

# Accidental Death In Veterans And Non-Veterans In Washington State, 2000-2007

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## Citation

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## Abstract

**Background.** Due to hazards associated with military service, veterans may be more likely to die of accidental causes. The objective of this study was to compare trends in accidental causes of death for veteran and non-veteran men in Washington State during the years 2000 through 2007. **Findings.** Using death records provided by the Washington State Department of Health as well as population estimates, we determined the number of deaths per 100,000 due to accidents. In general, rates of accidental death were highest in ages > 65, increased with time and were similar in veterans and non-veterans. Veteran status was associated with higher death rates due to transport accidents, but was not associated with deaths due to accidental poisoning. **Conclusion.** In Washington State, accidental death rates were highest in individuals > 65 years and were similar in veterans and non-veterans.

## BACKGROUND

Due to hazards associated with military service, veterans may be more likely to commit suicide [1,2], but whether they are more likely to die of accidental causes is unknown. The purpose of this paper was to compare death rates due to accidents in veteran and non-veteran men in Washington State from 2000 to 2007. We expected that there would be an increase in accidental death rates over this period and that the increase would be greater in veterans than non-veterans.

## METHODS

**Study data.** The numbers of deaths due to accidental causes were obtained from Washington State death records provided by the Washington State Department of Health Center for Health Statistics for the years 2000 through 2007. Variables of interest included the underlying cause of death, year of death, age at death, gender, and veteran status. Veteran status, as recorded on the death certificate, was assessed by the question whether the deceased served in the armed forces of the United States. Transport accidents and accidental poisonings, 2 specific types of accidental deaths, were also examined. Accidental or unintentional causes were identified by ICD-10 codes V01 through X59, Y85, and Y86. Transport accidents were defined by codes V01 through V99, while accidental poisoning by and exposure to noxious substances were represented by codes X40 through

X49 [3].

The numbers of veterans residing in Washington State were obtained from VETPOP, the Department of Veterans Affairs' official estimate and projection of the veteran population [4]. The numbers of non-veterans were determined by subtracting the veteran population from the total population. Total population numbers were obtained from the Washington State Office of Financial Management [5].

**Decedent population.** For men > 18 years of age, there were 12,103 deaths in veterans and 9730 deaths in non-veterans in 2000. In 2007, these numbers increased to 13,546 veterans and decreased to 9887 non-veterans. In 2000, the percent of deaths due to accidents was 3.5% in veterans and 8.8% in non-veterans and in 2007 it was 3.9% in veterans and 11.1% in non-veterans. Women were not included in this study, due to the small numbers of veteran women who died of external causes.

**Statistical methods.** We determined the number of deaths per 100,000 with 95% confidence intervals for veteran and non-veteran men 18 through 44, 45 thru 64, and > 65 years of age. Poisson regression was used to examine the effects of year, age group, and veteran status on death rates.

## RESULTS

Washington State population. The age distributions for veteran and non-veteran men are shown in table 1.

**Figure 1**

Table 1: Number of men according to veteran status and age, 2000-2007

	Year							
Veteran	2000	2001	2002	2003	2004	2005	2006	2007
18-44	139,549	133,829	128,392	125,415	122,780	121,198	119,303	116,377
45-64	280,058	278,506	278,396	272,355	270,615	267,776	264,527	260,170
65+	201,330	202,801	204,160	206,238	206,735	207,535	208,964	213,624
Non-veteran	2000	2001	2002	2003	2004	2005	2006	2007
18-44	1,068,619	1,081,232	1,089,381	1,091,179	1,098,329	1,105,257	1,123,224	1,139,723
45-64	387,029	415,690	442,554	474,896	501,000	531,591	562,053	590,894
65+	80,655	82,877	85,238	88,078	92,750	98,722	105,377	111,197

The proportion of veterans in the population declined from 29% to 24% from 2000 through 2007. The percent of veterans in the youngest age category, 18-44, declined from 12% in 2000 to 9% in 2007, whereas for those 45-64, the proportion of veterans decreased from 42% to 30% over the 7 year period. Most men 65 years and older were veterans; the proportion declined from 71% to 66% over the 7 years.

Accidental deaths. Death rates per 100,000 by age category and veteran status are displayed in table 2.

**Figure 2**

Table 2: Number of accidental deaths per 100,000 (with 95% confidence intervals) by veteran status and age, 2000-2007

	Year							
Veteran	2000	2001	2002	2003	2004	2005	2006	2007
18-44	54 (45-66)	60 (49-72)	55 (41-67)	59 (48-72)	59 (48-72)	60 (49-73)	68 (56-82)	50 (40-62)
45-64	49 (43-57)	46 (40-54)	52 (45-60)	55 (48-63)	65 (57-73)	60 (52-68)	75 (67-85)	63 (56-72)
65+	102 (91-115)	106 (94-118)	103 (91-115)	117 (105-131)	130 (117-144)	133 (120-147)	140 (127-155)	143 (130-157)
Non-veteran	2000	2001	2002	2003	2004	2005	2006	2007
18-44	50 (46-53)	49 (46-53)	55 (51-59)	46 (42-49)	47 (44-51)	52 (49-56)	51 (48-55)	52 (48-56)
45-64	49 (43-55)	48 (43-54)	50 (44-56)	52 (47-58)	52 (47-58)	64 (59-70)	63 (58-69)	58 (53-63)
65+	166 (143-192)	152 (131-176)	179 (156-205)	145 (125-169)	142 (123-165)	148 (128-170)	135 (117-155)	152 (133-173)

