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Surveillance of Suicidal Behavior: U.S. Army Active and Reserve Component Soldiers, January–December 2018

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TABLE OF CONTENTS

Page

1. SUMMARY 1

1.1 Purpose 1
1.2 Methods 1
1.3 Results 2
1.4 Conclusions 3

2. REFERENCES 3

3. AUTHORITY 3

4. METHODS 4

5. RESULTS 4

5.1 U.S. Army Active 4
5.2 U.S. Army National Guard 11
5.3 U.S. Army Reserve 18

6. DISCUSSION 24

7. CONCLUSIONS 25

8. POINT OF CONTACT 26

APPENDICES

A References A-1
B Methods B-1
C Supplemental Tables and Figures C-1
Glossary Glossary-1

FIGURES

C-1. U.S. Active Army and U.S. Population Sex and Age Adjusted Suicide Rates by Year, 2008–2017 .... C-1
C-2. Administrative Data Sources in the Army Behavioral Health Integrated Data Environment C-5

TABLES

1. Demographic and Military Characteristics for U.S. Army Active Soldiers by Suicidal Behavior, 2017–2018 5
2. Personal and Legal/Administrative History for U.S. Army Active Soldiers by Suicidal Behavior, 2017–2018 6
3. Event Characteristics for U.S. Army Active Soldiers by Suicidal Behavior, 2017–2018 7
4. Behavioral Health Indicators in U.S. Army Active Soldiers by Suicidal Behavior, 2017–2018 8
5. Crude and Stratum-specific Suicide Rates among U.S. Army Active Soldiers, 2017–2018 10
6. Demographic and Military Characteristics for U.S. Army National Guard Soldiers by Suicidal Behavior, 2017–2018 13
7. Personal and Legal/Administrative History for U.S. Army National Guard Soldiers by Suicidal Behavior, 2017–2018 14
8. Event Characteristics for U.S. Army National Guard Soldiers by Suicidal Behavior, 2017–2018 15
9. Behavioral Health Indicators in U.S. Army National Guard Soldiers by Suicidal Behavior, 2017–2018 16
10. Crude and Stratum-specific Suicide Rates among U.S. Army National Guard Soldiers, 2017–2018 18
11. Demographic and Military Characteristics for U.S. Army Reserve Soldiers by Suicidal Behavior, 2017–2018 21
12. Personal and Legal/Administrative History for U.S. Army Reserve Soldiers among Suicide Attempt Cases, 2017–2018 22
13. Event Characteristics for U.S. Army Reserve Soldiers by Suicidal Behavior, 2017–2018 23
14. Behavioral Health Indicators in U.S. Army Reserve Soldiers by Suicidal Behavior, 2017–2018 24
15. Crude and Stratum-specific Suicide Rates among U.S. Army Reserve Soldiers, 2017–2018 25
C-1. Categorizing Behavioral Health, Chronic Pain, and Traumatic Brain Injury Medical Encounters and Diagnoses C-2

PUBLIC HEALTH REPORT NO. S.0049809.1-18
SURVEILLANCE OF SUICIDAL BEHAVIOR:
U.S. ARMY ACTIVE AND RESERVE COMPONENT SOLDIERS
JANUARY–DECEMBER 2018

1 SUMMARY

1.1 Purpose

Since 2008, the U.S. Army Public Health Center (APHC) Behavioral and Social Health Outcomes Program (BSHOP) has collected, analyzed, and disseminated surveillance data on suicidal behavior (suicides, suicide attempts, and suicidal ideations) among all activated U.S. Army Soldiers (Active, National Guard, and Reserve). In 2016, suicidal behavior among nonactivated U.S. Army Reserve Component (RC) (including Army National Guard (ARNG) and U.S. Army Reserve (USAR)) Soldiers became of particular interest due to the inconsistency in suicidal behavior counts reported by different organizations. Moreover, RC Soldiers are an integral part of the U.S. Army, providing operational and combat support to State governments and the Active Component (AC) during natural disasters, times of war, and other national emergencies. It is crucial they are medically and combat-ready and able to convert to active status when needed.

The APHC generated a report summarizing the frequency and characteristics of suicidal behavior among RC Soldiers during the 2017 calendar year (APHC, 2018). This report included suicide cases among activated and nonactivated Soldiers and suicide attempt and suicidal ideation cases among activated RC Soldiers. However, in an effort to streamline dissemination, the current publication reports on suicidal behavior among both AC and RC Soldiers during 2018 calendar year—using multiple data sources stored in the Army Behavioral Health Integrated Data Environment (ABHIDE). Although the ABHIDE is the most comprehensive data warehouse for information pertaining to suicidal behavior in the U.S. Army, information on the health status of RC Soldiers is limited. RC Soldiers—particularly those who are not activated—often seek healthcare services at medical facilities outside the Army beneficiary network.

1.2 Methods

Suicidal behavior that occurred among U.S Army Soldiers during 2018 calendar year are included in this report. Suicide cases among AC and activated RC Soldiers were obtained from the Armed Forces Medical Examiner System (AFMES) and include both confirmed and pending cases. Suicide cases among nonactivated RC Soldiers were obtained from Army G-1. Suicide attempt and suicidal ideation cases among AC and activated RC Soldiers were identified by the Department of Defense Suicide Event Reports (DoDSERs), which are completed only for Soldiers who are hospitalized or evacuated. Legal, administrative, and personal stressors were also captured using DoDSERs. Suicidal ideation cases were also identified by isolating inpatient medical encounters with *International Classification of Diseases, Ninth Revision* (ICD-9) code V6284 or *Tenth Revision* (ICD-10) code R45851 in any of the first eight diagnosis positions (Dx1–Dx8) in the Military Health System Data Repository (MDR). The most recent serious suicidal event was identified for each Soldier. Medical encounters and diagnoses for behavioral health (BH) conditions—including both psychiatric disorders and psychosocial circumstances, traumatic

brain injury, and chronic pain—were based on military medical claims during a Soldier's time in service while in an active status and were obtained from the MDR. Stressors and behavioral health history were examined in this report due to evidence supporting a strong association with suicidal behavior within the Army population.

1.3 Results

1.3.1 Personal and Event Characteristics

In 2018, suicidal behavior often occurred in the United States among junior enlisted, Whites, and males across components. The majority of RC suicide cases were nonactivated. Although most suicidal behavior cases were single or under age 25, a higher proportion of AC Soldiers who died by suicide were married, and USAR suicide and ideation cases were predominantly over age 24. Approximately 40% of AC and 25% of activated USAR attempt and ideation cases were separated from the Army, within 1 year following the event. The primary methods of suicide and suicide attempts were gunshot wound and drug/alcohol overdose, respectively. The principal stressors among AC and ARNG suicide and attempt cases, and USAR attempt cases with a completed DoDSER, were relationship and work-related problems. Nearly half of ARNG suicide cases with a completed DoDSER had communicated their thoughts to someone close to them. DoDSERs were missing for 70% of USAR suicide cases, all of which were nonactivated, so stressors were not reported for this group.

1.3.2 Behavioral Health and Medical History

The majority of suicidal behavior cases among AC Soldiers and activated RC attempt and ideation cases had contact with the behavioral healthcare system, usually within 30 days prior to the event, and were often diagnosed with adjustment or mood disorder. A lower proportion of activated RC than AC suicide cases sought BH, during their time of service. This may be because medical care obtained outside the military behavioral healthcare system by RC Soldiers does not appear in the military medical records or MDR. Aligned with personal problems documented on DoDSERs, psychosocial encounters for AC Soldiers were often sought for spousal and employment-related problems. In addition to those problems, USAR and ARNG cases also had psychosocial visits frequently related to deployment and the social environment (e.g., problems of life-cycle transitions, acculturation difficulty, or social exclusion and rejection).

1.3.3 Rates of Suicidal Behavior

The following includes the most recent and/or serious suicidal behavior for 2018:

- 139 suicides, 463 suicide attempts, and 3,491 suicidal ideations among AC Soldiers.
- 118 suicides, 27 attempts, and 210 suicidal ideations among ARNG Soldiers.
- 48 suicides, 17 attempts, and 115 suicidal ideations among USAR Soldiers.

The 2018 rates of suicidal behavior among AC Soldiers were 30 suicides, 98 suicide attempts, and 742 suicidal ideations per 100,000 Soldiers. The following suicide rates for RC Soldiers

were based on activated and nonactivated Soldiers: 38 per 100,000 ARNG Soldiers and 26 per 100,000 USAR Soldiers. However, attempt and ideation rates for RC Soldiers included only activated Soldiers, which had 90 attempts and 696 ideations per 100,000 activated ARNG Soldiers and 695 ideations per 100,000 activated USAR Soldiers. An attempt rate was not calculated for activated USAR Soldiers because fewer than 20 attempts were reported.

The suicide rates among AC and ARNG Soldiers 17–24 years old were greater than suicide rates in age groups over age 24. Suicide rates were similar among AC and ARNG Soldiers in the E1–E4 and E5–E6 ranks. The rates of attempt and ideation among AC and activated RC Soldiers were high among females, Soldiers age 17 to 24 years, and junior enlisted Soldiers. Suicidal ideation rates were highest among American Indian and Black AC and activated Black ARNG Soldiers. In contrast, ideation rates were comparable between White and Black activated USAR Soldiers.

1.4 Conclusions

These findings highlight the importance of implementing suicide prevention programs across all components. While targeting prevention programs and efforts toward young and enlisted RC Soldiers remain important, such programs and efforts should also target older RC Soldiers (those over age 24) and expand to include nonactivated RC Soldiers, as the latter group accounted for the majority of suicide cases. However, Soldiers who are junior enlisted, female, 17–24 years old, or Black should continue to be the focus of efforts to prevent suicide attempt and suicidal ideation. Despite the release of the 2017 Department of Defense Instruction (DoDI) requiring DoDSER completion for RC suicide and suicide attempt cases (DOD, 2017a), DoDSERs are still not being completed for nonactivated USAR suicides.

BH care continues to be an important factor in suicidal behavior in the Army. Since the majority of BH encounters were due to psychosocial circumstances, Soldiers should be provided with tools to cope and deal with relationship, employment, and deployment issues. In light of the high proportion of AC and activated USAR Soldiers discharged following a suicide attempt or suicidal ideation, public health studies should be conducted to investigate additional indicators of readiness, which may predict separation such as BH profiles and other adverse career-related events not documented in the DoDSER.

2 REFERENCES

Appendix A lists references used in this report.

3 AUTHORITY

The authority for this report is Army Regulation 40–5 (*Preventive Medicine*, 25 May 2007).

4 METHODS

Appendix B details the methods used to generate this report. Appendix C presents the medical conditions of interest and their corresponding diagnosis codes (Table C-1), as well as the data sources included in the ABHIDE (Figure C-2).

5 RESULTS

5.1 U.S. Army Active Component

5.1.1 Personal and Event Characteristics

In 2018, there were 139 suicides, 463 suicide attempts, and 3,491 suicidal ideations among AC Soldiers. Most Soldiers with suicidal behavior were male, White, 17–24 years old, or junior enlisted (Table 1). The majority of attempt (60%) and ideation (56%) cases were single, whereas suicide cases were often married (57%). Forty-one percent of suicide attempt cases and 39% of ideation cases were discharged from the military, within 1 year following the event. The most frequent reasons were failure to meet standards and misconduct, which excludes drug abuse.

Approximately 70% of suicide and attempt cases had a history of personal problems within 1 year prior to the event, with relationship problems commonly documented for suicides (68%) and attempts (55%) (Table 2). Almost all suicides and attempts occurred in the U.S. (Table 3). The most common method of suicide was gunshot wound (62%), whereas most attempts were overdoses by drug/alcohol (58%).

5.1.2 Behavioral Health and Medical History

Most Soldiers with suicidal behavior had a BH encounter during their military career (72–86%), primarily in an outpatient clinic (Table 4). Psychosocial circumstances accounted for 74–79% of BH encounters—spousal and employment-related issues were the most frequent (not tabled). A higher proportion of attempt (68%) and ideation (80%) cases sought care within 30 days before the event compared to suicide cases (38%). The majority of attempt cases (66%), ideation cases (70%), and suicide cases (57%) had a BH diagnosis during their military career. Of those with a BH diagnosis, adjustment disorder was the most frequent diagnosis (68–78%) among all suicidal behavior cases, followed by substance use disorder among suicide cases (44%), mood disorder among attempt (51%), and ideation (53%) cases.

