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Australian Institute of
Health and Welfare

Final report to the Independent Review of Past Defence and Veteran Suicides

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**Final report to the Independent Review
of Past Defence and Veteran Suicides**

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Summary

Australian Defence Force (ADF) members have unique experiences as a result of their service in the military, which can influence their health and wellbeing relative to the rest of the Australian population. In general, ADF members are trained to be physically and mentally fit, receive regular medical assessments, and have access to comprehensive medical and dental treatment. In contrast to the general Australian population, ADF members can be subject to workplace stressors from exposure to combat, periodical geographical relocations, and lengthy separation from family. Military service also increases the likelihood of exposure to life threatening situations, which may result in physical and mental trauma and moral injury (Jones et.al, 2020).

An important message from studies of the health and wellbeing of ADF members has been to understand the risk and protective factors for serving, ex-serving and reserve members of the ADF who have died by suicide (Baker et.al., 2017; NMHC, 2017; SFADTRC, 2017; Productivity Commission, 2019; Jones et.al., 2020).

Suicide in the Australian community has profound impacts on family, friends and communities. Every life lost to suicide in the veteran population is a tragedy and service men and women in the ADF are a critical part of the Australian community, particularly in their role in the defence of Australia. Suicide prevention of ADF members is of significant public interest and a particular consideration for enabling positive health and welfare outcomes for ADF members. Suicide by ADF members, like suicide in the Australian population is an ongoing, complex, and multifaceted public health problem. Ex-serving ADF members represent a population group that are at increased risk of suicide (AIHW, 2020).

In this report, risk and protective factors for suicide are described in terms of connections to personal circumstances or social processes of ADF members, and their physical and mental health. Risk and protective factors can vary by age, health status, and changes in employment outcomes, such as separation from the ADF. The frequency, type and timing of access to social, health and welfare services can also be risk or protective factors affecting suicide outcomes for ADF members.

In this report a cohort of serving, ex-serving and reserve ADF members who have died by suicide and had at least 1 day of service since 1 January 2001 was examined. The analysis uses Department of Defence (Defence) and Department of Veterans' Affairs (DVA) administrative population datasets, and combines these with other data sources through data-linkage to enable investigation of systemic evidence with a high level of applicability to inform policy and prevention programs.

The themes explored include influence of demographic and socioeconomic factors, and ADF service career history including phases of active service and separation from the ADF. Further, the analysis identifies psychosocial and other factors affecting suicide among the study cohort. The report also provides an analysis of use of health services and pharmaceutical dispensing by serving, ex-serving and reserve ADF members who have died by suicide. For all of these data, comparisons are made between ADF members who died by suicide, the whole ADF population and the general Australian population.

There are notably some challenges and limitations encountered in the analysis of linked administrative data; for example, with respect to bias from linkage errors where records cannot be linked and other examples where the data sources are of varying quality and limited in the time period to which data are available. See the footnotes and Technical Notes in this report for further details on caveats in interpreting the analysis.

Key findings

ADF member population, 2001 to 2018

ADF members

- In the study cohort, there were 216,640 living or deceased ADF members: 118,584 ex-serving, 55,438 serving, and 42,618 reserves.
- Of these, 61% Army, 20% Navy and 19% Air Force.
- 84% of ADF members are males and 16% are females.
- Serving members were younger than reserve and ex-serving members, with nearly two-thirds (66%) aged under 35 years compared with 44% of reserve and 28% of ex-serving members in the same age group.
- Ex-serving and reserve members were generally older than serving members, with 41% and 34% aged 45 years and over, respectively, compared with 17% of serving members.

Service-related characteristics experiences

- Of all ex-serving members in the study cohort, around half (51%) served for 10 or more years, while 13% had served for less than one year.
- Half (50%) ex-serving separated voluntarily, around 1 in 8 (12.5%) for medical reasons, around a quarter (28%) for other involuntary reasons, and 1 in 10 (9.6%) for contractual/administrative reasons.

ADF members who died by suicide, 2001 to 2018

ADF members who died by suicide

- 465 ADF members died by suicide: 429 males and 36 females.
- Of the 429 males who died:
 - 109 were serving
 - 78 were reserve and;
 - 242 were ex-serving.
- The suicide rate for ex-serving males was higher than for serving and reserve males and also higher than the rate for ex-serving females.
- The age-adjusted rate of suicide, when compared to the Australian population was:
 - 50% lower for serving males
 - 49% lower for reserve males
 - 22% higher for ex-serving males
 - 127% (or 2.27 times) higher for ex-serving females
 - 53% lower for serving/reserve females
- The median age at death for ADF members who died by suicide between 2001 and 2018 (34 for males and 32 for females) was younger than for those who died by suicide in the Australian population (43 for males and 44 for females).
- Age-specific rates of suicide among ex-serving males generally decreased with age, from 36 per 100,000 per year among those aged under 25 years to 8.7 per 100,000 per year among those aged 55 years and over.

ADF members who died by suicide, 2001 to 2018

Service-related characteristics

- Officers were less likely to die by suicide than general enlistees.
- The suicide rate for ex-serving males with 10 years of service was lower than for ex-serving males with less than 1 year of service.
- Ex-serving males who separated for medical reasons or other involuntary reasons were more likely to die by suicide than those who separated for voluntary reasons.

Socioeconomic status and selected demographics

- ADF members (serving, reserve and ex-serving) who died by suicide were less likely to be married or in de-facto relationships than the ADF population (40% compared with 72%) and more likely to be never married (39% compared with 12%).
- 21% of ADF members who died by suicide between 2001 and 2018 were unemployed¹ at time of death. This is in contrast to the alive ADF population with less than 1% being unemployed in 2017–18².
- More than half of the ADF members who died by suicide usually resided either in New South Wales (28%) or in Queensland (27%). This is consistent with the proportions in the alive ADF population, with 24% residing in NSW and 27% in Qld, according to the 2017–18 NHS.

Measures of risk and protective factors

Psychosocial risk factors

- The three most common psychosocial risk factors for those who died by suicide were the same for the ADF population and the Australian population yet were identified in a higher proportion of male ADF members:
 - Personal history of self-harm: 1 in 3 (29%) ADF males compared with around 1 in 5 (21%) Australian males,
 - Disruption of family by separation and divorce: over 1 in 4 (27%) ADF males compared with around 1 in 6 (16%) Australian males, and
 - Problems in relationship with spouse or partner: 1 in 5 (21%) ADF males compared with around 1 in 9 (11%) Australian males.

Department of Veterans' Affairs Clients

- Between 2001 and 2018, there were 42,798 (36%) ex-serving ADF members who were DVA clients; comprising 37,023 (37%) males and 5,775 (32%) females.
- This pattern was similar among those who died by suicide, with one in three (33%) or 154 ADF members who were DVA clients at the time of death: 146 males and 8 females.
- Male ex-serving non-DVA clients were less likely to die by suicide compared with male ex-serving DVA clients.

¹ ADF members who died by suicide include those who were serving, reserve, or ex-serving with at least 1 day of service in the ADF between 1 January 2001 and 31 December 2018. Ex-serving ADF members may have been unemployed at the time of death.

² The 2017–18 National Health Survey (NHS) was conducted by the Australian Bureau of Statistics (ABS) from July 2017 to June 2018. Alive ADF members include who responded to the 2017–18 NHS, and identified as having ever served in the ADF. They include ADF members who served prior to 2001. See the [ABS 2017–18 NHS](#) for more information.

Use of health services

- From 2001 to 2018, a lower proportion of ex-serving males (from 59% to 84%) and ex-serving females (from 77% to 92%) used Medicare-subsidised services and DVA-funded services compared with the Australian male (from 83% to 87%) and female population (from 94% to 95%).
- Between 2001 and 2018, 88% of ex-serving males and 96% of ex-serving females who died by suicide used at least one Medicare-subsidised or DVA-funded health service in the year before death. Similarly, 86% of Australian males and 95% of Australian females who died by suicide used a Medicare-subsidised health service in the year before death.
- Among the ex-serving DVA clients who received hospital-based (secondary) care between 2001 and 2018, 25% received care for mental and behavioural disorders.
- Between 2001 and 2018, 20% of ADF members who died by suicide and were DVA clients received admitted patient care.

Use of medicines

- Between 2012 and 2018, a higher proportion (35%) of all ex-serving members were dispensed at least one mental health-related medication compared to Australians (18%).
- 60% of ex-serving males who died by suicide were dispensed medications used for mental health conditions in the year before death compared with 54% of Australian males who died by suicide.
- For all ex-serving members, Amoxicillin was the leading medicine dispensed, while diazepam was the most commonly dispensed mental health medication. Diazepam was the leading medicine dispensed to ADF members who died by suicide. For Australians who died by suicide, paracetamol and codeine combination product was the most commonly dispensed medicine, while diazepam was the most commonly dispensed mental health medication.

Introduction

Overview

This Final Report analyses the health and wellbeing of serving, ex-serving and reserve ADF members who have died by suicide and had at least one day of service since 1 January 2001. The Australian Institute of Health and Welfare (AIHW) has undertaken a comprehensive analysis to identify risk and protective factors related to suicide among ADF members. The quantitative analysis of ADF suicides makes comparisons with the ADF population and general Australian population, where possible. The study explores physical and mental health in connection with military service, separation from the ADF, and transition to civilian life. This analysis utilises existing and new datasets to further provide a comprehensive understanding of risks and protective factors relating to suicide.

Objective

The objectives of the analysis are to:

- identify trends and systemic factors contributing to or preventing ADF members' deaths from suicide
- compare the health of ADF members who have died by suicide with all Australians who died by suicide to provide insights on specific risk factors for ADF members
- compare the health of ADF members with a recorded suicide and ADF members who are still alive to provide information on protective factors for ADF members
- identify patterns of suicidality among ADF members.

Background

On 5 February 2020, the Prime Minister announced the establishment of a National Commissioner to inquire into and support the prevention of deaths by suicide among serving and ex-serving Australian Defence Force (ADF) members.

As a first priority, the interim National Commissioner is undertaking an Independent Review of Past ADF and Veteran Suicides (the Review). The key objectives of the Review are to build on existing research and undertake new analysis by integrating relevant data sources, and to identify and describe common themes, trends and systemic factors that may contribute to suicide by ADF members.

This Final Report presents the AIHW's analysis of ADF members with at least one day of service from 1 January 2001 who have died by suicide from 1 January 2001 to 31 December 2018. The quantitative analysis informs the key objectives of the Terms of the Reference³ for the Review. Comparisons are made with all ADF members, and Australians who died by suicide.

³ Revised Terms of Reference, Independent Review of Past Defence and Veteran Suicides, <[Terms of Reference for the Independent Review | National Commissioner for Defence and Veteran Suicide Prevention \(nationalcommissionerdvsp.gov.au\)](#)>.

This report focusses on current or former ADF members who has served at least one day of ADF service during 2001 and 2018. There are 216,640 persons covered, of whom 118,584 were ex-serving, 55,438 were serving, and 42,618 were members of the reserve.⁴

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- Department of Defence
- Department of Veterans' Affairs
- Department of Justice and Community Safety (Victoria)
- Australian Bureau of Statistics
- National Coronial Information System

The AIHW also thanks and acknowledges contributions of internal staff from the AIHW; Data Integration Service Centre who conducted the data-linkage, Ethics Privacy and Legal Unit who facilitated the ethics approval process and Specialist Capability Unit who provided statistical guidance in the methods used for the analysis.

The AIHW thanks those who provided review; Professor Libby Roughead, Associate Professor Ben Edwards and staff from the AIHW Data Custodian Units. In addition, the AIHW thanks and acknowledges the support from the Office of the National Commissioner and formerly the Attorney General's Department as well as the Australian Commission on Safety and Quality in Health Care.

Finally, the AIHW also thanks Mindframe for providing invaluable training in the appropriate and sensitive way to report on suicide.

⁴ Where the ADF member had died, this refers to their service status at the time of death.

Part I — Patterns and trends of ADF service and suicide

Demographic and service profile of ADF members

Key points:

- The study cohort totalled 216,640 living and deceased ADF members who have served at least one day in the ADF between 2001 and 2018. Of this cohort, 55,438 were serving, more than half (118,584, 55%) were ex-serving, and 42,618 were reserve members of the ADF.
- Of the study cohort, 54,865 serving members were alive as of 31 December 2018, over half (117,023) ex-serving members were not known to be dead (presumed alive), and 41,971 reserve members were alive.
- Between 2001 and 2018, 465 ADF members (serving, reserve and ex-serving) died by suicide: 109 serving males, 78 reserve males, 242 ex-serving males and 36 females.
- For serving and reserve males, the age adjusted rate of dying by suicide was half that of Australian males, while the rate for ex-serving males was 22% higher.
- The age-adjusted rate of suicide for ex-serving females was 127% (or 2.27 times) higher when compared with Australian females.

In this chapter, the analysis explores service-related and demographic characteristics of ADF members who have served at least one day between 1 January 2001 and 31 December 2018. Datasets used for the analysis of ADF service and suicide include the Defence Personnel Management Key Solution (PMKeyS) for the period 2001 to 2018, the National Death Index (NDI), the Defence Suicide Database (DSD), and the Defence Work Health and Safety dataset.

The study cohort

The study cohort totalled 216,640 living or deceased ADF members who have served at least one day in the ADF between 2001 and 2018. Of this cohort:

- 55,438 were serving (45,252 males and 10,186 females)
- 42,618 were reserve (35,863 males and 6,755 females)
- 118,584, were ex-serving (100,507 males and 18,077 females).

Age-related characteristics

The age distribution of ADF members differs by service status. Serving members were younger than reserve and ex-serving members, with nearly two-thirds (66%) aged under 35 years compared with 44% of reserve and 28% of ex-serving members in the same age group (Table 1). Ex-serving and reserve members were generally older than serving members, with 41% and 34% aged 45 years and over, respectively, compared with 17% of serving members.

Among ex-serving members, the mean age of males was 44 years and for females was 42 years. The mean age for reserve males was 39 years and for females 38 years. Among serving members, the mean age for males was 34 years and for females 31 years.

ADF service groups

The majority of all ADF members either are serving or have served in the Army. Among serving members of the study cohort, half (51%) were in the Army, and around a quarter each were serving in the Navy (25%) and the Air Force (25%) (Table 1). Among ex-serving

ADF members in the study cohort, 65% had served in the Army, 19% in the Navy and 16% served in the Air Force. Among the reserves, 65% served in the Army, 18% in the Navy and 17% in the Air Force.

Entry type

The majority of the ADF cohort entered as general enlistees (Table 1). Among ex-serving members four out of five (81%) entered as general enlistees, and 19% entered as officers. Around three quarters (73%) of all serving and reserve members entered as general enlistees.

Rank

The most commonly held ranks among ADF members were 'Other ranks' rather than Officer ranks. Among ex-serving ADF members in the:

- Army: around 1 in 4 (23%) was a Private Proficient at the time of separation, 1 in 6 (16%) was a Recruit, and 1 in 9 (11%) was a Private.
- Navy: 1 in 4 (25%) was an Able Seaman at separation, 1 in 5 (19%) was a Leading Seaman, and around 1 in 9 (11%) was a Recruit.
- Air Force: around 1 in 5 (19%) was a Corporal at separation, 1 in 6 (16%) was a Leading Aircraftman/woman, and around 1 in 8 (12%) was ranked Sergeant.

Operational experience

Operational experience refers to experiences relating to deployment to a warlike conflict zone, non-warlike peace keeping mission, overseas areas for border protection activities or humanitarian aid, or domestic service in providing aid to the civilian community during emergency situations.

Among ex-serving ADF members who joined after 1 January 1999⁵, just over one quarter (27%) had operational experience compared with nearly three quarters (72%) of those serving and 59% of reserves.

Separation characteristics

Half of ex-serving ADF members (50%) separated voluntarily from the ADF, around 1 in 8 (13%) separated for medical reasons, and just over a quarter (28%) separated for other involuntary reasons⁶. The rest (9.6%) separated due to contractual or administrative arrangements.

Length of service and time since separation

Of all ex-serving members, around half (51%) served for 10 or more years, while 13% had served for less than one year. Around 2 in 5 (41%) ex-serving members had separated from the ADF for 10 or more years, noting the maximum time since separation in the ADF is 18 years.

⁵ Only operational experience since 1 January 1999 has been consistently identified across the four broad categories. To ensure comparability, analysis of operational experience includes only those hired on or after 1 January 1999. This may have contributed to the reporting of a lower proportion of ex-serving members with operational experience See Technical Note for more information.

⁶ See Technical Note for information on separation reasons.

Table 1: Service profile of members with at least 1 day of ADF service between 1 January 2001 and 31 December 2018, by service status, as at 31 December 2018

Characteristics	Serving ^(a)		Reserve ^(a)		Ex-serving	
	Number	%	Number	%	Number	%
Age^(b)						
Less than 25	13,091	23.6	4,615	10.8	4,256	3.6
25–34	21,020	37.9	14,145	33.2	29,201	24.6
35–44	11,860	21.4	9,373	22.0	36,245	30.6
45 years and over	9,467	17.1	14,485	33.9	48,882	41.2
Mean	33	..	39	..	43	..
Median	31	..	37	..	41	..
Service^(c)						
Army	28,032	50.6	27,872	65.4	76,935	64.9
Navy	13,616	24.6	7,493	17.6	22,229	18.7
Air Force	13,790	24.9	7,253	17.0	19,420	16.4
Operational experience^{(c)(d)}						
Any	32,357	72.1	16,578	58.6	16,860	26.6
None	12,523	27.9	11,693	41.4	46,571	73.4
Entry type^(c)						
Officer	15,220	27.5	11,324	26.6	22,917	19.3
General enlistee	40,218	72.5	31,294	73.4	95,666	80.7
Length of service^(b)						
Less than 1 year	4,552	8.2	1,899	4.5	14,976	12.6
1 to less than 5 years	14,622	26.4	6,191	14.5	24,269	20.5
5 to less than 10 years	11,250	20.3	8,601	20.2	19,190	16.2
10 or more years	25,014	45.1	25,927	60.8	60,149	50.7
Time since separation^(b)						
Less than 1 year	..	..	..	..	8,065	6.8
1 to less than 5 years	..	..	..	..	33,398	28.2
5 to less than 10 years	..	..	..	..	28,573	24.1
10 or more years	..	..	..	..	48,548	40.9
Separation reason						
Voluntary separation	..	..	..	..	59,313	50.0
Medical separation	..	..	..	..	14,803	12.5
Other involuntary separation	..	..	..	..	33,031	27.9
Contractual/Administrative	..	..	..	..	11,437	9.6
Total^(e)	55,438	100.0	42,618	100.0	118,584	100.0

Notes:

- (a) 8,879 ADF members with 1 day of service since 2001, who became ex-serving between 01 January 2019 and 05 September 2020, were re-assigned to either serving or reserve service status group based on their service status group from PMKeyS extracted as at 05 September 2020.
- (b) Age, time since service, and length of service characteristics are calculated as at 31 December 2018, or at death, if this occurred prior to 31 December 2018.
- (c) Service, entry type and operational experience for serving and reserve personnel as recorded in the Personnel database as at 5 September 2020, they may have been different at 31 December 2018. For ex-serving these characteristics are as recorded at termination of service. Excludes one ADF member with missing Entry pathway information.
- (d) Information on operational experience is only consistently available for personnel hired on or after 1 January 1999. See Appendix A: Technical Notes for more information on operational experiences.
- (e) Due to rounding, proportions may not sum to total.

Sources: AIHW analysis of linked PMKeyS–NDI data 2001–2018; NMD 2001–2018.

Length of service by age and separation characteristics

As expected, a higher proportion of ex-serving males with 10 or more years of service were in older age groups at the time of separation compared with those with a shorter length of service (Table 2). 42% of ex-serving males with 10 or more years of service were 45 years or older (at separation) compared with 1% who served less than one year.

Among ex-serving males with less than one year of service, 42% separated for involuntary reasons (Table 2). In comparison, a smaller proportion of ex-serving men with 10 or more years of service separated for involuntary reasons (33%).

Table 2: Number and proportion of ex-serving ADF males, by length of service, by age and separation characteristics, 2001 to 2018

Characteristics	Length of service							
	Less than 1 year		1 to 5 years		5 to 10 years		10 or more years	
	Number	%	Number	%	Number	%	Number	%
Age at separation^(a)								
Less than 25	9,288	75.8	12,637	62.0	2,667	16.7	0	0.0
25–34	2,263	18.5	6,009	29.5	10,945	68.5	12,433	24.0
35–44	531	4.3	1,337	6.6	1,706	10.7	17,412	33.6
45 years and over	174	1.4	409	2.0	654	4.1	22,042	42.5
Separation reason^(b)								
Medical separation	556	4.5	3,262	16.0	2,954	18.5	5,384	10.4
Other involuntary	4,550	37.1	8,051	39.5	4,264	26.7	12,010	23.1
Voluntary	7,082	57.8	8,775	43.0	7,594	47.5	26,758	51.6
Contractual/Administrative	68	0.6	304	1.5	1,160	7.3	7,735	14.9
Total	12,256		20,392		15,972		51,887	

Notes:

(a) Age at separation is calculated based on termination date from PMKeyS, extracted as at 05 September 2020

(b) See Technical notes for information on separation reasons.

Source: AIHW Analysis of PMKeyS–NDI, 2001–2018.

Entry pathway by age and separation characteristics

A higher proportion of ex-serving males appointed to the officer program were in older age groups, at the time of separation, compared to general enlistees. At separation, 51% of Officers were 45 years or older compared with 17% of general enlistees (Table 3).

A higher proportion of ex-serving males who were appointed to the officer program separated voluntarily (57%) compared to general enlistees (48%).

Table 3: Number and proportion of ex-serving ADF males, by entry pathway, by age and separation characteristics, 2001 to 2018

Characteristics	Entry pathway			
	Officer		General Enlistee	
	Number	%	Number	%
Age at separation^(a)				
Less than 25	2,290	12.1	22,302	27.4
25–34	2,903	15.3	28,747	35.3
35–44	4,097	21.6	16,889	20.7
45 years and over	9,699	51.1	13,579	16.7
Separation reason^(b)				
Medical separation	1,264	6.7	10,892	13.4
Other involuntary	6,207	32.7	22,668	27.8
Voluntary	10,861	57.2	39,347	48.3
Contractual/Administrative	657	3.5	8,610	10.6
Total^(c)	18,989		81,517	

Notes:

(a) Age at separation is calculated based on termination date from PMKeyS, extracted as at 05 September 2020.

(b) See Technical notes for information on separation reasons.

(c) Excludes one ADF member with missing entry pathway information.

Source: AIHW Analysis of PMKeyS–NDI, 2001–2018.

ADF members who died by suicide

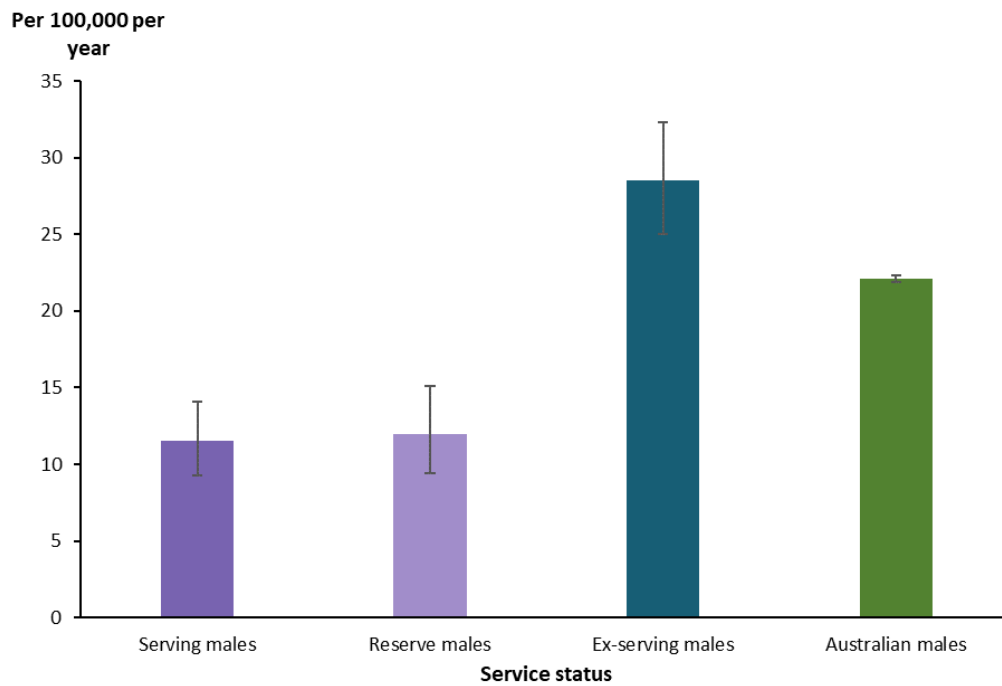
Service-related characteristics

Of the 465 ADF members⁷ who died by suicide in the study period from 2001 to 2018, 429 were males and 36 were females (Table 5). Of the 429 males who died, 109 were serving, 78 were reserve, and 242 were ex-serving members of the ADF.

- The suicide rate for ex-serving males was 28 per 100,000 per year, which was higher than the rates for serving (11 per 100,000 per year) and reserve males (12 per 100,000 per year) (Figure 1).
- The rate for ex-serving males (28 per 100,000 per year) was also higher than the rate for ex-serving females, which was 16 per 100,000 per year over the same period (Figure 2).
- The rate for ex-serving females (16 per 100,000 per year) was also higher than the rate for serving/reserve females over the same period (3.2 per 100,000 per year) (Figure 2).

⁷ The number of ADF members who died by suicide will be updated in the AIHW Suicide Monitoring publication (to be released September 2021) to include for the first time the population of ADF members who served in between 1985 and 2019.

Figure 1: Suicide rates per 100,000 per year, male ADF members and Australian male comparisons^(a), by service status, 2002 to 2018

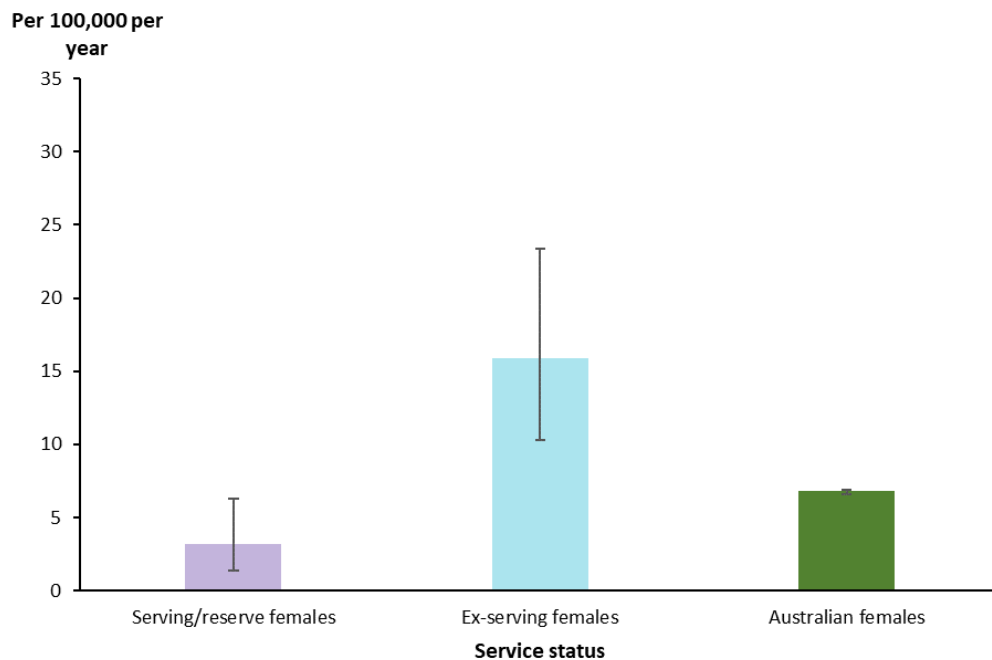


Note:

(a) The rate shown for Australian male comparison is based on the age range of the ex-serving male population.

Source: AIHW Analysis of PMKeyS–NDI, 2002–2018.

Figure 2: Suicide rates per 100,000 per year, female ADF members and Australian female comparison^(a), by service status, 2002 to 2018



Note:

(a) The rate shown for Australian female comparison is based on the age range of the ex-serving female population.

Source: AIHW Analysis of PMKeyS–NDI, 2002–2018.

Table 4 shows the standardised mortality ratio for ADF members by sex and service status (see Technical Note for more information on standardised mortality ratio). After adjusting for age differences, the suicide rate when compared to the Australian population was:

- 50% lower for serving males
- 49% lower for reserve males
- 22% higher for ex-serving males
- 127% (or 2.27 times) higher for ex-serving females
- 53% lower for serving/reserve females.

Table 4: Standardised Mortality Ratio^(a), ADF members, by sex and service status, 2002 to 2018

	Standardised Mortality Ratio	Lower CI	Upper CI
Males			
Serving	0.50	0.40	0.61
Reserve	0.51	0.40	0.64
Ex-serving	1.22	1.07	1.38
Females			
Serving/Reserve	0.47	0.20	0.93
Ex-serving	2.27	1.47	3.35

Notes:

(a) See Technical notes for information on standardised mortality ratio.

Sources: AIHW analysis of linked PMKeyS–NDI data 2002–2018; NMD 2002–2018.

Age at death for suicide

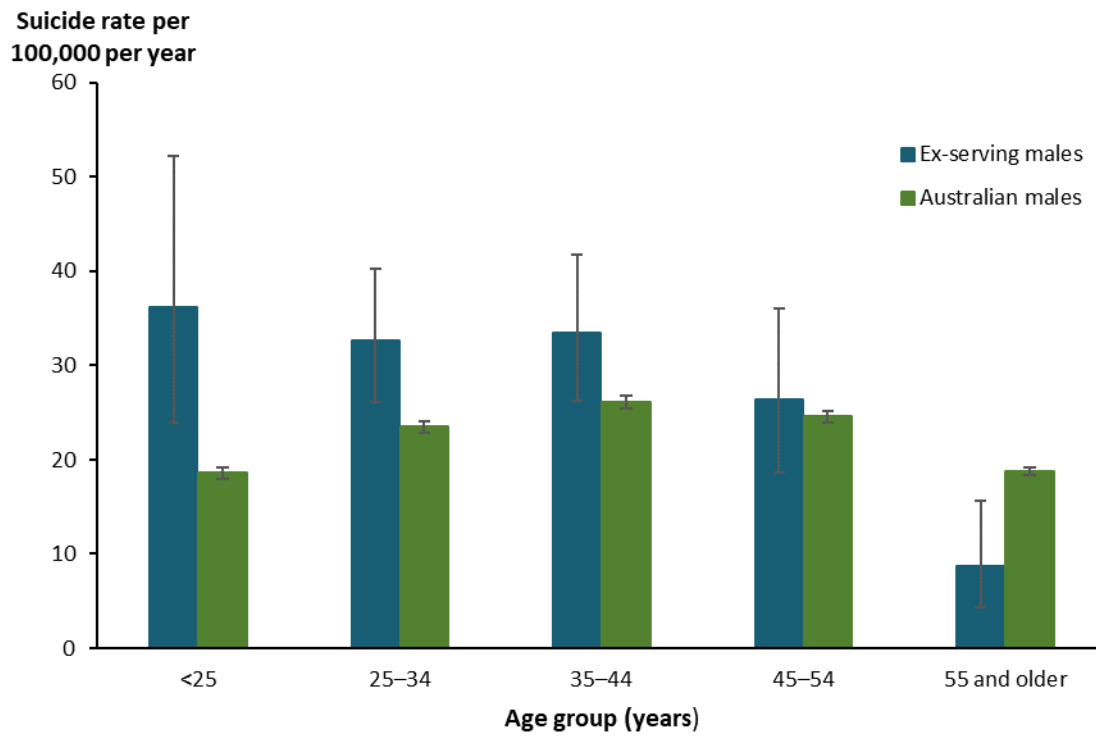
Between 2001 and 2018, the median age of death for ADF males who died by suicide: for ex-serving males was 35 years, 38.5 years for reservists, and 28 years for serving males (Table 5). By comparison, the median age at death for suicide among the Australian male population was 43.

Age-specific rates of suicide for ex-serving males

Age-specific rates of suicide among ex-serving males generally decreased with age, from 36 per 100,000 per year among those aged under 25 years to 8.7 per 100,000 per year among those aged 55 years and over. This pattern was different to the Australian population who died by suicide.

