to train your patients to recognize illnesses that do not require a trip to the doctor's office or the emergency department, then this short, simple, easy-to-read book is for you. Written by two country docs it covers the basics of minor ailments that afflict the young and the old. The authors use colourful charts — written like taxonomic keys with an attitude — to lead readers to the right decision as to when or if they need to see a doctor. Other information, such as how to take a temperature, is neatly packaged into drawings and cartoons, with lots of sidebars and short bytes of information that lead the reader through the symptoms of such ailments as fever, sore throat, coughs and colds, stomach 'flu', diarrhea and ear ache. The book is divided into a section for children and a section for adults, leading to some degree of unavoidable repetition. However, the book is meant as a quick reference, not a cover-to-cover read. The last section covers ailments such as pink eye, bee stings, sprains, scrapes and heartburn.

Overall the book's message is appropriate and should help prevent many an unnecessary trip to the doctor's office or the emergency department. However, potentially more serious conditions, which could be manifested by unremarkable symptoms, seem deliberately obscured. For example, the common misinterpretation of the first signs of myocardial infarction as "heartburn" are acknowledged only in a roundabout way in the "heartburn key," without ever mentioning the dread disease. This may render a disservice to the public and may be a missed opportunity to engage the reader in some much needed education about the early signs of this now treatable disease. The book also would have benefited greatly from an experienced editor to weed out the numerous grammatical errors and the occasional "typos" and spelling mistakes that detract from the text.

Grammar and heartburn aside, the book is a useful tool for any of your patients with minor ailments who would rather not drag themselves to a doctor in the middle of the night or day, when all they really need to do can be done from the comfort of their own home with the common-sense advice in this book.

Suzanne Kingsmill, BA, MSc
Shawville, Que.

Oxford Textbook of Palliative Medicine. 2nd edition. Edited by Derek Doyle, Geoffrey W.C. Hanks and Neil MacDonald. 1283 pp. Illust. Oxford University Press Inc., New York. 1998. \$179. ISBN 0-19-2625667

This large, well-finished, multiauthored tome is intended as a "comprehensive" reference textbook for the physician providing palliative care. As the authors point out in the preface, it is predictably oriented, but not restricted, to malignant disease: there is a large section on AIDS and a pediatric section.

The book is encyclopedic and is divided into 22 sections covering everything from "Communication in palliative care" to "Music therapy" to "Symptom control in palliative care." Drug names and references to practice methods often reflect the United Kingdom origins of many of the writers, but this is not a serious shortcoming. As is to be expected in a reference type textbook of this size, some of the chapters are outside our purview as rural physicians.

This book contains a massive amount of information, and readers will find something on anything they might want to know about in caring for the terminal patient. The writing style is clear, and a comprehensive, 36-page index makes it easy to find information. We found most useful the chapters on such problems as "Hiccups," "Malodorous wounds" and "Fungating skin lesions," problems that are rare, but do occur and for which those of us in rural areas often cannot find printed material. The chapters on opioid and nonopioid analgesics are complete and up-to-date. The tables and pictures are clear and convey the information well.

On the negative side, the encyclopedic nature of the book means that it takes time to read; this is not a book one can consult quickly while the patient is getting dressed. There are chapters on the care of the Chinese, Japanese, African and Australian aboriginal patient, but none on the care of the North American Indian, an omission we found curious considering that 1 of the 3 editors is Canadian.

This book will serve as a fine, cost-effective reference for the care of the patient receiving palliation if you have a special interest in palliative care or would consider group purchase for a clinic or hospital library.

Gordon Brock, MD, CCFP
Vydas Gurekas, MD, CCFP
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Physician on-call frequency: Society of Rural Physicians of Canada discussion paper

Eugene Leduc, MD, CCFP

Creston, BC

Chair, Physician Resources and Working Conditions Committee, Society of Rural Physicians of Canada

CJRM 1998;3(3):139-41

[[résumé](#)]

This article was endorsed by the Executive of the Society of Rural Physicians of Canada at its policy meeting in St. John's in May 1998.

This article has been peer reviewed.

This document was endorsed by the SRPC council as a discussion paper. We realize that the subject, although of great importance to rural doctors, will generate considerable debate, not only within the SRPC but outside it as well (e.g., in some provincial divisions of the CMA.) The SRPC council is determined to lead this debate to a successful conclusion and may host a national conference. First, the debate should start. Let us know your views. Keith MacLellan, MD, Past-President, SRPC

See also:

- [President's message: building bridges - don't let them crumble!](#)

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Abstract

The Society of Rural Physicians of Canada (SRPC), considering the evidence of excessive working hours and on-call periods on physician performance and well-being, recommends that formal on-call schedules include at least 5 participating physicians.

