

# Navajo Mortality 2010-2013

## New Mexico Portion of the Navajo Nation

### **Prepared by and acknowledgements:**

This report was prepared by David Foley, Staff Epidemiologist, of the Navajo Epidemiology Center (NEC). We acknowledge the data contributions of and express appreciation towards the following agencies and individuals:

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**Purpose:** The purpose of this mortality report is to quantify the leading causes of death among Navajos living within the borders of the Navajo Nation and its border towns, establish mortality trends across time. Additionally this report aims provide mortality data to Navajo Department of Health programs and their partners to assist them in evaluating program effectiveness, strengthen efforts to collect resources, and to identify health problems that should be addressed that are not currently being addressed. Because age can influence mortality rates, many of these rates have also been adjusted by age (a further explanation of age adjustment can be found in the technical notes at the end of this report).

**Data Included:** The NEC has an established data sharing agreement with New Mexico Department of Health as well as the Arizona Department of Health Services. Previously the NEC received Vital Statistics data from Arizona for the years 2000 through 2009 and from New Mexico the NEC received data for 2006 through 2010. The NEC produced a report including mortality data from 2006-2009 (inclusive), since these are the overlapping years. The NEC continues to work with ADHS to collect the most recent data available, and will work with Utah to gain mortality data so a comprehensive Mortality report can be created in future years. This report includes the most recent New Mexico data available (2010-2013) for the Navajo Nation and its border towns. Data were included only for individuals identified as Navajo, and whose reported city of residence was found within the Navajo Nation borders or within one of the following border towns: Bloomfield City (NM), Cuba Village (NM), Farmington City (NM), Gallup City (NM), Grants City (NM), Kirtland CDP (NM), Socorro City (NM), Thoreau CDP (NM), Tse Bonito (NM), Waterflow CDP (NM) and Zuni Pueblo. Causes of death were identified and tabulated according to the International Statistical Classification of Diseases and Related Health Problems, or ICD-10 codes (further explanation can be found in the technical notes at the conclusion of this report).

**Population Data:** Population data for 2010-2013 were estimated from 2000 and 2010 U.S. Census Bureau data found in the Summary File 2 tables. Persons were included for Navajo Nation tribal grouping alone or in any combination found within the New Mexico portions of the Navajo Nation Reservation. Additionally, Navajo tribal grouping alone or in any combination persons were included from the following border

towns: Bloomfield City (NM), Cuba Village (NM), Farmington City (NM), Gallup City (NM), Grants City (NM), Kirtland CDP (NM), Socorro City (NM), Thoreau CDP (NM), Tse Bonito (NM), Waterflow CDP (NM) and Zuni Pueblo. Percent population change was calculated for the time period from 2000 to 2010 for the New Mexico portions of the Navajo Nation. This percent change was then applied to the border cities and Census Designated Places (CDP) for the years 2011-2013 (inclusive). This change was applied uniformly over the 10 year period, and only the estimated population counts for the aforementioned years were included to calculate the Navajo total population. The 4 year population total for the New Mexico portion of the Navajo Nation and its border towns was 261,351. Further explanation can be found in the technical notes at the conclusion of this report.

### **Executive Summary/Report Highlights**

There were fewer deaths recorded from 2010-2013 than from 2006-2009, however there was an increase in rates due to an estimated decrease in Navajo population. All-cause mortality increased significantly for the NM portion of the Navajo Nation from 839.61/100,000 persons in 2006-2009 to 996.50/100,000 persons in 2010-2013. Increases in mortality were seen for both males and females. Navajo age adjusted mortality was higher than both New Mexico mortality and New Mexico Native American mortality. Navajo male mortality is equivalent to New Mexico Native American/Alaska Native mortality, but Navajo female mortality was higher than New Mexico Native American/Alaska Native mortality.

The 4 leading causes of death (Unintentional Injuries, Cancer, Heart Disease, and Diabetes) account for half of all deaths. After adjusting for age both Heart Disease and Cancer rates surpass Unintentional Injuries rates. However, unintentional Injuries are the leading cause of death for all persons less than 50 years old. Dementia moved from the 14<sup>th</sup> leading cause of death to the 7<sup>th</sup> leading cause of death, Alcohol Dependence Syndrome moved from 15<sup>th</sup> to 10<sup>th</sup>, and Chronic Lower Respiratory moved from 10<sup>th</sup> to off the leading causes of death list.

The 5 leading types of injury account for 84.1% of all injury deaths, which are Motor Vehicle Passenger (34.8% of all injuries), Alcohol Poisoning (19.0%), Pedestrian (12.9%), Falls (9.8%), and non-alcohol poisoning (7.6%).

The 5 leading types of cancer account for 42.2% of all cancer deaths, which are the Pancreas (9.4%), Colon/rectum (9.0%), Stomach (9.3%), Liver (8.2%), and the Prostate (7.0%). Among males the leading 5 cancer sites are Prostate (13.2%), Colon/rectum (12.4%), Stomach (9.3%), Liver (9.3%), and Pancreas (9.3%). Among females the leading 5 cancer sites are Breast (12.2%), Pancreas (9.5%), Ovary (9.5%), Stomach (7.8%), and the Liver (7.0%).

For males both suicide and assault rates are highest among those ages 40-49. For females the highest suicide rates are for those 30-39 years, and assault is highest for those 70-79 (no age group had more than 1 suicide death).

Our goal is not to simply prevent death but to extend life, so another key metric to evaluate mortality data has been used. Years of Potential Life Lost (YPLL) is a metric that accounts for total deaths and age at death simultaneously to further quantify the impact each cause of death has on a population. Many causes of death occur primarily in an older population, and those who die from that cause may do so after they have reached their expected life span. When resources are limited, using YPLL may be helpful in directing resource allocation to have the greatest impact on improving the health and collective life span of a population. Unintentional injuries account for more than 3 times the number of years of potential life lost as cancer although the age adjusted mortality rate for cancer is 1.2 times greater than the age adjusted unintentional injury mortality rate. The 5 leading causes of YPLL are:

- ❖ Unintentional Injuries: 9,410.1 years
- ❖ Cancers: 2,994.9 years
- ❖ Diseases of Liver & Cirrhosis: 2,673.4 years
- ❖ Suicide: 2,082.7 years
- ❖ Heart Disease: 1,914.7 years

There are several diseases and health problems in which the Navajo Nation portion of New Mexico significantly exceeds the State of New Mexico age adjusted mortality rates. These include Tuberculosis, Stomach Cancer, Motor Vehicle Accidents, Influenza & Pneumonia, Diabetes, Assault, and Chronic Liver Disease & Cirrhosis (76.8% of Chronic Liver Disease Cirrhosis are alcohol related).

There are 3 diseases in which the Navajo Nation portion of New Mexico are significantly lower than the State of New Mexico: Lung Cancer, Chronic Lower Respiratory Disease, and Leukemia.

