

# **A better deal for military amputees**

Andrew Murrison MD MP

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### **Summary**

**Conflicts in Iraq and Afghanistan have generated a sharp increase in the number of amputees who will leave the Armed Forces up to 2020. In addition, commitments made by ministers to improve prosthetics for veteran amputees in January 2010 were not funded risking a crisis as NHS limb centres face rising demand with fixed resources.**

**This review through its twelve recommendations suggests a way forward that will honour the Armed Forces Covenant and benefit the wider amputee community. Its principal recommendation is that the special provision anticipated for injured veterans in the 2010 Armed Forces Bill is delivered for amputees through national specialist commissioning of prosthetics and rehabilitation.**

### **Introduction**

In May 2010 the Prime Minister tasked the author with reviewing mental healthcare provision for people who had served in the Armed Forces. The report, *Fighting Fit*, submitted in August 2010, was accepted in full by the government and is in the process of being implemented.

On scanning veterans' healthcare further, it became clear that future provision for ex-Service amputees was of concern within the Armed Forces community and among Service charities. The potential burden of increasing numbers of Iraq and Afghanistan amputees with high prosthetic expectations was beginning to worry NHS service providers with limited budgets. A profiling exercise suggested that from the end of 2011 until the end of the decade there would be a surge in the number of combat amputees with complex needs leaving the Armed Forces. Consequently a meeting was convened by the Minister of State for Health with the author and the British Limbless Ex-

Servicemen's Association (BLESMA), Help for Heroes, the Confederation of British Service and Ex-Service Organisations (COBSEO) and officials. Key areas for review were suggested by the Department of Health (Annex A) and the author was asked, working closely with BLESMA, to make recommendations by the end of June 2011.

This study relies on responses to a paper consultation of interested parties in which those canvassed were asked in a non directive way for views on current provision and future service development. In addition, the author visited a number of limb centres and held discussions with a wide range of service users and providers together with government and non-governmental authorities.

The author is grateful to the contributors and to those who have responded to the consultation (Annex B). Particular acknowledgment is due to Lieutenant Colonel Jerome Church MBE of BLESMA, the Surgeon General, Surgeon Vice Admiral Philip Raffaelli, and Department of Health Officials Mr Mark Davies CBE, Mr David Rutter and Mr Robert Moorhead.

## **The landscape**

Increased use by the Taliban of Improvised Explosive Devices and world class medical care in the field have generated a rise in the number of surviving amputees, often multiple with extensive co-morbidities. The care pathway operated by the Defence Medical Services is highly regarded. However, ultimately amputees will become civilians and so the responsibility of the NHS.

The Defence Medical Rehabilitation Programme (DMRP) with its Consultant based multiple-disciplinary Complex Trauma Teams (CTTs) has no equivalent in the NHS. DMRP is primarily resourced to return serving personnel to duty but in practice seeks to deliver optimal functional recovery regardless of an amputee's likely destination.

Compensation for injury under the Armed Forces Compensation Scheme has been substantially enhanced. However, the scheme does not make provision for care costs and the 2010 review of compensation by Admiral the Lord Boyce endorsed the current provision of healthcare and support through existing civilian public sector structures rather than separately through the MoD. Mr

Andrew Dilnot's Commission on Funding of Care and Support will report shortly after this review and will undoubtedly be relevant to amputee veterans.

The Command Paper 'The Nation's Commitment: Cross-Government Support to our Armed Forces, their Families and Veterans' of July 2008<sup>1</sup>, a written ministerial statement in January 2010<sup>2</sup> and a further Department of Health note in August 2010<sup>3</sup> made clear that all veterans who have lost a limb whilst serving in the Armed Forces should, where clinically appropriate, have access to a modern high end prosthesis of the sort issued at Headley Court. The directives were not funded.

The recommendations generated by the review are intended to ensure that the high quality patient pathway established for amputees by the MoD through Headley Court continues into civilian life. The precepts of the military covenant, formalised in Clause 2 of the Armed Forces Bill 2010, require it. The clause was amended at third reading on 16 June 2011 to introduce 'the principle that special provision for Service people may be justified by the effect on such people of membership, or former membership, of the armed forces'. This review has taken account of that. It is helped by the NHS limb service being unusual in UK health provision in that military veterans have been relatively advantaged throughout. Hence the two-tier principle has already been established on the grounds that veterans have sustained their injuries in a way that is seen as meritorious (Annex C).

Notwithstanding the need to benefit military amputees, this review is very clear that the non-military limbless population must not be disadvantaged by any changes made to provision for servicemen. Indeed the general limb service must be lifted by them.

