

# Background Quality Report

## Annual MOD Health and Safety Official Statistics

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

This assessment relates to the '[MOD Health and Safety Annual Statistics](#)' published by Defence Statistics.

### 1. Introduction

1. This statistical bulletin provides summary statistics on regular and reserve Armed Forces personnel, Ministry of Defence (MOD) civilian employees and other civilians with reported injury or illness on MOD property. The following information is provided:

- a) Numbers of work related deaths each year between 2011/12 and 2015/16, including deaths that have been the result of a health and safety failure.
- b) Time trend charts presenting the numbers of all reported injury and ill health incidents between 2011/12 and 2015/16.
- c) Time trend graphs presenting the numbers of reported injury and ill health incidents and the percentage of the population at risk of reporting (Regular Armed Forces and MOD Civilians) between 2011/12 and 2015/16.
- d) Detailed summary of percentage of population at risk in 2015/16 (Regular Armed Forces and MOD Civilians) by demographic group.
- e) Summary of reported injury and ill health incidents by Regular Armed Forces and MOD Civilians in 2015/16 by mechanism of injury.
- f) Supplementary tables in MS Excel provide additional information on the numbers and rates per 1,000 personnel at risk of reported injury and ill health incidents.

2. This Statistical Bulletin is published as an Official Statistic, adhering to the UK Statistics Authority (UKSA) protocols on [pre-release access](#).

### Background

3. The primary focus of the Health and Safety Statistics is to examine MOD health and safety performance. Defence Statistics (Health) compile Health and Safety statistics on behalf of the [Defence Safety Authority \(DSA\)](#), responsible for the regulation of Defence health, safety and environmental protection. These statistics also help to inform the DSA [Annual Defence Environment and Safety Committee \(DESC\) assurance reports](#).

4. These annual MOD Health and Safety Official Statistics have been developed to inform internal and external users of the numbers of MOD health and safety incidents and to identify trends in health and safety incidents over time and are used by internal and external users.

5. The additional summary statistics on demographic groups at increased risk of reported injury and illness, and activities most frequently resulting in reported health and safety incidents will improve the level of information available and reduce the burden of requests for such information.

## Data Sources and Methodology

### *Health and Safety data sources*

6. Health and Safety incidents are currently compiled using data provided from the following Top Level Budget (TLB) reporting areas:

- a) *AINC (Army Incident Notification Cell)* – covers full reporting period
- b) *AIRS (Royal Air Force Cell)* – covers full reporting period
- c) *Central TLB* – disestablished April 2012
- d) *Chief of Joint Operations (CJO)* – disestablished April 2012
- e) *DINC (Defence Equipment and Support Cell)* – covers full reporting period
- f) *DIO (Defence Infrastructure Organisation)* – established April 2011
- g) *Head Office and Corporate Services (HOCS)* – established April 2012
- h) *Incident Reporting Information Cell (IRIS)* – switched off June 2012
- i) *Joint Force Command (JFC)* – established April 2012
- j) *NSINC (Naval Service Incident Notification Cell)* – covers full reporting period

7. Prior to June 2012, the Incident Recording Information System (IRIS) was used to record incidents of work related illness and injury that were reported to the Top Level Budget (TLB) incident notification cells, or to the local RAF Safety, Health, Environment and Fire (SHEF) advisor. When IRIS was switched off in June 2012, TLBs that used the IRIS database developed local processes in order to maintain data collection of health and safety incidents.

8. It was anticipated that the change in reporting systems may affect the collection of health and safety data. However, any impact of this change has not been quantified. There may have been improved reporting by the TLBs once they were able to develop their local processes for collecting data, or the switch from a central system to local systems may have hindered TLBs notification cells in keeping up with reporting. Due to this change in process comparisons over time are to be interpreted with caution.

9. Figures from 2012/13 onwards are based on TLB data recorded by each individual TLB within their own notification cells. Defence Statistics receive quarterly extracts from four TLBs (DIO, DINC, JFC and HOCS). Defence Statistics have access to the reporting databases within three TLB notification cells (AINC, NSINC and AIRS) and take extracts direct from these systems.