In general, accidental death rates were highest in individuals 65 years and older. In the oldest age group, rates were higher in non-veterans than veterans for all years except 2006. For men 45-64 accidental death rates increased 29% for veterans and 18% for non-veterans, and in 2006, the rate peaked for veterans 45-64. In the youngest age category, rates for veterans increased 26% from 2000 to 2006 and then fell in 2007. For non-veterans 18-44, rates were stable and only increased 4% from 2000 to 2007. Poisson regression analyses demonstrated that age category ( $p<0.0001$ ) was associated with death rates; rates of death increased with time ( $p<0.0001$ ) but were similar for veterans and non-veterans ( $p=0.34$ )

As seen in table 3 in 2007 death rates for transport accidents were highest for veterans 18-44 (27/100,000) and second

highest for non-veterans of the same age (23/100,000).

**Figure 3**

Table 3: Number of deaths due to transport accidents per 100,000 (with 95% confidence intervals) by veteran status and age, 2000-2007

	Year							
Veteran	2000	2001	2002	2003	2004	2005	2006	2007
18-44	24 (17-34)	31 (23-42)	26 (18-36)	31 (22-42)	28 (19-39)	23 (15-33)	40 (30-53)	27 (18-38)
45-64	17 (12-22)	21 (16-27)	20 (16-26)	19 (14-25)	23 (18-30)	24 (18-31)	24 (19-31)	20 (15-26)
65+	28 (21-37)	29 (22-38)	27 (20-35)	29 (22-37)	26 (20-34)	34 (26-44)	24 (18-32)	22 (16-29)
Non-veteran	2000	2001	2002	2003	2004	2005	2006	2007
18-44	26 (23-30)	27 (24-30)	29 (26-32)	22 (20-26)	22 (20-26)	24 (21-27)	22 (19-25)	23 (21-26)
45-64	17 (13-22)	16 (13-21)	20 (16-25)	16 (13-20)	14 (11-17)	20 (16-24)	23 (19-27)	17 (14-20)
65+	29 (18-43)	30 (20-45)	38 (26-53)	39 (27-54)	17 (10-28)	33 (23-47)	27 (18-38)	18 (11-28)

The lowest rates were for non-veterans in the 2 older age categories (17/100,000 for 45-64 and 18/100,000 for 65+). Overall, rates decreased over time ( $p=0.037$ ), were significantly lower in the 45-64 as compared to 18-44 age group ( $p<0.0001$ ), and were higher in veterans ( $p=0.003$ ). For accidental poisoning which included drug overdoses, rates increased with time ( $p<0.0001$ ), were lowest in the 65+ group ( $p<0.0001$ ), and were similar for veterans and non-veterans ( $p=0.60$ ) (figure).

**Figure 4**

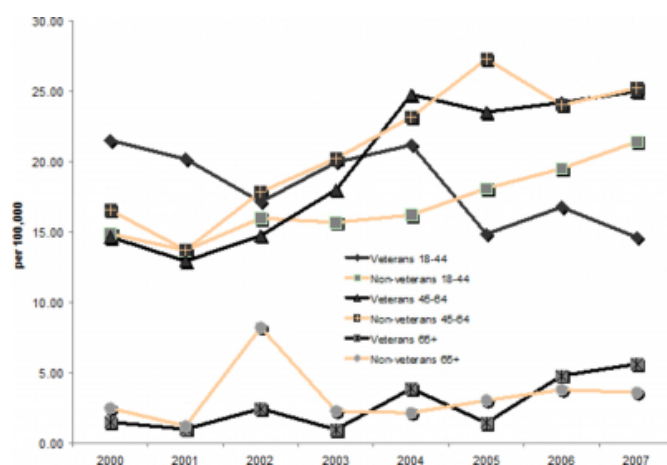


Fig.1 Number of deaths due to accidental poisoning per 100,000 by veteran status and age, 2000-2007

## DISCUSSION

Given earlier findings of higher suicide rates in Washington State veterans [1], the current analysis was undertaken to determine whether accidental death rates also increased with time and were higher for veterans. In general, accidental death rates were highest in the oldest age group, increased with time, and were similar in veterans and non-veterans.

The finding regarding age is consistent with national data that report accidental death rates are highest in individuals > 75 years of age [6]. For transport accidents veterans had somewhat higher death rates, but this was not true for all accidental deaths or for accidental poisonings. To the best of our knowledge there have been no published studies of accidental deaths in veterans.

Even in a relatively populous state such as Washington, the numbers of accidental deaths are small resulting in fluctuating rates from year to year. Women veterans were not included in this study, because the numbers of deaths due to injury were very small, making it difficult to obtain precise estimates. Furthermore, how many of the observed deaths occurred in active duty military personnel cannot be determined from the records used for this study. These results apply to all male veterans and not just those who receive health care from the Department of Veterans Affairs. Finally, this paper is simply an observation of official data and is not able to provide an explanation of what was observed.

## **CONCLUSION**

In summary, accidental death rates were highest in oldest age category, increased with time and were similar in veterans and non-veterans. This finding is in contrast to intentional death or suicide in Washington State where death rates for veterans were considerably higher across all age groups [1].

## **References**

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