**Supplementary Material**

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**E-Table 1.** Suicide method groups, ICD-10\* code and ICD-10 categories.

|  |  |  |
| --- | --- | --- |
| **Group** | **ICD-10 Code (3-digit level)** | **ICD-10 Category** |
| **Poisoning by chemicals or other substances** |  |  |
|  | X60 | Intentional self-poisoning by and exposure to nonopioid analgesics, antipyretics and antirheumatics |
|  | X61 | Intentional self-poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not elsewhere classified |
|  | X62 | Intentional self-poisoning by and exposure to narcotics and psychodysleptics [hallucinogens], not elsewhere classified |
|  | X63 | Intentional self-poisoning by and exposure to other drugs acting on the autonomic nervous system |
|  | X64 | Intentional self-poisoning by and exposure to other and unspecified drugs, medicaments and biological substances |
|  | X65 | Intentional self-poisoning by and exposure to alcohol |
|  | X68 | Intentional self-poisoning by and exposure to pesticides |
|  | X69 | Intentional self-poisoning by and exposure to other and unspecified chemicals and noxious substances |
| **Poisoning by gases [carbon monoxide and other gases]** |  |  |
|  | X66 | Intentional self-poisoning by and exposure to organic solvents and halogenated hydrocarbons and their vapours |
|  | X67 | Intentional self-poisoning by and exposure to carbon monoxide and other gases and vapours |
| Hanging |  |  |
|  | X70 | Intentional self-harm by hanging, strangulation and suffocation |
| Firearms |  |  |
|  | X72 | Intentional self-harm by handgun discharge |
|  | X73 | Intentional self-harm by rifle, shotgun and larger firearm discharge |
|  | X74 | Intentional self-harm by other and unspecified firearm discharge |
| **Other specified means** |  |  |
|  | X71 | Intentional self-harm by drowning and submersion |
|  | X75 | Intentional self-harm by other and unspecified firearm discharge |
|  | X76 | Intentional self-harm by smoke, fire and flames |
|  | X77 | Intentional self-harm by steam, hot vapours and hot objects |
|  | X78 | Intentional self-harm by sharp object |
|  | X79 | Intentional self-harm by blunt object |
|  | X80 | Intentional self-harm by jumping from a high place |
|  | X81 | Intentional self-harm by jumping or lying before moving object |
|  | X82 | Intentional self-harm by crashing of motor vehicle |
|  | X83 | Intentional self-harm by other specified means |
| **Unspecified means** |  |  |
|  | X84 | Intentional self-harm by unspecified means |

\*ICD-10 (International Classification of Disease 10th revision).

**E-Table 2.** Coding process for occupational groups.

We identified 13,800 suicides in Australia (all states and territories except Western Australia) between 2001 and 2017 by employed adults aged 20-69 years. Of these, there were 4,184 unique free text occupation titles.

Occupation titles provided by the coroner were coded to the 4-digit level according to the Australian and New Zealand Standard Classification of Occupations (ANZSCO) (version 1.3; ABS, 2019; available at: https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/1220.02013,%20Version%201.3?OpenDocument). The ANZSCO codes are used to classify occupations within the NCIS and are maintained by the Australian Bureau of Statistics.

The following ANZSCO Unit Groups were of interest:

|  |  |
| --- | --- |
| **Category** | **ANZSCO Unit Group** |
| Ambulance Officers and Paramedics | 4111 |
| Fire and Emergency Workers | 4412 |
| Police | 4413 |

**ANZSCO**: Australian and New Zealand Standard Classification of Occupations

A wordlist of key search terms was developed based on ANZSCO principal titles, alternative titles, and specialisations associated with the ANZSCO Unit Groups of interest. Acronyms for state and territory emergency services were also included in the key search terms e.g. AFP Australian Federal Police; CFA Country Fire Authority (VIC), CFS Country Fire Service (SA). A PRX (perl regular expression) loop was built within SAS Enterprise Guide (version 7.15) to search the free text occupation titles and flag which key search terms existed in each occupation title.