5.1.3 Rates of Suicidal Behavior

In 2018, suicidal behavior occurred at a rate of 30 suicides, 98 suicide attempts, and 742 ideations per 100,000 AC Soldiers (Table 5). AC Soldiers 17–24 years old had the highest rate of suicide (33/100,000 Soldiers) compared to those over age 24. However, junior enlisted Soldiers (36/100,000 Soldiers) and noncomissioned officers (31/100,000 Soldiers) had similar suicide rates. The rates of attempt and ideation among AC Soldiers were higher for those who were female (173 and 1,000 per 100,000 Soldiers) than for those who were male. Junior

enlisted (175 and 1,266 per 100,000 Soldiers) had the highest rates of attempt and ideation. Regarding age and race, AC Soldiers who were 17–24 years old (177 and 1,211 per 100,000 Soldiers) had the highest attempt and ideation rates, while Black (109 per 100,000 Soldiers) and American Indian Soldiers (993 per 100,000 Soldiers) had the highest attempt and ideation rate, respectively.

5.1.4 U.S. Army Active Tables

Tables 1–5 present AC results.

Table 1. Demographic and Military Characteristics of U.S. Army Active Component Soldiers by Suicidal Behavior, 2017–2018

	Suicidal Behavior[a] n (%)					
	Suicide[b]		Suicide Attempt[c]		Suicidal Ideation[c]	
	2017 (n=116)	2018 (n=139)	2017 (n=461)	2018 (n=463)	2017 (n=3486)	2018 (n=3491)
SEX						
Male	110 (95)	132 (95)	346 (75)	341 (74)	2661 (76)	2784 (80)
Female	6 (5)	7 (5)	115 (25)	122 (26)	825 (24)	707 (20)
AGE						
17–24	55 (47)	62 (45)	303 (66)	328 (71)	2143 (61)	2245 (64)
25–34	37 (32)	50 (36)	120 (26)	96 (21)	979 (28)	923 (26)
35–59	24 (21)	27 (19)	38 (8)	39 (8)	364 (10)	323 (9)
RACE-ETHNICITY						
White	76 (66)	95 (68)	234 (51)	254 (55)	1785 (51)	1849 (53)
Black	14 (12)	16 (12)	113 (25)	107 (23)	940 (27)	895 (26)
Hispanic	19 (16)	18 (13)	72 (16)	61 (13)	510 (15)	536 (15)
Asian/Pacific Islander	7 (6)	9 (6)	31 (7)	28 (6)	204 (6)	173 (5)
American Indian	0	1 (1)	10 (2)	12 (3)	47 (1)	33 (1)
MARITAL STATUS[d]						
Single	42 (36)	55 (40)	250 (54)	276 (60)	1854 (53)	1961 (56)
Married	63 (54)	79 (57)	181 (39)	176 (38)	1464 (42)	1388 (40)
Divorced	10 (9)	5 (4)	29 (6)	11 (2)	158 (5)	137 (4)
Other	1 (1)	0	0	0	10 (0)	5 (0)
RANK[e]						
E1–E4	61 (53)	75 (54)	345 (75)	367 (80)	2582 (74)	2658 (76)
E5–E6	36 (31)	37 (27)	82 (18)	61 (13)	625 (18)	566 (16)
E7–E9	14 (12)	17 (12)	20 (4)	12 (3)	148 (4)	139 (4)
W1–W5	2 (2)	0	5 (1)	2 (0)	25 (1)	19 (1)
O1–O8	3 (3)	10 (8)	9 (2)	19 (4)	106 (3)	109 (3)

	Suicidal Behavior[a] n (%)					
	Suicide[b]		Suicide Attempt[c]		Suicidal Ideation[c]	
	2017 (n=116)	2018 (n=139)	2017 (n=461)	2018 (n=463)	2017 (n=3486)	2018 (n=3491)
SEPARATION[f]						
Yes	–	–	194 (42)	192 (41)	1515 (43)	1375 (39)
Within 1 year	–	–	170 (88)	183 (95)	1322 (87)	1331 (97)
Drug/Alcohol-related	–	–	38 (20)	31 (16)	289 (19)	238 (17)
Failure to Meet Standards	–	–	42 (22)	47 (24)	358 (24)	397 (29)
Misconduct (excludiung drug abuse)	–	–	50 (26)	48 (25)	297 (20)	256 (19)
Unspecified Condition	–	–	34 (18)	55 (29)	328 (22)	333 (24)

Legend:
E=Enlisted
O=Officer
W=Warrant Officer
Notes:
[a]Total number of cases includes Soldiers with missing information.
[b]Included suicides confirmed or pending confirmation by the Armed Forces Medical Examiner System.
[c]From Department of Defense Suicide Event Reports, which are completed only for cases that were hospitalized or evacuated.
[d]Included widowed and legally separated.
[e]No cases reported among Cadets.
[f]Top reasons for separation following the event were obtained from the Military Personnel Transition Point Processing System.
[g]Excludes drug abuse.

Table 2. Personal and Legal/Administrative History[a] of U.S. Army Active Component Soldiers by Suicidal Behavior, 2017–2018

	Suicidal Behavior[b] n (%)			
	Suicide[c]		Suicide Attempt[d]	
	2017 (n=116)	2018 (n=139)	2017 (n=461)	2018 (n=463)
LEGAL/ADMINISTRATIVE HISTORY[e]	**28 (26)**	**35 (27)**	**149 (32)**	**132 (29)**
Article 15	9 (32)	15 (42)	74 (50)	63 (48)
Civil Legal Problems	11 (39)	12 (34)	24 (16)	26 (20)
Administrative Separation[f]	9 (32)	16 (46)	61 (41)	54 (41)
Absent Without Leave	5 (18)	5 (14)	13 (9)	9 (7)
Nonselection[g]	5 (18)	8 (23)	15 (10)	18 (14)
Courts Martial	4 (14)	5 (14)	6 (4)	9 (7)
Medical Board[h]	8 (8)	9 (7)	50 (11)	37 (8)
PERSONAL HISTORY[e]	**80 (76)**	**90 (68)**	**338 (74)**	**334 (74)**
Relationship Problem	51 (63)	61 (68)	200 (59)	185 (55)

	Suicidal Behavior[b] n (%)			
	Suicide[c]		Suicide Attempt[d]	
	2017 (n=116)	2018 (n=139)	2017 (n=461)	2018 (n=463)
Work Stress	31 (39)	30 (33)	158 (47)	154 (46)
Physical Health Problem	26 (33)	35 (39)	61 (18)	59 (18)
Victim of Abuse				
Previous Year	4 (5)	7 (8)	64 (19)	57 (17)
Ever	16 (20)	18 (20)	158 (47)	153 (46)
Emotional Abuse	15 (94)	11 (61)	114 (34)	105 (69)
Physical Abuse	7 (44)	14 (78)	88 (56)	88 (57)
Sexual Abuse	3 (19)	8 (44)	82 (52)	83 (54)
Perpetrator of Abuse	14 (18)	15 (17)	22 (7)	22 (7)
Spouse/Family/Friend Death	7 (9)	13 (14)	68 (20)	87 (26)
Financial Stress	15 (19)	9 (10)	37 (11)	31 (9)
Spouse/Family Health Problem	6 (8)	4 (4)	26 (8)	25 (7)
Spousal/Family/Friend Suicide				
Previous Year	3 (4)	5 (6)	35 (10)	36 (11)
Ever	11 (14)	7 (8)	78 (23)	91 (27)

Notes:
[a]Personal and legal/administrative history within 1 year before event, except as noted. Data were obtained from Department of Defense Suicide Event Report (DoDSER), except as noted.
[b]Total number of cases includes Soldiers with missing information.
[c]Includes suicides confirmed or pending confirmation by the Armed Forces Medical Examiner System. DoDSERs were not available for 11 cases in 2017 and 7 in 2018.
[d]Only cases hospitalized or evacuated.
[e]Not mutually exclusive.
[f]Considered for separation from the Army on the basis of conduct or inability to meet standards of duty performance and discipline.
[g]Not selected for advanced schooling, promotion, or command.
[h]Medical evaluation board to determine fitness for continued duty.

Table 3. Event Characteristics[a] of U.S. Army Active Component Soldiers by Suicidal Behavior, 2017–2018

	Suicidal Behavior[b] n (%)			
	Suicide[c]		Suicide Attempt[d]	
	2017 (n=116)	2018 (n=139)	2017 (n=461)	2018 (n=463)
LOCATION OF EVENT[e]				
USA	104 (90)	127 (91)	407 (89)	398 (92)
In Theater	4 (3)	3 (2)	12 (3)	0 (0)
Other[f]	8 (7)	9 (6)	36 (8)	35 (8)
METHOD OF EVENT[e]				
Gunshot wound	78 (67)	86 (62)	26 (6)	19 (4)
Hanging/asphyxiation	33 (28)	43 (31)	66 (14)	75 (16)
Drug/alcohol overdose	3 (3)	3 (2)	252 (55)	264 (58)
Cutting	1 (1)	0 (0)	79 (17)	54 (12)
Other	1 (1)	7 (5)	35 (8)	41 (9)
SUBSTANCE INVOLVEMENT				
Event Involved Alcohol	15 (14)	33 (25)	132 (29)	137 (30)
Event Involved Drugs	5 (5)	7 (5)	212 (46)	239 (52)
OTHER EVENT CHARACTERISTICS				
Communicated Prior to Event	38 (36)	31 (23)	113 (25)	95 (21)

Notes:
[a]Data were obtained from Department of Defense Suicide Event Report (DoDSER), except as noted.
[b]Total number of cases includes Soldiers with missing information.
[c]Includes suicides confirmed or pending confirmation by the Armed Forces Medical Examiner System. DoDSERs were not available for 11 suicide cases in 2017 and 7 in 2018.
[d]Only cases hospitalized or evacuated.
[e]Obtained from the Defense Casualty Information Processing System for suicides.
[f]Primarily Europe or Korea.

Table 4. Behavioral Health (BH) and Medical History[a] among U.S. Army Active Component Soldiers by Suicidal Behavior, 2017–2018

	Suicidal Behavior n (%)					
	Suicide[b]		Suicide Attempt[c]		Suicidal Ideation[c]	
	2017 (n=116)	2018 (n=139)	2017 (n=461)[c]	2018 (n=463)[c]	2017 (n=3486)	2018 (n=3491)
BH MEDICAL ENCOUNTERS[d]	**98 (84)**	**100 (72)**	**348 (78)**	**344 (80)**	**3014 (86)**	**2988 (86)**
Inpatient	27 (28)	35 (35)	139 (40)	118 (34)	1118 (37)	957 (32)
Outpatient	98 (100)	99 (99)	347 (100)	343 (100)	3007 (99)	2982 (99)
30 Days Before Event	45 (46)	38 (38)	256 (74)	235 (68)	2475 (82)	2377 (80)
Psychosocial Encounter	79 (81)	79 (79)	257 (74)	256 (74)	2354 (78)	2309 (77)
30 Days Before Event	19 (24)	17 (21)	101 (41)	92 (36)	1032 (44)	1040 (45)
BH DIAGNOSIS[d,e]	**68 (59)**	**79 (57)**	**285 (64)**	**282 (66)**	**2571 (74)**	**2458 (70)**
Within 1 Year Before Event	37 (54)	30 (38)	211 (74)	205 (73)	2030 (79)	1953 (79)
Multiple BH Diagnosis	47 (69)	44 (56)	204 (72)	169 (60)	1792 (70)	1590 (65)
Mood Disorder	**16 (24)**	**33 (42)**	**108 (38)**	**144 (51)**	**1563 (61)**	**1314 (53)**
Within 1 Year Before Event	16 (43)	12 (40)	108 (51)	91 (44)	1038 (51)	870 (45)
Posttraumatic Stress Disorder	**16 (23)**	**15 (19)**	**58 (20)**	**45 (16)**	**598 (23)**	**445 (18)**
Within 1 Year Before Event	5 (14)	4 (13)	38 (18)	26 (13)	391 (19)	288 (15)
Anxiety Disorder[f]	**29 (43)**	**30 (38)**	**114 (40)**	**90 (32)**	**1106 (43)**	**920 (37)**
Within 1 Year Before Event	8 (22)	8 (27)	63 (30)	44 (21)	607 (30)	499 (26)
Adjustment Disorder	**45 (66)**	**54 (68)**	**209 (73)**	**220 (78)**	**2037 (79)**	**1929 (78)**
Within 1 Year Before Event	14 (38)	16 (53)	112 (53)	136 (66)	1163 (57)	1166 (60)
Substance Use Disorder	**29 (43)**	**35 (44)**	**106 (37)**	**95 (34)**	**858 (33)**	**830 (34)**
Within 1 Year Before Event	13 (35)	12 (40)	65 (31)	64 (31)	527 (26)	526 (27)
Sleep Disorder	**18 (26)**	**23 (29)**	**112 (39)**	**93 (33)**	**1109 (43)**	**936 (38)**
TRAUMATIC BRAIN INJURY						
Any Diagnosis	24 (21)	23 (17)	45 (10)	43 (10)	376 (11)	382 (11)
CHRONIC PAIN						
Encounter 1 year before event	13 (11)	16 (12)	38 (9)	36 (8)	460 (13)	475 (14)

