

**Mortality Surveillance in the U.S. Army**

**2005-2014**

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**Epidemiology and Disease Surveillance Portfolio  
Behavioral and Social Health Outcomes Program**

**Mortality Surveillance in the U.S. Army  
2005–2014**

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## Glossary

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**Public Health Report No. 0034370-14  
Mortality Surveillance in the U.S. Army  
2005–2014**

## **1 Summary**

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### **1.1 Purpose**

Mortality surveillance can be used by military leaders and public health practitioners in the U.S. Army to focus prevention efforts, plan programs, allocate resources, develop policies, monitor trends, and suggest mitigating strategies, including actionable recommendations.

### **1.2 Results**

From 2005 to 2014, there were 8,665 deaths in the U.S. Army. Most occurred among Soldiers who were male (94%), 17–34 years of age (75%), active duty Regular Army (78%), and junior enlisted (E1–E4, 48%). By comparison, a high proportion of Soldiers in the U.S. Army are male (85%), 17–34 years of age (71%), active duty (79%), and junior enlisted (41%). It is worth noting that the majority of Soldiers who died during this period, especially by combat, accident, and suicide were young men 17–34 years of age.

In 2005, the overall crude mortality rate for all categories of death was 168.0 per 100,000 persons, compared to 66.6 per 100,000 persons in 2014. Combat-related deaths and accidental deaths had the highest crude mortality rates and accounted for the largest proportion of deaths among all categories of death from 2005 to 2011. The crude mortality rate for suicides surpassed the rate of combat-related deaths beginning in 2012 and the rate of accidental deaths in 2014.

The crude mortality rate for accidental deaths decreased significantly from 46.2 per 100,000 persons in 2005 compared to 12.6 per 100,000 persons in 2014. Motor vehicle accidents and drug or alcohol overdoses accounted for the greatest proportions of accidental deaths. The number of deaths due to motor vehicle accidents decreased in 2014 (n=26) compared to 2005 (n=172). The number of drug or alcohol overdoses increased from 2005 (n=30) to 2009 (n=69), then declined from 2009 to 2014 (n=12).

From 2005 to 2014, crude mortality rates for natural deaths decreased significantly, from 22.2 per 100,000 persons to 11.8 per 100,000 persons. Much of this decline likely resulted from a decrease in the rate of death from natural causes among Soldiers 45–64 years of age. From 2005 to 2014, neoplasms and diseases of the circulatory system accounted for 45% and 38% of natural deaths, respectively. Deaths from neoplasms and diseases of the circulatory system in 2005 through 2014 were more likely to be among Soldiers 35–64 years of age, while deaths from other natural conditions were distributed relatively equally across age groups.

Between 2005 and 2012, crude mortality rates for suicides increased significantly from 13 per 100,000 persons in 2005 to 27.8 per 100,000 persons in 2012. Since 2012, crude mortality rates for suicides have declined to 23.0 per 100,000 persons in 2013 and 20.8 per 100,000 persons in 2014. However, in 2014, suicides had the highest rate among all categories of death. Gunshot wounds accounted for 65% of suicides from 2005 through 2014.

Crude mortality rates for homicide remained approximately stable from 2005 to 2014. The most common cause of homicide deaths in 2005 through 2014 mirrored that of suicides; 68% of homicides were from gunshot wounds.

Each year from 2005 to 2014, the adjusted rates of death due to accidents and natural causes were significantly lower in the U.S. Army than in the U.S. population. The adjusted rate of death from homicide was significantly lower in the U.S. Army than in the U.S. population for all years from 2005 through 2014, with the exception of 2006 and 2014 when the adjusted homicide rates for the U.S. Army were unstable.

In 2005, the adjusted suicide rate was significantly lower in the U.S. Army than in the U.S. population; however, in 2008 the adjusted suicide rate in the U.S. Army surpassed that of the U.S. population, and was significantly higher in 2009 and 2012.

### **1.3 Conclusions**

This publication characterizes deaths from all causes among active duty Regular Army, activated U.S. Army National Guard, and activated U.S. Army Reserve Soldiers from 2005 through 2014. Overall, mortality rates for combat-related deaths, accidental deaths, and deaths from natural causes declined significantly. Suicide rates rose through 2012 and declined in 2013-2014, whereas homicide rates during this period remained relatively stable. With the exception of homicide deaths, the decline in mortality rates may in part be attributed to various factors including improvements in the time to evacuate and treat wounded Soldiers in combat; prescription monitoring programs which identify suspicious drug usage and access; intervention initiatives to reduce transportation-related accidents; measures to reduce access to firearms; and programs directed to improve the physical and mental health of Soldiers. The decline in suicides may be due to Army-wide suicide prevention programs as well as the expansion and standardization of behavioral health services through the Behavioral Health Service Line (BHSL).

## **2 References**

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Appendix A lists references used within this report. The glossary provides a list of abbreviations.

## **3 Authority**

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Army Regulation (AR) 40-5 (Preventive Medicine, 25 May 2007), Section 2-19.

## **4 Background**

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The Behavioral and Social Health Outcomes Program (BSHOP), Army Public Health Center (Provisional) analyzes surveillance data on mortality from all causes among active duty Regular Army, activated U.S. Army National Guard, and U.S. Army Reserve Soldiers. *Mortality Surveillance in the U.S. Army*, published annually, describes the characteristics of Soldiers who died and presents observed trends in the category and causes of Soldier deaths over time.

## **5 Methods**

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This publication includes data on U.S. Army mortality cases from 2005 through 2014 among active duty Regular Army, activated U.S. Army National Guard, and activated U.S. Army Reserve



Soldiers. Cases were included if they were between 17 and 64 years of age at the time of death; cases older than 64 were excluded. Demographic and military characteristics are presented.

## **5.1 Data**

Data related to mortality are stored in the Department of Defense (DOD) Medical Mortality Registry, which is maintained by the Mortality Surveillance Division of the Armed Forces Medical Examiner System (AFMES). This analysis uses the manner of death, as determined by the civilian or AFMES coroner/medical examiner. Depending on jurisdiction, civilian personnel or AFMES medical examiners will conduct an investigation and issue a death certificate, autopsy report, toxicology report, and/or investigative report. Medical examiners and forensic pathologists follow accepted standards to classify deaths into five manners (accidental, natural, suicide, homicide, and undetermined) based on an assessment of available circumstantial information and autopsy findings.<sup>1</sup> An accidental death is an unexpected injurious event. A death due to natural causes is the result of disease, illness, or the aging process. A suicide is a death resulting from intentional fatal self-injury. Death by homicide is the result of being killed by another human. Combat deaths that occurred in theater as the result of hostile action are classified as homicides. If the manner of death cannot be determined from the evidence, then the death is classified as undetermined. Deaths that are still under investigation and on which no determination has been made are classified as pending. Most deaths initially classified as pending are confirmed and reclassified into another manner within 12 months.

The U.S. Army reports seven categories of death, separating combat deaths from homicide. Consistent with the U.S. Army and AFMES, this publication reports seven categories of death (combat, accident, natural, suicide, homicide, undetermined, and pending). The term “manner” has a specific definition so the word “category” will be used in this publication. The terms used in this publication closely match the national standard and guidelines set forth by the National Association of Medical Examiners<sup>2</sup> and the terms used by the U.S. Army to classify deaths.

Cause of death is defined as the initial event that lead to the chain of events resulting in death and are recoded from International Classification of Disease, 10th Edition (ICD-10) codes.<sup>3,4</sup> For example, if accident is the category of death, then possible causes of death under accident may be drowning, suffocation, poisoning, or falls. Data on the causes of combat deaths are based on only one group of ICD-10 codes (Y36 and Y89.1); therefore, no causes are presented for combat-related deaths.

The U.S. Army data described in this report are current as of October 2015.

## **5.2 Rates**

Counts and proportions of deaths (overall and from specific causes) and crude mortality rates per 100,000 persons are reported for the overall U.S. Army. Direct age- and sex-adjusted mortality rates per 100,000 persons for the U.S. Army and the U.S. population are also presented for each category of death from 2005 through 2014. Age- and sex-adjusted rates for the U.S. population are based on available mortality data from the Centers for Disease Control and Prevention (CDC).<sup>2</sup> The 2004 U.S. Army population was used as a standard comparison population. The adjusted rates produced using the 2004 U.S. Army standard population are close in magnitude to the U.S. Army crude rates, thereby averting confusion occasioned by widely differing crude and adjusted rates. The year 2004 was chosen as a “baseline” year because suicide rates began to increase in 2005.<sup>5</sup> Additionally, in 2004, several data systems were implemented by the U.S. Army (e.g. Department of Defense Suicide Event Report) which improved the overall quality and data capture

of suicide events.

Trend analysis was performed using crude mortality rates by category of death to assess the overall pattern of change in mortality rates from 2005 to 2014. Ordinary least square (OLS) regression was used to test for significance in the observed trends using SAS Enterprise Guide 6.1.

Statistical differences between age- and sex-adjusted rates for the U.S. Army and U.S. population are presented. The method of comparison uses a formula from the National Center for Health Statistics, based on the number of deaths, population size, and the size of the difference between the rates.<sup>6</sup> Some rate differences do not meet the statistical threshold of significance ( $p < .05$ ).

Rates are not presented for specific causes of death, undetermined and pending categories and categories with a small number of cases (fewer than 20 cases) because rates based on fewer than 20 cases are unstable and statistically unreliable estimates.<sup>6,7</sup> Mortality data are not subject to sampling error because it is expected that all deaths in the population are captured.<sup>8</sup> However, mortality data, even when based on complete counts, are subject to random variation. An individual's chance of death and the death rate for the population may vary from one time to another, even though the underlying risk of death for individuals in the population may not change. Random variation is taken into account with the standard error in statistical comparisons of the adjusted rates and 95% confidence intervals; however, 95% confidence intervals are not reported for crude or adjusted rates.

### **5.3 Caveats**

Several caveats must be considered when interpreting mortality surveillance data. First, surveillance data typically improve as data collection becomes refined over time. This may result in frequencies and proportions appearing to increase in later years, although these increases may be the result of improved data capture. Second, misclassification of mortality cases by medical examiners evaluating and reporting the category and cause of death is possible, but the extent to which this occurs is unknown. Third, crude and adjusted mortality rates are used for different purposes, and each has strengths and limitations. Crude mortality rates are easily interpretable and provide general information regarding mortality, but they do not account for demographic differences in the population that may affect the rate of death. Since the U.S. Army population is younger than the U.S. population and has a higher prevalence of men,<sup>9</sup> adjusted rates are necessary when comparing populations, because they control for the effects of age and sex differences in the populations.

