

Coalition Forces

Stretching the Resources: Medical Support for Canada's Military Commitment to the Gulf War

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In peacetime there is a tendency to overlook the combat medical support system. Consequently, medical support programs fall prey to personnel cuts and out-year funding. The Gulf War, with its initial horrific casualty estimates, provided a much needed stimulus to attract the attention of both military and political pundits on the requirements of the medical services. While After Action Reports are still being received and collated, initial analysis indicates that availability and accessibility of adequate and effective medical support remains a significant motivator and potential war stopper in combat operations.

This article provides an overview of Canada's military commitment to the Gulf War, outlines the medical support posture which was adopted to both meet national requirements and assist allied forces in the general medical support effort. It also briefly discusses some interoperability issues which have come to light. The most significant of these issues is the growing challenge of maintaining the continuum of patient care in the face of potential variance in clinical protocols from nation to nation.

Challenge

There is little doubt that the Gulf War, with its initial horrific casualty estimates, provided a much needed stimulus in attracting the attention of both military and political pundits to the requirements of the medical services. As we are all very much aware, interest in the military took a sharp decline following the dramatic political changes in Eastern Europe and the reunification of Germany—the new political priority was to exploit the peace dividend. The result of this new order was that Canadian military programs, including those aimed at developing an enhanced operational medical support capability, were placed on the back burner; force reduction, including personnel cuts and base closures, took on a new significance.

Canadian activity in support of the United Nations' operation in the Kuwait/Persian Gulf area of operations was conducted under the umbrella of a national initiative named Operation Friction.

As Operation Desert Shield unfolded, the situation in which NATO members of the coalition suddenly found themselves was further complicated by the

requirement to conduct combat operations in an environment which was in direct contrast to that faced in Central Europe. The capability to operate in the desert, particularly in a climatically hostile chemical and biological warfare (CBW) environment, had not been a planning consideration for NATO forces. Furthermore, with the decreased threat in Europe, virtually all funding for CBW-related systems procurement had been dramatically reduced. Commitment to operations in the Gulf with its overt CBW threat, therefore, created an overwhelming demand to field effective detection and protection systems and, even more importantly, to develop and introduce state-of-the-art medical prophylaxis and pretreatment modalities for immediate use. Suddenly priorities had changed, and it was very evident that the demand to meet this new political objective would require more than just "renewed commitment" to military spending. To effectively meet the many medical challenges within the imposed time frame would require a concerted international collaborative effort of enormous proportions.

Commitment

Many nations, including Canada, offered immediate military assistance to

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mount a massive United Nations sanctioned military blockade. The initial Canadian Forces commitment was a navy task group, comprised of two destroyers and a replenishment ship, to participate in the multi-national Persian Gulf blockade. A crash effort was initiated to upgrade ship-board air defense and surface action capability of the assigned ships, because their normal NATO role was as anti-submarine patrol. Comprising less than 10% of the coalition naval force, Canadian ships conducted 25% of the interdiction operations in the Gulf. During Desert Storm, the Canadian

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Figure 1. Elements of 1st (Cdn) Field Hospital were co-located with 32nd (UK) Field Hospital approximately 60km from the Iraq-Saudi Arabia Neutral Zone.

Task Group commander functioned as commander of the Combat Logistic Force supporting the coalition naval forces in the Gulf. As part of a reciprocal support arrangement with the US Navy, a Canadian surgical team was also deployed aboard the hospital ship *USNS Mercy*. Canada made this offer of assistance when it became apparent that US Navy resources would be stretched in meeting the requirements of a growing allied contingent.

The navy task group was followed by an air task group, comprised of a CF 18 fighter squadron, a CC 137 air-to-air refueler, an airfield support squadron and a mechanized infantry company for airfield security duties, all of which were based in Qatar. Task group fighters were employed initially, in conjunction with US Marine Corps aircraft, in providing a Combat Air Patrol (CAP) over the central Persian Gulf. This was expanded, with minor aircraft modifications and a change in armament, to include battlefield interdiction and ground attack during Desert Storm.

As the contingent grew so did the requirement to coordinate the employment and support of Canadian resources. A joint headquarters, supported by a signal squadron with long-range communication capability,

was subsequently established in Al Manamah, Bahrain, to provide a national command element for the deployed navy and air task groups.