Rates of suicide among ex-serving males aged under 25 years and 25–34 years were 1.9 times and 1.4 times the suicide rates of males of the same age groups in the Australian population (36 per 100,000 compared with 19 per 100,000 per year; 33 per 100,000 per year compared with 24 per 100,000 per year, respectively) (Figure 3).

Figure 3: Age-specific rate of suicide per 100,000 per year, ex-serving males and Australian males comparison^(a), by service status, 2002 to 2018



Note:

(a) The rate shown for Australian male comparison is based on the age range of the ex-serving male population.

Source: AIHW Analysis of PMKeyS–NDI, 2002–2018; NMD 2002–2018.

Table 5: Demographic and service profile of ADF males and females who died by suicide, by service groups, 2001 to 2018

	Serving males		Reserve males		Ex-serving males		Total ADF males		All ADF females	
	Number	%	Number	%	Number	%	Number	%	Number	%
Age (years)										
Less than 25	39	35.8	9	11.5	28	11.6	76	17.7	5	13.8
25–34	36	33.0	22	28.2	87	36.0	145	33.8	14	38.9
35–44	24	22.0	25	32.0	76	31.4	125	29.1	11	30.5
45 years and over	10	8.3	22	28.2	51	21.1	83	19.3	6	16.7
Mean	30.4	..	38.6	..	36.2	..	35.2	..	34.0	..
Median	28.0	..	38.5	..	35.0	..	34.0	..	32.0	..
Service										
Army	55	50.5	52	66.7	163	67.4	270	62.9	18	50.0
Navy	33	30.3	11	14.1	48	19.8	92	21.4	11	30.6
Air Force	21	19.3	15	19.2	31	12.8	67	15.6	7	19.4
Entry type										
Officer	22	20.2	12	15.4	20	8.3	54	12.6	8	22.2
General enlistee	87	79.8	66	84.6	222	91.7	375	87.4	28	77.8
Length of service										
Less than 1 year	n.p.	8.3	n.p.	3.8	53	21.9	65	15.2	8	22.2
1 to less than 5 years	n.p.	33.0	n.p.	12.8	62	25.6	108	25.2	12	33.3
5 to less than 10 years	28	25.7	18	23.1	40	16.5	86	20.0	6	16.7
10 or more years	36	33.0	47	60.3	87	36.0	170	39.6	10	27.8
Mean	9.2	..	15.5	..	9.2	..	10.4	..	8.0	..
Median	6.4	..	14.3	..	5.3	..	7.0	..	3.9	..
Time since separation										
Less than 1 year	..	..	..	..	30	12.4	..	..	..	..
1 to less than 5 years	..	..	..	..	95	39.3	..	..	..	..
5 to less than 10 years	..	..	..	..	76	31.4	..	..	..	..
10 or more years	..	..	..	..	41	16.9	..	..	..	..
Total^(a)	109	100.0	78	100.0	242	100.0	429	100.0	36	100.0

Note:

(a) Due to rounding, proportions may not sum to total.

Source: AIHW Analysis of PMKeyS–NDI, 2001–2018

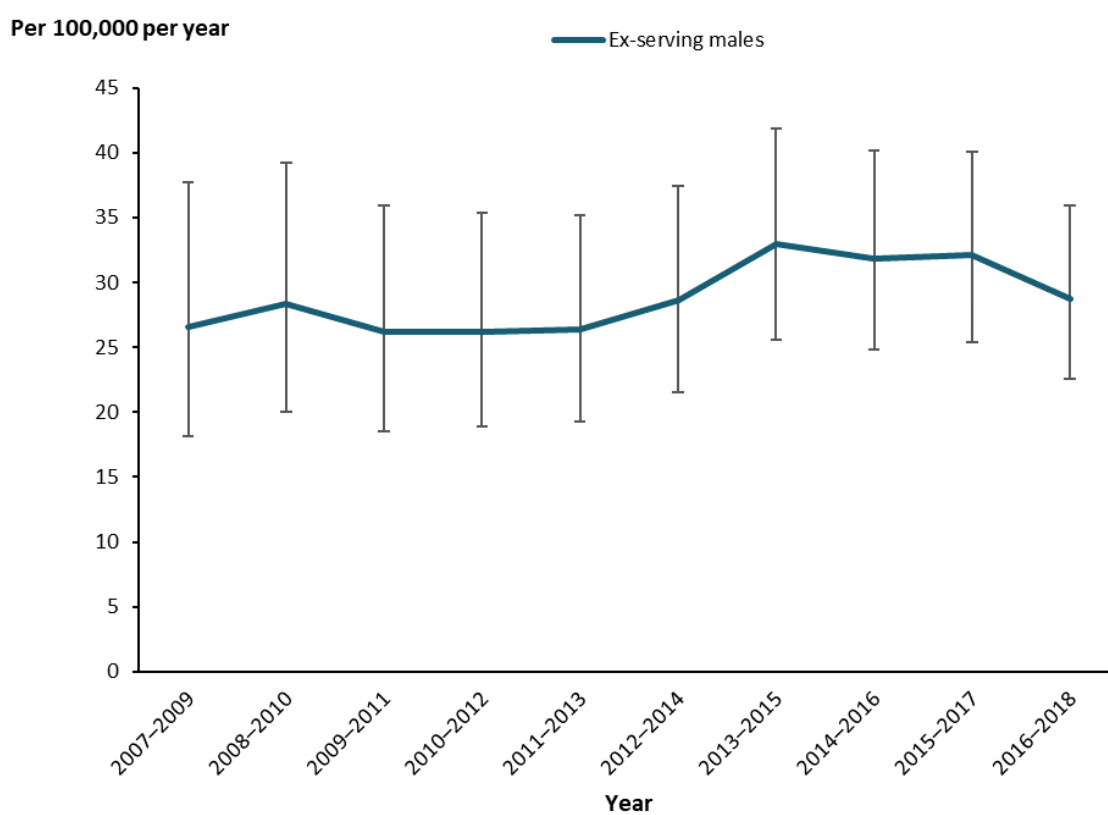
Suicide rates for ex-serving males over time

This section presents suicide rates over time in 3-year periods (Figure 4). Due to small numbers, there is some variability in these rates. Over the study period:

- The suicide rate for ex-serving males varied from a minimum of 26 per 100,000 in 2009–2011 and 2010–2012, to a maximum of 33 per 100,000 in 2013–2015.
- In the most recent 3-year period (2016–2018), the rate for ex-serving males was 29 per 100,000.

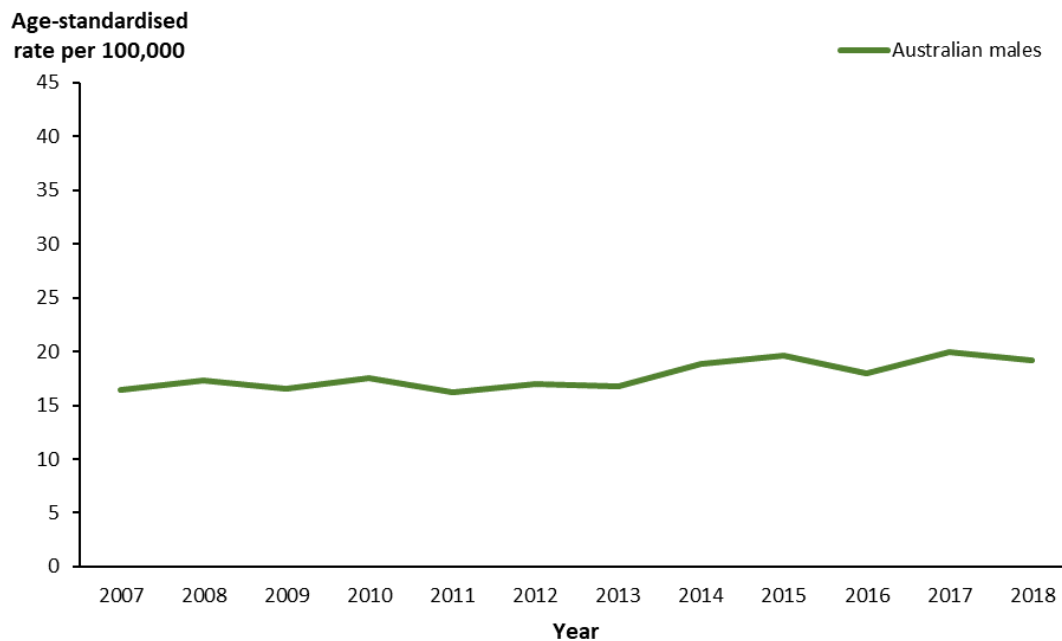
The rates of suicide for the male Australian population from 2007 to 2018 are presented in Figure 5.

Figure 4: Suicide rates per 100,000 per year, ex-serving males, by three-year aggregates, 2007–2009 to 2016–2018



Source: AIHW Analysis of PMKeyS–NDI, 2007–2018.

Figure 5: Age-standardised suicide rates per 100,000 per year, Australian males, 2007–2018

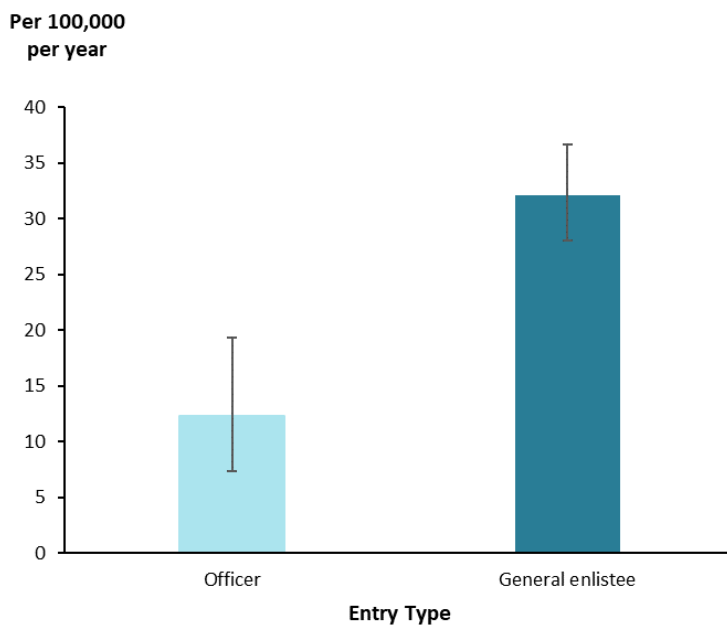


Source: AIHW Analysis of NMD 2007–2018.

Suicide rates by entry type and rank

The suicide rate of ex-serving males who were appointed to the officer program was lower than general enlistees (Figure 6). However, a higher proportion of ex-serving males in the officer program were older and separated voluntarily than among general enlistees.

Figure 6: Suicide rate per 100,000 per year, ex-serving males, by entry type, 2002 to 2018

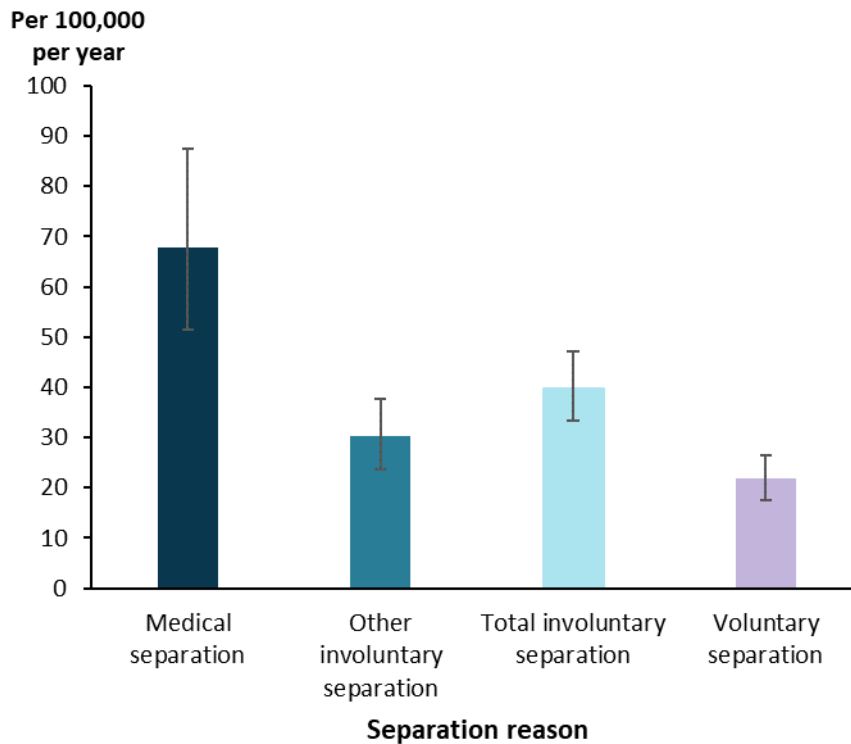


Source: AIHW Analysis of PMKeyS–NDI, 2002–2018.

Suicide rates by separation reasons

Ex-serving males who separated for medical reasons or for other involuntary reasons were more likely to die by suicide than those who separated for voluntary reasons (Figure 7 and Table 6).

Figure 7: Suicide rate per 100,000 per year, ex-serving males, by separation reason, 2002 to 2018

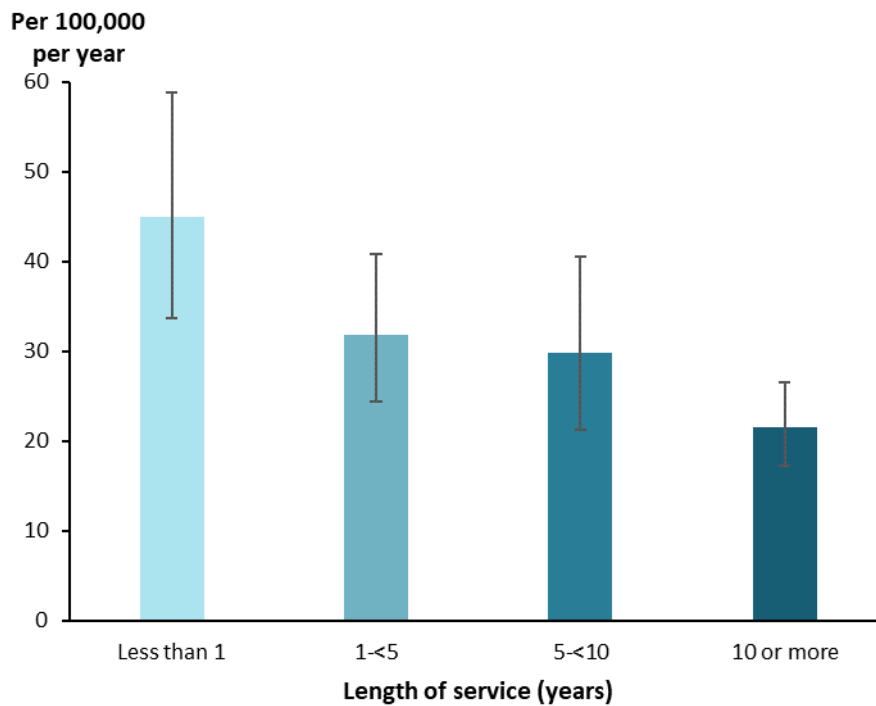


Source: AIHW Analysis of PMKeyS–NDI, 2002–2018.

Suicide rates by length of service

The suicide rate for ex-serving males with 10 or more years of service was lower than for ex-serving males with less than 1 year of service and for 1 year to less than 5 years of service (Table 5 and Figure 8). However, ex-serving males with 10 or more years of service were also older and a smaller proportion separated involuntarily than those with a shorter period of service.

Figure 8: Suicide rate per 100,000 per year, ex-serving males, by length of service, 2002 to 2018



Source: AIHW Analysis of PMKeyS–NDI, 2002–2018.

Table 6: Suicide rate per 100,000 per year, ex-serving males, by service-related characteristics, 2002 to 2018

Service-related characteristics	Ex-serving males suicide rate	Lower CI	Upper CI	Statistically significant from Reference group ^(a)	Direction of difference ^(b)
Service					
Army ^(c)	29.8	25.4	34.7	Ref.	
Navy	31.7	23.4	42.1	No	
Air Force	20.3	13.7	29.0	No	
Entry type					
Officer	12.3	7.4	19.3	Yes	Lower
General enlistee ^(c)	32.1	28.0	36.6	Ref.	
Rank					
Army					
Private Proficient ^(c)	41.2	30.4	54.6	Ref.	
Recruit	33.0	22.5	46.9	No	
Private Trainee	41.1	26.6	60.7	No	

(continued)

Table 6 (continued): Suicide rate per 100,000 per year, ex-serving males, by service-related characteristics, 2002 to 2018

Navy						
Able Seaman ^(c)	60.1	37.2	91.9	Ref.		
Leading Seaman	20.7	7.6	45.1	Yes	Lower	
Petty Officer	35.3	11.5	82.5	No		
Air Force						
Leading Aircraftman	33.6	12.3	73.1	No		
Sergeant	30.0	11.0	65.2	No		
Corporal ^(c)	18.4	6.0	42.9	Ref.		
Separation reason						
Medical separation	67.7	51.4	87.5	Yes	Higher	
Other involuntary separation	30.2	23.7	37.8	Yes	Higher	
Total involuntary separation	39.8	33.3	47.2	Yes	Higher	
Voluntary ^(c)	21.8	17.6	26.5	Ref.		
Length of service^(d)						
Less than 1 year	45.0	33.7	58.9	Yes	Higher	
1 to less than 5 years	31.8	24.4	40.8	Yes	Higher	
5 to less than 10 years	29.8	21.3	40.6	No		
10 or more years ^(c)	21.6	17.2	26.6	Ref.		
Time since separation						
Less than 1 year	31.4	21.0	45.1	No		
1 to less than 5 years	30.3	24.5	37.1	No		
5 to less than 10 years	28.6	22.6	35.9	No		
10 or more years ^(c)	23.4	16.8	31.8	Ref.		
Total	28.5	25.0	32.3			

Notes:

Ref. = Reference population for comparison.

- (a) Refers to a statistically significant difference between the ADF population group and reference population. The Wald Z-statistic was applied to test whether the difference between rates is significant at the p=0.05 level, based on estimated standard errors for rate difference.
- (b) The direction of the difference when compared with reference population.
- (c) Reference population for comparisons within each characteristic.
- (d) Length of service describes the period of time between enlistment in the ADF and separation. These groupings may reflect different service experiences and career pathways.

Sources: AIHW analysis of linked PMKeyS–NDI data 2002–2018.

Work Health Safety and Bullying

The Work Health Safety (WHS) dataset captures a range of incidents experienced by ADF members during service. These include incidents involving bullying, or which describe bullying or associated behaviors.

Between 2001 and 2018, 96,731 ADF members (45%) had a WHS incident recorded. Among those who had a WHS incident, 286 ADF members (217 males, 69 females) had an incident relating to workplace bullying or harassment (Table 7). While no ADF members who died by suicide reported a WHS incident relating to bullying or workplace harassment, there are other reporting mechanisms available to victims of bullying and harassment, such as the Defence Ombudsman (Commonwealth Ombudsman, 2021) and Defence Abuse Reporting Taskforce (DART, 2016).

Table 7: Number of ADF members^(a) who had a WHS incident relating to bullying, harassment or occupational violence, by sex, 2001 to 2018

WHS incidents	Males	Females
Bullying	199	58
Work related harassment and/or workplace bullying	112	52
Exposure to workplace or occupational violence	273	n.p.
Other harassment	27	n.p.
Total	491	74

n.p. = not published due to small numbers

Notes:

- (a) The cohort is all serving, reserve and ex-serving ADF members (all ages, males and females) who served at least one day from 1 January 2001 to 31 December 2018, and had a WHS claim between 1 January 2001 and 31 December 2018.

Source: AIHW analysis of PMKeyS-NDI-Defence WHS, 2001-2018

Socioeconomic status and selected demographics

Key points:

- ADF members (serving, reserve and ex-serving) who died by suicide between 2001 and 2018 were less likely to be married or in de-facto relationships than the 2017–18 ADF population (40% compared with 72%) and more likely to be never married (39% compared with 12%).
- 21% of ADF members who died by suicide were unemployed at time of death compared with 1% of the alive ADF population in 2017–18.

In this chapter, the sociodemographic characteristics of ADF members with at least one day of service between 1 January 2001 and 31 December 2018 who died by suicide are compared with those of all ADF members as measured by the ABS 2017–18 National Health Survey (NHS) data (ABS 2019a) as the most up to date source of information on this population. It must be noted, however that the ADF population as measured by the NHS is older than the post 2001 population, with median age of 60.6 years compared with 38 years. Data from the National Coronial Information System (NCIS) for those deceased in the period 2001 to 2018, are used for the analysis of socioeconomic characteristics of ADF members who died by suicide.

Marital Status

Among ADF members who died by suicide, 40% of ADF members who died by suicide were married or in de-facto relationships at the time of death, 39% were never married, and around 21% were divorced, separated or widowed (Table 8). In comparison, the National Health Survey (NHS) estimates that of alive ADF members, who may have been serving or ex-serving at time of interview, nearly three quarters were married or in de-facto relationships (72%), 1 in 8 (12%) was never married, and 1 in 6 (17%) was divorced, separated or widowed (ABS 2019a).

Socio-economic characteristics

Country of birth

Most members of the study cohort (88%) who died by suicide were known to be born in Australia with 1 in 8 (12%) known to be born overseas (Table 8). Similarly, in 2017–18, a small proportion of alive ADF members were born overseas: an estimated 1 in 7 (14%) (ABS 2019a).

Employment status

Around 3 in 5 (68%) ADF members (serving, reserve and ex-serving) who died by suicide were employed at the time of death, 1 in 5 (21%) was unemployed, and around 1 in 10 (11%) was not in the labour force (Table 8). By comparison, among alive ADF members (serving, reserve and ex-serving) in 2017–18, an estimated 54% were employed, only 1% were unemployed, and the remaining 44% were not in the labour force (ABS 2019a). The higher median age of the alive ADF members, compared with those who died by suicide, may contribute to differences in employment status, such as the estimated proportion of alive ADF members not in the labour force.

Table 8: Selected sociodemographic characteristics at time of death, ADF members who died by suicide, 2001 to 2018, and alive ADF members 2017–18.

	ADF members who died by suicide, 2001–2018		Alive ADF members, 2017–18	
	Number	Proportion(%)	Estimates('000)	Proportion(%)
Employment status^(a)				
Employed	287	67.8	381.3	54.2
Unemployed	90	21.3	6.3	0.9
Not in labour force	46	10.9	309.4	44.0
<i>Total with employment status</i>	<i>423</i>	<i>100.0</i>	<i>703.4</i>	<i>100.0</i>
Marital status^(b)				
Divorced/Separated/Widowed	84	21.2	117	16.6
Married/De facto	159	40.1	503.6	71.6
Never married	154	38.8	84.8	12.1
<i>Total with marital status</i>	<i>397</i>	<i>100.0</i>	<i>703.4</i>	<i>100.0</i>
Country of birth^(c)				
Australia	382	87.6	593.8	84.4
Other countries	54	12.4	99.2	14.1
<i>Total with COB</i>	<i>436</i>	<i>100.0</i>	<i>703.4</i>	<i>100.0</i>
Total^{(d)(e)}	461		703.4	

Notes:

- (a) Excludes 1 NCIS case in which employment status was unable to be categorised and 37 NCIS cases (8%) in which it was recorded as unlikely to be known. 'Not in labour force' includes NCIS categories 'Home duties', 'Retired/Pensioner' and 'Student'. ADF members who died by suicide include those who were currently serving, reserve, or ex-serving with at least 1 day of service in the ADF between 1 January 2001 and 31 December 2018. ADF members who were ex-serving may have been unemployed at the time of death.
- (b) NCIS data on marital status is recorded as unlikely to be known in 64 cases (14%).
- (c) This field is determined from the Country of Birth and Place of Birth fields in the NCIS. For 25 (5%) cases it was unlikely to be known from information provided to the coroner whether they were born in Australia or overseas.
- (d) A total of 461 ADF member who died by suicide were included in this analysis as 4 ADF suicide cases were not able to be identified in the NCIS. See technical notes.
- (e) The numbers of alive ADF members in this table have been randomly adjusted to avoid the release of confidential data, and the individual categories may not add to the total. Figures for alive ADF members are estimated from those people who responded to the 2017–18 NHS, and identified as having served in the ADF. This cohort will include ADF members who served and separated prior to 2001. Alive ADF members who were ex-serving may have been unemployed at the time of the survey.

Source: AIHW analysis of NCIS data, 2001–2018; and ABS 2019a.

Usual residence

Most (61%) ADF members who died by suicide lived in major cities. Only a small proportion lived in remote or very remote areas (4% altogether) (Figure 9). Similarly, the majority of alive ADF members in 2017–18 lived in major cities (60%) with a small proportion living in remote areas (1%) (ABS 2019a) (Figure 9).

Figure 9: Remoteness of usual residence^(a), proportion of ADF members who died by suicide^(b), 2001 to 2018, and ADF members^(c) in 2017–18



Notes

- (a) Remote/Very Remote areas of Australia are combined for the NCIS data and very remote areas are excluded in the 2017–18 NHS. See ABS 2017–18 NHS for more information.
- (b) AIHW analysis of NCIS data was used to determine the usual residence of ADF members who died by suicide. A total of 461 ADF members who died by suicide were included in this analysis as 4 ADF suicide cases were not able to be identified in the NCIS. See technical notes. NCIS data on remoteness was missing in 21 cases.
- (c) NHS data were used to determine ADF members' usual residence. The numbers of alive ADF members in this figure have been randomly adjusted to avoid the release of confidential data, and the individual categories may not add to the total. ADF members from the 2017–18 NHS may include ADF members who served and separated prior to 2001.

Sources: AIHW analysis of NCIS data, 2001-2018; ABS 2019a.

More than half of the ADF members who died by suicide usually resided either in New South Wales (28%) or in Queensland (27%) (Figure 10). Similarly, the majority of alive ADF members in 2017–18 lived in NSW (24%) or in Queensland (27%) (ABS 2019a).

Figure 10: State of usual residence^{(a)(b)}, proportion of ADF members who died by suicide, 2001 to 2018, and ADF members 2017–18



Notes

- (a) AIHW analysis of NCIS data was used to determine the usual residence of ADF members who died by suicide. A total of 461 ADF members who died by suicide were included in this analysis as 4 ADF suicide cases were not able to be identified in the NCIS. See technical notes. NCIS data on State of residence was recorded as not applicable in 2 cases.
- (b) NHS data were used to determine ADF members' usual residence. The numbers of alive ADF members in this figure have been randomly adjusted to avoid the release of confidential data, and the individual categories may not add to the total. ADF members from the 2017–18 NHS may include ADF members who served and separated prior to 2001.

Sources: AIHW analysis of NCIS data, 2001-2018; ABS 2019a.

Part II — Measures of risk and protective factors

Psychosocial risk factors

Key points

- The top three psychosocial risk factors were the same for both male ADF members who died by suicide and Australian males who died by suicide, yet were identified in a higher proportion of male ADF members:
 - Around one in 3 ADF males (29%) had a 'personal history of self-harm', compared with around 1 in five Australian males (21%)
 - More than a quarter of ADF males experienced 'disruption of family by separation and divorce' (27%), compared with around 1 in 6 Australian males (16%), and
 - One in 5 ADF males (21%) had 'problems in relationship with spouse or partner', compared with around 1 in 9 Australian males (11%).

This chapter investigates risk factors for ADF members who died by suicide, including psychosocial risk factors, natural diseases and mental and behavioural disorders, and their mechanism of death. The study cohort covers ADF members who have died by suicide from 2001 to 2018. While the patterns of death by suicide among females in the study cohort were similar to males, comparisons are not presented for females because of small numbers.

Datasets used for the analysis include information from the National Coronial System for members of the study cohort who died by suicide between 2001 and 2018, coded by the ABS for psychosocial risk factors, natural diseases and mental and behavioural disorders. Comparisons are made between the study cohort and the Australian population of deaths by suicide, 2017 or 2018 using published results from ABS analysis of information from the National Coronial System (ABS 2018b; 2019b).

What is a psychosocial risk factor?

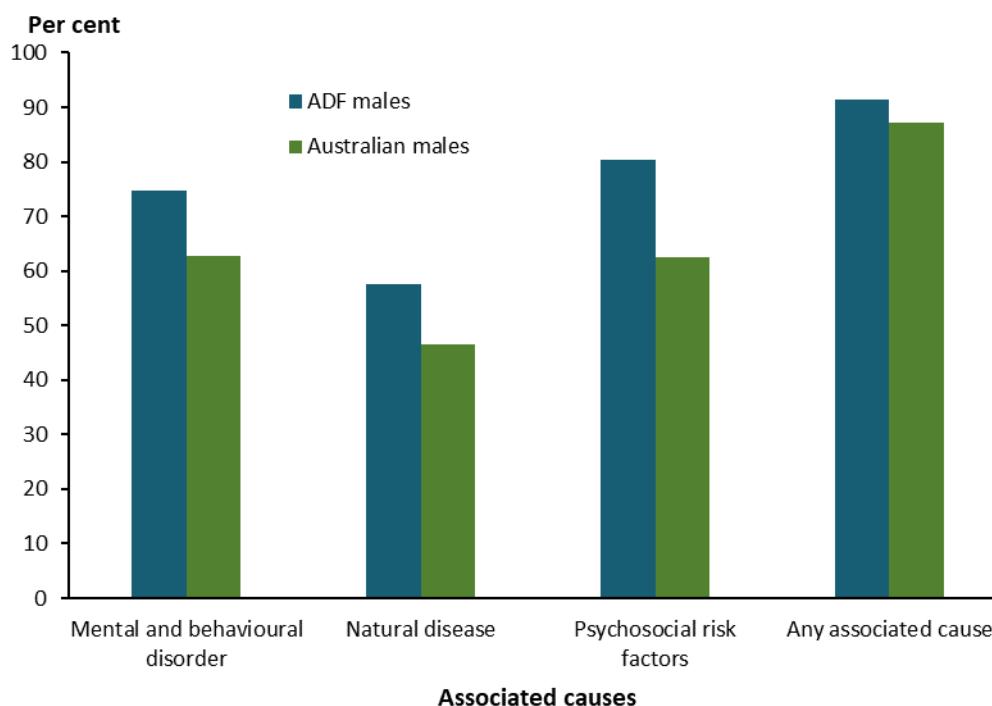
In a previous report by the ABS, psychosocial risk factors were defined to be 'social processes and social structures which can have an interaction with individual thought or behaviour and health outcomes' (ABS 2019c). Examples of psychosocial risk factors include relationship status, employment status, bereavement, and contact with the legal system. The ABS coded psychosocial risk factors using the International Classification of Diseases (ICD-10) codes Z00-Z99 (see Appendix A: Technical notes for more information).

Natural disease, as defined by the ABS, includes "all disease and health related conditions with the exclusion of mental and behavioural disorders, injuries, and external causes" (ABS 2019c). These correspond with the ICD-10 codes A00-E90 and G00-R99. Mental and behavioural disorders are psychological factors including those related to drug and alcohol use, ICD-10 codes F00-F99 (ABS 2019c). The ABS (2019c) defines 'associated causes' as psychosocial risk factors, mental and behavioural disorders, or natural disease. It is important to note that more than one of these types of risk factors may be present in the life of an individual, and they may interact with one another.

Psychosocial risk factors and other associated causes

ADF males who died by suicide were more likely than Australian males to have all three kinds of associated causes: psychosocial risk factors, mental and behavioural disorders, and natural disease (Figure 11).

Figure 11: Proportion of ADF males^(a) who died by suicide, 2001 to 2018, and Australian males^(b) who died by suicide, 2017, with associated causes^{(c)(d)}



Notes:

- (a) Includes 425 male ADF members who died by suicide, 2001 to 2018, able to be identified in the National Coronial Information System. Four ADF member suicides during this period were not matched to coronial records and are excluded, see Technical Notes.
- (b) Includes data for Australian males who died by suicide, registered in 2017. Data was published in 2019, totals may differ from revised coronial data published by the ABS in 2020.
- (c) Data in this figure indicate the number of deceased with each specified associated cause. Associated causes may not be mutually exclusive, and therefore people with multiple factors recorded may be counted in more than one category.
- (d) Mental and behavioural disorder includes ICD-10 codes F00-F99. Natural disease includes all disease and health related conditions with the exclusion of mental and behavioural disorders, injuries, and external causes. ICD-10 codes A00-E90 and G00-R99. For a complete list of psychosocial risk factors, refer to explanatory note Annex listing: Psychosocial codes (exclusions and inclusions) in Psychosocial risk factors as they relate to coroner-referred deaths in Australia (cat. No. 1351.0.55.062). 'Any associated cause' refers to having at least one 'Mental and behavioural disorder', 'Natural disease', or 'Psychosocial risk factor'. The ABS coded associated causes of ADF member suicides based on the International Classification of Diseases.

