Canadian Journal of Rural Medicine | Journal canadien de la médecine rurale

Summer 1998 Contents • Été 1998 Table des matières

Interhospital transfers from rural hospitals: suggestions for your jump kit (what you shouldn't leave home without)

Graham A.A. Dodd, MSc, MD, CCFP(EM)
Head, Emergency Department, Shuswap Lake General Hospital, Salmon Arm, BC

Ian Petterson, BSc(Pharm)
Pharmacist, Shuswap Lake General Hospital, Salmon Arm, BC

CJRM 1998;3(3):142-45

Correspondence to: Dr. Graham A.A. Dodd, Shuswap Lake General Hospital, PO Box 520, Salmon Arm BC V1E 4N6; tel 250 832-2151 (office), fax 250 832-3669, ddodd@shuswap.net

This article has been peer reviewed.

Acknowledgments: Special thanks to Danny Myers, MD, FRCPC, and Laurent Roy, BSc(Pharm), of the Shuswap Lake General Hospital and Jim Thompson, MD, CCFP(EM) of Sundre, Alta.

Contents

- Abstract
- Résumé
- Introduction
- Development
- Discussion
- References

Abstract

The transfer of critically ill and injured patients to centres of higher care is a reality of rural medicine. Most often it is the responsibility of the rural physician to accompany and manage the care of that patient during the transfer. This often requires the use of drugs and equipment that must be collected before the transfer, which results in valuable time being lost and things being forgotten. To prevent this, a dedicated jump kit was developed and then tested over an 18-month period and was found to improve transfer efficiency. This paper outlines the basic requirements of a rural jump kit, which can then be modified to suit the needs of an individual rural hospital.

[Contents]

Résumé

Le transfert de patients gravement malades ou blessés vers des centres de soins de plus haut niveau est une réalité de la médecine rurale. Il incombe la plupart du temps au médecin rural d'accompagner le patient et d'en gérer le traitement pendant le transfert. Il faut souvent réunir des médicaments et du matériel avant le transfert, ce qui entraîne une perte de temps précieux et des oublis. Pour prévenir ces problèmes, on a mis au point une trousse d'urgence réservée dont on a fait l'essai sur une période de 18 mois pour constater qu'elle améliorait l'efficience des transferts. Ce document décrit les besoins essentiels liés à une trousse d'urgence rurale, que chaque hôpital rural peut ensuite modifier en fonction de ses besoins.

[Contents]

The arrival of a critically ill or injured patient to a rural emergency room is the beginning of one of the most stressful times in the practice of medicine. Depending on the resources available, the decision to transfer the patient to a regional or tertiary centre often is made during the resuscitation and stabilization of the patient. With approximately 30% of the Canadian population living in rural areas,1,2 the number of critical interhospital transfers is significant and can be expected to increase with the growing trend toward regionalization. This will result in an increasing strain on rural emergency systems.3,4

Although the decision to transfer a patient is often easy, the arrangement of that transfer can be frustrating to the attending physician and can actually bemore stressful than the patient care. Although some rural centres have access to urban-based transfer programs, many rural physicians must initiate, organize and undertake the transfers themselves.4 Unfortunately, very little is available in the literature on preparing and undertaking emergent transfers from rural centres. In addition, this is an area that is poorly covered in most urban-based residency training programs. Transport medicine, although not exclusive to rural medicine, is a reality to the practice of rural medicine in Canada and should be a part of every rural physician's training.1 It is neither safe nor fair to expect medical, nursing or paramedical staff to accept responsibility for the transfer of a

critically ill patient without ensuring that they have received appropriate training. Even with that training, any physicians who have found themselves in a ground or air ambulance have quickly realized that a moving vehicle is no substitute for a spacious and well-equipped emergency room.