### *Deaths data sources*

10. Defence Statistics receives weekly notifications of all regular Armed Forces deaths from the [Joint Casualty and Compassionate Centre \(JCCC\)](#) that provides a focal point for casualty administration and notification. Defence Statistics also receive cause of death information from military medical sources in the single Services, death certificates and coroner's inquests.

11. Defence Statistics regularly checks all deaths for information on [coroner's verdicts](#) (England and Wales) and the results of investigations by the [Crown Office and Procurator Fiscal Service \(COPFS\)](#) for Scotland. For Northern Ireland, Defence Statistics liaise with the [Northern Ireland Statistics and Research Agency \(NISRA\)](#) who handle the official information on behalf of the Northern Ireland Office. There is an obligation for all accidental deaths and those resulting from violent action to be referred to these officials. Inquests are usually held within a few months of the death, but occasionally a few years may elapse. Therefore some recent deaths may not have clearly defined cause information.

### *Administrative Data Sources*

12. The Joint Personnel Administration (JPA) System and the Human Resources Management System (HRMS) are used to capture administrative information for Armed Forces personnel and MOD civilian staff respectively.

### *Data processing and validation*

13. Basic consistency and validation checks are carried out to ensure the data looks as expected. Each individual TLB is responsible for ensuring the quality of data supplied to Defence Statistics and confirm any queried cases, for example Defence Statistics return any records with a missing severity to TLBs so they can provide the missing information where available.

14. Defence Statistics carries out processing of the data in order to add additional fields containing information that is reported on in the Official Statistic and other internal reports. Additional fields are created to provide extra groupings and breakdowns of the data supplied. This includes the mechanism of injury field. It is important to note that the quality and accuracy of information within these additional fields is reliant on the free-text commentary provided. Therefore the TLBs are responsible for the quality of this information.

15. Demographic information (e.g. Service, gender, date of birth) is not always provided on the health and safety returns and therefore the service/staff numbers provided are matched with the JPA and HRMS systems in order to complete this information. Where no information is available on personnel databases or a service number is not recognised, information provided on the original incident record is used where possible to complete the demographic information.

16. Further validation checks are carried out after the data have been processed to ensure that all processes and calculations have been carried out correctly and then final numbers are an accurate reflection of the data received from TLBs. Manual checks are then carried out on the final report to ensure that the figures quoted in the commentary reflect those in the tables and that the numbers sum to the totals provided.

### *Definitional Changes*

17. From April 2012 serious injuries equate to the HSE over-seven day category, and are those that are not defined as 'major' according to the above criteria but which could result in a person being unable to perform their normal duties for more than seven days. Prior to April 2012 serious injuries were those not defined as 'major' but which resulted in a person being unable to perform their normal duties for more than three days.

18. HSE renamed the severity classification of 'major' injuries and illnesses to 'specified' in October 2013, although MOD Health and Safety systems have been capturing incidents for both these classifications since April 2014. This will not be reported on until April 2016 to allow time for the transition. Therefore both 'major' and 'specified' injuries and illnesses have been grouped together as 'major/specified' in this report.

19. It was anticipated that this change may result in fewer reported serious injuries and more reported minor injuries. However, this has not been seen in the data. It is believed that this is due to serious military injuries and illnesses tending to result in a person being unable to perform their normal duties for more than seven days.

## *Rates*

20. Rates enable comparisons between groups and over time, taking account of the number of personnel in a group (personnel at risk) at a particular point in time. **The number of events (i.e. reported injuries and ill health incidents) is divided by the number of personnel at risk per annum and multiplied by 1,000 to calculate the rate per 1,000 personnel at risk.**

## *Percentage*

21. Previous publications of this report have provided rates alongside numbers to provide context and comparison between groups. This information is still available in the Excel file accompanying the release of this report, however, due to user feedback, this publication now provides a focus on the percentage of the population at risk. This is calculated in the same way as the rate per 1,000 but multiplying by 100 instead of 1000, i.e. **The number of events (i.e. reported injuries and ill health incidents) is then divided by the number of personnel at risk per annum and multiplied by 100 to calculate the percentage of personnel affected.**

## *Statistical significance*

22. In order to understand if a difference in rates is statistically significant, 95% confidence intervals are used. Statistical significance indicates that a finding is not due to chance. The 95% confidence interval for a rate provides the range of values within which we expect to find the real value of the indicator under study, with a probability of 95%. If a 95% confidence interval around a rate excludes the comparison value, then a statistical test for the difference between the two values would be significant at the 0.05 level. If two confidence intervals do not overlap, a comparable statistical test would always indicate a statistically significant difference. The rates and confidence intervals presented have been rounded to 1 decimal place and therefore when small numbers are presented the rate may lie towards one end of the confidence interval instead of more centrally between the lower and upper confidence interval.

