Ministry of Defence

Annual UK Regular Armed Forces Land Transport Accident Deaths 1 January 2012 – 31 December 2016

Published 30 March 2017

This annual Official Statistic provides summary information on Land Transport Accident (LTA) deaths whilst in Service in the five-year period 2012-2016 among the UK Regular Armed Forces. The information shown has been compiled from data held by Defence Statistics on 8 February 2017.

Key Points and Trends

In the five year period 2012-2016, **74**[a] deaths occurred among the UK Regular Armed Forces as a result of Land Transport Accidents, the joint second largest cause of death among Armed Forces personnel after deaths due to cancer and alongside those due to other accidents.

The rate of LTA deaths in the UK regular Armed Forces has shown a downward trend since 2004-2006 and has remained at a low of **8 per 100,000** since 2015. In 2016 there were **12** LTA deaths.

The findings in this report are broadly consistent with those previously reported; there have been no significant changes in overall trends.

Between 2012 and 2016, the rate of LTA deaths among Army personnel was significantly higher at **11 per 100,000** (n=58) than the Naval Service (**4 per 100,000**) (n=6). The rate for RAF personnel was **7 per 100,000** (n=10).

Between 2012 and 2016, for the regular UK Armed Forces:

- **95%** of LTA deaths were among males;
- Off-duty accidents accounted for **89%** of LTA deaths.
- **95%** of deaths occurred amongst other ranks.
- **54%** of deaths occurred among personnel previously deployed to Iraq and/or Afghanistan;
- Motor Vehicle accidents were the single largest cause of LTA deaths (**39%**);
- Motorcycle accidents were the second largest cause of LTA deaths (**35%**).

Overall for the period 2012-2016 the UK Regular Armed Forces were at a **65%** statistically significant increased risk of dying as a result of a LTA compared to the UK general population. This was driven by Army personnel.

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Background quality report: The Background Quality Report for this publication can be found here https://www.gov.uk/government/collections/uk-armed-forces-deaths-in-service-statistics-index

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Would you like to be added to our **contact list**, so that we can inform you about updates to these statistics and consult you if we are thinking of making changes? You can subscribe to updates by emailing DefStrat-Stat-WDS-Pubs@mod.uk

[a] Two deaths have been excluded from this publication that are included in the annual UK Armed Forces deaths in service statistic (see 'Data Sources' in the 'Methodology' section for more information).

Contents

Supplementary tables containing all data presented in this publication, including numbers, rates and 95% confidence intervals, can be found at: https://www.gov.uk/government/collections/uk-armed-forces-deaths-in-service-statistics-index

Note that previously published rates and SMRs may have changed in this release and in the accompanying tables. This is because they have been re-calculated using the 2016 Armed Forces population as a standard population, to allow comparison over time. Full details of methods used are provided in the section **'Methodology'**.

Introduction

This annual Official Statistic provides summary information on Land Transport Accident (LTA) deaths whilst in Service in the five-year period 2012-2016 among the UK regular Armed Forces. The information shown has been compiled from data held by Defence Statistics on 8 February 2017.

This report is being released to advise MOD and the public of the loss of life by LTA and has been developed in response to requests from the MOD road safety and health promotion areas for detailed analysis, and to contribute to MOD's commitment to release information where possible.

This report provides information on demographics, Service, and vehicle types associated with Land Transport Accident deaths (LTA) and comparisons to the UK general population. In order to provide a balance between presenting analysis for a sufficient time period from which to provide meaningful data with the need to monitor the impact of MOD policy, this report presents time trend graphs since the start of data collection in 1984 and all tables and remaining graphs as numbers and rates aggregated for the latest 5 year period. A table presenting the number of LTA deaths since 1984 by year and duty status (Table A1) can be found in **Annex A.**

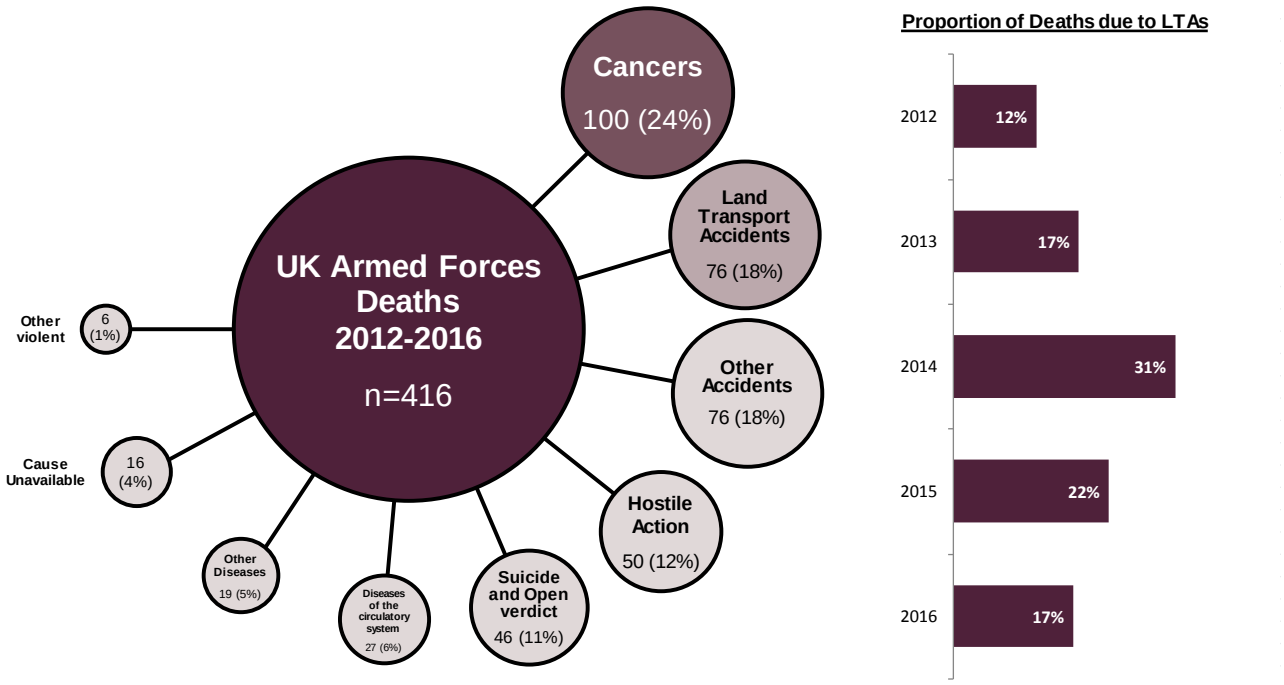
These data are presented for the Naval Service (Royal Navy and Royal Marines), the Army (including Gurkhas), the Royal Air Force, and on a Tri-Service basis. Non-regular members (for example Reservists) of the UK Armed Forces who died whilst deployed on operations are included in these data presented.

Details of the data sources and the methods used to collect and analyse the data and additional information are described briefly in the section **'Methodology'** and in more detail in the Background Quality Report. In line with National Statistics protocols, amendments have been annotated by the letter 'r' and explanations provided in the sub-section **'Changes to previously published data'**.

LTA Deaths as a Category of All Deaths

The left-hand side of **Figure 1** presents a breakdown of UK Armed Forces deaths from 2012-2016 by category, while the right-hand side shows the proportion of deaths in each year accounted for by LTAs.

