National Audit Office

REPORT BY THE COMPTROLLER AND AUDITOR GENERAL

HC 294
SESSION 2009–2010

10 FEBRUARY 2010

Ministry of Defence

Treating Injury and Illness arising on Military Operations

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Ordered by the House of Commons
to be printed on 9 February 2010

Report by the Comptroller and Auditor General
HC 294 Session 2009–2010
10 February 2010

London: The Stationery Office
£14.35

This report has been prepared under section 6 of the National Audit Act 1983 for presentation to the House of Commons in accordance with Section 9 of the Act.

Amyas Morse
Comptroller and
Auditor General

National Audit Office

8 February 2010

A total of 522 personnel have been seriously injured on operations in Iraq and Afghanistan between October 2001 and the end of October 2009.

Printed in the UK for the Stationery Office Limited
on behalf of the Controller of Her Majesty's Stationery Office
P002347995 02/10 65536

Contents

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This report can be found on the National Audit Office website at www.nao.org.uk/treatinginjury2010

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Summary

1 A total of 522 personnel have been seriously injured on operations in Iraq and Afghanistan between October 2001 and the end of October 2009.[1] On operations, personnel have attended medical facilities some 125,000 times for minor injury and illness[2] since 2006, and a further 1,700 for mental health conditions. Some 6,900 people have been evacuated back to the UK from Iraq and Afghanistan since 2003 for serious injuries and a range of other medical conditions. The nature of the very serious injuries suffered by some personnel necessitates long and complex treatment and rehabilitation; they and their families may face considerable life-long challenges. We have estimated that the cost of medical care as a result of military operations was £71 million in 2008-09.

2 Medical support is key to the psychological and physical well-being of military personnel on operations and underpins morale and physical capability. The Ministry of Defence (the Department) aims, as part of its duty of care, to deliver the highest possible standards of treatment to those deployed on operations. Not all injuries occur as a direct result of battle. A significant number of personnel need treatment for illnesses such as gastrointestinal disorders and non-battlefield injuries, including those incurred during accidents or physical training.

3 This report assesses the Department's provision of medical care to Service personnel who were injured or suffered health problems, mental or physical, resulting from operations in Iraq and Afghanistan. We focused on the level of medical care provided, whether it is timely, sufficient and is available on an appropriate scale. We assessed the impact of minor injuries and illness in terms of "manpower days lost", a simple measure of the impact on operational capability. We have not examined clinical judgements or the management of individual patients' care.

4 In examining the Department's treatment of those seriously injured on operations we focused on the effectiveness of medical support, in particular:

- measures of the success of treatment in saving lives;
- speed of evacuation from the battlefield, and back to the UK;
- capability of the field hospital to stabilise major trauma casualties; and
- capacity of medical care and rehabilitation back in the UK.

1 This comprises categories the Department refers to as "very seriously injured" and "seriously injured" personnel.
2 These are also known as Disease, Non Battlefield Injury (DNBI).

For minor injury, illness and mental healthcare we examined:

- trends in overall rates on operations and, for mental health, following deployment;
- the balance of healthcare delivered at forward bases, in the field hospital and in the UK; and
- mental health support in place for personnel on operations.

We have not examined services for veterans. The majority of personnel seriously injured on operations in Iraq and Afghanistan have not, to date, completed their treatment within the Department's rehabilitation services. We attempted to compare medical treatment with that of coalition forces but a lack of published data seriously limited our analysis.

Serious Injury

5 The quality of trauma care on operations is demonstrated by the numbers of "unexpected survivors", who would usually be expected to die given the severe nature of their injuries. Through mathematical modelling and clinical peer review, the Department has identified 75 unexpected UK, coalition and local survivors from Iraq and Afghanistan between April 2006 and July 2008. We calculate the rate of unexpected survivors as a proportion of all seriously injured survivors to be up to 25 per cent. The Department's and the NHS' methodology for calculating unexpected survivors differs and so a direct comparison is not easy, but ostensibly its unexpected survivor rate compares favourably with that achieved by the best NHS hospitals. Over the same period, the number of deaths identified among UK personnel that could be avoided, given the operational circumstances, is very low.

6 The strength of the Department's clinical care on operations has been underpinned by a clear focus on trauma care for the seriously wounded and a number of other factors, in particular:

- the field hospital being designed specifically to deal with trauma casualties;
- trauma teams being consultant-led and multi-disciplinary;
- strong performance in rapidly evacuating casualties from the battlefield to the field hospital;
- numerous developments in first-aid practices and technologies, and in the protocols for treating major trauma; and
- strong clinical governance.

7 The field hospital in Afghanistan is close to capacity but has been able to manage casualty levels. The Department determines the levels of staff and facilities required using several factors including the size of population served, casualty estimates, the availability of coalition medical facilities, the distribution of deployed forces and predicted rates of minor injury and illness. The Department formally reviews capacity at the field hospital every six months as part of operational planning and, to meet demand, increased medical staff numbers from 2006 and facilities in 2009. The Department's August 2009 review concluded that, following the latest increases, resources are sufficient but the hospital continued to be close to capacity. The field hospital has increased capacity further for short periods of high casualty levels by using contingent equipment, such as ventilators, and calling off-duty medical staff to assist.

8 The Department will need to manage the potential impact of the future Regional Trauma Networks on the clinical experience of military medical personnel deploying in future. Regional Trauma Networks are to be introduced in the NHS, where a hospital in each region will be an identified major trauma centre. When not on operations, military medical staff maintain their clinical skills working in the NHS, the majority in six Trusts hosting military hospital units. Some of these Trusts may not become major trauma centres and therefore will receive fewer complex trauma patients.

9 Seriously injured personnel evacuated to the UK are treated in the NHS, the majority at Selly Oak hospital, under a contract between the Department and University Hospital Birmingham Foundation Trust. The vast majority of patients then move to the Department's rehabilitation facility, Headley Court, Surrey. The medical care and rehabilitation of personnel who have been seriously injured on military operations is a long, complex process. **Military commanders and the patients to whom we spoke have confidence in the clinical treatment at Selly Oak and Headley Court.**

10 Casualty numbers from military operations are placing increasing demands on Selly Oak and Headley Court but have been managed to date by taking measures to increase capacity for these patients. To manage increased levels of military casualties, some civilian care at Selly Oak has been outsourced to private providers and other NHS facilities, and agency staff and bed numbers have increased at Headley Court. Military casualties peaked in July 2009, and consequently took one-third of Selly Oak's 90 trauma and orthopaedic ward beds and the military-managed ward reached 80 per cent of capacity. Throughout 2009, the number of operational patients at Headley Court exceeded the 28 beds originally set aside for complex trauma but not overall bed numbers.

11 Current contingency plans for providing further capacity have recently improved but there is scope for further development. The Department has a joint plan with the Department of Health outlining how capacity to deal with high and sustained levels of military casualties could be enhanced. Contingency planning for increased casualty levels has recently been strengthened through the development of a voluntary regional agreement to continue to treat military patients at Selly Oak by diverting some civilian trauma patients to other hospitals in the region. The Department is currently reviewing its contingency plan with the Department of Health. There is scope for improvement, for example by modelling the capacity required under different casualty scenarios and defining clear indicators for when each level of contingency would be required. The Department has developed contingency plans to expand the provision of rehabilitation for seriously injured patients by providing Headley Court-led services in other existing rehabilitation centres and constructing more ward space.

Minor Injury and Illness

12 A certain level of disease and minor injury is expected on military operations. However, rates in Afghanistan have almost doubled from 4 to 7 per cent of deployed personnel per week between 2006 and 2009, although they remain within the Department's planning assumption of up to 10 per cent. The rate of digestive disorders has also more than doubled in Afghanistan over the same period. There are particular spikes around the six-monthly rotations of deployed units. The increase in minor injury and illness in-theatre between October 2006 and September 2009 represents a financial cost of some £0.7 million and a small reduction in operational capability of 6,700 days lost. However, there is a risk that operational capability will be reduced further if rates continue to rise.

13 Rising rates of disease and minor injury demonstrate that the Department needs to do more to assess which prevention measures should be improved to halt the increase. There are likely to be several contributing factors to the increase, including the basic living conditions at some forward operating bases, the intensity of operations and improved reporting. However, the Department's data do not allow it to quantify the significance of any individual factor. The Department seeks to control levels of disease and minor illness in several ways.

14 Some evacuated personnel have completed treatment within a short period on return to the UK. For example, our analysis shows 13 per cent of treatment for musculoskeletal injuries is completed within two weeks of evacuation. This illustrates the need for the Department to assess whether it could be more cost-effective to provide more treatment and rehabilitation on operations where it is possible to deliver equivalent treatment.

Mental Health

15 The Department has taken several steps to provide support on operations to personnel at risk of developing mental health conditions but there are weaknesses in follow-up for those who deploy individually. The Department deploys mental health specialists and a small proportion of personnel are referred to this specialist psychiatric support while on operations (0.2 per cent in Afghanistan; 0.8 per cent in Iraq in 2008-09). The Department does not routinely screen personnel on return from operations, and relies on personnel seeking help and the non-medical stress management processes it has introduced for personnel on, and following, deployment. There is inconsistent access to non-medical stress management processes on return to the UK for personnel who deploy individually rather than as part of a unit or who move units following deployment. The Department is currently developing its stress management processes to address this problem.

Data

16 The clinical governance and audit of major trauma on operations is good but the Department does not collect or analyse all required medical data relating to operations. The Department holds regular conference calls discussing patient cases, collects data to identify unexpected survivors and avoidable deaths, and military medical research has supported developments in trauma care. The Department generally has the data it needs for day-to-day management of individual patients; however, it is unable to assess fully the impact of operations on the health of Service personnel. The Department could do more analysis with the data it collects on outcomes, treatment timelines and on injury and illness rates, including benchmarking with coalition partners. To support this, data collection needs to be improved further and some steps are being taken to do so. The Department does not seek to identify or analyse the full costs of treating operational casualties.

Value for Money Conclusion

17 The Department's clinical treatment and rehabilitation of the seriously injured is highly effective. The Department has a clear focus on providing a high level of care and rehabilitation to seriously injured personnel on operations and in the UK, and outcomes achieved are good relative to the seriousness of injuries sustained.

18 The Department's attention has understandably focused on treating seriously injured personnel. The Department takes steps to minimise the level of minor injury and illness on operations. However, preventive measures currently in place have not been sufficient to halt the rising trend – from four to seven per cent in Afghanistan between 2006 and 2009. This trend represents a small reduction in operational capability. To date, the rate has remained within the Department's planning assumption but it is the rise which is of concern as, should it persist, it presents a risk to value for money through the continued reduction in operational capability. Preventing illness is intuitively more cost-effective than the associated costs of evacuation and treatment, and would minimise the impact on capability, but the Department has not assessed the relative costs and benefits of improving specific prevention measures.

