



DEATHS IN THE UK REGULAR ARMED FORCES 2010

31 March 2011 – Revised
on 01 July 2011

Theme: Other - Defence

Issued by

Defence Analytical Services
and Advice (DASA)
B Block, Ensleigh
Bath
BA1 5AB

Enquiries

Press Office:
Tel: 020 721 83253

Statistical Enquiries:

Dr Kate Harrison
DASA Health Information
Head of Branch
Tel: 01225 468456
Fax: 01225 468918
kate.harrison@dasa.mod.uk

Internet

www.dasa.mod.uk

DASA Welcome Feedback

If you have any comments or questions about this publication or about DASA statistics in general, you can contact us as follows:

E-mail:
DASA-enquiries-mailbox@mod.uk

Visit the DASA website
(www.dasa.mod.uk) and
complete the feedback form.

A National Statistics publication

National Statistics are produced to high professional standards. They undergo regular quality assurance reviews to ensure that they meet customer needs. They are produced free from any political interference.

For general enquiries about National Statistics, contact the National Statistics Customer Contact Centre:
Tel: 0845 601 3034
Fax: 01633 652747
Minicom: 01633 812399
E-mail: info@statistics.gov.uk
Internet: www.statistics.gov.uk

INTRODUCTION

This National Statistical Notice provides summary statistics on deaths in 2010 among the UK regular Armed Forces, and trends over the ten year period, 2001-2010.

The information shown has been compiled from data held by Defence Analytical Services and Advice (DASA) on 28 February 2011.

The data are presented for the Naval Service (Royal Navy and Royal Marines), the Army (including the Gurkhas), the Royal Air Force, and on a Tri-Service basis (**Table 1** and **Figure 1**). Non-regular members of the UK Armed Forces who died whilst deployed on operations are included in the data presented.

This notice provides information on the major categories of cause of death for the ten year period 2001-2010 (**Table 5-8** and **Figure 4**). This notice also presents information on comparisons to the UK general population. Previously published data on the number of incidents and cause of death have been updated from the latest information received from coroners. In line with National Statistics protocols, amendments have been annotated by the letter 'r' and explanations provided in the section '**Changes to previously published data**'.

For data on suicide, this Notice includes both coroner-confirmed suicides and open verdict deaths in line with the definition used by the Office for National Statistics (ONS) in the publication of National Statistics. These data are published in more detail in DASA's separate Statistical Notice, "Suicide and Open Verdict deaths in the UK regular Armed Forces 1984-2010", also released 31 March.

Details of the data sources and the methods used to collect and analyse the data and additional information are described in the section '**Methods**'.

KEY POINTS

- In 2010, a total of 187 deaths occurred among the UK regular Armed Forces, of which 30 were serving in the Naval Service, 136 in the Army, and 21 in the RAF.
- In 2010 the overall mortality rate was 97 per 100,000, whilst in the Naval Service the rate was 78, the Army 116 and the RAF 49 per 100,000 strength.
- During the ten year period 2001-2010, the overall Armed Forces age and gender standardised mortality rates fluctuated between a low of 71 per 100,000 in 2001 to a high of 107 per 100,000 in 2009.
- The Naval Service mortality rate increased from 56 per 100,000 in 2009 to 78 per 100,000 in 2010. This was due to a rise in the number of deaths as a result of hostile action from 7 in 2009 to 15 in 2010.
- The Army mortality rate decreased from a high of 134 per 100,000 in 2009 to 116 per 100,000 in 2010, due to a decrease in the number of deaths as a result of hostile action from 99 in 2009 to 79 in 2010.
- Overall, in 2010 there was no statistically significant difference in the occurrence of deaths in the UK Armed Forces compared to the UK general population.
- In 2010, the Naval Service and RAF were at a significantly lower risk of dying compared to the UK population, whilst the Army were at a significantly increased risk of dying compared to the UK population.
- In 2010, the cause-specific mortality rates for the regular Armed Forces were consistent with findings from the previous year:
 - Hostile action was the single largest cause of death: 95 deaths (51%);
 - Land transport accident deaths were the second largest cause (LTA): 36 deaths (19%);
 - Cancers accounted for 16 deaths (9%);
 - Other accidents accounted for 15 deaths (8%);
 - and suicides and open verdicts accounted for 5 deaths (or 3%).
- In 2010 the UK Armed Forces were at an 80% significantly decreased risk of dying as a result of a disease related condition compared to the UK general population.
- In 2010 the UK Armed Forces were at a 94% significantly increased risk of dying as a result of external causes of injury and poisoning compared to the UK general population.

RESULTS

Overall numbers and rates

1. **Table 1** provides details of the number of deaths, together with the corresponding age and gender standardised rates (per 100,000) by Service for the ten year period, 2001-2010.
2. In 2010, there were 187 deaths in the regular Armed Forces. Of these, 30 deaths were in the Naval Service, 136 in the Army and 21 in the RAF.

Table 1: Deaths in the regular Armed Forces: Service, Year of occurrence 2001-2010, numbers, age and gender standardised rates¹

