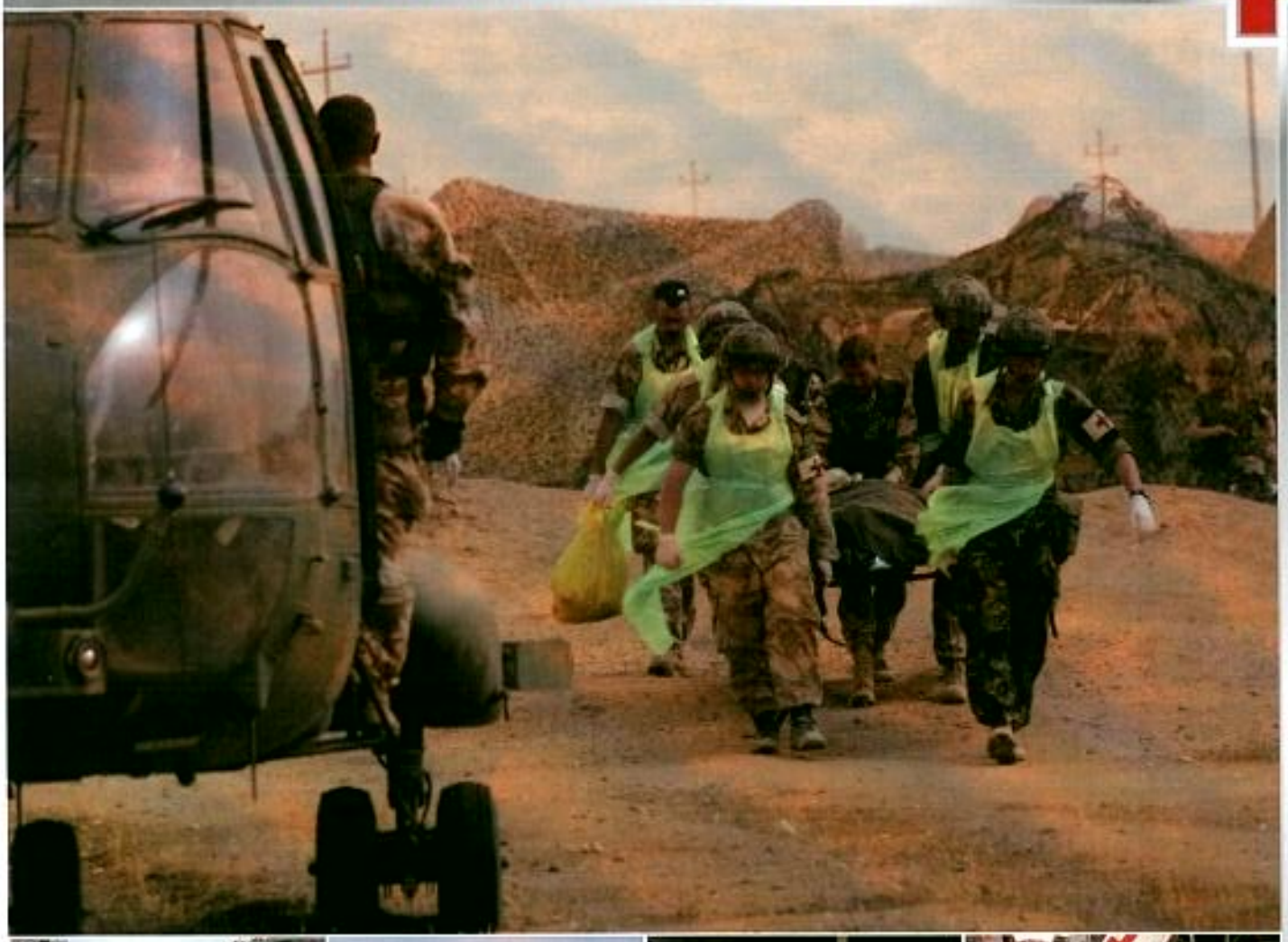
DEFENCE MEDICAL SERVICES



Director General Medical Operational Capability Report

DMS
DEFENCE MEDICAL SERVICES

Declassified PS 20/07/10

CONTENTS

INTRODUCTION

101. Almost all reviews of the Defence Medical Services (DMS) note the frequency of previous reviews, whose recommendations have failed or not been implemented. DCDS (H) was clear that he did not want another study to join this long list. He therefore gained agreement to establish 2 new 2* posts that would, as in previous studies, seek to identify the way forward for the Defence Medical Services. However, he envisaged that these 2*s, DG Med Op Cap and DG Healthcare, would not just identify the way forward, but would seek to make incremental improvements as they undertook their work and, once the way forward was clear, take responsibility for implementation.

102. Early indications are that this fresh approach has been successful. The major differences from previous studies of operational capability has been the enthusiastic involvement of the single Services' medical services, the wide involvement of the various sub-groups within the DMS (specialists, nurses etc) and the involvement of the wider MOD. The most tangible success to date is the endorsement by PPSG of the operational manpower requirement, following an excursion from the main project that brought to a close the Defence Medical Capability Study started in 2001.

103. Less obvious is the indirect impact of the DCDS (H) approach. The articulation of a variety of issues, many of which have been long standing and long recognised, has been sufficient in a number of areas to stimulate corrective action, rather than awaiting the formal outcome of this study. An example of this is the Logistic E2E Review[1] currently in progress.

104. This report concludes the analytical stage of the work, less some work on equipment that I leave to my successor. It addresses issues raised in the first DG Med Op Cap Report[2] and incorporates the main outputs of the 3 main Working Groups (Clinical, Organizational, and Equipment) and response to a Consultation Document[3]. The argumentation that led to the endorsement by PPSG, in 2 papers[4] [5], of the future DMS manpower requirement is not repeated in this Report but as some of the conclusions of the PPSG papers are fundamental to the way that operational medical support will be delivered in future, a summary is included here.

105. A summary of recommendations is at Part 2 (together with a summary of the PPSG paper) which my successor has already translated into an Action Plan. Part 3 addresses the operational outputs required of the DMS together with an assessment of those outputs. Part 4 addresses resource issues whilst Part 5 looks at processes.

LP Lillywhite
Major-General
Director General Medical Operational Capability

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[1] DLTP/240205/JST dated 20 Nov 06
[2] DMSD/32/12 dated 05 Jun 06 – Future Manpower Requirements of the DMS
[3] DMSD/32/01 dated 02 Dec 05 DG Med Op Cap Consultation Document
[4] RP-02-07 dated 26 Jun 06 and DMSD/32.12 dated 5 Jun 06
[5] RP-02-07-03 dated 20 December 2006 and DMSD/32.12 dated 18 Oct 06

PART 2 – SUMMARY OF RECOMMENDATIONS

1. The analytical stage pf the DG Med Op Cap Project identifies the 4 effects of the deployed DMS (maximising numbers fit, treatment and evacuation of injured, ensuring maximum survival with residual disability and providing assurance) and the enabling processes and resources (an evidence base, process to exploit the evidence, appropriate training, manpower and equipment, and a system of audit, governance and assurance). An assessment of the DMS, measured against the outputs, is made together with actions made or in hand to address shortcomings and areas requiring improvement.	Para 310 – 306 Annex A to Part 3
Equipment 2. Significant deficiencies in medical equipment have been partially addressed by the E2E review of medical logistics has identified and made recommendations to correct logistics and sustainment shortcomings. However, the E2E review has not addressed the complete procurement cycle, which needs to involve the clinician who is the end user and therefore (*Recommendation 1)* **as a matter of urgency a holistic review of DMS equipment strategy, policy, procurement, maintenance and sustainment and disposal is required that subsumes the E2E review of medical logistics.** This process should *(Recommendation 49)* **put medical equipment procurement, logistic and sustainment onto the same sure footing as other equipment.**	Para 12c, 15c (of Annex A) Para 401 – 408 and Para 543 – 545
Manpower 3. This review complements the review of medical manpower recently endorsed by PPSG which *(Recommendation 2)* **is now being taken forward.** The main conclusions affecting deployed operational capability are summarised at Annex A. However, in order to fully understand the resource implications of manpower changes affecting those who work in the NHS, *(Recommendation 3)* **the net worth of DMS personnel working in the NHS needs to be determined,** and the Director of Economic Affairs has signified his agreement to undertaking this work.	Para 409 – 410 and Annex A to Part 2 Para 411
4. The DMS is now even more reliant upon the NHS than before for training and employment of secondary care healthcare professionals when not deployed, at a time when the NHS is undergoing significant change in its manpower base so *(Recommendation 4)* **DMSD needs to develop a liaison with NHS manpower planners in order to identify which initiatives have potential value for the DMS.** NHS Initiatives need to be assessed (though not necessarily adopted) and (*Recommendation 5*) **DMSD should explore the potential for Nurse Anaesthetists (or equivalent) and Physician Assistants.** However, there appears to be increasing divergence between the competencies required by deployed personnel and	Para 411

those competencies taught in the new syllabi being developed in civilian practice. Thus, (*Recommendation 6*) **it is recommended that DPMD initiates work to identify and cost the additional military training required to make military medical personnel "fit for purpose" following implementation of the Governments new specialist training programmes.** As a consequence, (*Recommendation 7*) **it is recommended that promotion to OF4 should in the future be linked to being "fit for purpose" as a military specialist instead of the point when accreditation as a civilian specialist is achieved.**	Para 412 Para 413
5. Changes in civilian training and scope of practice is increasingly being effected via legislative instruments and (*Recommendation 8*) **this need to keep abreast of NHS legislation reinforces the argument for having a permanent presence in the DH.** This needs to be complemented at the working level by (*Recommendation 9*) **DMETA proactively engage with MDHU Host NHS Trusts to identify changes in working practices that may impact on the employability of uniformed personnel.** The sum of changes have the potential to impact on the DMS manpower requirements so *(Recommendation 10)* **the workforce implications of changes need to be monitored and regularly assessed by DMSD.**	Para 414 Para 415 Para 417
6. The changes in the civilian workforce have significant implications for the Reserves. This has the greatest implications for the use of Reservist Medical Assistants who have no civilian healthcare qualification and (*Recommendation 11*) **work should therefore be put in hand to scope alternatives to Reserve MAs.** In addition (*Recommendation 12*) **the potential decreased utility of Reserve specialists in forward units should be noted, as well as the need for a wider range of specialists in rear hospitals.**	Para 419 Para 420
7. The disaffection of those healthcare professionals who left in the mid and late 1990s appears to have reduced the appetite for using the Regular Reserve, but this should not apply to Regulars who have left more recently. Thus, it is considered (*Recommendation 13*) **that an active strategy should be developed to involve the Regular Reserve with a view to making greater use of them on operations.**	Para 421
8. The reliance on civilian opportunities for the employment of DMS healthcare professionals makes it essential to promote and sustain the reputation of DMS personnel. This needs active promotion and (*Recommendation 14*) **a policy is required that promotes, supports and exploits the involvement of healthcare professionals with professional bodies.**	Para 422 - 424
9. Humanitarian Support. The inability of DMS clinicians to provide basic care for the very young and pregnant mothers has had a deleterious impact on the reputation of MOD amongst clinicians and	

(*Recommendation 15*) **as a minimum, medical equipment should be introduced as a matter of urgency which enables adult clinicians to treat children and pregnant mothers.**	Para 426
Data 10.Developing an evidence base and providing assurance that the DMS is providing and effective service requires data. The lack of robust data is the major obstacle to assessing and improving hospital level care and (*Recommendation 16*) **the US Trauma Registry System, a COTS product, should be introduced into operational Theatres as soon as possible** with *(recommendation 17)* **consideration being given to integrating elements of the UK in-Theatre system with that of the US.** It is also (*Recommendation 18*) **recommended that the potential for developing a combined database be explored** (and since this report was drafted, an approach has been made by the USA following their successful integration of the US Army, Marines and Naval databases). It is essential that (*Recommendation 19*) **DASA and DG Healthcare are involved in any work to acquire data to ensure coherence and consistency with the UK's data collection structure and data collection from NHS episodes of care.**	Para 6c, 7c, 8d,16c, 501 505
Personnel Management 11.Owing to the nature of the original Defence Secondary Care Agency, DMETA is not responsible for finding all the placements required within the NHS. The situation has now changed and (*Recommendation 20*) **DMETA should become responsible for arranging and managing all secondments in the NHS.**	Para 506a
12.DMETA is responsible for manning the deployed establishments, but finds that it has to react to the practice that has arisen whereby each deployment has a tailored establishment. This is incompatible with long-term planning and appropriate warning. Thus, (*Recommendation 21 and 5*) **FETS should normally be based on endorsed establishments, or in the absence of formalised establishments, using the structures that informed the PPSG paper on DMS operational manpower.**	Para 506b and 549
13.Although DMETA should be responsible for all NHS placements, the current practice of posting clinicians to DMETA and seconding them back when required to their single Service is opposed by many clinicians. Therefore, (*Recommendation 22*) **a fundamental review is required of the management of hospital-based personnel and a process developed to give effect to the outcome, recognising in particular DMETA's responsibility for manning placement within the NHS, the single Services' responsibility for delivering an effective deployable medical service and the needs and desires of medical staff and patients.** In the meantime, work should continue on the DMETA unified	Para 506c

establishment.	
14.Hitherto, DMETA looked upon itself and was similarly looked upon by the single Services as a mere provider of training and manpower. During the project it increasingly became involved in the analysis and in suggesting solutions and (*Recommendation 23)* **a process and change of culture is required that continues to draw DMETA into the operational capability decision-making process as an equal partner.** It is also questioned whether the culture of Agency status is compatible with the requirement to be more agile in responding to current operational needs.	Para 507
Individual Training 15.There is agreement that initial military training for Regulars is appropriate. However, the length of Phase 2 training, often 3 years, for nurses and technicians leads to these skills fading. (*Recommendation 24)* **DMETA, in conjunction with the single Services, should scope how the military skills of those undertaking long university courses can be reinforced prior to joining the trained strength.**	Para 508 – 509
16.An aspect of the DMETA involvement in the Project was the added value they brought to identifying individual training requirements and (*Recommendation 25*) **the DMETA initiative in coordinating Operational Performance Statements (OPS) in conjunction with the single Services needs to be developed into a formal process.** There is an absence of many OPS, particularly for those cadres whose individuals are almost all employed within DMETA when not deployed and (*Recommendation 26*) **the process needs extending to all cadres to identify and document the clinical skills required on operations. DMETA must then address for those embedded in the NHS how such skills can be sustained in between deployments.** In order to manage the training requirement (*Recommendation 27)* **consideration should be given to centralising TDT assets, together with a process that protects single Service interests.**	Para 510 Para 11c, 511 Para 512
17.Sustaining clinical proficiency must be extended to those clinical personnel employed in non-clinical posts and (*Recommendation 28) a* **system needs to be developed that ensures that all clinical staff, and in particular junior staff, in non-clinical posts receive appropriate clinical experience.**	Para 513
18.Determining the individual training requirement must necessarily be undertaken against the background of significant changes in civilian training. As (*Recommendation 29)* **specialist training involves a variety of bodies, both statutory and non-statutory, the overall direction on future military specialist training should be taken forward by DMSD in the first instance.** In particular (*Recommendation 30)* **a process for training specialists that meets both the needs of the NHS, where specialists must work**	Para 514