19 The Department has improved its patient data and now generally has the data it needs for day-to-day management. However, the Department has not done enough analysis to understand fully whether its healthcare system is optimised to provide effective medical care that is value for money and to manage future risks to delivery. In particular:

- The Department has not modelled potential demand for secondary care and rehabilitation, and there is scope to improve contingency planning further to ensure that future capacity could deal effectively with high and sustained numbers of casualties.
- The Department has not analysed treatment timelines or collected adequate information on the costs of delivering care, which would enable it to make better decisions on the most cost-effective models of care.

Recommendations

20 Against this background we make the following recommendations:

a **The numbers of serious battlefield casualties have increased since 2006, and contingency plans to extend capacity at Selly Oak and Headley Court have been strengthened.** As part of its ongoing work to improve further its contingency planning, the Department should model the capacity required under different casualty scenarios. Specifically for secondary care, the Department should build on the clear decision-making structures in place by:

- establishing clear indicators of when each level of contingency should be enacted;
- determining which categories of patient should remain at Selly Oak;
- defining the most appropriate destination for categories of military patients if treated nationally; and
- assessing how experience in treating military trauma would be transferred in those cases.

For rehabilitation, the Department should assess the feasibility of its contingency plans for increasing the capacity of Regional Rehabilitation Units to take more operational patients.

b **The rate of minor injury and illness has almost doubled in three years although it remains within the Department's planning assumption.** The Department needs to take further steps to halt the rising trend through:

- researching systematically why the rate of minor injury and illness has increased;
- improving prevention, identifying the most cost-effective prevention measures and developing alternative means for delivering environmental health at forward positions; and
- strengthening governance for minor injuries and illness, for example through introducing weekly conference calls to discuss performance.

The Department should also assess the benefit of treating more minor injuries on operations, including through enhancing rehabilitation services at the field hospital, rather than evacuating personnel to the UK, although this would need to be balanced against the cost and impact on UK care.

c **The Services have non-medical stress management processes to oversee personnel at risk of developing mental health problems during and following deployment, and encourage them to seek treatment. These processes are more difficult to deliver to personnel who do not deploy as part of a regular formed unit or who move to a new unit after deployment.** The Department should implement stress management processes for these personnel.

d **The Department is currently unable to assess fully the impact of operations on the health of Service personnel because it does not centrally collate accurate and complete medical data. There is also scope for the Department to make greater use of its existing data to support decisions on further developments in care.** The Department should:

- improve further its medical data, including consistently recording where military operations are the primary cause of an injury or illness, and addressing the variability of data entry, including on operations (recognising this is most feasible in the field hospital);
- analyse available data to identify and understand the cause of long-term trends in disease and minor injury, and benchmark performance and practices against coalition partners;
- collate the costs of medical support required as a result of operations; and
- identify research and benchmarking required to support further improvements in medical care and rehabilitation, including making better use of the varied existing information sources to monitor the efficiency of treatment and rehabilitation for specific conditions, and benchmarking performance on unexpected survivors.

e **The future introduction of Regional Trauma Networks in the NHS may impact on the clinical experience military medical staff obtain because some of the Trusts where the majority work may not become a major trauma centre.** Given that its current contracts end in 2011, the Department now needs to assess the impact of Regional Trauma Networks on the clinical experience and professional development of its medical staff and consider options for alternative locations for maintaining the clinical experience of military medical staff, if necessary. This assessment should also take into account the potential benefits to the NHS of sharing military trauma experience.

Part One

The Delivery of Medical Care

1.1 This part of the report outlines how the Ministry of Defence (the Department) delivers medical care to UK Service personnel in Iraq and Afghanistan, and in the UK for those evacuated for further treatment.

1.2 On operations, medical care is delivered by military personnel, including Reserve Forces. UK medical facilities in Afghanistan treat UK forces and civilians, coalition forces, Afghan security forces, Afghan civilians injured as a result of coalition military operations and detainees.

1.3 In summer 2009 the UK medical group in Afghanistan comprised 360 staff, providing treatment and rehabilitation at the field hospital in Bastion (in Helmand Province, the main area of operations for UK forces) and primary care (e.g GP-level care) to forward bases. Sixteen medical staff were based at the coalition field hospital at Kandahar including two surgeons (**Figure 1**). Some 50 United States medical personnel have been based at the UK hospital in Bastion since April 2009. The Danish military supplied the majority of field hospital personnel from July to October 2009, albeit under UK command. Until UK forces withdrew from Iraq in 2009, medical care was provided by around 280 UK medical staff at the main base at Basra Air Station.

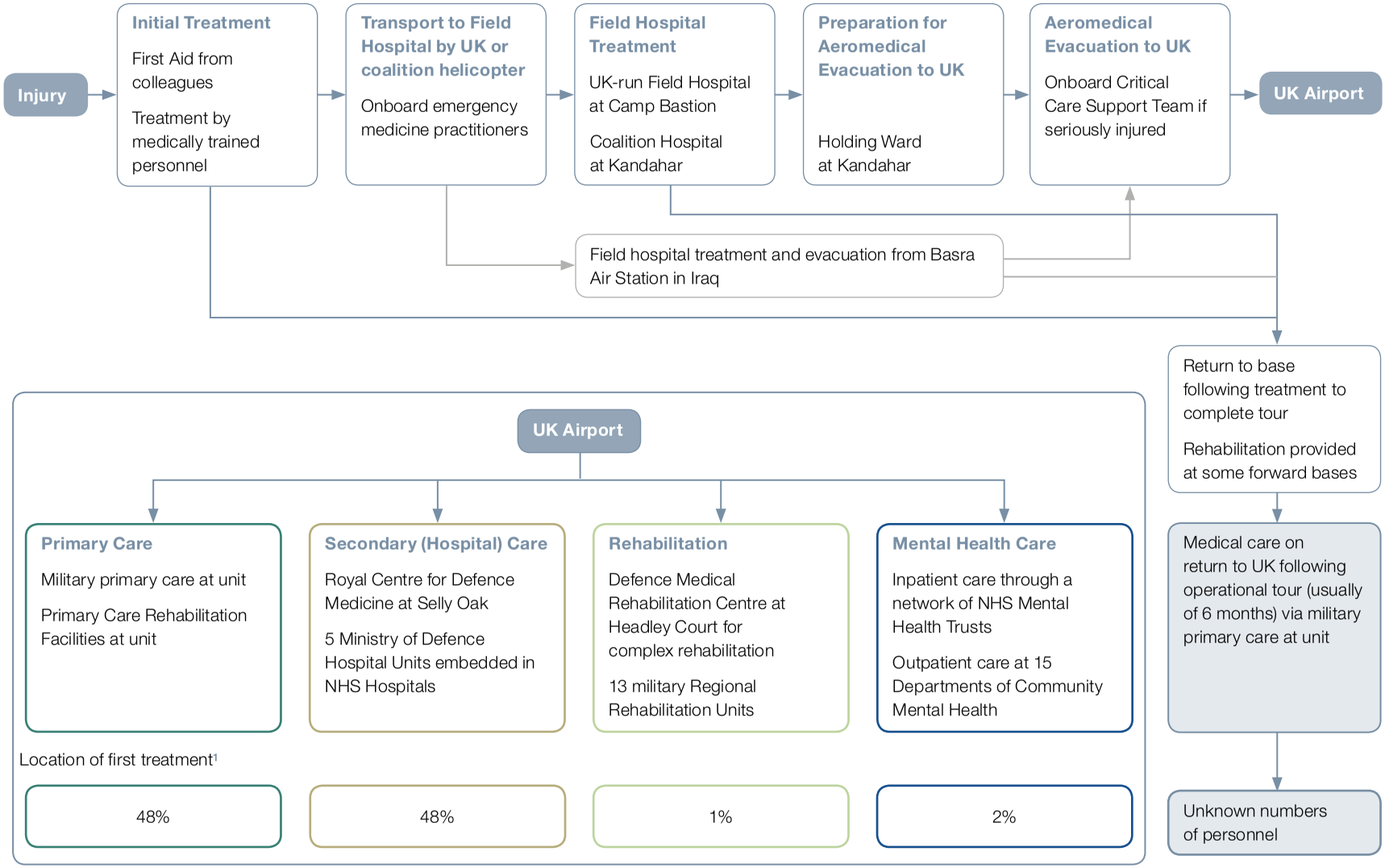
1.4 Injured and ill personnel who require further treatment are evacuated to the UK. They are treated by the NHS or at military medical and rehabilitation facilities (**Figure 2** on page 14). The majority of evacuated personnel are initially treated at the University Hospital Birmingham Foundation Trust (Selly Oak) or see their unit's GP.

Figure 1
Map of Afghanistan

Source: Ministry of Defence

Figure 2

Treatment and evacuation of injured or ill personnel



Source: National Audit Office analysis

NOTE

1 The location of first treatment for one per cent of evacuated personnel is unknown.

Injury and illness rates on military operations

1.5 Medical attendances in Afghanistan have increased, while those in Iraq peaked in 2007 (**Figure 3**). Since October 2001, a total of 522 personnel have been classed as seriously injured in Iraq and Afghanistan, including non-battle injuries.[3] Some 1,005 patients have received treatment at Selly Oak or the Defence Medical Rehabilitation Centre (Headley Court, Surrey) since October 2007[4] for minor and serious injuries from military operations, and a further 420 due to illness.

Figure 3
Recorded medical attendances on military operations

Medical category	Operation	Year								Total
		2001	2002	2003	2004	2005	2006[2]	2007	2008	2009[3]	
Seriously injured											
	Iraq	Not applicable		46	45	20	32	69	9	*1*	**222**
	Afghanistan	0	1	1	6	2	31	63	65	*131*	**300**
	Total seriously injured	**0**	**1**	**47**	**51**	**22**	**63**	**132**	**74**	***132***	**522**
Minor injury and illness[1]											
	Iraq	Not applicable			Not available		*2,212*	18,235	16,325	*5,186*	**41,958**
	Afghanistan	Not available			Not available		*5,904*	20,184	30,710	*26,501*	**83,299**
	Total minor injury and illness						***8,116***	**38,419**	**47,035**	***31,687***	**125,257**
Mental health[1]											
	Iraq	Not applicable			Not available		*74*	298	239	*199*	**810**
	Afghanistan	Not available			Not available		*45*	270	231	*380*	**926**
	Total mental health conditions						***119***	**568**	**470**	***579***	**1,736**
Average deployed UK personnel											
	Iraq	Not applicable			Not available		***6,800***	**5,300**	**4,100**	***1,400***	
	Afghanistan	Not available			Not available		***4,400***	**6,600**	**7,600**	***8,800***	

Source: National Audit Office analysis of Ministry of Defence data

NOTES

1 Initial attendances at primary and secondary care; these are also known as Disease, Non Battlefield Injury (DNBI).

2 2006 data are incomplete: attendances at primary care from 25 November 2006 (Iraq) and from 6 August 2006 (Afghanistan), secondary care from 30 April 2006 (Afghanistan).

3 2009 data are incomplete – Seriously injured is to 31 October; Iraq minor injury, illness and mental health data to 20 July; and Afghanistan minor injury, illness and mental health data to 26 September.

