Ministry of Defence

Background Quality Report
Medical Discharges in the UK Regular Armed Forces

The purpose of a background quality report is to inform users of statistics about the quality of the data used to produce the publication, and any statistics derived from that data. Existing uses of the statistics and user requirements are also discussed.

This assessment relates to the Annual Medical Discharges in the UK Regular Armed Forces report published by Defence Statistics Health. This can be found at:
https://www.gov.uk/government/collections/medical-discharges-among-uk-service-personnel-statistics-index

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1. Introduction

1.1 Overview

These statistics provide information on medical discharges among UK regular armed forces personnel for the previous five years. Each of the three services are presented separately; Naval Service (includes Royal Navy and Royal Marines), army and Royal Air Force (RAF). The statistics display:

a. The number of medical discharges within the UK regular armed forces by key demographic factors: service, gender, age, officer or other ranks, trained or untrained status.
b. The number of medical discharges within the UK regular armed forces by principal and contributory causes of medical discharge.
c. Crude rates of medical discharges within the UK regular armed forces.

Medical discharges in the UK regular armed forces involve a series of processes, at times complex, which differ in each service to meet their specific employment requirements. Due to these differences, comparisons between the single service statistics are judged to be invalid.

Medical discharges are the result of a number of specialists (medical, occupational, psychological, personnel, etc.) coming to the conclusion that an individual is suffering from a medical condition that pre-empts their continued service in the armed forces. Statistics based on these discharges do not represent measures of true morbidity or pathology. At best they indicate a minimum burden of ill-health in the armed forces. Furthermore, the number and diversity of processes involved with administering a medical discharge introduce a series of time lags, as well as impact on the quality of data recorded.

Although medical boards recommend medical discharges, they do not attribute the principal condition leading to the board to the individual's time in service. A medical board could take place many months or even years after an event or injury and it is not clinically possible in some cases to link an earlier injury to a later problem which may lead to a discharge.

Medical boards are not called upon to decide possible causes for the medical condition(s) which resulted in the discharge. Therefore, the report does not offer analysis of external causes of injury-related conditions or illnesses, such as exposure to hazardous substances. Decisions of attributability to service are made by administrators of the MOD pension and compensation schemes in Defence Business Services (DBS) (previously Service Personnel and Veterans' Agency, SPVA). Defence Statistics produce annual reports on the Armed Forces Compensation Scheme and annual reports on the War Pensions Scheme which can be found at Gov.uk.

Any trends in the statistics presented within this report do not directly reflect actual occupational health morbidity within the UK regular armed forces. Medical discharge data are presented by year of discharge and not year of injury/onset of condition that led to medical discharge. Therefore, any trends identified may only be corresponding directly to changes in boarding practice, retention policies or changes to continuing employment standards.

The length of time between detecting and diagnosing a medical condition and the date at which an individual is eventually released under a medical discharge varies for each individual. The timing of a discharge medical board must strike an appropriate balance between the needs of the individual service and those of the patient. The date of the medical discharge board should allow the timely provision of occupational health advice following the initial referral, and time elapsed waiting for further treatment may affect this process.

This bulletin focuses exclusively on medical discharges that have actually occurred; medically downgraded personnel that are retained in service or exit the forces for any other reason are excluded. Personnel discharged under administrative categories on medical grounds are not defined as medical discharges and thus are not included in this report.

1.2 Background and Context

Defence Statistics Health publishes an Annual Medical Discharges in the UK regular armed forces Report to inform policy and decision making within the Department. The statistics are also used to inform general debate in government, parliament and the wider public.

Prior to the 2013/14 report, published 16 July 2015, this publication included only the principal condition leading to medical discharge. Since approximately half of UK regular armed forces personnel

medically discharged have more than one condition affecting their ability to continue their role in the UK armed forces (both principal and contributory), the addition of contributory causes provided a more comprehensive picture.

The addition of contributory cause information is intended to provide information on the total number of personnel medically discharged from service that had their ability to perform their duties affected by specific medical conditions. It cannot be used to identify the complexity of conditions for which personnel have been medically discharged.