Figure 1: UK Regular Armed Forces: Causes of Death, Numbers[1] and Percentages[2]; Percentage of Deaths due to LTAs, Percentages
1 January 2012- 31 December 2016



Source: Defence Statistics (Health)
1. The number of LTA deaths presented here includes two deaths which are excluded from the analysis in the rest of this report because they did not involve a motor vehicle, motorcycle or pedestrian (see 'Data Sources' in the 'Methodology' section for more information).
2. Percentages may not add up to 100% due to rounding.

Land Transport Accidents (LTA) accounted for **18% of all deaths** among UK Regular Armed Forces personnel between 2012 and 2016. LTAs were **the joint second largest cause of death** during this period after deaths due to cancer and alongside deaths due to other accidents.

The right-hand part of **Figure 1** shows the proportion of all UK regular Armed Forces deaths accounted for by LTAs in each of the years 2012 – 2016. Since 2014, LTAs have become a less prevalent cause of death. They were:

- The **single largest** cause of death in 2014;
- The **second largest** cause of death (after cancer) in 2015;
- The **third largest** cause of death in 2016 (after cancer and other accidents).

Further information on all deaths is available in the National Statistic 'Deaths in the UK Regular Armed Forces 2016'[b].

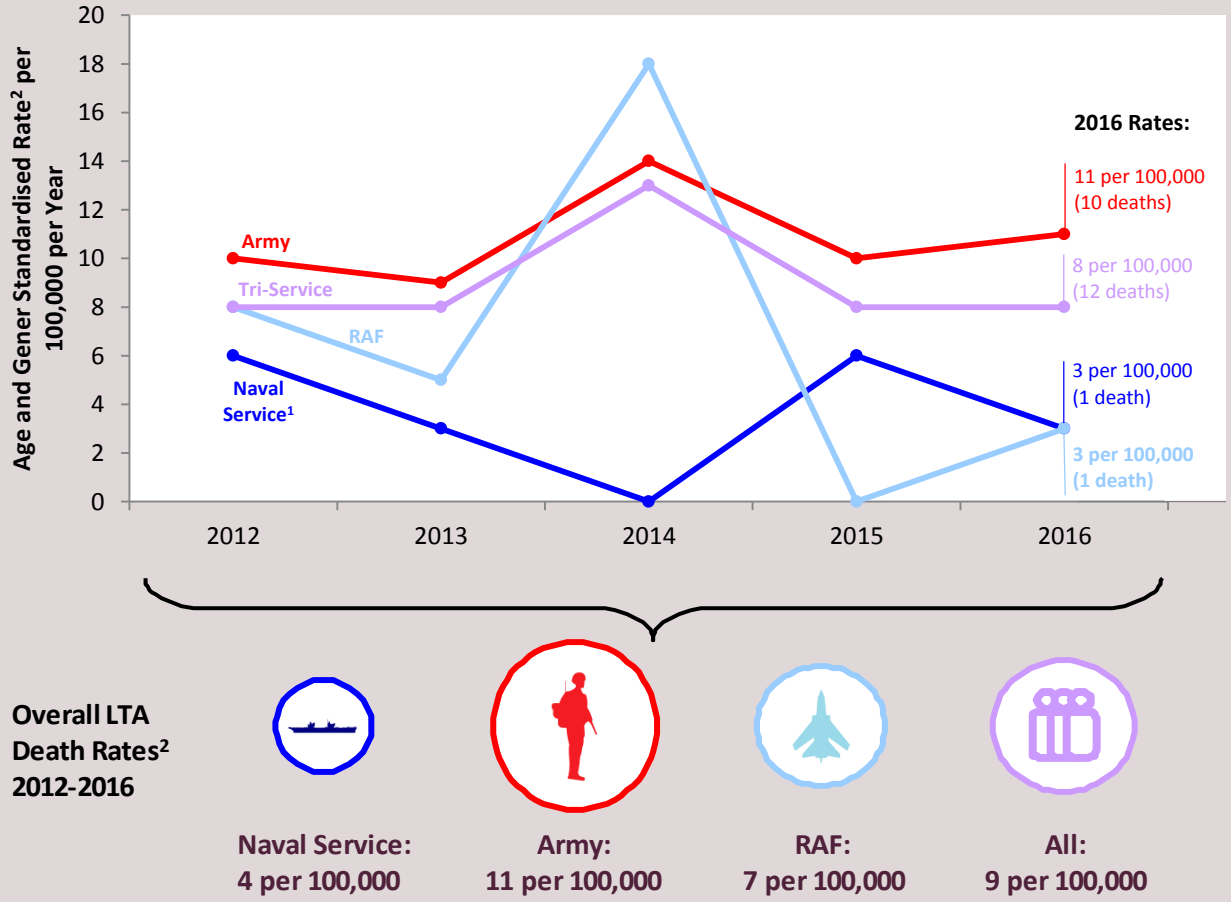
[b] National Statistics Notice: "Deaths in the UK regular Armed Forces" available at www.gov.uk/government/publications/mod-national-and-official-statistics-by-topic

Recent Results (2012-2016)

Deaths by Service by Year

Figure 2 presents the number of LTA deaths by Service and year for the five-year period 2012-2016.

Figure 2: UK Regular Armed Forces LTA Deaths by Service[1], Age and Gender Standardised Rate[2] per 100,000 Personnel at Risk per Year
1 January 2012 – 31 December 2016



Source: Defence Statistics (Health)
1. Naval Service includes Royal Navy and Royal Marines
2. Rates have been age and gender standardised to the 2016 UK Armed Forces population, expressed per 100,000 personnel at risk.

In 2014 there was a peak in deaths among RAF personnel with a rate of 18 per 100,000. There was not a single incident that was attributable to these deaths. These separate incidents occurred at different times throughout the year by different modes of transport, of which four (67%) involved motorcycles. The MOD launched a poster campaign following the rise of motorcycle deaths in 2014 (see the **'Glossary'** for more details).