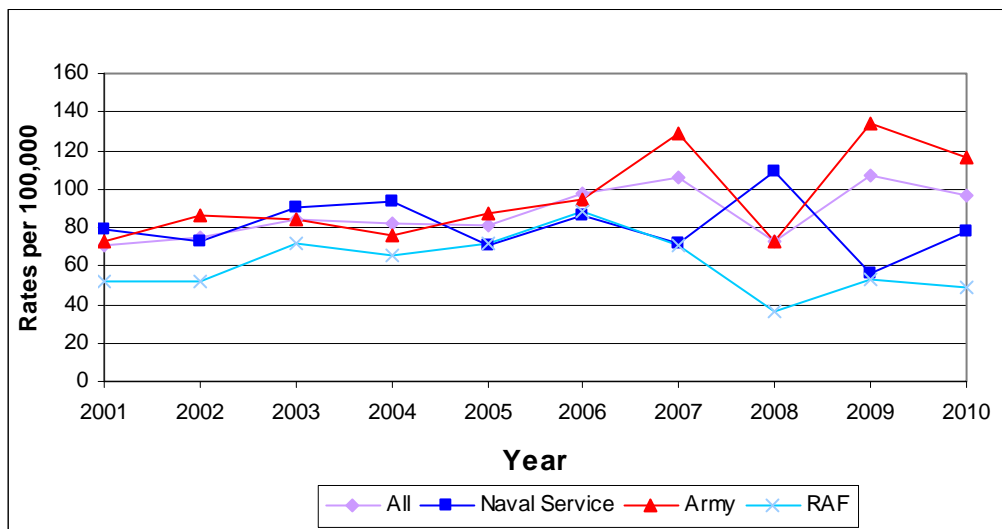
Year	All		Naval Service		Army		RAF	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
2001	142	71	33	79	80	73	29	52
2002	147	75	26	73	94	86	27	52
2003	177	84	37	90	101	84	39	72
2004	170	82	37	93	96	76	37	65
2005	160	81	27	71	93	87	40	72
2006	191	98	33	86	111	95	47	88
2007	204	106	27	72	145	129	32	71
2008	137	73	40	109	79	73	18	36
2009	205	107	23	56	158	134	24	53
2010	187	97	30	78	136	116	21	49

¹Rates have been age and gender standardised to the 2010 Armed Forces population, expressed per 100,000 strength

3. In 2010 the mortality rate for the UK Armed Forces was 97 per 100,000. This is a 9% reduction on rate of 107 per 100,000 seen in 2009.
4. The highest mortality rate was observed in the Army (116 per 100,000). This was significantly higher than the mortality rate observed in the Naval Service (78 per 100,000) and the RAF (49 per 100,000).

5. **Figure 1** illustrates recent changes in overall mortality rates by Service.

Figure 1: Mortality rates¹ by Service, 2001-2010.



¹Rates have been age and gender standardised to the 2010 Armed Forces population, expressed per 100,000 strength

6. In 2003 and 2004 there were increases in the number of deaths in the Naval Service due to three helicopter incidents involving multiple deaths during operations in the Middle East. In 2006 there was one incident involving multiple fatalities when two Royal Marines died, however, another six Royal Marines and one Navy personnel died on operations in separate incidents. Operational fatalities due to hostile action amongst Royal Marines account for the increase in the mortality rate in the Naval Service in 2008.

7. The increase in the RAF mortality rate from 65 per 100,000 in 2004 to 72 per 100,000 in 2005 was accounted for by a Hercules crash in Iraq in January 2005 which claimed the lives of nine RAF personnel. The similar increase from 72 to 88 per 100,000 in 2006 was accounted for by

the loss of 12 RAF personnel in a Nimrod crash in Afghanistan in September 2006.

8. The fluctuations in Army fatality rates since 2006 are accounted for by operational fatalities in Iraq and Afghanistan. In 2010, 79 lives were lost as a result of hostile action compared to 99 in 2009 (refer to **Table 7** later in this release).

9. As several deaths occurred in the same incident on several occasions during the ten year period 2001-2010 (e.g. air transport incidents), **Table 2** provides details of the number of separate incidents and the number of individual deaths, by year of occurrence, for all accidental and violent deaths excluding any suicides.

Table 2: Accidental and violent deaths (excluding suicides): By Service, 2001-2010, number of deaths and number of incidents

Year	All		Naval Service		Army		RAF	
	Number	Incidents*	Number	Incidents	Number	Incidents	Number	Incidents
2001	84	80	18	17	51	49	15	15
2002	91	88	13	12	61	59	17	17
2003	r 112	83	27	17	r 67	51	18	16
2004	106	91	16	13	73	62	17	16
2005	93	78	13	13	62	56	18	10
2006	138	107	23	21	87	76	28	16
2007	154	131	15	14	123	107	16	13
2008	r 90	r 76	r 28	r 23	r 58	r 51	r 4	r 3
2009	r 155	r 125	12	12	r 131	r 103	12	11
2010	149	136	22	22	118	105	9	9

*In some instances, personnel from more than one Service have been killed in the same incident, therefore, the data for single Services may not add up to the total provided in the 'All incidents' column.
 'r' indicates a change in previously published data.

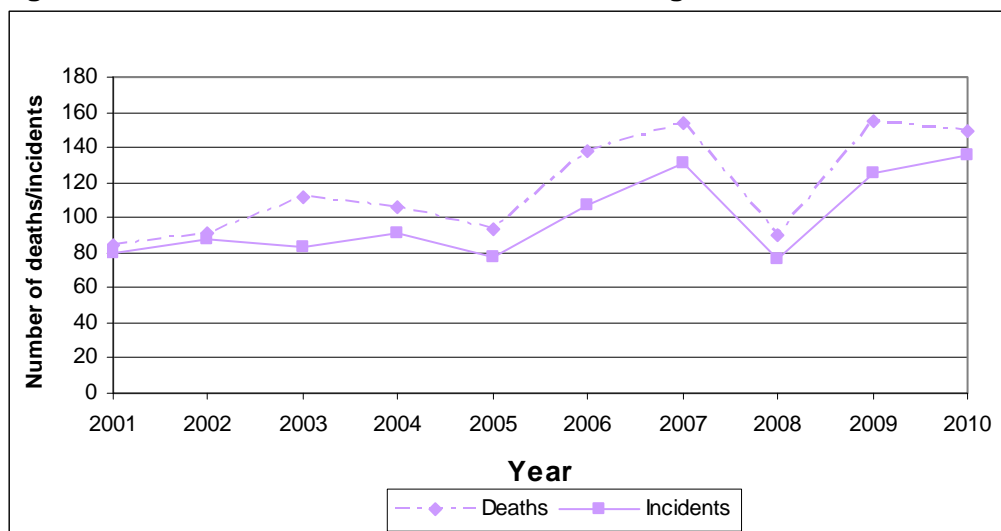
10. **Table 2** shows annual variations in the number of fatal incidents during the ten year period, 2001-2010 by Service. In 2010, there were 136 fatal incidents, representing a 10-year high and a 8% increase from the 125 incidents in 2009.