Notes:
[a]Medical claims data were obtained from the Military Health System Data Repository. *International Classification of Diseases, Tenth Revision* codes used to isolate encounters and determine diagnoses can be found in Appendix C.
[b]Included suicides confirmed or pending confirmation by the Armed Forces Medical Examiner System.
[c]Obtained from the Department of Defense Suicide Event Report, which are available only for cases hospitalized or evacuated.
[d]Not mutually exclusive.
[e]Diagnosed during their military career for one or more of the following: mood, posttraumatic stress disorder, other anxiety disorder, adjustment disorder, and substance use disorder.
[f]Included panic disorder, generalized anxiety disorder, or obsessive-compulsive disorder.

Table 5. Crude and Stratum-Specific Rates[a,b] by Suicidal Behavior Among U.S. Army Active Component Soldiers, 2017–2018

	Suicidal Behavior, Rate[c] (95%CI)					
	Suicide[d]		Suicide Attempt[e]		Suicidal Ideation[e]	
	2017	2018	2017	2018	2017	2018
Overall	25 (23–27)	30 (27–32)	98 (94–102)	98 (94–102)	741 (730–752)	742 (731–753)
SEX						
Female	–	–	164 (136–197)	173 (145–206)	1174 (1096–1257)	1000 (929–1076)
Male	27 (23–33)	33 (28–39)	86 (78–96)	85 (77–95)	663 (638–689)	695 (669–721)
RANK						
E1–E4	29 (22–37)	36 (29–45)	163 (146–181)	175 (158–194)	1217 (1171–1265)	1266 (1218–1315)
E5–E6	30 (22–42)	31 (22–43)	69 (55–85)	50 (40–66)	523 (483–565)	473 (435–513)
E7–E9	–	–	42 (27–64)	–	307 (262–361)	279 (236–329)
O1–O10	–	–	–	–	137 (113–166)	140 (116–169)
W1–W10	–	–	–	–	174 (118–258)	–
AGE						
17–24	30 (23–40)	33 (26–43)	168 (150–188)	177 (159–197)	1186 (1137–1237)	1211 (1161–1261)
25–34	21 (15–28)	28 (21–37)	67 (56–80)	54 (44–66)	544 (511–580)	516 (484–551)
35–59	22 (15–32)	25 (17–37)	34 (25–47)	36 (27–50)	328 (296–364)	301 (270–336)
RACE-ETHNICITY						
White	29 (23–36)	36 (29–44)	88 (78–100)	96 (85–109)	673 (643–705)	700 (669–732)
Black	–	–	113 (94–135)	109 (90–132)	937 (879–998)	911 (853–972)
Hispanic	–	–	103 (82–130)	84 (65–107)	728 (668–795)	734 (675–800)
Asian/Pacific Islander	–	–	111 (78–158)	99 (69–144)	728 (636–837)	613 (528–712)
American Indian	–	–	–	–	1427 (1072–1899)	993 (706–140)

Legend:
E=Enlisted
O=Officer
W=Warrant
CI=confidence intervals

Notes:
[a]Included U.S. Army Active Soldiers aged 17–59 with identifiable demographic factors.
[b]Population counts were provided by Defense Manpower Data Center.
[c]Cells without reported values reflect counts greater than 0 but less than 20; rates were not calculated or reported for counts less than 20. Rates are interpreted as the number of events per 100,000 Active Soldiers.
[d]Counts of U.S. Army Active suicide cases were provided by Armed Forces Medical Examiner System.
[e]Obtained From the Department of Defense Suicide Event Report, which are available only for cases hospitalized or evacuated.

5.2 U.S. Army National Guard

5.2.1 Personal and Event Characteristics

In 2018, 118 ARNG Soldiers died by suicide (81% (n=95) were nonactivated), and there were 27 attempts and 210 ideations reported among activated ARNG Soldiers (Table 6). The highest proportion of suicidal behavior cases were male, White, single, 17–24 years old, and junior enlisted. Personal problems were more prevalent compared to legal or administrative problems; 82% of suicide cases (n=95) and 77% of attempt cases (n=26) with completed DoDSERs had personal issues within 1 year prior to the event (Table 7). Relationship problems were the most frequently cited for both suicide (69%) and attempt cases (55%). All suicides and 96% of attempts occurred in the U.S. (Table 8). Gunshot wound (72%) was the most common method of suicide and drug/alcohol overdose of attempt (54%). Nearly half of suicide cases communicated their intentions to someone close to them, such as a friend, co-worker, or Family member.

5.2.2 Behavioral Health and Medical History

Forty-three percent (n=49) of suicide cases with military medical claims data (n=114) had an outpatient or inpatient BH encounter while on active status during their military career (Table 9). Forty-seven percent of BH encounters were related to a psychosocial problem such as deployment (30%) or social environment (30%) (not tabled). Of those suicide cases with military medical claims data, 25% (n=28) had a BH diagnosis, often for mood or adjustment disorder. The social environment category included problems of life-cycle transitions, acculturation difficulty, or social exclusion and rejection.

Seventy-four percent of attempt and 72% of ideation cases made contact with the behavioral healthcare system while on active status during their military career; over half occurred in the 30 days before the event. The primary reason for attempt and ideation cases who sought BH care was for a psychosocial problem (60%); most frequent reasons were spousal issues (42%) for attempt cases and employment-related problems (29%) for ideation cases, both followed by circumstances related to the social environment (33% and 27%, respectively) (not tabled). Over 50% of attempt and ideation cases were diagnosed with a BH disorder; mood (53% and 65%, respectively) and adjustment (76% and 61%, respectively) disorders were the most frequent diagnoses.

5.2.3 Rates of Suicidal Behavior

In 2018, the overall rates of suicidal behavior were 38 suicides per 100,000 ARNG Soldiers, and 90 attempts and 696 ideations per 100,000 activated ARNG Soldiers (Table 10). ARNG Soldiers 17–24 years old had a higher rate of suicide (41/100,000 Soldiers) compared to Soldiers in age groups over age 24. The rates of suicide for ARNG junior enlisted Soldiers (42/100,000 Soldiers) and noncommissioned officers (40/100,000 Soldiers) were comparable. Activated ARNG Soldiers who were female (1,016/100,000 Soldiers) had a higher ideation rate compared to male Soldiers. Furthermore, suicidal ideation rates were highest among activated ARNG

junior enlisted (27,060/100,000 Soldiers), 17–24 years old (20,070/100,000 Soldiers), or Black (1,312/100,000 Soldiers) Soldiers compared to their counterparts.

5.2.4 U.S. Army National Guard Tables

Tables 6–10 present the ARNG results.

Table 6. Demographic and Military Characteristics of U.S. Army National Guard Soldiers by Suicidal Behavior, 2017–2018

	Suicidal Behavior[a] n (%)					
	Suicide[b]		Suicide Attempt[c]		Suicidal Ideation[c]	
	2017 (n=122)	2018 (n=118)	2017 (n=22)	2018 (n=27)	2017 (n=210)	2018 (n=210)
SEX						
Male	116 (95)	112 (95)	15 (68)	17 (63)	152 (72)	153 (73)
Female	6 (5)	6 (5)	7 (32)	10 (37)	58 (28)	57 (27)
AGE						
17–24	55 (45)	49 (42)	11 (50)	12 (44)	95 (45)	111 (53)
25–34	34 (28)	41 (35)	6 (27)	6 (22)	59 (28)	48 (23)
35–59	33 (27)	28 (24)	5 (23)	9 (33)	56 (27)	51 (24)
RACE-ETHNICITY						
White	100 (82)	90 (76)	15 (68)	14 (52)	140 (67)	140 (67)
Black	13 (11)	13 (11)	3 (14)	7 (26)	46 (22)	40 (19)
Hispanic	4 (3)	7 (6)	2 (9)	3 (11)	14 (7)	20 (10)
Asian/Pacific Islander	2 (2)	4 (3)	2 (9)	3 (11)	8 (4)	9 (4)
American Indian	3 (2)	4 (3)	0 (0)	0 (0)	2 (1)	1 (0)
MARITAL STATUS						
Single	71 (58)	75 (64)	12 (55)	15 (56)	117 (56)	135 (64)
Married	41 (34)	40 (34)	9 (41)	10 (37)	78 (37)	64 (30)
Divorced	8 (7)	3 (3)	1 (5)	1 (4)	15 (7)	10 (5)
Other[d]	2 (2)	0 (0)	0 (0)	1 (4)	0 (0)	1 (0)
RANK[e]						
E1–E4	62 (51)	70 (59)	12 (55)	15 (56)	110 (52)	125 (60)
E5–E6	44 (36)	34 (29)	8 (36)	8 (30)	61 (29)	58 (28)
E7–E9	5 (4)	6 (5)	2 (9)	3 (11)	23 (11)	19 (9)
W1–W5	1 (1)	0 (0)	0 (0)	0 (0)	3 (1)	1 (0)
O1–O8	10 (8)	8 (7)	0 (0)	0 (0)	13 (6)	7 (3)
ACTIVATION STATUS						
Activated	19 (16)	23 (19)	22 (100)	27 (100)	210 (100)	210 (100)

	Suicidal Behavior[a] n (%)					
	Suicide[b]		Suicide Attempt[c]		Suicidal Ideation[c]	
	2017 (n=122)	2018 (n=118)	2017 (n=22)	2018 (n=27)	2017 (n=210)	2018 (n=210)
Nonactivated	103 (84)	95 (81)	0	0	0	0
SEPARATION[f]						
Yes	–	–	3 (14)	1 (4)	12 (6)	12 (6)
Within a year of event	–	–	3 (100)	1 (100)	12 (100)	12 (100)

Legend:
E=Enlisted
O=Officer
W=Warrant Officer
Notes:
[a]Total number of cases includes Soldiers with missing information.
[b]Included suicides confirmed or pending confirmation by the Armed Forces Medical Examiner System.
[c]Obtained From Department of Defense Suicide Event Reports (DoDSERs), which are completed only for activated National Guard cases that were hospitalized or evacuated.
[d]Included widowed and legally separated.
[e]No cases reported among Cadets.
[f]Top reasons for separation following the event were obtained from Military Personnel Transition Point Processing System.