when not deployed, and of the Armed Forces needs developing.	
19.The loss of Service hospitals has led to the loss of some competencies and experience required to effectively manage deployed medical facilities. There are 2 specific areas that require addressing. Wardmasters that are essential within deployed hospitals but are not catered for within the non-deployed environment and (*Recommendation 31)* **there is an urgent need to develop an OPS for Wardmasters and then consider how they can be given the appropriate training and experience.** The DMS has also lost its opportunity to manage peacetime hospitals and thus cannot effectively or efficiently manage the clinical aspects of deployed hospitals and (*Recommendation 32)* **further work is required to identify the hospital management experience required on operations and a means of providing suitable experience identified. Work is also required to ensure that clinicians are appropriately represented on the Staff in order that hospital environment factors are given appropriate weight.**	Para 516 – Para 517 – 518
20.Once OPS for Regulars have been developed, (*Recommendation 33)* **consideration needs to be given to how the OPS apply to Reservists and the implications addressed.**	Para 519
Team and Collective Training 21.The lack of peacetime Service hospitals and the absence in peacetime of serious trauma could be addressed by increased simulation, which is in any case increasingly required in civilian medicine. Thus, (*Recommendation 34)* **DMSD should explore with the DH the potential for one or more of the existing simulation facilities to be developed to meet the needs of military team training.**	Para 9c, 520 – 521
22.This needs to be complimented, (*Recommendation 35)*, **as full manning is achieved, by a process similar to that which existed up to the mid 90s, that ensures that Role 3 medical units are at the declared readiness both militarily and clinically.** Similarly, collective training must include, in addition to the military training, the clinical aspects of collective training that until recently were not included. This requires significant input by clinicians which stopped with the disestablishment of secondary care clinicians from the medical staffs. *(Recommendation 36) and* **regular hospital based clinical staff need to become re-involved in the provision of collective medical training.**	Para 523 Para 524
23.Although the issue of unit readiness has been seen as mainly an Army Role 3 issue, (*Recommendation 37)* **the process of ensuring military and clinical readiness needs to be extended to RN, RAF and Army Role 2(E).** This however has implications for the time that clinicians will be available to meet NHS commitments and *(Recommendation 38) a* **review of how clinical manpower is**	Para 525 Para 526 – 528

accounted should be undertaken prior to the next quinquennial review of DMETA.	
24.Deployed medical care is however a continuum and a failure to provide continuity of care will increase death rates and adversely affect outcomes. There is thus a need to reintroduce the major medical play that used to be a feature of the major exercises in the period 0f the 1970s and 80s. (*Recommendation 39)* **A process, supported by the appropriate staff resources, needs putting in place to enable medical play to be incorporated into major single Service and into combined and joint exercises.**	Para 529
25.Collective training needs to be extended to the multi-national environment where the significant differences in national healthcare responsibilities and processes make co-operation difficult. *(Recommendation 40)* **A review is required of how multinational medical co-operation can be developed on a bilateral or trilateral basis in a manner that provides value for money and a practical benefit to the UK.** Given the extent of work on individual, team and collective training (*Recommendation 41)* **a training focus needs reintroducing into DMSD.**	Para 19c, 530 – 531 Para 532
Ensuring Clinical Success 26.Recommendation 16 addressed data collection but to be of utility requires exploitation and once the data collection process has been put in place *(Recommendation 42)* **the processes to collect, collate, analyse and act on the results must also be established and is one of the highest priorities. These processes must also address the exploitation of the power of DMICP.** Data is essential to any system of quality assurance but exploitation requires *(Recommendation 43)* **the development of a multidisciplinary team that includes DASA and clinicians.**	Para 16c, 533 – 535 Para 536
27.An "owner" is required to manage the quality assurance process from end to end and as DG Healthcare is responsible for the peacetime end of the healthcare process (*Recommendation 44)* **it is logical that DG Healthcare assumes responsibility for ensuring end to end audit of casualty care occurs in line with modern healthcare practices.**	Para 18d, 537
28.Although exploiting data requires careful and detailed analysis, experience from previous conflicts, as well as US experience from the current conflicts, is that data can on occasions highlight areas that are amenable to urgent intervention so (*Recommendation 45)* **a quick win should be the implementation of a system of feedback from UK NHS Hospitals to operational Theatres.**	Para 538
29.Risk is inherent in clinical processes but identifying risk in deployable medical units prior to deployment when they do not (prior to deployment) treat patients is problematic. A process is required	

that addresses this shortcoming and (*Recommendation 46)* **the DIA agreement to assist in developing processes to address risk in the deployed clinical environment should be supported.**	Para 518d, 39
Force Protection 30.Force protection needs high quality medical intelligence and over the last few years new arrangements, involving both the US and the DIS have evolved. (*Recommendation 47)* **It is timely, given the changes in Medical Intelligence over the last 2 years, to undertake a stock-take to ascertain whether the current arrangements are providing value for money**. Force protection also requires access to high quality clinical data and appropriate subject matter experts for implementation in order to identify how manpower numbers in deployed Theatres can be maximised. However, the presence of these within deployed HQs seems to be a matter of chance and (*Recommendation 48)* **a fundamental review of the UK approach to Force Protection, probably led by DCA Public Health Medicine, is required**.	Para 540 – 541 Para 5c, 542
Command and Control 31.The DOC report on Logistic Command and Control recommended that consideration be given "to transferring medical and personnel commitment functions at AD or SO1 level to ACDS (Log Ops)". Medical sustainment, resupply and strategic evacuation would fit well with ACDS (Log Ops), but as currently configured the other aspects of medical (medical intelligence, force protection, clinical planning, and deployed operational medical policies) would not. *(Recommendation 50)* **However, the placing of a SO1 or AD in ACDS (Log Ops) area to facilitate medical logistic and strategic evacuation planning is recommended.**	Para 547 - 548
32.The analysis also identified a discontinuity between the FLCs and PJHQ in that there is lack of clarity as to how any failures or lessons found during deployed operations and how any Clinical Governance concerns affecting single Service personnel should be addressed. *(Recommendation 52)* **The responsibility of single Service Medical Directorates for their deployed personnel needs to be articulated** and (*Recommendation 56)* **the recommendations of the Organization WG on Lessons Learnt (led by D Med Op Cap) should be implemented.**	Para 550 - 551
33.This recommendation should be developed as part of *(Recommendation 53)* **a full review of Medical Command and Control which should mirror that of the DOC Audit of Logistic Command and Control but also extend into operational Theatres**.	Para 552

Doctrine 34.The establishment of a SO1 Medical at DCDC has facilitated higher-level doctrine and contributed to non-medical doctrine. However, casualty evacuation and treatment utilises all 3 Services and in the medical area, tactical doctrine also needs to be joint. *(Recommendation 54)* **Either a virtual team, coordinated from DCDC, or a transfer of responsibility and assets to DCDC, is required.** Doctrine has also to address clinical as well as organizational aspects and (*Recommendation 55)* **a systematic approach to writing clinical doctrine is required, utilising clinical staff with dedicated time, supported by an appropriate secretariat**.	Para 553 Para 10c, 554
Other 35.Learning from the NHS. There have been a variety of developments in the NHS that may have applicability in the military environment and (*Recommendation 57)* **a one-off gap analysis is required to identify civilian practices that ought to be introduced into the deployable medical services**. This needs complementing with (*Recommendation 58)* **the development of a process to monitor and assess civilian health services and organizational developments for suitability for introduction into the deployed medical environment.**	Para 558 – 559
36.	Para 561 - 562
37.DMWS. The origins of the DMWS lie in Service hospitals and in the British Red Cross Society and are a non-profit making organization. Although treated inmost respects as CONDO, their personnel did not see themselves as CONDO, considering themselves instead an element of the DMS with whom they work in peace. This leads to difficulty and (*Recommendation 60)* **a review, probably by DMCS, is required to consider the future relationship between DMWS and MOD**.	Para 563 - 564
38.Research. DSAC commissioned a report on MOD's health related research programme but little has happened since and it is concluded that nothing will change until (*Recommendation 61)* **Biological and health related research is incorporated into the wider Defence research agenda and processes**	

Annex A to Part 6 of DG Med Op Cap
Second Report Dated Oct 06

SUMMARY OF PPSG RECOMMENDATIONS (HIGHLIGHTS ONLY)

PPSG 1st PAPER

1. **Endorsed** the assumptions on standards of care, casualty and sickness rates, concurrency, holding policy, etc.

2. **Endorsed** the RN, Army and RAF Role 1 and Role 2 Regular manpower requirements, based on the most demanding of the Defence Planning Assumptions Harmony Suites:

a. Army and RN Role 1: Determined by Force Structure (ie by number of battalions and ships.

b. RN Role 2: One Med Sqn, including 4 General Surgical Teams (ST), and 5 x ST afloat.

c. Army Role 2: Determined by Force Structures (ie number of Brigades), including 10 ST.

d. RAF Role 1 and 2 22 x Role 1 and 6 x Role 2, including 12 x ST, to support Deployed Operating bases

3. **Endorsed** the Role 3 and Aeromedical Evacuation Regular manpower requirement as follows:

a. RN Afloat. PCRF of 150 beds and 8 x ST

b. Army. Overall requirement of 450 beds (5 x 50 beds and 5 x 25 beds for mature operations and 75 for contingency operations) offset by 75 beds and 6 x ST from RN and RAF leaving an Army requirement of 325 beds and 24 x ST.

c. Aeromed. Total requirement of 41 x Fwd Aeromedical Evacuation (AE) Teams, 11 x Tac/Strat AE Teams, 9 x Fwd CCAST and 6 x Tac/Strat CCAST plus one Air Staging Unit (ASU) with 2 x ST which would also when based at an austere Forward Mounting Base (FMB) be responsible for the primary and secondary care for all personnel at the FMB.

4. **Agreed** the proposal to utilise RN and RAF personnel to support Army harmony in the provision of hospital-based capabilities PPSG also agreed the recommendation that the hospital based liability should be planned, coordinated and synchronised for operations on a tri-Service basis noting that a cell would be established under the control of DCDS (H) who would articulate options for operational deployments and standby operational commitments to DCDS(C).

5. **Endorsed** the proposal that hospital-based liability to deliver operational capability is planned, coordinated and synchronised for operations on a tri-Service basis, with DCDS (H) as SRO, including the establishment by 1 Oct 06 of an agreed mechanism for resolving competing priorities for hospital-based personnel between

the 3 Services; ensuring that the current tri-Service liability imbalances are managed, transferred or reduced appropriately (Para 33).

6. **Noted** that for large scale the overall Role 3 requirement is for 1000 beds on land and 100 beds afloat, the overall Role 2 and 3 ST requirement is 66 and for Aeromed, 53 Fwd AE, 41 Tac/Strat AE, 7 Fwd CCAST and 16 Tac/Strat CCAST. The additional manpower requirements for large scale will be provided from the Reserves.

PPSG 2nd PAPER

7. **Agreed** to medical support to SF being provided by all three single Services, with an enhancement for DSF.

8. **Endorsed** the overall DMS manpower requirement, including manpower required for retained tasks, and an element for medical training.

9. **Endorsed** the outline process for addressing potential competing priorities resulting from taking a tri-Service approach to the clinical manning of Role 3 on enduring operations.

10. **Noted** the recommendation that there should be a review of Return of Service for those medical officers with very long training tails which if lengthened will have a significant downward impact on MTM.

11. **Noted** the single Service agreement to the principle of tri-Service management of hospital-based clinical cadres with small numbers, through the mechanism of controlling entry to training cognisant of the tri-Service requirement.

12. **Noted** the implementation plan that will be taken forward as routine business.

PART THREE – OUTPUT AND DELIVERABLES

301. There are four effects required of the Defence Medical Services deployed on operations. The first 2 address the physical component of warfare and the second 2 address the moral component:

a. The maintenance of the maximum number of personnel fit for task in the Theatre of operations. This is achieved though the provision to the chain of command of advice and assistance in the prevention of injury and disease and the rapid return to duty of those sick and injured who can, without imposing an unacceptable logistic and administrative burden, be treated in Theatre.

b. Treating and evacuating from the Theatre of operations or battle-space all sick and injured who would otherwise constrain the commander in the prosecution of his military mission. The provision of this effect is sometimes the primary responsibility of the medical services, sometimes the primary responsibility of the chain of command (eg within battle-groups) and often shared (eg the use of SH borne medical teams).

c. Ensuring the maximum survival with the minimum residual disability of all those who suffer significant sickness and injury by applying the highest practical quality of care (commensurate with the condition of the battlefield) to all those who are sick and injured in a Theatre of operations. Although this effect is the responsibility of the medical services, for those sustaining injury it initially has to be effected at the point of injury via appropriately trained non-medical personnel with access to the appropriate first aid equipment.

d. Provision of reassurance to deployed personnel, via their commanders, that those sick and injured who are evacuated from the battlefield are being appropriately treated throughout the duration of their illness.

302. The last effect has not previously featured in medical services doctrine. It does not appear to have been a major concern during World War 2 and no formal procedures or processes have hitherto been put in place for this feedback to a Theatre of operations. However, Commanders increasingly wish information on the state of their personnel whilst feedback to a Theatre of operations is also required to achieve the third effect, as without feedback on clinical outcomes, the quality of care in a Theatre of operations cannot be assessed and any sub-optimal care addressed.

303. The four effects require the following:

a. The maintenance of an evidence base to ensure that policies and clinical practices are up to date and are able to exploit in a timely manner advances in clinical practice and technology. Although in most areas, the medical services can rely on research and development within the civilian sector or by other nations' military medical services, there are some areas where the provision of an evidence base will require research commissioned in the UK[6].

[6] An example is the introduction of Factor VII, to stop bleeding, following its allegedly successful use by Israelis and US. Research by Dstl enabled the US to introduce it in spite of a lack of a UK licence for that particular use.

b. An ability to assess and where appropriate translate the evidence base into amended and costed policies, doctrine, practices, procedures and organizations to enhance effectiveness and value for money.

c. Non-medical personnel trained and equipped to provide immediate life and limb saving first aid, and a chain of command capable of exploiting the capabilities of the medical services so that the desired effects can be achieved.

d. Appropriate medical forces and personnel at the same readiness as the combat troops they support, capable of deploying and redeploying in a suitable time frame to the right place with the right equipment with correctly trained and experienced (both militarily and clinically) personnel and teams capable of being sustained with appropriate communication, information systems, logistic support and defence.

e. A system of Audit, Governance and Assurance, supported by a Lessons Learnt process, to assist individual clinicians and clinical teams to assess their individual and collective effectiveness and provide assurance to the chain of command and individuals that the quality of care being provided is indeed of the highest practical quality. This in turn needs access, for comparison and benchmarking, to civilian data and data from other Nations' military organizations in a form that enables meaningful comparison.

304. An assessment of the DMS's achievement against these outputs is at Annex A.

305. The manpower resources necessary to deliver the requisite level of medical support on operations has been agreed in the submission to the PPSG[7]. In summary, the medical forces required are:

a. Forward (Role 1 and 2) capability.

b. Hospital based capability, including surgical support at Role 2 and afloat.

c. Aeromedical Capability, some of which is also hospital based.

d. Specialist capability, much of which is hospital based.

306. Parts 4, 5 and 6 address the enabling processes required to provide the required outputs, resource management issues and concludes by making recommendation for building for the future.

Annex:

A. Assessment of DMS Outputs

[7] RP 02-07 dated 26 Jun 06.

ASSESSMENT OF DMS OUTPUTS

1. Assessing the effectiveness and efficiency of the main medical outputs requires access to high quality data. Without access to such data, no assessment can be made of the timeliness of evacuation, recovery and return to duty rates, mortality and complication rates. As well as being unable to objectively assess the medical success or otherwise of the Armed Forces, without such an objective assessment any modification to the current system can only be based on subjective impressions or by extrapolating information from other nations who do keep high quality data. It is unlikely that the UK could replicate for its modern conflicts the quality of data published for the majority of campaigns in the official medical histories of the Second World War.