In addition, various Department of Defense organizations, such as AFMES, in collaboration with BSHOP and the Defense Center for Telehealth and Technology (T2), routinely report on characteristics and trends related to suicide deaths in the U.S. Army. Each organization uses different methodology, which can result in minor differences in reported data. In their 2014 Annual Department of Defense Suicide Event Report, AFMES and T2 give the 2014 suicide rate for the U.S. Army Active Component as 23.8 deaths per 100,000 persons.<sup>10</sup> In the Annual Surveillance of Suicidal Behavior Publications (SSBP), published by BSHOP, the suicide rate for 2014 was reported to be 20.5 deaths per 100,000 persons (95% confidence interval: 19.7 to 27.2).<sup>5</sup> This BSHOP publication reports the 2014 suicide rate to be 20.8 deaths per 100,000 persons (95% confidence interval: 17.3 to 24.3). These differences result from differences in when the suicide count is obtained and in how the denominators are calculated. AFMES/T2 uses the end strength in September, while BSHOP uses average monthly end strength in the SSBP. Furthermore, this mortality report limits the population to Soldiers 17 to 64 years of age.

## 5.4 Organization of the Report

In addition to the Summary, References, Authority, Background, and Methods sections, this report is organized into one principal section with two subsections. Section 6 presents counts and rates of mortality among Soldiers in the U.S. Army:

- Mortality from All Causes (Section 6.1)
- Causes and Categories of Death (Section 6.2)

This report presents information for 2014, as well as cumulative time periods 2005–2014 and 2012–2014. Information in this report updates the *Mortality Surveillance in the U.S. Army, 2005-2011* report with the counts and proportions of categories and cause of death among active duty Regular Army, activated U.S. Army National Guard and activated U.S. Army Reserve Soldiers for 2012-2014. The overall characteristics of U.S. Army Soldiers who have died and trends in the crude and age-and-sex adjusted mortality rates over time for the cumulative period 2005-2014 are also presented. Lastly, to demonstrate the relative burden of underlying causes of death among U.S. Army Soldiers, this report presents the top causes of death from 2014.

## 5.5 Publication Improvements

Several improvements were made to this report in comparison to the previous report, *Mortality Surveillance in the U.S. Army, 2005-2011*. Deaths among 17 year olds and Cadets are now included, missing demographic and military characteristics were determined from other administrative data bases and are reported; some groupings of underlying causes of death are now combined for ease of interpretation; and the underlying causes of death for 2014 are ranked, regardless of category, to determine which contributed most to the overall mortality in the U.S. Army.

The presentation of results in the report has also changed. Some results for 2005–2011 are not given here because they were presented in the previous report. For example, counts of death for categories and causes of death from the 2005–2011 are not presented to reduce redundancy: there were few changes in the data. Crude mortality rates are not generally stratified by demographic and military characteristics. Stratified results for causes of death are presented for the cumulative period, 2005–2014, not by year.

## 6 Results

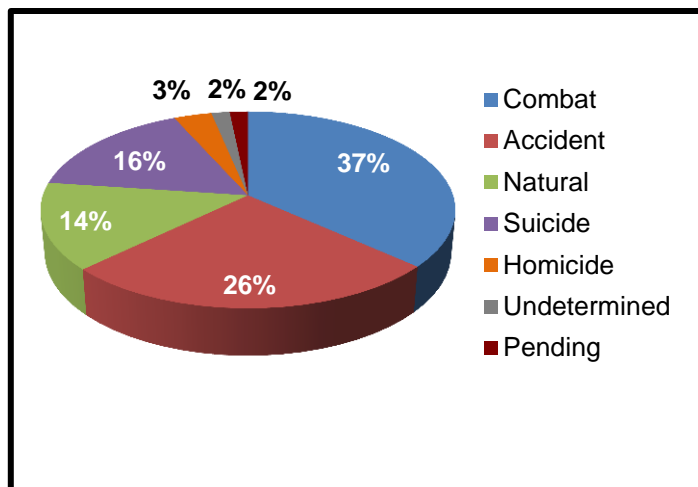
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### 6.1 Mortality from All Causes

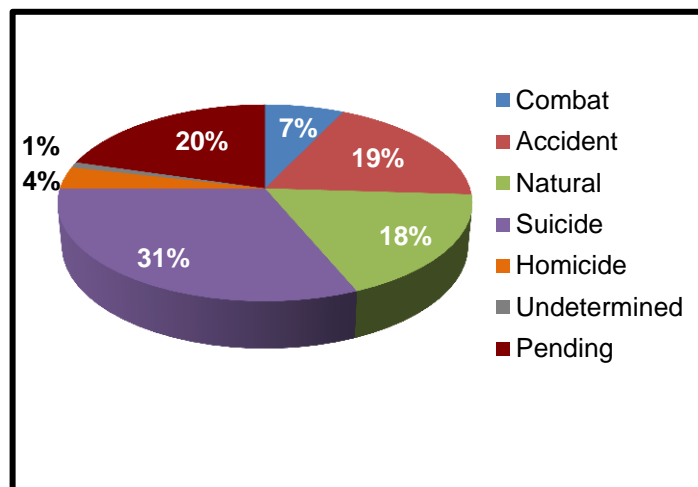
From 2005 to 2014, 8,665 deaths occurred among U.S. Army Soldiers. During this combined period, combat-related deaths (37%) were the most common category of death, followed by accidental deaths (26%), suicides (16%), deaths due to natural causes (14%), and homicides (3%) (Figure 1).

In 2014, suicides accounted for the highest proportion of Soldier deaths (31%) (Figure 2). This accompanied reductions in both combat and accidental deaths from 2005 compared to 2014. In 2012 and 2013, accidents accounted for the highest proportion of deaths, followed closely by suicides.

Table B-1 (page B-2) presents overall counts and proportions for each category of death for 2012, 2013, and 2014.



**Figure 1. Categories of Deaths among Soldiers in the U.S. Army, 2005–2014**



**Figure 2. Categories of Deaths among Soldiers in the U.S. Army, 2014**

### 6.1.1 Demographic and Military Characteristics

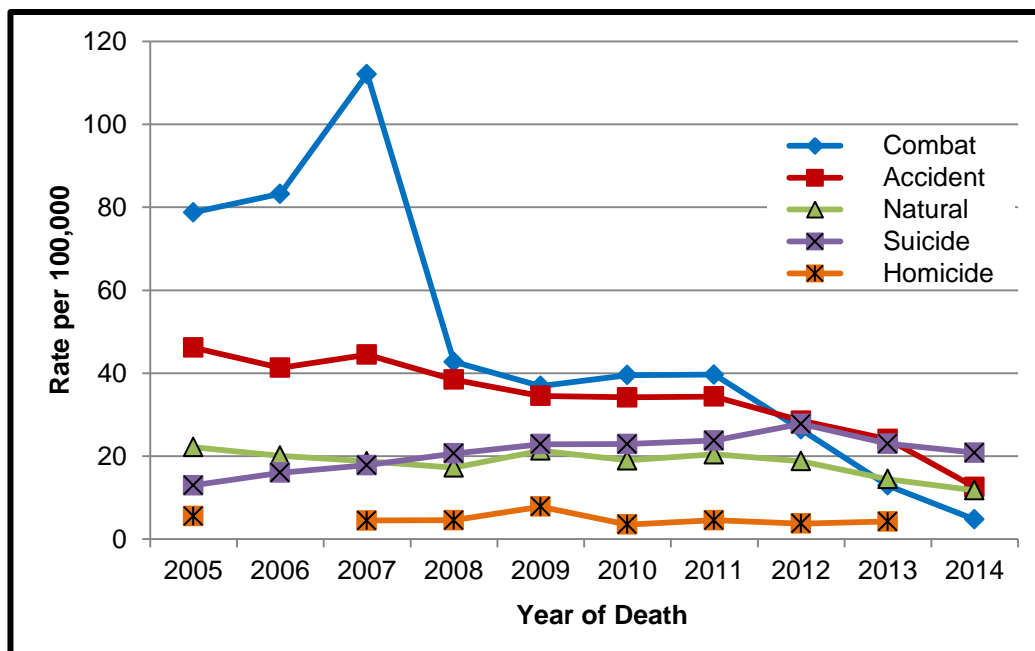
The majority of deaths from 2005 through 2014 were among male Soldiers (94%) 17–34 years of age (75%). Most Soldiers were active duty Regular Army (78%), and almost half were in the junior enlisted ranks (E1–E4, 48%).

Table B-2 depicts counts and proportions of demographic and military characteristics by category of death from 2005 through 2014; Tables B-3 through B-6 present counts and proportions for category of death by sex, age group, component, and rank, respectively, for 2012–2014.

### 6.1.2 Crude Mortality Rates

The overall crude mortality rate for the combined period of 2005 through 2014 was 129.3 deaths per 100,000 persons. The overall crude mortality rate decreased in 2014 (66.6 deaths per 100,000 persons) compared to 2005 (168.0 deaths per 100,000 persons). For the combined period of 2005 through 2014 the highest mortality rate was for combat-related deaths (47.4 deaths per 100,000 persons) followed by accidental deaths (33.9 deaths per 100,000 persons).

From 2005 to 2014 there was a significant decrease in the rates for combat, accidental, and natural deaths. For every year increase from 2005 through 2014, the combat death rate decreased by 10 ( $p = 0.0011$ ), the accident death rate decreased by 3 ( $p < 0.0001$ ) and the natural death rate decreased by 0.759 ( $p = 0.0181$ ). Conversely, for every year increase, the suicide rate significantly increased by 1 ( $p = 0.0095$ ). There were no other significant findings from the trend analysis.

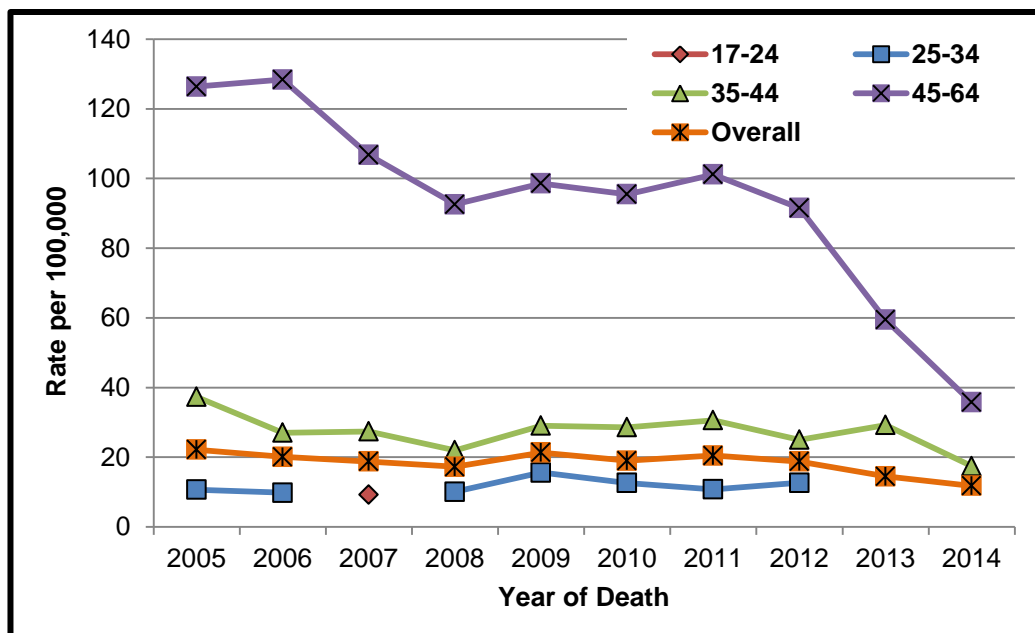


**Figure 3. Crude Mortality Rates per 100,000 Persons for Category of Death among Soldiers in the U.S. Army, 2005–2014**

Note: Crude homicide rates are not shown for 2006 and 2014 because there were fewer than 20 homicides in those years, resulting in unstable rates.

