The evolution of the Yukon Medevac Program in an environment of fiscal restraint

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The Yukon Territory is a vast area of 483 350 km^2 over which 32 000 inhabitants are scattered; 24 000 of those reside in Whitehorse. Aside from a 4-bed cottage hospital in Watson Lake, the 52-bed Whitehorse General Hospital is the only other hospital in the Yukon Territory. The Whitehorse General Hospital offers the services provided by general and family practitioners, a general surgeon, a pediatrician and an obstetrician-gynecologist. There are no resident radiologists, internists, cardiologists or orthopedic surgeons in Whitehorse, and there are no CT-scan services. The referral centres for Whitehorse General Hospital are in Vancouver and Edmonton, approximately 2500 km away.

The existing ground ambulance service can only provide efficient services to communities within a 175-km radius of Whitehorse. It was impractical for other more distant communities to evacuate patients by ground ambulance. There was, therefore, a clear need for a program to provide air transport for emergent, urgent and elective patients from distant Yukon communities to Whitehorse General Hospital (intraterritorial medevacs) and for critically ill patients from Whitehorse General Hospital to Vancouver or Edmonton (extraterritorial medevacs). There was no formal program for these medical evacuations until 1998. Until that time, all evacuations were done on an ad hoc basis without regular staffing or a dedicated air carrier and without any protocols, procedures or quality control in place.

In 1995 a group comprising the manager of Yukon Ambulance Services, physicians, registered nurses and representatives from community nursing stations and the Whitehorse General Hospital began working with the Yukon Territorial Government to develop and implement a medical evacuation system. The program evolved in response to feedback from physicians, the ambulance service and people in the communities, and the appropriate funding was eventually acquired from the Yukon Territorial Government. The evolution of the medical evacuation system in the Yukon will be described here, in hopes that the lessons we learned from this experience will assist others involved in the development, implementation and funding stages of similar programs.

Flight nurse Rocky Hartley escorting the medevac of a patient from Old Squaw Lodge in the Northwest Territories.

Identifying the problem and current standard of care

In 1986 a government-funded third-party audit performed by Price Waterhouse identified the inadequacies of the Yukon medevac system and recommended that a program be developed to include a dedicated aircraft and full-time coverage by trained professionals. Because the cost of implementing such a new system was staggering to the government the old system continued at the status quo, and the problem was not revisited until 1995.

Another audit done in 1995 generated a report which again outlined the inadequacies of the system. The report was distributed to the Minister of Health, the Whitehorse General Hospital (which was responsible for medevacs at the time), community nursing stations and the Chief Coroner. The Minister of Health was contacted by several of these professional groups, in hopes that pressure from various sources would help convey the urgency and seriousness of the problem. The government eventually became more open to discussing both the problem and potential solutions.

Although there are no "official" national standards for air evacuation services, the standards of care for programs in similar jurisdictions such as Keewatin Air in Manitoba,[1]

the Government of the Northwest Territories[2] and the British Columbia Ambulance Services[3–6] were examined. Upon comparison with these services we identified many areas that were lacking in the Yukon system — training of staff, standards for air carriers, consistency of medical care and protocols and procedures — as well as unacceptable response times of up to 5 hours for critically ill patients in the communities. These issues were presented to the government and clearly illustrated that urgently needed critical health care services were not being provided in the Yukon. In our first meeting with government officials we were able to present our critical areas of concern and propose possible solutions in reference to the expected standards of care of the medical community and the public.[7] In this way, if the government accepted a particular solution it could be held accountable for its implementation.

Audits were ongoing and feedback was continually provided to government officials regarding the success or failure of a particular option. Those officials involved genuinely wanted a medevac system that was not only efficient but also served the public. As a result, when problems arose we were able to communicate with senior officials directly. This partnership enabled us to expeditiously make changes to the program as they were required. What follows is a description of the critical areas we examined and how each issue was addressed to evolve into the system we have in place today.