2. The Defence Medical Information Capability Programme (DMICP) will go some way to addressing the absence of data by providing electronic patient data, although it will not initially provide comprehensive cover of secondary care data. However, data alone will be insufficient, and the processes, individuals, and organizations required to exploit this data and turn it into useable information have not yet been identified; this is addressed below. Medical data alone will in any case be insufficient. Comparisons require absolute numbers to be converted to rates, which requires accurate knowledge of populations at risk which are not currently readily available.

3. Current medical practice places an obligation on individual medical practitioners to assess their performance and to base decisions on evidence[8]. As a result, there is a body of evidence arising from the actions of individual clinicians, such as the audits undertaken by the Defence Consultant Adviser in Emergency Medicine[9]. In addition, there are examples where good quality data has been collected to answer specific questions, such as the deployment to Iraq by Colonel Glyn Jones at the instigation of the Surgeon General to address the impact of heat[10]. The evidence that does exist provides reassurance that in those areas that have been examined that the care of the wounded in Theatre is of high quality and comparable to best civilian practice. However, there is no evidence on which to assess the outcome of the whole system, such as whether our infection or amputation rates are better or worse than is reasonable, or to enable comparison with our major ally, the USA.

4. The mere collection of data, or local analysis, is also insufficient as interpretation requires placing the data into context, as outcome will be affected for example by delays in evacuation owing to tactical factors which could not currently be taken into account by the one organization, DASA, who is currently the only body formally responsible for undertaking analysis. The following assessments are therefore mainly subjective.

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[8] "Good Medical Practice": Guidance fir Doctors effective Nov 2006, General Medical Council
[9] For example, Academic Department of Military Emergency Medicine Trauma Report Jan-Jun 06 Op TELIC dated Jul 06.
[10] GRJ/HRI TELIC 2004 dated 18 Nov 2004

5. **Maintenance of Numbers fit for Task in Theatre.**

a. Assessment: Medium and considered to be improving on current ops, no assessment available for TELIC 1[11]. However, it is too early to objectively assess improvement.

b. What is/has been done:

(1) Implementation of deployable Rehabilitation Teams.

(2) Enhanced dental support[12].

(3) Implementation of measures to prevent heat illness.

c. What needs doing:

(1) Data to objectively demonstrate effectiveness of last 2 measures.

(2) Process for identifying and returning to Theatre of those evacuated to the UK who is fit for deployment – one CO sent his RMO back to UK to recover those fit for operations[13].

(3) Processes to enable measurement during higher tempo operations.

(4) Introducing a patient tracking system in order to track patients, which will facilitate timely decisions on return to duty.

6. **Timely Treatment and Evacuation of Wounded.**

a. Assessment: Appears generally acceptable, but alleged inappropriate use of forward surgery unnecessarily lengthened evacuation times on TELIC 1[14].

b. What is/has being done:

(1) Commanders are now conscious of the 1-2-4 hour rule and either plan to meet it or to mitigate the adverse effects of not meeting the timeline[15]. All commanders on current operations considered evacuation was timely, although operations by the UK, Canada and US in Afghanistan pose significant challenges to meeting the timelines.

(2) Reviews of deaths show no evidence of death owing to delay in treatment or evacuation.

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[11] In response to Consultation Document, one RAF MO stated that one physio for one day per week and one RI per 2 weeks was inadequate, resulting in unnecessary loss of man-days.
[12] Based on experience of 2 PARA in Iraq, where co-located dental team reduced man-days lost from dental morbidity and enabled 2 PARA to return to UK virtually 100% dentally fit.
[13] 1 R Irish based at Fort George, Inverness, Scotland.
[14] This allegation is supported by US analysis of their Theater Trauma Registry data that demonstrated that inappropriate use of forward surgery was associated with worse outcomes.
[15] Operational maps seen by DG Med Op Cap on TELIC had timelines for evacuation by various forms of evacuation clearly marked.

(3) Place of forward surgery has been subject of a number of study days and evidence from operational planning in Afghanistan is that its place and limitations are now recognised.

c. Areas for improvement:

(1) No data available to enable direct measure of evacuation times (as is available to UK using Patient Tracking System) or to identify other potential adverse effects of delay in evacuation (other than death) such as infection rates (available to the US using a Trauma Registry System; a UK system provides some data). **Priority needs to be given to developing data collection, transmission, collation and analysis**.

(2) Better understanding required of advantages and disadvantages of forward surgery – evidence that this is occurring seen in Afghanistan.

7. **Ensuring Maximum Survival.**

a. Assessment: Appears excellent for those post-wounding, but no systemic data collection in a format that enables comparison with other nations[16]. No systematic collection of detailed data on effectiveness of body armour or vehicle design in preventing deaths.

b. What is/has been done

(1) Audit of those dying from injuries by Defence Consultant Adviser in Emergency Medicine.

(2) D Med Pol liaising with US on their protocols for better assessment of causes of death.

c. Areas for Improvement: More systematic approach to collecting data on those Killed in Action (KIA) in order to minimise future deaths. For example, US have briefed DG Med Op Cap on how they systematically analyse those KIA, including (for example) use of CAT scans of dead soldiers returned to the US, to inform both body armour and vehicle design.

8. **Minimising Residual Disability.**

a. There are significant influences on both time for and extent of recovery. Infection has a significant effect on both, and the presence of infection is influenced by a variety of factors, some understood and some not. Seeking to inappropriately save a leg that has to be subsequently amputated significantly extends the time to full residual function (and has significant adverse psychological impact) whilst inappropriately amputating a limb restricts the extent of recovery. The initial treatment of head injuries can have a disproportionate impact on time and extent of recovery. Identifying cause and effect is the main driver for advances in battlefield medicine.

b. Assessment.

[16] The US can demonstrate a Killed in Action rate of 12.5 – 12.6% compared to 20% in Vietnam and 20.2 in World War 2

(1) There is no assessment available of overall effect. The introduction of new procedures and equipment found to be effective by US troops and the emulation by individual specialities of advances identified in other nations, particularly USA, should be leading to improvement, but this cannot yet be objectively verified.

(2) Individual clinicians complain about lack of feed back from UK to Theatre on outcome on individual cases, thus precluding learning from experience.

c. What has/is being done: Early involvement of DMSRU in order to ensure rehabilitation and treatment are seamless.

d. Areas for improvement. Until a process is introduced that enables objective assessment, areas for improvement cannot be reliably identified. This adversely impacts on the development of equipment, individual skills and specialist requirements. The processes should be sufficiently responsive to enable:

(1) Required adjustments to be identified and effected in a timely manner within Theatre (Role 3 assessing Role 1 and 2 outcomes).

(2) Information flow between UK and Theatre (UK assessing deployed Theatre outcomes), perhaps based on a patient tracking system as in the US.

(3) Longer-term trends to be identified and evidence based proposals developed for changes to equipment, materiel, individual skills and organizations.

9. **Non-Medical Personnel Trained and Equipped.**

a. Assessment: Appears to be significantly improving, but objective evidence lacking.

b. What is/has been done: The introduction of advanced first aid training, new equipment (such as tourniquets) and paramedics. Data is being collected on use of new equipment whilst US data suggests that changes are having a significant impact.

c. Areas for Improvement. Based on US experience, better use of simulation is probably the only area where improvements could currently be made.

10. **Chain of Command Awareness of Capabilities of Medical Services.**

a. Assessment. Difficult to judge objectively, but awareness of clinical time-lines, understanding of clinical risk and awareness of capabilities appears to be higher than has been the case over the last few decades.

b. What is/has been done.

(1) Establishment of a SO1 Med at DCDC, and development of Medical Doctrinal publications.

(2) Clearer understanding of requirements through development of PJHQ Risk Registers.

c. Areas for Improvement. The trade-offs between air versus ground evacuation and between evacuation and treatment and between evacuation out of Theatre and maintaining force strengths could be better understood.

11. **Appropriate Quantity of Personnel and Equipment at Appropriate Readiness.**

a. Assessment. MOD has over a significant period failed to articulate the quantitative requirement for medical capability and personnel. This has resulted in "planning blight" in a number of personnel and equipment areas.

b. What is/has been done: The DG Med Op Cap project was specifically designed to address this shortcoming and PPSG endorsed the overall medical capability required and the personnel required to deliver it initially in June and the follow-on work in October 2006. However, achieving the required number of specialist staff, and in particular specialist nursing staff, will pose a number of challenges addressed in Para [ ].

c. Areas for improvement: Whilst PPSG has identified the overall numbers required, significant work is outstanding (and is being addressed) on the individual skill sets required and how these are obtained and practiced.

12. **Appropriate Equipment.**

a. Assessment:

(1) Over the last 10 years, the equipment requirement has been poorly articulated and addressed piecemeal in an incoherent and an inconsistent manner. There are many reasons for this including the inevitable disruption arising from a transfer from SG to DLO and DGAMS to DRLC, a lack of co-ordination of clinical input with over-reliance on individual clinicians views, the use of UORs and a lack of hospital planning and design expertise. Land based hospitals are too heavy and too large to meet the requirement of the forward elements of the battlefield and too primitive to provide the environment expected of a static hospital in a rear area. Conversely, the medial facility aboard ARGUS is modern and fully fit for purpose.

(2) There is also a lack of expertise and timeliness in planning and building appropriate deployed Tier 2 hospitals. For example, inadequate attention to sources of cross infection in the build of the Tier 2 facility in Iraq; and there was also a lack of timely forward planning of the provision of a CT Scanner for Afghanistan. This expertise was originally embedded in the Defence Work Service using civilians drawn from NHS Estates and was partially transferred to the Royal Engineer Specialist Teams. The expertise remains in part, but needs development.

b. What is/has been done:

(1) Quantities of surpluses arising from previous UORs have been identified.

(2) UORs continue to be successfully staffed to meet new requirements.

c. Areas for Improvement: A comprehensive review is required of the medical procurement cycle, concentrating on overall capability rather than individual items, is required to pull together means of planning, building and maintaining deployed Tier 2 facilities.

13. **Appropriately Clinically Trained Personnel.**

a. Assessment: Mixed, depending on cadre. Medical Officers by virtue of their professional ethos and historical funding of professional development seek to self-address any gaps. This is not so for other groups where it has become apparent that there is a gap between the experiences they get in the NHS and the operational requirement, for example Operating Department Practitioners who do not in the NHS have the opportunity to practice sterilisation or applying casts, both of which they are required to undertaken on operations.. Current approaches to addressing gaps is also based around single specialties instead of a multi-disciplinary team approach to skill gaps and enhancements, in large part as individuals in peace do not work as teams within the NHS.

b. What is/has been done. Over the last decade, there have been significant positive developments in enhancing skills of medical personnel providing pre-hospital care, and in formalising training required for surgeons.

c. Areas for Improvement. The area is a major aspect of the work of the DG Med Op Cap Clinical WG, but processes must be put in place to ensure that continuous improvement is institutionalised.

14. **Appropriately Military Trained Personnel.**

a. Assessment: Very good in Role 1 and 2 and Aeromed personnel, definite improvement in hospital based personnel.

b. What is/has being done: Reports by single Service and operational commanders indicate that annual military training is improving and those appearing for pre-deployment training have much improved military skills. Exceptions reported by Theatre and operational Commanders are those emerging from professional training whose Phase 1 Training was 2 to 3 years earlier without any military training during university.

c. Areas for improvement. Policies, processes and resources are in place and local compliance is the only area currently identified where improvement is required.

15. **Sustainment.**

a. Assessment: The system is widely believed by the user to be "broken". Repeated feed back from Theatre on shortages, out of date stocks, and write offs.

b. What is/has been done: An E2E review of medical logistics has being instigated and has now reported.

c. Areas for Improvement: The E2E Review has identified the many specific areas of improvement required. This should be integrated into a wider review of the medical procurement cycle.

16. **Maintenance of an Evidence Base.**

a. Assessment. Getting better but a long way to go.

b. What is/has been done. A vision for RCDM has been established, SG's Research Strategy has been established, Dstl has been commissioned to undertake a review of medical research within MOD, a modest research programme continues and a SO1 Mil Med has been established within DMSD.

c. Areas for Improvement. As with clinical skills, individual hospital specialists seek to identify relevant evidence but there is currently a lack of an adequate process for capturing and assessing developments of military relevance, particularly given the enormity of the task. For example, the US Army Medical Research and Materiel Command currently lists 250 research projects in its products portfolio[17], and there are lessons for clinical practice from both the US and Israeli Armed Forces and from other areas of civilian medicine which should be assessed for relevance to the UK Armed Forces.

17. **An Ability to Exploit the Evidence Base.**

a. Assessment. Fragmented and partial.

(1) Defence Consultant Advisers seek to identify clinical lessons for their own speciality, but there is no formal process for translating the outcome of research and the clinical results from current conflicts need assessing for their implications for individual skills, equipment, procedures, organization and military medical tactics.

(2) AMD Force Development is particularly active in seeking to identify future land medical structures in response to changes in the military environment but only addresses clinical issues at the macro level.

(3) The current processes for giving effect to required changes, such as implementing new skill sets, is unclear and takes too long.

b. What is/has been done. This has been one of the major areas requiring change because of the DG Med Op Cap Project. The DCDS (H) Top Structure Review should also bring coherence to this fragmented area.

c. Areas for Improvement: The lack of structures and processes to integrate evidence from the clinical arena, from the 3 single Service and civilian (NHS) environments is the key weakness in the DMS.

18. **A system of Audit Governance and Assurance.**

a. A process is required to ensure that the medical services are performing as required and as expected. This process needs to take account of local

[17] USAMRMC Products Portfolio Dated June 2005

factors, recognising that medical provision in Nepal will differ from that in Plymouth, that what is important to the DH is often of little relevance in the deployed environment (eg most waiting times) and that risk is an inherent part of military operations.

b. Assessment. Patchy. PJHQ have developed a Risk Register but this is not "bottom up", there is no comprehensive assessment of the clinical risk existing in deploying units, nor a system for communicating this to PJHQ on deployment. RCDM undertake a "gross error check" by assessing all deaths, classifying them as expected or unexpected. However, there is a universal recognition that this is an area where further developments are required.

c. What is/has been done. There has been significant investment by individual TLBs in developing processes and procedures for identifying and addressing risk. These started from a "Top Down" approach but have developed to the extent of being "middle up" and "middle down". The continuing involvement of DIA, at the separate invitations of SG, DGAMS and CJO is significantly advancing this process.

d. Areas for Improvement. The development of governance and assurance processes continues to develop with continuing support from DIA. As part of the DG Med Op Cap project, DIA have agreed to develop processes that enable risk to become a bottom up process, supported by a balanced approach to communicating and mitigating risk.

19. **Exploiting International Medical Resources.**

a. Assessment. There has been significant use of, and cooperation with, international medical resources. However, whilst there have been pre-use assessments of the quality of those medical resources upon which significant reliance is to be made, there has been a lack of any assessment of the actual quality of care provided. Where concerns have been expressed these have either been due to language difficulties or the standard of nursing care.

b. What is Being Done. The UK continues to be a major influence in NATO medical circles, in ABCA and has a significant number of contacts with medical institutions in the US. The UK/NL Amphibious task Force has for many years included an integrated medical unit, and the UK has led in developing a number of multi-national or bilateral medical facilities since the Balkans.

c. Areas for Improvement. Medical provision is increasingly regulated by legislation and/or explicit standards which differ between nations. Nations are however at different stages of medical development, with for example some making greater use of nurses and some a lot less whilst in a multi-national team not used to working together and dealing with an emergency situation, language difficulties can lead to failure. Thus, if multinational resources are to be harnessed they must be exercised prior to deployment if they are to form part of a multinational team and even then are only likely to be successful if from those nations (mainly NW European) whose medical provision is similar to that in the UK, such as the Netherlands. An alternative is for discrete capabilities (eg neurosurgery) to be provided by contributing nations.