The rate of combat-related deaths was highest in 2007 (112.0 deaths per 100,000 persons), and decreased in subsequent years to 4.7 deaths per 100,000 persons in 2014 (Figure 3). The accidental death rate decreased from 46.2 deaths per 100,000 persons in 2005 to 12.6 deaths per 100,000 persons in 2014. The mortality rate for natural causes declined from 22.2 deaths per 100,000 persons in 2005 compared to 11.8 deaths per 100,000 persons in 2014. Much of this decline was likely due to a decline in the rate of death for natural causes among Soldiers 45–64 years of age; the rate for this group had a significant decline from 2005 (126.3 deaths per 100,000 persons) to 2014 (35.8 deaths per 100,000 persons) ( $p=0.0001$ ) (Figure 4).

The crude rate for suicides increased from 13.0 deaths per 100,000 persons in 2005 to a high of 27.8 per 100,000 persons in 2012 and then declined to 20.8 per 100,000 persons in 2014, similar to the rate in 2008 (20.6 per 100,000 persons). The crude rate for homicides remained approximately stable from 2005 to 2013, with the exception of a slight peak in 2009 (the 2014 rate was not presented because it was based on fewer than 20 cases). Crude mortality rates are shown in Table B-7.

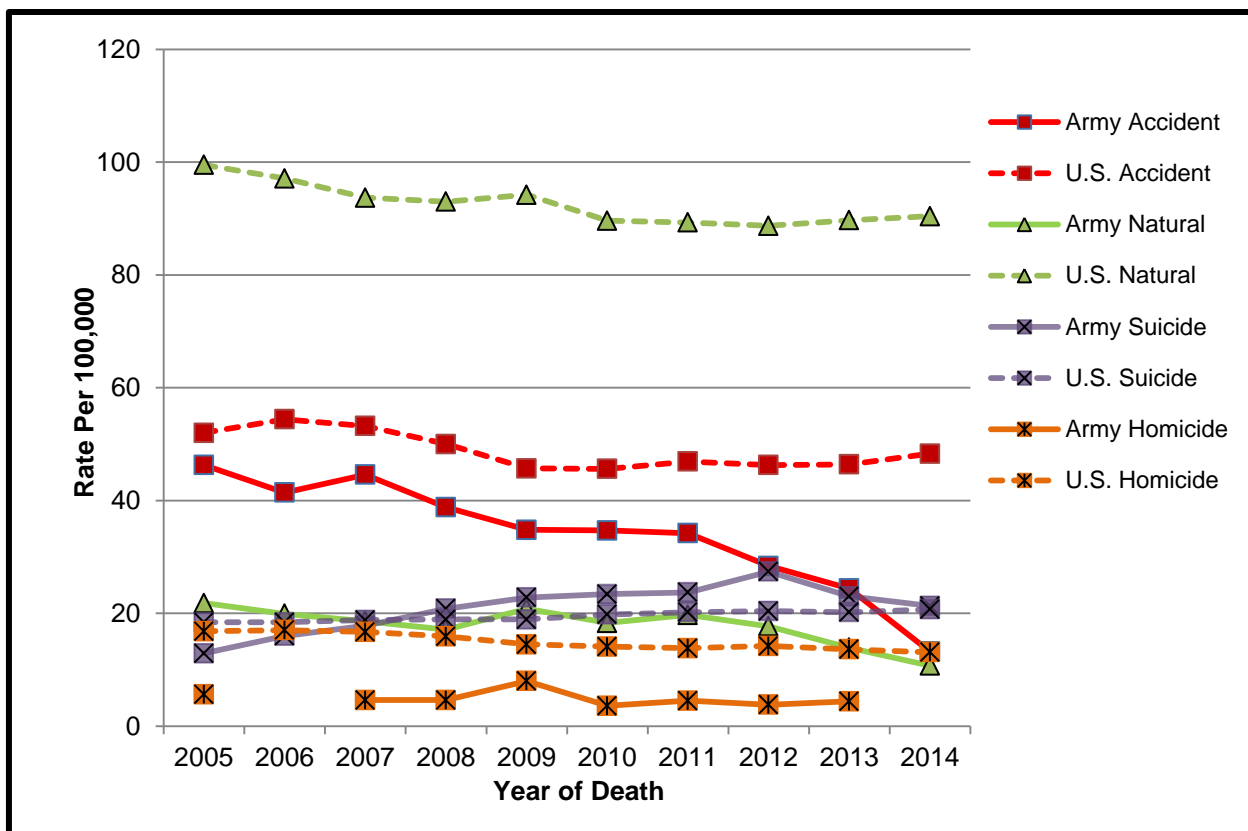


**Figure 4. Age-Stratified Crude Mortality Rates per 100,000 Persons for Natural Deaths among Soldiers in the U.S. Army, 2005-2014**

Note: Rates for Soldiers 17–24 and 25–34 years of age are not presented for some years because they were based on fewer than 20 deaths which produce unstable and statistically unreliable rates. The difference between 2005 and 2014 in the rates of natural deaths among Soldiers 45–64 years of age is statistically significant ( $p < 0.001$ ).

### 6.1.3 Age- and Sex-Adjusted Mortality Rates

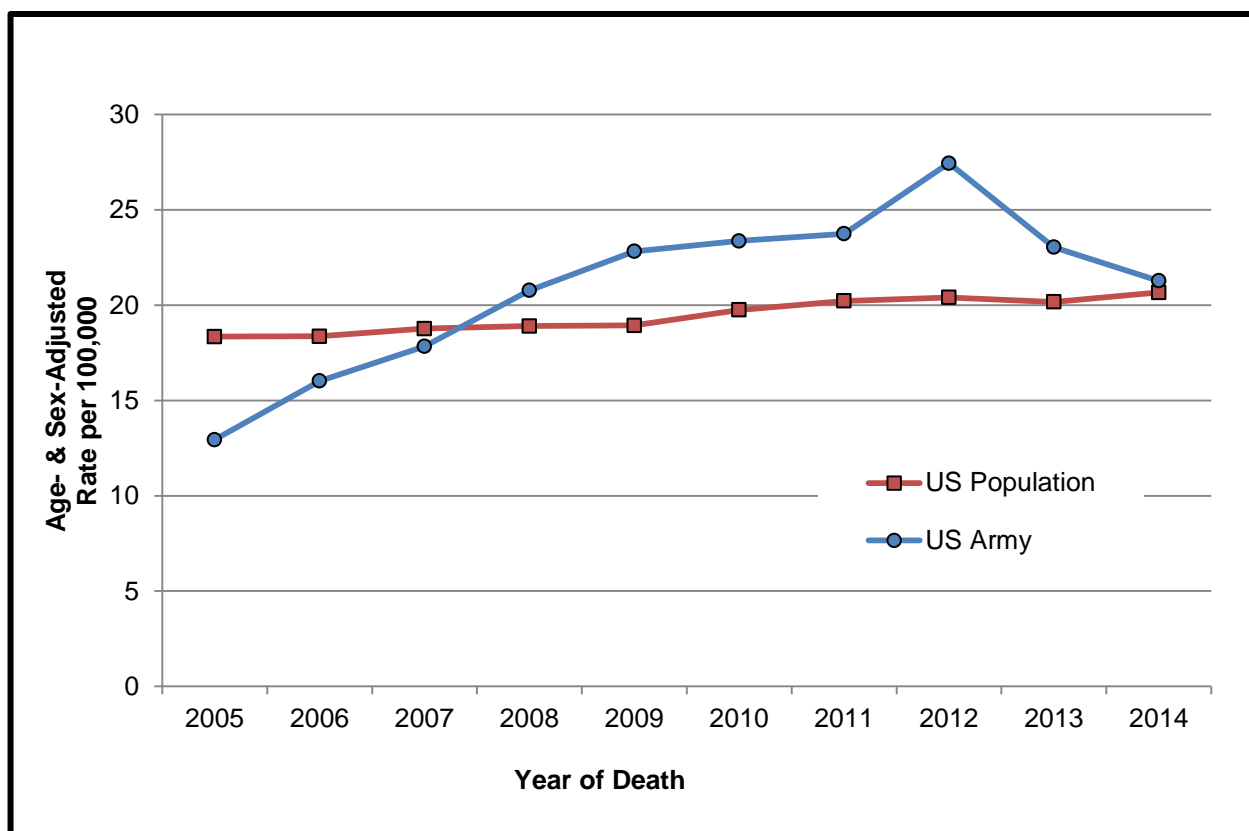
In each year from 2005 through 2014, the adjusted rates of death due to accidents and natural causes were significantly lower for the U.S. Army than for the U.S. population (Figure 5). Similarly, the adjusted rates of death by homicide (Figure 5) were significantly lower for the U.S. Army than for the U.S. population in all years except 2006 and 2014, when the adjusted U.S. Army rates were too unstable to report.



**Figure 5. Age- and Sex- Adjusted Mortality Rates per 100,000 Persons in the U.S. Army and U.S. Population, 2005-2014**

Notes: Age- and sex-adjusted mortality rates per 100,000 persons are presented using the direct adjustment method. U.S. population rates were calculated using available data from the CDC<sup>2</sup>. The 2004 U.S. Army population was used as a standard comparison population for both the U.S. Army and the U.S. population.

In 2005, the adjusted suicide rate was significantly lower for the U.S. Army than the U.S. population (Figure 6). From 2008 through 2014, the adjusted suicide rates for the U.S. Army were higher than the U.S. population rate, but significantly higher only in 2009 and 2012 (Figure 6). Interestingly, the adjusted suicide rate for the U.S. population increased modestly in 2010 and 2011, then leveled off, which reduced the gap in rates between the U.S. Army and U.S. population (Figure 6).



**Figure 6. Age- and Sex-Adjusted Rates of Death per 100,000 Persons for Suicides in the U.S. Army and U.S. Population, 2005–2014**

Notes: Age- and sex-adjusted mortality rates per 100,000 persons are presented using the direct adjustment method. U.S. population rates were calculated using available data from the CDC<sup>2</sup>. The 2004 U.S. Army population was used as a standard comparison population for both the U.S. Army and the U.S. population.

Table B-8 and Figures B-1 through B-3 depict age- and sex-adjusted mortality rates for categories of death (e.g. Accidental, Natural, and Homicide) for the U.S. Army and U.S. population by year.