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Table 1 Life Expectancy at Birth

	Navajo Nation (NM) 2010-2013	Navajo Nation (NM) 2006-2009	U.S. 2014
<b>Total</b>	74.17	74.22	78.8
<b>Male</b>	69.72	70.01	76.4
<b>Female</b>	78.45	78.17	81.2

Table 2 Life Expectancy at age 65

	Navajo Nation (NM) 2010-2013	Navajo Nation (NM) 2006-2009	U.S. 2014
<b>Total</b>	15.23	17.9	19.3
<b>Male</b>	13.31	16.44	18.0
<b>Female</b>	16.76	18.82	20.5

Table 3 All-Cause Mortality, Age Adjusted

<b>Total Population</b>	<b>Point</b>	<b>Lower Estimate</b>	<b>Upper Estimate</b>
<b>2010-2013, Navajo Nation (NM)</b>	996.50	947.17	1045.83
<b>2006-2009, Navajo Nation (NM)</b>	839.61	798.71	880.51
<b>New Mexico 2013</b>	750.9		
<b>New Mexico 2013 Native American</b>	935.6		
<b>Male</b>			
<b>2010-2013, Navajo Nation (NM)</b>	1095.83	1024.01	1167.65
<b>2006-2009, Navajo Nation (NM)</b>	899.21	841.45	956.97
<b>New Mexico 2013</b>	900.50		
<b>New Mexico 2013 Native American</b>	1131.2		
<b>Female</b>			
<b>2010-2013, Navajo Nation (NM)</b>	913.01	844.58	981.44
<b>2006-2009, Navajo Nation (NM)</b>	776.40	718.05	834.75
<b>New Mexico 2013</b>	622.7		
<b>New Mexico 2013 Native American</b>	784.4		

