

HIV-Related Mortality: Idaho Residents, 2002-2016

All death certificates must list a single underlying cause of death (referred to in this report as the UCD). The UCD is used in traditional mortality reporting and is defined as the disease, injury, or condition that directly led to the death. The National Center for Health Statistics' (NCHS) multiple-cause-of-death program provides information on other diseases, injuries, or conditions reported on the death certificate that, in addition to the UCD, contributed to death. These data are useful for examining contributory factors to death. In this report, we examined human immunodeficiency virus (HIV) as the underlying cause and as a contributing factor to death. This method of analysis allowed us to more accurately estimate the total burden of HIV-related mortality for Idaho residents from 2002-2016.

Figure 1. Number of HIV-related (UCD or contributing) deaths by sex: Idaho residents, 2002-2016.

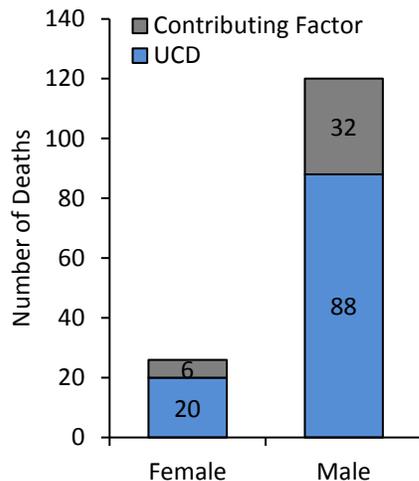
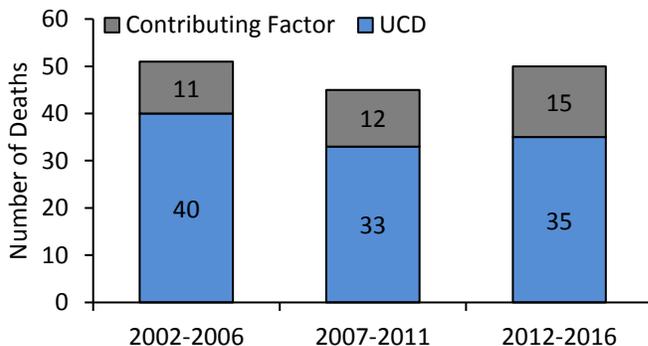


Figure 2. Number of HIV-related deaths: Idaho residents, 2002-2016.



The age-adjusted mortality rate for HIV-related deaths was 0.8 per 100,000 population (95% CI: 0.6-1.0) for 2002-2006, 0.6 (95% CI: 0.4-0.8) for 2007-2011, and 0.6 (95% CI: 0.4-0.8) for 2012-2016.

SEX/AGE: For Idaho residents, the age-adjusted mortality rate for HIV-related deaths differed significantly by sex from 2002-2016 (Table 1). The HIV-related mortality rate for males was 5.5 times the rate for females. In addition, HIV was reported as the UCD for 77% of HIV-related deaths for females, compared with 73% for males. HIV-related mortality peaked in those ages 45-54, followed by ages 35-44, and 55-64. The most common underlying cause of death was HIV disease resulting in infectious and parasitic diseases, which accounted for 38% of deaths where HIV was the UCD (Table 2).

TREND: From 2002-2006, HIV was reported as the UCD for 78% of HIV-related deaths (Figure 2). From 2007-2011, this number was 73%, and from 2012-2016, it was 70%. This suggests that from 2012-2016 compared with 2002-2006, Idaho residents with HIV were less likely to

die as a direct result of HIV, and instead died from another cause. Further, the HIV-related age-adjusted mortality rate decreased 25% during the same period.

COMORBIDITIES: When HIV was the UCD, the most frequent comorbidities included Malignant neoplasms (17%); Influenza and pneumonia (15%); Viral hepatitis (13%); and Diseases of the heart (12%). When HIV was a contributing factor to death, the most common UCD was Malignant neoplasms (37%).

Table 1. Number of deaths and mortality rate for HIV-related deaths by sex, Public Health District of residence, and age group: Idaho residents, 2002-2016.

