

Alaska Native Mortality

1989-1998



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ALASKA NATIVE MORTALITY 1989-1998

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August, 2002

ACKNOWLEDGEMENTS

The authors would like to express special thanks to Bonnie Boedeker at the Alaska Area Native Health Service and Diane Leach at the Alaska Native Tribal Health Consortium for their advice and assistance with this project and for providing us with accurate counts of Alaska Natives. We would also like to thank Al Zangri and John Tomaro at the State of Alaska Bureau of Vital Statistics, who helped assure the completeness and accuracy of these data.

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HIGHLIGHTS

- Alaska Natives had a 60% higher all causes mortality rate than U.S. Whites during the period 1989 to 1998.
- Alaska Natives had higher rates than U.S. Whites for all of the ten leading causes of death, however, heart disease and diabetes mellitus were not significantly higher.
- Of the 5946 Alaska Natives who died between 1989 and 1998, 2031 deaths were excess (deaths that would not have occurred if Alaska Natives had the same death rates as U.S. Whites).
- Alaska Natives under 45 years of age were three times more likely to die than U.S. Whites.
- Examination of age-adjusted mortality rates for Alaska Natives by Service Unit showed that the Yukon Kuskokwim, Anchorage, and Mt. Edgecumbe Service Units had the lowest mortality rates from all causes. Norton Sound had the highest mortality rate from all causes.
- The all cause mortality rate for Alaska Natives has declined 20% over the twenty year period, 1979 to 1998.
- Cancer was the leading cause of death among Alaska Natives for the time period, 1989 to 1998.
- Alaska Natives had an injury death rate 4.0 times higher than U.S. Whites.
- The primary causes of unintentional injuries were drowning, motor vehicle traffic injuries, exposure, off-road motor vehicle accidents, and accidental poisoning.
- There was no difference in heart disease mortality between Alaska Natives and U.S. Whites.
- The Yukon Kuskowim Service Unit had the lowest rate of heart disease mortality in the state. Mt. Edgecumbe Service Unit had the highest heart disease mortality rate.
- Alaska Natives died by suicide 4.1 times as often as U.S. Whites.
- Mt. Edgecumbe and Anchorage Service Units had the lowest suicide rates in the state. Norton Sound, Kotzebue, and the Interior had the highest suicide rates.

- The Barrow Service Unit had the lowest cerebrovascular disease (stroke) death rate in the state.
- Deaths from cerebrovascular diseases (strokes) among Alaska Natives increased 17% between 1979 and 1998, whereas, U.S. White mortality rates decreased 31%.
- Mortality rates from Chronic Obstructive Pulmonary Diseases (Bronchitis and Emphysema) increased 191% among Alaska Natives during the period 1979 to 1998. Mortality rates for U.S. Whites increased only 28% during this period.
- Mortality rates from Pneumonia and Influenza declined 35% among Alaska Natives during the period 1979 to 1998. Mortality rates for U.S. Whites increased by 5% among U.S. Whites.
- Homicide rates were three times higher for Alaska Natives than for U.S. Whites.
- The Interior Service Unit had the highest homicide rate in the state. Mt. Edgecumbe and Kotzebue Services Units had the lowest rates in the state.
- Homicide rates declined 60% among Alaska Natives during the period 1979 to 1998. Rates for U.S. Whites declined 26%.
- Almost half of all male homicides among Alaska Natives were firearm-related. Only one in five female Native homicides involved a firearm. Women were more often stabbed or beaten to death than shot.
- Alaska Natives died 2.6 times more frequently from chronic liver disease as U.S. Whites. Alaska Native women died 4.1 times more frequently from chronic liver disease as U.S. White women. One out of every nine deaths among Alaska Native women 25 to 44 years old was from liver disease.
- The Anchorage Service Unit had the highest mortality rate from chronic liver disease.
- Diabetes mortality rates increased among Alaska Natives more than 3 and a half times during the period 1979 to 1998. Mortality rates increased 35% among U.S. Whites during this time period.
- The Norton Sound and Yukon Kuskokwim Service Units had the lowest mortality rates from diabetes in the state.

ALASKA NATIVE MORTALITY

METHODS

Incidence

The State of Alaska Bureau of Vital Statistics maintains information recorded on the death certificates of all resident Alaskans. In order to calculate current death rates, we abstracted information from this database on Alaska Natives (AN) who died in the years 1989 to 1998. For information on trends over time, we reviewed deaths from 1979 to 1998. A person was counted as an AN if the racecode indicated Alaska Native, Eskimo, Aleut, Indian, Canadian Eskimo or Indian, or a mixture of Alaska Native groups. Although there is often concern about under-reporting of minority groups, a recent study estimates that under-reporting of ANs on death certificates is low (5%).² A check of the data file showed that race codes were missing from only 0.3% of all death records.

Population

For current estimates, average annual mortality rates for AN were calculated using deaths during the ten year time period, 1989-1998, and the AN population for this ten year period. Estimates of the AN population were obtained from the Indian Health Service (IHS). Age and sex distributions from the 1990 census were applied to give the projected population counts for each year by age and sex. Population was projected from the 1990 census based on births minus deaths. Rates

were calculated for those causes that had at least five deaths during the interval studied.

Age-Adjustment

AN rates for 1989-1998 were compared to mortality rates for USW (USW) in 1993, the midpoint of the time period studied. Data for USW, aggregated by ten-year age groups and gender, are from the National Center for Health Statistics (NCHS). Mortality rates were age-adjusted by the direct method to the 1940 standard million. Confidence intervals were calculated around the age-adjusted AN rates. AN rates were considered significantly different if the 95% confidence interval did not contain the USW rate³. Rate ratios were calculated to show the magnitude of differences between AN and USW rates.

The NCHS has suggested that all mortality data from 1999 onward be calculated using the 2000 standard million. Rates for the leading causes of death from 1989-1998 were also age-adjusted to 2000 in order to allow comparisons with future mortality rate estimates. Tables using the 2000 standard million can be found in Appendix A.

Rank Order

Mortality rates were calculated for the 10 leading causes of death among AN from among a list of 72 major causes of death as defined by NCHS. A list of ICD-9 code groupings used are included in Appendix B.

Subcategories for each of the leading causes of death except for cancer causes were examined. A comprehensive study of cancer death among ANs has recently been published¹. Subcategories for most of the leading causes of death were calculated using ICD-9 codes grouped by NCHS in its 282 causes of death. Subcategories for unintentional injury deaths were created based on groupings used by the State of Alaska, Section of Community Health and Emergency Medical Services. Alaska has many unintentional injuries which are specific to the environmental conditions of Alaska. The NCHS grouping of 282 causes of death includes several types of unintentional injury death important in Alaska into an "all other causes" category. Therefore, no US White rates were available for comparison for some unintentional injury categories. A list of ICD-9 code groupings used for each category and sub-category are included in appendix B.

Age-Specific Rates

For the most recent ten years, 1989-1998, age-specific rates for AN were compared with age-specific USW rates. Infant mortality rates were not included in this report. Infant mortality among AN has been addressed in recent studies^{4,5}.

Excess Deaths

Excess deaths were calculated by multiplying the age-specific death rates for USW by the AN population for each age group to determine the

expected number of deaths. The difference between the expected and the observed number of AN deaths was considered excess.

Service Units

Mortality rates were calculated for each of the eight IHS service units in Alaska. Numbers of deaths for each service unit were calculated based upon the place of residence of AN decedents in the years 1989 to 1998. Population estimates were calculated from the average of IHS estimates of 1990 and 1998 total populations for each service unit. The 1990 age and gender breakdown for ANs for the State of Alaska was applied to each service unit population in order to age adjust the rates.

Trends Over Time

Change in mortality rates over a twenty year period for AN was analyzed by comparing average annual age-adjusted death rates for four five-year periods, 1979-1983, 1984-1988, 1989-1993, and 1994-1998. A Chi Square Test for Trend was used to determine any significant changes in mortality rates over the twenty-year period studied. Trends were considered significant at $p < .05$. The percent of change in rates over the twenty year period was calculated by comparing rates of the first five year period with rates of the last 5 year period.

SUMMARY

This study examines mortality from all causes among ANs for the period, 1989-1998, and trends over time, 1979-1998. Age-adjusted rates by sex and age group for all causes of death and for each of the ten leading causes are compared to US White rates, 1993.

The disparities in causes of death among ANs compared to US Whites are quantified by risk ratios and excess deaths. For the time period studied, the average annual age-adjusted AN mortality rate for all causes was 60% higher than the US White rate. The two racial groups shared nine of the ten leading causes of death, although in different rank order. More than half of AN deaths are from one of three causes - cancer, unintentional injuries, or heart disease. Among US Whites, two causes, heart disease and cancer, are responsible for 57% of deaths, with heart disease deaths far exceeding cancer deaths. The greatest disparity in deaths between the two populations is for injuries. ANs had a four times higher death rate from unintentional injuries, and this cause accounted for 37% of all excess deaths. Rate ratios for suicide and homicide were 4.1 and 3.0, respectively. These two causes accounted for 17% and 5% of excess deaths. Combining unintentional and intentional injuries as a group, almost sixty percent of all excess deaths were due to injury. ANs also had a thirty percent higher death rate from cancer than US Whites. AN cancer accounted for 10% of excess deaths. Rates for all

ten leading causes of death in ANs were higher than US Whites, except for heart disease and diabetes.

Age-specific death rates indicate that the greatest disparity between ANs and US Whites is in the under 45 year old age groups. The disparity is approximately 3 fold and similar for men and women. Injury-related deaths were responsible for nearly 70% of all deaths, and eighty-two percent (n=1022) of excess deaths in this age range.

Among ANs over 45 years of age, 88% (n = 3269) of all deaths, and 70% (n =543) of excess deaths were due to chronic diseases. Cancer accounted for 26% (n=968) of all deaths, and 23% of excess deaths. Heart disease caused 24% of all deaths, but actually accounted for fewer deaths than would have been expected if AN rates were similar to US White rates. Chronic obstructive pulmonary disease and cerebrovascular disease each accounted for 6% of all deaths in this age range and 10% and 6% respectively of excess deaths. Injury remained a major cause of excess deaths (24%), although responsible for only a small percentage (8%) of deaths.

Examination of trends over the twenty year period, 1979-1998, revealed that AN death rates from all causes declined 20%, while US White rates declined 14%. Overall improvement in death rates for ANs was primarily due to a 43% decrease in deaths from unintentional injuries. Pneumonia and influenza also declined 35%, and homicide rates

declined 60%. Extensive injury prevention efforts by the Tribal Health Corporations, and the Indian Health Service, and the introduction of local option laws for alcohol control appear to have been important factors in decreasing death rates ⁵. Rates for suicide did not decline. Rates for several other causes of death among ANs have increased over the twenty year period studied; cancer 12%, cerebrovascular disease 17%, chronic obstructive lung disease 191%, and diabetes mellitus death 262%. Since rates for these causes have in many cases decreased for US Whites, the disparities between ANs and US Whites have increased.

Leading Causes of Death
Alaska Natives, 1989-1998 Compared to US Whites, 1993
Ranked by Percentage of Mortality for Alaska Natives
Males and Females Combined

	Male and Female Combined	Alaska Natives		Rate† per 100,000	95% CI	US Whites		Rate† per 100,000	SMR	
		#	%			#	%			
1	Cancer	1087	18.3%	163.7	149.7-177.7	461904	23.7%	129.4	1.3	*
2	Unintentional Injuries	1033	17.4%	118.6	108.0-129.2	75218	3.9%	29.6	4.0	*
3	Heart Disease	982	16.5%	143.4	130.5-156.3	655365	33.6%	139.9	1.0	
4	Suicide	445	7.5%	49.7	43.0-56.4	28035	1.4%	12.0	4.1	*
5	Cerebrovascular Disease	269	4.5%	36.4	29.9-42.9	129992	6.7%	24.5	1.5	*
6	Chronic Obstructive Pulmonary	233	3.9%	34.4	28.2-40.6	93615	4.8%	21.9	1.6	*
7	Pneumonia and Influenza	182	3.1%	23.7	18.7-28.7	73720	3.8%	12.9	1.8	*
8	Homicide and Legal Intervention	160	2.7%	18.0	13.9-22.1	12286	0.6%	6.0	3.0	*
9	Chronic Liver Disease	143	2.4%	19.6	15.0-24.2	21348	1.1%	7.6	2.6	*
10	Diabetes	86	1.4%	12.5	8.6-16.4	43461	2.2%	11.0	1.1	
	All Other Causes	1326	22.3%	159.8	151.2-168.4	356493	18.3%	90.3	1.8	*
	Total - All Causes	5946	100.0%	779.8	750.9-808.7	1951437	100.0%	485.1	1.6	*

†Age-adjusted to 1940 standard million.

* p<0.05

Leading Causes of Death
Alaska Natives, 1989-1998 Compared to US Whites, 1993
Ranked by Percentage of Mortality for Alaska Natives
Males

Male	Alaska Natives		Rate † per 100,000	95% CI	US Whites		Rate † per 100,000	SMR	
	#	%			#	%			
1	Unintentional Injuries	767	21.3%	176.7	163.8-189.6	49515	5.0%	42.9	4.1 *
2	Heart Disease	612	17.0%	191.2	175.9-206.5	323802	32.8%	190.3	1
3	Cancer	574	15.9%	181.7	166.7-196.7	241908	24.5%	156.4	1.2 *
4	Suicide	370	10.3%	82.4	73.9-90.9	22524	2.3%	19.7	4.2 *
5	Chronic Obstructive Pulmonary	135	3.7%	42.2	35.0-49.4	49812	5.0%	28.2	1.5 *
6	Homicide and Legal Intervention	112	3.1%	24.8	20.1-29.5	9054	0.9%	8.9	2.8 *
7	Cerebrovascular Disease	106	2.9%	31.7	25.6-37.8	50220	5.1%	26.8	1.2
8	Pneumonia and Influenza	103	2.9%	28.2	22.6-33.8	33151	3.4%	16.6	1.7 *
9	Chronic Liver Disease	69	1.9%	20.5	15.6-25.4	13821	1.4%	10.8	1.9 *
10	Diabetes	41	1.1%	12.9	8.9-16.9	19311	2.0%	12.2	1.1
	All Other Causes	717	19.9%	179	165.9-192.1	149990	17.7%	114.7	1.6 *
	Total - All Causes	3606	100.0%	971.3	938.5-1004.1	988329	100.0%	627.5	1.5 *

†Age-adjusted to 1940 standard million.

*p<0.05

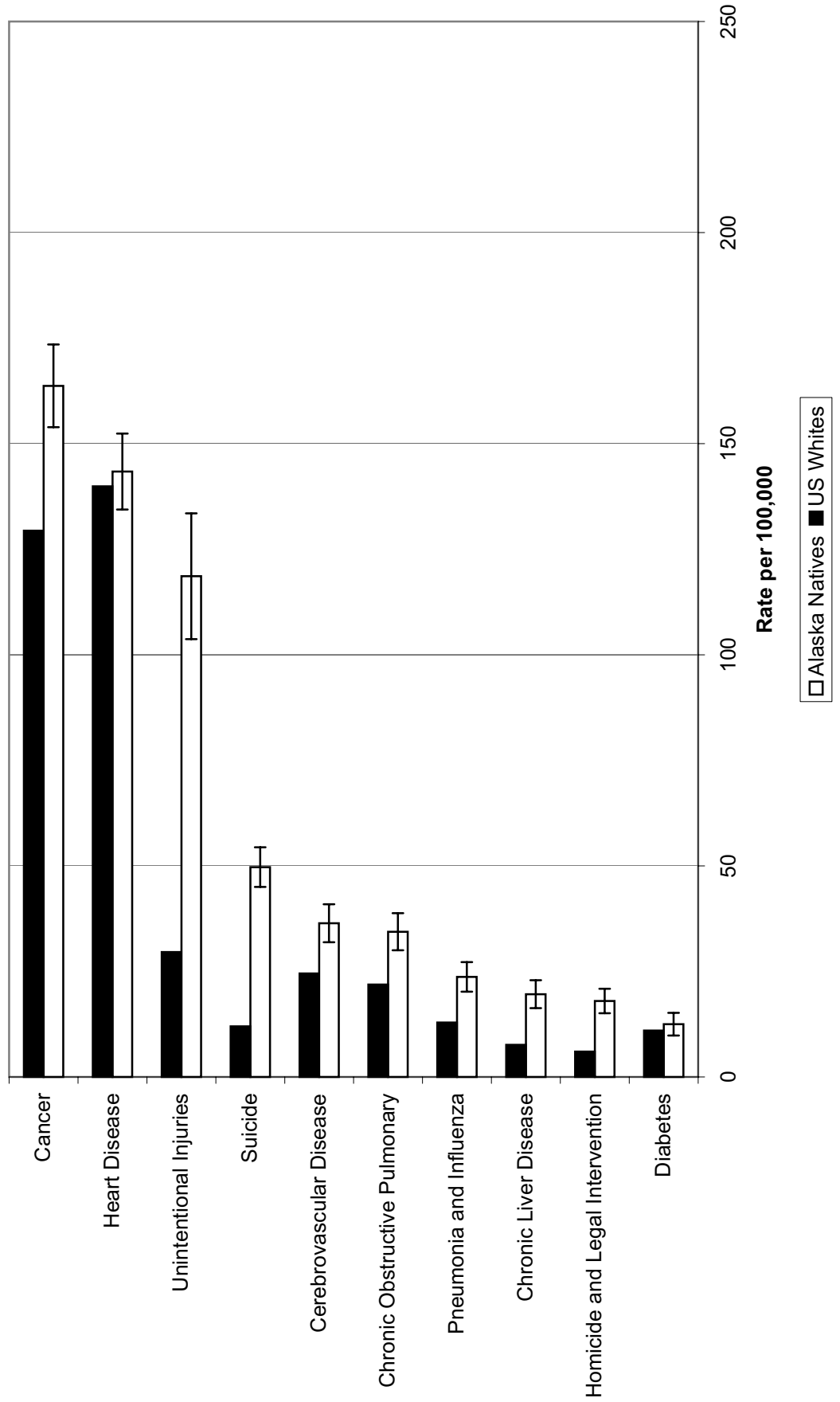
Leading Causes of Death
Alaska Natives, 1989-1998 Compared to US Whites, 1993
Ranked by Percentage of Mortality for Alaska Natives
Females

Female	Alaska Natives		Rate [†] per 100,000	95% CI	US Whites		Rate [†] per 100,000	SMR		
	#	%			#	%				
1	Cancer	513	21.9%	145.7	132.9-158.5	219996	22.8%	110.1	1.3	*
2	Heart Disease	370	15.8%	95.5	85.5-105.5	331563	34.4%	99.2	1	
3	Unintentional Injuries	267	11.4%	60.4	52.9-67.9	25703	2.7%	16.6	3.6	*
4	Cerebrovascular Disease	163	7.0%	41.2	34.7-47.7	79772	8.3%	22.7	1.8	*
5	Chronic Obstructive Pulmonary	98	4.2%	26.5	21.1-31.9	43803	4.5%	17.8	1.5	*
6	Pneumonia and Influenza	79	3.4%	19.1	14.7-23.5	40569	4.2%	10.4	1.8	*
7	Suicide	75	3.2%	17.1	13.2-21.0	5511	0.6%	4.6	3.7	*
8	Chronic Liver Disease	74	3.2%	18.8	14.4-23.2	7527	0.8%	4.6	4.1	*
9	Homicide and Legal Intervention	48	2.1%	11.2	8.0-14.4	3232	0.3%	3	3.7	*
10	Diabetes	45	1.9%	12.1	8.5-15.7	24150	2.5%	10	1.2	
	All Other Causes	608	26.0%	201.5	185.5-217.5	181282	18.9%	68.7	2.9	*
	Total - All Causes	2340	100.0%	649.1	624.5-673.7	963108	100.0%	367.7	1.8	*

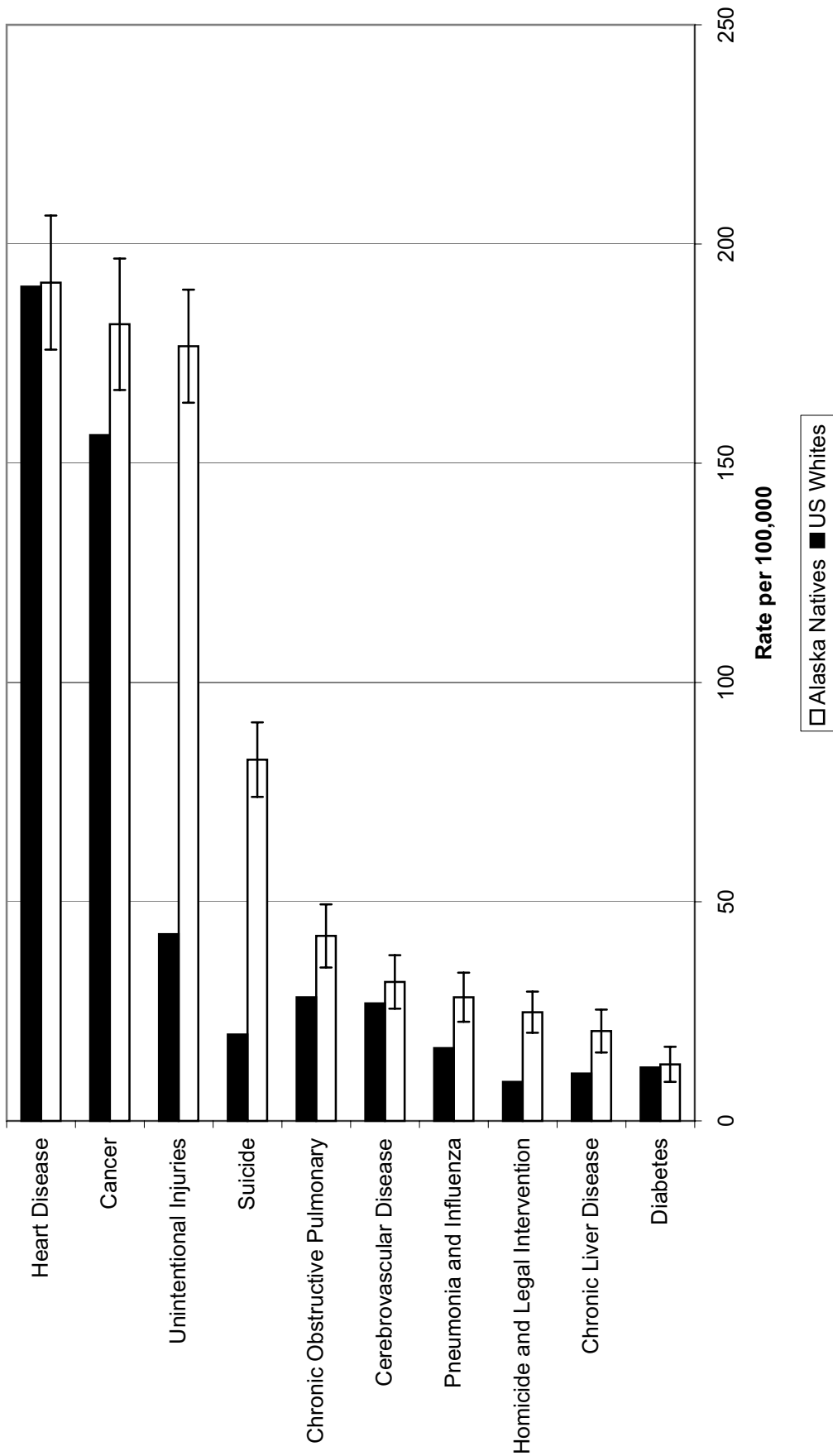
†Age-adjusted to 1940 standard million.

*p<0.05

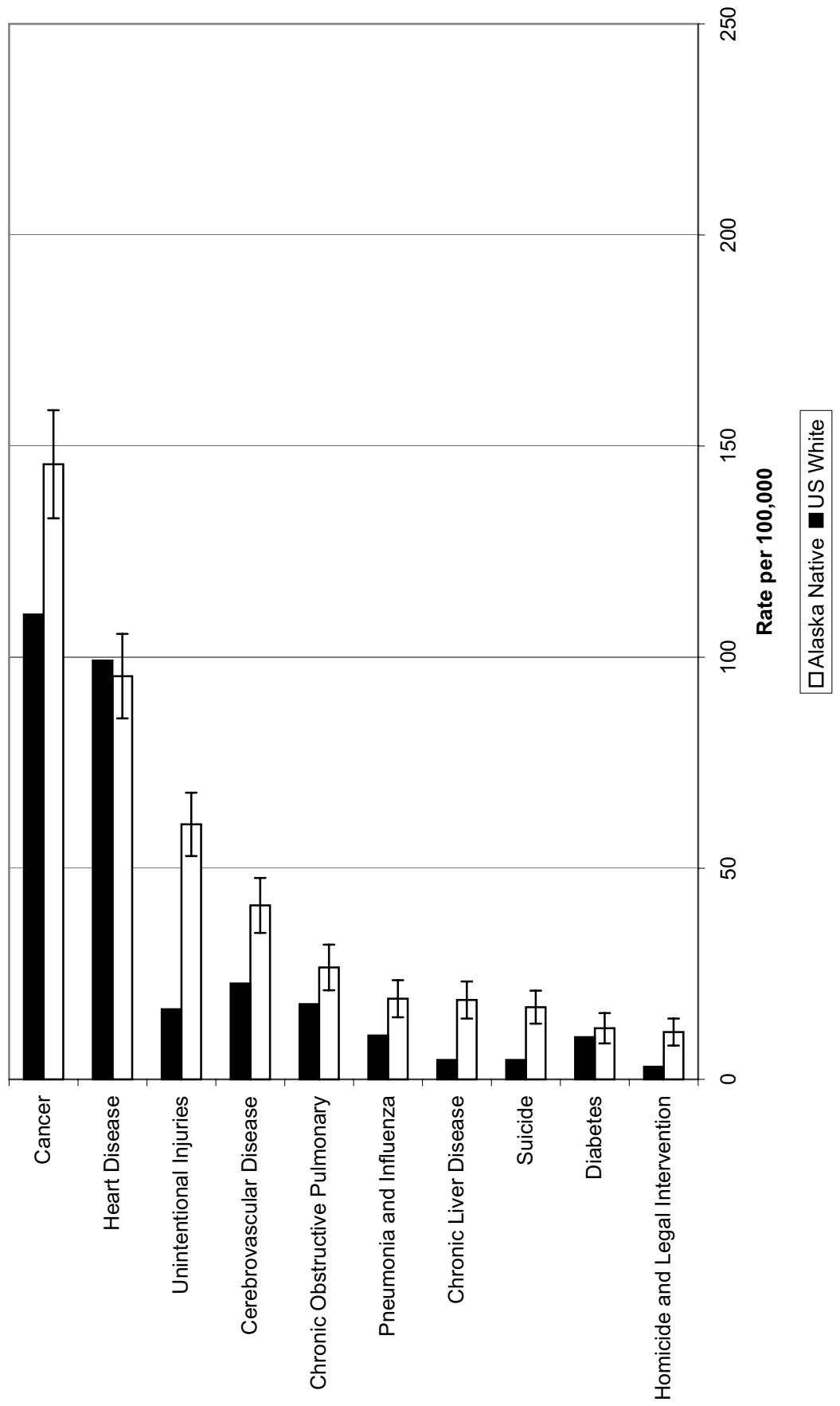
Age-Adjusted Mortality Rates with 95% Confidence Intervals
Alaska Natives, 1989-1998 Compared to US Whites, 1993
Males and Females Combined



**Age-Adjusted Mortality Rates with 95% Confidence Intervals
Alaska Natives, 1989-1998 Compared to US Whites, 1993
Males**

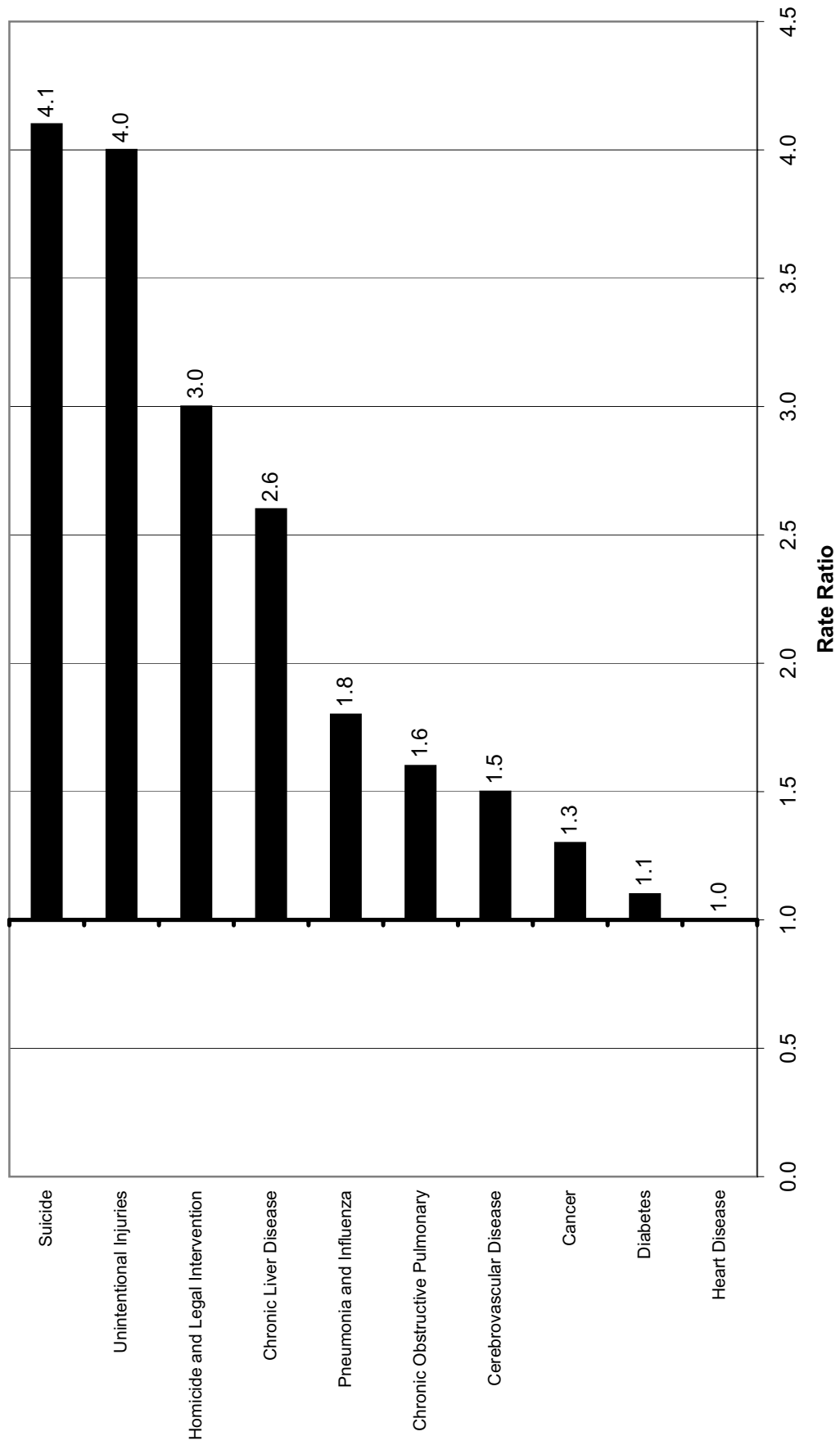


Age-Adjusted Mortality Rates with 95% Confidence Intervals
Alaska Natives, 1989-1998 Compared to US Whites, 1993
Females

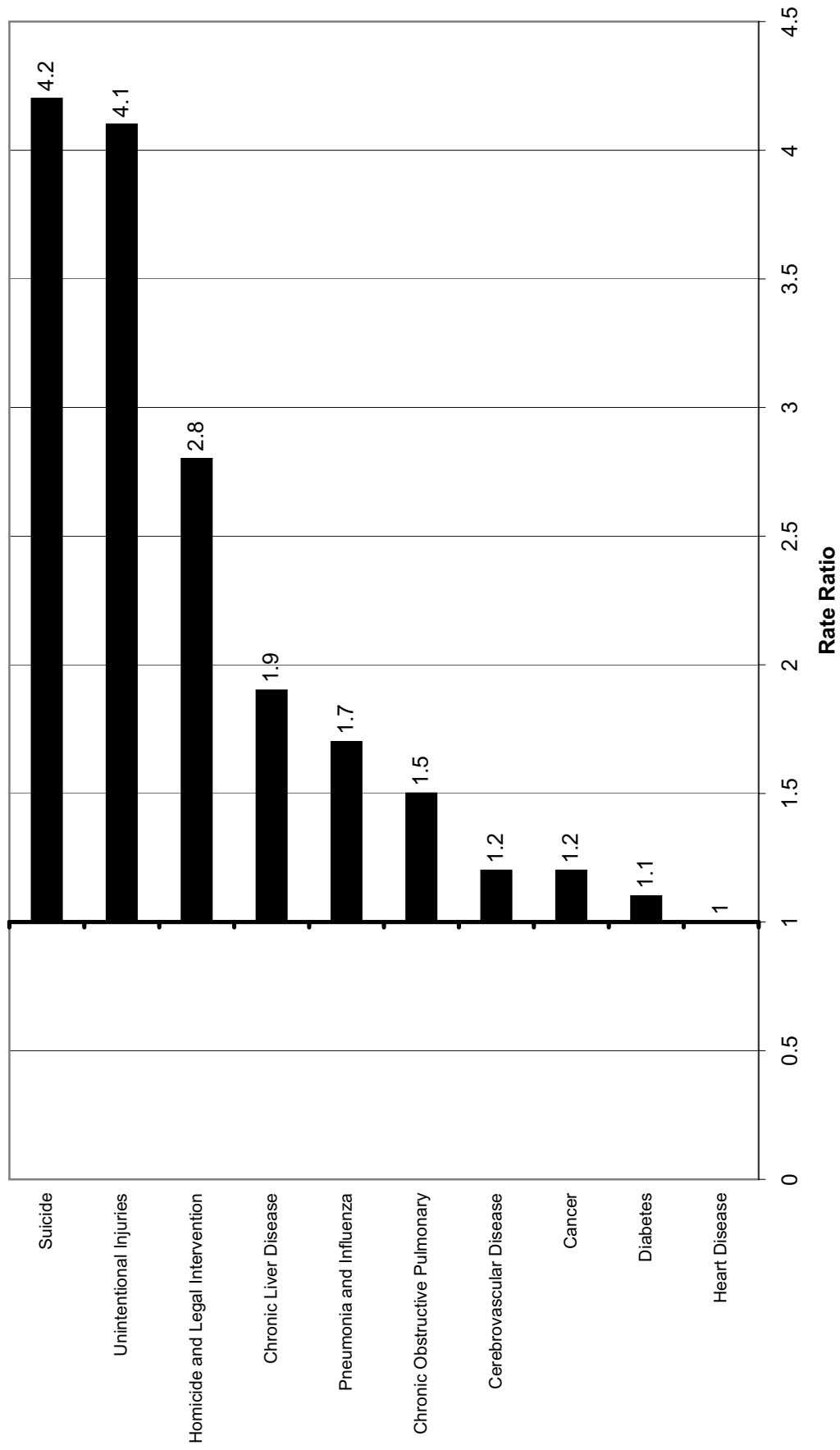


Ratio of Alaska Natives, 1989-1998 Dying from Each of the 10 Leading Causes of Death as Compared to US Whites, 1993

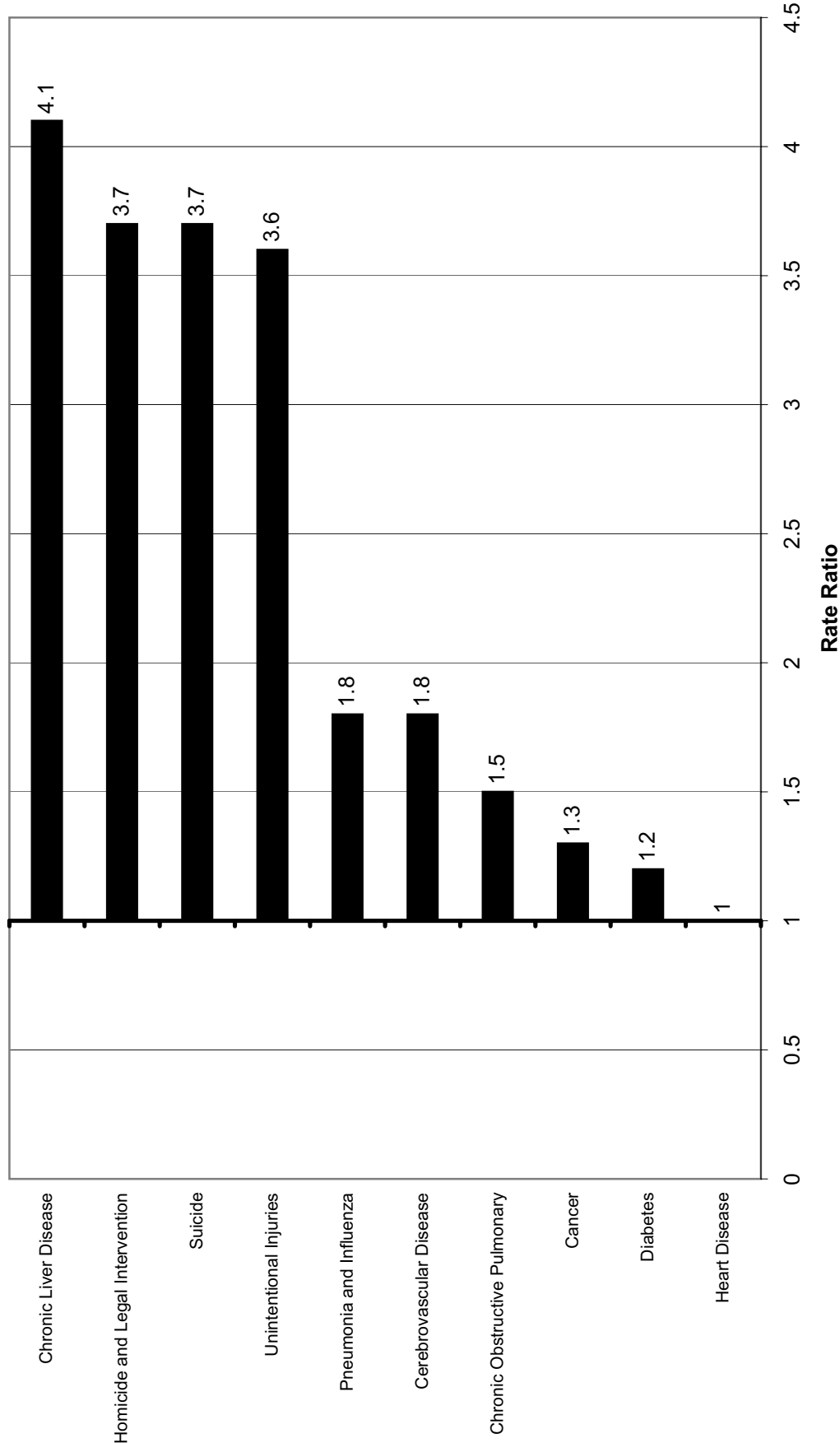
Males and Females Combined



Ratio of Alaska Natives, 1989-1998 Dying from Each of the 10 Leading Causes of Death as Compared to US Whites, 1993 Males



Ratio of Alaska Native s, 1989-1998 Dying from Each of the 10 Leading Causes of Death as Compared to US Whites, 1993 Females



**Age-Specific Rates for Leading Causes of Death
Alaska Natives 1989-1998, Compared to US Whites 1993
Males and Females Combined**

1-4 Years	Alaska Native # deaths	Alaska Native Rate‡	95% CI	US White # deaths	US White Rate	Rate Ratio
Unintentional Injuries	65	63.5	48.1-78.9	1821	14.6	4.3 *
Homicide and Legal Intervention	4	-	-	223	1.8	-
Heart Disease	3	-	-	190	1.5	-
Cancer	2	-	-	422	3.4	-
Pneumonia and Influenza	1	-	-	117	0.9	-
All Other Causes	39	38.1	26.1-50.1	2020	16.2	2.4 *
Total	113	110.4	90.0-130.7	4793	38.3	2.9 *
Pop	1989-1998	102368		1993	12498602	
5-14 Years	Alaska Native # deaths	Alaska Native Rate‡	95% CI	US White # deaths	US White Rate	Rate Ratio
Unintentional Injuries	63	31.2	23.5-38.9	2527	8.6	3.6 *
Suicide	10	5.0	1.9-8.0	262	0.9	5.6 *
Homicide and Legal Intervention	6	3.0	0.6-5.3	342	1.2	2.6
Cancer	5	2.5	0.3-4.6	899	3.0	0.8
Pneumonia and Influenza	2	-	-	109	0.4	-
Chronic Obstructive Pulmonary Diseases	1	-	-	73	0.2	-
All Other Causes	30	14.9	9.5-20.2	2098	7.1	2.0 *
Total	116	57.4	47.0-67.9	6310	21.4	2.7 *
Pop	1989-1998	201993		1993	29542084	
15-24 Years	Alaska Native # deaths	Alaska Native Rate‡	95% CI	US White # deaths	US White Rate	Rate Ratio
Suicide	201	125.1	107.8-142.4	4037	14.0	9.0 *
Unintentional Injuries	172	107.0	91.0-123.0	11562	40.0	2.7 *
Homicide & Legal Intervention	33	20.5	13.5-27.5	3128	10.8	1.9 *
Cancer	9	5.6	1.9-9.3	1365	4.7	1.2
Cerebrovascular Disease	5	3.1	0.4-5.8	159	0.5	5.7
Pneumonia and Influenza	1	-	-	168	0.6	-
Heart Disease	1	-	-	635	2.2	-
Diabetes Mellitus	1	-	-	75	0.3	-
Chronic Liver Disease	1	-	-	27	0.1	-
All Other Causes	27	16.8	10.5-23.1	3340	11.6	1.4
Total	450	280.0	254.1-305.9	24496	84.7	3.3 *
Pop	1989-1998	160,702		1993	28917366	

25-44 Years	Alaska Native # deaths	Alaska Native Rate‡	95% CI	US White # deaths	US White Rate	Rate Ratio
Unintentional Injuries	474	166.6	151.6-181.6	21965	32.1	5.2 *
Suicide	206	72.4	62.5-82.3	11011	16.1	4.5 *
Cancer	103	36.2	29.2-43.2	17268	25.2	1.4 *
Homicide & Legal Intervention	89	31.3	24.8-37.8	5643	8.2	3.8 *
Chronic Liver Disease	68	23.9	18.2-29.6	3332	4.9	4.9 *
Heart Disease	61	21.4	16.1-26.8	11729	17.1	1.3
Cerebrovascular Diseases	24	8.4	5.1-11.8	2140	3.1	2.7 *
Pneumonia & Influenza	18	6.3	3.4-9.3	1482	2.2	2.9 *
Diabetes Mellitus	5	1.8	0.2-3.3	1666	2.4	0.7
Chronic Obstructive Pulmonary Diseases	3	-	-	622	0.9	-
All Other Causes	195	68.5	58.9-78.2	33986	49.6	1.8
Total	1246	438.0	413.7-462.3	110844	161.8	2.7 *
Pop	1989-1998	284478		1993	68511289	
45-54 Years	Alaska Native # deaths	Alaska Native Rate‡	95% CI	US White # deaths	US White Rate	Rate Ratio
Cancer	123	174.9	144.0-205.9	34377	139.6	1.3 *
Heart Disease	99	140.8	113.1-168.5	25343	102.9	1.4 *
Unintentional Injuries	99	140.8	113.1-168.5	6463	26.3	5.4 *
Chronic Liver Disease	24	34.1	20.5-47.8	3733	15.2	2.3 *
Cerebrovascular Diseases	18	25.6	13.8-37.4	3384	13.7	1.9 *
Pneumonia and Influenza	17	24.2	12.7-35.7	1354	5.5	4.4 *
Homicide & Legal Intervention	11	15.6	6.4-24.9	1262	5.1	3.1 *
Suicide	10	14.2	5.4-23.0	3869	15.7	0.9
Diabetes Mellitus	7	10.0	2.6-17.3	2471	10.0	1.0
Chronic Obstructive Pulmonary Diseases	6	8.5	1.7-15.4	2033	8.3	1.0
All Other Causes	105	149.3	120.8-177.9	17581	71.4	2.0 *
Total	519	738.2	674.7-801.7	101870	413.8	1.8 *
Pop	1989-1998	70,309		1993	24619975	
55-64 Years	Alaska Native # deaths	Alaska Native Rate‡	95% CI	US White # deaths	US White Rate	Rate Ratio
Cancer	256	523.4	459.3-587.6	76717	422.2	1.2 *
Heart Disease	151	308.7	259.5-358.0	58627	322.6	1.0
Unintentional Injuries	67	137.0	104.2-169.8	5263	29.0	4.7 *
Chronic Obstructive Pulmonary	43	87.9	61.6-114.2	9543	52.5	1.7 *
Cerebrovascular Diseases	36	73.6	49.6-97.7	7061	38.9	1.9 *
Chronic Liver Disease	34	69.5	46.2-92.9	4795	26.4	2.6 *
Pneumonia & Influenza	17	34.8	18.2-51.3	2901	16.0	2.2 *
Diabetes Mellitus	15	30.7	15.1-46.2	5507	30.3	1.0
Suicide	13	26.6	12.1-41.0	2886	15.9	1.7
Homicide & Legal Intervention	7	14.3	3.7-24.9	632	3.5	4.1 *
All Other Causes	139	284.2	237.0-331.5	24304	133.7	2.2 *
Total	778	1590.8	1479.0-1702.6	198236	1090.9	1.5 *
Pop	1989-1998	48,907		1993	18171384	

65-74 Years	Alaska Native # deaths	Alaska Native Rate‡	95% CI	US White # deaths	US White Rate	Rate Ratio
Cancer	296	1059.0	938.4-1179.6	143313	863.2	1.2 *
Heart Disease	234	837.2	729.9-944.4	136640	823.0	1.0
Chronic Obstructive Pulmonary	67	239.7	182.3-297.1	29011	174.7	1.4 *
Cerebrovascular Diseases	39	139.5	95.7-183.3	20770	125.1	1.1
Unintentional Injuries	35	125.2	83.7-166.7	6967	42.0	3.0 *
Diabetes Mellitus	23	82.3	48.7-115.9	11908	71.7	1.1
Pneumonia & Influenza	22	78.7	45.8-111.6	9227	55.6	1.4
Chronic Liver Disease	13	46.5	21.2-71.8	5478	33.0	1.4
Suicide	5	17.9	2.2-33.6	2895	17.4	1.0
Homicide and Legal Intervention	4	-	-	457	2.8	-
All Other Causes	180	644.0	549.9-738.1	56153	338.2	1.9 *
Total	918	3284.3	3071.9-3496.8	422819	2546.7	1.3 *
Pop	1989-1998	27,951		1993	16602850	
75+ Years	Alaska Native # deaths	Alaska Native Rate‡	95% CI	US White # deaths	US White Rate	Rate Ratio
Heart Disease	423	2579.9	2334.0-2825.8	421511	3282.2	0.8 *
Cancer	293	1787.0	1582.4-1991.6	187465	1459.7	1.2 *
Cerebrovascular Diseases	147	896.6	751.6-1041.5	96233	749.3	1.2 *
Chronic Obstructive Pulmonary	111	677.0	551.0-802.9	52146	406.0	1.7 *
Pneumonia & Influenza	89	542.8	430.0-655.6	58035	451.9	1.2
Unintentional Injuries	39	237.9	163.2-312.5	17960	139.8	1.7 *
Diabetes Mellitus	35	213.5	142.7-284.2	21804	169.8	1.3
Chronic Liver Disease	3	-	-	3951	30.8	-
Homicide and Legal Intervention	1	-	-	355	2.8	-
All Other Causes	363	2214.0	1986.2-2441.7	200773	1563.4	1.4 *
Total	1503	9166.9	8703.4-9630.3	1060233	8255.7	1.1 *
Pop	1989-1998	16,396		1993	12842427	

*95% Confidence Interval does not include US White rate

‡ Alaska Native rates not calculated for fewer than 5 deaths.