This review concentrates on people with Service-attributable injury, the bulk of which is combat-related. Those with injuries that are not related to occupation have the same support through the DMRP aimed at returning them to duty

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<sup>1</sup> The Nation's Commitment: Cross-Government Support to our Armed Forces, their Families and Veterans – CM 7424 July 2008.

<sup>2</sup> Medical Care (Veterans). House of Commons Written Ministerial Statement 11<sup>th</sup> January 2010

<sup>3</sup> Continuing Care for Veterans – Note to Limb Centre managers, Providers, Service Personnel and Veterans Agency and Veterans Organisations. DH Gateway Number 14645. 10<sup>th</sup> August 2010.

and their prostheses will be covered with the same warrantee, typically for five years. However, in civilian life they will be managed in the NHS mainstream according to clinical need. Any other course would invite challenge from civilian amputees.

### **Predicting demand**

The British Limbless Ex-Servicemen's Association (BLESMA) believes its membership includes the vast majority of veteran amputees in the UK, totalling 1335. Most are older single limb amputees whose needs are understood to be generally addressed satisfactorily by local NHS limb centres. BLESMA has offered an estimate of the proportion of its membership whose age and level of activity means that they might benefit clinically and functionally from a prosthetic upgrade in accordance with the instructions issued in 2010 by the Department of Health. Whilst every amputee must be considered on the basis of capacity to benefit and not age, BLESMA has assumed for planning purposes that 75% of patients up to the age of 70 who are physically well may seek to upgrade their prescription. This equates to 278 amputees.

Iraq and Afghanistan have added a new generation of young multiple amputees, often with substantial additional physical and mental problems caused by their injury. BLESMA currently has 198 amputees from the two conflicts, 14 of which are triple amputees and 69 double amputees. Recent amputees tend to be more complex than their predecessors. The nature of conflict and the excellence of modern military medicine mean that the ratio of limbs lost to patients seen has increased from 1.11 in 2006 to 1.52 in 2010.

Initial costs per patient per annum are around £20,000 at the Defence Medical Rehabilitation Centre Headley Court (DMRC) against £900 in the NHS according to Blatchford Clinical Services, prosthetics provider to DMRC and the NHS. The difference is heavily influenced by the supply of microprocessor controlled C-Legs to bilateral above knee amputees and the multiple limbs needed to fulfil the Command's intent to maximise the return of patients to pre-injury occupational and fitness levels. Otto Bock, the makers of C-Leg, reports that in 2010 100 C-Leg units were fitted in the UK of which 62 went to Headley Court

and 11 of the remainder to the NHS. Although the difference in cost will reduce as amputees are stabilised, higher costs for DMRC patients can be expected to be ongoing. For example, socket interface materials vary greatly in price with the high-end type costing four to five times as much as standard provision and needing to be replaced six monthly or more often.

### **What respondents said**

The review benefitted from a large number of solicited and unsolicited responses. They suggest a mixed patient experience of NHS Disablement Services Centres (DSCs). Although rarely made explicit, there is a strong suggestion that, in the absence of nationally agreed guidelines, many centres are unable to provide preferred prescriptions to general amputee patients and are obliged to refuse technology because of budgetary pressures.

There is recognition among Service amputees that their treatment is world class, fears that the NHS will not match it and consequent reluctance to consider leaving the Armed Forces. The mother of a double amputee officer wrote in response to the consultation;

I recently overheard my son say to another soldier that he would leave the Army tomorrow if he knew that his legs and prosthetics would be taken care of.

The mother of another amputee soldier who had received complex injuries in Afghanistan wrote;

Problems arose when [my son] had progressed to needing more physio input and better legs. We pointed out that if still at Headley [he] would receive 6-8 hours physio per day, 5 days per week. The NHS could offer no more than 2 hours per week. In addition, the amputation physio had never taught a double amp to walk, and had no experience of C legs.

In the NHS ex-military amputees are not typical patients. DSC caseloads are dominated by people with limb loss caused by peripheral vascular disease and diabetes. Their age profile and co-morbidities mean they have a relatively short life expectancy. Although, by and large, DSCs welcome the prospect of

seeing young military amputees, the reservations of servicemen and their families appear to be shared by a significant number of centres. This from a medium-sized DSC in the south-east;

It will be both very awkward and embarrassing if military veterans start attending NHS prosthetic centres. We recently had a drop-in veteran with 2xC-Legs and a specialist water activity limb. I would guess they cost in excess of £50K. That is more than we are allowed for two months prosthetics components for all our DCS patients. So it may well be less controversial if military amputees do go to specialist centres.