## 6.2 Causes and Categories of Death

Causes of death and salient characteristics of categories of death are described below. Rates were not calculated for causes of death. Causes of combat deaths are based on only one group of ICD-10 codes (Y36 and Y89.1); therefore no causes are presented for combat-related deaths.

### 6.2.1 Top Causes of Deaths

Underlying causes of death in 2014 (Table B-17) are ranked without regard to their category of death.



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- Suicide from gunshot wounds was the top cause of death in 2014, followed by suicide from other causes, and neoplasms.
- Suicide accounted for the first, second, sixth, and fourteenth ranked causes of death.

### 6.2.2 Combat Deaths

Of the 8,665 deaths from 2005 through 2014, 3,175 (37%) were combat-related. The principal characteristics of those cases were the following:

- 98% male
- 87% 17–34 years of age
- 83% Regular Army
- 50% E1–E4 rank

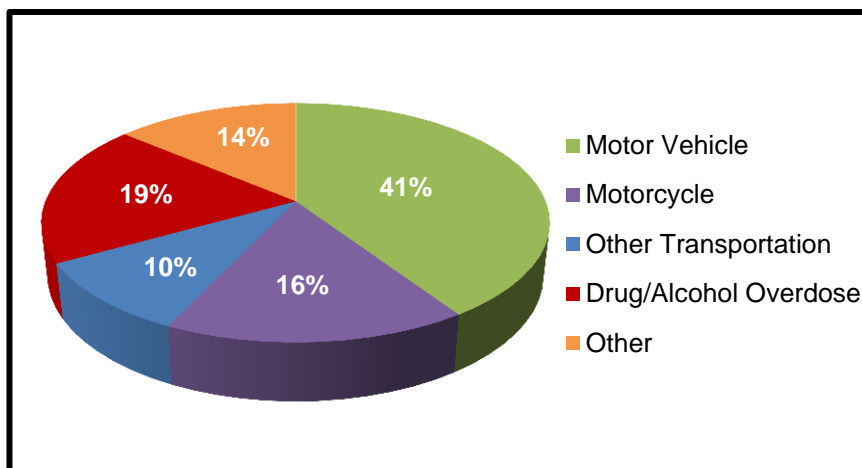
Table B-2 provides the demographic and military characteristics of Soldiers with combat-related deaths.

### 6.2.3 Accidental Deaths

Of the 8,665 deaths from 2005 through 2014, 2,271 (26%) were accidents. The principal characteristics of Soldiers who died by accident and the highlights of specific causes are given below:

- 95% male
- 81% 17–34 years of age
- 77% Regular Army
- 54% E1–E4 rank
- 67% were transportation-related
- 19% were drug/alcohol overdoses
- The number of accidental deaths caused by motor vehicle accidents in 2014 (n=26) decreased compared to 2005 (n=172).
- The number of accidental deaths by drug or alcohol overdoses increased from 2005 (n=30) to 2009 (n=69), then declined from 2009 to 2014 (n=12).

Table B-2 provides the demographic and military characteristics of Soldiers with accident-related deaths. The causes of accidental deaths are described in Figures 7 and in Tables B-9 and B-10.



**Figure 7. Causes of Accidental Deaths among Soldiers in the U.S. Army, 2005–2014**

Notes: Other transportation includes rail, water transport, and all other transportation. Drug/alcohol overdose includes poisonings from other solids and liquids, including medications. Other includes falls, explosions, drownings, poisonings from gases/vapors, pending, and all other accidental deaths.

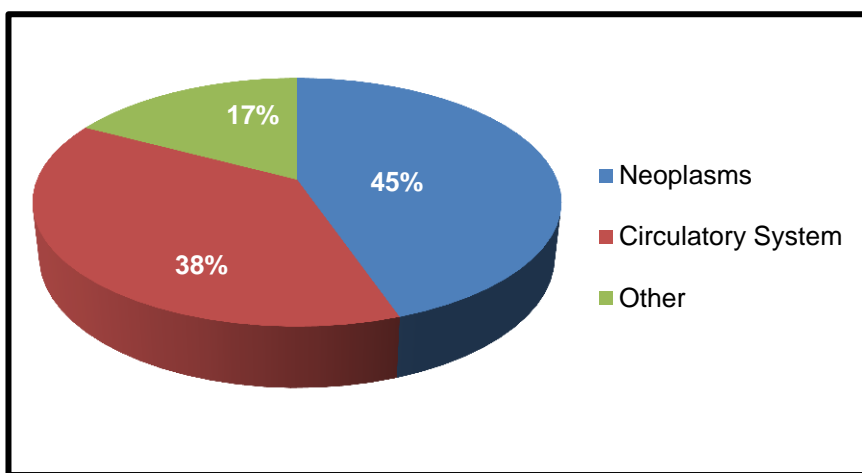
#### 6.2.4 Natural Deaths

Natural causes accounted for 1,237 (14%) of the deaths from 2005 through 2014. The principal characteristics of Soldiers who died of natural causes and the highlights of specific causes are given below:

- 13% female
- 68% 35–64 years of age
- 44% National Guard/Army Reserve
- 59% E5–E9 rank
- 45% were neoplasms
- 38% were diseases of the circulatory system (such as heart attack and stroke)
- The number of deaths due to neoplasms and diseases of the circulatory system significantly decreased from 2012 (n=100) to 2014 (n=60), (p=0.002).
- 18% of the Soldiers who died by neoplasms and 15% who died of other natural conditions were female.

- 94% of the Soldiers who died of diseases of the circulatory system were male.
- While deaths from neoplasms and diseases of the circulatory system were more likely to be among Soldiers 35–64 years of age, deaths from other natural conditions had a relatively equal age distribution.

Table B-2 provides the demographic and military characteristics of Soldiers with natural deaths. The causes of natural deaths are described in Figure 8 and in Tables B-11 and B-12.



**Figure 8. Causes of Natural Deaths among Soldiers in the U.S. Army, 2005–2014**

Note: Other includes diseases related to the nervous system, respiratory system, digestive system, musculoskeletal system, mental and behavioral disorders, congenital malformations, blood, endocrine, skin, pregnancy, infections, pending, and all other natural conditions.

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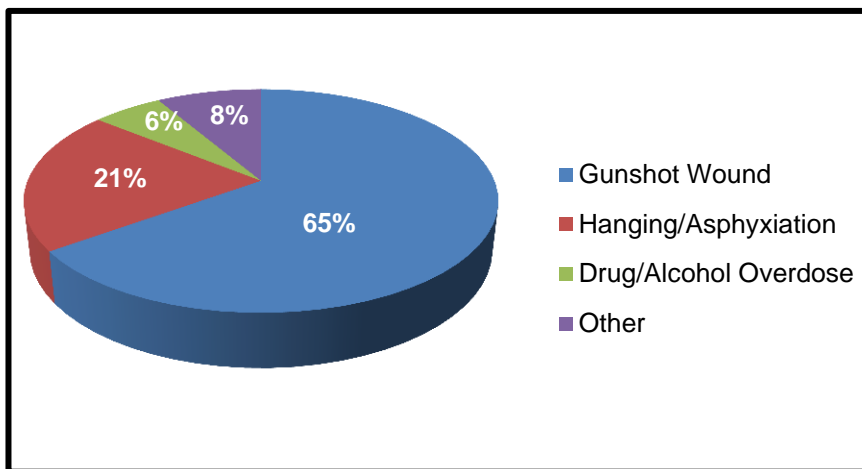
### 6.2.5 Suicides

From 2005 through 2014, 1,402 deaths (16%) were suicides. The principal characteristics of Soldiers who died by suicide and the highlights of specific causes are given below:

- 94% male
- 78% 17–34 years of age
- 85% Regular Army
- 52% E1–E4 rank
- 65% caused by gunshot wounds

- 6% caused by drug/alcohol overdose
- 14% of drug/alcohol overdoses were by female Soldiers

Table B-2 provides the demographic and military characteristics of Soldiers with suicide-related deaths. The causes of suicides are described in Figure 9 and in Tables B-13 and B-14.



**Figure 9. Causes of Suicides among Soldiers in the U.S. Army, 2005–2014**

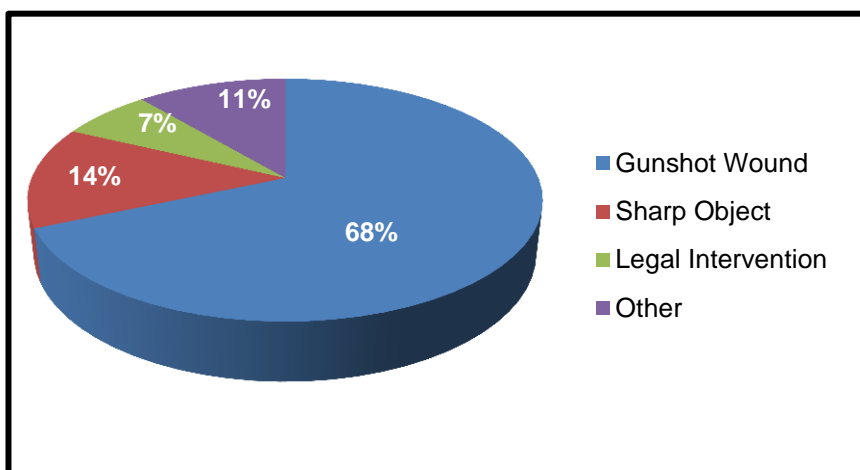
Notes: Drug/alcohol overdose includes poisonings with other solids and liquids, including medications. Other includes carbon monoxide and other gas/vapor poisonings, jumping from a high place, pending, and all other means.

### 6.2.6 Homicides

From 2005 through 2014, 295 deaths (3%) were homicides. The principal characteristics of Soldiers who died by homicide and the highlights of specific causes are given below:

- 85% male
- 82% 17–34 years of age
- 82% Regular Army
- 61% E1–E4 rank
- 68% caused by gunshot wounds
- 30% of Soldiers who died by a sharp object were female.

Table B-2 provides the demographic and military characteristics of Soldiers with homicide-related deaths. The causes of homicides are described in Figure 10 and in Tables B-15 and B-16.



**Figure 10. Causes of Homicides among Soldiers in the U.S. Army, 2005–2014**

Notes: Legal intervention includes legal execution and deaths by police or other law-enforcement agents. Other includes hanging/strangulation/suffocation, blunt object, bodily force, pending, and all other means.

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## 7 Conclusions

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From 2005 through 2014, the mortality rates for combat-related deaths, accidental deaths, and deaths from natural causes declined significantly. The homicide rate held steady across the period; whereas the suicide rate rose through 2012 and fell in 2013-2014. Mortality rates decreased significantly for combat and accidental deaths in 2012 compared to 2014 and in 2013 compared to 2014. Mortality rates also decreased significantly for natural and suicide deaths in 2012 compared to 2014.

For the most part, the characteristics of the Soldiers who died in 2005 through 2014 follow the demographic and military distribution of the U.S. Army, with cases being predominantly male, younger than 35 years of age, active duty, and junior enlisted. The exceptions were for Soldiers who died from natural causes, where the greatest proportions were among noncommissioned Officers, National Guard or Army Reserve Soldiers, and Soldiers 35 years of age or older.