Chart 1 Fifteen Leading Causes of Death by Count, Total Population

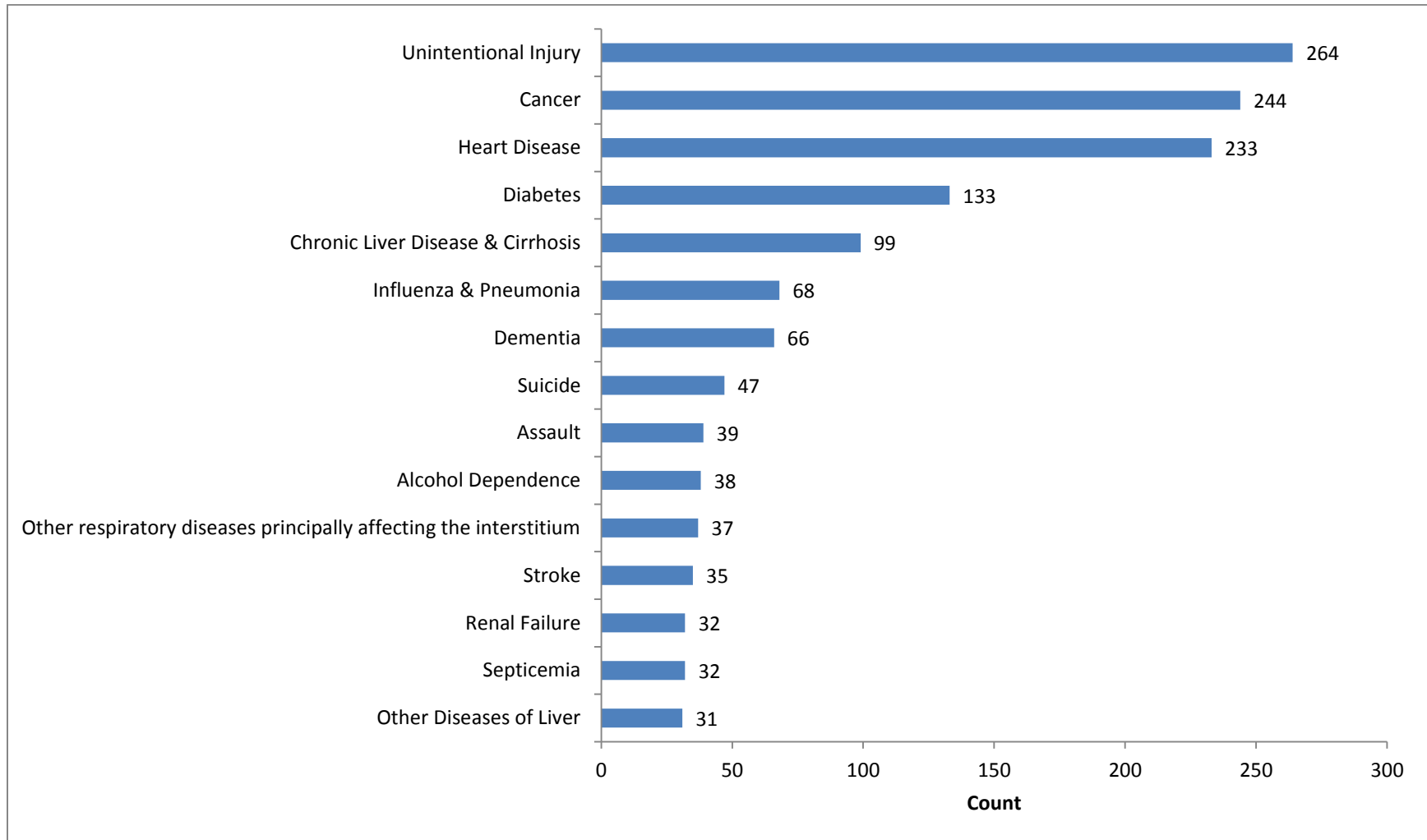


Chart 2 Fifteen Leading Causes of Death by Crude Rates, Total Population

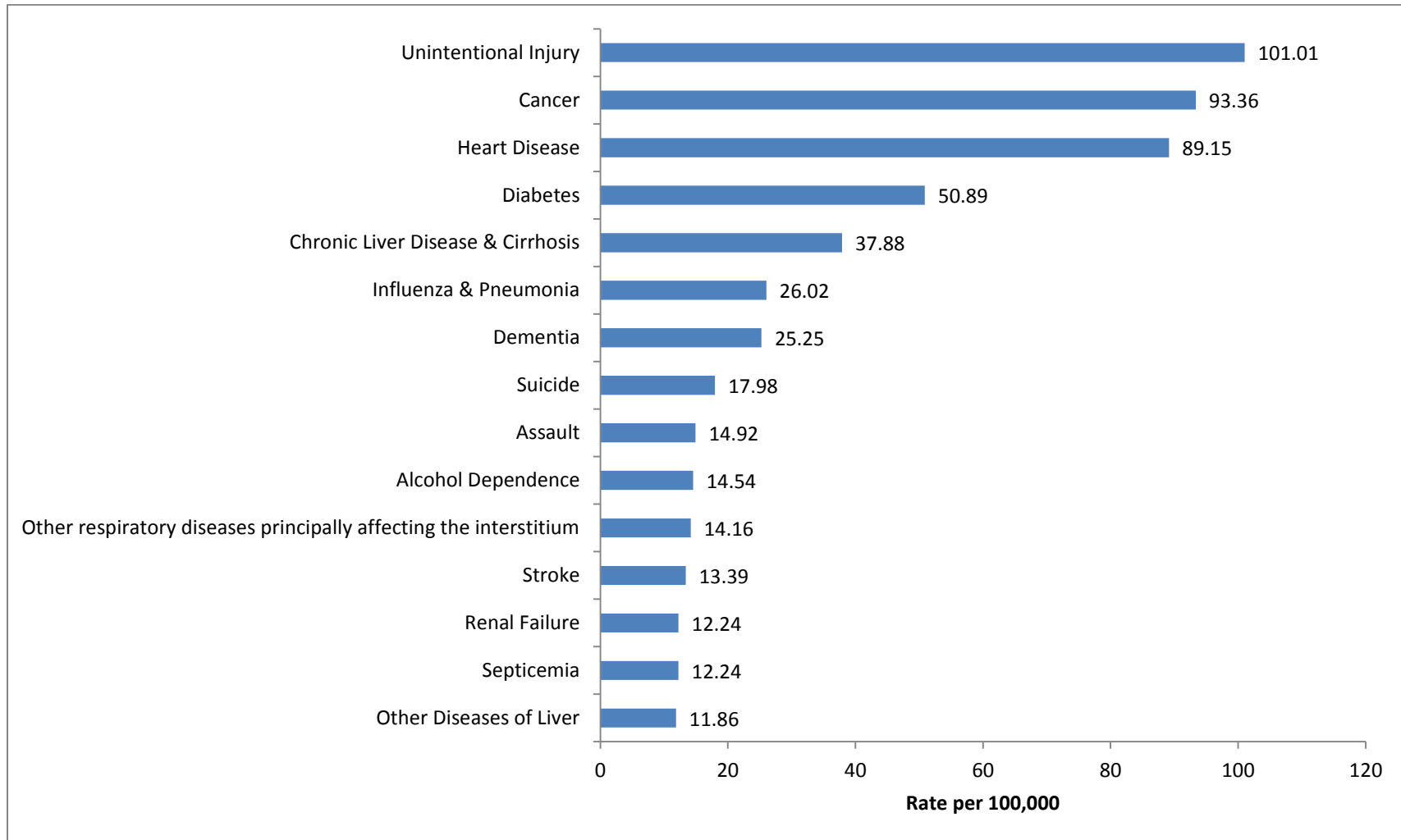




Chart 3 Fifteen Leading Causes of Death by Age Adjusted Rates, Total Population