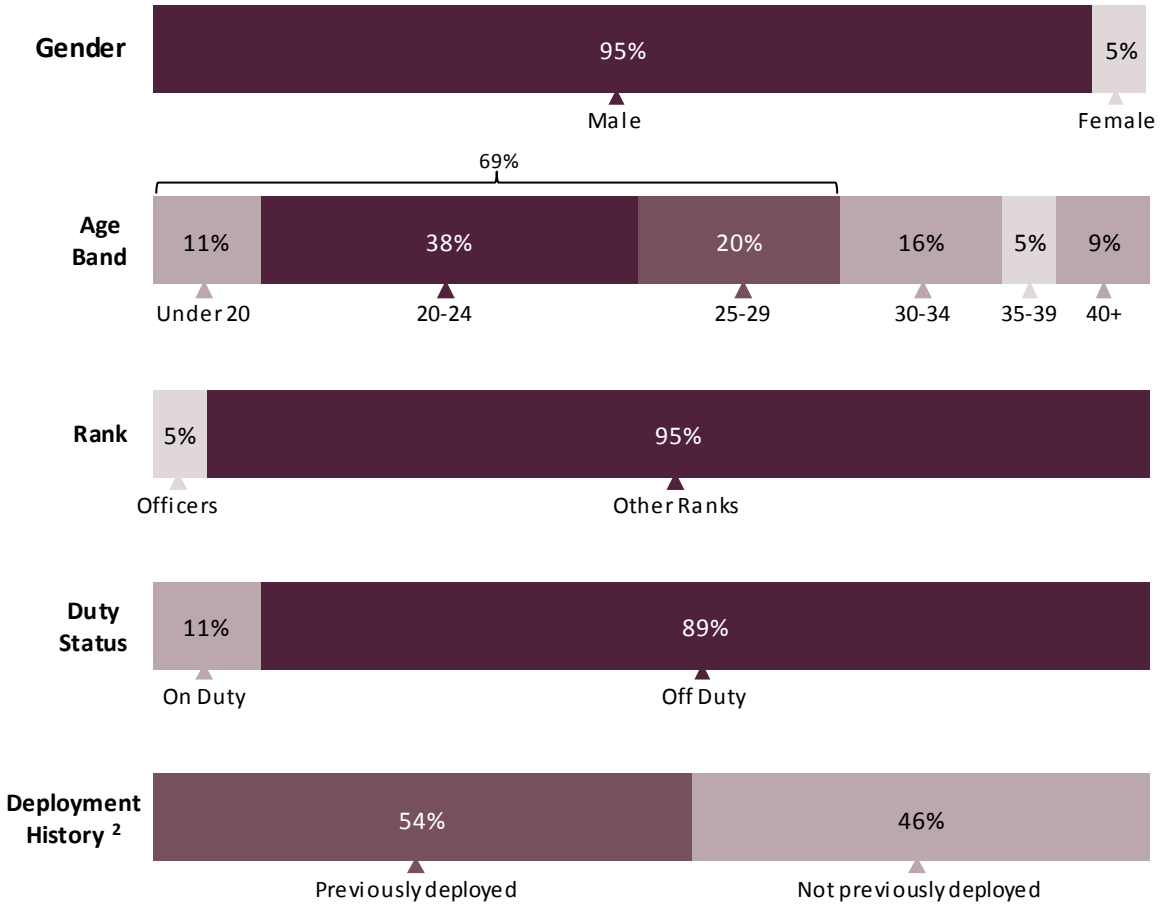
In the same year there was also a peak in deaths among Army personnel with a rate of 14 per 100,000. Again, they occurred in different incidents at different times throughout the year and by different modes of transport. Four of these incidents involved motorcycles.

Accompanying data giving full details of deaths by service for the five-year period 2012-2016 are available in the Excel workbook accompanying this report.

Deaths by Key Characteristics

Figure 3 provides a summary of key characteristics for LTA deaths for the five-year period 2012-2016.

Figure 3: UK Regular Armed Forces LTA Deaths by Key Characteristics, Percentages of LTA Deaths[1]
1 January 2012- 31 December 2016



Source: Defence Statistics (Health)
1. Percentages may not add to 100% due to rounding.
2. To Iraq and/or Afghanistan (see 'Data Sources' in 'Methodology' section for full details).

Between 2012 and 2016, for the Regular UK Armed Forces:

- **95%** of LTA deaths were among males, which is line with the fact that risky driving has been found to be associated with males[c]. However, this high percentage may also be partially explained by the fact that at least 90% of the regular UK Regular Armed Forces were male in each of the years in question.
- **95%** of deaths occurred amongst other ranks. Other ranks constituted around 82% of the Regular UK Armed Forces population on average between 2012 and 2016. Therefore other ranks made up a greater proportion of LTA deaths than of the population, suggesting that they exhibited an increased rate of deaths.
- Off-duty accidents accounted for **89%** of LTA deaths.

[c] Fear et al., (2008) Risky Driving Among UK Regular Armed Forces Personnel from the United Kingdom, American Journal of Preventative Medicine, 35, 230-236.

Between 2012 and 2016, **54%** of deaths occurred among personnel previously deployed to Iraq and/or Afghanistan. The difference in rate of LTAs between personnel who had previously deployed to Iraq and/or Afghanistan and those who had not was **not statistically significant**.

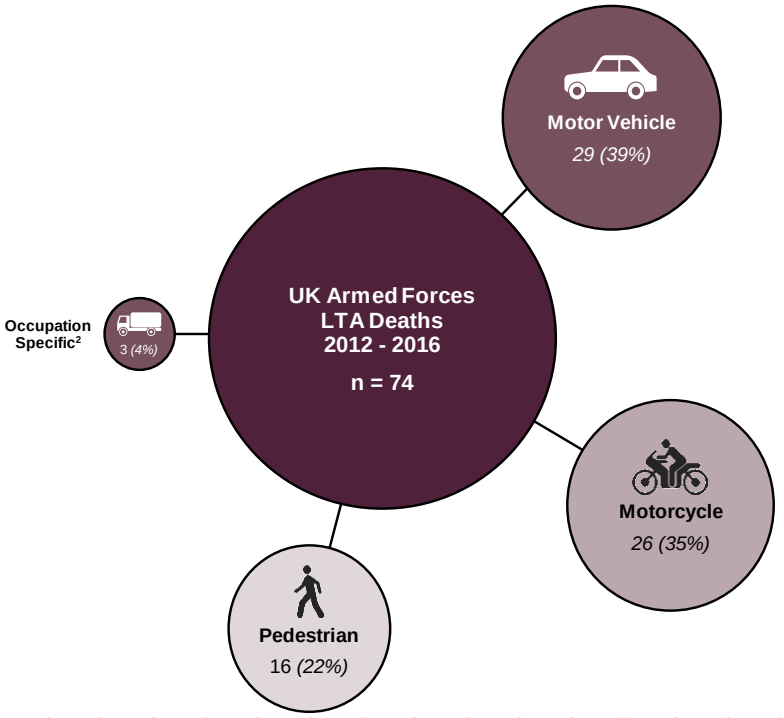
This has not always been the case, as in 2012, the rate of LTA deaths was higher among those previously deployed to Iraq and/or Afghanistan than those who had not previously deployed there. A study of UK military personnel[c] found one factor associated with risky driving in the Armed Forces was being previously deployed to Iraq. Defence Statistics have not investigated the period of time for which personnel returning from deployment are most at risk of LTA death.

Table 2, available in the supplementary Excel workbook accompanying this report, gives full details of deaths by deployment status for the five-year period 2012-2016.

Deaths by Vehicle Type

Figure 4 provides a summary of numbers of deaths by vehicle type for the five-year period 2012-2016.

Figure 4: UK Regular Armed Forces LTA Deaths by Vehicle Type, Numbers and Percentages
1 January 2012- 31 December 2016



Numbers of Deaths and Incidents

In the period 2012-16, **only two incidents resulted in more than one death**. These both occurred in the Army in 2014.

Table 3, available in the supplementary Excel workbook accompanying this report, provides full details on numbers of deaths and incidents for the five-year period 2012-2016.

Source: Defence Statistics (Health)
1. Percentages may not add to 100% due to rounding.
2. Vehicles specific to the UK Armed Forces: Military Land Rover, Ridgeback, Seddon Atkinson truck, Jackal.

Between 2012 and 2016, motor vehicle accidents were the single largest cause of LTA deaths (**39%**), followed by motorcycle accidents (**35%**). In 2016, the **12** LTA deaths were **split evenly** between motor vehicles, motorcycles and pedestrian deaths (i.e. 4 of each). No occupation specific deaths occurred in 2016. These figures were comparable to those observed in 2015.

