MANAGING HEALTH SERVICES SUPPORT TO MILITARY OPERATIONS

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DM MMedSci MBA MA FIHM FFPH MFOM MRCGP

A submission presented in fulfilment of the requirements of the University of Glamorgan/Prifysgol Morgannwg for the degree of Doctor of Philosophy by Portfolio

November 2011
DEDICATION

This PhD submission is dedicated to the memory of Captain Andrew Griffiths, from the 2nd Battalion, The Duke of Lancaster's Regiment (2 LANCS) (the OP HERRICK Theatre Reserve Battalion) who died on Sunday 5 September 2010 at the Queen Elizabeth Hospital, Birmingham. He was wounded in action by an explosion whilst leading his soldiers on an operation in the Nahr-e Saraj district of Helmand province on Tuesday 24 August 2010. He was a close family friend.
CERTIFICATION OF AUTHORSHIP

I assert that the material in this submission is all my own work except where attributed.

ACKNOWLEDGEMENTS

I am grateful for the support and constructive advice of my 3 academic mentors, Professor Kevin Davies, Dr Allyson Lipp and Dr Peter McCarthy, during the preparation of this submission. I am extremely grateful for the hard work of the personnel from the United States, Canada, Australia, the Netherlands and the United Kingdom who worked within the Combined Joint Medical Branch in Headquarters Regional Command (South) from 1 November 2009 to 1 November 2010. I must especially acknowledge those who contributed to the various supporting monographs in this document, Hugh Williamson, Charlie Beardmore, David McArthur, Soo Lee Davies, Lisa Kelly, Graham Johnson, Franca Jones, Jennifer Hatzfeld, Emma-Jane Grigson, Nicole dos Santos, and Ewan Cameron.

NOTES ON ACCESSING SUPPORTING ELECTRONIC FILES

This submission is supported by documents and other material, cited in the main body and listed in the Appendices. These are accessible by hyperlinks within the electronic version of this submission to files on the attached DVD. In the event that these hyperlinks do not work, they can also be accessed direct from the DVD as illustrated in the file structure below. This is best done with the Adobe Reader and Windows Mediaplayer programmes already open on your PC.
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<tr>
<td>ACSC</td>
<td>Advanced Command and Staff Course</td>
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<tr>
<td>ANA</td>
<td>Afghan National Army</td>
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<tr>
<td>ANP</td>
<td>Afghan National Police</td>
</tr>
<tr>
<td>ANSF</td>
<td>Afghan National Security Forces</td>
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<tr>
<td>CERP</td>
<td>Commanders Emergency Relief Fund</td>
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<tr>
<td>CJMed</td>
<td>Combined Joint Medical (Branch)</td>
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<td>COIN</td>
<td>Counter-insurgency</td>
</tr>
<tr>
<td>CSTC-A</td>
<td>Combined Security Transition Command – Afghanistan</td>
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<td>DMS</td>
<td>Defence Medical Services</td>
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<td>HQ ARRC</td>
<td>Headquarters Allied Rapid Reaction Corps</td>
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<td>ICRC</td>
<td>International Committee of the Red Cross</td>
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<td>IJC</td>
<td>ISAF Joint Command</td>
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<td>ISAF</td>
<td>International Security Assistance Force</td>
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<td>ISAF IX</td>
<td>ISAF HQ Rotation 9</td>
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<td>MEDCAP</td>
<td>Medical Civil Action Programme</td>
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<td>MEDSEM</td>
<td>Medical Seminar</td>
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<td>MERT</td>
<td>Medical Emergency Response Team</td>
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<td>MoD</td>
<td>Ministry of Defence</td>
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<td>MoI</td>
<td>Ministry of Interior</td>
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<td>MoPH</td>
<td>Ministry of Public Health</td>
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<tr>
<td>NATO</td>
<td>North Atlantic Treaty Organisation</td>
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<tr>
<td>NGO</td>
<td>Non-Government Organisation</td>
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<tr>
<td>PECC</td>
<td>Patient Evacuation Control Cell</td>
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<tr>
<td>RC(S)</td>
<td>Regional Command (South)</td>
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<tr>
<td>RoC</td>
<td>Rehearsal of Concept</td>
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<tr>
<td>USAF</td>
<td>United States Air Force</td>
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<td>UNAMA</td>
<td>United Nations Assistance Mission Afghanistan</td>
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<td>USAID</td>
<td>United States Agency for International Development</td>
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<td>WHO</td>
<td>World Health Organisation</td>
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ABSTRACT

This is a submission for a PhD by portfolio on the subject of managing health services support to military operations. It is based upon my prior published work supported by an ‘action research’ analysis of the application of this prior knowledge to my experiences from spending a year in the South of Afghanistan from October 2009 to November 2010. The submission is structured around three thematic areas; medical planning to support military operations, management of military medical operations and international military medical engagement with indigenous health sectors. The submission presents evidence for my contribution to original thinking in each of these thematic areas by means of a review of my published work, my application of these concepts in support of NATO operations in Afghanistan and evidence of the impact of these concepts in influencing other military organisations.

The first theme area on medical planning to support military operations will be supported by 3 monographs. These will describe the context of medical support to military operations in the current security environment, the use of the ‘estimate’ process to develop a medical plan and the analytical process termed ‘the casualty estimate’. The second theme covers the management of military medical operations. This is the largest section and contains monographs on pre-hospital helicopter medical evacuation, aeromedical evacuation movement between hospitals, managing casualty flows, deployed hospital care, and quality assurance of the medical system. The final theme covers international military medical engagement with medical support systems for indigenous security forces and indigenous civilian health systems.

The closing section of this submission reflects on my two tours in Afghanistan comparing my recent experiences with my views at the end of my first tour in 2006/07. My whole thesis provides evidence of my considerable personal learning from my experiences managing medical support to military operations. This section will highlight how I have tried to share this experience both personally and across multiple stakeholder organisations to ensure my observations can be converted into lessons learned.

Word count: 328
POST-HOC SUMMARY OF ACTION RESEARCH FOR EACH THEME

Theme 1: medical planning to support military operations

<table>
<thead>
<tr>
<th>Action Research</th>
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<tr>
<td><strong>Problem Framing:</strong> ‘what is the medical resource requirement to support operations in RC(S) in 2010?’</td>
</tr>
<tr>
<td><strong>Planning:</strong> create a methodology to link casualty estimation and medical resource planning.</td>
</tr>
<tr>
<td><strong>Action:</strong> use method in practice to predict demand for medical care in RC(S) in 2010, obtain sufficient medical resources and compare the prediction with actual medical activity.</td>
</tr>
<tr>
<td><strong>Evaluation, reflection, lessons learned:</strong> confirmed the validity of underpinning methodology, emphasised the need for prospective data collection to improve validity of analytical tools, and illustrated the challenge of communicating the conclusions of analysis across a multi-national military community.</td>
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Theme 2: the management of military medical operations

<table>
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<tr>
<td><strong>Problem Framing:</strong> ‘what is the best command and control arrangement for medical evacuation in RC(S)?’</td>
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<tr>
<td><strong>Planning:</strong> deconstruct the mantra ‘right patient, right time, right platform, right escort, right destination’ as applied to the casualty flow in RC(S)</td>
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<tr>
<td><strong>Action:</strong> review, revise and refine the operating procedures for the management of medical evacuation in RC(S)</td>
</tr>
<tr>
<td><strong>Evaluation, reflection, lessons learned:</strong> establish a pan-health sector approach to the management of all casualties arising from conflict in RC(S)</td>
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Theme 3: international military medical engagement with medical support systems for indigenous security forces and indigenous civilian health systems

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<tr>
<td><strong>Problem Framing:</strong> ‘Afghans to care for Afghans’</td>
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<td><strong>Planning:</strong> understand the dynamics between all stakeholders in the Afghan health sector and their contributions</td>
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<tr>
<td><strong>Action:</strong> shift the military mindset from humanitarian crisis to health sector development linking the international military effort with the Afghan security forces medical system with the Afghan civilian health system.</td>
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<tr>
<td><strong>Evaluation, reflection, lessons learned:</strong> develop the narrative of ‘Afghan good enough’ as an acceptable goal and plan back from this.</td>
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INTRODUCTION

This is a submission for a PhD by portfolio on the subject of managing health services support to military operations. It is based upon my prior published work supported by an ‘action research’ analysis of the application of this prior knowledge to my experiences from spending a year in the South of Afghanistan from October 2009 to November 2010. The submission is structured around three thematic areas; medical planning to support military operations, management of military medical operations and international military medical engagement with indigenous health sectors. The submission presents evidence for my contribution to original thinking in each of these thematic areas by means of a review of my published work, my application of these concepts in support of NATO operations in Afghanistan and evidence of the impact of these concepts in influencing other military organisations.

