

Background Quality Report

Annual Amputation Statistics

7 October 2001 to 31 March 2018

1. Introduction

Overview

This annual report provides statistical information on the number of UK Service personnel who suffered an amputation for the five year period 1 April 2013 – 31 March 2018. An amputation is the traumatic (accidental) or surgical removal of part of the body, and can range from the loss of entire limbs, to the loss of part of a finger or toe. The numbers of “significant multiple amputees”; comprising of the loss of more than one limb, and the number of UK Service personnel with an amputation who have been medically discharged have been provided.

Information on the number of UK Service personnel who suffered a traumatic or surgical amputation resulting from injuries sustained in Afghanistan and Iraq has also been provided.

The Amputation Statistic was first published in February 2010, providing statistical information on the number of UK Service personnel who as a result of an injury sustained whilst deployed in Iraq or Afghanistan have suffered a traumatic or surgical amputation. This ranges from the loss of part of a finger or toe up to the loss of entire limbs. In addition, the numbers of “significant multiple amputees” are provided on an annual basis, as are the number of surviving amputees that have been medically discharged. Defence Statistics have also incorporated an annex to include the number of UK Service personnel that have had an amputation as a result of injuries or illness sustained in locations that were not Afghanistan or Iraq, to give a broader picture of amputees within the UK Armed Forces.

Defence Statistics Health opened a consultation with internal and external stakeholders on 27 July 2017, regarding the proposed cessation of this publication. There were two negative responses during the consultation period objecting to the cessation of the report. As a result of these objections the decision was made to continue to publish the amputation statistics on an annual basis in a revised format. The focus of the report is now on all amputations in the UK Armed Forces during the past five years, with sub sections on amputations that have occurred as a result of injuries sustained in Afghanistan and Iraq for the overall time period. The report was previously presented by financial year and quarter, the revised report is presented by financial year only.

Since 2001, the Royal Centre for Defence Medicine (RCDM), based at the University Hospital Birmingham Foundation Trust (UHBFT), has been the main receiving unit for military casualties evacuated from an operational theatre. In the Birmingham area, military patients can benefit from the concentration of five specialist hospitals (including Queen Elizabeth) to receive the appropriate treatment. Queen Elizabeth is at the leading edge in the medical care of the most common types of injuries (e.g. polytrauma) our casualties sustain, and the majority of casualties will be treated there, but others may be

transferred to another hospital (in Birmingham or elsewhere) if that is where the best medical care can be given.

Military patients will require further rehabilitation care following initial hospital treatment, in most cases they are referred to the Defence Medical Rehabilitation Centre (DMRC) at Headley Court in Surrey, which provides advanced rehabilitation and includes inpatient facilities. The prosthetics department is also located at the DMRC at Headley Court, fitting limbs to amputee patients.

Methodology and Production

The annual statistic includes:

- Counts of the number of surviving amputees from all locations, by financial year for the past five years.
- Counts of the number of surviving amputees from Iraq and Afghanistan, by financial year for the overall time periods.
- Counts of significant multiple amputees from Iraq and Afghanistan, by financial year for the overall time periods.
- Counts of the number of surviving UK Service personnel amputees that have been medically discharged.

Data Sources

The amputation data is compiled from ten separate sources:

1. UK Service personnel who have sustained a partial or complete limb amputation as a result of injuries on Op VERITAS, Op HERRICK and Op TELIC prior 1 April 2006 have been identified from the dataset used to compile the following research paper: Dharm-datta, S; Etherington, J.; Mistlin A. & Clasper J, 2011, Outcome of amputees in relation to military Service, Journal of Bone and Joint Surgery - British Volume, Vol 93-B, Issue SUPP_I, 52.

From 1 April 2006 onwards, the data is compiled from nine sources;

1. The **Complex Trauma** database managed by the Defence Medical Rehabilitation Centre, Headley Court which commenced in June 2008 to record information on patients receiving in-patient care on the complex trauma ward
2. The **Prosthetics** database managed by the Defence Medical Rehabilitation Centre, Headley Court which commenced in June 2006 to record information on patients fitted with a prosthetic limb(s).
3. The **Defence Patient Tracking System** (DPTS) which commenced on 8 October 2007. The DPTS was set up to enable the capture of tracking data for aeromedically evacuated patients at the place where healthcare is being delivered along the care pathway.
4. The **Joint Theatre Trauma Register** (JTTR) which commenced during 2003 to improve the care of the seriously injured patient from the point of injury to the point of discharge from hospital treatment.
5. **Defence Medical Information Capability Programme** (DMICP) has a centralised data warehouse of coded information. It is the source of electronic, integrated healthcare records for primary healthcare and some MOD specialist

care providers. DMICP was rolled out in 2007 and legacy medical data for currently serving personnel was migrated across during rollout.