The decreases in mortality rates over the last three years may, in part, reflect a healthy worker effect.<sup>9</sup> That is, as the U.S. Army has begun its drawdown, Soldiers at greater risk of death may have separated from Service. For example, if more Soldiers with physical health problems, including those with combat-related health problems, have left the U.S. Army in the last few years, that would contribute to decreases in the combat-related mortality rate and the rate of death from natural causes. The decrease in combat-related deaths is, in part, the result of the decrease in the number of Soldiers at risk because fewer Soldiers are deployed, and of the measures taken to

increase the speed in which Soldiers wounded in theater are evacuated and treated. If more Soldiers with behavioral health disorders or with drug or alcohol use problems have left Service during this period that could impact the suicide rate and the rate of accidental overdose. If more Soldiers with risky behavior left after 2012, transportation-related deaths might decrease.

The decreases in the mortality rates could also suggest the success of the myriad of programs the U.S. Army has implemented to address death from preventable causes. The Travel Risk Planning System (TRiPS), the Motorcycle Mentorship Program (MMP), and the privately owned vehicle/motorcycle (POV/POM) Toolbox aim to limit transportation-related accidents.<sup>11</sup> The Sole Provider Program (SPP) and the National Prescription Drug Take-Back Day seek to reduce deaths by accidental and intentional overdose.<sup>12</sup> Measures to register and secure weapons on military installations aim to diminish firearm homicides, suicides, and accidents that occur on post.<sup>13</sup> Over the long term, the Performance Triad may help decrease natural deaths.<sup>14</sup> The Ready and Resilient Campaign not only promotes a healthy mind and body, but also provides leaders and commanders training to assist them with identifying at-risk Soldiers; these actions could play a part in the decreasing suicide rate.<sup>15</sup> The U.S. Army Suicide Prevention Program (ASPP) and Ask, Care, Escort Suicide Intervention (ACE SI) Training Program seeks to prevent suicides.<sup>16</sup> Additionally, the expansion and standardization of behavioral health services through the Behavioral Health Service Line (BHSL) may reduce suicide risk through increase access to care and identifying BH issues early in the course of the illness.<sup>17</sup>

## **8 Point of Contact**

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The APHC (Provisional) BSHOP is the point of contact for this surveillance publication, e-mail [usarmy.apg.medcom-phc.list.eds-bshop-ops@mail.mil](mailto:usarmy.apg.medcom-phc.list.eds-bshop-ops@mail.mil), or phone number 410-436-8447, DSN 584-8447.

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## Appendix A

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**Appendix B**  
**Detailed Tables and Figures**

## Mortality from All Causes

Table B-1. Deaths in the U.S. Army, by Category, 2012–2014<sup>a</sup>

Category - n (%)	Year of Death (n = 1706)			
	2012 (n = 723)	2013 (n = 548)	2014 (n = 435)	2012–2014 (n = 1706)
Combat	176 (24)	82 (15)	31 (7)	289 (17)
Accident	190 (26)	153 (28)	82 (19)	425 (25)
Natural	125 (17)	92 (17)	77 (18)	294 (17)
Suicide	185 (26)	146 (27)	136 (31)	467 (27)
Homicide	25 (3)	27 (5)	16 (4)	68 (4)
Undetermined	9 (1)	11 (2)	4 (1)	24 (1)
Pending	13 (2)	37 (7)	89 (20)	139 (8)

Notes: <sup>a</sup>Includes active duty Regular Army, activated National Guard, and activated Army Reserve Soldiers. Four cases were excluded because they were >64 years of age.

**Table B-2. Demographic and Military Characteristics of Deaths in the U.S. Army, by Category, 2005–2014<sup>a</sup>**

Characteristics - n (%)	Category of Death (n = 8665)							Total (n = 8665)	Army Population %
	Combat (n = 3175)	Accident (n = 2271)	Natural (n = 1237)	Suicide (n = 1402)	Homicide (n = 295)	Undetermined (n = 143)	Pending (n = 142)		
<b>Sex</b>									
Male	3122(98)	2155(95)	1077(87)	1321(94)	252(85)	127(89)	128(90)	8182(94)	85
Female	53 (2)	116 (5)	160(13)	81 (6)	43(15)	16(11)	14(10)	483 (6)	15
<b>Age Group (yr)</b>									
17–24	1509(48)	1028(45)	142(11)	551(39)	145(49)	63(44)	40(28)	3478(40)	33
25–34	1248(39)	817(36)	261(21)	548(39)	96(33)	45(31)	55(39)	3070(35)	38
35–44	355(11)	317(14)	405(33)	252(18)	41(14)	24(17)	24(17)	1418(16)	22
45–64	63 (2)	109 (5)	429(35)	51 (4)	13 (4)	11 (8)	23(16)	699 (8)	7
<b>Component</b>									
Regular Army	2647(83)	1756(77)	698(56)	1193(85)	243(82)	112(78)	102(72)	6751(78)	79
National Guard	409(13)	359(16)	326(26)	148(11)	32(11)	21(15)	31(22)	1326(15)	13
Army Reserve	119 (4)	156 (7)	213(17)	61 (4)	20 (7)	10 (7)	9 (6)	588 (7)	8
<b>Rank</b>									
Cadet	0 (0)	10(<1)	2(<1)	4(<1)	0 (0)	0 (0)	0 (0)	16(<1)	
E1–E4	1603(50)	1234(54)	227(18)	729(52)	179(61)	84(59)	60(42)	4116(48)	41
E5–E9	1262(40)	801(35)	728(59)	534(38)	92(31)	49(34)	62(44)	3528(41)	41
W1–W5	46 (1)	86 (4)	45 (4)	19 (1)	1(<1)	3 (2)	7 (5)	207 (2)	3
O1–O3	213 (7)	91 (4)	66 (5)	77 (5)	17 (6)	3 (2)	4 (3)	471 (5)	8
O4–O8	51 (2)	49 (2)	169(14)	39 (3)	6 (2)	4 (3)	9 (6)	327 (4)	7

Notes: <sup>a</sup>Includes active duty Regular Army, activated National Guard, and activated Army Reserve Soldiers. Four cases were excluded because they were >64 years of age.

**Table B-3. Deaths in the U.S. Army, by Sex and Category, 2012–2014<sup>a</sup>**

Sex - n (%)	Year of Death (n = 1706)			
	2012 (n = 723)	2013 (n = 548)	2014 (n = 435)	2012–2014 (n = 1706)
<b>Combat</b>				
Male	171 (97)	78 (95)	31 (100)	280 (97)
Female	5 (3)	4 (5)	0 (0)	9 (3)
<b>Accident</b>				
Male	183 (96)	144 (94)	81 (99)	408 (96)
Female	7 (4)	9 (6)	1 (1)	17 (4)
<b>Natural</b>				
Male	113 (90)	81 (88)	64 (83)	258 (88)
Female	12 (10)	11 (12)	13 (17)	36 (12)
<b>Suicide</b>				
Male	172 (93)	140 (96)	127 (93)	439 (94)
Female	13 (7)	6 (4)	9 (7)	28 (6)
<b>Homicide</b>				
Male	21 (84)	24 (89)	14 (88)	59 (87)
Female	4 (16)	3 (11)	2 (12)	9 (13)
<b>Undetermined</b>				
Male	9 (100)	10 (91)	4 (100)	23 (96)
Female	0 (0)	1 (9)	0 (0)	1 (4)
<b>Pending</b>				
Male	11 (85)	35 (95)	79 (89)	125 (90)
Female	2 (15)	2 (5)	10 (11)	14 (10)

Notes: <sup>a</sup>Includes active duty Regular Army, activated National Guard, and activated Army Reserve Soldiers. Four cases were excluded because they were >64 years of age.

**Table B-4. Deaths in the U.S. Army, by Age Group and Category, 2012–2014<sup>a</sup>**

Age Group - n (%)	Year of Death (n = 1706)			
	2012 (n = 723)	2013 (n = 548)	2014 (n = 435)	2012–2014 (n = 1706)
<b>Combat</b>				
Age 17–24	80 (45)	33 (40)	9 (29)	122 (42)
Age 25–34	72 (41)	42 (51)	12 (39)	126 (44)
Age 35–44	18 (10)	7 (9)	7 (23)	32 (11)
Age 45–64	6 (3)	0 (0)	3 (10)	9 (3)
<b>Accident</b>				
Age 17–24	67 (35)	62 (41)	37 (45)	166 (39)
Age 25–34	93 (49)	60 (39)	30 (37)	183 (43)
Age 35–44	25 (13)	23 (15)	10 (12)	58 (14)
Age 45–64	5 (3)	8 (5)	5 (6)	18 (4)
<b>Natural</b>				
Age 17–24	11 (9)	8 (9)	12 (16)	31 (11)
Age 25–34	34 (27)	16 (17)	16 (21)	66 (22)
Age 35–44	36 (29)	40 (43)	26 (34)	102 (35)
Age 45–64	44 (35)	28 (30)	23 (30)	95 (32)
<b>Suicide</b>				
Age 17–24	56 (30)	52 (36)	40 (29)	148 (32)
Age 25–34	89 (48)	57 (39)	62 (46)	208 (45)
Age 35–44	33 (18)	26 (18)	29 (21)	88 (19)
Age 45–64	7 (4)	11 (8)	5 (4)	23 (5)
<b>Homicide</b>				
Age 17–24	10 (40)	11 (41)	8 (50)	29 (43)
Age 25–34	11 (44)	8 (30)	4 (25)	23 (34)
Age 35–44	3 (12)	7 (26)	4 (25)	14 (21)
Age 45–64	1 (4)	1 (4)	0 (0)	2 (3)
<b>Undetermined</b>				
Age 17–24	7 (78)	3 (27)	2 (50)	12 (50)
Age 25–34	2 (22)	3 (27)	1 (25)	6 (25)
Age 35–44	0 (0)	4 (36)	1 (25)	5 (21)
Age 45–64	0 (0)	1 (9)	0 (0)	1 (4)
<b>Pending</b>				
Age 17–24	2 (15)	12 (32)	26 (29)	40 (29)
Age 25–34	8 (62)	11 (30)	33 (37)	52 (37)
Age 35–44	2 (15)	9 (24)	13 (15)	24 (17)
Age 45–64	1 (8)	5 (14)	17 (19)	23 (17)

Notes: <sup>a</sup>Includes active duty Regular Army, activated National Guard, and activated Army Reserve Soldiers. Four cases were excluded because they were >64 years of age.