The major land force component assigned to the operation was a 100-bed field hospital deployed in support of the 1st (UK) Armoured Division. Other Gulf-related overseas commitments included the provision of evacuation and heavy transportation units in support of US military activities in Germany.

Medical support for deployed Canadian forces was provided either by organic medical establishments, primarily level one and two care, or obtained from a combination of host nation or allied facilities and/or resources. The navy task group had a limited level three capability with a surgical team deployed aboard the replenishment ship; during the period prior to the outbreak of hostilities the team was employed in the Bahrain Defence Forces Hospital. The field hospital was obviously self-sufficient for level one through three medical support with back-up provided by the British forces. National back-up for forces deployed to the Gulf was provided by the medical resources of Canadian Forces, Europe in Germany.

Plans for the evacuation of casual-

ties included the utilization of both national and allied resources. The patient flow from the theatre would have been through either Canadian/US facilities in Germany or British facilities in Cyprus and/or England. Arrangements were in place to access civilian hospital beds in Canada had the patient flow exceeded the capacity or capability of military medical facilities.

Medical resupply, with the exception of the field hospital, was through the Canadian Forces medical supply system extending in theater from a forward medical equipment depot in Germany which provided direct support to the Canadian contingent. The field hospital was supported by British Forces Middle East for all but non-common user items, which were supplied through the national system.

Cooperation

While the initial focus of the Canadian medical effort was directed toward supporting our own forces, our attention turned toward assisting our allies as preparation for battle continued.

In response to a New Year's Eve request from the United Kingdom for assistance in providing care for British military and Iraqi prisoner-of-war casualties, Canada also agreed to commit its only 100-bed field hospital. This commitment was possible as Canada had not committed land troops to the Gulf. In addition to the normal unit complement, a sizeable logistic element was added for assured self-sufficiency and an infantry company, complete with light armored vehicles, was added to act as stretcher bearers and to provide perimeter defense. Due to a rapidly approaching "H hour," it was decided to deploy two Advance Surgical Centres by air to co-locate with a UK field hospital in direct support of the 1st Armoured Division; each Advance Surgical Centre was comprised of two surgical teams with appropriate pre- and post-operative support. The balance of the unit equipment, including a sizable logistic element and an armored infantry company, was deployed by sea. Arriving

in Saudi Arabia as the land battle commenced, the main field hospital element barely got into the assembly area before the cease fire was declared. Fortunately, the two Advance Surgical Centres had already been deployed forward, and they did see action during the land battle. While the surgical workload was obviously much lighter than anticipated, those casualties treated provided our medical staff with an excellent introduction to the more dramatic aspects of military medicine. The workload provided a cross-section of battlefield trauma.

A diminished security threat and light casualty flow permitted reassignment of the field hospital's infantry company to assist overwhelmed British Forces in guarding the thousands of prisoners of war being returned from the front.

In response to a request from the US European Command for assistance in augmenting US resources replacing assets taken out of Europe and sent to the Gulf, Canada agreed to deploy evacuation elements from Canadian Forces Base Lahr to Ramstein Air Force Base. Ramstein was designated as one of three aeromedical evacuation hubs in Germany to receive and provide in-transit staging for patients en route to the continental US or transferred to supporting European military or civilian facilities. The Canadian support element consisted of both ground evacuation and treatment companies; evacuation resources included seven Mercedes ambulance buses which were equipped (including a permanently installed central oxygen system) and manned to transport twelve high dependency patients. Canadian evacuation assets conducted 78 separate ground evacuation missions during the seven week deployment, carrying 802 of the 1482 patients processed for evacuation through the 316th Aeromedical Staging Facility.

In total there were over 650 Canadian Forces personnel involved overseas in a broad range of medical support activities. While less than 20%

of the overall medical services personnel strength was involved, 80% of the Canadian Forces surgical capability was either deployed or committed in direct support of the Gulf War. Regrettably, no Reserve Force medical personnel were deployed overseas; however, a number of Reserve specialist medical officers were employed as replacements for deployed

personnel. Very early in the planning process, it became abundantly clear that we would be unable to sustain our established commitments in a protracted operation without the activation of the reserves. Unfortunately, even with this resource, the availability of essential medical specialists would have still posed a critical shortfall. In light of the current economic atmos-



Figure 2. While the workload was fortunately lighter than initially estimated, Canadian Surgical Teams were exposed to aspects of military medicine not experienced in peacetime practice.