This submission is heavily influenced by my experiences in Afghanistan. The NATO security operation in Afghanistan is commanded from the Headquarters of the International Security Assistance Force (ISAF) based in Kabul. NATO has divided the country into 5 Regions (Central (Kabul), North, East, South and West (and added South-West in June 2010)). I led the Combined Joint Medical Branch (CJMed) in HQ ISAF from August 2006 – February 2007. During this time I was responsible for strategic and operational level medical planning and execution across the ISAF mission. I deployed again to Afghanistan from November 2009 – October 2010 as head of the Combined Joint Medical Branch (CJMed) in Headquarters Regional Command (South) (HQ RC(S)). I was responsible for operational and tactical aspects of medical support for operations in RC(S). Figure 1 is a map of Afghanistan that shows the geographical arrangements for ISAF security forces.

Figure 1 Map of Afghanistan
During my second tour in Afghanistan, HQ RC(S) was responsible for the largest population at risk of a UK tactical headquarters since the Korean War in the 1950s. From the outset, we took a combined team approach to caring for casualties of conflict that linked Afghan civilian, Afghan National Security Forces (ANSF) and ISAF medical forces into a single unified plan to care for Afghan civilians, ANSF and ISAF casualties. At peak, CJMed RC(S) oversaw the function of 6 ISAF military hospitals, 8 MEDEVAC helicopter tasklines and 5 types of fixed wing (FW) tactical evacuation aircraft types. We worked closely with 4 Afghan civilian hospitals, 1 non-government organisation (NGO) hospital and the Afghan National Army (ANA) Southern Regional Military Hospital. During the tour the RC(S) CJMed managed the medical evacuation of 8036 casualties compared with 5994 for 2009.

I am an Army doctor. I have trained in general practice, occupational medicine and public health. My career highlights so far are: commanding a field hospital, being the Chief Instructor at the Defence Medical Services Training Centre, being Chief Medical Adviser to Headquarters Allied Rapid Reaction Corps (HQ ARRC), and commanding medical operations for NATO in Afghanistan twice. I have a particular interest in the
organisation and management of medical support on military operations. This submission is underpinned by the range of papers that I have published on this subject.

The current UK military medical doctrine described in Joint Warfare Publication 4-03 (1) identifies the influence of health issues across the contemporary security environment at military, national and global security levels. The doctrine concentrates on medical activities in support of UK forces. It does not describe practical processes or procedures for the planning and execution of military medical operations. It explicitly covers the legal duty to provide medical support to prisoners of war and detainees. It sets out principles for the use of Defence Medical Services (DMS) resources in the direct provision of healthcare for non-military populations including indigenous civilians. It does not provide specific guidance on roles for the DMS in many aspects of the contemporary security environment such as the restoration of essential health services, public health advice, and support for the development of medical services for security forces. Overall there are some significant gaps in the formally endorsed intellectual baseline for the management of health services support to military operations. This PhD provides analysis of these gaps and describes how I addressed them during periods when I have been responsible for managing health service support to military operations.

After this introduction, my submission will describe my analytical methodology and sources of evidence to demonstrate personal and institutional change through ‘action research’. I will set out the basis of my published contribution to original thought in managing medical operations through academic publications and through practical application by my involvement in a series of military operations during my career. This submission especially focuses on my reflections on my experiences as the Medical Director in RC(S) in Afghanistan as captured in the three theme areas through a series of academic monographs.

The first theme area on medical planning to support military operations will be supported by 3 monographs. These will describe the context of medical support to military operations in the current security environment, the use of the ‘estimate’ process to develop a medical plan and the analytical process termed ‘the casualty estimate’. This theme is principally supported by my series of 5 papers on the evolution of
casualty evacuation in the 20th century (2,3,4,5,6) and an article from the British Medical Journal on military medical planning (7). Included in this theme is one video that describes medical planning within the RC(S) area of responsibility in Afghanistan.

The second theme covers the execution of medical support to military operations. This is the largest section and contains monographs on pre-hospital helicopter medical evacuation, aeromedical evacuation movement between hospitals, managing casualty flows, deployed hospital care, and quality assurance of the military medical system. The additional evidence for this section includes my papers on the organisation and management of field hospitals (8,9,10,11), lessons learned from a major operation (Operation MOSHTARAK Phase 2) in March 2010 and video ‘walkrounds’ of a number of military hospitals set up in Afghanistan.

The final theme covers international military medical engagement with medical support systems for indigenous security forces and indigenous civilian health systems. There are monographs for each of these two areas. I published two highly influential papers on these subjects after my last tour that highlighted the need to consider these two aspects of the medical mission as essential medium-term activities (12, 13). My second tour in Afghanistan was an opportunity to test my theories with practical experience through my engagement with leaders from both the Afghan security forces medical services and the Afghan civilian health sector.

The final section of this submission reflects on my second tour in Afghanistan comparing my recent experiences with my views at the end of my first tour (14,15). My whole thesis provides evidence of my considerable personal learning and contribution to wider knowledge from my experiences managing medical support to military operations. This section will highlight how I have tried to share this experience both personally and across multiple stakeholder organisations to ensure my observations can be converted into lessons learned.
METHODOLOGY AND EVIDENCE

My submission is based upon the application of action research methodology to analyse the development of my ideas and concepts in managing health services support to military operations. This submission becomes more than a review of my previously published work by grounding my previous analyses into the contemporary context through a prospective comparison between this prior experience and a second deployment to Afghanistan from October 2009 to November 2010.

There are number of definitions of Action Research. The approach that this submission takes is based upon the definition by Carr and Kemmis (16). It is ‘a form of self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own practices, their understanding of these practices, and the situations in which the practices are carried out’. It is described as a continuous cycle of preparation, action, reflection, re-action etc. The application of this methodology to this thesis is summarised in Figure 2.

Figure 2 Action Research Cycle

![Diagram of the Action Research Cycle]

Whilst I had analysed and published papers on many aspects of managing health services support to military operations, I only became responsible for all aspects of that task when I first deployed to Afghanistan in 2006 (my ISAF IX tour). Thus I consider this to be the baseline upon which I conducted an Action Research cycle after returning by publishing a series of papers on this experience and generalising this experience into processes and procedures for implementation in my role as Chief Medical Adviser for HQ ARRC. My second Action Research cycle concerns my preparation, experiences and reflective analysis from my second tour to Afghanistan. It is this second cycle that forms the basis of the new evidence presented in this submission for my impact on procedural and organisational change for managing health services support to military operations. My methodology is summarised in the illustration at Figure 3.

Figure 3 Methodology

REFLECTIVE ANALYSIS ON MANAGING HEALTH SERVICES SUPPORT TO MILITARY OPERATIONS

What have I done?
Deployed military healthcare systems:
• History
• Planning
• Pre-hospital care
• Hospital systems
Wider military medical tasks:
• Indigenous security forces
• Indigenous civilian health services
‘Enabling activities’:
• Medical education
• Health services management

Context

Inductive logic

What did I/we do?

PhD Submission

Lens MEDAD RC(S)

Validity & limitations of prior analyses

Deductive logic
Prior to my deployment I reviewed my previous publications and attended the formal pre-deployment preparation for the staff of HQ RC(S). I then performed the role of Medical Director in HQ RC(S) during which time I was involved in a significant number of medical planning cycles and, obviously, the management of medical support to military operations. My review of these activities in this submission compares my previous understanding as cited in previous publications with what I actually did to identify what my team and I actually learnt. This is fully discussed under each theme.

**Sources of Evidence**

My submission is based on three elements of supporting evidence. The first is my previously published work. As the brief review in the introduction suggests, I have made a significant and, in many respects, unique contribution to the academic debate surrounding the organisation and management of health services support to military operations. I have published a series of papers reviewing the arrangements for the evacuation and care of military casualties in the 20th Century. I have examined the methodology for planning military medical support including arrangements for pre-hospital care and I have analysed the organisation and design of military field hospitals. Throughout my career I have also considered the wider use of military medical capability in supporting the development of indigenous security and civilian medical services. On a more academic level, I have published papers on military medical education and military public health issues. These papers form the baseline, background evidence to each of the monographs supporting my submission.