3 The Department refers to these as "very seriously injured" and "seriously injured" personnel.
4 When systematic recording of the UK treatment of operational casualties was introduced.

Part Two

Treating the Seriously Injured

2.1 This part of the report examines the Department's provision of medical care and rehabilitation for seriously injured personnel on operations and, following evacuation, in the UK. It also examines the Department's capacity to continue to provide this care.

The quality of the medical care provided on operations is demonstrated by the number of "unexpected survivors"

2.2 The Department's medical focus is on managing major trauma. The specialty of medical personnel in the field hospital and its layout are designed specifically to deal with trauma casualties. In 2000 the Royal College of Surgeons recommended that all hospitals receiving major trauma cases establish trauma teams that are available at all times. The Department takes this approach: trauma teams are overseen by a consultant and are multi-disciplinary, with expertise including emergency medicine, anaesthetics and surgery. There have been numerous developments in treating major trauma for immediate first-aid and in the field hospital (**Figure 4**). The National Clinical Director for Trauma Care for NHS England told us the organisation and facilities of Bastion field hospital are equivalent to NHS best practice for trauma care.

Figure 4
Developments in medical care in Afghanistan

Medical development	Date introduced	Costs to date (£000s)[1]
First Aid		
Improved equipment and first-aid training to manage significant bleeding including combat application tourniquets and new dressings.	April 2006	Not available
Field Hospital		
Computerised Tomography (CT) Scanner – imaging of complex injuries, including head injuries, before surgical intervention.	March 2007	1,038
Direct Digital X-Ray – quick portable imaging to enable diagnosis of breaks and fractures.	April 2007	638
Massive transfusion protocol – procedures for replacing significant blood loss in casualties.	October 2007	Not available
Apheresis – separation of blood components from a donor; used to produce platelets on operations to supplement supplies from the UK.	February 2008	94

Source: National Audit Office analysis of Ministry of Defence data

NOTE

1 Purchase and maintenance costs to 31 March 2009.

2.3 A measure of the effectiveness of medical care is the number of "unexpected survivors", personnel who survived even though the seriousness of their injuries would be expected to be fatal. The Department identified 44 unexpected survivors through mathematical modelling, and a total of 75 unexpected survivors when adding cases identified by clinical peer review between April 2006 and July 2008 among UK, coalition and local casualties treated at UK-run field hospitals. We calculate the rate of unexpected survivors, including those peer reviewed, achieved by the Department is 25 per cent of all seriously injured casualties who survived. This evidence supports the widespread view that first-aid and hospital care on military operations is good – enough to materially affect outcomes.

2.4 The rate of unexpected survivors achieved by NHS hospital Trusts between 2006 and 2009 ranged up to 6 per cent[5]. The Department's and the NHS' methodologies for calculating unexpected survivors differs and so a direct comparison is not easy but ostensibly the Department's unexpected survivor rate compares favourably with that achieved by the best NHS hospitals. Key differences in the calculations include:

- The Department uses clinical peer review because the mathematical model, constructed using universally-accepted injury severity scores, does not take into account fully the complexity of battlefield injuries, for example multiple-limb loss. The rate calculated on the mathematical model alone is 15 per cent.
- The Department identifies unexpected survivors from any time after the point of wounding, thus including transport to the field hospital, while the NHS assessment begins at the hospital door.
- The NHS effectively nets off "unexpected deaths", which the Department does not. There are very small numbers of UK "avoidable deaths" on operations[6] and, even after taking these into account, our calculations show the Department's unexpected survivor rate would continue to compare favourably with NHS performance.

2.5 Medical care on operations is important for morale and it is therefore imperative that those using the facilities have confidence in them. Military commanders trust the initial first-aid and field hospital care provided to injured personnel. The small number of injured Service personnel to whom we spoke, who remembered receiving care in theatre, also praised it. The medical staff to whom we spoke, who were deployed to Afghanistan in 2008 and 2009, felt capable of delivering the required care. A recent report by the Healthcare Commission found exemplary practice in the area of trauma management on operations.[7]

5 Trauma Audit and Research Network performance data of 81 NHS hospitals in England and Wales. Performance ranges from 9 per cent unexpected deaths to 6 per cent unexpected survivors.
6 We have not reported the exact figure to preserve confidentiality.
7 Defence Medical Services: A review of the clinical governance of the Defence Medical Services in the UK and overseas, March 2009, Commission for Healthcare Audit and Inspection.

The field hospital is coping with casualty levels but is close to capacity

2.6 The capacity of the field hospital at Camp Bastion has been sufficient to manage casualties to date. The Department has increased medical staff numbers since 2006 and facilities in 2009 (**Figure 5**). While the ratio of secondary care staff has fallen from 10 per 1,000 of the military population in Helmand in 2006 to four per 1,000 in 2009, the Department does not plan staff and facilities just on the size of the population it serves. It also assesses levels required based on casualty estimates, the availability of coalition medical facilities, the distribution of deployed forces and predicted rates of minor injury and illness. The Department formally reviews capacity at the field hospital every six months as part of operational planning.

2.7 The August 2009 review concluded that, following the latest increases, resources are sufficient but the hospital continued to be close to capacity. The pressure on the field hospital at times is demonstrated by theatre usage: for example, in October 2009, the surgery facilities were in use for more than 16 hours on five days (16 per cent). The field hospital has increased capacity further for short periods of high casualty levels by using contingent equipment, such as ventilators, and calling off-duty medical staff to assist.

Figure 5
Facilities and staff increases at Bastion Field Hospital since 2006

	2006	2009
Facilities		
Resuscitation Bays	4	6
Surgical Tables	2	3
Intensive Care Beds	2	8
High Dependency Beds	2	2
Ward Beds	24	28
Staff		
Emergency Department	22	33
Intensive Care Unit	11	23
Surgical Theatres	16	33
General Ward	23	32

Source: National Audit Office analysis of Ministry of Defence data

NOTE

Medical staff comprises consultants, doctors, nurses, medical and healthcare assistants, including US medical staff in 2009, but excluding additional staff deployed for the Afghan elections.

2.8 The field hospital is designed to provide short-term care and its capacity depends on the efficient transfer of patients who need longer-term care. The transfer of Afghan nationals (paragraph 1.2) can be hampered by limited local intensive care provision. This risk to the capacity of Bastion field hospital will increase as Afghan security forces operating in Helmand Province expand.

Timeliness of evacuation to the field hospital is good but to the UK is mixed

2.9 Since the end of 2006, the Department has, on average, consistently achieved its aim to evacuate seriously injured casualties to the field hospital within two hours and within the more challenging NATO standard of 90 minutes which was introduced during summer 2009 (**Figure 6**). The helicopters used to recover casualties are staffed by practitioners in emergency medicine. Coalition helicopters are also used, these do not have the same level of medical expertise on board although can often evacuate more quickly.

2.10 Between April 2003 and October 2009, some 6,900 personnel were evacuated to the UK. Our analysis shows seriously injured patients stayed for up to five days in the field hospital to stabilise their condition before evacuation. The Department gives evacuations high priority, providing dedicated flights for the most serious cases, who are accompanied by a critical care team. The average time between April and June 2009 to return the most seriously injured patients, once the decision to evacuate was made, was 41 hours. The Department has a guideline to evacuate these patients back to the UK within 24 hours, introduced to ensure medical evacuation is a high priority for use of aircraft. It is very challenging to meet this guideline because of the time needed to mobilise the accompanying medical team and fly to and from Afghanistan. The Department considers evacuation times achieved are clinically appropriate.

Figure 6
Average time from injury to Emergency Department of UK casualties by UK Evacuation Teams in Afghanistan

Tour	April – October 2006	October 2006 – April 2007	April – October 2007	October 2007 – April 2008	April – October 2008	October 2008 – April 2009	April – October 2009
Average evacuation time (minutes)							
Seriously injured casualties	158	77	87	86	76	82	Not available
All casualties	160	96	103	94	90	84	Not available

Source: Ministry of Defence

The Department will need to manage the impact of the future Regional Trauma Networks

2.11 When not on operations, most military secondary care personnel maintain their clinical skills by working in the six NHS hospitals in the UK hosting a military hospital unit. The current contracts with NHS Trusts, except Selly Oak, end in 2011.

2.12 Research in civilian healthcare has demonstrated a link between survival rates and the number of trauma patients a doctor sees. The NHS intends to introduce Regional Trauma Networks, where a hospital in each region is an identified major trauma centre. Strategic Health Authorities are responsible for designating major trauma centres. It is possible some military hospital units will not be in such centres and may receive fewer complex trauma patients. When considering where military medical staff should gain clinical experience in the future the Department needs to balance:

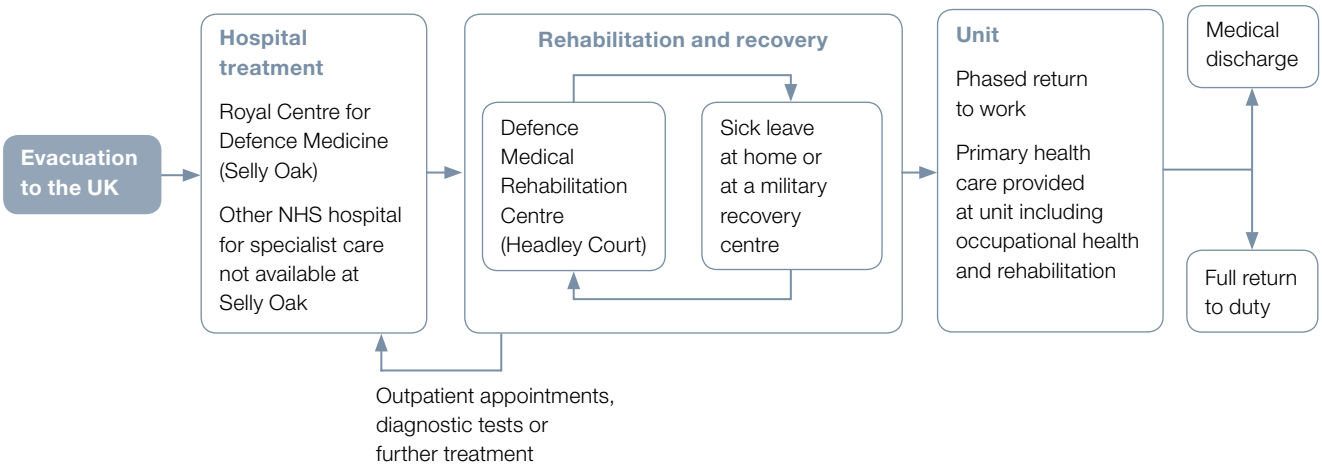
- the experience of major trauma needed by military medical staff;
- maintaining wider clinical skills needed for future campaigns; and
- where military trauma experience can benefit the NHS.

Planning for the new military hospital unit contracts is not yet sufficiently advanced to have taken these issues into account.