There is no formal audit of outcome measures for military amputees once they have left the Services. This means that the long term benefits of the DMRP are unclear as is the requirement for follow-on rehabilitation to maintain function. Exercise based rehabilitation is available for as long as an amputee remains in the Armed Forces but when he leaves and no longer has access to it the likelihood is that his physical function will decline.

The principal concerns expressed by consultation respondents were:

#### **A. Generic responses**

1. DSC provision is subject to significant geographic variation. This is backed up by leading prosthetic service providers who note the wide variation in service delivery and component expenditure by centre.
2. Top-end prosthetics are already denied on funding grounds by DSCs although a small number have been secured through the PCT exceptions procedure.
3. An absence of nationally agreed prescription and clinical guidelines, partially offset by guidance from the Associate Parliamentary Limb Loss Group, British Society of Rehabilitation Medicine and British Association of Chartered Physiotherapists in Amputee Rehabilitation.
4. There is insufficient choice for amputees in where and how they are treated

#### **B. Veteran specific responses**

5. Because of the mechanism of injury, combat amputees are particularly complex with stump needs and co-morbidities that will require Consultant-led multi-disciplinary teams to manage indefinitely.

6. As the amputee veterans of Iraq and Afghanistan leave the Services and their top-end prosthetics warranties expire there will be an unacceptable burden on DSCs.
7. Expectations are being built up at Headley Court that the NHS will be unable to meet according to some DSCs.
8. Perception by DSCs of over-prescription and wastefulness at Headley Court, particularly around the number of limbs issued.
9. Concern that special treatment for military amputees would create unfairness and divert funds from civilian patients
10. Reservations about arrangements for transferring patients from MoD to NHS. The consultation revealed the extreme situation of amputee veterans turning up at their GP or DSC without planned prosthetic discharge or assessment of wider needs.
11. Amputees' fears for their future are heightened by a perception that DSCs will not match the DMRP top end service. This dissuades military amputees from considering a civilian career.
12. The strongly expressed view from combat amputees, shared by charities such as BLESMA, that provision should not be reliant on charity since their predicament is seen as the responsibility of the State.

### **'No disadvantage'**

The Armed Forces Bill 2010 has cemented the concept of 'no disadvantage' in accessing public services into the design of the modern Armed Forces Covenant. But the principle of prescription beyond standard state provision has long been accepted in respect of prosthetics and more recently has been recognised, for example, in the number of IVF cycles available to those with fertility compromising groin injuries sustained in combat<sup>4</sup> and in the mental health provisions of *Fighting Fit*. It is nothing new although the Armed Forces Bill has made explicit the possibility of special provision for those with Service-attributable injury or illness.

Despite precedent in the UK limb service of offering advantage to military amputees since 1916, the ethos of the NHS is to treat according to clinical

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<sup>4</sup> The Armed Forces Covenant – Today and Tomorrow. Page 18. MoD May 2011.

need, not membership of a particular occupational group. Indeed, consultation respondents have pointed out that limb centre attendees like to compare componentry and, if markedly different, will ask ‘why not me?’ It is possible to imagine a police officer or fire fighter with limbs lost in the line of duty treated alongside a soldier whose loss was the result of a training exercise. A test of this review is to ensure that, whilst military amputees are managed in accordance with the military covenant precepts of ‘no disadvantage’ in accessing public services and special provision where appropriate, other user groups are not disadvantaged as a result. Indeed, advantaging military amputees should raise the quality of provision for amputees generally.

Ensuring that funds for top end provision are available through specialist commissioning and a small number of specialist centres should reduce any sense of a two-tier service. Furthermore, replication of elements of the DMRP for suitable NHS patients would be more likely to happen in specialist centres with multi disciplines and the possibility of providing exercise rehabilitation techniques routinely employed at DMRC Headley Court. Specialist centres are likely to be the best and most affordable way of extending ground-breaking work of DMRP involving young, fit amputees with complex injuries to the NHS.

### **Third sector provision**

The involvement of the State and the charitable sector overlap. What is reasonable for each to provide is ill defined. As a rule of thumb, ‘no disadvantage’ and the ‘special provision’ cited in the 2010 Armed Forces Bill should mean that an amputee’s reasonable pre-injury expectations are facilitated by the State.

We have seen how Armed Forces charities have become close partners with the NHS. The mental health charity Combat Stress has been especially prominent in delivering *Fighting Fit*. Adopting this model, BLESMA, the foremost charity for Armed Forces amputees, should be more closely involved as a partner in any future provision.