Sources: AIHW analysis of linked PMKeyS—NDI data—ABS coded NCIS data 2001–2018; ABS 2019c.

Figure 12 presents the associated causes for male ADF members and Australian males who died by suicide:⁸

- 4 in 5 (80%) male ADF members who died by suicide had at least one psychosocial risk factor, compared with around 3 in 5 (62%) Australian males.
- 58% of male ADF members who died by suicide had at least one natural disease, compared with just under half of the Australian males (47%).
- Three-quarters (75%) of male ADF members who died by suicide had at least one mental and behavioural disorder, compared with under two-thirds of Australian males (63%).

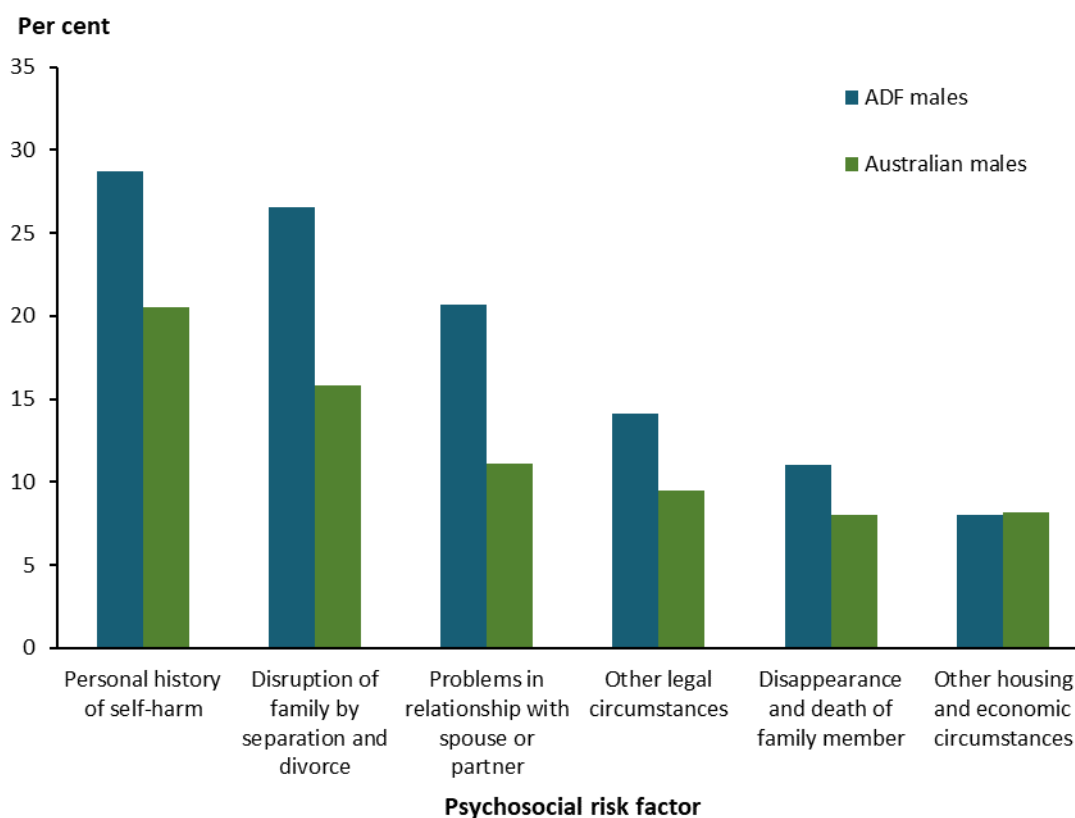
⁸ The difference between ADF members and Australian suicides may be partly explained by a higher proportion of open cases for the Australian cohort than in the ADF member cohort. Cases that remain open may have incomplete information on risk factors until finalised (Table B.2: Description of datasets in Appendix C: Data Sources).

Common psychosocial risk factors among ADF member suicides

The three most common psychosocial factors were the same for both ADF members in the study cohort and Australian suicide populations, yet were identified in a higher proportion of ADF members who died by suicide (Figure 12):

- around one in 3 (29%) male ADF members who died by suicide had a 'personal history of self-harm', compared with around 1 in 5 (21%) Australian males
- more than one quarter (27%) of male ADF members who died by suicide had experienced 'disruption of family by separation' and divorce, compared with around 1 in 6 (16%) Australian males
- one in 5 (21%) male ADF members who died by suicide had experienced 'problems in relationship with spouse or partner', compared with around one in 9 (11%) Australian males.

Figure 12: Common psychosocial risk factors^(a) identified among ADF males^(b) who died by suicide, 2001 to 2018, and Australian males^(c) who died by suicide 2017



Notes:

- Data in this figure indicate the number of deceased with each specified psychosocial factor recorded. Risk factors may not be mutually exclusive, and therefore people with multiple factors recorded may be counted in more than one category. The ABS coded associated causes of ADF member suicides based on the International Classification of Diseases. For a complete list of psychosocial risk factors, refer to explanatory note Annex listing: Psychosocial codes (exclusions and inclusions) in Psychosocial risk factors as they relate to coroner-referred deaths in Australia (cat. No. 1351.0.55.062).
- Includes 425 male ADF members who died by suicide, 2001 to 2018, able to be identified in the National Coronial Information System. Four ADF member suicides during this period were not matched to coronial records and are excluded, see Technical Notes.
- Includes data for Australian males who died by suicide, registered in 2017. Data was published in 2020, totals may differ from ABS data published in 2019 due to revision of coronial data.

Sources: AIHW analysis of linked PMKeyS—NDI —ABS coded NCIS data 2001–2018; ABS 2020.

Among male ADF members who died by suicide, around 1 in 6 experienced ‘Exposure to disaster, war and other hostilities’ (15%). While this risk factor was the 4th most common among ADF members in the study cohort, it was not in the top 5 for Australian suicides. Around 1 in 6 male ADF members who died by suicide experienced ‘Defence force related deployment’ (15%), noting, this was only coded for ADF members in the study cohort.

Psychosocial risk factors and service characteristics

Table 9 provides summary statistics for counts and proportions of ADF suicides by service characteristics and associated causes. Table 9 shows:

- 83% of ex-serving members who died by suicide had mental and behavioural disorders compared with 65% of serving/reserve members.
- More than 9 out of 10 ex-serving members who died from suicide with a length of service 5–10 years (93%) and 10–20 years (92%) had mental and behavioural disorders.
- Over 4 out of 5 (83%) suicide cases among members in the study cohort from the Navy had mental and behavioural disorders followed by 74% of Army and 70% of Air Force members.
- Of those who medically separated, nearly 9 in 10 (87%) had a psychosocial risk factor and around 9 in 10 (89%) had a mental and behavioural disorder.

Table 9: Numbers and proportions of ADF members who died by suicide with at least one associated cause, selected causes, by service characteristics, 2001 to 2018^(a)

	Suicides		Total suicides with mental and behavioural disorders ^(b)		Total suicides with reported natural disease ^(c)		Total suicides with psychosocial risk factors ^(d)	
	Number	%	Number	%	Number	%	Number	%
Length of service^(e)								
Less than one year	61		44	72.1	36	59.0	45	77.8
1-<3 years	36		28	77.8	21	58.3	30	83.3
3-<5 years	32		28	87.5	23	71.9	25	78.1
5-<10 years	45		42	93.3	30	66.7	40	88.9
10-<20 years	53		49	92.5	39	73.6	44	83.0
20 or more years	40		30	75.0	24	60.0	33	82.5
Separation type^(f)								
Voluntary separation	111		88	79.3	69	62.2	88	79.3
Medical separation	63		56	88.9	44	69.8	55	87.3
Other involuntary separation	81		68	84.0	54	66.7	66	81.5
<i>All Ex-serving ADF members</i>	267		221	82.8	173	64.8	217	81.3
Service Status								
Serving/Reserve	194		127	65.5	98	50.5	155	79.9
Ex-serving	267		221	82.8	173	64.8	217	81.3

(continued)

Table 9 (continued): Numbers and proportions of ADF members who died by suicide with at least one associated cause, selected causes, by service characteristics, 2001 to 2018 ^(a)

Branch of service							
Army	287	213	74.2	173	60.3	229	79.8
Navy	100	83	83.0	61	61.0	81	81.0
Air Force	74	52	70.3	37	50.0	62	83.8
All ADF members^(g)	461	348	75.5	271	58.8	372	80.7

Notes

- (a) Data in this table indicates the number of ADF members for whom a particular risk was identified through analysis of coronial information. Risk factors may not be mutually exclusive and therefore people may be counted in more than one category.
- (b) The ABS coded associated causes of ADF member suicides based on the International Classification of Diseases. Mental and behavioural disorder includes ICD-10 codes F00-F99.
- (c) Natural disease includes all disease and health related conditions with the exclusion of mental and behavioural disorders, injuries, and external causes. ICD-10 codes A00-E90 and G00-R99.
- (d) For a complete list of psychosocial risk factors, refer to ABS explanatory note Annex listing: Psychosocial codes (exclusions and inclusions) in ABS: Psychosocial risk factors as they relate to coroner-referred deaths in Australia (cat. No. 1351.0.55.062).
- (e) Length of service only analysed for ex-serving ADF members.
- (f) Separation type is presented for ex-serving ADF members only. 12 members who died by suicide separated due to contractual/administrative reasons, of whom, 9 (75%) had mental and behavioural disorders, 6 (50%) had natural diseases, and 8 (67%) had psychosocial risk factors.
- (g) Includes only 461 ADF members who died by suicide, 2001-2018, that were able to be identified within both the National Death Index and in the National Coronial System. There were 4 ADF member suicides during this period that were not matched to coronial records that are excluded, see Technical Notes.

Sources: AIHW analysis of linked PMKeyS—NDI—ABS coded NCIS data 2001–2018.

Common mental and behavioural disorders

Many of the same natural diseases and mental and behavioural disorders were common among ADF males in the study cohort and Australian males who died by suicide (Table 10).

Table 10: Most common of natural disease and mental and behavioural disorder^(a) associated causes^(b) among ADF males^(c) and Australian males who died by suicide (ranked by proportion of suicides)

	Proportion of ADF males, 2001–2018 (%)	Proportion of Australian males, 2017 (%)
Natural disease		
Suicide ideation (R458)	32.2	21.0
Finding of alcohol in blood (R780)	12.7	6.8
Finding of psychotropic drug in blood (R785)	8.5	7.1
Finding of hallucinogen in blood (R783)	7.3	4.9
Other chronic pain (R522)	4.0	N/A
Mental and behavioural disorders		
Depressive episode, unspecified (F329)	48.5	42.3
Mental and behavioural disorders due to use of alcohol, acute intoxication (F100)	16.7	10.7
Post-traumatic stress disorder (PTSD) (F431)	14.1	N/A
Anxiety disorder, unspecified (F419)	11.8	15.3
Mental and behavioural disorders due to use of alcohol, harmful use (F101)	9.2	5.6
Total number of deaths by suicide(c)	425	2,450

(continued)

Table 10 (continued): Most common of natural disease and mental and behavioural disorder^(a) associated causes^(b) among ADF males^(c) and Australian males who died by suicide (ranked by proportion of suicides)

N/A – not reported in ABS analysis of the most common associated causes for Australian males and therefore unavailable for comparison.

Notes:

- (a) ABS coding of associated causes of ADF member suicides is based on the International Classification of Diseases (ICD). Natural disease includes all disease and health related conditions with the exclusion of mental and behavioural disorders, injuries, and external causes. ICD-10 codes A00-E90 and G00-R99. Mental and behavioural disorder includes ICD-10 codes F00-F99.
- (b) Data in this table indicates the number of deaths for whom the associated cause was identified in analysis of coronial information. Associated causes may not be mutually exclusive, and therefore people with multiple causes recorded may be counted in more than one category.
- (c) Includes only ADF member deaths by suicide, 2001 to 2018, that were able to be identified within both the NDI and in the NCIS. There were 4 ADF member suicides during this period that were not able to be matched to a record in the NCIS. These 4 deaths are excluded from these tables. See technical notes.

Source: AIHW analysis of linked PMKeyS—NDI—ABS coded NCIS data 2001–2018; ABS 2020.

Mechanism of death

Table 11 provides summary statistics of the mechanism of death for members of the study cohort who died by suicide and comparisons with the Australian suicide population.

Hanging was the most common mechanism among ADF members (61%), similar to the Australian population (57%). Firearms were involved in a similar proportion of ADF members and Australian population suicides (7% of compared with 5%).

Table 11: Mechanism of death^(a), ADF members^(b) who died by suicide and the Australian suicide population, number and proportion

Mechanism of death ^(a)	ADF Suicides, 2001–2018		Australian Suicides, 2017	
	Number	Proportion (%)	Number	Proportion (%)
Hanging	283	61.4	1,881	57.3
Poisonings	95	20.6	683	20.8
Firearms	33	7.2	167	5.1
Other	24	5.2	211	6.4
Falls	14	3.0	179	5.4
Contact with sharp object	n.p	n.p	98	3.0
Drowning and submersion	n.p	n.p	66	2.0
Total^(b)	461		3,285	

Notes

- (a) "Hanging" includes ICD-10 code X70; "Poisonings" includes ICD-10 codes X60-X69 and Y14; "Firearms" includes ICD-10 codes X72-X74; "Other" includes ICD-10 codes X75-X84 (excluding X78 and X80) and Y870; "Firearms" includes ICD-10 codes X72-X74; "Falls" includes ICD-10 code X80; "Contact with sharp object" includes ICD-10 code X78; "Drowning and submersion" includes ICD-10 code X71.
- (b) Includes only ADF member deaths by suicide, 2001–2018, that were able to be identified within both the NDI and the NCIS. There were 4 ADF member suicides during this period that were identified in the defence suicide database and unable to be confirmed in the NDI, or confirmed in the NDI but not matched to a record in the NCIS (see Technical Notes). These 4 deaths are excluded from these tables.

Sources: AIHW analysis of linked PMKeyS—NDI — ABS coded NCIS data 2001–2018; ABS 2020.

Department of Veterans' Affairs clients

Key points

- Over one in three (36%) or 42,798 ex-serving ADF members was a DVA client, including 37,023 males and 5,775 females.
- In 2001, 29% of ex-serving ADF members were DVA clients with the proportion increasing to 36% in 2018.
- Around 9 in 10 ex-serving ADF members who separated for involuntary medical reasons were DVA clients compared with 28% of those who separated voluntarily and 26% of those who separated for other involuntary reasons.
- One in three (33%) or 154 ADF members who died by suicide were DVA clients at the time of death, 146 males (99 ex-serving; 22 serving; 25 reserves) and 8 females (all ex-serving).
- Among male ADF members who died by suicide and who had ever had a processed claim, income payment, card type, or health or support service:
 - 98% (143) had a processed claim related to their health or disability condition
 - 74% (108) received an income payment, supplement or compensation payment
 - 62% (90) were DVA health card holders: 73% (66) White card holders and 27% (24) Gold card holders
 - 58% (84) had used at least one DVA funded health service or support service.

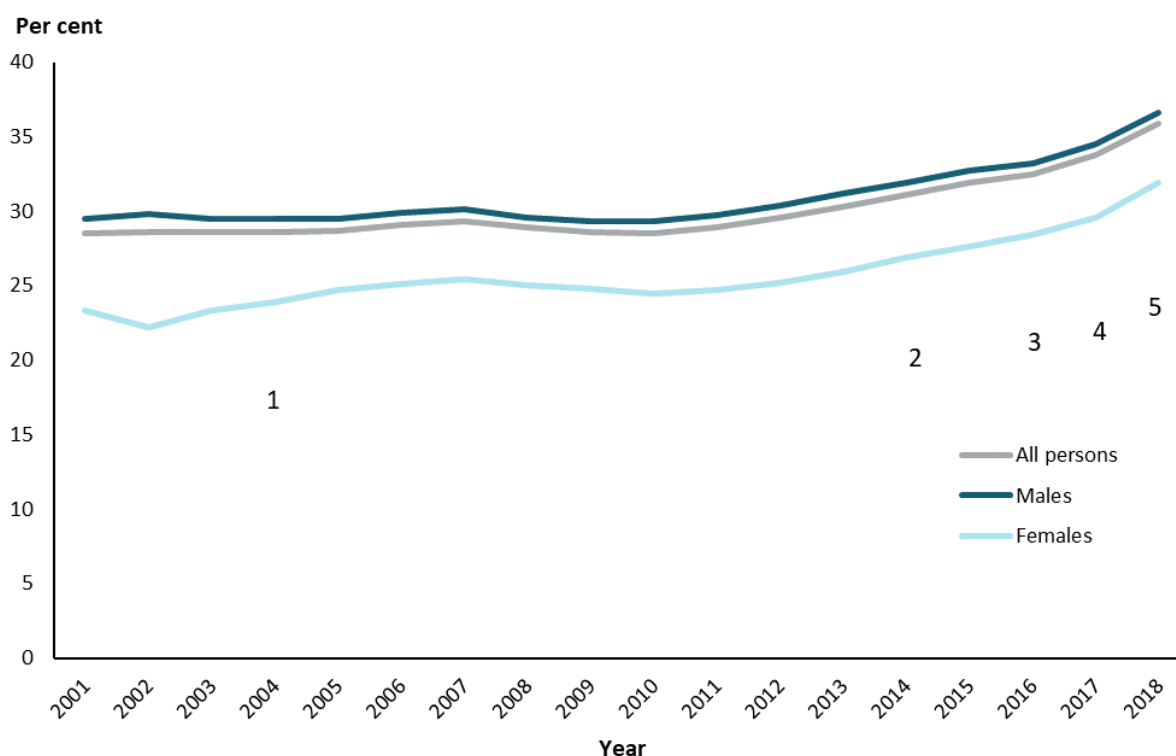
This chapter reports on administrative client data collected by DVA, which records information about ADF members making a DVA claim, receiving income or a payment, using a DVA-funded health service or support service and whether they are a health card holder. The analysis covers access to DVA services by veterans in the study cohort with at least 1 day of service in the ADF between 1 January 2001 and 31 December 2018.

Characteristics of DVA clients who were ex-serving ADF members

Trends in the number of DVA clients between 2001 and 2018

Between 2001 and 2018, there were 42,798 (36%) ex-serving ADF members who were DVA clients; comprising 37,023 (37%) males and 5,775 (32%) females. The proportion for ex-serving ADF members who were DVA clients increased from 29% in 2001 to 36% in 2018; (Figure 13). This increase is mostly due to the introduction of new programs or policy change over time including changes to the Non-Liability Health Care arrangement in July 2017 and White Card on Transition project in mid- 2018 (DVA, 2020).

Figure 13: Percentage of ex-serving males and females who were a DVA client, 2001 to 2018



Notes:

1. 22 December 2004 - Treatment for anxiety and depressive disorders added.
2. 1 July 2014 - Treatment for alcohol use disorder and substance use disorder added. Eligibility extended for peacetime service post-1994.
3. 1 July 2016 - Eligibility for five mental health conditions expands to include all current and ex-serving members of the Australian Defence Force (ADF) with at least one day of continuous full-time service. Claiming made easier by allowing email and phone call to be accepted as a claim and a diagnosis of one of the five mental health conditions to be provided within 6 months.
4. 1 July 2017 - Treatment for five mental health conditions expanded to all mental health conditions. Policy changed so that no diagnosis is required to access mental health treatment.
5. Mid-2018 - Eligibility for the treatment of any mental health condition expanded to include reservists that have rendered Reserve Service Days with:
 - Disaster Relief Service;
 - Border Protection Service; or
 - Involvement in a serious service-related training incident.

Mid-2018 - The White Card on Transition project commenced, with DVA issuing White Cards to transitioning members as they separate from the ADF. The White Card can be used to access Non-Liability Health Care (NLHC) treatment for any mental health condition, at any point in the person's life. The 'claim' for NLHC is taken to be when the person first uses the White Card to access treatment, at which time they also become eligible to receive Veterans Supplement.

See [DVA – Non-Liability Health Care \(NLHC\)](#) for more information.

Source: AIHW analysis of PMKeyS—NDI—DVA, 2001–2018.

Mental health condition related claims

Over one third (37% or 15,995) of ex-serving ADF DVA clients had at least 1 mental health condition related claim⁹ processed between 1 January 2001 and 31 December 2018. Among those who had a processed mental health condition related claim, three-quarters (74% or 11,894 ex-serving ADF DVA clients) had their listed conditions processed under the non-liability health care arrangement¹⁰.

The largest proportion of ex-serving ADF members had mental health condition related claims processed under mood (affective) disorders followed by post-traumatic stress disorder, acute stress reaction and adjustment disorders (Table 12).

Table 12: Numbers and proportions of ex-serving ADF members who were a DVA client who had a processed mental health claim, by mental health conditions type, 2001 to 2018

Mental health condition type ^(a)	Number	Proportion (%)
Mood (affective) disorders	7,997	50.0
Post-traumatic stress disorder, acute stress reaction, adjustment disorders	6,097	38.1
Neurotic, stress-related and somatoform disorders	4,232	26.5
Psychoactive substance use	3,287	20.6

Notes:

(a) Groupings of mental health claims based on ICD-10 classifications. See Technical Notes for a full list of mental health groupings.
Sources: AIHW analysis of linked PMKeyS—NDI—DVA data, 2001–2018.

Characteristics of DVA clients who died by suicide

Number and proportion of DVA clients who died by suicide

Between 2001 and 2018, 154¹¹ ADF members who died by suicide were DVA clients at the time of death. This comprised 146 males (99 (68%) were ex-serving; 22 (15%) were serving; 25 (17%) were reserves) and 8 females (all ex-serving) (Table 13).

The rate of ex-serving male non-DVA clients who died by suicide (25 per 100,000) was lower than ex-serving male DVA clients who died by suicide (36 per 100,000).

DVA health card holders who died by suicide

Between 2001 and 2018, 90 male ADF members who died by suicide were either a White or Gold card holder (66 White card and 24 Gold card). Over 1 in 4 ex-serving (26%), 6% of serving and 24% of reserve males who died by suicide were a White card holder.

⁹ See Technical notes: What is a processed claim for more information.

¹⁰ Non-Liability Health Care (NLHC) allows for former and current ADF members, depending on eligibility, to receive treatment for a range of conditions, including mental health. ADF members do not need to establish that such conditions were caused by service.

¹¹ 37 ADF members who died by suicide had either been issued a White card, had a DVA or MBS service claim processed, or received a payment after their death. For the purposes of this study and the limitations of the data-driven definition, these ADF members are not defined as DVA clients at time of death.

Table 13: Numbers and proportions of ex-serving males who were DVA clients^(a), who died by suicide between 2001 to 2018 and total ex-serving males in 2018^(b), by service-related characteristics

	Number of ex-serving male DVA clients who died by suicide between 2001–2018		Total ex-serving males who died by suicide	Number of DVA clients in 2018		Total ex-serving males in 2018 ^(b)
		% ^(c)			% ^(d)	
Age group^{(e)(f)}						
Less than 35 years	30	26.1	115	6,824	24.3	28,086
35–44	35	46.1	76	8,898	29.8	24,763
45–54	28	70.0	40	8,464	42.2	29,871
55 years and over	6	54.5	11	12,179	57.3	21,239
Service						
Army	68	41.7	163	23,301	35.2	66,242
Navy	19	39.6	48	6,792	38.9	17,462
Air Force	12	38.7	31	6,272	40.3	15,571
Entry type						
Officer	8	40.0	20	6,719	36.0	18,675
General enlistee	91	41.0	222	29,645	36.8	80,599
Operational experience^(f)						
Any operational experience	15	53.6	28	6,716	45.3	14,822
No operational experience	25	22.1	113	7,044	18.4	38,333
Separation reason^(g)						
Medical separation	46	79.3	58	10,806	90.2	11,974
Other Involuntary	17	22.7	75	7,769	27.3	28,506
Voluntary	29	29.6	98	14,408	29.0	49,608
Length of service^(e)						
Less than 1 year	10	18.9	53	1,239	10.2	12,148
1 to less than 5 years	15	24.2	62	4,867	24.0	20,242
5 to less than 10 years	17	42.5	40	5,442	34.3	15,858
10 or more years	57	65.5	87	24,817	48.6	51,027
Time since separation^(e)						
Less than 1 year	9	30.0	30	3,394	50.8	6,686
1 to less than 5 years	47	49.5	95	11,181	39.5	28,286
5 to less than 10 years	29	38.2	76	8,167	34.4	23,755
10 or more years	14	34.1	41	13,623	33.6	40,548
Total	99	40.9	242	36,365	36.6	99,275

(continued)

Table 13 (continued): Numbers and proportions of ex-serving males who were DVA clients^(a), who died by suicide between 2001 to 2018 and total ex-serving males in 2018^(b), by service-related characteristics

Notes:

- (a) Includes ex-serving males who met one of the following conditions: had a White or Gold card or received a health service or support service or received an income payment or had at least one processed claim.
- (b) Includes those who were alive or deceased in 2018.
- (c) Numerator is ex-serving males who died by suicide and were a DVA client and denominator is ex-serving males who died by suicide between 2001 and 2018.
- (d) Numerator is all ex-serving males who were a DVA client and denominator is all ex-serving males who were alive or deceased in 2018.
- (e) Age, time since service, and length of service characteristics are calculated as at 31 December 2018, or at death, if this occurred prior to 31 December 2018.
- (f) Operational service falls into four broad categories: warlike, non-warlike, overseas and domestic. Individuals with at least one type of operational service are counted in 'Any', and those with no operational service are counted in 'None'. Only operational service since 1 January 1999 has been consistently identified across the four operational service categories. To ensure comparability, analysis of operational service includes only personnel hired on or after 1 January 1999. Individuals hired before 1999 are not included in percentage calculations for operational experience.
- (g) 64% (7) of ex-serving males, who were discharged due to contractual/administrative reasons and died by suicide, were DVA clients. 37% of ex-serving males, who were discharged due to contractual/administrative reasons in 2018, were a DVA client. Appendix A: Technical Note for discharge reason groupings.

Sources: AIHW analysis of linked PMKeyS—NDI—DVA data, 2001–2018.

DVA clients who died by suicide

Among 146 male DVA clients who died by suicide, 75 male ADF members had a processed claim relating to mental health any time prior to death (Table 14). There were 14 ADF members who died by suicide and had only rejected mental health condition related claims, noting, these ADF members' death and their claims were processed prior to the policy changes of non-liability health care arrangement (DVA, 2021).

Table 14: Proportions of mental health conditions by claim type for male DVA clients who died by suicide, 2001 to 2018

Mental Health Condition by Type ^(a)	Count	Proportion (%)
Mood (affective) disorders	47	62.7
Post-traumatic stress disorder, acute stress reaction, adjustment disorders	38	50.7
Psychoactive substance use	22	29.3
Neurotic, stress-related and somatoform disorders	18	24.0

Notes:

- (a) Groupings of mental health claims based on ICD10-AM classifications. See Technical Notes for a full list of mental health groupings.

Sources: AIHW analysis of linked PMKeyS—NDI—DVA data, 2001–2018.

Use of Health services

Key points

- While the primary source of health services for serving personnel is Defence funded health services, nearly 1 in 4 of those who died by suicide (23%) used a Medicare-subsidised or DVA-funded health service in the year prior to death.
- From 2001 to 2018, the majority of ex-serving males (88%) and reserve males (85%) who died by suicide used at least one Medicare-subsidised or DVA-funded health service in the year before death.
- Over half (53%) of ex-serving males who died by suicide in 2014 to 2018 had a mental health-related service (subsided by Medicare, DVA or Defence) in the year before death, compared with the Australian male population who died by suicide (38%).
- Among ex-serving DVA clients who received hospital-based (secondary) care between 2001 and 2018, 25% received care for mental and behavioural disorders.
- Between 2001 and 2018, 20% of the DVA clients who died by suicide received admitted patient care
- From 2015 to 2018, 6% of ex-serving DVA clients presented to emergency departments, most commonly for injury, poisoning and other consequences of external causes (31%).

ADF members are able to access a variety of different health services, engaging with different systems over their lifetime. This chapter examines access to health services by the study cohort: ADF members who have died by suicide with at least 1 day of service since 1 January 2001.

The analysis covers:

- Medicare claims data and DVA-funded services for the period 2001 to 2018 for the ex-serving population.
- Medicare claims data and DVA-funded services for the period 2000 to 2018 for those who died by suicide between 2001 and 2018 to understand patterns of use 1 year prior to death.
- Defence Health Service Contracts (HSC) off-base data from 2013 to 2018 which provides information on health services used by ADF members who died by suicide between 2014 and 2018 to understand patterns of use 1 year prior to death.
- Information on other Defence funded health services include Health Hotline is presented for the period 2012 to 2018.

Broadly, serving personnel primarily access Defence funded health services although they may access Medicare-subsidised and DVA-funded health services. Ex-serving and reserve ADF members can access both Medicare-subsidised and DVA funded health services for approved claims (Table 15).

All current and ex-serving ADF members may also access public hospitals, emergency departments and specialised non-admitted services (not funded by DVA), ancillary private health services ('extras'), or pay for services entirely out-of-pocket. Data on these health services are not available for this report.

Table 15: Summary of health services accessed by ADF members who died by suicide

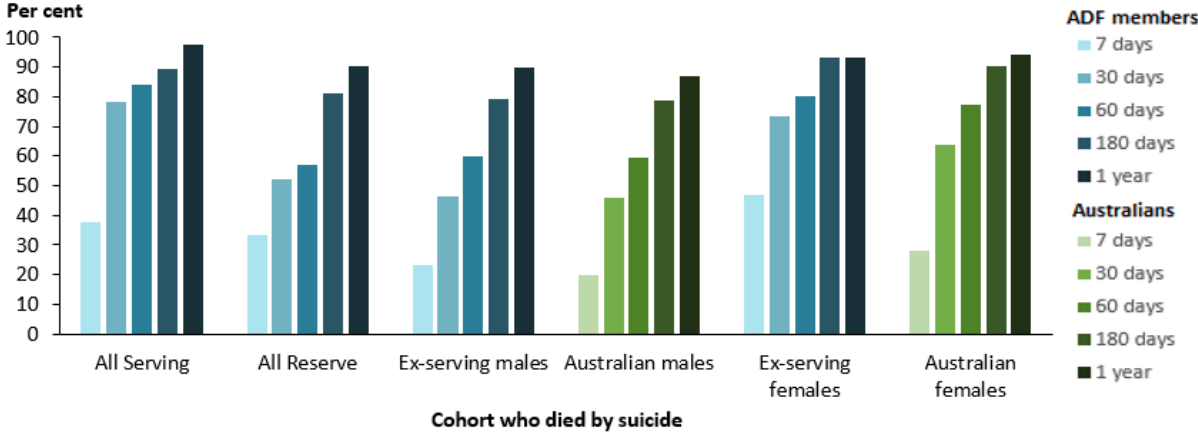
Serving	Reserve	Ex-serving
<p align="center">Defence-funded health services</p> <p>Serving and reserve ADF members can access health services through Health Service Contracts (HSC) off-base (data available for 2013 – 2018), Health Hotline (data available for 2012 – 2018) and Defence Electronic Health Systems (data not presented in this report).</p>		
<p align="center">DVA-funded health services</p> <p><i>Data available for 2000 – 2018 (Emergency data for 2015 – 2018)</i></p> <p>DVA clients can access general practitioner (GP), specialist, allied health, hospital and emergency department services.</p>		
<p align="center">Medicare-subsidised health services</p> <p><i>Data available for 2000 – 2018</i></p> <p>Australia’s universal health insurance scheme, Medicare, subsidises access to a range of treatments and diagnostic tests for Australians (and some overseas visitors). These services include general GP and medical specialist services, hospital treatments for private patients, selected diagnostic imaging and pathology services, and some allied health services.</p>		

Health services accessed by veterans who died by suicide

Between 2001 and 2018, the proportion of ex-serving (88%) and reserve males (85%) who used Medicare-subsidised or DVA-funded health services in the year before death was similar to Australian males who died by suicide (85%). A similar proportion of ex-serving females used a Medicare-subsidised or DVA-funded health service in the year before death (96%), compared with Australian females who died by suicide (94%). While the primary source of health services for serving ADF members is Defence funded health services, nearly 1 in 4 of those who died by suicide (23%) used a Medicare-subsidised or DVA-funded health service in the year prior to death.