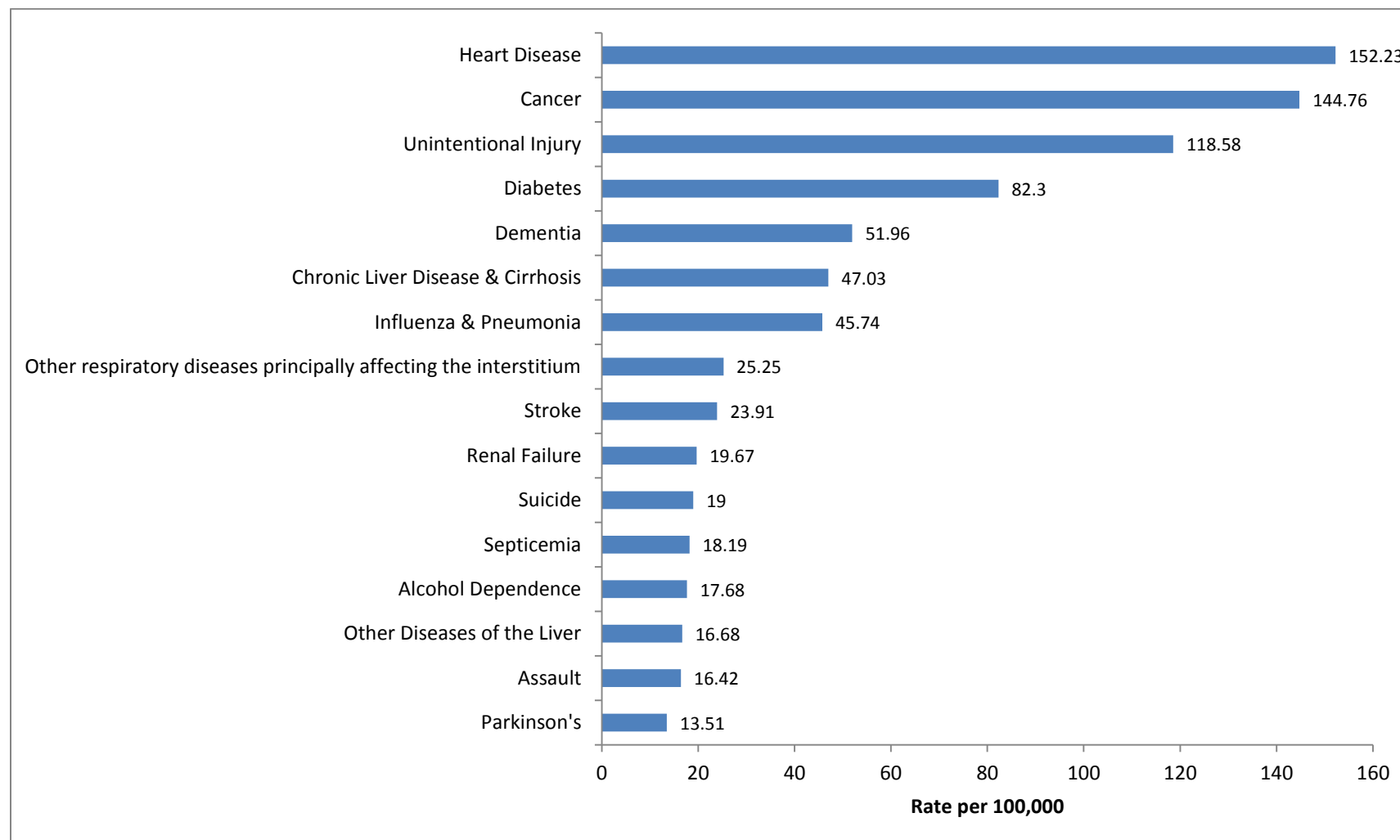


Chart 4 Fifteen Leading Causes of Death, Age Adjusted with 95% Confidence Intervals

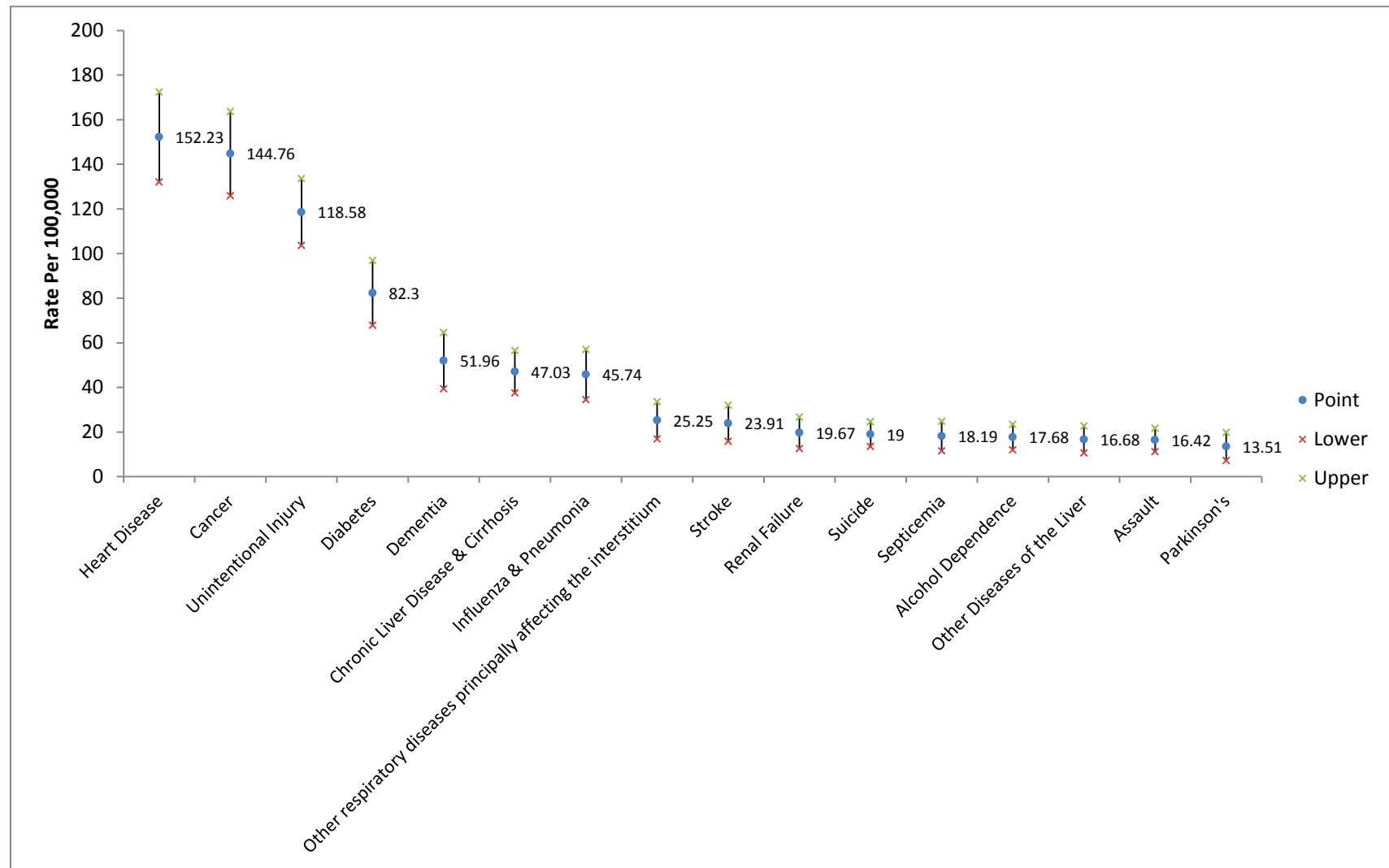


Table 4 Leading Causes of death for the Total Population, Age Adjusted per 100,000