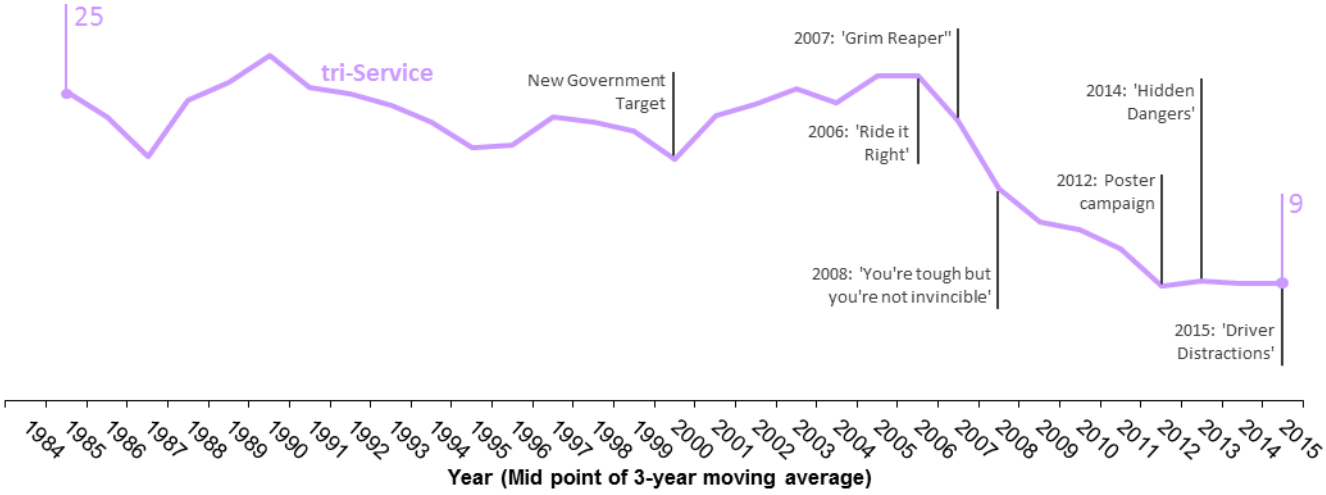
Accompanying data on the number of deaths by vehicle type and year for the five-year period 2012-2016 are available in the supplementary Excel workbook accompanying this report.

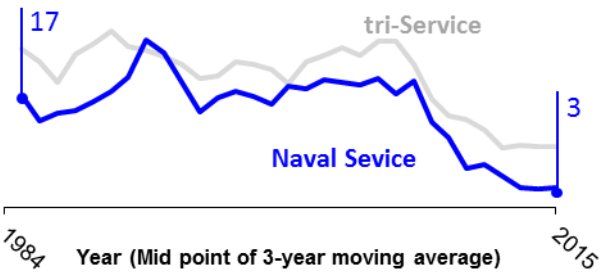
[c] Fear et al., (2008) Risky Driving Among UK Regular Armed Forces Personnel from the United Kingdom, American Journal of Preventative Medicine, 35, 230-236.

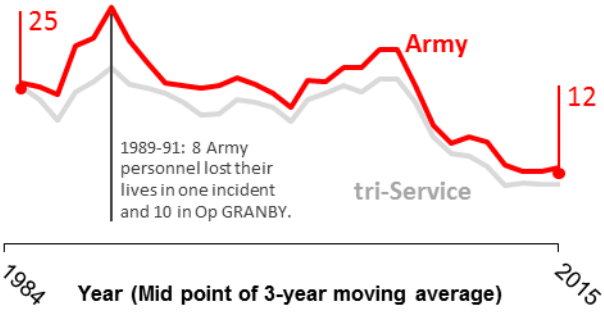
Time Trends

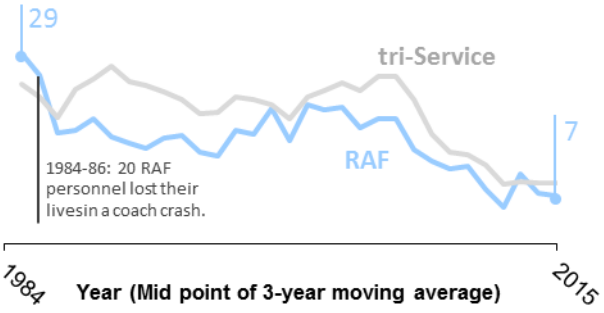
Figure 5 presents rates of LTA deaths by service since 1984-1986.

Figure 5: UK regular Armed Forces LTA Deaths by Service[1], Three-Year Moving Average[2] Age and Gender Standardised Rates per 100,000 Personnel at Risk[3,4]
1 January 1984 - 31 December 2016









Source: Defence Statistics (Health
1. Naval Service includes Royal Navy and Royal Marines
2. Rates have been age and gender standardised to the 2016 UK Armed Forces population, expressed per 100,000 personnel at risk.
3. The year shown is the mid-point of a five-year average, e.g. 1986 refers to the period 1984-1988.
4. In 2006 the ONS changed their method of collating data on UK deaths: prior to 2006 includes deaths occurred in year, post 2006 includes deaths registered in year (see Background Quality Report).

Rates are presented as a three-year moving average to smooth out annual fluctuations and to highlight long term trends.

Since 2005-2007, there has been a **downward trend** in the Tri-Service rate of LTAs. Since 2011-2013 the three-year moving average rate has remained at its lowest since 1984-1986, at **9 per 100,000**. The rate of LTAs was **highest among Army personnel** for all years from 1986-1988 onwards.

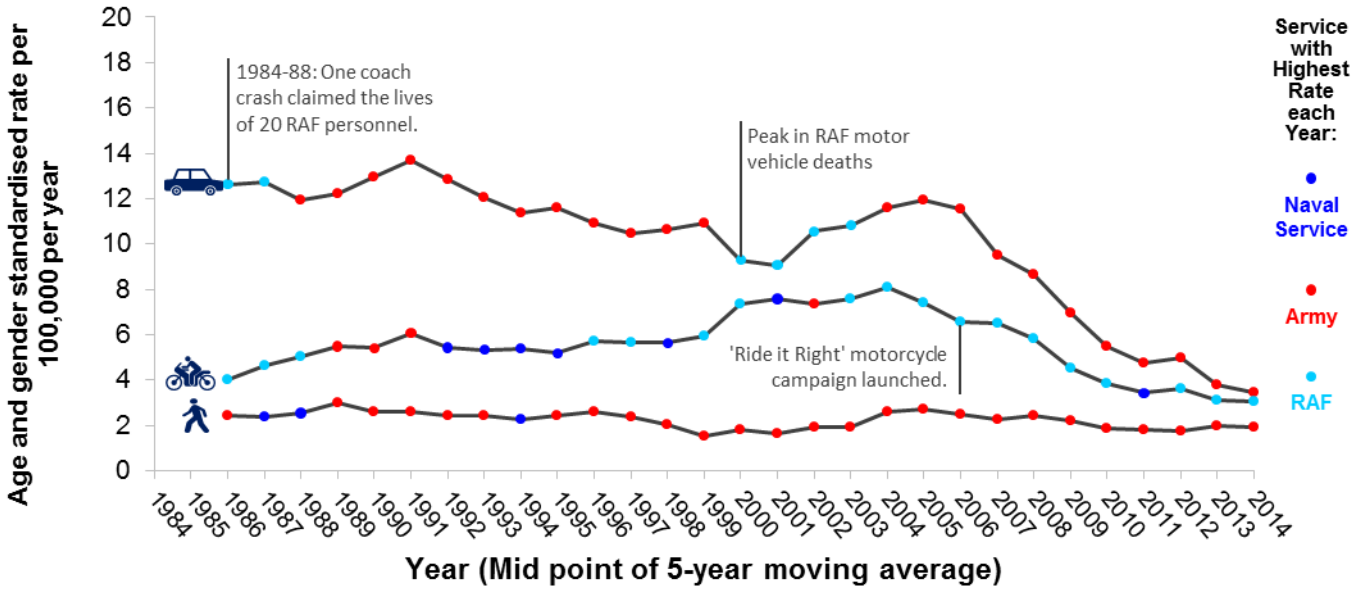
See the **'Glossary'** for details of campaigns and a government target that may have contributed to the overall downward trend.