Between 2014 and 2018, 198 ADF members died by suicide. Of these, 57 (29%) had a Medicare-subsidised, DVA-funded or Defence-funded Health Service Contracts (HSC) off-base health service provided in the week before death, and 109 (55%) had a service in the 30 days before death. Most serving members (97%) used at least one health service in the year before death, particularly in the 60 days before death with 84% having used a health service compared with 62% of ex-serving and 57% of reserve members (Figure 14).

Figure 14: Percentage of ADF members^(a) and Australians^(b) who died by suicide who used a Medicare-subsidised^(c), DVA-funded or Defence-funded HSC off-base health service^(d), by time before death^(e), sex and service status, 2014 to 2018



- Notes:
- (a) The ADF cohort includes members who served at least one day from 1 January 2001 to 31 December 2018, and died by suicide between 1 January 2014 and 31 December 2018.
 - (b) The Australian cohort are people who died by suicide between 1 January 2014 and 31 December 2018, excluding deaths by suicides by ADF members. The cohorts are restricted to the age range of ex-serving male and female study populations.
 - (c) Use of health services for the Australian cohort is based on Medicare-subsidised services.
 - (d) Use of Defence HSC off-base services may be slightly underestimated for members who died by suicide in 2014 due to data quality issues for 2013 data.
 - (e) The time before suicide is inclusive of the person's death date, and excludes services that occurred after their date of death. Services that occurred before a person was hired or terminated are included (provided they occurred within the time period being examined).

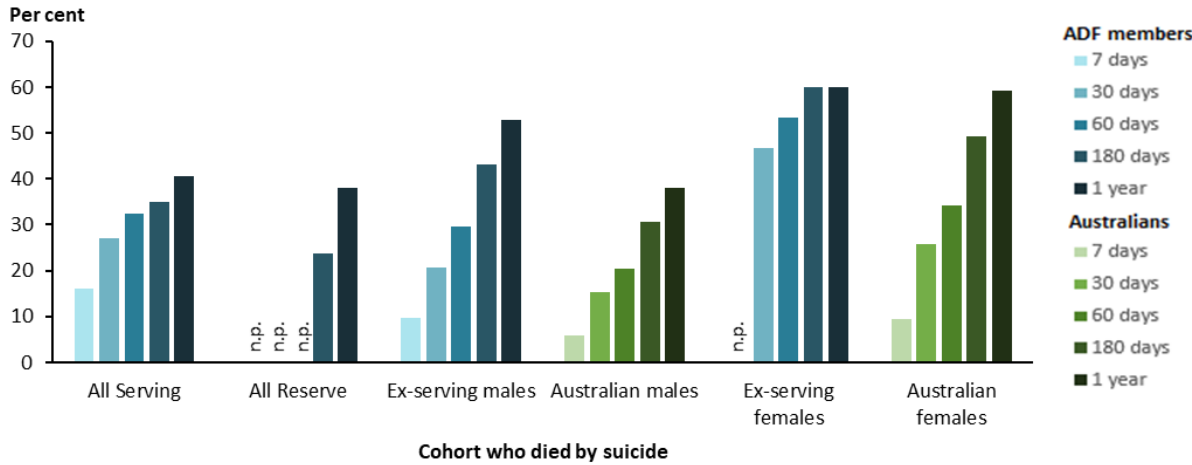
Source: AIHW analysis of PMKeyS-NDI-MBS-DVA-HSC off-base, 2014-2018

Mental health-related services

Over half (53%) of ex-serving males who died by suicide between 2014 and 2018 had a mental health-related service in the year before death. In comparison, over a third (38%) of Australian males who died by suicide in the same period received a Medicare-subsidised mental health-related service in the year before death (Figure 15). Among serving and reserve male and female ADF members who died by suicide, around 2 in 5 (40%) had a mental health-related service in the year before death.

Of those ADF members who died by suicide between 2014 and 2018, 21% of ex-serving males and 47% of ex-serving females used a mental health-related service in the 30 days before death compared with 15% of Australian males and 26% of Australian females, respectively.

Figure 15: Percentage of ADF members^(a) and Australians^(b) who died by suicide and used a Medicare-subsidised^(c), DVA-funded or Defence-funded HSC off-base^(d) mental health-related service before death, by time before death^(e), sex and service status, 2014 to 2018



n.p. – not published due to small numbers.

Notes:

- (a) The ADF cohort includes members who served at least one day from 1 January 2001 to 31 December 2018, and died by suicide between 1 January 2014 and 31 December 2018. Results are not reported for reserve and serving females due to small numbers.
- (b) The Australian cohort are people who died by suicide between 1 January 2014 and 31 December 2018, excluding deaths by suicides by ADF members. The cohorts are restricted to the age range of ex-serving male and female study populations.
- (c) Use of health services for the Australian cohort is based on Medicare-subsidised services.
- (d) Use of Defence HSC off-base services may be slightly underestimated for members who died by suicide in 2014 due to data quality issues for 2013 data.
- (e) The time before suicide is inclusive of the person's death date, and excludes services that occurred after their date of death. Services that occurred before a person was hired or terminated are included (provided they occurred within the time period being examined).

Sources: AIHW analysis of linked PMKeyS–NDI–MBS–DVA–HSC off-base data 2014–2018.

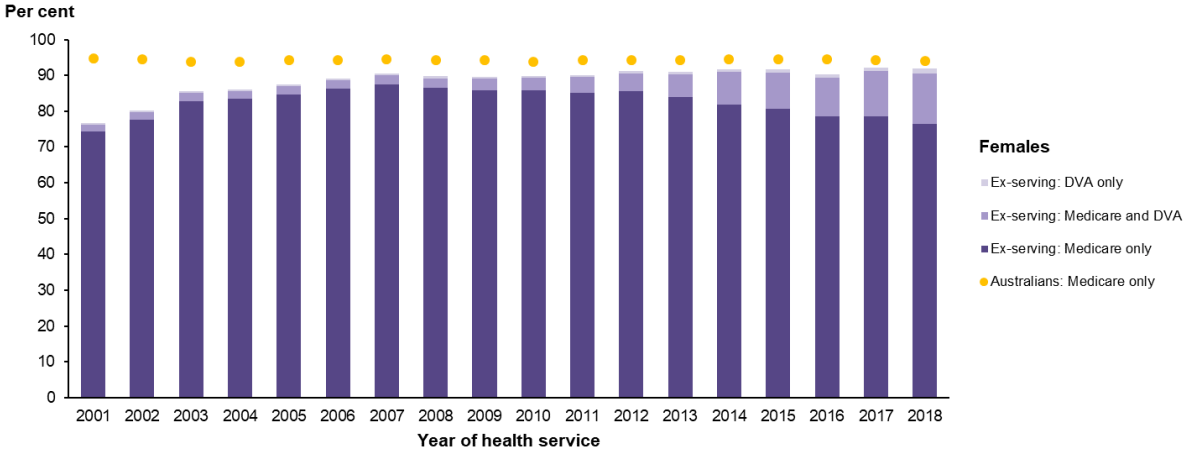
Medicare-subsidised and DVA-funded health services

This section looks at use of Medicare-subsidised and DVA-funded health services by those ex-serving ADF members who accessed services at least once a year in the period from 2001 to 2018.

Overall, the proportion of ex-serving ADF members who used Medicare-subsidised and DVA-funded health services increased from 59% in 2001 to 84% in 2018 for males, and 77% to 92% for females. From 2001 to 2018, a lower proportion of ex-serving males (from 59% to 84%) and ex-serving females (from 77% to 92%) used Medicare-subsidised services and DVA-funded services compared with the Australian male (from 83% to 87%) and female population (from 94% to 95%) (Figure 16 and Figure 17). While the Australian male and female population groups are restricted to the age range of the male and female ex-serving study group respectively, there are differences in the age structure within these ranges that may account for differences in service use.

Of ex-serving members who used health services, almost all accessed a Medicare-subsidised service at least once in the year, especially females (around 99%). The proportion of ex-serving ADF members who used at least one DVA-funded health service increased steadily between 2001 and 2018, ranging from 7% to 20% for males, and 2% to 15% for females (Figure 16 and Figure 17).

Figure 16: Percentage of ex-serving female ADF members^(a) who used at least one Medicare-subsidised or DVA-funded health service, and Australians^(b) who used a Medicare-subsidised service, by sex and year, 2001 to 2018

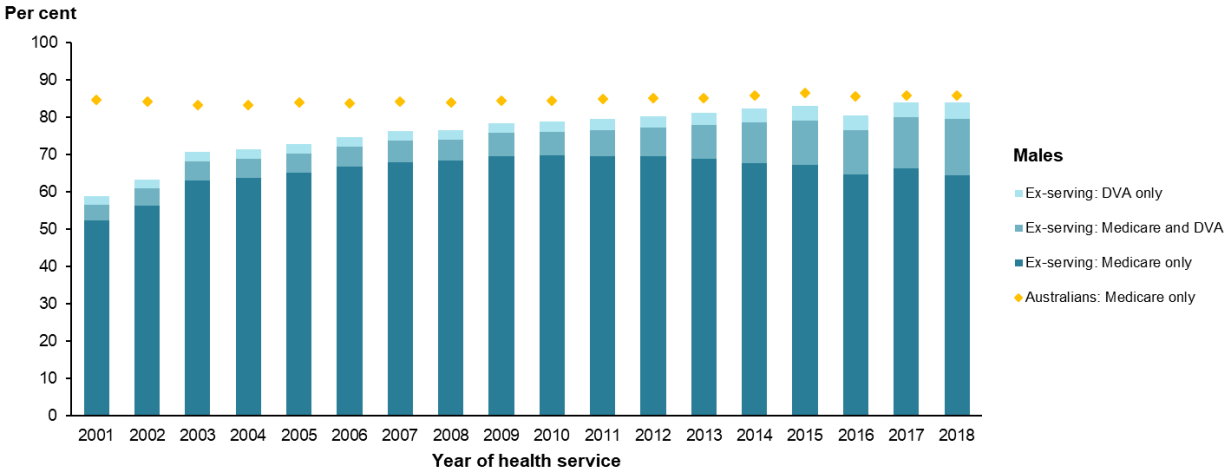


Notes:

- (a) The ex-serving cohort are females who served at least one day from 1 January 2001 to 31 December 2018. Medicare and DVA services provided to ex-serving members before they were terminated were excluded from the analysis (i.e. while they were serving or before they were hired). The denominator is the total number of ex-serving female members who were ex-serving for at least one day in the reporting year. Note, in 2016, approximately 6,600 reservists separated from the ADF, resulting in a marked increase of ex-serving members.
- (b) The Australian cohort is restricted to the age range of ex-serving female study group, noting that there are differences in the age structure within these ranges that may account for differences in service use.

Source: AIHW analysis of PMKeyS-NDI-MBS, 2001-2018; Department of Health MBS claims data, 2001-2018; Australian Bureau of Statistics (ABS) Estimated Resident Population (ERP) 2001-2018.

Figure 17: Percentage of ex-serving male ADF members^(a) who used a Medicare-subsidised or DVA-funded health service, and Australians^(b) who used a Medicare-subsidised service, by sex and year, 2001 to 2018



Notes:

- (a) The ex-serving cohort are males who served at least one day from 1 January 2001 to 31 December 2018. Medicare and DVA services provided to ex-serving members before they were terminated were excluded from the analysis (i.e. while they were serving or before they were hired). The denominator is the total number of ex-serving male members who were ex-serving for at least one day in the reporting year. Note, in 2016, approximately 6,600 reservists separated from the ADF, resulting in a marked increase of ex-serving members.
- (b) The Australian cohort is restricted to the age range of ex-serving male study group, noting that there are differences in the age structure within these ranges that may account for differences in service use.

Source: AIHW analysis of PMKeyS-NDI-MBS, 2001-2018; Department of Health MBS claims data, 2001-2018; ABS ERP 2001-2018.

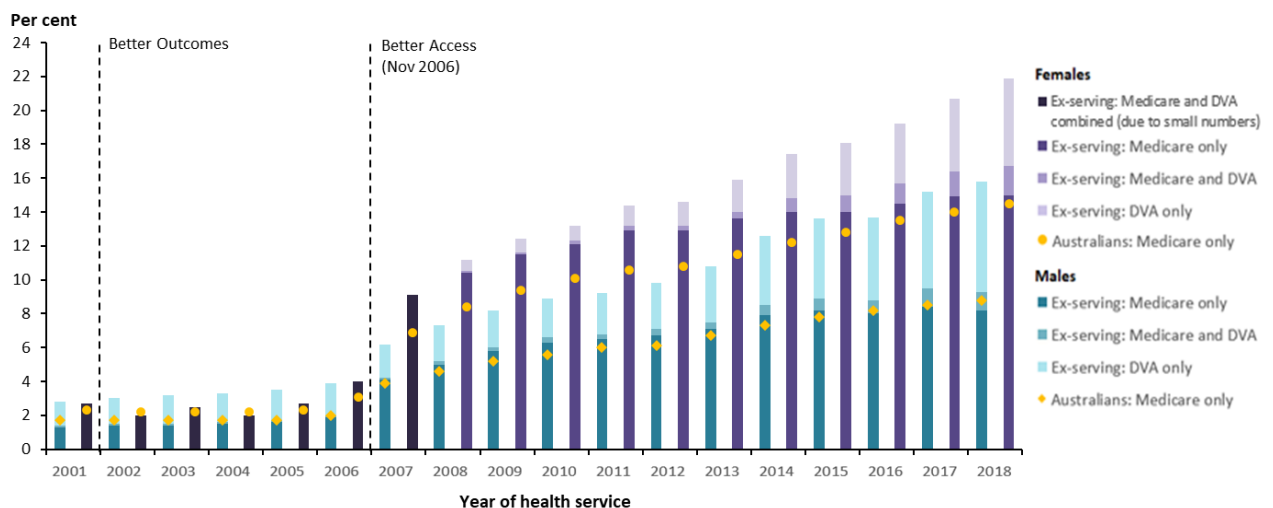
Mental health-related Medicare and DVA services

Mental health-related services subsidised through Medicare and DVA may be provided by psychiatrists, general practitioners (GPs), psychologists and other allied health professionals.

The proportion of all ex-serving members who used a Medicare-subsidised or DVA-funded mental health-related service increased steadily between 2001 and 2018 for both males (3% to 16%) and females (3% to 22%) (Figure 18). This pattern is broadly reflective of the increase in use of Medicare-subsidised services by the Australian population, which can be largely attributed to the introduction of the *Better Access* program for all Australians (Box 1).

In recent years, the use of Medicare-subsidised mental health-related service were similar between ex-serving ADF members (9% for males and 17% for females in 2018) and the Australian population (9% for males and 15% for females in 2018). However, the higher overall use by ex-serving members was largely attributable to additional members who used DVA-funded services, adding 6.5 percentage points for ex-serving males and 5.2 percentage points for ex-serving females in 2018.

Figure 18: Percentage of ex-serving ADF members^(a) who used a Medicare-subsidised or DVA-funded^(b) mental health-related service; and Australians^(c) who used a Medicare-subsidised mental health-related service, by sex and year, 2001 to 2018



Notes:

- The ex-serving cohort are those who served at least one day from 1 January 2001 to 31 December 2018. Medicare and DVA services provided to ex-serving members before they were terminated were excluded from the analysis (i.e. while they were serving or before they were hired). The denominator is the total number of ex-serving members who were ex-serving for at least one day in the reporting year.
- Interpret with caution.** Similar services may be provided outside Medicare and DVA, or under different 'general' Medicare items - neither of which can be identified in the data. The proportion of mental health-related services claimed outside Medicare and DVA is unknown, and is likely to have substantially changed across the 2001 to 2018 reporting period, affecting comparability over time.
- The Australian cohort is restricted to the age range of ex-serving male and female study populations.

Source: AIHW analysis of PMKeyS-NDI-MBS, 2001-2018; Department of Health MBS claims data, 2001-2018; ABS ERP 2001-2018.

Box 1: Changes to mental health-related services subsidised by Medicare and DVA

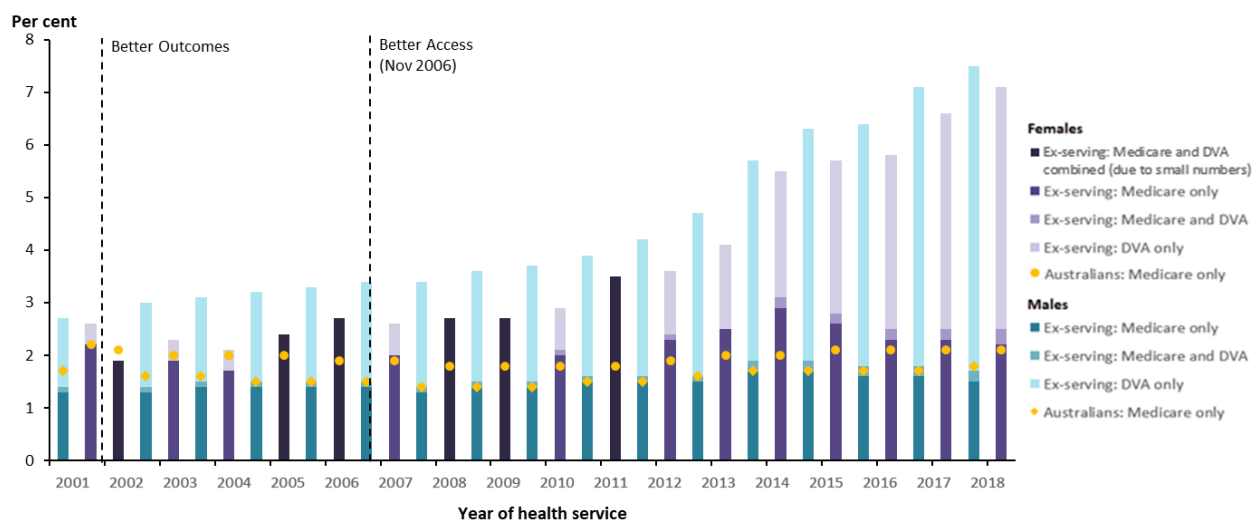
The services that Medicare subsidises, and how similar services are coded has changed over time, particularly for mental health services provided by GPs and allied health professionals. A significant change occurred in November 2006 with the introduction of the Better Access program. As a result, key findings for mental health-related service use are mainly reported for the periods 2007 to 2018 and from 2008 to 2018 for services used 1 year prior to death.

DVA-funded healthcare includes identical Medicare items, however during this period, DVA clients were entitled to ‘uncapped’ services. DVA has also increased access to mental health services through various policy changes since 2001, most significantly in 2016 when eligibility was expanded to include all current and former ADF members with at least one day of continuous full-time service.

See Appendix A5 for information about these initiatives and details about how mental health-related Medicare subsidised and DVA-funded services are grouped.

The proportion of ex-serving members using psychiatry services (Medicare or DVA) has almost doubled from 3.9% in 2011 to 7.4% in 2018 for males and 3.5% to 7.1% for females. This is mainly an increase in the number of ex-serving members who used DVA-funded psychiatry services. Most mental health care received by ex-serving members eligible for DVA-funded services was provided by psychiatrists. In 2018, 80% of all ex-serving males and 69% of females had their psychiatry services funded by DVA (Figure 19).

Figure 19: Percentage of ex-serving ADF members^(a) who used a Medicare-subsidised or DVA-funded psychiatry service; and Australians^(b) who used a Medicare-subsidised psychiatry service, by sex and year, 2001 to 2018



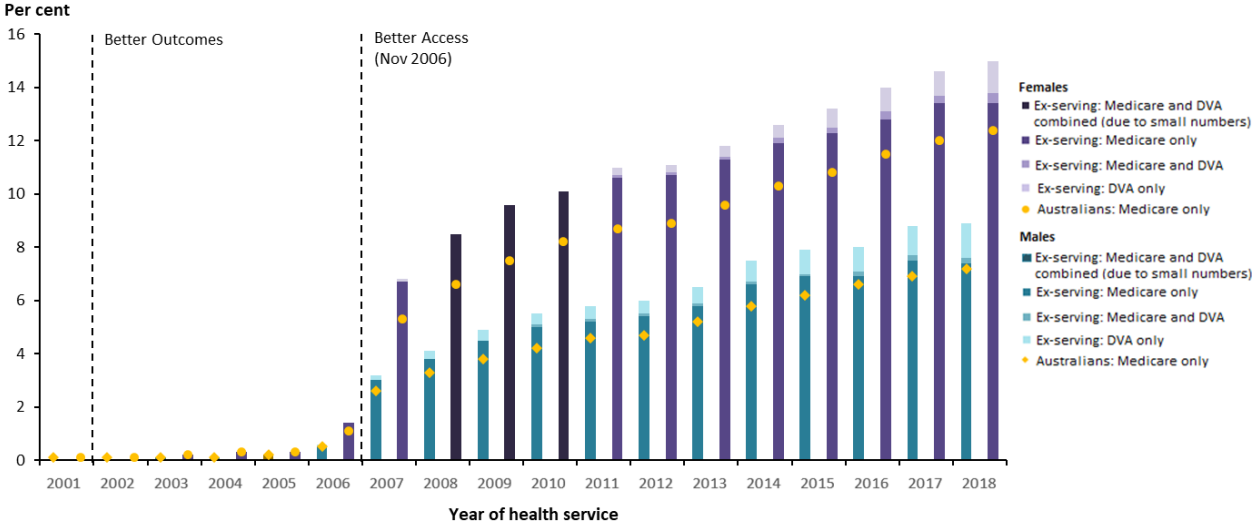
Notes:

- (a) The ex-serving cohort are those who served at least one day from 1 January 2001 to 31 December 2018. Medicare and DVA services provided to ex-serving members before they were terminated were excluded from the analysis (i.e. while they were serving or before they were hired). The denominator is the total number of ex-serving members who were ex-serving for at least one day in the reporting year.
- (b) The Australian cohort is restricted to the age range of ex-serving male and female study populations.

Source: AIHW analysis of PMKeyS-NDI-MBS, 2001-2018; Department of Health MBS claims data, 2001-2018; ABS ERP 2001-2018.

The use of mental health related GP services and mental health related allied health services has steadily increased since 2006 for male and female ex-serving members and the general Australian population. The majority of ex-serving patients who used GP and allied mental health services claimed their services through Medicare (Figure 20 and Figure 21).

Figure 20: Percentage of ex-serving ADF members^(a) who used a Medicare-subsidised or DVA-funded mental health-related GP service^(b); and Australians^(c) who used a Medicare-subsidised mental health-related GP service, by sex and year, 2001 to 2018

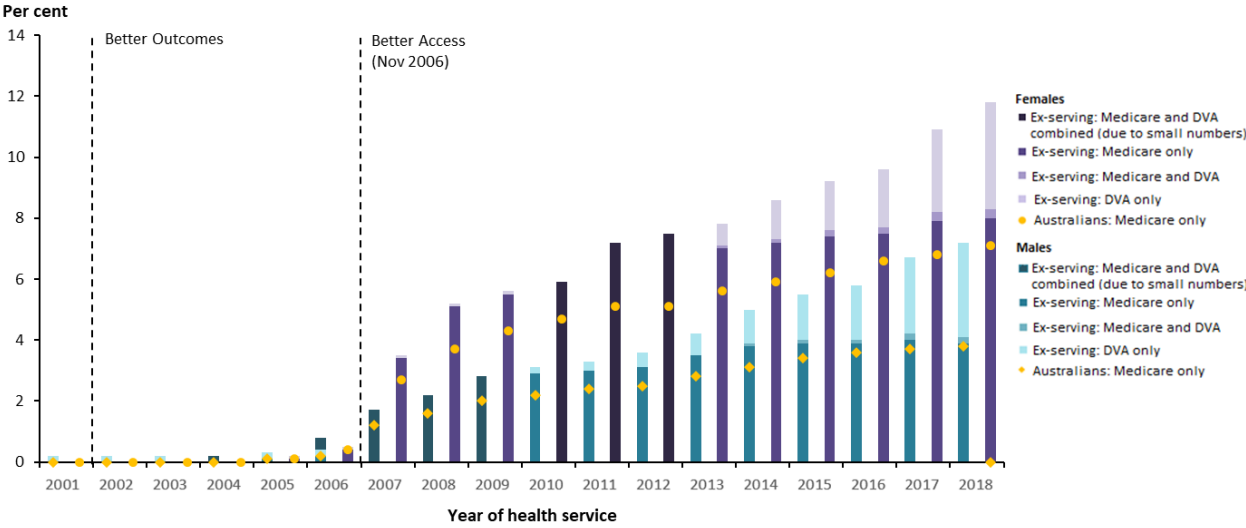


Notes:

- (a) The ex-serving cohort are those who served at least one day from 1 January 2001 to 31 December 2018. Medicare and DVA services provided to ex-serving members before they were terminated were excluded from the analysis (i.e. while they were serving or before they were hired). The denominator is the total number of ex-serving members who were ex-serving for at least one day in the reporting year.
- (b) **Interpret with caution.** Similar GP mental health services may be provided under different 'general' Medicare items. The proportion of these services is unknown, and is likely to have substantially changed across the 2001 to 2018 reporting period, affecting comparability over time.
- (c) The Australian cohort is restricted to the age range of ex-serving male and female study populations.

Source: AIHW analysis of PMKeyS-NDI-MBS, 2001-2018; Department of Health MBS claims data, 2001-2018; ABS ERP 2001-2018.

Figure 21: Percentage of ex-serving ADF members^(a) who used a Medicare-subsidised or DVA-funded^(b) mental health-related allied health service^(c); and Australians^(d) who used a Medicare-subsidised service, by mental health-related allied health service, by sex and year, 2001 to 2018



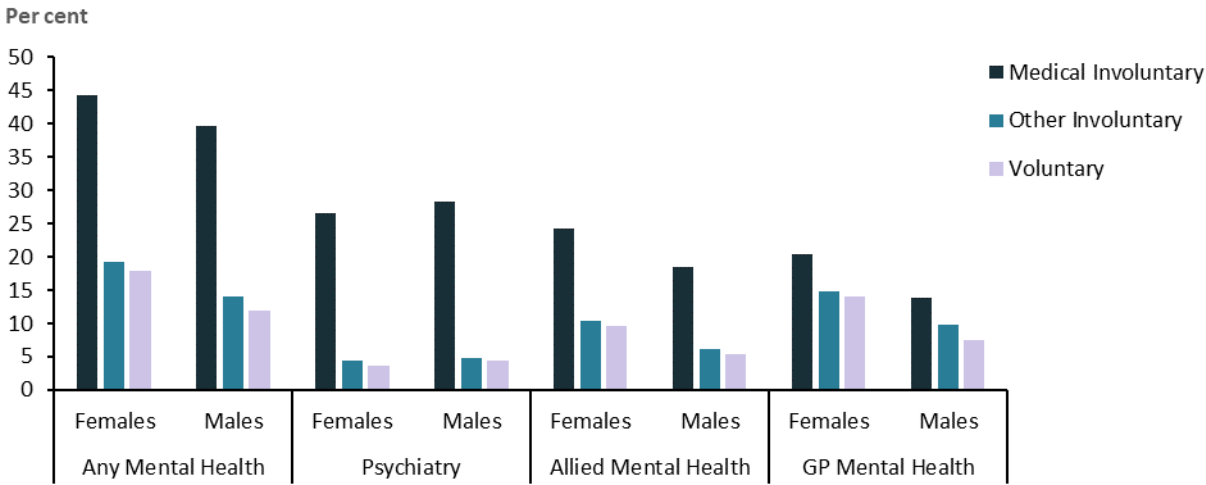
Notes:

- (a) The ex-serving cohort are those who served at least one day from 1 January 2001 to 31 December 2018. Medicare and DVA services provided to ex-serving members before they were terminated were excluded from the analysis (i.e. while they were serving or before they were hired). The denominator is the total number of ex-serving members who were ex-serving for at least one day in the reporting year.
- (b) **Interpret with caution.** Similar services may be provided outside Medicare and DVA. The proportion of mental health-related services claimed outside Medicare and DVA is unknown, and is likely to have substantially changed across the 2001 to 2018 reporting period, affecting comparability over time.
- (c) 'Allied Mental Health' includes services provided by clinical psychologists, other psychologists, and other allied mental health workers.
- (d) The Australian cohort is restricted to the age range of ex-serving male and female study populations.

Source: AIHW analysis of PMKeyS-NDI-MBS, 2001-2018; and Department of Health MBS claims data, 2001-2018.

A higher proportion of ex-serving members who separated for involuntary medical reasons used Medicare-subsidised and DVA-funded mental health related services and in particular psychiatry services, compared to those who separated for other involuntary reasons or voluntarily (Figure 22).

Figure 22: Percentage of ex-serving ADF members^(a) who used a Medicare-subsidised or DVA-funded mental health-related service^(b), by separation reason and sex, 2018



Notes:

- (a) The ex-serving cohort are those who served at least one day from 1 January 2001 to 31 December 2018, and who were ex-serving for at least one day in 2018. Medicare and DVA services provided to ex-serving members before they were terminated were excluded from the analysis (i.e. while they were serving or before they were hired).
- (b) 'Allied Mental Health' includes services provided by clinical psychologists, other psychologists, and other allied mental health workers.

Sources: AIHW analysis of linked PMKeyS–NDI–MBS–DVA data 2018.

Use of hospital-based services funded by DVA

This section examines admitted patient and emergency department services used by ADF members (serving, reserve and ex-serving) eligible for healthcare funding by DVA ('DVA clients'. The analysis uses administrative data from the DVA National Treatment Account, which has limited analysis to DVA clients. Future analysis could investigate the use of Australian hospital-based services by all ADF members, including those who died by suicide, and Australians who died by suicide.

ADF members are eligible for the provision of DVA-funded healthcare according to various criteria (DVA 2021). However, DVA clients can continue to access all public Medicare services and hospital-based care and may use these services, private health insurance-funded or self-funded services independently of the DVA.

Admitted patient care

A total of 11,140 (26%) ex-serving DVA clients received overnight or day-only admitted patient care from 2001 to 2018. Most were males (90%). The care provided to these DVA clients included acute care¹² (85%), rehabilitation care¹³ (4%) and mental health care¹⁴ (1%) (mental health care was included with acute care until 1 July 2015).

In terms of the number of patients, the most frequent reasons (principal diagnoses) for DVA clients to receive admitted patient care were diseases of musculoskeletal and connective tissue (50%), mental and behavioural disorders (25%), diseases of the digestive system (24%) and neoplasms (20%) (Table 16).

Table 16: Most common reasons for admitted patient care^(a) by principal diagnosis (ICD 10 AM Chapter)^(b) for ex-serving DVA clients^{(c)(d)}, 2001 to 2018.

Principal diagnosis (ICD 10AM Chapter)	No. (% ^(e)) patients	No. (% ^(f)) episodes	Average episodes/patient
Diseases of musculoskeletal and connective tissue (M00-M99)	5,509 (49.5)	15,758 (16.3)	2.9
Mental and behavioural disorders (F00-F99)	2,830 (25.3)	32,161 (33.2)	11.4
Diseases of the digestive system (K00-K93)	2,702 (24.3)	5,398 (5.5)	2.0
Neoplasms (C00-C96, D00-D09, D37-D48)	2,219 (20.0)	5,430 (5.6)	2.4
Diseases of the nervous system (G00-G99)	1,569 (14.1)	3,049 (3.1)	1.9
Injury, poisoning and certain other consequences of external causes (S00-T98)	1,517 (13.6)	2,740 (2.8)	1.8
Diseases of the circulatory system (I00-I99)	1,277 (11.5)	2,622 (2.7)	2.1

Notes:

- (a) Overnight or day-only care at an Australian hospital (>90% private).
- (b) Principal diagnoses only, secondary diagnoses are not included.
- (c) The DVA client numerator is all ex-serving ADF members (all ages, all sexes) who served at least 1 day from 1 January 2001 to 31 December 2018, and received admitted patient care funded by DVA by principal diagnosis. The denominator is all ex-serving ADF members who were DVA clients for at least one day in the reporting period, and received admitted patient care funded by DVA.
- (d) DVA clients can appear in multiple principal diagnosis groups if they have received admitted patient care for different reasons on different occasions.
- (e) Per cent of all DVA clients receiving admitted patient care 2001 to 2018.
- (f) Per cent of all episodes of care provided to DVA clients 2001 to 2018.

Source: AIHW analysis of PMKeyS-NDI-DVA, 2001-2018

Between 2001 and 2018, the greatest number of all episodes of care¹⁵ (33%) were provided to ex-serving DVA clients with a mental and behavioural disorder as their principal diagnosis.