Capacity at Selly Oak is being managed but there is scope to improve contingency plans further

2.13 Seriously injured personnel have spent 93 per cent of all hospital treatment time at Selly Oak in Birmingham, the main centre of care for seriously injured personnel when they return to the UK (**Figure 7**). Patients are treated at other hospitals in the Birmingham area if they require specialties not available at Selly Oak, such as for eye injuries. The initial treatment at Selly Oak is lengthy, on average 26 days, reflecting the severity of injuries sustained. Selly Oak is subject to NHS-wide governance practices and standards, but the Department cannot specifically identify the information regarding the levels of quality of care for military casualties. Since September 2009, the Department has been receiving more detailed data from Selly Oak. The Department does not monitor Selly Oak's performance against contractual targets because the contract has not been amended to reflect changes in the way care is delivered and no alternative performance data is monitored. Military commanders and patients were confident in the quality of clinical care at Selly Oak. For example, military patients surveyed by the Department in 2009 were satisfied with their stay.

Figure 7
Treatment and rehabilitation of seriously injured personnel



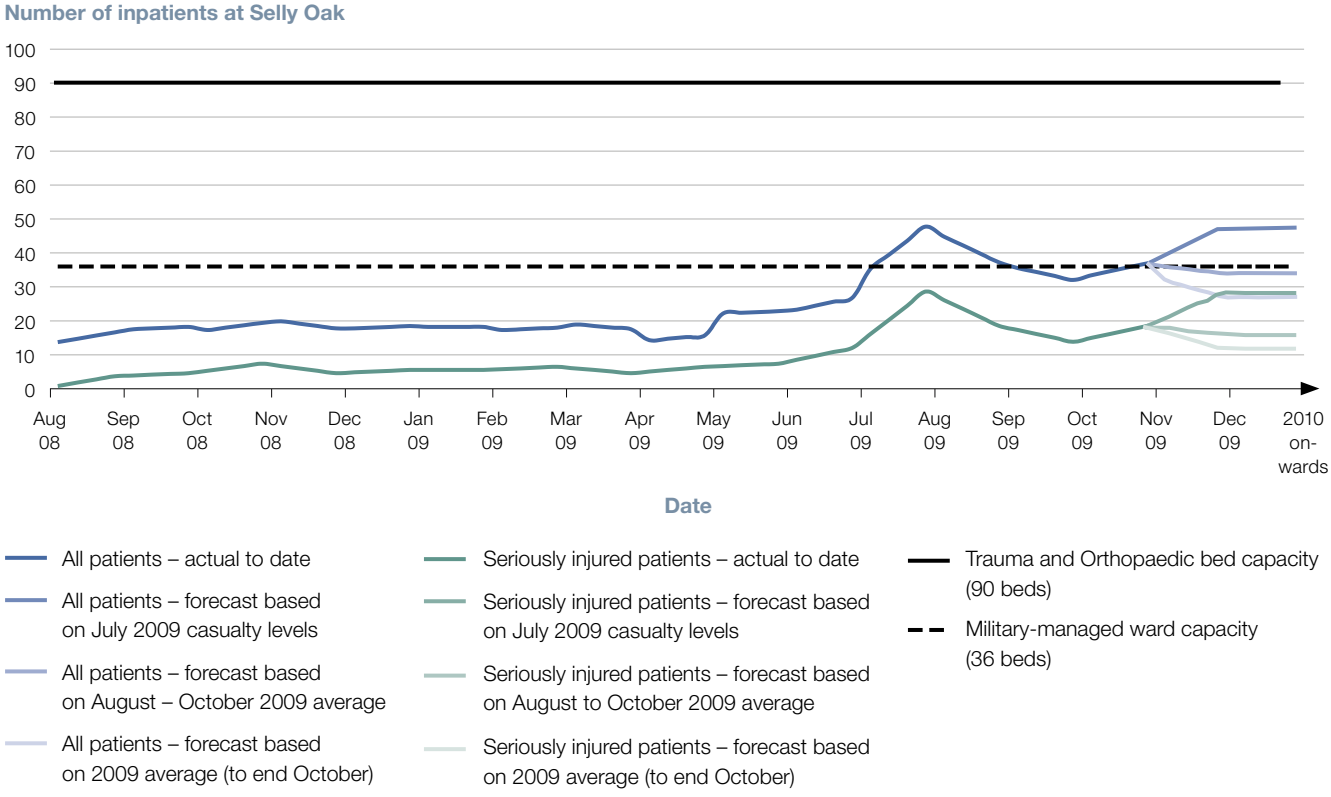
Source: National Audit Office analysis of Ministry of Defence data

2.14 Military casualties peaked in July 2009, and consequently took a third of Selly Oak's 90 trauma and orthopaedic ward beds and 80 per cent of its 36-bed military-managed ward. Total military inpatients at Selly Oak did not exceed 50. Our modelling of casualty scenarios shows that if casualties continue at the July rate, 28 seriously injured patients from military operations will be treated at Selly Oak at any one time, but this will reduce to 12 seriously injured patients if casualties continue at the average rate experienced in 2009 (**Figure 8** overleaf). The number of military patients is small relative to total bed numbers across the Trust but the seriously injured require intensive medical support. Selly Oak has coped with casualties to date by displacing treatment of some 200 elective patients to private providers and other NHS facilities. Selly Oak and the Department are discussing the possible cost of this displacement. Any significant rise in military patients is likely to displace further the treatment of civilian patients at Selly Oak.

2.15 The Ministry of Defence has an overarching agreement with the Department of Health to treat military casualties first at Selly Oak; then if the number of casualties increase, in hospitals in the region, then nationally. The agreement clearly sets out the structures for decision-making among stakeholders. Contingency planning for increased casualty levels has recently been strengthened through the development of a voluntary regional agreement to continue to treat military patients at Selly Oak by diverting some civilian trauma patients to other hospitals in the region. This will provide additional capacity to treat military patients and allow them to continue to benefit from the links between staff at Selly Oak and the field hospital at Bastion, the expertise in the complexity and types of military trauma at Selly Oak, and from the military welfare provision. The voluntary regional agreement provides for civilian patients to be diverted for five consecutive days, after which a decision will be taken on whether military patients need to be treated across the region or nationally.

Figure 8

Forecast of inpatients from military operations at Selly Oak at any one time



Source: National Audit Office analysis of Ministry of Defence data

NOTE

Modelling is based on National Audit Office analysis of the average inpatient stay and Departmental casualty statistics.

2.16 The Department is currently reviewing contingency plans with the Department of Health. Areas for improvement include:

- modelling the capacity required under different casualty scenarios;
- establishing clear indicators of when each level of contingency should be enacted;
- determining which categories of patient should remain at Selly Oak;
- defining the most appropriate destination for categories of military patients if treated nationally; and
- assessing how experience in treating military trauma would be transferred in those cases.

2.17 Most military patients at Selly Oak are treated on a military-managed ward with civilian and military staff and patients. Departmental surveys show patients are satisfied with being treated by civilian and military staff but they have concerns about being accommodated with civilian patients because the circumstances of their hospitalisation are so different. Because of its design, it will be easier to accommodate military patients together, when clinically appropriate, in the new hospital building which will replace Selly Oak's existing buildings in 2010.

Headley Court provides unique rehabilitation facilities

2.18 Headley Court provides rehabilitation facilities for complex trauma, neurological injury and other complex injuries. There is no NHS equivalent for general rehabilitation from trauma and limited civilian provision for specialist rehabilitation such as neurological injuries. Seriously injured personnel needing rehabilitation are admitted to Headley Court, first as inpatients to the ward where they receive intensive support. Headley Court measures outcomes for individual patients; although the lack of data collation and equivalent civilian facilities precludes benchmarking the quality of care provided. However, military commanders told us the quality of care at Headley Court was very good. Patients also considered the quality of care and support to be good, including from mental and occupational health specialists and rehabilitation staff.

Casualty numbers from military operations are placing increasing demands on Headley Court

2.19 The number of complex trauma patients has more than doubled since 2006 (**Figure 9** overleaf) and neurological patient numbers have remained broadly constant. Headley Court increased staff by 23 per cent between 2006 and 2008, and ward beds by 83 per cent in 2007-08. The number of patients who receive group rehabilitation at Headley Court also rose significantly to 2007 but declined sharply in 2008. The majority of these patients are not injured on operations but have injuries sufficiently complex to be treated at Headley Court rather than Regional Rehabilitation Units.

2.20 Our analysis shows seriously injured personnel have received an average of four periods of rehabilitation at Headley Court so far, spending 89 days in rehabilitation over a 187-day period. Rehabilitation is ongoing for most patients. Civilian research has demonstrated that early referral to rehabilitation results in better long-term outcomes for trauma patients. Our analysis shows transfer times to Headley Court have remained constant and time spent between initial phases of rehabilitation at Headley Court has decreased, with more recent patients attending their third and fourth rehabilitation periods more quickly. This contrasts with the perception of some seriously injured patients to whom we spoke, who expressed concern that transfers to Headley Court and periods between individuals' rehabilitation were being lengthened by the Department to address capacity issues.

Figure 9
Inpatient numbers at Headley Court

Year	Nature of Care	2003	2004	2005	2006	2007	2008	2009[1]
Neurological (very few from operations)	Accommodated in wards. Require nursing care and intensive, individual rehabilitation	93	73	93	116	62	86	*23*
Complex Trauma[2] (most from operations)					57	86	146	*127*
Intensive Rehabilitation Total		**93**	**73**	**93**	**173**	**148**	**232**	***150***
Group Rehabilitation (some from operations, including less seriously injured referred directly, and seriously injured in later stages of rehabilitation)	Majority in hostel accommodation. Receive rehabilitation in groups. Although numbers of patients are higher, they require less intensive support	1,974	1,407	1,544	1,816	2,079	1,247	*1,077*