Overall for the period 2012-2016 the UK regular Armed Forces were at a **65%** statistically significant increased risk of dying as a result of a LTA compared to the UK general population.

Time Trends for LTA Deaths by Vehicle Type

Figure 6 provides a summary of LTA death rates by vehicle type for the time period 1984-2016. The colour of the markers represents the service for which the LTA death rate was highest in each year.

Figure 6: UK regular Armed Forces LTA deaths by Vehicle Type, Five-Year Moving Average Age and Gender Standardised Rates per 100,000 Personnel at Risk[1,2,3]
1 January 1984 - 31 December 2016



Source: Defence Statistics (Health)
1. Rates have been age and gender standardised to the 2016 UK Armed Forces population, expressed per 100,000 personnel at risk.
2. The year shown is the mid-point of a five-year average, e.g. 1986 refers to the period 1984-1988.
3. In 2006 the ONS changed their method of collating data on UK deaths: prior to 2006 includes deaths occurred in year, post 2006 includes deaths registered in year (see Background Quality Report).

Since 1984-1986, the rate of motor vehicle accidents has remained the highest, followed by motorcycle accidents and pedestrian accidents. While the rate of pedestrian accidents has remained fairly constant over time, the rates of motor vehicle and motorcycle accidents have decreased in the last decade.

Between 2009 and 2014 (using five-year moving averages):

- There was a decrease in the rate of motor vehicle accident deaths (from **7 per 100,000** in 2007-2011 to **3 per 100,000** in 2012-2016).
- There was a decrease in the rate of motorcycle accident deaths (from **5 per 100,000** in 2007-2011 to **3 per 100,000** in 2012-2016).
- There was little change in the rate of pedestrian accident deaths (**2 per 100,000** in both periods).

Time trends for LTA Deaths by 30 Years Age Split

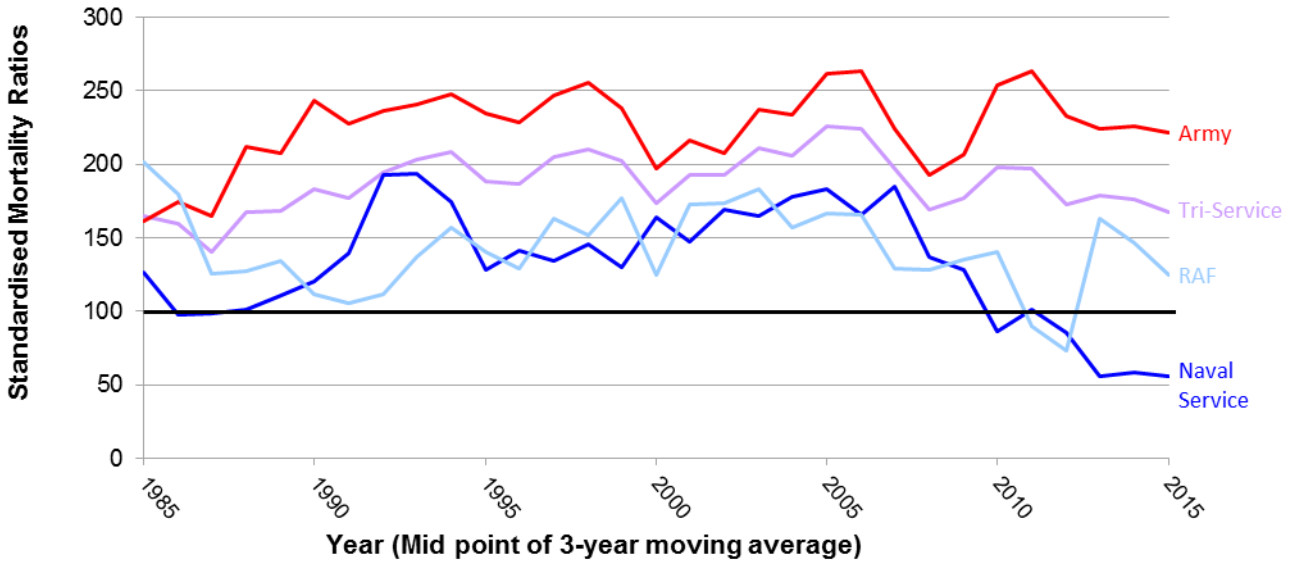
In previous releases analysis has included the difference in LTA rates between those aged under and over 30 years. In the latest 5 years there was **no evidence to suggest a statistically significant difference** in the rates observed for deaths in those aged under 30 compared to those aged 30 years and over, for any of the three vehicle types. **Figure 13**, available in the supplementary Excel workbook accompanying this report, illustrates this analysis.

Comparisons with the UK General Population

To enable comparisons with LTA deaths in the UK population, **Standardised Mortality Ratios (SMR)**, adjusted for age, gender and year, were calculated. **Figure 7** illustrates changes in LTA Standardised Mortality Ratios by Service since the start of data collection in 1984. SMR are presented as a three-year moving average to eliminate some of the random year on year variation.

Overall, since 1984-1986, the UK regular Armed Forces were at **a greater risk of dying** as a result of an LTA compared to the UK general population. Since 1985-1987, the **Army has had the highest** SMR of the three services. In recent years the Naval Service and RAF SMRs have at times dropped below 100, representing the same or lower risk compared to the UK general population.

Figure 7: UK regular Armed Forces LTA deaths by Service[1], Three-year Moving Average Standardised Mortality Ratio[2, 3, 4, 5]
1 January 1984- 31 December 2016



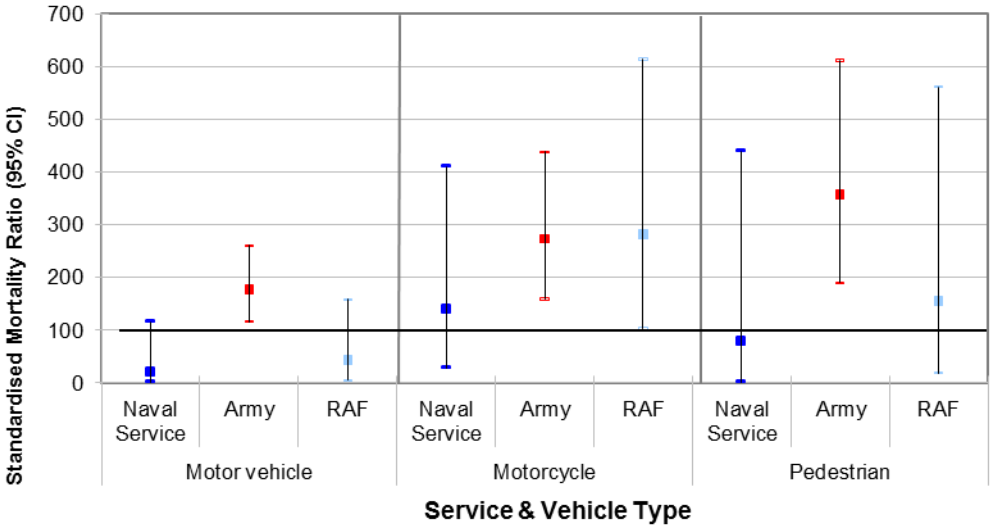
Source: Defence Statistics (Health)
1. Naval Service includes Royal Navy and Royal Marines.
2. Standardised for age, gender and calendar year.
3. The black line indicates the value expected if the number of observed LTA deaths in the UK Armed Forces was the same as the number expected based on the age and gender structure of the UK population.
4. The year shown is the mid-point of a three-year average, e.g. 1985 refers to the period 1984-1986.
5. In 2006 the ONS changed their method of collating data on UK deaths: prior to 2006 includes deaths occurred in year, post 2006 includes deaths registered in year (see Background Quality Report).