1.3 Methodology and Production

1.3.1 Data Sources

Joint Personnel Administration System (JPA)

Service personnel with medical conditions or fitness issues which affect their ability to perform their duties are generally referred to a medical board for a medical examination and review of their medical grading. In clear cut cases where the individual's fitness falls below the service employment and retention standards[1] the Board will recommend a medical discharge, in many cases however, the patient will first be downgraded to allow for treatment, recovery and rehabilitation. For personnel who do not make a total recovery, the Board may recommend the patient is retained as permanently downgraded with limited duties, or they may recommend a medical discharge. The recommendation is then forwarded to personnel administration units or an employment board for ratification or decision and action.

JPA (the armed forces personnel system) was used to:

1) Identify if the service personnel were discharged from service

2) To identify the numbers of personnel serving in the UK regular armed forces in each financial year. This was used to calculate the population at risk.

FMed 23

FMed 23s are official medical documents used to record all medical board proceedings. The armed forces medical boards send a copy of FMed 23 forms to Defence Statistics Health, unless the individual concerned has withheld consent[2]. Defence Statistics Health then coded these into the medical discharge database. 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.

Principal and contributory causes of medical discharge were taken from FMed 23s. If consent for Defence Statistics Health to hold the information was not given, the individual appeared in the medical discharge database with no clinical information recorded.

This data is matched to outflow to civilian life data extracted from JPA on a monthly basis. Any records present on JPA for which Defence Statistics Health have not received an FMed 23 are queried first in the Defence Medical Information Capability Programme (DMICP), then with single service representatives.

Defence Medical Information Capability Programme (DMICP)

The Defence Medical Information Capability Programme (DMICP) commenced during 2007 and comprises an integrated primary Health Record (iHR) for clinical use, and a pseudo-anonymised central data warehouse. It is the source of electronic, integrated healthcare records for primary healthcare and some MOD specialist care providers. Prior to this data warehouse, medical records were kept locally, at each individual medical centre. By 2010, DMICP was in place for the UK and the majority of Germany. Rollout to other overseas locations commenced in November 2011 and is ongoing. Please note DMICP data prior to 2010 is considered incomplete due to rollout of the programme.

Where paper versions of the FMed 23 form were not available to Defence Statistics Health, the electronic version as recorded on DMICP was utilised.

DMICP is a live data source and is subject to change.

[1] As set out in JSP 346 and/or the single services retention standards for their career group.

[2] See 1.3.2 Coding of Medical Conditions for further information regarding withheld consent.

1.3.2 Coding of Medical Conditions

The International Classification of Diseases and Related Health Problems version 10 (ICD-10) was used to classify medical discharges. As a result of public interest, some ICD-10 groups were provided in more detail allowing the presentation of specific conditions.

At the point of medical board, personnel have the opportunity to withhold or give consent to their medical information relating to the medical board being forwarded to Defence Statistics Health. If consent was withheld, personnel were still counted as a medical discharge as indicated on JPA, however their reason for medical discharge is not held by Defence Statistics Health. Therefore, their principal or contributory conditions leading to medical discharge were not presented in this report. This was indicated as "Withheld Consent" in report tables.

1.3.3 Pseudo-Anonymisation

Prior to analysis data sources were linked using a pseudo-anonymisation process. The individual identifiers were stripped from datasets and replaced by a pseudo-anonymiser, generated by an automated sequential numbering system. The key to the system is that it recognises previous occurrences of a given service number and allocates the same pseudo-anonymiser on each occasion. The pseudo-anonymisation process can only be reversed in exceptional circumstances controlled by the Caldicott Guardian under strict protocols.

1.3.4 Statistical Analysis

Crude Rates

Crude rates enable comparison between groups by removing the issue of different populations at risk (group sizes). The rates in this bulletin present the number of personnel per 1,000 on strength that are medically discharged each year. As the size of the armed forces varies over time, this is a more accurate means of comparing the proportion of personnel medically discharged from service in different years than utilising counts of the personnel medically discharged.

Crude rates were calculated by dividing the number of events (in this case medical discharges for each year) by the population at risk (in this case the average number of service personnel on strength in each year[3]). They are presented as an overall summary and for "ranks" and "training status" for each service by year.

Crude rates do not take the changing demographic profile (e.g. the gender and age structure) into account. This is because the structure of the UK armed forces has seen limited change over past years.

95% Confidence Intervals (CIs)

CIs are a statistical device designed to provide a measure of the likely variation of a given statistic. They provide the range of values within which we expect to find the actual value of the variable. In this bulletin, confidence intervals were calculated with a probability of 95%.