¹² Acute care is where the primary treatment goal is to cure or treat symptoms of illness, perform surgical, therapeutic or diagnostic procedures or to manage labour (obstetric)

¹³ Rehabilitation is care where the primary treatment is to improve functioning of a patient with impairment due to a health condition (excluding mental health)

¹⁴ Mental health care is care where the primary treatment goal is to improve symptoms and/or psychosocial, environmental and physical functioning related to a mental health disorder¹⁵ An episode of care can be a total hospital stay or a portion of a hospital stay when there is a change of care type e.g. from acute care to rehabilitation care.

¹⁵ An episode of care can be a total hospital stay or a portion of a hospital stay when there is a change of care type e.g. from acute care to rehabilitation care.

During this period, the average number of episodes of care for mental and behavioural disorders for ex-serving DVA clients was 11.4 per patient.

When including principal and all secondary diagnoses in the analysis, 3,326 (30%) ex-serving DVA clients receiving admitted patient care had at least one diagnosis related to mental health; most had multiple mental health diagnoses. The most prevalent mental health diagnosis groups (ICD 10AM) for ex-serving DVA clients receiving admitted patient care are included in Table 17.

Table 17: Principal and secondary mental health related-diagnoses^(a) (ICD-10 AM) by diagnostic group among ex-serving DVA clients^{(b)(c)} receiving admitted patient care^(d), 2001 to 2018.

Diagnosis group (ICD 10AM)	No. (% ^(e)) patients	No. (% ^(f)) episodes	Average episodes/patient
Stress-related disorders (F43)	2,422 (72.8)	25,938 (75.9)	10.7
Depressive disorders (excluding bipolar) (F32)	1,816 (54.6)	10,193 (29.8)	5.6
Drug and alcohol disorders (F10-F19, Z502-3, Z714-5)	1,610 (48.4)	9,508 (27.8)	5.9
Anxiety disorders (F40-2, F44-8)	1,080 (32.5)	3,691 (10.8)	3.4
Bipolar and mixed-mood disorders (F30-1, F33-9)	727 (21.9)	2,931 (8.6)	4.0
Dementia (F00-3, F051, G30)	123 (4)	188 (1.0)	1.5
Schizophrenia and related disorders ((F20-9)	110 (3)	548 (1.7)	5.0

Notes:

- (a) Principal and all secondary diagnoses are included.
- (b) The DVA client numerator is all ex-serving ADF members (all ages, all sexes) who served at least 1 day from 1 January 2001 to 31 December 2018, and received admitted patient care funded by DVA for the diagnosis group. The denominator is all ex-serving ADF members who were DVA clients for at least one day in the reporting period, and received admitted patient care funded by DVA.
- (c) DVA clients can appear in multiple diagnosis groups if they have received admitted patient care for multiple diagnoses or different diagnoses on different occasions.
- (d) Overnight or day-only care at an Australian hospital (>90% private).
- (e) Per cent of all DVA clients receiving admitted patient care for mental health 2001-2018.
- (f) Per cent of all episodes of care which included at least 1 mental health-related principal or secondary diagnosis 2001-2018.

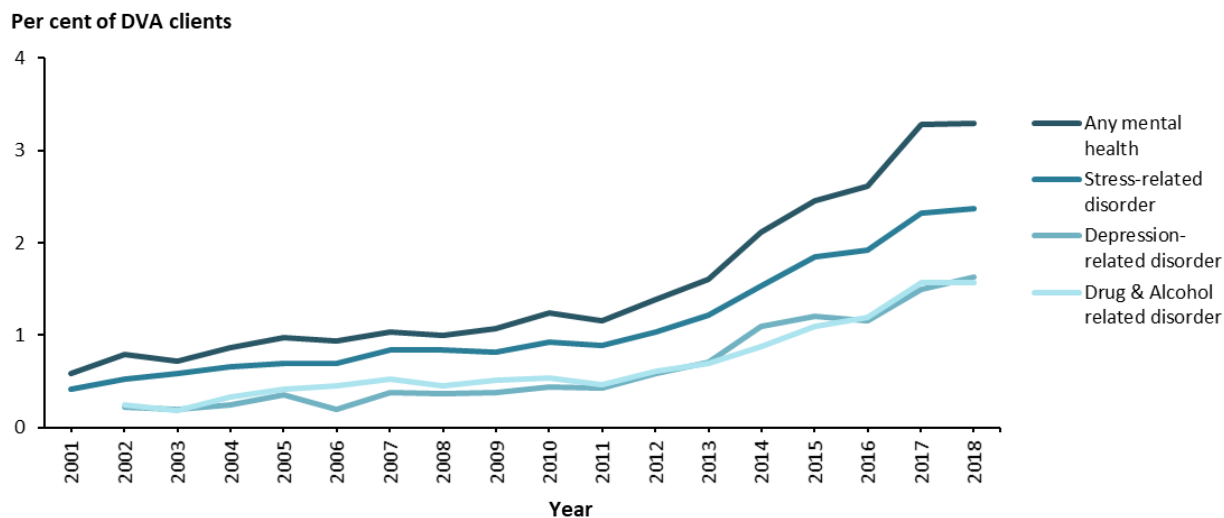
Source: AIHW analysis of PMKeyS-NDI-DVA, 2001-2018

The most common mental health diagnostic groups among ex-serving DVA clients receiving admitted patient care were:

- Stress related disorders (73%)
- Depressive disorders (excluding bipolar and mixed mood disorders) (55%)
- Drug and alcohol disorders (48%).

While the proportion of all ex-serving DVA clients receiving admitted patient care for mental health disorders is between 0.5 – 3.3%, there has been a steady increase particularly since 2010 (Figure 23).

Figure 23: Percentage of ex-serving DVA clients^{(a)(b)} who received admitted patient care^{(c)(d)} for mental health disorders^(e), 2001 to 2018



Notes:

- (a) The DVA client numerator is all ex-serving ADF members (all ages, all sexes) who served at least 1 day from 1 January 2001 to 31 December 2018, and received admitted patient care funded by DVA for at least 1 mental health diagnosis. The denominator is all ex-serving members who were DVA clients for at least one day in the reporting period
- (b) DVA clients can appear in multiple diagnosis groups if they have received admitted patient care for multiple reasons or for different reasons on different occasions.
- (c) Principal and all secondary diagnoses are included.
- (d) Overnight or day-only care at an Australian hospital (>90% private).
- (e) 2001 results for the 'Depression-related disorder' and 'Drug & Alcohol related disorder' are suppressed due to small numbers.

Source: AIHW analysis of PMKeyS-NDI-DVA, 2001-2018.

Emergency department care

A total of 2,543 (6%) ex-serving DVA clients presented to a public emergency department (ED) between 2015 and 2018; 93% were men. During this period, the mean number of ED presentations by a DVA client was two.

The most common reasons for presentation (principal diagnosis) were injury, poisoning and other consequences of external causes (31%) followed by diseases of the circulatory system (10%), diseases of musculoskeletal and connective tissue (9%) and mental and behavioural disorders (9%).

DVA clients who died by suicide and received DVA-funded hospital services

- 31 (20%) of the DVA clients who died by suicide received admitted patient care on 261 occasions between 2001 and 2018; 24 DVA clients received care within 12 months of death.
- All female and most male (74%) DVA clients had at least one mental health-related diagnosis recorded for their hospital admission.
- 9 DVA clients presented to a public ED between 2015 and 2018.

Defence Health Hotline

The 1800 IMSICK service is a national, 24 hour, nurse triage and health support line for use by ADF Entitled Personnel if they become ill or injured after hours or are not in close proximity to a Defence health facility.¹⁶

Between 2012 and 2018, Defence Health Hotline received 68,053 calls from 31,826 ADF members. Half of the callers made more than one call; thirty-five calls were received from 16 ADF members who died by suicide. During the period, the hotline received 503 mental health-related calls from 444 ADF members, including from a small number of those who died by suicide. These calls include:

- 58 calls from 53 ADF members about suicide or homicidal behaviour
- 36 calls from 35 ADF members about suicide ideation
- 5 calls from 5 ADF members about self-harm behaviour.

¹⁶ <https://www1.defence.gov.au/adf-members-families/health-well-being/services-support-fighting-fit/1800-imsick-faq>

Medication dispensing

Key points

- The majority of ADF members (81%) who died by suicide between 2013 and 2018 were dispensed at least one Pharmaceutical Benefits Scheme (PBS), Repatriation Pharmaceutical Benefits Scheme (RPBS) or Pharmaceutical Integrated Logistics System (PILS) medication in the year before death.
- Between 2012 and 2018, a higher proportion (35%) of all ex-serving members were dispensed at least one mental health-related medication compared to Australians (18%).
- 60% of ex-serving males who died by suicide between 2013 and 2018 were dispensed mental health-related medications in the year before death compared with 54% of Australian males.
- Ex-serving ADF members who died by suicide between 2013 and 2018 and separated involuntarily for medical reasons were more likely to have been dispensed a mental health-related medication in the year before death (77%), compared to those who separated involuntarily for other reasons (47%). Meanwhile in 2018, a higher proportion of all ex-serving members who had separated due to medical reasons (44%) were dispensed a mental health medication, compared to those who separated voluntarily (18%).
- A higher proportion of ADF members who separated involuntary due to medical reasons between 2013 and 2018 were dispensed benzodiazepines (21%) and serotonin-norepinephrine reuptake inhibitors (13%) in the year before separation, compared to those who separated voluntarily (1% and 3%), or involuntarily due to other reasons (0.2 and 0.4%).

This chapter examines medications dispensed to ADF members who died by suicide compared to the Australian population who died by suicide. ADF members can access pharmaceuticals through the Pharmaceutical Benefits Scheme (PBS), the Repatriation Pharmaceutical Benefits Scheme (RPBS), and ADF-specific schemes such as the Pharmaceutical Integrated Logistics System (PILS). In this chapter, the time periods reported for medication dispensing under PBS, RPBS and PILS differs due to data availability. To address the data constraints, comparable time periods for the analysis are used to report on medications dispensing.

The PBS is available for current Medicare card holders (including serving, reserve and ex-serving members), and subsidises prescription medications listed under the scheme, subject to patient entitlement status. The RPBS is available for Department of Veterans' Affairs Health Card holders (not all ADF members), and subsidises medications listed under the PBS, as well as additional medications and items for eligible ADF members, war widows and widowers, and their dependents.

Serving ADF members may also access medications via ADF-specific schemes such as through Defence pharmacies on barracks and dispensing in the field. Dispensing data from Defence pharmacies are collected and managed by the Pharmaceutical Integrated Logistics System (PILS).

Under the PBS and the RPBS, the Australian Government sets a maximum ‘co-payment’ amount that people pay towards the cost of their medicines. Prescriptions priced above the maximum co-payment for a patient are referred to as ‘subsidised’ (or ‘above co-payment’) prescriptions, and attract a subsidy from the Australian Government. Those priced below are referred to as ‘under co-payment’ prescriptions, and do not receive a subsidy.

Prior to 1 April 2012, the PBS/RPBS claims data did not collect data on under co-payment medications (See Appendix A5 – Pharmaceutical Benefits Scheme/Repatriation Pharmaceutical Benefits Scheme for further information). As such, this chapter focuses on medications dispensed from 1 April 2012 to 31 December 2018, and deaths from 1 April 2013 or 1 April 2014 to 31 December 2018 (when looking at medications dispensed 1 year or 2 years prior to death).

What is and isn’t included in the PBS/RPBS data?

The PBS/RPBS includes data on medications that are *dispensed*. It does not include information about medications that were prescribed (but not dispensed), or if the patient used the medication. PBS medications are specified by an item code that may include information about the therapeutic indication for which the medication was prescribed.

The PBS/RPBS data does not include medicines supplied to public hospital in-patients, over the counter medicines or private prescriptions. Unlisted medications may be prescribed to eligible RPBS members with DVA authorisation, however the data are not coded consistently for analytic purposes.

What is and isn’t included in the PILS data?

PILS records data on medications and products that are dispensed. Unlike the PBS, PILS does not include information about the therapeutic indication for which medications have been dispensed. Many nervous system medications have more than one therapeutic indication.

PILS only collected dispensing data from on-barracks pharmacies until 2017, after which “in the field” dispensing is also included. Data for whether dispensing occurred on barracks or in the field is not supplied.

PILS dispensing is not limited to PBS listed medications and includes unlisted nervous system medications, and a range of pharmaceutical and non-pharmaceutical products that would normally be purchased over the counter without a prescription (see Appendix A5 for examples). PILS also includes some historically dispensed products where the data are not coded consistently enough for analytic purposes.

Medication dispensing under PBS, RPBS and PILS

Between 2013 and 2018, 81% of ex-serving ADF members who died by suicide were dispensed at least one product through PBS, RPBS or PILS in the year before death. Over two thirds (68%) were dispensed medications through PBS/RPBS, while 1 in 5 (20%) had any product dispensed through PILS.

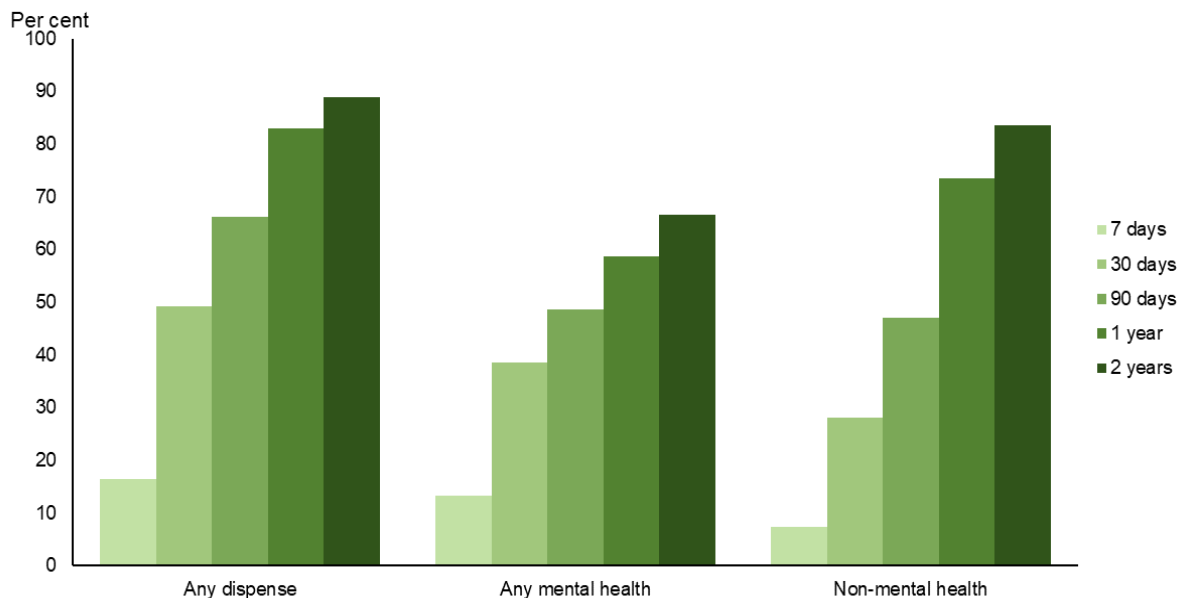
The number of serving ADF members dispensed any PILS medication has steadily increased to just over 50,000 patients in 2018. In 2018, nearly all PILS users were dispensed a non-nervous system-related product (99%), while 9% were dispensed a medication with a mental-health related indication (i.e. antidepressants, antipsychotics, anxiolytics, or hypnotics and sedatives).

Medication dispensing by various time periods

Between 2014 and 2018, among ADF members who died by suicide:

- 67% were dispensed mental health-related medications 2 years before death¹⁷ and 59% were dispensed 1 year before death (Figure 24).
- Thirty-one ADF members (16%) were dispensed PBS/RPBS medications or PILS products in the 7 days before death (Figure 24).
- All female ex-serving ADF members (15) were dispensed a medication in the year before death, compared to 82% of male ex-serving ADF members. A similar pattern of medication dispensing was observed for Australians who died by suicide, with 87% of females dispensed any medication compared to 77% of males.
- A higher proportion of ex-serving females was dispensed mental health-related medication in the year prior to death than ex-serving males (93% compared with 60%), with a similar pattern observed in the Australian population (Figure 25).

Figure 24: Percentage of ADF members^(a) who died by suicide who were dispensed PBS/RPBS or PILS medications, by time before death^(b), 2014 to 2018



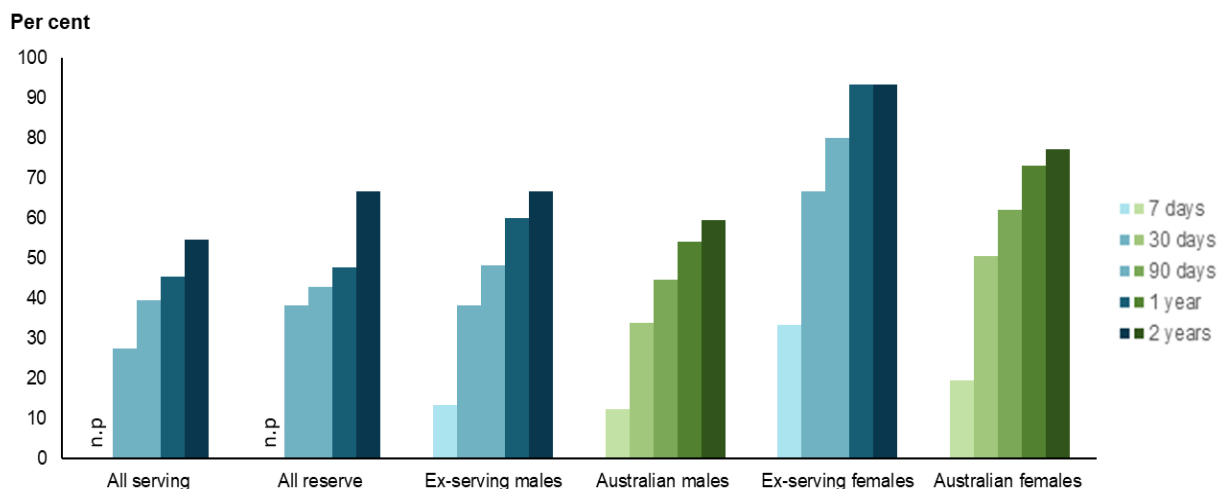
Notes:

- The ADF member cohort is all ex-serving, reserve and serving personnel (all ages, males & females) who served at least one day from 1 January 2001 to 31 December 2018, and died by suicide between 1 April 2014 and 31 December 2018. This time period was chosen so that under co-payment PBS/RPBS data was available for the full 2 years before each person's death.
- The time before suicide is inclusive of the person's death date, and excludes medications dispensed after their date of death. Scripts dispensed before a person was hired/terminated are included (provided they were dispensed within the time period being examined).

Source: AIHW analysis of PMKeyS-NDI-PBS-PILS, 2014-2018.

¹⁷ It has been shown that significant effects of mental health prescribing on risk of suicide can be periods of up to 2 years before death, potentially due to recurrence or under-treatment of mental health conditions (O'Neill, Graham & Ennis 2019).

Figure 25: Percentage of ADF members^(a) and Australians^(b) who died by suicide who were dispensed PBS/RPBS or PILS mental health-related medication^(c) by time period before death^(d) and service status, 2014 to 2018^(e)



Notes:

- (a) The ADF member cohort is all ex-serving, reserve and serving personnel (all ages, males & females) who served at least one day from 1 January 2001 to 31 December 2018, and died by suicide between 1 April 2014 and 31 December 2018.
- (b) The Australian cohorts are males and females who died by suicide between 1 April 2014 and 31 December 2018, excluding ADF members. The cohorts are restricted to the age range of the ex-serving male and female study population .
- (c) Mental health-related medications include anxiolytics, antidepressants, antipsychotics, and hypnotics and sedatives, but exclude psychostimulants due to small numbers.
- (d) Time periods before death are inclusive of the person's death date, and excludes medicines dispensed after their date of death. Medications dispensed before a person was hired/terminated are included (provided they were dispensed within the period).
- (e) The 2014-2018 period was chosen so that under co-payment PBS/RPBS data was available for the full 2 years before each person's death.

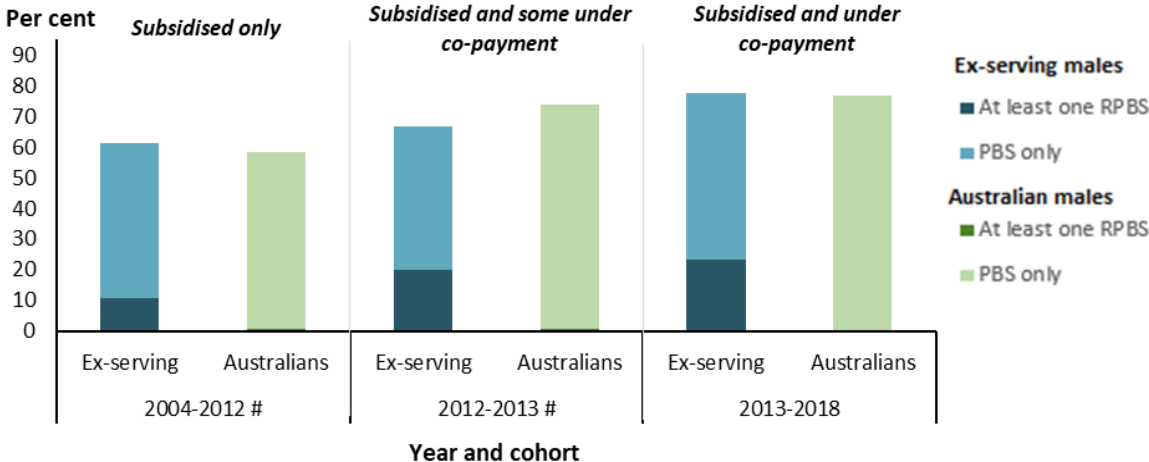
Source: AIHW analysis of PMKeyS-NDI-PBS-PILS, 2014-2018.

RPBS

Around a quarter (23%) of ex-serving male ADF members who died by suicide between 2013 and 2018 were dispensed at least one RPBS-subsidised medication in the year before death (Figure 26). In comparison, the proportion of all ex-serving males who were dispensed a RPBS medication in a year ranged from 9% in 2012 to 15% in 2018 (Figure 27).

A similar proportion of ex-serving males who died by suicide between 2013 and 2018 (78%) and Australian males who died by suicide in the same period (76%) were dispensed any PBS or RPBS subsidised medication in the year before death (Figure 26).

Figure 26: Percentage of ex-serving^(a) and Australian^(b) males who died by suicide that were dispensed medication within 1 year of death^(c), by year range of death^(d), 2004 to 2018

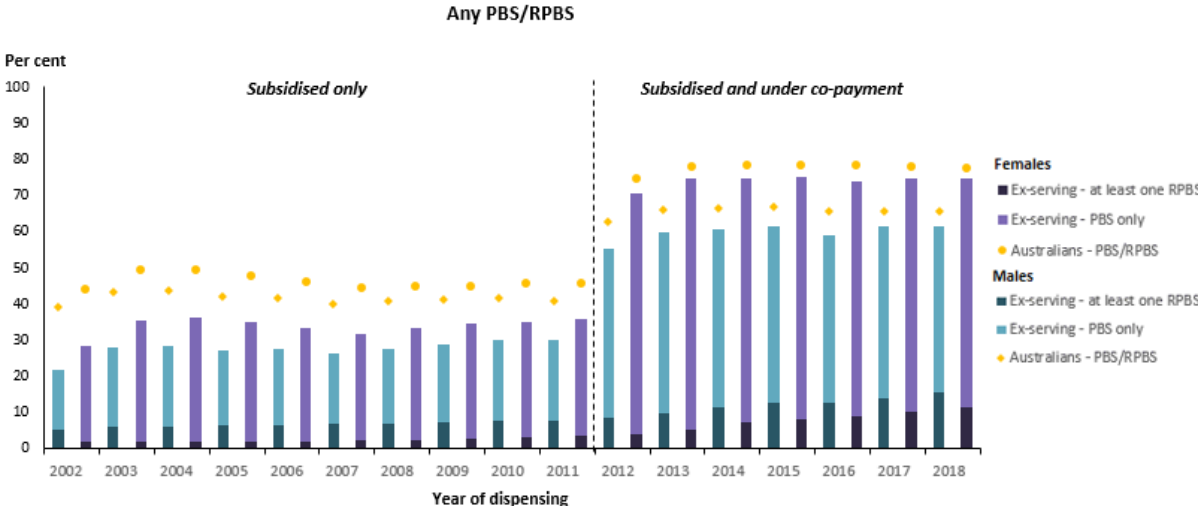


Notes:
Interpret with caution. Prior to 1 April 2012, only subsidised medications were included in the PBS/RPBS claims data. From 1 April 2012, both subsidised and under co-payment medications are included. As such data for the three time periods are not comparable.

- (a) The ADF member cohort is all ex-serving, reserve and serving males who served at least one day from 1 January 2001 to 31 December 2018, and died by suicide between 1 July 2004 and 31 December 2018.
- (b) The Australian cohorts are males and females who died by suicide between 1 July 2004 and 31 December 2018, excluding ADF members. The cohorts are restricted to the age range of the ex-serving male and female study population.
- (c) 'Within 1 year of death' is inclusive of the person's death date, and excludes medicines dispensed after their date of death. Medications dispensed before a person was hired/terminated are included (provided they were dispensed within 1 year of death).
- (d) The 2004-2012 reporting period refers to deaths between 1 July 2004 and 31 March 2012 (looking at medications dispensed 1 year before death). These medications were subsidised only. The 2012-2013 reporting period refers to deaths between 1 April 2012 and 31 March 2013, which will miss any under co-payment medications dispensed before 1 April 2012. The 2013-2018 reporting period refers to deaths between 1 April 2013 and 31 December 2018, which includes subsidised and under co-payment medications.

Source: AIHW analysis of PMKeyS-NDI-PBS, 2004-2018.

Figure 27: Percentage of ex-serving members^(a) and Australians^(b) dispensed PBS and RPBS medications^(c), by sex and year, 2002 to 2018



(continued)

Figure 27 (continued): Percentage of ex-serving members^(a) and Australians^(b) dispensed PBS and RPBS medications^(c), by sex and year, 2002 to 2018

Note:

- (a) The ADF member cohort is all ex-serving, reserve and serving personnel (all ages, males & females) who served at least one day from 1 January 2001 to 31 December 2018, and died by suicide between 1 April 2014 and 31 December 2018.
- (b) The Australian cohorts are males and females who died by suicide between 1 April 2014 and 31 December 2018. The cohorts are restricted to the age range of ex-serving male and female study populations.
- (c) Medications dispensed to ex-serving members before they were terminated were excluded from the analysis (i.e. while they were serving or before they were hired). The denominator is the number of individuals who were ex-serving for at least one day in the reporting period. Interpret 2002 to 2012 with caution, as prior to 1 April 2012, only subsidised medications were included in the PBS claims data. From 1 April 2012, both subsidised and under co-payment medications are included. As such data is not comparable across the two time periods.

Source: AIHW analysis of PMKeyS-NDI-PBS, 2002-2018; Department of Health PBS/RPBS claims data, 2002-2018; ABS ERP 2002-2018.

Most common medications

How are medicines grouped?

This report uses the Anatomical Therapeutic Chemical (ATC) classification system, which groups medicines into five hierarchical levels according to the body system or organ on which they act. A single medication may have multiple classifications where it is used for multiple indications. For PBS/RPBS dispensing, PBS item codes are linked to a single classification.

Mental health-related medications include five ATC level 3 groups: antipsychotics (code N05A), anxiolytics (code N05B), hypnotics and sedatives (code N05C), and antidepressants (code N06A) — prescribed by approved PBS prescribers. Psychostimulants, agents used for ADHD and nootropics (code N06B) are typically also included as mental health-related medications, but have been excluded due to small numbers. Some medicines classed as antiepileptics are also used for mental health conditions, but these too have been excluded as it is not possible to determine the reason for use from the available data.

For ex-serving members who died by suicide between 2013 and 2018, *antidepressants* were the most commonly dispensed PBS/RPBS medication within 1 year of death, by number of persons dispensed (52%). This was followed by *anxiolytics* (25%), *opioids* (24%), *'beta-lactam antibacterials, penicillins'* (23%), and *antipsychotics* (20%). This dispensing pattern was similar for Australians who died by suicide in the same period, for whom the leading medication type was *antidepressants* (46%), followed by *opioids* (25%), *'beta-lactam antibacterials, penicillins'* (25%), *anxiolytics* (25%) and *antipsychotics* (20%).

Between 2012 and 2018¹⁸ *beta-lactam antibacterials, penicillins* were the most commonly dispensed medication to all ex-serving ADF members: just over half (53%) were dispensed this medication at least once. This was followed by *opioids* (42%), *'anti-inflammatory and antirheumatic products, non-steroids'* (35%), *'other beta-lactam antibacterials'* (34%), and *antidepressants* (27%).

Four of the top 10 ATC 3 groups were mental health-related for ex-serving ADF members who died by suicide (*antidepressants*, *anxiolytics*, *antipsychotics* and *hypnotics/sedatives*), while just one mental health ATC 3 group was in the top 10 for the whole ex-serving population (*antidepressants*).

¹⁸ 1 April 2012 to 31 December 2018. This period includes under co-payment and subsidised PBS/RPBS data.

Top dispensed PBS/RPBS Drugs

Among ADF members who died by suicide, diazepam was the leading medicine dispensed to members who received at least one medicine, by number of persons dispensed (Table 18). For all Australians who died by suicide, paracetamol and codeine combination product was the most commonly dispensed medicine, and diazepam was the most commonly dispensed mental health medication.

Table 18: Top PBS/RPBS medications^(a) dispensed ADF members and Australians, who died by suicide, 2012 to 2018^(b)

Rank ^(c)	ADF members, died by suicide ^(d)	Australians, died by suicide ^(e)	All ex-serving members ^(f)	All Australians ^(g)
#1	Diazepam*	Paracetamol + codeine	Amoxicillin	Amoxicillin
#2	Paracetamol + codeine	Cefalexin	Cefalexin	Cefalexin
#3	Amoxicillin + clavulanic acid	Amoxicillin	Amoxicillin + clavulanic acid	Amoxicillin + clavulanic acid
#4	Amoxicillin	Diazepam*	Paracetamol + codeine	Paracetamol + codeine
#5	Temazepam*	Amoxicillin + clavulanic acid	Oxycodone	Esomeprazole
#6	Cefalexin	Temazepam*	Doxycycline	Atorvastatin
#7	Oxycodone	Oxycodone	Roxithromycin	Rosuvastatin
#8	Mirtazapine*	Mirtazapine*	Meloxicam	Oxycodone
#9	Desvenlafaxine*	Escitalopram*	Prednisolone	Salbutamol
#10	Escitalopram*	Quetiapine*	Diazepam*	Roxithromycin
#11	Duloxetine*	Tramadol	Esomeprazole	Pantoprazole

* Medication with any mental health indication (Anxiolytics, Antidepressants, Antipsychotics, and Hypnotics and Sedatives) excluding Psychostimulants.