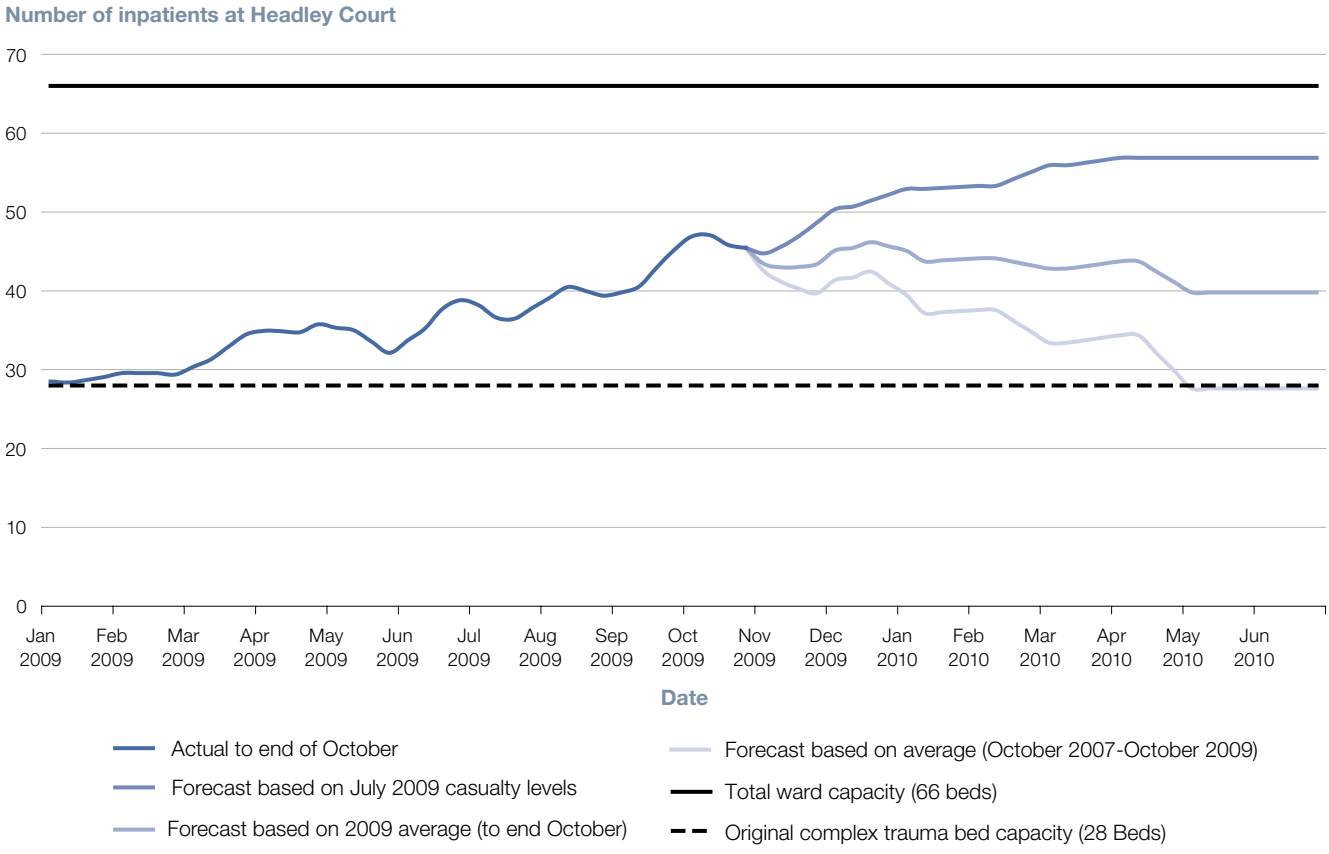
Source: Ministry of Defence data

NOTES
1 To 31 July 2009.
2 Not separately identified until 2006.

2.21 Throughout 2009, the number of operational patients has exceeded the 28 ward beds originally set aside for complex trauma patients. Our analysis shows 86 per cent of all ward beds at Headley Court will be occupied by seriously injured patients by April 2010 if casualties from Afghanistan continue at the level of summer 2009. This will reduce to 61 per cent of ward beds if the number of casualties decrease to levels seen on average in 2009 (**Figure 10**). At the higher casualty rates, capacity of Headley Court will be exceeded unless other categories of ward patients reduce or are treated elsewhere.

Figure 10

Forecast of inpatients from military operations at Headley Court at any one time



Source: National Audit Office analysis of Ministry of Defence data

NOTE

Modelling is based on National Audit Office analysis of the average number and lengths of inpatient stay and Departmental casualty statistics.

2.22 The Department has already reduced the number of group rehabilitation patients at Headley Court, transferring them to Regional Rehabilitation Units (Figure 9). The Department plans to meet further increases in demand from patients injured on military operations by increasing ward bed numbers, transferring neurological patients to appropriate private rehabilitation facilities and providing Headley Court-led rehabilitation at Regional Rehabilitation Units (**Figure 11**). Performance at Regional Rehabilitation Units for treating all military patients requiring rehabilitation against target referral times for assessment at clinics and subsequent admission is variable (**Figure 12**), suggesting they may not have the capacity to be an effective overflow for Headley Court patients. The Department is currently assessing the feasibility of increasing overall rehabilitation staffing.

Clinical governance of treatment is good

2.23 The clinical governance and audit of major trauma on operations is good, a view supported by the former Healthcare Commission's[8] review of the Department's healthcare services. There is a weekly conference call between field hospital staff, Selly Oak, Headley Court and other Departmental medical staff to discuss the outlook for inpatients recently evacuated to Selly Oak. The Department collects and reviews data from seriously injured personnel to identify unexpected survivors and avoidable deaths, which also informs research to improve personal protective equipment, such as body armour and helmets. To date, the Department has not been in a position to analyse and identify the long-term outcomes of seriously injured personnel, as rehabilitation is ongoing for many.

Figure 11
Plans to increase Headley Court capacity

Planned Delivery Date	Action
Ongoing	Transferring some less intensive rehabilitation to Regional Rehabilitation Units.
Late 2010	Add up to 30 temporary ward beds, which could bring total to 96. Options being considered; requires planning permission.
Late 2011	Planned construction of new clinical unit – replacing existing wards and expanding bed capacity permanently.

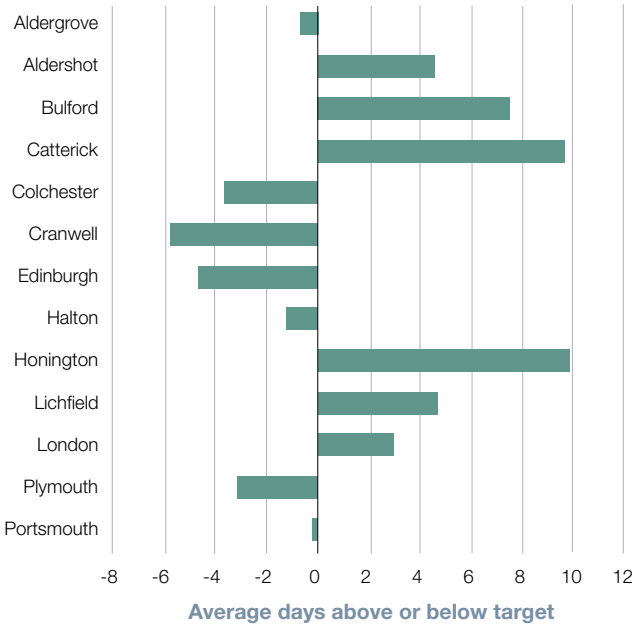
Source: Ministry of Defence

8 Defence Medical Services: A review of the clinical governance of the Defence Medical Services in the UK and overseas, March 2009, Commission for Healthcare Audit and Inspection.

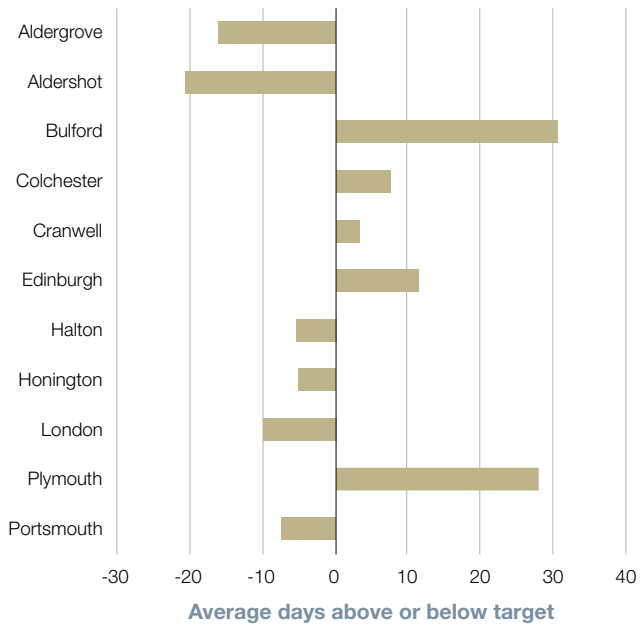
Figure 12

Performance of Regional Rehabilitation Units for initial assessment and admission in 2008-09 for all service personnel requiring rehabilitation

Performance against target of 10 working days for initial assessment



Performance against target of 30 working days for admission[1]



Source: National Audit Office analysis of Ministry of Defence data

NOTE

1 Data not available for Catterick and Lichfield.

Part Three

Minor Injury and Illness

3.1 This part of the report examines the impact and treatment of minor injury and illness on operations and in the UK for evacuated personnel.[9]

Rates of minor injury and illness have increased significantly

3.2 Some illness and minor injury is expected while conducting military operations. Rates of minor injury and illness have increased in Afghanistan from 4 to 7 per cent of deployed personnel per week between 2006 and 2009, and from 5 to 9 per cent in Iraq over broadly the same period (as shown by the trendlines in **Figure 13**). Both are still below the Department's assumed rate of up to 10 per cent. This rate is based broadly on past experience and is not specific to Afghanistan. The most prevalent categories of conditions at primary care are digestive illnesses (such as diarrhoea) and musculoskeletal disorders (such as ankle sprains). There are a range of possible factors for the increasing trend including the intensity and basic living conditions of operations, and better reporting (**Figure 14** on page 30). However, the Department's data do not allow it to quantify the significance of any individual factor. The rising rates demonstrate that the Department needs to do more to assess which prevention measures should be improved to halt the increase.

Minor injury and illness cannot be eradicated completely but the Department has not been able to halt increasing rates

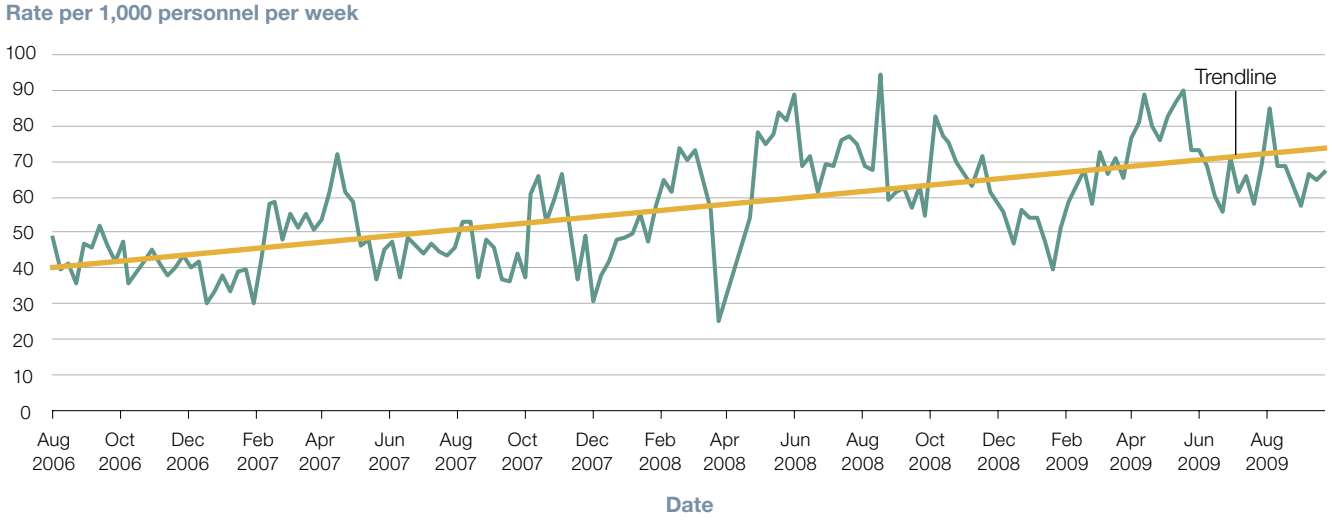
3.3 We estimate 6,700 days were lost between October 2006 and September 2009 through the increasing levels of injury and illness in Afghanistan at an opportunity cost of £0.7 million. At around 0.1 per cent of the deployed force, this represents a small reduction in operational capability. However, there is a risk that operational capability will be reduced further if rates continue to rise. Musculoskeletal injuries have the greatest impact in terms of days lost as the patient recovers, but digestive disorders or respiratory illnesses can have a measurable short-lived effect during an outbreak (**Figure 15** on page 30). The rate of digestive disorders has more than doubled in Afghanistan between 2006 and 2009 (as shown by the trendline in **Figure 16** on page 31). There are particular spikes around the six-monthly rotations of deployed units.