Medical data is stored in the DMICP data warehouse using read codes. The read codes that were used to search the DMICP data warehouse for military personnel with an amputation were: 7L04 to 7L08, 7L06 to 7L06z, 7L062, 7L063, 7L064, 7L08 to 7L08z, SyuA9, SyuA6, SyuBG, S9606, 14N4 to 14N4Z, 14N41, S95, S96, S97, S960 to S960A, U635, TB05, SP16, SC09, 8D47, DMSRC251, SC3C3, SC3D3, S906, SR4 (SR40 to SR44), SA7X, S970X, N36yM, 2G42 to 2G47, 2G4A, 2G4B, 2G56, 2G57, 2G61, 2G62, ZV6F0 to ZV6F8, SH25, SH45, SH35, SH55, SH65, SH95

Please note that if information was entered as free text in the patient record then it was not available in the DMICP data warehouse and would not be retrieved using the search for read codes. There has been no audit of the accuracy of the coded data entered into the patient record. DMICP is a live data source and is subject to change.

6. The **Armed Forces Compensation Scheme** (AFCS) is a no-fault scheme which provides compensation for injury, illness or death caused by service in the UK Armed Forces on or after 6 April 2005.
 - a. Figures provided were sourced from data stored on the Compensation and Pension System (CAPS). Claimed condition information is recorded on CAPS in a free-text field. To identify claims awarded for amputations, the 'tariff description' field for 'amputation' was searched.
 - b. [Armed Forces Compensation Scheme statistics](#)¹ are published on an annual basis.
7. The **Health and Safety** database:
 - a. MOD personnel report health and safety incidents using a variety of reporting mechanisms. Since 2005, Armed Forces personnel and civilians report incidents to Incident Notification Cells or via their on-site Safety, Health, Environment and Fire (SHEF) advisors. Defence Statistics Health then collate this data into a single Health and Safety dataset. The data presented cover incidents which include any person whose injury was recorded on the below MOD health and safety systems:
 - i. Army Incident Notification Cell (AINC) as at 31 March 2018
 - ii. Accident and Incident Recording System (AIRS) as a at 31 March 2018
 - iii. Defence Equipment and Support Incident Notification Cell (DINC) as at 31 March 2018
 - iv. Defence Infrastructure Organisation (DIO) as at 31 March 2018
 - v. Joint Forces Command (JFC) as at 31 March 2018
 - vi. Head Office and Corporate Services (HOCS) as at 31 March 2018
 - vii. Naval Service Incident Notification Cell (NSINC) as at 31 March 2018
 - b. A search was carried out on all reported health and safety incidents using the following keywords: "amput", "severed", and "loss of limb". Defence Statistics Health has visually validated and checked all search returns and excluded all duplicate records and any incidents that did not relate directly to amputations.
 - c. [Health and Safety statistics](#)² are published on an annual basis.

8. Directorate of Judicial Engagement Policy (DJEP)

- a. The Common Law Claims & Policy Division (CLC&P) is responsible for processing common-law, non-contractual compensation claims against and on behalf of the Ministry of Defence (MOD) at home and abroad. Data is collated from a number of different sources: DJEP-CLCP's Claims handling information payment system (CHIPS) is used for claims managed in-house. MOD's contracted claims handlers Royal Sun Alliance (RSA), Gallagher Bassett– provide the information on the claims for which they are responsible. RSA provide information on claims prior to 30 April 2007; Gallagher Bassett on claims received from 1 May 2007.
- b. [MOD compensation claims statistics](#)³ are published on an annual basis.

9. Medical Discharges

- a. Information on amputees medically discharged was sourced from electronic personnel records and manually entered paper documents from medical boards. The primary purpose of these medical documents is to ensure the appropriate administration of each individual patient's discharge. Statistical analysis and reporting is a secondary function.
- b. This report presents the number of amputees who have been discharged from Service on medical grounds as at 31 March 2018, regardless of the primary or secondary conditions for which they have been medically discharged.
- c. [Medical discharges](#)⁴ are published on an annual basis.

A traumatic or surgical amputation can range from the loss of part of a finger (including fingertip) or toe up to the loss of entire limbs. This definition only includes personnel who survived their injuries.