Table 7. Personal and Legal/Administrative History[a] of U.S. Army National Guard Soldiers by Suicidal Behavior, 2017–2018

	Suicidal Behavior[b] n (%)			
	Suicide[c]		Suicide Attempt[d]	
	2017 (n=122)	2018 (n=118)	2017 (n=22)	2018 (n=27)
LEGAL/ADMINISTRATIVE HISTORY[e]	**28 (26)**	**26 (27)**	**6 (27)**	**5 (19)**
Article 15	6 (21)	4 (15)	3 (50)	2 (40)
Civil Legal Problems	18 (64)	16 (62)	1 (17)	0 (0)
Administrative Separation[f]	6 (21)	5 (19)	4 (67)	2 (40)
Absent Without Leave	4 (14)	7 (27)	1 (17)	1 (20)
Nonselection[g]	2 (7)	7 (27)	0 (0)	0 (0)
Courts Martial	0 (0)	1 (4)	1 (17)	0 (0)
Medical Board[h]	3 (11)	4 (15)	2 (33)	1 (20)
PERSONAL HISTORY[e]	**81 (74)**	**78 (82)**	**16 (73)**	**20 (77)**
Relationship Problem	59 (73)	54 (69)	7 (44)	11 (55)
Work Stress	33 (41)	27 (35)	9 (56)	9 (45)
Physical Health Problem	16 (20)	13 (17)	5 (31)	5 (25)
Victim of Abuse				
Previous Year	4 (5)	5 (6)	0 (0)	6 (30)
Ever	13 (16)	16 (21)	5 (31)	10 (50)

	Suicidal Behavior[b] n (%)			
	Suicide[c]		Suicide Attempt[d]	
	2017 (n=122)	2018 (n=118)	2017 (n=22)	2018 (n=27)
Emotional Abuse	8 (62)	11 (69)	5 (100)	9 (45)
Physical Abuse	10 (77)	12 (75)	4 (80)	6 (30)
Sexual Abuse	6 (46)	2 (13)	3 (60)	8 (40)
Perpetrator of Abuse	12 (15)	11 (14)	0 (0)	0 (0)
Spouse/Family/Friend Death	5 (6)	16 (21)	1 (6)	4 (20)
Financial Stress	19 (23)	14 (18)	1 (6)	3 (15)
Spouse/Family Health Problem	7 (9)	0 (0)	1 (6)	2 (10)
Spousal/Family/Friend Suicide				
Previous Year	3 (4)	8 (10)	1 (6)	1 (5)
Ever	10 (12)	17 (22)	3 (19)	3 (15)

Notes:
[a]Personal and legal/administrative history within 1 year before suicide, except as noted. Data were obtained from Department of Defense Suicide Event Report (DoDSER). DoDSERs were not available for 13 suicides in 2017 and 23 in 2018, and for 1 attempt in 2018.
[b]Total number of cases includes Soldiers with missing information.
[c]Included suicides confirmed or pending confirmation by the Armed Forces Medical Examiner System.
[d]Only activated National Guard cases who were hospitalized or evacuated.
[e]Not mutually exclusive.
[f]Considered for separation from the Army on the basis of conduct or inability to meet standards of duty performance and discipline.
[g]Not selected for advanced schooling, promotion, or command.
[h]Medical evaluation board to determine fitness for continued duty.

Table 8. Event Characteristics[a] of U.S. Army National Guard Soldiers by Suicidal Behavior, 2017–2018

	Suicidal Behavior n (%)			
	Suicide[b]		Suicide Attempt[c]	
	2017 (n=122)	2018 (n=118)	2017 (n=22)	2018 (n=27)
LOCATION OF EVENT[d]				
USA	122 (100)	118 (100)	20 (91)	25 (96)
In Theater	0 (0)	0 (0)	2 (9)	0 (0)
Other[e]	0 (0)	0 (0)	0 (0)	1 (4)
METHOD OF EVENT[d]				
Gunshot wound	101 (83)	85 (72)	1 (5)	0 (0)
Hanging/asphyxiation	17 (14)	18 (15)	2 (9)	9 (35)
Drug/alcohol overdose	2 (2)	5 (4)	15 (68)	14 (54)
Cutting	0 (0)	0 (0)	3 (14)	2 (8)

	Suicidal Behavior n (%)			
	Suicide[b]		Suicide Attempt[c]	
	2017 (n=122)	2018 (n=118)	2017 (n=22)	2018 (n=27)
Other	1 (1)	3 (3)	1 (5)	1 (4)
SUBSTANCE INVOLVEMENT				
Event Involved Alcohol	35 (32)	32 (34)	8 (36)	2 (8)
Event Involved Drugs	11 (10)	11 (12)	14 (64)	16 (62)
OTHER EVENT CHARACTERISTICS				
Communicated Prior to Event	52 (48)	45 (47)	3 (14)	7 (27)

Notes:
[a]Data were obtained from Department of Defense Suicide Event Reports (DoDSERs), except as noted. DoDSERs were not available for 13 suicides in 2017, 23 suicides in 2018, and 1 attempt in 2018.
[b]Included suicides confirmed or pending confirmation by the Armed Forces Medical Examiner System.
[c]Only activated National Guard cases who were hospitalized or evacuated.
[d]Obtained from the Defense Casualty Information Processing System for suicide cases.
[e]Primarily Europe or Korea.

Table 9. Behavioral Health (BH) and Medical History[a] of U.S. Army National Guard Soldiers by Suicidal Behavior, 2017–2018

	Suicidal Behavior n (%)					
	Suicide[b]		Suicide Attempt[c]		Suicidal Ideation[c]	
	2017 (n=122)	2018 (n=118)	2017 (n=22)	2018 (n=27)	2017 (n=210)	2018 (n=210)
BH MEDICAL ENCOUNTER[d]	**41 (35)**	**49 (43)**	**17 (77)**	**20 (74)**	**153 (73)**	**152 (72)**
Inpatient	7 (17)	18 (37)	7 (41)	8 (40)	48 (31)	33 (22)
Outpatient	41 (100)	47 (96)	17 (100)	19 (95)	151 (99)	151 (99)
30 Days Before Event	–	–	13 (76)	11 (55)	115 (75)	117 (77)
Psychosocial	19 (46)	23 (47)	10 (59)	12 (60)	74 (48)	87 (57)
30 Days Before Event	–	–	4 (40)	3 (25)	31 (42)	34 (39)
BH DIAGNOSIS[d,e]	**32 (27)**	**28 (25)**	**15 (68)**	**17 (63)**	**125 (60)**	**110 (52)**
Within 1 Year Before Event	16 (14)	11 (39)	13 (87)	10 (59)	90 (72)	79 (72)
Multiple BH Diagnosis	24 (75)	18 (64)	12 (80)	10 (59)	81 (65)	67 (61)
Mood Disorder	**14 (44)**	**17 (61)**	**13 (87)**	**9 (53)**	**88 (70)**	**72 (65)**
Within 1 Year Before Event	6 (38)	4 (36)	11 (85)	4 (40)	48 (53)	40 (51)
Posttraumatic Stress Disorder	**11 (34)**	**5 (18)**	**3 (20)**	**4 (24)**	**31 (25)**	**28 (25)**
Within 1 Year Before Event	5 (31)	0 (0)	2 (15)	2 (20)	15 (17)	19 (24)
Other Anxiety Disorder[f]	**18 (56)**	**14 (50)**	**10 (67)**	**8 (47)**	**66 (53)**	**50 (45)**
Within 1 Year Before Event	7 (44)	6 (33)	5 (38)	2 (20)	28 (31)	20 (25)
Adjustment Disorder	**18 (56)**	**16 (57)**	**8 (53)**	**13 (76)**	**71 (57)**	**67 (61)**

	Suicidal Behavior n (%)					
	Suicide[b]		Suicide Attempt[c]		Suicidal Ideation[c]	
	2017 (n=122)	2018 (n=118)	2017 (n=22)	2018 (n=27)	2017 (n=210)	2018 (n=210)
Within 1 Year Before Event	5 (31)	4 (36)	6 (46)	7 (70)	37 (41)	37 (47)
Substance Use Disorder	**12 (38)**	**15 (54)**	**6 (40)**	**4 (24)**	**29 (23)**	**20 (18)**
Within 1 Year Before Event	2 (13)	5 (45)	5 (38)	3 (30)	17 (19)	8 (10)
Sleep Disorder	**3 (9)**	**3 (11)**	**3 (4)**	**7 (41)**	**35 (28)**	**26 (24)**
TRAUMATIC BRAIN INJURY						
Any Diagnoses	6 (5)	5 (4)	2 (9)	3 (11)	12 (6)	16 (8)
CHRONIC PAIN						
Encounter 1 year before event	4 (3)	2 (2)	2 (9)	0 (0)	15 (7)	12 (6)

Notes:
[a]Medical claims data were obtained from the Military Health System Data Repository. Military medical claims data were not available for 4 suicide cases in 2017 and 4 suicide cases in 2018. *International Classification of Diseases Tenth Revision* codes used to isolate encounters and determine diagnoses can be found in Appendix C.
[b]Included suicides confirmed or pending confirmation by the Armed Forces Medical Examiner System.
[c]Obtained from the Department of Defense Suicide Event Report, which are available only for activated National Guard cases who were hospitalized or evacuated.
[d]Not mutually exclusive.
[e]Diagnosed during their military career for one or more of the following: mood, posttraumatic stress disorder, other anxiety disorders, adjustment disorder, and substance use disorders.
[f]Includes panic disorder, generalized anxiety disorder, or obsessive-compulsive disorder.

Table 10. Crude and Stratum-Specific Rates[a,b] by Suicidal Behavior Among U.S. Army National Guard Soldiers, 2017–2018

	Suicidal Behavior, Rate (95% CI)[c]					
	Suicide[d]		Suicide Attempt[e]		Suicidal Ideation[e]	
	2017	2018	2017	2018	2017	2018
Overall	38 (35–41)	38 (35–41)	75 (62–90)	90 (76–106)	713 (671–757)	696 (655–740)
Sex						
Female	–	–	–	–	1098 (849–1420)	1016 (784–1317)
Male	44 (36–52)	43 (36–52)	–	–	627 (535–735)	621 (530–728)
Rank						
E1–E4	37 (29–47)	42 (33–53)	–	–	36300 (30120–43760)	27060 (22710–32240)
E5–E6	50 (37–67)	40 (28–56)	–	–	533 (415–685)	483 (373–624)
E7–E9	–	–	–	–	–	177 (113–277)
Age						
17–24	46 (35–59)	41 (31–55)	–	–	27620 (22590–33770)	20070 (16670–24180)
25–34	29 (21–40)	36 (26–48)	–	–	750 (581–967)	574 (433–762)
35–59	41 (29–57)	35 (24–50)	–	–	263 (202–342)	239 (182–315)
Race-Ethnicity						
White	46 (37–55)	42 (34–51)	–	–	614 (520–724)	602 (510–710)
Black	–	–	–	–	1542 (1155–2058)	1312 (962–1789)
Hispanic	–	–	–	–	–	786 (507–1219)

Legend:
E=Enlisted
O=Officer
W=Warrant

Notes:
[a]Included U.S. Army National Guard (ARNG) Soldiers aged 17–59 with identifiable demographic factors.
[b]Population counts were provided by Defense Manpower Data Center.
[c]Cells without reported values reflect counts greater than 0 but less than 20; rates were not calculated or reported for counts less than 20. Rates are interpreted as the number of suicides per 100,000 ARNG Soldiers, and number of attempts and ideations per 100,000 activated ARNG Soldiers.CI=confidence intervals
[d]Counts of ARNG suicide cases were provided by Armed Forces Medical Examiner System.
[e]Obtained from the Department of Defense Suicide Event Report, which are available only for activated ARNG cases who were hospitalized or evacuated.

5.3 U.S. Army Reserve

5.3.1 Personal and Event Characteristics

In 2018, 48 USAR Soldiers died by suicide (90% (n=43) were nonactivated) (Table 11). During the calendar year, 17 attempts and 115 suicidal ideations were reported among activated USAR Soldiers. Most suicidal behavior cases were single, junior enlisted, and White. Most suicide (90%) and ideation (67%) cases were male, while the majority of attempt cases were female (59%). Age distribution differed by suicidal behavior: 50% of suicides were 25–34 years old, 47% of attempt cases were 17–24 years old, and ideation cases were generally equally distributed across all age groups. Approximately 25% of attempt and ideation cases were discharged from the military within 1 year following the event. The most frequent reason was failure to meet standards.

