REPORT OF A LECTURE

MEDICAL STANDARDISATION ISSUES FROM OPERATIONS THE CANADIAN PERSPECTIVE

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The Gulf War was the first time since the Korean war, that Canada had committed a field hospital in a true operational situation. This was conducive to assessing interoperability with NATO Allies and standardisation, albeit beyond the traditional NATO theatre of operations. Following deployment the Canadian Government announced the reduction of forces stationed in Europe. While appreciating the rationale, it is a disappointment for Canadian medical personnel to know that the focus for training with NATO forces will be made more difficult, as will direct Canadian involvement in future standardisation efforts. The most likely setting for co-operation in medical support during operations, as for other NATO Allies, may be supporting UN contingents, including countries beyond NATO which have not previously been involved in the standardisation process. The Balkans, Cambodia and Somalia are current examples with multinational contingents. An examination of the Canadian perspective of medical multinational forces and standardisation requirements arising from the Gulf deployment and participation in UN operations seemed appropriate.

The first notice of our impending involvement in the Gulf came on New Year's Day 1991 when we were advised, unofficially, that the UK was seeking assistance in providing surgical augmentation to their Gulf field hospitals. This was not surprising, nor should we consider it unique that a shortfall of Level Three medical support had been identified, since the problem is universal in NATO. Future co-operation between Nations can be expected, thus interoperability is more important than ever. The request generated a flurry of activity, including the immediate deployment of a recce team. On 16 January, the Canadian Government authorised deployment of a 100 bed field hospital to the Gulf in support of British Forces Middle East. The unit was to function as a Forward Surgical Hospital. It was to be able to operate autonomously, have integral First and Second Line support capability, and have access to National Support. The surgical components of the unit were to be mobile and air transportable, with the remainder semi-mobile and sea transportable. A Defence and Employment Company of over 100 Infantry personnel was added as Stretcher Bearers and to protect the unit against enemy and terrorist activity. The unit was based on 1 Canadian Field Hospital, an augmentee Level Three organisation with a Regular Force cadre of only 37

personnel and a normal total of 224. Augmentees for this operation were drawn from every Command in the Canadian Forces and the total strength of the unit deployed in-theatre, including the National Support and Security elements, was 534 all ranks. To say that the size and organisation of the unit came as a surprise to the British is, I believe, an understatement. Perhaps the issue here is that no matter how familiar you believe you are with a Nation's resources and what it has indicated it will provide, varying National, political and military perceptions can have major implications on the structures that eventually deploy on a given operation. I suspect this reality will increase, in that the process of what gets sent may take on the dynamics of a committee, and smaller Nations, may not have large, fixed corps or division structures that can be deployed "as is". One definition of a camel is that it is a horse designed by a committee. Perhaps the British smelled a bit of camel in Canadian Field Hospital. Any Nation deploying complex element, such as a field hospital to assist another Nation's forces needs to ensure that a National Logistic and Line of Communication system to the parent Nation is established, and this adds considerably to the size of the contingent.

The deployment occurred quickly. Vehicles and equipment left Canada on 25 January and the first element, an Advanced Surgical Centre, flew into Al Jubayl to join 32 United Kingdom Field Hospital by 29 January. By 25 February, when Operation DESERT SHIELD became DESERT STORM, the main body was complete in-theatre with a Forward Element of two Advanced Surgical Centres collocated at Al Quesumah, approximately 20 kilometres south of the Iraq-Kuwait-Saudi tri-border area. While the ensuing medical and surgical workload was much lighter and shorter than originally anticipated, our staff was provided with an excellent re-introduction to some of the more dramatic aspects of military medical support and standardisation issues did arise.

Nations, even within NATO, have different ways of fighting a battle. This demands flexibility in adapting to different medical support concepts, particularly at Level Three. The most difficult to achieve is the light, mobile field hospital. Criteria for mobility need to be established particularly for Level Three units. We were fortunate in that the forward elements of 1 Canadian Field Hospital were 100 per cent mobile and would have

been able to maintain proximity to 1 United Kingdom Armoured Division in any advance.

Mobility is compromised once surgery has been performed, particularly if Surgical Teams are pushed forward into Level Two facilities.

Hospitals must also have the capability of "leapfrogging" either with sub-elements or whole hospitals in order to keep up with the battle, or out of the way of the battle. This requires integral or at least dedicated transport. Pooled resources mean that medical facilities take a back seat to the "bullets and beans".

The interdependence of Levels One, Two and Three facilities must be considered, not only for patient evacuation but also for Medical Resupply, including the requirement for a National Support link for unique National items.

The Gulf war was a "fast war". This had major implications on medical support, as it affected both treatment and evacuation. If Levels One and Two facilities cannot keep up with the battle, patient care may be compromised and Level Three facilities may have to admit more patients directly than expected.