11. 91 of the 136 fatal incidents in 2010 occurred in Afghanistan, accounting for 103 deaths. This compares to 83 fatal incidents in Afghanistan (accounting for 108 deaths) in 2009.

12. In 2010, there were 45 non-operational fatal incidents (accounting for 46 deaths) compared to 41 non-operational fatal incidents (accounting for 46 deaths) in 2009.

13. These findings are illustrated in **Figure 2**, which shows both the annual changes in the number of deaths and the incidents for the total Armed Forces population.

Figure 2: Deaths and fatal incidents in the UK regular Armed Forces, 2001-2010.



14. Since 2003 there have been eight major incidents involving multiple deaths that occurred in the Middle East accounting for the deaths of 58 individuals. In the same time period, there were two other major incidents involving the deaths of ten Service personnel that were not linked to the

deployment in the Middle East. Six of these ten major incidents involved aircraft.

Comparisons with the UK general population.

15. In order to compare deaths among the UK regular Armed Forces with those among the general UK population, Standardised Mortality Ratios (SMR) have been calculated for each Service overall. The year on year changes in the UK general population have been taken into account in these calculations. An SMR below, equal to, or above 100 indicates that the rate for the Armed Forces or the Service is respectively below, equal to, or higher than the rate in the general UK population (see 'Methods' on page 10 for further clarification).

Table 3: Deaths by Service, 2001-2010¹, numbers, Standardised Mortality Ratios² (SMR) (95% confidence intervals (CI))

Cause	All			Naval Service			Army			RAF		
	Number	SMR	(95% CI)	Number	SMR	(95% CI)	Number	SMR	(95% CI)	Number	SMR	(95% CI)
2001	142	59	(50-70)	33	67	(47-94)	80	67	(54-84)	29	40	(27-58)
2002	147	62	(53-73)	26	r 53	(35-78)	94	r 79	(65-97)	27	38	(25-56)
2003	177	76	(66-88)	37	79	(57-108)	101	87	(72-106)	39	56	(41-77)
2004	170	76	(65-88)	37	82	(59-113)	96	86	(70-105)	37	55	(40-76)
2005	160	75	(64-88)	27	62	(41-91)	93	88	(71-107)	40	62	(46-85)
2006	191	r 87	(76-101)	33	r 73	(52-103)	111	r 100	(83-120)	47	r 75	(57-100)
2007	204	r 96	(84-110)	27	r 61	(40-89)	145	r 132	(112-155)	32	r 55	(39-78)
2008	137	r 65	(55-76)	40	r 89	(65-122)	79	r 72	(58-90)	18	32	(19-50)
2009	205	r 99	(86-113)	23	r 53	(33-79)	158	r 146	(125-170)	24	r 43	(28-64)
2010	187	89	(77-102)	30	68	(47-97)	136	123	(104-146)	21	37	(23-57)

¹ Change in how UK deaths collated, prior to 2006 includes deaths occurred in year, post 2006 includes deaths registered in year (ref para 64).

² Standardised mortality ratios have been age and gender standardised.

'r' indicates a change in previously published data.

16. For the UK regular Armed Forces as a whole, the SMR in 2010 was not statistically different than the UK population (see **Table 3**).

17. For the years 2003, 2004, 2006 and 2008 the Naval Service was not significantly different to the UK general population. For all other years the Naval Service SMR was statistically significantly lower than the UK population. In 2010 there was a 32% statistically significant decreased risk of dying in the Naval Service compared to the UK population (SMR = 68, 95% CI:47-97).

18. Operational incidents in 2003, 2004, 2006 and 2008 account for the higher SMR for the Naval Service for these years.

19. For the years 2001, 2002 and 2008, the Army SMR was statistically significantly lower than the UK general population. Between 2003 and 2006 the Army was not significantly different from the UK population. In 2007, 2009 and 2010, the Army was at a significantly increased risk of dying compared to the UK population. In 2010, there was a 23% statistically significant increased risk of dying in the Army compared to the UK population (SMR = 123, 95% CI:104-146). This can be explained by the increase in hostile action deaths and deaths as a result of land transport accidents (see **Table 4**).

20. For the period 2001 to 2005 and 2007 to 2010, the RAF annual SMR was statistically significantly lower than the UK general population. In 2006 the RAF was not statistically different from the UK population. In 2010 there was a 63% statistically significant decreased risk of dying in the RAF compared to the UK population. (SMR = 37, 95% CI:23-57).

Cause of death information - 2010

21. **Table 4** provides a breakdown of the main cause of death for the Armed Forces as a whole and for each of the single Services.

22. The information provided in the following tables includes both on and off duty deaths. It is not possible from the information presented in this National Statistic release to identify those deaths that were the result of work related fatalities that may or may not have been the result of health and safety failures.

23. Five non-regular UK Armed Forces personnel died whilst deployed on operations during 2010, all of whom were Reservists. Four died as a result of hostile action and one died as a result of a Land Transport Accident. These deaths are included in the figures presented.

Table 4: Deaths in the UK Armed Forces: Causes by Service, 2010, numbers, rates¹ and SMR^{2,3}

