

Suicides Involving Veterans

Arizona Violent Death Reporting System

January 1, 2015 – December 31, 2019

November 2021



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Suicides Involving Veterans, 2015–2019

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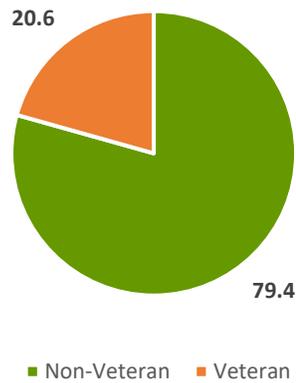
The Arizona Violent Death Reporting System (AZ-VDRS) collects violent death data from multiple sources: death certificates issued by the Arizona Department of Health Services (ADHS), police reports obtained from investigating agencies, and death investigation and autopsy reports from medical examiner offices. The purpose of this project is to assist stakeholders with strategic planning and prevention efforts aimed toward reducing the number of violent deaths that occur each year in Arizona. The data used for this report – *Suicides Involving Veterans* – were drawn from the compilation and analysis of five years of AZ-VDRS data, from January 1, 2015, through December 31, 2019.

AZ-VDRS recorded a total of 9,801 violent deaths for this period; circumstance data were available for 8,809 (89.9%) of the decedents. From these, we excluded 1,884 (21.4%) homicides and 750 (8.5%) violent deaths of undetermined manner, leaving 6,175 (70.1%) suicides for analysis. We further excluded 109 (1.8%) cases for which the decedents' veteran status was unknown, after which our sample consisted of 6,066 suicides for which circumstance and veteran status data were available. Finally, we restricted our analyses to adult suicide victims, excluding 195 (3.2%) victims and leaving 5,871 suicide victims for this report.

We determined veteran status using the indicator for military veteran on the official death certificate; we did not seek external validation, and our data may thus overcount non-veterans as veterans. Use of this definition is consistent with NVDRS standards and with prior research.¹ Note that the term *veteran* may be defined differently elsewhere; for example, individuals who are ineligible for benefits based on discharge status may be excluded in other contexts. AZ-VDRS data analyses and rate calculations may also differ from those of other sources such as the ADHS when our respective analytic processes differ; for example, AZ-VDRS counts *occurrent* deaths (those occurring within the state, regardless of legal residency) rather than *resident* deaths (those of Arizona residents, regardless of the location where death occurs). AZ-VDRS analyses include all decedents for whom we have sufficient data from the sources noted above, including but not limited to official death certificates. As a result, AZ-VDRS and ADHS reports overlap; at the same time, these organizations can each offer unique insights reflecting their respective analytic strategies. For this report, there are no known systematic errors in the AZ-VDRS veteran status counts.

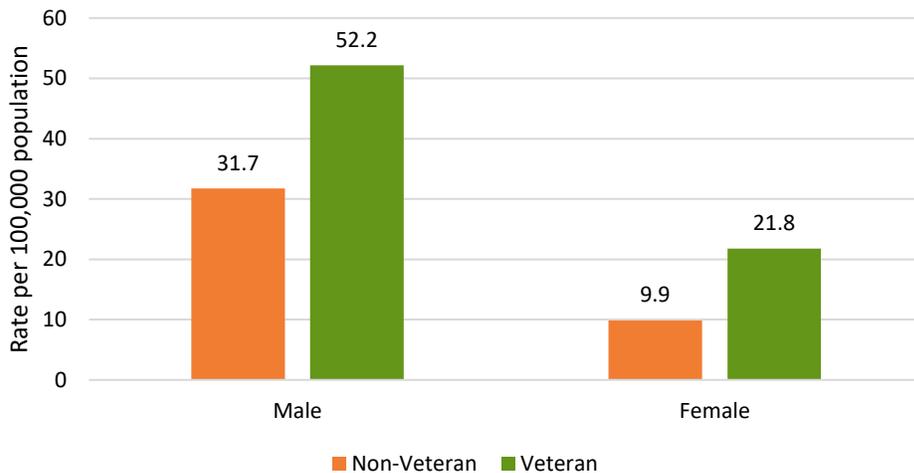
For population estimates, we relied on the American Community Survey (US Census) 5-year and one-year estimates for 2015 through 2019 available at the writing of this report. Note that in all of the exhibits below, the data and analyses represented are for the state of Arizona, 2015–2019, unless otherwise indicated.