The second element of supporting evidence is the record of what I and my team actually did before and during my year in Afghanistan. My deployment diary at Appendix A summarises the activities, products and outputs from myself and my team across the three themes for this submission. Security restrictions limit the range of specific documents that can be cited as direct evidence in support of this submission. Therefore I am not able to include specific medical support plans, operational procedures or other written material that might normally be included as evidence within an Action Research project. I have included those documents (text documents, briefings and videos) that can be released within the package of evidence that supports
each of the themes presented in the remainder of the submission. I also maintained a continuous series of reflective notebooks throughout my tour. In these I recorded the key events of each day, notes of my meetings and interactions, and reflective observations and actions to be taken. These notebooks formed the primary evidence to support the new concepts described in each of my monographs. The notebooks and sample pages are shown in Figure 4.

Figure 4 Reflective Notebooks.

REFLECTIVE NOTEBOOKS

Daily contemporaneous notes of morning briefings, meetings, ‘to do lists’ and reflective insights. Approximately one new book every two months.

The final element of evidence is the series of monographs covering separate aspects of the management of health services support to military operations that I wrote during the course of my second tour in Afghanistan. They are included within the Appendices under each theme. These were based upon my analysis of the problems that I encountered within each subject area and the procedural solutions that we developed to resolve them. The majority of these are deliberately multi-author products as I invited those members of my staff who had worked with me to develop new ideas or concepts.
in these areas to contribute to my monographs. These monographs synthesise the other two sources of evidence into a coherent analysis of previous and new concepts. In every case I was the principal drafter of the document. The contributing authors reviewed the draft document and added comments based upon their experiences of implementing the concepts in their area of responsibility. The relative contribution of each author is shown at Appendix B. This process was an important element of binding my team into the intellectual development of our concepts and procedures for the management of health services support to the military operation in Afghanistan. The linkage between my previously published work, actual activities and these monographs is signposted in the main text of my submission. These monographs illustrate the application of the Action Research Cycle in both personal and organisational change.
THEME 1 - MEDICAL PLANNING

I have been involved in the conceptual development of the medical planning process since I was the second-in-command of 23 Parachute Field Ambulance from 1995 - 1997. During this appointment I managed the unit deployment to Bosnia and was the lead medical staff officer for a deployment for a civilian evacuation operation to the Congo. My next involvement with medical planning occurred during my command of 22 Field Hospital from 1999 – 2001. I spent a considerable amount of time with my command team developing concepts for the deployment of the field hospital. These were validated in 2001 when 22 Field Hospital deployed to Oman in the Middle East to support UK military personnel on Exercise SAIF SERREA. I was responsible for setting up 3 separate field hospitals across a 200 mile line of communication in the desert. I consolidated this experience in a series of articles on the employment of field hospitals that are cited in the next theme. After this I spent 3 months at the Wellcome Institute for the History of Medicine as a visiting fellow in order to research the evolution of casualty evacuation in the 20th century. The 5 papers on this subject are included as supporting evidence within this theme area. They underpin my entire knowledge of planning military medical support.

My next appointment was Chief Instructor at the Defence Medical Services (DMS) Training Centre. I was responsible for the academic content of all medical training courses taught to medical staff in the DMS except for professional graduate and post-graduate programmes. I had a particular interest in the training of DMS officers in medical planning for military operations. I deployed to Iraq for 3 months in 2003 as the lead medical planner in the UK led headquarters, Multi-National Division (South-West). From this experience I developed a series of multi-media, problem-based educational products to improve the teaching material for military medical planning. I also co-authored a paper on military medical planning that was published in the British Medical Journal (7).

After a short period on the management team for UK medical services for UK troops stationed in Germany, I was appointed as Chief Medical Adviser to Headquarters Allied Rapid Reaction Corps (HQ ARRC) in 2006. This tour included my deployment to HQ
ISAF as the Medical Director from August 2006 – February 2007. This was the period that the UK was the lead nation for this headquarters under General Sir David Richards. My focus during the period before deployment was to analyse the roles and responsibilities of myself and my team within HQ ISAF in order to ensure that we were fully prepared for the deployment. This included undertaking a full review of the medical support arrangements for the ISAF mission on behalf of NATO. During the tour I was responsible for health services support to the ISAF force which included developing concepts for engagement with the Afghan security forces health system and the civilian health sector. I prepared a set of pre-deployment briefing materials for staff working in my branch and completely rewrote the medical Standard Operating Procedures (SOPs) and Standard Operating Instructions (SOIs) for the ISAF medical services. I published a series of four papers on this experience that are cited under other themes in this submission. After this tour, I embarked on an aggressive marketing campaign to share our operational experiences across the NATO medical community. I posted a series of lessons learned into the NATO Joint Lessons Learned Centre and contributed to revisions of NATO medical doctrine. I ran two conferences on medical planning for operations, Exercise ARRLCADE BANDAGE in summer 2007 (York) and 2008 (Prague), and presented at a wide range of international military medical conferences. I also became one of the educational team that delivered the Joint Medical Planning Course at the NATO School in Oberammergau and the UK Joint Medical Planning Course at the DMS Training Centre. Internally, we revised the HQ ARRC SOPs and SOIs to capture our lessons learned and these were shared across NATO. To support this, I created a video that summarised the roles and responsibilities of a medical branch within an operational level HQ that was used a presentation at the NATO Joint Medical Operations Planning Course. I wrote up this whole learning cycle as my case study for an Open University MBA. None of the material for my MBA is contained in this submission.

The formal action research cycle for this submission started when I attended the Advanced Command and Staff Course at the Joint Services Command and Staff College from October 2008 to July 2009. This provided the academic foundation for further development of my knowledge of Counter-Insurgency Operations (COIN) and military Stability Operations. I took the opportunity to learn about similar operations such as Malaya, Algeria, Vietnam, and Afghanistan (under the Russians). My research
thesis for this course examined the UK involvement in assisting the indigenous military health services of Brunei, Oman, South Africa, Sierra Leone and Iraq. I then attended specific pre-deployment training as outlined in my deployment diary (Appendix A). I identified two key ‘strategic’ planning questions that I needed to answer – ‘what is the medical resource requirement to support operations in summer 2010?’ and ‘what is the best command and control arrangement for medical evacuation in RC(S)?’ The first slide of my master briefing pack for visitors is shown at Figure 5. This shows that the number of casualties needing medical evacuation (MEDEVAC) was going up faster than the number of ISAF forces and the number of intensive care beds (ICU). There was a risk that the number of casualties would exceed hospital capacity unless action was taken to resolve this.

Figure 5 The Big Issue

The deployment diary at Appendix A lists the activities and events that occurred during my tour. There were five rounds of formal planning. The first was to establish the campaign plan for the duration of the UK leadership of HQ RC(S). This set the sequence of operational activity under the banner label Operation MOSHTARAK.
(together) and examined the detail for Phase 1. The second planning cycle was the
detailed plan for Operation MOSHTARAK Phase 2, the UK and US Marine operation in
the Marjah area of Nad Ali District in Helmand Province in February 10. Third phase of
Operation MOSHTARAK was labeled Operation HAMKARI (co-operation in Dari) and
broken down into 3 Phases. The third planning cycle was for Phase 1 in and around
Kandahar City in Kandahar Province in April/May 10. The fourth planning cycle
concerned Operation HAMKARI Phase 2 in Argandab District in Kandahar province in
July 10. The fifth planning cycle was a similar effort for Operation HAMKARI Phase 3 in
Zhary and Panjwa'I District in September/October 10. My medical planning staff and I
were intimately involved in providing the medical support plan in each of these planning
cycles. Figure 6 shows the locations of these operations.

Figure 6 HELMAND and KANDAHAR operations locations.
I prepared an orientation video as part of the induction process for new members of my team in the medical branch of RC(S). This is included in the supporting evidence to this section and provides the background and context to the role and responsibilities of my team. We went through two review cycles for our SOPs/SOIs. The first occurred immediately after I arrived and was based on the refinements for medical branch SOPs/SOIs from my time in HQ ARRC. The second occurred after the organisation of ISAF operations in the south of Afghanistan was changed and RC(S) was split creating a second region, RC(SW). This second review incorporated all of the refinements arising from our experience managing medical support to OP MOSHTARAK Phase 2.