Cause	All			Naval Service			Army			RAF		
	Number	Rate (95% CI)	SMR (95% CI)	Number	Rate (95% CI)	SMR (95% CI)	Number	Rate (95% CI)	SMR (95% CI)	Number	Rate (95% CI)	SMR (95% CI)
All	187	97 (84-112)	89 (77-102)	30	78 (55-112)	68 (47-97)	136	116 (98-137)	123 (104-146)	21	49 (30-74)	37 (23-57)
Disease-related conditions	26	13 (9-20)	20 (13-30)	4	11 (3-29)	15 (4-37)	12	13 (7-22)	19 (10-33)	10	18 (9-33)	27 (13-49)
Cancers	16	8 (5-13)	47 (27-77)	2	5 (1-20)	27 (3-99)	8	9 (4-17)	50 (22-99)	6	11 (4-25)	57 (21-124)
Diseases of the circulatory system	7	4 (1-7)	22 (9-44)	1	3 (0-14)	14 (0-77)	3	3 (1-8)	20 (4-58)	3	4 (1-12)	30 (6-87)
Other	3	2 (0-5)	5 (1-14)	1	4 (0-20)	8 (0-43)	1	1 (0-6)	3 (0-18)	1	2 (0-14)	6 (0-34)
External causes of injury and poisoning	154	80 (68-93)	194 (165-227)	25	64 (42-95)	156 (101-230)	119	99 (82-118)	260 (218-312)	10	28 (13-51)	56 (27-103)
Deaths due to accidents	51	26 (20-35)	118 (89-155)	7	18 (7-38)	81 (32-166)	36	31 (22-42)	143 (103-198)	8	22 (10-44)	84 (36-166)
Land Transport Accidents	36	19 (13-26)	210 (151-291)	3	8 (2-23)	90 (19-262)	28	24 (16-34)	271 (180-391)	5	15 (5-35)	145 (47-338)
Other	15	8 (4-13)	57 (32-94)	4	10 (3-27)	75 (20-192)	8	7 (3-14)	54 (23-106)	3	7 (2-21)	50 (10-145)
Deaths due to violence⁴	98	51 (42-62)	-	15	39 (22-65)	-	82	67 (54-83)	-	1	3 (0-19)	-
Hostile Action ³	95	49 (40-60)	-	15	39 (22-65)	-	79	65 (52-81)	-	1	3 (0-19)	-
Other	3	2 (0-5)	117 (24-343)	0	-	-	3	2 (0-7)	200 (41-585)	0	-	-
Suicide and Open verdicts	5	3 (1-6)	15 (5-35)	3	7 (1-21)	44 (9-128)	1	1 (0-6)	5 (0-29)	1	2 (0-13)	13 (0-72)
Cause not currently available	7	4 (1-7)	181 (73-372)	1	2 (0-12)	124 (3-689)	5	5 (1-11)	241 (78-561)	1	3 (0-15)	101 (3-563)

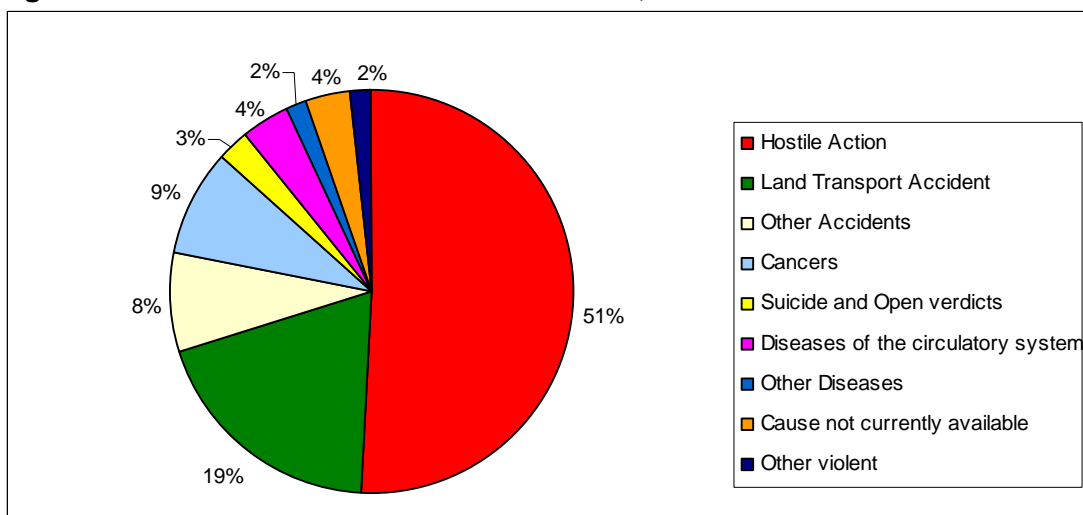
¹Rates have been standardised to the 2010 Armed Forces population, expressed per 100,000 strength. Individual rates may not add up to totals due to rounding.

²Standardised mortality ratios have been age and gender standardised.

³No comparisons between members of the UK Armed Forces and members of the UK general population for deaths due to hostile action were made as there is no equivalent cause of death in the UK population.

⁴An overall SMR for deaths due to violence has not been calculated due to lack of comparable UK population data.

Figure 3: UK Armed Forces: Causes of deaths, 2010



*Percentages may not add up to 100% due to rounding

Deaths due to disease

24. In 2010, 26 deaths (14%) were caused by disease-related conditions, of which 16 were due to cancers, seven due to circulatory system disorders and three due to other causes (**Table 4** and **Figure 3**).

25. In 2010, the rate of deaths due to disease related conditions was 13 per 100,000 (95% CI:9-20).

26. In 2010, the UK Armed Forces were at a 80% significantly decreased risk of dying of a disease related condition compared to members of the UK general population (SMR = 20, 95% CI:13-30).

Deaths due to external causes of injury and poisoning

27. In 2010, 154 deaths (82%) were due to external causes of injury and poisoning (**Table 4** and **Figure 3**).

28. In 2010 the rate for deaths due to external causes of injury and poisoning was 80 per 100,000 (95% CI:68-93).

29. In 2010 the UK Armed Forces were at a 94% significantly increased risk of dying as a result of external cause of injury and poisoning compared to the UK general population (SMR = 194, 95% CI: 65-227).

30. If hostile action deaths are excluded from the SMR calculation for deaths due to external causes of injury and poisoning, the UK Armed Forces were at a 26% significantly decreased risk of dying as a result of injury and poisoning than the UK population (SMR=74, 95% CI:57-96).

Deaths due to accidents

31. In 2010, 51 deaths (27%) were caused by accidents (**Table 4** and **Figure 3**).

32. LTA were the second largest cause of death in the Armed Forces overall with 36 deaths (19% of all deaths), three in the Naval Service, 28 in the Army and five in the RAF.

33. The highest mortality rate for LTA was observed among the Army (24 per 100,000). This was not significantly higher than the mortality rate observed among either the Naval Service (8 per 100,000) or the RAF (15 per 100,000).

34. In 2010 the UK Armed Forces were at 110% significantly increased risk of dying as a result of LTA compared to the UK general population (SMR = 210 95% CI:151-291).