## *Population data*

- a) Reliable denominator data were not available for all populations in these statistics and therefore some groups were excluded from population at risk calculations. Denominator data were not available for other civilian groups including Contractors, Foreign Forces, directly employed labourers and members of the public including external visitors on MOD property. There are no centrally data held on the numbers of civilians within these groups that have resided / visited MOD sites. Therefore these populations were excluded from the overall rates/percentages presented. Denominator data by demographic sub-groups (e.g. gender, Service, age group) were also not available for Reservists (see paragraph 24 for more information) and Cadet Forces – denominator data by demographics was not available.

23. The rates and percentages calculated for this Statistical Bulletin are based on headcounts as the denominators (the actual number of people within a group) which is in line with the Health and Safety Executive's (HSE) methodology for calculating rates presented within their Annual reporting injury in the workplace for all UK [Annual Health and Safety Statistics](#).

24. Please note that headcount denominator data have been used to calculate overall rates for Reservist personnel. However Defence Statistics are aware that using headcount for the denominator may not be appropriate as many reservists are only in MOD care for specific events such as training. It is therefore not appropriate to compare the Regular and Reserve rates and percentages. Defence Statistics are working to produce reliable denominator data

based on FTE and are planning to investigate the use of these data for further reports.

25. The estimate of personnel at risk required for the denominator value is derived using a thirteen-month average of strengths figures (e.g. the number of personnel in the UK Armed Forces) at the first of every month between January 2013 and January 2014 divided by thirteen for 2013/14).

## 2. Relevance

### Coverage

26. The data in this report include all regular and reserve Service personnel, MOD civilian staff and any other civilians with reported injury or illness whilst on MOD property, or injured in or by MOD vehicles.

27. The injured person or a witness to the incident will report the incident to the relevant TLB notification cell. The severities of incidents are categorised in accordance with the [HSE specification RIDDOR \(2013\)](#).

28. These statistics present information pertaining to reported MOD health and safety incidents, including reported incident severity, populations at increased risk of reporting an incident, common mechanisms of injury and trends over time. The latter three listed here are new information included for the first time in the 2014/15 Statistical Bulletin. DSA have reported that this additional information will “...allow a more informed discussion to take place and allow better targeting of accident reduction strategies by the TLBs”.

29. Due to the wide range of statistics presented, the Statistics Bulletin is presented in three sections for reported health and safety incidents: Overall MOD summary, UK Armed Forces personnel and Civilian personnel. There are a number of Annexes within the Bulletin that break these large groups down further, e.g. by Service for Armed Forces personnel. Therefore users use the statistics on the MOD as a whole, or for specific groups within the MOD that they are interested in.

30. Injuries and illnesses to UK Armed Forces and MOD Civilians are known to be under-reported therefore all numbers, excluding deaths, within the report should be treated as a minimum.

### User needs

31. A formal internal and external consultation was last conducted in 2011 to determine whether the statistics continued to meet user need. There was no external feedback. Internal feedback was used to develop the report in its previous format to ensure that user needs were met.

## 3. Accuracy

32. Each TLB area is responsible for the quality of data provided to Defence Statistics. Defence Statistics perform routine validation checks on the data to ensure the quality, including:

- a) removing duplicate data across TLBs and assigning it to the correct TLB..
- b) feeding back any records with missing information to the TLBs e.g. records with missing severity.

