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Treating Injury and Illness arising on Military Operations

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.