Exhibit 1: Percentage of suicides by veteran status, 2015–2019 (N=5871)



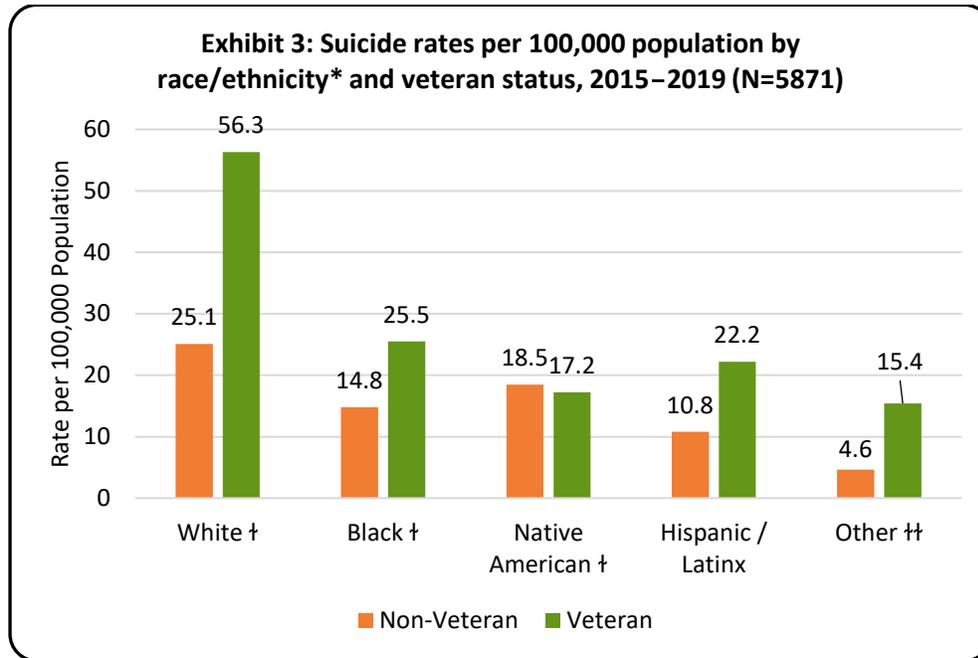
- During the period of 2015–2019, in Arizona, veterans comprised more than 1 in 5 (20.6%) suicide victims.

Exhibit 2: Suicide rates per 100,000 population by sex* and veteran status, 2015–2019



- Overall suicide rates per 100,000 population were significantly higher for male victims, 35.3, than for female victims, 10.1 (*not shown*).²

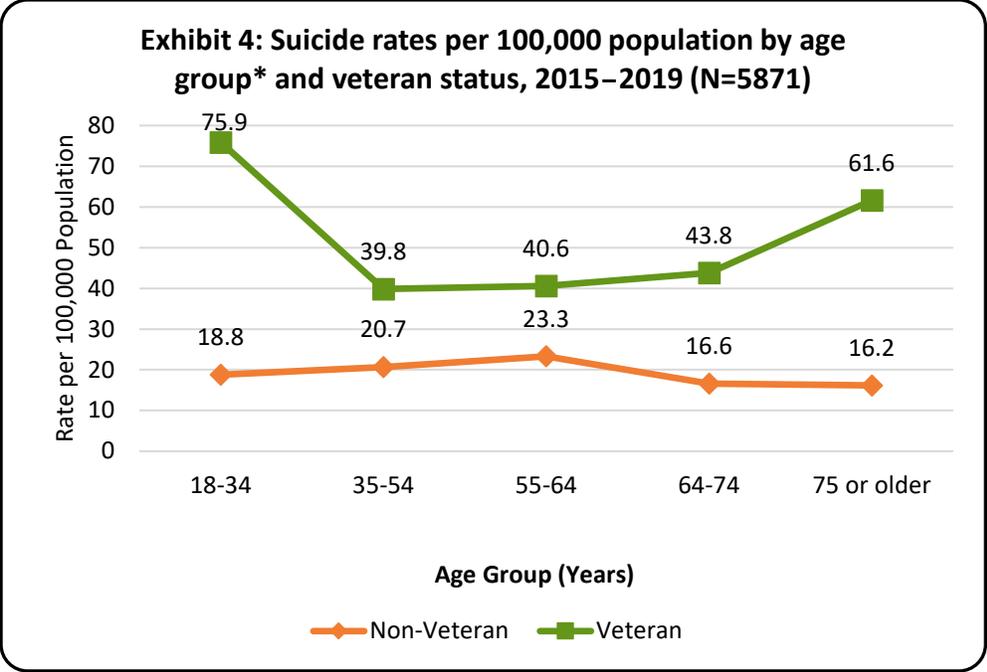
- Males who were veterans were at significantly greater risk of dying by suicide than males who were not veterans; during this period, the suicide rate for veterans was 64.7% greater than the rate for their non-veteran counterparts (52.2, 31.7).
- Female veterans were more than twice as likely to die by suicide as females who were not veterans (21.8, 9.9).