DoDSERs were missing for 70% (n=44) of USAR suicide cases; nearly all were nonactivated at the time of their death. As a result, no information is available on stressors and other personal/legal problems experienced among this group prior to the suicidal event. The majority of attempt cases with completed DoDSERs (n=17) had personal problems (76%) within 1 year of the event, which were primarily relationship (77%) and work-related (46%) problems (Table 12). Suicides (98%) and attempts (82%) occurred in the United States by primarily gunshot wound (54%) and drug/alcohol overdose (53%), respectively (Table 13).

5.3.2 Behavioral Health and Medical History

Thirty-three percent (n=15) of suicide cases with military medical claims data (n=46) had a documented outpatient or inpatient BH encounter while activated since entering the military (Table 14). Of those with a BH encounter, 53% sought care for a psychosocial problem, often for substance use/abuse counseling, deployment, or employment issues.

Approximately 80% of suicide attempt and ideation cases had a prior behavioral healthcare visit in the military medical system while on active status. Over 70% of these encounters occurred within 30 days of the suicidal event. Furthermore, 91% of attempt and 64% of ideation cases with a BH encounter sought care for a psychosocial problem, related primarily to employment or deployment (not tabled). The majority of attempt and ideation cases had been diagnosed with a BH disorder before the event; the primary diagnoses were for adjustment disorders (71% and 68%, respectively) and mood disorders (71% and 69%, respectively).

5.3.3 Rate of Suicidal Behavior

In 2018, the overall rates were 26 suicides per 100,000 USAR Soldiers and 695 ideations per 100,000 activated USAR Soldiers (Table 15). The overall attempt rate was not calculated because there were fewer than 20 attempts. There was a substantial decrease in the rate of suicidal ideations from 2017 (830 ideations per 100,000 USAR Soldiers) compared to 2018. Activated USAR Soldiers who were female (851/100,000 Soldiers), junior enlisted (8,837/100,000 Soldiers), or 17–24 years old (11,140/100,000 Soldiers) had a higher ideation

rate compared to activated USAR Soldiers who were male, noncommissioned officers, or in age groups over age 24. The ideation rates for Whites and Blacks were comparable.

5.3.4 U.S. Army Reserve Tables

Tables 11–15 present USAR results.

Table 11. Demographic and military characteristics of U.S. Army Reserve Soldiers by Suicidal Behavior, 2017–2018

	Suicidal Behavior[a] n (%)					
	Suicide[b]		Suicide Attempt[c]		Suicidal Ideation[c]	
	2017 (n=63)	2018 (n=48)	2017 (n=17)	2018 (n=17)	2017 (n=133)	2018 (n=115)
SEX						
Male	58 (92)	43 (90)	9 (53)	7 (41)	88 (66)	77 (67)
Female	5 (8)	5 (10)	8 (47)	10 (59)	45 (34)	38 (33)
AGE						
17–24	18 (29)	18 (38)	11 (65)	8 (47)	39 (29)	43 (37)
25–34	29 (46)	24 (50)	4 (24)	3 (18)	49 (37)	33 (29)
35–59	16 (25)	6 (13)	2 (12)	6 (35)	45 (34)	39 (34)
RACE-ETHNICITY						
White	44 (70)	29 (60)	8 (47)	11 (65)	57 (43)	53 (46)
Black	6 (10)	10 (21)	3 (18)	5 (29)	41 (31)	37 (32)
Hispanic	9 (14)	7 (15)	6 (35)	1 (6)	25 (19)	17 (15)
Asian/Pacific Islander	4 (6)	2 (4)	0 (0)	0 (0)	10 (8)	6 (5)
American Indian	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)
MARITAL STATUS						
Single	35 (56)	31 (65)	13 (76)	10 (59)	63 (47)	65 (57)
Married	25 (40)	15 (31)	4 (24)	6 (35)	55 (41)	42 (37)
Divorced	3 (5)	1 (2)	0 (0)	1 (6)	13 (10)	8 (7)
Other[d]	0 (0)	1 (2)	0 (0)	0 (0)	2 (2)	0 (0)
RANK[e]						
E1–E4	36 (57)	31 (65)	12 (71)	10 (59)	58 (44)	57 (50)
E5–E6	17 (27)	10 (21)	3 (18)	1 (6)	37 (28)	24 (21)
E7–E9	6 (10)	3 (6)	1 (6)	3 (18)	24 (18)	23 (20)
W1–W5	0 (0)	0 (0)	0 (0)	0 (0)	2 (2)	0 (0)
O1–O8	4 (7)	3 (6)	1 (6)	3 (18)	12 (10)	11 (9)
ACTIVIATION STATUS						
Activated	19 (16)	5 (10)	17 (100)	17 (100)	133 (100)	115 (100)

Nonactivated	103 (84)	43 (90)	0	0	0	0
SEPARATION[f]						
Yes	–	–	7 (41)	4 (24)	29 (22)	31 (27)
Within 1 year of event	–	–	7 (100)	4 (100)	27 (93)	31 (100)
Failure to Meet Standards			6 (86)	2 (50)	11 (38)	24 (77)
Misconduct[g]			1 (14)	0 (0)	4 (14)	2 (6)
Unspecified Condition			0 (0)	1 (25)	10 (34)	2 (6)

Legend:
E=Enlisted
O=Officer
W=Warrant Officer
Notes:
[a]Total number of cases includes Soldiers with missing information.
[b]Included suicides confirmed or pending confirmation by the Armed Forces Medical Examiner System.
[c]Suicide attempt and suicidal ideation cases are from Department of Defense Suicide Event Reports, which are completed only for activated Reserve Soldiers hospitalized or evacuated
[d]Included widowed and legally separated.
[e]No cases reported among Cadets.
[f]Top reasons for separation following the event were obtained from Military Personnel Transition Point Processing System.
[g]Excludes drug abuse

Table 12. Personal and Legal/Administrative History[a] of U.S. Army Reserve Soldiers by Suicidal Behavior, 2017–2018

	Suicide Attempt[b,c] n(%)	
	2017 (n=17)	2018 (n=17)
LEGAL/ADMINISTRATIVE HISTORY[d]	**4 (24)**	**4 (24)**
Article 15	1 (25)	1 (25)
Civil Legal Problems	0 (0)	1 (25)
Administrative Separation[e]	3 (75)	2 (50)
Absent Without Leave	0 (0)	0 (0)
Nonselection[f]	0 (0)	1 (25)
Courts Martial	0 (0)	0 (0)
Medical Board[g]	2 (12)	1 (6)
PERSONAL HISTORY[d]	**12 (71)**	**13 (76)**
Relationship Problem	6 (50)	10 (77)
Work Stress	7 58)	6 (46)
Physical Health Problem	4 (33)	3 (23)
Victim of Abuse	0 (0)	0 (0)
Previous Year	1 (8)	2 (15)
Ever	8 (67)	9 (69)

	Suicide Attempt[b,c] n(%)	
	2017 (n=17)	2018 (n=17)
Emotional Abuse	6 (75)	8 (88)
Physical Abuse	4 (50)	6 (67)
Sexual Abuse	6 (75)	6 67)
Perpetrator of Abuse	0 (0)	1 (8)
Spouse/Family/Friend Death	4 (33)	3 (23)
Financial Stress	0 (0)	0 (0)
Spouse/Family Health Problem	1 (8)	0 (0)
Spousal/Family/Friend Suicide	0 (0)	0 (0)
Previous Year	1 (8)	2 (15)
Ever	2 (17)	5 (38)

Notes:
[a]Personal and legal/administrative history within 1 year before suicide, except as noted. Data were obtained from Department of Defense Suicide Event Reports (DoDSERs).
[b]Since DoDSERs were missing for 56 suicides in 2017 and 44 in 2018, data for suicide cases were excluded from this table.
[c]Only activated Reserve Soldiers who were hospitalized or evacuated.
[d]Not mutually exclusive.
[e]Considered for separation from the Army on the basis of conduct or inability to meet standards of duty performance and discipline.
[f]Not selected for advanced schooling, promotion, or command.
[g]Medical evaluation board to determine fitness for continued duty.

Table 13. Event Characteristics[a] of U.S. Army Reserve Soldiers by Suicidal Behavior, 2017–2018

	Suicidal Behavior n (%)			
	Suicide[b]		Suicide Attempt[c]	
	2017 (n=63)	2018 (n=48)	2017 (n=17)	2018 (n=17)
LOCATION OF EVENT[d]				
USA	63 (100)	47 (98)	15 (88)	14 (82)
In Theater	0 (0)	1 (2)	2 (12)	0 (0)
Other[e]	0 (0)	0 (0)	0 (0)	3 (18)
METHOD OF EVENT[d]				
Gunshot wound	54 (86)	26 (54)	0 (0)	1 (6)
Hanging/asphyxiation	8 (13)	13 (27)	3 (18)	2 (12)
Drug/alcohol overdose	0 (0)	3 (6)	9 (53)	9 (53)
Cutting	0 (0)	1 (2)	2 (12)	3 (18)
Other	1 (2)	4 (8)	3 (18)	2 (12)

	Suicidal Behavior n (%)			
	Suicide[b]		Suicide Attempt[c]	
	2017 (n=63)	2018 (n=48)	2017 (n=17)	2018 (n=17)
SUBSTANCE INVOLVEMENT				
Event Involved Alcohol	–	–	4 (24)	7 (44)
Event Involved Drugs	–	–	9 (53)	6 (35)
OTHER EVENT CHARACTERISTICS				
Communicated Prior to Event	–	–	2 (12)	6 (35)

Notes:
[a]Total number of cases includes Soldiers with missing information. Data were obtained from Department of Defense Suicide Event Report (DoDSER), except as noted.
[b]Included suicides confirmed or pending confirmation by the Armed Forces Medical Examiner System. Because DoDSERs were missing for 56 suicides in 2017 and 44 in 2018, substance involvement and other event characteristics were not reported.
[c]Only activated Reserve cases who were hospitalized or evacuated.
[d]Obtained from the Defense Casualty Information Processing System for suicide cases.
[e]Primarily Europe or Korea.

Table 14. Behavioral Health (BH) and Medical History[a] of U.S. Army Reserve Soldiers by Suicidal Behavior, 2017–2018

	Suicidal Behavior n (%)					
	Suicide[b]		Suicide Attempt[c]		Suicidal Ideation[c]	
	2017 (n=63)	2018 (n=48)	2017 (n=17)	2018 (n=17)	2017 (n=133)	2018 (n=115)
BH MEDICAL ENCOUNTERS[d]	**30 (49)**	**15 (33)**	**10 (63)**	**11 (79)**	**102 (77)**	**96 (83)**
Inpatient	6 (20)	2 (13)	3 (30)	3 (27)	45 (44)	29 (30)
Outpatient	29 (99)	15 (100)	10 (100)	11 (100)	102 (100)	96 (100)
30 Days Before Event	–	–	7 (70)	8 (73)	77 (75)	71 (74)
Psychosocial	14 (46)	8 (53)	6 (60)	10 (91)	68 (67)	61 (64)
30 Days Before Event	–	–	3 (50)	3 (30)	13 (19)	23 (38)
BH DIAGNOSIS[d,e]	**23 (38)**	**6 (13)**	**5 (31)**	**7 (50)**	**91 (68)**	**75 (65)**
Within 1 Year Before Event	2 (9)	1 (17)	4 (80)	3 (43)	64 (70)	49 (65)
Multiple BH Diagnosis	15 (65)	4 (67)	4 (80)	6 (86)	70 (77)	52 (69)
Any Mood Disorder	**14 (61)**	**3 (50)**	**4 (80)**	**5 (71)**	**60 (66)**	**52 (69)**
Within 1 Year Before Event	0 (0)	1 (100)	3 (75)	2 (67)	25 (39)	23 (47)
Posttraumatic Stress Disorder	**4 (17)**	**1 (17)**	**2 (40)**	**2 (29)**	**35 (38)**	**27 (36)**
Within 1 Year Before Event	0 (0)	0 (0)	2 (50)	1 (33)	22 (34)	12 (24)
Other Anxiety Disorder[f]	**8 (35)**	**3 (50)**	**2 (40)**	**4 (57)**	**54 (59)**	**39 (52)**
Within 1 Year Before Event	0 (0)	0 (0)	1 (25)	2 (67)	25 (39)	13 (27)