NBC requirements and collective protection capability have to be considered.

Organisation and staffing levels for medical facilities need studying. These arise from the casualty estimates and the subsequent surgical workload estimate. NATO developed standard casualty rates for probable high intensity, sustained operations.

Now, however, we have no estimates for the smaller, but potentially dangerous, regional conflicts. Recommended casualty rates for strategic planning must be agreed within NATO. But who should make the decisions as to what these rates should be? All the data on recommended casualty rates from SHAPE have been issued on the medical net. In Canada, the determination of battle casualty rates is a J3 responsibility, while non-battle casualty rates are the responsibility of the Surgeon General. Canadian J3 Staff have commissioned major study from their Operational Research and Analysis Establishment to recommend Battle Casualty Rates to be used when planning for Low to Mid Intensity contingency operations in which Canada might be involved. If similar initiatives were to be undertaken by other Nations, they could form the basis of NATO recommended rates. Without this, standardisation will be unlikely. Even if casualty rates and subsequent surgical workload are assessed with some degree of accuracy, the field hospital structure, particularly staffing levels, identified as being necessary to provide adequate treatment will vary greatly. Each Nation has the right to determine its own needs for its own forces, but if you are providing a field hospital to afford care to another Nation's troops, especially if it is working within their formation, does the Nation receiving the support have any right or responsibility to impose its standards? This was not an issue between Canadian and UK hospitals in the Gulf, but there were notable differences. In personnel levels our hospital

may have been viewed as being overstaffed, but this was based on the Canadian assessment of numbers of nursing hours needed for critical, intermediate and minimal level care patients, 24 hour, 7 day coverage in a potential NBC environment and including the need for mobility. There are no common criteria, standards need to be set. The battle ended before we could establish the correct staffing levels, but we found that the combination of mobility and sustained activity demands higher staffing levels than might initially be estimated.

The essence of medical facilities is treatment, a difficult area for standardisation. When one considers the problems encountered in getting two physicians to agree to a standard treatment the prospect of any kind of agreement between Nations is daunting. Everyone, from the Military Services to National Professional bodies to Federal Legislators has an opinion which ultimately affects the treatment of the soldier. Our surgical experience, colocated with 32 Field Hospital lasted only four days, yet a considerable number of treatment standardisation issues emerged. A longer period would undoubtedly have raised others. The most urgent is that of protocols, which have the potential to compromise the care of the patient if not continued or taken into account at the next level of care. One such issue is post-wounding, antibiotic prophylaxis. Examination of evacuation times shows, with the exception of Vietnam, there has been surprisingly little decrease in the time to evacuate a casualty to surgery and realistically the six hour rule will probably continue. During the Gulf War, British and Canadian physicians debated providing soldiers with auto-injectors of benzyl penicillin for self or buddy administration, upon wounding in order to expand the six hour period. The difficulty with such a protocol is in knowing if it had been administered and therefore whether extra time had been gained. Nations may not subscribe to each other's protocols when working together, and if physicians are not made aware of the differences, problems of continuing care and treatment may result. The best example is the significant differences between CW prophylaxis and treatment regimes: five different nerve agent antidote oximes, not all of which are compatible, in six different auto-injectors, are deployed by NATO Nations, and several Nations have no field-issue anticonvulsants. Innovations in burn management with the early use of cerium nitrate and flamacerium cream demands a change in approach to debridement. Had the war continued for a matter of weeks, Canada would, as an operational imperative, have been prepared to introduce the use of cerium nitrate cream in the primary management of burns. Clinical research indicates that a dramatic improvement in mortality and morbidity will occur if the cream is applied for ten continuous days. However earlier change to a treatment protocol lacking cerium nitrate would seriously compromise these significant therapeutic advantages. A number of issues are raised at this point. If Canada had been authorized to introduce this treat-

ment, would the British have allowed it? Would they have adopted it for their soldiers or would their Laws have prevented this until a National Clinical Review process had approved it? What if the patient was a Canadian? The principles need to be established.

Standardisation difficulties will arise from the growing use of computers in field medical units. Computer-based medical records, patient regulating, computerised or filmless radiographs and X-rays, and the use of medical expert diagnostic systems are issues that come immediately to mind. It is neither feasible nor desirable to achieve absolute standardisation with respect to the products of evolving medical technology, as this would probably lead to stagnation rather than standardisation, but every effort must be made to exploit those developments that benefit the patient. At the very least, we must ensure that lack of standardisation in patient care does no further harm and does not prejudice interoperability.