<b>Cause of Death</b>	<b>Point Estimate</b>	<b>Lower Estimate</b>	<b>Upper Estimate</b>
<b>Heart Disease</b>	152.23	132.08	172.39
<b>Cancer</b>	144.76	125.85	163.67
<b>Unintentional Injury</b>	118.58	103.59	133.56
<b>Diabetes</b>	82.30	67.79	96.82
<b>Dementia</b>	51.96	39.38	64.54
<b>Chronic Liver Disease &amp; Cirrhosis</b>	47.03	37.56	56.50
<b>Influenza &amp; Pneumonia</b>	45.74	34.47	57.01
<b>Other respiratory diseases principally affecting the interstitium</b>	25.25	16.92	33.58
<b>Stroke</b>	23.91	15.80	32.02
<b>Renal Failure</b>	19.67	12.62	26.73
<b>Suicide</b>	19.00	13.46	24.54
<b>Septicemia</b>	18.19	11.54	24.84
<b>Alcohol Dependence</b>	17.68	12.00	23.36
<b>Other Diseases of the Liver</b>	16.68	10.59	22.76
<b>Assault</b>	16.42	11.15	21.69
<b>Parkinson's</b>	13.51	7.21	19.81

Chart 5 Fifteen Leading Causes of Death, by Count, Male Population

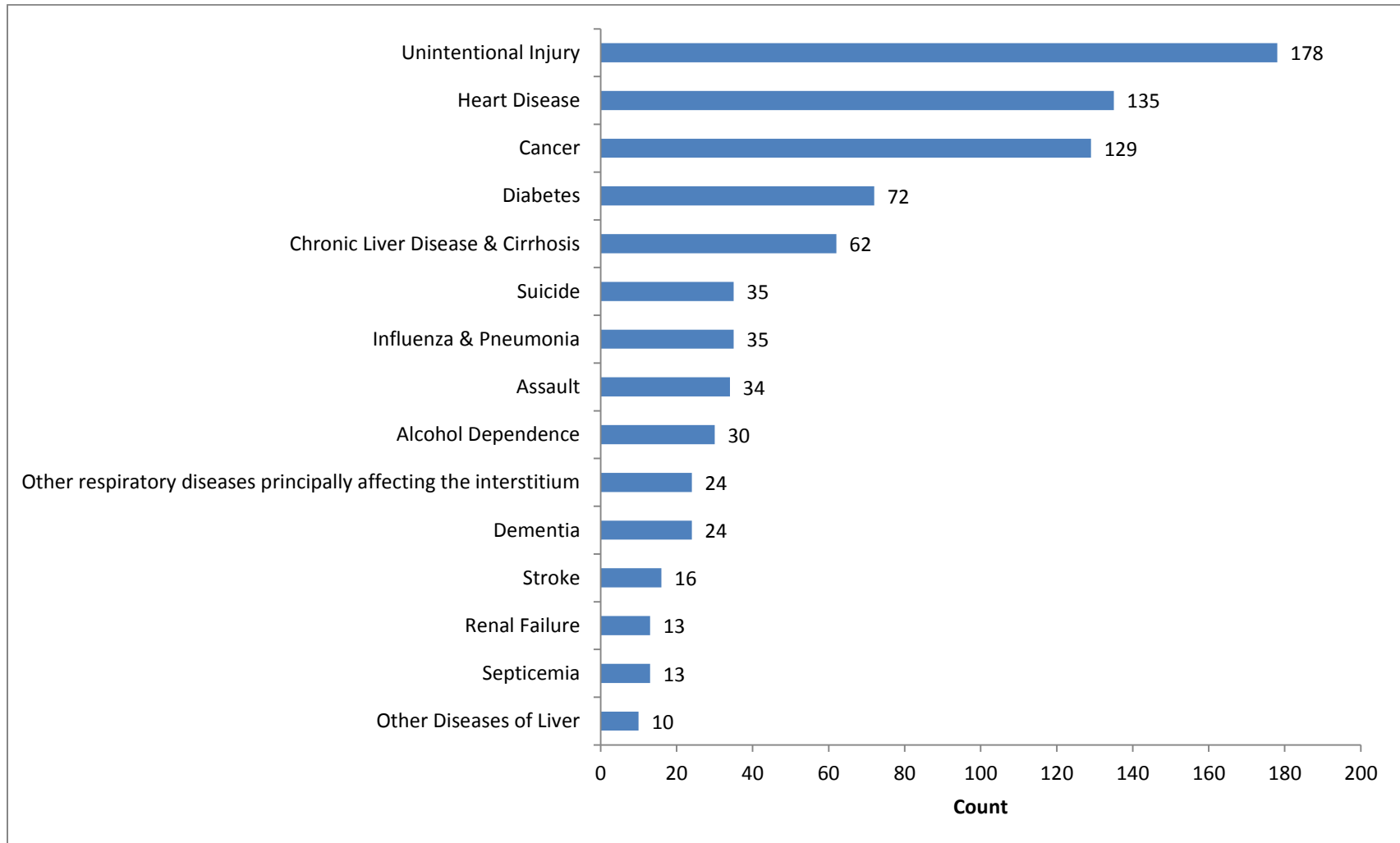


Chart 6 Fifteen Leading Causes of Death by Crude Rates, Male Population

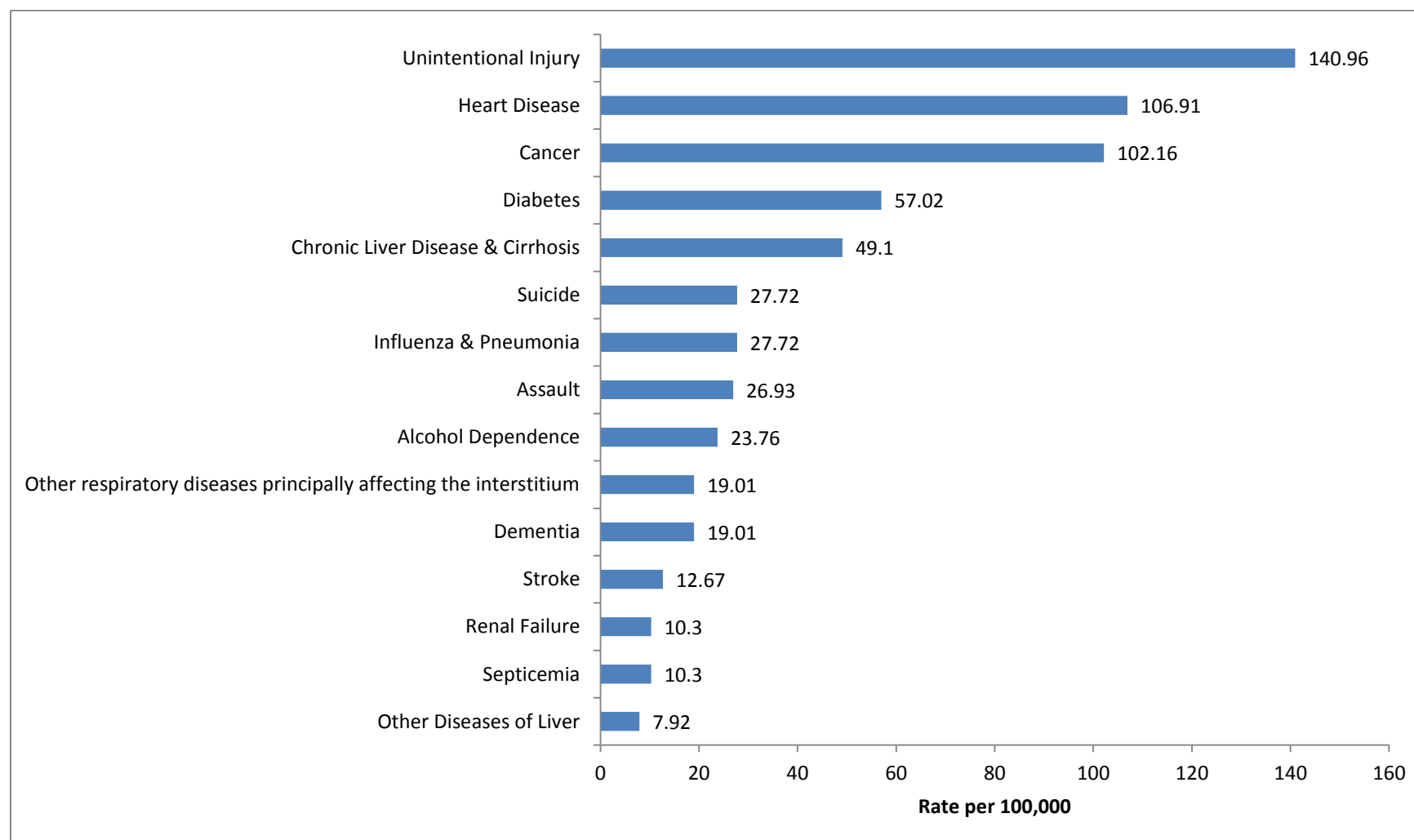


Chart 7 Fifteen Leading Causes of Death by Age Adjusted Rates, Male Population

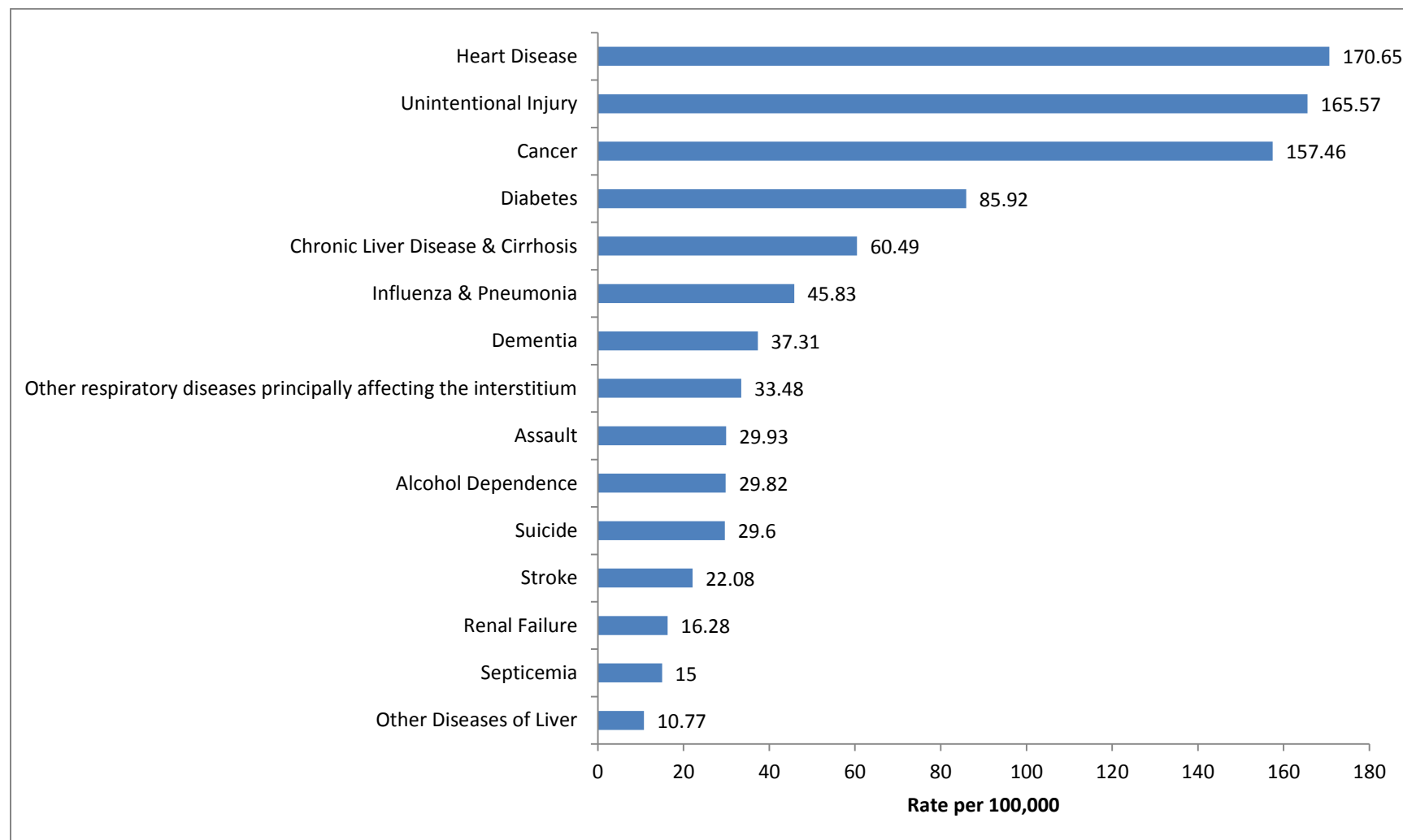


Chart 8 Fifteen Leading Causes of Death, Male Age Adjusted with 95% Confidence Intervals