|  |  |  |
| --- | --- | --- |
| **Key words** | **Acronym meaning** | **ANZSCO Unit Group code allocated to occupation title containing key word** |
| afp | Australian Federal Police |  |
| ambo |  |  |
| ambul |  | 4111 |
| bomb |  |  |
| care |  |  |
| CFA | Country Fire Association; VIC |  |
| CFS | Country Fire Service; SA |  |
| consta |  | 4413 |
| cop |  |  |
| detect |  |  |
| emergency |  |  |
| fire |  | 4412 |
| force |  | 4413 |
| FRNSW | Fire and Rescue New South Wales; NSW |  |
| FRV | Fire and Rescue Victoria; VIC |  |
| guard |  |  |
| intensive |  |  |
| medic |  | 4111 |
| mounted |  |  |
| NSWA | New South Wales Ambulance; NSW |  |
| NTFRS | Northern Territory Fire and Rescue Service; NT |  |
| officer |  | 4111, 4412, 4413 |
| param |  | 4111 |
| patient |  |  |
| patrol |  |  |
| pol |  | 4412, 4413 |
| police |  | 4413 |
| protect |  | 4413 |
| QAS | Queensland Ambulance Service; QLD | 4111 |
| QFES | Queensland Fire and Emergency Service; QLD |  |
| QPS | Queensland Police Service; QLD |  |
| rescue |  |  |
| response |  |  |
| RFS | Rural Fire Service; NSW |  |
| SAAS | South Australia Ambulance Service; SA |  |
| SAPOL | South Australia Police Service; SA |  |
| search |  |  |
| secur |  |  |
| service |  | 4412, 4413 |
| SES | State Emergency Service | 4412 |
| surveil |  |  |
| tactical |  |  |
| TASPOL | Tasmanian Police Service; TAS |  |
| TFS | Tasmanian Fire Service; TAS |  |
| transport |  |  |

**ANZSCO:** Australian and New Zealand Standard Classification of Occupations

**NSW:** New South Wales

**NT:** Northern Territory

**QLD:** Queensland

**SA:** South Australia

**TAS:** Tasmania

**VIC:** Victoria

Occupations flagged as potentially relevant by the PRX loop were then independently reviewed and coded by two researchers (KP and SZ) to the 4-digit level, and discrepancies were resolved through discussion.

Where more than one occupation at the time of death was recorded, and any were relevant to the group of interest, then the occupation was included in that group of interest. If all the listed occupations were from any other occupation, then it was classified as ‘other occupations’.

A random sample of remaining records which were not flagged by key words were manually reviewed to see if any relevant occupation titles had been missed. Remaining occupation titles not marked as relevant were then allocated to the ‘other occupation’ group.

To code to the 4-digit level, some assumptions were required. For example, occupation titles such as “protection officer” or “protective services officer” were assumed to be members of the police force (4413), “station officer” was assumed to be police station officer (4413), and “ses volunteer” was assumed to be emergency service worker (4412).

**E-Table 3.** ANZSCO codes, skill level, title and role of each occupational group.

All professions of interest in this study fell under the ANZSCO Major Group 4 ‘Community and Personal Service Workers’, and have a level of skill commensurate with either:

* ANZSCO Skill Level 1: Bachelor Degree or higher, or at least five years of relevant experience
* ANZSCO Skill Level 2: AQF Associate Degree, Advanced Diploma, Diploma, or at least three years of relevant experience
* ANZSCO Skill Level 3: AQF Certificate IV, or AQF Certificate III including at least two years of on-the-job training, or at least three years of relevant experience (ABS ref 1220.0 - ANZSCO - Australian and New Zealand Standard Classification of Occupations, First Edition, Revision 1).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Emergency Service**  | **ANZSCO Unit Group Code (4-digit)** | **Occupation Code (6-digit)** | **Skill Level** | **Titles** | **Role** |
| **Ambulance Officers and Paramedics\*** |
|  | 4111 |  |  |  | Ambulance Officers and Paramedics provide emergency health care and transport for injured, sick, infirm and aged persons to medical facilities. |
|  |  | 411111 | 2 | Ambulance Officer | Provides specialised transport services and emergency health care for injured, sick, infirm and aged persons. Registration or licensing is required. |
|  |  | 411112 | 1 | Intensive Care Ambulance Paramedic (Aus) / Ambulance Paramedic (NZ) | Provides intensive pre-hospital health care to injured, sick, infirm and aged persons and emergency transport to medical facilities. Registration or licensing is required. |
| **Fire Fighter and Emergency Service Worker\*\*** |
|  | 4412 |  |  |  |  |
|  |  | 441211 | 3 | Emergency Service Worker | Attends the scene of emergencies to minimise risk to community safety and security. |
|  |  | 441212 | 3 | Fire Fighter | Responds to fire alarms and emergency calls, controls and extinguishes fires, and protects life and property. Registration or licensing may be required. |
| **Police\*\*\*** |  |  |  |  |  |
|  | 4413 |  |  |  | Police protect and preserve property, public order and safety through the enforcement of laws. |
|  | 441311 | 2 | Detective | Investigates serious crimes, such as terrorism, homicide, armed robbery, vice and arson, and gathers evidence to arrest and prosecute suspected offenders. |
|  | 441312 | 2 | Police Officer | Maintains public order, and enforces laws by investigating crimes, patrolling public areas and arresting suspected offenders. |

**ANZSCO:** Australian and New Zealand Standard Classification of Occupations

**Source:** 1220.0 - ANZSCO -- Australian and New Zealand Standard Classification of Occupations, 2013, Version 1.3. Released at 11:30 AM (CANBERRA TIME) 05/11/2019. Available at: [https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/1220.02013,%20Version%201.3?OpenDocument](https://www.abs.gov.au/AUSSTATS/abs%40.nsf/DetailsPage/1220.02013%2C%20Version%201.3?OpenDocument)

**\* See:** <https://www.abs.gov.au/statistics/classifications/anzsco-australian-and-new-zealand-standard-classification-occupations/2021/browse-classification/4/41/411/4111>

**\*\* See:** <https://www.abs.gov.au/statistics/classifications/anzsco-australian-and-new-zealand-standard-classification-occupations/2021/browse-classification/4/44/441/4412#4412-fire-and-emergency-workers>

**\*\*\* See:** <https://www.abs.gov.au/statistics/classifications/anzsco-australian-and-new-zealand-standard-classification-occupations/2021/browse-classification/4/44/441/4413>

**E-Table 4.** Crude age-standardised suicide rates and 95% Confidence Intervals (CI) by 100,000 person-years by occupational group and gender, Australia\*, 2001-2017.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **All persons** | **Males** | **Females** |
| **Ambulance personnel** |  |  |  |
| Number of suicides | 32 | 26 | <10 |
| Population^ | 189,040 | 128,299 | 60,741 |
| Crude suicide rate (95% CI) | 16.9 (9.9-21.7) | 20.3 (10.8-25.5) | 9.9 (1.5-14.4) |
| **Fire and emergency service workers** |  |  |  |
| Number of suicides | 33 | 33 | <10 |
| Population^ | 185,555 | 175,168 | 10,387 |
| Crude suicide rate (95% CI) | 17.8 (11.3-26.9) | 18.8 (12.0-28.4) | 0.0 |
| **Police**  |  |  |  |
| Number of suicides | 83 | 65 | 18 |
| Population^ | 747,711 | 552,449 | 195,262 |
| Crude suicide rate (95% CI) | 11.1 (7.7-20.2) | 11.8 (7.4-18.1) | 9.2 (0.0-68.1) |
| **Other occupations** |  |  |  |
| Number of suicides | 13,652 | 11,442 | 2,210 |
| Population^ | 138,409,903 | 73,342,675 | 65,067,228 |
| Crude suicide rate (95% CI) | 9.9 (9.6-9.9) | 15.6 (15.2-15.8) | 3.4 (3.2-3.5) |

**^**2011 Australian Census (Australian Bureau of Statistics, 2011)

**\***All states except Western Australia

**E-Figure 1.** Annual age-standardised suicide rates per 100,000 persons for each emergency service and other occupational groups, Australia\*, 2001-2017.



**Fire and ES:** Fire-fighters and emergency service workers

**\***All states except Western Australia