A UK Service personnel is defined as an **amputee** if they are recorded as having an amputation in the following data sources: Complex Trauma database, Prosthetics database, Defence Patient Tracking System, Joint Theatre Trauma Register, Armed Forces Compensation Scheme, Health and Safety, Defence Medical Information Capability Programme, Directorate of Judicial Engagement Policy.

All data sources are cross-checked against each other and records that don't appear in all datasets and any inconsistencies are manually reviewed and where feasible followed up to ensure that an individual is definitely an amputee. Further validation steps are then taken to ensure a unique count of amputees is taken from the ten datasets and presented in the publication.

The data sources contain a country, location or operation name field, these fields are used to determine whether a UK Service person was injured in Afghanistan or Iraq.

Operation VERITAS is the name for UK operations in Afghanistan which started in October 2001 and ended in March 2006. The UK was involved in Afghanistan alongside Coalition forces, led by the US under Operation Enduring Freedom (OEF), from the first attacks in October 2001.

Operation HERRICK is the name for UK operations in Afghanistan which started 1 April 2006 and ended on 30 November 2014. UK Forces are deployed to Afghanistan in support of the UN authorised, NATO led International Security Assistance Force (ISAF) mission.

Operation TORAL which started 1 December 2014, is the UK's post 2014 contribution to operations in Afghanistan under the NATO RESOLUTE SUPPORT MISSION.

Operation TELIC is the name for UK operations in Iraq which started in March 2003. There was a drawdown of troops in July 2009 and Operation TELIC closed on 21 May 2011. UK Forces were deployed to Iraq to support the Government's objective to remove the threat that Saddam posed to his neighbours and his people and, based on the evidence available at the time, disarm him of his weapons of mass destruction. The Government also undertook to support the Iraqi people in their desire for peace, prosperity, freedom and good government.

A UK Service person is classified as a significant multiple amputee if they have had a limb amputation at or above the wrist or ankle on more than one limb (that is, they have lost at least two hands and/or feet). In the data this is determined from a number of fields including ais_description/surgical description, injury_notes, body region and body side. Multiple amputations may be described in one records or there will be 2 or more records containing information about different amputations.

Once the data is confirmed as being accurate, the tables can be populated. The figures released in previous publications are checked to see if they require revisions and numbers smaller than five are suppressed, to avoid providing disclosive information on individuals. If suppression is needed, previous publications are also checked to ensure numbers cannot be derived from totals and would therefore need to be revised.

The MOD also published an Official Statistic on British Casualties in Afghanistan, which can be found on the Gov.uk website:

<https://www.gov.uk/government/organisations/ministry-of-defence/about/statistics>

This statistic provides the number of casualties with a Notification of Casualty (NOTICAS) signal raised of Very Seriously Injured (VSI) and Seriously Injured (SI). This report is presented by calendar year rather than financial year but the peaks in VSI and SI numbers follows the same trend as the amputation statistics, with the highest numbers occurring in 2009 and 2010 when operational tempo was highest.

2. Relevance

Coverage

The data presented include: all partial and complete traumatic or surgical amputations between 1 April 2013 and 31 March 2018; partial and complete traumatic or surgical amputations sustained as a result of injuries in Afghanistan between 7 October 2001 and

31 March 2018 and; partial and complete traumatic or surgical amputations sustained as a result of injuries in Iraq between 1 March 2003 and 31 March 2018.

This publication does not include UK Service personnel who have had an amputation before their entry date¹ or since leaving the Armed Forces. Defence Statistics consulted with a subject matter expert in the Complex Trauma team at the Defence Medical Rehabilitation Centre, Headley Court to gauge how many personnel have had an amputation that is attributable to their Service after leaving the Armed Forces. They advised that Service personnel are unlikely to have amputations performed after they leave Service unless involved in further trauma (for example, motorbike accidents/collisions) or for older personnel, disease-related conditions such as peripheral vascular disease or diabetes.

This report is currently limited in terms of the amount of information it can include, specifically in relation to the type of amputations seen (e.g. lower limb/upper limb). It would increase the risk of an individual being identified and compromise their right to medical confidentiality. In addition, there is a risk of compromising operational security by providing information that could be used by the enemy to assess the effectiveness of their attacks. At a time when UK Service personnel are no longer deployed in Afghanistan, there will be scope to review the content of the report with key stakeholders, with a view to potentially including more information.

The data includes Naval Service personnel, Army personnel including those from the Gibraltar Regiment and RAF personnel. Reservist personnel are only included in the operational data. Civilians and other Nations Service personnel have been excluded.