Notes:

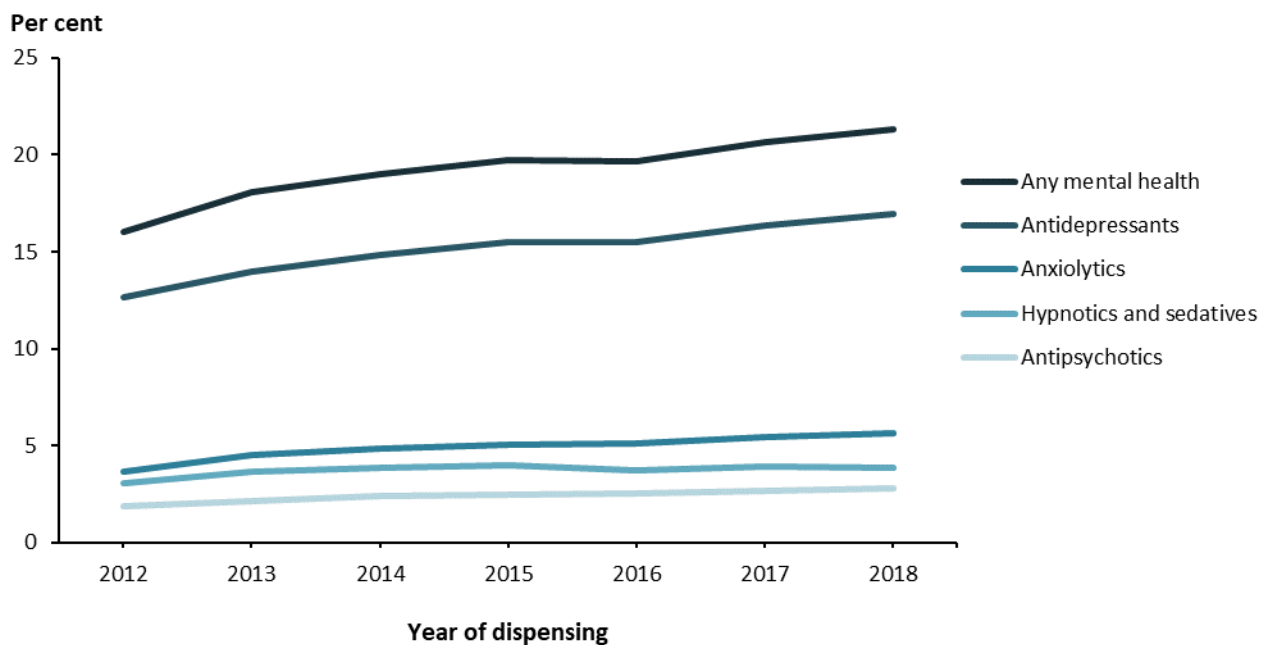
- Drugs are grouped by active ingredient(s) regardless of associated anatomical therapeutic classifications.
- Dispensing between 1 April 2012 and 31 December 2018. This time frame was chosen so that under co-payment PBS/RPBS data was available for full period. Dispensing is not limited to a specific time before death.
- Ranked by number of unique persons dispensed.
- All ex-serving, reserve, or serving members who served at least one day from 1 January 2001 to 31 December 2018 and died by suicide between 1 April 2012 and 31 December 2018 and were dispensed medications between 1 April 2012 and 31 December 2018.
- The Australian cohort are those who died by suicide between 1 April 2012 and 31 December 2018 and were dispensed medications between 1 April 2012 and 31 December 2018, excluding deaths by suicides by ADF members. The cohorts are restricted to the age range of the ex-serving male and female study population.
- All ex-serving personnel (all ages, males & females) who served at least one day from 1 January 2001 to 31 December 2018 and were dispensed medications between 1 April 2012 and 31 December 2018.
- The Australian cohort are all Australians, who were dispensed medications between 1 April 2012 and 31 December 2018. The cohorts are restricted to the age range of ex-serving ADF member study population

Source: AIHW analysis of PMKeyS-NDI-PBS, 2012-2018; Department of Health PBS/RPBS claims data, 2012-2018.

Mental health-related medications

The proportion of all ex-serving ADF members who were dispensed PBS/RPBS mental health-related medications per year increased from 16% in 2012 to 21% in 2018 (Figure 28). Overall, 35% of the ex-serving population had at least one mental health-related medication dispensed over the 7-year period (while they were ex-serving), compared to 18% of Australians in the same period. Dispensing of mental health-related medications should be interpreted with some caution, as some medications have more than one therapeutic indication, and may be prescribed to treat non-mental health, or off-label conditions, such as some antidepressants which are used off-label for neuropathic pain.

Figure 28: Percentage of ex-serving members^(a) dispensed PBS/RPBS mental health-related medications, by type of medication and year, 2012 to 2018



Note:

- (a) Medications dispensed to ex-serving members before they were terminated were excluded from the analysis (i.e. while they were serving or before they were hired). The denominator is the number of individuals who were ex-serving for at least one day in the reporting period.

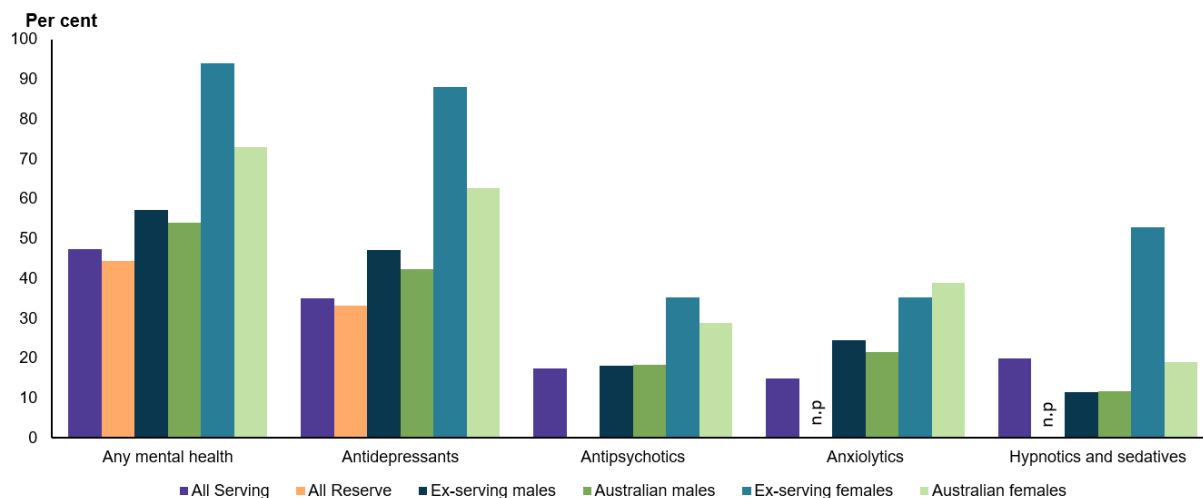
Source: AIHW analysis of PMKeyS-NDI-PBS, 2012-2018.

Mental health medicines dispensed 1 year before death

Between 2013 and 2018, among those who died by suicide, a higher proportion of females were dispensed mental health-related medications in the year before death compared to males. This pattern can be observed in both the ex-serving (94% of females compared with 57% of males) and the Australian population (73% of females compared with 54% of males) (Figure 29).

A similar pattern is also observed by type of mental health-related medications dispensed. For example, 88% of ex-serving females were dispensed anti-depressants in the year before death compared with 47% of ex-serving males (Figure 29).

Figure 29: Percentage ADF members^(a) and Australians^(b) who died by suicide that were dispensed mental health-related medications within 1 year of death^(c), by service status, 2013 to 2018^(d)



Interpret with caution—Some subcategories contain small numbers, refer to data tables for more information.

Notes:

- The ADF member cohorts are all ex-serving, reserve and serving personnel (all ages, males & females) who served at least one day from 1 January 2001 to 31 December 2018, and died by suicide between 1 April 2013 and 31 December 2018.
- The Australian cohorts are males and females who died by suicide between 1 April 2013 and 31 December 2018, excluding ADF members. The cohorts are restricted to the age range of the ex-serving male and female study population.
- 'Within 1 year of death' is inclusive of the person's death date, and excludes medicines dispensed after their date of death. Medications dispensed before a person was hired/terminated are included (provided they were dispensed within 1 year of death).
- The 2013-2018 reporting period was chosen so that under co-payment PBS/RPBS data was available for year before each person's death.

Source: AIHW analysis of PMKeyS-NDI-PBS-PILS, 2012-2018.

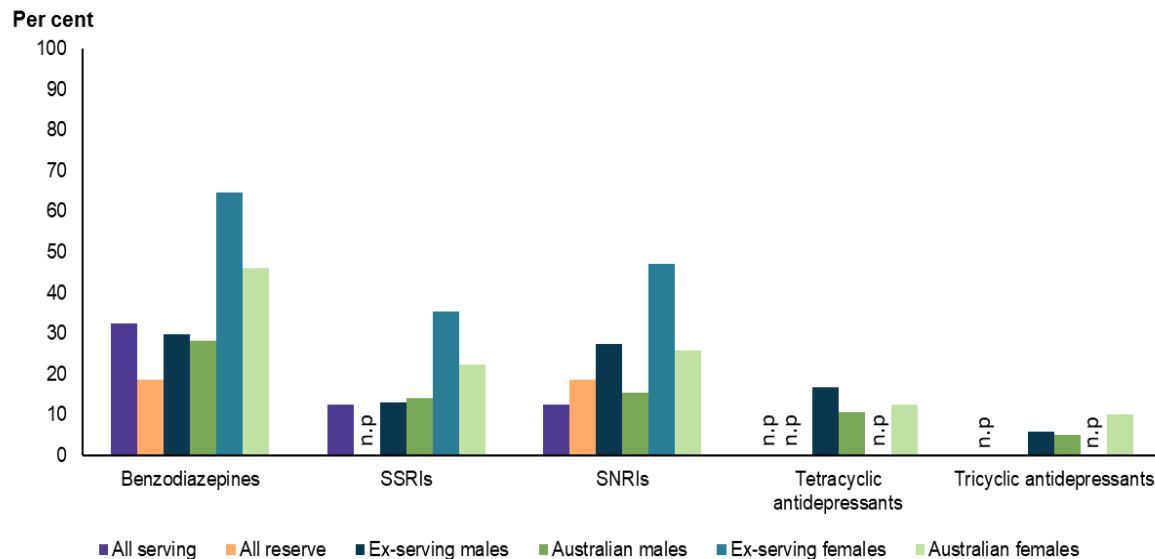
Selected mental health medicines with suspected suicidal side effects

There has historically been concern that some classes of mental health-related medications may precipitate or increase the risk of suicidal ideation and behaviour (Möller et al 2008), however, evidence for this effect is mixed. A Therapeutic Goods Administration (2021) investigation into the risk of suicide for young people found that the current research is insufficient to conclude a causal relationship between antidepressant use and suicidal ideation; recognising that clinical worsening of symptoms and suicidality is a feature of depression itself in addition to a potential risk with the use of antidepressant medications. Meanwhile the relationship between benzodiazepine use and increased suicidality or suicide completion is unclear, being complicated by a range of confounding factors (Dodds 2017; Rothschild & Shindul-Rothschild 2017). This section explores the dispensing rates of antidepressants and benzodiazepines. Appendix A5 details the specific drugs selected for this analysis.

Among those who died by suicide:

- 33% of all serving, 19% of all reserve, and 30% of male ex-serving ADF members were dispensed benzodiazepines in the year before death (Figure 30).
- A higher proportion of female ex-serving ADF members were dispensed benzodiazepines in the year before death (65%) compared to male ex-serving members (30%), while similar proportions were dispensed selective serotonin reuptake inhibitors (SSRIs) and serotonin-norepinephrine reuptake inhibitors (SNRIs) (Figure 30).

Figure 30: Proportion of ADF members^(a) and Australians^(b) who died by suicide who were dispensed selected drugs^(c) within 1 year of death^(d), by service status, 2013 to 2018^(e)



Interpret with caution—Some subcategories contain small numbers, refer to data tables for more information.

Notes:

- The ADF member cohort is all ex-serving, reserve and serving personnel (all ages, males & females) who served at least one day from 1 January 2001 to 31 December 2018, and died by suicide between 1 April 2013 and 31 December 2018.
- The Australian cohorts are males and females who died by suicide between 1 April 2013 and 31 December 2018, excluding ADF members. The cohorts are restricted to the age range of ex-serving male and female study population.
- Drugs include **Benzodiazepines**: Temazepam, lorazepam, nitrazepam, diazepam, oxazepam, alprazolam; **Selective serotonin reuptake inhibitors (SSRIs)**: Fluoxetine, paroxetine, escitalopram, vortioxetine; **Serotonin-norepinephrine reuptake inhibitors (SNRIs)**: Venlafaxine, duloxetine, desvenlafaxine; **Tetracyclic antidepressants**: Mirtazapine; **Tricyclic antidepressants**: Amitriptyline, dosulepin (dothiepin), imipramine.
- 'Within 1 year of death' is inclusive of the person's death date, and excludes medicines dispensed after their date of death. Medications dispensed before a person was hired/terminated are included (provided they were dispensed within 1 year of death).
- The 2013-2018 reporting period was chosen so that under co-payment PBS/RPBS data was available for the full year before each person's death.

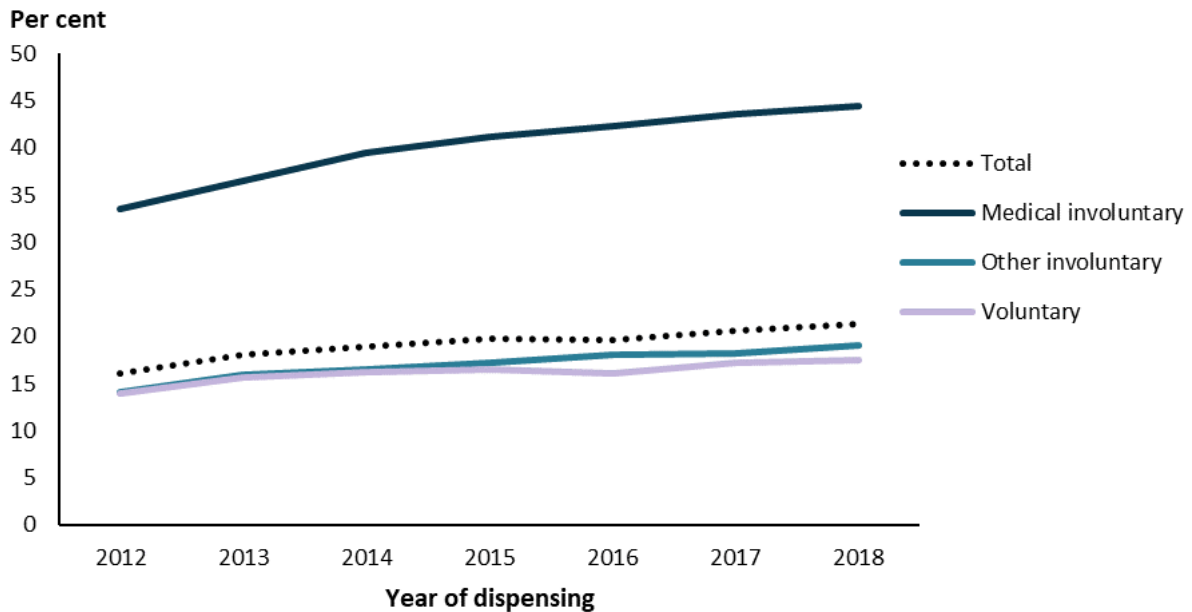
Source: AIHW analysis of PMKeyS-NDI-PBS-PILS, 2012-2018.

Separation reason and medications dispensed

Between 2013 and 2018, ex-serving ADF members who died by suicide and separated involuntarily due to medical reasons were more likely to be dispensed mental health-related medications in the year before death (77%), compared to members who left involuntarily for other reasons (47%). In the same period, 64% of voluntary separations were dispensed any mental health-related medication in the year before death. Meanwhile in the total ex-serving ADF population between 2012 and 2018, a higher proportion (61%) of the medically separated cohort were dispensed mental health-related medication, compared to 30% of voluntary and 34% of other involuntary separations.

Between 2012 and 2018, the proportion of all ex-serving members who separated for medical reasons and were dispensed mental health medications in a year steadily increased from 33% in 2012, to 44% in 2018. This increase was higher than for those who left involuntarily for other reasons (from 14% to 19% over the same period) and voluntarily (from 14% to 18%) (Figure 31).

Figure 31: Percentage of ex-serving ADF members^(a) who were dispensed a mental health medication, by separation reason and year, 2012 to 2018



Note:

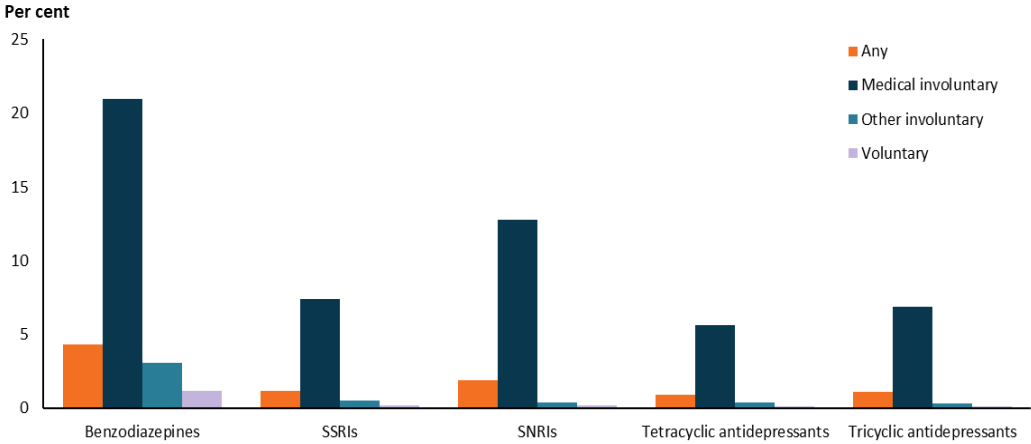
- (a) Medications dispensed to ex-serving personnel before they were terminated were excluded from the analysis (i.e. while they were serving or before they were hired). The denominator is the number of individuals who were ex-serving for at least one day in the reporting period.

Source: AIHW analysis of PMKeyS-NDI-PBS, 2012-2018.

Prior to separation, ex-serving members had prescribed access to mental health-related medication from the Defence PILS dispensing system. Of all members who became ex-serving¹⁹, 8% were dispensed mental-health related medication from PILS in the year before separation and 4% were prescribed benzodiazepines (Figure 32). Of those who separated involuntarily due to medical reasons, 42% were dispensed any mental health medication from PILS in the year before separation, including 21% who were dispensed benzodiazepines, and 13% who were dispensed SNRI antidepressants.

¹⁹ Includes ADF members who became ex-serving between 2002 and 2018, or who became ex-serving prior to 2002 but who were hired on or after 1 January 2001 (i.e. PILS dispensing data is available for a minimum of 1 year before separation, or for the member's entire serving period).

Figure 32: Proportion of ex-serving ADF members^(a) who were dispensed selected drugs^(b) from PILS within 1 year of separation^(c), by separation type, 2001 to 2018



Notes:

- (a) The ADF member cohort is all ex-serving personnel (all ages, males & females) who served at least one day from 1 January 2001 to 31 December 2018, and who separated on or after 1 January 2002 or were hired on or after 1 January 2001. This cohort was selected so that 1 year of service prior to separation or the member’s entire service period was available for analysis in the PILS data.
- (b) Drugs include **Benzodiazepines**: Temazepam, lorazepam, nitrazepam, diazepam, oxazepam, alprazolam; **Selective serotonin reuptake inhibitors (SSRIs)**: Fluoxetine, paroxetine, escitalopram, vortioxetine; **Serotonin-norepinephrine reuptake inhibitors (SNRIs)**: Venlafaxine, duloxetine, desvenlafaxine; **Tetracyclic antidepressants**: Mirtazapine; **Tricyclic antidepressants**: Amitriptyline, dosulepin (dothiepin), imipramine.
- (c) "Within 1 year of separation" includes the date of separation, and excludes dispensing events after their date of separation.

Source: AIHW analysis of PMKeyS-NDI-PILS, 2001-2018.

Concluding remarks

In this Final Report, the analysis explored trends, and potential risk and protective factors for ADF members who died by suicide, including military service and ex-serving ADF members' post-service experience.

Suicide rates for ADF members who died by suicide differed by service status, demographic factors, rank, and separation reason and time since separation from the ADF.

After adjusting for age differences, the suicide rate was lower for serving and reserve males compared with the Australian male population. However, the suicide rate was higher for ex-serving males and females compared with Australian males and females.

Officers had a lower rate of suicide than the general enlistees. The suicide rate was lower for ex-serving males with 10 or more years of service compared with the ex-serving males with less than 1 year of service. Ex-serving males who separated for other involuntary reasons or voluntarily were less likely to die by suicide than those who separated for medical reasons.

Psychosocial risk factors were used to characterise social processes surrounding suicide for ADF members. Key suicide risk factors which were indicative of circumstances related to the risk of death by suicide included self-harm, family disruption through separation and divorce, and relationship problems which were similar for the Australian population.

Health services accessed by ADF members who died by suicide were similar to the Australian population. The proportion of ex-serving males and females who used Medicare-subsidised or DVA-funded health services in the year before death was similar to Australian males and females who died by suicide.

The majority of ex-serving ADF members who died by suicide were dispensed at least one medication in the year before death. Females were more likely to be dispensed mental health-related medications in the year before death compared to males. This pattern can be observed in both the ex-serving and Australian population. Ex-serving ADF members who separated voluntarily, and involuntarily for other reasons were less likely to have been dispensed a mental health-related medication in the year before death compared to those who separated involuntarily for medical reasons.

Appendix A: Technical notes

A1 Data linkage

Data linkage, also known as data integration, is a process that brings together information relating to an individual from more than one source.

An extract of Department of Defence Personnel Management Key Solution (PMKeyS) data on 5 September 2020 provided records of all persons with ADF service on or after 1 January 2001. The file that was transferred to the AIHW contained 230,663 records. A total of 99,701 records were known by Defence to be of people who were alive and were de-identified before transfer. The remaining 130,962 records containing identifying information were in scope for linkage to the National Death Index (NDI) and Medicare Consumer Directory (MCD). Identifying information were provided for members who had an inactive employment status (i.e. terminated or deceased).

The AIHW undertook data linkage between the PMKeyS and NDI to determine the number of in-scope personnel who have died, and to confirm the cause(s) of death. This linkage was done using a probabilistic linkage procedure, based on the Fellegi and Sunter methodology, matching name, sex, date of birth, date of death and address, followed by a manual clerical review (Fellegi & Sunter 1969).

Linkages to the following data source:

- 130,625 links between PMKeyS and MCD
- 67,240 links between PMKeyS and DVA client data
- 3,239 links between PMKeyS and NDI data

All data linking was carried out by the Data Linkage Unit at the AIHW—one of only three accredited Commonwealth Integrating Authorities. This accreditation requires the AIHW to adhere to stringent criteria and abide by the National Statistical Service *High level principles for data integration involving Commonwealth data for statistical and research purposes* and *Best practice guidelines*. As well as these guidelines, data linkage at the AIHW is carried out under the protections of the *Privacy Act 1988* and the *Australian Institute of Health and Welfare Act 1987* (which carries additional privacy protections for companies and deceased people).

Strict separation of identifiable information and content data is maintained within the Data Linkage Unit in accordance with the AIHW linkage protocols, so that no one person will ever have access to both. Summary results from the linked data set are presented in aggregate format. Personal identifying information is not released, and no individual can be identified in any reporting. The linked data set created for this study will be stored securely on site at the AIHW for 7 years.

For more information on data storage, record retention and the privacy principles governing this study, see appendixes A6 and A7.

A2 In-scope records

The scope of the study is all ADF personnel with at least 1 day of ADF service from 1 January 2001 to 31 December 2018. This means that, to be included in the total analysis set, a record must have a hire date before 1 January 2019, a termination date after 1 January 2001, and at least 1 day of service between the hire date and the termination date.

Based on this definition and a number of logical checks performed, 14,023 records were excluded from analysis because they had met one of the following exclusion criteria:

- a termination date on or before 1 January 2001
- zero (0) days of service
- a hire date after the 31 December 2018
- duplicate records
- a date of death before 1 January 2001
- a date of death before the hire date
- a missing date of death
- a reason for separation of 'Military – Irregular enlistment' or 'Military – Failed to enlist' and less than 1 year of service. Irregular enlist/failed to enlist is considered out of scope as these individuals do not meet the criteria of having served 1 day in the ADF. Individuals within this group complete the enlistment process and do not attend the first day of service; therefore, they never complete 1 day in service.

This left a total of **216,640 unique in-scope records in the analysis data set**.

Note, 354 ex-serving members' records did not link to the MCD but have been included in the ex-serving population denominator in the use of health services and use of medicines analyses. Results from a sensitivity analysis showed a difference of less than 1% of the reported results when these records were excluded. To ensure consistency of denominator across these complex analyses, these unlinked records were included in the ex-serving population denominator.

A3 Cause of death information

Lag in cause of death information for the most recent year of data, where a death is registered in the following year.

Analysis in this study is based on year of occurrence of death. The National Death Index (NDI) is the source of information on fact of death in this study. Fact of death information from the NDI is supplemented with cause of death information from the National Mortality Database (NMD).

Analysis of the NMD for all Australian deaths shows that between 4% and 7% of deaths are not registered until the next year (ABS 2018b). These deaths are not captured in cause of death information, until data for the next year become available.

Cause of death data revisions (ABS)

Cause of death information for this report is based on final data for 2016 and preliminary data for 2017 and 2018. Cause of death for a small number of records linked to the 2017 (preliminary) and 2018 (preliminary) cause of death data may change where a death is being investigated by a Coroner and more up to date information becomes available as a result of the ABS revisions process. This may have a small effect on the number of deaths attributed to suicide in these years, as some deaths currently coded as 'undetermined intent' could later be identified as 'intentional self-harm'.

Although this method likely captures the vast majority of suicides, there is potential for some to be missed if coronial findings are finalised or updated more than 4 years after a death.

Australian Bureau of Statistics (ABS) changes to mortality coding over the study period

The following information on mortality coding is sourced from the ABS. For further information, see the ABS [Causes of death, Australia](#) report.

Substantial changes to ABS cause of death coding were undertaken in 2006, improving data quality by enabling the revision of cause of death for open coroner's cases over time. Deaths that are referred to a coroner (including deaths due to suicide) can take time to be fully investigated. To account for this, all coroner-certified deaths registered after 1 January 2006 are subject to a revisions process. This allows cause of death for open coroner's cases to be included at a later stage where the case is closed during the revision period. Cause of death data are deemed preliminary when first published, with revised and final versions of the data being historically published 12 and 24 months after initial processing. Prior to 2006, revisions did not take place and as such it is recognised by the ABS that deaths by suicide may have been understated during this period (ABS 2018b).

As well as the above changes, new coding guidelines were applied to deaths registered from 1 January 2007. The new guidelines improve data quality by enabling deaths to be coded as suicide by ABS mortality coders if evidence from police reports, toxicology reports, autopsy reports and coroners' findings indicates the death was due to suicide. Previously, coding rules required a coroner to determine a death as due to suicide for it to be coded as suicide.

The combined result of both changes has been the more complete capture of deaths by suicide, and a reduced number of deaths coded as 'undetermined intent', within Australian mortality data.

Detailed information on coding guidelines for intentional self-harm, and administrative and system changes that can have an impact on the mortality data set, can be found in Explanatory Notes 91-100 of [Causes of death, Australia](#) report (ABS 2018b).

National Coronial Information System (NCIS)

Information from the National Coronial Information System (NCIS) was used for coding associated causes of death and psychosocial risk factors, and to analyse sociodemographic characteristics. Mortality identifiers, also known as Mortality IDs, were used to identify ADF members who died by suicide in the NCIS. However, records for only 461 of the 465 deaths by suicide were available. Reasons that 4 deceased were not identified in the NCIS include:

- 3 cases did not have a mortality ID:
 - 2 cases were identified through the Defence Suicide Database (DSD) but had not been recorded in the National Death Index (NDI) and therefore did not have mortality ID.
 - 1 case was recorded in the NDI but had not been assigned a mortality ID. It was advised that this is an uncommon occurrence, however, two possible reasons are (Personal communication with the ABS):
 - the person died overseas; or
 - the coronial investigation remains open and the family did not require a death certificate. In this case their death may have initial paperwork lodgements with the Registry of Births, Deaths and Marriages but the final death registration has not yet been lodged with the ABS, and no mortality ID provided.
- 1 case did have a mortality ID however did not have a record in the NCIS.

Psychosocial risk factors (ABS)

Psychosocial risk factors analysed in this report were identified from coronial case investigation reports, coded by analysts at the ABS. As with other causes of death coding, some coronial cases are open at the time of initial coding (above) and further psychosocial risk factors may be identified as the investigation is finalised. The ABS revise the coding of causes of death 2 years after a case is opened, and will publish updated data, including psychosocial factors for Australian suicides, in 2021. The revised coding of causes of death may result in an increase in the proportion of suicides with psychosocial risk factors.

Coding psychosocial risk factors for suicide cases

The ABS piloted a project (ABS 2019b) analysing information from the National Coronial Information System (NCIS) to capture psychosocial risks for deaths referred to the coroner in 2017 (ABS 2019b). The ABS subsequently coded psychosocial risk factors for all Australian suicides 2017–2019 and for all suicides among ADF members between 2001–2018. 461 suicides were identified in the National Coronial System (NCIS) over the study period and are included in the following analyses. The ABS recorded risk factors for each suicide case if they appeared in one or more of the reports in the coronial system: including police, coroner or pathology reports. Psychosocial risk factors primarily arose in police and coronial reports.

A4 Suicide rates

Populations

Australian Defence Force

The Department of Defence supplied ADF population data for the serving full time and reserve study groups. Populations were available from 2002 onwards. Population data for the ex-serving group were calculated using the linked PMKeyS–NDI data from 2001 onwards, starting with zero (0) as at 1 January 2001. The analysis of ex-serving personnel was restricted to data from 2002 onwards, in line with reporting for serving and reserve groups. The populations used for analysis in this report were estimated as at 30 June each year.

It is important to note that the annual population size for each of the service status groups differs. While the serving and reserve populations are relatively stable over time at around 55,000 and 42,000 persons per year, respectively, the ex-serving population in the analysis set starts at zero (0) on 1 January 2001 and increases by around 5,000 persons per year. Unlike the serving and reserve populations, the ex-serving population is also ageing over time.

For these reasons, population rates have been used in addition to counts of suicides to illustrate the difference between service status groups.

Australian population

Australian population data used in this report were sourced from the ABS using the most up-to-date estimates available at the time of analysis (ABS 2020).

Rates

In this report, indirect age-standardisation has been applied to control for the difference in age structures between the ADF population (serving, reserve and ex-serving) and the comparison Australian population (see Standardised Mortality Ratios).

The presented rates refer to how often suicides occur in the three ADF service status groups, expressed as a number per 100,000 per year at risk.

Crude suicide rates are presented for service-related characteristics among the ex-serving population and expressed as number per 100,000 per year.

Comparison of proportions to the Australian population

In this report, the Australian comparison populations are age-restricted to the age range of the study population. For example, when comparing use of Medicare-subsidised services by ex-serving male population, the Australian comparison population is age-restricted to the age range of the ex-serving male population.

Standardised Mortality Ratio

Indirect age-standardisation was used to produce Standardised Mortality Ratio (SMR) for suicide. The SMR is a widely recognised measure used to account for differences in age structures when comparing death rates between populations. This method of standardisation can be used when analysing relatively rare events (i.e. where number of deaths is less than 25 for the analysed time period) (Curtin and Klein, 1995). The SMR is used to control for the fact that the three ADF service status groups have a younger age profile than the Australian population, and rates of suicide vary by age in both the study populations and the Australian population. The SMRs control for these differences, enabling comparisons of suicide counts between the three service status groups and Australia without the confounding effect of differences in age structure.

The SMR is calculated as the observed number of events (deaths by suicide) in the study population divided by the number of events that would be expected if the study population had the same age and sex specific rates as the comparison population.

SMRs higher than 1.0 indicate a higher number of suicides in the ADF population than expected; and SMRs less than 1.0 indicate a lower number of suicides than expected in the ADF population.

Confidence intervals and significance testing

Statistical significance is a measure that indicates how likely it is that an observed difference, or a larger one, would occur under the conditions of the null hypothesis. In the context of this study, the random element comes from the selection of the reference period. If a different reference period was used in the analysis, it is likely that some or all the observed rates would also be different. Statistical significance is reported to indicate how likely it is that the observed difference is due to that randomness alone.

To test statistical significance, assumptions must be made about the distribution of the number of deaths by suicide observed in a given time period. Suicide is a rare event within the study populations. If assuming that the chance of suicide is the same for all individuals within a study population and that deaths by suicide are independent of each other, it follows that one can assume that the number of deaths by suicide in the reference period follow a

Poisson distribution. This assumption was made in conducting the significance test presented in this report.

In this study, 95% confidence intervals (CIs) are provided for each standardised mortality ratio (SMR) and suicide rates to indicate the level of uncertainty around these estimates due to random fluctuations in the number of suicides. It has been assumed that the number of suicides observed in the Defence population within a given time period is random and follows a Poisson distribution. Estimates produced using low numbers can be sensitive to small changes in numbers of deaths over time and will therefore have wide CIs. 95% CIs are provided within this report as they may account for the variation in absolute numbers of deaths by suicide. It is important to note that there are other sources of uncertainty, such as data collection error and linkage error, that are not captured by the provided CIs.

In this report, the Wald Z-statistic was applied to test whether the difference between rates is significant at the $p=0.05$ level, based on estimated standard errors for rate difference. The Wald Z-statistic measures how likely the observed difference between groups is due to random variability.