In the field of Medical Resupply and equipment exchange numerous examples can be given where problems were encountered. Perhaps the most incredible, considering the amount of standardisation documentation, is that we had to saw the handles off Canadian litters before they would fit into British ambulances. Also at an American Aeromedical staging facility at Rhein-Main we found the US litter would not fit our four litter ambulance. The litters are virtually indistinguishable yet the "D" rings on the bottom of the US model are placed about 1/4 inch wider and will not fit into the tracks of the Canadian ambulance. In each of these cases, the litters and the ambulances of each of the Nations satisfied STANAG criteria. Even film for our X-ray machines and laboratory reagents were different from those available from the British and had to be treated as unique Canadian items. Nothing can be taken as standard. Any Nation contemplating deploying a Level Three facility with another Nation's forces is obliged to set up a National supply line for unique items. This is an expensive undertaking in an Out of Area Operation, especially if perishable and time-sensitive items such as blood and blood products are dealt with on a National basis. Critical, expensive items such as resuscitators may have to accompany a patient to another Nation, resupply will be a problem, and the return time can be lengthy. The obvious answer is to effect exchange at the facility so that the equipment accompanying the patient is that of the destination Nation, thus avoiding a mix of equipment in the tactical or strategic evacuation system. This is not possible for items such as external fixators. Any unique item that has to accompany a patient into another Nation's evacuation system must be written off for the duration.

Our Gulf experiences also taught us lessons in the areas of Personnel and Training. Level Three medical facilities are personnel intensive and many countries, Canada included, cannot afford to have the organisation staffed by Regular force personnel in peacetime. Additionally, maintaining clinical skills requires employment

in a Level Four facility. Thus, Level Three units are staffed in a number of ways; either from Level Four resources, or Reserves, or a combination. Many of these organisations in the future will be "ad hoc" or "task tailored" to the situation, and many will include augmentees. Ninety-three per cent of the unit in the Gulf were augmentees. But at least they were Regular force and we could vouch for their occupational skills. But coming from so many Commands, standards of physical fitness and basic survival skills needed for the land environment varied. Few of our augmentees had previously trained with a field hospital on exercise. Add in the potential of increased Reserves in future, because of cut backs in the Regular force, and what you have for Level Three facilities is an uncertain personnel product. Even with Regular force staffing, deployment timings will probably not allow substantial collective training to be carried out, but at least, emphasis should be provided on individual skills for Emergency Medicine, War Surgery, Land Environment Training, NBC Medical aspects if the threat exists, Combat First Aid and Combat Stress Management. These are difficult areas for standardisation, yet how can we expect any degree of medical interoperability success, if field hospital personnel do not have the basic field skills necessary to ensure they are not a liability. I believe aspects, which caused us problems in the Gulf, still persists. The issue in the short term is whether another Nation's medical resources will be committed to operating in your area when you may be uneasy about their military skills, but desperately need the clinical skills — and how could we overcome the problem?

The Control and Coordination of Medical Services in a Theatre of Operations is a perennial problem. Recent planning for the expansion of UN operations in Bosnia is illustrative. The expansion force includes elements from NATO Nations such as Canada, France, Spain and the UK, as well as non-NATO contributors such as Egypt, Kenya, Nigeria, Russia and the Ukraine. If ever there was a time for a concerted effort at co-ordination of medical resources this could be it. Yet the proposed Headquarters, initially included no Medical Advisor or staff. This has now been corrected, but even between traditional NATO Allies, in a situation where medical care is acknowledged as being potentially difficult, the medical profile is so low that it is left out of the proposed organisation of the Multinational Headquarters. We still have some work to do in educating the Operators to the doctrine of Control and Co-ordination of medical resources at the highest level. At the other end of the control continuum, a Medic had no doubt about control — this from our contingent in Croatia, with a unit medical station located in the Russian Sector: "A Russian Medical Officer came to pay a liaison visit, and began to help himself to medical supplies from our panniers. When asked by the Medical Officer what he was doing the Russian explained that since the Canadian medical station was in his Sector, the medical supplies were also

his and he was taking some for his unit". I believe this degree of implementation goes beyond the accepted NATO concept of interoperability, but you have to admit, the idea of sharing the load for the greater good is not too far off the mark.

I realise the issues raised are the problems, and the questioner may rightly ask if there is any good news. I believe there is. We found a great degree of clinical interoperability among the medical staffs in the Gulf. There was an enthusiasm and a willingness both to share and to accept new ideas, which reflects a positive attitude. Through this I believe the standardisation challenges can be resolved, as with the example of the Russian Medical Officer. It also offers the prospect of

increased co-operation and assistance between NATO Nations, particularly in the UN forum. There is potential for multinational co-operation. The Canadian Medical Services learned much about interoperability from the Gulf war and we are applying these lessons to medical support for UN operations, currently in the Balkans and Somalia. Multinational operations such as these offer an unparalleled opportunity to develop interoperability within and beyond NATO.

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