**Age-Specific Rates for Leading Causes of Death
Alaska Natives 1989-1998, Compared to US Whites 1993
Males**

1-4 Years	Alaska Native # deaths	Alaska Native Rate‡	95% CI	US White # deaths	US White Rate	Rate Ratio
Unintentional Injuries	42	80.9	56.4-105.4	1099	17.1	4.7 *
Homicide and Legal Intervention	4	-	-	138	2.2	-
Pneumonia and Influenza	1	-	-	61	1.0	-
Heart Disease	1	-	-	110	1.7	-
Cancer	1	-	-	248	3.9	-
All Other Causes	19	36.6	20.1-53.1	1091	17.0	2.2 *
Total	68	131.0	99.9-162.1	2747	42.9	3.1 *
Pop	1989-1998	51909		1993	6,408,518	
5-14 Years	Alaska Native # deaths	Alaska Native Rate‡	95% CI	US White # deaths	US White Rate	Rate Ratio
Unintentional Injuries	40	38.9	26.8-50.9	1670	11.0	3.5 *
Suicide	6	5.8	1.2-10.5	186	1.2	4.8
Homicide and Legal Intervention	4	-	-	201	1.3	-
Cancer	4	-	-	515	3.4	-
Pneumonia and Influenza	1	-	-	56	0.4	-
Chronic Obstructive Pulmonary Diseases	1	-	-	39	0.3	-
All Other Causes	15	14.6	7.2-22.0	1157	7.6	1.8
Total	71	69.0	53.0-85.1	3824	25.2	2.7 *
Pop	1989-1998	102865		1993	15164964	
15-24 Years	Alaska Native # deaths	Alaska Native Rate‡	95% CI	US White # deaths	US White Rate	Rate Ratio
Suicide	171	208.9	177.6-240.2	3433	23.1	9.0 *
Unintentional Injuries	135	164.9	137.1-192.8	8734	58.9	2.8 *
Homicide & Legal Intervention	24	29.3	17.6-41.1	2535	17.1	1.7 *
Cancer	6	7.3	1.5-13.2	805	5.4	1.4
Cerebrovascular Diseases	3	-	-	68	0.5	-
Diabetes Mellitus	1	-	-	41	0.3	-
All Other Causes	16	19.5	10.0-29.1	2625	17.7	1.0
Total	356	434.9	389.7-480.1	18241	123.0	3.5 *
Pop	1989-1998	81853		1993	14834995	

25-44 Years	Alaska Native # deaths	Alaska Native Rate‡	95% CI	US White # deaths	US White Rate	Rate Ratio
Unintentional Injuries	368	258.0	231.6-284.3	17081	49.6	5.2 *
Suicide	172	120.6	102.6-138.6	8860	25.7	4.7 *
Homicide & Legal Intervention	62	43.5	32.6-54.3	4222	12.3	3.5 *
Cancer	43	30.1	21.1-39.2	8149	23.6	1.3
Heart Disease	37	25.9	17.6-34.3	8766	25.4	1.0
Chronic Liver Disease	22	15.4	9.0-21.9	2471	7.2	2.2 *
Cerebrovascular Diseases	11	7.7	3.2-12.3	1192	3.5	2.2
Pneumonia and Influenza	9	6.3	2.2-10.4	952	2.8	2.3
Diabetes Mellitus	3	-	-	981	2.8	-
Chronic Obstructive Pulmonary Diseases	1	-	-	71	0.2	-
All Other Causes	116	81.3	66.5-96.1	26933	78.2	0.8
Total	844	591.7	551.8-631.6	79678	231.2	2.6 *
Pop	1989-1998	142645		1993	34457120	
45-54 Years	Alaska Native # deaths	Alaska Native Rate‡	95% CI	US White # deaths	US White Rate	Rate Ratio
Heart Disease	75	211.9	164.0-259.9	19424	159.9	1.3 *
Unintentional Injuries	73	206.3	158.9-253.6	4719	38.8	5.3 *
Cancer	65	183.7	139.0-228.3	16892	139.0	1.3
Chronic Liver Disease	14	39.6	18.8-60.3	2780	22.9	1.7
Pneumonia and Influenza	9	25.4	8.8-42.0	809	6.7	3.8 *
Suicide	8	22.6	6.9-38.3	2900	23.9	0.9
Cerebrovascular Disease	7	19.8	5.1-34.4	1815	14.9	1.3
Homicide and Legal Interventon	6	17.0	3.4-30.5	945	7.8	2.2
Chronic Obstructive Pulmonary Diseases	5	14.1	1.7-26.5	1089	9.0	1.6
Diabetes Mellitus	4	-	-	1431	11.8	-
All Other Causes	63	178.0	134.1-222.0	12059	99.3	1.7 *
Total	329	929.6	829.2-1030.1	64863	533.9	1.7 *
Pop	1989-1998	35391		1993	12148244	
55-64 Years	Alaska Native # deaths	Alaska Native Rate‡	95% CI	US White # deaths	US White Rate	Rate Ratio
Cancer	129	534.5	442.3-626.8	42352	486.0	1.1
Heart Disease	107	443.4	359.4-527.4	41444	475.6	0.9
Unintentional Injuries	49	203.0	146.2-259.9	3558	40.8	5.0 *
Chronic Obstructive Pulmonary	27	111.9	69.7-154.1	5102	58.5	1.9 *
Chronic Liver Disease	22	91.2	53.1-129.3	3268	37.5	2.4 *
Pneumonia & Influenza	14	58.0	27.6-88.4	1729	19.8	2.9 *
Cerebrovascular Diseases	11	45.6	18.6-72.5	3840	44.1	1.0
Diabetes Mellitus	10	41.4	15.8-67.1	2912	33.4	1.2
Suicide	10	41.4	15.8-67.1	2242	25.7	1.6
Homicide & Legal Intervention	6	24.9	5.0-44.8	456	5.2	4.8
All Other Causes	79	327.3	255.2-399.5	14653	168.2	1.9 *
Total	464	1922.6	1747.7-2097.5	121556	1394.9	1.4 *
Pop	1989-1998	24134		1993	8714130	

65-74 Years	Alaska Native # deaths	Alaska Native Rate‡	95% CI	US White # deaths	US White Rate	Rate Ratio
Cancer	170	1286.6	1093.2-1480.0	80046	1084.2	1.2 *
Heart Disease	161	1218.5	1030.3-1406.7	85244	1154.6	1.1
Chronic Obstructive Pulmonary	36	272.5	183.5-361.5	15750	213.3	1.3
Unintentional Injuries	24	181.6	109.0-254.3	4136	56.0	3.2 *
Cerebrovascular Diseases	23	174.1	102.9-245.2	10762	145.8	1.2
Pneumonia & Influenza	11	83.3	34.1-132.4	5474	74.1	1.1
Diabetes Mellitus	10	75.7	28.8-122.6	5805	78.6	1.0
Chronic Liver Disease	9	68.1	23.6-112.6	3318	44.9	1.5
Suicide	3	-	-	2319	31.4	-
Homicide and Legal Intervention	2	-	-	457	6.2	-
All Other Causes	93	703.9	560.8-846.9	30802	417.2	1.7 *
Total	542	4102.0	3756.7-4447.4	244113	3306.5	1.2 *
Pop	1989-1998	13213		1993	7382867	
75+ Years	Alaska Native # deaths	Alaska Native Rate‡	95% CI	US White # deaths	US White Rate	Rate Ratio
Heart Disease	225	3136.3	2700.5-3516.4	168022	3666.7	0.9 *
Cancer	156	2174.5	1833.3-2515.8	92856	2026.4	1.1
Chronic Obstructive Pulmonary	64	892.1	661.3-1095.0	27420	598.4	1.5 *
Cerebrovascular Disease	51	710.9	515.8-906.0	32407	707.2	1.0
Pneumonia & Influenza	46	641.2	455.9-826.5	23796	519.3	1.2
Unintentional Injuries	23	320.6	189.6-451.6	8101	176.8	1.8 *
Diabetes Mellitus	14	195.1	92.9-297.4	8127	177.4	1.1
Chronic Liver Disease	2	-	-	1947	42.5	-
All Other Causes	168	2341.8	1987.7-2695.9	78155	1705.5	-
Total	749	10440.5	9692.8-11188.2	440831	9620.1	1.1 *
Pop	1989-1998	7174		1993	4582401	

*95% Confidence Interval does not include US White rate

‡ Alaska Native rates not calculated for fewer than 5 deaths.

**Age-Specific Rates for Leading Causes of Death
Alaska Natives 1989-1998, Compared to US Whites 1993
Females**

1-4 Years	Alaska Native # deaths	Alaska Native Rate‡	95% CI	US White # deaths	US White Rate	Rate Ratio
Unintentional Injuries	23	45.6	27.0-64.2	722	11.9	3.8 *
Heart Disease	2	-	-	80	1.3	-
Cancer	1	-	-	174	2.9	-
All Other Causes	19	37.7	20.7-54.6	1070	17.6	2.1 *
Total	45	89.2	63.1-115.2	2046	33.6	2.7 *
Pop	1989-1998	50459		1993	6090084	
5-14 Years	Alaska Native # deaths	Alaska Native Rate‡	95% CI	US White # deaths	US White Rate	Rate Ratio
Unintentional Injuries	23	23.2	13.7-32.7	857	6.0	3.9 *
Suicide	4	-	-	76	0.5	-
Homicide and Legal Intervention	2	-	-	141	1.0	-
Pneumonia and Influenza	1	-	-	53	0.4	-
Cancer	1	-	-	384	2.7	-
All Other Causes	14	14.1	6.7-21.5	975	6.8	2.1
Total	45	45.4	32.1-58.7	2486	17.3	2.6 *
Pop	1989-1998	99128		1993	14377120	
15-24 Years	Alaska Native # deaths	Alaska Native Rate‡	95% CI	US White # deaths	US White Rate	Rate Ratio
Unintentional Injuries	37	46.9	31.8-62.0	2828	20.1	2.3 *
Suicide	30	38.0	24.4-51.7	604	4.3	8.9 *
Homicide and Legal Intervention	9	11.4	4.0-18.9	593	4.2	2.7
Cancer	3	-	-	560	4.0	-
Cerebrovascular Disease	2	-	-	91	0.6	-
Pneumonia and Influenza	1	-	-	83	0.6	-
Heart Disease	1	-	-	224	1.6	-
Chronic Liver Disease	1	-	-	10	0.1	-
All Other Causes	10	12.7	4.8-20.5	1262	9.0	1.4
Total	94	119.2	95.1-143.3	6255	44.4	2.7 *
Pop	1989-1998	78849		1993	14082371	

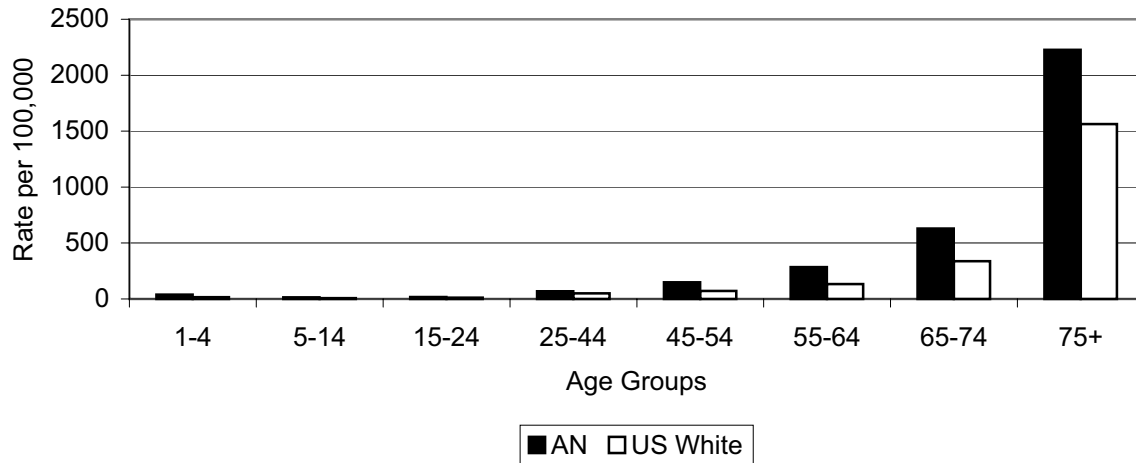
25-44 Years	Alaska Native # deaths	Alaska Native Rate‡	95% CI	US White # deaths	US White Rate	Rate Ratio
Unintentional Injuries	106	74.7	60.5-89.0	4884	14.3	5.2 *
Cancer	60	42.3	31.6-53.0	9119	26.8	1.6 *
Chronic Liver Disease	46	32.4	23.1-41.8	861	2.5	12.8 *
Suicide	34	24.0	15.9-32.0	2151	6.3	3.8 *
Homicide & Legal Intervention	27	19.0	11.9-26.2	1421	4.2	4.6 *
Heart Disease	24	16.9	10.2-23.7	2963	8.7	1.9 *
Cerebrovascular Diseases	13	9.2	4.2-14.1	948	2.8	3.3 *
Pneumonia & Influenza	9	6.3	2.2-10.5	530	1.6	4.1 *
Diabetes Mellitus	3	-	-	685	2.0	-
Chronic Obstructive Pulmonary Diseases	2	-	-	323	0.9	-
All Other Causes	78	55.0	42.8-67.2	7281	21.4	2.3 *
Total	402	283.4	255.7-311.1	31166	91.5	3.1 *
Pop	1989-1998	141833		1993	34054169	
45-54 Years	Alaska Native # deaths	Alaska Native Rate‡	95% CI	US White # deaths	US White Rate	Rate Ratio
Cancer	58	166.1	123.4-208.9	17485	140.2	1.2
Unintentional Injuries	26	74.5	45.8-103.1	1744	14.0	5.3 *
Heart Disease	24	68.7	41.2-96.2	5919	47.5	1.4
Cerebrovascular Diseases	11	31.5	12.9-50.1	1569	12.6	2.5
Chronic Liver Disease	10	28.6	10.9-46.4	953	7.6	3.7 *
Pneumonia and Influenza	8	22.9	7.0-38.8	545	4.4	5.2 *
Homicide and Legal Intervention	5	14.3	1.8-26.9	317	2.5	5.6
Diabetes Mellitus	3	-	-	1040	8.3	-
Suicide	2	-	-	969	7.8	-
Chronic Obstructive Pulmonary Diseases	1	-	-	944	7.6	-
All Other Causes	42	120.3	83.9-156.7	5522	44.3	2.6 *
Total	190	544.1	466.8-621.5	37007	296.7	1.8 *
Pop	1989-1998	34918		1993	12471731	
55-64 Years	Alaska Native # deaths	Alaska Native Rate‡	95% CI	US White # deaths	US White Rate	Rate Ratio
Cancer	127	512.7	423.5-601.8	34365	363.4	1.4 *
Heart Disease	44	177.6	125.1-230.1	17183	181.7	1.0
Cerebrovascular Diseases	25	100.9	61.4-140.5	3221	34.1	3.0 *
Unintentional Injuries	18	72.7	39.1-106.2	1705	18.0	4.0 *
Chronic Obstructive Pulmonary	16	64.6	32.9-96.2	4441	47.0	1.4
Chronic Liver Disease	12	48.4	21.0-75.8	1527	16.1	3.0 *
Diabetes Mellitus	5	20.2	2.5-37.9	2595	27.4	0.7
Suicide	3	-	-	644	6.8	-
Pneumonia and Influenza	3	-	-	1172	12.4	-
Homicide and Legal Intervention	1	-	-	176	1.9	-
All Other Causes	60	242.2	180.9-303.5	9651	102.0	2.3 *
Total	314	1267.5	1127.3-1407.7	76680	810.8	1.6 *
Pop	1989-1998	24773		1993	9457254	

65-74 Years	Alaska Native # deaths	Alaska Native Rate‡	95% CI	US White # deaths	US White Rate	Rate Ratio
Cancer	126	854.9	705.7-1004.2	63267	686.2	1.2 *
Heart Disease	73	495.3	381.7-608.9	51396	557.4	0.9
Chronic Obstructive Pulmonary	31	210.3	136.3-284.4	13261	143.8	1.5
Cerebrovascular Diseases	16	108.6	55.4-161.8	10008	108.5	1
Diabetes Mellitus	13	88.2	40.3-136.2	6103	66.2	1.3
Pneumonia & Influenza	11	74.6	30.5-118.7	3753	40.7	1.8
Unintentional Injuries	11	74.6	30.5-118.7	2831	30.7	2.4
Chronic Liver Disease	4	-	-	2160	23.4	-
Suicide	2	-	-	576	6.2	-
Homicide and Legal Intervention	2	-	-	190	2.1	-
All Other Causes	83	563.2	442.0-684.3	25161	272.9	2.1 *
Total	372	2524.1	2267.6-2780.6	178706	1938.2	1.3 *
Pop	1989-1998	14738		1993	9219983	
75+ Years	Alaska Native # deaths	Alaska Native Rate‡	95% CI	US White # deaths	US White Rate	Rate Ratio
Heart Disease	198	2147.0	1848.0-2446.1	253489	3068.9	0.7 *
Cancer	137	1485.6	1236.8-1734.3	94609	1145.4	1.3 *
Cerebrovascular Diseases	96	1041.0	832.7-1249.2	63826	772.7	1.3 *
Chronic Obstructive Pulmonary	47	509.7	363.9-655.4	24726	299.3	1.7 *
Pneumonia & Influenza	43	466.3	326.9-605.6	34239	414.5	1.1
Diabetes Mellitus	21	227.7	130.3-325.1	14228	172.3	1.3
Unintentional Injuries	16	173.5	88.5-258.5	13677	165.6	1.0
Homicide and Legal Intervention	1	-	-	206	2.5	-
Chronic Liver Disease	1	-	-	2004	24.3	-
All Other Causes	196	2125.4	1827.8-2422.9	118398	1433.4	1.5 *
Total	756	8197.8	7613.4-8782.2	619402	7498.8	1.1 *
Pop	1989-1998	9222		1993	8260026	

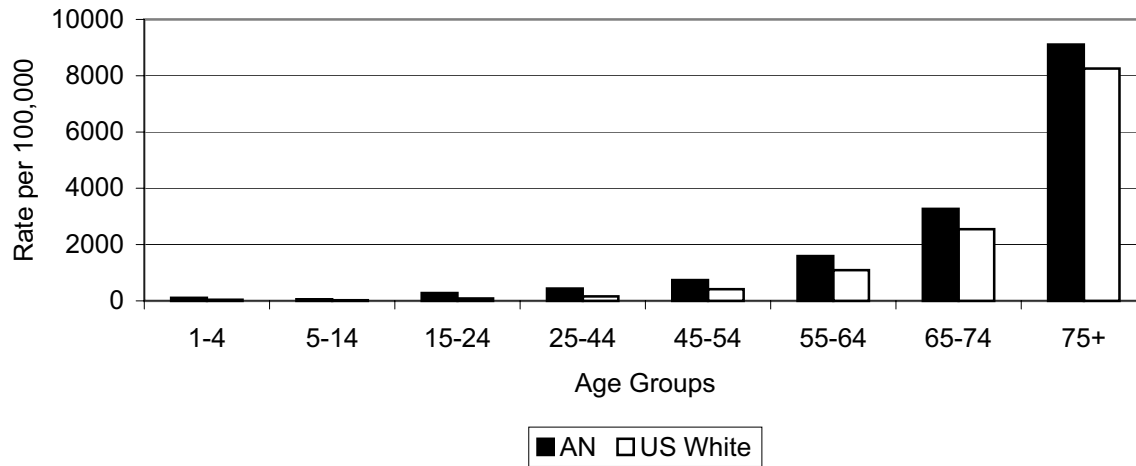
*95% Confidence Interval does not include US White rate

‡ Alaska Native rates not calculated for fewer than 5 deaths.

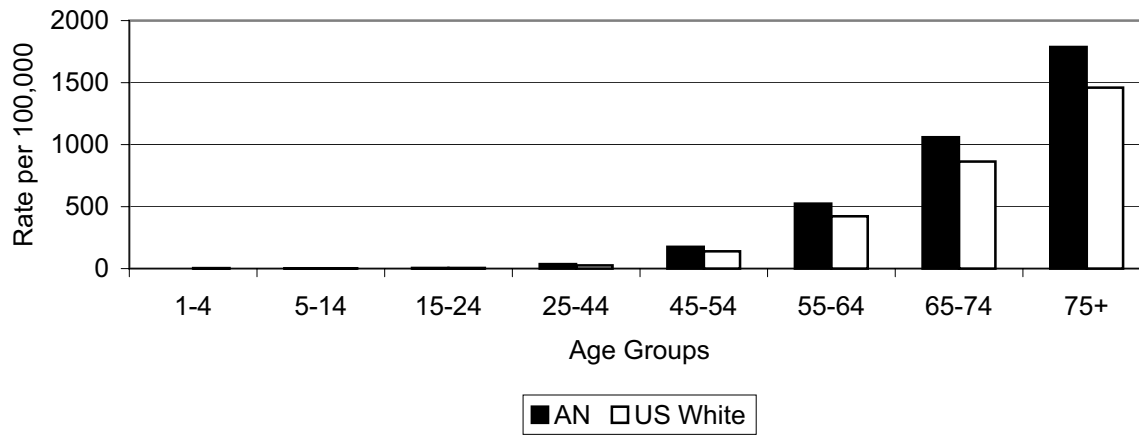
**Age-Specific Mortality Rates from All Causes
Alaska Natives 1989-1998 versus US Whites 1993
Males and Females Combined**



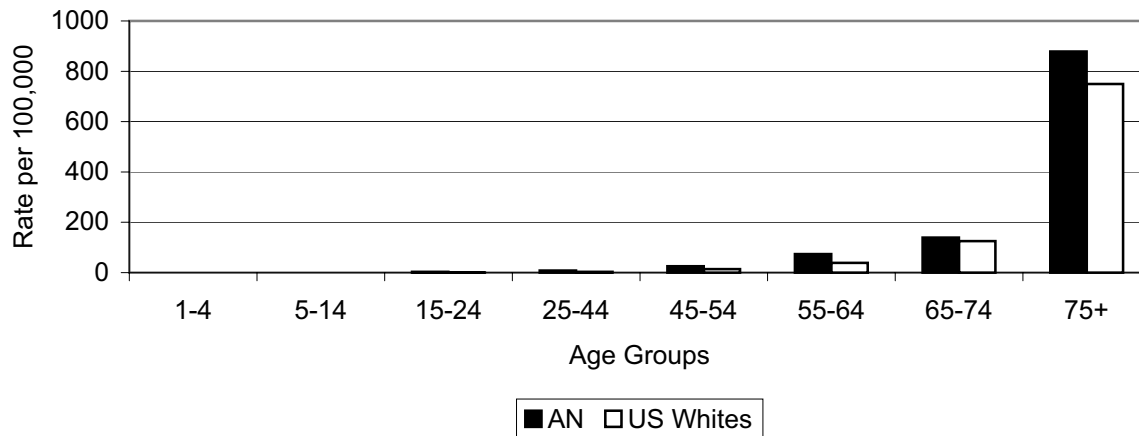
**Age-Specific Mortality Rates for All Other Causes
Alaska Natives 1989-1998 versus US Whites 1993
Males and Females Combined**



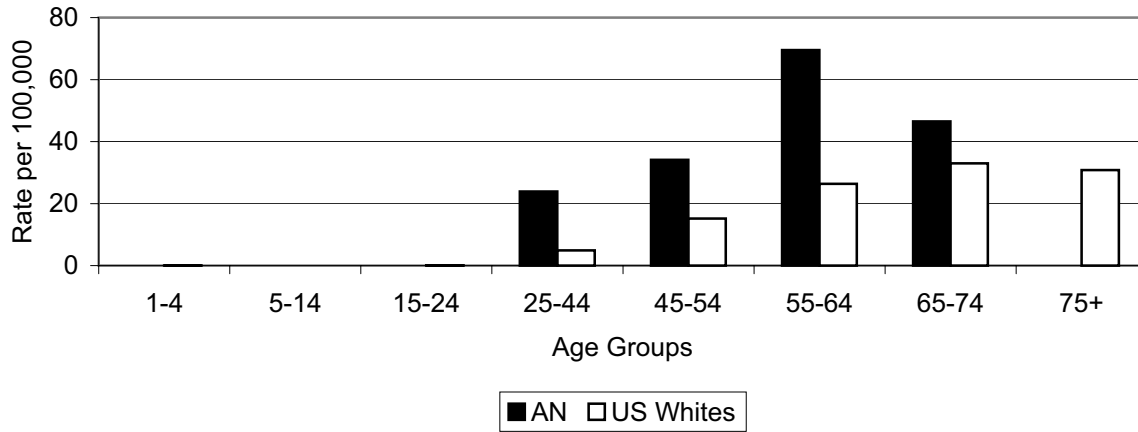
**Age-Specific Mortality Rates for Cancer
Alaska Natives 1989-1998 versus US Whites 1993
Male and Female Combined**



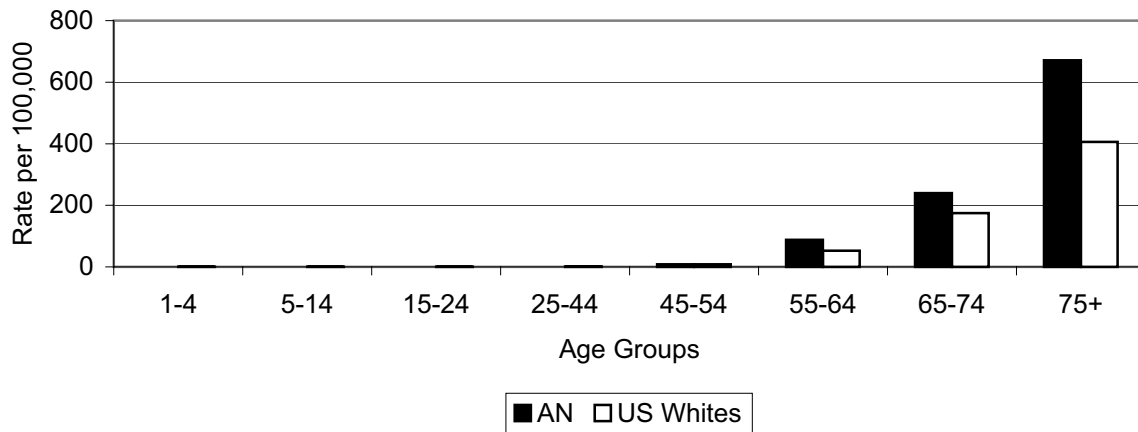
**Age-Specific Mortality Rates for Cerebrovascular Diseases
Alaska Natives 1989-1998 versus US Whites 1993
Male and Female Combined**



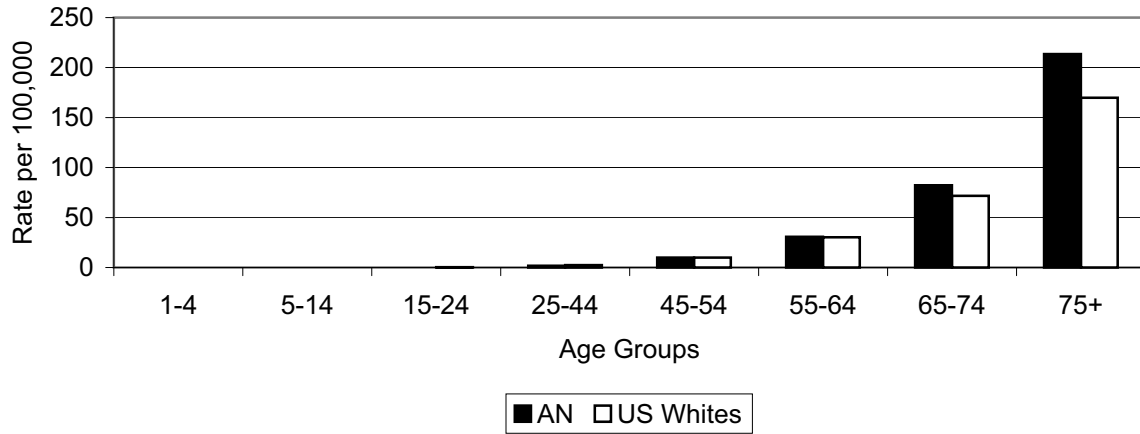
**Age-Specific Mortality Rates for Chronic Liver Disease
Alaska Natives 1989-1998 versus US Whites 1993
Male and Female Combined**



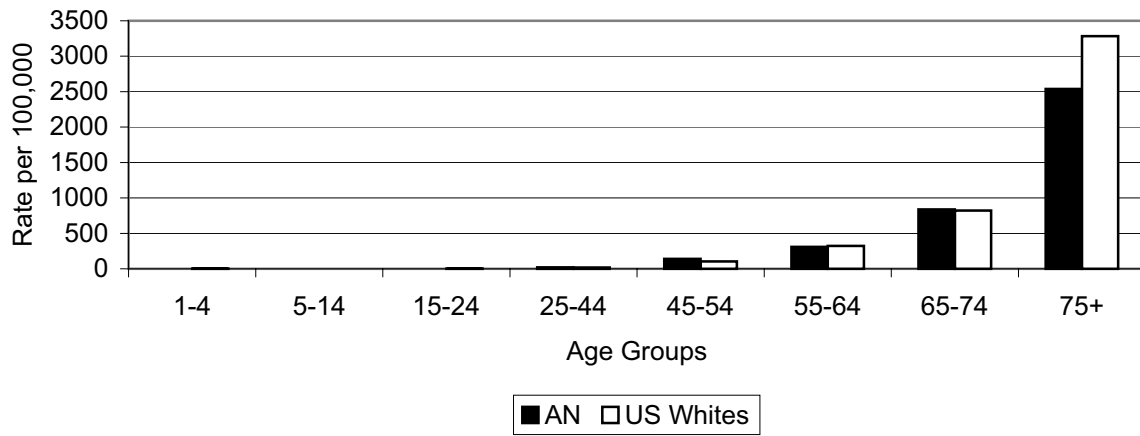
**Age-Specific Mortality Rates for Chronic Obstructive Pulmonary Diseases
Alaska Natives 1989-1998 versus US Whites 1993
Male and Female Combined**



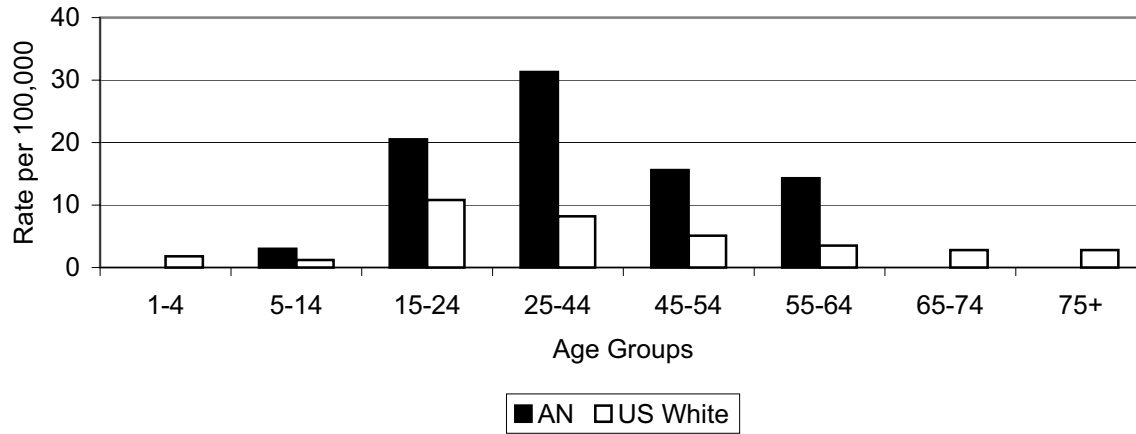
**Age-Specific Mortality Rates for Diabetes Mellitus
Alaska Natives 1989-1998 versus US Whites 1993
Male and Female Combined**



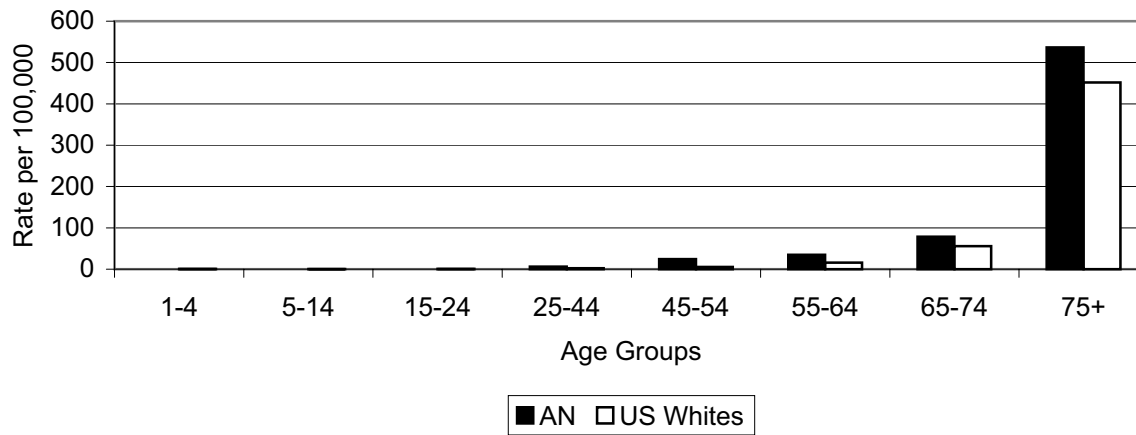
**Age-Specific Mortality Rates for Heart Disease
Alaska Natives 1989-1998 versus US Whites 1993
Male and Females Combined**



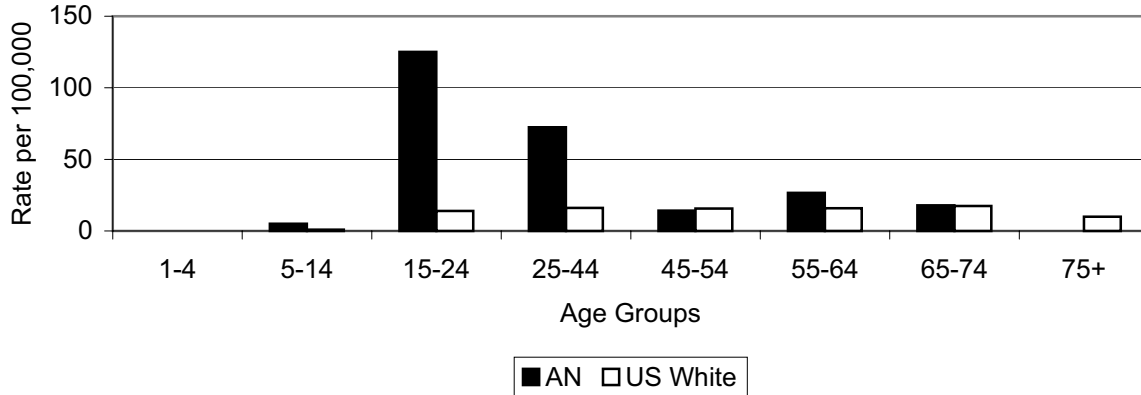
**Age-Specific Mortality Rates for Homicide and Legal Intervention
Alaska Natives 1989-1998 versus US Whites 1993
Male and Female Combined**



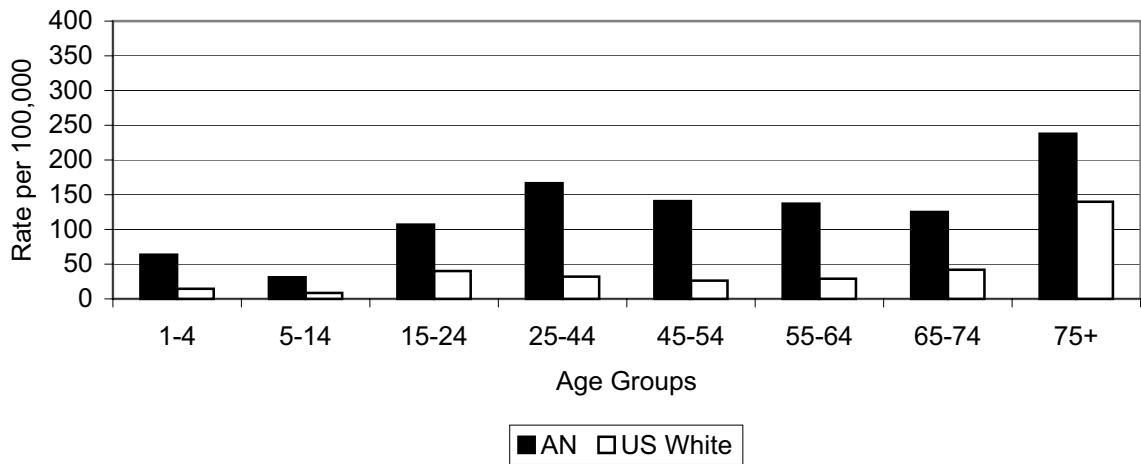
**Age-Specific Mortality Rates for Pneumonia and Influenza
Alaska Natives 1989-1998 versus US Whites 1993
Male and Female Combined**



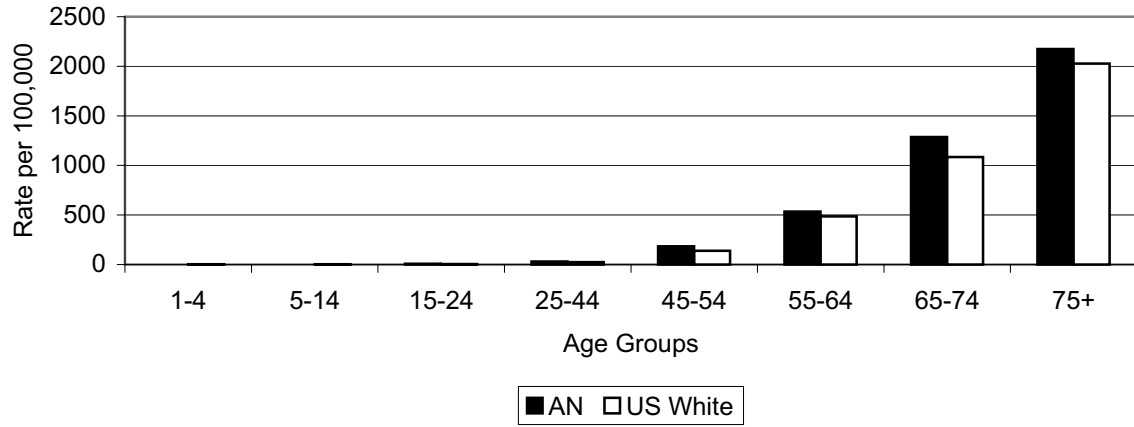
**Age-Specific Mortality Rates for Suicide
Alaska Natives 1989-1998 versus US Whites 1993
Male and Female Combined**



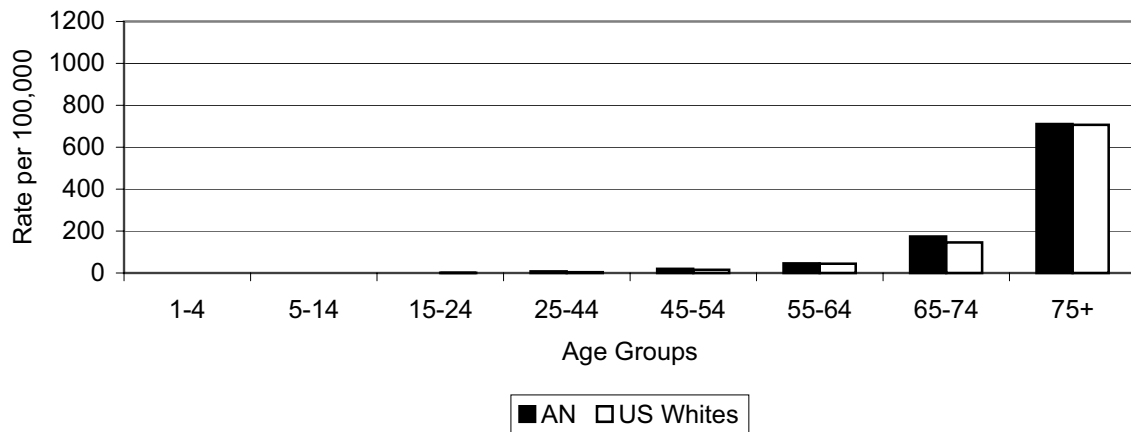
**Age-Specific Mortality Rates for Unintentional Injuries
Alaska Natives 1989-1998 versus US Whites 1993
Males and Females Combined**



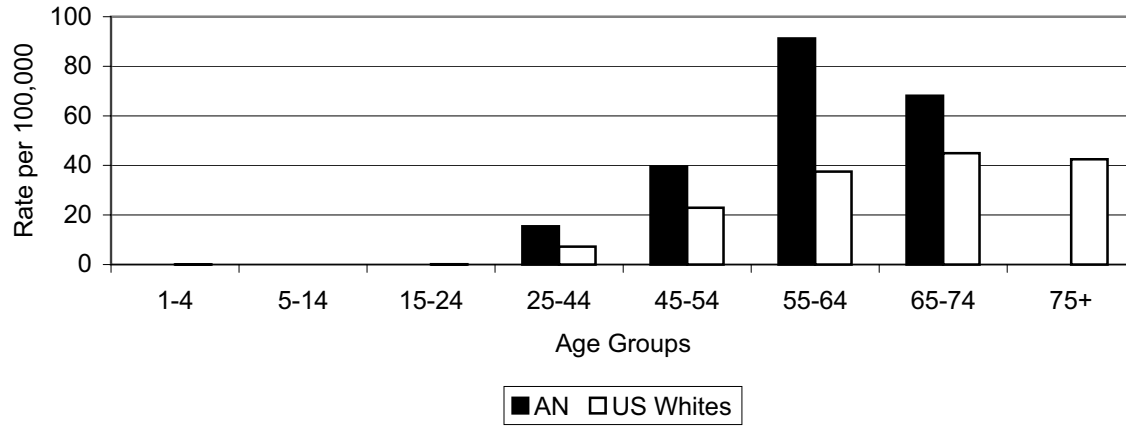
**Age-Specific Mortality Rates for Cancer
Alaska Natives 1989-1998 versus US Whites 1993
Males**



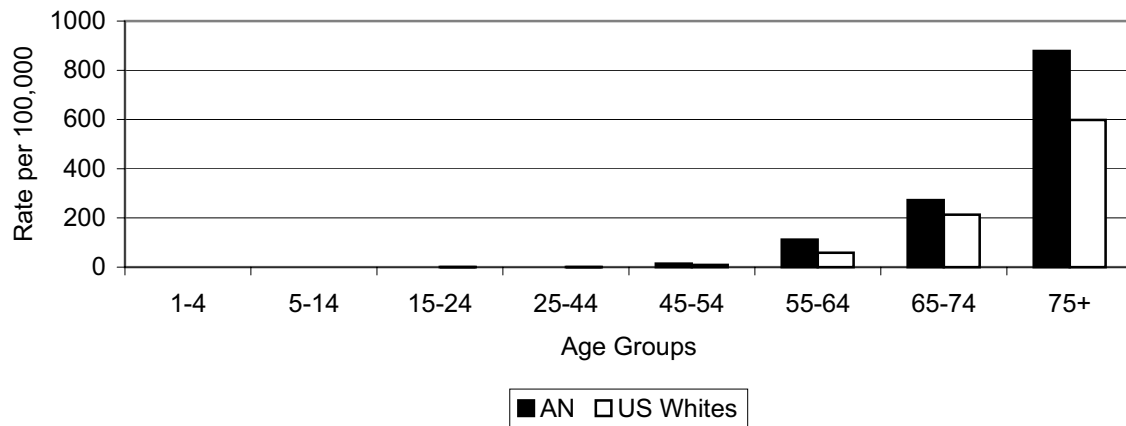
**Age-Specific Mortality Rates for Cerebrovascular Diseases
Alaska Natives 1989-1998 versus US Whites 1993
Males**



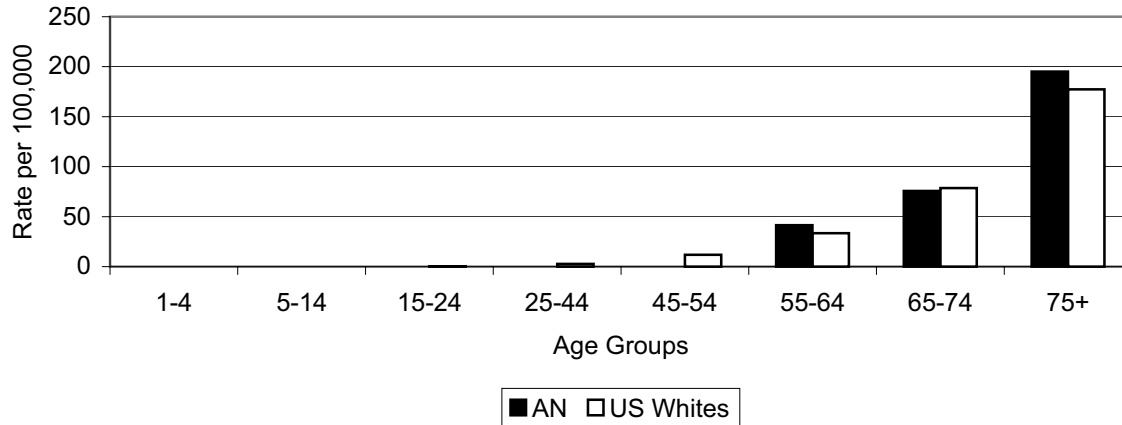
**Age-Specific Mortality Rates for Chronic Liver Disease
Alaska Natives 1989-1998 versus US Whites 1993
Males**



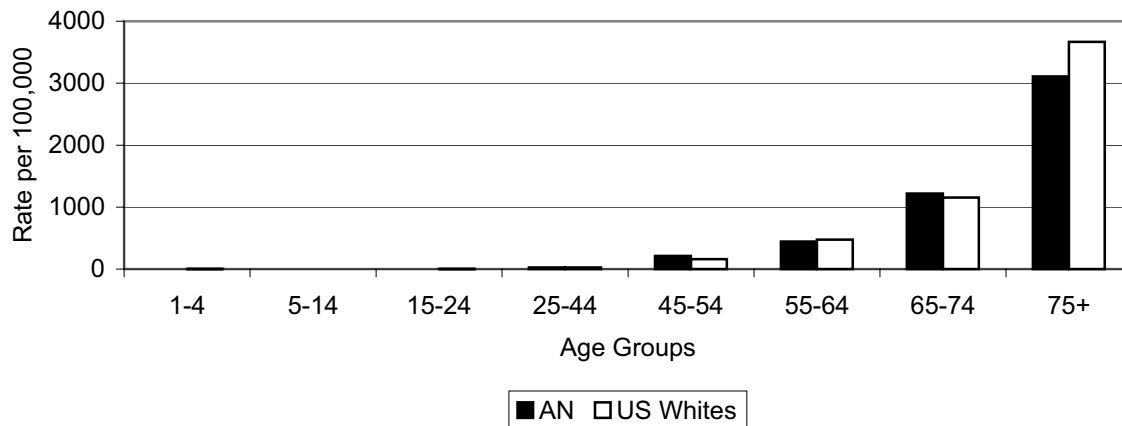
**Age-Specific Mortality Rates for Chronic Obstructive Pulmonary Diseases
Alaska Natives 1989-1998 versus US Whites 1993
Males**



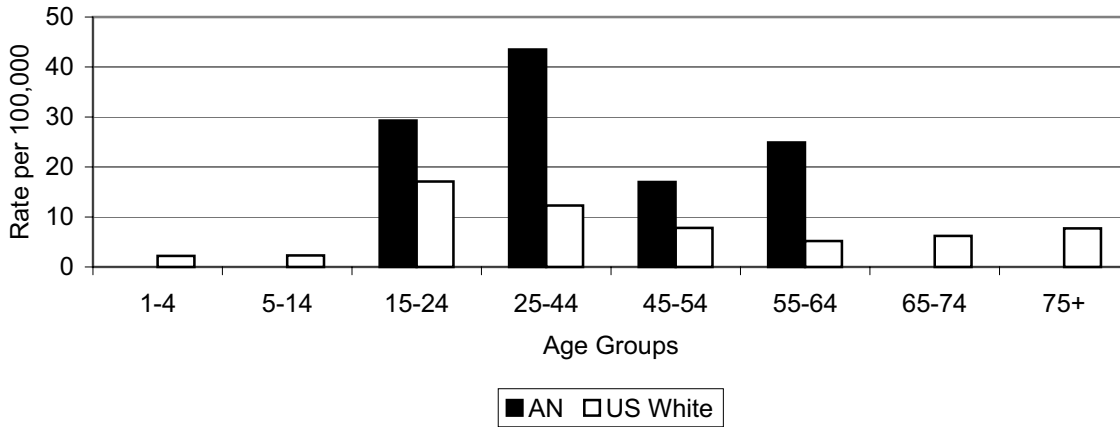
**Age-Specific Mortality Rates for Diabetes Mellitus
Alaska Natives 1989-1998 versus US Whites 1993
Males**



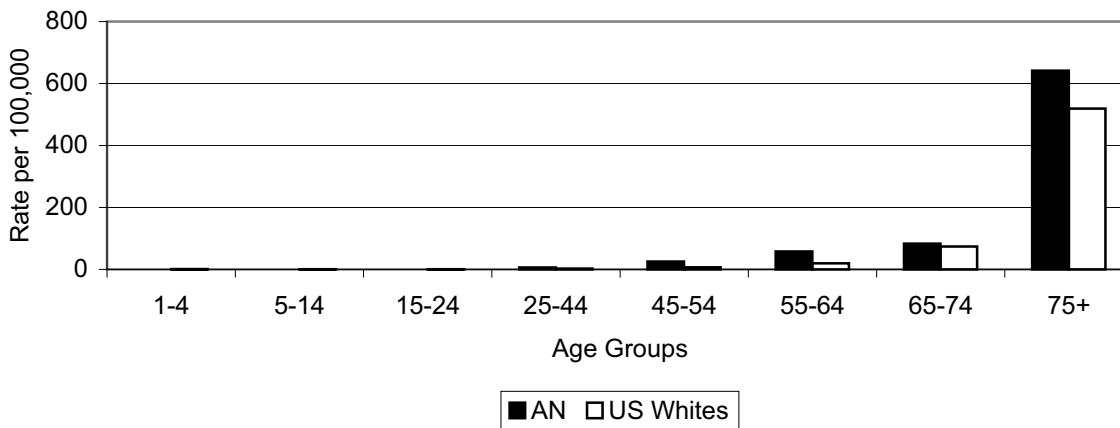
**Age-Specific Mortality Rates for Heart Disease
Alaska Natives 1989-1998 versus US Whites 1993
Males**