20. **Humanitarian Assistance.**

a. The DMS is not resourced to provide support to civilians (other than MOD civilians) nor for humanitarian operations. However, significant intellectual investment is made by individual members of the DMS into supporting emergency humanitarian medical care. Uniformed and ex-uniformed personnel play a major part in the Society of Apothecaries Faculty of Conflict and Catastrophe Medicine, including its diploma, whilst medical units, sub-units and individuals have been involved in providing humanitarian care in a variety of situations over the last 15 years, including major deployments in Northern Iraq and Rwanda. Individual medical personnel also have significant personal contacts with individuals in various national and international organizations. However, these are not exploited by the Defence community.

b. Although the absence of a Med Planner was noted in the Diary of events of the DOC Operational Lesson Report on Op MATURIN, there was no reference to medical within the main report[18].

c. What needs doing. The part to be played by the DMS in humanitarian operations needs addressing, policy developed and practice aligned with that policy.

21. **Effective Command and Control.**

a. Assessment. Confused and fragmented.

b. What is being done. The Top Structure Study is intended to address Command and Control at the 2 Star level, and this should be followed by clarification of command and control functions further down. This study has also addressed aspects of medical Command and Control.

c. Areas for improvement. The DOC Audit on Logistic Command and Control referred to medical but there were not COS endorsed recommendations arising, even where weaknesses were identified[19]. Confirmation is required that the developing Joint Logistic Picture and Shared Situational Awareness meet the needs of medical command and control as well as ensuring that Commanders are provided with a meaningful medical picture.

[18] DOC Operational Lessons Report 2/06 Op MATURIN
[19] For example, DOC Audit 7B/05 Logistic Command and Control noted at Para 105 that that medical operations and personnel planning appears to be somewhat disconnected from the DCMO process.

PART 4 - RESOURCES

EQUIPMENT

401. The current position on medical materiel held is unclear. A stocktake of medical holdings has shown that there are both significant surpluses and deficiencies of medical equipment[20], but some surpluses are in fact equipments procured via UOR action but not incorporated into scales whilst the stocktake concentrated on modules, and thus hide individual deficiencies within modules. There is thus lack of a firm baseline from which to plan change.

402. The desired holdings are also unclear. The work that underpinned the PPSG papers on manpower has reduced battle casualty estimates, but with some increase in non-battle casualty rates. Setting a new requirement is further complicated by some scales having to be based on available lift rather than on expected casualty rates. For non-battle casualties, no patient consumption data is available with only data on issues being available. For a variety of reasons, much stock issued to Theatres has a short shelf life, is thus discarded prior to issue to patients, and cannot be relied upon for determining usage. Further issues include the lack of limited strategic stockpiles to meet the directed DSG sustainment policy; fragility of the MedLoc; continuing utilization by deployed Units of non-contemporary modules; inability to keep pace with the introduction of new medical technologies; a perception of a disparate and dysfunctional system; inability to maintain a temperature controlled supply chain and (controversially) the lack of accountability in ensuring that medical equipment capability is maintained and sustained[21]. Indeed, the use of modules for re-supply is questionable. These were designed for high casualty rates where wastage was a necessary side effect of ensuring sufficiency, but in today's low casualty rate environment single supply items might be more appropriate.

403. Advances in medical technology are probably outpacing any other technological advances. This is reflected in major developments in the equipment available for both diagnosis and treatment which owing to the huge increase in global expenditure on health are rapidly exploited commercially. This provides significant opportunity as the ability to make accurate diagnosis in the military environment is enhanced as lighter, more compact, more capable equipment becomes available. However, seeking to remain abreast of medical technology is expensive, provides poor value for money, particularly where equipment is bought to be stockpiled and then replaced before being used. Further, there are risks inherent in introducing equipment that is not fully compatible with the military environment or sustainable. The latter is a particular problem with both the UK (GIAT containerised operating Theatre) and the US (CAT scanners) finding that state of the art equipment was pone to major failures.

404. When considering the extent to which the DMS should seek to keep abreast of modern technology, and the related issue of whether equipment should be stockpiled or procured when needed, a number of factors need to be taken into account. Although the DMS is small in relation to the NHS, the usage of certain commodities outstrips that of the NHS, for example, the deployment to the Falklands in 1982 required the whole of the civilian stockpile of the then new fluid haemacel.

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[20] DMSD/5/6 dated 21 Feb 06
[21] DG Med Op Cap Org WG Issue Note 2 "Operational (Medical) Equipment Capability.

Frequently there is also only one global manufacturer. In 1990 whilst the UK was debating whether to procure a special splint (the Hare splint), the US Marines procured the World's supply rendering the discussion pointless. Therefore a balance needs to be struck between stockpiling which will "build in" obsolescence but is clearly better than having no equipment and waiting until just in time. Currently, the MOD appears not to have a coherent system with equipment stockpiled and UORs used to obtain the most modern equipment which is then not incorporated post-conflict into scales, is without a sustainment plan but is retained rather than disposed.

405. There is also a tension between equipment and equipment scales required for entry operations and for manoeuvre and that required on mature operations[22]. Equipment required for entry and manoeuvre needs to have similar characteristics to other military specific equipment and must balance breadth of materiel against logistic constraints of such operations. In some cases, military necessity will require clinical compromise that is unacceptable in ordinary circumstances. However, once transition to mature operations is required, different considerations apply. Various medical personnel made the point that operational scales of equipment are inappropriate in mature operations and that specific scales should be developed.

406. The lack of appropriate formal scales leads to over-use of UORs and to the procurement of equipment based on individual rather than organizational need[23]. This appears to be in large part to the disappearance of a formal process, which existed up until DCS 15, which used senior clinicians within the medical staff chain in liaison with medical supply and operational medical staff to assess requests for non-established equipment. This addressed utility in the clinical environment, compatibly with other equipment and the military environment, and provision of appropriate training for technicians and for other clinicians who might use the equipment in future. The lack of such a process has led to a surplus of equipment in Theatre which is clearly as waste of financial and manpower resources.

407. MDSS. Equipment maintenance (Including calibration and repair) is undertaken by uniformed technicians from non-medical branches. In the civilian environment, the variety and complexity of medical equipment has led to a trend of moving from in-house maintenance to maintenance provided by the manufacturer. This is not possible in the deployed environment, at least for entry of manoeuvre operations, but seeking to train uniformed technicians to be masters of all is probably an unrealistic goal, even for Regulars and is unattainable for Reservists. The Med IPT does arrange a Pre-Deployment Operational Equipment Support Course but those deploying on TELIC 7 still lacked manufacturer delivered training on 3 major pieces of equipment[24]. The way forward is probably to acknowledge that equipment used in the non-deployed and mature Theatre should be maintained by the manufacturer (either on-site or via temporary replacements where feasible) with uniformed technicians trained to support that equipment for which civilian provision is unachievable. Even this policy will provide a challenge as at least an element of deployable medical equipment will not be used in peace, making experience and training of the uniformed technicians difficult

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[22] Para 5e, Annex A to 2nd Med Bde/3050 dated 24 Jan 06
[23] DCA(A)250/09 dated 2 Feb 06 refers to unnecessary equipment procured on the basis of individual preference.
[24] Para 8, Annex A, 2nd Med Bde/3056 dated 24 Jan 06

408. Summary. The medical equipment area lacks a baseline, there is a lack of clarity over what is held, what should be held, how that which is to be held is packaged (modules versus single items), and how challenges inherent in today's medical environment can be met. The main end user, individual clinicians, identified equipment issues as one of their highest priority for addressing[25]. **Recommendation 1: As a matter of urgency a holistic review of DMS equipment strategy, policy, procurement, maintenance and sustainment and disposal policy is required that subsumes the E2E review of medical logistics.**

REGULAR MANPOWER

409. The overall manpower requirement has been addressed in two PPSG papers, and **(Recommendation 2:) the endorsed PPSG recommendations (listed in full in Part 6) need taking forward,** notably:

a. Rebalancing the established liability and the workforce to align with the PPSG endorsed requirement[26] [27].

b. Increasing the return of service of medical officers following specialist training. In the extreme case, a maxillo-facial surgeon can undertake specialist training lasting 14 years and then provide only 3 years return of service during which the majority of time is spent within the NHS (although this attracts receipts to MOD).

410. Achieving the PPSG endorsed numbers will however pose a number of resource challenges. A number of these are outside the scope of the DG Med Op Cap project, including recruiting, retention, pay and conditions of service. Others with resource implications include:

a. Addressing the age/experience profile. In healthcare, generally "old is best" particularly in military medicine where many conditions or injuries are only seen on operations. The outflow that occurred after DCS 15 followed by the recent recovery in recruiting has led to a relatively young workforce and action is required to retain a significant proportion of this whilst preventing a "black hole" developing behind it.

b. The PPSG paper has articulated a requirement for significant numbers of specialist Emergency Medicine and Intensive Therapy Units nurses. The requirement is justified but there is a question over the realism of the numbers required. Volunteers are required, training places have to be found and placements for those qualified found to maintain skills identified in NHS units. The placements must be arranged so that the NHS does not rely on the uniformed specialist nurses as otherwise extraction for operations and training will become difficult.

411. Identifying the net cost of uniformed personnel embedded within the NHS, who pays for the time given by the uniformed personnel, so that the budgetary implications of manpower decisions can be accurately assessed, is a key enabler in identifying the resource implications of implementation. The Director of Economic

[25] DMSD 32/01 dated 10 Feb 06 – Combined WGs - Cross Cutting Issues
[26] RP-02-07 dated 26 Jun 06 and DMSD/32.12 dated 5 Jun 06.
[27] RP-02-07-03 dated 20 December 2006 and DMSD/32.12 dated 18 Oct 06.

Affairs has agreed to scope taking this forward[28]. **Recommendation 3: The net worth of DMS personnel working in the NHS needs to be determined.** Implications of Health Sector Reform pose both threats and opportunities. The Government is seeking to shorten medical training and focus it on the needs of the NHS with power being shifted from independent Royal Colleges to a variety of statutory bodies divorced from the Royal Colleges. It is also seeking to remove the sharp distinction between the various health professions where this is seen as beneficial to the care of patients. In some respects, the boundary changes reflect current practice in the Armed Forces where nurses and MAs have for long undertaken duties previously undertaken by doctors. However, the NHS changes do prompt the question as to whether the Armed Forces should be more radical, for example, substituting nurses or North American style Physician Assistants for a proportion of doctors in primary care. This is the practice long adopted by the USA and recently by Canada. Another example is the use of Nurse Anaesthetists by the USA (and successfully used by them to man forward deploying units) and by the Netherlands. The stimulus for this change was shortage of doctors, but appears to have been effected with no apparent adverse impact on quality of care. The NHS is also experimenting with Physician Assistants and with the equivalent of Nurse Anaesthetists[29]. The USA has indicated a willingness to assist in the introduction of Physician Assistants and Nurse Anaesthetists should the UK wish to follow this pathway. Training Nurse Anaesthetists and Physician Assistants would incur a significant training bill. **Recommendation 4: DMSD needs to develop a liaison with NHS manpower planners in order to identify which initiatives have potential value for the DMS,** and **Recommendation 5: DMSD should explore the potential for Nurse Anaesthetists (or equivalent) and Physician Assistants.**

412. For medical specialists, the expected shortening of civilian training will enable the DMS to produce an individual suitable for placement in the NHS in a shorter time for less expense. However, the narrower training focused on the needs of the NHS will in many cases not meet the needs of the operational Theatre where the requirement is for generalists with a broad skills base capable of addressing conditions rarely seen in civilian practice in the UK[30]. This trend is exacerbated in the surgical specialities by the increasing use of minimally invasive surgical techniques that are unsuitable for battle casualties. There are 2 options to address the specific military needs. Through negotiation at Departmental level or negotiation with the relevant statutory body a specific scheme of training could be developed for military medical personnel. The alternative is to train first for the NHS, where in any case personnel when not deployed must be employed, with additional "post (specialist) accreditation" training undertaken under the auspices of the Defence Postgraduate Military Dean (DPMD) to meet the requirements of the military. The latter approach is considered the more flexible, more easily implemented and will enable MOD to control the costs of the programme. **Recommendation 6: It is recommended that DPMD initiates work to identify and cost the additional military training required to make military medical personnel "fit for purpose" following implementation of the Governments new specialist-training programme.**

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[28] D/EA/1/18/3 dated 31 August 2005

[29] The NHS will look to candidates with a biomedical science degree rather than nurses in order not to have to recruit from specialist nurses that are already in short supply.

[30] Meeting with Chairmen of the then statutory surgical Specialist Advisory Groups in Main Building 15 Feb 2006

413. A subsidiary issue is the rank of specialists on accreditation. There is an argument that promotion to OF4 which currently occurs on accreditation as a Consultant should in future be linked to completion of the post accreditation training when the specialist is fit both for his role in the NHS and in the military. **Recommendation 7: It is recommended that promotion to OF4 should in the future be linked to being "fit for purpose" as a military specialist instead of the point when accreditation as a civilian specialist is achieved.**

414. The civilian nursing changes are, from the military perspective, less revolutionary and in many cases replicate in the civilian sector practices that have for a number of decades being practiced in the military sector. In the Army, for example, Regimental Nursing Officers in Northern Ireland undertook diagnosis, prescribing and dispensing. However, the extension of nursing practice has been accompanied by underpinning legislation which set out conditions and limitation on that practice. When the area was "legislation free" the DMS set their own policy, only having to satisfy professional bodies that the policy was safe. Now that the area falls within the scope of legislation, the DMS has to take it into account. Whilst on the one hand this has ensured, for example, that full account is taken of the training needs of those undertaking extended practice it has also limited this practice. Whilst the legislation does not usually bind the Armed Forces when deployed, failure to comply with legislation is unsettling for healthcare professionals, can preclude doing in peace that which needs to be done on operations, has an effect in some areas of peacetime care, particularly in isolated Stations and Garrisons and may be used to support allegations of negligence. It is thus essential that MOD makes itself aware of impending legislation and Statutory Regulations that may impact on military medical practice and where appropriate seeks amendment. In fact, this is what DMSD seeks to do, but is dependant on the DH for bringing impending legislation to its attention. **Recommendation 8: The need to keep abreast of NHS legislation reinforces the argument for having a permanent presence in the DH.**

415. The various other health professional groups are also undergoing significant change. Unfortunately, some of this change is anarchic, with local employers or groups of employers taking different approaches. A good example is support within surgical operating theatres where some areas continue with the Theatre Nurses and the Operating Department Practitioners whilst others are starting to develop a specific Theatre Practitioner that incorporates both roles. The DMS is theoretically free to similarly decide which approach is best for it, but has to take account of the need to embed its trained personnel in the NHS to maintain experience between deployments. **Recommendation 9: DMETA needs to proactively engage with MDHU Host NHS Trusts to identify changes in working practices that may impact on the employability of uniformed personnel.**

416. The lack of recognised civilian qualifications for Regular Medical Assistants continues to be a source of dissatisfaction and mentioned by a number in response to the Consultation Document. Over the decades, attempts have been made to provide civilian qualifications (eg City & Guilds of London Certificate) but all have failed due to one simple fact – there has so far being no appetite in the NHS for employing the equivalent of an MA, and without such a requirement there will be no appropriate ***recognised*** qualification. The advent of the registered paramedic provides an opportunity for some MAs, as may the increase of nursing auxiliaries (similar to DMS Health Care Assistants). However, whilst there is overlap between MAs and these NHS employment groups, they are not the same. No

recommendation is made in this area – the situation will only be resolved when the NHS (or a significant element of the non-NHS sector) starts to employ an individual similar to a MA.

