



Ministry
of Defence

Defence Statistics Health
Ministry of Defence
Oak 0 West (#6028)
Abbey Wood North
Bristol BS34 8JH
United Kingdom

Telephone: +44 (0)30679 84423
E-mail: Analysis-Health-PQ-FOI@mod.gov.uk

Ref: FOI2021/15409

13 January 2022

Dear [REDACTED]

Thank you for your email dated 15 December 2021 requesting the following information:

I am hoping to obtain information on cardiac deaths across the Armed Forces in the last 20 years

- Are there figures available on cardiac death, broken down by age / diagnosis and Service / Unit?
- Are there figures available on cardiac sudden death broken down by age / Service /Unit ?
- Are there figures available on unexplained sudden death broken down by age/Service/ Unit
- Are there figures available on medical discharge in service on cardiac grounds (broken down by diagnosis)
- Are there figures available on cardiac death or unexplained sudden death during recruit training (ie pre service) broken down by Service

I am treating your correspondence as a request for information under the Freedom of Information Act 2000. A search for the information has now been completed within the Ministry of Defence, and I can confirm that information in scope of your request is held.

Section 40(2) has been applied to some of the information to protect personal information as governed by the Data Protection Act 2018 and GDPR. In line with JSP200 Statistics Disclosure Guidance, some demographic categories have been combined to reduce the possible inadvertent disclosure of individual identities. Section 40 is an absolute exemption and there is therefore no requirement to consider the public interest in deciding to withhold the information.

From 1 January 2001 to 31 December 2020, **186** UK armed forces personnel died from diseases of the circulatory system, and **11** UK armed forces personnel died from other sudden death, cause unknown. **Tables 1 - 3** present this information with breakdowns by age group, service and role (Army only).

From 1 January 2001 to 31 December 2020, **1,185** UK regular armed forces personnel were medically discharged with an ICD-10 code for circulatory system disorders listed as a principal or contributory cause (**Table 4**).

Table 1: UK regular armed forces deaths by diseases of the circulatory system and other sudden death by age group, numbers. 2001 - 2020

Cause								
	all	<25	25-29	30-34	35-39	40-44	45-49	50+
all	197	19	18	19	46	34	30	31
Diseases of the circulatory system	186	18	16	18	43	30	30	31
Hypertensive diseases (I10-I15)	2	0	0	0	0	0	0	2
Hypertensive heart disease	2	0	0	0	0	0	0	2
Ischemic heart diseases (I20-I25)	86	2	3	5	18	17	18	23
Acute myocardial infarction	30	1	2	1	4	4	7	11
Chronic ischaemic heart disease	53	0	1	3	14	13	10	12
Other acute ischaemic heart diseases	3	1	0	1	0	0	1	0
Pulmonary heart disease and diseases of pulmonary circulation (I26-I28)	6	0	0	2	0	3	1	0
Pulmonary embolism	6	0	0	2	0	3	1	0
Other forms of heart disease (I30-I52)	54	13	12	6	14	3	3	3
Acute and subacute endocarditis	1	0	0	0	0	0	1	0
Acute myocarditis	1	0	0	0	1	0	0	0
Atrial fibrillation and flutter	1	0	0	0	0	0	0	1
Cardiac arrest	18	5	3	4	2	1	2	1
Cardiomyopathy	9	0	6	1	2	0	0	0
Complications and ill?defined descriptions of heart disease	8	1	0	0	6	1	0	0
Heart failure	7	2	0	0	3	1	0	1
Nonrheumatic aortic valve disorders	2	1	0	1	0	0	0	0
Other cardiac arrhythmias	5	2	3	0	0	0	0	0
Other conduction disorders	2	2	0	0	0	0	0	0
Cerebrovascular diseases (I60-I69)	27	2	1	4	6	5	7	2
Cerebral infarction	2	0	0	0	0	1	1	0
Intracerebral haemorrhage	7	1	0	0	3	0	2	1
Other cerebrovascular diseases	1	0	0	1	0	0	0	0
Other nontraumatic intracranial haemorrhage	2	0	0	0	1	0	1	0
Stroke, not specified as haemorrhage or infarction	6	0	1	0	0	3	1	1
Subarachnoid haemorrhage	9	1	0	3	2	1	2	0
Diseases of arteries, arterioles and capillaries (I70-I79)	8	1	0	0	5	2	0	0
Aortic aneurysm and dissection	5	0	0	0	3	2	0	0
Arterial embolism and thrombosis	2	0	0	0	2	0	0	0
Other disorders of arteries and arterioles	1	1	0	0	0	0	0	0
Diseases of veins, lymphatic vessels and lymph nodes, not elsewhere classified (I80-I89)	3	0	0	1	0	0	1	1
Phlebitis and thrombophlebitis	3	0	0	1	0	0	1	1
Other sudden death, cause unknown (R96)	11	1	2	1	3	4	0	0
Other sudden death, cause unknown	11	1	2	1	3	4	0	0

source: Defence Statistics Health

Table 2: UK regular armed forces deaths by diseases of the circulatory system and other sudden death by service, numbers.