## **Working with devolved administrations**

The devolved administrations of the UK appear sympathetic to the concept of a UK wide network of specialist prosthetic and intense rehabilitation centres that are capable of supporting a mixed cohort of veteran and civilian amputees with close professional links to DMRC Headley Court or its replacement. It is anticipated that there will be close cooperation in the establishment of specialist veterans' prosthetic and rehabilitation services, associated research, evaluation, training, governance and third sector involvement.

The consultation and subsequent discussion with officials in the devolved administrations and the MoD/UK Departments of Health Partnership Board have suggested that this vision is shared.

## **Veterans abroad**

A small number of amputees on leaving the Armed Forces will choose to live in or return to countries other than the UK. The Boyce review recommended the Armed Forces Compensation Scheme (AFCS) should on a discretionary basis defray the costs of ongoing medical care arising from serious Service-attributable injury for such veterans. Provision for this was subsequently made in the revised AFCS legislation that came into effect in May 2011. Within twelve months of discharge, seriously injured personnel may apply to the MoD for certain costs associated with ongoing medical treatment arising from injury. Medical expenses will be covered where they are comparable with UK best practice.

It is important that Service-attributable amputee veterans are not constrained in their ability to return home or in their choice of where to reside because of fears over access to ongoing high quality care. However, it has to be accepted that UK standards of care are unlikely to be possible for amputees choosing to settle in remote locations.

## **Anticipating a Defence and National Rehabilitation Centre**

The merits of a new Defence and National Rehabilitation Centre (DNRC) into which DMRC Headley Court would eventually be incorporated are beyond the scope of this review. They are the subject of separate in-depth work that is understood to be in its final stages but could only be realised towards the end of the decade. However, a centre of excellence in trauma rehabilitation that spans defence and NHS may well benefit amputees leaving the Services. The upside for the wider limb loss community and particularly for young civilian amputees is clear since it would introduce the techniques, expertise and experience of the DMRP, acquired during an intense decade of complex trauma, into the NHS.

It is understood that the likely location for any new centre is in the Midlands with good transport links to Queen Elizabeth Hospital Birmingham and the bulk of the population.

A centre with a strong military input would be attractive to much of the ex-military limb loss community and may in time form a clinical, research and training hub that will have significant spin-offs for specialist centres. Although a functioning DNRC is unlikely until the end of the decade, it would fit neatly into the structure needed now to support amputees about to leave the Armed Forces that this review suggests.

## **The future**

Prosthetics, componentry and rehabilitation are developing rapidly with attendant costs. The expectations of combat amputees are rightly very high as shown by recent pressure to send amputees to America for the Hanger prosthetic and rehabilitation programme available to US veterans. Military amputees will demand advances such as osseointegration and next generation knees (eg C-Leg Genium and Ossur Power Knee), even robotics and neurocognitive prostheses. To date Headley Court has kept pace but at the price of mounting NHS anxiety since health ministers have committed to offering veterans the same level of provision.

There are no nationally agreed guidelines for prosthetic prescription and rehabilitation. This is a serious shortcoming that feeds a geographic variation in limb provision. It places both the MoD and the NHS in a difficult position when requested to provide equipment and services that may not be supported by the evidence base or any agreed schedule of best practice. It is likely to disadvantage DSC provision as parent NHS Trusts seek to prune costs against contracts with PCTs and commissioning groups.

## Options

The profiling of amputee Service leavers to 2019 given in Annex D Table 1 indicates how unattractive the 'do nothing' option is. However, responses from limb centres have not indicated, since the 2010 Department of Health directives, substantial pressure from older amputees to upgrade prosthetics although requests, when submitted to commissioners, for top-end prosthetics have tended to be turned down on the grounds of cost. The increasing number of young amputees on the patient pathway with high expectations and multiple componentry makes it likely that pressure will increase substantially by mid-decade, a situation that will be exacerbated as five year warranties on high-end prosthetics expire. This may result in:

- (a) refusal of services by commissioners and providers on the grounds of cost
- (b) diversion of funds from mainstream limb services resulting in unfairness and unacceptable pressure on smaller DSCs
- (c) unsustainable pressures on charitable funding
- (d) private funding and co-payment by users in contravention of 'no disadvantage'
- (e) the spectacle of veterans having expensive state of the art componentry replaced with standard equipment.

The review is drawn towards special provision for military amputees. It is considered that military personnel who have lost limbs in the course of their duties should have access to prosthetics and rehabilitation that will allow them to regain and maintain optimal function in accordance with 'no disadvantage' and the special provisions permitted by the Armed Forces Bill 2010. The options are;

(a) Personal budgets. Pilots are underway for mainstream NHS non-amputee patients with independent evaluation due in October 2012. At least one veteran amputee is taking part in a pilot. However, the concept is insufficiently mature to cope with current Service leavers.