In communities or facilities where there are less than 5 physicians available to share the after-hours work, it is the position of the SRPC that these physicians neither be required nor expected to provide continuous 24-hour per day coverage. Possible solutions such as cross coverage of regional institutions or periods of no coverage must be determined on an individual community or facility basis.

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Résumé

Compte tenu des retombées démontrées que les heures de travail et les périodes de garde excessives ont sur le rendement des médecins et leur mieux-être, la Société de médecine rurale du Canada (SMRC) recommande qu'au moins cinq médecins participent aux horaires officiels de garde.

Dans les communautés ou les établissements où il y a moins de cinq médecins disponibles pour se partager le travail après les heures, la SMRC est d'avis que ces médecins ne devraient pas être obligés d'assurer une couverture continue 24 heures sur 24 et qu'on ne devrait pas s'attendre à ce qu'ils le fassent. Les solutions possibles comme la couverture réciproque entre établissements régionaux ou les périodes sans couverture doivent être définies selon la communauté ou l'établissement.

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The Canadian Medical Association's Code of Ethics states that a physician should, having

accepted professional responsibility for a patient, continue to provide services until they are no longer required or wanted; until another suitable physician has assumed responsibility for the patient; or until the patient has been given adequate notice that [the physician] intend[s] to terminate the relationship.¹

This concept, to "continue to provide services," is expanded by other regulatory bodies to imply a full 24 hours:

An ethical physician will ensure continuity of, and availability of the medical care of his/her patients. When unavailable, the physician will make a specific arrangement with another physician or group for the care of his/her patients. Physicians with whom these specific arrangements have been made will accept responsibility for the care of these patients.

It is not sufficient for physicians, or their offices, or their answering services, to simply direct patients to the nearest emergency department unless they have made prior arrangements with the physician(s) working in that department to care for their patients.²

This burden of responsibility seems to apply equally to general practitioners and specialists. In addition to being continuously available for their own patients, rural general practitioners are usually expected to provide primary emergency care for nonpatients and transients. This expectation is sometimes formalized in employment contracts or as a hospital medical staff regulation. Rural specialists, fewer in number, also have the responsibility of being on call more frequently than their urban counterparts.

With a sense of dedication and self-sacrifice, physicians have largely, without question, accepted this role. Some have organized themselves into call groups to cope with the after-hours demand. However, where there are very few or only 1 physician in the group, the workload can lead to exhaustion. Despite all this, the CMA Code of Ethics exhorts physicians to "practise the art and science of medicine competently and without impairment."¹

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Research

It is clear that irregular hours of work can affect sleep and this in turn can lead to many psychosocial problems in workers. In shift workers, a maladaptation syndrome has been described, characterized by chronic sleep disturbance and waking fatigue, gastrointestinal symptoms, alcohol or drug misuse or abuse, higher accident or near-miss rates, depression, malaise or personality changes, and difficult interpersonal relationships.³

Most of the research applicable to physicians is focussed on hospital interns, residents and house officers. Asken and Raham⁴ and Samkoff and Jacques⁵ have reviewed this research. Surveys of residents' moods and attitudes demonstrated deleterious effects of sleep deprivation and fatigue, including decreased work efficiency and poor relationships with patients. Psychological testing has revealed that mood disturbances such as anger and depression are negatively correlated with the amount of sleep. Tests on residents have shown no deterioration in the performance of high-intensity short-duration tasks but have revealed significant impairment in tasks requiring sustained vigilance and repetitive or routine work.

Studies are scarce on the effects of being on call from home. One study comparing 2 similar groups of French utility supervisors, half of whom were on call 24 hours a day for 1 week every 2 to 5 weeks showed the on-call group to be less socially active and to have significantly lower scores on Global Well Being and Psychological Equilibrium indices.⁶ In this small study group there was a trend for those more frequently on call to have lower scores than those less frequently on call.

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Existing guidelines for other occupations

Pilots flying aircraft with crews of 2 or more are limited to a maximum flying period of 9 to 14 hours.⁷ With rest periods, this can be extended to 18 hours. A single "day off" must include 2 nights. Crew members must not work more than 7 consecutive days and should have 2 consecutive days off in any consecutive 14 days, a minimum of 6 days off in any consecutive 4 weeks of work. Maximum cumulative hours should not exceed 50 hours per week, 100 hours over 4 consecutive weeks or 900 hours per year.