† Non-Hispanic/Latinx; †† Includes Asian, Native Hawaiian, Pacific Islander, Other, and Unspecified

* Statistically significant at $p \leq .05$

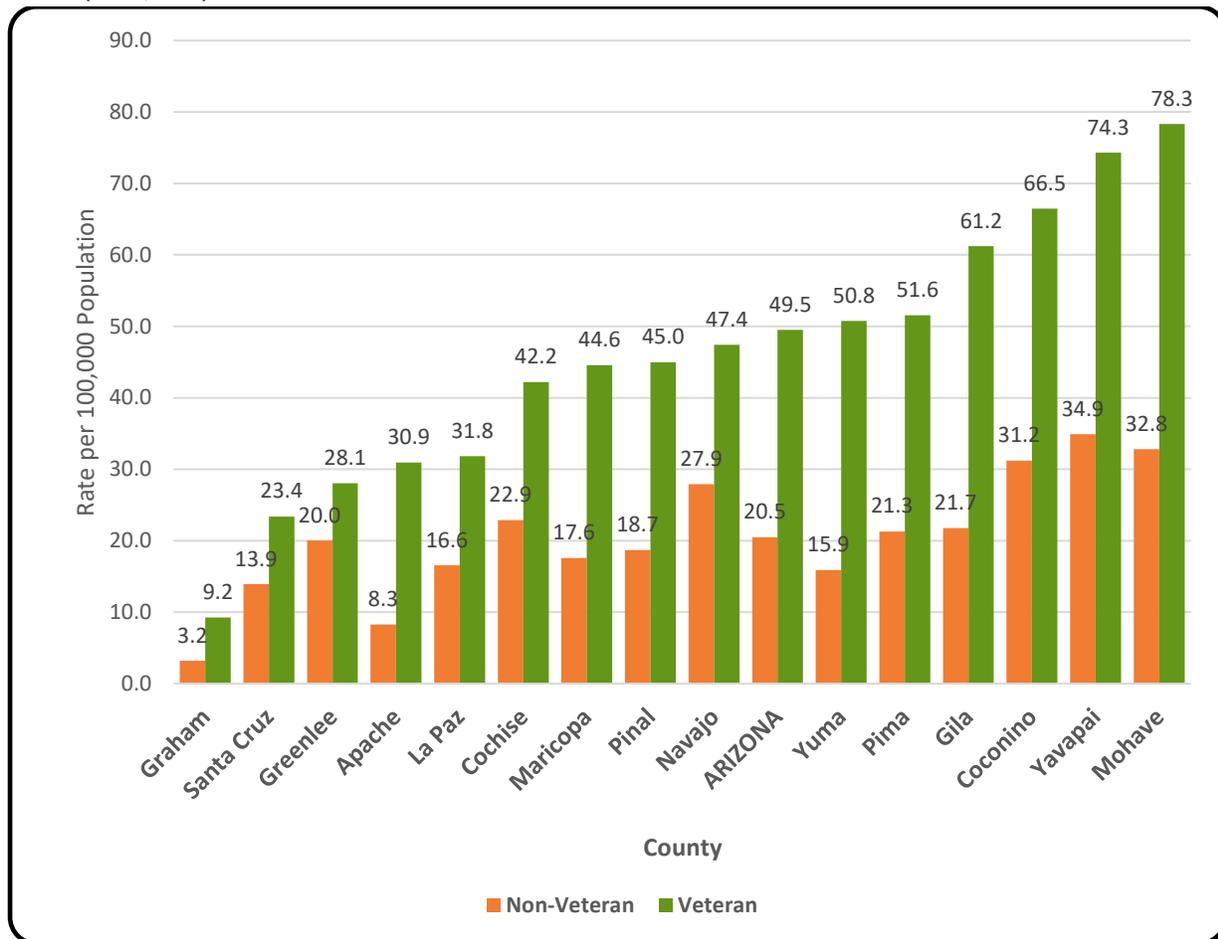
- Across racial/ethnic groups, relative suicide rates for veterans and non-veterans differed significantly.
- The suicide risk was highest for White non-Hispanic/Latinx veterans, with a rate of 56.3 per 100,000 population.
- Within most racial/ethnic groups, veterans were at greater risk of suicide than non-veterans; the exception was Native Americans, for whom the suicide rate for non-veterans was significantly higher than the rate of veterans (18.5, 17.2).