(b) A system of top-up payments alongside War Pensions and the Armed Forces Compensation Scheme to allow veterans to purchase services and componentry beyond standard NHS provision. There would be similarities with Disability Living Allowance (DLA) and the wheelchair voucher scheme in which the cost of standard NHS provision can be offset against the price of higher specification equipment. Whilst empowering, there is a risk of chaos and ill-informed choice in the absence of dedicated case management. There would be few consequential benefits for the wider limb loss community.

(c) Headley Court and the garrison-based network of Personnel Recovery Centres to be expanded to provide whole-life care for veterans. However, these are military facilities aimed at serving personnel. It is an established principle that veterans should be the responsibility of the NHS. Indeed, following the 1994 Defence Costs Study 15 (DCS15) the trend has been towards integration of defence medical services and NHS to facilitate clinical governance, training and adequate specialty cover. Not all veterans find the military environment appealing and the geographic spread of PRCs for civilians is not ideal. There would be few consequential benefits for the wider limb loss community.

(d) A tendering exercise to identify a third sector commissioner of services to top-up NHS prosthetics and rehabilitation for veterans to an agreed standard. A model might be the contract Combat Stress has won to purchase a veterans' Helpline service from Rethink. Against a tight service specification a third party risks being seen as an administrator of public funds compromising its independence.

(e) National commissioning of prosthetic and rehabilitation services for veterans through NHS Specialised Services which will transfer to the NHS Commissioning Board under the NHS reform agenda. This could be through a small number of approved DSCs, any DSC or any qualified provider.

## Recommendations

A nationally commissioned service for veterans is the best fit for Service-attributable amputees and, of the five options, also looks likely to deliver the most for the wider amputee community.

A small DSC in the north of England made a succinct case that was typical;

Our thoughts regarding the support available to military veteran amputees would be that regional centres throughout the country, I would say three or four, would be able to cater better for their requirements. The physiotherapist rehabilitation requirements could be tailor made for their unique needs. Group therapy sessions work a great deal better when you can work on a rehab programme with people of a similar age range, and of course the reason for their disability is of a similar nature.

A recurring theme in the consultation has been the need to ensure the right skill-mix for managing a complex range of issues around military amputees. There are concerns about the capacity of some DSCs to manage this.

The value of treating a patient sub-set like veterans together has been pointed out. It encourages user interest groups and fosters exchange of information and mutual support. The trend in healthcare is towards specialisation and for this an adequate caseload is required together with a Consultant-led multidisciplinary team approach. It is likely that this would be the best way to inculcate elements of the DMRP and to build capability in Headley Court techniques such as exercise rehabilitation for which some investment would be necessary. The potential benefits of such an approach for non-military patients, particularly young and active amputees, should be clear.

Optimal treatment for military veterans would be through a small number of specialist centres with easy access to relevant specialties and critical mass. However, it is likely that the majority of veterans who are well-established will want to remain with their local DSC and with a prosthetist they know. The review was left in no doubt that the key to amputee satisfaction is not componentry but socket fit and the relationship between patient and prosthetist.

Currently national commissioning for a portfolio of specialised services is on the recommendation of the Advisory Group for National Specialised Services (AGNSS). One of the recent changes to this list was the inclusion of a veterans' post-traumatic stress disorder programme to provide for the small number of complex PTSD cases that require inpatient care. It is anticipated that national commissioning will pass to the NHS Commissioning Board in accordance with the Health and Social Care Bill. However, commissioning for veterans' prosthetics and rehabilitation would not align well with the items currently accepted for commissioning in this way. AGNSS would struggle to recommend its inclusion against the nine criteria in the decision-making framework. It would be an uneasy fit.

Clause 2 of the Armed Forces Bill is set to place into law 'the principle that special provision for Service personnel may be justified by the effects on such people of membership of the Armed Forces.' Ministers will have to consider the extent to which existing legislation and the Health and Social Care Bill which is currently before the House of Commons permit the national specialist commissioning of special provision for amputee veterans, tabling any necessary secondary legislation or amendments to Clause 11 in the Health Bill.

### **Recommendation 1**

Ministers should take appropriate powers to provide for national commissioning of specialist prosthetic and rehabilitation services for amputee veterans through a small number of multi-disciplinary centres in England,<sup>5</sup> adequately resourced and determined through a tendering exercise.