Truck drivers are not permitted to drive more than 13 hours in 24 hours and must rest for at least 8 hours before the next trip.⁸ Maximum cumulative hours should not exceed 60 hours per week.

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Existing guidelines for physicians

Britain, New Zealand and some states in the United States have enacted legislation restricting the hours that residents or house officers are permitted to be on duty.⁷ There is no similar Canadian legislation, but some of these restrictions are written into collective agreements.

Of note, the Royal College of Physicians and Surgeons of Canada and the College of Family

Physicians of Canada have no policies regarding on-call frequency. The Canadian Medical Protective Association does not produce clinical guidelines or standards.

Few Canadian medical bodies have tackled this issue. The Canadian Association of General Surgeons endorses a maximum 1 in 5 night-call system (Dr. W.G. Pollett, St. Clare's Mercy Hospital, St. John's: personal communication, 1998). The College of Physicians and Surgeons of Manitoba addresses the problem in their guideline on cross coverage in rural hospitals:⁹

It is considered unacceptable by The College of Physicians and Surgeons of Manitoba for a physician to be on call "all the time" or otherwise so frequently that chronic fatigue may impair the judgment, decision or procedural skills of the physician. To help deal with this, many smaller rural institutions are organizing into physician call groups (PCGS) in order to maintain essential services within a defined region. . . . Ideally, therefore, at least four physicians should participate in a PCG. This would ensure an on-call frequency of not more than one-in three, even in the event one member is away.⁹

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Guideline for on-call frequency for rural physicians

In his review of small rural hospitals in Ontario, Scott¹⁰ suggested that the maximum on-call frequency for physicians covering the rural emergency departments be 1 in 5. Rural hospitals that provide obstetrical and surgical services will also have physicians on call for obstetrics, anesthesia, and/or surgery at frequencies greater than that for the emergency department. Specialists in larger rural referral centres might also be on call "all the time" or at unsustainable frequencies.

There are at least 2 different approaches to calculating a maximum on-call frequency guideline: (1) minimum hours of rest and (2) maximum hours of work. Although it is true that in many situations physicians may be taking call from home or hospital and often sleeping during a portion of the on-duty period, it is important to ensure that any guideline accommodates the situation where the physician is actively attending patients for the whole on-duty period.

Minimum hours of rest

After a 24-hour work day, physicians should take at least a full day off. Using the pilot's recommendation of at least 2 nights rest per day off, a minimum of 4 physicians would be required to provide uninterrupted coverage. Three are needed to create a schedule that gives 2 nights of rest before the next call period. The fourth physician enables all participants to take time off for holiday, educational or sick leave.

Maximum hours of work

Using the maximum annual 900 hours of flight time recommended for pilots, 10 physicians would be needed to provide 24-hour a day coverage for 1 year.

Alternatively, if one assumes that physicians should not be expected to work more than the standard 37.5 hours per week with 4 weeks vacation and 2 weeks educational leave per year, at least 5 physicians would be necessary to cover the 8760 hours in 1 year.

There is obviously room for individual interpretation of work intensity, the degree of responsibility associated with the work, and the amount of rest necessary to remain vigilant and unimpaired by sleep deprivation. This is exemplified by the contrast between the work standards of pilots and others.

The "hours of work" method is the more reasonable way of calculating a maximum on-call frequency, because it considers the total burden of work in a year. The scenario of 5 physicians working a standard labour work week including night duty is reasonable and should be considered a minimum standard of care.

Where rural communities do not have 5 physicians from which to draw, it may be possible for neighbouring communities to share the on-call coverage. The maximum distance between those communities participating in "cross coverage" should be the subject of another guideline. For example, the College of Physicians and Surgeons of Manitoba recommends a time of 30 minutes or 50 km for emergency room services.⁹

Another option, for isolated communities with fewer than 5 physicians is to have frequent locum tenens relief. This could be provided in the form of sufficient weekend and holiday coverage to give an annual individual average workload equivalent to the 5-physician roster. Obviously, there would have to be appropriate financial incentives to attract locum tenens physicians.

There may be other creative options, but the ultimate and least desirable solution for such understaffed communities is to have periods of time with no physician coverage. This would require some communities to lower their expectations regarding physician availability and to respect their doctors' time off duty. Although this is not an ideal solution, it could make the difference between having a physician some of the time or having no physician at all.