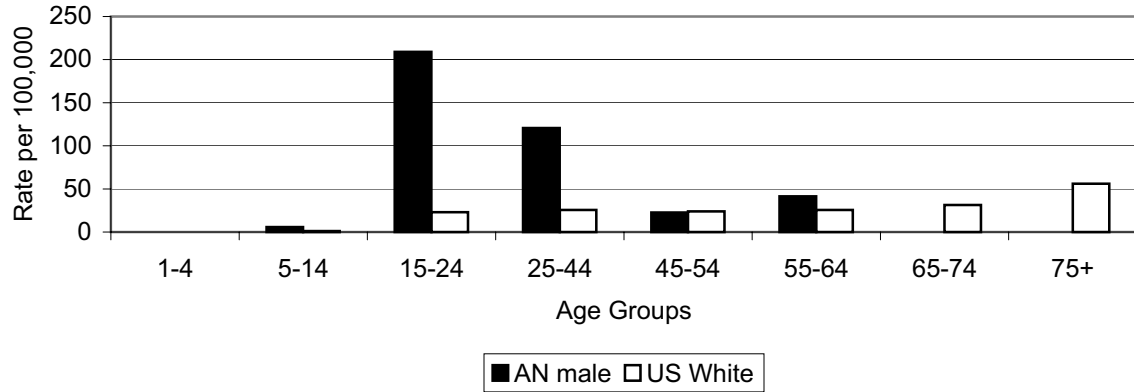
**Age-Specific Mortality Rates for Homicide and Legal Intervention
Alaska Natives 1989-1998 versus US Whites 1993
Males**



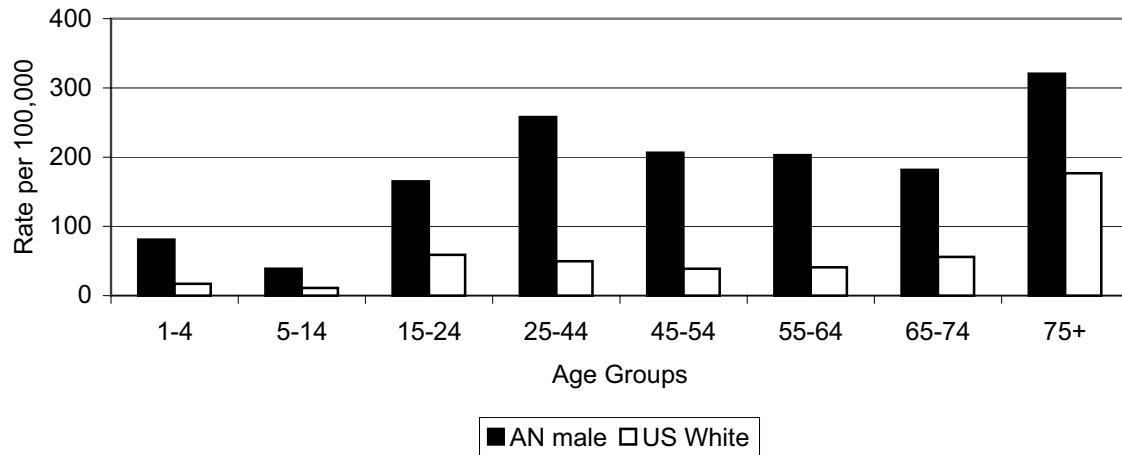
**Age-Specific Mortality Rates for Pneumonia and Influenza
Alaska Natives 1989-1998 versus US Whites 1993
Males**



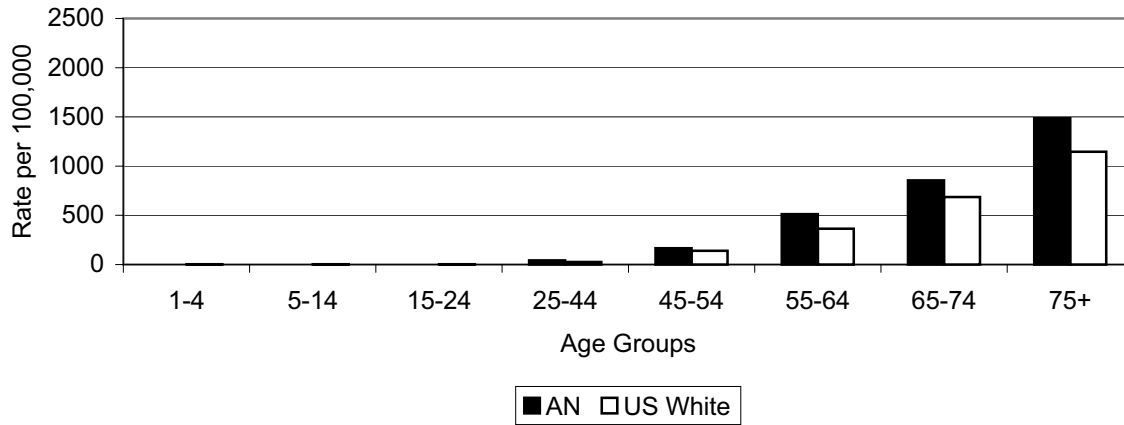
**Age-Specific Mortality Rates for Suicide
Alaska Natives 1989-1998 versus US Whites 1993
Males**



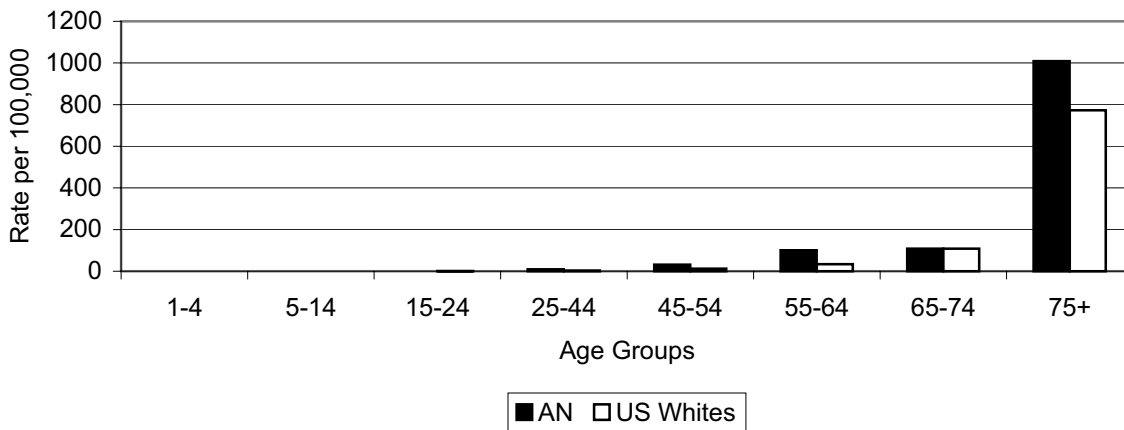
**Age-Specific Mortality Rates for Unintentional Injuries
Alaska Natives 1989-1998 versus US Whites 1993
Males**



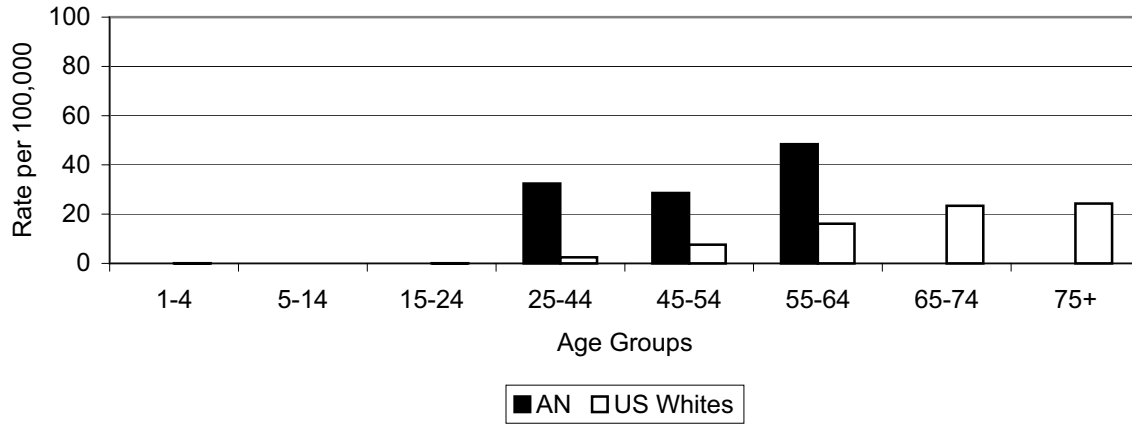
**Age-Specific Mortality Rates for Cancer
Alaska Natives 1989-1998 versus US Whites 1993
Females**



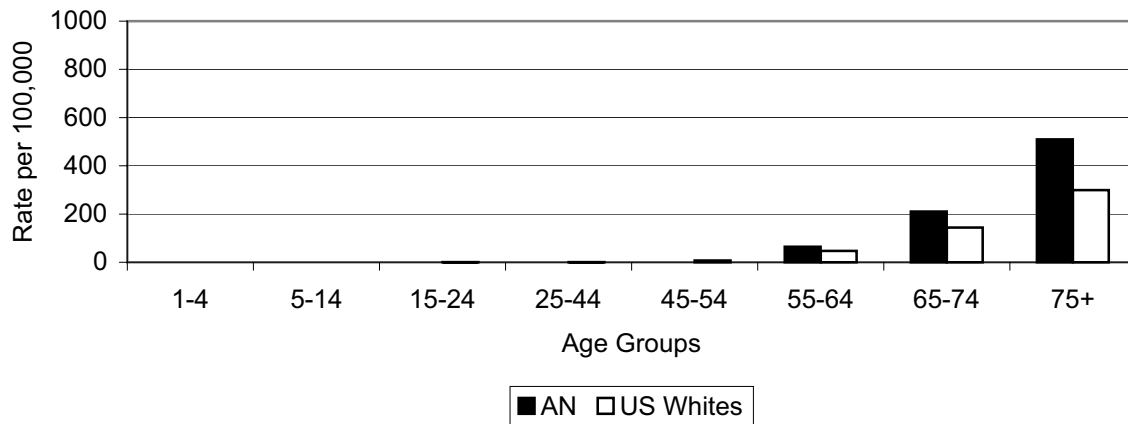
**Age-Specific Mortality Rates for Cerebrovascular Diseases
Alaska Natives 1989-1998 versus US Whites 1993
Females**



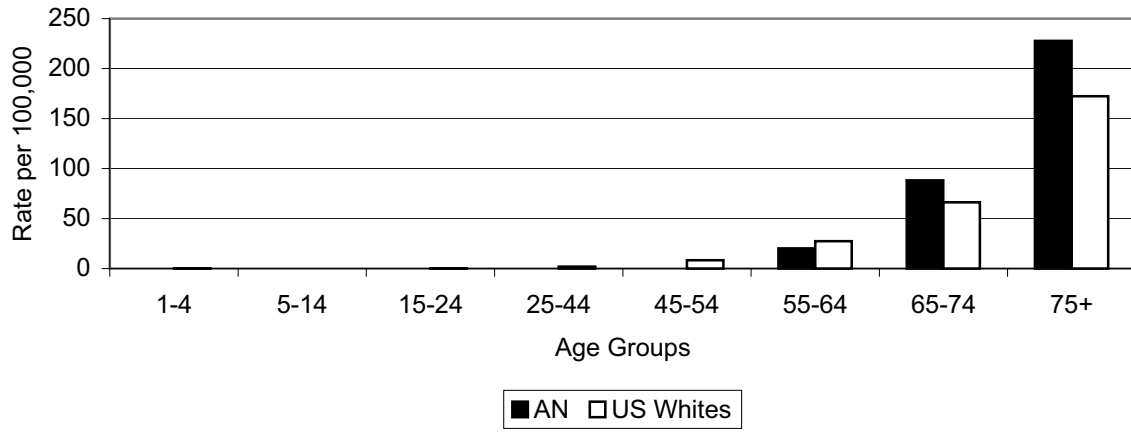
**Age-Specific Mortality Rates for Chronic Liver Disease
Alaska Natives 1989-1998 versus US Whites 1993
Females**



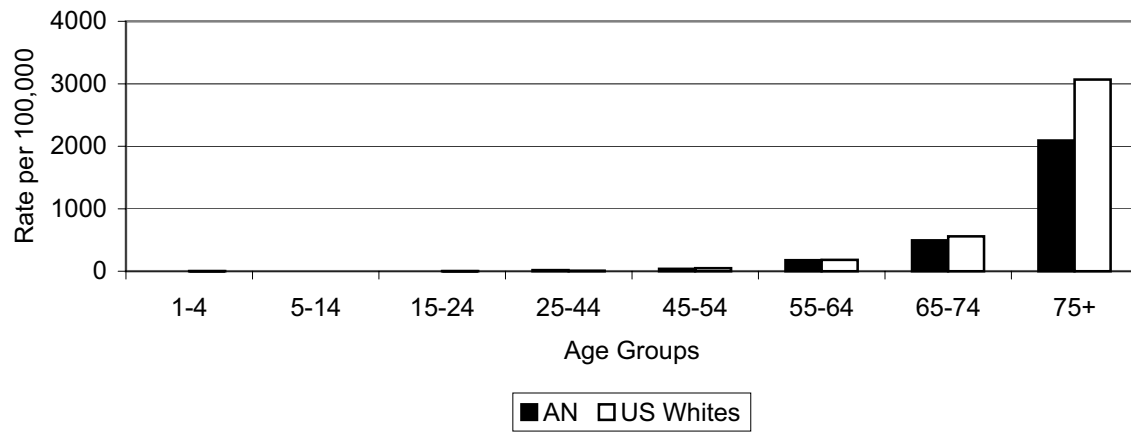
**Age-Specific Mortality Rates for Chronic Obstructive Pulmonary Diseases
Alaska Natives 1989-1998 versus US Whites 1993
Females**



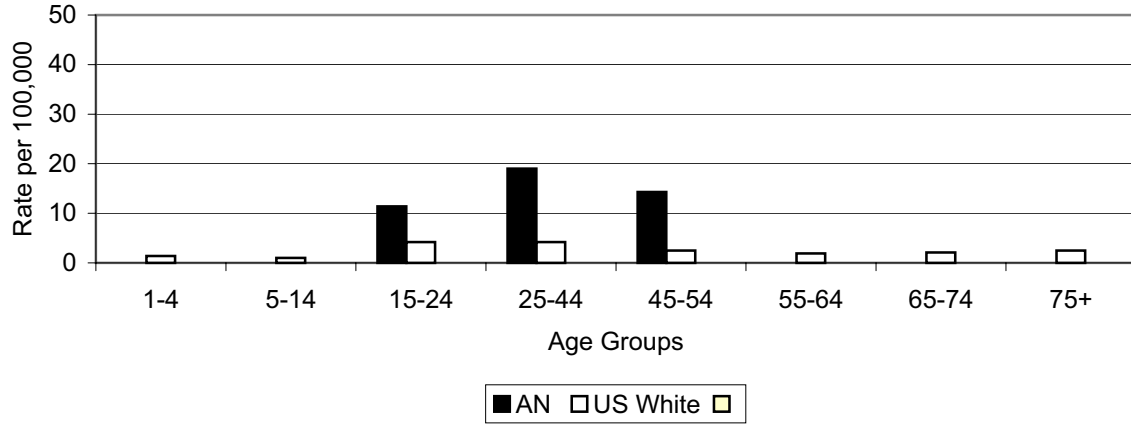
**Age-Specific Mortality Rates for Diabetes Mellitus
Alaska Natives 1989-1998 versus US Whites 1993
Females**



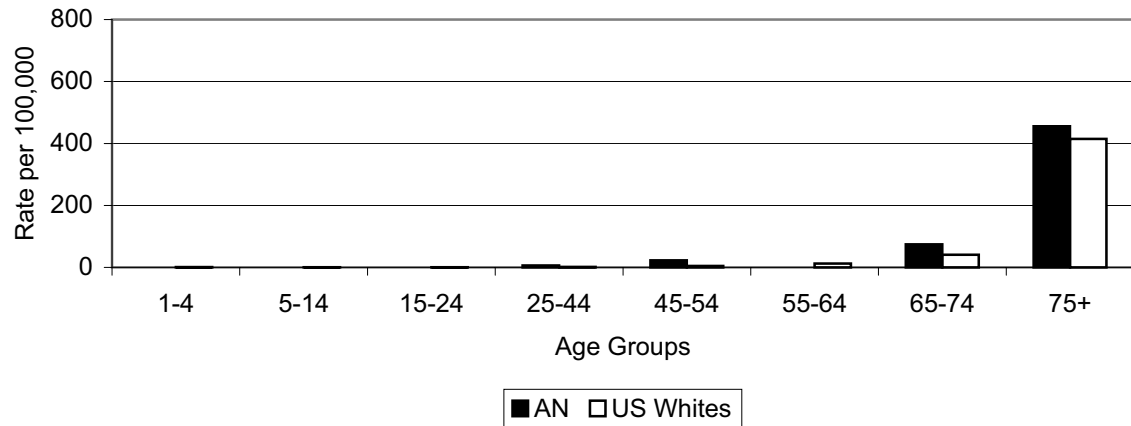
**Age-Specific Mortality Rates for Heart Disease
Alaska Natives 1989-1998 versus US Whites 1993
Females**



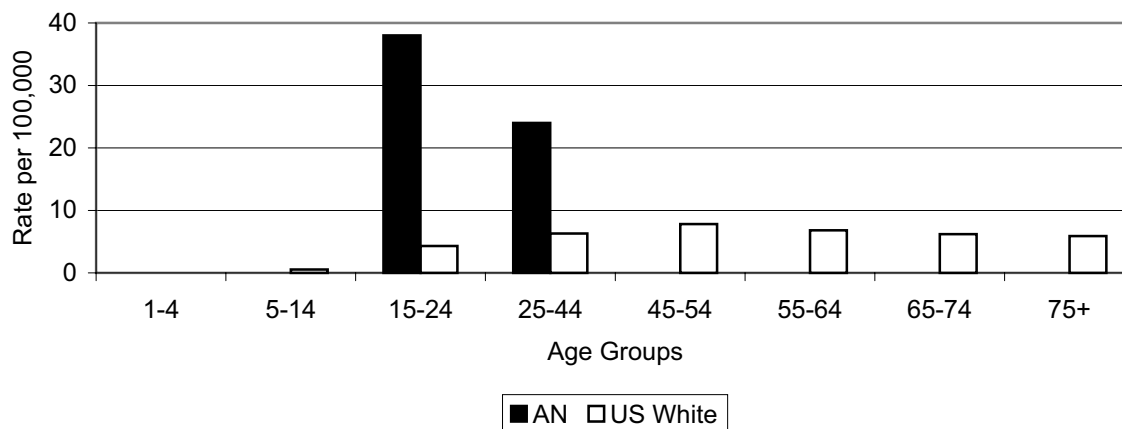
**Age-Specific Mortality Rates for Homicide and Legal Intervention
Alaska Natives 1989-1998 versus US Whites 1993
Females**



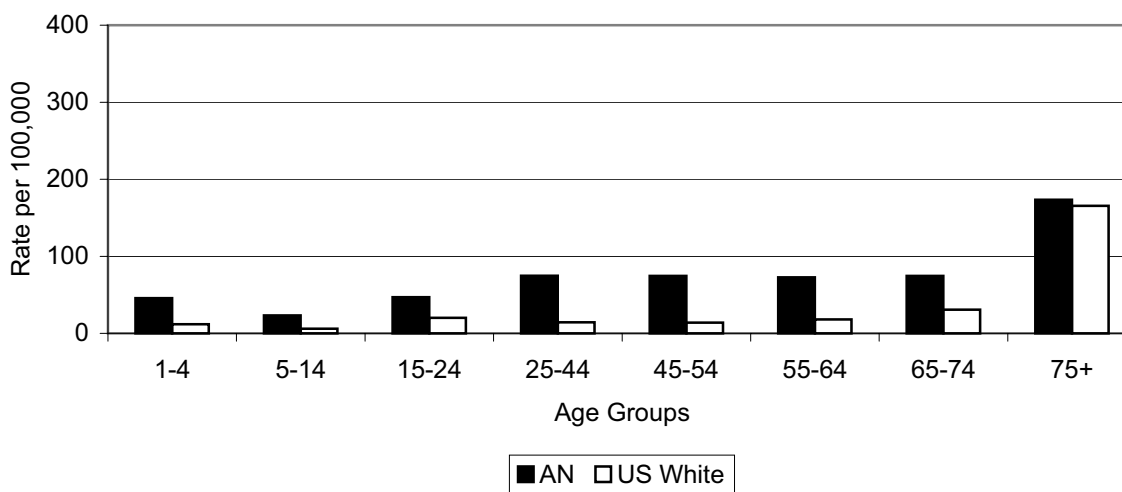
**Age-Specific Mortality Rates for Pneumonia and Influenza
Alaska Natives 1989-1998 versus US Whites 1993
Females**



**Age-Specific Mortality Rates for Suicide
Alaska Natives 1989-1998 versus US Whites 1993
Females**



**Age-Specific Mortality Rates for Unintentional Injuries
Alaska Natives 1989-1998 versus US Whites 1993
Females**



**Age-Specific Rates for Leading Causes of Death
Alaska Natives 1989-1998
Males vs Females**

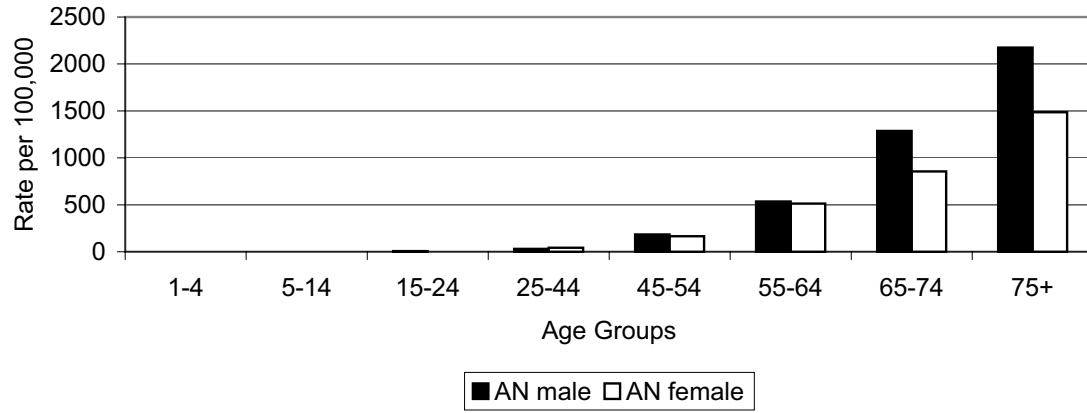
1-4 Years	Male # deaths	Male Rate	95% CI	Female # deaths	Female Rate	95% CI	Rate Ratio
Unintentional Injuries	42	80.9	56.4-105.4	23	45.6	27.0-64.2	1.8
Homicide and Legal Intervention	4	-	-	0	-	-	-
Pneumonia and Influenza	1	-	-	0	-	-	-
Heart Disease	1	-	-	2	-	-	-
Cancer	1	-	-	1	-	-	-
All Other Causes	19	36.6	20.1-53.1	19	37.7	20.7-54.6	1.0
Total	68	131.0	99.9-162.1	45	89.2	63.1-115.2	1.5
Pop	51909			50459			
5-14 Years	Male # deaths	Male Rate	95% CI	Female # deaths	Female Rate	95% CI	Rate Ratio
Unintentional Injuries	40	38.9	26.8-50.9	23	23.2	13.7-32.7	1.7
Suicide	6	5.8	1.2-10.5	4	-	-	-
Homicide and Legal Intervention	4	-	-	2	-	-	-
Cancer	4	-	-	1	-	-	-
Pneumonia and Influenza	1	-	-	1	-	-	-
Chronic Obstructive Pulmonary Diseases	1	-	-	0	-	-	-
All Other Causes	15	14.6	6.5-20.7	14	14.1	6.7-21.5	1.0
Total	71	69.0	53.0-85.1	45	45.4	32.1-58.7	1.5
Pop	102865			99128			
15-24 Years	Male # deaths	Male Rate	95% CI	Female # deaths	Female Rate	95% CI	Rate Ratio
Suicide	171	208.9	177.6-240.2	30	38.0	24.4-51.7	5.5 *
Unintentional Injuries	135	164.9	137.1-192.8	37	46.9	31.8-62.0	3.5 *
Homicide & Legal Intervention	24	29.3	17.6-41.1	9	11.4	4.0-18.9	2.6
Cancer	6	7.3	1.5-13.2	3	-	-	-
Cerebrovascular Diseases	3	-	-	2	-	-	-
Diabetes Mellitus	1	-	-	0	-	-	-
Pneumonia and Influenza	0	-	-	1	-	-	-
Heart Disease	0	-	-	1	-	-	-
Chronic Liver Disease	0	-	-	1	-	-	-
All Other Causes	16	19.5	9.1-27.6	11	14.0	4.8-20.5	1.4
Total	356	434.9	389.7-480.1	94	119.2	95.1-143.3	3.6 *
Pop	81853			78849			

25-44 Years	Male # deaths	Male Rate	95% CI	Female # deaths	Female Rate	95% CI	Rate Ratio
Unintentional Injuries	368	258.0	231.6-284.3	106	74.7	60.5-89.0	3.5 *
Suicide	172	120.6	102.6-138.6	34	24.0	15.9-32.0	5.0 *
Homicide & Legal Intervention	62	43.5	32.6-54.3	27	19.0	11.9-26.2	2.3 *
Cancer	43	30.1	21.1-39.2	60	42.3	31.6-53.0	0.7
Heart Disease	37	25.9	17.6-34.3	24	16.9	10.2-23.7	1.5
Chronic Liver Disease	22	15.4	9.0-21.9	46	32.4	23.1-41.8	0.5 *
Cerebrovascular Diseases	11	7.7	3.2-12.3	13	9.2	4.2-14.1	0.8
Pneumonia and Influenza	9	6.3	2.2-10.4	9	6.3	2.2-10.5	1.0
Diabetes Mellitus	3	-	-	3	-	-	-
Chronic Obstructive Pulmonary Diseases	1	-	-	2	-	-	-
All Other Causes	116	81.3	51.9-78.4	78	55.0	37.8-60.9	1.5
Total	844	591.7	551.8-631.6	402	283.4	255.7-311.1	2.1 *
Pop	142645			141833			
45-54 Years	Male # deaths	Male Rate	95% CI	Female # deaths	Female Rate	95% CI	Rate Ratio
Heart Disease	75	211.9	164.0-259.9	24	68.7	41.2-96.2	3.1 *
Unintentional Injuries	73	206.3	158.9-253.6	26	74.5	45.8-103.1	2.8 *
Cancer	65	183.7	139.0-228.3	58	166.1	123.4-208.9	1.1
Chronic Liver Disease	14	39.6	18.8-60.3	10	28.6	10.9-46.4	1.4
Pneumonia and Influenza	9	25.4	8.8-42.0	8	22.9	7.0-38.8	1.1
Suicide	8	22.6	6.9-38.3	2	-	-	-
Cerebrovascular Disease	7	19.8	5.1-34.4	11	31.5	12.9-50.1	0.6
Homicide and Legal Intervention	6	17.0	3.4-30.5	5	14.3	1.8-26.9	1.2
Chronic Obstructive Pulmonary Diseases	5	14.1	1.7-26.5	1	-	-	-
Diabetes Mellitus	4	-	-	3	-	-	-
All Other Causes	63	178.0	119.2-202.9	69	197.6	71.8-140.1	0.9
Total	329	929.6	829.2-1030.1	190	544.1	466.8-621.5	1.7 *
Pop	35391			34918			
55-64 Years	Male # deaths	Male Rate	95% CI	Female # deaths	Female Rate	95% CI	Rate Ratio
Cancer	129	534.5	442.3-626.8	127	512.7	423.5-601.8	1.0
Heart Disease	107	443.4	359.4-527.4	44	177.6	125.1-230.1	2.5 *
Unintentional Injuries	49	203.0	146.2-259.9	18	72.7	39.1-106.2	2.8 *
Chronic Obstructive Pulmonary	27	111.9	69.7-154.1	16	64.6	32.9-96.2	1.7
Chronic Liver Disease	22	91.2	53.1-129.3	12	48.4	21.0-75.8	1.9
Pneumonia & Influenza	14	58.0	27.6-88.4	3	-	-	-
Cerebrovascular Diseases	11	45.6	18.6-72.5	25	100.9	61.4-140.5	0.5
Diabetes Mellitus	10	41.4	15.8-67.1	5	20.2	2.5-37.9	2.1
Suicide	10	41.4	15.8-67.1	3	-	-	-
Homicide & Legal Intervention	6	24.9	5.0-44.8	1	-	-	-
All Other Causes	79	327.3	229.4-367.2	60	242.2	163.3-280.7	1.4
Total	464	1922.6	1747.7-2097.5	314	1267.5	1127.3-1407.7	1.5 *
Pop	24134			24773			

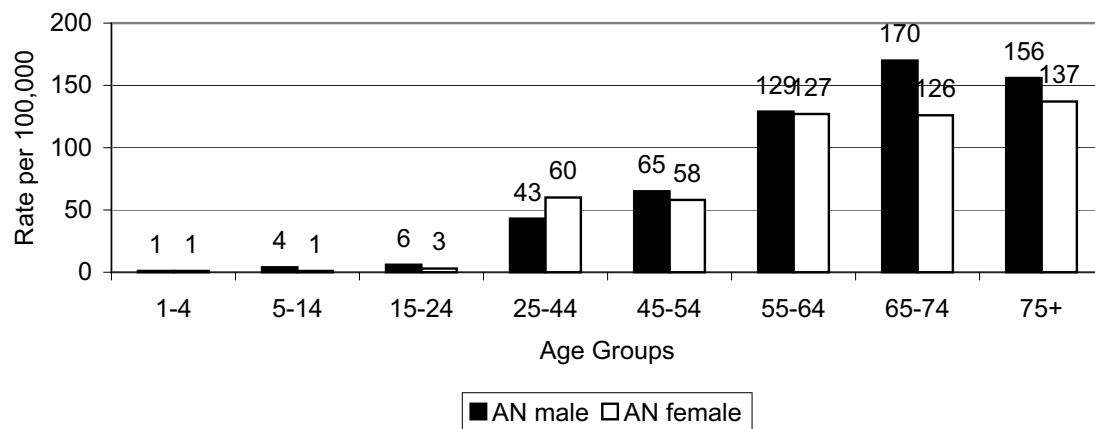
65-74 Years	Male # deaths	Male Rate	95% CI	Female # deaths	Female Rate	95% CI	Rate Ratio
Cancer	170	1286.6	1093.2-1480.0	126	854.9	705.7-1004.2	1.5 *
Heart Disease	161	1218.5	1030.3-1406.7	73	495.3	381.7-608.9	2.5 *
Chronic Obstructive Pulmonary	36	272.5	183.5-361.5	31	210.3	136.3-284.4	1.3
Unintentional Injuries	24	181.6	109.0-254.3	11	74.6	30.5-118.7	2.4
Cerebrovascular Diseases	23	174.1	102.9-245.2	16	108.6	55.4-161.8	1.6
Pneumonia & Influenza	11	83.3	34.1-132.4	11	74.6	30.5-118.7	1.1
Diabetes Mellitus	10	75.7	28.8-122.6	13	88.2	40.3-136.2	0.9
Chronic Liver Disease	9	68.1	23.6-112.6	4	-	-	-
Suicide	3	-	-	2	-	-	-
Homicide and Legal Intervention	2	-	-	2	-	-	-
All Other Causes	93	703.9	479.5-746.5	83	563.2	387.7-616.5	1.2
Total	542	4102.0	3756.7-4447.4	372	2524.1	2267.6-2780.6	1.6 *
Pop	13213			14738			
75+ Years	Male # deaths	Male Rate	95% CI	Female # deaths	Female Rate	95% CI	Rate Ratio
Heart Disease	223	3108.4	2700.5-3516.4	193	2092.8	1797.6-2388.1	1.5 *
Cancer	156	2174.5	1833.3-2515.8	137	1485.6	1236.8-1734.3	1.5 *
Chronic Obstructive Pulmonary	63	878.2	661.3-1095.0	47	509.7	363.9-655.4	1.7 *
Cerebrovascular Disease	51	710.9	515.8-906.0	93	1008.5	803.5-1213.4	0.7
Pneumonia & Influenza	46	641.2	455.9-826.5	42	455.4	317.7-593.2	1.4
Unintentional Injuries	23	320.6	189.6-451.6	16	173.5	88.5-258.5	1.8
Diabetes Mellitus	14	195.1	92.9-297.4	21	227.7	130.3-325.1	0.9
Homicide and Legal Intervention	0	-	-	1	-	-	-
Chronic Liver Disease	2	-	-	1	-	-	-
All Other Causes	171	2383.6	1602.7-2244.6	203	2201.3	1566.3-2120.5	1.1
Total	749	10440.5	9692.8-11188.2	754	8176.1	7592.5-8759.7	1.3 *
Pop	7174			9222			

* 95%CI do not overlap

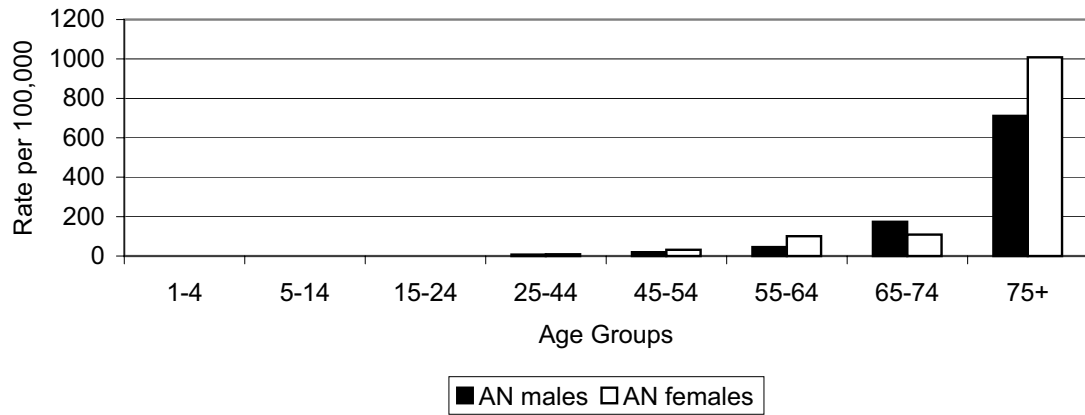
**Age-Specific Mortality Rates for Cancer
Alaska Natives 1989-1998
Males versus Females**



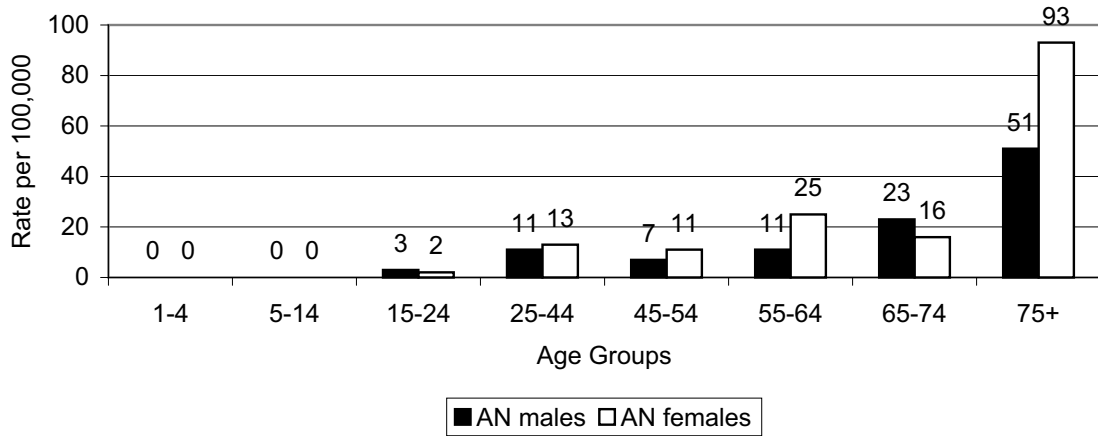
**Age-Specific Numbers of Deaths from Cancer
Alaska Natives 1989-1998
Males versus Females**



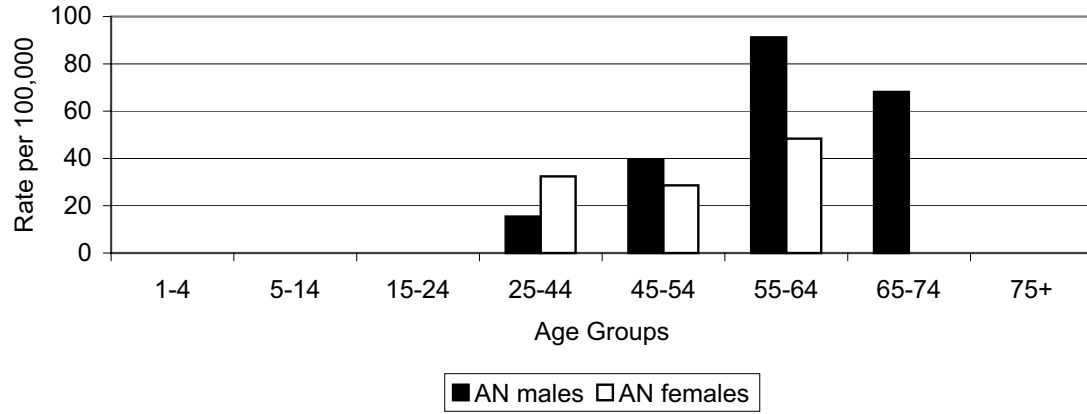
**Age-Specific Mortality Rates for Cerebrovascular Diseases, Alaska
Natives 1989-1998
Males versus Females**



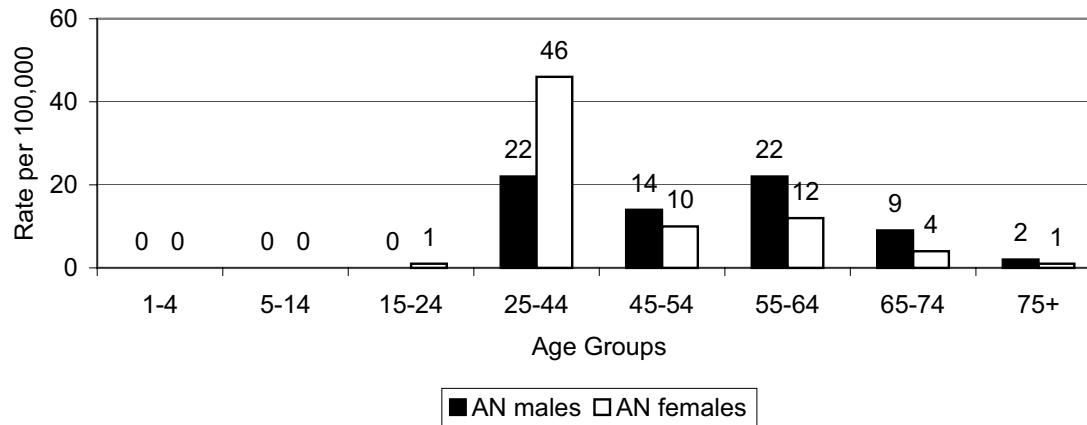
**Age-Specific Numbers of Deaths from Cerebrovascular Diseases, Alaska
Natives 1989-1998
Males versus Females**



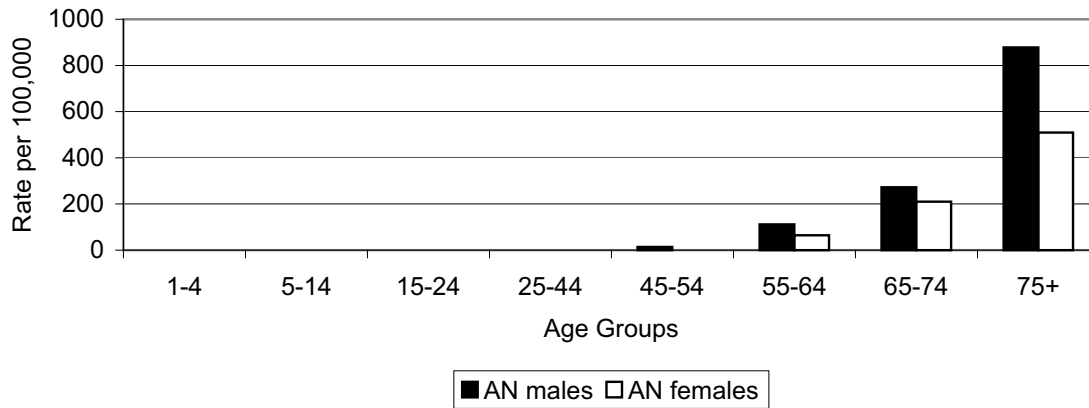
**Age-Specific Mortality Rates for Chronic Liver Disease
Alaska Natives 1989-1998
Males versus Females**



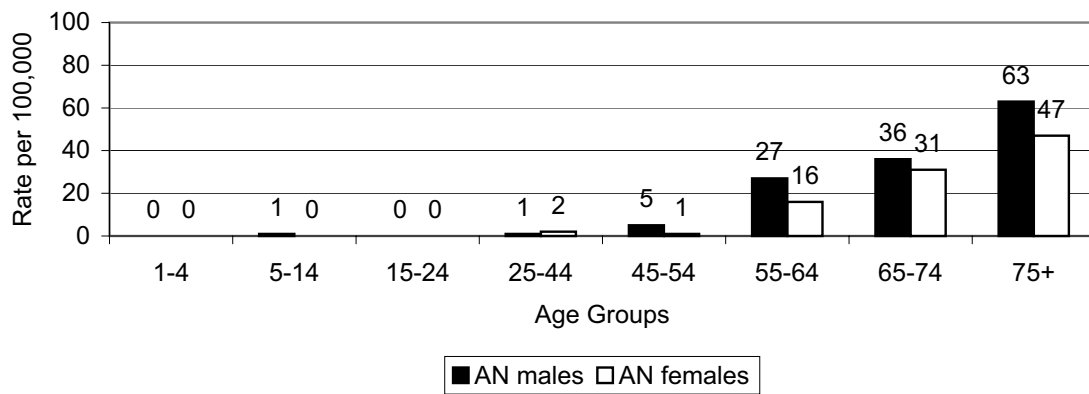
**Age-Specific Numbers of Deaths from Chronic Liver Disease
Alaska Natives 1989-1998
Males versus Females**



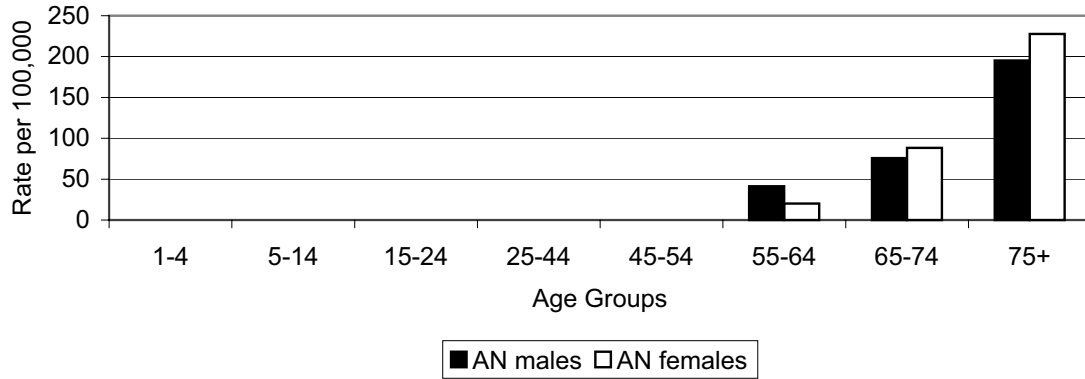
**Age-Specific Mortality Rates for Chronic Obstructive Pulmonary Diseases,
Alaska Natives 1989-1998
Males versus Females**



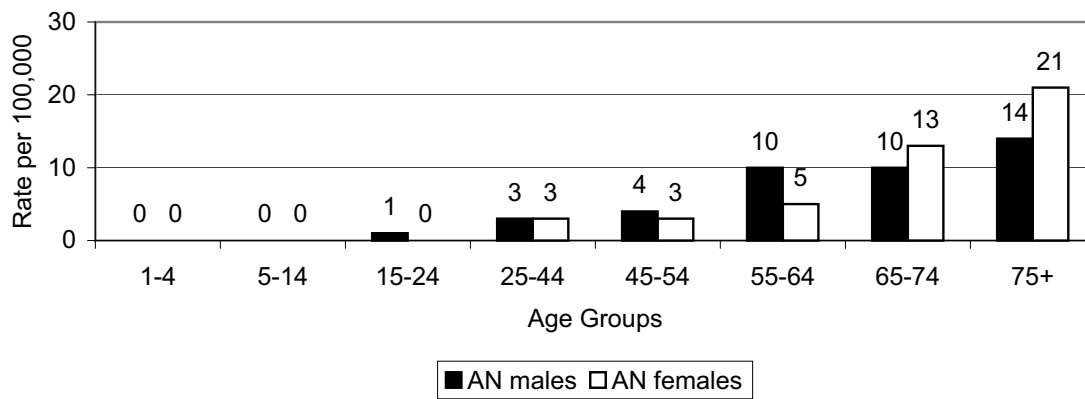
**Age-Specific Numbers of Deaths from Chronic Obstructive Pulmonary
Diseases, Alaska Natives 1989-1998
Males versus Females**



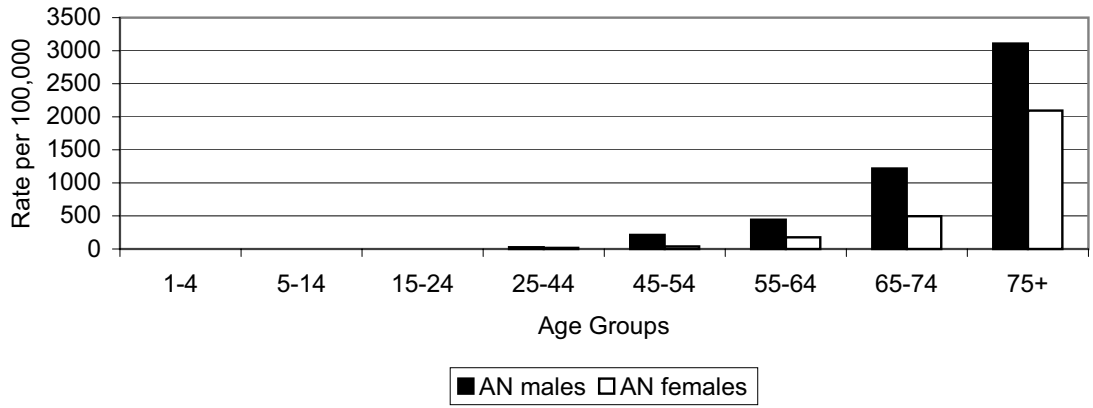
**Age-Specific Mortality Rates for Diabetes Mellitus
Alaska Natives 1989-1998
Males versus Females**



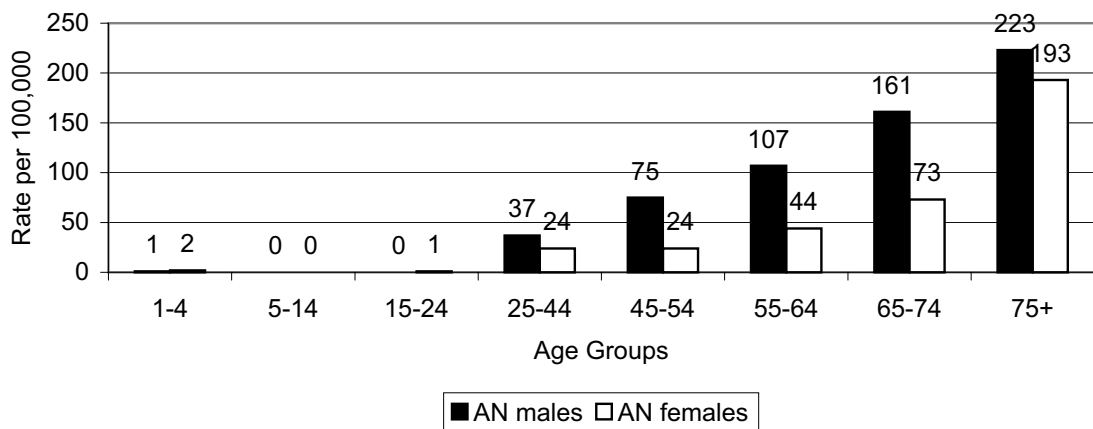
**Age-Specific Numbers of Deaths from Diabetes Mellitus
Alaska Natives 1989-1998
Males versus Females**