9 This is also known as "disease and non-battlefield injury" – DNBI.

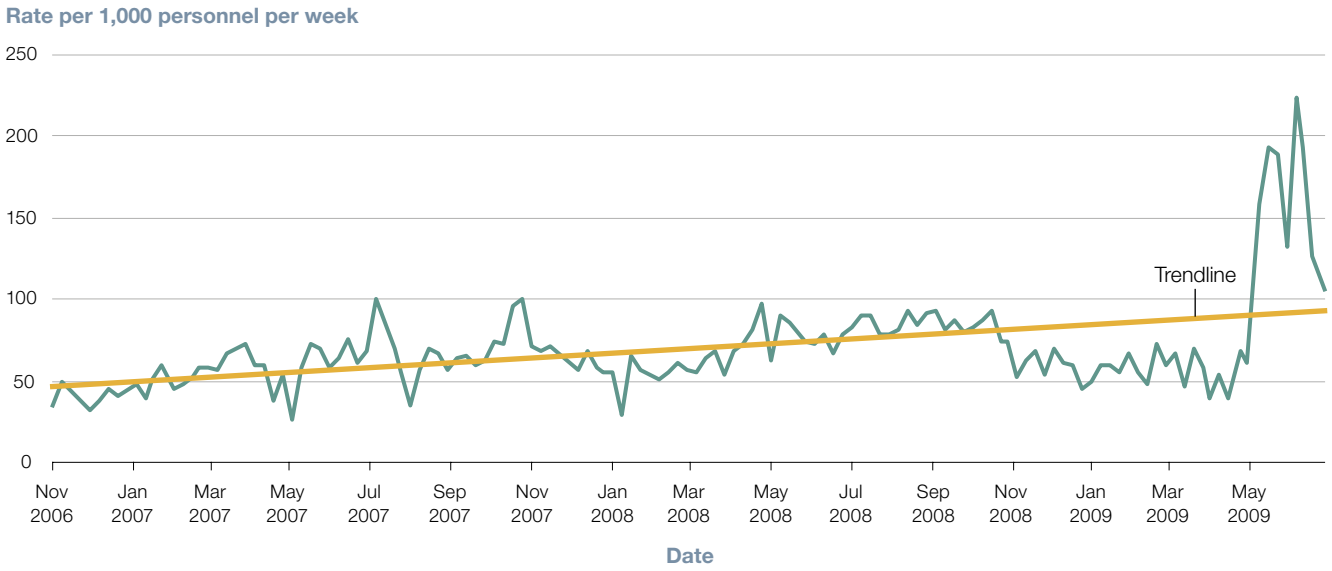
Figure 13

Minor injury and illness rates on military operations

Minor injury and illness rate per 1,000 in primary care, Afghanistan



Minor injury and illness rate per 1,000 in primary care, Iraq



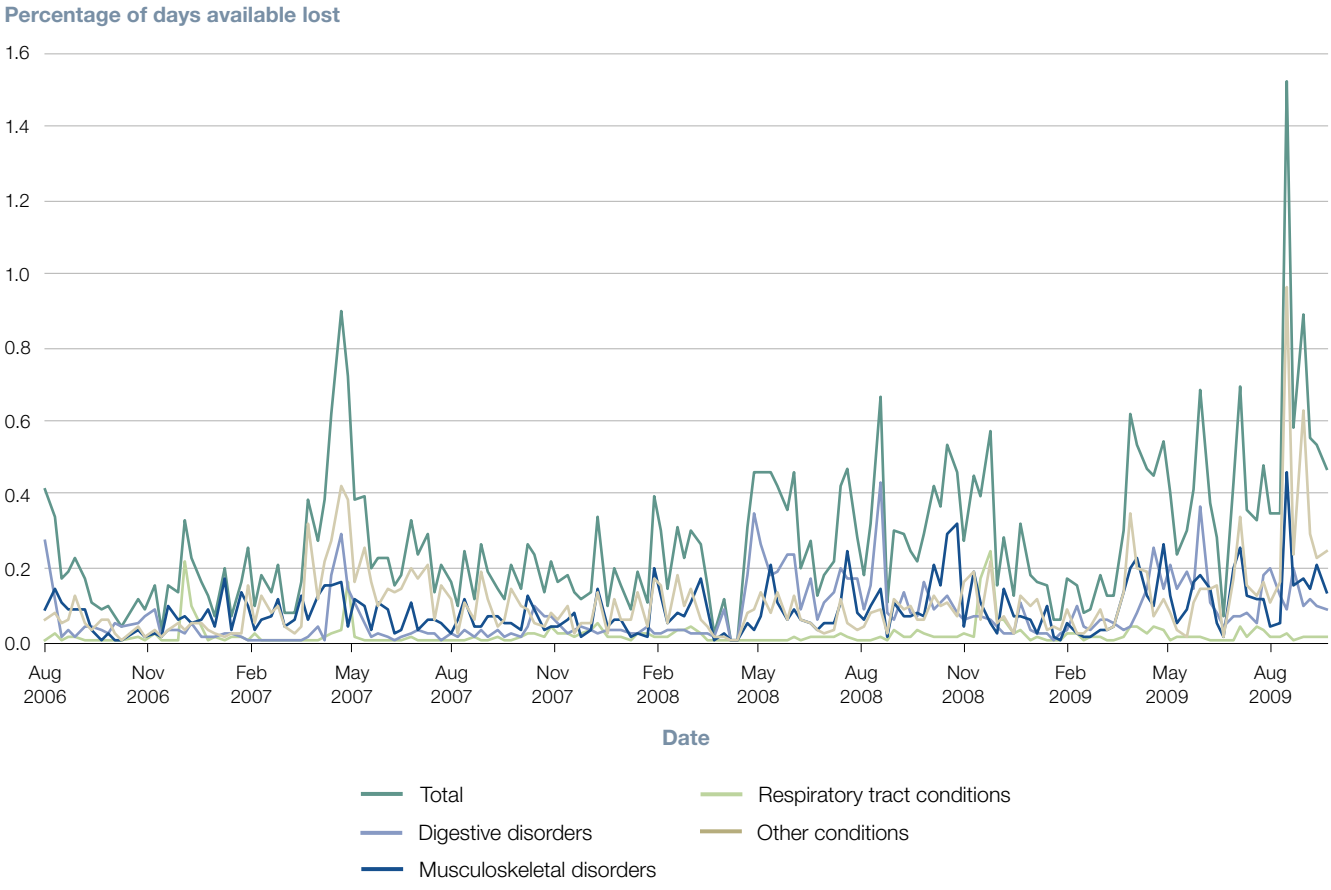
Source: National Audit Office analysis of Ministry of Defence data

Figure 14
Likely factors contributing to the rise in minor injury and illness rates

Factor	Likely Impact
Intensity of operations	Greater exposure to disease and injury risks
	Less time to recover and maintain good personal hygiene
	Personnel fatigued so more prone to illness and injury
Conditions of operational locations	More personnel in forward locations and on patrol where conditions are more basic
More reporting	More forward locations have been reporting medical data from 2008 onwards
	Personnel encouraged to get medical help for minor injury and illness

Source: Ministry of Defence

Figure 15
Impact of minor injury and illness in Afghanistan



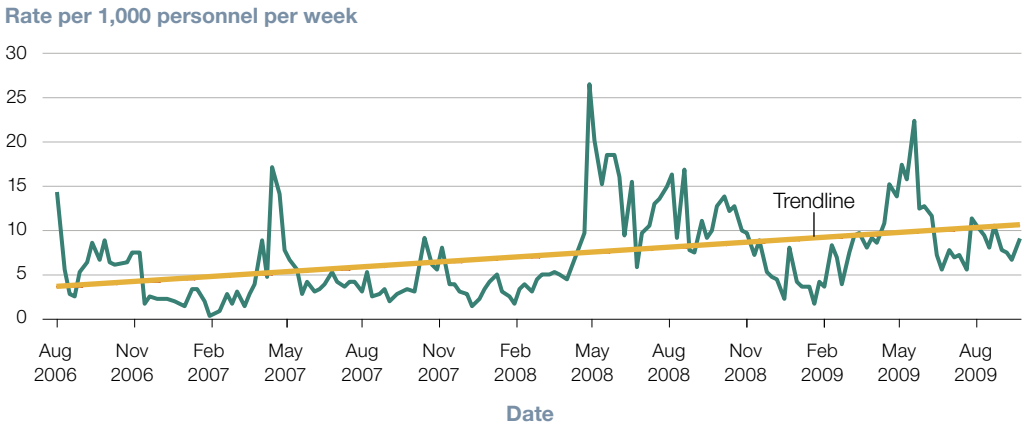
Source: National Audit Office analysis of Ministry of Defence data

NOTE
Other conditions include climatic injury, dermatology and other disease and injuries.

Figure 16
The impact of gastrointestinal disorders

At the end of September 2009 the rate of digestive disorders in primary care in Afghanistan was 0.9 per cent of deployed UK personnel.

Rate of digestive disorders in Afghanistan in primary care, per 1,000 personnel deployed



Deployments

Gastrointestinal illness is the second most common reason for attending the field hospital, accounting for between 10 and 20 per cent of attendances in Afghanistan. The force deployed to Afghanistan from April to October 2008 was affected by digestive disorders losing two days per 1,000 available through personnel ill on operations and the evacuation of some for treatment in the UK. From April 2009 the proportion of personnel treated in the field hospital in Bastion has significantly reduced, from some 90 per cent of cases to 57 per cent, with most personnel being returned to their base for treatment.

Source: National Audit Office analysis of Ministry of Defence data

3.4 Health protection is considered before operations begin and continues throughout the deployment of personnel (**Figure 17**). Senior Commanders are given pre-deployment medical advice as it is their responsibility to enforce preventive measures in their units, such as good hygiene.