Standardised Mortality Ratios (SMR)

An SMR is defined as the ratio of the number of deaths observed in the study population to the number of deaths expected if the study population had the same age- and gender-specific rates as the standard population in each specific year multiplied by 100 by convention. An SMR over (or under) 100 indicates a higher (or lower) number of observed deaths than expected (based on standard population rates). An SMR of 100 implies that there is no difference in rates when comparing the UK Regular Armed Forces population with the UK population. If the 95% confidence interval does not encompass 100, then this difference is statistically significant

Comparisons by Service and Vehicle Type

Figure 1: UK regular Armed Forces LTA deaths, by Service[1] and vehicle type, standardised mortality ratio[2, 3] (95% confidence interval)
1 January 2012- 31 December 2016



Source: Defence Statistics (Health)
1. Naval Service includes Royal Navy and Royal Marines.
2. Standardised for age, gender and calendar year.
3. The black line indicates the value expected if the number of observed LTA deaths in the UK Armed Forces was the same as the number expected based on the age and gender structure of the UK population.

Figure 8 shows there was no statistical evidence to suggest that the Naval Service and RAF were at a greater risk of death compared to the UK general population for any vehicle type. Army personnel were at a statistically significantly higher risk of motor vehicle (**SMR: 178, 95% CI: 116-260**), motorcycle (**SMR: 274, 95% CI: 159-438**), and pedestrian accidents (**SMR: 358, 95% CI: 190-611**) compared to the UK general population.

Comparisons by Vehicle Type, Service and 30-Year Age Split

As the number of deaths by Service were small, and to enable comparison to UK general population results, two age groups have been presented; those aged under 30 and those aged 30 and over.

Motor Vehicle Accident Deaths

Overall, for UK Regular Armed Forces personnel there was **no statistical evidence to suggest a higher risk of dying as a result of a motor vehicle accident** compared to the UK general population (**SMR: 121; 95% CI: 81-174**). Overall, there was no increased risk for both those aged under 30 and those aged 30 and over. However, Army personnel aged under 30 were at a significantly increased risk (**SMR: 180; 95% CI: 108-281**).

Motorcycle Accident Deaths

Overall, UK Armed Forces personnel were at a **148% statistically significant increased risk of dying as a result of a motorcycle accident** compared to the UK general population (**SMR: 248; 95% CI: 162-363**) for 2012 to 2016. The specific groups at a significantly increased risk were Army personnel of all ages (**SMR: 274; 95% CI: 159-438**) and RAF personnel under 30 (**SMR: 448; 95% CI: 122-1148**).

Pedestrian Accident Deaths

Overall, UK Armed Forces personnel were at a **159% statistically significant increased risk of dying as a result of a pedestrian accident** compared to the UK general population (**SMR: 259; 95% CI: 148-420**). This is driven by the only specific group at a significantly increased risk: Army personnel aged under 30 (**SMR: 534; 95% CI: 267-956**).

Tables 4-6, available in the supplementary Excel workbook accompanying this report, give full details of SMRs by vehicle type, Service and 30-year age split.

Glossary

Army The British Army consists of the General Staff and the deployable Field Army and the Regional Forces that support them, as well as Joint elements that work with the Royal Navy and Royal Air Force. Its primary task is to help defend the interests of the UK.

Confidence Interval - For a given statistic calculated for a sample of observations (e.g. the mean), the confidence interval is a range of values around that statistic that are believed to contain, with a certain probability (e.g.95%), the true value of that statistic (i.e. the population value).

Coroner - A government official whose standard role is to confirm and certify the death of an individual within a jurisdiction. A coroner may also conduct or order an inquest into the manner or cause of death, and investigate or confirm the identity of an unknown person who has been found dead within the coroner's jurisdiction.

Defence Inquest Unit (DIU) was established in 2008 to coordinate and manage all Defence related inquests into the deaths of Service and MOD personnel, who die on, or as a result of injuries sustained while on operations; and those who die as a result of training activity. The Unit's key role is to assist Coroners so that they complete relevant inquests fully, thoroughly and as quickly as possible and to support the families through the inquest process.

FTRS (**Full-Time Reserve Service**) are personnel who fill Service posts for a set period on a full-time basis while being a member of one of the Reserve Services, either as an ex-Regular or as a volunteer. An FTRS reservist on:

Full Commitment (FC) fulfils the same range of duties and deployment liability as a Regular Service person;
Limited Commitment (LC) serves at one location but can be detached for up to 35 days a year;
Home Commitment (HC) is employed at one location and cannot be detached elsewhere.

Each Service uses FTRS personnel differently:
The Naval Service predominantly uses FTRS to backfill gapped Regular posts. However, they do have a small number of FTRS personnel that are not deployable for operations overseas. There is no distinction made in terms of fulfilling baseline liability posts between FTRS Full Commitment (FC), Limited Commitment (LC) and Home Commitment (HC).
The Army employ FTRS(FC) and FTRS(LC) to fill Regular Army Liability (RAL) posts as a substitute for Regular personnel for set periods of time. FTRS(HC) personnel cannot be deployed to operations and are not counted against RAL.
The RAF consider that FTRS(FC) can fill Regular RAF Liability posts but have identified separate liabilities for FTRS(LC) and FTRS(HC).

Gurkhas are recruited and employed in the British and Indian Armies under the terms of the 1947 Tri-Partite Agreement (TPA) on a broadly comparable basis. They remain Nepalese citizens but in all other respects are full members of HM Forces. Since 2008, Gurkhas are entitled to join the UK Regular Forces after 5 years of service and apply for British citizenship.

International Statistical Classification of Diseases and Health-Related Disorders 10th edition (ICD-10) is the standard diagnostic tool for epidemiology, health management and clinical purposes.

Joint Casualty and Compassionate Cell (JCCC) provide a focal point for casualty administration and notification and requests for compassionate travel (for those personnel serving overseas) in respect of

members of the British armed forces. The JCCC is part of Defence Business Services (DBS) in the MoD.

Joint Personnel Administration (JPA) is the system used by the Armed Forces to deal with matters of pay, leave and other personnel administrative tasks. JPA replaced a number of single-Service IT systems and was implemented in April 2006 for RAF, November 2006 for Naval Service and April 2007 for Army.

Military Provost Guard Service (MPGS) provides trained professional soldiers to meet defence armed security requirements in units of all three Services based in Great Britain. MPGS provide armed guard protection of units, responsible for control of entry, foot and mobile patrols and armed response to attacks on their unit.

Mobilised Reservists are Volunteer or Regular Reserves who have been called into permanent service with the Regular Forces on military operations under the powers outlined in the Reserve Forces Act 1996. Call-out orders will be for a specific amount of time and subject to limits (e.g. under a call-out for warlike operations (Section 54), call-out periods should not exceed 12 months, unless extended.)

Naval Service includes the Royal Navy and Royal Marines.

Non Regular Permanent Staff (NRPS) are members of the Army Volunteer Reserve Force employed on a full time basis. The NRPS comprises Commissioned Officers, Warrant Officers, Non Commissioned Officers and soldiers posted to units to assist with the training, administrative and special duties within the Army Reserve. Typical jobs are Permanent Staff Administration Officer and Regimental Administration Officer. Since 2010, these contracts are being discontinued in favour of FTRS (Home Commitment) contracts. NRPS are not included in the Future Reserves 2020 Volunteer Reserve population as they have no liability for call out.