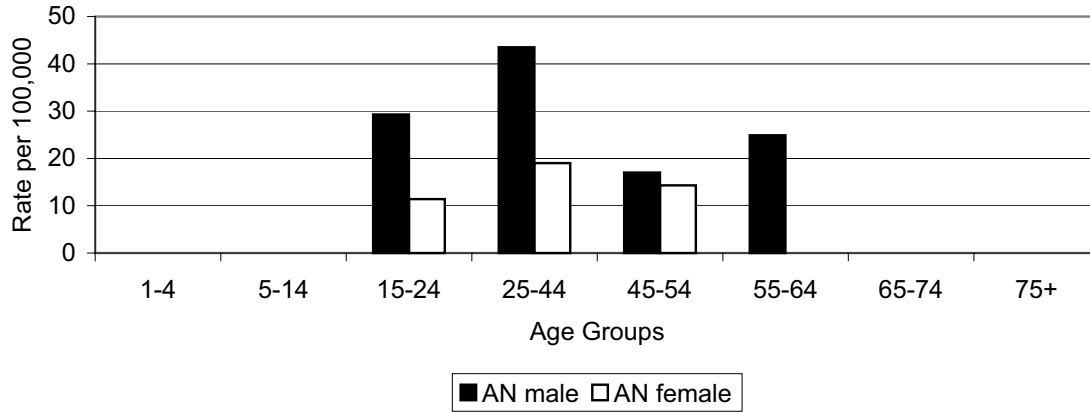
**Age-Specific Mortality Rates for Heart Disease
Alaska Natives 1989-1998
Males versus Females**



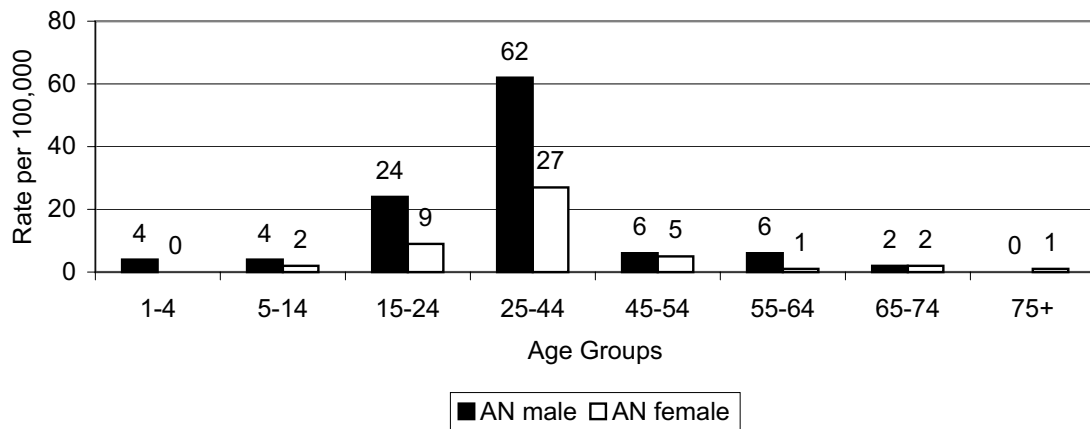
**Age-Specific Numbers of Deaths from Heart Disease
Alaska Natives 1989-1998
Males versus Females**



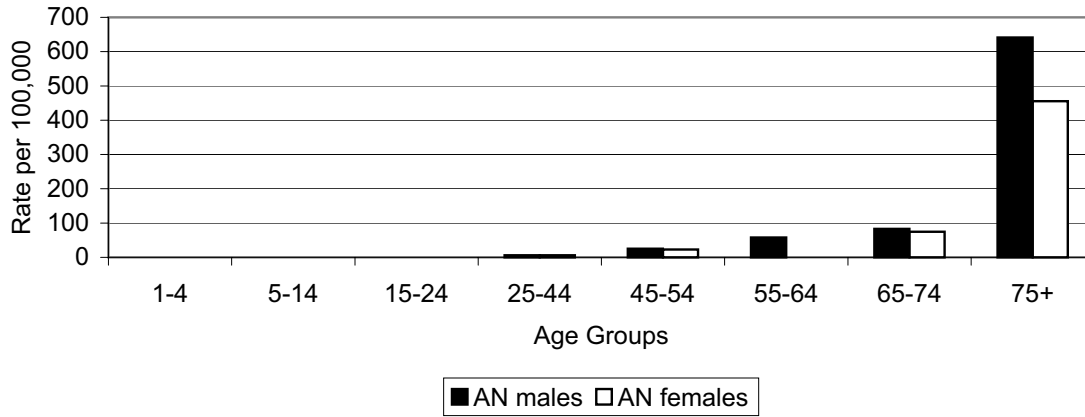
**Age-Specific Mortality Rates for Homicide and Legal Intervention, Alaska
Natives 1989-1998
Males versus Females**



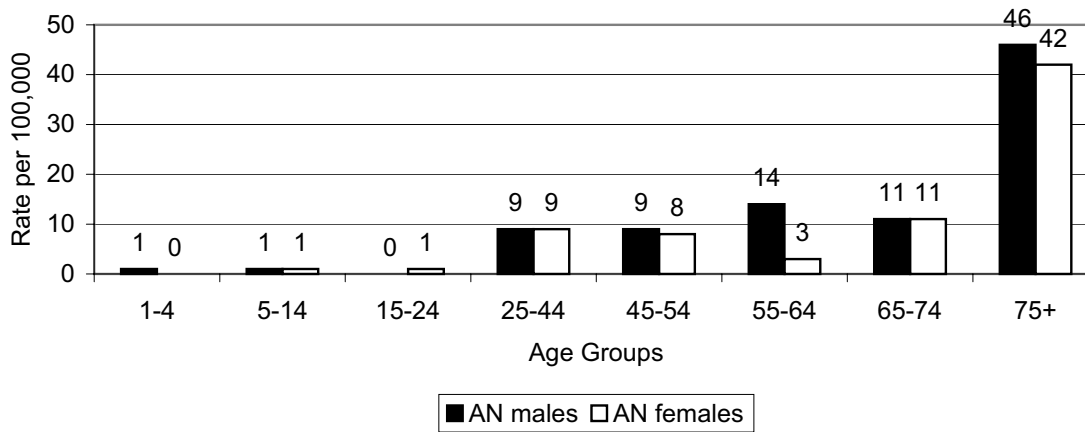
**Age-Specific Numbers of Deaths from Homicide and Legal Intervention,
Alaska Natives 1989-1998
Males versus Females**



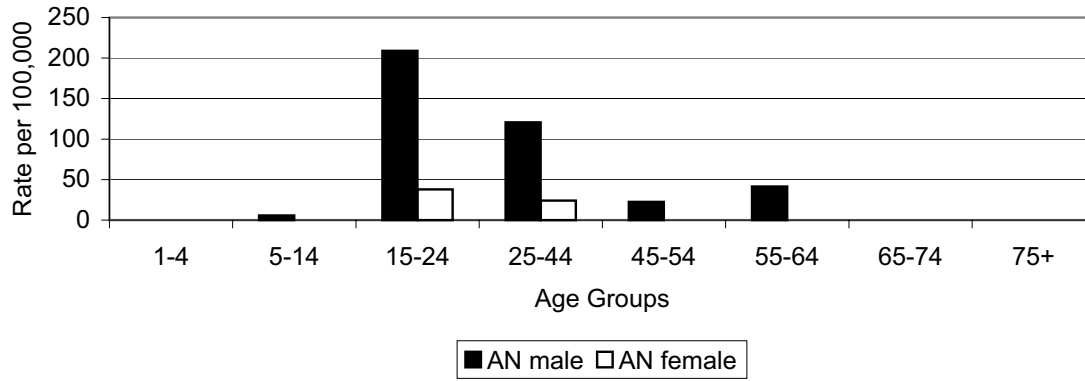
**Age-Specific Mortality Rates for Pneumonia and Influenza
Alaska Natives 1989-1998
Males versus Females**



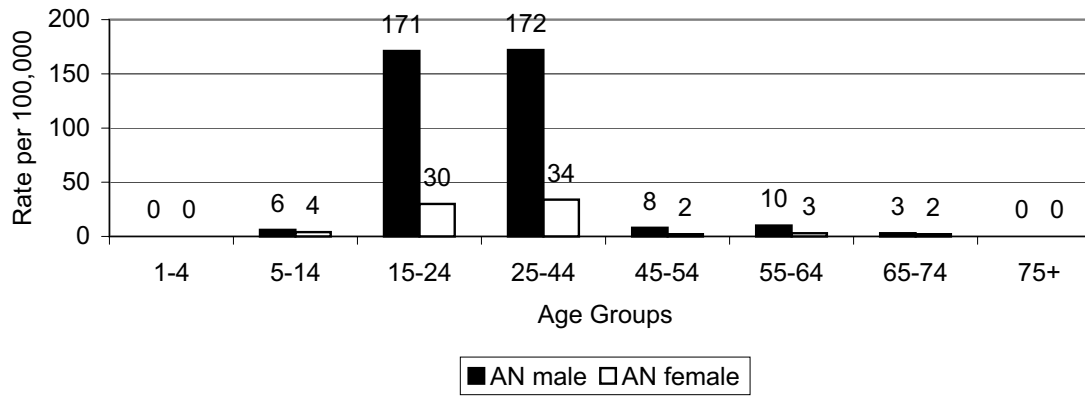
**Age-Specific Numbers of Deaths from Pneumonia and Influenza
Alaska Natives 1989-1998
Males versus Females**



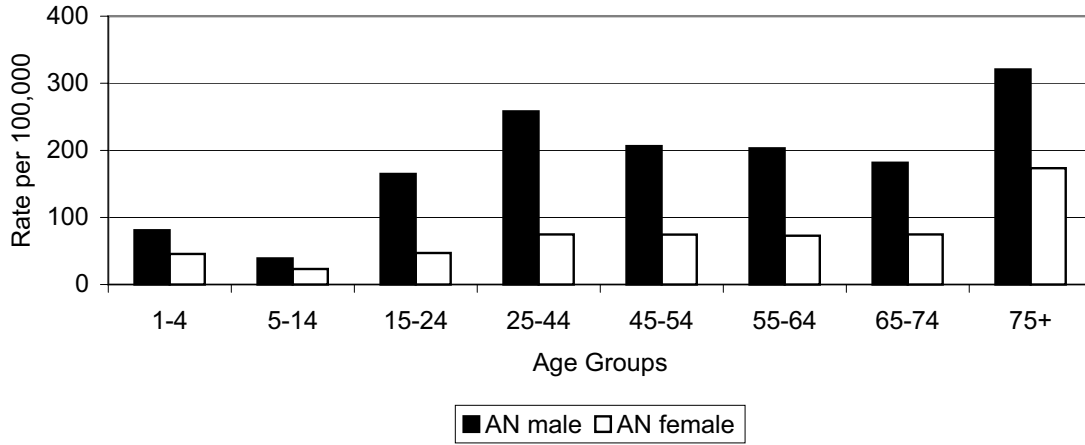
**Age-Specific Mortality Rates for Suicide
Alaska Natives 1989-1998
Males versus Females**



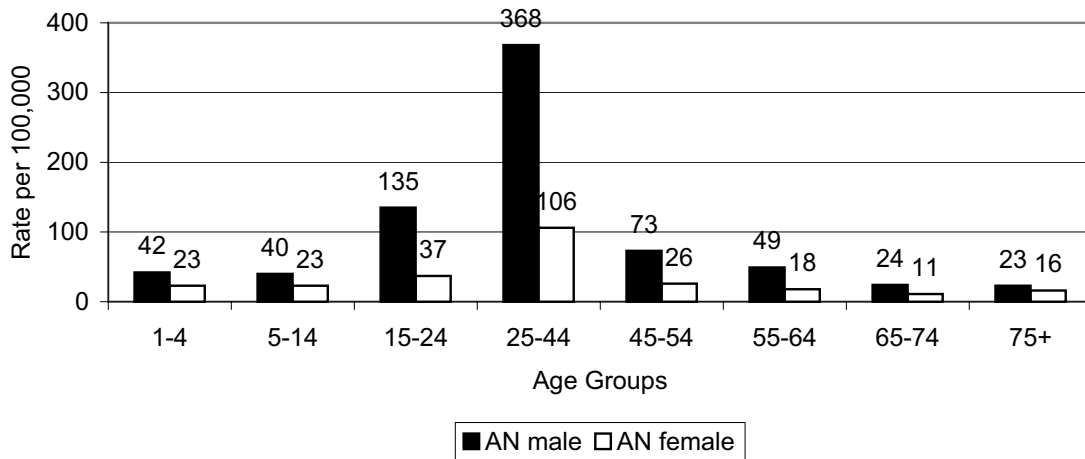
**Age-Specific Numbers of Deaths from Suicide
Alaska Natives 1989-1998
Males versus Females**



**Age-Specific Mortality Rates for Unintentional Injuries
Alaska Natives 1989-1998
Males versus Females**



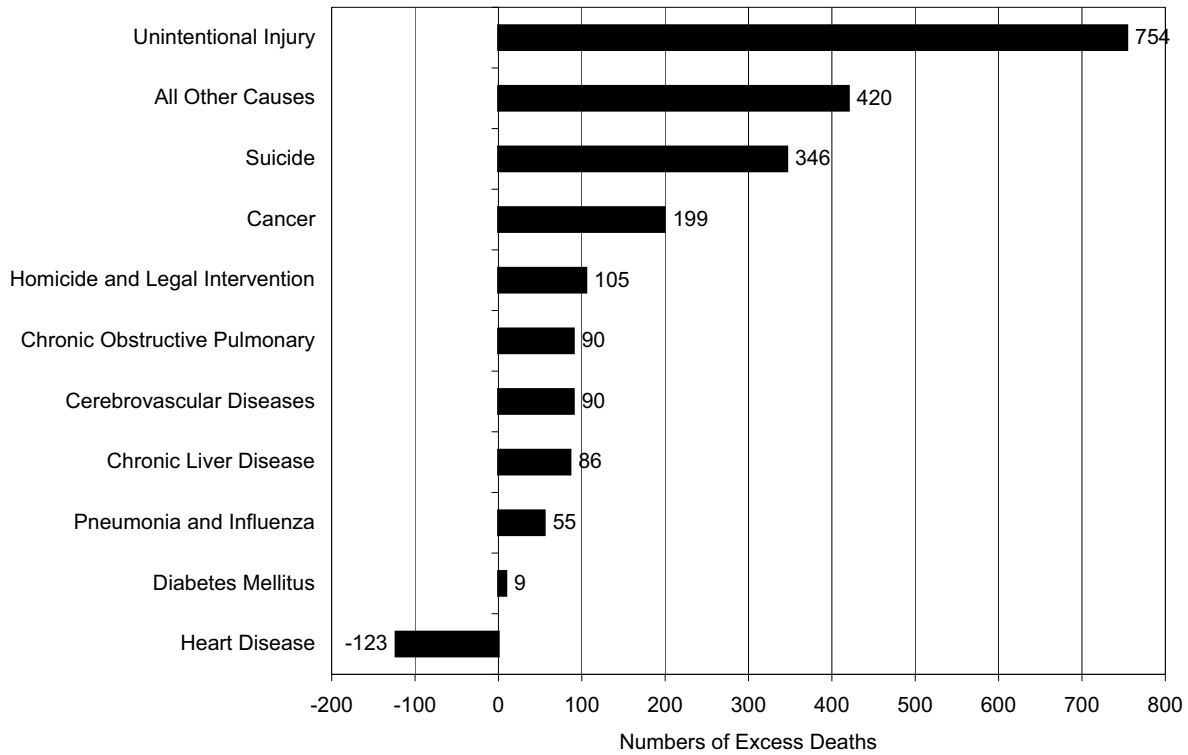
**Age-Specific Numbers of Deaths from Unintentional Injuries
Alaska Natives 1989-1998
Males versus Females**



**Numbers of Excess Deaths for Alaska Natives, 1989-1998
Based on US White Rates, 1993**

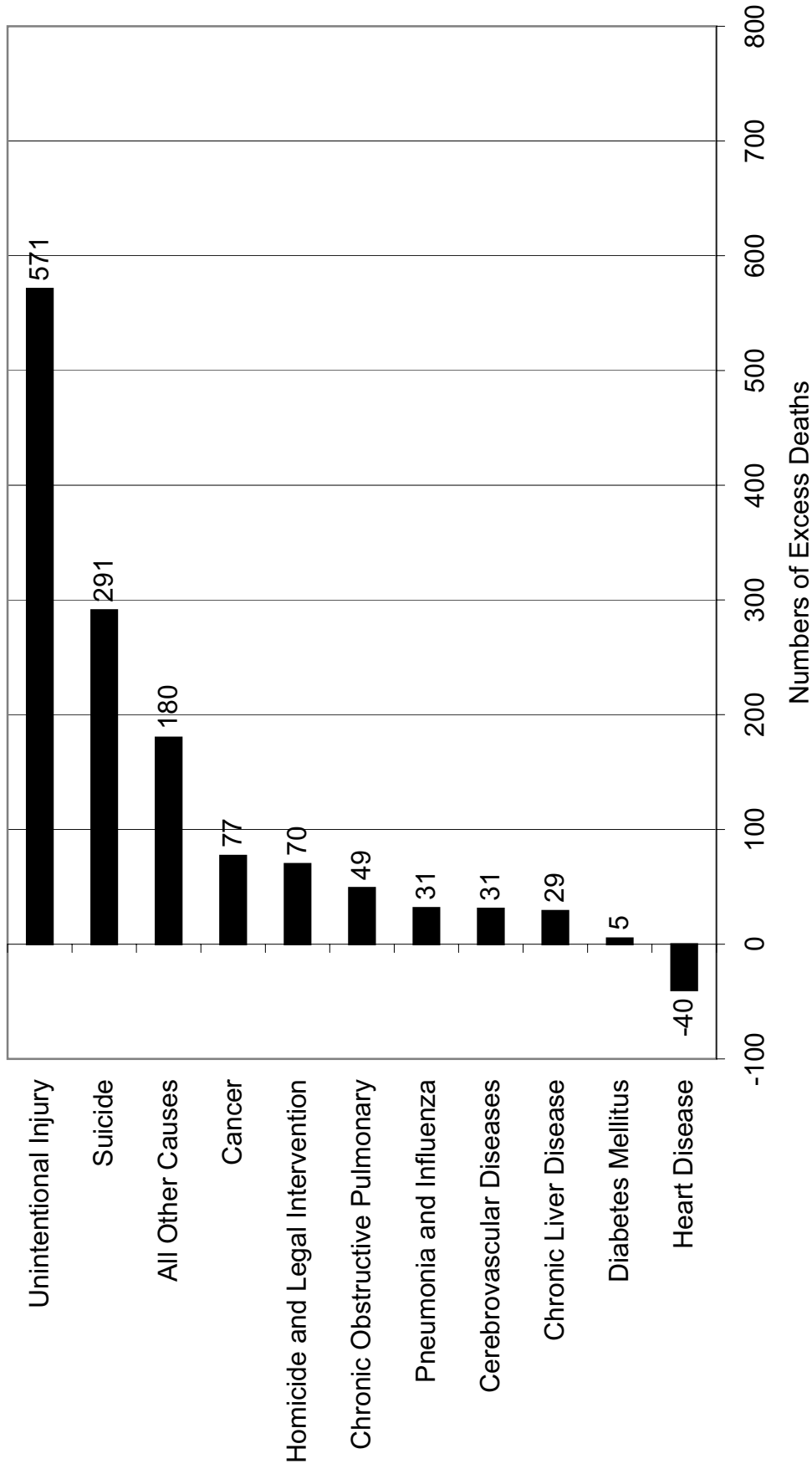
	Total of Male+Female		Male		Female	
	Alaska Native Deaths	Excess Deaths	Alaska Native Deaths	Excess Deaths	Alaska Native Deaths	Excess Deaths
Cancer	1087	199	574	77	513	122
Cerebrovascular Diseases	269	90	106	31	163	59
Chronic Liver Disease	143	86	69	29	74	57
Chronic Obstructive Pulmonary	233	90	135	49	98	41
Diabetes Mellitus	86	9	41	5	45	4
Heart Disease	982	-123	612	-40	370	-83
Homicide and Legal Intervention	160	105	112	70	48	35
Pneumonia and Influenza	182	55	103	31	79	24
Suicide	445	346	370	291	75	55
Unintentional Injury	1033	754	767	571	267	183
All Other Causes	1326	420	717	180	608	240
Total	5946	2031	3606	1294	2340	737

**Excess Deaths for Alaska Natives, 1989-1998, Based on US White Rates,
1993
Males and Females**

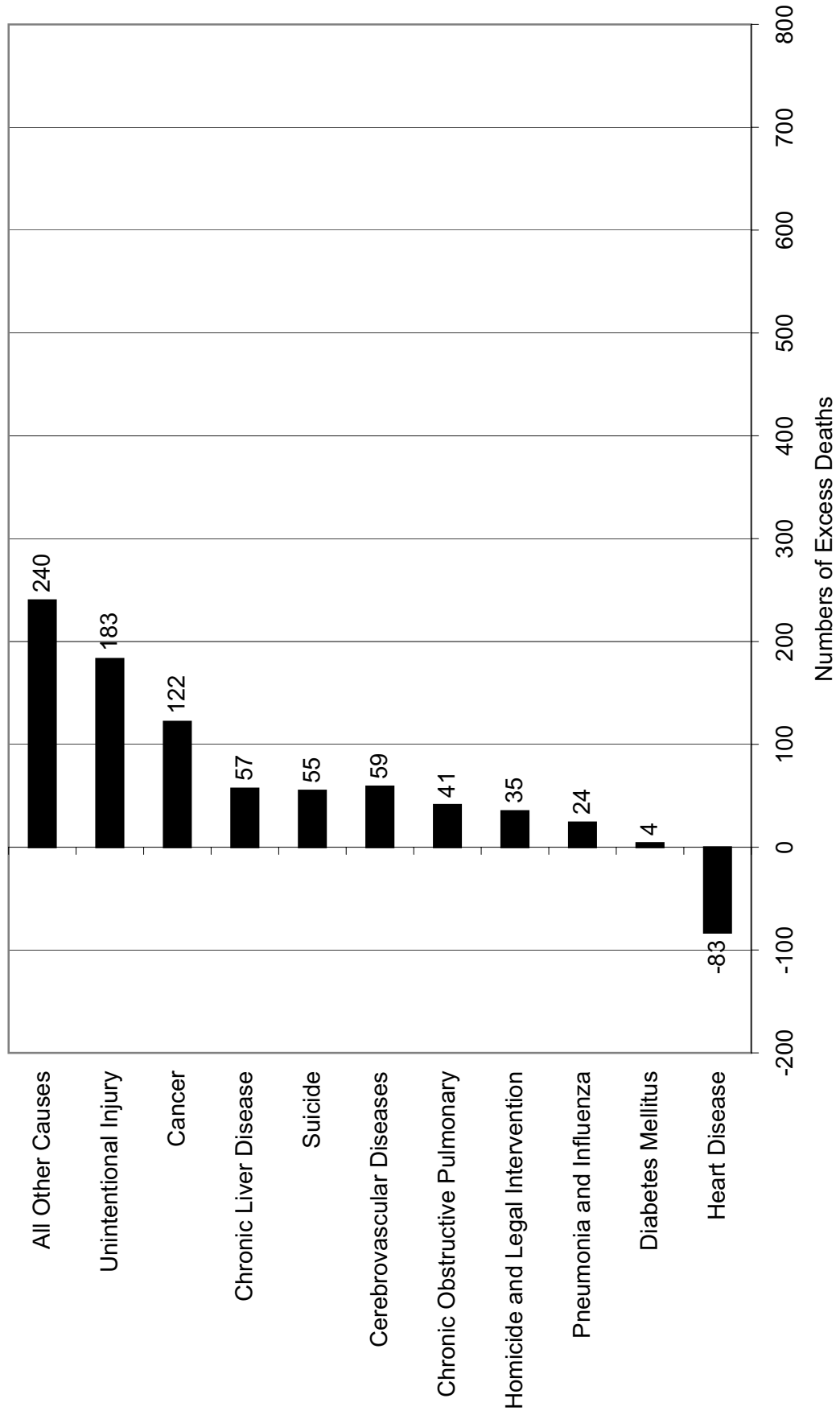


Excess Deaths for Alaska Natives, 1989-1998, as Compared to US White Rates,

**1993
Males**



Excess Deaths for Alaska Natives, 1989-1998, as Compared to US White Rates, 1993
Females



**Age-Specific Numbers of Excess Deaths for Alaska Natives, 1989-1998
as Compared to US White Rates, 1993**

	Total		Male		Female		
	Excess Deaths	Alaska Native Deaths	US White Rate†	Excess Deaths	Alaska Native Deaths	US White Rate	Excess Deaths
1-4 Years							
Cancer	-1	1	3.9	-1	1	2.9	0
Cerebrovascular Diseases	0	0	0.3	0	0	0.2	0
Chronic Liver Disease	0	0	0.1	0	0	-	0
Chronic Obstructive Pulmonary	0	0	0.3	0	0	0.1	0
Diabetes Mellitus	0	0	-	0	0	-	0
Heart Disease	1	1	1.7	0	2	1.3	1
Homicide and Legal Intervention	2	4	2.2	3	0	1.4	-1
Pneumonia and Influenza	-1	1	1.0	0	0	2.0	-1
Suicide	0	0	0.0	0	0	0.0	0
Unintentional Injury	50	42	17.1	33	23	11.9	17
All Other Causes	22	19	17.0	10	19	13.8	12
Total	73	68	42.9	45	45	33.6	28
Population		51,909			50,459		
5-14 Years							
Cancer	-1	4	3.4	1	1	2.7	-2
Cerebrovascular Diseases	0	0	0.2	0	0	0.2	0
Chronic Liver Disease	0	0	-	0	0	-	0
Chronic Obstructive Pulmonary Diseases	1	1	0.3	1	0	0.2	0
Diabetes Mellitus	0	0	0.1	0	0	0.1	0
Heart Disease	-2	0	0.7	-1	0	0.8	-1
Homicide and Legal Intervention	4	4	1.3	3	2	1.0	1
Pneumonia and Influenza	2	1	0.4	1	1	0.4	1
Suicide	8	6	1.2	5	4	0.5	3
Unintentional Injury	46	40	11.0	29	23	6.0	17
All Other Causes	15	15	7.6	6	14	5.4	9
Total	73	71	25.2	45	45	17.3	28
Population		102,865			99,128		
15-24 Years							
Cancer	2	6	5.4	2	3	4.0	0
Cerebrovascular Disease	4	3	0.5	3	2	0.6	1
Chronic Liver Disease	0	0	0.1	0	1	0.1	0
Chronic Obstructive Lung	-1	0	0.5	-1	0	0.3	0
Diabetes Mellitus	1	1	0.3	1	0	0.2	0
Heart Disease	-2	0	2.8	-2	1	1.6	0
Homicide and Legal Intervention	16	24	17.1	10	9	4.2	6
Pneumonia and Influenza	0	0	0.6	-1	1	0.6	1
Suicide	179	171	23.1	152	30	4.3	27
Unintentional Injury	108	135	58.9	87	37	20.1	21
All Other Causes	8	16	13.7	5	10	8.4	3
Total	314	356	123.0	255	94	44.4	59
Population		81,853			78,849		

	Total		Male		Female		
	Excess Deaths	Alaska Native Deaths	US White Rate†	Excess Deaths	Alaska Native Deaths	US White Rate	Excess Deaths
25-44 Years							
Cancer	31	43	23.6	9	60	26.8	22
Cerebrovascular Disease	15	11	3.5	6	13	2.8	9
Chronic Liver Disease	54	22	7.2	12	46	2.5	42
Chronic Obstructive Pulmonary Diseases	2	1	0.2	1	2	1.0	1
Diabetes Mellitus	-1	3	2.8	-1	3	2.0	0
Heart Disease	13	37	25.4	1	24	8.7	12
Homicide and Legal Intervention	66	62	12.3	45	27	4.2	21
Pneumonia and Influenza	12	9	2.8	5	9	1.6	7
Suicide	160	172	25.7	135	34	6.3	25
Unintentional Injury	383	368	49.6	297	106	14.3	86
All other Causes	52	116	78.1	5	78	21.4	47
Total	787	844	231.2	515	402	91.5	272
Population		142,645			141,833		
45-54 Years							
Cancer	25	65	139.0	16	58	140.2	9
Heart Disease	25	75	159.9	18	24	47.5	7
Cerebrovascular Disease	9	7	14.9	2	11	12.6	7
Chronic Liver Disease	13	14	22.9	6	10	7.6	7
Chronic Obstructive Pulmonary	0	5	9.0	2	1	7.6	-2
Diabetes Mellitus	0	4	11.8	0	3	8.3	0
Homicide and Legal Intervention	7	6	7.8	3	5	2.5	4
Pneumonia and Influenza	13	9	6.7	7	8	4.4	6
Suicide	-1	8	23.9	0	2	7.8	-1
Unintentional Injury	80	73	38.8	59	26	14.0	21
All Other Causes	55	63	99.2	28	42	44.2	27
Total	226	329	533.9	141	190	296.7	85
Population		35,391			34,918		
55-64 Years							
Cancer	49	129	486.0	12	127	363.4	37
Cerebrovascular Disease	17	11	44.1	0	25	34.1	17
Chronic Liver Disease	21	22	37.5	13	12	16.1	8
Chronic Obstructive Pulmonary	17	27	58.5	13	16	47.0	4
Diabetes Mellitus	0	10	33.4	2	5	27.4	-2
Heart Disease	-9	107	475.6	-8	44	181.7	-1
Homicide and Legal Intervention	6	6	5.2	5	1	1.9	1
Pneumonia and Influenza	9	14	19.8	9	3	12.4	0
Suicide	5	10	25.7	4	3	6.8	1
Unintentional Injury	53	49	40.8	39	18	18.0	14
All Other Causes	73	79	168.3	38	60	102.0	35
Total	240	464	1394.9	127	314	810.8	113
Population		24,134			24,773		

	Total		Male		Female		
	Excess Deaths	Alaska Native Deaths	US White Rate†	Excess Deaths	Alaska Native Deaths	US White Rate	Excess Deaths
65-74 Years							
Cancer	52	170	1084.2	27	126	686.2	25
Cerebrovascular Disease	4	23	145.8	4	16	108.5	0
Chronic Liver Disease	4	9	44.9	3	4	23.4	1
Chronic Obstructive Pulmonary	18	36	213.3	8	31	143.8	10
Diabetes Mellitus	3	10	78.6	0	13	66.2	3
Heart Disease	-1	161	1154.6	8	73	557.4	-9
Homicide and Legal Intervention	3	2	6.2	1	2	2.1	2
Pneumonia and Influenza	6	11	74.1	1	11	40.7	5
Suicide	0	3	31.4	-1	2	6.2	1
Unintentional Injury	23	24	56.0	17	11	30.7	6
All Other Causes	81	93	417.4	38	83	273.0	43
Total	193	542	3306.5	106	372	1938.2	87
Population		13,213			14,738		
75+ Years							
Cancer	42	156	2026.4	11	137	1145.4	31
Cerebrovascular Disease	25	51	707.2	0	96	772.7	25
Chronic Liver Disease	-2	2	42.5	-1	1	24.3	-1
Chronic Obstructive Pulmonary	40	64	598.4	21	47	299.3	19
Diabetes Mellitus	6	14	177.4	1	21	172.3	5
Heart Disease	-123	225	3666.7	-38	198	3068.9	-85
Homicide and Legal Intervention	1	0	3.3	0	1	2.5	1
Pneumonia and Influenza	14	46	519.3	9	43	414.5	5
Suicide	-5	0	56.1	-4	0	5.9	-1
Unintentional Injury	11	23	176.8	10	16	165.6	1
All Other Causes	114	168	1646.0	50	196	1433.3	64
Total	123	749	9620.1	59	756	7498.8	64
Population		7,174			9,222		

†Rate per 100,000 population.

Ranking of Leading Causes of Death for Each Service Unit

Anchorage Service Unit

Cause of Death	% Deaths
1. Cancer	19.8%
2. Heart Disease	15.8%
3. Unintentional Injuries	15.3%
4. Cerebrovascular Disease	5.2%
5. Suicide	4.5%
6. Chronic Liver Disease	4.0%
7. Chronic Obstructive Pulmonary	3.9%
8. Homicide and Legal Intervention	3.6%
9. Pneumonia and Influenza	2.5%
10. Diabetes	1.7%
All Other Causes	23.7%
Total - All Causes	100.0%

Barrow Service Unit

Cause of Death	% Deaths
1. Cancer	20.6%
2. Unintentional Injuries	18.5%
3. Heart Disease	16.9%
4. Suicide	8.2%
5. Chronic Obstructive Pulmonary	5.8%
6. Homicide and Legal Intervention	4.5%
7. Cerebrovascular Disease	2.5%
8. Diabetes	1.6%
9. Chronic Liver Disease	1.2%
10. Pneumonia and Influenza	0.8%
All Other Causes	19.3%
Total - All Causes	100.0%

Bristol Bay Service Unit

Cause of Death	% Deaths
1. Unintentional Injuries	21.3%
2. Cancer	16.9%
3. Heart Disease	15.6%
4. Chronic Obstructive Pulmonary	6.7%
5. Suicide	6.4%
6. Cerebrovascular Disease	5.1%
7. Pneumonia and Influenza	2.5%
8. Homicide and Legal Intervention	2.2%
9. Diabetes	1.9%
10. Chronic Liver Disease	1.0%
All Other Causes	20.4%
Total - All Causes	100.0%

Interior Service Unit

Cause of Death	% Deaths
1. Cancer	17.3%
2. Heart Disease	16.9%
3. Unintentional Injuries	16.9%
4. Suicide	9.4%
5. Homicide and Legal Intervention	4.3%
6. Cerebrovascular Disease	3.9%
7. Pneumonia and Influenza	3.5%
8. Chronic Obstructive Pulmonary	2.3%
9. Chronic Liver Disease	2.1%
10. Diabetes	1.7%
All Other Causes	21.6%
Total - All Causes	100.0%

Kotzebue Service Unit

Cause of Death	% Deaths
1. Unintentional Injuries	20.4%
2. Cancer	16.7%
3. Heart Disease	16.0%
4. Suicide	11.9%
5. Pneumonia and Influenza	4.4%
6. Cerebrovascular Disease	4.1%
7. Chronic Obstructive Pulmonary	3.6%
8. Chronic Liver Disease	1.2%
9. Diabetes	1.2%
10. Homicide and Legal Intervention	1.2%
All Other Causes	19.2%
Total - All Causes	100.0%

Mt. Edgecumbe Service Unit

Cause of Death	% Deaths
1. Heart Disease	22.8%
2. Cancer	17.4%
3. Unintentional Injuries	13.6%
4. Suicide	4.9%
5. Cerebrovascular Disease	4.4%
6. Chronic Liver Disease	3.5%
7. Pneumonia and Influenza	3.4%
8. Chronic Obstructive Pulmonary	3.3%
9. Diabetes	2.5%
10. Homicide and Legal Intervention	0.9%
All Other Causes	23.3%
Total - All Causes	100.0%

Norton Sound Service Unit

Cause of Death	% Deaths
1. Cancer	17.0%
2. Unintentional Injuries	17.0%
3. Heart Disease	16.8%
4. Suicide	10.1%
5. Cerebrovascular Disease	4.9%
6. Chronic Obstructive Pulmonary	4.9%
7. Pneumonia and Influenza	2.2%
8. Homicide and Legal Intervention	1.7%
9. Chronic Liver Disease	1.5%
10. Diabetes	0.2%
All Other Causes	23.6%
Total - All Causes	100.0%

Yukon Kuskokwim Service Unit

Cause of Death	% Deaths
1. Unintentional Injuries	21.3%
2. Cancer	18.2%
3. Heart Disease	13.0%
4. Suicide	10.1%
5. Cerebrovascular Disease	4.1%
6. Chronic Obstructive Pulmonary	4.1%
7. Pneumonia and Influenza	4.0%
8. Homicide and Legal Intervention	2.2%
9. Chronic Liver Disease	0.7%
10. Diabetes	0.4%
All Other Causes	21.8%
Total - All Causes	100.0%

Alaska Native Total

Cause of Death	% Deaths
1. Cancer	18.3%
2. Unintentional Injuries	17.4%
3. Heart Disease	16.5%
4. Suicide	7.5%
5. Cerebrovascular Disease	4.5%
6. Chronic Obstructive Pulmonary	3.9%
7. Pneumonia and Influenza	3.1%
8. Homicide and Legal Intervention	2.7%
9. Chronic Liver Disease	2.4%
10. Diabetes	1.4%
All Other Causes	22.3%
Total - All Causes	100.0%

Alaska Natives 1989-1998
Age-Adjusted Rates By Cause of Death
By Service Unit
Males and Females Combined

Cause of Death	Anchorage	Barrow	Bristol Bay	Interior	Kotzebue	Mount Edgumbe	Norton Sound	Yukon-Kuskokwim	Alaska Natives
Cancer	165.7	183.9	154.8	166.3	146.6	136.4	188.8	149.2	163.7
Cerebrovascular Disease	38.9	18.2	35.7	32.4	34.0	31.5	48.3	31.0	36.4
Chronic Liver Disease	31.0	7.5	8.6	19.0	11.3	26.5	13.3	4.1	19.6
Chronic Obstructive Pulmonary	32.4	50.1	61.0	22.4	30.8	23.4	53.3	31.1	34.4
Diabetes	13.6	14.3	17.6	14.9	11.2	19.4	1.9	3.7	12.5
Heart Disease	128.8	141.3	145.6	156.1	136.5	175.2	178.8	102.3	143.4
Homicide and Legal Intervention	22.3	30.9	15.7	31.1	7.7	5.2	14.6	13.5	18
Pneumonia and Influenza	18.3	5.9	18.6	30.8	29.7	24.1	22.0	27.9	23.7
Suicide	26.8	54.3	42.8	71.5	80.5	29.6	83.4	60.9	49.7
Unintentional Injuries	100.9	115.6	144.5	125.8	136.4	85.5	139.8	129.4	118.6
All Other Causes	161.4	136.5	149.9	175.2	128.5	153.8	206.5	131.7	159.8
Total - All Causes	740.1	758.5	794.8	845.5	753.2	710.6	950.7	684.8	779.8

Age-Adjusted Rates By Cause of Death
By Service Unit
Males

Cause of Death	Anchorage	Barrow	Bristol Bay	Interior	Kotzebue	Mount Edgumbe	Norton Sound	Yukon-Kuskokwim	Alaska Natives
Cancer	171.1	241.0	179.5	153.7	187.7	146.6	240.5	179.8	181.7
Cerebrovascular Disease	29.3	31.3	14.6	30.8	30.2	21.7	50.8	33.0	31.7
Chronic Liver Disease	31.5	10.0	11.0	17.5	14.7	33.6	10.3	2.0	20.5
Chronic Obstructive Pulmonary	3.8	74.2	70.0	29.7	31.6	25.4	65.1	43.6	42.2
Diabetes	13.4	-	18.7	18.9	4.9	25.9	3.8	3.2	12.9
Heart Disease	151.3	210.4	227.1	198.2	179.0	240.4	237.0	163.9	191.2
Homicide and Legal Intervention	28.9	38.6	25.0	43.1	3.1	6.0	20.7	24.3	24.8
Pneumonia and Influenza	20.6	6.7	17.0	30.4	42.9	28.1	26.7	38.2	28.2
Suicide	45.1	108.5	61.8	116.1	144.1	42.8	145.3	101.1	82.4
Unintentional Injuries	136.3	149.2	230.9	184.4	199.9	135.0	215.4	210.2	176.7
All Other Causes	208.5	159.8	174.6	198.6	154.6	171.8	245.9	145.3	179.0
Total - All Causes	839.8	1029.7	1030.2	1021.4	992.7	877.3	1261.5	944.6	971.3

Age-Adjusted Rates By Cause of Death
By Service Unit
Females

Cause of Death	Anchorage	Barrow	Bristol Bay	Interior	Kotzebue	Mount Edgecumbe	Norton Sound	Yukon- Kuskokwim	Alaska Natives
Cancer	160.3	126.8	130.0	178.9	105.5	126.2	137.0	118.6	145.7
Cerebrovascular Disease	48.5	5.1	56.9	34.0	37.7	41.2	45.8	29.0	41.2
Chronic Liver Disease	30.6	5.0	6.1	20.5	7.9	19.4	16.2	6.2	18.8
Chronic Obstructive Pulmonary	26.7	30.0	51.9	15.0	30.0	21.4	41.6	18.7	26.5
Diabetes	13.8	28.5	16.4	11.0	17.6	12.9	-	4.2	12.1
Heart Disease	106.2	72.3	64.0	114.1	94.1	109.9	120.4	40.6	95.5
Homicide and Legal Intervention	15.8	23.2	6.4	19.1	12.3	4.4	8.9	2.8	11.2
Pneumonia and Influenza	16.1	5.1	20.3	31.3	16.5	20.2	17.3	17.6	19.1
Suicide	11.2	-	23.9	27.0	16.8	16.4	21.4	20.7	17.1
Unintentional Injuries	65.5	82.1	58.2	67.3	73.0	36.0	64.2	48.5	60.4
All Other Causes	145.7	109.2	125.3	151.4	102.3	135.9	167.1	118.0	201.5
Total - All Causes	640.4	487.3	559.4	669.6	513.7	543.9	639.9	424.9	649.1

Alaska Natives 1989-1998
Number of Deaths by Cause
By Service Unit
Males and Females Combined

Cause of Death	Anchorage	Barrow	Bristol Bay	Interior	Kotzebue	Mount Edgecumbe	Norton Sound	Yukon-Kuskokwim	Unknown Service Unit	Total
Cancer	345	50	53	129	69	138	91	203	8	1087
Cerebrovascular Disease	90	6	16	29	17	35	26	46	4	269
Chronic Liver Disease	70	3	3	16	5	28	8	8	2	143
Chronic Obstructive Pulmonary	68	14	21	17	15	26	26	46	0	233
Diabetes	30	4	6	13	5	20	1	5	2	86
Heart Disease	276	41	49	126	66	181	90	145	8	982
Homicide and Legal Intervention	63	11	7	32	5	7	9	25	1	160
Pneumonia and Influenza	44	2	8	26	18	27	12	45	0	182
Suicide	78	20	20	70	49	39	54	113	2	445
Unintentional Injuries	266	45	67	126	84	108	91	238	9	1034
All Other Causes	413	47	64	161	79	185	126	244	6	1325
Total - All Causes	1743	243	314	745	412	794	535	1118	42	5946

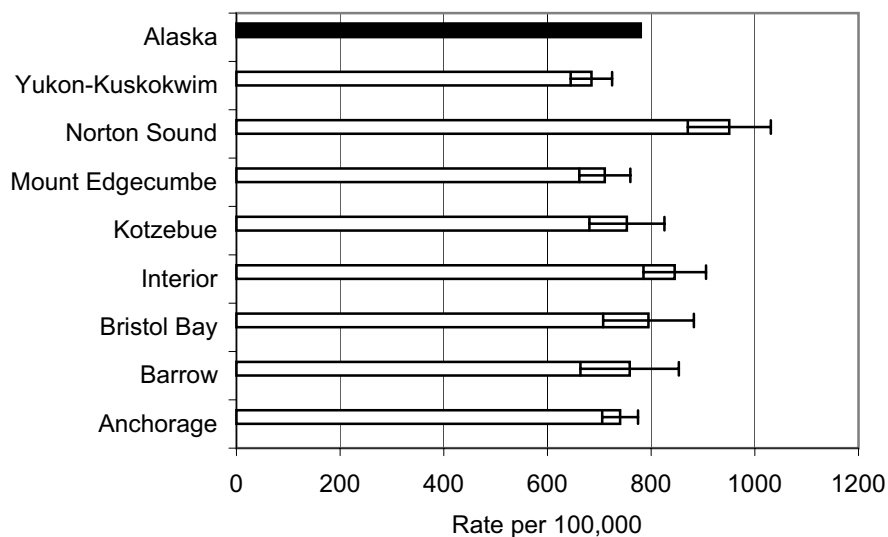
Alaska Natives 1989-1998
Number of Deaths by Cause
By Service Unit
Males

Cause of Death	Anchorage	Barrow	Bristol Bay	Interior	Kotzebue	Mount Edgecumbe	Norton Sound	Yukon-Kuskokwim	Unknown Service Unit	Total
Cancer	167	31	29	56	44	71	55	116	5	574
Cerebrovascular Disease	29	5	3	12	6	11	13	24	3	106
Chronic Liver Disease	32	2	2	7	3	17	3	2	1	69
Chronic Obstructive Pulmonary	38	10	12	11	7	13	15	29	0	135
Diabetes	14	0	3	7	1	12	1	2	1	41
Heart Disease	151	28	37	73	38	116	55	111	3	612
Homicide and Legal Intervention	43	7	6	22	1	4	6	22	1	112
Pneumonia and Influenza	24	1	3	13	12	15	7	28	0	103
Suicide	62	20	15	57	44	29	47	94	2	370
Unintentional Injuries	180	28	52	90	62	84	69	195	7	767
All Other Causes	416	62	70	156	96	176	143	266	12	1397
Total - All Causes	960	158	200	436	264	466	346	749	27	3606

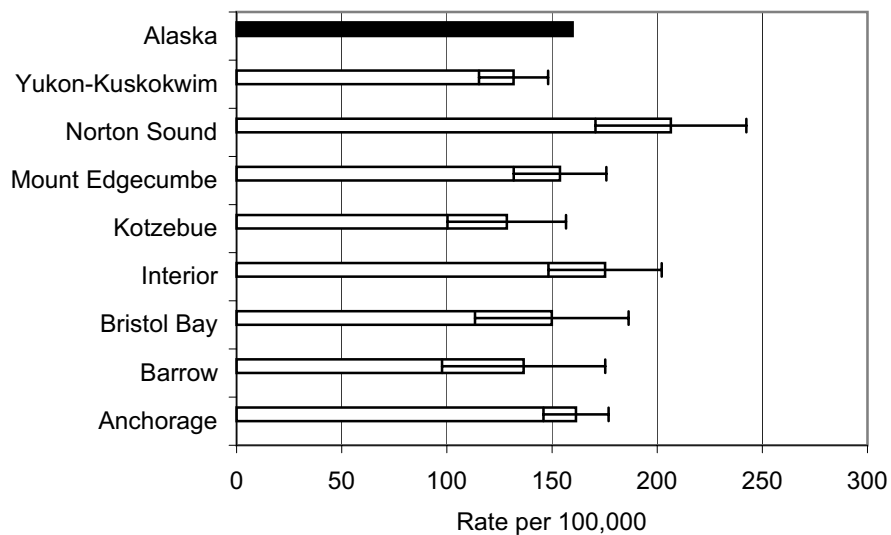
Alaska Natives 1989-1998
Number of Deaths by Cause
By Service Unit
Females

Cause of Death	Anchorage	Barrow	Bristol Bay	Interior	Kotzebue	Mount Edgecumbe	Norton Sound	Yukon-Kuskokwim	Unknown Service Unit	Total
Cancer	178	19	24	73	25	67	37	87	3	513
Cerebrovascular Disease	61	1	13	17	11	24	13	22	1	163
Chronic Liver Disease	38	1	1	9	2	11	5	6	1	74
Chronic Obstructive Pulmonary	30	4	9	6	8	13	11	17	0	98
Diabetes	16	4	3	6	4	8	0	3	1	45
Heart Disease	125	13	12	53	28	65	35	34	5	370
Homicide and Legal Intervention	20	4	1	10	4	3	3	3	0	48
Pneumonia and Influenza	20	1	5	13	6	12	5	17	0	79
Suicide	16	0	5	13	5	10	7	19	0	75
Unintentional Injuries	86	17	15	36	22	24	22	43	2	267
All Other Causes	193	21	26	73	33	91	51	118	0	606
Total - All Causes	783	85	114	309	148	328	189	369	15	2340

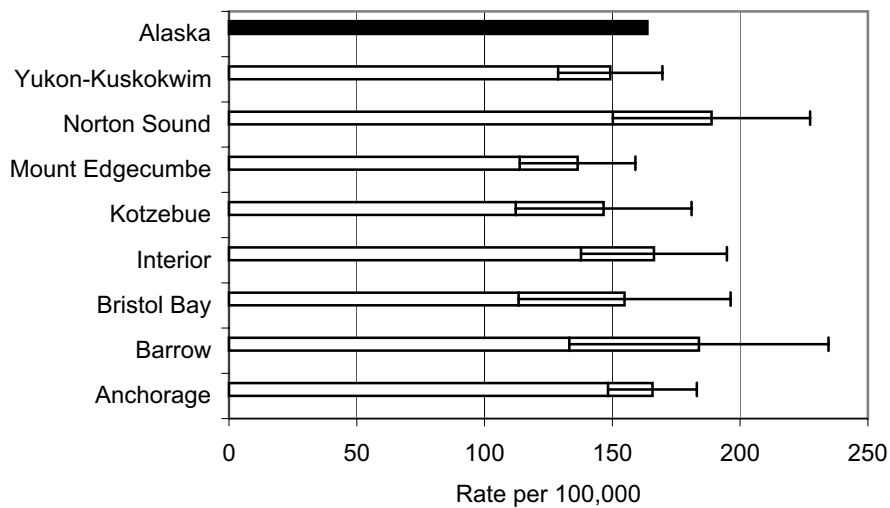
Age-Adjusted All Causes Mortality Rates by Service Unit
1989-1998