35. Of the 36 Land transport accident deaths reported in **Table 4**, 35 deaths (equivalent to 18 per 100,000 personnel) were the result of road traffic accidents.

Deaths due to violence

36. In 2010, 98 deaths (52%) were due to violent causes, the single largest cause of death (**Table 4** and **Figure 3**).

37. Of the 98 deaths, 15 were in the Naval Service, 82 in the Army and one in the RAF. (**Table 4** and **Figure 3**). Of the 98 deaths, 95 were a result of hostile action.

38. The mortality rate for deaths due to hostile action was 49 per 100,000 (**Table 4**). In 2010 the Naval Service rate was 39 per 100,000, the Army rate was 65 per 100,000 and the RAF rate was 3 per 100,000.

39. No comparisons between members of the UK Armed Forces and members of the UK general population for deaths due to hostile action were made as there is no equivalent cause of death in the UK population.

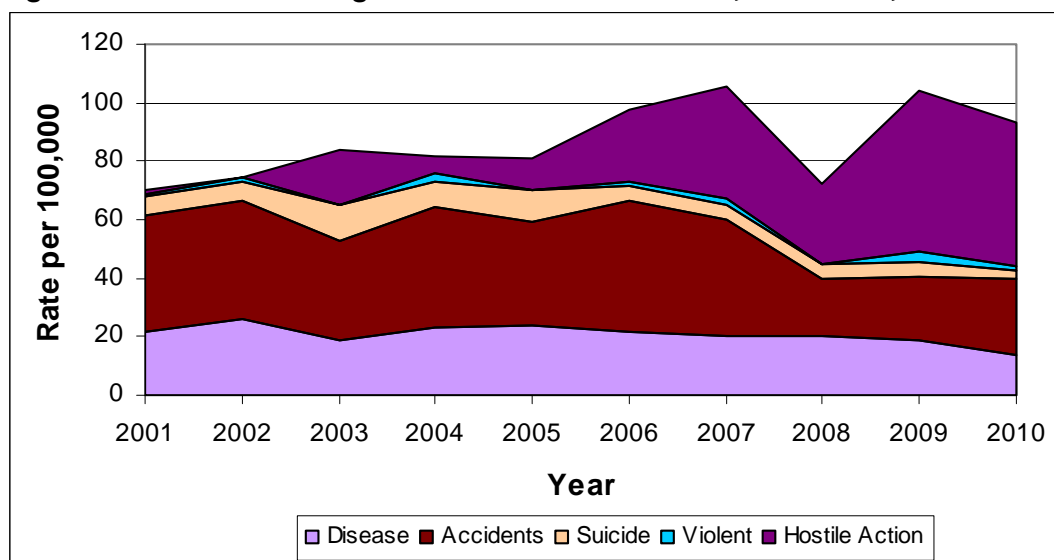
Deaths given either suicide or open verdicts

40. As at 28 February 2011 there were five coroner-confirmed suicides for deaths in 2010 (**Table 4**). However, there were also three deaths that occurred in 2010 with a cause consistent with suicide, for which an inquest has yet to be held. It is possible that the suicide data presented here may be revised when the results of the inquests are known.

Time trends: Cause of death

41. The only cause of death that has shown an increasing trend during the period 2001 to 2010 was hostile action which varied from 1 per 100,000 (in 2001) to 49 per 100,000 (in 2010) (Table 5 and Figure 4).

Figure 4: Deaths in the regular Armed Forces: Cause, 2001-2010, rates¹



¹Rates have been age and gender standardised to the 2010 Armed Forces population, expressed per 100,000 strength.

42. Tables 5-8 provide a breakdown of the main causes of death for the UK Armed Forces from 2001-2010 by Service. Information is presented as numbers, rates and standardised mortality ratios (SMR).

Standardised mortality ratios (SMR)

43. Throughout the last ten years, the UK regular Armed Forces have been at a significantly decreased risk of dying as a result of a disease related condition compared to the UK general population (Table 5).

44. Between 2001 and 2007 the UK Armed Forces were at a significantly increased risk of dying as a result of an accident compared to the UK general population. Between 2008 and 2010 there was no significant difference in deaths due to accidents between members of the UK Armed Forces and the UK general population (2010 SMR = 118, 95% CI:89-155).

45. Throughout the last 10 years the UK regular Armed Forces have been at a significantly increased risk of dying as a result of land transport accidents compared to the UK general population.

46. With the exception of 2009, the UK Armed Forces showed no significant difference with the UK general population for the occurrence of deaths related to violence, excluding hostile action deaths. The number of deaths due to violence related causes remains small throughout the period 2001-2010 and therefore the calculated SMR are subject to variation.

47. Between 2001 and 2010, the UK Armed Forces have been at a significantly decreased risk of dying as a result of a suicide compared to the UK general population. Please note that this comparison includes deaths among males and females. The Statistical Notice "Suicide and Open Verdict deaths in the UK Armed Forces" only provides comparisons to the UK general population for males only.

48. The low SMR for UK regular Armed Forces deaths as a result of a disease related condition may partially be explained by the 'healthy worker effect' often observed in occupational studies. This is deemed to occur when 'workers' are found to have lower mortality or other adverse health outcome rates than the general population due to the fact that certain groups of people are excluded from employment, particularly those who are ill or who have disabilities. This is to be expected in studies of Armed Forces mortality, as they are generally a highly selected group of individuals who are likely to have higher than usual levels of fitness and possibly lower levels of ill-health. A number of other factors specific to Service life both on and off duty may play a role in the increased risk of UK Armed Forces dying as a result of an accident compared to the UK population.