2001 - 2020

Cause	all	Royal Navy ¹	Army	RAF
all	197	50	95	52
Diseases of the circulatory system	186	48	88	50
Hypertensive diseases (I10-I15)	2	1	0	1
Hypertensive heart disease	2	1	0	1
Ischemic heart diseases (I20-I25)	86	18	43	25
Acute myocardial infarction	30	6	15	9
Chronic ischaemic heart disease	53	12	26	15
Other acute ischaemic heart diseases	3	0	2	1
Pulmonary heart disease and diseases of pulmonary circulation (I26-I28)	6	5	1	0
Pulmonary embolism	6	5	1	0
Other forms of heart disease (I30-I52)	54	16	25	13
Acute and subacute endocarditis	1	1	0	0
Acute myocarditis	1	0	1	0
Atrial fibrillation and flutter	1	1	0	0
Cardiac arrest	18	5	10	3
Cardiomyopathy	9	5	1	3
Complications and ill?defined descriptions of heart disease	8	2	4	2
Heart failure	7	1	4	2
Nonrheumatic aortic valve disorders	2	0	2	0
Other cardiac arrhythmias	5	1	2	2
Other conduction disorders	2	0	1	1
Cerebrovascular diseases (I60-I69)	27	6	15	6
Cerebral infarction	2	0	1	1
Intracerebral haemorrhage	7	1	6	0
Other cerebrovascular diseases	1	0	1	0
Other nontraumatic intracranial haemorrhage	2	1	1	0
Stroke, not specified as haemorrhage or infarction	6	1	3	2
Subarachnoid haemorrhage	9	3	3	3
Diseases of arteries, arterioles and capillaries (I70-I79)	8	1	4	3
Aortic aneurysm and dissection	5	0	2	3
Arterial embolism and thrombosis	2	0	2	0
Other disorders of arteries and arterioles	1	1	0	0
Diseases of veins, lymphatic vessels and lymph nodes, not elsewhere classified (I80-I89)	3	1	0	2
Phlebitis and thrombophlebitis	3	1	0	2
Other sudden death, cause unknown (R96)	11	2	7	2
Other sudden death, cause unknown	11	2	7	2

source: Defence Statistics Health

1 Royal Navy includes Royal Navy and Royal Marines.

Table 3: UK regular armed forces deaths by diseases of the circulatory system and other sudden death by role, numbers. 2001 - 2020

Cause	all	Royal Marines	Royal Navy	Army			RAF
				Combat ¹	Support ²	Combat Service Support ³	
all	197	10	40	31	43	21	52
Diseases of the circulatory system	186	9	39	27	40	21	50
Hypertensive diseases (I10-I15)	2	1	0	0	0	0	1
Hypertensive heart disease	2	1	0	0	0	0	1
Ischemic heart diseases (I20-I25)	86	1	17	12	16	15	25
Acute myocardial infarction	30	1	5	2	7	6	9
Chronic ischaemic heart disease	53	0	12	8	9	9	15
Other acute ischaemic heart diseases	3	0	0	2	0	0	1
Pulmonary heart disease and diseases of pulmonary circulation (I26-I28)	6	0	5	0	1	0	0
Pulmonary embolism	6	0	5	0	1	0	0
Other forms of heart disease (I30-I52)	54	7	9	9	12	4	13
Acute and subacute endocarditis	1	1	0	0	0	0	0
Acute myocarditis	1	0	0	0	1	0	0
Atrial fibrillation and flutter	1	0	1	0	0	0	0
Cardiac arrest	18	1	4	4	4	2	3
Cardiomyopathy	9	3	2	0	1	0	3
Complications and ill-defined descriptions of heart disease	8	1	1	2	2	0	2
Heart failure	7	0	1	1	2	1	2
Nonrheumatic aortic valve disorders	2	0	0	0	1	1	0
Other cardiac arrhythmias	5	1	0	1	1	0	2
Other conduction disorders	2	0	0	1	0	0	1
Cerebrovascular diseases (I60-I69)	27	0	6	5	8	2	6
Cerebral infarction	2	0	0	0	1	0	1
Intracerebral haemorrhage	7	0	1	2	3	1	0
Other cerebrovascular diseases	1	0	0	1	0	0	0
Other nontraumatic intracranial haemorrhage	2	0	1	0	0	1	0
Stroke, not specified as haemorrhage or infarction	6	0	1	1	2	0	2
Subarachnoid haemorrhage	9	0	3	1	2	0	3
Diseases of arteries, arterioles and capillaries (I70-I79)	8	0	1	1	3	0	3
Aortic aneurysm and dissection	5	0	0	0	2	0	3
Arterial embolism and thrombosis	2	0	0	1	1	0	0
Other disorders of arteries and arterioles	1	0	1	0	0	0	0
Diseases of veins, lymphatic vessels and lymph nodes, not elsewhere classified (I80-I89)	3	0	1	0	0	0	2
Phlebitis and thrombophlebitis	3	0	1	0	0	0	2
Other sudden death, cause unknown (R96)	11	1	1	4	3	0	2
Other sudden death, cause unknown	11	1	1	4	3	0	2