Northern Ireland Statistics and Research Agency (NISRA) is the principal source of official statistics and social research on Northern Ireland.

Procurator Fiscal is a public prosecutor in Scotland. They investigate all sudden and suspicious deaths in Scotland (similar to a coroner in other legal systems), conduct fatal accident inquiries (a form of inquest unique to the Scottish legal system) and handle criminal complaints against the police.

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 (ie. deaths) is divided by the number of personnel at risk and multiplied by 100,000 to calculate the rate. In order to compare time trends and to take into account the different age and gender structures of their respective single Service strengths, rates have been age and gender standardised. For this direct standardisation process, Defence Statistics have estimated the rates that would have been observed if each study population (i.e. each of the single Services) had the same age and gender structure as the standard population (the 2016 Armed Forces population).

Road Safety Campaigns - Over time, there have been safety improvements in vehicles and roads as well as an increase in campaigns on road safety[d] both within the UK general population and the Armed Forces. In 2000, the Government targeted a 40% reduction in people killed or seriously injured in road accidents to be achieved by 2010, with campaigns continuing to run[e]. In addition, the following MOD road safety campaigns were launched:

[d] ROSPA - A History of Road Safety Campaigns: http://www.rospa.com/road-safety/advice/road-users/campaign-history/
[e] http://think.direct.gov.uk/

- ‘Ride it Right’ targeting motor cycle riders was launched in 2006 and again in 2007 following a rise in the number of off-duty motorcycle deaths
- ‘Grim Reaper’ video shown to personnel returning from operational deployment since 2007 who are shown to have an increased likelihood of being involved in an accident.
- ‘You’re tough but you’re not invincible’ series of British Forces Broadcasting Services (BFBS) television and radio commercials began in 2008 aimed at young soldiers returning from operational deployment with the message that whilst soldiers may have survived their tour of duty in Afghanistan, they are not invincible and are still at risk of being involved in a road traffic accident.
- A poster campaign aimed at militating against the risk of off-duty service personnel attempting to walk home after a night out by making taxi funds available was developed in 2012 following a number of Service personnel pedestrian deaths which occurred whilst walking home after a night out.
- ‘Hidden Dangers’ posters for motorcyclists were launched in 2014 following a rise in the number of off-duty motorcycle deaths.
- ‘Driver Distractions’ awareness campaign ran for mobile phone use and driver distractions in 2015.

Royal Air Force (RAF). The Royal Air Force (RAF) is the aerial defence force of the UK.

Royal Marines (RM) Royal Marines are sea-going soldiers who are part of the Naval Service. RM officer ranks were aligned with those of the Army on 1 July 1999.

Royal Navy (RN) The sea-going defence forces of the UK but excludes the Royal Marines and the Royal Fleet Auxiliary Service (RFA).

Strength is defined as the number of serving UK regular Armed Forces personnel.

UK Regulars are full time Service personnel, including Nursing Services, but excluding FTRS personnel, Gurkhas, Naval activated Reservists, mobilised Reservists, Military Provost Guarding Service (MPGS) and Non Regular Permanent Service (NRPS). Unless otherwise stated, includes trained and untrained personnel.

Methodology

Data Sources

Defence Statistics receive weekly notifications of all regular Armed Forces deaths from the Joint Casualty and Compassionate Cell (formerly the single Service casualty cells). Defence Statistics also receive cause of death information from military medical sources in the single Services. At the end of each calendar year, Defence Statistics cross-reference the medical information it holds against publicly available death certificate information available from the NHS central registry.

The main purpose of this report is to provide evidence to internal stakeholders to monitor and measure the impact of road safety policy for UK Armed Forces personnel. The following are excluded from the analysis in this report since they are beyond the scope of road safety policy or the numbers are too small to provide meaningful analysis:
- deaths related to vehicles that have been given either a suicide or open verdict by a coroner
- deaths related to incidents on bicycles, animal riders and rail related incidents
- deaths occurring in vehicles as a result of hostile action

The analysis presented in this report is presented by motor vehicle, motorcycle, pedestrian and occupation-specific related deaths.

Defence Statistics regularly check all deaths for information on coroner's verdicts (England & Wales) and the results of investigations by the Procurator Fiscal for Scotland where possible. 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. These sources of information are referred to as 'coroner's verdicts'. 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 vehicle incident deaths are included in this report until a coroner's verdict is received confirming cause of death as due to a suicide or open verdict when it will then be removed from this report. However, one UK Armed Forces death in 2003 returned as an open verdict by the Procurator Fiscal for Scotland has been classified as an LTA in this report as it was a vehicle related incident involving multiple deaths and a MOD Board of Inquiry found all the deaths to be the result of an operational accident.

Defence Statistics maintains a database of individual deployment records from November 2001. Data prior to April 2007 was derived from the single Services' Operation Location tracking (OPLOC) systems and data since April 2007 is obtained from the Joint Personnel Administration (JPA) system. The data covers deployments on Operation TELIC (Iraq) (2003-2011), and Operations VERITAS, HERRICK and TORAL (Afghanistan) (2001-present).

The deployment data presented in this report represent deployments to the wider theatre of operation and not deployment to a specific country i.e. deployment to Op TELIC includes deployment to Iraq and other countries in the Gulf region such as Kuwait and Oman. Therefore, this data cannot be compared to data on personnel deployed to a specific country such as Iraq.

Deployment markers were assigned using the criteria that an individual was recorded as being deployed to the Iraq and/or Afghanistan theatres of operation if they had deployed to these theatres prior to their death. Person level deployment data for Afghanistan was not available between 1 January 2003 and 14 October 2005. Therefore, it is possible that some UK Armed Forces personnel who were deployed to Afghanistan during this period and subsequently died have not been identified as having deployed to Afghanistan in this report but have been captured in the overall figures for LTA deaths.

Please note: this report compares those who had been deployed before their death with those who have not been identified as having deployed before their death.

Operation TELIC is the name for UK operations in Iraq which started in March 2003 and finished 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.

Operation VERITAS is the name for UK operations in Afghanistan which started in October 2001. 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 in April 2006. UK Forces are deployed to Afghanistan in support of the UN authorised, NATO led International Security Assistance Force (ISAF) mission and as part of the US-led Operation Enduring Freedom (OEF).

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

Data Coverage

The information on deaths presented here are for the regular Armed Forces, including all trained and untrained personnel. Non-regulars and reservists who died on deployment are also included since they are classified as 'regular' personnel for the duration of their overseas deployment.

Defence Statistics do not receive routine notifications of non-regular and reservist deaths that are off-duty. Therefore these data exclude the Home Service of the Royal Irish Regiment, full time reservists, Army Reserve and Naval Activated Reservists. See the annual UK armed forces deaths in service statistic[f] for numbers of non-regular and reservist on-duty deaths.

Methods

Calculating a Rate

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. deaths) is divided by the number of personnel at risk and multiplied by 100,000 to calculate the rate.

In order to compare time trends and to take into account the different age and gender structures of their respective single Service strengths, rates have been age and gender standardised. In order to facilitate comparisons with previously published reports data has been standardised to the 2016 Armed Forces population. For this direct standardisation process, Defence Statistics have estimated the rates that would have been observed if each study population (i.e. each of the single Services) had the same age and gender structure as the standard population (the 2016 Armed Forces population).