Z Test for Independent Proportions

The Z test for independent proportions evaluates if two rates are different to a statistically significant degree. The confidence level to which this test was run in this report was 95%: this means that if the test determined two populations to have different medical discharge rates, this was true in greater than 95% of cases.

In order to identify age groups with a significantly higher than average rate of medical discharge, Z tests for a single proportion were performed comparing each age group to the average rate of discharge (the mean for data fitting a normal distribution or the median for non-parametric data). In some cases, Defence Statistics Health also performed Z tests for two proportions between specific age groups to provide greater clarity on the relationship between age and rate of discharge.

[3] The average number of service personnel on strength in each year is calculated using the 13 month average. I.e. For RAF 13/14 the number of RAF personnel at the first of each month from April 2013 to, and including, April 2014 are summed and divided by 13.

1.4 Contact Details

The Deputy Head of Defence Statistics Health is the Responsible Statistician for this Official Statistic:

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2. Relevance

2.1 Coverage

The report is used to inform internal and external stakeholders of the number and crude rate of medical discharges in the UK regular armed forces. It also identifies the principal and contributory causes of medical discharges.

It is thought that this information may be of use in understanding the number and rate of UK regular armed forces, the demographic populations at risk and the types of injuries and conditions that personnel are medically discharged for.

The report covers regular service personnel (trained and untrained). Royal Navy and Royal Marines personnel are recorded as Naval Service personnel; army regular personnel include Gurkha Regiments and Military Provost Guard (MPGS).

Personnel described as "trained" in this report are Naval Service and RAF personnel who have completed both Phase 1 and Phase 2 training. Personnel described as "trade trained" in this report are army personnel who have completed both Phase 1 and 2 training.

Personnel described in this report as "trainees" or "untrained" are personnel who are in Phase 1 and Phase 2 training.

Untrained personnel are sometimes discharged under administrative categories, albeit on medical grounds. These discharges usually concern individuals who have failed their initial training for medical reasons, or who at their initial medical, failed to disclose medical reasons which may later affect their application and training. As these cases are not defined as medical discharges, they are not included in this report.

This official statistic includes medical discharges of regular UK armed forces personnel only and excludes all reservist personnel. This is because the medical discharge process and medical record information for reservist personnel is not comparable to that of regular personnel. Most reserve personnel do not receive their primary medical care from MOD, but instead receive their primary medical care from the NHS. Therefore, Defence Statistics Health are unable to verify the quality of information relating to the discharge of reservist personnel and it has not been deemed appropriate to include information on this population until further understanding is gained.

2.2 User Needs

The report was provided in response to the increasing number of requests for information about UK armed forces personnel medical discharges. The nature of the requests varied from more detail on the injuries and illnesses causing medical discharges, to information on the long-term outcome for personnel that were medically discharged.

Data from the report is utilised in the annual Health of the armed forces report, as well being used to answer parliamentary questions and Freedom of Information requests. In addition, this information is used to prioritise resources used for the rehabilitation and reintegration of personnel leaving the armed forces for medical reasons and to help inform discussions on injury prevention in the armed forces.

The principal customers for the medical discharge publication include:

- Single service medical boards
- Defence Business Services (DBS)
- Chief of Defence Personnel (CDP), People Secretariat
- Surgeon Generals Department
- Armed Forces Occupational Health
- Department of Health
- External Organisations concerned with ex-serviceman welfare (including charitable organisations)
- Academic Researchers
- Journalists

The report has an accompanying ministerial submission.

3. Accuracy

This report uses a variety of different data sources, each of which has different properties which affect the difference between published and true values.

3.1 Accuracy by Data Source

FMed 23

FMed 23 forms received by Defence Statistics Health were entered on to the medical discharges database and the principal and contributory medical conditions for the discharge were coded utilising ICD-10. This data was then validated and tabulated to form the discharge figures presented in the report.

Whilst FMed 23 forms received by Defence Statistics Health do include some reservists, the number and coverage of reservists captured is currently unknown and reliable denominator data is not available for the entire reporting period. Therefore, numbers and rates were calculated using only strengths for regular personnel and for this report all known reservists have been removed. However, there may be a presence of a small unknown number of reservists within the medical discharge dataset which may cause a small bias in the results.