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Chest pain guideline and continuous quality improvement system for Canadian rural emergency health care facilities

Table 1. Recommendation classes and levels of evidence

Recommendation classes

- A. Good evidence to support procedure or treatment
- B. Fair evidence to support procedure or treatment
- C. Poor evidence to support procedure or treatment
- D. Fair evidence that procedure or treatment should not be used
- E. Good evidence that procedure or treatment should not be used

Levels of evidence

- I Evidence from at least one randomized controlled trial
- II-1 Evidence from well-designed cohort or case-control studies, usually from more than 1 centre or research group
- II-2 Evidence from well-designed trials but without randomization
- II-3 Evidence from dramatic results in uncontrolled experiments
- III Opinions of experts, findings from descriptive studies, or reports of expert committees

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Chest pain guideline and continuous quality improvement system for Canadian rural emergency health care facilities

Table 2. Rural chest pain guideline				
Phase	Event	Recommended task	Practice objectives	Quality assurance data points
Prehospital	Onset of chest discomfort	<ul style="list-style-type: none"> • Patient: needs to recognize that s/he is having dangerous chest discomfort and get to the nearest open rural emergency health care facility (REHCF) (A, I, R-III)10,11,19,29-33 • Health system administrators: educate the public regarding self-recognition and self-management (A, II-1, R-III).34,35 • Ambulance services: begin all the nursing tasks listed below where appropriate for the providers' scope of practice (A, II-2, R-III).36,37 Notify the REHCF to enable call-back of appropriate nursing and physician staff before the ambulance's arrival (A, II-2, R-III).36,37 	Patient: immediately to the REHCF as soon as possible after the onset of pain Ambulance: patch warning to the receiving REHCF	Time of chest pain onset

Waiting room	Patient presents to the facility.	<ul style="list-style-type: none"> • Receptionist to promptly recognize a patient with possible ischemia or infarction and call the triage nurse immediately to get the patient to an appropriate bed equipped for managing a full cardiopulmonary arrest and thrombolysis (A, III, R-III). 	Immediate recognition after arrival	Time of arrival at the facility ("door")
Nurse	Triage registered nurse (RN) attends the patient.	<ul style="list-style-type: none"> • Immediate triage assessment by an RN (A, II-2, R-III)38–40 • Take appropriate history, fully undress the patient and conduct appropriate physical examination including full set of vital signs (A, III, R-III).7,40,41 AMI can cause many kinds of thoracic and abdominal discomfort, and typical pain can be absent.7,39,40,42–44 The word "discomfort" might be more accurate from the patient's perspective.39 In atypical cases, patients can present with atypical chest discomfort, or little more than diaphoresis, shortness of breath, weakness or nausea.7,43,45 Nursing triage should include the following: full vital signs (heart rate, respiratory rate, blood pressure, temperature and oxygen saturation); history, including nature of the discomfort, time of onset of symptoms and risk factors for coronary artery disease; and physical examination, including inspection of the undressed thorax and peripheral cardiovascular system, 	Begin RN triage immediately after patient arrives, complete triage within 10 minutes after patient arrives.	Time triage assessment started by the triage RN.

		palpation of the chest wall and abdomen, and auscultation of the chest (B, III, R-III).39–41,44		
	Triage nurse concludes that the patient could be experiencing coronary ischemia or infarction.	<ul style="list-style-type: none"> • Assign the highest urgency triage score (A, III, R-III).23 • Ensure that the on-call physician is notified immediately as soon as the nurse recognizes that acute myocardial infarction (AMI) is possible (A, III, R-III).23 • Arrange for additional nursing assistance with the simultaneous tasks listed in the next step (A, III, R-III).23 • Locate and start using the REHCF's chest pain care map for the patient's chart (A, III, R-III). • Locate the box containing thrombolysis items (the "clot-box") (A, III, R-III). • Call for old charts and old electrocardiograms (ECGs) early (B, III, R-III). 	Within 10 min from patient arrival	Time on-call physician notified
	Simultaneous nursing tasks, showing preferred sequence if they cannot be performed simultaneously.	<ul style="list-style-type: none"> • Apply oxygen at 4 L/min and adjust depending on the patient's clinical condition. • Attach cardiac rhythm monitor leads (B, II-3, R-II-3).15,36 • Start 18-gauge intravenous line of normal saline at 15 mL/h (B, II-3, R-II-3).15,36 • Record 12-lead electrocardiogram. This is a very urgent early priority. Ideally it should be completed in the triage phase. An electrocardiogram must be obtained very soon after the patient arrives. This will permit 	Within 10 min from patient arrival	Time of first ECG