* Statistically significant at $p \leq .05$

- Across all age groups, veterans ages 18–34 had the highest suicide rate (75.9); this rate was lower for those ages 35–54 (39.8) and then gradually increased with age to 61.6 for those 75 or older.
- Across all age groups, non-veteran suicide rates remained relatively level, ranging from 16.2 for those 75 or older to a high of 23.3 for those ages 55–64; regardless of age group, the rate for non-veterans was never higher than that for veterans.

Exhibit 5. Suicide rates per 100,000 population by county and veteran status, 2015–2019 (N=5,871)



* Statistically significant at $p \leq .05$

- In Arizona, during 2015–2019, the statewide suicide rate among veterans was twice that of non-veterans (49.5 and 20.5 per 100,000 population, respectively).
- Suicide rates for veterans were substantially and significantly higher than rates for non-veterans in every Arizona county.
- In Greenlee, the suicide rates for veterans and non-veterans were most similar, at 28.1 and 20.0, respectively.
- Mohave County (78.3) had the highest veteran suicide rate, followed closely by Yavapai County (74.3); Graham and Santa Cruz had the lowest rates (9.2, 23.4).
- Apache, Yuma, and Gila Counties each had approximately a 3-to-1 ratio of veteran to non-veteran suicide rates.

Exhibit 6. Completed education, marital status, and birthplace among suicide victims ages 18 and older by veteran status, 2015–2019 (N=5871)

	Non-Veteran (n=4659)		Veteran (n=1212)		Total	
	n	%	n	%	n	%
Completed Education*						
<= 8th grade	130	2.8	16	1.3	146	2.5
9th – 12th grade	517	11.1	47	3.9	564	9.6
High school or GED grad	1649	35.4	404	33.3	2053	35.0
Some college credit	995	21.4	309	25.5	1304	22.2
Associate or bachelor’s degree	979	21.0	282	23.3	1261	21.5
Advanced degree	291	6.2	123	10.1	414	7.1
Unknown	98	2.1	31	2.6	129	2.2
Marital Status*						
Never Married	1835	39.4	183	15.1	2018	34.4
Married	1232	26.4	465	38.4	1697	28.9
Married, but separated	213	4.6	50	4.1	263	4.5
Divorced	1093	23.5	350	28.9	1443	24.6
Widowed	232	5.0	153	12.6	385	6.6
Single, unspecified	11	0.2	≤5	≤1.0	≥12	≥0.2
Unknown	43	0.9	10	0.8	53	0.9
Birthplace*						
Arizona	1311	28.1	148	12.2	1459	24.9
Other US state or territory	2849	61.2	1012	83.5	3861	65.8
Foreign country	399	8.6	28	2.3	427	7.3
Unknown	100	2.1	24	2.0	124	2.1

* Statistically significant at $p \leq .05$

- Veteran suicide victims differed significantly from non-veteran victims with respect to education completed, marital status, and birthplace.
- Veteran suicide victims were substantially more likely to have earned some college credit or a degree, compared to non-veterans (58.9%, 48.6%).
- Veteran suicide victims were also significantly more likely than non-veteran victims to have been married (including married but separated; 42.5%, 31.0%) or divorced (28.9%, 23.5%).
- Non-veteran suicide victims were more than twice as likely as veteran victims to have never married (39.4%, 15.1%).
- Veteran suicide victims were significantly more likely than non-veteran victims to have been born in a US state other than Arizona (83.5%, 61.2%).