Time trend analysis has been aggregated to give three year moving averages. This eliminates some of the random year on year variation that can occur and provides a clearer picture of possible trends. Due to the smaller numbers involved in sub-group analysis, five year moving averages have been presented.

[f] https://www.gov.uk/government/collections/uk-armed-forces-deaths-in-service-statistics-index

The small number of deaths in some of the sub-group analysis may result in wide confidence intervals in the corresponding rate or ratios. The impact of this is that the range in which we expect the true value of that statistics to lie is much larger, making it harder to interpret the true underlying trend.

Calculating Standardised Mortality Ratios (SMR)

The 95% confidence interval for a SMR 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 the confidence interval for an SMR does not include 100, the result is deemed to be statistically significant. The small number of deaths in some of the sub-group analysis may result in wide confidence intervals in the corresponding rate or ratios. The impact of this is that the range in which we expect the true value of the statistics to lie is much larger, making it harder to interpret the true underlying trend.

Strengths and weaknesses of data presented in this notice

A strength of this publication is that considerable validation is undertaken against military and public records to ensure that the information provided is complete and accurate and users of this publication should be confident that the numbers of fatalities presented are accurate. However, some causes of death require a Coroner's report before the cause of death can be formally classified and there is often a time lag between when the death occurred and when the Coroner's inquest takes place. This can result in final cause of death information not being timely and complete for recent years and these deaths are reported as Accidents whilst waiting for final cause of death to be determined. This can lead to revisions in the number of deaths as a result of LTA when these verdicts are returned (see paragraphs 35 and 36 for more information about the extent of these revisions).

In addition, death certificates for personnel who die overseas are issued by the MOD and if buried overseas, are not always subject to a coroner's inquest to certify cause of death. Users should be aware of this when using cause of death information.

The release of the information in this notice is controlled by the statistics code of practice as outlined in the Statistics and Registration Act, 2007[g]. This stipulates that statistics in their final form cannot be released prior to a publication. Thus because it can take many months or even years for a coroner's inquest, Defence Statistics do not update the numbers in between the publication of this notice, to ensure there is no breach of the code of practice. Therefore, any requests for information on deaths among the UK Armed Forces are provided using the underlying dataset used to compile this notice.

The information presented in this publication has been structured in such a way to release sensitive deaths information into the public domain in a way that contributes to the MOD accountability to the British public but which doesn't compromise the operational security of UK Armed Forces personnel by revealing detail on individual incidents such as mechanism or type of military vehicle involved; nor that risk inadvertently revealing individual identities and therefore breaching the rights of the families of the deceased personnel (for which the MOD has a residual duty of care). Defence Statistics are regularly asked to release information such as date of death, location of death, deaths within a unit or rank held by the deceased, however, these requests are assessed on a case by case basis to ensure the information presented is aggregated to a level to ensure individual's cannot be identified or that compromises operational security.

Changes to previously published data

In preparing this document, Defence Statistics carried out a review of the data recorded on deaths to Service personnel to ensure the highest accuracy of information and that all cases previously recorded

[g] http://www.legislation.gov.uk/ukpga/2007/18/pdfs/ukpga_20070018_en.pdf

as ‘awaiting verdict’ have been followed up with the ONS and other authorities. There have been no amendments to the classifications given to the cause of death previously reported here. There are currently **15** accidental deaths in the period 2012-2016 that are awaiting coroner's verdict, so figures may be subject to change when the results of these deaths are returned.

Further Information

Contact Us

Defence Statistics welcome feedback on our statistical products. If you have any comments or questions about this publication or about our statistics in general, you can contact us as follows:

Defence Statistics (Health): Telephone: 030 6798 4423
Email: DefStrat-Stat-Health-PQ-FOI@mod.uk

If you require information which is not available within this or other available publications, you may wish to submit a Request for Information under the Freedom of Information Act 2000 to the Ministry of Defence. For more information, see:
https://www.gov.uk/make-a-freedom-of-information-request/the-freedom-of-information-act

Other contact points within Defence Statistics are:

Defence Expenditure Analysis	030 6793 4531	*DefStrat-Econ-ESES-DEA-Hd@mod.uk*
Price Indices	030 6793 2100	*DefStrat-Econ-ESES-PI-Hd@mod.uk*
Naval Service Manpower	023 9254 7426	*DefStrat-Stat-Navy-Hd@mod.uk*
Army Manpower	01264 886175	*DefStrat-Stat-Army-Hd@mod.uk*
RAF Manpower	01494 496822	*DefStrat-Stat-Air-Hd@mod.uk*
Tri-Service Manpower	020 7807 8896	*DefStrat-Stat-Tri-Hd@mod.uk*
Civilian Manpower	020 7218 1359	*DefStrat-Stat-Civ-Hd@mod.uk*
Health Information	030 6798 4423	*DefStrat-Stat-Health-Hd@mod.uk*

Please note that these email addresses may change later in the year.

If you wish to correspond by mail, our postal address is:

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For general MOD enquiries, please call: 020 7218 9000

Annex A - UK Regular Armed Forces LTA Deaths by On/Off Duty, 1984-2016

Table A1: UK regular Armed Forces LTA deaths by Year and On/Off Duty, Numbers[1,2]

1 January 1984- 31 December 2016

Year	All[1]	On Duty	Off Duty
All	**1,876**	**428**	**1,448**
1984	120	19	101
1985	116	38	78
1986	79	21	58
1987	100	20	80
1988	74	19	55
1989	120	32	88
1990	101	24	77
1991	89	24	65
1992	84	24	60
1993	74	13	61
1994	60	14	46
1995	54	13	41
1996	42	4	38
1997	54	10	44
1998	62	29	33
1999	43	13	30
2000	44	6	38
2001	47	11	36
2002	63	10	53
2003	49	9	40
2004	57	13	44
2005	51	7	44
2006	60	10	50
2007	50	14	36
2008	26	8	18
2009	26	0	26
2010	34	9	25
2011	23	6	17
2012	15	1	14
2013	14	1	13
2014	21	4	17
2015	12	1	11
2016	12	1	11

Source: Defence Statistics (Health)

1. Deaths classified as LTA in this notice exclude any deaths that did not involve a motor vehicle e.g. pedal cycles, animal riders and rail related incidents. Therefore the figures seen in this notice will differ from those presented in the 'Deaths in the UK Regular Armed Forces' National Statistic.
2. In 2006 the ONS changed their method of collating data on UK deaths: prior to 2006 includes deaths occurred in year, post 2006 includes deaths registered in year (see Background Quality Report).

References and Useful Links

References

b. National Statistics Notice: “Deaths in the UK regular Armed Forces” available at: www.gov.uk/government/publications/mod-national-and-official-statistics-by-topic

c. Fear et al., (2008) Risky Driving Among UK Regular Armed Forces Personnel from the United Kingdom, American Journal of Preventative Medicine, 35, 230-236.

d. ROSPA - A History of Road Safety Campaigns: http://www.rospa.com/road-safety/advice/road-users/campaign-history/

e. http://think.direct.gov.uk/

f. https://www.gov.uk/government/collections/uk-armed-forces-deaths-in-service-statistics-index

g. http://www.legislation.gov.uk/ukpga/2007/18/pdfs/ukpga_20070018_en.pdf

Useful Links

Reported Road Casualties in Great Britain: Main Results 2014: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/438040/reported-road-casualties-in-great-britain-main-results-2014-release.pdf

Statistics and Registration Act, 2007: http://www.legislation.gov.uk/ukpga/2007/18/pdfs/ukpga_20070018_en.pdf