**Table B-5. Deaths in the U.S. Army, by Component and Category, 2012–2014<sup>a</sup>**

Component - n (%)	Year of Death (n = 1706)			
	2012 (n = 723)	2013 (n = 548)	2014 (n = 435)	2012–2014 (n = 1706)
<b>Combat</b>				
Regular Army	150 (85)	76 (93)	31 (100)	257 (89)
National Guard	21 (12)	6 (7)	0 (0)	27 (9)
Army Reserves	5 (3)	0 (0)	0 (0)	5 (2)
<b>Accident</b>				
Regular Army	163 (86)	125 (82)	68 (83)	356 (84)
National Guard	19 (10)	20 (13)	11 (13)	50 (12)
Army Reserves	8 (4)	8 (5)	3 (4)	19 (4)
<b>Natural</b>				
Regular Army	83 (66)	61 (66)	45 (58)	189 (64)
National Guard	21 (17)	20 (22)	19 (25)	60 (20)
Army Reserves	21 (17)	11 (12)	13 (17)	45 (15)
<b>Suicide</b>				
Regular Army	165 (89)	120 (82)	124 (91)	409 (88)
National Guard	17 (9)	20 (14)	7 (5)	44 (9)
Army Reserves	3 (2)	6 (4)	5 (4)	14 (3)
<b>Homicide</b>				
Regular Army	23 (92)	22 (81)	15 (94)	60 (88)
National Guard	2 (8)	2 (7)	1 (6)	5 (7)
Army Reserves	0 (0)	3 (11)	0 (0)	3 (4)
<b>Undetermined</b>				
Regular Army	8 (89)	8 (73)	4 (100)	20 (83)
National Guard	0 (0)	1 (9)	0 (0)	1 (4)
Army Reserves	1 (11)	2 (18)	0 (0)	3 (13)
<b>Pending</b>				
Regular Army	7 (54)	32 (86)	60 (67)	99 (71)
National Guard	6 (46)	5 (14)	20 (22)	31 (22)
Army Reserves	0 (0)	0 (0)	9 (10)	9 (6)

Notes: <sup>a</sup>Includes active duty Regular Army, activated National Guard, and activated Army Reserve Soldiers. Four cases were excluded because they were >64 years of age.

**Table B-6. Deaths in the U.S. Army, by Rank and Category, 2012–2014<sup>a</sup>**

Rank - n (%)	Year of Death (n = 1706)			
	2012 (n = 723)	2013 (n = 548)	2014 (n = 435)	2012–2014 (n = 1706)
<b>Combat</b>				
Cadet	0 (0)	0 (0)	0 (0)	0 (0)
E1–E4	73 (41)	31 (38)	12 (38)	116 (40)
E5–E9	78 (44)	38 (46)	15 (48)	131 (45)
W1–W5	6 (3)	3 (4)	1 (3)	10 (3)
O1–O3	17 (10)	8 (10)	1 (3)	26 (9)
O4–O5	2 (1)	2 (2)	2 (6)	6 (2)
<b>Accident</b>				
Cadet	1 (<1)	0 (0)	0 (0)	1 (<1)
E1–E4	97 (51)	76 (50)	40 (49)	213 (50)
E5–E9	76 (40)	56 (37)	32 (39)	164 (39)
W1–W5	5 (3)	5 (3)	3 (4)	13 (3)
O1–O3	9 (5)	12 (8)	4 (5)	25 (6)
O4–O5	2 (1)	4 (3)	3 (4)	9 (2)
<b>Natural</b>				
Cadet	0 (0)	0 (0)	0 (0)	0 (0)
E1–E4	21 (17)	14 (15)	16 (21)	51 (17)
E5–E9	75 (60)	55 (60)	40 (52)	170 (58)
W1–W5	5 (4)	5 (5)	2 (3)	12 (4)
O1–O3	7 (6)	10 (11)	4 (5)	21 (7)
O4–O5	17 (13)	8 (9)	15 (19)	40 (14)
<b>Suicide</b>				
Cadet	0 (0)	0 (0)	0 (0)	0 (0)
E1–E4	87 (47)	66 (45)	54 (40)	207 (44)
E5–E9	75 (41)	63 (43)	66 (49)	204 (44)
W1–W5	6 (3)	1 (<1)	2 (1)	9 (2)
O1–O3	12 (6)	10 (7)	10 (7)	32 (7)
O4–O5	5 (3)	6 (4)	4 (3)	15 (3)

**Table B-6. Deaths in the U.S. Army, by Rank and Category, 2012–2014<sup>a</sup>**  
**(Continued)**

Rank - n (%)	Year of Death (n = 1706)			
	2012 (n = 723)	2013 (n = 548)	2014 (n = 435)	2012–2014 (n = 1706)
<b>Homicide</b>				
Cadet	0 (0)	0 (0)	0 (0)	0 (0)
E1–E4	15 (60)	16 (59)	10 (62)	41 (60)
E5–E9	9 (36)	7 (26)	6 (38)	22 (32)
W1–W5	0 (0)	0 (0)	0 (0)	0 (0)
O1–O3	0 (0)	3 (11)	0 (0)	3 (4)
O4–O8	1 (4)	1 (4)	0 (0)	2 (3)
<b>Undetermined</b>				
Cadet	0 (0)	0 (0)	0 (0)	0 (0)
E1–E4	6 (67)	4 (36)	2 (50)	12 (50)
E5–E9	3 (33)	6 (55)	2 (50)	11 (46)
W1–W5	0 (0)	0 (0)	0 (0)	0 (0)
O1–O3	0 (0)	0 (0)	0 (0)	0 (0)
O4–O8	0 (0)	1 (9)	0 (0)	1 (4)
<b>Pending</b>				
Cadet	0 (0)	0 (0)	0 (0)	0 (0)
E1–E4	4 (31)	14 (38)	39 (44)	57 (41)
E5–E9	8 (62)	14 (38)	40 (45)	62 (45)
W1–W5	0 (0)	6 (16)	1 (1)	7 (5)
O1–O3	1 (8)	1 (3)	2 (2)	4 (3)
O4–O8	0 (0)	2 (5)	7 (8)	9 (6)

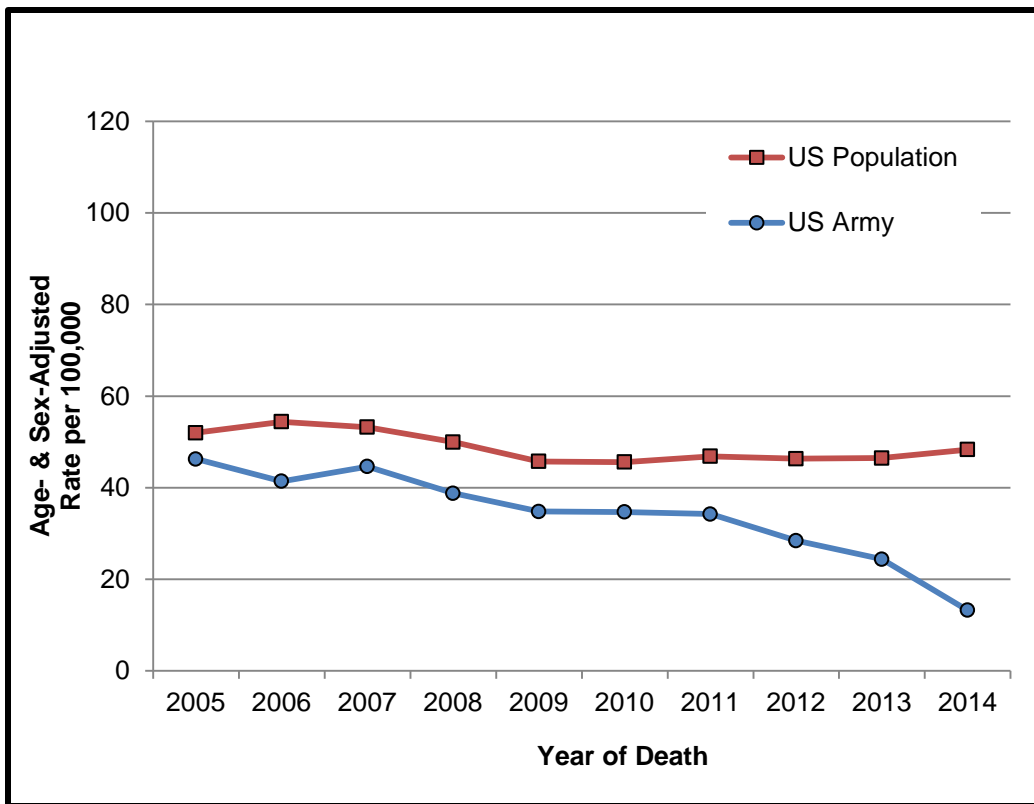
Notes: <sup>a</sup>Includes active duty Regular Army, activated National Guard, and activated Army Reserve Soldiers. Four cases were excluded because they were >64 years of age.



**Table B-7. Crude Mortality Rates for the U.S. Army, Overall, 2005–2014<sup>a</sup>**

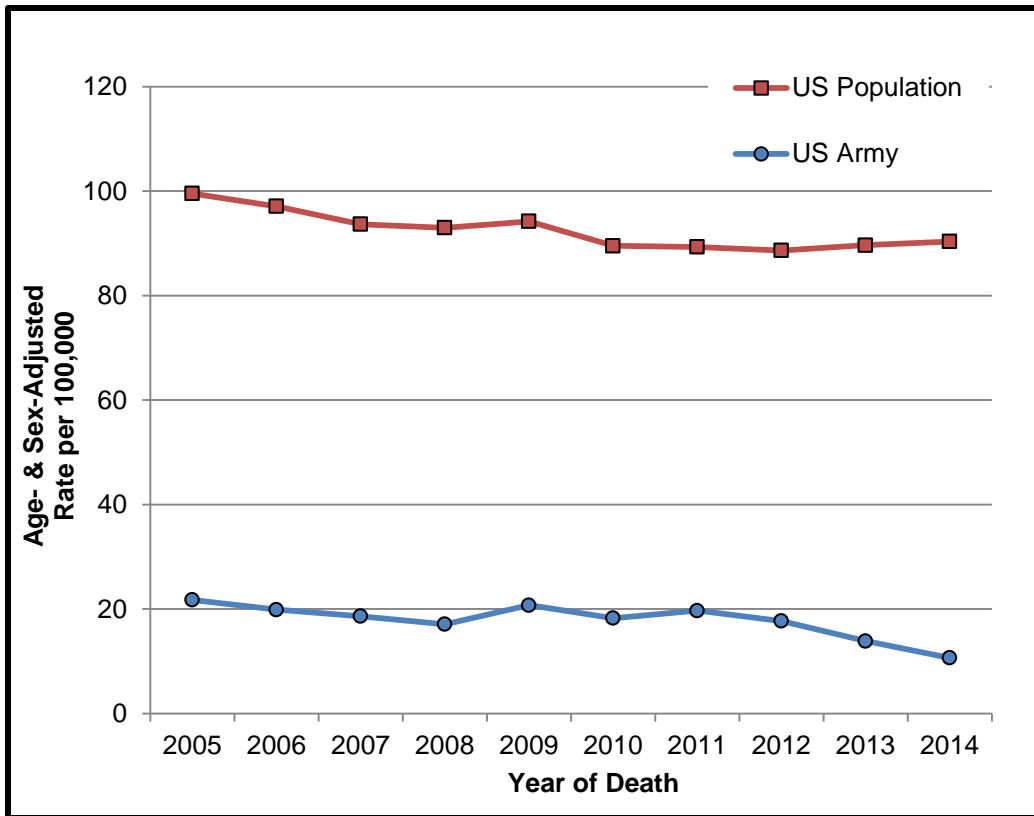
Year of Death	Category – Rate					Total
	Combat	Accident	Natural	Suicide	Homicide	
2005	78.7	46.2	22.2	13.0	5.6	168.0
2006	83.2	41.3	20.1	16.0	--	165.3
2007	112.0	44.5	18.8	17.8	4.5	200.8
2008	42.7	38.5	17.2	20.6	4.6	126.1
2009	36.9	34.5	21.3	22.9	7.9	126.6
2010	39.5	34.2	19.0	22.9	3.5	121.2
2011	39.6	34.4	20.5	23.8	4.6	125.5
2012	26.4	28.5	18.8	27.8	3.8	108.6
2013	12.9	24.1	14.5	23.0	4.3	86.3
2014	4.7	12.6	11.8	20.8	--	66.6
2005–2014	47.4	33.9	18.5	20.9	4.4	129.3

Notes: <sup>a</sup>Mortality rates per 100,000 persons are presented. Rates based on fewer than 20 deaths are considered to be unstable and are not presented here. Undetermined and pending death rates are also not presented here due to relatively few deaths per year. However, column Ns and total rates include undetermined and pending deaths.