There are three monographs that support this theme. The first provides a summary of the roles and responsibilities of a medical branch in a military headquarters within the wider context of current security operations. This stresses the increased lethality of the security environment compared to the Balkans in the 1990s. It also emphasises the changed operational environment of COIN and Stability Operations with the requirement to consider the engagement of international military medical services for both the indigenous military and civilian health sectors. The monograph illustrates the generic military planning process of ‘plan-refine-execute’ and shows how a medical branch might be structured and manned to meet this task. This organisational structure is the result of my experiences in ISAF IX, HQ ARRC and RC(S).

The second monograph discusses the practicalities of medical planning at the operational level. This includes a description of the formal planning tool – ‘the Estimate’. Much of this is based on my experiences of both teaching the ‘Estimate process’ at DMSTC but also my practical experience of doing this in many operational environments at differing levels in the chain of command. The paper describes the iterative cycle of planning at higher levels in the chain of command as more information becomes available and the plan is refined. It is not possible to include any actual medical plans in this submission but the reality of such a planning cycle is included in the description of lessons learned from OP MOSHTARAK Phase 2 contained within the submission for the next theme. The involvement of Afghan security forces in medical planning has been a unique aspect of my tours; this is included in the discussion on engagement with indigenous health sectors.
The final monograph in this theme is a detailed review of the process of casualty estimation and medical resource planning. This has been the area of greatest challenge in any medical planning activity with which I have been engaged. Whilst I understood the requirement, I never really solved the problem during my first tour in Afghanistan. We had a lot of conceptual discussion during my time in HQ ARRC. This identified the need to separate the casualty estimate process (the numbers of patients to be treated) from the medical resource planning process (the capabilities and capacity of the medical system to treat casualties). The approach to casualty estimation and medical resource planning was probably one of my greatest intellectual products from my second tour in Afghanistan. I worked with a number of different members of my staff to analyse and debate how to develop suitable predictive models that would survive intense scrutiny both internally within RC(S) but also externally from all our stakeholders. The picture at Figure 7 shows the whiteboard product of one of our brainstorming sessions that I led.

Figure 7 Casualty Estimation and Medical Resource Planning
This analysis illustrated the requirement to consider each dependant population group separately as the flow and resource utilisation for each group was unique. The variability in daily patient demand in Afghanistan led to discussions over the level of confidence required to be assured that the capacity of the medical system would be sufficient. This resulted in consideration of the most appropriate statistical summary of the distribution of data. Finally we tried to consider how to use retrospective information to estimate the risk that the medical system would be insufficient in the future. As illustrated in Figure 5, my biggest question was ‘what is the medical resource requirement to support operations in summer 2010?’ It was essential to ensure that the medical system had sufficient capacity, located in the right place, to support the surge of US forces announced in 2009 for arrival in 2010 and to care for all dependant populations (ISAF, ANSF and Afghan civilians). My entire year was spent developing and refining casualty estimate ratios and medical resource predictors to support my requests for extra medical resources. At least monthly I was briefing visitors to RC(S) on our analysis. I attended two conferences at US Central Command and two conferences at NATO Joint Force Command – Brunssum to brief the requirement. Whilst hard work, our approach and analysis was successful in convincing external parties to provide RC(S) with the resources required for medical support to operations. My greatest disappointment was my failure to convince external organisations that the data upon which to base a casualty estimate and medical resource planning tool was located in the mission dataset held in RC(S). At no time was I presented with data and analysis by any other organisation that could be compared with the RC(S) methodology.

The greatest evidence of effectiveness of our medical planning process was that there was never a mass casualty event that exceeded the capacity of the medical system to manage the patient demand. I have probably the most comprehensive experience of medical planning for real operations at the operational level of any member of the UK Defence Medical Services as a result of my experiences in Afghanistan. I have made every effort to share this experience across a wide range of forums including contributing to the education of the next generation of medical planners both in UK and NATO. The most important thing that I have learned in this field is that ‘failure to plan is
to plan to fail’. Medical planning is an essential skill for all senior members of the UK Defence Medical Services.

THEME 2 - MANAGEMENT OF MILITARY MEDICAL OPERATIONS

This is the largest theme, covering the practical aspects of managing care for combat casualties through the medical evacuation chain. This includes helicopter medical evacuation from point of injury, medical evacuation between hospitals in a theatre of operations, deployed hospital care, regulating casualty flow, and quality assurance of the medical system. Whilst I understood these subjects from previous experience, I learned a considerable number of lessons from the breadth of my responsibility in RC(S). When this peaked in May 2010, I was responsible for medical support to a NATO population at risk of over 60,000 personnel, 8 hospitals, 9 medical evacuation tasklines (emergency helicopter and escorting helicopter) and between 30-40 patient movements per day.

The previous section on medical planning described my experiences of medical planning before my tour in RC(S). These same experiences provide the baseline for my understanding on the management of military medical operations. During my tours in Bosnia and Iraq I was responsible for the medical tasking of a single taskline of a UK medical evacuation helicopter. I had some experience of the UK aeromedical strategic evacuation system from operations in the Congo, Bosnia, Oman and Iraq. I developed greater understanding of helicopter medical evacuation and, in particular, tactical aeromedical evacuation during my ISAF IX tour. During this tour I introduced new aeromedical evacuation tasking processes for NATO. My Bosnia, Iraq and ISAF IX tours introduced me to the challenge of managing indigenous casualties and arranging transfer to the local standard of medical care. My time in command of 22 Field Hospital provided me with considerable insight into the issues surrounding the management of deployed hospital care on military operations. My team and I led the transition in UK field hospital capability that occurred from 1999 and demonstrated a number of new concepts during our deployment to Oman on Ex SAIF SERREA. This experience was
captured in a series of papers published in the Journal of the Royal Army Medical Corps that are included in this section. My tour in ISAF IX introduced me to the challenges of procuring fixed hospitals to support enduring military operations. Over the past 10 years I have captured my observations on aspects of deployed military hospitals in a collection of ‘video walkrounds’. I have included three examples in this section. The final aspect of my hospital experience concerns the evolution of approaches to the assurance of quality of clinical practice within these facilities. After Ex SAIF SERREA I made a positive effort to capture an analysis of the clinical activity and this was published in the Journal of the Royal Army Medical Corps. I argued that the UK needed to standardise the data collection of hospital clinical activity from operations in a paper published in 2005. This has now happened through the introduction of the UK Joint Theatre Trauma Registry which matches similar efforts in the United States.

The medical planning section listed the 5 planning cycles during my time in RC(S). Inside these planning cycles, I addressed critical conceptual issues in the subjects covered in this theme. As stated in the medical planning section, my second ‘big question’ at the start of my tour in Afghanistan was ‘what is the best command and control arrangement for medical evacuation in RC(S)?’ As I arrived in Afghanistan, the UK initiated a debate around ‘intelligent tasking of MERT’ (Medical Emergency Response Team) because of concerns regarding the decision process for balancing the differences in capability between the UK MERT (a CH-47 helicopter and 4 person emergency care team) and the US ‘PEDRO’ (a pair of UH-60 helicopters with medical assistants). Concurrently I wanted to check that the arrangements for authorising release of medical helicopters was expeditious and not delaying the response. This led to a review of the staffing and the SOPs/SOIs for the Patient Evacuation Control Cell in the RC(S) Combined Joint Operations Centre. These SOPs/SOIs were incorporated into instructions issued across the ISAF mission. Finally we needed to collaborate with the helicopter planning staff to ensure we made the best decisions over the siting of helicopters and medical facilities by understanding the inter-relationship between the two. This work resulted in a formal paper on the requirement, control and co-ordination of helicopter medical evacuation that informed planning and resourcing of this capability for the remainder of the tour. The key features on this analysis have been summarised in the monograph on forward aeromedical evacuation. This introduces a number of new concepts including: MEDEVAC ‘tasklines’, ‘dedicated’ vs ‘designated’ aircraft,
MEDEVAC ‘range-ring’ planning, MEDEVAC planning based on demand, and the difference between MEDEVAC operations vs Patient Evacuation Co-ordination.