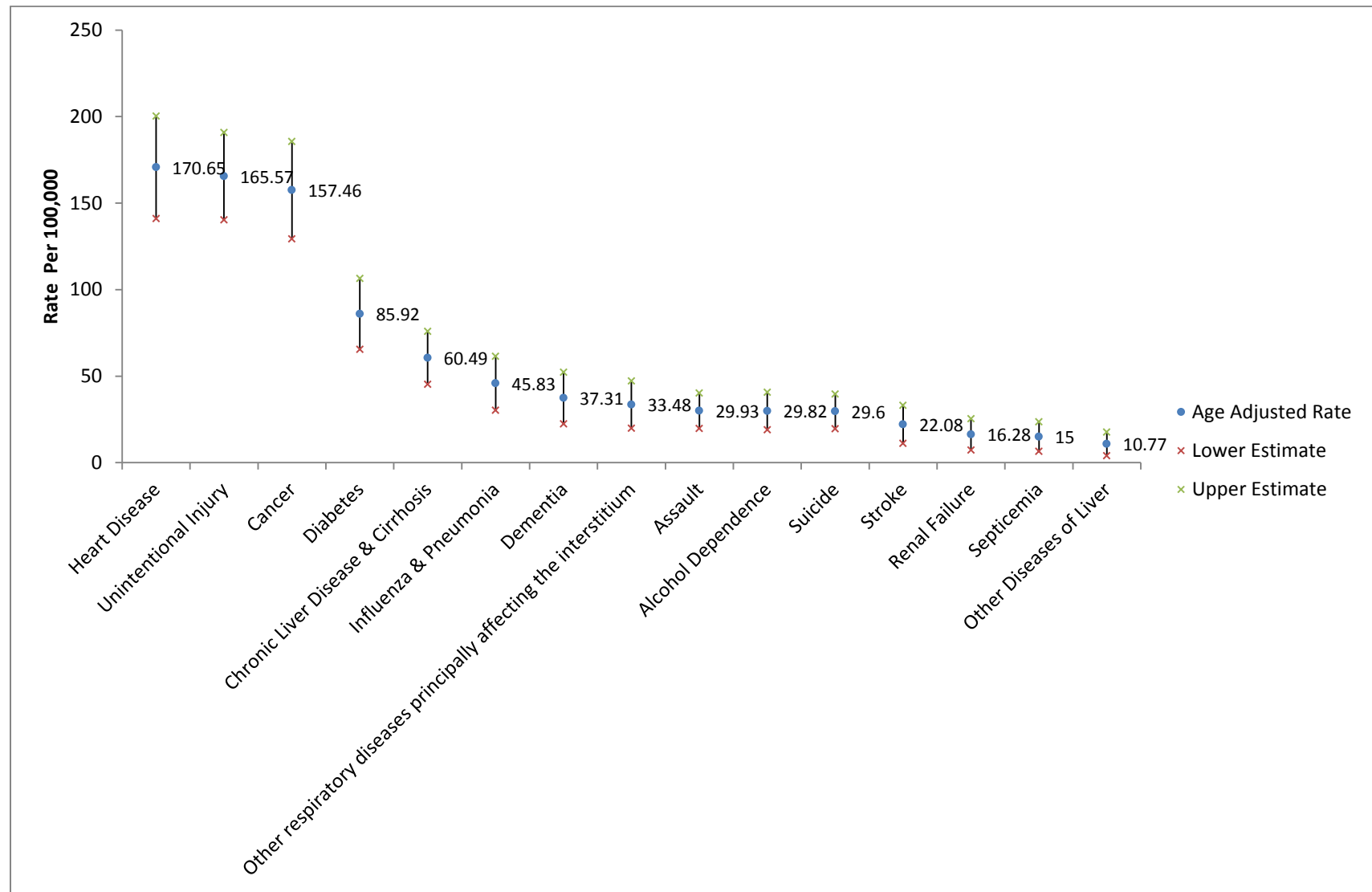


Table 5 Fifteen Leading Causes of Death, Male Age Adjusted with 95% Confidence Intervals

<b>Cause of Death</b>	<b>Point Estimate</b>	<b>Lower Estimate</b>	<b>Upper Estimate</b>
<b>Heart Disease</b>	170.65	141.06	200.24
<b>Unintentional Injury</b>	165.57	140.33	190.81
<b>Cancer</b>	157.46	129.34	185.58
<b>Diabetes</b>	85.92	65.49	106.36
<b>Chronic Liver Disease &amp; Cirrhosis</b>	60.49	45.21	75.78
<b>Influenza &amp; Pneumonia</b>	45.83	30.23	61.43
<b>Dementia</b>	37.31	22.38	52.24
<b>Other respiratory diseases principally affecting the interstitium</b>	33.48	19.83	47.13
<b>Assault</b>	29.93	19.68	40.18
<b>Alcohol Dependence</b>	29.82	19.03	40.62
<b>Suicide</b>	29.60	19.57	39.63
<b>Stroke</b>	22.08	11.07	33.10
<b>Renal Failure</b>	16.28	7.18	25.38
<b>Septicemia</b>	15.00	6.45	23.56
<b>Other Diseases of Liver</b>	10.77	3.91	17.62