### **Recommendation 2**

Equivalent and complementary provision should be agreed with the devolved administrations.

### **Recommendation 3**

Veterans should be able to access mainstream NHS provision through a DSC of their choice.

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<sup>5</sup> The most popular suggestion from the consultation was five or six centres in England. The costings in the review assume five.

#### **Recommendation 4**

Each specialist centre should have provision for a BLESMA support officer.

#### **Recommendation 5**

The trial of the MoD Seriously Injured Leavers' Protocol and the MoD/NHS Transition Protocol have potential to improve handover from Headley Court and Personnel Recovery Units to DSCs and should be expedited with attention given to a refined system of case management including a comprehensive statement of needs and prescription on transition to the NHS.

#### **Recommendation 6**

The National Institute for Health and Clinical Excellence (NICE) should be tasked with the production of national guidelines for prosthetic prescription and rehabilitation for all amputees including provision for military amputees.

#### **Recommendation 7**

A prospective study of amputee veterans' long term outcomes should be commissioned.

#### **Recommendation 8**

The review supports the relocation of the Defence Medical Rehabilitation Centre from Headley Court to form part of a Defence and National Rehabilitation Centre. Closer integrated with the NHS holds considerable potential for Service attributable amputees at all stages of the patient pathway as well as the wider civilian amputee community.

#### **Recommendation 9**

There should be a programme of military/civilian exchange and capacity building for healthcare professionals to grow the specialist prosthetic and rehabilitation network rapidly.

#### **Recommendation 10**

The NHS Healthcare Travel Cost Scheme currently available to War Pensioners to be extended to beneficiaries of the Armed Forces Compensation Scheme for the purpose of attending DSCs and accessing associated healthcare.

**Recommendation 11**

Case management to ensure that, as far as reasonably practicable, amputee veterans abroad are able to access an equivalent standard of prosthetics and rehabilitation as they would have enjoyed had they remained in the UK.

**Recommendation 12**

An audit of the new funding arrangements should be undertaken after five years.

## **Note on Costs**

The cost of the preferred option based on the profiling given in Annex D at Table D2 is outlined at Table D1.

BLESMA points out that many of the 1335 Service amputees it is aware of are elderly and stabilised with their existing clinically appropriate prosthetics. It believes there are 370 veterans with Service attributable limb loss whose injuries pre-date the conflicts of the twenty-first century and who might benefit from prosthetic upgrades beyond that available under current NHS prescription because they are sufficiently fit and active. BLESMA estimates that 75% (278) may seek some improvement in their prescription. Table D1 assumes that the uptake will be relatively slow at 20% per year, based on experience since January 2010, with costs rolling forward on a five year replacement cycle without allowing for mortality or prescription revision as veterans become less physically able.

It should be noted that the average costings are based on the severe injuries that Headley Court is currently seeing and that older veterans are most unlikely to have, for example, triple amputations which means the cost of upgrading is likely to be lower. Additionally, it assumes provision of top-end C-Leg prostheses which will not be the most clinically appropriate in many cases. However, costs quoted are for 2011 with no allowance made for inflation or for future technical advances which may exert an upward pressure on costs.

A number of assumptions have been made in preparing the costings. The average prosthetic is reckoned to have a service life of five years and to need replacement parts every year whilst showering and running limbs are deemed to last for ten years. The average cost of prosthetics per Headley Court patient is £20,000 according to Blatchford Clinical Services and the average annual prosthetic maintenance cost per patient is £2,000. The average cost per day of intensive rehabilitation is £500 which includes the cost of accommodation and professional group input. BLESMA has helped to calculate a cost element for the Hospital Transport Cost Scheme, noting the longer distances to specialist

centres. The average cost per patient is based on two trips annually, one with a carer.

Eight specialist centres in the UK have been assumed for costing purposes, five in England and one in Scotland, Wales and Northern Ireland, although the devolved administrations will determine the structure of their provision.

The figures assume a draw down in Afghanistan from 2013 and that veterans are discharged on average five years after injury from 2012. Rate of injury assumptions are based on 100% of 2010 injury rates for 2011 and 2012 falling to 80% in 2013, 50% in 2014 and thereafter reverting to the baseline long term injury rate with no assumptions offered post 2026. This generates 20 amputees each year for the foreseeable future (15 years), a mixture of non-Service attributable injury, the consequences of low-level operations and significant accidents.