User Need

This report has been provided in response to requests for information about injured UK Service personnel. The two main purposes of this report are:

1. To report on the impact of operations in Afghanistan and Iraq, with regards to amputations sustained by Service personnel.
2. To inform the NHS and charities of the potential caseload involved in caring for amputees discharging from the UK Armed Forces who are eligible to access the veteran's prosthetics and rehabilitation programme.

The MOD are committed to making information on operational casualties public but must draw a line between how much information is provided regularly in the public domain and information which compromise operational security of UK Armed Forces personnel or which risks breaching an individual's right to medical confidentiality. This report is supporting the MOD's commitment to release information wherever possible.

During 2009 the Department had numerous requests for information regarding the number of UK Service personnel who have sustained an amputation as a result of injuries in Iraq or Afghanistan; these included an e-petition request to 10 Downing Street and a question being raised in Prime Ministers Questions about whether the Prime Minister would release amputation numbers. The Prime Minister agreed that the stats would be produced annual and published on the internet.

¹ UK Service personnel identified with an amputation before their entry date were for digits only. Digits include thumbs, fingers and toes including partial amputations e.g. fingertip.

The release is used to answer parliamentary questions and Freedom of Information requests. The report is also useful for internal customers in Surgeon General's department as, for example, the statistics are used to inform policy and funding decisions in the Prosthetics department at the Defence Medical Rehabilitation Centre (DMRC).

3. Accuracy and Reliability

Defence Statistics use nine sources of data to collate the amputation statistics for the period from 1 April 2006 onwards. It is therefore unlikely that an operational in-service amputee will not be picked up in one of these datasets and the figures presented are accurate. The majority of the database sources used to compile this report do not cover the period prior to 1 April 2006. Therefore, operational in-service amputees have been sourced from the dataset used in a research paper (Dharm-datta et al., 2011). Defence Statistics are unable to validate this data against other sources but it is the most accurate data held by the MOD.

These data sources are live systems that are constantly being updated. This means that occasionally figures can change, any amendments made since the last release have been indicated by an 'r'.

The main sources of potential error in this official statistic are as follows:

- Incomplete or inaccurate data.
- Manual error during production of report.
- Data entered as free text: within DMICP any free text information is not pulled through to the data warehouse and therefore not interrogated; for AFCS, Health & Safety and DJEP any information entered incorrectly or misspelt may not have been captured.

Records from DMICP relating to limb amputations that did not appear in any other data source have been excluded but will be investigated further.

In a few cases where records did not include a date of amputation, the date of incident has been used.

4. Timeliness and Punctuality

The annual statistic is published on 31st July (or nearest available date) of each year following the 'Medical Discharges in the UK Regular Armed Forces' report. This enables Defence Statistics to provide an update of the number of UK Service personnel amputees medically discharged. Data is requested from the relevant suppliers in the first few days after the end of the latest financial year. It takes approximately 3 to 4 weeks for the data to be collected, returned to our IT team, pseudo-anonymised, processed and the report produced.

The amputation figures presented in Tables 1 to 3 are by the financial year an amputation was sustained, for patients that have a surgical and/or elective amputation

this may not be in the same year in which the injury was sustained. If a UK Service person suffers more than one amputation over a period of time they will be counted within the year where they sustained their first amputation. In the Significant Multiple Amputees (SMA), Table 4, individuals are counted in the financial year in which they become an SMA.

All external publication deadlines have been met. Historic and planned publication dates can be found on the Publication Release Dates section of the Defence Statistics website and on the UK National Statistics Publication Hub.

The report was previously presented by calendar years but was changed to present by financial year in December 2010 at the request of Surgeon General, to align with the Defence planning and business cycle. Historical publications that were produced by calendar year were removed from the website to avoid the potential for suppressed figures to be derived from totals.

5. Accessibility and Clarity

The report and Microsoft Excel version of the tables within it are published on the Gov.UK website at:

<https://www.gov.uk/government/publications/mod-national-and-official-statistics-by-topic>.

They can also be accessed via the UK National Statistics Publication Hub or through an internet search engine such as Google.

24 hour pre-release access to the report is available to a limited distribution list within the MOD. The full list can be found in the Pre-Release access list available on the Gov.UK website.

The statistics provided are straightforward counts in tables, with no deeper analysis provided. The associated commentary identifies the key changes in the data and explains the reasons for the changing time trends, where possible. Each table has footnotes clarifying what is included/excluded and provides appropriate caveats. A detailed methodology presents the user with the data sources used and collection methods.

A glossary of key terms are provided in the Statistical Bulletin.

6. Coherence and Comparability

The Defence Statistics figures on amputations to UK Service personnel are the definitive statistics in the MOD. There are no other publically available regular publications on the numbers of amputees with which to ensure coherence.

