

**Focus On....Managing Health Services Support to Military Operations.**

**Continuous Improvement in Healthcare Support to Operations**

**Authors:** MCM Bricknell DM MA MMedSci MBA FFPH FIHM MFOM MRCP (1), RF Cordell MRCP MFOM (2),

**Affiliations:** (1) Medical Director, Headquarters Region Command (South), Operation HERRICK, BFPO 772 (2) Allied Command Operations Medical Advisor and Director of Medical Support, Supreme Headquarters Allied Powers Europe, B7010 SHAPE, Belgium.

**Corresponding Author:** Colonel Martin CM Bricknell L/RAMC, Medical Director, Headquarters Region Command (South), Operation HERRICK, BFPO 772

Email: [martin@bricknell.net](mailto:martin@bricknell.net)

## **Abstract**

This is the eighth in a series of monographs that examine some of the principles and factors involved in managing health services support to military operations. This paper will discuss the emerging concept of Continuous Improvement in Healthcare Support to Operations (CIHSO) recently introduced within NATO. The paper will start by summarising the developments in NATO policy regarding clinical governance and how this has evolved into CIHSO. The operational aspects of CIHSO will be examined within the *Plan-Refine-Execute* (PRE) process of operational planning process. It will then look at the components of a CIHSO system as it might apply to the deployed military healthcare system as described in the previous papers on MEDEVAC, TACEVAC, deployed hospital care and executing medical operations. The last stage of PRE should include *assessment* through the tracking of key performance indicators of the military medical system. The UK and US systems of assurance for the deployed trauma system will be reviewed as part of the clinical aspect of CIHSO. The paper will close by considering some of the emerging issues in the management of CIHSO in a multinational environment.

Word Count: 184

## **Introduction**

This is the eighth in a series of monographs that examine some of the principles and factors involved in managing health services support to military operations. This paper will discuss the emerging concept of Continuous Improvement in Healthcare Support to Operations (CIHSO) recently introduced within NATO. The paper will start by summarising the developments in NATO policy regarding clinical governance and how this has evolved into CIHSO. The operational aspects of CIHSO will be examined within the *Plan-Refine-Execute* (PRE) process of operational planning process. It will then look at the components of a CIHSO system as it might apply to the deployed military healthcare system as described in the previous papers on MEDEVAC, TACEVAC, deployed hospital care and executing medical operations. The last stage of PRE should include *assessment* through the tracking of key performance indicators of the military medical system. The UK and US systems of assurance for the deployed trauma system will be reviewed as part of the clinical aspect of CIHSO. The paper will close by considering some of the emerging issues in the management of CIHSO in a multinational environment.

## **Development of CIHSO**

Many assume that the application of principles of clinical governance within military medical services arise for the introduction of the phrase in the seminal paper by Scally and Donaldson<sup>1</sup>. However the military medical services have a strong history of

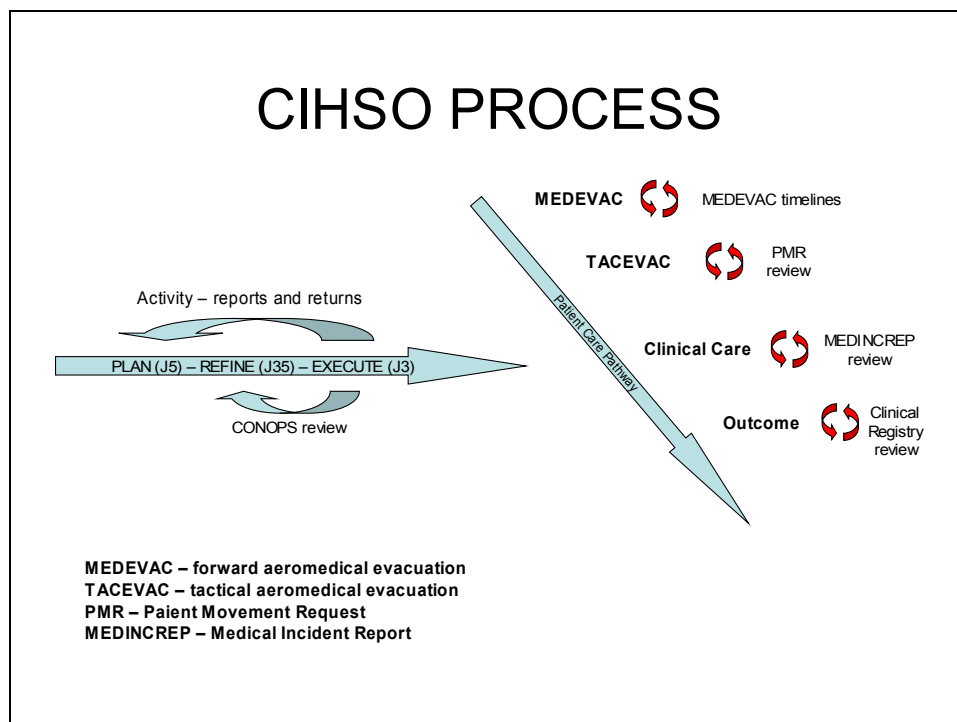
sharing best practice and using senior staff as theatre level consultants to observe and monitor standards of medical care. Sir George Makins described the role of the consulting surgeon on the Western Front in the First World War in the British Medical Journal<sup>2</sup>. His most important role was to visit medical units and observe the methods and results achieved at every stage in the medical evacuation system in order to regularise (sic) and bring into conformity the work being carried out throughout the entire army. In World War 2, there were specialist consultants on the staff of the medical branch in the theatre headquarters who performed the same function<sup>3</sup>. Clinical policies were introduced locally and then formalised through the publication of the Field Surgery Pocket Book<sup>4</sup> which survives to this day<sup>5</sup>. The United States introduced the same concept with a Professional Consultants Division being established at the Office of the Surgeon General and in every operational theatre<sup>6</sup>. Clinical practice became standardised through the publication of Technical Bulletin 147 Notes on the Care of Battle Casualties<sup>7</sup>. The UK retained the role of consultant advisers in peace but their role became focussed on maintenance of medical standards in the infrastructure military medical system and training medical specialists for war. Until the 1990s, the military medical system was designed for a short, high intensity war in which capacity rather than capability was the principal driver. The Gulf War in 1990 highlighted the need for a robust field medical record system. The transition from military hospitals to Ministry of Defence Hospital Units aligned military clinical staff with civilian clinical audit practices. Whilst many papers have been published by DMS officers reporting clinical activity on operations and exercises, the absence of a standardised system of data capture and coding has prevented these reported from being used to confirm the validity of the medical plan with activity data<sup>8</sup>. As Clinical Governance was introduced into the National Health Service, the UK Defence