417. The various changes all have a potential impact on pay and terms and conditions of Service. Therefore their needs to be a regular review of civilian developments, probably integrated into the AFPRB timetable. **Recommendation 10: The workforce implication of changes needs to be monitored and regularly assessed by DMSD.**

RESERVE MANPOWER

418. The impact of changes in civilian manpower is having a significant adverse impact on the utility of the Reserve Forces.

419. The current trend in healthcare is that all those responsible for the care of patients should have some form of accreditation. Within the Regular DMS, the position of MAs is only tenable owing to the significant investment in their medical training. Even if the financial resources were there, time precludes the extension of this training to the Reserves. The utility of non-healthcare personnel within the medical Reserve Forces might be extended by spreading the skills across a team which reduces flexibility or by using them for non-patient care tasks which is unattractive to potential recruits. The conclusion must be that those with a non-healthcare background will have reducing utility. The healthcare environment is however expanding, particularly in areas such as elderly care that utilises healthcare assistants whilst the number of nurses qualifying (although not necessarily in practice) is increasing. **Recommendation 11: Work should therefore be put in hand to scope alternatives to the current Reserve MA.**

420. The narrower training of medical specialists and increased use of techniques such as minimally invasive surgery discussed above in relation to Regular clinicians equally applies to Reserves except that the opportunity to use post accreditation training to make them fit for purpose is unlikely to be practical other than for a small number of enthusiastic Reservists. This can however be mitigated by only employing those Reservists with narrow competencies at Large Scale and accepting that in the Rear Hospitals where reservists will be found there will be a need to provide the usual range of sub-specialists found in civilian hospitals, reinforced by Regular (or ex Regular) Consultants with the necessary experience of the deployed military clinical environment. This should be taken account of in the follow on work to the PPSG paper on Regular DMS personnel, which will address the Reserves. **Recommendation 12: The potential decreased utility of Reserve specialists in forward units should be noted, as well as the need for a wider range of specialists in rear hospitals, when addressing the size of the medical volunteer reserves.**

421. Regular Reserve. Many of those DMS specialist personnel that left in the late 90s did so out of disenchantment, believing that the Armed Forces had changed to an extent that they no longer associated with them and in many cases they were also subject to a mandatory 18 month notice period owing to the impact of PVR. There has thus been a reluctance to use the Regular Reserve as they have been felt to be a disruptive influence. However, this does not apply to those that have left more recently and **Recommendation 13: it is considered that an active strategy**

should be developed to involve the Regular Reserve with a view to making greater use of them on operations.

REPUTATION

422. There has always been a close relationship between in particular the military medical and nursing professions and civilian medical and nursing establishments with the civilian bodies taking an interest in, and sometimes having responsibility for, the military medical services. Almost all health professionals are members of Royal Colleges or similar bodies; Royal Colleges have long supported military medical training and practice and senior specialist military medical personnel were heavily involved in the business of the Colleges. The British Medical Association (BMA) has also had an interest in the quality of Armed Forces Medical Care but as a trade union has acted on behalf of uniformed medical officers in discussions on terms and conditions of service and has also acted for the Government (during World War 2) as "the officially authorised instrument for recruiting medical officers in time of war" managing the conflicting demands of the 3 Services and the civilian emergency medical services[31].

423. Whilst the power of the Royal Colleges (and similar bodies for the other health profession) has decreased in respect of controlling training, they are still the arbiters of taste in respect of reputation. In the mid 1960s the advice of the BMA that doctors should not apply for commissioning in the Armed Forces left a black hole that has just disappeared whilst the combination of the ending of in-house training of physiotherapists and the recommendation of their professional body that physiotherapists should not join the Armed Forces until the profession was appropriately recognised as a wholly commissioned service eventually forced MOD to make physiotherapy a wholly commissioned service.

424. Therefore, it is essential that the DMS retain the confidence and support of the Royal Colleges and associated bodies. This requires constructive engagement with these bodies at all levels. With the increasing number of Medical Support Officers, it is also necessary to ensure that this group also develops an association with an appropriate professional organization such as the Institute of Healthcare Management. **Recommendation 14: it is recommended that an active policy is required that promotes, supports and exploits the involvement of healthcare professionals with professional bodies.**

425. Engagement with professional healthcare bodies will enhance the reputation amongst our own health professionals as well as the civilian health community. It will not however have a direct effect on those uniformed personnel that are the patients and potential patients of the DMS. Current indications from operational Theatres are that the reputation of the deployed DMS remains extremely high. Confidence in NHS hospital care, particularly in support of operations, is low and as the DMS is considered responsible for the arrangements, this is adversely affecting reputation with both uniformed personnel and the general public. The potential upheavals in the NHS as it seeks to move away from a hospital led and delivered service to one led and based in the wider community may exacerbate, at least temporarily and probably unfairly, the reputation of the DMS. The increasing disparity

[31] Medical History of the Second World War, Army medical Services, Administration, Volume 1, HMSO 1953

between enhanced civilian primary healthcare facilities and the majority (but not all) of DMS primary care facilities is also affecting reputation. Most of the reputation issues are not directly the responsibility of DG Med Op Cap, but they are included here as they have a significant impact on the standing of the deployed medical services and thus the confidence of Armed Forces personnel that they will be appropriately treated when injured.

HUMANITARIAN SUPPORT

426. Current policy is that humanitarian support is provided from within resources. This, for the medical services, is a regression from the situation that existed until the 1990s. Paediatric and obstetric medical modules existed to provide a minimum of equipment to enable adult clinicians in the Cold War era to provide life saving treatment to children and pregnant mothers. STOCKPILE REX also included medical packs, conforming to the World Medical Organization's recommendation for such packs for disaster relief/humanitarian situations and which were also used (though not entirely appropriate) for SAE/SPE operations. No audit trail could be identified as to when or why this provision was discontinued, and almost all operations since 1991 have included children. Clinicians cannot understand why equipment essential to the treatment of patients that are presented to them appear (from their perspective) to be withheld. The lack of such equipment is held by many clinicians to be immoral, unethical and incompatible with the traditions of the Armed Forces Medical Services. **Recommendation 15: As a minimum, medical equipment should be introduced as a matter of urgency which enables adult clinicians to treat children and pregnant mothers.**

427. Providing support over and above this minimum from within the uniformed DMS will be difficult, if not impossible, as modern paediatric and obstetric services are expensive, rely on a whole variety of medical and nursing sub-specialities, and in many cases will require follow up not feasible after UK Forces depart an area. This issue is currently being examined by COMEDs and further review should await the outcome of NATO work. Perhaps the pragmatic way forward may be to develop a partnership with the British Red Cross Society or similar organization(s).

PART 5 – ENABLING PROCESSES

DATA COLLECTION

501. The major gap in medical operational capability is data. This varies from the most basic (numbers injured or ill) required for political and media purposes, through the systematic collection of data that enables calculation of Killed in Action, Died of Wounds, and Case Mortality Rate, to the more sophisticated data that is required to asses the quality of care and which can be used for detailed planning of medical resources, for example Intensive Care Activity data. Individuals collect data, but these samples are not necessarily representative of the overall Theatre experience whilst they do not necessarily follow standard definitions and cannot thus be used for comparison purposes. This is not a uniquely UK experience and a recent US paper states "the need to bring combat casualty epidemiology to a civilian standard requires utilisation of both technology and organization that are routinely used in the United States civilian trauma community[32]. A similar point was made by the Defence Consultant Adviser in Anaesthetists who found that in Theatre there were for the Intensive Care Unit a total of 7 separate spreadsheets of data being used, each of minimal utility, instead of utilising the ICU collection data programmes used in UK.[33]. The USA have recently rapidly introduced a Theatre Registry, which is one used by all civilian trauma centres in the USA with minor modifications for military use. They are retrospectively entering casualty data into it, as well as prospectively entering new data. This data has enabled meaningful analysis of US casualty data, and identified equipment and procedural deficiencies which when addressed has improved outcomes, for example addressing hypothermia, the wearing of nomex gloves, lengthening of needles used to drain air from the lungs and also points to where research is required. Through linkage to other non-medical databases, insights are being provided that potentially should lead to prevention measures[34].

502. The US work on data collection has been complemented by introducing a Theatre Trauma System, which is supported by a Trauma Director in Theatre HQs (which replicates UK practice up to 1989 when all major Theatres had a Surgical Director) and nurses that ensure consistent data collection from Role 2, Role 3 and Aeromedical evacuation resources. UK has recently deployed trauma nurses to collect some specific data, but not as comprehensively as the US and mainly limited to assessing pre-hospital and emergency room care.

503. In the UK, DMICP will go some way to addressing data shortfall, but the US report that the equivalent system in the US has not addressed secondary care requirements and they do not see it doing so in the near future. **Recommendation 16: Consideration should be given to introducing the US Trauma Registry System, a COTS product, into operational Theatres as soon as possible** and in addition, **Recommendation 17: consideration should be given to integrating elements of the UK in-Theatre system with that of the US.**

504. Use of the US Joint Trauma Registry will facilitate comparison of UK with US data. However, significant insights would be obtained by developing a combined

[32] The Journal of Trauma, Understanding Combat Casualty care Statistics, Feb 2006 Vol 60, No 2 Pages 397 – 401.
[33] DCA(A)250/09 dated 2 Feb 06
[34] Institute of Surgical Research Briefing to SG on 30 Oct 06

database. This poses security and data protection challenges but nevertheless **Recommendation 18: It is recommended that the potential for developing a combined database be explored.**

505. **Recommendation 19: DASA and DG Healthcare must be involved in any work to acquire data to ensure coherence and consistency with the UK's data collection structure and data collection from NHS episodes of care.**

PERSONNEL MANAGEMENT

506. A significant proportion of the DMS is employed, when not deployed, in the Central TLB, in DMSD, DMETA and the DDS and increasingly individuals are managed by or subject to significant influence by tri-Service authorities or organizations. A large and increasing proportion of specialist training is under the control and direction of the tri-Service Defence Medical Services Dean, with the recent PPSG paper giving him additional responsibilities for the smaller specialist cadres. The manning of Role 3 facilities is in large part managed by the DMSD sponsored Operational Medical Personnel Committee whose role will also expand as a result of the PPSG decision to make hospital based support to mature Theatres a joint responsibility. This increased reliance on Joint management is likely to highlight the various inconsistencies and weaknesses in personnel management processes. Thus:

a. A significant number of secondary care personnel are held on single Service establishments and work in the NHS independently of DMETA. The reason is historic as DMETA's predecessor declined to take responsibility for any clinician who could not be normally guaranteed for 44 weeks per annum NHS commitment, thus high readiness personnel were excluded. **Recommendation 20: DMETA should be responsible for arranging all secondments in the NHS.**

b. Unlike most of the rest of the Armed Forces, Medical FETS are amended on a tour-by-tour basis precluding long term planning. DG Med Op Cap invited CO 1 CS Med Regt to consider how he would have achieved his mission were he to have deployed with his CS Med Regt DI establishment instead of the FET evolved over time. He reported[35] that using his formal establishment would have provided a much higher level of medical capability although he would have required 8 non-established reinforcements[36]. The CO's view was supported by HQ UK Med Group[37] who also pointed out that FETs rapidly became out of date as the tactical situation on the ground changes. The same point was made by HQ 2nd Med Bde[38] , and particularly where Role 3 personnel come from a variety of Regular and Reserve units, a firm basis of endorsed and understood establishments is required to enable appropriate and relevant pre-deployment training, although there should be some flexibility to tailor FETS to meet changing operational conditions, **Recommendation 21: FETS should normally be based on endorsed establishments, or in the absence of formalised**

[35] CO 1 CS Med Regt G31197 dated 2 Dec 05
[36] Additional formed capability, 1 Deployable Rehabilitation Team, Field Mental health Team and Dental Teams would be additional.
[37] HQ UK Med Gp OP TELIC 7 G31220 dated 12 Dec 05
[38] HQ 2nd Med Bde 3056 dated 24 Jan 06

establishments, using the structures that informed the PPSG paper on DMS operational manpower.

c. There is a tension between the various stakeholders. The single Services wish to have their clinicians whenever required. DMETA needs to maintain the goodwill of the NHS Host Trusts and secure its NHS receipts. The military population in some cases rely on uniformed specialists within the NHS to provide care (for example the uniformed orthopaedic surgeon in Frimley Park and MDHU (N)) carry a significant military clinical workload as their interests and sub-speciality matches the needs of the military population). CGRM highlighted[39] the impact of the lack of availability of clinicians for 3 Cdo Bde which contrasts to the situation in 16 CS Med Regt where commanders own and use their clinicians for a variety of military medical tasks. Clinicians are divided on the issue with most medical specialists appearing to favour returning ownership to the single Services[40] [41] but the numerically much larger number of nurses wish to remain with DMETA. However, nurses also feel that they are too divorced from their Service and feel too embedded in the NHS. Unfortunately, the issue has focused on "ownership" which is not the core issue as regardless of ownership there is a need to reconcile the conflicting demands of the host NHS Trust, the single Service medical service, the uniformed patient and the individual clinician. It is in the interests of all stakeholders to achieve a sensible balance, as all will suffer in the event of imbalance. **Recommendation 22: A fundamental review is required of the management of hospital-based personnel and a process developed to give effect to the outcome, recognising in particular DMETA's responsibility for manning placement within the NHS, the single Services' responsibility for delivering an effective deployable medical service and the needs and desires of medical staff and patients.**

507. This recommendation should not be allowed to delay the development by DMETA of a single unified establishment which will be required regardless of the outcome of any review. Even if it is concluded that personnel are best established on their operational units but employed in peace by DMETA, other than for Large Scale (when all available personnel resources would be required), DMETA would have to manage the release of personnel from MDHUs. This is particularly so during under-manning and will remain so even after numerical balance is achieved as it will be many years before the large number of junior medical staff have progressed through to become medical or nursing specialists. Thus, DMETA needs to become, and be accepted as, a partner in the operational capability process. The *Next Steps* process has led to a customer and provider relationship that is unhealthy. There has been a tendency for the customer to expect DMETA to provide regardless of implications and for DMETA to restrict itself to the functions laid down in its formal Agency documentation. This is changing, on both sides, but not quickly enough. An example of the impact of this on operational personnel is the observation in respect of specialist nursing personnel made by both DG Med Op Cap and the HQ 2nd Med Bde team that visited Theatre[42] that a number of specialist nurses, which are in

[39] DG Med Op Cap 32/05 dated 2 Dec 05 – raised by Maj-Gen Dutton during DG Med Op Cap visit to TELIC
[40] Extract from script given in Jun 03 at PJHQ Post-Op meeting at PJHQ.
[41] DG Med Op Cap 32/05 02 December 2005, summary of points raised by clinicians on visit to TELIC.
[42] Para 3a, Annex A to 2 Med Bde/3056 dated 24 Jan 06

critically short supply, could be safely substituted by those with appropriate experience but who do not have the qualification. Given the manning situation, reducing the use of specialist nurses is in MOD's long-term interests. However, neither the single Services nor MOD[43] has the experience to undertake a sensible risk assessment. Such experience as there is, resides in DMETA who is also the provider and whose arguments that less will suffice is eyed with suspicion.
Recommendation 23: A process and change of culture is required that draws DMETA into the operational capability decision-making process as an equal partner.