Exhibit 7. Locations of suicide by veteran status, 2015–2019 (N=5,871)

Location*	Non-Veteran (n=4659)		Veteran (n=1212)		Total	
	n	%	n	%	n	%
House or apartment	3354	72.0	947	78.1	4301	73.3
Street/road, sidewalk, alley	164	3.5	33	2.7	197	3.4
Motor vehicle (excluding school bus and public transportation)	298	6.4	64	5.3	362	6.2
Commercial establishment (bar, store, service station, etc.)	37	0.8	≤5	≤1.0	≥38	≥0.7
Parking lot/public parking garage	97	2.1	26	2.1	123	2.1
Jail, prison, group home, shelter, other supervised residential facility	85	1.8	8	0.7	93	1.6
Park, playground, public use area	57	1.2	16	1.3	73	1.2
Natural area (e.g., field, river, beach, woods)	237	5.1	58	4.8	295	5.0
Hotel/motel	147	3.2	31	2.6	178	3.0
Other	163	3.5	22	1.8	185	3.2
Unknown	20	0.4	≤5	≤1.0	23	0.4
Total	4659	100.0	1212	100.0	5871	100.0

* Statistically significant at $p \leq .05$

- Among both veteran and non-veteran suicide victims, about 3 in 4 suicides occurred in private residences.
- Although locations where suicides occurred varied significantly among veteran and non-veteran victims, for any single location type, there were few substantive differences between the two groups.
- Notably, less than 0.7% (n=8 of 1,212 veterans) died by suicide while in jail, prison, a shelter, or another supervised facility, compared to 1.8% (n=85) of non-veteran suicide victims.

Exhibit 8. Methods of death by veteran status, 2015–2019 (N=5871)

Method*	Non-Veteran		Veteran		Total	
	n	%	n	%	n	%
Firearm	2505	53.8	955	78.8	3460	58.9
Sharp instrument	78	1.7	17	1.4	95	1.6
Blunt instrument	130	2.8	≤5	≤1.0	≥131	≥2.3
Hanging, strangulation, suffocation	1153	24.7	134	11.1	1287	21.9
Poisoning	717	15.4	94	7.8	811	13.8
Other †	76	1.6	7	0.6	83	1.4
Total	4659	100.0	1212	100.0	5871	100.0

† Including, but not limited to, falls, fire/burns, motor vehicles and drowning.

* Statistically significant at $p \leq .05$

- There were significant differences in the methods or causes of death between veteran and non-veteran suicide victims.
- Notably, most veteran suicide victims used a firearm, compared to about half of non-veteran victims (78.8%, 53.8%).
- Veteran suicide victims also used hanging, strangulation, or suffocation (11.1%) and poisoning (7.8%) far less frequently than non-veteran suicide victims (24.7% and 15.4%, respectively).

Exhibit 9. Circumstances of suicide victims by veteran status, 2015-2019 (N=5871)

	Non-Veteran (n=4659)		Veteran (n=1212)		Total	
	n	%	n	%	n	%
Mental Health						
Current Mental Health Problem*	2062	44.3	483	39.9	2545	43.3
Current Depressed Mood*	1550	33.3	358	29.5	1908	32.5
Ever Treated for Mental Illness or Substance Misuse*	1410	30.3	245	20.2	1655	28.2
Current Treatment for Mental Illness or Substance Misuse*	1014	21.8	190	15.7	1204	20.5
Any Mental Health Problem*	2484	53.3	596	49.2	3080	52.5
Substance Abuse / Addiction						
Alcohol Problem*	859	18.4	173	14.3	1032	17.6
Other Substance Problem*	916	19.7	87	7.2	1003	17.1
Other Addiction (gambling, sexual, etc.)	27	0.6	6	0.5	33	0.6
Any Addiction Problem*	1327	28.5	208	17.2	1535	26.1
Interpersonal						
Family Relationship Problem*	377	8.1	59	4.9	436	7.4
Intimate Partner Problem*	1292	27.7	220	18.2	1512	25.8
Other Relationship Problem*	85	1.8	13	1.1	98	1.7
Perpetrator of Interpersonal Violence in Past Month	115	2.5	31	2.6	146	2.5
Victim of Interpersonal Violence in Past Month	23	0.5	1	0.1	24	0.4
Suicide of Friend/Family in Past 5 Years	91	2.0	17	1.4	108	1.8
Other Death of Friend/Family	265	5.7	81	6.7	346	5.9
Any Interpersonal Problem*	1625	34.9	319	26.3	1944	33.1
Life Stressor						
Physical Health Problem*	892	19.1	466	38.4	1358	23.1
Job Problem*	446	9.6	67	5.5	513	8.7
Recent Criminal Related Legal Problem*	326	7.0	60	5.0	386	6.6
Other Legal Problems	148	3.2	32	2.6	180	3.1
Financial Problem*	447	9.6	73	6.0	520	8.9
School Problem*	32	0.7	3	0.2	35	0.6
Eviction or Loss of Home	174	3.7	33	2.7	207	3.5
Any Life Stressor*	1707	36.6	546	45.0	2253	38.4
Suicide Event						
History of Suicide Attempts*	1104	23.7	175	14.4	1279	21.8
Disclosed Intent to Complete Suicide	1294	27.8	325	26.8	1619	27.6
History of Suicidal Thoughts	2154	46.2	513	42.3	2667	45.4
Any Indication of Suicide*	2339	50.2	539	44.5	2878	49.0