prompt diagnosis, ensure that a diagnosis of unstable angina can be made before ischemia is relieved if infarction is not occurring or speed recognition of an AMI (A, I, R-III).^{43,46} The triage nurse should request an ECG as soon as AMI becomes a possibility, not after the triage assessment is completed. RNs should be permitted to make electrocardiographic recordings when a laboratory technician is not immediately available (A, III, R-III). Elevation and depression of ST segments cannot be determined reliably from many cardiac rhythm monitors.

- Give acetylsalicylic acid (ASA) 160–325 mg orally (2 baby ASA preferred or 1 adult ASA) unless contraindicated (see text). 160 mg of ASA may be as effective as 325 mg. ASA tablets can be chewed or swallowed. Do not use enteric-coated ASA. Contraindications to ASA include: previous allergy, asthmatic sensitivity and active ulcer. There is no approved alternative to ASA for this indication.

- Consider sublingual nitroglycerin 0.4 mg. Withhold sublingual nitroglycerin if the patient is hypotensive (systolic BP < 90 mm Hg), bradycardic (HR < 60 beats/min) or appears to be suffering a right ventricular infarction, since nitroglycerin can cause

profound hypotension in this situation (D, III, R-III).^{13,42,47,48} Symptomatic hypotension with a blood pressure less than about 90 mm Hg systolic in the absence of congestive heart failure should be treated by the nurse with 250 mL bolus doses of normal saline given over 5 min each (B, III, R-III).³⁶ Larger volumes will be required in hypotension associated with right ventricular infarction (A, III, R-III).³⁶

- Consider repeat sublingual nitroglycerin every 5 min for 2 more doses if the pain is not relieved.
- Call back the laboratory technician if available to assist with ECG recording and blood sampling. Nurses can draw blood when intravenous lines are started to avoid excessive stabbing (A, III, R-III).
- In facilities without an on-call physician, the nurse or other provider should immediately contact a remote physician consultant who can assess the electrocardiograms by fax and assist in determining whether thrombolysis should be initiated (B, III, R-III).⁹

Physician	Physician arrives at the bedside.	<ul style="list-style-type: none"> • Physician conducts prompt assessment by looking at the electrocardiogram, taking a history, performing a physical examination and evaluating the first ECG (A, I, R-III).7,42,43 If the electrocardiogram is clearly diagnostic for AMI, then the physician can forewarn the nursing staff of the need for possible immediate thrombolysis while conducting the history and examination to confirm the diagnosis. 	Within 15 min from notification	Time physician arrives.
	Physician confirms or rejects the diagnosis of AMI or ischemia.	<ul style="list-style-type: none"> • Determine exact time of onset of chest pain (A, I, R-III).10,11,13,19,31–33 • Obtain more 12- or 15-lead ECGs as required (A, II-1, R-III).43,46,49 • Obtain chest x-ray film and laboratory investigations as required. A creatinine kinase level should be determined (B, II-1, R-III). Consider also lactate dehydrogenase if late presentation of myocardial infarction is suspected (B, II-1, R-III).43 Troponin T or I can aid the diagnosis in some cases (B, II-2, R-III).50 Precise recommendations regarding use of enzyme tests remain to be determined.12,43,46 Consider measurement of the non-fasting serum cholesterol level for 2 reasons: (a) to ensure that the diagnosis is made in those patients with hyperlipidemia; (b) there is evidence that pravastatin can promptly improve the lipid profile in the 		Time of first diagnostic ECG. Time thrombolytic therapy ordered