Table 5: Deaths in the UK Armed Forces: Causes, 2001-2010, numbers, rates¹ and standardised mortality ratios^{2,3,5}

Cause	Numbers										Rates										SMR									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
All	142	147	177	170	160	191	204	137	205	187	71	75	84	82	81	98	106	73	107	97	59	62	76	76	75	r 87	r 96	r 65	r 99	89
Disease-related conditions	41	41	40	43	44	41	38	r 37	36	26	22	26	19	23	24	22	21	20	19	13	29	29	r 29	32	33	r 31	r 30	r 29	r 29	20
Cancers	24	19	18	21	23	25	27	r 24	19	16	13	12	8	12	12	13	15	13	10	8	63	51	r 50	58	r 67	r 72	81	r 73	r 58	47
Diseases of the circulatory system	9	19	14	18	16	15	7	r 9	9	7	5	12	7	9	8	8	4	5	5	4	24	51	r 38	r 50	45	r 44	22	r 27	r 28	22
Other	8	3	8	4	5	1	4	r 4	8	3	3	2	4	2	3	<1	2	2	4	2	12	4	12	6	8	2	7	6	r 13	5
External causes of injury and poisoning	100	106	137	126	115	149	164	r 99	165	154	48	49	65	58	57	76	85	52	85	80	r 105	116	r 154	r 148	148	r 177	r 203	r 123	r 208	194
Deaths due to accidents	79	88	r 71	89	71	88	77	r 38	41	51	39	41	34	41	35	45	40	20	21	26	r 163	r 197	r 160	r 213	r 179	r 202	r 171	r 88	r 95	118
Land Transport Accidents	50	64	r 50	61	53	61	51	26	28	36	24	29	r 24	28	26	31	26	14	15	19	181	236	r 179	242	r 225	r 239	r 226	135	r 162	210
Other	29	24	r 21	28	18	27	26	r 12	13	15	15	12	r 10	13	9	14	13	6	7	8	r 139	r 137	r 127	r 170	r 112	r 150	r 116	r 50	r 50	57
Deaths due to violence⁴	5	3	41	17	22	50	77	52	114	98	2	1	19	8	11	26	40	28	59	51	-	-	-	-	-	-	-	-	-	-
Hostile Action ³	2	0	40	11	21	48	73	52	107	95	1	-	19	5	10	25	38	28	55	49	-	-	-	-	-	-	-	-	-	-
Other	3	3	1	6	1	2	4	0	7	3	1	1	<1	3	<1	1	2	-	4	2	77	76	28	139	30	r 52	118	-	r 274	117
Suicide and Open verdicts	16	15	r 25	20	22	11	10	r 9	10	5	6	7	12	9	11	5	5	5	5	3	37	35	r 61	r 52	63	r 30	31	r 27	r 30	15
Cause not currently available	1	0	0	1	1	1	2	r 1	4	7	1	-	-	<1	1	<1	1	1	2	4	29	-	-	26	28	r 24	r 48	r 27	r 105	181

¹Rates have been age and gender standardised to the 2010 Armed Forces population, expressed per 100,000 strength. Individual rates may not add up to totals due to rounding.

²Standardised mortality ratios have been age and gender standardised.

³No comparisons between members of the UK Armed Forces and members of the UK general population for deaths due to hostile action were made as there is no equivalent cause of death in the UK population.

⁴An overall SMR for deaths due to violence has not been calculated due to lack of comparable UK population data.

⁵Change in how UK deaths collated, prior to 2006 includes deaths occurred in year, post 2006 includes deaths registered in year

'r' indicates a change in previously published data.

Table 6: Deaths in the Naval Service: Causes, 2001-2010, numbers, rates¹ and standardised mortality ratios^{2,3,5}

Cause	Numbers										Rates										SMR									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
All	33	26	37	37	27	33	27	40	23	30	79	73	90	93	71	86	72	109	56	78	67	r 53	79	82	62	r 73	r 61	r 89	r 53	68
Disease-related conditions	12	9	7	19	9	10	8	r 12	10	4	30	30	17	48	25	26	20	30	22	11	40	r 31	24	68	33	r 36	29	r 43	r 37	15
Cancers	7	5	3	9	4	5	5	r 7	5	2	19	14	8	24	13	12	12	16	12	5	89	65	40	r 123	57	r 69	71	r 99	r 71	27
Diseases of the circulatory system	2	3	4	8	4	5	2	4	3	1	6	11	9	18	10	14	4	11	7	3	25	38	51	r 106	53	r 68	28	54	r 43	14
Other	3	1	0	2	1	0	1	1	2	1	5	5	-	6	2	-	4	3	4	4	22	7	-	16	8	-	8	8	r 16	8
External causes of injury and poisoning	20	17	30	18	18	23	19	r 28	13	25	46	44	73	46	46	60	52	79	34	64	104	r 93	r 171	r 109	118	137	r 117	r 172	r 81	156
Deaths due to accidents	18	13	13	15	12	15	10	r 12	4	7	41	34	30	38	32	39	28	34	9	18	r 187	r 148	r 151	r 187	r 156	175	r 112	r 138	r 46	81
Land Transport Accidents	11	7	10	10	7	10	6	8	2	3	26	17	23	25	16	25	16	22	5	8	205	134	189	210	156	204	r 137	213	r 60	90
Other	7	6	3	5	5	5	4	r 4	2	4	16	17	8	13	15	14	11	11	5	10	r 163	r 169	r 90	r 152	r 156	137	r 88	r 81	r 38	75
Deaths due to violence⁴	0	0	14	1	1	8	5	16	8	15	-	-	34	3	3	21	14	45	22	39	-	-	-	-	-	-	-	-	-	-
Hostile Action ³	0	0	14	0	0	8	5	16	7	15	-	-	34	-	-	21	14	45	20	39	-	-	-	-	-	-	-	-	-	-
Other	0	0	0	1	1	0	0	0	1	0	-	-	-	3	3	-	-	-	3	-	-	-	-	121	152	-	-	-	r 198	-
Suicide and Open verdicts	2	4	3	2	5	0	4	0	1	3	5	9	8	5	12	-	11	-	2	7	23	46	36	26	72	-	60	-	r 15	44
Cause not currently available	1	0	0	0	0	0	0	0	0	1	3	-	-	-	-	-	-	-	-	2	139	-	-	-	-	-	-	-	-	124

¹Rates have been age and gender standardised to the 2010 Armed Forces population, expressed per 100,000 strength. Individual rates may not add up to totals due to rounding.

²Standardised mortality ratios have been age and gender standardised.

³No comparisons between members of the UK Armed Forces and members of the UK general population for deaths due to hostile action were made as there is no equivalent cause of death in the UK population.