During the months of April and May 2010 there was a high degree of pressure on ISAF hospital beds because of delays to the planned activation of two new ISAF hospitals in RC(S). This was predicted and mitigation plans were in place based on increasing the movement of patients from the key hospitals. The problem was doubly compounded when a NGO supporting a civilian hospital closed reducing the capacity of the local civilian medical system and the Icelandic volcanic dust cloud prevented strategic aeromedical evacuation back to central Europe. This placed considerable strain on the fixed wing aeromedical evacuation system and so I requested an additional person to be deployed to conduct an analysis of this system. Their analysis resulted in a formal paper that led to reviews of the methods of operation of the ISAF, US, UK and Afghan military aeromedical evacuation systems. The most significant result was the US decision to deploy 18 ICU nurses to Afghanistan to provide a higher level of ‘en-route’ care for severely injured casualties moving between ICU units. A new format for the Patient Movement Request was adopted including changed time thresholds for patient movement. We held a number of Rehearsal of Concept (RoC) drills in order to ensure that all stakeholders involved in aeromedical evacuation understood their role in the whole system. An image of one of these RoC drills is at Figure 8. The key features of this paper have been de-classified and included in the monograph on Tactical Aeromedical Evacuation. This introduces new concepts such as: ‘right patient, right time, right platform, right escort, right destination’, ‘TACEVAC push’ vs ‘patient retrieval’, hospital evacuation co-ordination officer.

Figure 8 RoC Drill.
As stated above, I already had considerable experience of deployed military hospitals before my second tour in Afghanistan. During my first tour I visited the UK tented field hospital at Camp BASTION in Helmand Province. I also visited the Canadian led NATO hospital set up at Kandahar Airfield. This facility needed replacement in 2006 and I was heavily involved in writing the project proposal for a replacement hospital. I captured these visits on the ‘video walkrounds’ that are included in the supporting evidence. They include a number of discussions of lessons learned from that deployment. The NATO plan for a replacement hospital in Kandahar came to fruition during May 2010 and I was intimately involved in the implementation plan for this transition. This illustrated the need for staff with knowledge of the procurement and management of fixed medical facilities. I have included a video walkthrough of this new facility as a third video file. As stated in the medical planning section, hospital resource planning became a critical subject during my second tour. We developed concepts for capturing clinical workload in order to inform our assessment of clinical activity and whether resources were sufficient. The role of the Deployed Medical Director, as initially described in my paper on command in a field hospital, really came to the fore as the principal adviser to the hospital commanding officer on clinical performance. We identified the need for additional clinical specialists such as obstetrics and gynaecology, paediatric intensive care and possibly interventional radiology as a result of the population at risk admitted to ISAF hospital care. We also demonstrated the critical requirement to synchronise the
daily rhythm of the hospital command post with the Regional Command headquarters so that hospital activity and bed occupancy could inform tactical operations.

The paper on managing medical operations discusses the control measures needed to manage the flow of patients into, between and from medical facilities. This links to the papers on MEDEVAC and TACEVAC cited previously. We created a flow model to illustrate these inter-relationships. During my tour in 2006 we developed a concept of Medical Rules of Eligibility that could be used control the access of Afghan civilians into the ISAF MEDEVAC and hospital system. In 2010, this was refined to include colour-coded levels of 'filtration' that decreased the groups of Afghans who could be admitted into the ISAF medical system according to predicted demand on the ISAF hospitals. We also tried to change the mindset that an increase of casualties was by default a Mass Casualty event. We changed this to a Major Medical Incident and introduced the concept of a casualty surge that reflected a rising tide in the number of patients presenting to the medical system. We proposed an escalatory series of responses including within-region regulation, out of region regulation and medical augmentation.

In 2009, NATO proposed the introduction of quality assurance for medical support to NATO operations under the label 'Continuous Improvement in Healthcare Support to Operations (CIHSO)'. HQ RC(S) agreed to act as the pilot for this project. We developed a conceptual model that linked the ‘plan-refine-execute-assess’ process into an assurance based feedback and review process that mirrored health quality assurance models in our civilian health systems. This moved CIHSO from the current national emphasis on clinical quality assurance within medical facilities to a much wider systems-based approach. I particularly looked at how we should have a safety net to ensure that the CJ35 planning process had properly covered medical planning. I put one of my team into the CONOPS (Concept of Operations) approval process which reviewed plans submitted by subordinate Task Forces prior to approval of their operations by the Commander of RC(S). I created a ‘Medical Executive Board’ that was attended by the senior leadership of all elements of the patient care pathway in RC(S). This board reviewed current plans, historical medical activity data, medical evacuation performance data and individual medical incident reports (MEDINCREPs). This proved to be an excellent forum that provided the collective situational awareness and information exchange to ensure that the RC(S) medical community was fully aligned.
We looked at how our existing information flows should be analysed in order to collate data for the purpose of monitoring performance. The monographs on MEDEVAC and TACEVAC describe how this was implemented. We conducted detailed health quality reviews based on MEDINCREPs for a number of incidents including ‘mis-regulation’ of Afghan patients, poor quality laboratory follow up investigation of disease outbreaks, and poor quality of in-flight care during helicopter TACEVAC.

I have included a video (supported by the script and briefing slides) that capture the medical lessons learned from planning and executing the medical support arrangements for OP MOSHTARAK Phase 2 – the operation in Nad Ali district in Helmand province in February 2010. This video captures both the planning issues and the detailed arrangements we put in place to manage the medical system during a period of anticipated increased demand. This emphasised the need to develop a medical concept of operations and a casualty estimate very early in the planning stages in order to obtain an increase in medical resources from outside Afghanistan. We were very closely linked to the CJ35 planning staff which allowed us to refine our casualty estimate and anticipated patient flows as the tactical plan was developed. We established close co-ordination arrangements between all elements of the medical system including a daily conference call and a twice daily medical evacuation report in order to keep close track on both current medical activity and the free capacity to support future operations. As the video describes, the actual tactical plan took much longer to execute than expected. This reduced the size of the peak of casualties but the total number of casualties was actually more than predicted.

Overall we made a significant contribution to the management of military medical operations across ISAF through the widespread adoption of key aspects of the RC(S) SOPs both by fellow RCs and also within ISAF and IJC theatre level SOPs. My second tour in Afghanistan was probably the last opportunity for a UK Defence Medical Services officer to manage medical support to military operations at this scale for some time. The size of the material supporting this theme is an illustration of the many new ideas and concepts that we developed over the course of the year. I feel that it is essential to capture this experience which mirrors high intensity war-fighting rather than low intensity style of military operations that many DMS senior officers have experienced in the previous two decades.
THEME 3 - INTERNATIONAL MILITARY ENGAGEMENT WITH INDIGENOUS HEALTH SECTORS

The ‘big issue’ for this theme was how to facilitate ‘Afghans to care for Afghans’. The theme covers two discrete areas of engagement by international military forces with the indigenous health sector. The first concerns the development of the medical services of the indigenous security sector within the wider construct of security sector reform. The second concerns the relationship between international military medical forces and the civilian health sector. Whilst I have recently recognised the overwhelming importance of the first task, my interest in this field stems from my work with the civilian health sector in Bosnia in 1996. During this deployment we facilitated the development of community health clinics, ran community health care worker training and hosted professional educational sessions for the local civilian hospital (17). After this deployment I received a travelling fellowship to visit the United Nations and then wrote up my Bosnia experiences for a thesis for the Diploma in the Medical Care of Catastrophes (18).

When I deployed to Iraq in 2003, I worked closely with the health team in the Coalition Provisional Authority health team and attended several meetings with members of the Iraqi civilian health sector in Basra. On my return I realised that the military focus for training for civil sector engagement had been skewed by the experiences of individuals deployed to Northern Iraq at the end of the first Gulf War in 1991 and to Rwanda in 1994. We had emphasised the skills needed to respond to a humanitarian crisis causing large numbers of refugees and internal displaced persons rather than considering all dimensions of developing a collapsed civil health sector. I directed a revision to the Disaster Relief Operations Course and wrote the collaborative paper on medical planning with Major Tracey McCormack that was cited in the first theme (7).