## **Annex A**

### **Department of Health suggested key areas for review dated 20 December 2010**

Gathering evidence on the current and future needs of veterans for prosthetics services, and on the provision and cost of services;

The future funding of high specification, evidence-based prosthetics services within the NHS;

The possible contribution of personal health budgets and the inclusion of this in continuing healthcare arrangements;

How regional variations in service can be minimised;

The possibility of designating centres of excellence for NHS prosthetics care;

The effectiveness of the Seriously Injured Leavers Protocol currently being piloted;

How the transition from the armed forces' prosthetics care to the NHS can be improved including liaison between the new ARCs, the four rehabilitation centres in England, Headley Court and the NHS;

An initiative is in development within the NHS medical directorate to ensure that the NHS deals better with the rehabilitation and recovery needs of the general population. Discussions with clinical advisors to the DH team could consider how to link provision for trauma and after care with these initiatives.

Longer term implications for the new Defence National Rehabilitation Centre;

Clarification of responsibilities in the new NHS architecture for commissioning prosthetics services for those leaving the armed forces

The role of Service charities in helping to meet the realistic needs of individuals over and above that which the NHS can provide.

## **Annex B**

### **Contributors**

Ability Technology Group  
Addenbrooke's NHS Trust  
Associate Parliamentary Limb Loss Group  
BACPAR  
Barchester Healthcare  
Birmingham Community Healthcare NHS Trust  
Blatchford Clinical Services  
Bristol Prosthetics Users Group  
British Limbless Ex-Servicemens' Association  
COBSEO  
Grace Smalley Loughborough Design School  
Defence Medical Rehabilitation Centre Headley Court  
Department of Health  
Dorset Prosthetics Centre  
Douglas Bader Foundation  
Roderick Dunn, Consultant Surgeon, Odstock Centre for Burns, Plastics and Maxillofacial Surgery  
Hasler Company Royal Marines  
Help for Heroes  
Hull and East Yorkshire Hospitals NHS Trust  
Kent and Medway NHS and Social Care Partnership Trust DSC  
Lancashire Teaching Hospitals NHS Trust  
Limbless Association  
Ministry of Defence  
Neath Port Talbot Hospital  
NHS Lothian SMART Centre  
NHS Plymouth DSC  
North Cumbria University Hospitals DSC  
Opcare  
Otto Bock Healthcare PLC  
PACE Rehabilitation Ltd  
The Leeds Teaching Hospitals NHS Trust  
Leicester General Hospital DSC  
Luton Limb Fitting Centre User Group  
NHS Grampian  
NHS South West  
North Bristol NHS Trust  
North Cumbria University Hospitals NHS Trust DSC  
Northampton General Hospital  
Northern General Hospital Sheffield  
Northern Ireland Government  
Orthomobility Ltd  
Outer North East London Community Services DSC  
Norfolk Community Health and Care NHS Trust  
Nottingham University Hospitals NHS Trust  
Nuffield Health  
Nuffield Orthopaedic Centre NHS Trust  
Queen Alexandra Hospital Cosham  
RSL Steeper  
Lt Col (Retd) MBD Smith MBE The Rifles Regimental Casualty Officer  
Salisbury District Hospital Plastics Department

South West Strategic Health Authority  
SSAFA Forces Help  
Sussex Rehabilitation Centre (Brighton)  
The Scottish Government  
University Hospital of South Manchester NHS Foundation Trust DSC  
43 Wessex Brigade Personnel Recovery Unit Tidworth  
Welsh Assembly Government  
Ysbyty Maelor Hospital  
Service users and relatives and individual providers not listed to protect privacy

## Annex C

### UK limb service timeline

**1915** Two US prosthetic companies Hanger and Rowley invited by government to establish Roehampton limb centre for Great War amputees.

**1916** Ministry of Pensions established. Responsibility for war pensioners included prosthetics which, uniquely, were free to veterans.

**1945** War pensioner amputees peak at 45,000

**1948** Inception of NHS. Prosthetics became free subject to an undertaking that war pensioners would have priority. Subsequently limb service transferred between departments of state and agencies with different arrangements in England, Wales, Scotland and Northern Ireland.

**1986** McColl Report. Professor (now Lord) Ian McColl was highly critical of UK limb services.

**1987** Disablement Services Authority (DSA) created post McColl to oversee the limb service, standardise provision nationwide and enunciate entitlement.

**1991** DSA abolished and limb service transferred to NHS

**1999** Otto Bock C-Leg available. Fitted at Defence Medical Rehabilitation Centre Headley Court from 2006.

**2003 (March)** Significant numbers of amputees start to arrive from Iraq and Afghanistan with a sharp upsurge from 2009

**2010 (January)** Mr Mike O'Brien, Minister of State for Health, issues unfinanced instructions for Headley Court type provision to be available for veterans. Message inadequately received, understood and acted upon.