INDIVIDUAL TRAINING

508. In general, all 3 Services are content with the military training received by Regular personnel on commissioning or enlistment. The one area of dissatisfaction is that for Other Ranks undergoing university education (mainly as nurses) the gap between Phase 1 military training and joining their first unit 2 to 3 years later results in knowledge and skills gained during Phase 1 being lost. Even on joining their first unit, priority is normally given to developing the practical aspects of their clinical skills and operational commanders complain that on first deployment they are not militarily "fit for purpose". There are 3 options for overcoming this. Option 1, delaying Phase 1 training until after completion of their initial clinical training, as is the case for medical cadets; Option 2, providing top up training during their University Course; or Option 3 a formal period of top up training at the end of their course. The first option is dismissed, as it is believed that the period of Phase 1 training is in part responsible for the high success rate (compared to civilian students) of military students.

509. It has been argued that Option 2 is appropriate for those on a University Course as DMS students unlike other students are on a salary for the whole of their period of training and have other financial advantages those results in them not having to work during their spare time. However, placements at satellite hospitals and in the community as well as working some shifts may make implementation of this option impractical. However, both this Option and Option 3 should be explored.
Recommendation 24: DMETA, in conjunction with the single Services, should scope how the military skills of those undertaking long university courses can be reinforced prior to joining the trained strength.

510. Clinical skills are maintained via employment in appropriate clinical posts. Within the secondary care area, an assumption on the closure of Service hospitals was that the NHS would provide clinical experience that was appropriate in the military environment. Whilst this is indeed the case in many areas, a number of significant gaps have materialised. The 2 Med Bde visit report from Theatre made 6 references to this gap in its report[44] , and has been recognised by the individuals themselves in DMS Continuous Attitude Survey Reports[45] and in responses to the Consultation Document. In almost all cases, these arise from the increasing tendency in the NHS to specialisation. The issue is particularly apparent in the technical grades, such as laboratory technicians and Operating Department Practitioners (ODPs). An example is the responsibility that ODPs have in the field

[43] The establishment of an OF5 Nurse in DMSD in Oct 06 will alleviate this in part.
[44] Annex A to 2 Med Bde/3056 dated 24 Jan 06 Paras 3g(4), 4d, 4f, 10, 14 and 14c.
[45] DMS Continuous Attitude Survey 2006, ORC International, Sep 2006; "53% of respondents feel their current opportunities for Clinical/Professional training/education in their operational role have been sufficient and 51% feel their opportunities for Military training/education have been sufficient.

for sterilisation which in the NHS is undertaken by those specifically trained in these duties. Host NHS Trusts do not feel it appropriate to employ the more expensive ODPs in such a role and this applies equally to military ODPs for which the Host NHS pays. However, the attitude of Host NHS Trusts is not the major issue. It is instead a process issue. DMETA had expected the single Services to articulate a detailed Operational Performance Statement (OPS) which they will then scope and seek to meet. Unfortunately, the single Services no longer have the expertise to develop detailed OPSs as almost all personnel with the appropriate expertise reside within DMETA! As part of the DG Med Op Cap Project, DMETA volunteered[46] to take the lead in developing appropriate Statements of Requirement.
Recommendation 25: The DMETA initiative in coordinating Operational Performance Statements in conjunction with the single Services needs to be developed into a formal process.

511. Recommendation 26: The process then needs to be applied to all cadres to identify and document the clinical skills required on operations. DMETA must then address for those embedded in the NHS how such skills can be sustained in between deployments.

512. The Training WG also recommended that single Service Training Analysis assets should be centralised under DMETA or DMSD[47]. Although this has significant attraction, particularly in the absence of single Service expertise in many of the areas, the experience of the formation of the DMETA's predecessor organization (DMTO) suggests caution. The Army and RN transferred their Training and Development Team (TDT) assets to DMTO without any mechanism to ensure that their single Service needs would continue to be met or given an appropriate priority and, for example, AMD has had to re-establish a TDT using temporary manning authority. Therefore, any centralisation must be accompanied by the setting up of a process that enables single Service requirements to be taken onto account and which protects the transferred resources from being "asset stripped".
Recommendation 27: Consideration should be given to centralising (either functionally or virtually) TDT assets, together with a process that protects single Service interests.

513. A separate issue is the clinical training for those clinical staff that work full time in Cadre units (mainly Field Hospitals) where there is no formal policy or procedures for maintaining clinical competency. In practice, the problem is primarily with junior, inexperienced staff. More senior and experienced staff make their own arrangements via a variety of mechanisms and whilst junior staff recognise their deficits, they do not have the knowledge, experience, autonomy or confidence to make their own arrangements for maintaining clinical currency[48]. **Recommendation 28: A system needs to be developed that ensures that all clinical staff, and in particular junior staff, in non-clinical posts receive appropriate clinical experience.** The onus should perhaps be placed upon Commanding Officers, as the experience of the senior staff indicates that local solutions are usually possible and favoured.

[46] DG Med Op Cap Trg WG – Issue Paper WG/4 Operational Performance Statements
[47] DG Med Op Cap Trg WG Issue Paper WG/2 "Intelligent Analysis".
[48] DCA(A)250/09 dated 2 Feb 06

514. Hitherto, sustaining skills for medical specialists (surgeons and physicians) has not posed a significant challenge. However, a number of threats have emerged over recent years. In surgery, there has been increased specialisation and increased use of technologies that are currently inappropriate on the battlefield, such as minimally invasive surgery. This has been countered in part by bespoke course (undertaken in conjunction with the Royal College of Surgeons and the USA's military medical University) and training in the Republic of South Africa, but this does not address the needs of the non-surgeons on a surgical team. The increased specialisation in general medicine was offset to an extent by the Royal College of Physicians insisting on the re-introduction of more generalist modules during specialist training. However, it appears that this will be reversed and the situation in surgery exacerbated by the Government's move to shorter, more specialised training (called Modernising Medical Careers or MMC) that will better meet the needs of the NHS. Changes in working practices make it extremely expensive to train the increasingly large numbers of specialist required to be master of all trades and therefore more focused training is being introduced. The DMS has 2 options to address this trend. They can either expand the specialist workforce, deploying a number of specialists where currently only one is deployed, or accept that military specialists will require additional top up training. The impact of MMC plus a post-accreditation fellowship should be cost neutral, lead to a military specialist better fitted for role and might even provide military trained specialists an advantage over civilians that will assist DMETA in placing them in NHS Trusts. **Recommendation 29: As specialist training involves a variety of bodies, both statutory and non-statutory, the overall direction on future military specialist training should be taken forward by DMSD in the first instance. Recommendation 30: The desired outcome must be a process for training specialists that meets both the needs of the NHS, where specialists must work when not deployed, and of the Armed Forces.**

515. General Duties Medical Officers (GDMOs). There has for over 15 years been a debate as to the suitability and safety of newly qualified medical officers to provide unsupervised care to deployed troops. On the one hand it appears counter-intuitive to use those without post-graduate qualifications when this is not permissible in civilian medicine where in general a more experienced doctor is a better doctor. On the other hand, there is no evidence that young medical officers cause harm[49]; the alternative may be an even lesser qualified MA or nurse and the GDMO tour, at least in the RN and Army us felt to benefit the overall service as the GDMO tour gives future specialist gaining an insight into the life of his or her future patients that should be a benefit to future uniformed specialist. The RN and Army which use such officers mitigate the potential risk by providing additional medical training as part of the commissioning course, whilst the extension of the basic medical training to include a second foundation year should lead to more experienced young doctors. The outcome of the ongoing debate is not clear, particularly as the results of changes in basic doctor training is also unclear, and the debate should take into account changes in workforce boundaries. It is noted that the US and, more recently, Canada uses Physician Assistants without any evidence that their medical care on operations is in any way compromised, and this may be one aspect of the solution, particularly if a reduction in outflow of specialists occurs as this will require a reduction in recruiting of young officers who normally fill these positions.

[49] D/DGAMS/3/1 dated 20 Sep 04 – AMD 5 (Medico-Legal) had no evidence that GDMOs posed a greater risk than trained GPs.

516. Wardmasters. Wardmasters are essential in the deployed setting for a variety of functions that mainly concern the military administration, including discipline, of in-patients including liaison on the patient's behalf with external agencies. Until the closure of Service Hospitals, this role on deployment was undertaken by those who undertook the same role in peace. This role was not taken forward into MDHUs and as a result, those deployed on operations are not considered appropriately trained or experienced[50]. Matters are exacerbated by a lack of policy for those areas that fall within the remit of wardmasters, such as archiving of in-Theatre clinical notes that are not transferred with the patient or for patients discharged in-Theatre. **Recommendation 31: An urgent need is required to develop OPS for Wardmasters and then consider how they can be given the appropriate training and experience.**

517. Hospital Management Experience. The initial DG Med Op Cap report highlighted the risk-adverse approach to medical issues at Role 3, which contrasts to managed risk at Role 1 and 2 and risk management in civilian hospitals. This risk-adverse approach at Role 3 leads to pressure to always resource Role 3 at 100% in spite of such levels never being achieved in civilian hospitals or in other nations' services. The lack of "hands on" experience of managing in peace hospital services almost certainly contributes to this. It can partly be addressed by education[51] and professional development[52] but also requires those who are to be responsible for planning, commanding and managing Role 3 assets on deployed operations to gain experience of managing NHS facilities in peace. Providing in NHS Host Trusts military managed wards, encouraging medical specialists to assume roles such as Clinical Directors and appointing nurses to hospital-wide posts such as infection control or clinical governance will go a significant way to developing managerial competencies. However, this does not address the needs of Medical Support Officers or medical, dental or nursing officers from non-hospital based cadres who will be the commanders of Role 3 units on operations. .

518. Secondary Care Input into the General and Medical Staff. As well as a lack of hospital management experience by those who command in the deployed environment, there is a lack of secondary care clinical input to the Staff[53]. Various arrangements exist for Subject Matter Experts (SMEs) to respond to questions from the Staff and to input issues. However, these SMEs necessarily have a very narrow and parochial view of their area, tend to be reactive rather than proactive and lack the skills to present issues in a manner likely to achieve resolution. There needs to be a return to the pre-DCS 15 situation where a number of secondary care (and possibly primary care) clinicians worked part-time in medical HQs where they both gained command and staff experience and ensured that appropriate account was taken of their clinical disciplines. Part-time working was considered essential in order that they maintained the skills for which they had been appointed to the staff as well as facilitating return to clinical practice. **Recommendation 32: Further work is required to identify the hospital management experience required on operations and a means of providing suitable experience identified. Work is**

[50] Para 6a 2nd Med Bde/3056 dated 24 Jan 06
[51] Canadian Medical Support Officers for example all undertake a 9-month diploma in Health Service management immediately after commissioning.
[52] Comd 2nd Med Bde's negotiations with the Institute of Healthcare Management will enable DMS Officers to access civilian materiel.
[53] Over the whole of the DMS, there are only 2 Staff Officers who have a Secondary Care (Hospital) background.

also required to ensure that clinicians are appropriate represented on the Staff.

519. Reservists. The challenges of ensuring Regulars are appropriately trained are even greater for the Reserves. The Training WG found that although DMETA is tasked by the Defence Health Plan to provide training to Reservists[54], provision is ad hoc and patchy, probably due in large part as no additional resources were allocated when DMETA's role was extended. However, until the Operational Performance Statements (OPS) for the various cadres has been articulated, the quantity of training for reservists (as for Regulars) cannot be properly identified. The application to the Reserves will also vary from the Regulars if it is concluded that Reservists should primarily be employed in rear hospitals organised on NHS lines, thus reducing the requirement for the more challenging training required for those deploying forward who are required to be multi-skilled. **Recommendation 33: Once OPSs have been completed, consideration needs to be given to how they apply to Reservists and the implications addressed.**

TEAM TRAINING

520. Increasingly, the delivery of healthcare is becoming a team effort. This is particularly so for the serious casualty where, for example, operative surgical skill alone is insufficient to save life. Indeed, in a sense the surgical skills required are in relative terms becoming less important. This is because in respect of the care of the seriously injured casualty the surgical technical skills are known and well developed. Saving the life of those that hitherto died involves seeking to influence the functioning of the body at the system (eg blood or nervous systems) or at the cellular level. Determining and sequencing the various options available increasingly needs a team approach. The Israelis have developed a civilian-military national medical simulation centre that specifically addresses team skills and, for example, no battalion aid post can deploy onto the West Bank unless it has successfully completed team training in the national simulation centre. The US bring their surgical team personnel together some time prior to deployment at various trauma centres in the US. DG Med Op Cap visited a team in Miami where they were practicing surgical access procedures in the Dade County Medical Examiner's department, developing their skills there and in the main hospital prior to assuming towards the end of the training full responsibility for all trauma victims at one of the busiest trauma Centres in the US.

521. The UK has a number of Universities and hospital departments that are developing major simulation facilities. The University of Glamorgan has developed some excellent facilities that have been used by 203 Fd Hosp (V) whilst after a visit to the AMS Field Training Centre at Strensall, the Birmingham and The Black Country NHS Strategic Health Authority has proposed a feasibility study for a "Health Skills Village" to provide team training[55]. **Recommendation 34: DMSD should explore with the DH the potential for one or more to be developed to meet the needs of military team training.**

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[54] DT1 – provide professional training (military and medical) that meets the requirement and standards defined by the single Services and professional bodies and which enables newly recruited regular and reserve medical personnel to meet the policy criteria for operational deployability'.
[55] A Wider View, The Argument for Conducting a Feasibility Study into the Concept of a health Skills Village for Birmingham and the Black Country.

COLLECTIVE TRAINING

522. Collective training at Role 3 has always been the Achilles heel of military medical services. Seeking to assemble just before an operation the clinical personnel from a variety of peacetime hospitals, and moulding them into a capable military organization, is fraught with difficulty "All this hurry, this dire confusion, this wretched wear and tear of men's lives comes, and will come, from not preparing in peace for war, and so assimilating our peace routine and organization, and our war customs, that a soldier of any rank will glide from one into the other almost imperceptibly. How different it was with ... frontier mountain batteries, and indeed with the frontier force regiments generally. One learned from them, more than ever, the great lesson of the need of readiness for field work at all times, the be all and the end all of the soldier's existence."[56] The success on GRANBY and a number of previous operations of the Army's only standing field hospital (22 Fd Hosp), and the difficulty of the other deployed hospitals in coming to full operational readiness, resulted in the formation as a result of DCS 15 of three new Cadre Field Hospitals (33 and 34)[57]. However, the outflow of uniformed personnel after DCS 15, the increasing tempo of operations and the difficulties caused by the contracts with NHS Host Trusts led to the abandonment of the process of nomination, administrative preparation, and work up training that preceded declaring a hospital operationally ready. It also broke the connection between the non-clinical hospital cadre staff and the hospital clinician, exacerbated by the closure of Service hospitals where clinical and non-clinical staff also worked side by side. As a result, there is a lack of confidence by clinical staff in the non-clinical staff most of whom have never worked in a functioning hospital. This has been addressed in part by the pre-deployment training provided by HQ 2nd Med Bde prior to current deployments, but it is dangerous to rely on this training which is in essence mission rehearsal for a relatively simple deployment (ie to a static location, with relatively good infrastructure and without manoeuvre).