⁴An overall SMR for deaths due to violence has not been calculated due to lack of comparable UK population data.

⁵Change in how UK deaths collated, prior to 2006 includes deaths occurred in year, post 2006 includes deaths registered in year

'r' indicates a change in previously published data.

Table 7: Deaths in the Army: Causes, 2001-2010, numbers, rates¹ and standardised mortality ratios^{2,3,5}

Cause	Numbers										Rates										SMR									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
All	80	94	101	96	93	111	145	79	158	136	73	86	84	76	87	95	129	73	134	116	67	79	87	86	88	100	132	72	146	123
Disease-related conditions	17	22	19	7	18	14	14	13	17	12	17	30	19	5	22	15	16	14	18	13	26	34	29	11	29	23	23	21	28	19
Cancers	7	10	7	2	7	9	9	8	10	8	8	15	6	2	9	10	11	9	10	9	42	61	43	12	46	56	58	52	65	50
Diseases of the circulatory system	5	11	4	4	8	5	4	3	4	3	5	14	4	3	9	5	4	3	5	3	32	70	25	25	52	33	27	20	27	20
Other	5	1	8	1	3	0	1	2	3	1	4	1	9	1	4	-	1	2	3	1	15	3	25	3	10	-	3	6	10	3
External causes of injury and poisoning	63	72	82	89	75	96	129	65	138	119	56	56	65	69	66	79	110	57	113	99	121	142	166	189	173	202	278	142	304	260
Deaths due to accidents	46	58	43	57	50	48	56	25	26	36	44	44	34	45	44	39	48	21	22	31	170	230	171	242	221	191	213	99	103	143
Land Transport Accidents	31	44	29	42	38	40	38	17	19	28	27	33	24	33	32	33	31	14	16	24	194	277	177	284	272	261	277	146	181	271
Other	15	14	14	15	12	8	18	8	7	8	17	11	11	12	12	7	16	7	6	7	136	149	159	170	139	81	143	59	48	54
Deaths due to violence⁴	5	3	24	16	12	39	67	33	105	82	4	2	20	13	10	33	56	29	85	67	-	-	-	-	-	-	-	-	-	-
Hostile Action ³	2	0	24	11	12	38	63	33	99	79	2	-	20	8	10	32	53	29	81	65	-	-	-	-	-	-	-	-	-	-
Other	3	3	0	5	0	1	4	0	6	3	3	2	-	4	-	1	3	-	5	2	136	135	-	203	-	45	202	-	400	200
Suicide and Open verdicts	12	11	15	16	13	9	6	7	7	1	8	10	11	12	12	7	6	6	6	1	52	48	67	76	69	45	33	37	37	5
Cause not currently available	0	0	0	0	0	1	2	1	3	5	-	-	-	-	-	1	1	1	3	5	-	-	-	-	-	47	90	51	147	241

¹Rates have been age and gender standardised to the 2010 Armed Forces population, expressed per 100,000 strength. Individual rates may not add up to totals due to rounding.

²Standardised mortality ratios have been age and gender standardised.

³No comparisons between members of the UK Armed Forces and members of the UK general population for deaths due to hostile action were made as there is no equivalent cause of death in the UK population.

⁴An overall SMR for deaths due to violence has not been calculated due to lack of comparable UK population data.

⁵Change in how UK deaths collated, prior to 2006 includes deaths occurred in year, post 2006 includes deaths registered in year

'r' indicates a change in previously published data.

Table 8: Deaths in the RAF: Causes, 2001-2010, numbers, rates¹ and standardised mortality ratios^{2,3,5}

Cause	Numbers										Rates										SMR									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
All	29	27	39	37	40	47	32	18	24	21	52	52	72	65	72	88	71	36	53	49	40	38	56	55	62	75	55	32	43	37
Disease-related conditions	12	10	14	17	17	17	16	12	9	10	18	17	20	26	28	29	29	22	15	18	25	21	30	38	39	41	41	32	25	27
Cancers	10	4	8	10	12	11	13	9	4	6	15	6	10	16	20	19	24	17	6	11	75	31	63	79	99	95	121	87	39	57
Diseases of the circulatory system	2	5	6	6	4	5	1	2	2	3	3	9	10	8	7	9	2	4	4	4	15	37	45	46	32	43	9	19	20	30
Other	0	1	0	1	1	1	2	1	3	1	-	2	-	1	1	2	3	1	5	2	-	5	-	5	5	6	12	6	18	6
External causes of injury and poisoning	17	17	25	19	22	30	16	6	14	10	34	36	52	37	42	59	43	13	36	28	71	74	113	89	114	150	87	33	79	56
Deaths due to accidents	15	17	15	17	9	25	11	1	11	8	30	36	31	34	20	51	27	1	28	22	127	159	141	168	95	253	112	11	116	84
Land Transport Accidents	8	13	11	9	8	11	7	1	7	5	17	28	21	19	18	25	17	1	18	15	128	214	177	158	154	206	155	26	202	145
Other	7	4	4	8	1	14	4	0	4	3	12	8	10	15	2	26	9	-	10	7	126	86	91	181	23	307	75	-	66	50
Deaths due to violence⁴	0	0	3	0	9	3	5	3	1	1	-	-	5	-	15	4	16	7	3	3	-	-	-	-	-	-	-	-	-	-
Hostile Action ³	0	0	2	0	9	2	5	3	1	1	-	-	3	-	15	3	16	7	3	3	-	-	-	-	-	-	-	-	-	-
Other	0	0	1	0	0	1	0	0	0	0	-	-	3	-	-	1	-	-	-	-	-	-	118	-	-	116	-	-	-	-
Suicide and Open verdicts	2	0	7	2	4	2	0	2	2	1	4	-	15	3	7	4	-	5	5	2	18	-	66	20	44	22	-	25	26	13
Cause not currently available	0	0	0	1	1	0	0	0	1	1	-	-	-	2	1	-	-	-	2	3	-	-	-	92	97	-	-	-	102	101

¹Rates have been age and gender standardised to the 2010 Armed Forces population, expressed per 100,000 strength. Individual rates may not add up to totals due to rounding.