In my preparation for my first tour to Afghanistan I undertook a comprehensive analysis of the role of international military medical services with the Afghan health sector. I determined that I had two separate spheres of responsibility, one for the NATO support to the development of the Afghan National Army Medical Services and the second was
to try to influence the activities of Provincial Reconstruction Teams with the Afghan civilian health system. I established a very close personal relationship with Colonel Donald Thompson who was in charge of medical activities in Combined Security Transition Command – Afghanistan. We regularly met both Major General Yaftali, the ANA Surgeon General and His Excellency Dr Sayed Fatimie, Minister for Public Health. I wrote policy guidance notes for ISAF engagement in both sectors that were published as orders and also contained within the Provincial Reconstruction Team handbook. The culmination of our collaboration was the organisation of the first Afghan emergency planning conference. This is shown in Figure 9.

**Figure 9 First Afghan emergency planning conference**

After my tour, I wrote two papers with Donald Thompson to try to encourage more appropriate military medical engagement in both areas (12, 19). There were also key workshops on these subjects in both of the Ex ARRCADE BANDAGE conferences that I organised. I was invited to contribute to the development of NATO policy guidance on
health sector engagement. I presented on the subject at the NATO Committee of Medical Directors meeting in Halifax, Canada in 2007 and the NATO Medical Operations Conference in Lisbon, Portugal in 2009. I have included one of the seminar packs from Ex ARRCADE BANDAGE and the Lisbon briefing slides in the supporting material. My thesis for my Masters Degree in Defence Studies examined the role of UK military medical services in the development of medical services for the security sector in Brunei, Oman, South Africa, Sierra Leone and Iraq. Thus, when I deployed to Afghanistan for the second time, I had a very strongly researched understanding of the policy environment for our work in this field in RC(S).

From the outset, my plan was to take a ‘pan-health sector’ perspective to develop a co-ordinated approach to the care for casualties of conflict. My goal was to illustrate the application of the policy framework that I had initiated during my previous tour in Afghanistan through practical, tactical activities in the South of Afghanistan. Primary responsibility for delivering this lay with Lieutenant Colonel Ewan Cameron (one of the collaborating authors listed at Appendix B) who deployed at the same time as me. He is a trainee specialist in public health and I was his training supervisor. He previously deployed to HQ RC(S) in 2007 as the senior medical planner. We made a positive choice that he should be placed within the Stability Division of the RC(S) headquarters (i.e. not under me) but that I should have professional oversight of his activities. He was responsible for ISAF medical engagement with both the civilian health and security sectors

Through Ewan Cameron, I established strong links with all of the health sector actors including WHO, UNAMA, ICRC, USAID, the provincial reconstruction teams and Afghan civilian leadership. I established relationships with the ANA and ANP senior medical staff. My standard briefing pack always started with the slide shown at Figure 10 to illustrate the partners in health sector engagement. We revised the RC(S) policies and were key contributors to the formal guidance issued by HQ ISAF on military medical engagement in health sector reconstruction and development in July 2010 (20). This was the product of extensive consultation with both military and civilian health sector stakeholders including representatives of the Afghan Ministry of Public Health.

Figure 10 CJMed Branch Briefing Title Slide
Whilst partnering with the Afghan security forces medical system was our main effort in health sector engagement, this was inhibited by lack of suitable staff in the whole system. This was compounded by differing views of command authority over the various mentoring organisations within RC(S). As described in the supporting monograph, we focussed on supporting Afghan medical planning and ensuring co-operative arrangements between the ISAF, ANA and civilian hospitals in RC(S). Figure 11 shows myself and Col Baseer, the commanding officer of the ANA hospital, presenting the medical plan to support Operation MOSHATARK Phase 2.

Figure 11 OP MOSHATARK Phase 2 Briefing.
I also spent a considerable amount of time explaining to ISAF medical elements the importance of partnering as the method of transitioning ISAF care for ANSF forces into Afghan responsibility and capability. The supporting monograph provides background on the relationships between partnering and mentoring as a means of developing individual and organisational competencies. I shared the ‘pick-list’ of differing activities required to develop partnered Afghan medical units. Most ISAF medical elements initially approached engagement with Afghan units with ideas for formal didactic training. I illustrated to them that the need was for a partnered apprenticeship approach between all levels in a unit organisation from commanding officer to junior medic. The NATO hospital and the Kandahar Regional Military Hospital (KRMH) built up a very strong relationship with exchange of clinical staff, shared clinical work in both locations and formal education programmes being delivered by ISAF personnel for KRMH staff. We achieved some great developments between the US Air Force (USAF) medical evacuation unit, the equivalent Afghan National Air Force unit and the KRMH Kandahar Regional Military Hospital. We started with the USAF moving Afghan patients to Kabul with Afghan medical staff working alongside USAF medical staff. By the end of my tour we had Afghan patients moving on Afghan aircraft with Afghan medical staff being mentored by USAF medical staff. This is illustrated at Figure 12.
In regard to civilian health sector engagement, the main challenge was to breakdown the short-term mindset of the majority of personnel deployed to Afghanistan (both military and civilian) in order to enable military medical engagement in the civil health sector to have a chance of influencing civilian health sector capacity. As described in the monograph, units initially provided MEDCAPs and clinic refurbishment projects as their contribution to supporting the civilian sector. Figure 13 shows a civilian clinic that had been built using development money that had never been used because there were no civilian personnel available to activate it. This resulted from a failure in co-ordination between the donor agency that commissioned the project and the NGO providing the basic package of health services. It became necessary to contract repair work to renovate the building as part the District Stabilisation Plan once the Director of Public Health agreed that the staff for the facility were available.
The monograph on civilian health sector engagement describes the ‘Shape-Clear-Hold-Build-Transition/Transfer’ stages for COIN operations. We developed a conceptual ‘road map’ for a pick list of medical activities within each of these stages. From this we tried to share a concept for the contribution of international military forces within the ‘stabilisation’ phase of a COIN operation before the civilian sector was able to provide all of the basic services essential to demonstrate the success of local Afghan government. We experimented with the concept of a ‘Medical Seminar’, MEDSEM, developed by one of our Task Forces. This was designed as a one week health education programme, delivered by Afghan community health workers to nominated village representatives in order to raise awareness of health issues. The purpose of the MEDSEM was to create a community ‘conversation’ about the value of meeting the health needs of villages in contested areas in order to encourage the villagers to see the value of supporting the government to provide sufficient security to enable healthcare workers to operate clinics. The reality was that many stakeholders were concerned that this might raise expectations beyond the capacity of the civilian health
sector to deliver. Although the material was based upon the Ministry of Public Health’s community healthcare worker (CHW) programme there was concern that overt ISAF use of the material might increase the threat to CHWs. Figure 14 shows a briefing slide for a MEDSEM.

Figure 14 MEDSEM Briefing Slide

A second initiative was to support the ANA to provide medical assistance to rural communities in insecure areas as an alternative to an ISAF MEDCAP. This idea was discussed with the ANA senior leadership and the local community, and everyone was very supportive. Figure 15 summarises the results of this attempt at ANA delivery of basic health services. Overall we were not able to achieve a sustained commitment from the ANA to this concept because their leadership did not agree that their medical resources should be used to meet deficiencies in the civilian health sector.

Figure 15 ANA MEDCAP Slide
Very early on in our engagement, the Kandahar Provincial Director of Public Health made 3 requests; assist with the improvement of Afghan civilian ambulances services in Kandahar City, assist with the improvement of health services at the Mir Weis regional hospital and support the development of the Kandahar nursing and midwifery school. We developed a proposal for using US military Commanders Emergency Response Programme (CERP) funding to provide the capital investment to build the nursing and midwifery school. Once built, this will release the existing building to be converted into an additional paediatric ward in the Mir Weis civilian regional hospital. We wanted to tie this into a project to improve nursing capability in Mir Weis by linking civilian nurses into the education programmes in the Kandahar Regional Military Hospital supported by the ISAF hospital at Kandahar Airfield. This was designed to be supported by a CERP funded investment into medical equipment for the Mir Weis that would be released after the nursing staff had been trained. At the time of writing, the implementing partner in the Mir Weis hospital declined to endorse this project in spite of Afghan support. We hope that our successors can make progress through this impasse. Figure 16 shows the inter-relationships designed in the project to link capital investment, mentoring and training into an improvement in Afghan civilian medical capability.