	UCD		Contributing Factor		Total HIV-Related	
	n	Rate (95% CI)	n	Rate (95% CI)	n	Rate (95% CI)
Sex						
Female	20	0.2 (0.1-0.3)	6	*	26	0.2 (0.2-0.4)
Male	88	0.8 (0.6-1.0)	32	0.3 (0.2-0.4)	120	1.1 (0.9-1.3)
District						
1	13	*	7	*	20	0.7 (0.4-1.0)
2	4	*	2	*	6	*
3	27	0.8 (0.5-1.2)	4	*	31	0.9 (0.6-1.3)
4	29	0.4 (0.3-0.6)	17	*	49	0.7 (0.5-1.0)
5	7	*	3	*	12	*
6	9	*	1	*	12	*
7	9	*	4	*	16	*
Age						
<15	0	-	0	-	0	-
15-24	1	*	0	-	1	*
25-34	6	*	1	*	7	*
35-44	31	1.1 (0.7-1.5)	7	*	38	1.3 (0.9-1.8)
45-54	49	1.6 (1.2-2.2)	17	*	66	2.2 (1.7-2.8)
55-64	21	0.8 (0.5-1.3)	9	*	30	1.2 (0.8-1.7)
65-74	0	-	4	*	4	*
75+	0	-	0	-	0	-
Total	108		38		146	0.7 (0.6-0.8)

*Rates were unreliable as the number of deaths was 20 or less.

Rates are per 100,000 population. Age-adjusted mortality rates are given by sex, District, and in total. Age-specific mortality rates are given by age group.

The age-adjusted mortality rate for HIV in the United States from 2002-2015 was 3.3 per 100,000 population (95% CI:3.2-3.3).¹ Data are not directly comparable to Idaho since 2016 data for the United States has not been released.

Table 2. Number of HIV deaths by underlying cause of death (as specified by ICD-10 code) and sex: Idaho residents, 2002-2016.

UCD	Female	Male	Total
HIV disease resulting in infectious and parasitic diseases	9	32	41
Unspecified HIV disease	2	19	21
HIV disease resulting in other conditions	3	14	17
HIV disease resulting in other specified diseases	4	12	16
HIV disease resulting in malignant neoplasms	2	11	13
Total	20	88	108

Of deaths where HIV was a contributing factor (n=38), one female and three males had laboratory evidence of HIV reported as a contributing cause of death. The remainder had unspecified HIV disease reported as a contributing cause of death.

¹Centers for Disease Control and Prevention, National Center for Health Statistics. Underlying Cause of Death 1999-2015 on CDC WONDER Online Database, released December, 2016. Accessed at <http://wonder.cdc.gov>.

TECHNICAL NOTES

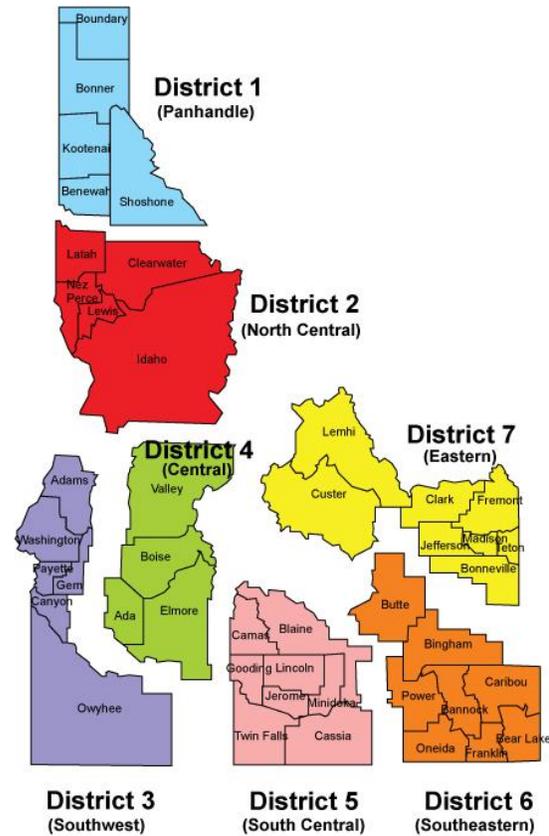
From 2002-2016, the Idaho Bureau of Vital Records and Health Statistics received 170,920 death certificates for Idaho residents. HIV was reported as the UCD for 108 deaths (0.06% of total deaths), and as a contributing cause of death for an additional 38 deaths (0.02% of total deaths).

Data on contributing factors were not obtained for Idaho residents who died out of state from 2002-2010. This did not affect deaths where HIV was reported as the UCD.

HIV-related deaths were identified using International Classification of Diseases, Tenth Revision (ICD-10) underlying cause of death and multiple-cause-of-death codes B20-B24, O98.7, and R75.

- HIV UCD: deaths with one of the above codes reported as the underlying cause of death.
- HIV Contributing Factor: deaths where one of the above codes was not reported as the UCD, but where one or more of the above codes was reported elsewhere on the death certificate as a factor that directly contributed to death.
- HIV-Related: deaths with one or more of the above codes reported as the UCD and/or as a contributing factor to death.

Supplemental Figure 1. Counties comprising each Idaho Public Health District.



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