Provision of staffing

Unacceptable response times were due to the fact that well-trained, knowledgeable staff were often unavailable. Provision of escort services was not compulsory. Nurses were paid for their time; however, the work on medevacs was seen as undesirable because there were no added accident or life insurance benefits for staff and the physical work on the aircraft was often stressful and tiring; staff felt insecure. When a medevac was requested the hospital had to locate a registered nurse willing to attend the medevac; if the patient required interventions out of a nurse's scope of practice the hospital then had to find a physician willing to attend. Although physicians were remunerated for escorting on medevacs they were not obligated to do so. As a result, it could be hours before the proper personnel were found to provide medical escort services for critically ill patients. Rural community nurse practitioners often felt stranded with patients who required care exceeding their capabilities. Many cases of poor patient outcomes we identified were attributed to long response times, lack of staff training or faulty equipment.

The following solutions were presented to the government to help solve our staffing problems:

- To provide funding for full-time dedicated flight nurses with advanced cardiac life support (ACLS) and basic trauma life support (BTLS) skills and advanced airway-management training. This would require an additional 4.5 full-time-equivalent positions on the government's payroll or on contract. Although this option would provide the best medical care it was the most expensive option and was not initially entertained by the government.

- To provide funding for Whitehorse General Hospital nurses and emergency physicians with ACLS and aeromedical training. Escorting would remain noncompulsory, however. This option was the first one entertained by the government because it was the least expensive. The government agreed to fund a Canadian Association of Aero-Medical Transport Systems (CAATS) Air Medical Training Program for all interested physicians and staff. Up to 40 personnel attended the training session, but there were no overall improvements in escort attendance, response times or the satisfaction of rural community nurses with the service. It became clear that it was necessary to staff medevacs with a limited number of dedicated individuals who were also interested.

- Given the lack of improvement in services following the training program, the government agreed to provide funding for CAATS- and ACLS-trained nurses, who would work in the Whitehorse General Hospital where needed but who would be dedicated to leave on a medevac as soon as the need arose. The Whitehorse General Hospital hired 4.5 "float–medevac" nurses who met those requirements. Problems were encountered, however, when it became apparent that the hospital was often using these registered nurses in critical care areas (e.g.,. post-anaesthetic recovery, emergency and intensive care), and there were prolonged delays when another nurse had to be found to replace the float–medevac nurse. In addition, the Whitehorse General Hospital was having staffing and budgeting difficulties relating to the program.

  Extraterritorial medevacs were being staffed on an ad hoc basis until it was discovered that patients on interfacility medevac transfers were often escorted by untrained and underqualified staff, thus putting the hospital at medicolegal risk.

Medevacs will naturally have an impact on ambulance services, and the logical decision was made by the Yukon Territorial Government and the Yukon Ambulance Service to transfer the responsibilities for medevac services from the Whitehorse General Hospital to the Yukon Territorial Government's ambulance service. In January of 1998 the government provided funding to hire dedicated flight registered nurses on a contractual basis. Because of unsolved professional liability issues and contractual problems the flight nurses became government employees in the fall of 1998; 3 three-quarter-time flight registered nurses now provide medevac coverage for the territory. They are responsible for equipment and for drug review, stocking and main-

tenance. When not directly involved in a medevac, the nurses assist both the ambulance services and Whitehorse General Hospital. Substantial savings in the staffing budget for ambulance services are anticipated because additional personnel may not be required for standby crews. The Yukon Ambulance Service also implemented a call schedule to provide escort service personnel for interfacility transfers as well.

The hiring of dedicated staff and the acquisition of dedicated aircraft and equipment resulted in the dramatic reduction (over a 6-month period) in response times for critical patients to an average of 63 minutes. Rural community feedback has been exceedingly positive and there have been no reports of poor patient outcome because of equipment failure or poorly trained staff.