		<p>short-term after infarction and that early initiation of hypolipidemic medication might reduce the risk of early recurrence of AMI (B, II-B, R-III).51,53</p> <ul style="list-style-type: none"> • Consider differential diagnosis of chest pain.7 • Obtain consultations with colleagues and specialists as required (A, III, R-III). • Initiate transport early if it will be required (A, III, R-III). • Specialist consultation must be readily available by telephone and fax (A, III, R-III).9 		
	<p>Initiate thrombolytic medication for AMI.</p>	<ul style="list-style-type: none"> • If a diagnosis of AMI is made, order thrombolytic therapy unless contraindications exist or emergency angioplasty is more appropriate and feasible (A, I, R-I).10–12,16,19,20,31–33,53–55 Consider emergency angioplasty instead of thrombolysis in patients with cardiogenic shock, contraindications to thrombolysis, very large myocardial infarction or electrical instability. • Consider adjunctive medications for AMI and acute coronary ischemic syndromes, depending on clinical circumstances: heparin with tissue plasminogen activator (A, I, R-III) 56 and possibly streptokinase, beta-blocker in AMI unless contraindicated (A, I, R-III),14,36,42,53 intravenous nitroglycerin for ongoing pain at least (A, II-1, R- 	<p>"Door-to-drug time" within 30 min from patient arrival in classic AMI when physician present, or within 60 min when presentation is atypical, complications are present or physician is called back.</p>	<p>Time thrombolytic medication started ("drug")</p>

		<p>III),36,56–60angiotensin-converting enzyme inhibitors within 24–36 h and after clinical and hemodynamic assessment (A, I, R-III),14,61 dimenhydrinate for nausea (A, III, R-III), and morphine (A, III, R-III).36</p> <ul style="list-style-type: none"> • Treat patient's condition with other medications as required. 		
Continuous quality improvement (CQI)	Following patient care	<ul style="list-style-type: none"> • Review causes of delay, if any (A, II-1, R-III).23,24,33,36 • Complete audit forms for the County Minutes Matter CQI software (A, II-2, R-III).23,24 	Control causes of delay. Improve REHCF response.	List causes of delay.

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Chest pain guideline and continuous quality improvement system for Canadian rural emergency health care facilities

Table 3. Recommended continuous quality improvement dataset for rural emergency health care facilities

Hospital name

Clinical information

1. Patient's name
2. Date of service
3. Patient's age
4. Time symptoms began
5. Time of arrival*
6. Time of initial assessment by triage registered nurse
7. Time of first ECG*
8. Time on-call physician notified
9. Time on-call physician arrived
10. Acute myocardial infarction diagnosed? YES/NO (If "yes" then complete 11 to 16; if "no" then skip to 17)
11. Thrombolytic therapy ordered? YES/NO (If "yes" then skip to 13)
12. Reasons thrombolysis not ordered (go to 17)
13. Time of first diagnostic ECG
14. Time thrombolytic therapy ordered
15. Time thrombolytic therapy started*
16. Thrombolytic agent used
17. Was patient transferred to another facility? YES/NO (if "no" then skip to 19)
18. Date and time transferred

19. Delays identified, if any: prehospital phase, waiting room phase, nursing phase, physician phase

*These 3 data elements are considered the absolute minimum that must be collected in audits designed to reduce door-to-drug times.

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Air ambulance transports to Port McNeill, British Columbia



Fig. 1: Fort McNeill and surrounding communities. Circles = outpost community staffed by nurse or community health representative, diamonds = secondary or tertiary centre, triangles = peripheral hospital.

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Air ambulance transports to Port McNeill,
British Columbia

Table 1. Sites using air evacuation

Site	No. of evacuations	Transport available	Liaison
Guilford	10	Boat	CHR
Holberg	0	Road	RN
Kingcome	5	SF, boat	CHR
Kyuquot	7	SF, boat	RN
Oweekeno	13	SF, boat	CHR
Sointula	1	Boat	RN
Zeballos	4	SF, road	RN
Other*	8	SF, boat	—

*Includes fishing camps and rare or unique evacuation sites.

SF = scheduled flight, CHR = community health representative, RN = registered nurse

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Air ambulance transports to Port McNeill,
British Columbia

Table 2. Patient outcome after physician assessment

Outcome	No. of patients
Discharged — emergency department only	11
Admitted — active management	25
Admitted — overnight monitoring only	6
Transferred to tertiary facility	5
Died	4

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Air ambulance transports to Port McNeill,
British Columbia

Table 3. Diagnostic categories of 51 "AirEvac" transport patients

Diagnosis	Total no. of patients transported	No. of patients transported inappropriately*
Major trauma	4	0
Minor trauma	15	9
Recent or old myocardial infarction	7	0
Other cardiac problems	5	0
Toxic ingestion	5	0
Abdominal pain	5	0
Respiratory problems	5	1
Infectious conditions	1	0
Neurologic conditions	1	0
Obstetric conditions	1	0
Other medical conditions	1	0
Transport	1	1

*Cases in which emergency air transport was not appropriate and could have been avoided without compromising patient care

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The Ten Commandments of emergency airway management for the rural physician

Table 1. Emergency airway management for the rural physician: keeping things simple

Have an organized "game plan."