Chart 9 Fifteen Leading Causes of Death by Count, Female Population

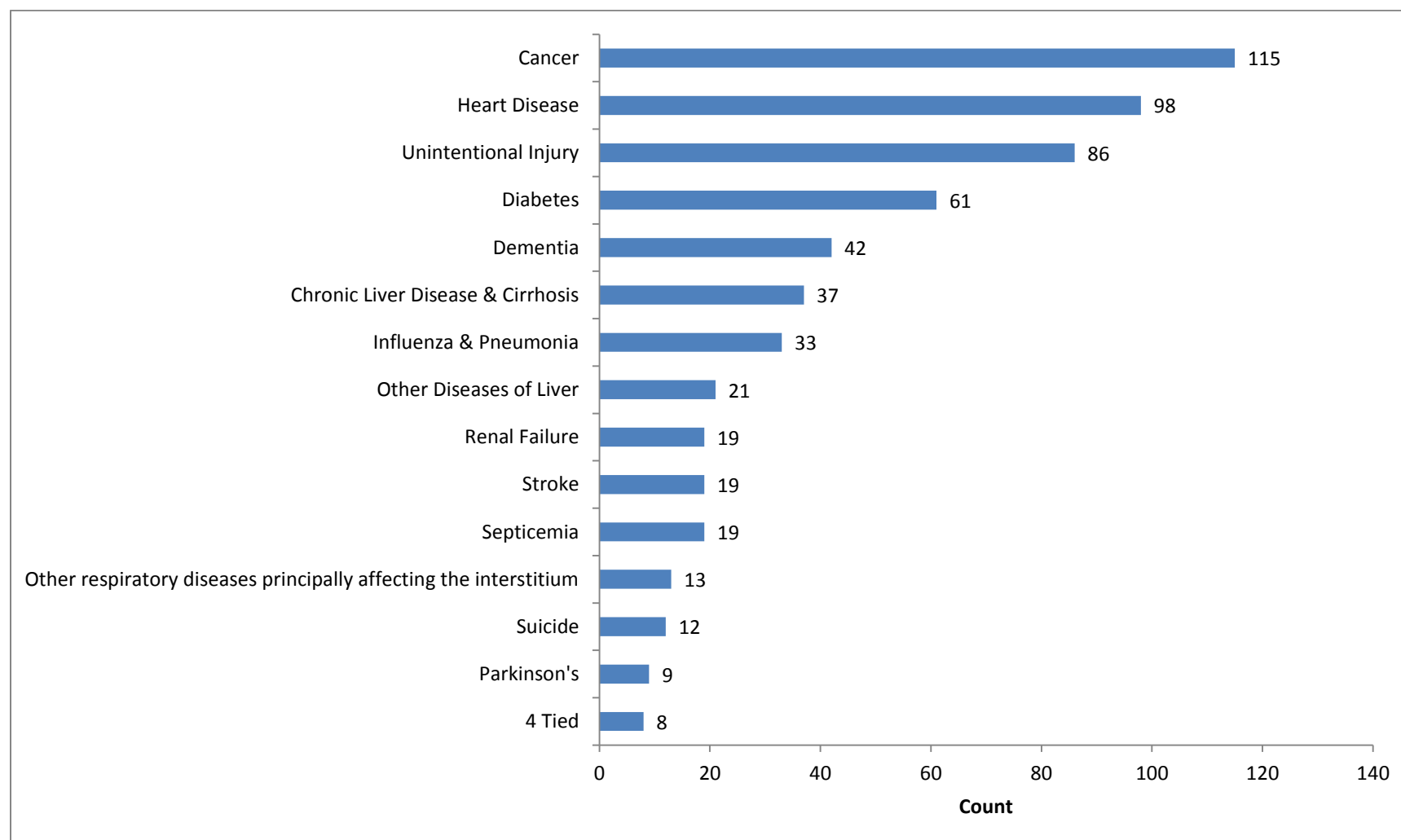


Chart 10 Fifteen Leading Causes of Death by Crude Rates, Female Population

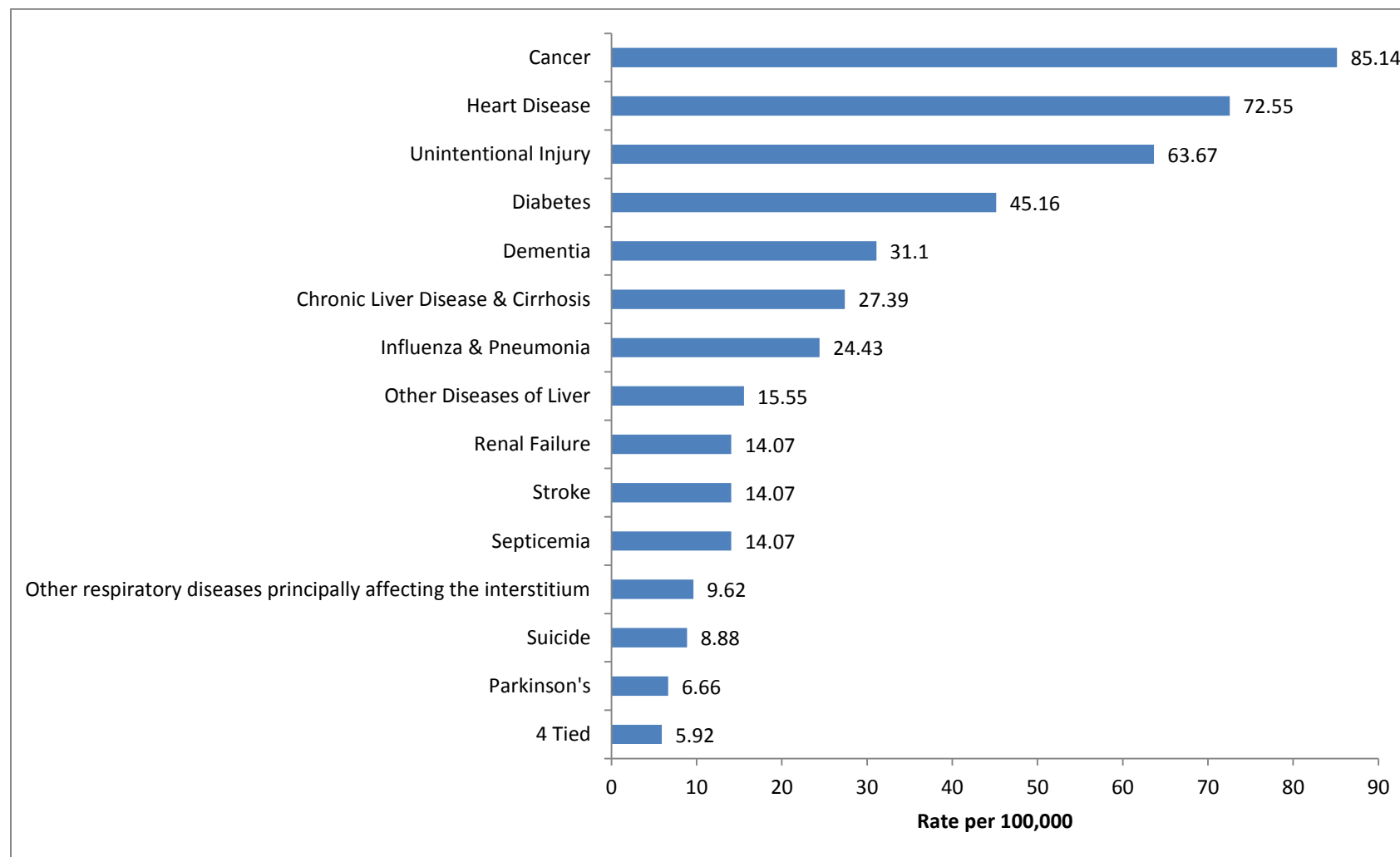


Chart 11 Fifteen Leading Causes of Death Age Adjusted Rates, Female Population

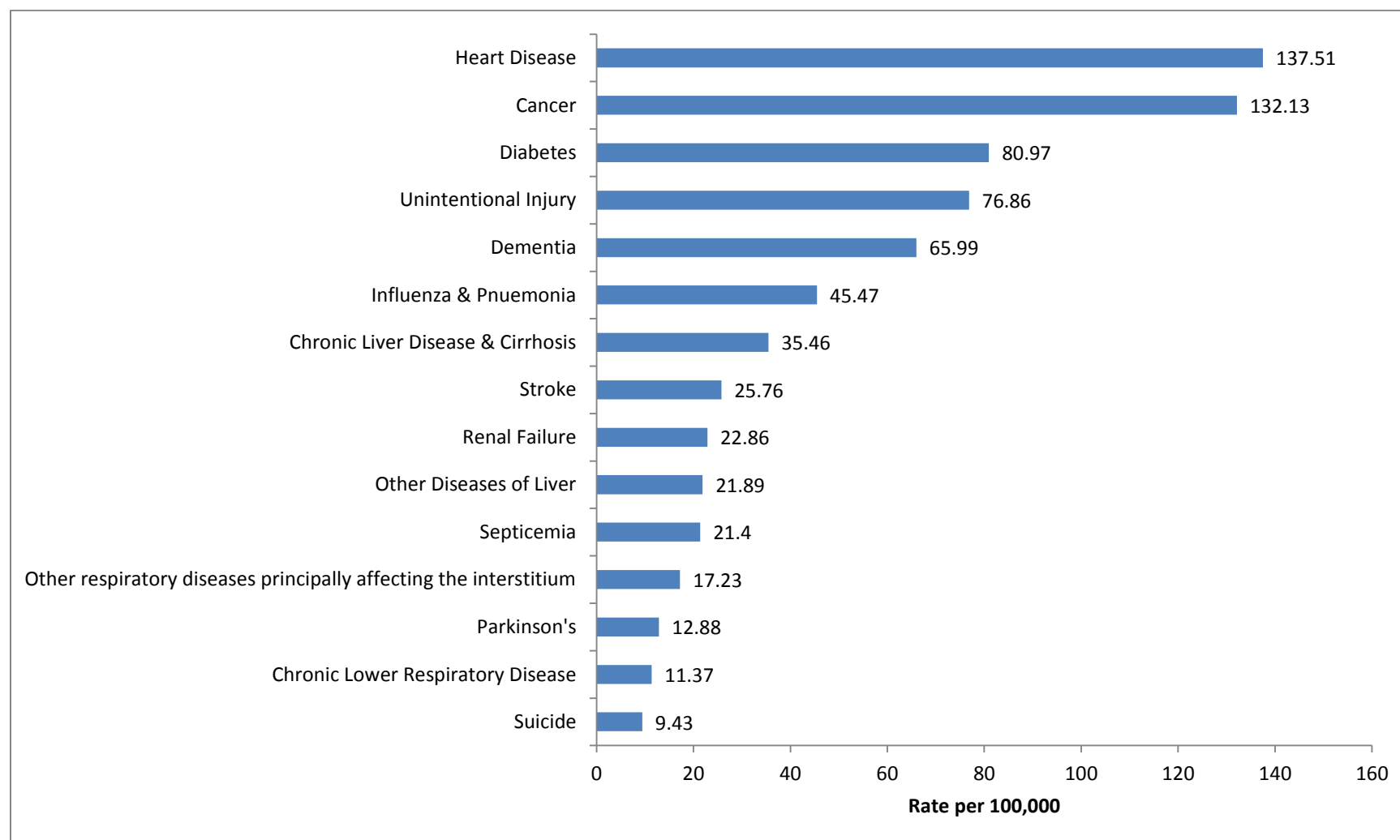


Chart 12 Fifteen Leading Causes of Death, Female Age Adjusted with 95% Confidence Intervals