Medical Services rolled out the same principles into exercises and operations<sup>9</sup>. Both the UK and the US have introduced trauma governance systems that link policies to local practice and systematically evaluate performance of the system through monitoring clinical outcomes<sup>10, 11</sup>. Most recently the performance of the UK Defence Medical Services was subject to a review by the Healthcare Quality Commission at the request of the UK Surgeon General<sup>12</sup>. This review found examples of exemplary healthcare provision in trauma and rehabilitation services. Since the Gulf War in 1991 operations that UK forces have been engaged in have been supported by multinational medical elements. NATO, as the proponent of multinational support to operations, brought attention to the concept of clinical performance on operations in 1993 by stating ‘the operational standard of care is to be as close as possible to peacetime medical standards’<sup>13</sup>. AJP 4.10 introduced the concept that ‘medical support must meet standards acceptable to all participating nations’<sup>14</sup>. The revision to AJP 4.10 in 2006 amended the standard to ‘achieve outcomes of treatment equating to best medical practice’ and introduced the concepts of Clinical Governance and Evidence Based Medicine<sup>15</sup>. Experience of multinational operations has shown the necessity to have commonly agreed processes to provide assurance to commanders and the troop contributing nations of the medical support arrangements collectively provided for their forces<sup>16</sup>. One of us previously described an approach to the evaluation of the command and control arrangements for medical evacuation in Southern Afghanistan<sup>17</sup>. The most recent NATO policy was proposed to the Committee of the Chiefs of Medical Services in NATO (COMEDS) in 2008 by Lieutenant General Lillywhite, at that time the UK Surgeon General. Developed by NATO Allied Command Operations (ACO), the embryonic NATO Clinical Governance process was piloted in the NATO-led International Security Assistance Force (ISAF) mission

during 2009, Regional Command (South) being chosen for this pilot, and then introduced across the ISAF mission later in 2010. The term chosen by COMEDS for clinical governance in the military environment is ‘Continuous Improvement in Healthcare Support on Operations’<sup>18</sup>.

## Components of a CIHSO System

Given the inter-relation of all parts of the patient care pathway, it is essential that the application of CIHSO in the military environment should encompass the whole system of casualty care. This series of papers has described the medical planning processes within the wider, General Staff, process of *Plan-Refine-Execute*. CIHSO could also be considered as a final element of this as the assessment of performance of the medical system. A framework for application of CIHSO in the military environment is shown in Figure 1.



The *Plan-Refine-Execute* process leads to the medical support plan for military operations. The effectiveness of this plan is monitored through periodic Reports and Returns (R2) that provide information on medical activity. These R2 provide feedback on the number and type of casualties who have been managed through the medical system. The paper on Casualty Estimation describes how clinical activity reports provide information to refine the Casualty Estimate predictions for future military operations. This provides a mechanism for review and evaluation of the medical planning process. A considerable volume of organisational and clinical information can be collected in the course of managing the patient care pathway that may inform a CIHSO process.