The general principles of a good patient transfer include: (1) the appropriate triage into the emergency system, (2) adequate resuscitation and stabilization before transport, (3) appropriate transfer personnel and (4) good communication with the receiving facility. These principles are supported by both the Canadian Association of Emergency Physicians 1 and the American College of Emergency Physicians.5 The principles include ensuring that the transporting personnel are prepared to deal with any deterioration of that patient during the transport. In most cases, this involves the respiratory, cardiovascular or neurologic systems. Therefore, the appropriate equipment and drugs to deal with these systems must be readily available as must the skills needed to use them. Whereas some rural centres in Canada are fortunate to have fully equipped advanced life support (ALS) ambulances available for transfers, most rural centres rely upon a basic life support (BLS) ambulance. In other words, it falls upon the transporting physician and/or nurse to anticipate all equipment and drugs that may be required during the transport and to collect them from the hospital before leaving that facility. Vital time may be lost and equipment forgotten if that process is not well organized.

This paper evolved from the development by the rural committee of the Canadian Association of Emergency Physicians of Recommendation 17.9, dealing with interfacility transport by ground and air teams from rural areas.1 Our paper is meant to encourage rural hospitals to anticipate their need for equipment and drugs before transporting a critically ill patient. The development and use of an emergency transport, or "jump" kit would increase the efficiency and reduce the potential risk of emergent interhospital transfers. The paper also suggests a framework that hospitals can further modify to meet their individual demands.

[Contents]

Development

The Shuswap Lake General Hospital (SLGH), with its approximately 45 acute care beds, is located in the southern interior of the province of British Columbia. The hospital serves the city of Salmon Arm (population 15 000) and its surrounding population of approximately 20 000 spread out over an area of 3000 km2. There are approximately 14 000 visits to the emergency department annually. The hospital is a level 5 rural centre.1 Although specialty services at the hospital include general surgery and general internal medicine, transfers are required for consultations such as orthopedics, ENT, neurosurgery, CT, angiography and prolonged ventilator support. Depending upon the requirement, the regional referral centres are approximately 60 km (minor, Vernon) or 120 km (major, Kelowna and Kamloops) away and the tertiary university centre (Vancouver) is approximately 600 km away.

Prior to January 1996, any equipment and/or drugs that might be required during a patient transfer were collected just before that transfer. This took valuable time and was often a source of great stress for the transporting personnel. It became apparent that if a standardized transport or "jump kit" was readily available to the transporting team, then the efficiency of that patient transfer could be increased.

A literature search using MEDLINE found several articles that suggested reasons to transfer critically ill patients from rural to urban centres1-5 but few that pertained to equipment and drugs that might accompany patients on transfers between hospitals.6-8 A clear list has not been published detailing what should be transported with a critically ill patient from a rural to urban centre when transport times may involve hours.

Table 1 lists all the equipment carried in our jump kit during transfers of critically ill patients. Table 2 lists all the drugs we include. Each reflects the experience and comfort of our transfer team and may be expected to vary in different settings across the country. The kit represents an amalgamation of the literature and of practical experience. Part of the development process was how the transport kit should be packaged. After several trials, the box we chose was a large sportsman box. However, there are several specialty bags/boxes available through medical supply companies that would also function well.

From June 1996 to June 1997 the jump kit was used on 230 transfers that were made to regional or tertiary centres. This represented approximately 3% of all emergency visits to the hospital. Approximately 20% of those transfers were for critical injuries and/or illness. In addition, 24 transfers were required from our intensive/cardiac care unit. The total of emergent interhospital transfers from SLGH in the above time period was 70. Our transfer team for critically ill/injured patients always included a critical care nurse and most often a physician, in addition to the BLS ambulance crew.

All physicians or nurses accompanying the patient must be familiar with all equipment and drugs that have the potential to be used during the transport. In addition, it should be known what equipment the ambulance has available (i.e., oxygen, suction, IV fluids) and what experience the ambulance/paramedical personnel have. This includes both ground and air ambulances. Although the jump kit is well stocked, any additional or specialized equipment or medication should be added as needed.