Figure 3. 1st (Cdn) Field Hospital Advance Surgical Centres augmented 32nd (UK) Field Hospital to handle anticipated Allied and POW patient loads.

phere, it is difficult to attract and retain personnel, particularly highly skilled medical professionals, in the reserves.

Canada entered into bilateral agreements/arrangements with the UK, US, Denmark and Australia covering a number of reciprocal medical and general support services. Throughout the operation, we were confident that an effective interoperability base was in place for mutual medical support.

Post-war multinational involvement continued to see Canadian Forces in Southwest Asia: an air transport flight and a medical element were deployed to provide assistance to Kurdish refugees in Southeastern Turkey, and an engineer regiment was engaged in clearing field defenses in Kuwait.

Observations and Issues

While the voluminous post-operation reports have yet to be fully analyzed, there are a few interoperability issues regarding medical support in multinational operations which were readily identified and considered. We all appreciate the long-standing interoperability concerns regarding medical supply equivalents, patient tracking and reporting, equipment compatibility and stretchers (litters; however, a new issue identified as "continuum of care" has emerged. Multinational operations present a growing challenge to the medical services in maintaining the continuum of patient care in the face of potential variance in clinical protocols from one nation to another; the incompatibility of drugs or treatment modalities are obvious examples. While this thankfully did not have an impact on Canadian medical support operations during the Gulf War, the potential was definitely present. A few specific examples of cases where medical care could have been influenced by the application of innovative procedures or technology are: therapeutic/surgical devices which accompany the patient, such as external fixation devices; CW prophylactic and/or treatment regimes (NATO countries, for example, use five dif-

ferent nerve agent antidote oximes, not all of which are compatible, in six different autoinjector systems and several have no fielded anticonvulsants); antibiotic prophylaxis and/or treatment regimes; computer-based medical records not uniformly available in NATO; computerized radiographs/filmless x-rays; and innovations in burn management, such as the early use of cerium nitrate and flamacerium cream, which necessitates a change in approach to debridement.

To expand on this observation using the last issue as an example, when the war ended, the Canadian Forces were weeks away from introducing the use of cerium nitrate cream in the primary management of burns. Clinical research has demonstrated that a dramatic improvement in mortality and morbidity will occur in seriously burned casualties if the cream is applied in repeated low doses over continuous days. Changes to a treatment protocol lacking cerium nitrate would seriously compromise these significant therapeutic advantages.

Although it may not be feasible to achieve universality of application with respect to the products of evolving medical technology, every effort must be made to exploit these developments for military application in a unified coordinated manner. As 21st century medicine descends upon us, the Gulf War has shown that interoperability cannot be achieved by formal standardization of resources and policies alone, but must be accompanied by a willingness to participate, cooperate and collaborate at all levels of scientific and biotechnological endeavor.

CONCLUSION

Over the past four decades, considerable progress has been made within the NATO alliance to achieve a greater degree of interoperability, with standardization of procedures and/or equipment as the goal. Commonality of commodity is probably the single greatest advantage that the Medical Services have in any multinational

operation. Within NATO, casualty evacuation and medical resupply are handled in a relatively standardized manner, although the means may vary greatly from nation to nation. While there were definite peaks and valleys in the medical support forum during the Gulf War, it must be acknowledged that the multinational effort of the Gulf War benefited immensely from the interoperability and standardization achieved through 40 years experience in the NATO alliance. Our next cooperative challenge will hopefully be nothing more sinister than routine multinational medical exercises but perhaps with a renewed interest in the continuum of medical care and the subtle implications of new medical technologies as they are introduced into a military setting. It is obvious that if the patient care continuum is to be enhanced, we must concentrate on what is achievable and affordable. In this regard, it may be time to consider an expanded and more generalized information forum covering all aspects of medical research and development. ●