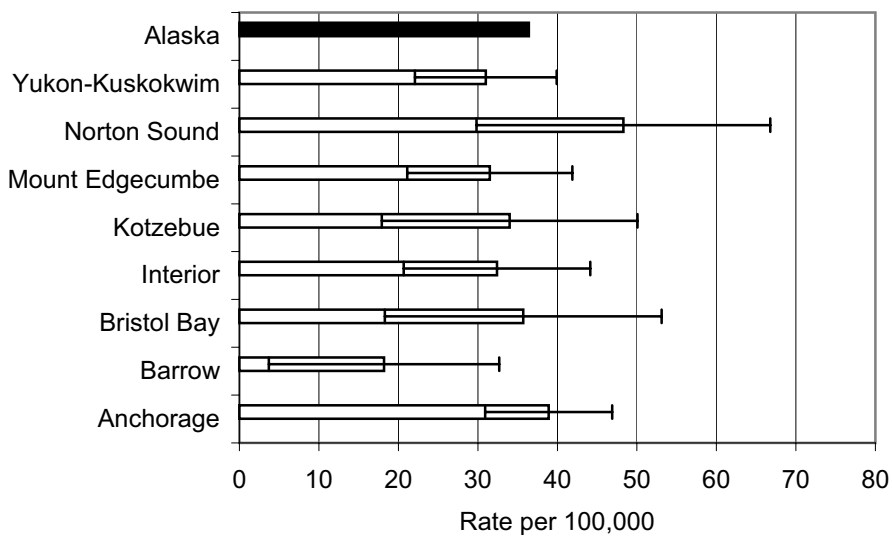
Age-Adjusted All Other Causes Mortality Rates by Service Unit,
1989-1998



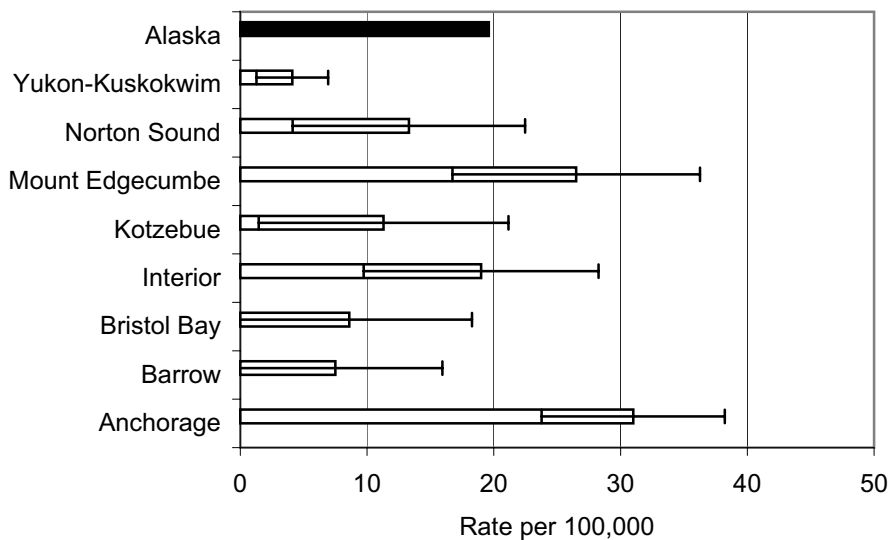
Age-Adjusted Cancer Mortality Rates by Service Unit
1989-1998



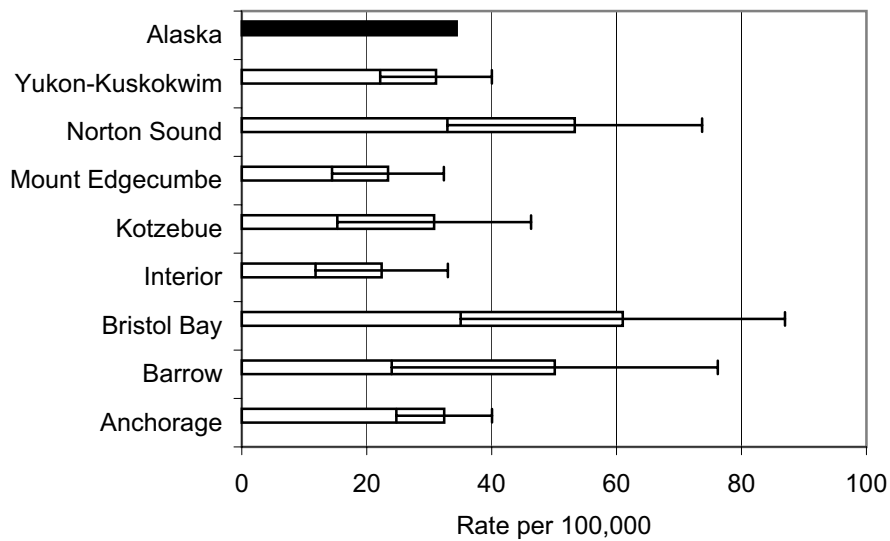
Age-Adjusted Cerebrovascular Mortality Rates by Service Unit
1989-1998



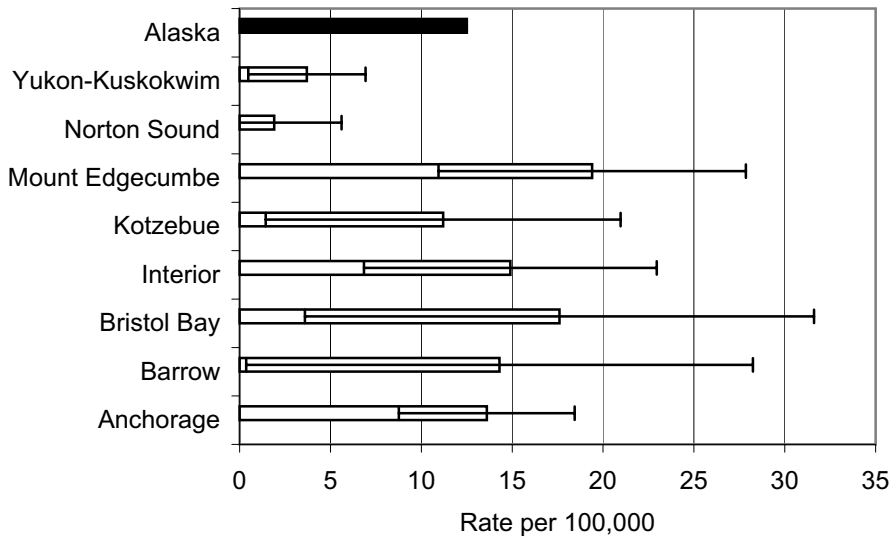
Age-Adjusted Chronic Liver Disease Mortality Rates by Service Unit, 1989-1998



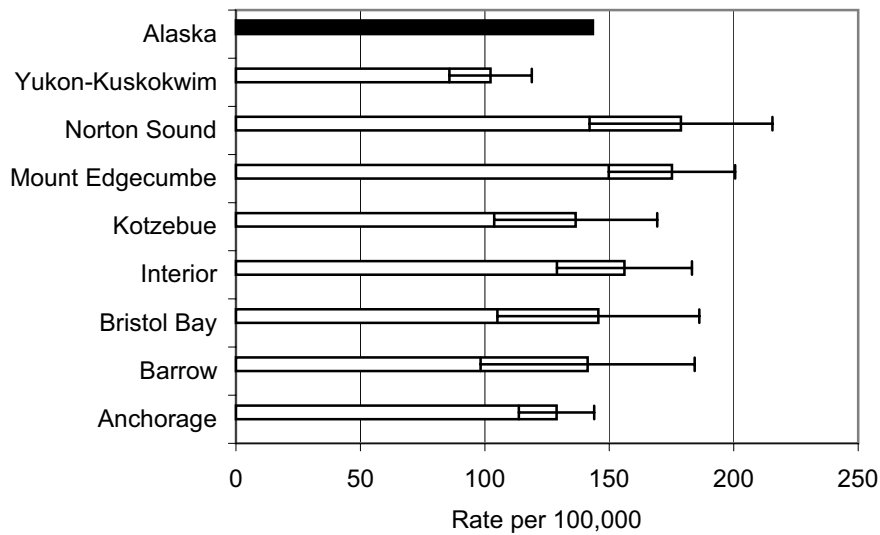
Age-Adjusted Chronic Obstructive Pulmonary Diseases Mortality Rates by Service Unit, 1989-1998



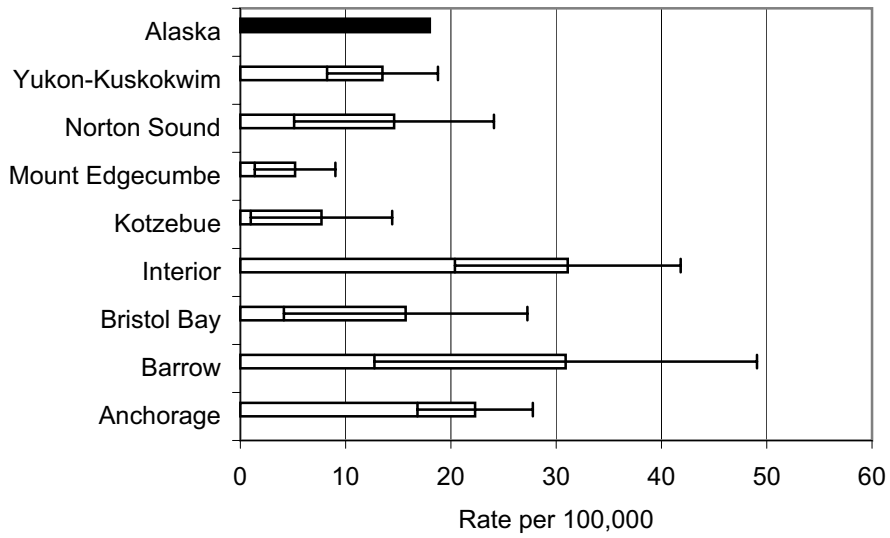
Age-Adjusted Diabetes Mellitus Mortality Rates by Service Unit,
1989-1998



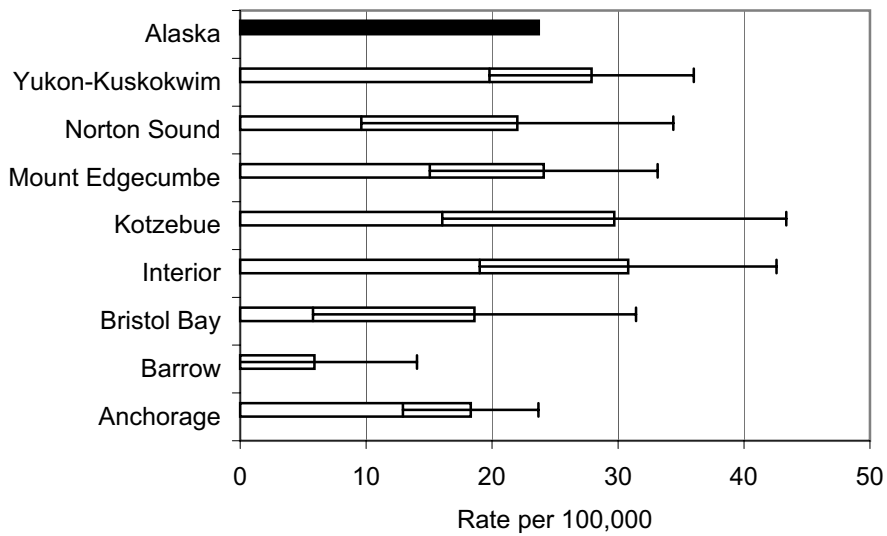
Age-Adjusted Heart Disease Mortality Rates by Service Unit
1989-1998



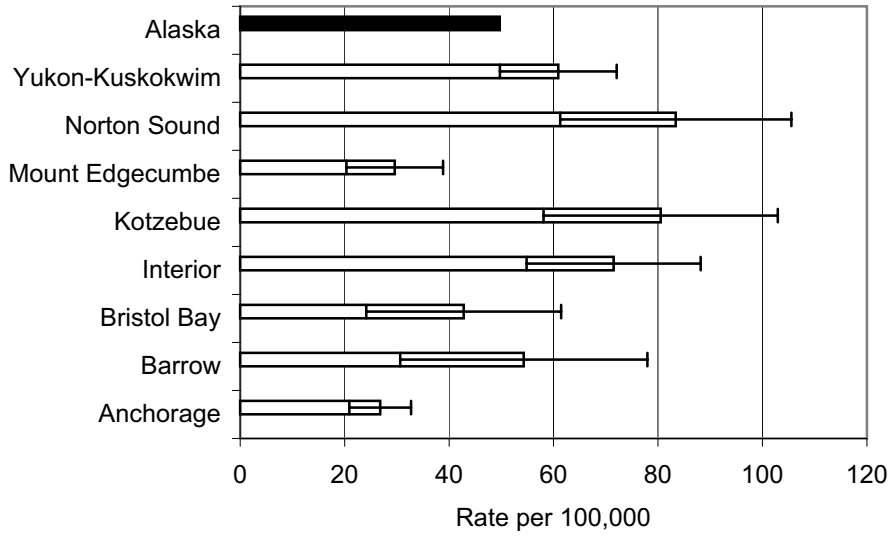
Age-Adjusted Homicide and Legal Intervention Rates by Service Unit, 1989-1998



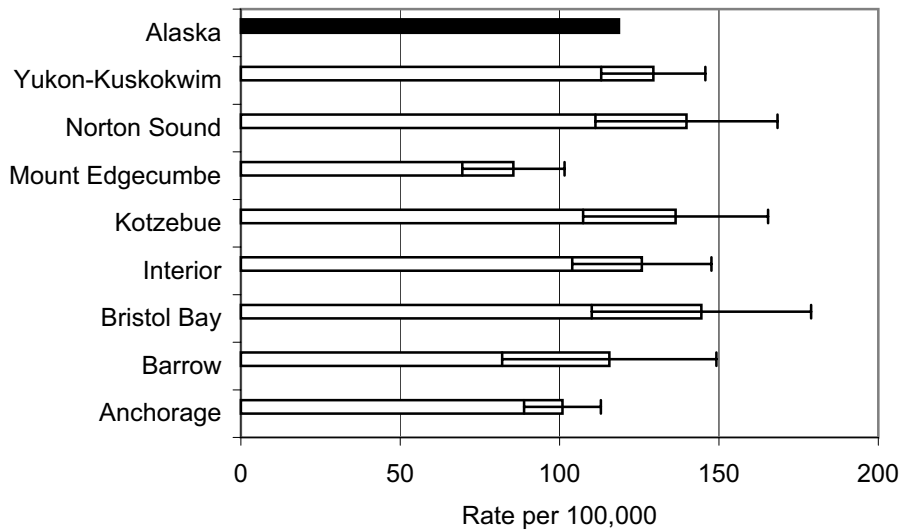
Age-Adjusted Pneumonia and Influenza Mortality Rates by Service Unit, 1989-1998



Age-Adjusted Suicide Rates by Service Unit
1989-1998



Age-Adjusted Unintentional Injury Mortality Rates by Service Unit,
1989-1998

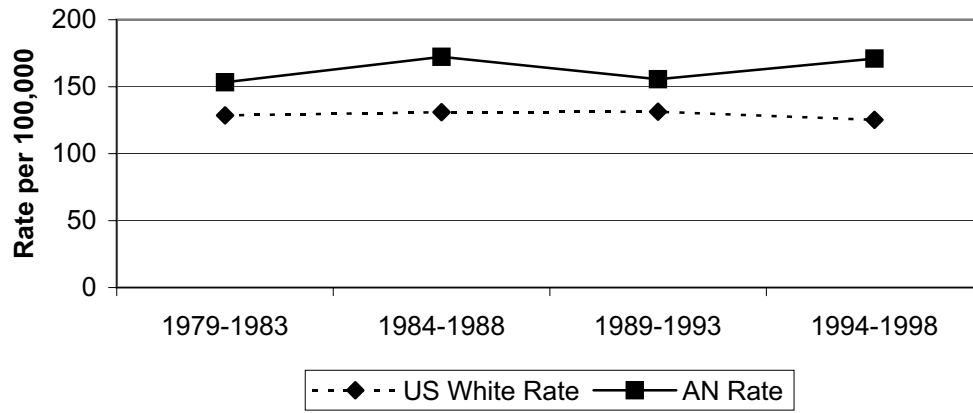


Age-Adjusted Mortality Rates for Leading Causes of Death Among Alaska Natives
Comparison of Alaska Native Rates for 5-Year Intervals, 1979-1998 versus US White Rates for 1981, 1986, 1993, 1996
Males and Females Combined

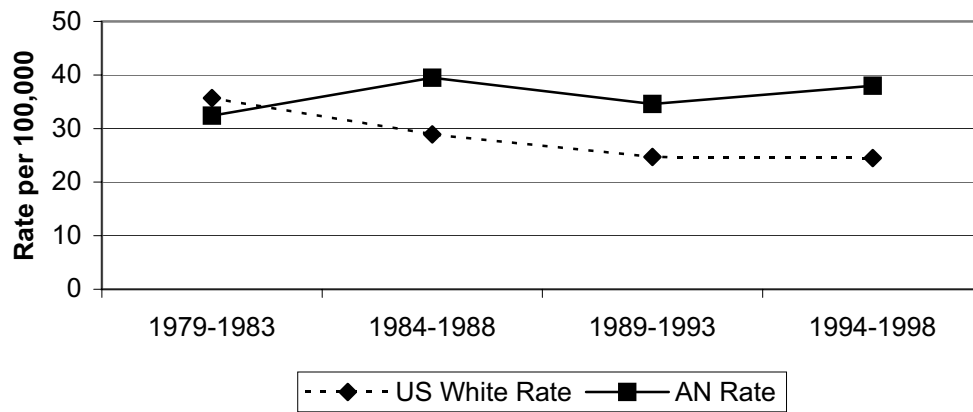
Cause of Death	Alaska Native Rates					US White Rates				
	1979-1983	1984-1988	1989-1993	1994-1998	% Change	1981	1986	1991	1996	% Change
Cancer	153.3	172.3	155.6	171	12%	128.6	131	131.3	125.2	-3%
Cerebrovascular Diseases	32.4	39.5	34.6	38	17%	35.7	28.9	24.7	24.5	-31%
Chronic Liver Disease and Cirrhosis	25.1	18.4	23	16.7	NS	10.5	8.6	7.8	7.3	-30%
Chronic Obstructive Pulmonary Diseases	12.8	25.8	31.2	37.2	191%	16.8	19.3	20.6	21.5	28%
Diabetes Mellitus	3.4	6.9	12.7	12.3	262%	8.9	8.6	10.5	12	35%
Heart Disease	152.6	168.3	147.2	140	NS	191.4	171	143.1	129.8	-32%
Homicide and Legal Intervention	37	25.6	21	15.2	-60%	6.6	5.7	6.2	4.9	-26%
Pneumonia and Influenza	29.2	32.1	29.3	18.9	-35%	11.6	13	12.8	12.2	5%
Suicide	43.4	53.4	52.9	47	NS	12.3	12.8	12.1	11.6	-6%
Unintentional Injuries	188.2	168.2	131.7	107.1	-43%	39.3	34.6	30.3	29.9	-24%
Total	944.8	890.4	804.7	757.9	-20%	544.8	520.1	486.8	466.8	-14%

+/- Chi Square Test for Trend significant at p<0.05

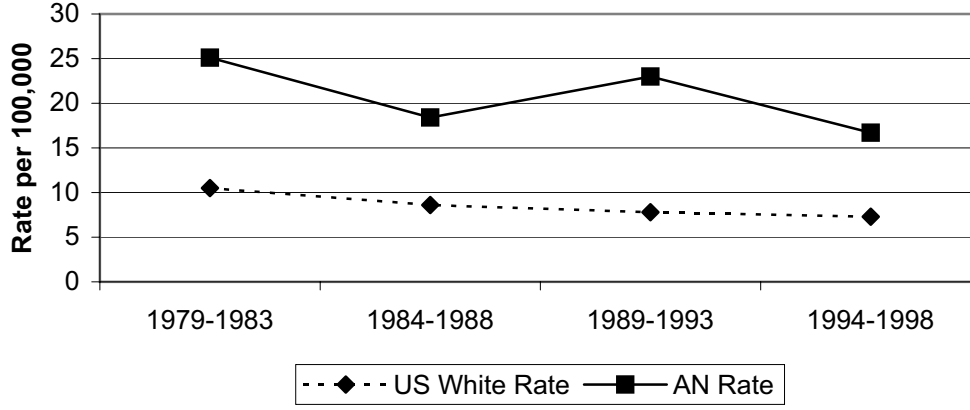
Age-Adjusted Mortality Rates Cancer



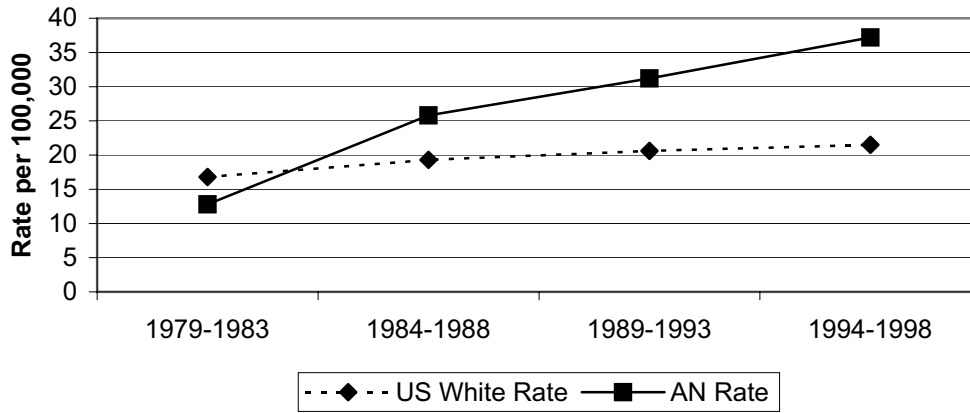
Age-Adjusted Mortality Rates Cerebrovascular Diseases



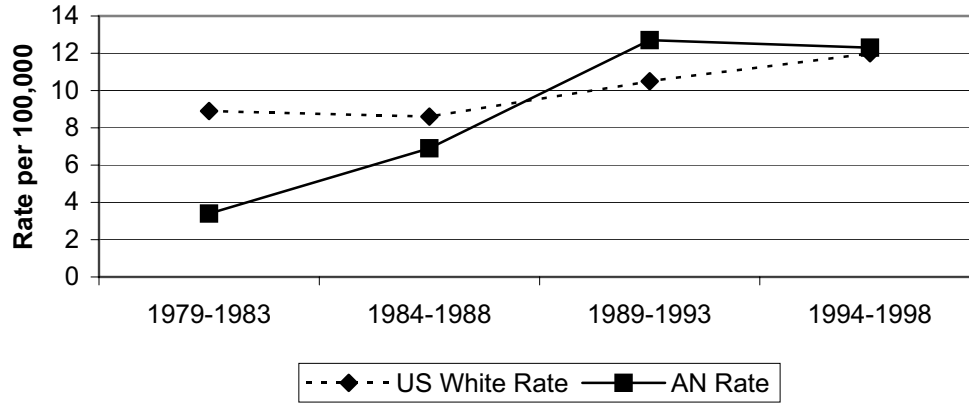
Age-Adjusted Mortality Rates Chronic Liver Disease and Cirrhosis



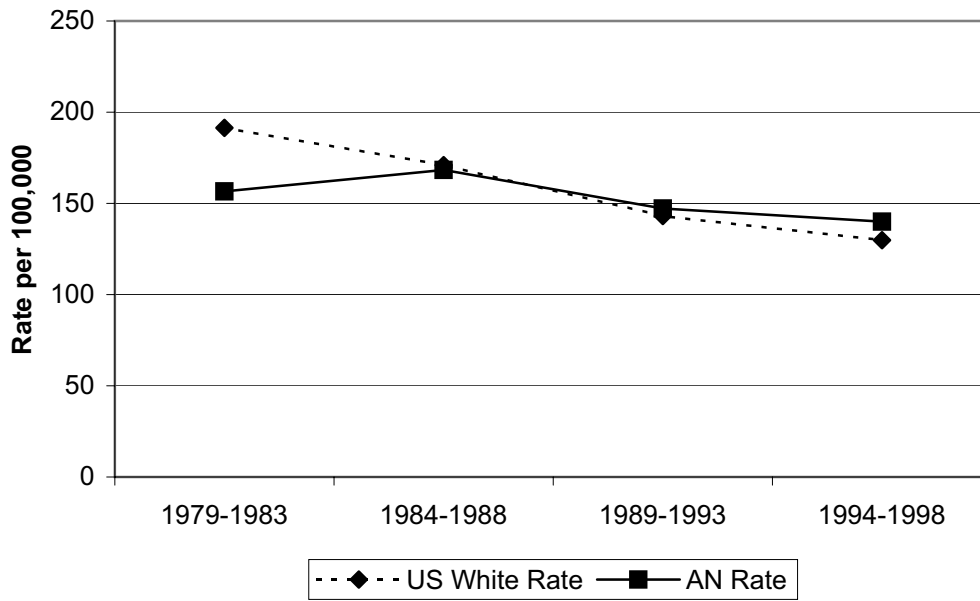
Age-Adjusted Mortality Rates Chronic Obstructive Pulmonary Diseases



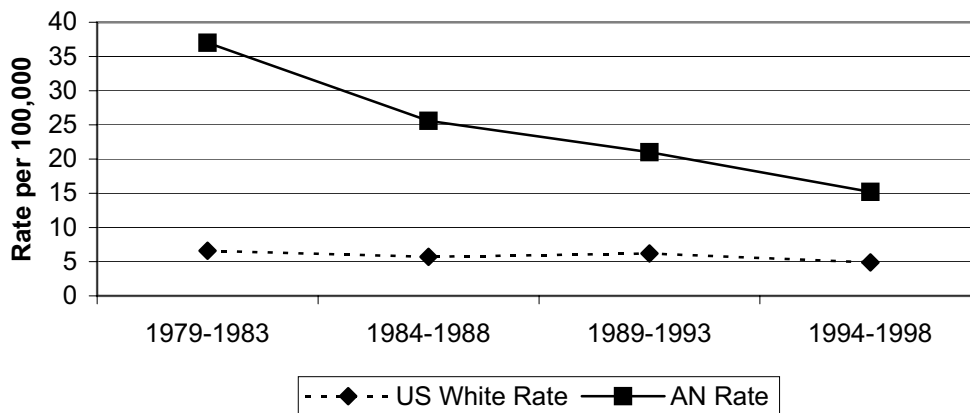
Age-Adjusted Mortality Rates Diabetes Mellitus



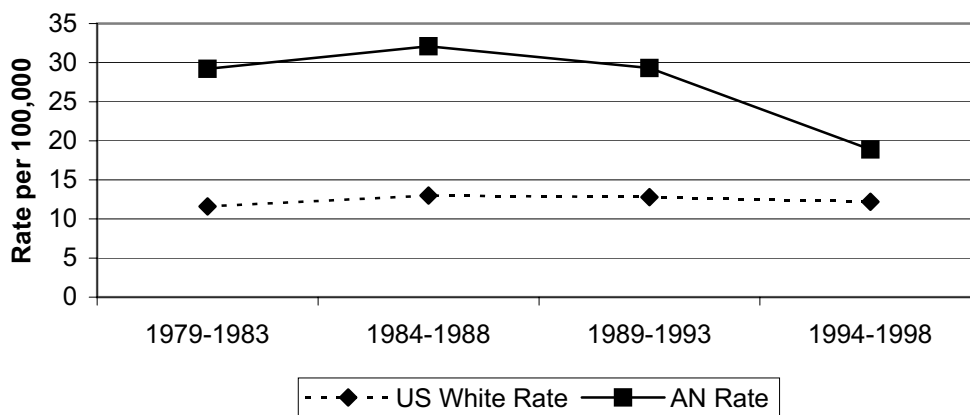
Age-Adjusted Mortality Rates Heart Disease



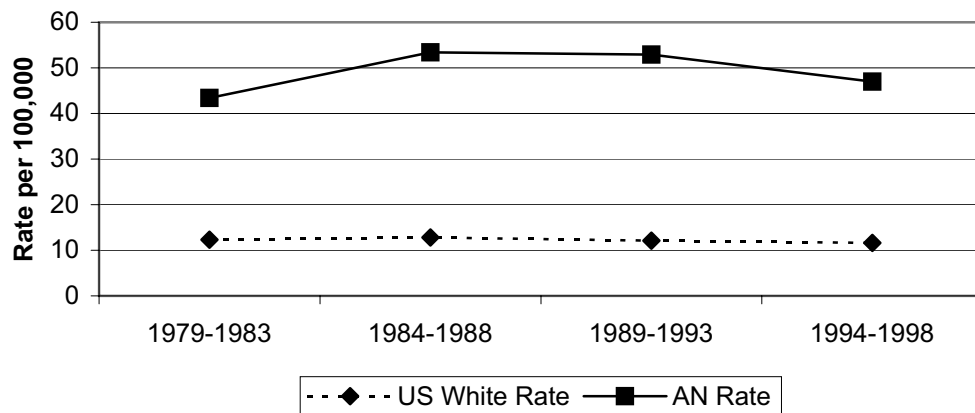
Age-Adjusted Mortality Rates Homicide and Legal Intervention



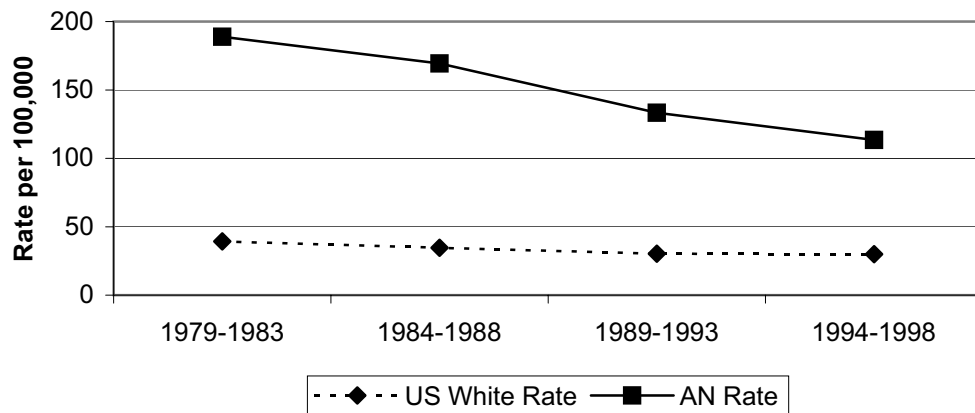
Age-Adjusted Mortality Rates Pneumonia and Influenza



Age-Adjusted Mortality Rates Suicide



Age-Adjusted Mortality Rates Unintentional Injury



Cancer

Cancer was the leading cause of death among all ANs for the time period 1989 to 1998. Cancer was the number one cause of death for AN women and third for AN men.

Cancer accounted for 18.3% (n=1087) of all deaths among this population. The cancer mortality rate for ANs, men and women combined (163.7 per 100,000; 95%CI: 149.7-177.7), was thirty percent higher than USW (129.4 per 100,000). AN women (145.7 per 100,000; 95%CI: 132.9-158.5) experienced a thirty percent higher mortality rate than US White women (110.1 per 100,000). AN men (181.7 per 100,000; 95%CI: 166.7-196.7) had a 20% higher mortality rate from cancer than US White men (156.4 per 100,000).

There were 199 excess cancer deaths among ANs, comprising 10% of all excess deaths. For ANs, men and women combined, all age groups over 25 years had significant twenty to forty percent higher cancer mortality rates than US Whites.

There were no significant differences in cancer mortality rates between ANs and US Whites for age groups under 25 years.

The Mt. Edgecumbe Service Unit (136.4 per 100,000, 95%CI:119.0-153.8) demonstrated a lower mortality rate from cancer than the state average for ANs (163.7 per 100,000).

Age-adjusted cancer mortality rates increased significantly by 12% among ANs over the time period 1979 to 1998. During this time, US

Whites experienced a 3% decrease in cancer mortality rates.

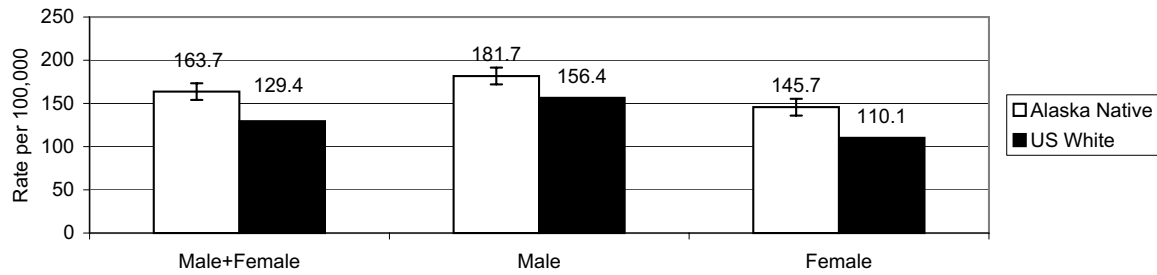
#1 Leading Cause of Death Among Alaska Natives, 1989-1998 Cancer

Age-Adjusted Cancer Mortality Rates for Alaska Natives, 1989-1998 Compared to US Whites, 1993

	Alaska Natives				US Whites				SMR	Excess Deaths
	#	%	Rate† per 100,000	95% CI	#	%	Rate† per 100,000			
Male + female	1087	18.3%	163.7	149.7-177.7	461904	23.7%	129.4	1.3*	199	
Male	574	15.9%	181.7	166.7-196.7	241908	24.5%	156.4	1.2*	77	
Female	513	21.9%	145.7	132.9-158.5	219996	22.8%	110.1	1.3*	122	

* 95% Confidence Interval does not include US White rate.

**Age-Adjusted Cancer Mortality Rates
Alaska Natives, 1989-1998 Compared to US Whites, 1993**

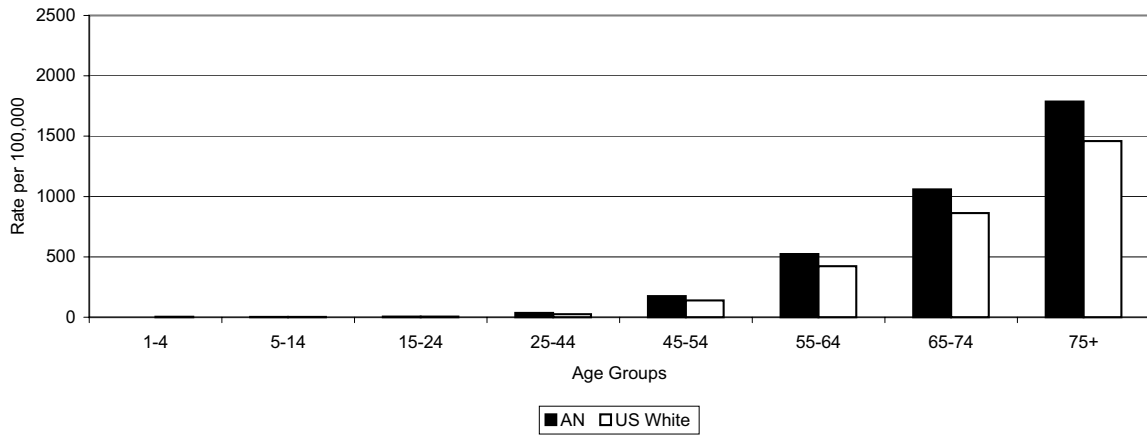


Age-Specific Cancer Mortality Rates For Alaska Natives, 1989-1998 Compared to US Whites, 1993

Male and Female Combined Rates

Cancer	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN	0	2.5	5.6	36.2	174.9	523.4	1059	1787
US White	3.4	3	4.7	25.2	139.6	422.2	863.2	1459.7

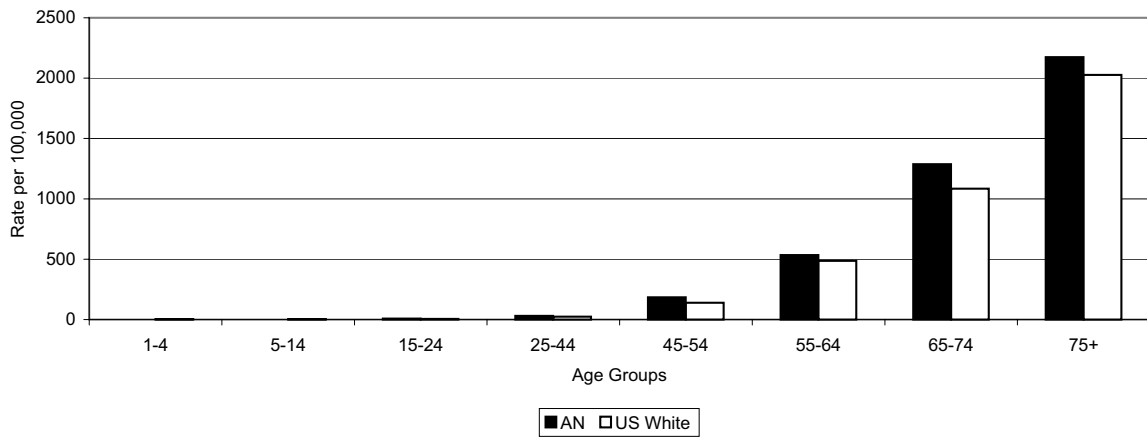
Male and Female Combined



Male Rates

Cancer	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN	0	0	7.3	30.1	183.7	534.5	1286.6	2174.5
US White	3.9	3.4	5.4	23.6	139	486	1084.2	2026.4

Males

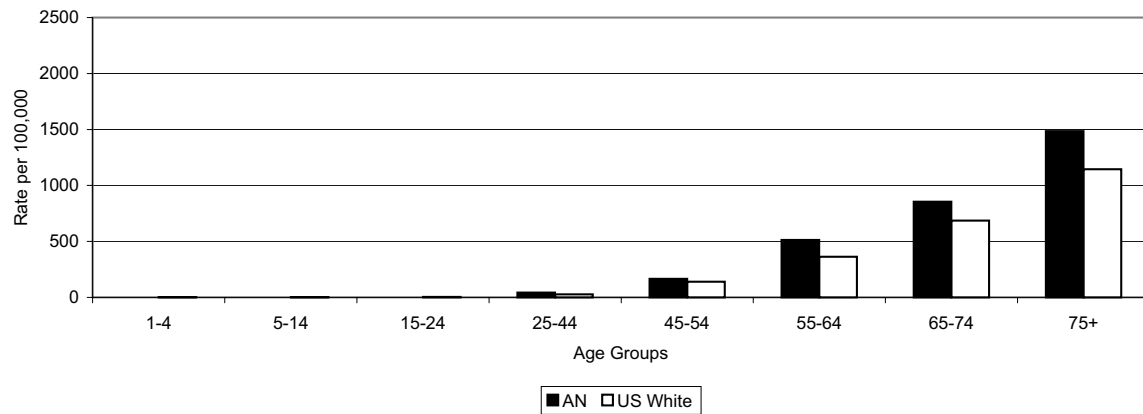


Age-Specific Cancer Mortality Rates For Alaska Natives, 1989-1998 Compared to US Whites, 1993

Female Rates

Cancer	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN	0	0	0	42.3	166.1	512.7	854.9	1485.6
US White	2.9	2.7	4	26.8	140.2	363.4	686.2	1145.4

Females

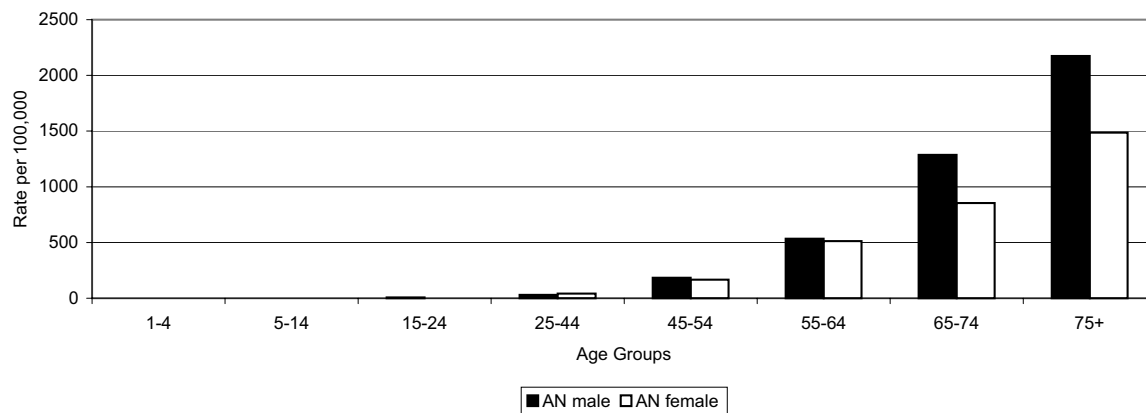


Age-Specific Cancer Mortality Rates For Alaska Natives, 1989-1998 Male versus Female

Male versus Female

Cancer	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN male	0	0	7.3	30.1	183.7	534.5	1286.6	2174.5
AN female	0	0	0	42.3	166.1	512.7	854.9	1485.6

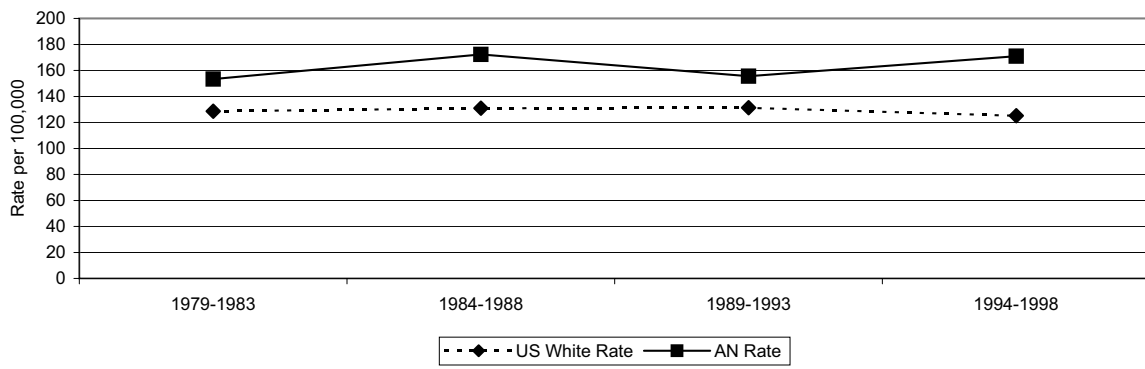
Males versus Females



**Age-Adjusted Cancer Mortality Rates Among Alaska Natives,
Comparison of Five Year Intervals, 1979-1998, and US White Rates, 1981, 1986, 1991, 1996
Males and Females Combined**

Alaska Native Rates				
1979-1983	1984-1988	1989-1993	1994-1998	% Change
153.3	172.3	155.6	171	12%
US White Rates				
1981	1986	1991	1996	% Change
128.6	131	131.3	125.2	-3%

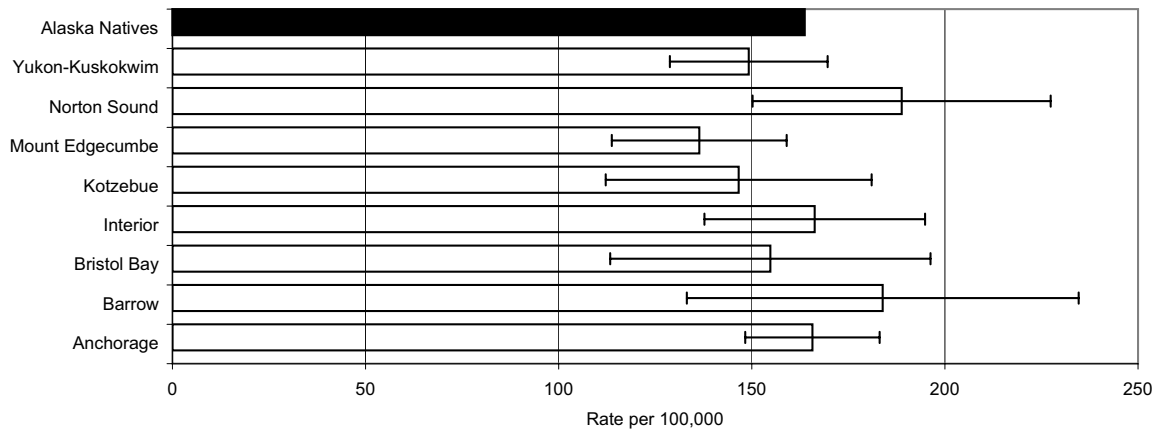
**Age-Adjusted Cancer Mortality Rates over Time
Alaska Natives versus US Whites**



Age-Adjusted Cancer Mortality Rates by Service Unit, 1989-1998

Anchorage	Barrow	Bristol Bay	Interior	Kotzebue	Mount Edgumbe	Norton Sound	Yukon-Kuskokwim	Alaska Native
165.7	183.9	154.8	166.3	146.6	136.4	188.8	149.2	163.7

**Age-Adjusted Cancer Mortality Rates by Service Unit
1989-1998**



Unintentional Injury

AN men and women combined (118.6 per 100,000; 95%CI: 108.0-129.2) had a 4.0 times higher mortality rate from unintentional injuries as US Whites (29.6 per 100,000). Unintentional injuries comprised 37% (n = 754) of excess deaths among ANs. This was the second leading cause of death (n=1034) for the AN population as a whole. Unintentional injuries were the leading cause of death for AN men, accounting for slightly more than one in every five deaths (21.3%). In contrast, only one in every twenty white men (5%) in the US died from unintentional injuries. Among AN women, unintentional injuries were the third leading cause of death. One in every nine (11.4%) AN women died of this cause as compared to one in thirty-seven US White women (2.7%).

By age, ANs had significantly higher rates of mortality from unintentional injuries compared to US Whites for all age groups examined. Rate ratios ranged from a high of approximately 5 for each of the three age groups between 25 and 64 years to the lowest rate ratio of 1.7 for the 75+ age group.

Both the Mt. Edgecumbe (85.5 per 100,000, 95%CI:69.5-101.5) and the Anchorage (100.9 per 100,000, 95%CI:88.8-113.0) Service Units experienced lower mortality rates from unintentional injuries as compared to the state average for ANs (118.6 per 100,000).

Unintentional injuries were responsible for the greatest number of excess deaths (n=754). Although excess deaths remain large, there has been a 43% decline in deaths to ANs from this cause during the time period 1979 to 1998; a larger decline in men (46%) than women (34%). US White rates declined 24% during the same period.

The category, unintentional injuries, is composed of a large number of different types of injuries and poisonings. For all ANs, the primary causes of unintentional injury deaths were drowning, motor vehicle traffic injuries, exposure, off-road motor vehicle accidents, and accidental poisoning. Drowning deaths were the largest category (n=240) comprising 23% of all unintentional injury deaths. ANs (28.1 per 100,000; 95% CI: 24.6-31.6) had a 16.5 fold higher risk of drowning than US Whites (1.7 per 100,000). The second largest category of unintentional injury death was motor vehicle traffic accidents (n=188). ANs died from this cause at an age-adjusted annual rate of 21.2 per 100,000 (95% CI: 18.6-23.8). ANs were 30% more likely to die from a motor vehicle traffic accident as US Whites (15.5 per 100,000). Death from exposure accounted for 10% of all injury deaths among ANs. ANs (11.5 per 100,000; 95% CI: 9.6-13.4) were more than 26 times more likely to die from an off-road accident as US Whites (0.4 per 100,000). ANs (10.6 per 100,000; 95% CI: 8.8-12.4) were also 3.2 times more likely to die of poisoning as US Whites (2.9 per 100,000). These top five categories accounted for 69% of all unintentional injury deaths.