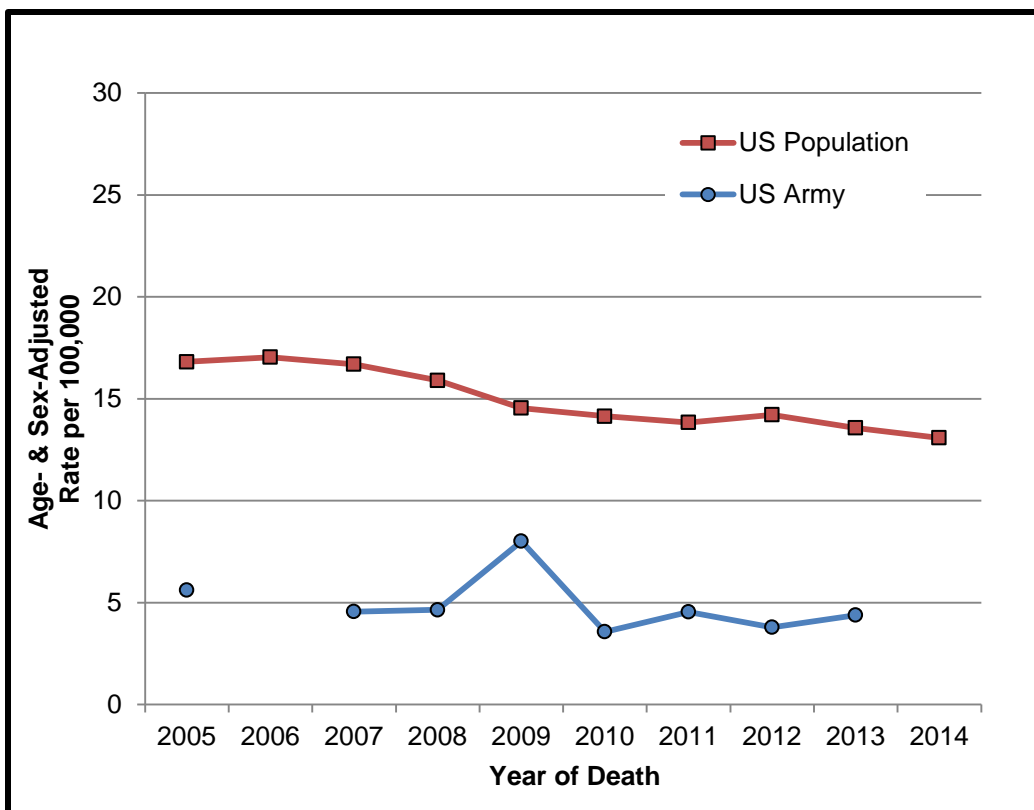
**Figure B-1. Age- and Sex-Adjusted Rates of Death per 100,000 Persons for Accidents in the U.S. Army and U.S. Population, 2005–2014**

Notes: Age- and sex-adjusted mortality rates per 100,000 persons are presented using the direct adjustment method. U.S. rates were calculated using available data from the CDC<sup>2</sup>. The 2004 Army population was used as a standard comparison population for both the U.S. Army and the U.S. population.



**Figure B-2. Age- and Sex-Adjusted Rates of Death per 100,000 Persons for Natural Causes in the U.S. Army and U.S. Population, 2005–2014**

Notes: Age- and sex-adjusted mortality rates per 100,000 persons are presented using the direct adjustment method. U.S. rates were calculated using available data from the CDC<sup>2</sup>. The 2004 Army population was used as a standard comparison population for both the U.S. Army and the U.S. population.



**Figure B-3. Age- and Sex-Adjusted Rates of Death per 100,000 Persons for Homicides in the U.S. Army and U.S. Population, 2005–2014**

Notes: Age- and sex-adjusted mortality rates per 100,000 persons are presented using the direct adjustment method. U.S. rates were calculated using available data from the CDC<sup>2</sup>. The 2004 Army population was used as a standard comparison population for both the U.S. Army and the U.S. population. The U.S. Army age- and sex-adjusted rate for homicide in 2006 and 2014 are not presented here because they were based on fewer than 20 deaths.

**Table B-8. Age- and Sex-Adjusted Mortality Rates for the U.S. Army and U.S. Population, 2005–2014<sup>a</sup>**

Year of Death	Category – Rate							
	Accident		Natural		Suicide		Homicide	
	Army	U.S.	Army	U.S.	Army	U.S.	Army	U.S.
2005	46.3 <sup>b</sup>	52.0	21.8 <sup>b</sup>	99.5	12.9 <sup>b</sup>	18.4	5.6 <sup>b</sup>	16.8
2006	41.4 <sup>b</sup>	54.4	19.9 <sup>b</sup>	97.1	16.0	18.4	--	17.0
2007	44.6 <sup>b</sup>	53.2	18.6 <sup>b</sup>	93.7	17.8	18.8	4.6 <sup>b</sup>	16.7
2008	38.8 <sup>b</sup>	50.0	17.1 <sup>b</sup>	93.0	20.8	18.9	4.6 <sup>b</sup>	15.9
2009	34.8 <sup>b</sup>	45.7	20.8 <sup>b</sup>	94.2	22.8 <sup>b</sup>	18.9	8.0 <sup>b</sup>	14.5
2010	34.7 <sup>b</sup>	45.6	18.3 <sup>b</sup>	89.6	23.4	19.8	3.6 <sup>b</sup>	14.1
2011	34.2 <sup>b</sup>	46.9	19.7 <sup>b</sup>	89.3	23.7	20.2	4.5 <sup>b</sup>	13.8
2012	28.4 <sup>b</sup>	46.3	17.7 <sup>b</sup>	88.7	27.4 <sup>b</sup>	20.4	3.8 <sup>b</sup>	14.2
2013	24.4 <sup>b</sup>	46.4	13.9 <sup>b</sup>	89.7	23.0	20.2	4.4 <sup>b</sup>	13.6
2014	13.2 <sup>b</sup>	48.3	10.7 <sup>b</sup>	90.4	21.3	20.7	--	13.1
2005–2014	34.3 <sup>b</sup>	48.9	17.7 <sup>b</sup>	92.5	21.0 <sup>b</sup>	19.5	4.5 <sup>b</sup>	15.0

Notes: <sup>a</sup>Age- and sex-adjusted mortality rates per 100,000 persons are presented using the direct adjustment method. U.S. rates were calculated using available data from the CDC<sup>2</sup>. The 2004 Army population was used as a standard comparison population for both the U.S. Army and the U.S. population. Rates based on fewer than 20 deaths are considered to be unstable and are not presented here. Undetermined and pending death rates are also not presented here due to relatively few deaths per year. Rates for combat deaths are also not presented here because there is no appropriate U.S. comparison. <sup>b</sup>Differences between adjusted rates for the Army and the U.S. are statistically significant at p<.05.

## Causes of Accidental Deaths

Table B-9. Demographic and Military Characteristics of Causes for Accidental Deaths in the U.S. Army, 2005–2014

Characteristics - n (%)	Cause of Death (n = 2271)					Total (n = 2271)
	Motor Vehicle (n = 923)	Motorcycle (n = 372)	Other Transportation <sup>a</sup> (n = 223)	Drug/Alcohol Overdose <sup>b</sup> (n = 439)	Other <sup>c</sup> (n = 314)	
<b>Sex</b>						
Male	866 (94)	364 (98)	213 (96)	417 (95)	295 (94)	2155
Female	57 (6)	8 (2)	10 (4)	22 (5)	19 (6)	116
<b>Age Group (yr)</b>						
17–24	514 (56)	129 (35)	54 (24)	189 (43)	142 (45)	1028
25–34	277 (30)	145 (39)	106 (48)	181 (41)	108 (34)	817
35–44	104 (11)	72 (19)	47 (21)	50 (11)	44 (14)	317
45–64	28 (3)	26 (7)	16 (7)	19 (4)	20 (6)	109
<b>Component</b>						
Regular Army	687 (74)	298 (80)	168 (75)	359 (82)	244 (78)	1756
National Guard	174 (19)	47 (13)	41 (18)	55 (12)	42 (13)	359
Army Reserve	62 (7)	27 (7)	14 (6)	25 (6)	28 (9)	156
<b>Rank</b>						
Cadet	3 (<1)	1 (<1)	1 (<1)	0 (0)	5 (2)	10
E1–E4	586 (63)	124 (33)	55 (25)	301 (69)	168 (54)	1234
E5–E9	291 (32)	218 (59)	59 (26)	125 (28)	108 (34)	801
W1–W5	7 (<1)	6 (2)	67 (30)	3 (<1)	3 (<1)	86
O1–O3	23 (2)	14 (4)	27 (12)	5 (1)	22 (7)	91
O4–O8	13 (1)	9 (2)	14 (6)	5 (1)	8 (3)	49

Note: <sup>a</sup>Other transportation includes rail, water transport, and all other transportation. <sup>b</sup>Drug/alcohol overdose includes poisonings from other solids and liquids, including medications. <sup>c</sup>Other includes falls, explosions, drowning, poisonings from gases/vapors, pending, and all other accidental deaths.