Statistics on coalition amputees can be found on the internet although the definitions used for amputations differ, or are at least are unclear on how they're counted, making it difficult to compare trends with other nations.

The numbers of UK Service personnel suffering amputations is comparable over time as there have not been any changes in the way amputees are defined or counted. Changes

seen over time are merely reflective of changes in operational tempo and tactical approach as operations in Iraq and Afghanistan have progressed.

7. Trade-offs between Output and Quality Components

The main trade-off is between the level of information presented in the output, without breaching medical confidentiality or compromising operational security.

The MOD are committed to making information on operational casualties public but have to draw a line between how much information is provided regularly in the public domain and information which compromise operational security of UK Armed Forces personnel or which risks breaching an individual's right to medical confidentiality.

8. Assessment of User Needs and Perceptions

Defence Statistics developed the Amputation Statistic in response to increased interest from the general public and Ministers in the injuries sustained by UK Service Personnel on operations.

In reference to the UK Statistics Authority report, [The Use Made of Official Statistics](#)⁵, the AFCS statistics are used by:

- i. Government – Policy Making and Service Delivery
- ii. Charities – Service Delivery

The key strength of this report is the combining of multiple sources to provide a complete picture on the number partial and full traumatic and surgical amputees.

The key weaknesses of this report are the restrictions on the amount of information that can be provided on the type of amputations seen.

Users are encouraged to provide feedback on the publication itself and Defence Statistics also welcome feedback from any other internal and external customers. Defence Statistics seek advice from key internal stakeholders to ensure the commentary provided helps to adequately explain the trends seen in the data for users.

9. Performance, Cost and Respondent Burden

To develop each annual report, it takes approximately 0.1 FTE to perform the analysis and compile the report. The burden on the data providers is low as the databases are updated routinely and they just provide us with the latest cut of data when we request it. Respondent burden is low as the data is obtained from administrative and clinical audit systems. These systems are maintained by other teams in Defence Statistics and MOD.

10. Confidentiality, Transparency and Security

Security

All Defence Statistics (Health) staff involved in the production of the amputation statistics has signed a declaration that they have completed the Government wide Protecting Information Level 1 training and they understand their responsibilities under the Data Protection Act and

the Official Statistics Code of Practice. All MOD, Civil Service and data protection regulations are adhered to. The data is stored, accessed and analysed using the MOD's restricted network and IT systems. The databases supplied by our external customers are password protected.

Confidentiality

Defence Statistics receive data sources which contain service numbers. The data first goes to a different team in Defence Statistics to convert service numbers into random pseudo-anonymised personal identifiers, so the analysts never see service number level data. This enables the data to be linked with other data sources that have also been pseudo-anonymised.

In line with JSP 200 (April 2016), the suppression methodology has been applied to ensure individuals are not inadvertently identified dependent on the risk of disclosure. Numbers fewer than five have been suppressed and presented as '~'. Where there was only one cell in a row or column that was fewer than five, the next smallest number has also been suppressed so that numbers cannot simply be derived from totals. If a disclosure control method has been applied to a table, the method is stated in the footnotes.

Transparency

The annual Amputations Statistic provides key features of the outputs and identifies any issues or caveats to the data. This quality report provides further information on the method, production process and quality of the output.

11. Contact details

The Deputy Head Vets of Defence Statistics (Health), is responsible for these statistics. Contact details are:

Defence Statistics (Health)	Tel: 030679 84424
Ministry of Defence	Fax: 01179 130928
Oak 0 West	E-mail: Def Strat-Stat-Health-PQ-FOI(MULTIUSER)
Abbey Wood North	Website: www.gov.uk
Bristol	
BS34 8JH	

We welcome feedback on this Background Quality Report or any of the statistics mentioned.

12. References

1. Armed Forces Compensation Scheme statistics:
<https://www.gov.uk/government/collections/armed-forces-compensation-scheme-statistics-index>
2. Defence Health and Safety statistics:
<https://www.gov.uk/government/collections/defence-health-and-safety-statistics-index>
3. MOD compensation claims statistics:
<https://www.gov.uk/government/collections/mod-compensation-claims-statistics>

4. Medical discharges among UK service personnel statistics:
<https://www.gov.uk/government/collections/medical-discharges-among-uk-service-personnel-statistics-index>
5. The use made of Official Statistics:
<https://www.statisticsauthority.gov.uk/archive/assessment/monitoring/monitoring-reviews/monitoring-brief-6-2010---the-use-made-of-official-statistics.pdf>