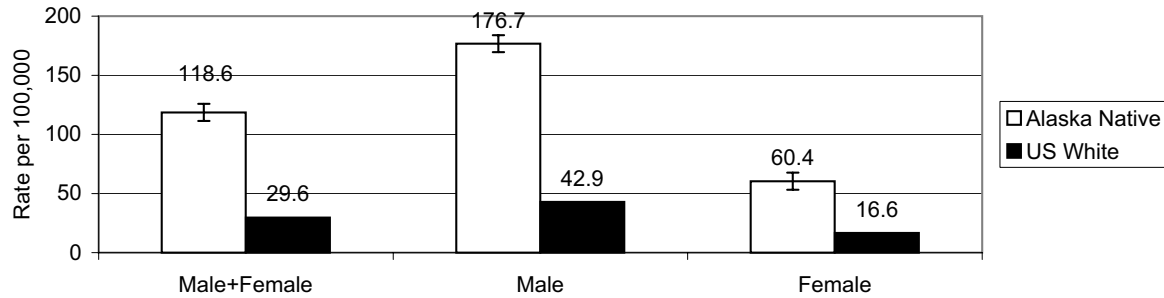
#2 Leading Cause of Death Among Alaska Natives, 1989-1998 Unintentional Injuries

Age-Adjusted Unintentional Injury Mortality Rates for Alaska Natives, 1989-1998 Compared to US Whites, 1993

	Alaska Natives			95% CI	US Whites			SMR	Excess Deaths
	#	%	Rate [†] per 100,000		#	%	Rate [†] per 100,000		
Male + female	1034	17.4%	118.6	108.0-129.2	75218	3.9%	29.6	4*	754
Male	767	21.3%	176.7	163.8-189.6	49515	5.0%	29.6	4.1*	571
Female	267	11.4%	60.4	52.9-67.9	25703	2.7%	16.6	3.6*	183

* 95% Confidence Interval does not include US White rate.

**Age-Adjusted Unintentional Injury Mortality Rates
Alaska Natives, 1989-1998 Compared to US Whites, 1993**

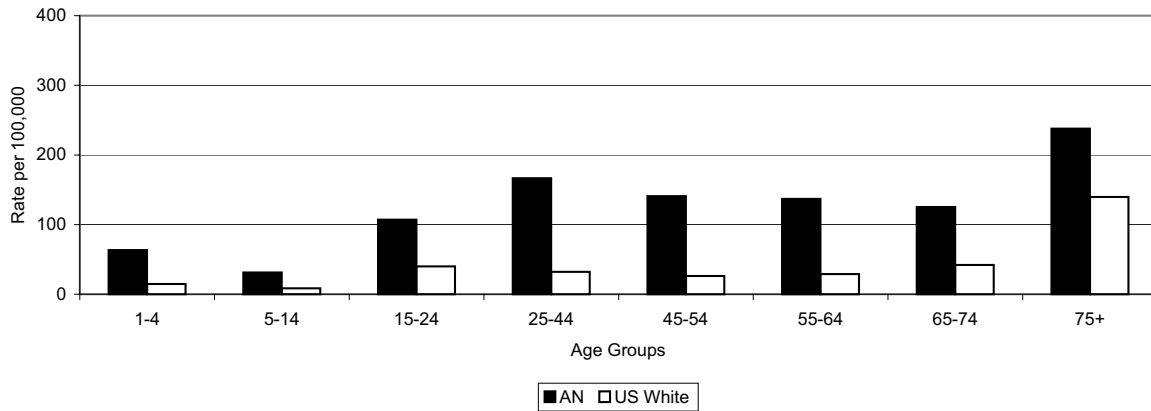


Age-Specific Unintentional Injury Mortality Rates For Alaska Natives, 1989-1998 Compared to US Whites, 1993

Male and Female Combined Rates

Injuries	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN	63.5	31.2	107	166.6	140.8	137	125.2	237.9
US White	14.6	8.6	40	32.1	26.3	29	42	139.8

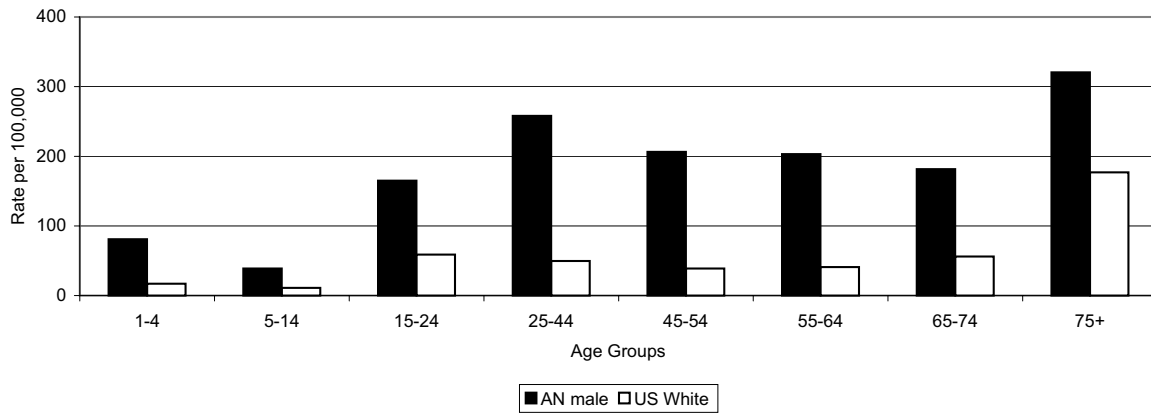
**Age-Specific Mortality Rates for Unintentional Injuries
Alaska Natives 1989-1998 versus US Whites 1993
Male and Female Combined** □



Male Rates

Injuries	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN	80.9	38.9	164.9	258	206.3	203	181.6	320.6
US White	17.1	11	58.9	49.6	38.8	40.8	56	176.8

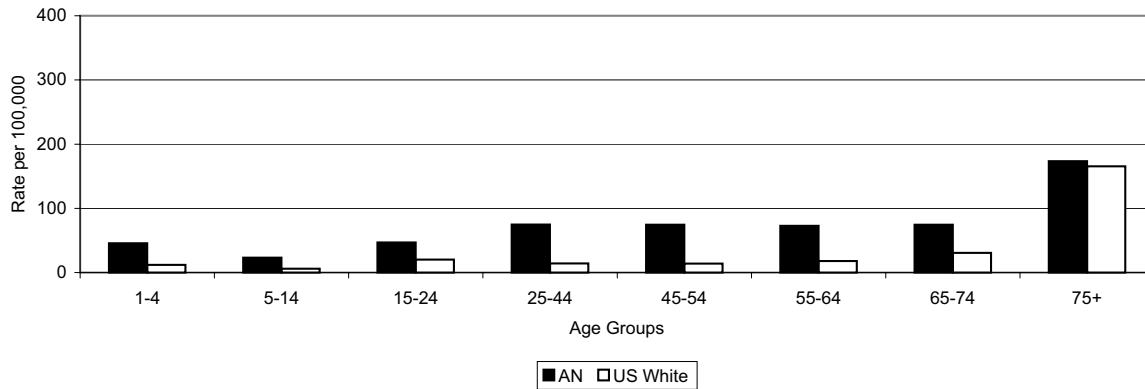
**Age-Specific Mortality Rates for Unintentional Injuries
Alaska Natives 1989-1998 versus US Whites 1993
Males** □



**Age-Specific Unintentional Injury Mortality Rates For Alaska Natives, 1989-1998 Compared to US Whites, 1993
Female Rates**

Injuries	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN	45.6	23.2	46.9	74.7	74.5	72.7	74.6	173.5
US White	11.9	6	20.1	14.3	14	18	30.7	165.6

**Age-Specific Mortality Rates for Unintentional Injuries
Alaska Natives 1989-1998 versus US Whites 1993
Females**

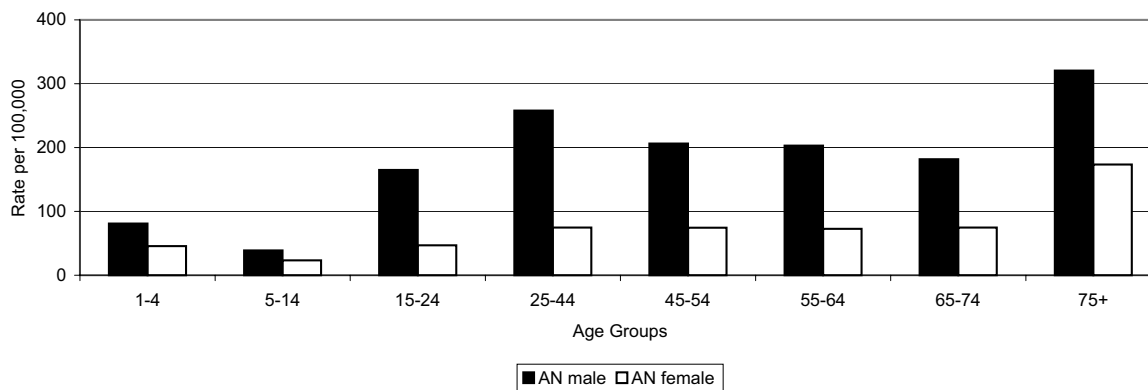


Age-Specific Unintentional Injury Mortality Rates For Alaska Natives, 1989-1998 Male versus Female

Male versus Female

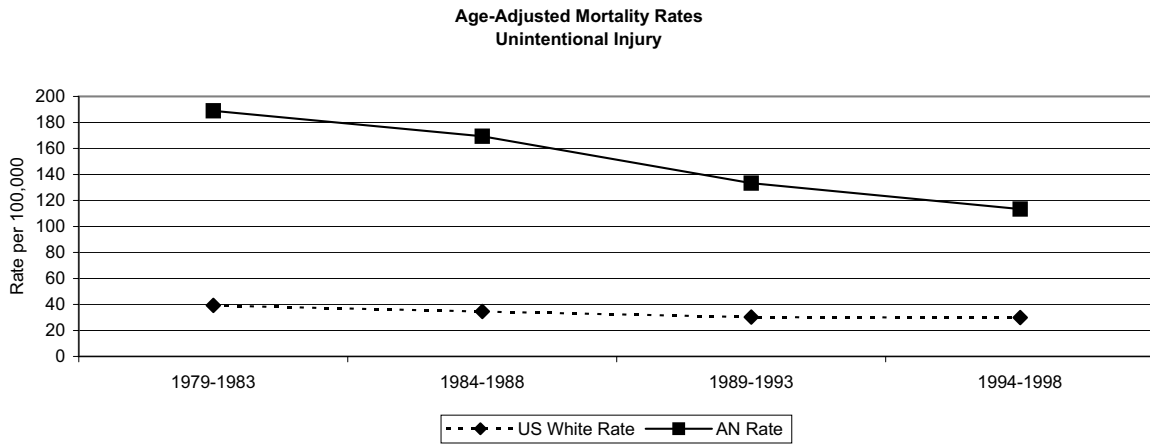
Injuries	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN male	80.9	38.9	164.9	258	206.3	203	181.6	320.6
AN female	45.6	23.2	46.9	74.7	74.5	72.7	74.6	173.5

**Age-Specific Mortality Rates for Unintentional Injuries
Alaska Natives 1989-1998
Males versus Females**



**Age-Adjusted Unintentional Injury Mortality Rates Among Alaska Natives,
Comparison of Five Year Intervals, 1979-1998, and US White Rates, 1981, 1986, 1991, 1996
Males and Females Combined**

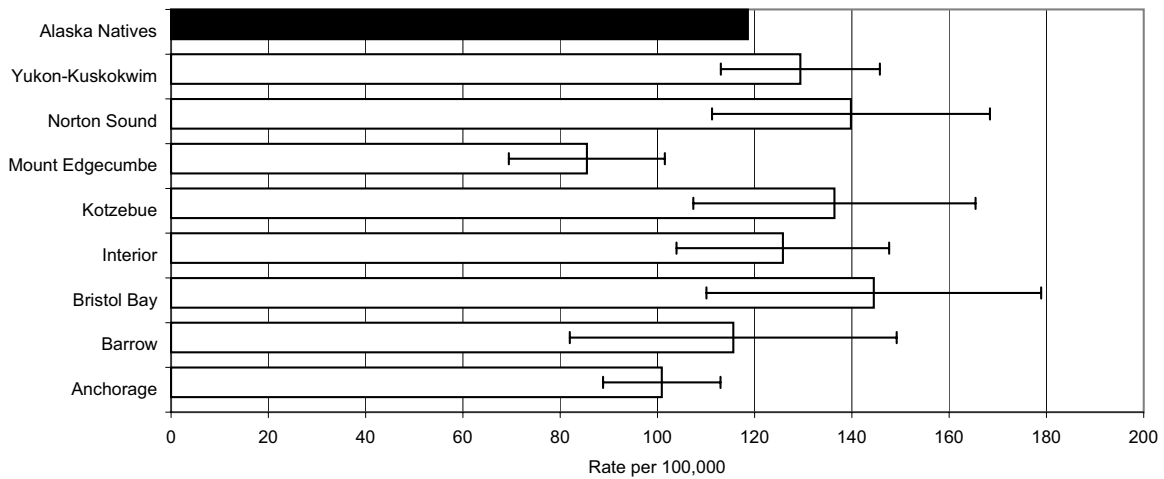
Alaska Native Rates				
1979-1983	1984-1988	1989-1993	1994-1998	% Change
188.2	168.2	131.7	107.1	-43%
US White Rates				
1981	1986	1991	1996	% Change
39.3	34.6	30.3	29.9	-24%



Age-Adjusted Unintentional Injury Mortality Rates by Service Unit, 1989-1998

Anchorage	Barrow	Bristol Bay	Interior	Kotzebue	Mount Edgumbe	Norton Sound	Yukon-Kuskokwim	Alaska Native
100.9	115.6	144.5	125.8	136.4	85.5	139.8	129.4	118.6

Age-Adjusted Unintentional Injury Mortality Rates by Service Unit, 1989-1998



Heart Disease

Heart Disease was the third leading cause of death among AN, men and women combined, accounting for 16.5% (n = 982) of all deaths. It ranked second for AN men behind unintentional injuries, and second for AN women behind cancer. AN showed no difference in risk of dying of heart disease (143.4 per 100,000; 95% CI: 130.5-156.3) compared to US Whites (139.9 per 100,000). This was true for both AN men and women. However, there were differences by age groups. ANs in the 25 to 44, and 45 to 54 year old age groups had thirty and forty percent, respectively, higher mortality rates from heart disease than US Whites. There were no differences in mortality rates for the 55-64 and 65-74 age groups compared to US Whites. ANs in the 75+ age group had a twenty percent lower mortality rate from heart disease as US Whites.

The Yukon Kuskokwim Service Unit (102.3 per 100,000, 95%CI:85.7-118.9) had a lower rate of heart disease mortality compared to the state average for ANs (143.4 per 100,000). Mt. Edgecumbe Service Unit (175.2 per 100,000, 95%CI:149.8-200.6) experienced higher rates.

There has been no significant change in heart disease death rates for ANs in the twenty year period, 1979 to 1998. It is important to note that heart disease death rates for U.S. Whites decreased 32% during this time period.

An examination of heart disease sub-categories revealed that ANs (35.9 per 100,000; 95%CI: 27.3-44.5) were 20% less likely to die from acute myocardial infarctions than US Whites (47.4 per 100,000). There was no significant difference between ANs and US Whites in deaths from chronic ischemic heart disease or from the subcategory, other heart diseases. These three sub-categories comprised the bulk of heart disease deaths for both ANs and US Whites. ANs (4.9 per 100,000; 95% CI: 1.6-8.2) were 3.7 times more likely to die of rheumatic fever and rheumatic heart disease than US Whites (1.3 per 100,000). ANs (7.7 per 100,000; 95% CI: 3.7-11.7) were also 3 times more likely to die of diseases of the endocardium than US Whites (2.6 per 100,000). The only other sub-category of heart disease for which ANs had enough deaths to calculate a rate was hypertensive heart disease. AN mortality rates were not statistically different from US Whites' for this cause.

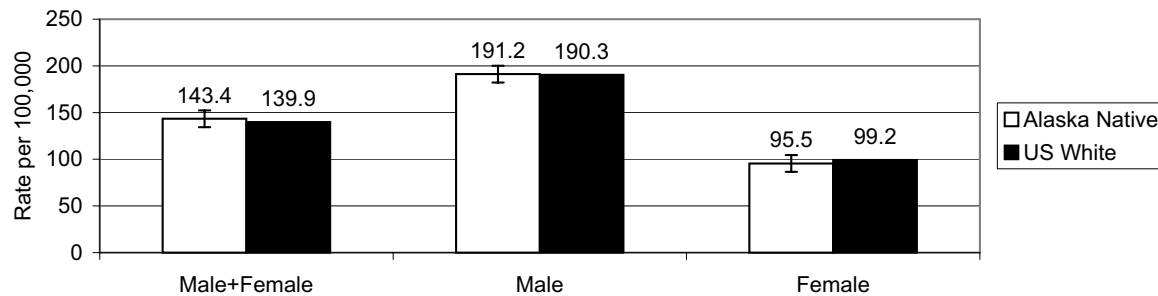
#3 Leading Cause of Death Among Alaska Natives, 1989-1998 Heart Disease

Age-Adjusted Heart Disease Mortality Rates for Alaska Natives, 1989-1998 Compared to US Whites, 1993

	Alaska Natives			95% CI	US Whites		Rate [†] per 100,000	SMR	Excess Deaths
	#	%	Rate [†] per 100,000		#	%			
Male + female	982	16.5%	143.4	130.5-156.3	655365	33.6%	139.9	1.0	-130
Male	612	17.0%	191.2	175.9-206.5	323802	32.8%	190.3	1	-42
Female	370	15.8%	95.5	85.5-105.5	331563	34.4%	99.2	1	-88

* 95% Confidence Interval does not include US White rate.

Age-Adjusted Heart Disease Mortality Rates
Alaska Natives, 1989-1998 Compared to US Whites, 1993

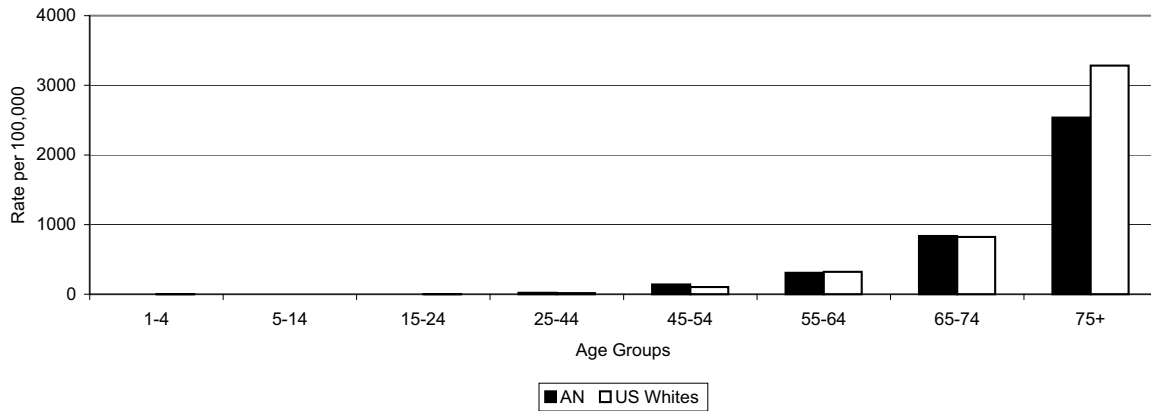


Age-Specific Heart Disease Mortality Rates For Alaska Natives, 1989-1998 Compared to US Whites, 1993

Male and Female Combined Rates

Heart	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN	0	0	0	21.4	140.8	308.7	837.2	2537.2
US White	1.5	0.7	2.2	17.1	102.9	322.6	823	3282.2

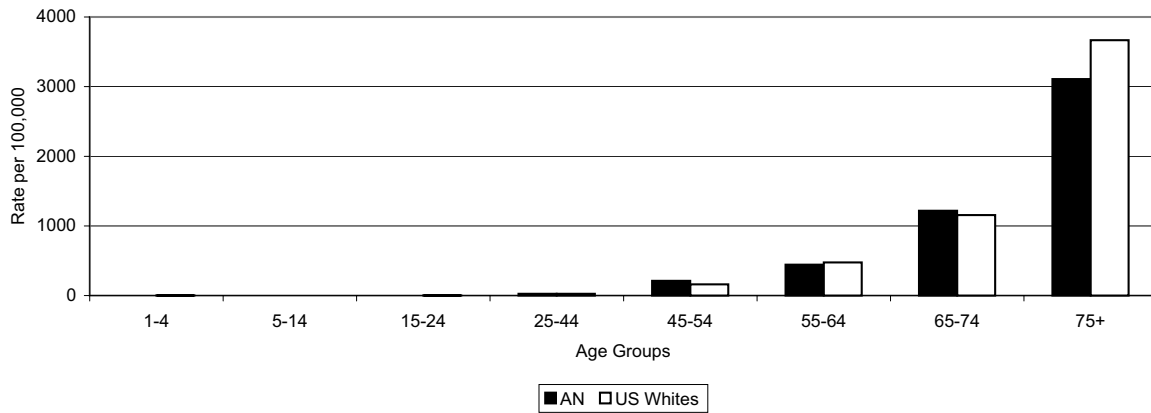
**Age-Specific Mortality Rates for Heart Disease
Alaska Natives 1989-1998 versus US Whites 1993
Male and Female Combined** □



Male Rates

Heart	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN	0	0	0	25.9	211.9	443.4	1218.5	3108.4
US White	1.7	0.7	2.8	25.4	159.9	475.6	1154.6	3666.7

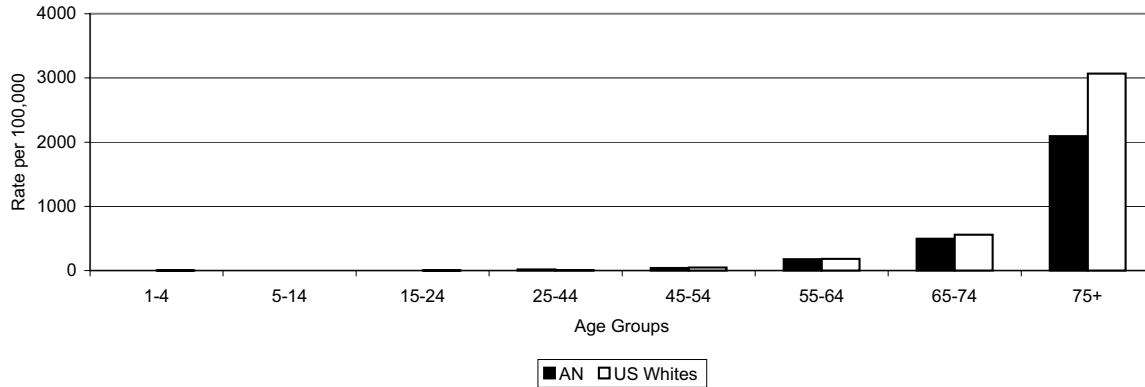
**Age-Specific Mortality Rates for Heart Disease
Alaska Natives 1989-1998 versus US Whites 1993
Males** □



**Age-Specific Heart Disease Mortality Rates For Alaska Natives, 1989-1998 Compared to US Whites, 1993
Female Rates**

Heart	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN	0	0	0	16.9	38.7	177.6	495.3	2092.8
US White	1.3	0.8	1.6	8.7	47.5	181.7	557.4	3068.9

**Age-Specific Mortality Rates for Heart Disease
Alaska Natives 1989-1998 versus US Whites 1993
Females**

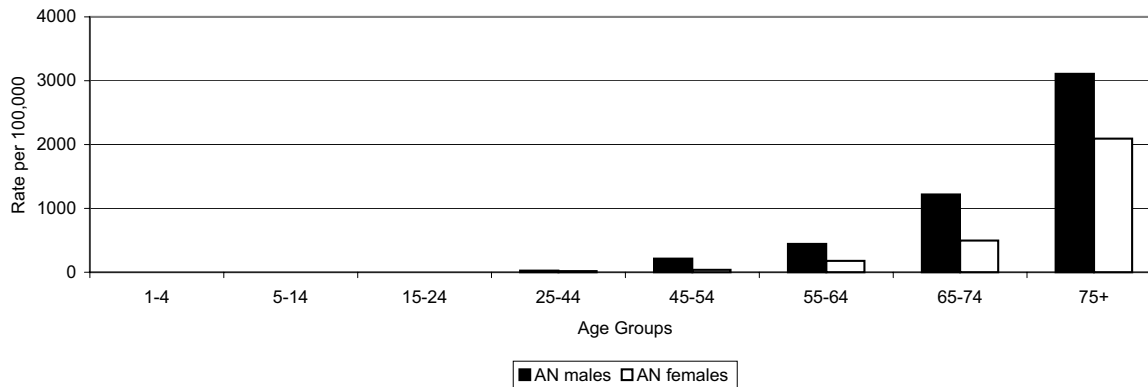


Age-Specific Heart Disease Mortality Rates For Alaska Natives, 1989-1998 Male versus Female

Male versus Female

Heart	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN male	0	0	0	25.9	211.9	443.4	1218.5	3108.4
AN female	0	0	0	16.9	38.7	177.6	495.3	2092.8

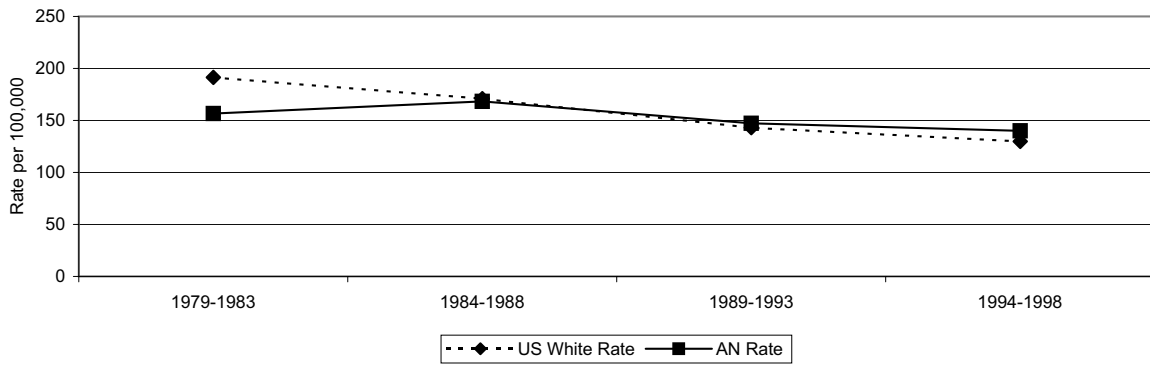
**Age-Specific Mortality Rates for Heart Disease
Alaska Natives 1989-1998
Males versus Females**



**Age-Adjusted Heart Disease Mortality Rates Among Alaska Natives,
Comparison of Five Year Intervals, 1979-1998, and US White Rates, 1981, 1986, 1991, 1996
Males and Females Combined**

Alaska Native Rates				
1979-1983	1984-1988	1989-1993	1994-1998	% Change
156.6	168.3	147.2	140	NS
US White Rates				
1981	1986	1991	1996	% Change
191.4	171	143.1	129.8	-32%

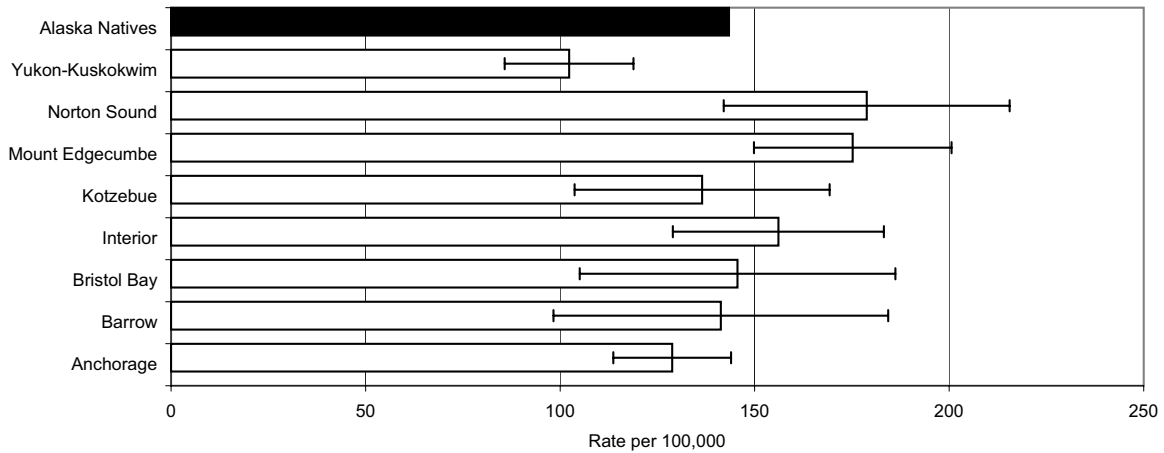
**Age-Adjusted Heart Disease Mortality Rates Over Time
Alaska Native versus US Whites**



Age-Adjusted Heart Disease Mortality Rates by Service Unit, 1989-1998

Anchorage	Barrow	Bristol Bay	Interior	Kotzebue	Mount Edgumbe	Norton Sound	Yukon-Kuskokwim	Alaska Native
128.8	141.3	145.6	156.1	136.5	175.2	178.8	102.3	143.4

**Age-Adjusted Heart Disease Mortality Rates by Service Unit
1989-1998**



Suicide

Suicide was the fourth leading cause of death among ANs, comprising 7.5% (n= 445) of all deaths. ANs died by suicide (49.7 per 100,000; 95% CI: 43.0-56.4) 4.1 times more often than US Whites (12.0 per 100,000). Suicide deaths accounted for 17% (n = 346) of all excess deaths among ANs. Over eighty percent of all suicides for both racial groups were among men, however, rate ratios were similarly high for both AN men and women compared to US Whites. ANs in the age groups, 5 to 44 years, had rate ratios 4.5 to 9 times higher than US Whites. Rate ratios were not significantly higher after age 45.

The Norton Sound (83.4 per 100,000, 95%CI: 61.3-105.5), Kotzebue (80.5 per 100,000, 95%CI:58.1-102.9) and Interior (71.5 per 100,000, 95%CI:54.8-88.2) Service Units experienced higher suicide rates than the state average for ANs (49.7 per 100,000). The Mt. Edgecumbe (29.6 per 100,000, 95%CI:20.4-38.8) and Anchorage (26.8 per 100,000, 95%CI:20.9-32.7) Service Units experienced lower rates.

There has been no significant change in suicide death rates among ANs during the time period, 1979 to 1998. Suicide rates for U.S. Whites decreased 6% during this time period.

Almost three quarters (72%) of all suicides among ANs involved firearms. AN men (75%), in particular, were more likely to

choose this method as compared to AN women (55%). The second most common suicide method among ANs was hanging (18% of men, 31% of women), followed by poisoning (4% of men, 9% of women), drowning (1% of men, 3% of women), and piercing or cutting (1% of men, 1% of women).

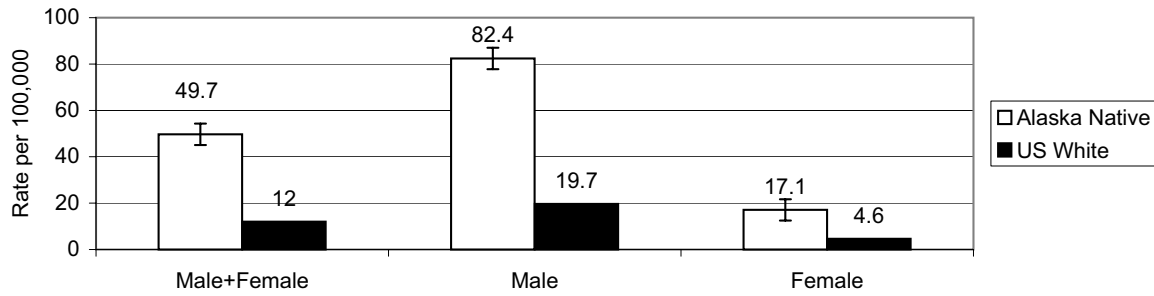
#4 Leading Cause of Death Among Alaska Natives, 1989-1998 Suicide

Age-Adjusted Suicide Rates for Alaska Natives, 1989-1998 Compared to US Whites, 1993

	Alaska Natives		Rate† per 100,000	95% CI	US Whites		Rate† per 100,000	SMR	Excess Deaths
	#	%			#	%			
Male + female	445	7.5%	49.7	43.0-56.4	28035	1.4%	12.0	4.1*	347
Male	370	10.3%	82.4	73.9-90.9	22524	2.3%	19.7	4.2*	291
Female	75	3.2%	17.1	13.2-21.0	5511	0.6%	4.6	3.7*	56

* 95% Confidence Interval does not include US White rate.

**Age-Adjusted Suicide Rates
Alaska Natives, 1989-1998 Compared to US Whites, 1993**

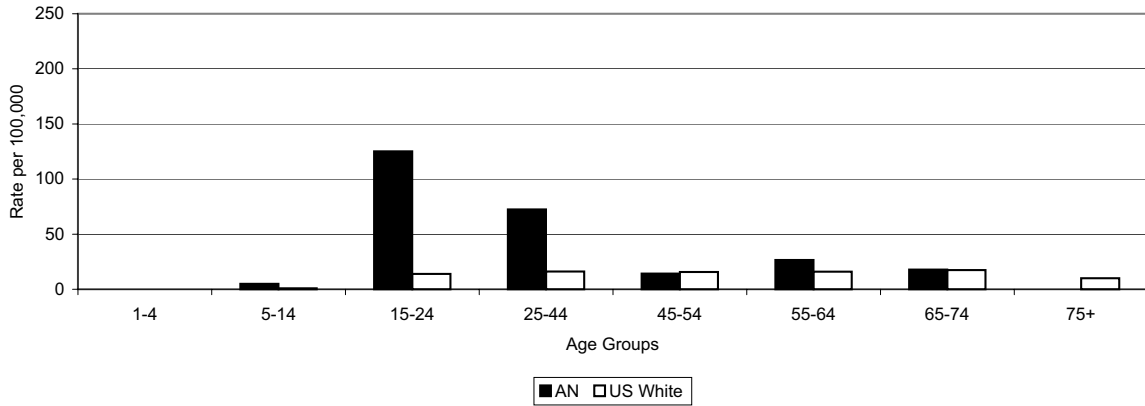


Age-Specific Suicide Rates For Alaska Natives, 1989-1998 Compared to US Whites, 1993

Male and Female Combined Rates

Suicide	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN	0	5	125.1	72.4	14.2	26.6	17.9	0
US White	0	0.9	14	16.1	15.7	15.9	17.4	10

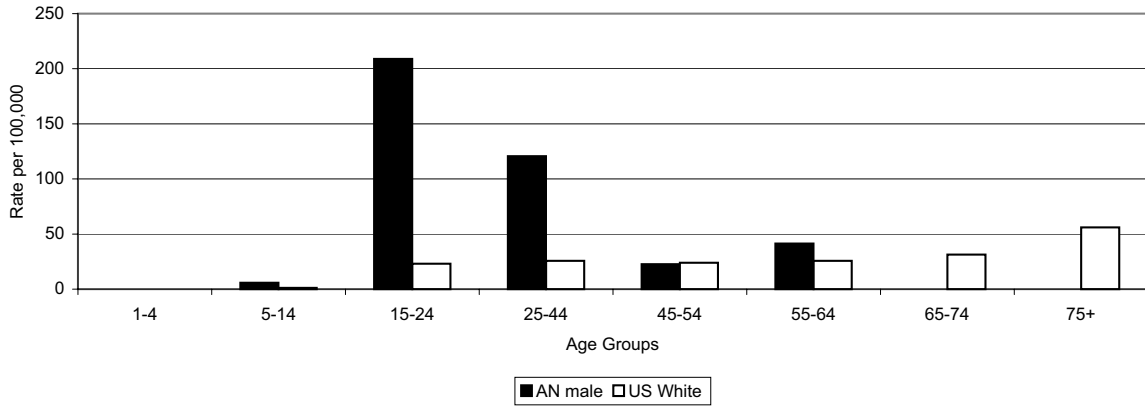
Age-Specific Mortality Rates for Suicide
Alaska Natives 1989-1998 versus US Whites 1993
Male and Female Combined □



Male Rates

Suicide	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN	0	5.8	208.9	120.6	22.6	41.4	0	0
US White	0	1.2	23.1	25.7	23.9	25.7	31.4	56.1

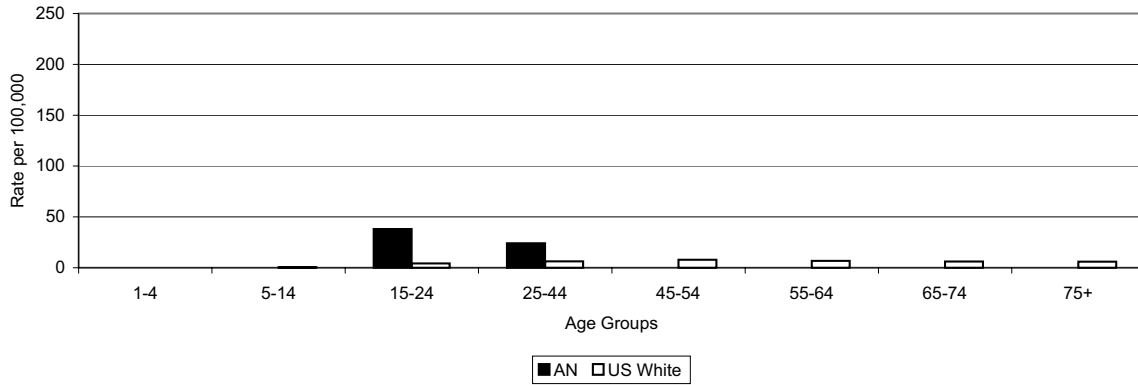
Age-Specific Mortality Rates for Suicide
Alaska Natives 1989-1998 versus US Whites 1993
Males □



**Age-Specific Suicide Rates For Alaska Natives, 1989-1998 Compared to US Whites, 1993
Female Rates**

Suicide	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN	0	0	38	24	0	0	0	0
US White	0	0.54	4.3	6.3	7.8	6.8	6.2	5.9

**Age-Specific Mortality Rates for Suicide
Alaska Natives 1989-1998 versus US Whites 1993
Females**

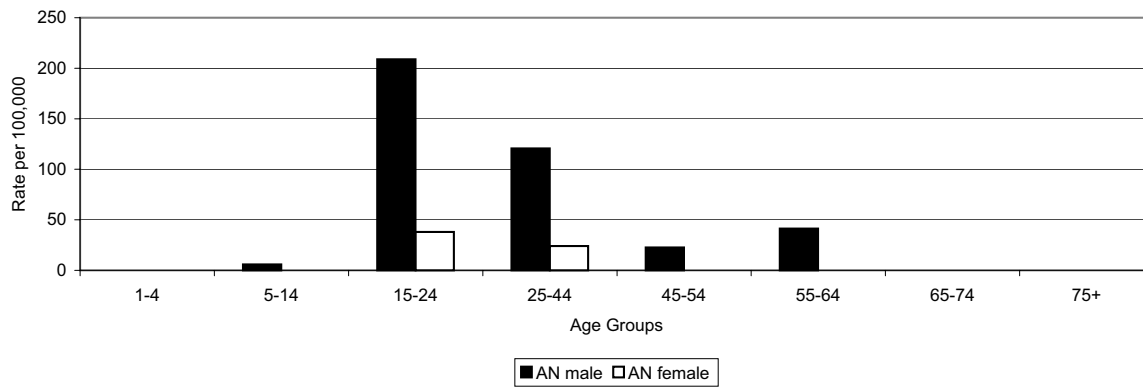


Age-Specific Suicide Rates For Alaska Natives, 1989-1998 Male versus Female

Male versus Female

Suicide	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN male	0	5.8	208.9	120.6	22.6	41.4	0	0
AN female	0	0	38	24	0	0	0	0

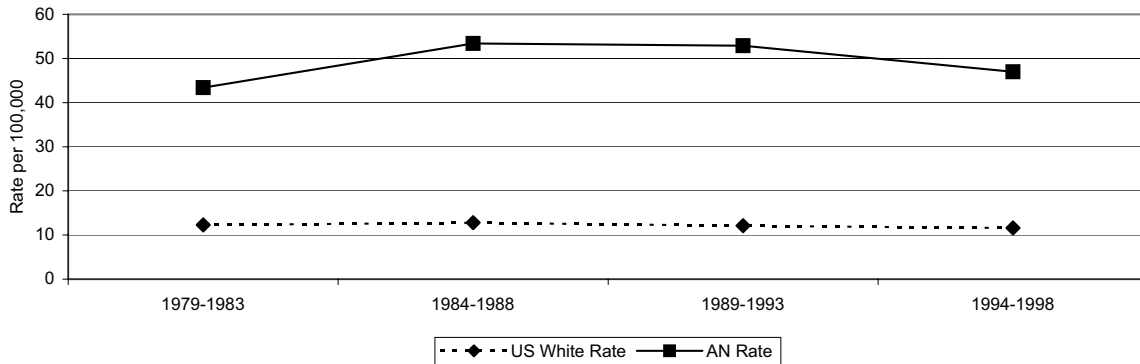
**Age-Specific Mortality Rates for Suicide
Alaska Natives 1989-1998
Males versus Females**



**Age-Adjusted Suicide Rates Among Alaska Natives,
Comparison of Five Year Intervals, 1979-1998, and US White Rates, 1981, 1986, 1991, 1996
Males and Females Combined**

Alaska Native Rates				
1979-1983	1984-1988	1989-1993	1994-1998	% Change
43.4	53.4	52.9	47	NS
US White Rates				
1981	1986	1991	1996	% Change
12.3	12.8	12.1	11.6	-6%

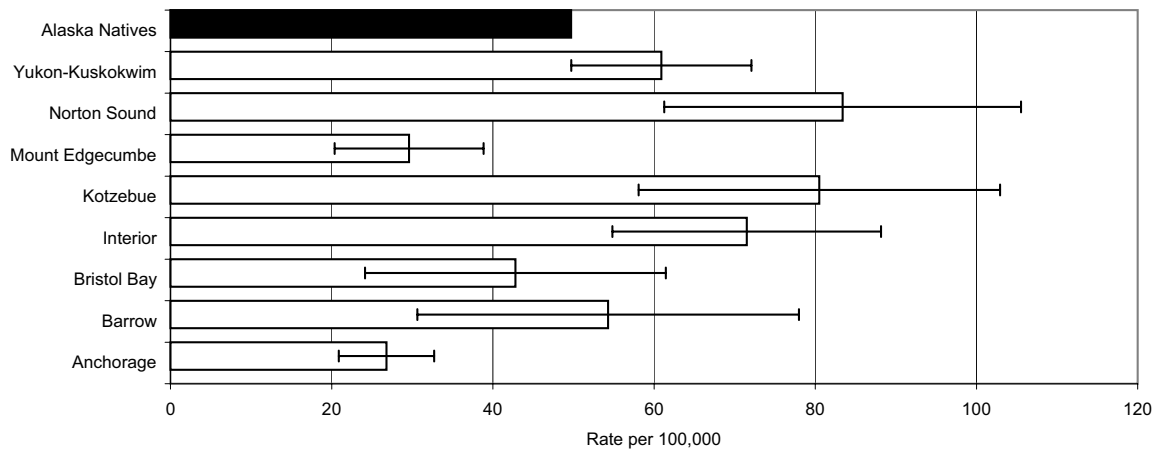
**Age-Adjusted Suicide Mortality Rates Over Time
Alaska Native versus US Whites**



Age-Adjusted Suicide Rates by Service Unit, 1989-1998

Anchorage	Barrow	Bristol Bay	Interior	Kotzebue	Mount Edgumbe	Norton Sound	Yukon-Kuskokwim	Alaska Native
26.8	54.3	42.8	71.5	80.5	29.6	83.4	60.9	49.7

**Age-Adjusted Suicide Mortality Rates by Service Unit
1989-1998**



Cerebrovascular Disease

Cerebrovascular disease was the fifth leading cause of death among AN men and women combined. Approximately 4.5% (n = 269) of ANs died from this cause.

Cerebrovascular disease was the seventh leading cause of death among AN men and the fourth among women. Overall, ANs had a fifty percent higher mortality rate from cerebrovascular disease (36.4 per 100,000; 95% CI: 29.9-42.9) as USW (24.5 per 100,000).

Cerebrovascular disease was responsible for 4% (n=90) of all excess deaths among ANs. Although there was no difference in rates between AN men and US White men, AN women (41.2 per 100,000; 95% CI: 34.7-47.7) had an overall eighty percent higher mortality rate as US White women (22.7 per 100,000). An analysis of age-specific categories showed that AN women had risk ratios ranging from two and a half to more than three fold higher than US White women for age groups between 25 and 64 years.

Barrow Service Unit (18.2 per 100,000, 95%CI:3.7-32.7) had a lower mortality rate from cerebrovascular diseases than the state average for ANs (36.4 per 100,000).

During the twenty year period, 1979 to 1998, mortality from cerebrovascular disease increased a significant 17% for ANs. In contrast, mortality from cerebrovascular disease among U.S. Whites decreased by 31% during this same period.

An examination of subcategories of cerebrovascular diseases revealed that both AN men and women died of roughly equal percentages of each of the three major subcategories of cerebrovascular disease. The majority of cerebrovascular disease deaths to AN women (69.5%) were from all other and late effects of cerebrovascular diseases. AN women (28.1 per 100,000; 95% CI:22.8-33.4) were 1.7 times more likely to die from this cause as US White women (16.6 per 100,000). AN women (8.6 per 100,000; 95% CI: 5.6-11.6) were 2.2 times more likely to die from intracerebral and other intracranial hemorrhage than US White women (3.9 per 100,000). Additionally, AN women (4.5 per 100,000; 95% CI: 2.3-6.7) were 2.2 times more likely to die from cerebral thrombosis and unspecified occlusion of cerebral arteries as US White women (2.1 per 100,000).

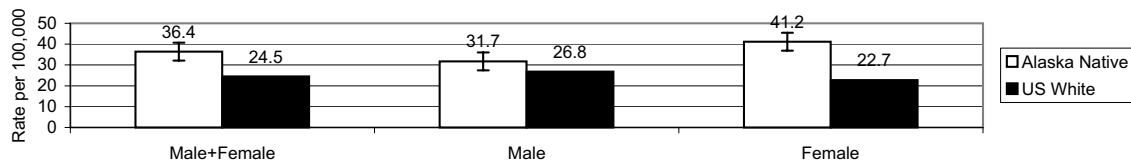
#5 Leading Cause of Death Among Alaska Natives in Rank Order, 1989-1998 Cerebrovascular Disease

Age-Adjusted Cerebrovascular Disease Mortality Rates for Alaska Natives, 1989-1998 Compared to US Whites, 1993

	Alaska Natives			95% CI	US Whites		Rate [†] per 100,000	SMR	Excess Deaths
	#	%	Rate [†] per 100,000		#	%			
Male + female	269	4.5%	36.4	29.9-42.9	129992	6.7%	24.5	1.5*	87
Male	106	2.9%	31.7	25.6-37.8	50220	5.1%	26.8	1.2	31
Female	163	7.0%	41.2	34.7-47.7	79772	8.3%	22.7	1.8*	56

* 95% Confidence Interval does not include US White rate.