The 'CONOPS' review is the key prospective process for assurance of the medical support plan. As an example, within Regional Command (South), subordinate taskforces are required to submit their tactical Concept of Operations (CONOPS) for review including and assessment of risks and mitigations. The medical support plan is a mandatory element of this submission which includes a casualty estimate, an assessment of the MEDEVAC requirement and any additional medical support requirements. This CONOPS is reviewed by a pan-headquarters staff team to ensure concurrence with the taskforce assessment and synchronisation with activity across the rest of the regional battlespace.

### **Measuring Performance of the Deployed Medical System**

The most important indicator of performance of the deployed medical system is the clinical outcome for individual patients. Ideally this would be monitored by means of a longitudinal medical record that follows the patient from point of wounding to definitive care and rehabilitation. Although work is in progress in NATO, building on the experience of the US and UK Trauma Registries and associated processes, such a system does not yet exist in the multinational context. Performance of individual elements of the patient care pathway therefore needs to be assessed separately.

The overall effectiveness of the medical plan can be assessed by monitoring the activity of the medical system through R2. It is thus possible to determine whether the capacity of the system is adequate or needs to be modified. This is the first level of CIHSO and is described in the paper on management of medical support.

Critical incidents that affect the performance of the medical system should be reported as Event Reports. One format is the Medical Incident Report (MEDINCREP) in use in the NATO led International Security Assistance Force (ISAF) mission in Afghanistan. A MEDINCREP should be initiated by the medical unit concerned in the following circumstances: patients who have died of wounds, unexpected clinical outcome from clinical care, major medical incident, loss of a medical capability (personnel, equipment or infrastructure), a biological or toxicological attack and a bed occupancy of greater than 90%. The medical unit is required to report the facts of the events and the actions that they are taking in response. This is passed up through the chain of command to the theatre medical adviser with comments from each subordinate headquarters.



The performance of the medical evacuation system can be measured by time-based standards derived from medical planning timelines as previously described<sup>15</sup>. This has been refined by NATO<sup>16</sup> such that any MEDEVAC mission that exceeds the planning time for MEDEVAC is subject to an “Out-of-Standards” Mission Report. This report contains the facts about the MEDEVAC mission, any reasons for a delay and then an assessment by the receiving medical unit, and critically, the impact of the delay on the clinical outcome for the patient. The same review also applies to TACEVAC missions, although the emphasis for the latter is on ensuring that the skills of those providing in transit care meets the needs of the patient, rather than on time (although timeliness is important).

In ISAF Regional Command (South), oversight and review of the CIHSO process has been achieved through regular Medical Executive Board meetings attended by senior medical leadership of tactical task forces and medical units (including medical evacuation units) under the chairmanship of the regional medical director. This meeting reviews the medical plan, casualty estimate and medical activity to monitor the efficiency and effectiveness of the capacity of the medical system as described in the paper on managing medical operations. The meeting also reviews MEDINCREP trends, “out-of-standards” data from MEDEVAC and TACEVAC, and any process issues in the medical evacuation system. The hospital commanders brief on unexpected clinical outcomes and patient safety incident reviews conducted within their facilities.

### **Performance management of the clinical system**

Achieving transparency of the internal assurance processes within medical treatment facilities is more sensitive. Not all nations have a culture of clinical review and audit within the medical community. There is sensitivity in some nations over the overlap between clinical review for health quality improvement, managerial review for administrative and disciplinary processes, and legal review for defence against malpractice claims. Finally there is sensitivity to the release of information that would be breach confidentiality of the patient and that could cause distress to relatives. On this basis, it was considered inappropriate for NATO to be directly involved in Patient Safety Incident Reviews (PSIRs) within medical facilities. However, it was considered reasonable to expect commanders of multi-national medical units (both units with multi-national staff, or units with multi-national PARs) to provide assurance of their contribution to CIHSO by releasing evidence of procedures, reports of PSIRs and outcomes of internal clinical reviews. One measure of assurance is the demonstration of their medical unit's contribution to national or international clinical registry systems. Modern information technology has allowed the introduction of clinical case registries and the use of clinical conference calls as a means to share patient data from the entire patient pathway. These innovations have transformed the clinical learning process and allowed the rapid sharing and dissemination of clinical guidelines and best practice<sup>19,20</sup>. It was also considered appropriate to expect commanders of medical units to fully investigate any concerns over the clinical management of patients at the request of the regional medical director. In essence, the CIHSO process provides a mechanism for sharing examples of best practice, and to learn from difficulties that have emerged in providing medical support on operations (whether systematic, such as communication breakdowns, or shortcomings in clinical

care for individual patients), such that the standard for all may continually improve. Risks should be identified through engagement between deployed medical directors and commanders of deployed medical units, and mitigated through finding solutions together. In this way assurance may be provided to commanders, troop contributing nations, the troops themselves and their families, that standards of medical care provided on NATO led operations continue to meet (and indeed, as has been demonstrated, exceed, the standard of healthcare that the individual might expect to receive in their own nation<sup>21</sup>. Central to success is to build and sustain a climate of trust between the healthcare professionals (managerial and clinical) involved.