**Table B-10. Causes of Accidental Deaths in the U.S. Army, Overall, 2012–2014<sup>a</sup>**

Category - n (%)	Year of Death (n = 425)			
	2012 (n = 190)	2013 (n = 153)	2014 (n = 82)	2012–2014 (n = 425)
Motor Vehicle	63 (33)	33 (22)	26 (32)	122 (29)
Motorcycle	45 (24)	21 (14)	14 (17)	80 (19)
Air, Space & Other Transportation <sup>b</sup>	7 (4)	14 (9)	11 (13)	32 (8)
Drug/Alcohol Overdose <sup>c</sup>	43 (23)	32 (21)	12 (15)	87 (20)
Other <sup>d</sup>	32 (17)	53 (35)	19 (23)	104 (24)

Notes: <sup>a</sup>Includes active duty (Regular Army), activated National Guard, and activated Army Reserve Soldiers. Four cases were excluded because they were >64 years of age. <sup>b</sup>Other transportation includes rail, water transport, and all other transportation. <sup>c</sup>Drug/alcohol overdose includes poisonings from other solids and liquids, including medications. <sup>d</sup>Other includes falls, explosions, drowning, poisonings from gases/vapors, pending, and all other accidental deaths.

## Causes of Natural Deaths

Table B-11. Demographic and Military Characteristics of Causes for Natural Deaths in the U.S. Army, 2005–2014

Characteristics - n (%)	Category of Death (n = 1237)			
	Neoplasms (n = 553)	Circulatory System (n = 471)	Other <sup>a</sup> (n = 213)	Total (n = 1237)
<b>Sex</b>				
Male	451 (82)	445 (94)	181 (85)	1077
Female	102 (18)	26 (6)	32 (15)	160
<b>Age Group (yr)</b>				
17–24	42 (8)	42 (9)	58 (27)	142
25–34	108 (20)	99 (21)	54 (25)	261
35–44	179 (32)	171 (36)	55 (26)	405
45–64	224 (41)	159 (34)	46 (22)	429
<b>Component</b>				
Regular Army	307 (56)	262 (56)	129 (61)	698
National Guard	148 (27)	128 (27)	50 (23)	326
Army Reserve	98 (18)	81 (17)	34 (16)	213
<b>Rank</b>				
Cadet	1 (<1)	0 (0)	1 (<1)	2
E1–E4	64 (12)	90 (19)	73 (34)	227
E5–E9	340 (61)	279 (59)	109 (51)	728
W1–W5	26 (5)	17 (4)	2 (1)	45
O1–O3	27 (5)	26 (5)	13 (6)	66
O4–O8	95 (17)	59 (13)	15 (7)	169

Note: <sup>a</sup>Other includes diseases related to: nervous system, respiratory system, digestive system, musculoskeletal system, mental and behavioral disorders, congenital malformations, blood, endocrine, skin, pregnancy, infections, and all other natural conditions.



**Table B-12. Causes of Natural Deaths in the U.S. Army, Overall, 2012–2014**

Category - N (%)	Year of Death (n = 294)			
	2012 (n = 125)	2013 (n = 92)	2014 (n = 77)	2012–2014 (n = 294)
Neoplasms	53 (42)	49 (53)	38 (49)	140 (48)
Circulatory System	47 (38)	30 (33)	22 (29)	99 (34)
Other <sup>a</sup>	25 (20)	13 (14)	17 (22)	55 (19)

Note: <sup>a</sup>Other includes diseases related to: nervous system, respiratory system, digestive system, musculoskeletal system, mental and behavioral disorders, congenital malformations, blood, endocrine, skin, pregnancy, infections, and all other natural conditions.

## Causes of Suicides

Table B-13. Demographic and Military Characteristics of Causes for Suicide Deaths in the U.S. Army, 2005–2014

Characteristics - n (%)	Cause of Death (n = 1402)				Total (n = 1402)
	Gunshot Wound (n = 912)	Hanging/ Asphyxiation (n = 291)	Drug/Alcohol Overdose <sup>a</sup> (n = 80)	Other <sup>b</sup> (n = 119)	
<b>Sex</b>					
Male	869 (95)	269 (92)	69 (86)	114 (96)	1321
Female	43 (5)	22 (8)	11 (14)	5 (4)	81
<b>Age Group (yr)</b>					
17–24	365 (40)	121 (42)	26 (33)	39 (33)	551
25–34	374 (41)	101 (35)	30 (38)	43 (36)	548
35–44	148 (16)	57 (19)	20 (25)	27 (23)	252
45–64	25 (3)	12 (4)	4 (5)	10 (8)	51
<b>Component</b>					
Regular Army	759 (83)	262 (90)	67 (84)	105 (88)	1193
National Guard	116 (13)	15 (5)	7 (9)	10 (8)	148
Army Reserve	37 (4)	14 (5)	6 (7)	4 (3)	61
<b>Rank</b>					
Cadet	1 (<1)	2 (<1)	0 (0)	1 (<1)	4
E1–E4	461 (51)	164 (56)	46 (58)	58 (49)	729
E5–E9	369 (40)	99 (34)	26 (33)	40 (34)	534
W1–W5	10 (1)	4 (1)	1 (1)	4 (3)	19
O1–O3	53 (6)	12 (4)	3 (4)	9 (8)	77
O4–O8	18 (2)	10 (3)	4 (5)	7 (6)	39

Notes: <sup>a</sup>Drug/alcohol overdose includes poisonings from other solids and liquids, including medications. <sup>b</sup>Other includes carbon monoxide and other gas/vapor poisonings, jumping from a high place, and all other means.

**Table B-14. Causes of Suicides in the U.S. Army, Overall, 2012–2014**

Category - n (%)	Year of Death (n = 467)			
	2012 (n = 185)	2013 (n = 146)	2014 (n = 136)	2012–2014 (n = 467)
Gunshot Wound	116 (63)	95 (65)	65 (48)	276 (59)
Hanging/Asphyxiation	45 (24)	37 (25)	23 (17)	105 (22)
Drug/Alcohol Overdose <sup>a</sup>	13 (7)	4 (3)	4 (3)	21 (5)
Other <sup>b</sup>	11 (6)	10 (7)	44 (32)	65 (14)

Notes: <sup>a</sup>Drug/alcohol overdose includes poisonings from other solids and liquids, including medications.

<sup>b</sup>Other includes carbon monoxide and other gas/vapor poisonings, jumping from a high place, and all other means.

## Causes of Homicides

**Table B-15. Demographic and Military Characteristics of Causes for Homicide Deaths in the U.S. Army, 2005–2014**

Characteristics - n (%)	Cause of Death (n = 295)				Total (n = 295)
	Gunshot Wound (n = 202)	Sharp Object (n = 40)	Legal Intervention <sup>a</sup> (n = 20)	Other <sup>b</sup> (n = 33)	
<b>Sex</b>					
Male	176 (87)	28 (70)	20 (100)	28 (85)	252
Female	26 (13)	12 (30)	0 (0)	5 (15)	43
<b>Age Group (yr)</b>					
17–24	104 (51)	22 (55)	6 (30)	13 (39)	145
25–34	59 (29)	13 (33)	10 (50)	14 (42)	96
35–44	28 (14)	5 (13)	3 (15)	5 (15)	41
45–64	11 (5)	0 (0)	1 (5)	1 (3)	13
<b>Component</b>					
Regular Army	164 (81)	34 (85)	18 (90)	27 (82)	243
National Guard	21 (10)	4 (10)	2 (10)	5 (15)	32
Army Reserve	17 (8)	2 (5)	0 (0)	1 (3)	20
<b>Rank</b>					
Cadet	0 (0)	0 (0)	0 (0)	0 (0)	0
E1–E4	120 (59)	27 (68)	13 (65)	19 (58)	179
E5–E9	64 (32)	13 (32)	7 (35)	8 (24)	92
W1–W5	0 (0)	0 (0)	0 (0)	1 (3)	1
O1–O3	12 (6)	0 (0)	0 (0)	5 (15)	17
O4–O8	6 (3)	0 (0)	0 (0)	0 (0)	6

Notes: <sup>a</sup>Legal intervention includes legal execution and deaths by police or other law-enforcing agents. <sup>b</sup>Other includes strangulation, blunt object, bodily force, and all other means.

**Table B-16. Causes of Homicides in the U.S. Army, Overall, 2012–2014**

Category - n (%)	Year of Death (n = 68)			
	2012 (n = 25)	2013 (n = 27)	2014 (n = 16)	2012–2014 (n = 68)
Gunshot Wound	19 (76)	16 (59)	11 (69)	46 (68)
Sharp Object	3 (12)	3 (11)	3 (19)	9 (13)
Other <sup>a</sup>	0 (0)	5 (19)	2 (13)	7 (10)
Legal Intervention <sup>b</sup>	3 (12)	3 (11)	0 (0)	6 (9)

Notes: <sup>a</sup>Other includes strangulation, blunt object, bodily force, and all other means. <sup>b</sup>Legal intervention includes legal execution and deaths by police or other law-enforcing agents.

**Table B-17. Top Causes<sup>a</sup> of Death among Soldiers in the U.S. Army, 2014**

Rank <sup>b</sup>	Cause of Death	Deaths
1	Suicides from Gunshot Wounds	65
2	Suicides from Other Causes <sup>c</sup>	44
3	Neoplasms	38
4	Combat	31
5	Motor Vehicle Accidents	26
6	Suicides from Hangings/Asphyxiations	23
7	Circulatory System Diseases	22
8	Accidents from Other Causes <sup>d</sup>	19
9	Deaths from Other Natural Causes <sup>e</sup>	17
10	Motorcycle Accidents	14
11	Accidental Drug/Alcohol Overdose	12
12	Homicides from Gunshot Wounds	11
13	Other Transportation Accidents <sup>f</sup>	11
14	Suicides from Drug/Alcohol Overdoses	4
15	Homicides from Sharp Objects	3
16	Homicides from Other Causes <sup>g</sup>	2

Notes: <sup>a</sup>Cause of death based on the ICD-10 National Center for Health Statistics (NCHS) records. <sup>b</sup>Rank based on the number of deaths. <sup>c</sup>Suicides from other causes includes carbon monoxide and other gas/vapor poisonings, jumping from a high place, pending, and all other means. <sup>d</sup>Accidents from other causes includes falls, explosions, drownings, poisonings from gases/vapors, pending, and all other accidental deaths. <sup>e</sup>Other natural causes includes diseases related to nervous system, respiratory system, digestive system, musculoskeletal system, mental and behavioral disorders, congenital malformations, blood, endocrine, skin, pregnancy, infections, pending, and all other natural conditions. <sup>f</sup>Other transportation accidents includes rail, water transport, and all other transportation. <sup>g</sup>Homicides from other causes includes hanging/strangulation/suffocation, blunt object, bodily force, pending, and all other means.

## Glossary

### Acronyms

**AFMES**

Armed Forces Medical Examiner System

**APHC**

Army Public Health Center – Provisional

**AR**

Army Regulation

**BSHOP**

Behavioral and Social Health Outcomes Program

**CDC**

Centers for Disease Control and Prevention

**DOD**

Department of Defense

**E1–E9**

Enlisted rank

**OTSG**

Office of The Surgeon General of the U.S. Army

**O1–O8**

Officer rank

**POM**

Privately owned motorcycle

**POV**

Privately owned vehicle

**SPP**

Sole Provider Program

**TRiPS**

Travel Risk Planning System

**T2**

Defense Center for Telehealth and Technology

**U.S.**

United States

**W1–W5**

Warrant Officer rank