Finally, a review of the jump kit contents must be arranged on a regular basis. In our hospital, the pharmacy department reviews and restocks the drug portion monthly and after each use, and a designated physician similarly reviews the airway equipment.

What is not included in the jump kit but should accompany each transfer is some form of communication equipment to allow contact among transporting vehicle, sending and receiving

hospitals (usually through the ambulance [EMS] dispatch; however, a cellular phone is often useful).

[Contents]

Discussion

The transfer of critically ill/injured patients is an essential part of medical practice in rural Canada.4 Thompson and Ratcliff4 indicated that approximately 3% of patients presenting to a rural emergency department required transfer to a higher level of care. This was similar to the percentage shown during our study period. Although this number is small and will vary based upon the resources available to each rural centre, it represents the group of patients who require the most intense care from rural nurses and physicians.

Whereas some areas of the country are fortunate to have the availability of specialized urban-based medical transport teams, many areas are not and, because of distance, weather and geography, hospitals in these areas must arrange and undertake the interhospital transports themselves. It is essential, therefore, that rural physicians recognize when to transfer patients, know how to initiate transfers from their centres and when to accompany patients during the transfer.1 It is also important for rural physicians to have the skills and equipment to provide optimum patient care during the transfer. Some of this comes from experience, but it is important that this area be taught to potential rural physicians during their training and updates be provided to practising rural physicians through appropriate continuing medical education.1 By planning for the potential complications before transfers are initiated, the risks of transfers can be minimized.

The use of an appropriately stocked jump kit is an essential part of any transfer.1,6,7 Although many rural emergency health care facilities (REHCFs) may use a hastily assembled equipment bag, which has served quite well, the advantage of developing a specific and dedicated jump kit is to improve the efficiency and delivery of patient care during a transfer. It also assures the accompanying physician or nurse that essential drugs and equipment will be available.

The equipment and drugs that are suggested in this paper are meant to serve as a resource that each REHCF can customize to meet its own needs and experiences. The jump kit must be compact and easily transportable and is not meant to replace monitoring devices that may need to accompany the patient. The most important part of any kit must be the provider's knowledge of its contents.

This paper has not included suggestions for the transfer of obstetrical and newborn patients. These patients require special consideration in the planning of their transfer and often require separate sets of drugs and equipment. This would make our jump kit too large and unwieldy to be

practical. We have solved this problem by having 2 separate kits, one dedicated specifically to obstetrics and newborns. This kit will be discussed in a future paper.

[Contents]

References

1. Rural Committee, Canadian Association of Emergency Physicians. Recommendations for the management of rural, remote and isolated emergency health care facilities in Canada. Ottawa: The Association; 1997. 42 pp. (www.interchange.ubc.ca/grunfeld/rural_committee/ruralrec.htm)
2. Thompson JM, McNair N. Health care reform and emergency outpatient use of rural hospitals in Alberta, Canada. J Emerg Med 1995;13:415-21.
3. Rourke J. Small hospital medical services in Ontario. Part 2: emergency medical services. Can Fam Physician 1991;37:1720-4.
4. Thompson JM, Ratcliff MJ. Use of emergency outpatient services in a small rural hospital. Can Fam Physician 1992;38:2322-31.
5. American College of Emergency Physicians. Principles of appropriate patient transfer. ACEP Position Statement. Ann Emerg Med 1990;19:337-8.
6. Fromm RE, Dellinger RP. Transport of critically ill patients. J Intensive Care Med 1992;7:223-33.
7. Committee of the American College of Critical Care Medicine. Guidelines for the transfer of critically ill patients. Crit Care Med 1993;21:931-7.
8. Thompson JM, Warnica JW. Equipping rural hospitals for cardiovascular emergencies. Can J Contin Med Educ 1992;August:23-33.

© 1998 Society of Rural Physicians of Canada