33. The main sources of potential error in the Health and Safety statistics are as follows:

- a) Under-reporting and incomplete data from Health and Safety systems
- b) Data processing errors resulting in incorrect classifications of injury
- c) Manual error during production of report tables, graphs and commentary

34. To ensure that potential errors are identified and resolved, Defence Statistics implement a series of data quality checks throughout the report production. This includes manually checking numbers and percentages against comparable tables and seeing whether the numbers are comparable with previous years.

35. The statistics are subject to routine revisions as all notification cells are updated about new incidents that have happened in the past or incidents that happened previously but have only recently been reported. These figures can be identified by a revision marker ('r'). Due to ongoing data validation and the existence of late reporting figures for the latest financial year are marked provisional ('p') and may also be subject to change in future releases.

#### *2015 Revisions*

36. Prior to the production of the 2014/15 Statistical Bulletin errors were identified in Defence Statistics' processing of TLB health and safety data returns. These processing errors resulted in 9% of reported health and safety incidents between 2010/11 and 2013/14 not being included within previous Official Statistic publications.

37. All TLB data returns containing reported health and safety incidents between 2010/11 and 2014/15 have been recompiled, with any missing records validated and merged with the health and safety dataset used to compile these Official Statistics.

38. The decision was made to revise the latest five financial years only since this provides a sufficient time series of information. In addition, presenting information beyond five years would result in multiple breaks in series due to changes in the structure of TLBs and methods used to capture H&S incidents.

39. The previously published numbers of reported health and safety incidents between 2010/11 and 2013/14 have now increased. However, the **changes in numbers are considered to have low impact on the statistics** since the post-validation data results in the same overall key trends. The numbers of reported incidents in 2013/14 increased by 19% following the validation exercise, though the majority of these 'missing' incidents were a result of late reporting. There is a known time lag in the reporting of health and safety incidents and therefore the latest year's information is marked provisional. Based on previous rates of late reporting it is believed that only 5% of reported health and safety incidents during 2013/14 were not reported due to processing errors.

40. All revised figures are marked with an 'r' in the main bulletin and the additional excel tables.

41. Lessons learned: Steps have been taken to ensure that all reported health and safety incidents are incorporated into the central analysis spreadsheet. A process spreadsheet has been set up whereby all quarterly TLB returns are listed and responsible individuals sign and date when each TLB return has been received by Defence Statistics, and a refined process has been set up to check all health and safety incidents reported within each TLB return are pulled through into the main analysis spreadsheet.

42. Following a series of data quality issues identified in 2015/16, Defence Statistics (Health) have decided to mark all data as provisional while carrying out investigations. This includes:

- Duplicates: process of removing duplicates needs to be reviewed.
- Missing data: the number of records being reported with missing information has increased. This is partly due to the policy outlining the data to be collected is no longer fit for purpose. This policy is currently being reviewed.
- Late reporting: there are on-going issues with late reporting of incidents which are currently being reviewed.

## **4. Timeliness and Punctuality**

### **Timeliness**

43. Data are provided to Defence Statistics on a quarterly basis from each health and safety reporting system individually. The official statistic is produced on an annual basis.

44. Figures as at 31 March 2016 were published on 17 November 2016, thirty three weeks after the end of the reporting period.

### **Punctuality**

45. The Official Statistics have all been published on time to meet pre-announced release dates. Future publication dates will also be announced on the [Gov.UK website](#) at least one month in advance.

## **5. Accessibility and Clarity**

### **Accessibility**

46. The statistics can be accessed through the Gov.uk website at the following link: <https://www.gov.uk/government/collections/defence-health-and-safety-statistics-index>

### **Clarity**

47. Users with an interest in the key findings can read a short summary of main messages within the Introduction. The report is then split into distinct sections to help users navigate their way through the publication.

48. Microsoft Excel versions of all Health and Safety report tables are also available on the Gov.uk website alongside each published report.

## **6. Coherence and Comparability**

### **Coherence**

49. There are eight data sources that the Health and Safety official statistic uses to calculate the numbers and rates. There are seven current reporting systems run by different TLBs and one that was a centrally run but was switched off in April 2012. This means that the data received by Defence Statistics are reported differently on each of the systems and therefore coherence is limited. The main ways in which reporting is different is categorisation of mechanism and although the severity classification is through RIDDOR it can vary across reporting systems.