A5 Classifications

The PMKeyS data underpinning this study were extracted on 05 September 2020. This extract provided a snapshot of a number of demographic and service-related characteristics of ADF personnel as at this date, including rank, service, operational service status, employment status and service banding. A number of extra characteristics were then derived from this information in the original extract including age, service status, length of service, time since separation and vital status.

Length of service

The time between the date of hire and date of separation from the ADF. Analysis by length of service is presented for four broad groups: less than 1 year (<1), 1–<5 years, 5–<10 years, and 10 years or more (10+).

Service

The three broad arms of the ADF—Navy, Army and Air Force.

Service status groups

The three broad groups describing the nature of an individual's employment with the ADF, namely:

- **Serving:** ADF members currently serving in a regular capacity in the Royal Australian Navy (Navy), Australian Army (Army) or the Royal Australian Air Force (Air Force) as of 31 December 2019, and still serving in a permanent regular capacity.
- **Reserve:** ADF members in the active or inactive reserve forces for the Navy, Army or the Air Force as of 31 December 2018, who are still in the reserve forces. Most members leaving full-time service transition to the inactive reserve forces (for a minimum of five years), unless prevented by medical or other grounds. The service status 'Reserve' includes members with a wide range of different experience and relationships to the ADF. For example, it includes both active and inactive reserves, as well as those who have only ever been reservists and those who served full time and then entered the reserves.

- **Ex-serving:** ADF members who served in the Service or Reserve Services between 1 January 2001 and 31 December 2018, but who subsequently separated from active service.

Time since separation

The period between separation from the ADF and death for ex-serving personnel who have died. Analysis by the time since separation is presented for four broad groups: less than 1 year (<1 year), 1 to less than 5 (1–<5) years, 5 to less than 10 (5–<10) years and 10 years or more.

Operational experience

There are four broad categories of deployment or operations:

- *warlike operational service*—warlike/active service deployments
- *non-warlike operational service*—non-warlike deployments (for example, peace keeping, peace monitoring, United Nations assistance missions)
- *overseas operational service*—humanitarian/disaster relief (international) or border protection deployments
- *domestic operational service*—deployment of Defence aid to the civilian community.

Individuals with at least one type of operational experience are counted in ‘Any’; those with no operational experience are counted in ‘None’. While the study scope includes those with at least 1 day of service between 2001 and 2018, individuals may have had operational experience at any time before this during their career. Only operational experience since 1 January 1999 has been consistently identified across these four broad categories. In this report, to ensure comparability, analysis of operational experience includes only those personnel hired on or after 1 January 1999.

Note, there are information on operational experiences for personnel who were hired before 1 January 1999 but it may be incomplete. See Table A5.1 for numbers and proportions of ADF personnel who were hired before or after 1 January 1999, by operational experience.

Table A5. 1: Numbers and proportions of ADF personnel who were hired before or after 1 January 1999, by operational experience, 2001 to 2018

	Serving		Reserve		Ex-serving		All ADF members	
	Number	%	Number	%	Number	%	Number	%
All ADF members								
Hired before 01 January 1999^(a)	10,558	19.0	14,347	33.7	55,153	46.5	80,058	37.0
Any operational experience	9,563	90.6	8,885	61.9	15,706	28.5	34,154	42.7
No operational experience	995	9.4	5,462	38.1	39,447	71.5	45,904	57.3

(continued)

Table A5. 1 (continued): Numbers and proportions of ADF personnel who were hired before or after 1 January 1999, by operational experience, 2001 to 2018

Hired on or after 01 January 1999	44,880	81.0	28,271	66.3	63,431	53.5	136,582	63.0
Any operational experience	32,357	72.1	16,578	58.6	16,860	26.6	65,795	48.2
No operational experience	12,523	27.9	11,693	41.4	46,571	73.4	70,787	51.8
Total	55,438^(b)	100.0	42,618^(b)	100.0	118,584	100.0	216,640	100.0
ADF members who died by suicide								
Hired before 01 January 1999^(a)	45	38.8	50	61.0	110	41.2	205	44.1
Any operational experience	30	66.7	23	46.0	41	37.3	94	45.9
No operational experience	15	33.3	27	54.0	69	62.7	111	54.1
Hired on or after 01 January 1999	71	61.2	32	39.0	157	58.8	260	55.9
Any operational experience	29	40.8	17	53.1	32	20.4	78	30.0
No operational experience	42	59.2	15	46.9	125	79.6	182	70.0
Total	116	100.0	82	100.0	267	100.0	465	100.0

Notes:

- (a) Operational experience for personnel hired before 1 January 1999 may be incomplete.
- (b) 8,879 ADF members with 1 day of service since 2001, who became ex-serving between 01 January 2019 and 05 September 2020, were re-assigned to either serving or reserve service status group based on their service status group information from PMKeyS extracted as at 05 September 2020.

Source: AIHW Analysis of PMKeyS–NDI, 2001–2018.

Entry type

Entry type describes the enlistment pathway taken by individuals into the ADF operational hierarchy. In this report, the analysis of service-related characteristics for ADF members suicide uses two categories of entry type. These categories are officers and general enlistees, which represent two entry streams into the ADF. Officer entry usually requires completing or undergoing tertiary qualifications and is geared towards leadership and managerial positions within the ADF. General enlistees make up the bulk of the ADF. Entry into this stream does not require previous experience or qualifications, and may be acceptable without a year-12 certificate.

Rank

Rank describes a person's position in the hierarchy of the ADF within their specified service branch (i.e. Army, Navy and Air Force). Each service branch has their own nomenclature for each rank within the hierarchy but follow the same rank structure and thus ranks of equal standing across service branches can be determined. Ranks in the ADF can be represented in two broad groups:

- *Commissioned officers*—Ranks that hold leadership and managerial positions, denoted with the rank code prefix 'O' (O01 – O10)

- *All other ranks*—Ranks that are involved with general operations, denoted with the rank code prefix ‘E’ (E00 – E10)

In this analysis, ranks that were outdated and/or replaced by a modern equivalent were retained, while those that did not possess any rank information were excluded.

Reason for separation

The main reason recorded for a person’s separating (discharging) from the ADF. Analysis by reason for separation is presented for the following groups:

- *voluntary separation*—includes voluntary redundancies and resignations.
- *involuntary separation*—includes personnel deemed unsuitable for further duty for disciplinary, medical and operational reasons. Involuntary separation is further divided into separation for medical reasons, and non-medical involuntary separation (which includes being physically unfit for service, training failure and disciplinary reasons).
- *Contractual/administration*—include contractual change and/or changes in Defence personnel system (e.g. transitioning of payroll system to PMKeyS introduced from 2001).

The *last_termination_reason* variable in the PMKeyS data was used to group people for separation. Table A5.2 shows how the values for the *last_termination_reason* variable were allocated to the groups.

Table A5. 2: Grouping of reasons for separation using the PMKeyS *last_termination_reason* variable

Separation reason type	Last termination reason
Voluntary	APS resignation
	Comp FTS
	Discharge—open ended engagement
	Elective
	Military—Completed CFTS
	Military—Failed to enlist ^(a)
	Military—Resignation
	Military—Retired after CRA date
	Military—Retired After Age 55
	Military—Voluntary redundancy
	Military—Withdrawal within 90 days of enlistment
	Optional
	Own requirement
	Regulation instrument 088-4-5
	Resigned
	Voluntary redundancy
	SR Separated Non Attendance
	SR Separated Non Contactable

(continued)

Table A5. 2 (continued): Grouping of reasons for separation using the PMKeyS *last_termination_reason* variable

Involuntary	Appointment cancelled
	Appointment terminated
	Discharged—unqualified
	Dismissed
	Marriage
	Medically unfit ^(b)
	Military—Below fitness standard
	Military—Civil offence
	Military—Disciplinary
	Military—False statement on enlistment
	Military—Irregular enlistment ^(a)
	Military—Management initiated retirement
	Military—Medically unfit for service ^(b)
	Military—Retention not in service interest
	Military—Training failure
	Military—Unsuitable for service (Defence personnel regulation 87-1-e)
	Not in interest
	Not required
	Physical standard
	Physically unfit
	Separated in service interest (Defence personnel regulation 70-SR)
	Resign Unq
	Separate—Other Reason
	Discharged in absence
	Military—In Absence
	Military—Compulsory Retire Age
Contractual/Admin	Cadet – Discharge/Retirement
	Cadet – ReHire
	Cadet – Reduction in Rank
	Cadet Transfer between Service
	Ceased
	Comp SSC
	Eng Expire
	Data Migration Requirement
	Military – Contract Completed
	Promotion for Cadets
	Rev O/Svc
	Serceas
	Tfr O/Svc
	Tfr REL
	Tfr Rsvs

(a) Excluded from data set where length of service was less than 1 year.

(b) Included in the 'Involuntary separation for medical reasons' group.

Medicare-subsidised services

Medicare service groups are defined by the MBS item billed for the service, not the health care providers' specialty. Data are reported by the date the service occurred, not the date of processing. For detailed information on the reported services and MBS items, see the Australian Government Department of Health [MBS Online Website](#).

Table A5. 3: Grouping of Medicare-subsidised services

MBS service	MBS groups/items	Notes
Psychiatry	Group A08; Items 855, 857, 858, 861, 864, 866, 14224, 134, 136, 138, 140, 142	Although there have been some changes to psychiatry MBS items over the years, use has been relatively consistent.
GP mental health	Groups A06, A20; Subgroups A07.4, A07.9, A18.4, A19.4, A30.3; Items 894, 896, 898, 20104	Interpret with caution: From 2000 to 2006, there were a limited number of GP mental health items so GPs claimed 'general' items instead (e.g. item 23). In 2002 and 2006 a range of mental health items were introduced, however GPs may still claim 'general' items.
Allied mental health	Groups M06, M07; Items 10956, 10968, 82000, 82015, 81325, 81355	This group combines the 'Clinical Psychologist', 'Other Psychologist' and 'Other allied mental health' groups to protect patient confidentiality. Interpret with caution: From 2000 to 2003, 100% of allied mental health services were not claimable through Medicare. From 2004 to now, an unknown percentage is claimed through Medicare. People can pay completely out-of-pocket, or access through other schemes (e.g. private health insurance, workers comp, public hospital visits, DVA, Employee Assistance Program etc.)
GP attendances	BTOS 101, 102, 103	
Allied health	BTOS 150, 900	Interpret with caution: From 2000 to 2003, allied health services were not claimable through Medicare. From 2004 to now, an unknown percentage is claimed through Medicare. People can pay completely out-of-pocket, or access through other schemes (e.g. private health insurance, workers comp, public hospital visits, DVA, etc.)

What's not in the MBS claims data?

Medicare does not cover all health services—reserve and ex-serving ADF members may access similar medical services through DVA funded programs (where eligible), while serving and reserve members can use Defence Health services. In addition, all Australians (including ADF members) may access services through other arrangements, such as private health insurance or workers' compensation. These services are not captured in the MBS claims data.

In particular, caution should be taken when interpreting use of Medicare-subsidised allied health services (including psychologist services), as they are generally only available to patients with chronic, developmental or mental health conditions with a referral from a GP or specialist medical practitioner. Some Australians also access allied health services through their general ('ancillary' or 'extras') private health insurance, or pay for services entirely out-of-pocket.

Importantly, use of Medicare-subsidised services is not a measure of the prevalence of a health condition, as people may be using other services not captured in the MBS claims data, or may not access health care. There is no ideal rate of health care use and this report draws no conclusions about whether a higher or lower rate of service use is desirable for a particular cohort, nor does it try to assess the degree to which patient needs are being met.

DVA-funded health services

Services Australia, through Medicare, assesses claims and makes payments to allied health, medical and hospital providers who treat eligible ADF members, spouses and dependents on behalf of the Department of Veterans' Affairs (DVA). Groups for these services were in accordance with Table A5.3. Services provided through Medicare for eligible ADF members are the same as those provided to the Australian population. However, conditions of service need to be clarified with DVA. For example, Medicare benefits are available to the Australian population for up to 10 mental health services per patient per calendar year.

DVA also provides other out-of-hospital services that are not available through Medicare (Table A5.4). These services include dental, allied health, nursing care, prosthetic, operational equipment and pharmacy items. These items were grouped according to the 'DVA Claiming Channel Overview – Items by Category' information provided on the DVA website. In this study, where DVA-funded allied health services are similar to MBS allied health items, these services were grouped as 'Allied health' and/or 'Allied health mental health' services. For detailed information see the DVA [Fee schedules](#).

Table A5. 4: Grouping of DVA-funded health services

Health services	Items
Clinical Psychology	US01–US10, US43–US44, US50–US51, US55, US90, US99
Psychologists	US11–US20, US41–US42, US52–54, US92, US98
Social worker (mental health)	US21–US30, US93, US97
Occupational therapists (mental health)	US31–US40, US45–US46
Neuropsychologists	CL20–CL30
Mental Health Nurse	MT22
Physiotherapy	PH01–PH99
Optometrical Services	OP01–OP99
Chiropractic	CH01–CH99
Exercise Physiology	EP01–EP99
Diabetes Educator	CD01–CD99
Osteopathy	OM01–OM99
Orthoptics	OR10–OR99
Orthotists	UT01–UT40
Podiatry (including footwear services)	F004–F548, F604–F625, F660–F661, F670–F671, F680–F681, F984–F991, F999
Occupational therapists	OT01–OT99
Social worker	SW01–SW99
Dietitian	DT01–DT99
Speech pathology	SH01–SH99

DVA also funds hospital-based services. The data provided by DVA includes information on the care provided for non-admitted patients registered for care in emergency departments in selected public hospitals, and a compilation of episode-level records from admitted patient morbidity data collection systems from hospitals across Australia. An admitted patient undergoes a hospital's formal admission process to receive treatment and/or care. This may be provided as a day-only or overnight admission. Day-only admissions are generally for treatment or care of at least 4 hours' duration i.e. brief outpatient clinic appointments for consultation, review or testing are not captured in this data.

Separation is the term used to refer to an episode of admitted care, which can be a total hospital stay, or a portion of a hospital stay when there is a change in care type e.g. from acute care to rehabilitation care. Most episodes represent a single hospital stay. 'Separation' also refers to the completion of an episode of care i.e. changing care type, transferring to another hospital, discharge or death.

The principal diagnosis is the diagnosis established after study to be chiefly responsible for occasioning the patient's episode of admitted patient care. An additional or secondary diagnosis is a condition or complaint that either coexists with the principal diagnosis, or arises during the episode of care. Generally, a secondary diagnosis should only be recorded if the condition affects patient management for that episode of care i.e. it cannot be assumed that the patient does not have a particular condition if it is not recorded. The diagnoses are coded according to International Statistical Classification of Disease and Related Health Problems, Tenth Revision, Australian Modification (ICD-10-AM; Table A5.5).

The ICD-10-AM is used to classify diagnoses in the the Australian health sector. It is used in public and private hospitals, and in community and residential mental health care services. Although the ICD is primarily designed for the diseases and injuries with a formal diagnosis, it also classifies a wide variety of signs, symptoms, abnormal findings, complaints and social circumstances that may stand in place of a diagnosis. It is important to note that diagnostic classifications and coding standards have changed over time. There is also variation in the quality, completeness and depth of coding across services, and state-specific standards. These factors can impact on the accuracy of diagnostic information.

Table A5. 5: Principal diagnosis codes according to ICD-10-AM Chapter

Principal diagnosis (ICD-10-AM Chapter)	ICD-10-AM code range
1. Certain infectious and parasitic diseases	A00-A99, B00-B99
2. Neoplasms	C00-C96, D00-D09, D37-D48
3. Diseases of the blood and blood-forming organs and certai disorders involving the immune system	D50-D89
4. Endocrine, nutritional and metabolic diseases	E00-E89
5. Mental and behavioural disorders	F00-F99
6. Diseases of the nervous system	G00-G99
7. Diseases of the eye and adnexa	H00-H59
8. Diseases of the ear and mastoid	H60-H95
9. Diseases of the circulatory system	I00-I99

(continued)

Table A5. 5 (continued): Principal diagnosis codes according to ICD-10-AM Chapter

10. Diseases of the respiratory system	J00-J99
11. Diseases of the digestive system	K00-K93
12. Diseases of the skin and subcutaneous tissue	L00-L99
13. Diseases of the musculoskeletal system and connective tissue	M00-M99
14. Diseases of the genitourinary system	N00-N99
15. Pregnancy, childbirth and the puerperium	O00-O99
16. Certain conditions originating in the perinatal period	P00-P96
17. Congenital malformations, deformations and chromosomal abnormalities	Q00-Q99
18. Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	R00-R99
19. Injury, poisoning and certain other consequences of external causes	S00-T98
20. External causes of morbidity and mortality	U50-Y98
21. Factors influencing health status and contact with health services	Z00-Z99
22. Codes for special purposes	U00-U49

A mental health flag indicating that a DVA client had received treatment or support for a mental health condition at least once, was derived from principal and secondary diagnoses in accordance with AIHW conventions.²⁰ This included primarily formal diagnoses but also symptoms, mental health assessment and psychosocial factors. The ICD-10-AM codes used to construct mental health diagnostic groups are included in Table A5.6.

Table A5. 6: Mental health diagnostic groups (ICD-10-AM)

Principal diagnosis (ICD-10-AM Chapter)	ICD-10-AM codes
Stress-related disorders	F43
Depressive disorders (excluding bipolar)	F32
Drug and alcohol disorders	F10-F19, Z502-3, Z714-5
Anxiety disorders	F40-2, F44-8
Bipolar and mixed mood disorders	F30-1, F33-9
Dementia	F00-3, F051, G30
Schizophrenia and related disorders	F20-9

²⁰ AIHW (2021) [Mental health services in Australia/classifications and technical notes](#)

Health Service Contract Off-base

The Health Service Contract (HSC) data collection contains health services provided to ADF members while serving. Defence contracts service providers including Medibank (from November 2012 to 30 June 2019) and Bupa (from 1 July 2019 to present) to deliver a range of health services such as services provided through Medicare that are the same as those provided to the Australian population.

Defence also provides other services that are not available through Medicare. These services include dental, allied health, hospitals, prosthetic, operational equipment and pharmacy items. In this report, where Defence-funded allied health services are similar to MBS allied health items, these services were grouped as 'Allied health' and/or 'Allied health mental health' services. Additionally, where Defence funded services that were categorised as 'Mental health' or 'Psychiatry' and are not available in Medicare, these services were classified as 'Any mental health services' in the report.

Table A5.7 shows allocation of service items across Medicare-subsidised, DVA-funded health services and Defence HSC Offbase to health service groups presented in this report.

Data quality issues were noted for records prior to 1 July 2013 (Personal communication with Defence) and as a consequent, analysis of services 1 year prior to death by suicide for ADF members who died in first half of 2014 would be an underestimate.

Table A5. 7: Grouping of service items across Medicare-subsidised, DVA-funded health services and Defence HSC Offbase

Health service	Groups/items in MBS	Items in DVA-funded services	Items in HSC Offbase
Psychiatry	Group A08; Items 855, 857, 858, 861, 864, 866, 14224, 134, 136, 138, 140, 142	Groups/items as per MBS	Groups/items as per MBS; Item Subcategory in 'Psychiatry'.
GP mental health	Groups A06, A20; Subgroups A07.4, A07.9, A18.4, A19.4, A30.3; Items 894, 896, 898, 20104	Groups/items as per MBS	Groups/items as per MBS
Allied mental health	Groups M06, M07; Items 10956, 10968, 82000, 82015, 81325, 81355	Groups/items as per MBS; US—US99; CL20—CL30; MT22.	Groups/items as per MBS; US—US99; CL20—CL30; MT22. Item Subcategory in 'Allied health'; Item Groups as 'Psychology' or 'Mental Health'.
Any mental health	All items in Psychiatry, GP mental health, and Allied mental health	All items in Psychiatry, GP mental health, and Allied mental health.	All items in Psychiatry, GP mental health, and Allied mental health. Item Subcategory in 'Mental Health' and Item Group in 'Mental Health' or 'Treatment Program'.
GP attendances	BTOS 101, 102, 103	Groups/items as per MBS	Groups/items as per MBS. Item Subcategory in 'GP Attendances'.

(continued)

Table A5. 7 (continued): Grouping of service items across Medicare-subsidised, DVA-funded health services and Defence HSC Offbase

Allied health	BTOS 150, 900	Groups/items as per MBS; US—US99; CL20—CL30; MT22; CH01—CH99; EP01—EP99; CD01—CD99; OM01—OM99; OR10—OR99; OP01—OP99; PH01—PH99; UT01—UT40; F004—F548, F604—F625, F660—F661, F670—F671, F680—F681, F984—F991, F999; OT01—OT99; SW01—SW99; DT01—DT99; SH01—SH99	Groups/items as per MBS; Item Subcategory in 'Allied Health' and Item Groups in 'Acupuncture' 'Audiology' 'Chiropractor' 'Diabetes Education' 'Dietetics' 'Exercise Physiology' 'Psychology' 'Physiotherapy' 'Podiatry' 'Occupational Therapy' 'Optometry' 'Remedial Massage' 'Speech Pathology' 'Treatment Program'.
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Pharmaceutical Benefits Scheme/Repatriation Pharmaceutical Benefits Scheme medications

PBS/RPBS data are presented by the date of supply, that is, when the prescription was dispensed to the patient.

Medicine groups are defined by the Anatomical Therapeutic Chemical (ATC) classification system, which groups medicines into five hierarchical levels according to the body system or organ on which they act.

The ATC classification version used is the primary classification as it appears in the PBS Schedule of Pharmaceutical Benefits (Table A5.8). This can differ slightly from the WHO version. There are three differences between the WHO ATC classification and the PBS Schedule classification that have a bearing on mental health data:

1. Prochlorperazine is regarded as an antiemetic (A04A) in the PBS Schedule while it is an antipsychotic (N05A) according to the WHO classification. This means that information on prochlorperazine will not appear in the data provided as it is not listed as a mental health drug in the PBS Schedule.
2. Also not appearing in the data is bupropion, listed as an anti-smoking drug (N07B) in the PBS Schedule while it is an antidepressant (N06A) according to the WHO classification.
3. Lithium carbonate, on the other hand is classified as an antidepressant (N06A) in the PBS Schedule while it is an antipsychotic (N05A) according to the WHO classification. This means that lithium carbonate will appear in the data as an antidepressant rather than an antipsychotic.²¹ In addition, some medicines in the mental health-related medicine groups may also be prescribed for non-mental health-related reasons (e.g. neuropathic pain).

²¹ AIHW 2020. Mental health services in Australia: Pharmaceutical Benefits Scheme and Repatriation Pharmaceutical Benefits Scheme data. Canberra: AIHW. Viewed 31 March 2021, <https://www.aihw.gov.au/reports/mental-health-services/mental-health-services-in-australia>

Table A5. 8: Grouping of PBS/RPBS medications

Medication type	Classification
Any mental health	ATC 3 codes N05A, N05B, N05C or N06A
Antipsychotics	ATC 3 code N05A
Anxiolytics	ATC 3 code N05B
Hypnotics and sedatives	ATC 3 code N05C
Antidepressants	ATC 3 code N06A
Analgesics	ATC 2 code N02
Other nervous system	ATC1 code N and ATC2 code not N02 and ATC3 codes not N05A, N05B, N05C or N06A
Non-nervous system	ATC1 code not N
Non-mental health	ATC 3 code not N05A, N05B, N05C or N06A
Any RPBS	Patient category code R0 and R1

N06B (Psychostimulants) would normally be classified as a mental health medication, but has been excluded due to small numbers and has been included in other nervous system medications.

What's in the PBS/RPBS data?

The PBS is available for current Medicare card holders (including ADF members), and subsidises prescription medicines listed under the scheme, subject to patient entitlement status. The RPBS is available for DVA Health Card holders (i.e. not all ADF members), and subsidises medicines listed under the PBS, as well as additional medicines and items for eligible ADF members, war widows and widowers, and their dependents.

Under both the PBS and the RPBS, the Australian Government sets a maximum 'co-payment' that people pay towards the cost of their medicines. Prescriptions priced above the maximum co-payment are referred to as 'subsidised' (or 'above co-payment'), and attract a subsidy. Those priced below are referred to as 'under co-payment', and do not receive a subsidy.

Prior to 1 April 2012, the PBS/RPBS data did not include data on under co-payment medicines. As such, this chapter focuses on medicines dispensed between 1 April 2012 and 31 December 2018, and deaths between 1 April 2014 and 31 December 2018 (when looking at medications dispensed 2 years prior to death).

The PBS/RPBS includes data on medications that are dispensed. It does not include information about medications that were prescribed and not dispensed, or if the patient used the medication.

The PBS/RPBS data also does not include information about medicines supplied to public hospital in-patients, non-RPBS over the counter medicines, medicines supplied through ADF specific-schemes, or private dispensing. Some over the counter medicines and other unlisted medications may be prescribed to eligible RPBS members, however the data does not contain sufficient information for analytic purposes.

Pharmaceutical Integrated Logistics System medications and other products

PILS data is presented by the date of supply, that is, when the prescription was dispensed to the patient.

Unlike PBS data, PILS products do not have an ATC assigned and the therapeutic indication for which the product has been dispensed is not specified. For example, gabapentin may be

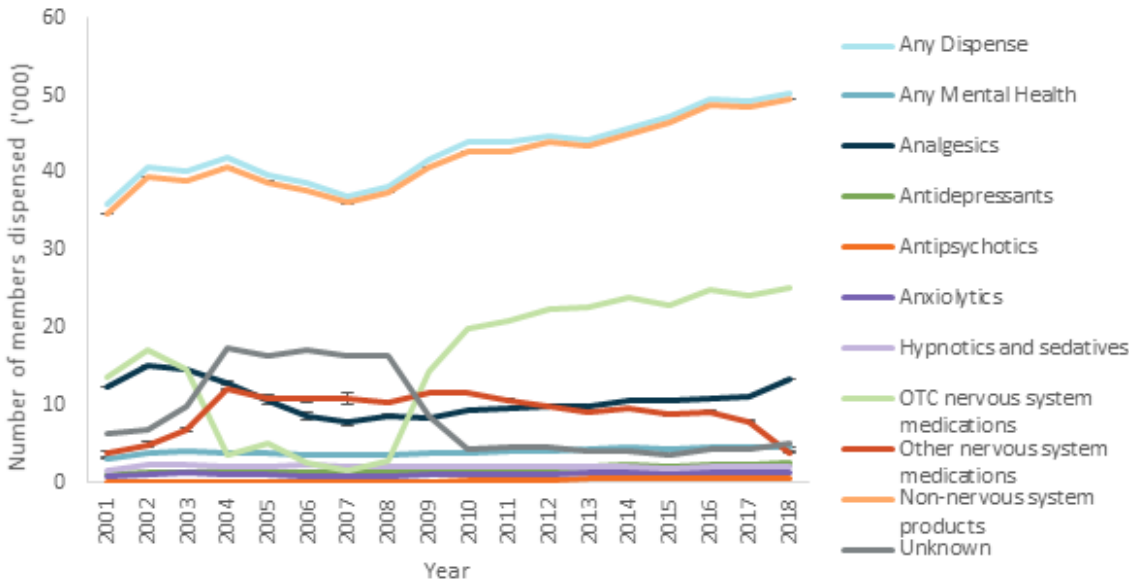
classified as an antiepileptic (N03A), or with other analgesics and antipyretics (N02B). Where a medication’s ATC classifications result in it being assigned to more than one medication type group, analysis on these groups show the margin of error ranging from all ambiguous items removed, to all ambiguous items included. The figure used for calculating proportions is the median of these two values. Affected groupings are Analgesics, other nervous system, non-nervous system, and one dispensing event for hypnotics and sedatives (and thus also any mental health) in 2002. Figure A1 shows the number of patients dispensed from PILS and the degree of ambiguity by drug class and year.

In addition to PBS/RPBS listed medications, PILS contains unlisted medications; over-the-counter (OTC) and pharmacist only medications; vitamins and supplements; and non-pharmaceutical consumer health products such as joint braces, bandages, and orthotics. Non-pharmaceutical items are included in non-nervous system, and consequently non-mental health and any dispensing.

PILS contains a number of over-the-counter medications with a nervous system related ATC. These have been assigned to a new group **OTC nervous system medications** rather than the group dictated by their ATC. These include:

- Paracetamol (excluding paracetamol combinations)
- Nicotine
- Caffeine
- Valerian root (Valerian officinalis) extract
- St John’s Wort (Hypericum perforatum) extract

Figure A5. 1: Number of ADF members^(a) dispensed from PILS^{(b)(c)}, by product group^(d) and year, 2001 to 2018



Notes:

- (a) The ADF member cohort is all ex-serving, reserve and serving personnel (all ages, males & females) who served at least one day from 1 January 2001 to 31 December 2018, and died by suicide between 1 January 2001 and 31 December 2018.
- (b) Excludes PILS dispensing records marked as cancelled.
- (c) Only on barracks dispensing is available until PILS was extended to off-barracks operations in 2017. Consequently, the number of members dispensed will vary according to historical deployment patterns prior to 2017.
- (d) Ambiguous classification is shown with error bars.

Source: AIHW analysis of PMKeyS-NDI-PILS, 2012-2018.

What's in the PILS data?

PILS data contains records for items dispensed from defence pharmacies to ADF members. Only on-barracks dispensing was captured until an unspecified point in 2017, after which in the field dispensing is also captured.

PILS data includes medications that are PBS/RPBS listed, unlisted medications including over-the-counter and pharmacist only medications, and non-pharmaceutical consumer health products such as joint braces, bandages, and orthotics.

Some products in PILS do not have sufficient information to determine the medication class, however reviewing the number of patients dispensed each medication group by year shows an increase in persons dispensed unidentified products between 2004 and 2008, and a corresponding decrease in persons dispensed OTC nervous system medications.

Select mental health medications with suspected suicidal side effects

Selected medications with suspected suicidal side effects were investigated as part of the integrated pharmaceutical dispensing analyses. Drugs included, their classification, and search terms used to identify records in PBS/RPBS/PILS are detailed below (Table A5.9), noting that not all requested drugs were identified in the data, and some classes were expanded to include additional drugs (vortioxetine & desvenlafaxine).

Table A5. 9: Drug inclusion and classification

Drug group	Drug name	Search terms	Persons with any PBS dispense events (2001-2018)	Persons with any PiLs dispense events (2001-2018)	Comment
Benzodiazepines	ALPRAZOLAM	Alprazolam, Xanax, Alprax, Kalma	62	109	
	DIAZEPAM	Diazepam, Valium, Valpam, Antenex	1558	4834	
	LORAZEPAM	Lorazepam, Ativan	0	0	No dispense events
	NITRAZEPAM	Nitrazepam, Mogadon, Alodorm	52	73	
	OXAZEPAM	Oxazepam, Serapax, Alepam, Murelax, Serepax	244	316	
	TEMAZEPAM	Temazepam, Norminson, Temaze, Temptabs, Normison	1354	8113	

(continued)

Table A5. 9 (continued): Drug inclusion and classification

Selective serotonin reuptake inhibitors (SSRIs)	ESCITALOPRAM	Escitalopram, Lexapro, Esipram, Cilopam-S, Lexam, LoxaLate	1116	913	
	FLUOXETINE	Fluoxetine, Prozac, Zactin, Lovan	442	306	
	PAROXETINE	Paroxetine, Aropax, Oxetine, Paxtine, Paxil, Extine, Roxet	224	243	
	VORTIOXETINE	Vortioxetine, Trintellix, Brintellix	0	0	Added. No dispense events
Serotonin-norepinephrine reuptake inhibitors (SNRIs)	DESVENLAFAXINE	Desvenlafaxine, Pristiq, Desfax, Ellefore, Desven	520	297	Added
	DULOXETINE	Duloxetine, Cymbalta, Dytrex, Duloxecor, Tixel	433	524	
	VENLAFAXINE	Venlafaxine, Effexor, Efexor, Elaxine, Enlafax	574	659	
Tetracyclic antidepressants	MIRTAZAPINE	Mirtazapine, Aurozapine, Axit, Remeron, Mirtanza, Mirtazon, Avanza, Milivin	641	668	
Tricyclic antidepressants	AMITRIPTYLINE	Amitriptyline, Endep, Entrip	674	1740	
	DOSULEPIN (DOTHIEPIN)	Dothiepin, Dosulepin, Dothep, Prothiaden	49	48	
	IMIPRAMINE	Imipramine, Tofranil	25	25	
Other antidepressants	TRAZODONE	Trazodone	0	0	Not PBS listed/Not found in PiLs
Quinoline antimalarials	MEFLOQUINE	Mefloquine, Lariam, Mephaquin, Mefliam	0	0	Not PBS listed/Not found in PiLs
	TAFENOQUINE	Tafenoquine, Kodatef, Kozenis	0	0	Not PBS listed/Not found in PiLs

A6 DVA client

In this report, a DVA client is defined as a veteran who satisfies at least one of the following criteria:

- has been issued a White or Gold card, or
- had at least one processed claim for a health or disability condition acquired during service, or
- received benefits or payment in the form of income support or compensation through the Military Compensation Scheme, or
- had at least one health service or support service through the DVA National Treatment Account.