523. Recommendation 35: As full manning is reached, a process needs to be put in place to ensure that Role 3 medical units are at the declared readiness both militarily and clinically.

524. An unintended effect of the removal of hospital based clinical staff from the medical Staff has been the elimination of clinical training within Collective Training. Collective Training, including pre-deployment training, has increasingly concentrated on organizational and military aspects as a result of which it has lost the support of clinical staff. This led to the situation observed by DG Med Op Cap (when DGAMS) where a hospital Operating Theatre Department and Intensive Care Unit was undertaking its pre-deployment training without the presence of a single doctor. This is being addressed by HQ 2nd Med Bde, with the formation of a Clinical Faculty, but they still have not achieved the "buy in" from clinical staff as noted in one of their own reports[58]. DCA Anaesthetics suggests the use of recent clinical cases[59]. This is in essence the situation in the 1980s and early 1990s when methods, such as using a representative list of 500 battle casualties, with full supporting clinical data and

[56] Personal Recollection of the Afghan Campaigns of 1878-79-80 Surgeon Major (later Surgeon-General) GJH Evatt MD CB AMS(R).
[57] Defence Cost Study 15 Final Report March 1994: Para 5.13
[58] Para 5b Annex A 2nd Med Bde/3056 dated 24 Jan 06
[59] DCA(A) 250/09 dated Jan 06 para 51c.

photographs was used to exercise the clinical aspects of a deployed medical service. This requires significant input from senior clinicians, both to maintain an updated list, provide treatment "Pinks", and act as umpires and mentors. The DCS 15 decision to remove all secondary care personnel from the medical staffing chain, together with the current contracts with host NHS Trusts which leaves insufficient time to address such issues, has led to the neglect of clinical training on operations. Indeed, the HQ 2nd Med Bde initiative has had to rely largely on Reservists and ex-Regulars and thus lacks the necessary buy in from Regulars or the insight from those Regulars who are acquiring ever more operational clinical experience. **Recommendation 36: Regular hospital based clinical staff need to become re-involved in the provision of collective medical training.**

525. The issue of a unit being at both clinical and military readiness is mainly one for the Army, as the PCRF is almost exclusively a clinical facility within a fully functioning ship[60] and the RAF mainly deploy in small teams. **Recommendation 37: However, the process of ensuring military and clinical readiness needs to be extended to RN, RAF and Army Role 2(E).**

526. The need to work together in peace in order to be effective on deployment would undoubtedly benefit, particularly in the land and to some extent in the air environment, from personnel being posted to their operational units and seconded back to DMETA. It would provide the link between clinical staff and the "real" Armed Forces that seems to be desired by both clinical staff and Commanding Officers. It would place the responsibility for manpower accounting back with the single Services rather than as is currently the case dividing it between them and DMETA and this is discussed in Paragraph 506c above. It might also have the psychological benefit of changing priorities for, as one respondent to the Consultation Document who had recently been a military ward manager observed "despite what the MDHU chain of command believes (and in spite of the squadding system), the Trust calls the shots and if the civilian matron or manager makes enough fuss about having to close beds the amount of military staff you can get away from the ward is drastically reduced or none are released at all."

527. There are however a number of provisos. Such an option (dedicating personnel to their operational units) would be unworkable at the current state of manning and even if agreed could not be implemented prior to 2010 at the earliest. The individuals belonging to an operational are unlikely to be all withdrawn from the nearest MDHU, at least for mature operations, particularly where the uniformed component is relatively large proportion of the overall hospital, as the impact on the host NHS Trust clinical services of withdrawing them would be too great. Even were over-riding the needs of the local civilian and the peacetime needs of the military population was acceptable for operations, it is unlikely to be acceptable for exercises. This is no different to when Service hospital existed, when Military Hospitals in the UK and BAOR could not properly exercise owing to peacetime patient care constraints. Finally, were individuals posted to their deployable units, their employment in the NHS should remain the responsibility of DMETA.

[60] The Captain of RFA ARGUS reported during the visit on 4 Aug 06 that he believed he could safely absorb a significant proportion of non-sea trained personnel as long as there was a core of medical personnel that could contribute to damage control and evacuation procedures.

528. The issue is clearly not a simple one and there are advantages and disadvantages to both options. **Recommendation 38: A review of how clinical manpower is accounted should be undertaken prior to the next quinquennial review of DMETA.**

529. A major concern expressed by the Training Working Group[61] was a failure to practice the complete system, ie from point of wounding to NHS hospital, and this is supported by comments from Theatre by those who interface between different components of the overall system[62]. The whole system used to be practiced regularly, using up to 500 simulated casualties, as part of major combined and joint exercises in the Cold War period. In addition, significant portions of the system were exercised during medical exercises (eg from RAPs and Airfield back via Army and RAF hospitals to the Channel Ports). The need for such exercises is increasing, as the evidence is that more serious casualties survive, but can only continue to survive if their care can be seamless during the evacuation process. The introduction of DMICP will facilitate survival by ensuring that data on a patient's state is transferred and continuously updated, but only if systems are in place that can exploit this data. Clearly, with the combination of the current tempo of operations and manning such exercises must have low priority. **Recommendation 39: A process, supported by the appropriate staff resources, needs to be put in place that enables medical play to be incorporated into major single Service and into combined and joint exercises as well as planning medical exercises.** Given the current responsibilities of HQ 2nd Med Bde it may be appropriate, with RN and RAF enhancements, to develop them for this role. RN and RAF single Service foci are however also required. For the RAF HQ TMW is the obvious candidate but there is no such candidate for the RN.

MULTINATIONAL TRAINING

530. If we are to maximise multinational logistic support on operations, as desired by NATO[63] and recommended in a DOC Audit[64], through development of multi-national medical support, resources must be put into developing an understanding of the different roles of health professions in partner countries. This understanding can only be achieved through working together in peace and is only practical where there is some alignment of roles. For example, in those countries where nursing is a high school subject and where few nurses speak English, investment is unlikely to provide value for money. The alternative is to seek from individual nations the commitment of a complete function, such as a whole surgical team.

531. Given the significant differences between Nations medical services and professional practices (especially of non-doctors), in practice cooperation can only be achieved on a bi-lateral or tri-lateral basis. This will in practice limit the number of nations with whom partnerships can be developed. **Recommendation 40: A review is required of how multinational medical co-operation can be developed on a bilateral or trilateral basis in a manner that provides value for money and a practical benefit to the UK.**

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[61] DG Med Op Cap Trg WG Issue Paper WG/5 "Collective Training".
[62] ITU and Accident & Emergency Department Staff on Op TELIC 7 commented on lack of training with CCAST teams (Para 14 2nd Med Bde/3056 dated 24 Jan 06
[63]. 'Nations and NATO Authorities have a collective responsibility for logistic support to NATO's multinational operations'. (Multinational Operations – MC 319/2).
[64] DOC Log C2 Audit 7B/05 Para 213

MOD TRAINING FOCUS

532. The Training WG considered the formal lack of a training focus in DMSD was a major obstacle to addressing the training issues identified[65], also pointing out that this was an issue personally raised by CE DMETA. There was an AD Training as part of the D Med Pers, Pol, Trg & Clin Pol until an internal reorganization in 2002 when the AD post was removed. This was almost certainly a mistake and should be reversed. **Recommendation 41: A training focus needs reintroducing into DMSD.** Such a training focus will also address the lack of direction and assist in quantifying the lack of resources, both of which have been identified as weaknesses by DIA[66].

ENSURING CLINICAL SUCCESS

533. Ensuring clinical success requires a process that measures outcome and relates that outcome to the care provided to the patient, leading where appropriate to modification of that care for future patients. Such process or processes are rapidly being introduced into civilian medical care. Audit, evidence based medicine, clinical governance and clinical assurance are the tools being developed.

534. Historically, military medical services have long had similar processes in place. They were required as the conditions met in warfare are frequently novel and individual clinicians needed feed back in order to better understand what to do. The methods used to collect data also highlighted difference in outcome which in a hierarchal system was more easily investigated than in a civilian system composed of equals. The novel conditions met also called for experiments to identify the optimal approach. Examples include the trials of penicillin in the British Armed Forces in the Second World War and the adjustment to clinical policies during the 1967 and 1973 wars by both Israeli and Egyptian military medical services in response to outcomes seen by medical commanders in Jerusalem and Cairo. The UK Armed Forces maintained Consulting clinicians within MOD from WW1 to DCS 15 whose role included the identification and resolution of clinical issues that arose both in operational Theatres and in NHS hospitals in the UK. It is ironic that just as civilian medicine is developing the tools of audit etc, the Armed Forces has reduced its ability to do so.

535. Audit, evidence based medicine, governance and assurance relies on data which is standardised, accurate and timely. Whereas detailed data exists for most campaigns up until the 1980s (for example, between 24th August and 1 September 1880 during the advance from Kabul to Kandahar, the force of 14,302 suffered 29 deaths, 43 missing and 1037 sick and injured) none is readily available for the campaigns of the 21st Century, what exists is incomplete and mostly of unknown quality. Individual clinicians have collected high quality data, but it overlaps and does not address outcomes. The absence of data also impacts adversely on other areas, such as reputation and the political and planning processes.
Recommendation 42: Once the data collection process identified in Recommendation 16: has been put in place, the processes to collect, collate, analyse and act on the results, as well as exploit DMICP, is one of the highest priority and urgent tasks requiring addressing.

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[65] DG Med Op Cap Trg WG Issue Note 1 "Training Focus in DMSD".
[66] DIA – IA1d1 dated 19 Jan 2006 - Review of the Agreed Annual Training Provision (AATP)

536. In order to exploit the data collection process requires a number of other developments. DMSD, in conjunction with DASA, must ensure that the data can be benchmarked against relevant comparators, including the US. Clinicians need to be re-integrated into DMSD to inform the process and contribute to addressing the issues identified. Although individuals are currently nominated as subject matter experts they act in isolation of each other, lack a secretariat and are not exposed to the wider military context nor the opportunities and limitations that invariably exist at the highest level. **Recommendation 43: A multidisciplinary team needs to be developed that includes DASA and clinicians to underpin the quality assurance process.**

537. The main concern of the patient is his final outcome and any audit process should evaluate this against the treatment received from point of wounding to final recovery or discharge. **Recommendation 44: DG Healthcare is responsible for the peacetime end of the healthcare process and it is logical that DG Healthcare is responsible for ensuring an end-to-end audit of casualty care.** This should include development of an audit team, based on a small nucleus of full time staff with secondments for particular audits. Both data collection and system audit should be undertaken once and made available to all. It should underpin the Assurance that the Centre, single Services and PJHQ should require to provide confidence that the DMS is functioning as advertised.

538. Although data processing will underpin quality assurance, there is a need to provide timely feedback during campaigns. Clinicians currently complain that they receive no feedback from UK and are thus cannot assess their performance nor meet their professional obligation to undertake personal audit. **Recommendation 45: A quick win should be the implementation of a system of feedback from UK NHS Hospitals to operational Theatres.** There is one obstacle to this recommendation, which is the interpretation by some of the Data Protection Act and early engagement with the Data Protection Commissioner is required to resolve any obstacles.

539. Managing Risk. Reference has been made to the risk-adverse approach to medical manning. Risk however is an ever present aspect of modern clinical practice, and its management a major aspect of healthcare provision. The DMS will potentially carry greater clinical risk that the civilian sector owing to the military environment into which it deploys. This is particularly so in the secondary care environment where operational units are formed from cadre units or from none at all. A process is required which tabulates risk in advance of deployment, seek to mitigate that risk during the deployment process, communicates to PJHQ (or other "owner" such as DSF) any residual risk, and developed procedures and processes to manage the residual risk in the deployed environment. DIA has been involved in the last 2 years in addressing clinical governance, are in a good position to assist in developing risk management processes and have agreed to assist[67]. **Recommendation 46: The DIA agreement to assist in developing processes to address risk in the deployed clinical environment should be supported.**

[67] D/DIA(D)6/6/11/3 Dated 16 August 200.

MEDICAL INTELLIGENCE AND FORCE PROTECTION

540. One element of ensuring clinical success is Medical Intelligence, which is also integral to Force Protection. Medical Intelligence should identify and quantify the threat to health from natural causes, especially infectious diseases, from industrial causes, such as incidental damage to hazardous industrial installations and from enemy weapons and in particular CBW. Force protection in addition includes the medical aspects of deployed Health & Safety, such as addressing potential risk from our own weapons and proactively collecting data that will enable future associations between claimed ill health and military training and operations to be explored as well as seeking to maximise, within Theatre, return to duty rates. Commanders appear to feel that insufficient emphasis is currently given by the DMS to this aspect of deployed medical care[68]. This has partially been addressed by increasing use of deployed dental teams and the decision to deploy rehabilitation teams to operational Theatres. It should be noted that this apparent lack of emphasis on deployed force protection is also an issue that has been identified within the USA[69].

541.

. Individual posts exist in PJHQ, albeit currently gapped, and HQ 2nd Med Bde with an AD in DMSD maintaining an overview. These provide an input into operational orders and directives and inform the specialist medical capabilities or actions (such as inoculations) required by a deploying force. However, greater coherence is needed with a more efficient process for translating intelligence into guidance and/or direction. **Recommendation 47: It is timely, given the changes in Medical Intelligence over the last 2 years, to undertake a stock-take to ascertain whether the current arrangements are providing value for money.**

542. Within the health environment, Force Protection[70], which incorporate medical intelligence, and the remit extended to systematically addressing the means of maximising manpower availability within operational Theatres, including addressing how those evacuated can, where appropriate, be returned to Theatre. The skills of public health, and occupational health physicians, aviation medicine specialists, dental public health specialists, and environmental health technicians need to be refocused to address deployed health issues. As noted in the LOGWAR 2* Issue Paper, 70% of SAGs potentially require acclimatisation and the "Medium Weight Force cannot be fit to fight within current planning timelines because of the need for climatic acclimatisation"[71]. However, responsibility for Force Protection is currently fragmented. For the Institute of Naval Medicine and the Centre for Aviation Medicine, it is seen as a primary responsibility, but arguably, their work is largely

[68] DG Med Op Cap initial report Para 61 based on comments by Comds 7 and 12 Bde and in Theatre COs.
[69] BLO Med reference
[70] Define in JDP 1/99 as "A process which aims to conserve the fighting potential of the deployed force by countering the wider threats to all its elements from the adversaries, natural and human hazards and fratricide.
[71] LOGWAR 06 Issue Paper ITS/2 presented at 28 Output Brief at JCSC on 13th March 2006

single Service. D Med Op Cap, D Med Pol, single Service Medical Directorates all contribute, either incidentally (for example, policies promulgated for peacetime purposes being applied operationally) or as a secondary role. In deployed organizations, Force Protection is approached in a haphazard manner, with deployed HQs not routinely recognising Force Protection as a function. Usually, the best qualified officer, normally a Public Health or Occupational Health physician or an Environment Health Officer, is identified who tend to be reactive rather than proactive and unsupported by a "tool box" that guides his actions.
Recommendation 48: A fundamental review of the UK approach to Force Protection, probably led by DCA Public Health Medicine, is required.

EQUIPMENT

543. As outlined in Part 4, the whole of the equipment area is in need of addressing. The E2E review of logistics and sustainment is likely to only address part. What is required is a process that ensures that when medical units deploy on expeditionary campaigns that they do so with equipment that balances the desire for state of the art equipment with the military realities of expeditionary warfare, but can subsequently adjust for a mature Theatre which is not so constrained. The process must also integrate the medical materiel equipment with the non-clinical equipment requirements of medical units. Having AMD responsible for providing input to Director Royal Armoured Corps on armoured vehicles for medical use whilst DMSD remains responsible for the medical equipment for those vehicles is not coherent.