3.5 A team of five environmental health staff is deployed to Afghanistan, an increase of two since 2007, to provide health protection advice, but these report difficulties in routinely getting transport to forward bases given high demand for helicopter transport. The Department is confident it can get environmental health personnel to forward bases when urgently needed. Deployed units also have personnel with environmental health skills, but they may have battle duties that hamper implementation and monitoring of health protection measures in forward bases. The Department analyses causes of the increase in some diseases, particularly gastrointestinal illness, and has undertaken research and conducted an audit of compliance with preventive measures. Preventing illness is intuitively more cost-effective than the associated costs of evacuation and treatment, but the Department has not assessed the costs and benefits of improving specific prevention measures to maintain operational capability.

Figure 17
Health protection measures

Timing	Health protection measure
Before operations begin	Medical personnel review health risks and identify countermeasures, such as vaccinations.
Before personnel are deployed	Medical records are reviewed to ensure personnel can deploy and vaccinations are current.
	Personnel receive a 40-minute health protection briefing.
On operations	Personnel receive a further health briefing when they arrive.
	Medical personnel analyse data to identify outbreaks of disease and continue to review health risks in the area. A team of environmental health specialists provide expert help and advice.
	Unit Commanders are expected to enforce good hygiene practices.

Source: National Audit Office analysis

3.6 The deployment of rehabilitation staff to Afghanistan to deal with injuries has more than doubled, from three in 2006 to eight in 2009, based in Kandahar and Bastion. Since January 2009 a team of two staff visits forward bases on a rotating basis, but their programme only covers one-third of bases. An intensive rehabilitation programme is provided at Camp Bastion. Here rehabilitation should be given three times a day for a week, although it has not always been possible to deliver this level of support given current staff numbers.

3.7 Rates of musculoskeletal injuries have increased in Afghanistan and Iraq. Some one per cent of the deployed force in Afghanistan have such an injury at any given time (**Figure 18** overleaf).

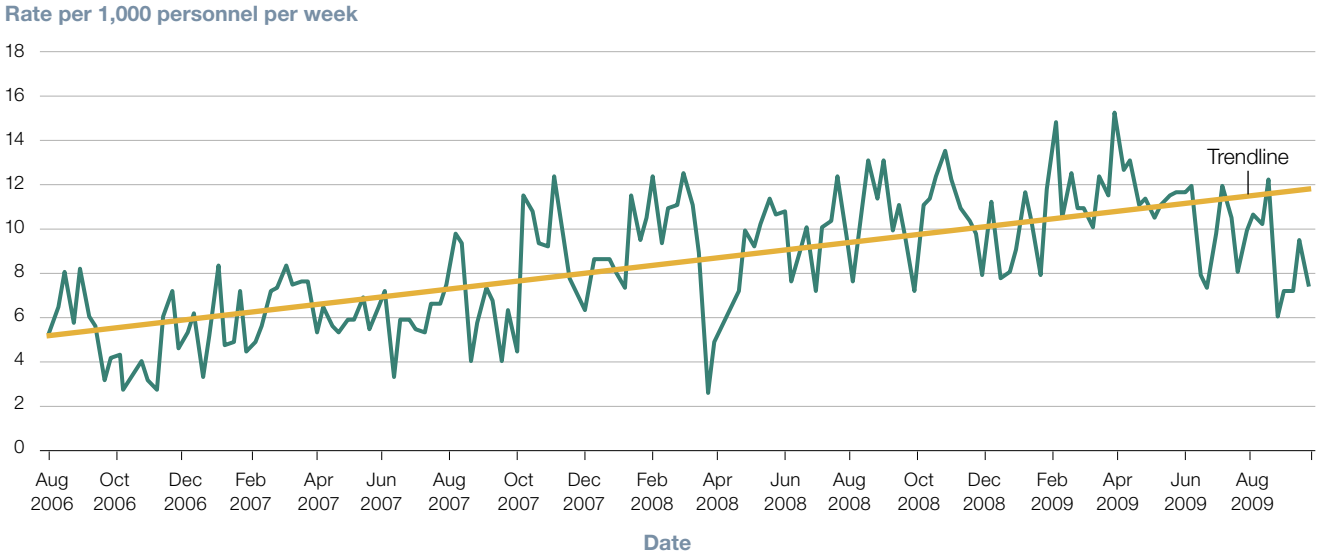
3.8 Most forward bases have a medical officer. They are not trained in rehabilitation or environmental health, although they must manage minor injury and illness between visits by specialists. However, rehabilitation specialists reported difficulties in getting helicopter transport to forward bases, thus limiting the care provided outside Bastion.

3.9 Some evacuated personnel have very short periods of treatment in the UK. Ten per cent of personnel evacuated from Afghanistan had completed treatment within two weeks of return to the UK (**Figure 19** on page 35). It would be more meaningful to measure the time taken for patients to be fully fit but the Department does not collate this to enable analysis. The data do not show whether evacuated operational casualties return once fit or have been replaced during a tour. The short treatment times illustrate the need for the Department to assess whether it could be more cost-effective to provide a greater degree of treatment and rehabilitation on operations.

Figure 18
The impact of minor injuries

Musculoskeletal and orthopaedic soft tissue injuries are similar and include injuries like sprained ankles. The trendline shows that rates of musculoskeletal injury have more than doubled in Afghanistan.

Rate of musculoskeletal disorders in primary care in Afghanistan, per 1,000 personnel deployed



The impact of musculoskeletal injuries has increased, with 2.4 days lost per 1,000 available in the six-month deployment to October 2009 in Afghanistan.

Afghanistan Tour	Mid-October 2007 to mid-April 2008	Mid-April to mid-October 2008	Mid-October 2008 to mid-April 2009	Mid-April to mid-October 2009
Days lost on military operations	985	1,222	1,564	2,523
Days in treatment in the UK	363	452	1,700	804
Days lost due to evacuation[1]	111	322	1,021	737
Total days lost	**1,459**	**1,996**	**4,285**	**4,064**
Days lost per 1,000 available	**1.0**	**1.2**	**2.6**	**2.4**

Orthopaedic soft tissue injuries were the most common reason for attending the field hospital in Afghanistan, accounting for between 14 and 21 per cent of attendances; rates in Iraq were slightly lower. Over 200 personnel were evacuated to the UK for orthopaedic soft tissue injuries from October 2007 (out of 1,168), and 76 personnel for musculoskeletal injuries (out of 427).

Source: National Audit Office analysis of Ministry of Defence data

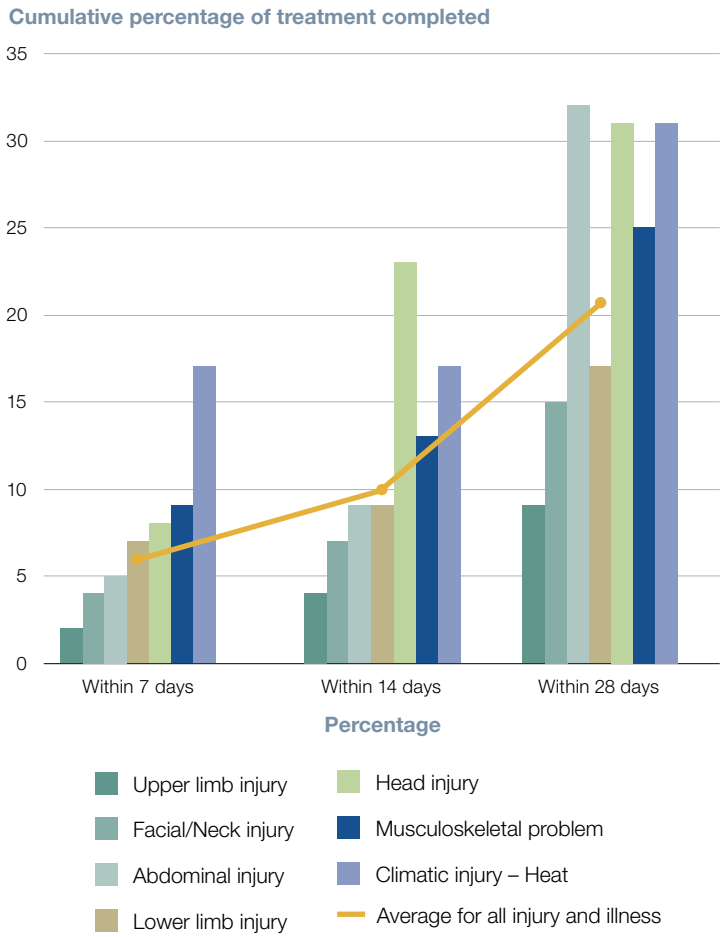
NOTE

1 This assumes personnel did not return to operations once evacuated.

There is scope to improve speed of access to treatment and rehabilitation in the UK

3.10 Around half of personnel evacuated from operations were discharged on arrival at the UK to attend primary care at their unit. On average, patients are seen within six days of their return from Afghanistan and two-thirds are seen within two weeks (**Figure 20** overleaf). Our analysis shows the majority of rehabilitation from orthopaedic soft tissue and musculoskeletal injuries occurred in Regional Rehabilitation Units, not Headley Court. Patients wait on average eight days to be seen at a rehabilitation unit against a target to be seen within five days.

Figure 19
Conditions with short treatment times in the UK



Source: National Audit Office analysis of Ministry of Defence data

3.11 The Department pays six NHS hospital Trusts hosting military hospital units to treat military patients with minor injuries, paying a 20 per cent premium if treatment occurs within 10 weeks of referral for 60 per cent of those patients. Some of these hospitals already achieve this target for their civilian patients, and therefore the Department is paying extra but not always getting a faster service (**Figure 21**).

Figure 20

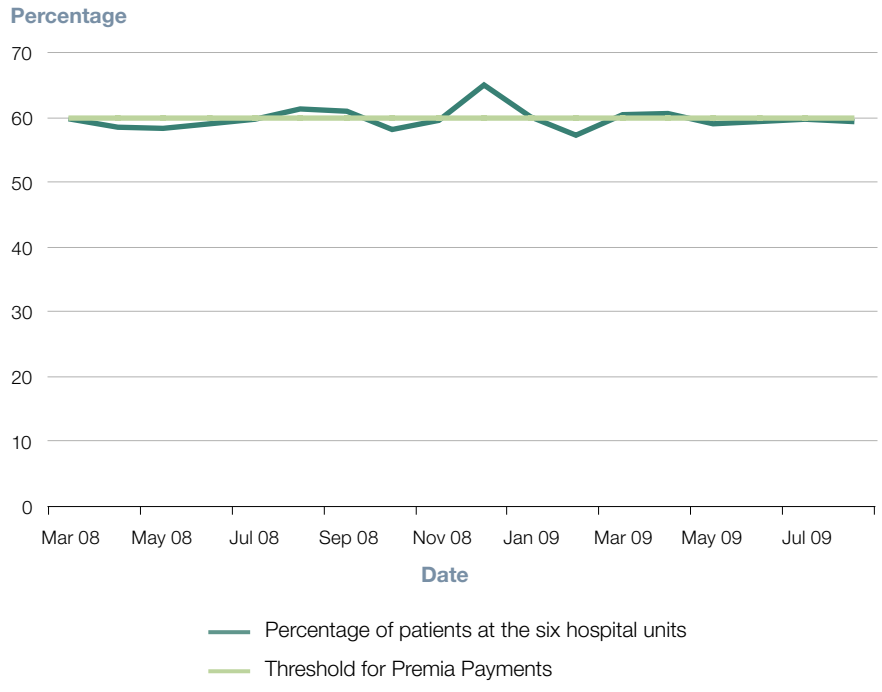
Average number of days from evacuation to attendance at UK medical facilities from October 2008 to October 2009

Military medical facility	Iraq			Afghanistan		
	Average (days)	Seen within 7 days (%)	Seen within 14 days (%)	Average (days)	Seen within 7 days (%)	Seen within 14 days (%)
Primary Care	3	63	73	6	53	68
Rehabilitation	3	75	83	8	48	67
Outpatient Mental Healthcare	5	67	67	4	100	100

Source: National Audit Office analysis of Ministry of Defence data

Figure 21

Percentage of patients at the six Trusts hosting a military hospital unit where referral to treatment occurred within ten weeks



Source: National Audit Office analysis of National Health Service data

There are limitations in data on minor injury and illness

3.12 There are problems with data collected on operations, in part because of operational circumstances. For example:

- some forward bases did not report data for 10 weeks, while others did not report at all; and
- completeness of field hospital data is variable and needs improving.