**ANA RUN ‘MEDCAP’**

- Transition from no health care to MOPH BPHS
- ANA agreed to do this but wanted TF medical supplies
- 1st clinic – went well
- 2nd clinic – cancelled – no ANA orders
- 3rd clinic – went well
- 4th clinic - cancelled – no ANA orders
- 5th clinic - cancelled – no ANA orders
- ‘experiment’ cancelled
The development of civilian ambulance capacity was the final capability-based project that we developed. This project arose from a combined team ROC drill for the management of casualties from a Major Incident in Kandahar City. We came to the conclusion that Kandahar City required a medical major incident plan that linked the ambulance systems from each of the ISAF, ANA, ANP and civilian sector into the multi-agency control room that had been developed by ISAF for the ANSF. We developed a series of related projects to replace the existing civilian ambulance fleet, procure a communication system compatible with the police radio system, procure medical supplies and run a training programme for the ambulance drivers. The capital investment was provided by CERPs with the ongoing operations and maintenance costs and implementation oversight being provided by a NGO implementing partner.

Overall this was the most challenging and most rewarding aspect of my tour in Afghanistan. It is absolutely essential to focus the international military medical effort towards transition to Afghan lead for medical services for their people. Although the
ideal number of people needed to do this has not been agreed by the international military medical community, it is possible to make significant progress with properly co-ordinated programmes of work. Unfortunately real capacity development takes time. This is conceptually difficult without thorough pre-deployment preparation, takes co-ordination between partners and mentors, and needs recognition that only the Afghans can own their local solutions.
REFLECTIONS

So have I achieved what I set out to do? The section on methodology and evidence described how I would use Action Research as a means of self-reflective enquiry to understand the rationality and justice of the practices that I and my team employed in the management of health services support to military operations. This section used two figures to illustrate my approach to this PhD. The first showed how my first tour in Afghanistan had influenced my thinking on the leadership and organisational requirements to manage health services support to military operations at the conceptual and policy level. I had drawn this into my practice in HQ ARRC. Through undertaking this PhD, my second period of ‘immersion’ in Afghanistan would form the evidence for the Action Research cycle leading to new original thinking that would result in further personal and organisational change. The second illustration showed how I would use my prior experience to determine what I intended to do during my tour in Afghanistan and how my analysis by Action Research for this PhD would determine how my preconceptions needed revision or refinement from this second ‘immersion’.

The monographs and my observations contained in both my paper reflecting on my ISAF IX tour (15) and my formal post-operation tour report (included as a supporting document in the appendices) are the proof of completion of my Action Research cycle. It is the depth and rigour of analyses contained within these monographs that provide the evidence of new and original thought contained within this PhD submission. My second tour in Afghanistan reinforced the importance of the three elements of the military medical mission in counter-insurgency operations: care of casualties (extended to care of all casualties of conflict by the whole health sector), development of health services for indigenous security forces, and supporting the development of the indigenous civilian health sector. Coherent command and control arrangements are essential to effective medical support. This was very challenging in the NATO environment because of national sensitivities over losing control of resources to care for their own forces. As a NATO officer I had very little formal command authority, however I was able to control MEDEVAC and the regulation of casualties which are the most important decision processes in medical operations. Our approach to CIHOS was based on measuring the performance of this holistic system. As described in my review
of ISAF IX experience and in the medical planning theme, the medical function has to engage with every staff component of a military headquarters – it is not a subset of logistics nor personnel.

Unfortunately the number and rate of battle casualties in Afghanistan has continued to rise. My monographs on medical planning and execution of medical operations illustrate how much intellectual energy we expended to thoroughly analyse the medical requirements and to ensure that we were effectively trained and organised to manage significant numbers of casualties. There is considerable evidence from US and UK trauma registries that the clinical care of combat casualties is the best it has ever been. As in every conflict of significant duration, military medicine is back at the forefront of academic knowledge on the care of victims of trauma. We have not paid as much attention to returning the minor casualty back to duty – though some nations are creating ‘rest centres’ for managing concussion, psychological problems and musculoskeletal injuries within theatre.

I believe the development of the medical system for the indigenous security forces is an essential part of the COIN strategy running alongside all other Security Sector Reform programmes designed to transition security responsibility from international to indigenous forces. The substantial improvement in the clinical capability of the ANA Kandahar Regional Military Hospital is an outstanding example of what can be achieved. However, overall the US and NATO have not had a good return on its financial investment in the ANSF medical services. There has not been any substantial progress in ANSF pre-hospital care, deployed primary care or medical evacuation. The core challenge is to change Afghan values such that the leadership of the Afghan security forces value the lives of their personnel more than ISAF, and for this to be reflected in the behaviour of Afghan clinical staff. We can influence this by increasing the number and background competence of medical mentors and also increasing the use of partnering between medical units to ‘role model’ behaviours.

As described in both the theme review and supporting monograph, I have had a particular interest in international military engagement with the civilian health sector for most of my military career. There has been significant progress on this subject at the policy level over recent years but this is taking time to filter down to practitioners.
deployed to the field. Programmes or projects that genuinely improve indigenous capacity take time to conceptualise, socialise, generate funds and implement. This requires individuals with sufficient experience to see ‘the bigger picture’ and sufficient tour length to generate enduring momentum. The theme discussion describes our two signature projects; improvement of nursing capacity for Kandahar City and improvement of civilian ambulance response for Kandahar City. Whilst absolutely the right type of project, I am not confident that they will come to fruition as the lead for each project rotated twice during my deployment with further rotations expected soon after my departure. The military is often criticised for rotations of this frequency but actually it is the lack of continuity and technical engagement by civilian PRT staff that reflects the biggest risk to both projects.

My personal focus was the training and education of my team so that they could relieve me of routine decision-making. This left me free to concentrate on the conceptual and policy requirements. The eleven monographs that support this submission provide the baseline evidence for the success of this process. I never expected to write so many, but these emerged as we analysed and resolved the challenges that we faced. As highlighted in the methodology section, these were deliberately multi-author products. This is the reason for the widespread use of the first person plural ‘we’ rather than ‘I’ in this submission to reflect the contribution of my whole team to the output of the RC(S) CJMed branch.

I had to achieve agreement to the RC(S) medical plan by superior and subordinate organisations over whom I had no direct authority. The key to this was transparent, analytical logic during the planning process and communication during the management of military medical operations. The list of activities and outputs at Appendix A includes all of the formal instructions and briefings that I prepared and delivered to communicate our message. This included visits to the NATO Headquarters at Brunssum and the US Central Command Headquarters in Qatar. I have given several briefings to senior officers in the UK since returning from Afghanistan. The publication of the monographs as a coherent whole will form the next stage of influencing institutional development in managing health services support to military operations by providing a retrievable source of information on the subject.
My principal learning outcome has been to confirm that pre-deployment training, education and experience are essential pre-requisites to achieving success in managing medical support to military operations at both a personal and organisational level. This requires a commitment by those with such experience to commit their observations to formal reports in order to make it accessible for the next generation. This PhD is my contribution to this process.
CONCLUSIONS

My second tour in Afghanistan, that forms the basis of this submission, has been an exceptional experience. During our tour RC(S) has been the focus of international efforts to stabilise Afghanistan. We have planned and implemented the military operations that were made possible by the surge of US forces following decisions by President Obama in November 2009. It is too early to predict if these events will turn the tide of the insurgency in Afghanistan – all that the RC(S) team can know at this stage is ‘we were there and we tried to make a difference’.

Unfortunately there have been a large number of casualties from conflict in Afghanistan. During my tour we moved more than 8000 casualties by MEDEVAC. These flowed through our hospitals and onwards for either national or Afghan definitive care. During my time we added an additional US Army hospital and substantially increased the capability and capacity of the fixed hospitals at Camp Bastion and Kandahar Airfield. Our medical system has had periods of high intensity work but we were never overwhelmed and were always able to provide the best level of care possible according to clinical need and culture.

I felt fully prepared for my tour. As anticipated, we needed to do some robust intellectual analysis to provide the compelling arguments to obtain the necessary resources at the right time and in the right place. Whilst we had some robust debates, I felt fully supported and everyone was absolutely focussed on providing timely and high quality medical support. We made some progress in developing the Afghan system of medical care for their own casualties, but much more is left to do.