## **Summary**

This is the eighth in a series of occasional papers that examine some of the principles and factors involved in managing health services support to military operations. This paper discussed the emerging concept of Continuous Improvement in Healthcare Support to Operations (CIHSO) recently introduced within NATO. The paper started by summarising the evolution in NATO policy regarding clinical governance and how this has evolved into CIHSO. It then looked at the components of a CIHSO system as it might apply to the deployed military healthcare system. The operational aspects of CIHSO were examined within both the *Plan-Refine-Execute* process of operational planning and also the tracking of key performance indicators of the military medical system. The paper closed by considering some of the emerging issues in the management of CIHSO in a multinational environment.

Word count: 00

## **References**

- <sup>1</sup> Scally G, Donaldson LJ. The NHS's 50 anniversary - Clinical Governance and the drive for quality improvement in the new NHS in England. *BMJ* 1998; 317: 61-65
- <sup>2</sup> Makins, G. The Part of the Consulting Surgeon in War. *British Medical Journal* 1919;3052:789-92.
- <sup>3</sup> Bricknell MCM The Evolution of casualty evacuation in the British Army in the 20<sup>th</sup> Century (Part 2) – 1918 to 1945. *J Roy Army Med Corps* 2002;148:314-322
- <sup>4</sup> A Field Surgery Pocket Book. The War Office. HMSO 1944.
- <sup>5</sup> The British Military Surgery Pocket Book. Stationary Office. Army Code AC 12552. 2004.
- <sup>6</sup> DeBakey, D. History, the Torch that Illuminates: Lessons from Military Medicine. *Military Medicine* 1996;161:711-716.
- <sup>7</sup> Notes on Care of Battle Casualties. War Department Technical Bulletin. TB MED 147. Washington DC, War Department, 1945.
- <sup>8</sup> Bricknell MC. Reporting Clinical Activity on Military Operations – Time for Some Standardisation. *J Roy Army Med Corps* 2005;151:142-144.
- <sup>9</sup> Jenkins I. The Changing World of Military Health Care. *J Royal Army Med Corps* 2004;150:234-238.
- <sup>10</sup> Smith et al. Trauma Governance in the UK DMS. *J R Army Med Corps* 2007;153(4):239-242.
- <sup>11</sup> Hodgetts TJ and Mahoney PF. Military Pre-Hospital Care: Why is it Different? *J Royal Army Med Corps* 2008;155(1):4-10.
- <sup>12</sup> A review of the clinical governance of the Defence Medical Services in the UK and Overseas. Healthcare Commission. Mar 2009 Available at:  
[http://www.nhs.uk/NHSEngland/Militaryhealthcare/Documents/Defence\\_Medical\\_Services\\_review%5B1%5D.pdf](http://www.nhs.uk/NHSEngland/Militaryhealthcare/Documents/Defence_Medical_Services_review%5B1%5D.pdf) accessed 25 Aug 10.
- <sup>13</sup> SHAPE ACE Directive 85-8 Medical Support Principles, Policies and Planning Parameters. Oct 1993.
- <sup>14</sup> Allied Joint Medical Support Doctrine. AJP 4.10 NATO Standardisation Agency. Feb 2002.
- <sup>15</sup> Allied Joint Medical Support Doctrine. AJP 4.10(A) NATO Standardisation Agency. Mar 2006.
- <sup>16</sup> Bricknell MCM Reflections on medical aspects of ISAF IX in Afghanistan. *J Royal Army Med Corps* 2006;153(1):44-51.

<sup>17</sup> Cordell RF, Cooney MS, Beijer D. Audit of the effectiveness of Command and Control arrangements for medical evacuation of seriously ill or injured casualties in Southern Afghanistan 2007. *J Roy Army Med Corps* 2007;154(4):227-230.

<sup>18</sup> ACO Directive 83-1 Medical Support to Operations Mar 2009

<sup>19</sup> Willdridge DJ, Hodgetts TJ, Mahoney PF, Jarvis L. The Joint Theatre Clinical Case Conference (JTCCC): Lessons and Issues from the first 14 month. 2010;156(2):79-83.

<sup>20</sup> Eastridge BJ et al. Impact of joint theater trauma system initiatives on battlefield injury outcomes. *Am J Surg* 2009;198(6):852-7.

<sup>21</sup> Porter K. A Commentary from Civilian Pre-hospital Care. *J Roy Army Med Corps* 2009;155(1):10