Age-Adjusted Cerebrovascular Disease Mortality Rates
Alaska Natives, 1989-1998 Compared to US Whites, 1993

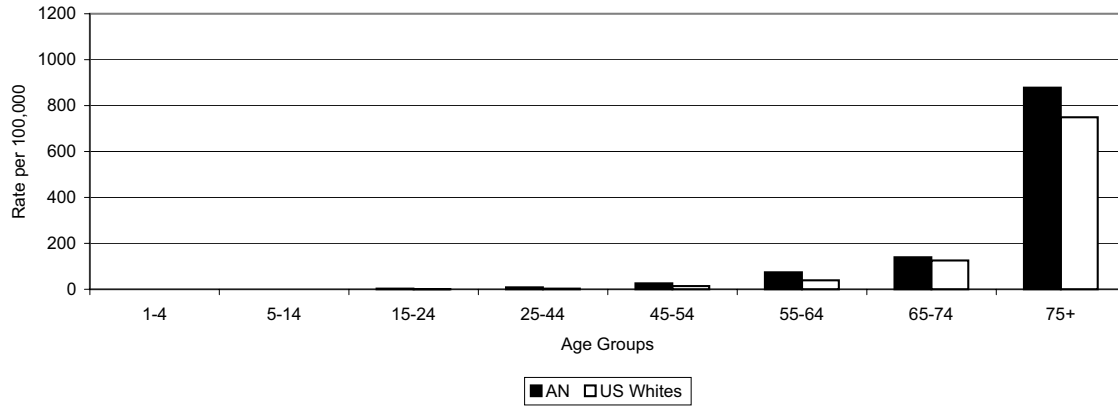


Age-Specific Cerebrovascular Disease Mortality Rates For Alaska Natives, 1989-1998 Compared to US Whites, 1993

Male and Female Combined Rates

Cerebrovascular Disease	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN Male and Female	0	0	3.1	8.4	25.6	73.6	139.5	878.3
US White Male and Female	0.31	0.2	0.5	3.1	13.7	38.9	125.1	749.3

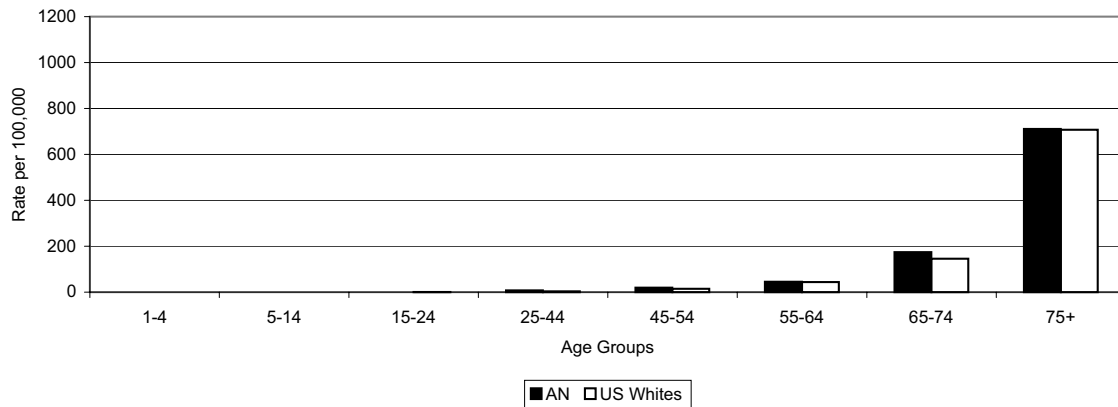
**Age-Specific Mortality Rates for Cerebrovascular Disease
Alaska Natives 1989-1998 versus US Whites 1993
Male and Female Combined** □



Male Rates

Cerebrovascular Disease	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN Male	0	0	0	7.7	19.8	45.6	174.1	710.9
US White Male	0.31	0.2	0.46	3.5	14.9	44.1	145.8	707.2

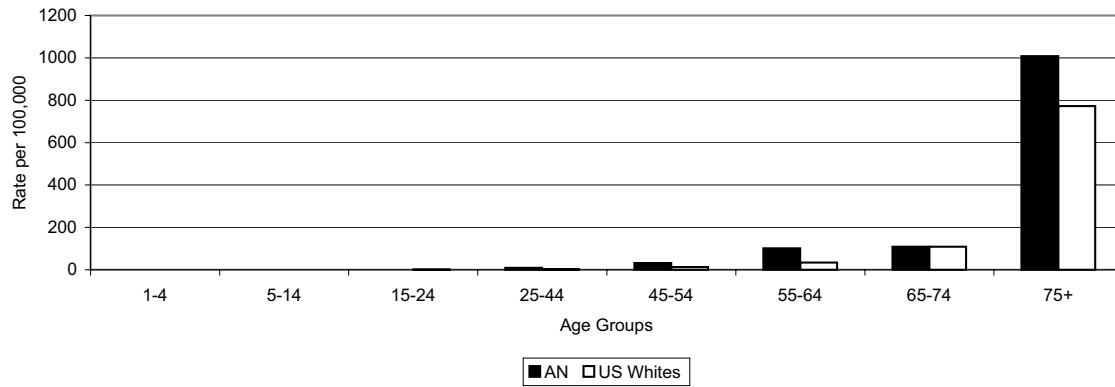
**Age-Specific Mortality Rates for Cerebrovascular Disease
Alaska Natives 1989-1998 versus US Whites 1993
Males** □



Age-Specific Cerebrovascular Disease Mortality Rates For Alaska Natives, 1989-1998 Compared to US Whites, 1993 Female Rates

Cerebrovascular Disease	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN Female	0	0	0	9.2	31.5	100.9	108.6	1008.5
US White Female	0.25	0.15	0.65	2.8	12.6	34.1	108.5	772.7

**Age-Specific Mortality Rates for Cerebrovascular Disease
Alaska Natives 1989-1998 versus US Whites 1993
Females**

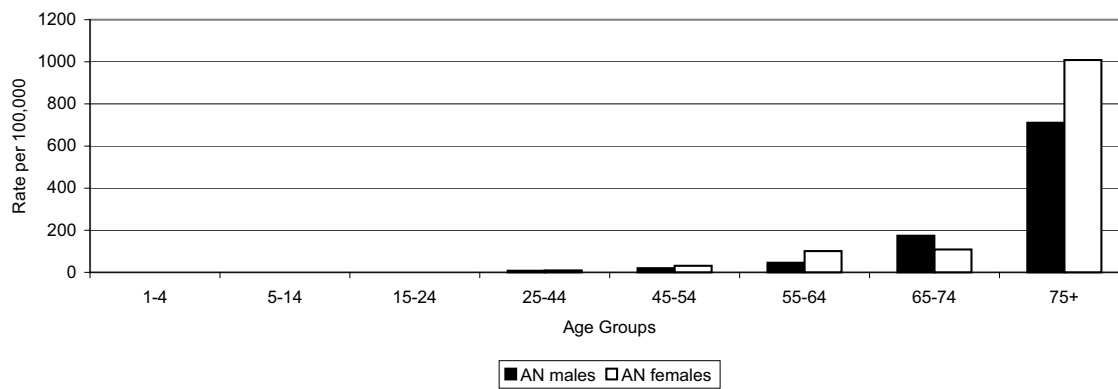


Age-Specific Cerebrovascular Disease Mortality Rates For Alaska Natives, 1989-1998 Male versus Female

Male versus Female

Cerebrovascular	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN male	0	0	0	7.7	19.8	45.6	174.1	710.9
AN female	0	0	0	9.2	31.5	100.9	108.6	1008.5

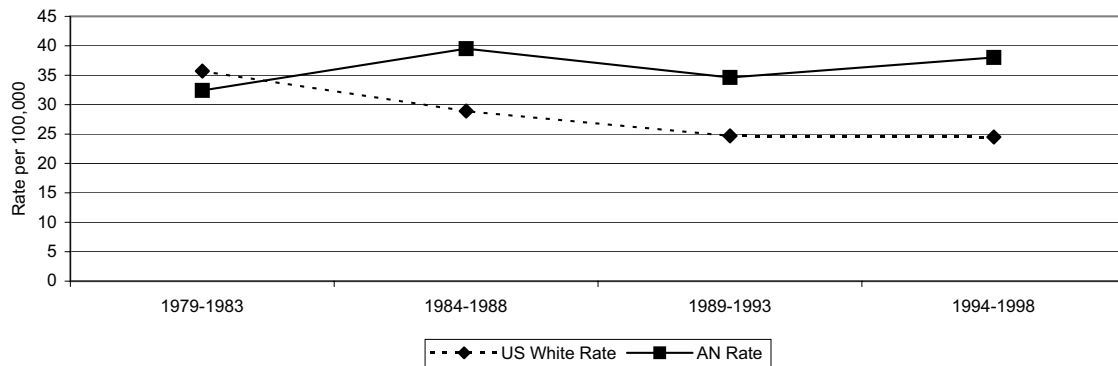
**Age-Specific Mortality Rates for Cerebrovascular Disease
Alaska Natives 1989-1998
Males versus Females**



**Age-Adjusted Cerebrovascular Disease Mortality Rates Among Alaska Natives,
Comparison of Five Year Intervals, 1979-1998, and US White Rates, 1981, 1986, 1991, 1996
Males and Females Combined**

Alaska Native Rates				
1979-1983	1984-1988	1989-1993	1994-1998	% Change
32.4	39.5	34.6	38	17%
US White Rates				
1981	1986	1991	1996	% Change
35.7	28.9	24.7	24.5	-31%

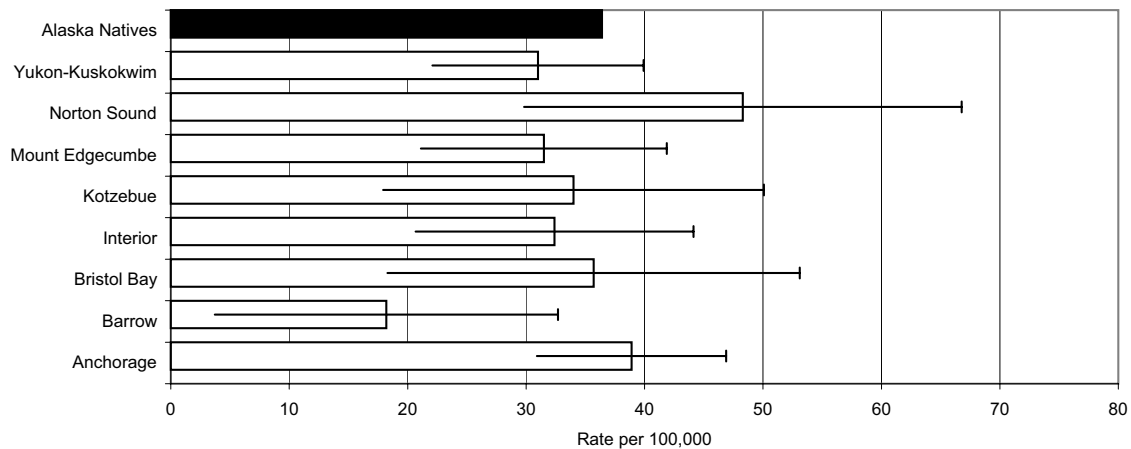
**Age-Adjusted Cerebrovascular Disease Mortality Rates Over Time
Alaska Native versus US Whites**



Age-Adjusted Cerebrovascular Disease Mortality Rates by Service Unit, 1989-1998

Anchorage	Barrow	Bristol Bay	Interior	Kotzebue	Mount Edgumbe	Norton Sound	Yukon-Kuskokwim	Alaska Native
38.9	18.2	35.7	32.4	34.0	31.5	48.3	31.0	36.4

**Age-Adjusted Cerebrovascular Disease Mortality Rates by Service Unit
1989-1998**



Chronic Obstructive Pulmonary Diseases

Emphysema and Bronchiectasis accounted for 4% of COPD deaths each.

Chronic obstructive pulmonary disease (COPD) was the sixth leading cause of death among AN men and women combined. By gender, COPD ranked fifth for both AN men and women. Approximately 4% (n = 233) of ANs died from this cause. ANs (34.4 per 100,000; 95% CI: 28.2-40.6) had a sixty percent greater mortality rate than US Whites (21.9 per 100,000). Four percent (n=90) of all excess deaths among ANs were caused by COPD. Ninety-four percent (n=220) of all deaths from COPD among ANs were in the 55+ age range. ANs had age specific death rates 40% to 70% higher than US Whites for all ages over 55 years. Age-specific patterns were similar for AN men and women.

Both Mt. Edgecumbe (23.4 per 100,000, 95%CI: 14.5-32.3) and Interior (22.4 per 100,000, 95%CI: 11.8-33.0) Service Units had mortality rates for chronic obstructive pulmonary diseases that were lower than the state average for ANs (34.4 per 100,000).

Mortality rates for ANs from COPD increased 191% over the period 1979 to 1998. U.S. White rates also increased during this period although only by 28%.

The majority (83%) of deaths from COPD among ANs were coded as due to a chronic airway obstruction, not elsewhere classified. The next largest category was asthma which accounted for 5% of COPD deaths among ANs. Bronchitis,

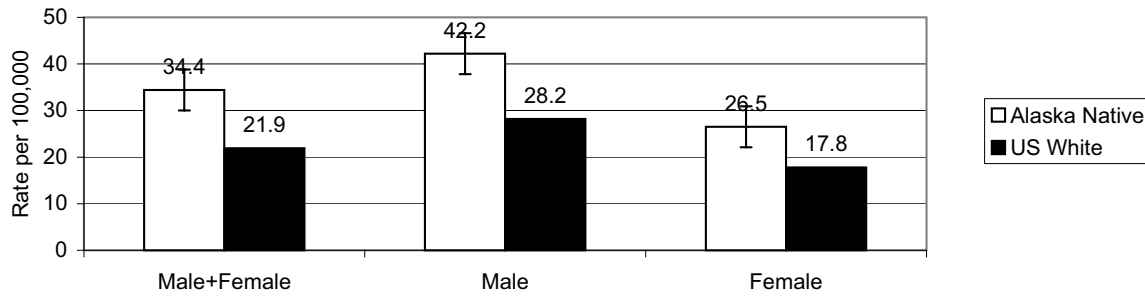
**#6 Leading Cause of Death Among Alaska Natives in Rank Order, 1989-1998
Chronic Obstructive Pulmonary Disease**

**Age-Adjusted Chronic Obstructive Pulmonary Disease (COPD) Mortality Rates for Alaska Natives, 1989-1998
Compared to US Whites, 1993**

	Alaska Natives		Rate† per 100,000	95% CI	US Whites		Rate† per 100,000	SMR	Excess Deaths
	#	%			#	%			
Male + female	233	3.9%	34.4	28.2-40.6	93615	4.8%	21.9	1.6*	89
Male	135	3.7%	42.2	35.0-49.4	49812	5.0%	28.2	1.5*	48
Female	98	4.2%	26.5	21.1-31.9	43803	4.5%	17.8	1.5*	41

* 95% Confidence Interval does not include US White rate.

**Age-Adjusted Chronic Obstructive Pulmonary Diseases Mortality Rates
Alaska Natives, 1989-1998 Compared to US Whites, 1993**

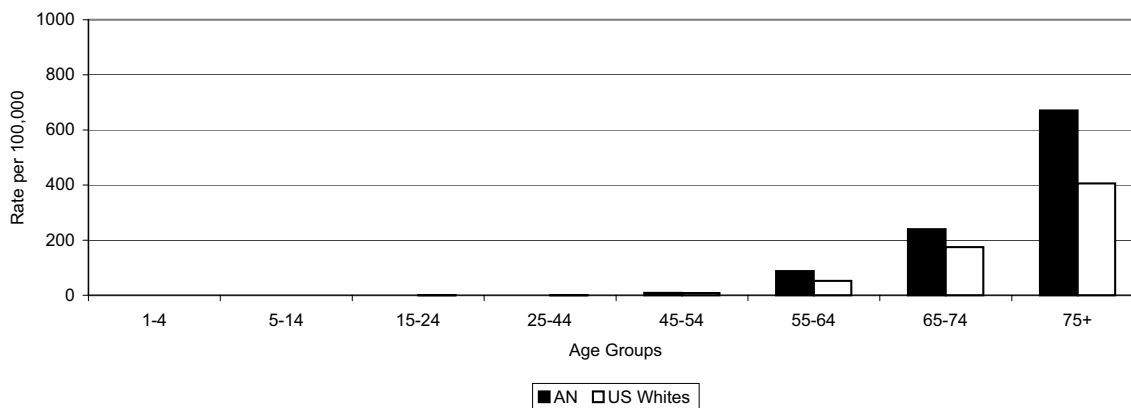


Age-Specific COPD Mortality Rates For Alaska Natives, 1989-1998 Compared to US Whites, 1993

Male and Female Combined Rates

Chronic Obstructive Pulmonary Disease	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN Male and Female	0	0	0	0	8.5	87.9	239.7	670.9
US White Male and Female	0.27	0.26	0.48	0.87	8.3	52.5	174.7	406

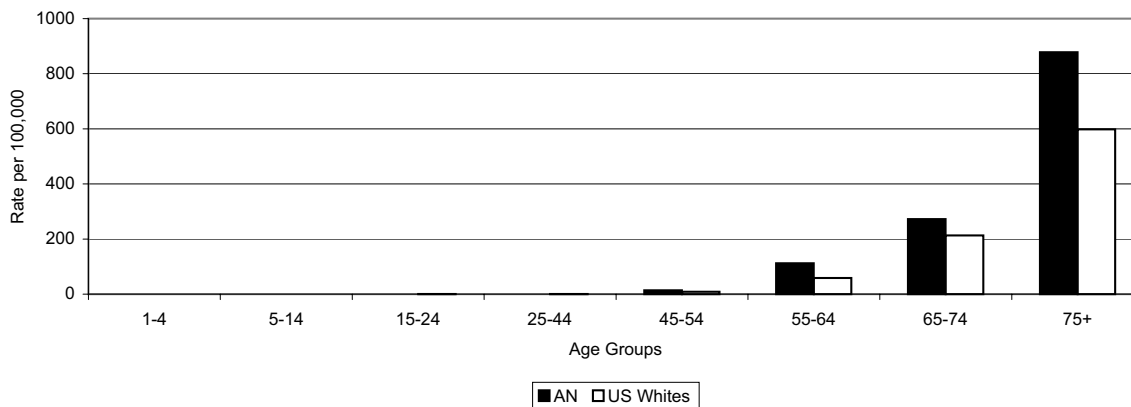
**Age-Specific Mortality Rates for Chronic Obstructive Pulmonary Disease
Alaska Natives 1989-1998 versus US Whites 1993
Male and Female Combined**



Male Rates

Chronic Obstructive Pulmonary Disease	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN Male	0	0	0	0	14.1	111.9	272.5	878.2
US White Male	0.27	0.26	0.48	0.87	9	58.5	213.3	598.4

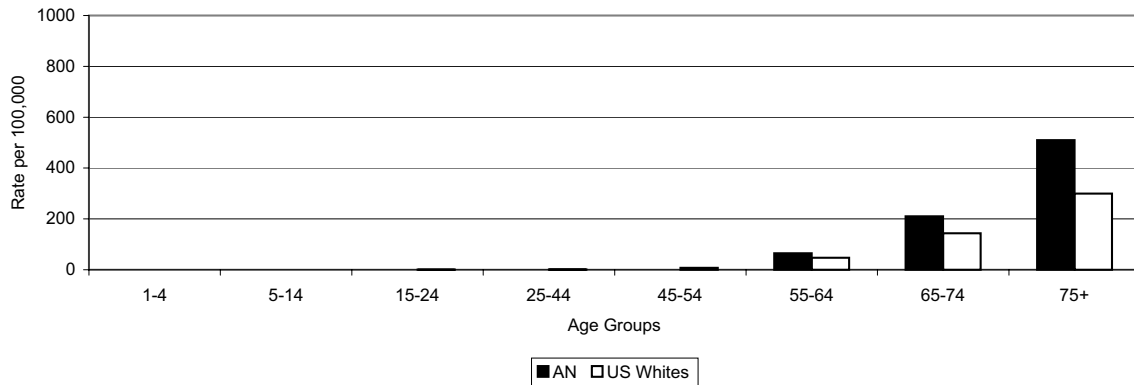
**Age-Specific Mortality Rates for Chronic Obstructive Pulmonary Disease
Alaska Natives 1989-1998 versus US Whites 1993
Males**



**Age-Specific COPD Mortality Rates For Alaska Natives, 1989-1998 Compared to US Whites, 1993
Female Rates**

Chronic Obstructive Pulmonary Disease	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN Female	0	0	0	0	0	64.6	210.3	509.7
US White Female	0.11	0.24	0.35	0.95	7.57	47	143.8	299.3

**Age-Specific Mortality Rates for Chronic Obstructive Pulmonary Disease
Alaska Natives 1989-1998 versus US Whites 1993
Females**

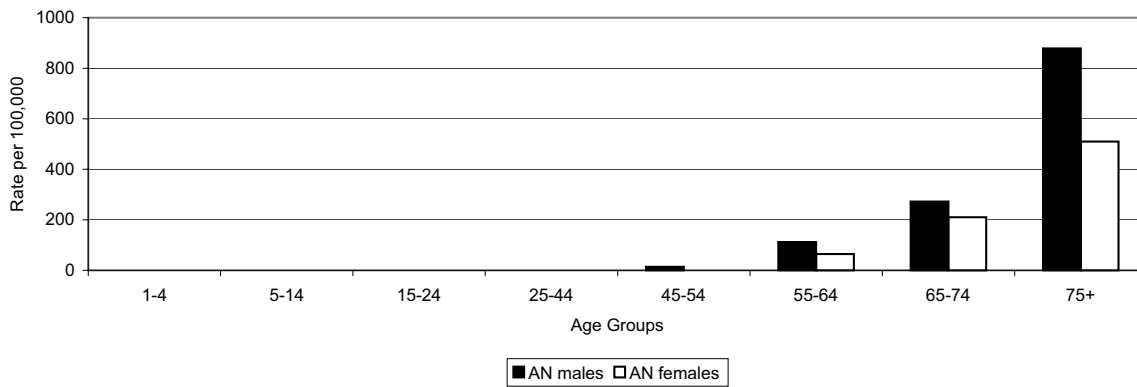


Age-Specific COPD Mortality Rates For Alaska Natives, 1989-1998 Male versus Female

Male versus Female

Chronic Obstructive Pulmonary Disease	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN male	0	0	0	0	14.1	111.9	272.5	878.2
AN female	0	0	0	0	0	64.6	210.3	509.7

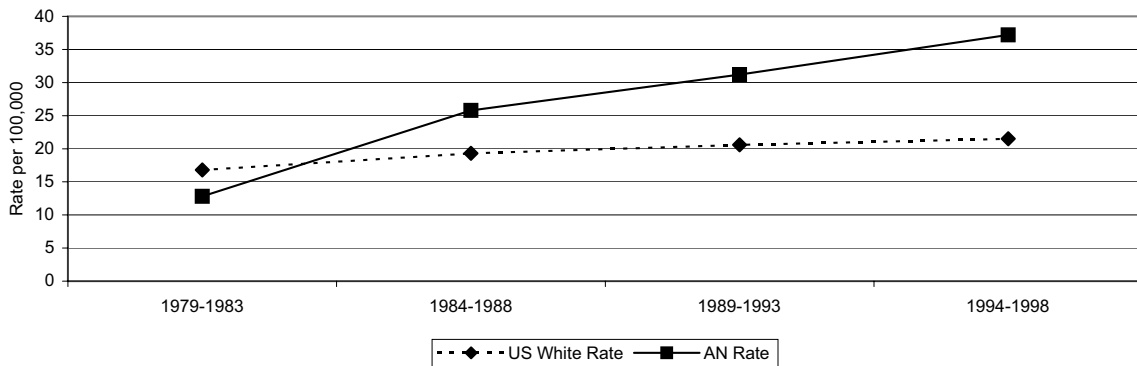
**Age-Specific Mortality Rates for Chronic Obstructive Pulmonary Disease
Alaska Natives 1989-1998
Males versus Females**



**Age-Adjusted COPD Mortality Rates Among Alaska Natives,
Comparison of Five Year Intervals, 1979-1998, and US White Rates, 1981, 1986, 1991, 1996
Males and Females Combined**

Alaska Native Rates				
1979-1983	1984-1988	1989-1993	1994-1998	% Change
12.8	25.8	31.2	37.2	191%
US White Rates				
1981	1986	1991	1996	% Change
16.8	19.3	20.6	21.5	20%

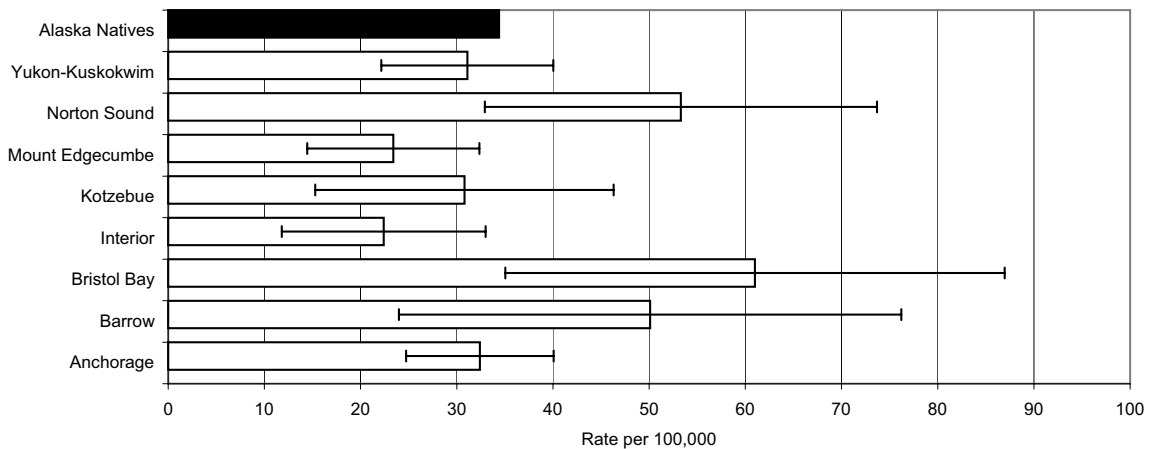
**Age-Adjusted Chronic Obstructive Pulmonary Disease Mortality Rates Over Time
Alaska Native versus US Whites**



Age-Adjusted COPD Mortality Rates by Service Unit, 1989-1998

Anchorage	Barrow	Bristol Bay	Interior	Kotzebue	Mount Edgumbe	Norton Sound	Yukon-Kuskokwim	Alaska Native
32.4	50.1	61.0	22.4	30.8	23.4	53.3	31.1	34.4

**Age-Adjusted Chronic Obstructive Pulmonary Disease Mortality Rates by Service Unit
1989-1998**



Pneumonia and Influenza

Pneumonia and influenza ranked seventh among the ten leading causes of death in ANs, comprising 3.1% (n = 182) of all deaths. ANs (23.7 per 100,000; 95% CI: 18.7-28.7) had an eighty percent higher mortality rate from pneumonia and influenza compared to US Whites (12.9 per 100,000). Pneumonia and influenza accounted for 3% (n = 55) of all excess deaths. Excesses were similar for both AN men and women. The excess deaths from pneumonia and influenza appear to be almost entirely among ANs age 25 and older with rate ratios for age-specific groups ranging from 1.2 to 4.4 times higher than US Whites.

Barrow (5.9 per 100,000, 95%CI: 0-14.0) Service Unit experienced a lower mortality rate from Pneumonia and Influenza compared to state averages for ANs (23.7 per 100,000).

Deaths to ANs from pneumonia and influenza decreased 35% during the twenty year period, 1979 to 1998. All of this decline occurred during the most recent five year time period, 1994-1998. The decline appeared in all age groups. U.S. White rates increased by 5% over the twenty-year period, 1979-1998.

Of the 182 deaths among ANs reported as due to Pneumonia and Influenza, 74% (n=134) were coded as pneumonia, organism unspecified. All, but one, of the other deaths were ascribed to various types of pneumonia. There was one death attributed to influenza.

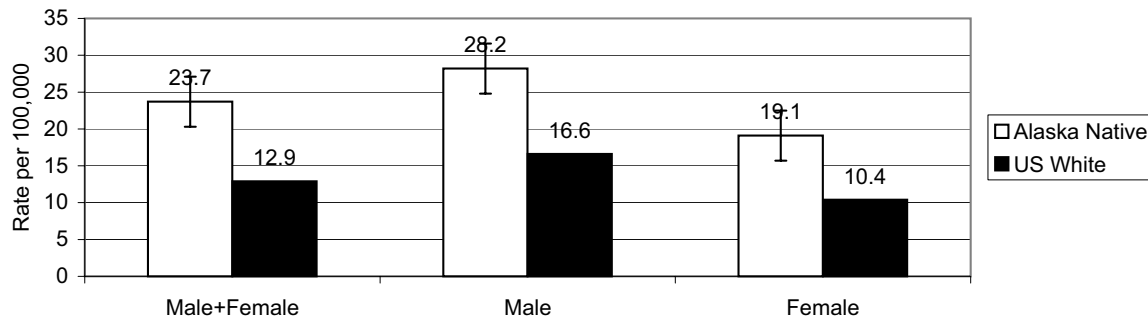
#7 Leading Cause of Death Among Alaska Natives, 1989-1998 Pneumonia and Influenza

Age-Adjusted Pneumonia and Influenza Mortality Rates for Alaska Natives, 1989-1998 Compared to US Whites, 1993

	Alaska Natives		Rate† per 100,000	95% CI	US Whites		Rate† per 100,000	SMR	Excess Deaths
	#	%			#	%			
Male + female	182	3.1%	23.7	18.7-28.7	73720	3.8%	12.9	1.8*	54
Male	103	2.9%	28.2	22.6-33.8	33151	3.4%	16.6	1.7*	31
Female	79	3.4%	19.1	14.7-23.5	40569	4.2%	10.4	1.8*	23

* 95% Confidence Interval does not include US White rate.

**Age-Adjusted Pneumonia and Influenza Mortality Rates
Alaska Natives, 1989-1998 Compared to US Whites, 1993**

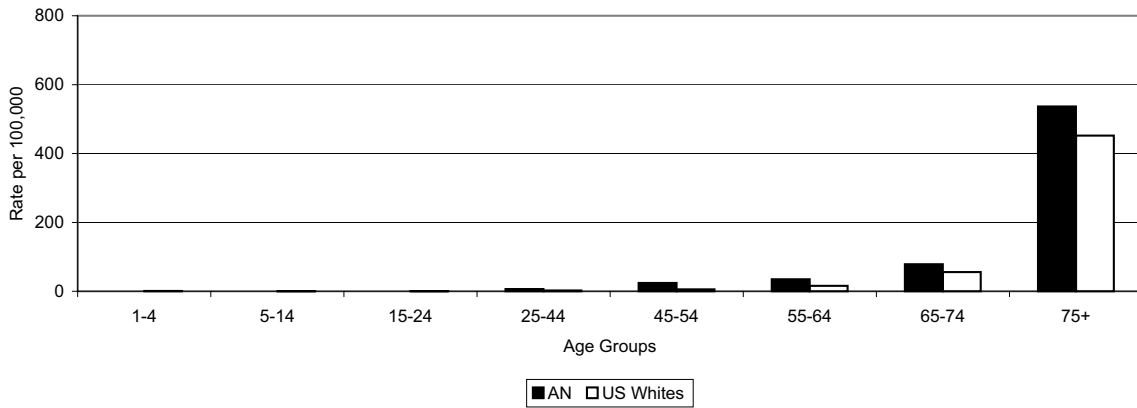


Age-Specific Pneumonia and Influenza Mortality Rates For Alaska Natives, 1989-1998 Compared to US Whites, 1993

Male and Female Combined Rates

Pneumonia and Influenza	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN Male and Female	0	0	0	6.3	24.2	34.8	78.7	536.7
US White Male and Female	0.9	0.4	0.6	2.2	5.5	16	55.6	451.9

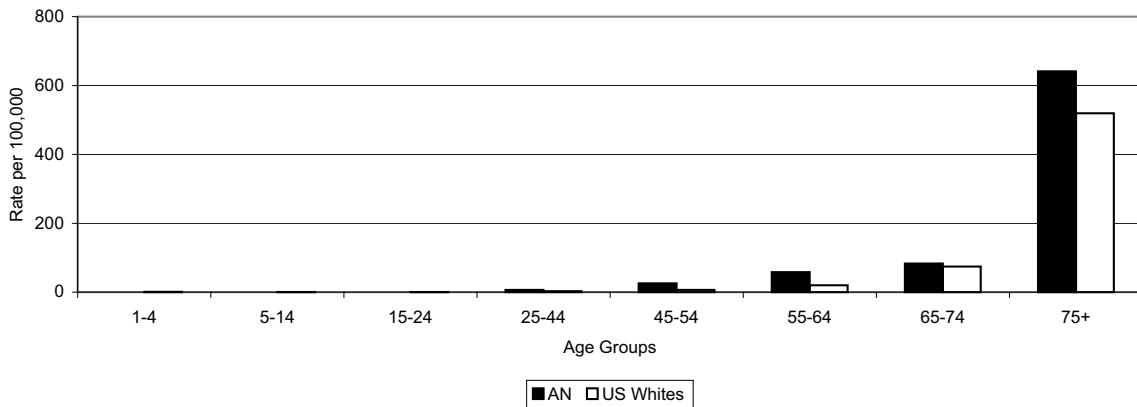
**Age-Specific Mortality Rates for Pneumonia and Influenza
Alaska Natives 1989-1998 versus US Whites 1993
Male and Female Combined** □



Male Rates

Pneumonia and Influenza	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN Male	0	0	0	6.3	25.4	58	83.3	641.2
US White Male	0.95	0.37	0.57	2.8	6.7	19.8	74.1	519.3

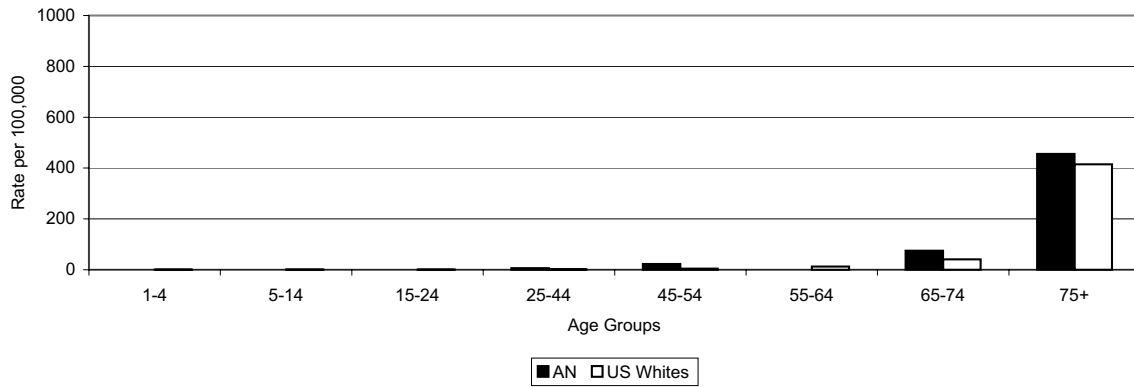
**Age-Specific Mortality Rates for Pneumonia and Influenza
Alaska Natives 1989-1998 versus US Whites 1993
Males** □



**Age-Specific Pneumonia and Influenza Mortality Rates For Alaska Natives, 1989-1998 Compared to US Whites, 1993
Female Rates**

Pneumonia and Influenza	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN Female	0	0	0	6.3	22.9	0	74.6	455.4
US White Female	0.92	0.37	0.59	1.6	4.4	12.4	40.7	414.5

**Age-Specific Mortality Rates for Pneumonia and Influenza
Alaska Natives 1989-1998 versus US Whites 1993
Females**

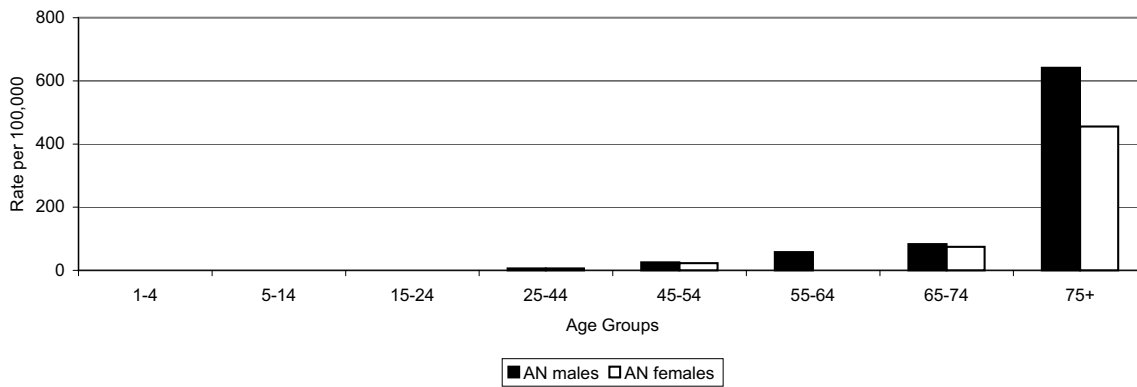


Age-Specific Pneumonia and Influenza Mortality Rates For Alaska Natives, 1989-1998 Male versus Female

Male versus Female

Pneumonia and Influenza	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN male	0	0	0	6.3	25.4	58	83.3	641.2
AN female	0	0	0	6.3	22.9	0	74.6	455.4

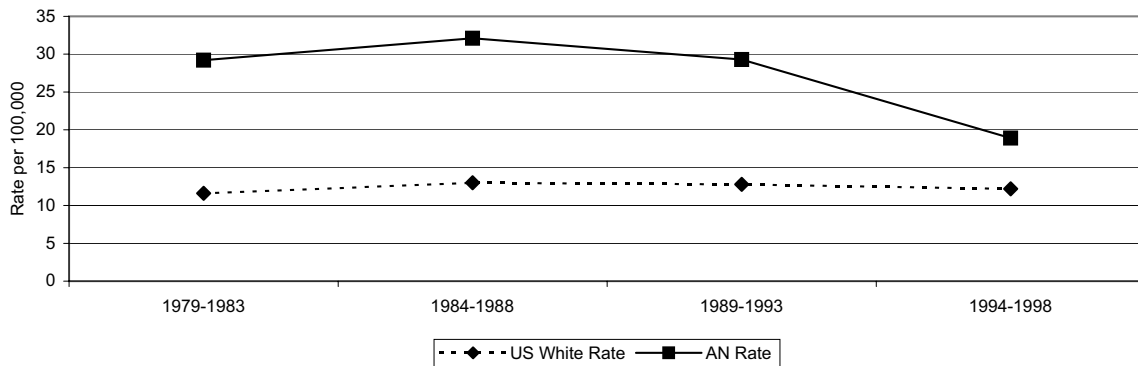
**Age-Specific Mortality Rates for Pneumonia and Influenza
Alaska Natives 1989-1998
Males versus Females**



**Age-Adjusted Pneumonia and Influenza Mortality Rates Among Alaska Natives,
Comparison of Five Year Intervals, 1979-1998, and US White Rates, 1981, 1986, 1991, 1996
Males and Females Combined**

Alaska Native Rates				
1979-1983	1984-1988	1989-1993	1994-1998	% Change
29.2	32.1	29.3	18.9	-35%
US White Rates				
1981	1986	1991	1996	% Change
11.6	13	12.8	12.2	5%

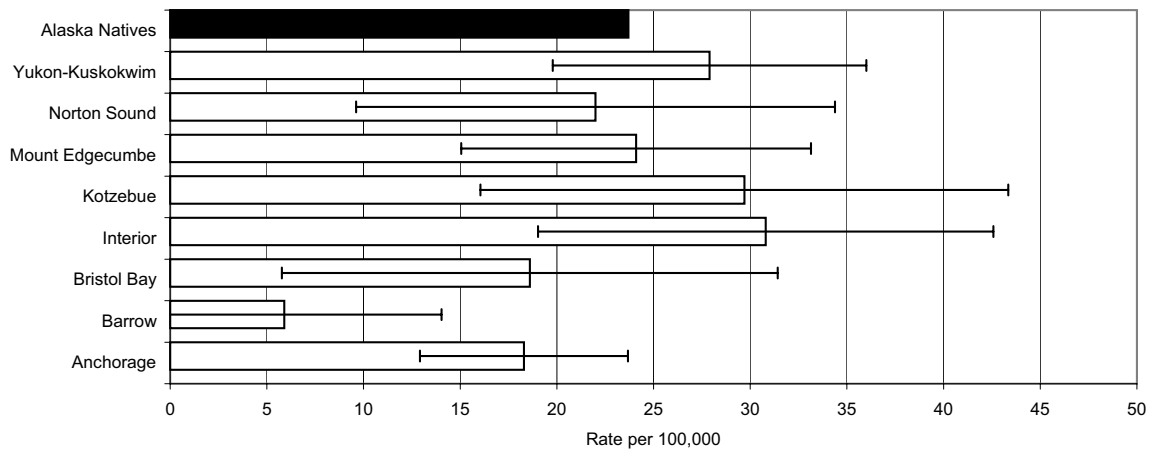
**Age-Adjusted Pneumonia and Influenza Mortality Rates Over Time
Alaska Native versus US Whites**



Age-Adjusted Pneumonia and Influenza Mortality Rates by Service Unit, 1989-1998

Anchorage	Barrow	Bristol Bay	Interior	Kotzebue	Mount Edgumbe	Norton Sound	Yukon-Kuskokwim	Alaska Native
18.3	5.9	18.6	30.8	29.7	24.1	22.0	27.9	23.7

**Age-Adjusted Pneumonia and Influenza Mortality Rates by Service Unit
1989-1998**



Homicide and Legal Intervention

Homicide and legal intervention was the eighth leading cause of death among ANs. Approximately 3% (n = 160) of all AN deaths were due to homicide. AN (18.0 per 100,000; 95% CI: 13.9-22.1) were murdered three times as often as US Whites (6.0 per 100,000). Homicide accounted for 5% (n = 105) of excess deaths among ANs. Native men (24.8 per 100,000; 95% CI: 20.1-29.5) had homicide rate 2.8 times higher than US White men (8.9 per 100,000), whereas Native women (11.2 per 100,000; 95% CI: 8.0-14.4) had homicide rates 3.7 times higher than US White women (3.0 per 100,000). Rate ratios increased with age group from 2.6 fold excess among the 5-14 year olds, to over four fold among the 55 to 64 year old age group. There were too few homicide deaths in the 1-4 age group as well as in age groups 65 and over to calculate rates.

The Interior Service Unit (31.1 per 100,000, 95%CI: 20.4-41.8) had a higher homicide rate than the state average for ANs (18.0 per 100,000). Both the Mt. Edgecumbe (5.2 per 100,000, 95%CI: 1.4-9.0) and Kotzebue (7.7 per 100,000, 95%CI: 1.0-14.4) Service Units had lower rates than the state average.

Deaths from homicide and legal intervention have decreased significantly by 60% over the twenty-year period 1979 to 1998. U.S. White rates declined twenty-six percent during the same period.

Almost half of all male homicides among Natives were firearm-related. Only one in five female Native homicides involved a firearm. Women were more likely to be stabbed or beaten to death than shot.

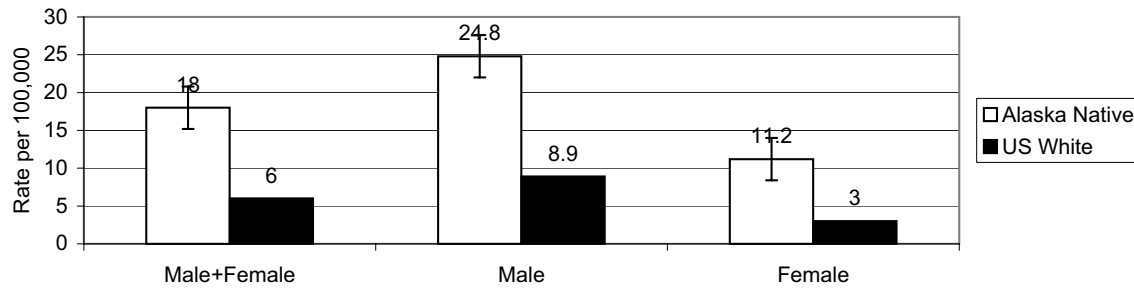
#8 Leading Cause of Death Among Alaska Natives, 1989-1998 Homicide and Legal Intervention

Age-Adjusted Homicide and Legal Intervention Rates for Alaska Natives, 1989-1998 Compared to US Whites, 1993

	Alaska Natives		Rate† per 100,000	95% CI	US Whites		Rate† per 100,000	SMR	Excess Deaths
	#	%			#	%			
Male + female	160	2.7%	18.0	13.9-22.1	12286	0.6%	6.0	3*	105
Male	112	3.1%	24.8	20.1-29.5	9054	0.9%	8.9	2.8*	70
Female	48	2.1%	11.2	8.0-14.4	3232	0.3%	3	3.7*	35

* 95% Confidence Interval does not include US White rate.

**Age-Adjusted Homicide and Legal Intervention Rates
Alaska Natives, 1989-1998 Compared to US Whites, 1993**

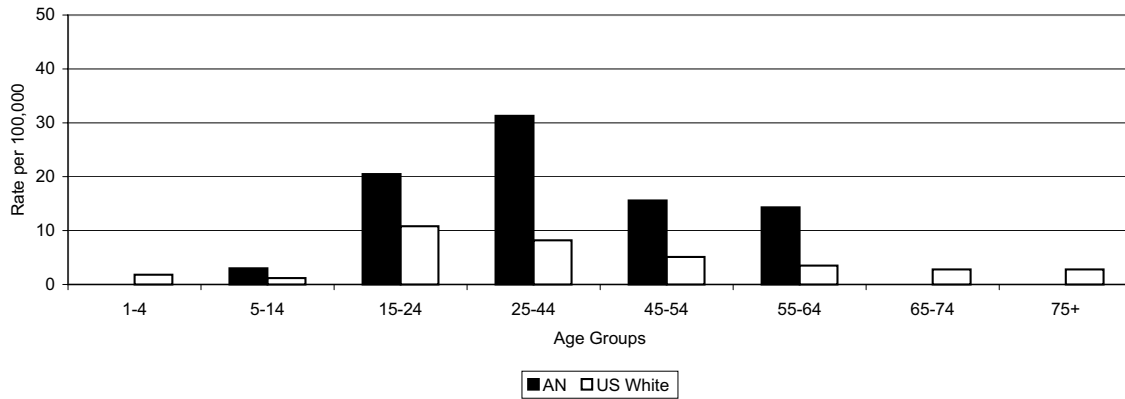


Age-Specific Homicide and Legal Intervention Rates For Alaska Natives, 1989-1998 Compared to US Whites, 1993

Male and Female Combined Rates

Homicide and Legal Intervention	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN Male and Female	0	3	20.5	31.3	15.6	14.3	0	0
US White Male and Female	1.8	1.2	10.8	8.2	5.1	3.5	2.8	2.8

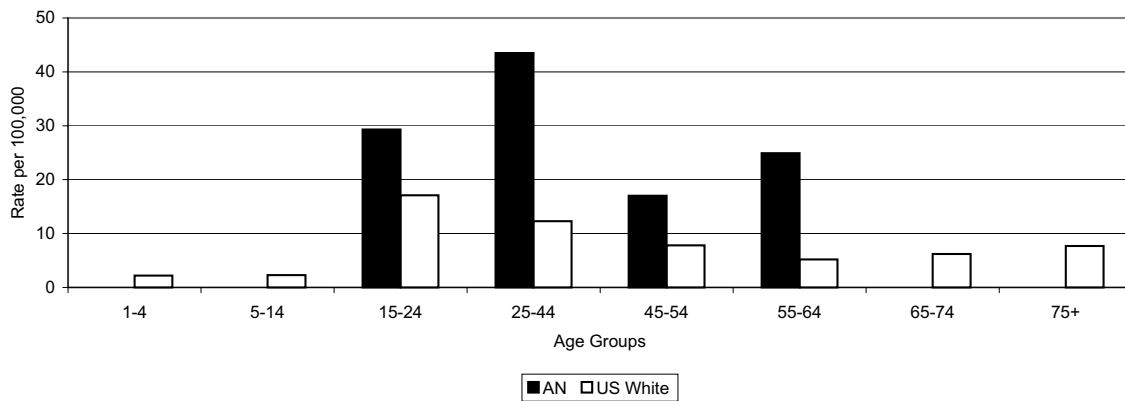
**Age-Specific Mortality Rates for Homicide and Legal Intervention
Alaska Natives 1989-1998 versus US Whites 1993
Male and Female Combined** □



Male Rates

Homicide and Legal Intervention	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN Male	0	0	29.3	43.5	17	24.9	0	0
US White Male	2.2	2.3	17.1	12.3	7.8	5.2	6.2	7.7

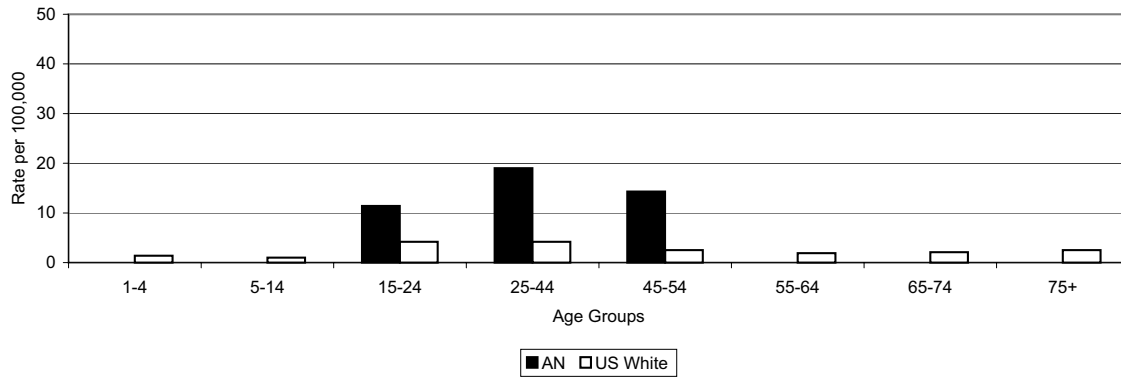
**Age-Specific Mortality Rates for Homicide and Legal Intervention
Alaska Natives 1989-1998 versus US Whites 1993
Males** □



**Age-Specific Homicide and Legal Intervention Rates For Alaska Natives, 1989-1998 Compared to US Whites, 1993
Female Rates**

Homicide and Legal Intervention	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN Female	0	0	11.4	19	14.3	0	0	0
US White Female	1.4	1	4.2	4.2	2.5	1.9	2.1	2.5

**Age-Specific Mortality Rates for Homicide and Legal Intervention
Alaska Natives 1989-1998 versus US Whites 1993
Females**

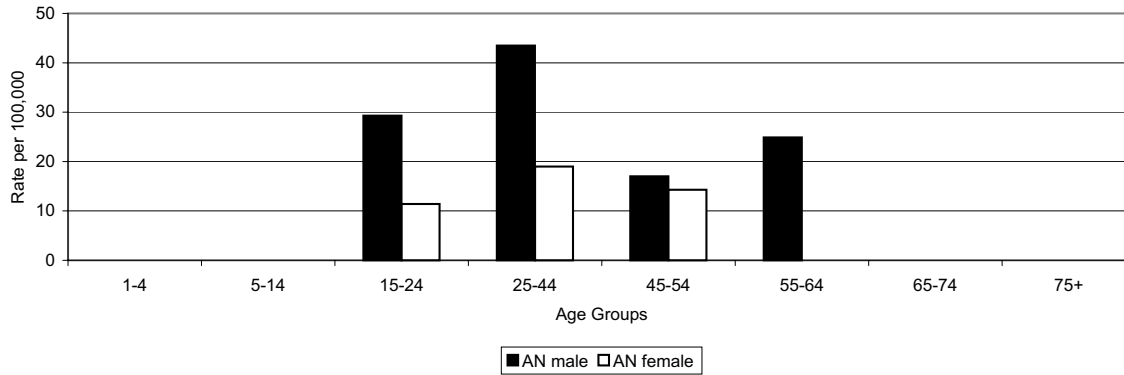


Age-Specific Homicide and Legal Intervention Rates For Alaska Natives, 1989-1998 Male versus Female

Male versus Female

Homicide and Legal Intervention	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN male	0	0	29.3	43.5	17	24.9	0	0
AN female	0	0	11.4	19	14.3	0	0	0

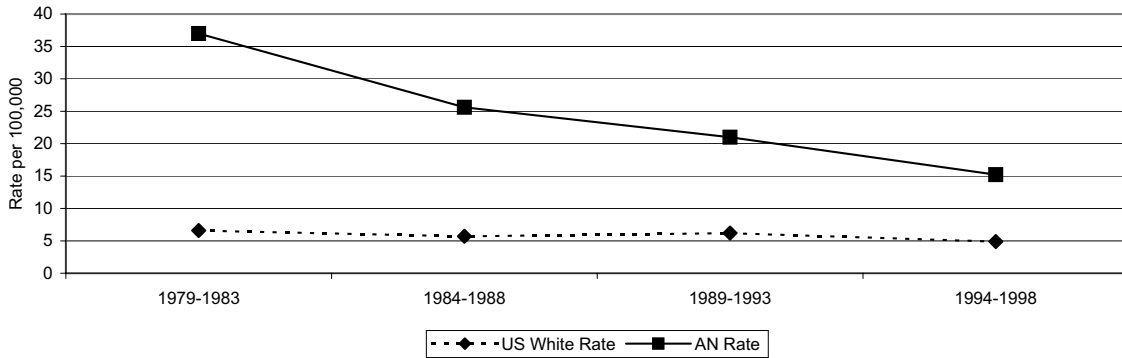
**Age-Specific Mortality Rates for Homicide and Legal Intervention
Alaska Natives 1989-1998
Males versus Females**



**Age-Adjusted Homicide and Legal Intervention Rates Among Alaska Natives,
Comparison of Five Year Intervals, 1979-1998, and US White Rates, 1981, 1986, 1991, 1996
Males and Females Combined**

Alaska Native Rates				
1979-1983	1984-1988	1989-1993	1994-1998	% Change
37	25.6	21	15.2	-60%
US White Rates				
1981	1986	1991	1996	% Change
6.6	5.7	6.2	4.9	-26%

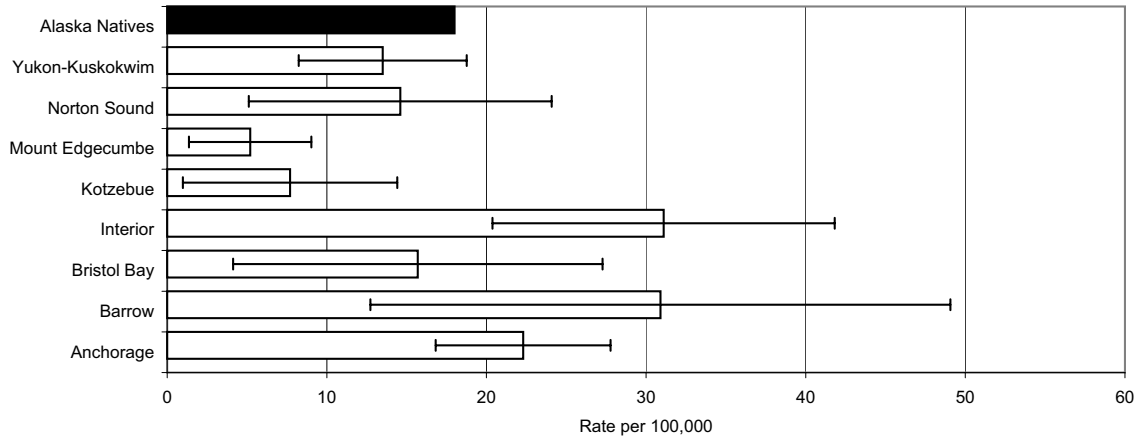
**Age-Adjusted Homicide and Legal Intervention Mortality Rates Over Time
Alaska Native versus US Whites**



Age-Adjusted Homicide and Legal Intervention Rates by Service Unit, 1989-1998

Anchorage	Barrow	Bristol Bay	Interior	Kotzebue	Mount Edgecumbe	Norton Sound	Yukon-Kuskokwim	Alaska Native
22.3	30.9	15.7	31.1	7.7	5.2	14.6	13.5	18

**Age-Adjusted Homicide and Legal Intervention Mortality Rates by Service Unit
1989-1998**



Chronic Liver Disease and Cirrhosis

Chronic liver disease and cirrhosis ranked ninth out of the ten leading causes of death among ANs, comprising 2.4% (n = 143) of all deaths. ANs (19.6 per 100,000; 95%CI: 15.0-24.2) had chronic liver disease mortality rates 2.6 times higher than US Whites (7.6 per 100,000). Liver disease accounted for 4% (n = 86) of all excess deaths among ANs. A majority of this excess (n = 57) was among AN women (18.8 per 100,000; 95%CI: 14.4-23.2) who had a mortality rate 4.1 times higher than US White women (4.6 per 100,000). Mortality rates for AN men (20.5 per 100,000; 95%CI: 15.6-25.4) were 1.9 times higher from liver disease than US White men (10.8 per 100,000). In all age groups with sufficient numbers to calculate a rate, AN women had significantly higher rates than US White women. AN women in the 25-44 year old age group had a mortality rate nearly 13 fold higher than US White women. Eleven percent (n = 46) of all deaths to women in this age group were due to liver disease. Age-specific rates were 3 to 4 times higher than US White women for the 45 to 64 year old age groups. There were too few deaths from chronic liver disease among AN women to calculate rates for any other age groups.