**2010 (August)** *Fighting Fit* recommendations on veterans' mental health accepted in full by government. Second department of health guidance note issued requiring Headley Court standard of prosthetics for veterans.

**2011 (June)** Government issues instructions for combat veterans to be allowed three cycles of IVF if fertility compromised by service, in practice a superior offering to that available to mainstream NHS patients.

**2011 (January)** Terms of Reference for review into prosthetic provision for veterans.

**2012** Warrantees for high end prosthetics start to expire at the same time as users return to civilian life.

## Annex D

### Estimates

Item	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
<b>NHS Caseload (service leavers)</b>																
Current conflict service leaver case load		55														
Current conflict new case load per year		23	26	45	85	85	85	68	43	20	20	20	20	20	20	20
Current conflict cumulative case load		78	104	149	234	319	404	472	515	535	555	575	595	615	635	655
Prior conflict case load		278	278	278	278	278	278	278	278	278	278	278	278	278	278	278
Total veteran amputee case load		356	382	427	512	597	682	750	792	812	832	852	872	892	912	932
<b>Establish Specialist Centres</b>																
Number of centres across UK	8															
Upgrade facilities (each)	50	400	400													
Recruit, train & maintain intensive rehab specialists	50	400	400	160	160	160	80	80	80	80	80	80	80	80	80	80
Establish, train & maintain specialist prosthetic provision	50	400	400	160	160	160	80	80	80	80	80	80	80	80	80	80
<b>Replacement Prosthetics</b>																
Average cost of replacement prosthetics / patient	20															
Average prosthetics service life (years)	5															
Prior conflict veterans (% presenting per year)	20%															
Cost prior conflict veterans upgrade / replacement prosthetics		1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110
Cost for current conflict veterans replacement prosthetics		460	520	900	1,700	1,700	2,160	1,880	1,750	2,100	2,100	2,560	2,280	2,150	2,500	2,500
<b>Maintenance Costs</b>																
Annual intensive rehab / prosthetic days / patient	5.0															
Annual intensive rehab / prosthetic cost / day / patient	0.5															
Average annual prosthetic maintenance cost per patient	2.0															
Total amputee maintenance prosthetic / rehab cost		1,600	1,717	1,919	2,302	2,684	3,067	3,373	3,564	3,654	3,744	3,834	3,924	4,014	4,104	4,194
<b>Other Costs</b>																
UK veterans prosthetics clinical network	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Prosthetic evaluation studies	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Healthcare Travel Cost Scheme		160	172	192	230	268	307	337	356	365	374	383	392	401	410	419
Design, specify & establish arrangements	50															
<b>TOTAL UK VETERANS PROSTHETICS &amp; REHAB COST</b>	<b>1,550</b>	<b>4,830</b>	<b>4,138</b>	<b>4,741</b>	<b>5,962</b>	<b>6,223</b>	<b>7,103</b>	<b>7,160</b>	<b>7,240</b>	<b>7,689</b>	<b>7,788</b>	<b>8,347</b>	<b>8,166</b>	<b>8,135</b>	<b>8,584</b>	<b>8,683</b>

Average cost per patient in addition to normal NHS funding:		14	11	11	12	10	10	10	9	9	9	10	9	9	9	9
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Note: all costs are in £'000

**Table D1. Preferred option summary cost analysis**

Year	In-Service		Service Leavers		NHS Veterans Case-Load	
	Annual Amputees Injury	Cumulative Amputees	Amputee Service Leavers	Cumulative Current Conflicts	Cumulative Prior Conflicts	Cumulative NHS
2006	28	28	2	2	278	280
2007	27	55	4	6	278	284
2008	36	91	10	16	278	294
2009	52	143	7	23	278	301
2010	85	228	6	29	278	307
2011	85	313	26	55	278	333
2012	85	398	23	78	278	356
2013	68	466	26	104	278	382
2014	43	509	45	149	278	427
2015	20	529	85	234	278	512
2016	20	549	85	319	278	597
2017	20	569	85	404	278	682
2018	20	589	68	472	278	750
2019	20	609	43	515	278	792
2020	20	629	20	535	278	812
2021	20	649	20	555	278	832
2022	20	669	20	575	278	852
2023	20	689	20	595	278	872
2024	20	709	20	615	278	892
2025	20	729	20	635	278	912
2026	20	749	20	655	278	932
2027			20	675	278	952
2028			20	695	278	972
2029			20	715	278	992
2030			20	735	278	1,012
2031			20	755	278	1,032

**Table D2. Estimate of NHS veteran amputee caseload**