* Statistically significant at $p < .05$

Note: Circumstance characteristics are not mutually exclusive, and any particular victim may have any number of circumstances present.

- Veteran suicide victims were **less** likely than non-veteran victims to have mental health and/or substance misuse issues reported; for example, one or more mental health-related circumstances were reported for 49.2% of veteran victims, compared to 53.3% of non-veteran victims.
- Substance misuse problems, not including alcohol, were reported nearly three times as often for non-veteran suicide victims as for veteran victims (19.7%, 7.2%).
- Interpersonal problems appeared to be a less significant factor for veteran suicide victims than for non-veteran victims; some form of interpersonal problem was reported for slightly more than 1 in 4 veteran victims and about 1 in 3 non-veteran victims (26.3%, 34.9%)
- Conversely, a physical health problem was more than twice as likely to have been reported for veteran suicide victims than for non-veteran victims (38.4%, 19.1%).
- Suicide victims who were veterans were significantly less likely than victims who were not to be reported as having a history of attempting suicide (14.4%, 23.7%); in fact, veteran victims were **less** likely to have any prior indicators of suicide risk reported (44.5%, 50.2%, respectively).

Implications

Suicide among military veterans is a critical and emerging issue nationally, and this is of paramount concern in the state of Arizona, where AZ-VDRS findings show a significant and substantial influence of veteran status on individual suicide risk. The proportion of veterans in the state population is higher than the national average. Given the geographic size and rural nature of much of the state, dispersion of resources becomes a critical component of responding to veteran suicides.

Our analyses showed that suicide victims who were veterans were less often reported to have experienced substance abuse and interpersonal problems or conflicts than non-veteran victims. Veteran and non-veteran victims were similar in their associations with life stressors in general, but veteran victims were more likely to have had serious physical health problems that may have contributed to the suicide—for as many as 1 in 3 veteran victims, this may have been the suicide trigger. This fact suggests that veterans with major physical health issues are in need of far more immediate and effective support throughout prolonged periods of dealing with the physical and emotional trauma and challenges presented by physical impairment.

Most veteran suicide victims in our analyses were male. It may be a lingering cultural influence that men generally and veterans specifically are disinclined to reach out for help when experiencing mental and emotional distress; this suggests that early screening and treatment for both male and female veterans with risk factors for depression are particularly important for suicide prevention. More than 36% of all veteran suicide victims (not only males) in this report had been diagnosed with depression or dysthymia (depressed mood) prior to taking their own lives, yet only 14.4% were currently receiving treatment. Further, about 2 in 5 were known to have had suicidal thoughts, and a quarter had disclosed their intent to die by suicide shortly before doing so. If we as a state and a nation are serious about preventing suicide among our veterans, increased support for mental health screening and treatment after diagnosis is needed urgently. Critically, we owe veteran men and women the highest standard of care and a rapid, effective response when they have disclosed suicidal thoughts and intentions or have survived actual attempts. The goal should be nothing less than the restoration of their potential for high quality of life.

¹ Huguet, N., Kaplan, M. S., & McFarland, B. H. (2014). The effects of misclassification biases on veteran suicide rate estimates. *American Journal of Public Health, 104*(1), 151–155.

² AZ-VDRS estimates of suicide rates, particularly those of Native American males, may differ from rates reported by other death surveillance systems due to important variations in data sources and coding protocols. For this reason, comparative analyses outside NVDRS and AZ-VDRS should be approached with caution.