Writing this submission has been important professionally as it provides a comprehensive record of the work of myself and my team. I have been privileged to have had such an enthusiastic and dedicated team from all of the armed forces of the UK, Canada, USA, the Netherlands and Australia. This has also been important to me personally as I can feel that I have placed our collective experience into a domain that will be accessible for future generations when this conflict in Afghanistan is a subject for historians rather than current affairs.
REFLECTIONS 1 YEAR ON

This thesis was finalised during my post-tour leave after returning from Afghanistan in November 2010. My oral defence was conducted in September 2011 with final revisions to the manuscript in October 2011. Much happened in the intervening period. Rather than distort the purity of the text captured at the specific time of my immediate post-tour reflection, this section summarises the culminating phase of my Action Research project. I see this phase as my contribution to the assimilation of the specific experience described in my thesis into the wider, generalisable, approach to military medical planning as taught to the next generation of military medical leaders and the wider civilian health sector.

The monographs from this thesis were published in their raw form in the medical section of the British Army Knowledge Exchange. This is the electronic archive for all formal observations and lessons from British military operations. Refined versions of all the monographs will be published as a single collection in an electronic supplement to the Journal of the Royal Army Medical Corps in January 2012.

I presented summaries of this thesis at the RC(S) operational backbrief sponsored by the Commander of Army Force Development and Training, to the medical Lessons Learned workgroup of the UK Surgeon General Department and to the Spring 2011 Army Medical Directorate post-operational tour backbrief. The videos contained in the supporting material are now used as part of the curriculum for the UK Joint Operations Medical Planning Course.

In conjunction with Ewan Cameron, I wrote a new Army Doctrine Note titled ‘International Military Medical Engagement with Indigenous Security Forces and Civilian Health Sectors’. We have created a new, 5 day, training course, the ‘Introduction to Military Medical Engagement Course’ which will run for the first time in November 2011.

In October 2011 I started a new appointment as Assistant Director Medical Capability (Army). I am responsible for the integration of concepts, doctrine, organisation, personnel, training, equipment, information and logistics into delivering medical capabilities to support the Army. My first task will be to incorporate the themes and
observations from this thesis and other records of experiences in Afghanistan into a revision to the Army Medical Services Core Doctrine and to write a new publication ‘Planning and Executing Health Services Support to the Land Environment’.

Many of the issues identified in this thesis are applicable to the wider civilian health sector both nationally and internationally. All of the principles resonate for the emergency response to medical major incidents especially casualty estimation, medical resource planning and, command and control of medical evacuation. The understanding of relationships between international and national stakeholders in health sector development is important in any complex humanitarian emergency. Finally, the ‘pre-hoc’ approach to an Action Research methodology to facilitate capture of practical observations and lessons for organisational development might be useful to record other interventions in complex health system crises.
REFERENCES

APPENDICES

Appendix A – My Deployment Diary

2-Methodology\Appendix A - My deployment timetable.pdf

Appendix B – List of other authors contributions to each monograph.

2-Methodology\Appendix B - Author Attribution.pdf

THEME 1 – MEDICAL PLANNING – SUPPORTING DOCUMENTS

Monographs

1.1 The Operational Context for Military Health Services Support. 3-Medical Planning\1-1_Bricknell - Paper 1 - Medical Planning in Context - Final - PhD.pdf

1.2 Medical Planning and the Estimate. 3-Medical Planning\1-2_Bricknell - Paper 2 - Medical Planning and The Estimate - final - PhD.pdf

1.3 Casualty Estimation. 3-Medical Planning\1-3_Bricknell - Paper 3 - Casualty Estimation - final - PhD.pdf

Publications


Other material

1.12 Orientation video – Medical Branch RC(S). 3-Medical Planning\1-12_RCS-CJMed Induction Pack.wmv

THEME 2 – MANAGEMENT OF MILITARY MEDICAL OPERATIONS – SUPPORTING DOCUMENTS

Monographs

2.1 Forward Medical Evacuation (MEDEVAC). 4-Execution of Medical Operations\2-1_Bricknell - Paper 4 - MEDEVAC - final - PhD.pdf

2.2 Tactical Medical Evacuation. 4-Execution of Medical Operations\2-2_Bricknell - Paper 5 - TACEVAC - final - PhD.pdf

2.3 Deployed Hospital Care. 4-Execution of Medical Operations\2-3_Bricknell - Paper 6 - Deployed Hospital Care - final - PhD.pdf

2.4 Managing Military Medical Operations. 4-Execution of Medical Operations\2-4_Bricknell - Paper 7 - Managing military medical operations - final - PhD.pdf

2.5 Continuous Improvement in Health Support to Operations. 4-Execution of Medical Operations\2-5_Bricknell - Paper 8 - CIHSO - final - PhD.pdf

2.6 OP MOSHTARAK Medical Observations. 4-Execution of Medical Operations\2-6_Bricknell - Paper 9 - OP MOSHTARAK Medical Lessons - final - PhD.pdf
Publications

2.7  Bricknell MC. Organisation and design of regular field hospitals. J Roy Army Med Corps 2001;147:161-167. 4-Execution of Medical Operations\2-7  Organisation & design.pdf

2.8  A Boreham and Bricknell MCM. The Reconnaissance and Siting of Field Hospitals. J Roy Army Med Corps 2002;148:32-37. 4-Execution of Medical Operations\2-8_Recce.pdf

2.9  Bricknell M. Command in a field hospital. J Roy Army Med Corps 2003;149:33-37. 4-Execution of Medical Operations\2-9_Command.pdf


Other material

2.11 Orientation video to ISAF medical operations - Briefing to ACO medical conference. 4-Execution of Medical Operations\2-11_ACO briefing.wmv

2.12 OP MOSHATARAK Lessons Learned – video. 4-Execution of Medical Operations\2.12_Medical Observations Op MOSHTARAK.wmv

2.13 3 videos of hospital walkthroughs

2.13.1 UK hospital HERRICK 6. 4-Execution of Medical Operations\2-131_UK Field Hospital AFG May 2006.wmv

2.13.2 Old Kandahar Airfield ISAF Hospital. 4-Execution of Medical Operations\2-132_CA R3 MIMU Sep 06.wmv

2.13.3 New Kandahar Airfield ISAF Hospital. 4-Execution of Medical Operations\2-133_KAF Role 3 New Build Walkthrough.wmv

THEME 3 – INTERNATIONAL MILITARY MEDICAL ENGAGEMENT WITH INDIGENOUS HEALTH SECTORS – SUPPORTING DOCUMENTS

Monographs
3.1 International Military Engagement with the Indigenous Health Sector – Military.  
5-Indigenous engagement\3-1_Bricknell - Paper 10 - Developing indigenous medical service-ANSF.pdf

3.2 International Military Engagement with the Indigenous Health Sector – Civilian.  
5-Indigenous engagement\3-2_Bricknell - Paper 11 - Developing indigenous medical service-Civil.pdf

Publications

3.3 Bricknell MCM and Thompson DF. Roles for International Military Medical Services in Stability Operations (Security Sector Reform). J Roy Army Med Corps. 2007;153(2):95-98. 5-Indigenous engagement\3-3_SSR.pdf

3.4 Bricknell MCM and Gadd RDM Roles for International Military Medical Services in Stability Operations (Health Sector Reconstruction and Development). J Roy Army Med Corps 2007;153(3):160-164. 5-Indigenous engagement\3-4_Civil sector.pdf

Other material


3.6 Slide pack and script from ISAF Counterinsurgency Conference 18 Oct 2010. 5-Indigenous engagement\3-6_Saving Lives 1.5-presentation.pdf 5-Indigenous engagement\3-6_Saving Lifes - A COIN Effect-script.pdf

3.7 A complaint from an NGO teaching video. 5-Indigenous engagement\3-7_A complaint from an NGO.wmv

3.8 Medical Security Sector Reform teaching pack. 5-Indigenous engagement\3-8_Medical SSR Teaching Pack

Reflections

Publications

4.1 Bricknell MCM. Reflections on experiences in ISAF IX. J Roy Army Med Corps. 2007;153(1):44-51. 6-Reflections\4-1_R eflections ISAF IX.pdf

Other material

4.2 Reflections on Medical Aspects of ISAF IX video. 6-Reflections\4-2_Reflections on medical aspects of ISAF IX.wmv
4.3 CJTF6 Medical Post-operational tour report. 6-Reflections\4-3_CJTF 6 Medical POTR.pdf