Remain calm yourself.

The first priority is always, always, proper head position and ventilation.

Call for help early.

If you can't ventilate the patient properly with a bag-mask: intubate.

Keep track of time.

If your first intubation attempt fails, try a second time, but think about what you can do differently the second time around.

If you can't intubate: ventilate.

If you can't ventilate and can't intubate: open the neck.

Practise, practise, whenever you can.

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The Ten Commandments of emergency airway management for the rural physician



Fig. 2. Light wand

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The Ten Commandments of emergency airway management for the rural physician

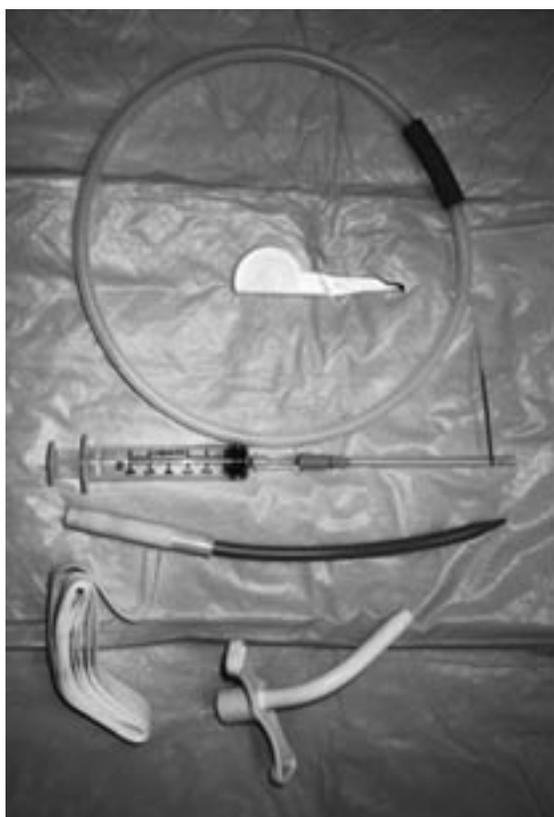


Fig. 3. Cricothyroidotomy set

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Fig. 4. Combitude

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Fig. 5. "Jet-Air" ventilation

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Fig. 6. Laryngeal mask

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The Ten Commandments of emergency airway management for the rural physician

Table 2. The Easdown–Brock Emergency Intubation Survival Kit

One (1) adult laryngoscope handle with no. 3 and no. 4 curved blades

One (1) pediatric laryngoscope handle with no. 2 curved blades

Spare batteries for the above

Plain stylets

Adult lighted stylet

Two (2) no. 4.5 endotracheal tubes

Two (2) no. 8.5 endotracheal tubes

Nasopharyngeal and oral airways

Xylocaine endotracheal spray

Tube of lubricating jelly

Roll of adhesive tape

Two (2) ampoules of midazolam

Two (2) ampoules of succinylcholine

Jet-Air kit, consisting of one (1) no. 14 intravenous needle, a 3-mL syringe and one (1) no. 7.5 endotracheal tube

Patil emergency cricothyroidectomy kit (or equivalent)

One (1) 10-mL plastic syringe

Magill forceps

This survival kit will ensure that some equipment is available instantly in your emergency "crash room" for treating a patient with an airway emergency who arrives at any hour with little or no advance warning. If you know in advance that a patient with an airway emergency is coming, prepare anything and everything you might conceivably need, including additional sizes of laryngoscope blades, endotracheal tubes, etc.

We have not included intravenous equipment, oxygen, Ambu bags or lidocaine in this list as these are usually readily available in emergency departments.