Who is a DVA client?

DVA clients include serving, reserve, or ex-serving ADF members, or a partner or their dependents who receive support from DVA. A DVA client can be a DVA card holder, a benefit or income recipient and/or a user of health services or support services funded by DVA.

ADF members are eligible for benefits or payments in the form of compensation or income support if they have sustained an injury or health condition relating to their service. ADF members are also eligible for a service pension if they have provided qualifying service in an operational area.

Veteran cards are provided to identify the eligibility of current and former ADF members, and their dependents for a range of benefits. These can include health care, pharmaceutical benefits and concessional travel. There are several types of cards issued to DVA clients with the White card being the most common card type.

Between 2001 and 2018, policy changes have affected the types of conditions that qualify for benefit, the entitlements for benefit, and the process for submitting claims to DVA.²² For example, since July 2017 all current and former ADF personnel have been entitled to non-liability health care for all mental health conditions. Since July 2018, all personnel discharged from the ADF have been automatically issued with a DVA health card (formerly a white card) that entitles them to non-liability health care for any mental health condition for the rest of their lives. ADF members are considered DVA clients from the date they first use this card.

Gold Cards

Holders of a Gold Card are entitled to DVA funding for all clinically necessary health services related to all health conditions, regardless of whether or not they resulted from service (DVA, 2021).

²² The claim has been assessed by DVA with a decision outcome for the claimed condition under the relevant legislation: *Military and Rehabilitation Compensation Act (MRCA) 2004*, *Veterans' Entitlements Act (VEA) 1986*, *Safety Rehabilitation Compensation Act (SRCA) 1988* or *Safety Rehabilitation Compensation (Defence-related Claims) (DRCA) Act 1988*.

White Cards

White Card holders are entitled to health services related only to conditions accepted as resulting from service (DVA, 2019). However, cases of malignant cancer, pulmonary tuberculosis, and any mental-health condition do not have to be due to service-related causes.

From 1 July 2018, eligibility for treatment of any mental health condition expanded to include Reservists who have rendered Reserve Service Days with disaster relief service, border protection service or involvement in a serious service-related training incident. In addition, the White Card on Transition project commenced, with DVA issuing White Cards to transitioning members as they separate from the ADF.

What is a processed claim?

In this report, a processed claim refers to:

- a claim a DVA client has lodged for compensation relating to a health or disability condition acquired during service;
- and;**
- has been assessed by DVA with a decision outcome (accepted or rejected) for the claimed condition under the appropriate legislation

These legislation include *Military and Rehabilitation Compensation Act (MRCA) 2004*, *Veterans' Entitlements Act (VEA) 1986*, *Safety Rehabilitation Compensation Act (SRCA) 1988* or *Safety Rehabilitation Compensation (Defence-related Claims) (DRCA) Act 1988*. Additionally, under non-liability health care arrangement, DVA clients are covered for treatment costs related to select health conditions, including cancer, pulmonary tuberculosis and a range of mental health conditions (DVA, 2021).

It is important to note that a DVA client can list multiple health or disability conditions on the one claim. The dataset received by the AIHW contains data at the condition level rather than the claims level (see Attachment E: Length of processing for more information). This means that it is appropriate to determine the number of people with a mental health or physical health condition related processed claim. The number of health or disability conditions as a measure of number of claims would not be reflective of the number of claims lodged by DVA clients.

Mental health processed claim

A processed claim relating to a mental health condition. See Technical Note below for search terms used for grouping of mental health conditions.

Accepted or Rejected claims

Accepted processed claims include the following decision outcomes: accepted, aggravated by war service (eligible for treatment), attributable to war service (eligible for treatment), paired organs and limbs policy applied or remitted.

Rejected processed claims include the following decision outcomes: deferred, no incapacity found, no jurisdiction, refused to deal with, rejected or suspended.

Mental Health Groupings

To identify the mental health conditions in the DVA Decisions data set, a library of key words was first established by conducting an exploratory search of the listed condition descriptions. Terms from the ICD-AM-10 were used to inform the search. In total, 159 terms were used to identify the mental health claims, which included iterations of mental health terms to account for misspelling of condition descriptions.

The terms were broadly grouped according to ICD-AM-10 chapter classifications (Table A6. 1: Groupings of Mental Health claims). The conditions listed under F43 (acute stress reaction, post-traumatic stress disorder, adjustment disorders) were placed in their own group. A miscellaneous group captured broad statements that did not fall into a specific grouping (e.g. psychological). The groups identified are listed below:

Table A6. 1: Groupings of Mental Health claims

Mental Health Conditions	ICD-10 Classifications
Suicidal Ideation and Self-Harm	R45.81, R45.89
Mood (Affective) Disorders	F30 - F39
Post-traumatic Stress Disorder, Acute Stress Reaction, Adjustment Disorders	F43
Neurotic, Stress-Related and Somatoform Disorders	F40 - F48 (excluding F43)
Mental and Behavioural Disorders due to Psychoactive Substance Use	F10 - F19
Behavioural Syndromes Associated with Physiological Disturbances and Physical Factors	F50-F59
Schizophrenia, Schizotypal and Delusional Disorders	F20-F29
Disorders of Adult Personality and Behaviour	F60-F69
Organic, including Symptomatic, Mental Disorders	F00 - F09
Disorders of Psychological Development	F80-F89
Behavioural and Emotional Disorders with Onset Usually Occurring in Childhood and Adolescence	F90-F98
Miscellaneous terms (e.g., behavioural, psychological, psychiatric)	N/A

A7 Data storage and record retention

Data provided and created for this study are stored as per AIHW information security protocols. No third parties (including DVA) have access to any identified data. Any data provided to DVA by the AIHW are in aggregated and de-identified form and stored in accordance with DVA's security processes and procedures.

Data stored and analysed at the AIHW are protected under the *Privacy Act 1988* and the *Australian Institute of Health and Welfare Act 1987*. The AIHW is subject to the *Public Service Act 1999* and the APS Code of Conduct. As well, it has issued formal Guidelines for the Custody of Institute Data as a further measure to ensure data protection.

The AIHW performs data linkage projects on a separate secure private network to which only Data Integration Services Centre (DISC) staff and the Systems Manager have access. Dedicated DISC infrastructure capabilities replicate the hardware already used with success on other large data integration projects across the AIHW. This environment is separate from any other AIHW systems. The AIHW connects, via the Intra Government Communications Network, to an internet gateway provider accredited by the Australian Signals Directorate; the AIHW's internet gateway is certified to the PROTECTED level. DISC projects are undertaken on a separate secure network not connected to the internet.

The AIHW uses best practice technology, procedures and policies to protect its information and communication technology assets. A layered system of security is in place, with different technologies and techniques used at different levels. In line with the Australian Government Protective Security Policy Framework:

- passwords are changed regularly
- accounts are locked out after three failed attempts
- Operating System patching of desktops, networking equipment and servers is done in line with Australian Signals Directorate guidelines
- application software updates are tested and applied as soon as practical after release
- access to the data centre is controlled by swipe card
- the network has a state-of-the art firewall to protect against external intrusion, beyond which the accredited gateway has its firewalls
- anti-virus software is constantly updated
- regular backups are taken, including rotation to a secure off-site storage facility
- desktops have been hardened to prevent users from installing software or tampering with the system.

These security measures are backed up by an auditing regime, based around tightly controlled separate information domains (staging, linking, and consolidation domains) that exist for each stage of creating the project data. Each project in each information domain is in a separate storage location, with access limited by user (different users in different information domains for separation requirements).

This architecture determines who can access what data at any time, and access is therefore predetermined and logged. Work logs of basic user and time/date information are generated when code is run against these data and are stored as part of the audit trail.

In summary, access is provided to individuals for each stage of a project. This allows the AIHW to determine and log all access rights to the data throughout the process. At the completion of the project, and in line with the data retention date, the AIHW uses Sdelete (Microsoft) to remove all files relating to a project from the hard disk. In line with DISC data retention/backup cycle procedures, data are overwritten on a 4-weekly cycle. Data are encrypted as part of the archival process using Commvault.

A8 Privacy principles and ethics approval

This study is conducted under strict privacy guidelines and the oversight of organisational ethics committees.

Privacy principles

The *Privacy Act 1988* sets out 13 Australian Privacy Principles that govern agencies of the Australian Government in their collection, storage, use, disclosure and management of data containing personal information. The Privacy Act permits the handling of health information for health and medical research purposes in certain circumstances, where researchers are unable to seek individuals' consent. This recognises the need to protect health information from unexpected uses beyond individual health care as well as the important role of health and medical research in advancing public health.

The Privacy Commissioner has approved two sets of legally binding guidelines, issued by the National Health and Medical Research Council. Researchers must follow these guidelines when handling health information for research purposes without individuals' consent. The guidelines also assist Human Research Ethics Committees (HRECs) in deciding whether to approve research applications. The guidelines are produced under sections 95 and 95A of the Privacy Act, detailing procedures that HRECs and researchers must follow when personal information is disclosed from an Australian Government agency for medical research purposes, and providing a framework for HRECs to assess proposals to handle health information for health and medical research (without individuals' consent). They ensure that the public interest in the research activities substantially outweighs the public interest in the protection of privacy.

Ethics approval

The AIHW Ethics Committee, and the Defence-DVA Human Research Ethics Committee accepted that the public interest in the research activities of this project substantially outweighs the public interest in the protection of privacy, and approved the study pursuant to Section 95 of the Privacy Act.

NCIS: privacy and confidentiality

On 5 May 2020, the AIHW Ethics Committee (EC) approved the data sets required by the AIHW and the ACSQHC for the purposes of the Review, including the secure transfer of a list of non-identifiable pins (Mortality ID) relating to suicides among ADF members from the AIHW to the ABS to enable ICD coding of deaths, including psycho-social risk factors that have been identified as suicides among ADF members. This was noting that psycho-social coding is not currently included in the ABS Cause of Death information in the National Death Index. As this is for deceased persons only, the Privacy Act does not apply.

The use of 'Mortality ID' is required to identify relevant cases in the online NCIS system and facilitate the ICD coding of NCIS data by the ABS, including coding of psychosocial risk factors. To facilitate this process, the AIHW provided ABS with the Mortality IDs for the suicides between 1 January 2001 and 31 December 2018 identified through linkage between Defence personnel data (PMKeyS) and the National Death Index.

Data governance

AIHW is an Integrating Authority. This means it has met stringent criteria covering project governance, capability and data management. It abides by the principles for data integration involving Australian Government data for statistical and research purposes, and the best practice guidelines. It can integrate Australian data for high-risk research projects because it upholds strict privacy and confidentiality requirements.

Appendix B: Data Sources

The report used a range of linked data assets.

Table B. 1: Description of datasets

Data source	Description and Scope	ADF population	Limitations
Personnel Management Key Solution	<p>The PMKeyS data defines the scope of the ADF population for the current analysis. It is a Defence staff and payroll management system that contains demographic and ADF service information for those with at least 1 day of ADF service since 1 January 2001. Name-based linkage was conducted between the PMKeyS, DVA client data, MEF and NDI.</p> <p>Excludes those who separated prior to 1 January 2001, and those hired after 31 December 2018.</p> <p>Suicides in scope for the Review are those that occurred between 1 January 2001 and 31 December 2018.</p>	<p>ADF personnel with at least 1 day of ADF service since 1 January 2001.</p>	<p>For current serving and Reserve members, data from the PMKeyS is reported as at the extract date (September 2020). As the PMKeyS data is stored destructively (new information overrides old information), it is not possible to determine the service characteristics (e.g. rank) as at 31 December 2018 for current serving and Reserve members. This results in a difference between the numerator and the denominator of approximately 2 years for disaggregation by service characteristics. This means that for disaggregation by some service characteristics, the scope of the denominator exceeds the numerator and in turn, rates of suicide are underestimated. As such, rates of suicide disaggregated by these characteristics will only be reported for ex-serving members.</p> <p>For ex-serving members, service characteristics are reported as at separation, and do not change thereafter.</p> <p>For the ex-serving population time at risk while holding given service characteristics is equal to time in the ex-serving population</p>
Defence health and transition data	<p>The Defence health and transition data is a collection of data sets held across several areas of Defence.</p> <p>The data contained in these databases are by-products of administrative processes including those related to Defence health service provision, post-deployment mental health screening, WHS reporting and transition support services.</p>		<p>Health services contract data</p> <p>The data set does not include records prior to 2012. It does not capture health service use before or after ADF service.</p> <p>Additionally, it does not capture health services used outside of ADF arrangements.</p> <p>Pharmacy dispensing record</p> <p>The data set does not capture pharmacy dispensing before or after ADF service.</p> <p>Data is limited to dispensing by Defence pharmaceutical chain on base, excludes off base dispensing.</p> <p>It does not include records prior to 1997.</p> <p>Does not capture pharmacy dispensing used outside of ADF arrangements.</p> <p>Work health and safety (WHS) data</p> <p>As the data is collected from the supervisor of the involved ADF member, it is self-reported data. Analysis of trends over time is difficult due to changes in reporting. System improvements and confidence in reporting have contributed to an overall increase in WHS events. Changes in military training, operations, event support, and WHS legislation also contribute to clusters at certain time points.</p> <p>Each incident is classified into 6 severity types. Three of these (fatality, dangerous incidents and serious injury/illness) are notifiable to Comcare and Defence under the WHS Act. Exposures and minor injuries are more frequent but not required to be reported to Comcare. As a result, data quality has a tendency to be better in the notifiable incidents and there is higher confidence that they are captured.</p>

(continued)

Table B. 1 (continued): Description of datasets

Defence Suicide Database	The DSD contains information on confirmed and suspected suicides that occurred during active ADF service, since 2000.	Confirmed and suspected suicides of active ADF personnel since 2000.	The database does not include deaths among Reserves or ex-serving ADF members.
Department of Veterans' Affairs client data	The DVA client data will be used to determine whether making a DVA claim, or receiving a particular claim outcome, is associated with increased or decreased risk of suicide, with a particular focus on claims for mental health conditions.	DVA clients	<p>There have been significant DVA policy changes over the study period. In particular, there has been increasing access to non-liability mental health care. Initially this was only for selected conditions, but since July 2016 all current and former ADF personnel have been entitled to non-liability health care for all mental health conditions.</p> <p>Since July 2018 all personnel discharged from the ADF have been automatically issued with a DVA health card (formerly a white card) that entitles them to non-liability health care for any mental health condition for the rest of their lives. ADF members are considered DVA clients from the date they first use this card.</p> <p>Due to these policy changes, it is expected that the number of DVA funded mental health treatments will have significantly increased over the study period. This does not necessarily indicate an increase in the prevalence of mental health conditions in the ADF population.</p> <p>The proportion of ADF members who are DVA clients (and white cardholders) is also expected to have increased since 2016.</p> <p>Data range: 2001 to 2018</p>
DVA National Treatment Account	The DVA NTA is an administrative data set containing records of health services provided to DVA card holders and funded by DVA. The relationship between the MBS and National Treatment Account is similar to that between the PBS and Repatriation Pharmaceutical Benefits Scheme (RPBS): similar services are available under both schedules, but services claimed by DVA card holders are funded through DVA's NTA.	DVA clients/card holders	<p>As the MBS claims data does not include services funded by DVA, the level and patterns of all government-subsidised medical service use among DVA clients cannot be determined using the currently approved MBS variables alone.</p> <p>DVA NTA data has not previously been combined with MBS data. As such, it is unclear how well the data items compare across the two data sets. Data range: 2000 to 2018</p> <p>The DVA hospitals data includes diagnoses using ICD-10.4, which is not the most recent version of this classification scheme. Some diagnoses recorded using a more recent version of ICD-10 are not included. Data range: 2000 to 2018 for admitted patient care and 2015–16 to 2018–19 for emergency department data.</p>

(continued)

Table B. 1 (continued): Description of datasets

Medicare Enrolment File	<p>Contains identifying information for all those registered in the Medicare system since 1984.</p> <p>To be used as an intermediary data set to supplement linkage information on PMKeyS and DVA client data for subsequent linkage to the NDI.</p> <p>Using a series of map files, it will allow merging to:</p> <ul style="list-style-type: none"> • MBS • PBS <p>Demographic information is also requested from the MEF for analysis.</p>	All ADF members enrolled in Medicare.	Only includes persons enrolled in Medicare.
Medicare Benefits Schedule (MBS)	<p>Contains records of all health services funded under MBS and corresponding claims data.</p> <p>It will be used in conjunction with DVA NTA data to determine whether receiving particular kinds of medical treatment is associated with an increase or decreased risk of suicide.</p>	ADF members who used MBS funded health services.	<p>Claims data does not include:</p> <ul style="list-style-type: none"> • Services where no benefit was processed (even if it is eligible for a rebate) • Services provided to public patients in hospitals • Services subsidised by the DVA • Services delivered in public outpatient departments/public accident and emergency departments • Services for an injury/illness for which the patient's insurer has accepted liability • Non-hospital services subsidised by private health insurance • Services provided through other publicly funded programs, including jurisdictional salaried GP services provided in remote outreach clinics • Health screening services <p>Claims data identifies health service use but does not provide corresponding diagnostic information.</p> <p>Use of Medicare-subsidised services targeting specific health conditions do not reflect quality of care or prevalence of health conditions.</p> <p>If a patient used other forms of health care (eg. Standard GP consultations) to manage their health conditions, it will not be reflected in the database.</p>

(continued)

Table B. 1 (continued): Description of datasets

<p>Pharmaceutical Benefits Scheme (PBS)/Repatriation Pharmaceutical Benefits Scheme (RPBS)</p>	<p>These are two main Australian Government subsidy schemes for medicines, and their dataset provides a record of prescriptions that are dispensed under them.</p>	<p>ADF members who received prescriptions under these schemes.</p>	<p>Data does not cover:</p> <ul style="list-style-type: none"> • Pharmaceuticals that are prescribed but not dispensed • Pharmaceuticals not listed on the PBS • Over-the-counter purchases (non-prescription) • Private prescriptions • Medicines supplied to admitted patients in public hospitals <p>In data prior to April 2012, dispensing data is only available for prescriptions that attracted a government subsidy (i.e. Cost of prescription exceeded co-payment threshold).</p> <p>Safety net threshold of these schemes (\$390 for concession and \$1550 for general beneficiaries as of 2019) when met, allows provision of free pharmaceuticals to the consumer, which means that before July 2012, all medication dispensed to general beneficiaries will be captured only once this safety net is met.</p>
<p>National Death Index</p>	<p>Contains fact of death information from 1980 onwards, cause of death information from 1985 onwards and associated causes of death from 1997 onwards.</p> <p>It will be used to determine vital status of those in the study and control population, and identify those whose cause of death was suicide or sequelae of intentional self-harm (ICD-9 codes: E950-E959; ICD-10 codes: X60-X84, Y87.0).</p>	<p>ADF members who died by suicide from January 2001 to December 2018.</p>	<p>Cause of death data may change where a death is being investigated by a Coroner and more up to date information becomes available as a result of the ABS revisions process.</p> <ul style="list-style-type: none"> • Lag in cause of death information for the most recent year of data, where a death is registered in the following year. Analysis in this study is based on year of occurrence of death. The NDI is the source of information on fact of death in this study. • The NDI contains fact of death information linked with cause of death information from the National Mortality Database (NMD). Analysis of the NMD for all Australian deaths shows that between 4% and 7% of deaths are not registered until the next year. These deaths are not captured in cause of death information, until data for the next year become available.
<p>ABS Psychosocial coding data</p>	<p>Psychosocial coding for ADF members in study cohort who died by suicide on the basis of their NCIS files.</p> <p>Used to investigate psychosocial factors associated with suicide among ADF members (i.e. Factors relating to social process/structure that could influence individual thought or behaviour that impact health outcomes).</p>	<p>ADF members who died by suicide.</p>	<p>Coding of psychosocial causes of death will only be undertaken for ADF members who died by suicide, and Australians who died by suicide between 2017 and 2019, making it impossible to compare to wider ADF members or Australian populations.</p> <p>Some psychosocial risk factors do not align with the ICD-10 codes or are part of a non-specific code. These cannot be easily analysed once tabulated.</p> <p>Differences in collection of psychosocial factor information across coronial jurisdictions produces inconsistencies in coverage across Australian deaths by suicide.</p> <p>Some cases of deaths by suicide remain open in the coronial system, for which psychosocial coding will be incomplete. The NCIS is continually updated as cases are closed and quality assured. As new information comes to light, historical cases may be re-opened by a coroner. Occasionally this results in changes to data and published mortality figures over time.</p>

(continued)

Table B. 1 (continued): Description of datasets

<p>National Coronial Information System</p>	<p>National repository containing data on deaths reported to a coroner in Australia and New Zealand. Sourced from coronial briefs provided by each jurisdiction, created as part of the investigation conducted by a coroner into the death of an individual.</p> <p>Investigations determine the identity of the deceased and the cause of death. International Cause of Death (ICD-10) coding is provided by the Australian Bureau of Statistics and the New Zealand Ministry of Health.</p> <p>The AIHW will receive coronial files specific to suicides in the ADF population, and suicides in the general Australian population that occurred between 2001 and 2018. AIHW will analyse coded data from the NCIS online system. These variables include those relating to the demographics of the deceased, details of the incident preceding death, the mechanism of injury, and cause(s) of death.</p> <p>Data will be used to explore how the circumstances of the individual preceding death relate to suicide risk, and analysis of the details of the death may inform environment-specific prevention strategies.</p>	<p>ADF members who died by suicide between 2001 – 2018.</p>	<p>Data is collected from primary source material such as the police notification of death report, autopsy, and toxicology reports and coronial findings from each jurisdiction. The level of detail contained in these documents varies between and within each jurisdiction. Institutional practices and legislative differences impact the information collected and reported by each jurisdiction. Therefore, there will be differences in the qualitative and quantitative comprehensiveness of the data.</p> <p>The NCIS is continually updated as cases are closed and quality assured. As new information comes to light, historical cases may be re-opened by a coroner. Occasionally this results in changes to data so there may be some changes to published mortality figures over time.</p> <p>Cases contained on the NCIS can be restricted at the discretion of the State or Chief Coroner. Coroners may restrict access to cases that are particularly sensitive in the community.</p>
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(continued)

Table B. 1 (continued): Description of datasets

National Health Survey

The 2017–18 National Health Survey (NHS) was conducted by the Australian Bureau of Statistics (ABS) from July 2017 to June 2018. The 2017–18 NHS is the most recent in a series of Australia-wide health surveys conducted by the ABS. It was designed to collect a range of information about the health of Australians, including:

- prevalence of long-term health conditions
- health risk factors such as smoking, overweight and obesity, alcohol consumption and physical activity
- use of health services such as consultations with health practitioners and actions people have recently taken for their health
- demographic and socioeconomic characteristics.

Respondents were also asked:

- whether they had ever served in the Australian Defence Force
- if they were a client of DVA
- if they had ever received a benefit or support from DVA.

This information was used to identify the estimates of ADF members and DVA clients in Australia as well as selected demographics and socioeconomic status in this report.

Alive ADF members 2017 - 2018

Alive ADF members are those people who responded to the National Health Survey, 2017-18, and identified as having served in the ADF. They will include ADF members who served prior to 2001.

The question relating to DVA benefits was asked regardless of whether the respondent was a current or former serving member of the Australian Defence Force.

Abbreviations

ABS	Australian Bureau of Statistics
ACSQHC	Australian Commission on Safety and Quality in Health Care
ADF	Australian Defence Force
AIHW	Australian Institute of Health and Welfare
Air Force	Royal Australian Air Force
APC	Admitted Patient Care
Army	Australian Army
Better Access	<i>Better Outcomes in Mental Health Care</i>
Defence	Department of Defence
DHT	Defence Health and Transition
DVA	Department of Veterans' Affairs
ED	Emergency Department
GP	General practitioner
HSC Off-base	Health Service Contracts Off-base
ICD	International Classification of Disease
MADIP	Multi-Agency Data Integration Project
MBS	Medicare Benefits Schedule
MCD	Medicare Consumer Directory
NAPEDC	Non-Admitted Patient Emergency Department Care
Navy	Royal Australian Navy
NCIS	National Coronial Information System
NDI	National Death Index
NHS	National Health Survey
NMD	National Mortality Database
NTA	National Treatment Account
PBS	Pharmaceutical Benefits Scheme
PILS	Pharmaceutical Integrated Logistics System
PMKeyS	Personnel Management Key Solution
PTSD	Post-traumatic stress disorder
RACGP	The Royal Australian College of General Practitioners
RPBS	Repatriation Pharmaceutical Benefits Scheme

The interim National Commissioner	Interim National Commissioner for Defence and Veteran Suicide Prevention
The Review	Independent Review of Past Defence and Veteran Suicides

Symbols

—	nil or rounded to zero
..	not applicable
n.a.	not available
n.p.	not publishable because of small numbers, confidentiality or other concerns about the quality of the data

References

Australian Institute of Health and Welfare (AIHW):

- AIHW 2020. Australia's health 2020 data insights.
- AIHW 2020, National suicide monitoring of serving and ex-serving Australian Defence Force personnel: 2020 update. Access on 11 August 2021, <[National suicide monitoring of serving and ex-serving Australian Defence Force personnel: 2020 update, About this report - Australian Institute of Health and Welfare \(aihw.gov.au\)](#)>.

Australia's health series no. 17. Cat. no. AUS 231. Canberra: AIHW.

Australian Bureau of Statistics (ABS)

- ABS 2018a, National Health Survey: First results, Reference period, 2017-18 financial year, 12 December 2018, Accessed on 14 June 2021, <[National Health Survey: First results, 2017-18 financial year | Australian Bureau of Statistics \(abs.gov.au\)](#)>.
- ABS 2018b. Cat. No. 3303.0 - Causes of Death, Australia, 2017. Accessed on 13 April 2021, <[https://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/3303.0Explanatory%20Notes12017?OpenDocument](#)>.
- ABS 2019a. Microdata: National Health Survey, 2017–18. ABS cat. no. 4324.0.55.001. Findings based on TableBuilder analysis. Canberra: ABS.
- ABS 2019b. Cat. No. 3303.0 Causes of Death, Australia, 2018. Accessed on 01 June 2021, <[https://www.abs.gov.au/statistics/health/causes-death/causes-death-australia/2018](#)>. ABS 2019c. 1351.0.55.062 - Research Paper: Psychosocial risk factors as they relate to coroner-referred deaths in Australia, 2017. Accessed on 28 August 2020, <[https://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/1351.0.55.062Main%20Features32017?opendocument&tabname=Summary&prodno=1351.0.55.062&issue=2017&num=&view=>](#)>.
- ABS 2020. Cat. No. 3303.0 Causes of Death, Australia, 2019. Accessed on 01 June 2021, <[Causes of Death, Australia, 2019 | Australian Bureau of Statistics \(abs.gov.au\)](#)>.

Baker, D, Rice, S, Sadler, N, Cooper, J and Wade, D 2017 The Next Post: Young people transitioning from military service and their mental health. Melbourne: Orygen, The National Centre of Excellence in Youth Mental Health, 2017.

Commonwealth Ombudsman – Reporting abuse in Defence statistics, July 2021, Accessed on 10 August

2021, <[https://www.ombudsman.gov.au/__data/assets/pdf_file/0014/112109/FINAL-Defence-Force-Ombudsman-Reporting-abuse-in-Defence-Statistics-to-31-July-2021-A2195178.pdf](#)>

DART, Defence Abuse Reporting Taskforce

- Final Report, Defence Abuse Reporting Taskforce, March 2016, Accessed on 10 August 2021, <[https://apo.org.au/sites/default/files/resource_files/2016-09/apo-nid67232.pdf](#)>

Dodds TJ 2017. Prescribed benzodiazepines and suicide risk: a review of the literature. The primary care companion for CNS disorders, 19(2).

DVA, Department of Veterans' Affairs

- DVA 2021, Laws that cover claims, Accessed on 13 April 2021, <<https://www.dva.gov.au/financial-support/compensation-claims/laws-cover-claims>>.
- DVA 2021, Non-Liability Health Care (NLHC), Accessed on 12 August 2021, <[Non-Liability Health Care \(NLHC\) | Compensation and Support Reference Library, Intent Paper, Rehabilitation and Compensation - Veterans' Entitlements Act 1986 \(VEA\) \(dva.gov.au\)](#)>.

JOINT COMMUNIQUE - Veterans' Ministers' meeting, 8 November 2017. Accessed on 13 April 2021, <http://minister.dva.gov.au/media_releases/2017/nov/joint_vmm.htm>.

Jones, K, Varker, T, Stone, C, Agathos, J, O'Donnell, M, Forbes, D, Lawrence-Wood, E & Sadler, N 2020, Defence Force and Veteran suicides: Literature review. Report prepared for the Australian Commission on Safety and Quality in Health Care. Phoenix Australia – Centre for Posttraumatic Mental Health: Melbourne.

Media release, Defence and Veterans Suicide, 08 Jul 2021, Prime Minister, Attorney-General, Minister for Industrial Relations, Minister for Defence Personnel, Minister for Veterans' Affairs. Accessed on 14 July 2021, < [Defence and Veterans suicide | Prime Minister of Australia \(pm.gov.au\)](#)>.

Möller H, Baldwin DS, Goodwin G, Kasper S, Okasha A. Stein DJ et al 2008. Do SSRIs or antidepressants in general increase suicidality? European Archives of Psychiatry and Clinical Neuroscience 258 [Suppl 3]:3–23.

National Commissioner for Defence and Veteran Suicide Prevention, Revised Terms of Reference, Independent Review of Past Defence and Veteran Suicides. Accessed on 5 August 2021, <[Terms of Reference for the Independent Review | National Commissioner for Defence and Veteran Suicide Prevention \(nationalcommissionerdvsp.gov.au\)](#)>

NMHC

- National Mental Health Commission 2017, Review into the Suicide and Self-Harm Prevention Services Available to current and former serving ADF members and their families, Final Report, 28 March 2017.

O'Neill S, Graham B & Ennis E 2019. Prescribed pain and mental health medication prior to suicide: A population based case control study. Journal of Affective Disorders 246:195-200.

Productivity Commission 2019, A Better Way to Support Veterans, Report no. 93, Canberra.

Rothschild AJ & Shindul-Rothschild JA 2017. Benzodiazepines Do Not Cause Suicide or Suicide Attempts. The Primary Care Companion for CNS Disorders 19(5): 171r02171. Viewed Online 2 August 2021 <https://www.psychiatrist.com/pcc/depression/suicide/benzodiazepines-do-not-cause-suicide-or-suicide-attempts/>.

SFADTRC

- The Senate Foreign Affairs, Defence and Trade References Committee inquiry into Suicide by Veterans and Ex-Service Personnel, The Constant Battle: Suicide by Veterans (The Senate Foreign Affairs Defence and Trade References Committee, 2017)

Therapeutic Goods Administration 2021. TGA safety investigation: antidepressant utilisation and risk of suicide in young people. Version 2.0 April 2021. Viewed 29 June 2021, <https://www.tga.gov.au/resource/antidepressant-utilisation-and-risk-suicide-young-people>.

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Related publications

Incidence of suicide among serving and ex-serving Australian Defence Force personnel 2001-2015, <https://www.aihw.gov.au/reports/veterans/incidence-of-suicide-in-adf-personnel-2001-2015/contents/table-of-contents>

National suicide monitoring of serving and ex-serving Australian Defence Force personnel 2020 update, <https://www.aihw.gov.au/reports/veterans/national-suicide-monitoring-adf-2020/contents/technical-notes>

A profile of Australia's veterans 2018, <https://www.aihw.gov.au/reports/veterans/a-profile-of-australias-veterans-2018/contents/summary>.

Defence Force and Veteran suicides: Literature Review, [Defence force and veteran suicides - literature review | National Commissioner for Defence and Veteran Suicide Prevention \(nationalcommissionerdvsp.gov.au\)](#)



Prepared by the AIHW for the interim National Commissioner for Defence and Veteran Suicide Prevention.

This report investigates trends, and potential risk and protective factors for ADF members who died by suicide, including military service and post-service experience. The analysis focusses on ADF members who died by suicide and who had at least one day of service between 2001 and 2018, and makes comparisons with the ADF population and Australians who died by suicide.

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