From 2013/14 onwards, Defence Statistics Health have not received FMed 23 forms for a portion of the regular army personnel listed as medical discharges on JPA. In previous years, the Army Personnel Centre (APC) retrieved any FMed 23 forms not received by Defence Statistics Health. This service is no longer provided by APC and Defence Statistics Health are therefore unable to determine the principal or contributory causes for their discharge. Whilst some of this information has been sourced by utilising DMICP, there remain a number of trained army personnel for which principal and contributory cause information has not been obtained.

Please note that due to COVID-19 limiting access to places of work, Defence Statistics Health were not able to access all of the paperwork confirming cause of medical discharge for trained army personnel between 1 April 2019 and 31 March 2020. Therefore, army cause information for 2019/20 should be considered provisional and subject to change.

DMICP

The DMICP system is a large clinical and administrative database and is subject to the data quality issues of any large administrative system with data collated by many medical and administrative staff for clinical delivery purposes.

Where an FMed 23 form was not made available to Defence Statistics Health an attempt was made to acquire cause information by utilising DMICP. This was done using the "Principal Condition" and "Contributory Condition" fields on each of the Single Service medical board templates. This information was extracted as Read codes and mapped, where possible, to the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10).

In some cases Defence Statistics Health were not able to utilise DMICP for this missing cause information:

- Some personnel did not have a medical board template entered on their record
- Some personnel had a medical board template entered on their record, but no cause information
- Some personnel had "Principal Condition" and "Contributory Condition" codes entered on their records that were not possible to convert to ICD-10.

3.2 Revisions Policy

Some of the data sources used in this report are live systems that are constantly updated. This means figures can occasionally change. Any amendments made since the last release will be indicated by an 'r'. Revisions can be addressed in two ways. For this report, the first of these two methods has been applied:

- Where the number of figures updated in a table is small, figures will be updated and those which have been revised will be identified with the symbol "r". An explanation for the revisions will be provided in the section below.
- Where the number of figures updated in a table is substantial, the revisions to the table, together with the reason for the revisions will be identified in the commentary at the beginning of the relevant chapter / section, and in the commentary above the affected tables. Revisions will not be identified by the symbol "r" since where there are a large number of revisions in a table this could make them more difficult to read.

In the 2019/20 release of this bulletin, the following revisions were made:

- The rate of army medical discharges in 2018/19 was updated. This was due to an undercount in the overall army strength numbers from which the rates were calculated. This had no significant impact on findings presented in previous reports.
- Numbers of personnel medically discharged due to back pain, low back pain, cold injury and heat illness have been revised to include additional ICD-10 codes which were not originally included within these groupings. This affected all years presented. This had no significant impact on findings presented in previous reports.
- Between 2016/17 and 2018/19, a small number of reserves (n = 180, 1%) were included within the reported figures in error. These records were removed from the reported figures, resulting in a decrease in the number of medical discharges reported for those years.
- All revised figures were represented with an 'r'.

Occasionally updated figures will be provided to the editor during the course of the year. Since this Bulletin is published electronically, it is possible to revise figures during the course of the year. However to ensure continuity and consistency, figures will only be adjusted during the year where it is likely to substantially affect interpretation and use of the figures.

4. Timeliness and Punctuality

The report for the previous financial year is released in early to mid-July annually. It takes approximately two months to receive and code all FMed 23s sent to Defence Statistics Health for the report period. It takes a further four weeks to match the data to JPA and acquire any remaining forms that have not been submitted to Defence Statistics Health. The report itself takes approximately two weeks to compile and validate.

The release schedule for this report can be found on Gov.uk.

5. Accessibility and Clarity

Users of this report can access it through the Gov.uk website and are available in PDF format under "Other Publications". They can also be searched for using Internet search engines 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.

Report commentary identifies and analyses the key changes in the data and summary statistics. It discusses the quality of the underlying data and identifies specific issues and estimates their impact. Each table has a number of footnotes clarifying what is included and excluded and provides appropriate caveats. Graphs and confidence intervals are used to compare the rates of medical discharges between different demographic groups within each service.

6. Coherence and Comparability

The Defence Statistics Health figures on the medical discharge of personnel from the UK regular armed forces are the definitive statistics in the MOD. There are no other publically available regular publications on the medical discharge of UK Armed Forces personnel with which to ensure coherence. Within the MOD direct queries of DMICP for medical board data will produce differing results due to quality issues.