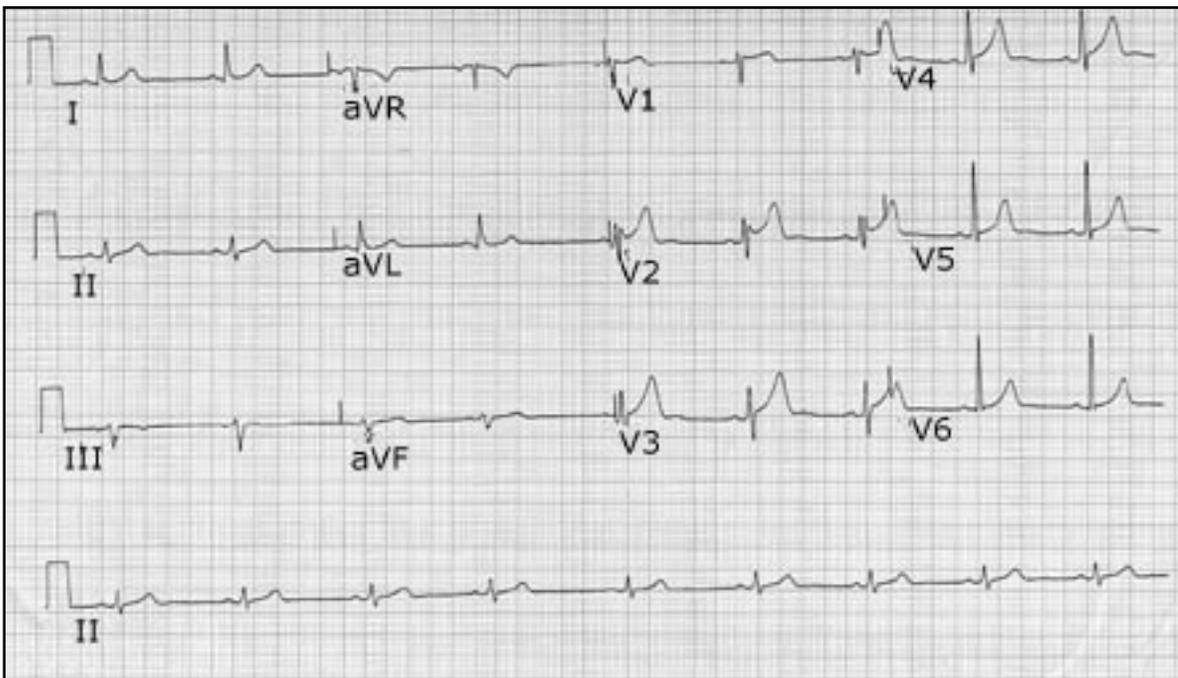
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Country cardiograms case 11: Streptokinase time?

CJRM 1999;4(1):39



[See [Case presentation, page 31](#)]

The electrocardiogram shows sinus bradycardia at 53 beats/min. The QRS complex is triphasic and slightly widened in V1 and V2, suggesting some degree of ventricular conduction delay. The most notable finding is ST-segment elevation, concave upwards, from 0.5 to 2.0 mm in leads V1 to V4.

There are 3 causes of ST-segment elevation that must be considered as part of the differential diagnosis in this patient: acute anterior wall myocardial infarction; acute pericarditis; and early repolarization.¹ The diagnosis in this case is made by clinical correlations and pertinent negatives. Beginning with potentially the most serious diagnosis — acute myocardial infarction, this diagnosis would be rare in a 30-year-old man but not totally unprecedented. Clinically, he did not have the constant deep pain of infarction. There are no visible Q waves and no reciprocal

ST-segment depressions.

Pericarditis would be expected to cause more widespread ST-segment elevations, which in this patient are more or less confined to only 4 precordial leads. There was no history of a viral illness, connective tissue disease or uremia, and no fever or rub on examination.²

Early repolarization is a normal variant frequently found in young men, and the ST-segment elevations are, as in this case, typically most prominent in the anterior chest leads. In early repolarization the ST segment is usually concave upwards, whereas in acute myocardial infarction it tends to be concave downwards and may extend to merge with the T wave.²

These findings suggest that the cause of the ST-segment elevation in this patient was early repolarization. This diagnosis is easier if similar changes are seen on old electrocardiograms or if the person is totally asymptomatic at the time the electrocardiogram is obtained, such as one required for insurance coverage. This patient was observed in hospital: there was no further pain or evolution after 12 hours, and he was discharged home with a diagnosis of "gastrointestinal pain." He remained well 2 years later.

Needless to say, in a less clear case or if these changes occurred, for example, in a 65-year-old diabetic man, it is best to be cautious and treat the condition as possible acute myocardial infarction.

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1. Grauer K. Causes of ST-segment elevations. *Internal Medicine Alert* 1995;16:40.
2. Braunwald E. *Heart disease*. Philadelphia: WB Saunders; 1980. p. 247, 1526-7.

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Letters / Correspondance

CJRM 1999;4(2):103-4

Please send us your comments and opinions.

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

Return-for-service contracts

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

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

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

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

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

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

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

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

Jacob Pendergast
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Rural Experience Access Program

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

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