source: Defence Statistics Health

1 Combat includes Infantry, Royal Regiment of Artillery and Royal Armoured Corps

2 Combat Support includes Army Air Corps, Corps of Royal Electrical and Mechanical Engineers, Corps of Royal Engineers, Intelligence Corps, Queen Alexandra's Royal Army Nursing Corps, Royal Army Dental Corps, Royal Army Medical Corps Medical Officer, Royal Corps of Signals and The Royal Logistic Corps

3 Combat Support Service includes Adjutant General's Corps, Long Service List, Royal Army Chaplain's Department, Royal Army Physical Training Corps and Staff

Table 4: UK regular armed forces personnel medically discharged with a principal or contributory cause of circulatory system disorders and subgroup^{1,2}, numbers 2001 to 2020

Cause	n
Diseases of the circulatory system	1,185
Acute rheumatic fever (I00-I02)	0
Chronic rheumatic heart diseases (I05-I09)	~
Hypertensive diseases (I10-I15)	240
Ischemic heart diseases (I20-I25)	114
Pulmonary heart disease and diseases of pulmonary circulation (I26-I28)	56
Other forms of heart disease (I30-I52)	218
Cerebrovascular diseases (I60-I69)	104
Diseases of arteries, arterioles and capillaries (I70-I79)	239
Diseases of veins, lymphatic vessels and lymph nodes, not elsewhere classified (I80-I89)	129
Other and unspecified disorders of the circulatory system (I95-I99)	150

Source: FMed 23, DMICP & JPA.

1 Personnel are only counted once per cause subgroup.

2 Personnel may have multiple subgroups associated with their medical discharge. Therefore, the subgroup breakdown will not equal the total.

~ In line with JSP 200 figures fewer than five have been suppressed.

Under section 16 of the Act (Advice and Assistance), you may find it useful to note the following:

Due to the small numbers of some causes of circulatory system deaths and medical discharges, numbers have been presented for the whole twenty year period in line with Joint Service Publication 200 – statistics, guidance for statistical disclosure control.

Defence Statistics Health compiles the Department's authoritative deaths database for all **UK Armed Forces personnel who died whilst in Service** going back to 1984. Information is compiled from several internal and external sources from which we release several internal analyses and external National Statistics Notices.

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 NHS Digital and The General Registrar's Office Scotland.

To record information on cause of death, coding is carried out according to World Health Organisation's International Classification of Diseases 10th edition (ICD-10) and internationally agreed rules. Deaths from diseases of the circulatory system were identified as personnel with a principal ICD10 code between I00 and I99.

The information on deaths presented are for the UK 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.

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

The information on medical discharges was sourced from electronic personnel records from Defence Medical Information Capability Programme (DMICP) and manually entered paper documents from medical boards (FMed 23s). The primary purpose of these medical documents is to ensure the appropriate administration of each individual patient's discharge. Statistical analysis and reporting is a secondary function.

The principal condition of discharge is the first principal ICD-10 code on the medical discharge documents. Contributory causes of medical discharge are any other condition on the medical discharge documents.

Defence Statistics release annual updates on medical discharges in the UK armed forces as an Official Statistic publication. The last statistical release was on 15 July 2021 which presented data up to 31 March 2021. The latest report can be found at:

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

If you have any queries regarding the content of this letter, please contact this office in the first instance.

If you wish to complain about the handling of your request, or the content of this response, you can request an independent internal review by contacting the Information Rights Compliance team, Ground Floor, MOD Main Building, Whitehall, SW1A 2HB (e-mail CIO-FOI-IR@mod.gov.uk). Please note that any request for an internal review should be made within 40 working days of the date of this response.

If you remain dissatisfied following an internal review, you may raise your complaint directly to the Information Commissioner under the provisions of Section 50 of the Freedom of Information Act. Please note that the Information Commissioner will not normally investigate your case until the MOD internal review process has been completed. The Information Commissioner can be contacted at: Information Commissioner's Office, Wycliffe House, Water Lane, Wilmslow, Cheshire, SK9 5AF. Further details of the role and powers of the Information Commissioner can be found on the Commissioner's website at <https://ico.org.uk/>.

I hope this is helpful.

Yours sincerely

Defence Statistics Health Head (B1)