## **Comparability Over Time**

50. Trends over time are presented for the latest five financial years 2011/12-2015/16.

51. Defence Statistics ensure that any changes in data sources or corrections to data are clearly shown in report tables and graphs. Where appropriate, historic trend information is corrected and provided in the accompanying excel tables.

## **7. Trade-offs between output quality components**

52. Defence Statistics minimise the cost to Government of producing these statistics by using data already collated for internal reporting to the MOD Defence Board. Since data are returned by individual TLBs, data between datasets are of varying quality and completeness. This limits the information available to customers in our statistics and requests for information.

## **8. Assessment of User Needs and Perceptions**

53. In reference to the UK Statistics Authority report, The Use Made of Official Statistics, the Health and Safety statistics are used by:

- a) Government – Policy Making
- b) Government – Policy Monitoring
- c) Trade Unions – Government Accountability

### **Description of Users and Usage of Statistics**

54. The MOD Health and Safety statistics have been published in response to user demand. Interest has come from internal MOD policy makers, Government Departments, the media, and the general public.

55. The Health and Safety statistics are used by the following groups of customers:

- a) Within the MOD, Defence Safety Authority (DSA) use these statistical publications as a basis for policy making. The Ministry of Defence Civil Service Union (MCSU) use the statistics to hold the ministry of Defence to account when looking after their employees and ensuring safety standards are met.

56. These statistics also plays an important part in ensuring the Department's accountability to the British public.

57. Health and Safety questions from outside the MOD (e.g. Freedom of Information requests) tend to ask for more detailed information on the data provided e.g. breakdown of mechanism, gender. Defence Statistics receive requests asking for information on the number of injuries during training as well as injuries due to climatic conditions.

### **Strengths and Weakness in Relation to User Needs**

58. Users external to the MOD are encouraged to give feedback via email (DefStrat-Stat-PQ-FOI-Mailbox@mod.uk)

59. In order to provide comparison data between the MOD and similar occupations within in the UK following user interest, Defence Statistics use data provided to them from the Health and Safety Executive. Only MOD civilians are compared because of the difficulty in comparing the Armed Forces with other occupations due to the nature of their everyday tasks. Defence Statistics are looking into possible comparisons with specific tasks and with other countries



60. The key strength of the Health and Safety data is the efficient methods adopted to capture health and safety data extracts from across the seven separate TLBs in order to provide an overview of health and safety across Defence. Validation checks are undertaken to ensure that the information provided in the reports is accurate.

61. The key weakness is that Defence Statistics have to rely on the level of detail recorded on the health and safety data for each incident. Furthermore, a great deal of the information is recorded in free text fields or at the time of the incident when not all details may be known and is therefore subject to change.

## **9. Performance cost and respondent burden**

### **Operational Cost**

62. Annual updates of the health and safety statistics take two members of staff ten weeks to prepare, including data preparation, validation and report writing.

63. The Health and Safety report uses administrative data sources which are already collected by the MOD. Therefore, the main operational cost to production of the statistics is liaison with the health and safety reporting systems, for quality assurance and data interpretation.

## **10. Confidentiality, Transparency and Security**

64. Defence Statistics (Health) has data access agreements with all health and safety reporting systems with respect to obtaining the health and safety data extracts. All Defence Statistics staff involved in the production have signed a declaration that they have completed the Government wide training on protecting information and they understand their responsibilities under the Data Protection Act and the Official Statistics Code of Practice.

65. In line with the directives of the JSP 200, disclosure control is conducted on all statistical information provided by the MOD to safeguard the confidentiality of individuals. Within these statistics a risk of disclosure has been considered to be high where numbers presented are fewer than three. In cases where a risk of disclosure exists, one of three appropriate disclosure control methods have been applied:

- a) Figures have been suppressed: In most cases where there may be a risk of disclosure, numbers fewer than three have been suppressed and marked as '~'. Where there is only one cell in a row or column that is fewer than three, secondary suppression has been applied where the next smallest number has also been suppressed so that numbers cannot simply be derived from totals.
- b) Totals only: where there is a greater risk of disclosure due to a large number of counts fewer than three, only the row and column totals are presented.