Each annual edition of UK Defence Statistics (UKDS) since 1992 and historic Tri-Service publications back to 2002 are available on the Gov.uk website. Medical discharges have been included as a discrete outflow type in UKDS since 1994. The official statistics reports covering the period 2005/06 onward are also available on Gov.uk.

The numbers of personnel medically discharged from each service are comparable over time. However, medical discharges in the UK armed forces involve a series of processes, at times complex, which differ in each service to meet their specific employment requirements and policy changes may influence rates. Due to these differences between the three services, comparisons between the single service statistics are judged to be invalid.

7. Trade-offs between Output Quality Components

Timeliness versus quality of the data and depth of analysis are the most notable trade-offs for this report. If additional time was allowed after the reporting period for acquisition of FMed 23s, the proportion of personnel without a known principal condition of discharge may fall. This would however reduce the timeliness of the report.

The time allowed to process the raw data and compile the completed report is around three weeks. Counts, rates and standardised rates are included within the report, as well as some confidence intervals - as is some commentary on trends and patterns. However, further statistical analysis is not included within the report.

The trade-off between timeliness and accuracy/depth of analysis has ensured that the information is made available as soon as possible after the end of the reporting period.

8. Assessment of User Needs and Perceptions

The report was initially created in response to a number of Freedom of Information requests for medical discharge figures for the UK armed forces. Key internal and external stakeholders were consulted in its creation.

Defence Statistics Health invite feedback from customers within the publication and seek feedback from a wider range of internal and external customers.

9. Performance, Cost and Respondent Burden

Defence Statistics Health has one coder devoted to entering medical discharge, downgrading and deaths data into databases. This is overseen by an analyst that collates the data and produces the report.

There is some respondent burden as FMed 23 forms completed by medical boards should be copied and sent to Defence Statistics Health unless consent is withheld. JPA data is automatically obtained from administrative systems, however it is validated and supplemented with small amounts of data and input from other areas by the Defence Statistics manpower branches prior to its use by Defence Statistics Health.

10. Confidentiality, Transparency and Security

Confidentiality

In order to protect personnel confidentiality, pseudo-anonymisation was employed. For further information, see point 1.3.3 of this Background Quality Report.

Outputs include counts personnel within specific demographic groups within the UK regular armed forces, and the rate of discharge per 1,000 per year for each grouping. Additionally, the number of personnel medically discharged from each service is also produced by principal ICD-10 cause group.

The tables in the report were scrutinised to ensure individual identities were not revealed inadvertently. In line with JSP 200 (October 2017) the suppression policy was been applied to ensure individuals were not inadvertently identified dependent on their risk of exposure. Numbers less than five were suppressed and presented as '~'. Where there was only one cell in a row or column that was less than five, the next smallest number (or numbers where there are tied values) was also suppressed so that numbers cannot simply be derived from totals. This is in keeping with the Office for National Statistics (ONS) guidelines.

Transparency

The Medical Discharges in the UK regular armed forces report provides commentary on the key features of the outputs and identify any issues or caveats to the data. This quality report provides further information on the method, production process and quality of the output.

Security

All staff involved in the production process has signed a confidentiality agreement; 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, and the access to raw data is password protected. Once the data has been entered on the Defence Statistics Health database it is converted into a pseudo-anonymised format prior to analysis, to help ensure the confidentiality of the data held.

11. References

Medical discharges among UK service personnel statistics: index
https://www.gov.uk/government/collections/medical-discharges-among-uk-service-personnel-statistics-index

Defence Statistics Release Calendar
https://www.gov.uk/search/research-and-statistics?content_store_document_type=upcoming_statistics&keywords=&level_one_taxon=&organisations%5B%5D=ministry-of-defence&public_timestamp%5Bfrom%5D=&public_timestamp%5Bto%5D=

MOD Statistics Website
https://www.gov.uk/government/organisations/ministry-of-defence/about/statistics

UK Code of Practice for Official Statistics
https://code.statisticsauthority.gov.uk/wp-content/uploads/2018/02/Code-of-Practice-for-Statistics.pdf

Pre-Release List
https://www.gov.uk/government/statistics/defence-statistics-pre-release-access-list

Glossary of Terms and Abbreviations
https://www.gov.uk/government/publications/defence-statistics-glossary-of-terms-and-abbreviations

MOD Statistics Policies
https://www.gov.uk/government/publications/defence-statistics-policies

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