	Suicidal Behavior n (%)					
	Suicide[b]		Suicide Attempt[c]		Suicidal Ideation[c]	
	2017 (n=63)	2018 (n=48)	2017 (n=17)	2018 (n=17)	2017 (n=133)	2018 (n=115)
Adjustment Disorder	**14 (61)**	**3 (50)**	**4 (80)**	**5 (71)**	**70 (77)**	**51 (68)**
Within 1 Year Before Event	2 (100)	0 (0)	3 (75)	3 (100)	32 (50)	24 (49)
Substance Use Disorder	**11 (48)**	**3 (50)**	**1 (20)**	**3 (43)**	**24 (26)**	**21 (28)**
Within 1 Year Before Event	1 (40)	1 (100)	1 (25)	1 (33)	14 (22)	6 (12)
Sleep Disorder	**1 (4)**	**0 (0)**	**2 (40)**	**3 (43)**	**33 (36)**	**25 (33)**
TRAUMATIC BRAIN INJURY						
Any Diagnosis	5 (8)	2 (4)	0 (0)	1 (7)	11 (8)	7 (6)
CHRONIC PAIN						
Encounter 1 year before event	1 (2)	0 (0)	0 (0)	3 (21)	20 (15)	13 (11)

Notes:
[a]Medical claims data were obtained from the Military Health System Data Repository. *International Classification of Diseases, Tenth Revision* codes used to isolate encounters and diagnoses can be found in Appendix C.
[b]Included suicides confirmed or pending confirmation by the Armed Forces Medical Examiner System. Military medical claims data were not available for 2 suicide cases in 2017 and 2 suicide cases in 2018.
[c]Obtained from the Department of Defense Suicide Event Report (DoDSERs), which are available only for activated USAR cases who were hospitalized or evacuated.
[d]Not mutually exclusive.
[e]Diagnosed during their military career, while activated, for one or more of the following : mood, posttraumatic stress disorder, other anxiety disorders, adjustment disorder, and substance use disorders.
[f]Included panic disorder, generalized anxiety disorder, or obsessive-compulsive disorder.

Table 15. Crude and Stratum-Specific Rates[a–c] by Suicidal Behavior Among U.S. Army Reserve Soldiers, 2017–2018

	Suicidal Behavior, Rate[d] (95%CI)			
	Suicide[b]		Suicidal Ideation[e]	
	2017	**2018**	**2017**	**2018**
Overall	34 (30–38)	26 (23–30)	830 (769–895)	695 (641–755)
SEX				
Female	–	–	1065 (795–1427)	851 (619–117)
Male	40 (31–52)	31 (23–42)	737 (598–908)	633 (506–791)
RANK				
E1–E4	37 (29–47)	42 (33–53)	11200 (8656–14480)	8837 (6817–11460)
E5–E6	–	–	775 (562–1070)	492 (330–734)
E7–E9	–	–	370 (248–553)	348 (231–523)
AGE				
17–24	–	–	12700 (9282–17390)	11140 (8262–15020)

	Suicidal Behavior, Rate[d] (95%CI)			
	Suicide[b]		Suicidal Ideation[e]	
	2017	2018	2017	2018
25–34	40 (28–58)	35 (24–52)	1090 (824–1442)	713 (507–1003)
35–65	–	–	397 (297–532)	336 (246–460)
RACE-ETHNICITY				
White	45 (33–60)	31 (21–44)	782 (603–1014)	721 (551–943
Black	–	–	828 (610–1124)	749 (543–1033)
Hispanic	–	–	930 (682–1376)	–

Legend:
CI=confidence interval,
E=Enlisted
Notes:
[a]Included U.S. Army Reserve Soldiers aged 17–59 with identifiable demographic factors.
[b]Counts of U.S. Army Reserve (USAR) suicidal behavior cases were provided by Armed Forces Medical Examiner System and Army G-1.
[c]Population counts were provided by Defense Manpower Data Center.
[d]Cells without reported values reflect counts greater than 0 but less than 20; rates were not calculated or reported for counts less than 20. Rates are interpreted as the number suicides per 100,000 USAR Soldiers, and number of attempts or ideations per 100,000 activated USAR Soldiers.
[e]Obtained from the Department of Defense Suicide Event Report, which are available only for activated USAR cases who were hospitalized or evacuated.

6 DISCUSSION

During the 2018 calendar year, the rates of suicidal behavior among AC Soldiers were 30 suicides, 98 suicide attempts, and 742 suicidal ideations per 100,000 Soldiers. The following suicide rate for RC Soldiers included activated and nonactivated Soldiers: 38 per 100,000 ARNG Soldier and 26 per 100,000 USAR Soldiers. The highest suicide rate was among ARNG Soldiers compared to AC and USAR Soldiers. Attempt and ideation rates of activated RC Soldiers were 90 attempts and 696 ideations per 100,000 activated ARNG Soldiers, and 695 ideations per 100,000 activated USAR Soldiers. An attempt rate was not calculated for activated USAR Soldiers because fewer than 20 attempts were reported. There was a substantial decrease in the rate of suicidal ideations from 2017 (830 ideations per 100,000 USAR Soldiers) compared to 2018. The patterns observed based on stratum-specific rates are consistent with previous reports; enlisted and 17 to 24-years-old AC and ARNG Soldiers remain at risk for suicide. The groups at risk for attempt and ideation (females, 17 to 24-years-old, and junior enlisted) were similar across components and are consistent with previous reports. Among race-ethnicity, AC Black and American Indian and activated ARNG Black Soldiers were at high risk for attempt and ideation.

Approximately 40% of AC attempt and ideation cases separated from the Army within 1 year after the event. Among activated USAR Soldiers, a higher proportion of attempts (24%) and ideation (27%) cases separated from the Army compared to less than 10% of activated ARNG attempt and ideation cases. An association likely exists between experiencing a suicidal event

and separating from the Army. However, an assessment should be conducted to determine the temporality of this relationship; separation may have been initiated before the attempt or ideation. Furthermore, administrative or disciplinary actions not captured on the DoDSER may have led to separation, such as BH profiles or demotions, and should also be assessed. A higher number of separations was captured from the Military Personnel Point Processing System compared to the DoDSER. Although the DoDSER is a valuable resource for information on suicidal events and stressors affecting Soldiers in the period before the events, it may be good practice to use additional data sources to supplement DoDSER data, as these may be more comprehensive.

Prior contact with the military behavioral healthcare system continues to be prevalent among suicidal behavior cases in the Army. The majority of cases had at least one BH encounter while on active status, and many were diagnosed with adjustment or mood disorders. With the exception of AC and activated RC Soldiers who died by suicide, most cases had a BH encounter in the 30 days before their event. Soldiers also engaged with the behavioral healthcare system for help with psychosocial circumstances, which provides insight into issues affecting Soldiers at the time of the event. This is particularly valuable for USAR suicide cases since information on personal stressors was not available. Although relationship and employment-related problems were prominent in the AC population, ARNG and USAR populations also sought BH care for problems related to deployment and the social environment. Tools to cope and deal with the most common psychosocial problems may help Soldiers manage these problems and potentially reduce the risk of engaging in suicidal behavior. Moreover, to ensure a continuum of care beyond the healthcare system, the use of community-based programs, such as support groups and Chaplain services, should be encouraged.

Despite the release of the 2017 DoDI requiring DoDSER completion for suicide and suicide attempt cases among Selected Reserve RC Soldiers (DOD, 2017a), DoDSERs for suicides by nonactivated USAR Soldiers remain underreported as stated in the 2017 RC report; only 20% of all ARNG suicide cases were missing DoDSERs. This may be attributed to the ARNG suicide prevention program being primarily responsible for managing the completion of DoDSERs. This provides additional evidence to support the recommendation—as stated in the 2017 RC report—that a policy mandating or establishing a USAR suicide prevention program which includes oversight of DoDSER completion as one of its primary duties should be devised and implemented to increase documentation and reporting of this important information.

7 CONCLUSIONS

These findings highlight the importance of implementing suicide prevention programs across all components. While targeting prevention programs and efforts toward young and enlisted RC Soldiers remains important, such programs and efforts should also target older RC Soldiers (those over age 24) and expand to include nonactivated RC Soldiers, as the latter group accounted for the majority of suicide cases. However, Soldiers who are junior enlisted, female, 17–24 years old, or Black remain populations on which to focus efforts to prevent suicide attempt and suicidal ideation. Despite the release of the 2017 DoDI requiring DoDSER

completion for RC suicide and suicide attempt cases (DOD, 2017a), DoDSERs are still not being completed for nonactivated USAR suicides.

BH care continues to be an important factor in suicidal behavior in the Army. Since the majority of BH encounters were due to psychosocial circumstances, more needs to be done to provide Soldiers with tools to cope and deal with relationship, employment, and deployment issues. In light of the high proportion of AC and activated USAR Soldiers discharged following a suicide attempt or suicidal ideation, public health studies should be conducted to investigate additional indicators of readiness, which may predict separation such as BH profiles and other adverse career-related events not documented in the DoDSER.

8. POINT OF CONTACT

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APPENDIX A

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APPENDIX B

METHODS

B-1. POPULATION AND DEFINITIONS

This surveillance report describes the population of U.S. Army Active Component (AC) and Reserve Component (RC) Soldiers aged 17–59 who experienced suicidal behavior during calendar year 2018. Suicidal behavior counts were provided for suicide cases among both activated and nonactivated RC Soldiers; nonactivated RC suicide cases included only Selected Reserve Soldiers. Suicide attempt and suicidal ideation cases were reported only for activated RC Soldiers.

The following National Center for Telehealth and Technology (T2) definitions (DOD, 2017b) apply to this report:

- Suicide: Self-inflicted death with evidence (either explicit or implicit) of intent to die.
- Suicide attempt: A self-inflicted, potentially injurious behavior with a nonfatal outcome for which there is evidence (either explicit or implicit) of intent to die.
- Suicidal ideation: Any self-reported thoughts of engaging in suicide-related behaviors.

B-2. DATA SOURCES

The Army Behavioral Health Integrated Data Environment (ABHIDE) is a comprehensive database containing information on Soldiers who exhibited a suicidal behavior while serving in the U.S. Army (Spiess, et al., 2016). The ABHIDE includes data from multiple data sources: Armed Forces Medical Examiner System (AFMES), Defense Manpower Data Center (DMDC), Military Health System Data Repository (MDR), Department of Defense Suicide Event Report (DoDSER) system, and Defense Casualty Information Processing System (DCIPS) (see Appendix C, Figure C-2 for a complete list of the data sources included in the ABHIDE). To supplement data from the ABHIDE, data were also collected from the Military Personnel Point Processing System (TRANSPROC), which is a software application used to document the transitioning of Soldiers from Active Duty status to retirement, discharge, or releases from Active Duty (HRC, 2019).

The AFMES provides the Department of Defense (DOD) and other Federal agencies with comprehensive forensic investigative services, including medical mortality surveillance and forensic pathology. As such, the AFMES was the primary source for identifying suicide cases among AC and activated RC Soldiers (DHA, 2018). Data for suicide cases among nonactivated RC Soldiers were obtained from Army G-1, which ensures current and future personnel readiness and well-being of the Army through the development and integration of policies and programs for all Army components. The DoDSER system is the principal suicide surveillance tool used to collect and report the contextual factors present among Service members who engaged in suicide-related behavior, and it was used to identify suicide attempt and suicidal ideation cases (DOD, 2017b). DoDSERs are completed by behavioral health (BH) providers

(e.g., mental health counselors, psychiatrists, or social workers) based on their review of the Soldier's health records and/or interviews with the Soldier's healthcare providers (medical professionals), Family members, friends, or coworkers. The DMDC is a data repository which receives and maintains demographic, military, and deployment information on all military personnel, thus creating an archive of information about a Soldier's military career (OUSD, 2018). AC, ARNG, and USAR population totals (or rate denominators) were obtained from DMDC. Medical encounters related to suicide were extracted from the MDR, the centralized data repository captures and archives military healthcare data worldwide, including both direct and purchased care (DHA, 2019). The DCIPS interfaces with the DMDC to retrieve personnel data. By providing casualty statistics, the DCIPS serves as a supplemental source for information pertaining to both the person and the suicide event (Department of the Army (DA), 2019). TRANSPROC was used to obtain information about separation.