Physician involvement

In 1997 the Yukon Territorial Government provided funding for a medevac physician call roster. This roster comprises 6 dedicated emergency-trained physicians who are remunerated to answer calls for medevacs promptly, triage these requests and give supportive advice and orders. Negotiations through the Yukon Medical Association and the allocation of fee increases through Yukon Health Insurance Services has allowed for an acceptable remuneration package for physicians attending medevacs. Now, when a patient is critically ill and requires a physician escort, one is available to leave immediately to attend the medevac. As the government had hoped, the percentage of physician-assisted escorts for intraterritorial medevacs decreased as flight nurses became more experienced. It is hoped that this trend will continue as the nurses acquire the skills necessary to handle some of the critical calls independently.

Protocols and procedures

The Yukon government also provided funding for a physician medical advisor for the Ground/Air Ambulance Services in 1996/97. There was an urgent need for administration, communication, triage and procedures and protocols for the medevac service. Rather than reinvent the wheel, the protocols from Keewatin Air were used as guidelines and were tailored for the Yukon Territory. We considered the extensive feedback that was solicited from people in the communities to refine communication procedures, and our system now works through the current 911–ambulance dispatch system. Initial calls from the community are now recorded, and air and ground transport systems are efficiently coordinated.

Aircraft and safety issues

Concerns regarding flight safety and life and disability insurance were of paramount importance in early discussions.[8] The Yukon Territory is vast and the terrain rough.

The official medevac ambulance (a snow machine with a trailor to carry the patient) in Old Crow, a very isolated Yukon community.

There are obvious problems with extremely low temperatures, ice fog, wing icing, dirt landing strips and darkness. Medevacs are often done in the dark, particularly in the winter months when some areas are in darkness most of the day. The government understood the urgent need for a reasonable insurance package for medevac escorts and arranged to fund a group life insurance policy.

For the number of evacuations requested, the service required a dedicated, fully equipped, pressurized aircraft; in 1998 there were 207 intraterritorial medevacs and 110 extraterritorial facility transfers. A contract was awarded in 1997 for the provision of a dedicated aircraft and a back-up aircraft, both pressurized and with suitable equipment and an experienced pilot.

Continuing quality assessment

The medical evacuation system is audited by a medical advisor on a quarterly basis. The time and location of the medevac request, the emergency response time, protocol adherence, charting, diagnosis and associated problems are evaluated. Audits are designed not to be judgemental or threatening but to encourage individuals to evaluate their own performance against the expected standards and to encourage personal improvement. As a result, improvements in the system have been rapid and staff morale has been high. Audits have allowed for analyses to be done in other areas as well; the medevac requirements for various communities have been assessed according to their unique characteristics. For example, more trauma calls might be expected from a mining community or from towns near major highways during the summer months.

In the past 3 years, the number of intraterritorial medevacs has remained fairly constant (approximately 200 per

year); however, the number of extraterritorial interfacility transfers has increased (from 65 in 1996 to 110 in 1998). This information may assist the government in budgeting for health care resources and in determining where additional health care programs are needed. Questions to be addressed include: Would a CT scanner be cost effective? Would a resident general internist or cardiologist decrease the number of transfers? Should the orthopedic surgeon visit more often? It is hoped that the proper allocation of resources and programs will lead to a decrease in the number of expensive interfacility transfers required.

All Canadians, no matter where they live, deserve equal access to quality health care.[7] The government must either acknowledge that it cannot provide the standard of care that is expected or make the changes necessary to improve the health care provided. Although the burden of accountability for a failing system lies with the government, it is important that the deficiencies in the system be brought to the attention of government officials. Moreover, program evaluation must be ongoing so problems can be addressed as soon as they are encountered.

The development of the Yukon Medevac Program illustrates how a few individuals can initiate change and contribute to the development and implementation of a health care program in a fiscally responsible way. We hope that our positive experience assists and encourages others to strive to improve the health care system in this environment of fiscal restraint.

This article has been peer reviewed.

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