544. Medical technology is advancing exceptionally quickly in a variety areas from genetic and cellular biology that will improve our ability to identify more rapidly biological agents (whether natural or as part of BW) to capital equipments such as imaging devices that improve diagnosis and treatment. Technologies when introduced are expensive, exist in only a few civilian centres, are cumbersome and may be unreliable. They tend to develop through a "nice to have" to a "must have" piece of technology during which time they become more effective, of greater utility, cheaper, smaller and more reliable as one generation of equipment supersedes another. However, not all technologies will be appropriate for the military environment, and for example, the limitations of MRI for patients with metal fragments will probably always limit its utility for battle casualties.

545. If the DMS is to provide the most appropriate equipment it must develop a process that assesses biological clinical developments for military utility, then assesses the practicality of deploying that development, and proceeds through the normal procurement cycle. This process must take account of, and arguably should influence, the equipment being used in day-to-day clinical practice in MDHUs. It is clearly sub-optimal for clinicians to deploy without the equipment they use on a day-to-day basis and/or being required to learn during deployment how to use a new piece of equipment. The absence of such a process of systematically and routinely addressing developments accounts for the major "catch up" exercise that occurs during operational deployments and which is so cumbersome that when equipment arrives it is no longer required[72]. As with Quality Assurance, the main drivers up to the mid 90s for initiating equipment developments were the clinicians who worked in MOD and as they formed part of a multi-disciplinary team the military implications of

[72] UK Med Gp G31220 dated 12 Dec gave as an example a Spectrophotometer ISPIM Intelligent Sipper.

the equipment was simultaneously addressed. **Recommendation 49: A process is required that puts medical equipment, logistic and sustainment onto the same sure footing as other military equipment.** The process needs to be responsive to changes in medical technology, it must balance the implications in a global market of "just in time" against stockpiling equipment that will inevitably be obsolescent when required, and it needs to be integrated into the procurement cycle for non-medical equipment for medical units. The process should be developed as part of recommendation 1: The relatively recently formed Medical IPT will be part of this process but is insufficient on its own. For example, neither the Defence Scientific Advisory Council nor Dstl provides forewarning of novel developments, to the extent that the US had identified, exploited, and brought to market a number of US approved novel agents for stopping bleeding before the UK was aware of them.

546. Deployable Hospitals. There are a significant number of commercial organizations that market complete hospitals. Consideration should be given to meeting deployable non-maritime Role 3 requirements by seeking to procure complete hospitals[73], particularly for mature operations where the contract could include construction and infrastructure support. This too should be considered as part of recommendation 1.

COMMAND AND CONTROL

547. Medical does not easily fit into the military J1 – J9 model. The major components of medical capability are individual health, a J1 area; medical logistics, a J4 lead; medical operations, a J3 lead; and supported by medical intelligence, a J2 lead. Taking the Army as an example, prior to 1985, the AMS was G1 in peace and G4 on mobilisation then became G1. On rustication of DMS UKLF in the mid 80s, medical in UKLF became a G3 function. Today, medical is a J1 function in the single Services but J4 in PJHQ. In the Centre, it was a J1 function under DCDS (Pers) but is now independent with its own DCDS (H). The conclusion must be that there is no "right" place for medical.

548. The main DOC report on Logistic Command and Control recommended that consideration be given "to transferring medical and personnel *commitment functions* at AD or SO1 level to ACDS (Log Ops)"[74]. Medical sustainment, resupply and strategic evacuation would fit well with ACDS (Log Ops), but as currently configured the other aspects of medical (medical intelligence, force protection, clinical planning, and deployed operational medical policies) would not. **Recommendation 50: However, the placing of a SO1 or AD in ACDS (Log Ops) area to facilitate medical logistic and strategic evacuation planning is recommended.**

549. During the study, DG Med Op Cap noted that medical ORBATS tended to be ad hoc, rather than based on endorsed doctrine and organizations, whilst individual initiatives within Theatre had a tendency to become "doctrine" or "policy" without rigorous review or staffing. **Recommendation 51: The PPSG work has identified the support required for various scales of operation and these should now be used, and varied only for well founded reasons with Lessons learnt being**

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[73] An example, EADS Defence Electronics markets the TransHospital ®
http://www.eads.net/web/lang/en/1024/content/OF00000000400004/9/98/40638989.html accessed 190 Oct 06

[74] DOC Operational Audit 7B/05 Para 307c

formally staffed via DG Med Op Cap prior to any recommendations being implemented.

550. There is also a discontinuity between the FLCs and PJHQ. FLEET and LAND appear to have no formal role in assessing the effectiveness of their deployed units and there is no process for identifying clinical risk in advance of deployment, its assessment during deployment and addressing shortcomings post deployment. PJHQ appears to be responsible for all aspects of medical functioning post-deployment, but is clearly too small with too narrow a range of medical specialisations, to undertake such a role. Finally, sS MDGs appear to have no visibility of their Services casualties even though the sS retain full Command of al personnel. **Recommendation 52: The responsibility of single Service Medical Directorates for their deployed personnel needs to be articulated.**

551. During the first part of the study, the RN and RAF expressed concern at the Army making changes that affected their area without appropriately involving the RN and RAF[75]. It was acknowledged that the Army liaised with the other 2 Services, but not at a sufficiently early stage in the change process as a result of which the ability to influence change was limited.

552. The DG Med Op Cap study sought to explore the respective responsibilities of MOD, the FLCs, PJHQ and deployed Theatres but did not come to any firm recommendations, other than **Recommendation 53: a full review is required of Medical Command and Control which should mirror that of the DOC Audit of Logistic Command and Control but also extend into operational Theatres.** The review should take account of the experiences of Canada and Germany, and the current debate within the USA. The Germans have opted for a "fourth arm", independent of the 2 Services with medical elements being force packaged to the deployed operational commander when required. This is headed by a 3* Surgeon-General with a subordinate 3* operational command and a 2* peacetime command. The US are currently considering a similar approach, but perhaps limiting the 3* operational command to Role 2 and 3 and leaving the other elements of in-barracks medical care (including Service Hospitals and Research and Development) with the single Services. The Canadians originally went for a "fourth arm" approach which they have recently reversed in part, but with a single Joint Medical Command. The factor common to all these is the existence, or proposed establishment, of an operational Joint Medical Command.

DOCTRINE

553. The establishment of a SO1 Medical at DCDC has facilitated the production of JDP 4-03 and ensures medical input into non-medical doctrine. However, JDP 4-03 addressed primarily non-clinical high-level doctrine. With the tactical level becoming increasingly joint there is a need to develop lower level joint doctrine with the Org WG concluding that the for lack of concordance and/or duplication of effort across the DMS[76]. The Issue Note explores the reason for this and possible solutions. What is certain is that the current system of each single Service medical service working independently is unsustainable. **Recommendation 54: Either a virtual**

[75] DG Med Op Cap Initial Report Para 72
[76] DG Med Op Cap Org Wg Issue Note 3 "Medical Doctrine".

team, coordinated from DCDC or transfer of responsibility and assets to DCDC is required.

554. There is also a need to develop lower level clinical doctrine. Surgical doctrine has been addressed by the Field Surgery Pocket Book[77], and DCA EM is developing pre-hospital medicine clinical doctrine. However, these cover only 2 of the areas of deployed medicine and major areas such as nursing, pathology, general medicine and CBW are omitted. **Recommendation 55: A systematic approach to writing clinical doctrine is required, utilising clinical staff with dedicated time supported by an appropriate secretariat.** Such doctrine should be tri-Service and needs complementing with the lower level medical doctrine addressing organisation and tactics in the 3 environments. The systematic approach must include identifying the areas that need documenting, in what priority, by whom and the staffing process supporting it. The process must include a Lessons Learnt cycle, be compatible with wider logistic doctrine, and take into account the international dimension.

LEARNING FROM OPERATIONS

555. There needs to be a clear process of learning from current operations, both in the short term and in the long term. Reference has already been made (Paragraph 538) to a process for rapid identification of areas for clinical improvement, based on the outcome of clinical care seen in casualties arriving back at rearward medical facilities with feed back to the front supported by a system for the reporting rearward of critical and adverse clinical incidents. Unit Post Operational Reports are made, but there is no agreed taxonomy which inhibits objective assessment of the issues raised, no method for the systematic collation, analysis, publication or addressing of the issues raised. Issues therefore addressed on a case-by-case basis[78] , there is no organizational memory and issues are addressed de novo at some future time[79] [80].

556. Whilst there are routine visits to operational Theatres by senior medical staff, their programmes are tightly controlled, necessarily brief and tend to concentrate on major issues. "Minor issue[81]" are picked up incidentally, but there is a need to identify the many other low level issues that impinge on medical effectiveness[82]

557. The Organization WG Development recommended establishment of a Medical Lessons Working Group chaired at 1* level to sit at regular intervals (6 monthly) to review strategic medical lessons. (D Med Op Cap lead), inclusion of a Lessons Learnt item on the PJHQ Stock take/OEMPC to ensure correct exposure of medical lessons identified. (D Med Op Cap lead) and publication of an annual Lesson Learnt Progress Report for completion in March and published via the Defence Medical

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[77] The British Military Surgery Pocket Book, AC 12552, 2004
[78] For example, the establishment in Iraq of a proposed SO2 Clinical Governance post without consideration as to whether this should be a post included in all Theatre HQs.
[79] A point also made by DCA Anaesthetics - DCA(A)250/09 dated 2 Feb 06 DCA Anaesthetics
[80] Another example was the apparent ignorance of the medical recommendations, accepted by Government, following enquiries into detention of Arab detainees in Aden in 1966 and of detainees in Northern Ireland in 1972.
[81] For example, the lack of any night vision sights for medics doing top cover between BASRA Airport and Shaibah LOGBASE.
[82] For example, a low level visit by HQ 2nd Med Bde to Theatre identified that their training in UK of SH evacuation had not taken account of the GPMG mount in SH nor addressed difficulties associated with the SH not shutting down.

Services Department Web site. The process should also take account of initiatives being developed by NATO (through the NATO Chiefs of Medical Staff Committee) to assimilate medical lessons from all Allied medical services. **Recommendation 56: The recommendations of the Organization WG on Lessons Learnt should be implemented**[83].

LEARNING FROM THE NHS

558. Until the closure of Service Hospitals, organizational and service developments in the NHS were replicated within the Service Hospitals and from there were transferred to the operational environment. Since then, developments in individual skills of clinical personnel have largely, though not universally[84], continued to be transferred to the operational environment as uniformed personnel are trained within the NHS environment. The same is not so for organizational and service changes. Thus, in the last decade civilian hospitals have introduced ward-based pharmacy, intensive care, pain and respiratory out-reach teams to enhance clinical care. These developments have not been replicated in deployable hospitals, although over the last 6 months there have been individual initiatives to do so[85]. On further enquiry, some of them may not be considered suitable, and NHS initiatives must not be slavishly adopted. This divergence of civilian from deployable military medicine was one of the major concerns identified by the DG Med Op Cap Organization WG[86]

559. There have also been developments in civilian pre-hospital care which have not been fully assessed or replicated in the military environment, such as command, control, tracking and management of ambulance services. However, it must be stressed that in some areas of pre-hospital care, the DMS is ahead of civilian medicine particularly in the management of bleeding.

560. **Recommendation 57: A one-off gap analysis is required to identify civilian practices that ought to be introduced into the deployable medical services.** This needs complementing with **Recommendation 58: the development of a process needs to be put in place to monitor and assess civilian service and organizational developments for suitability for introduction into the deployed medical service.**

CBRN

561.

[83] DG Med Op Cap Org Wg Issue Note 1 "Lessons Learnt".
[84] DCA Anaesthetics reports, for example, that equipment for the prevention of Deep vein Thrombosis, potentially a fatal complication of injury, was only been provided through local action.
[85] DCA Anaesthetics reported that Intensive Care and Pain Outreach has been implemented in Iraq and should be formalised (DCA(A)250/09 dated 2 Feb 06.
[86] DMSD 32/01 dated 10 Feb 06 – Combine WG Meeting – Cross Cutting Issues
[87] DG Med Op Cap Initial Report dated Jan 06 Para 25

562.

DMWS

563. The Defence Medical Service Welfare Service (DMWS) have their origin in the British Red Cross whose charter includes support to the Armed Forces. They, and the other uniformed Voluntary Aid Services have historically provided ancillary medical and welfare support to the Armed Forces. Roles included individual escorts to ambulatory cases during journeys between hospitals and residence and providing individual reinforcements to rear medical facilities. During the Cold War, the Voluntary Aid Societies were tasked with the reception, triage and onward evacuation of casualties arriving at the channel ports.

564. DMWS arise from the Red Cross personnel who provided welfare support within hospitals. In 1996, it was decided that it was not appropriate in the modern world to fund the Red Cross through Grant in Aid and they were required to form a commercial relationship with MOD, for which purpose a separate commercial entity, DMWS, was created. When not deployed, the DMWS work in MDHUs and the German hospitals responsible for BFG patients. On deployment, they provide welfare support to hospital in-patients. Their utility was universally acknowledged, and DMWS staff universally felt that they were "adding value" in the deployed scenario. They felt however that they did not have the level of appropriate military training required by their role[88]. In a sense, they have become casualties of the changed environment, originating from roots that were based on informal relationships between the Red Cross and the Armed Forces and which relied on informal agreements but seeking to exist in a commercial environment that appears alien to them. MOD looks upon them in the same way as any CONDO contractor, but this does not sit easily with DMWS, a non-profit organization whose sole raison d'etre is to serve Armed Forces personnel. **Recommendation 60: A review, probably by DMCS, is required to consider the future relationship between DMWS and MOD.**

RESEARCH

565. There is a relatively small amount of health related research undertaken in support of CBRN and in support of equipment development, with one of the being Human factors. There is however little MOD research within the more general

[88] Para 15b Annex A 2nd Med Bde/3056 dated 24 Jan 06

biological and health related areas. An example (novel agents to stop bleeding) of the adverse impact on clinical care of the injured (through late introduction of such agents) adversely impacted on patient care has been given. A recent DSAC report "MoD's Health Related Research Programme (the Blain Report)" highlighted the need for MOD to consider and prioritise its requirements for medical research. In response to this the Chief Executive of the Defence Medical Education and Training Agency, with the support of the Surgeon General, requested that the Chief Science Advisor's Research Acquisition Organisation sponsor a two Phase study to "Determine the Defence Medical Services operational outputs ('military medicine'), assess its current knowledge base, identify gaps and prioritise research designed to fill those gaps." The study was completed[89] in Feb 2006 by Knowledge Services, Dstl, and defines the scope of Military Medicine research requirements and identifies areas where further investigation is required in order to generate specific research proposals for prioritisation and actioning. However, little has happened since and is unlikely to unless and until medical research is integrated fully into the wider research agenda. Thus, biological and other health related sciences need to be an integral part of the Defence Scientific Advisory Committee (DSAC), the RAO organization and the military industrial strategy rather than seen as a DMSD function. Only then, will the biological and health sciences be properly identified and prioritised within MOD. **Recommendation 61: Biological and health related research needs incorporating into the wider Defence research agenda and processes.**

[89] The Military Medicine Research Requirements Scoping Study: Final Report dated 20 Feb 2006.

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