B-3. METRICS

Suicidal Behavior:

The identity of suicide cases among AC and activated RC Soldiers was obtained from the AFMES (including confirmed and pending cases); Army G-1 identified suicide cases among nonactivated RC Soldiers. Pending cases are those under investigation. DoDSERs for suicide cases are required to be completed within 60 days of AFMES confirmation.

Suicide attempt and suicidal ideation cases among AC and activated RC Soldiers were identified by DoDSERs, which are completed within 30 days for cases who were only hospitalized or evacuated. Additional suicidal ideation cases were identified by isolating inpatient medical encounters in the MDR with *International Classification of Diseases, Ninth Revision* (ICD-9) code V6284 or *International Classification of Diseases, Tenth Revision* (ICD-10) code R45851 in any of the first eight diagnosis positions (Dx1–Dx8). The Army's DoDSER Program Manager enters unreported ideation cases from the MDR into the DoDSER system. Inpatient medical encounters were not used to identify suicide attempt cases since suicide attempt encounter codes do not distinguish between suicide attempt and nonsuicidal self-harm.

Personal and Event Characteristics:

Demographic (i.e., sex, age, race-ethnicity, marital status) and *military* (i.e., rank and activation status) characteristics were obtained from the following sources in the order of most to least complete: (1) DMDC, (2) AFMES, and/or (3) DoDSER. Variables were categorized as follows: sex (male or female), age (17–24, 25–34, or 35–64), race-ethnicity (White, Black, Hispanic, Asian/Pacific Islander, or American Indian), marital status (Single, Married, Divorced, or Other), rank (E1–E4, E5–E6, E7–E9, W1–W5, O1–O9, or Cadet), and activation status (i.e., activated and nonactivated). The race-ethnicity category "American Indian" included Alaska Natives and Native Americans. The "other" category for marital status included widowed or legally separated.

Event characteristics included the following: location (U.S., in theater, other, or unknown), method of event (gunshot wound, hanging/asphyxiation, drug/alcohol overdose, cutting, other,

or unknown), substance involvement (drugs and alcohol), and communication prior to event. The "other" location category does not include countries considered a theater of war such as Afghanistan or Iraq. Communication prior to the event was defined as communicating potential for self-harm verbally, through writing, or via text message to a supervisor, chaplain, mental health staff, friend, or spouse; suicide notes were excluded. The location and method of suicides and attempts were obtained from the DCIPS and DoDSERs, respectively. All other event characteristics were obtained from DoDSERs. Event characteristics were collected for suicides and suicide attempts only.

Personal and Legal/Administrative History:

Major life events and stressors of interest occurring within 1 year of the suicidal behavior event and reported on DoDSERs were grouped into two major, nonmutually exclusive themes: legal/administrative history and personal history. Personal and legal/administrative issues were collected only for those suicides and suicide attempts documented in DoDSERs. Information on personal and legal/administrative history and other variables obtained from the DoDSER are not available for pending/probable cases under investigation.

Legal/administrative history included Article 15, Uniform Code of Military Justice proceedings, civil legal problems, administrative separation, and medical board. Administrative separation is based on Soldier misconduct or inability to meet the standard of duty. Soldiers who were not selected for advanced schooling, promotion, or command were placed in the "nonselection" category. Soldiers on medical board status are being evaluated to determine their fitness for continued duty.

Personal history encompassed relationship problems; work stress; physical health problems; victim or perpetrator of abuse; financial stress; and the death, suicide, and/or health problems of a spouse, Family member, or friend. Indication of work problems included workplace hazing, job problems, poor performance, and coworker conflicts. Lifetime histories of being a victim of abuse or experiencing the suicide of a Family member or friend were collected due to their potential negative impact on Soldiers' quality of life.

Separation status was determined using data from TRANSPROC and restricted to the following separation types: discharge, dismissal or discharge as appropriate, release from Active Duty, and release from Active Duty training. Narratives were used to create the following 10 categories, which provides details on the reason for separation:

- Disability.
- Drug or alcohol-related (e.g., drug abuse or alcohol rehabilitation failure).
- Failure to meet standards (e.g., failure of medical/physical/ procurement standards or failure to complete course of instruction).
- Fraudulent entry.
- Misconduct excluding drug abuse (e.g., civil conviction, absent without leave or minor infractions).
- Parenthood/pregnancy.

- Court-martial.
- Personality disorder.
- Unspecified condition (condition, not a disability).
- Other (e.g., hardship or reduction in force).

Time to separation following the suicidal event was calculated as the difference between separation and event dates.

Behavioral Health and Other Health Conditions:

Medical encounters and diagnoses for BH conditions including psychosocial circumstances, traumatic brain injury [TBI], and chronic pain were based on medical claims in the military healthcare system while on active status during a Soldier's time in service and were obtained from the MDR. Inpatient and outpatient medical encounters with an ICD-9 or ICD-10 code of interest in any diagnosis position (i.e., Dx1–Dx8 or Dx1–Dx4, respectively), were isolated. See Appendix C, Table C-1 for the list of health conditions of interest and their corresponding ICD-9/10 code(s).

A diagnosis was defined as either—

- An inpatient encounter with a ICD-9/10 code in any of the first eight diagnosis positions (Dx1–Dx8),
- An outpatient encounter with a ICD-9/10 code in the primary position (Dx1), or
- A code for the same condition in the second through fourth diagnosis positions (Dx2–Dx4) dated twice within 1 year but not on the same day.

These definitions were based on the Healthcare Effectiveness Data and Information Set guidelines from the National Committee for Quality Assurance (NCQA) for major depressive disorders and were applied to all BH conditions (NCQA, 2010).

B-4. ANALYSIS

Descriptive statistics (e.g., counts, proportions, and means) were calculated for each variable by suicidal behavior in 2017 and 2018. Annual crude suicide rates were calculated for 2017 and 2018 by dividing the number of Soldiers who died by suicide by the total population of U.S. Army Soldiers aged 17–59 then multiplying by 100,000. Suicide rates for AC, ARNG, and USAR Soldiers were calculated separately. Stratified suicide rates were calculated by sex, rank, race-ethnicity, and age by dividing the number of suicides in a category by the total population of Soldiers within the same category. The most serious recent event was counted for Soldiers who had more than one suicidal event. Comparison of rates, rather than case counts, accounts for differences in the total number of Soldiers across years and/or categories, which allows for more appropriate comparisons. Crude rates (number of suicides/100,000 Soldiers) and 95% confidence intervals were reported.

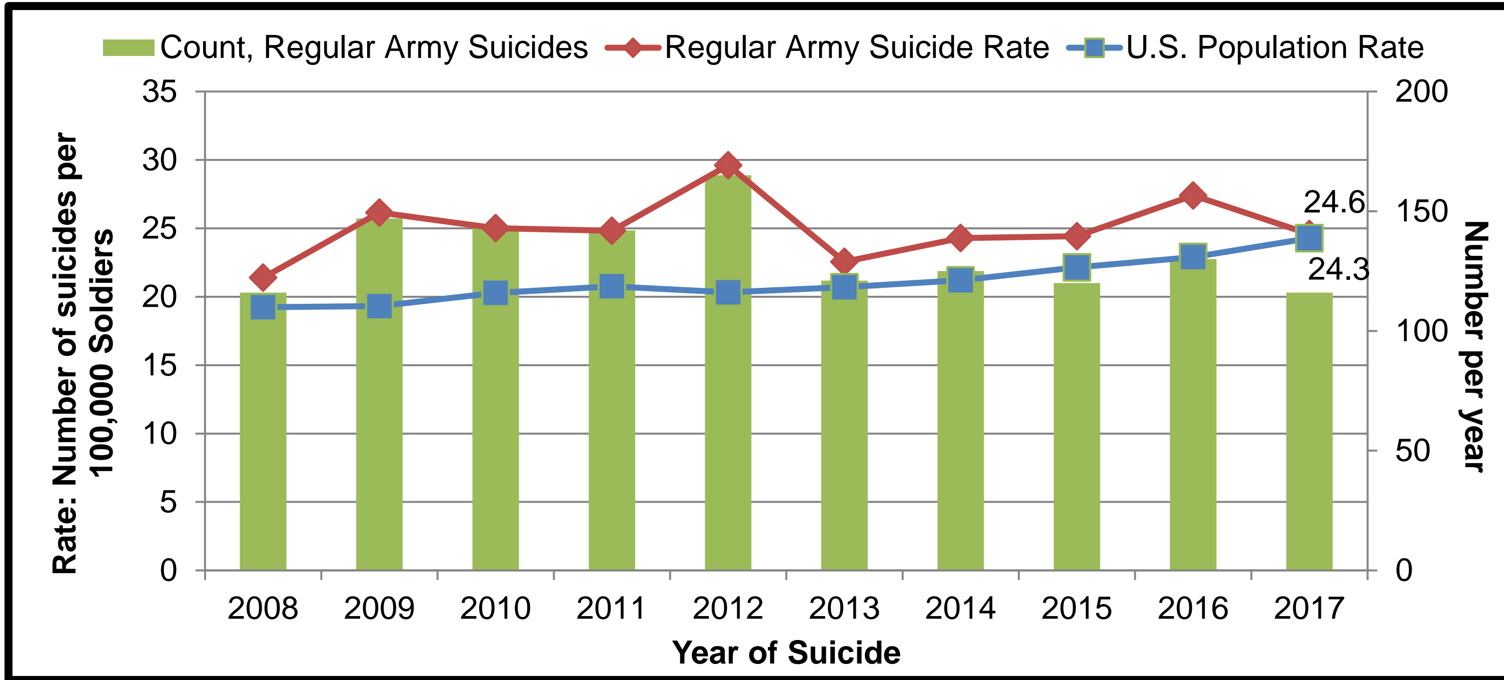
Direct standardization was applied to compare suicide rates between the U.S. Army Active Soldiers and U.S. general population, controlling for the higher prevalence of young and male Soldiers in the U.S. Army. See Appendix C, Figure C-1 for suicide rates from 2008–2017 adjusted for age and sex using the 2015 U.S. Army Active distribution as the standard population. This population was used as the standard population because it reflects the drawdown of U.S. Army Active Soldiers and is the year in which all military occupations were opened to women. The adjusted rates are rates which would have existed if both populations had the same age and gender distribution. Adjusted suicide rates for the U.S. general population are based on data from the Centers for Disease Control and Prevention (CDC, 2018). All data management and analytical procedures were performed using SAS® 9.4 and Microsoft® Excel®.

B-5. LIMITATIONS

This report included suicide cases among activated and nonactivated Soldiers; however, suicide attempt and suicidal ideation cases were included for only activated RC Soldiers. Furthermore, we were only able to assess medical and behavioral health encounters while activated for RC Soldiers, potentially missing any contacts made with the healthcare system while nonactivated. The person who completes the DoDSER may not be familiar with the case, resulting in missing fields/entries. However, to increase completeness, medical providers who were familiar with the suicidal behavior case are also interviewed to ascertain relevant information. Suicide attempt and suicidal ideation cases were captured only if the Soldier was hospitalized or evacuated, which may underestimate counts. While ICD codes were used to capture additional suicidal ideation cases, these codes were not used to capture additional suicide attempt cases because ICD-9 codes for suicide attempts also include self-harm and do not differentiate between the two behaviors. For this reason, only suicide attempts with completed DoDSERs were captured.

APPENDIX C

SUPPLEMENTAL TABLES AND FIGURES



Notes: [a]Rates have been direct adjusted by age and gender, using the 2015 US Army distribution as a standard population. [b]US Army suicide rates and counts include Active Army Soldiers, aged 17–59.