Anchorage (31.0 per 100,000, 95%CI: 23.8-38.2) was the only Service Unit to display higher mortality rates for Chronic Liver Diseases as compared to the state average for ANs (19.6 per 100,000). The Yukon Kuskokwim (4.1 per

100,000, 95%CI: 1.3-6.9), Barrow (7.5 per 100,000, 95%CI: 0-15.9), and Bristol Bay (8.6 per 100,000, 95%CI: 0-18.3) Service Units all displayed lower mortality rates.

There was no significant change in death rates from chronic liver disease among ANs during the twenty-year period 1979 to 1998. Chronic Liver Disease deaths decreased thirty percent among US Whites during this time period.

More than (n=123) 85% of all deaths due to liver disease among ANs were classified as alcohol-related. Slightly more than a third of all liver deaths were coded as alcoholic liver damage, unspecified. Ten percent of deaths were coded as being due to alcoholic fatty liver.

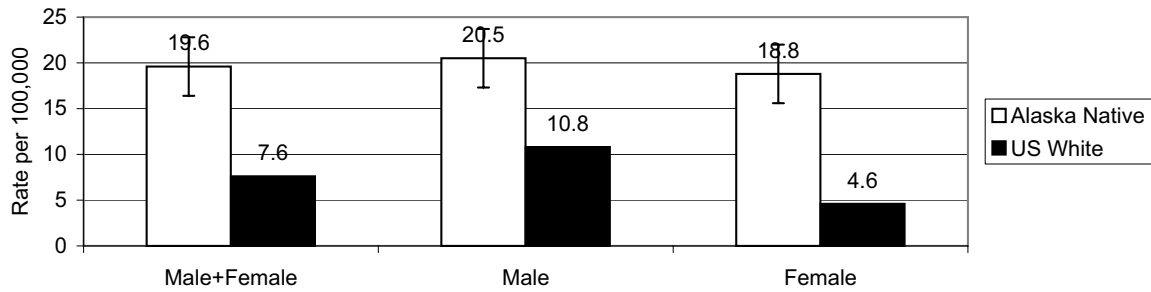
#9 Leading Cause of Death Among Alaska Natives, 1989-1998 Chronic Liver Disease

Age-Adjusted Chronic Liver Disease Mortality Rates for Alaska Natives, 1989-1998 Compared to US Whites, 1993

	Alaska Natives		Rate† per 100,000	95% CI	US Whites		Rate† per 100,000	SMR	Excess Deaths
	#	%			#	%			
Male + female	143	2.4%	19.6	15.0-24.2	21348	1.1%	7.6	2.6*	86
Male	69	1.9%	20.5	15.6-25.4	13821	1.4%	10.8	1.9*	29
Female	74	3.2%	18.8	14.4-23.2	7527	0.8%	4.6	4.1*	57

* 95% Confidence Interval does not include US White rate.

**Age-Adjusted Chronic Liver Disease Mortality Rates
Alaska Natives, 1989-1998 Compared to US Whites, 1993**

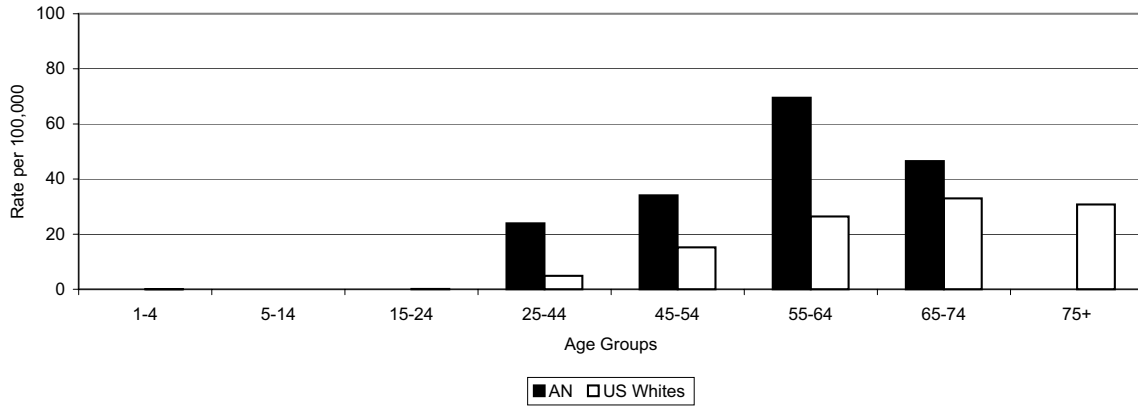


Age-Specific Chronic Liver Disease Mortality Rates For Alaska Natives, 1989-1998 Compared to US Whites, 1993

Male and Female Combined Rates

Chronic Liver Disease	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN Male and Female	0	0	0	23.9	34.1	69.5	46.5	0
US White Male and Female	0.06	0	0.1	4.9	15.2	26.4	33	30.8

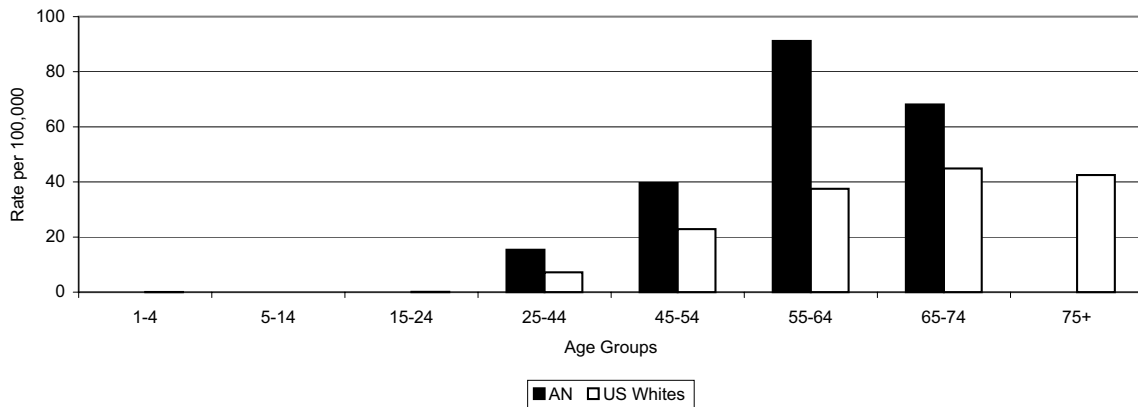
**Age-Specific Mortality Rates for Chronic Liver Disease
Alaska Natives 1989-1998 versus US Whites 1993
Male and Female Combined** □



Male Rates

Chronic Liver Disease	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN Male	0	0	0	15.4	39.6	91.2	68.1	0
US White Male	0.06	0	0.1	7.2	22.9	37.5	44.9	42.5

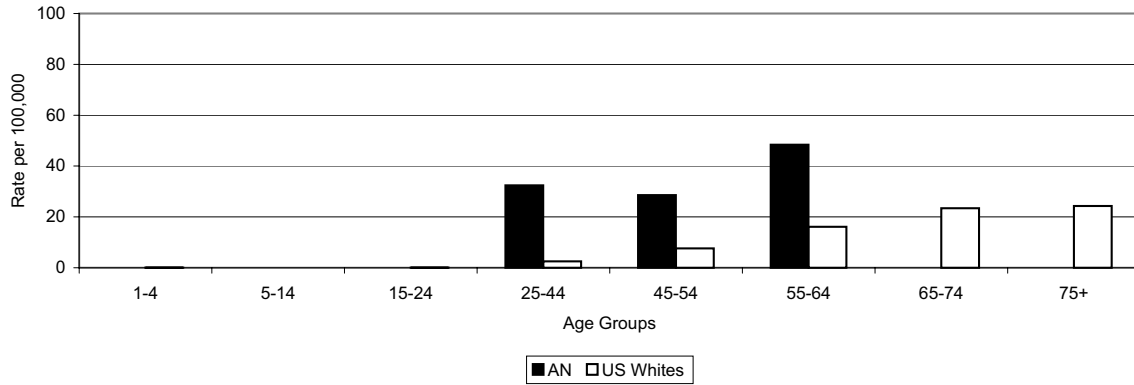
**Age-Specific Mortality Rates for Chronic Liver Disease
Alaska Natives 1989-1998 versus US Whites 1993
Males** □



Age-Specific Chronic Liver Disease Mortality Rates For Alaska Natives, 1989-1998 Compared to US Whites, 1993 Female Rates

Chronic Liver Disease	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN Female	0	0	0	32.4	28.6	48.4	0	0
US White Female	0.05	0.02	0.07	2.5	7.6	16.1	23.4	24.3

**Age-Specific Mortality Rates for Chronic Liver Disease
Alaska Natives 1989-1998 versus US Whites 1993
Females**

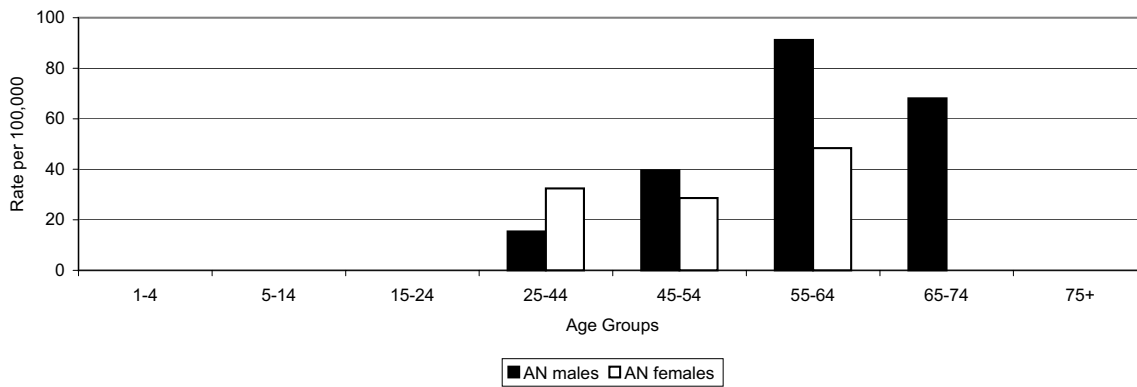


Age-Specific Chronic Liver Disease Mortality Rates For Alaska Natives, 1989-1998 Male versus Female

Male versus Female

Chronic Liver Disease	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN male	0	0	0	15.4	39.6	91.2	68.1	0
AN female	0	0	0	32.4	28.6	48.4	0	0

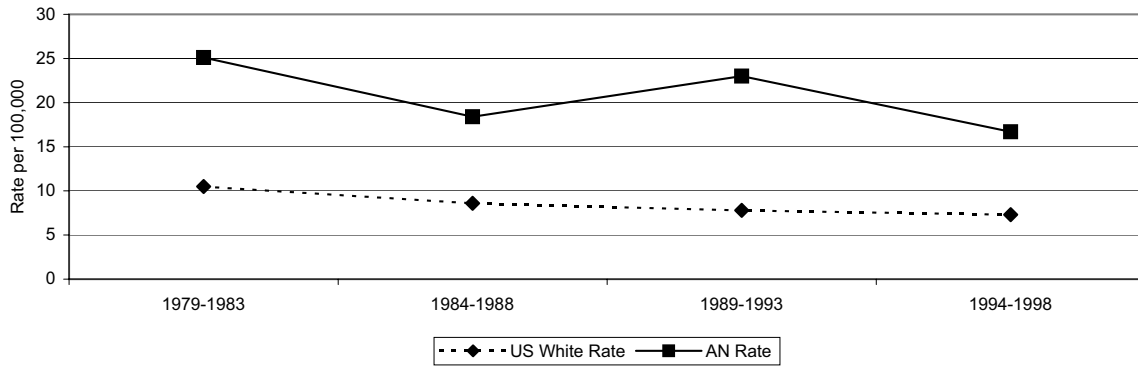
**Age-Specific Mortality Rates for Chronic Liver Disease
Alaska Natives 1989-1998
Males versus Females**



**Age-Adjusted Chronic Liver Disease Mortality Rates Among Alaska Natives,
Comparison of Five Year Intervals, 1979-1998, and US White Rates, 1981, 1986, 1991, 1996
Males and Females Combined**

Alaska Native Rates				
1979-1983	1984-1988	1989-1993	1994-1998	% Change
25.1	18.4	23	16.7	NS
US White Rates				
1981	1986	1991	1996	% Change
10.5	8.6	7.8	7.3	-30%

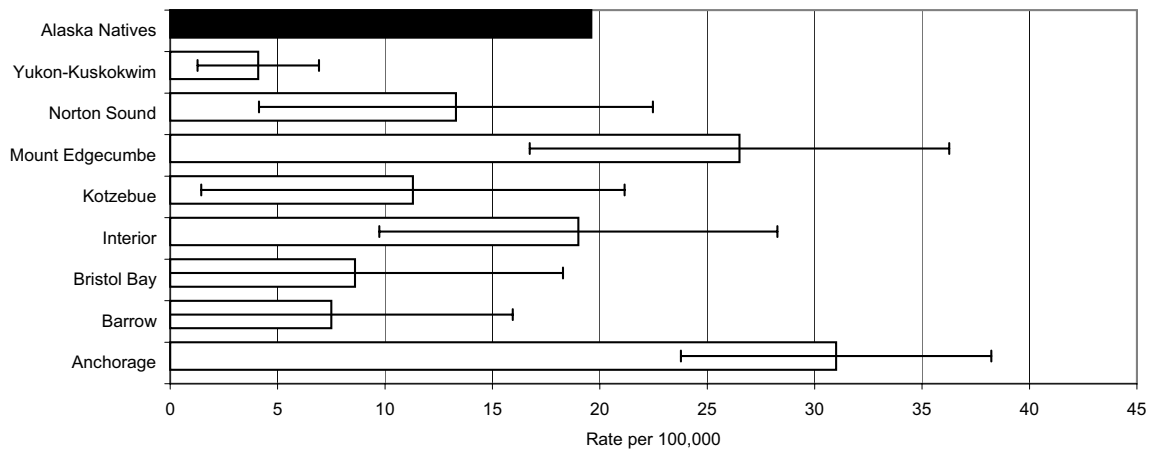
**Age-Adjusted Chronic Liver Disease Mortality Rates Over Time
Alaska Native versus US Whites**



Age-Adjusted Chronic Liver Disease Mortality Rates by Service Unit, 1989-1998

Anchorage	Barrow	Bristol Bay	Interior	Kotzebue	Mount Edgcombe	Norton Sound	Yukon-Kuskokwim	Alaska Native
31.0	7.5	8.6	19.0	11.3	26.5	13.3	4.1	19.6

**Age-Adjusted Chronic Liver Disease Mortality Rates by Service Unit
1989-1998**



Diabetes Mellitus

Diabetes mellitus was the tenth leading cause of death among ANs, comprising 1.4% (n = 86) of all deaths. There was no difference in death rates due to diabetes between ANs (12.5 per 100,000; 95%CI: 8.6-16.4) and US Whites (11.0 per 100,000). AN men (12.9 per 100,000) and women (12.1 per 100,000) had similar mortality rates. There were no significant differences in diabetes mortality rates between ANs and US Whites in either gender or in age-specific categories.

The Norton Sound (1.9 per 100,000, 95%CI: 0-5.6) and Yukon Kuskokwim (3.7 per 100,000, 95%CI: 0.5-6.9) Service areas both experienced lower mortality rates from diabetes mellitus as compared to the state average for ANs (12.5 per 100,000).

Diabetes mortality rates among ANs were half the rate of US Whites during the time period, 1979-1983. Over the twenty year period, 1979 to 1998, diabetes mortality for ANs increased by 262%, such that current diabetes mortality rates now equal US White rates. Diabetes mortality among US Whites increased approximately 35% during this same time period.

Most (70%) deaths due to diabetes mellitus were attributed without mention of complication. Twenty percent, however, mentioned coma and/or ketoacidosis. The remaining eight deaths fell into varying categories of complications.

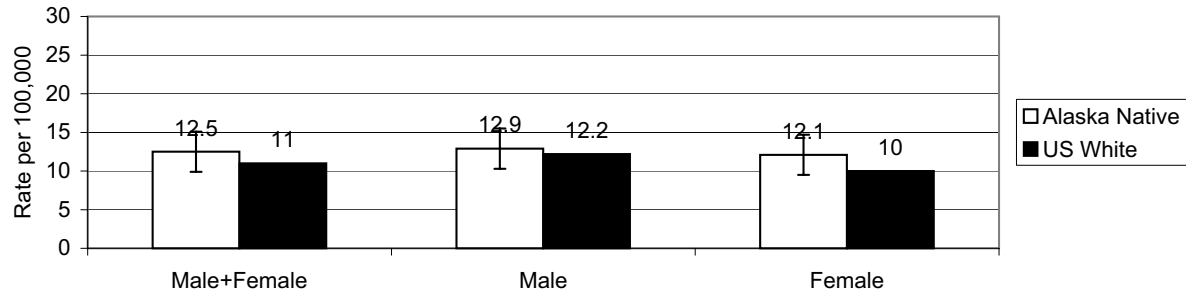
#10 Leading Cause of Death Among Alaska Natives, 1989-1998 Diabetes Mellitus

Age-Adjusted Diabetes Mellitus Mortality Rates for Alaska Natives, 1989-1998 Compared to US Whites, 1993

	Alaska Natives		Rate [†] per 100,000	95% CI	US Whites		Rate [†] per 100,000	SMR	Excess Deaths
	#	%			#	%			
Male + female	86	1.4%	12.5	8.36-16.4	43461	2.2%	11.0	1.1	9
Male	41	1.1%	12.9	8.9-16.9	19311	2.0%	12.2	1.1	5
Female	45	1.9%	12.1	8.5-15.7	24150	2.5%	10	1.2	4

* 95% Confidence Interval does not include US White rate.

**Age-Adjusted Diabetes Mellitus Mortality Rates
Alaska Natives, 1989-1998 Compared to US Whites, 1993**

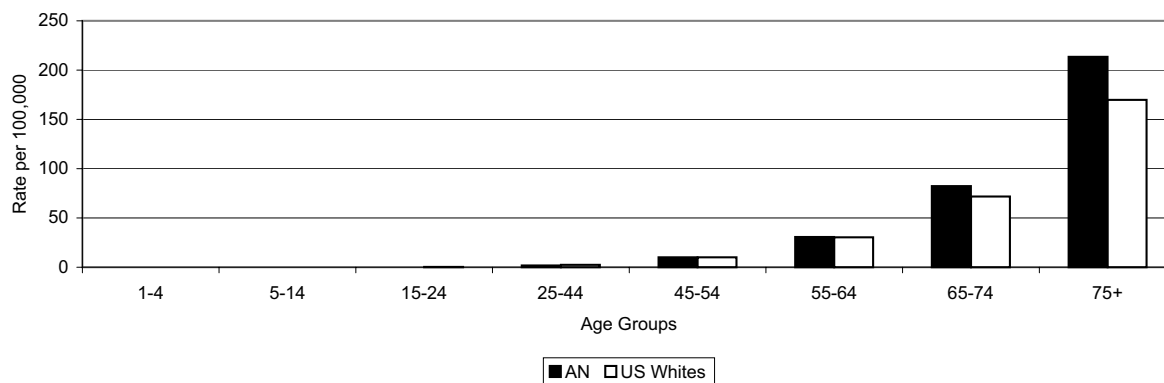


Age-Specific Diabetes Mellitus Mortality Rates For Alaska Natives, 1989-1998 Compared to US Whites, 1993

Male and Female Combined Rates

Diabetes Mellitus	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN Male and Female	0	0	0	1.8	10	30.7	82.3	213.5
US White Male and Female	0.03	0.05	0.28	2.4	10	30.3	71.7	169.8

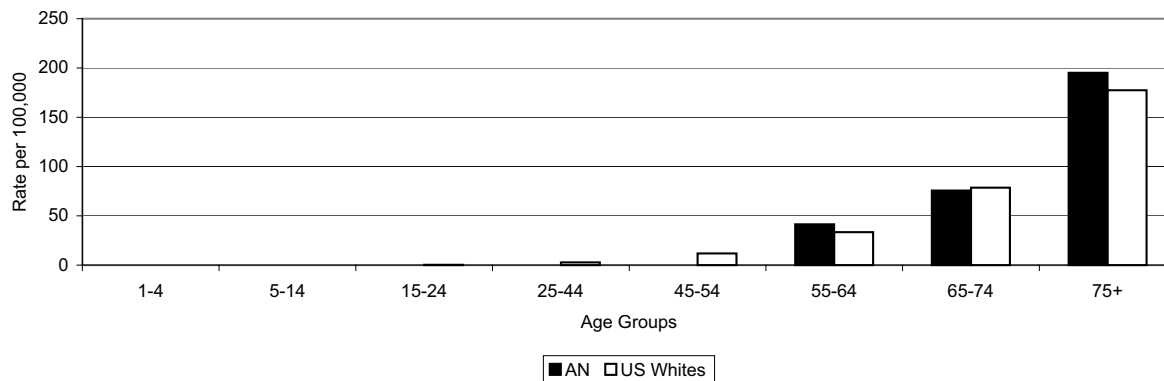
**Age-Specific Mortality Rates for Diabetes Mellitus
Alaska Natives 1989-1998 versus US Whites 1993
Male and Female Combined**



Male Rates

Diabetes Mellitus	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN Male	0	0	0	0	0	41.4	75.7	195.1
US White Male	0.03	0.05	0.28	2.8	11.8	33.4	78.6	177.4

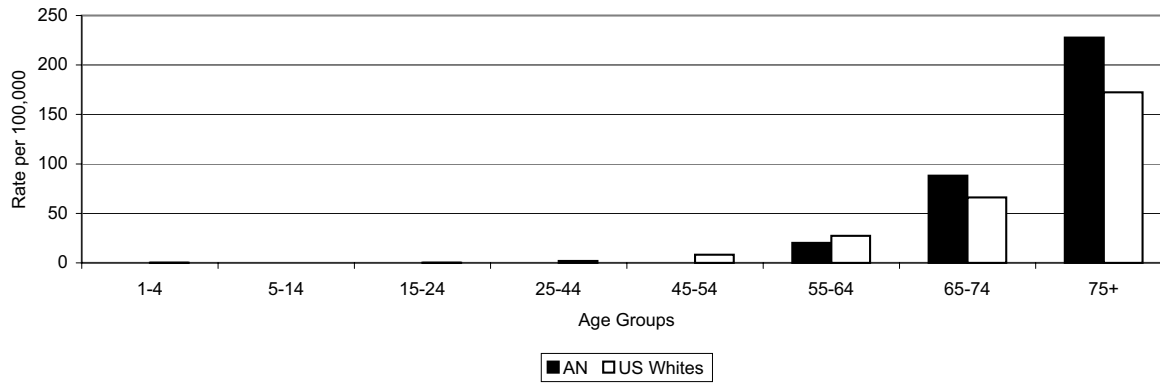
**Age-Specific Mortality Rates for Diabetes Mellitus
Alaska Natives 1989-1998 versus US Whites 1993
Males**



**Age-Specific Diabetes Mellitus Mortality Rates For Alaska Natives, 1989-1998 Compared to US Whites, 1993
Female Rates**

Diabetes Mellitus	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN Female	0	0	0	0	0	20.2	88.2	227.7
US White Female	0.11	0.06	0.24	2	8.3	27.4	66.2	172.3

**Age-Specific Mortality Rates for Diabetes Mellitus
Alaska Natives 1989-1998 versus US Whites 1993
Females**

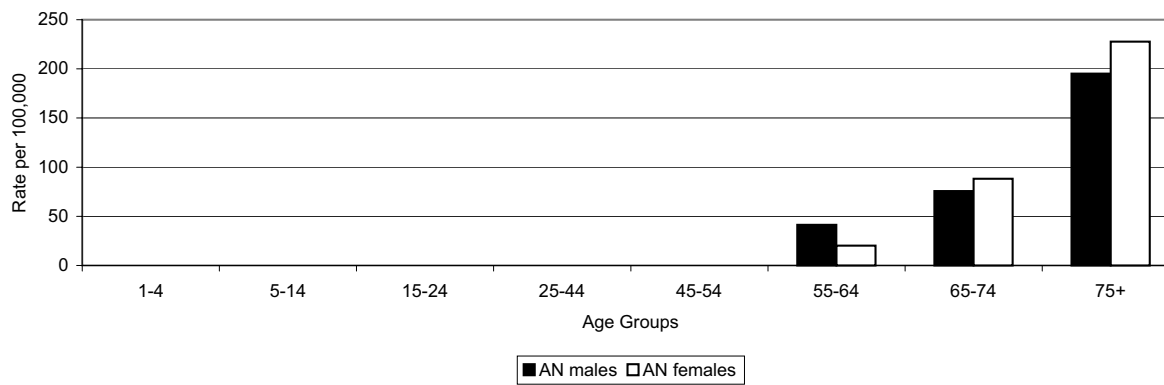


Age-Specific Diabetes Mellitus Mortality Rates For Alaska Natives, 1989-1998 Male versus Female

Male versus Female

Diabetes Mellitus	1-4	5-14	15-24	25-44	45-54	55-64	65-74	75+
AN male	0	0	0	0	0	41.4	75.7	195.1
AN female	0	0	0	0	0	20.2	88.2	227.7

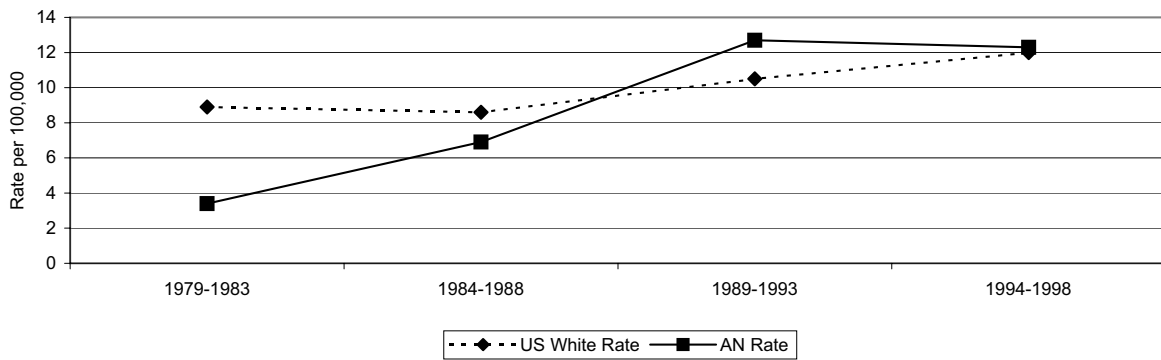
**Age-Specific Mortality Rates for Diabetes Mellitus
Alaska Natives 1989-1998
Males versus Females**



**Age-Adjusted Diabetes Mellitus Mortality Rates Among Alaska Natives,
Comparison of Five Year Intervals, 1979-1998, and US White Rates, 1981, 1986, 1991, 1996
Males and Females Combined**

Alaska Native Rates				
1979-1983	1984-1988	1989-1993	1994-1998	% Change
3.4	6.9	12.7	12.3	262%
US White Rates				
1981	1986	1991	1996	% Change
8.9	8.6	10.5	12	35%

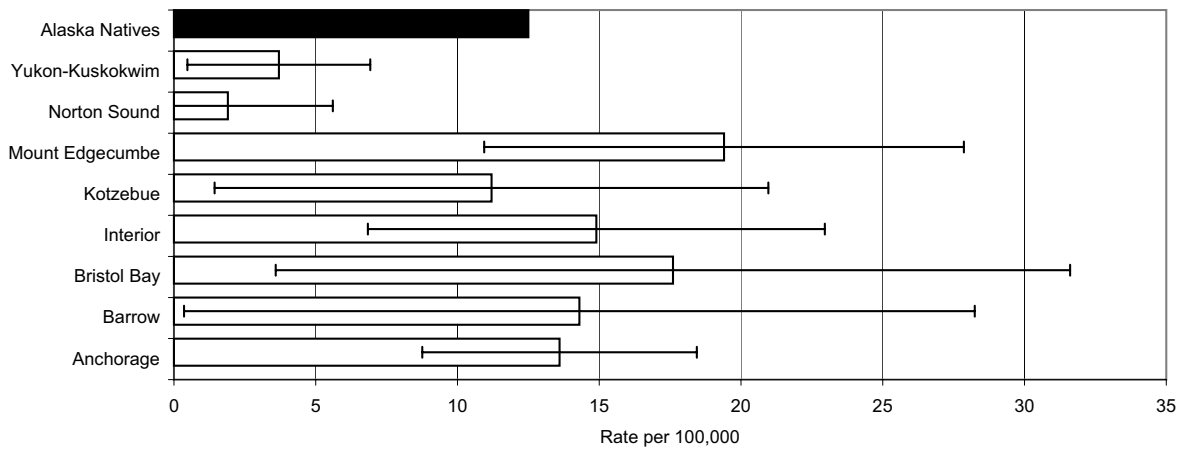
**Age-Adjusted Diabetes Mellitus Mortality Rates Over Time
Alaska Native versus US Whites**



Age-Adjusted Diabetes Mellitus Mortality Rates by Service Unit, 1989-1998

Anchorage	Barrow	Bristol Bay	Interior	Kotzebue	Mount Edgumbe	Norton Sound	Yukon-Kuskokwim	Alaska Native
13.6	14.3	17.6	14.9	11.2	19.4	1.9	3.7	12.5

**Age-Adjusted Diabetes Mellitus Mortality Rates by Service Unit
1989-1998**



APPENDIX A
IHS Alaska Native Populations
1989-1998

1989	male	female	total
0-4	4957	4648	9605
5-9	4545	4445	8989
10-14	5071	4766	9837
15-19	5573	5339	10912
20-24	4534	4533	9067
25-29	3722	3675	7396
30-34	2873	2853	5726
35-39	2286	2256	4542
40-44	1927	1845	3772
45-49	1778	1707	3486
50-54	1450	1408	2858
55-59	1241	1121	2362
60-64	823	896	1719
65-69	785	785	1570
70-74	510	493	1004
75+	594	612	1206
total	42669	41382	84051

1992	male	female	total
0-4	6479	6303	12782
5-9	5457	5306	10763
10-14	4437	4234	8671
15-19	3888	3662	7550
20-24	3724	3656	7380
25-29	4349	4235	8584
30-34	3851	4011	7862
35-39	3354	3252	6607
40-44	2434	2422	4856
45-49	1903	1864	3768
50-54	1509	1510	3019
55-59	1344	1349	2693
60-64	997	1065	2063
65-69	803	834	1637
70-74	462	594	1055
75+	698	914	1612
total	45689	45212	90901

1990	male	female	total
0-4	6147	5981	12128
5-9	5178	5034	10212
10-14	4210	4018	8227
15-19	3689	3475	7164
20-24	3534	3469	7003
25-29	4126	4018	8145
30-34	3654	3806	7460
35-39	3183	3086	6269
40-44	2310	2298	4608
45-49	1806	1769	3575
50-54	1432	1433	2864
55-59	1276	1280	2556
60-64	946	1011	1957
65-69	762	792	1553
70-74	438	563	1001
75+	662	867	1529
total	43351	42900	86251

1993	male	female	total
0-4	6639	6459	13098
5-9	5592	5437	11029
10-14	4547	4339	8886
15-19	3984	3753	7737
20-24	3817	3747	7563
25-29	4456	4340	8797
30-34	3946	4111	8057
35-39	3437	3333	6770
40-44	2495	2482	4976
45-49	1951	1911	3861
50-54	1546	1547	3094
55-59	1378	1382	2760
60-64	1022	1092	2114
65-69	823	855	1678
70-74	473	608	1082
75+	715	936	1652
total	46821	46333	93154

1991	male	female	total
0-4	6314	6143	12458
5-9	5319	5172	10490
10-14	4325	4127	8451
15-19	3789	3570	7359
20-24	3630	3563	7193
25-29	4239	4128	8366
30-34	3753	3910	7663
35-39	3269	3170	6439
40-44	2373	2360	4733
45-49	1855	1817	3672
50-54	1471	1472	2942
55-59	1310	1315	2625
60-64	972	1038	2010
65-69	782	813	1596
70-74	450	579	1029
75+	680	890	1571
total	44532	44067	88599

1994	male	female	total
0-4	6796	6612	13408
5-9	5724	5566	11290
10-14	4654	4442	9096
15-19	4078	3842	7920
20-24	3907	3835	7742
25-29	4562	4443	9005
30-34	4039	4208	8247
35-39	3519	3412	6931
40-44	2554	2540	5094
45-49	1997	1956	3953
50-54	1583	1584	3167
55-59	1410	1415	2825
60-64	1046	1118	2164
65-69	842	875	1717
70-74	484	623	1107
75+	732	958	1691
total	47928	47429	95357

1995	male	female	total
0-4	6950	6762	13711
5-9	5854	5692	11546
10-14	4760	4542	9302
15-19	4171	3929	8099
20-24	3995	3922	7917
25-29	4665	4543	9208
30-34	4131	4303	8434
35-39	3598	3489	7087
40-44	2611	2598	5209
45-49	2042	2000	4042
50-54	1619	1620	3238
55-59	1442	1447	2889
60-64	1070	1143	2213
65-69	861	895	1756
70-74	495	637	1132
75+	749	980	1729
total	49012	48501	97513

1996	male	female	total
0-4	7100	6908	14008
5-9	5980	5815	11795
10-14	4862	4640	9503
15-19	4261	4014	8274
20-24	4081	4007	8088
25-29	4766	4641	9407
30-34	4220	4396	8616
35-39	3676	3564	7240
40-44	2668	2654	5322
45-49	2086	2043	4129
50-54	1654	1655	3308
55-59	1473	1478	2952
60-64	1093	1168	2260
65-69	880	915	1794
70-74	506	651	1157
75+	765	1001	1766
total	50071	49549	99620

1997	male	female	total
0-4	7246	7050	14297
5-9	6104	5935	12038
10-14	4963	4736	9699
15-19	4349	4097	8445
20-24	4166	4089	8255
25-29	4864	4737	9601
30-34	4307	4487	8794
35-39	3752	3638	7390
40-44	2723	2709	5432
45-49	2129	2085	4214
50-54	1688	1689	3377
55-59	1504	1509	3013
60-64	1115	1192	2307
65-69	898	933	1831
70-74	517	664	1180
75+	781	1022	1803
total	51104	50572	101676

1998	male	female	total
0-4	7390	7190	14580
5-9	6224	6052	12277
10-14	5061	4830	9891
15-19	4435	4178	8612
20-24	4248	4170	8418
25-29	4960	4831	9791
30-34	4392	4576	8968
35-39	3826	3710	7536
40-44	2777	2762	5539
45-49	2171	2127	4298
50-54	1721	1722	3443
55-59	1534	1539	3072
60-64	1137	1215	2353
65-69	916	952	1867
70-74	527	677	1204
75+	796	1042	1838
total	52116	51572	103688

Population Estimates for Service Units

Percent Population by Age Group and Gender			1990, 1998 IHS Population Estimates for Alaska Natives by Service Unit		
Age	Males	Females		1990	1998
	1990	1990		1990	1998
0-4	0.071	0.069	Anchorage	26214	32160
5-14	0.109	0.105	Barrow	3535	4288
15-24	0.084	0.081	Bristol Bay	4394	5457
25-44	0.154	0.153	Interior	10055	11721
45-54	0.038	0.037	Mt. Edgecumbe	12928	15193
55-64	0.026	0.027	Kotzebue	5799	6982
65-74	0.014	0.016	Norton Sound	6157	7473
75+	0.008	0.010	Yukon-Kuskokwim	17169	21628
Total	0.503	0.497	Total	86251	104902

The average of the 1990 and 1998 population estimates for Alaska Natives by Service Unit was used as the denominator to calculate mortality rates. The percent population by age group and gender, based on the Alaska Native Census population for the State of Alaska was applied to each service unit estimate in order to age-adjust rates.

**APPENDIX B
ICD-9 CODES**

	10 Leading Causes of Death from 72 Causes of Death	Sub-categories from 282 Causes of Death	ICD-9Codes
1	Cancer		140-208
2	Unintentional Injuries		E800-E949
		Motor vehicle traffic accidents	E810-E819
		Off-road accident	E820-E825
		Drowning	E830,E832,E910
		Accidental poisoning	E850-E869
		Exposure	E900-E909
3	Heart Disease		390-398, 402, 404-429
		Rheumatic fever and rheumatic heart disease	390-398
		Hypertensive heart disease	402
		Acute myocardial infarctions	410
		Chronic ischemic heart disease	412, 414
		Other heart diseases	415-423, 425-429
		Diseases of the endocardium	424
4	Suicide		E950-E959
		Poisoning	E950-E952
		Hanging	E953
		Drowning	E954
		Firearms	E955
		Piercing or cutting	E956
5	Cerebrovascular Disease		430-438
		All other and late effects of cerebrovascular diseases	430, 433, 435-438
		Intracerebral and other intracranial hemorrhage	431-432
		Cerebral thrombosis and unspecified occlusion of cerebral arteries	434.0, 434.9
6	Chronic Obstructive Pulmonary Diseases		490-496
		Bronchitis	490-491
		Emphysema	492
		Asthma	493
		Bronchiectasis	494
		Chronic airway obstruction, not elsewhere classified	496
7	Pneumonia and Influenza		480-487
8	Homicide and Legal Intervention		E960-E978
		Firearm-related	E965
		Stabbed	E966
		Beaten	E968
9	Chronic Liver Disease and Cirrhosis		571
		Alcoholic fatty liver	571.0
		Alcoholic liver damage, unspecified	571.3
10	Diabetes Mellitus		250

APPENDIX C
Leading Causes of Death
Alaska Natives versus US Whites
Ranked by Percentage of Mortality for Alaska Natives
1989-1998
Males and Females Combined
Age-Adjusted to 2000 Standard Million

	Male and Female Combined	Alaska Natives		Rate† per 100,000	95% CI	US Whites		Rate† per 100,000	RR	
		#	%			#	%			
1	Cancer	1087	18.3%	262.4	246.0-278.8	461904	23.7%	218.9	1.2	*
2	Unintentional Injuries	1033	17.4%	127.6	118.8-136.4	75218	3.9%	35.2	3.6	*
3	Heart Disease	982	16.5%	269.2	251.7-286.7	655365	33.6%	308.2	0.9	*
4	Suicide	445	7.5%	44.8	40.5-49.1	28035	1.4%	13.5	3.3	*
5	Cerebrovascular Disease	269	4.5%	75.0	65.4-84.6	129992	6.7%	59.4	1.3	*
6	Chronic Obstructive Pulmonary	233	3.9%	67.6	58.7-76.5	93615	4.8%	45.0	1.5	*
7	Pneumonia and Influenza	182	3.1%	47.6	40.1-55.1	73720	3.8%	35.1	1.4	*
8	Homicide and Legal Intervention	160	2.7%	17.7	14.7-20.7	12286	0.6%	5.6	3.2	*
9	Chronic Liver Disease	143	2.4%	22.4	18.4-26.0	21348	1.1%	10.1	2.2	*
10	Diabetes	86	1.4%	22.8	17.7-27.9	43461	2.2%	19.9	1.1	
	All Other Causes	1326	22.3%	261.2	247.1-275.3	356493	18.3%	165.5	1.6	*
	Total - All Causes	5946	100.0%	1218.3	1183.4-1253.2	1951437	100.0%	916.4	1.3	*

†Age-adjusted to 2000 standard million.

*95% Confidence Interval does not include US White rate

**Leading Causes of Death
Alaska Natives versus US Whites
Ranked by Percentage of Mortality for Alaska Natives
1989-1998
Males
Age-Adjusted to 2000 Standard Million**

Male	Alaska Natives		Rate [†] per 100,000	95% CI	US Whites		Rate [†] per 100,000	RR		
	#	%			#	%				
1	Unintentional Injuries	767	21.3%	188	182.6-193.4	49515	5.0%	49	3.8	*
2	Heart Disease	612	17.0%	345.5	340.0-351.0	323802	32.8%	369	0.9	*
3	Cancer	574	15.9%	298.3	293.0-303.6	241908	24.5%	263.6	1.1	*
4	Suicide	370	10.3%	73.9	70.2-77.6	22524	2.3%	22	3.4	*
5	Chronic Obstructive Pulmonary	135	3.7%	83.9	81.2-86.6	49812	5.0%	56.9	1.5	*
6	Homicide and Legal Intervention	112	3.1%	23.9	21.8-26.0	9054	0.9%	8.4	2.8	*
7	Cerebrovascular Disease	106	2.9%	63.8	61.4-66.2	50220	5.1%	59.4	1.1	*
8	Pneumonia and Influenza	103	2.9%	56.1	53.8-58.4	33151	3.4%	40	1.4	*
9	Chronic Liver Disease	69	1.9%	24.1	22.4-25.8	13821	1.4%	14.1	1.7	*
10	Diabetes	41	1.1%	22.5	21.1-23.9	19311	2.0%	21.3	1.1	
	All Other Causes	717	19.9%	285.6	264.7-306.5	149990	17.7%	191.5	1.5	*
	Total - All Causes	3606	100.0%	1465.6	1452.9-1478.3	988329	100.0%	1095.2	1.3	*

†Age-adjusted to 2000 standard million.

*95% Confidence Interval does not include US White rate

Leading Causes of Death
Alaska Natives versus US Whites
Ranked by Percentage of Mortality for Alaska Natives
1989-1998
Females
Age-Adjusted to 2000 Standard Million

Female	Alaska Natives				US Whites			RR	
	#	%	Rate [†] per 100,000	95% CI	#	%	Rate [†] per 100,000		
1	Cancer	513	21.9%	226.6	222.2-231.0	219996	22.8%	174.2	1.3 *
2	Heart Disease	370	15.8%	192.9	189.1-196.7	331563	34.4%	247.4	0.8 *
3	Unintentional Injuries	267	11.4%	67.2	64.0-70.4	25703	2.7%	21.5	3.1 *
4	Cerebrovascular Disease	163	7.0%	86.1	83.6-88.6	79772	8.3%	59.5	1.4 *
5	Chronic Obstructive Pulmonary	98	4.2%	51.2	49.3-53.1	43803	4.5%	33.1	1.5 *
6	Pneumonia and Influenza	79	3.4%	39.1	37.4-40.8	40569	4.2%	30.1	1.3 *
7	Suicide	75	3.2%	15.7	14.0-17.4	5511	0.6%	5	3.1 *
8	Chronic Liver Disease	74	3.2%	20.4	18.7-22.1	7527	0.8%	6.2	3.3 *
9	Homicide and Legal Intervention	48	2.1%	11.5	10.1-12.9	3232	0.3%	2.9	4 *
10	Diabetes	45	1.9%	23.1	21.8-24.4	24150	2.5%	18.5	1.2 *
	All Other Causes	608	26.0%	237.3	218.4-256.2	181282	18.9%	139.2	1.7 *
	Total - All Causes	2340	100.0%	971.1	961.6-980.6	963108	100.0%	737.6	1.3 *

†Age-adjusted to 2000 standard million.

*95% Confidence Interval does not include US White rate