²Standardised mortality ratios have been age and gender standardised.

³No comparisons between members of the UK Armed Forces and members of the UK general population for deaths due to hostile action were made as there is no equivalent cause of death in the UK population.

⁴An overall SMR for deaths due to violence has not been calculated due to lack of comparable UK population data.

⁵Change in how UK deaths collated, prior to 2006 includes deaths occurred in year, post 2006 includes deaths registered in year

'r' indicates a change in previously published data.

Changes to previously published data

49. There have been 8 amendments to the classifications given to the cause of death:
- 2003 - one record has been amended from Other Accident to Land Transport Accident.
 - 2008 - two records have been amended from Other Accident to Suicide and Open Verdict; one record from Other Accident to Cancer and one record amended from Cause Unavailable to Circulatory Disease.
 - 2009 - two records have been amended from Other Accident to Suicide and Open Verdict and one record from Other Disease to Circulatory Disease.
50. Following a review of how DASA processes UK deaths data there have been 4 methodological changes in this publication:
- In previously published notices UK deaths data for 2006 included only those deaths which occurred in that year, however, following discussions with ONS, DASA have included both deaths registered and deaths that occurred in 2006 (ref para 64). This has resulted in a change to the SMR for all causes of deaths in 2006. Previous notices have been revised in accordance with this change.
 - For the first time DASA have included the following ICD groupings in 'Accident-other': complications of medical and surgical care (Y40* - Y84*); sequelae of external causes of mortality (Y85* to Y89*); and supplementary factors related to causes of mortality classified elsewhere (Y90 to Y98*).
 - DASA have reassigned the ICD groupings symptoms, signs and abnormal clinical and laboratory findings not elsewhere classified (R00* - R94*) from 'Cause unknown' to 'Disease-other'.
 - Prior to 2011 (UK deaths up to and including 2008), deaths relating to ICD code U509 were excluded in error. The ONS assign this code to deaths where cause is known to be an injury but the circumstances surrounding it have not been confirmed, specifically where the death may be a suspected suicide, violent event or an accident. ONS previously coded these deaths to Y339 but this incorrectly categorised them as Open verdicts, thus they created code U509. DASA have now included all deaths coded as U509 to 'Accident-other'.

METHODS

51. DASA receive weekly notifications of all regular Armed Forces deaths from the Joint Casualty and Compassionate Cell (formerly the single Service casualty cells). DASA also receive cause of death information from military medical sources in the single Services.

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

53. The data here exclude the Home Service of the Royal Irish Regiment, full time reservists, Territorial Army and Naval Activated Reservists since DASA do not receive routine notifications of all deaths among reservists and non-regulars, and because reliable denominator data to produce interpretable statistics are not available.

54. The Naval Service includes both the Royal Navy and the Royal Marines.

55. To record information on cause and circumstances of death, DASA uses the World Health Organisation's International Statistical Classification of Diseases and Health-related Problems 10th revision (ICD-10). In addition, DASA also record the casualty reporting categories used by the Joint Casualty and Compassionate Cell, used for reporting to the Chain of Command and for notifying the next of kin.

56. DASA have included the Joint Casualty Compassionate Cell categories of killed in action and died of wounds which together provide information on the number of Service personnel who have died on operations as a result of hostile action. The term 'killed in action' is used when a battle casualty has died outright or as a result of injuries before reaching a medical facility, whilst 'died of wounds' refers to battle casualties who died of wounds or other injuries after reaching a medical treatment facility.

57. In line with the definitions in ICD-10 a land transport accident is defined as any accident involving a device that has been designed for, or is being used at the time for, the conveyance of either goods or people from one place to another on land. The scope of this definition covers incidents that occur on and off the public highways and incidents that involve non-motorised forms of transport. The definition therefore includes all military specific vehicles irrespective of where the accident took place. Road traffic accidents refer only to accidents on a public road.

58. DASA 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, DASA liaise with the Northern Ireland Statistics and Research Agency (NISRA) who handle the official information on behalf of the Northern Ireland Office. In this notice, all 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 deaths may not have clearly defined cause information. Where this is the case, deaths were included with accidental deaths in **Tables 4, 5, 6, 7 and 8**.

59. In order to compare time trends and to take into account the different age and gender structures of their respective strengths, rates have been age and gender standardised. In order to facilitate comparisons with previously published reports data has been standardised to the 2010 Armed Forces population.

60. The effects of standardisation may, on occasion, lead to unexpected results particularly where small numbers are involved. For example, in 2005, the Army age and gender-standardised mortality rate had increased compared to 2004 despite a reduction in the actual number of deaths. Where several years' data are presented rates may fluctuate from one year to the next owing to the small number of cases involved and to relative changes in strengths, although effects of the latter are less noticeable. Standardised rates can also be strongly influenced by variations in the age and gender structure of the deaths concerned, even when totals may remain the same.

61. Due to the introduction of a new Personnel Administration System for the three Services, all strengths data for 2007 onwards are provisional and subject to review.

62. The 95% confidence interval 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 does not include 1.00, the result is deemed to be statistically significant.

63. To enable comparisons with deaths in the UK population, Standardised Mortality Ratios (SMR), adjusted for age, gender and year, were calculated. 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.

64. In 2006 the ONS changed from reporting the number of deaths that occurred in each year to the number of deaths that were registered in each year. Therefore the UK death data used by DASA up to and including 2005 is based on deaths that occurred in the year. The UK death data used by DASA for 2007 onwards is based on deaths that were registered in the year. To produce the UK death data for 2006 DASA have followed advice provided by the ONS and use deaths that both occurred and were registered in year.

65. The UK general population data for 2010 were not available for this report to calculate standard mortality ratios (SMRs), therefore, DASA has used the 2009 data as an estimate for the 2010 figures as there is little year on year variation for the UK figures. Thus, any patterns reported here may be subject to minor fluctuations when the 2009 data becomes available.

66. Where trends over time have been presented, an update on previous data published has been provided in the section '**Changes to previously published data**' and annotated with an 'r' to indicate a revision has been made.