Figure C-1. U.S. Army and U.S. Population Age and Sex Adjusted Suicide Rates by Year, 2008–2017

Table C-1. Categorizing Behavioral Health, Chronic Pain and Traumatic Brain Injury Medical Encounters and Diagnoses

Broad Category	Diagnosis Category	ICD-9 DX, V-Codes, E-Codes	ICD-10 DX, Z-Codes
Behavioral Health Conditions			
Organic Conditions		290, 293, 294, 310	F01-F04
Substance use	Alcohol	291, 303, 3050	F10
	Drugs	292, 304, 3052-3059	F11-F19
Personality Disorder		301	F21, F60
Psychosis	Schizophrenia	2950-2953, 2955-2959	F20
	Schizophreniform	2954	
	Delusional or Shared	‘297 ‘, 2971, 2973	F22, F24
	Paranoia	2970, 2972, 2978, 2979, 2983, 2984	F22, F23
	Brief Psychotic Disorder	2988	F23
	Psychosis NOS	2989	F29
	Other Psychoses	2908, 2909,'298 ', 2980, 2981, 2982	F28
Mood Disorders	Bipolar	2960, 2964-2968	F30, F31, F340
	Major Depression	2962, 2963	F32 OR F33
	Dysthymia	3004	F341
	Depression NOS	311, 29699	F348 OR F349
	Other Mood	'296 ',2961,2969, V790	F39
Anxiety	Social Phobia	30023	F40
	Phobias	30020, 30022, 30029	
	Anxiety NOS	'300 ', '3000 ', 30000	F41
	Other Anxiety	30009, 30010	
	Panic	30001, 30021	
	GAD	30002	
	OCD	3003	F42
Acute Stress Reaction		308	F430
PTSD		30981	F431
Adjustment Disorder		All 309 (except 309.81)	F432, F438, F439
Dissociative		30012-30015, 3006	F44, F481
Conversion		30011	F44
Somatoform		3007, 3008, 3078	F45
Eating Disorder		3071, 3075	F50
Factitious		30016, 30019	F681
Attention Deficit Disorder		314	F90
Conduct/Emotional Disorder		312, 313	F91
Unspecified Mental Disorder		3009	-

Broad Category	Diagnosis Category	ICD-9 DX, V-Codes, E-Codes	ICD-10 DX, Z-Codes
Psych Factors, Physical Condition		306, 316	-
Other BH conditions		299, 302, 315, 317-319, 3070, 3072, 3073, 3076, 3077	F52 , F66 , F70 , F804 , F808 , F84 , F95, F984, F985, F64-F659, F800-F802, F81-F82, F88-F89, F980-F981, F4321, F1010
BH Screening		-	Z046 , Z0471 , Z0472 , Z134
Partner Relationship Problems		V6100-V6104, V6110	Z630
Family Circumstances Problems		V612, V618, V619	Z62, Z635-Z639
Maltreatment Problems		99580-99585, V6111, V6112, V6121, V6122, V6283	T74, T76, Z69-Z6982
Life Circumstance Problems		V620-V625, V628-V629	Z72810, Z72811, Z73-Z736, Z55-Z559, Z56-Z569, Z60-Z609, Z65-Z659
Mental or Behavioral Problems, Substance Abuse Counseling		'V40 ', V402, V403, V409, V6542	Z714-Z7142, Z715-Z7152
Personal Trauma		9955, V154, V6121	Z914, Z9149 , Z91410, Z6281, Z69010, Z69020, Z6911, Z6981
Suicidal Ideation		V6284	R45851
Suicide Attempt/ Self-harm		E95-E959, E98-E9890	X71-X83, X838XX, T3992X, T1491, T1491X, T1491XA, Z915, T360X2 -T375X2, T378X2, T379X2-T387X2, T38802, T38812, T38892, T38902, T38992, T39012, T39092, T391X2, T392X2, T39312, T39392, T394X2, T398X2, T3992, T400X2-T405X2, T40602, T40692, T407X2, T408X2, T40902, T40992, T410X2, T411X2, T41202, T41292, T413X2, T4142, T415X2, T420X2-T426X2, T4272, T4272X, T428X2, T43012, T43022, T431X2, T43202, T43212, T43222, T43292, T433X2, T434X2, T43502, T43592, T43602, T43612, T43622, T43632, T43692, T438X2, T4392, T440X2-T448X2, T44902, T44992, T450X2-T454X2, T45512, T45522, T45602, T45612, T45622, T45692, T457X2, T458X2, T4592, T460X2,-T468X2, T46902, T46992, T470X2-T478X2, T4792, T480X2, T481X2, T48202, T48992, T483X2-T486X2, T48902, T48992, T490X2- T498X2, T4992, T500X2-T508X2, T50902, T50992, T50A12, T50A22, T50, T50A92, T50B12, T50B92, T50Z14, T50Z92, T510X2-T513X2, T518X2, T5192, T5192X, T520X2-T524X2, T528X2, T5292, T530X2-T537X2, T5392, T540X2-T543X2, T5492, T550X2, T551X2, T560X2-T568X2, T56892, T5692, T570X2-T573X2, T578X2, T5792, T5802, T5802X, T5812, T582X2, T588X2, T5892, T590X2-T597X2, T59812, T59892, T5992, T600X2-T604X2, T608X2, T6092, T6102, T6112, T61772, T61782, T618X2, T6192, T620X2-T622X2, T628X2, T6292, T63002, T63012, T63022, T63032,

Broad Category	Diagnosis Category	ICD-9 DX, V-Codes, E-Codes	ICD-10 DX, Z-Codes
			T63042, T63062, T63072, T63082, T63092, T63112, T63122, T63192, T632X2, T63302, T63312, T63322, T63332, T63392, T63412, T63422, T63432, T63442, T63452, T63462, T63482, T63512, T63592, T63612, T63622, T63632, T63692, T63712, T63792, T63812, T63822, T63832, T63892, T6392, T6402, T6482, T650X2, T651X2, T65212, T65222, T65292, T653X2-T656X2, T65812, T65822, T65832, T65892, T6592, T71112, T71122, T71132, T71152, T71162, T71192, T71222, T71232
Sleep Disorders		29182, 29285, 3074-30748, 327-3278, 7805- 78056, 78058, V694, 327-32780, 7805-78056, 78058, V694	F51, G47, Z72820
Traumatic Brain Injury		3102, 800–801.99, 803–804.99, and 850–854.19, 95901, 9501-9503, 9070	F0781, S0402-S0404, S060-S066, S068-S069, S020-S021, S028-S029, S071, Z87820, DOD0102-DOD0105
Chronic Pain		3078, 3372, 3380, 3381, 3382-3384, 7240-7245, 7295, 7231, 7840, 7865, 33821, 33829, 38872, 78096	G8921, G8922, G8928, G8929, G893, G894
Psychosocial Circumstances			
Employment/Unemployment		V620, V621, V6229	Z56, Z562, Z563, Z564, Z565, Z566, Z568, Z5689, Z569
Deployment		V6221, V6222	Z5682
Social environment		V623, V624, V6281	Z559, Z600, Z602, Z603, Z604, Z608, Z609, Z72811, Z734, Z72811
Upbringing		V6120, V6121, V6129	Z62810, Z62811,Z62812, Z62819, Z62890, Z62898, Z629, Z69011, Z62810, Z6281, Z62812, Z62819, Z62890, Z62898, Z69011
Primary support		V610, V6102, V6107, V6108, V6109, V618, V619, V6282	Z6372, Z6379, Z638, Z639
Spousal issues		V6103, V6110, V6111, V6112, V6122	Z630, Z635, Z691, Z6912
Other psychosocial		V625, V6283, V629	Z651, Z653, Z655, Z658, Z659, Z6981
Substance use counseling		V6542	Z7141, Z7151
Life management		V6289, V694	Z72820, Z733, Z72820
V-codes and Z-codes are not diagnostic codes, but are used for coding encounters.			

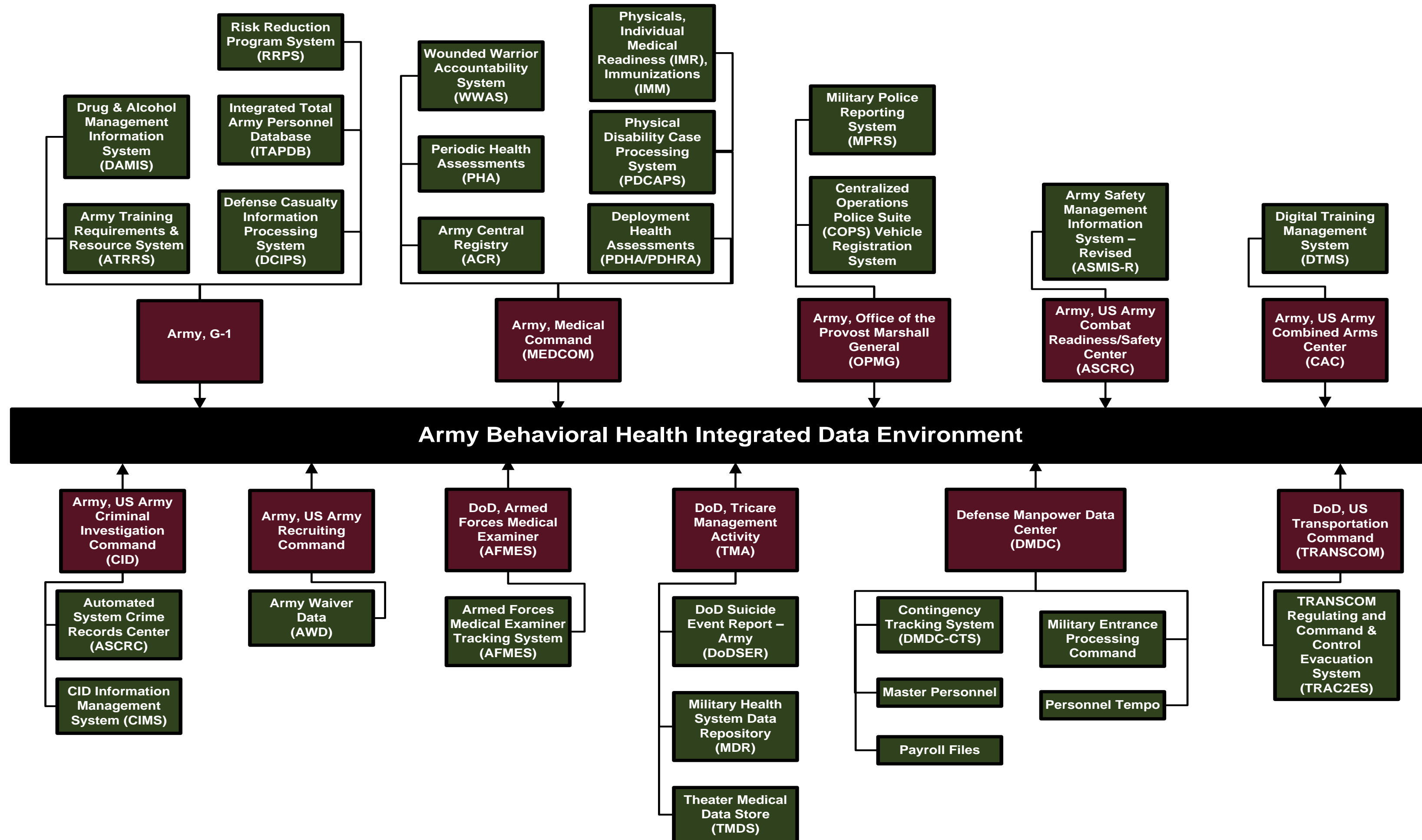


Figure C-2. Administrative Data Sources in the Army Behavioral Health Integrated Data Environment

GLOSSARY

ABHIDE
Army Behavioral Health Integrated Data Environment

AC
Active Component

AFMES
Armed Forces Medical Examiner System

APHC
U.S. Army Public Health Center

ARNG
Army National Guard

BH
behavioral health

BSHOP
Behavioral and Social Health Outcomes Program

DCIPS
Defense Casualty Information Processing System

DHA
Defense Health Agency

DMDC
Defense Manpower Data Center

DOD
Department of Defense

DoDSER
Department of Defense Suicide Event Report

E1–E9
Enlisted rank

ICD-9
International Classification of Diseases, Ninth Revision, Clinical Modification

ICD-10
International Classification of Diseases, 10th Revision, Clinical Modification

MDR
Military Health System Data Repository

O1–O9
Officer rank

PTSD
Post-traumatic Stress Disorder

RC
Reserve Component

USAR
U.S. Army Reserve

W1–W5
Warrant Officer rank