3.13 The Department does not know how many personnel seek treatment at UK-based medical facilities for minor injuries or illness caused by military operations once their deployment is complete. The Department does not consider it necessary to conduct routine physical health checks on returning personnel, instead encouraging individuals to seek medical help if needed. The Department does not collate the probable primary cause of personnel subsequently seeking medical care. The Department is, therefore, unable to quantify fully the impact of military operations on the health of personnel, nor can it accurately attribute the health burden of serving on operations, meaning opportunities for prevention may go unrecognised.

3.14 Prior to 2009, data from operations was only analysed to identify short-term peaks requiring intervention from specialist staff, but the Department has now begun to analyse long-term trends. The Department should do more data analysis because currently:

- injury and illness rates are not compared with coalition partners to assess relative performance; and
- datasets are not linked to monitor timelines for treatment and rehabilitation.

3.15 The Department does not identify the overall cost of treating operational casualties. We estimated costs were £71 million in 2008-09 (**Figure 22** overleaf) excluding costs of training military medical staff before deployment, transporting patients within the operational theatre, and treating evacuated patients at Regional Rehabilitation Units and primary care. The costs for staffing and running the military unit at Selly Oak have been attributed to patients evacuated to the UK from operations and other overseas locations. The direct cost of treating these patients at Selly Oak in 2008-09 was £3.3 million.

Figure 22

The estimated cost of treating patients from military operations in 2008-09

	Composition	£ million
Operational theatre	Cost of medical consumables, equipment and infrastructure on operations. Estimated cost of deployed medical staff, including temporary staff filling posts in the UK, and evacuation of patients to the UK.	41
Hospital treatment in the UK	Contractual payments to Selly Oak and other NHS Trusts for treating evacuated patients. Staff and running costs for the military unit at Selly Oak.	23
Rehabilitation in the UK	Infrastructure, staff and running costs at Headley Court. Contractual payments for specialist rehabilitation and prosthetics.	7
Total		**71**

Source: National Audit Office analysis

Part Four

Mental Health Care

4.1 The Department provides support for personnel who experience mental health problems during their time in the Services. This section of the report outlines the support available to personnel on operations and the UK, and examines the provision and use of military mental health services. We have not assessed services for veterans.

Deployed personnel are more likely to show some mental health symptoms than those who do not deploy

4.2 A relatively low proportion of personnel are referred to specialist psychiatric support in theatre (**Figure 23** overleaf). In 2008, the overall mental health assessment rates for deployed and non-deployed personnel who sought medical help in the UK were 16 per 1,000 population. The rate of Post Traumatic Stress Disorder (PTSD) assessed in the UK in previously deployed Service personnel was 1.1 per 1,000 personnel, and 0.3 per 1,000 personnel who have never deployed.[10] A research paper published in 2003[11] based on self completed questionnaires by personnel in Iraq shows PTSD symptoms to be 50 per cent higher in deployed combat troops. The Department considers this to be a more accurate comparison and is updating this research. Multinational research shows a link between exposure to combat stress and the likelihood of personnel developing mental health problems.

4.3 Clear comparators for all mental health conditions are not always publicly available (Figure 23). The reasons for lower UK levels than the US have not been established but prevalence may be affected by different deployment patterns and operational activity.

The full extent of mental health problems from operations may not have emerged

4.4 Personnel can take a number of years to seek help for mental health problems and so the full extent of problems from operations may have not yet emerged. The Department funds a programme of research (based at Kings College London) to assess the long-term mental health outcomes of personnel who deploy on operations. This includes:

10 First assessment by mental health specialist.
11 M. Hotopf et al, "The health of UK military personnel who deployed to the 2003 Iraq War: a cohort study", *Lancet* 2006.

- a longitudinal study of personnel who have both deployed and not deployed, with latest results due in 2010; and
- evaluations of Post-Operational Stress Management programmes (**Figure 24**), with results due to be published in 2010.

The Department provides mental health support in the operational theatre and the UK

4.5 Mental health support is provided on operations through three Community Mental Health Nurses in Afghanistan. There is a general preference amongst Service personnel to see psychiatric staff in an informal capacity and the number of formal referrals is low. Psychiatric staff visit forward bases but reported that gaining access to transport to do so can be difficult given other operational priorities. A consultant psychiatrist visits Afghanistan every three months.

Figure 23
Prevalence of mental health conditions on operations and following deployment

	Location	Number	Percentage of population	Comparators
On Operations 2008-09				
Referral to the field mental health team	Afghanistan	39	0.2	Not available
	Iraq	62	0.8	
In the UK during 2008 (after deployment to Iraq and/or Afghanistan)				
Referrals		2,354	2.1	Non-deployed UK military population: 2.4 per cent UK Civilian population: 2.6
Total diagnoses of Mental Health conditions		1,769	1.6	Non-deployed UK military population: 1.6
– of which Post Traumatic Stress Disorder		122	0.1	Non-deployed UK military population: 0.03
Prevalence of Mental Health symptoms following deployment				
All Mental Health conditions			Not routinely assessed	Canada: 13 per cent identified through screening US: Approximately 30 per cent identified through screening
Post Traumatic Stress Disorder			Research estimates 4-6 per cent in deployed troops	Canada: 4 per cent identified through screening US: 10-15 per cent identified through screening

Source: National Audit Office analysis of Ministry of Defence, National Health Service, United States and Canadian data

Figure 24
Operational stress management measures

Measure	Availability for formed units	Individuals
Trauma Risk Management (TRiM)		
TRiM formalises the unit's responsibility to routinely check on those who have experienced a traumatic incident. Checks should occur at one, three and six month intervals. Introduced first by the Royal Marines, it is now being adopted by the three Services.	Yes	While on deployment but currently not on return to the UK
Decompression		
Decompression puts returning troops in a structured and monitored environment in Cyprus where they can relax and start to re-adjust to normal life. Personnel receive stress management briefings and are given information on mental health services. The Department is evaluating the results of a pilot of "Battlemind", a formalised way of delivering this information developed by the US military.	Yes	No, trial of individual decompression to begin 2010
Post-Operational Stress Management		
Personnel should be interviewed by their line manager around three months following deployment.	Yes	No verification that this occurs
Other measures		
Post Operational Recall Days: Since 2008 the Services provide briefings for personnel not deployed as formed units soon after they return from deployment.	No	Yes
Briefings to families are provided by the Families Federations and Welfare Services.	Yes	Yes

Source: National Audit Office analysis

4.6 The Department provides outpatient treatment to the small number of personnel who return from military operations for psychiatric reasons at Departments of Community Mental Health or, if required, inpatient care through a contract with the NHS. The Department has shortfalls in trained military psychiatric staff which strains UK capacity when these personnel are deployed.

4.7 Specialist psychiatric staff at Headley Court assess the risk of mental health problems in seriously injured personnel but there is no routine assessment of the mental health of other UK military personnel returning from operations. Research funded by the Department has shown that typical self-completed questionnaires used for screening are imprecise and open to manipulation. Other coalition partners with smaller deployed forces undertake one-to-one interviews with personnel following deployment.

Systems of oversight are in place for personnel deploying as formed units

4.8 The Department has a number of non-medical stress management processes (Figure 24) for personnel on, and following, deployment. It is conducting a randomised controlled trial evaluating the effectiveness of Trauma Risk Management, which has been well received by the military. Decompression (Figure 24) is gaining wider acceptance. There is inconsistent access to non-medical stress management processes on return to the UK for Reserves; personnel who deploy individually rather than as part of a unit; or for those who move units following deployment. The Department recognises this and is currently developing its stress management processes to address this problem.

4.9 Reserves get the standard post deployment mental health briefing but do not have access to the full range of post-operational stress management tools because they return to civilian life after deployment. Reserves can access mental healthcare directly through the NHS or through mental health programmes being piloted for veterans.[12] The Department also provides treatment through the Reserves Mental Health Programme for Reservists who have mental health problems caused by military operations. Eighty-one patients were seen between December 2006 and 2008, of whom 70 per cent were diagnosed with a combat-related mental health problem. Only 12 per cent accessed the programme through their GP in 2008.

12 Medical Assessment Programme and Community Veterans Mental Health Service Pilots.

Appendix One

Methodology

The main elements of our fieldwork, which took place between May and August 2009, were:

Selected method	Purpose
1 Review of key documents	
Policy documents, medical contracts, performance reports and meeting minutes	Identify standards of medical care set by the Department and performance against them
2 Semi-structured interviews	
Staff from the Ministry of Defence and the three Services responsible for: • policy and delivery of medical care; • personnel policy; • medical and rehabilitation personnel; and • research. Visits to Selly Oak, Headley Court, and three Ministry of Defence Hospital Units	Understand: • delivery of treatment and rehabilitation; • health protection measures.
3 Analysis of medical data	
Medical data from military operations, evacuation and treatment locations in the UK	Analyse rates of disease and injury; create treatment pathways used in Method 5
4 Other data analysis	
Data on staffing, performance and costs	Examine possible capacity issues at medical facilities
5 Process mapping and modelling	
Consultants process mapped and analysed treatment and rehabilitation pathways for: • serious injury; • musculoskeletal injury; • orthopaedic soft tissue and fracture injuries; and • gastrointestinal and heat illnesses. Modelled capacity at Selly Oak and Headley Court against different casualty scenarios	Identify any changes to treatment and rehabilitation, and any risks to capacity at Selly Oak and Headley Court

Selected method	Purpose
6 Literature review	
Consultants analysed academic literature in treatment and rehabilitation of: • major trauma; • mental health following traumatic events; • musculoskeletal injury; and • gastrointestinal and heat illnesses.	Compare the care provided by the Department to identified good practice
7 Focus group	
Two focus groups with patients at Headley Court	Obtain patient perspective of their care

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