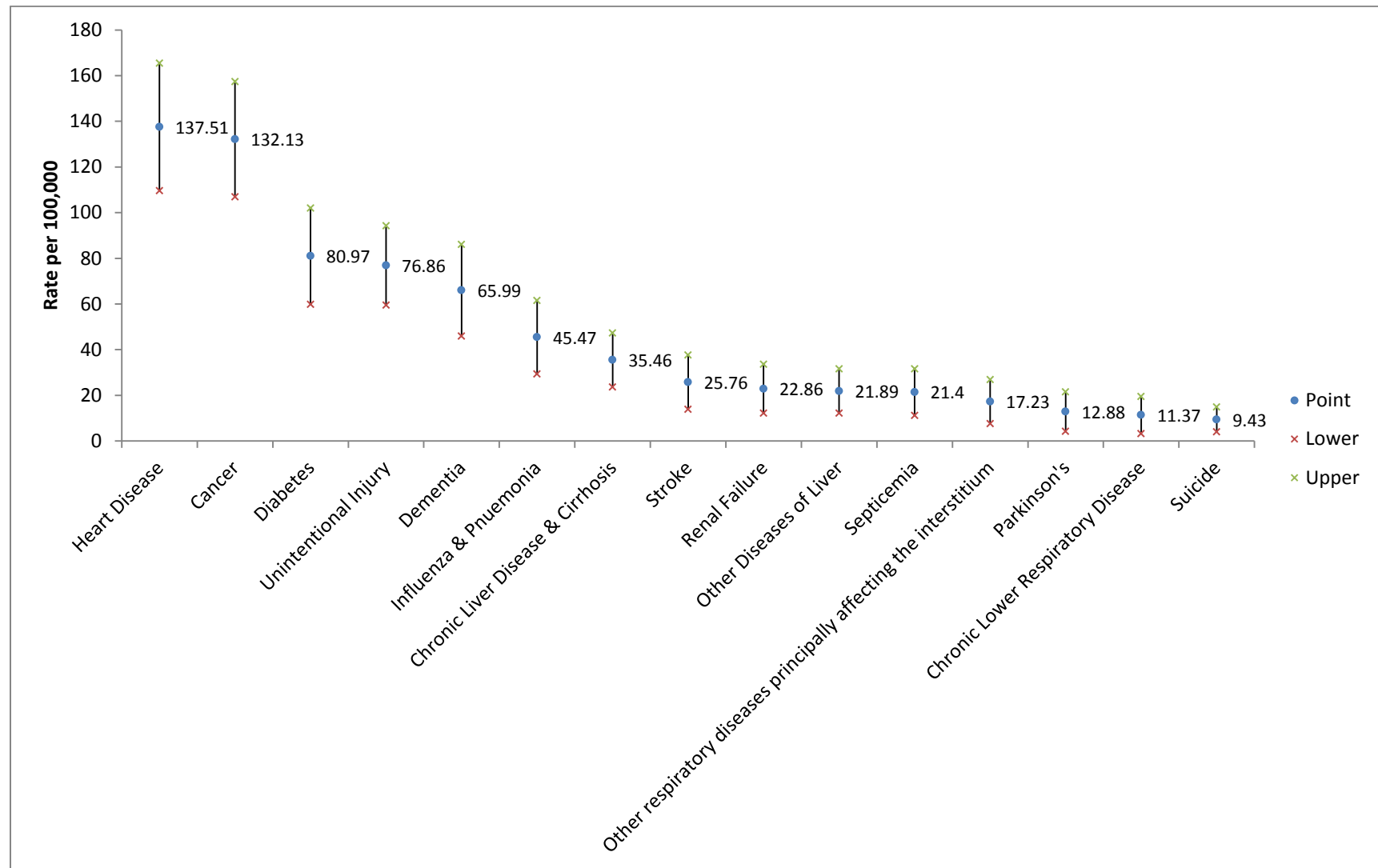


Table 6 Fifteen Leading Causes of Death, Female Age Adjusted with 95% Confidence Intervals

<b>Cause of Death</b>	<b>Point Estimate</b>	<b>Lower Estimate</b>	<b>Upper Estimate</b>
<b>Heart Disease</b>	137.51	109.60	165.43
<b>Cancer</b>	132.13	106.89	157.36
<b>Diabetes</b>	80.97	59.89	102.04
<b>Unintentional Injury</b>	76.86	59.50	94.21
<b>Dementia</b>	65.99	45.91	86.07
<b>Influenza &amp; Pneumonia</b>	45.47	29.36	61.57
<b>Chronic Liver Disease &amp; Cirrhosis</b>	35.46	23.66	47.26
<b>Stroke</b>	25.76	13.83	37.69
<b>Renal Failure</b>	22.86	12.16	33.56
<b>Other Diseases of Liver</b>	21.89	12.17	31.60
<b>Septicemia</b>	21.40	11.20	31.61
<b>Other respiratory diseases principally affecting the interstitium</b>	17.23	7.60	26.85
<b>Parkinson's</b>	12.88	4.29	21.46
<b>Chronic Lower Respiratory Disease</b>	11.37	3.19	19.54
<b>Suicide</b>	9.43	4.01	14.85

Table 6 Fifteen Leading Causes of Death Navajo Nation 2006-2009 & Navajo Nation 2010-2013, Percent of All deaths

Rank	2010-2013 (1,726 Total Deaths)	2006-2009 (1,740 Total Deaths)
1	Unintentional Injury: 15.3%	Unintentional Injury: 17.5%
2	Cancer: 14.1%	Cancer: 12.9%
3	Heart Disease: 13.5%	Heart Disease: 11.7%
4	Diabetes: 7.7%	Diabetes: 8.0%
5	Chronic Liver Disease & Cirrhosis: 5.7%	Chronic Liver Disease & Cirrhosis: 6.8%
6	Influenza & Pneumonia: 3.9%	Influenza & Pneumonia: 4.1%
7	Dementia: 3.8%	Suicide: 3.1%
8	Suicide: 2.7%	Stroke: 3.0%
9	Assault: 2.3%	Chronic Lower Respiratory Disease: 2.4%
10	Alcohol Dependence: 2.2%	Assault: 2.4%
11	Other respiratory diseases principally affecting the interstitium: 2.1%	Other respiratory diseases principally affecting the interstitium: 2.2%
12	Stroke: 2.0%	Septicemia: 1.7%
13	Septicemia: 1.9%	Renal Failure: 1.7%
14	Renal Failure: 1.9%	Dementia: 1.6%
15	Other Diseases of the Liver: 1.8%	Alcohol Dependence: 1.6%

Table 7 Male Fifteen Leading Causes of Death Navajo Nation 2006-2009 & Navajo Nation 2010-2013, Percent of All deaths

Rank	2010-2013	2006-2009
1	Unintentional Injury: 18.3%	Unintentional Injury: 24.2%
2	Heart Disease: 13.9%	Heart Disease: 12.5%
3	Cancer: 13.3%	Cancer: 10.3%
4	Diabetes: 7.4%	Diabetes: 5.5%
5	Chronic Liver Disease & Cirrhosis: 6.4%	Suicide: 4.3%
6	Influenza & Pneumonia: 3.6%	Chronic Liver Disease & Cirrhosis: 4.2%
7	Suicide: 3.6%	Influenza & Pneumonia: 3.8%
8	Assault: 3.5%	Assault: 2.9%
9	Alcohol Dependence: 1.7%	Alcohol Dependence: 2.8%
10	Dementia: 2.5%	Stroke: 2.4%
11	Other respiratory diseases principally affecting the interstitium: 2.5%	Septicemia: 1.6%
12	Stroke: 1.7%	Hypertensive Disease: 1.6%
13	Septicemia: 1.3%	Renal Failure: 1.3%
14	Renal Failure: 1.3%	Chronic Obstructive Pulmonary Disease: 1.3%
15	Other Diseases of Liver: 1.0%	Dementia: 1.0%

Two diseases moved off the top 15 list from 2006-2009 (Hypertensive Disease, COPD), and two moved onto the list (Other respiratory diseases principally affecting the interstitium, and other diseases of the liver).

Table 8 Female Fifteen Leading Causes of Death Navajo Nation 2006-2009 & Navajo Nation 2010-2013, Percent of All deaths

Rank	2010-2013	2006-2009
1	Cancer: 15.2%	Cancer: 16.1%
2	Heart Disease: 13.0%	Heart Disease: 11.8%
3	Unintentional Injury: 11.4%	Unintentional Injury: 11.5
4	Diabetes: 8.1%	Chronic Liver Disease & Cirrhosis: 7.6%
5	Dementia: 5.6%	Diabetes: 6.1%
6	Chronic Liver Disease & Cirrhosis: 4.9%	Influenza & Pneumonia: 5.7%
7	Influenza & Pneumonia: 4.4%	Dementia: 3.7%
8	Other Diseases of the Liver: 2.8%	Septicemia: 3.1%
9	Septicemia: 2.5%	Stroke: 3.1%
10	Stroke: 2.5%	Renal Failure: 2.8%
11	Renal Failure: 2.5%	Parkinson's: 1.4%
12	Other respiratory diseases principally affecting the interstitium	Hypertensive Disease: 1.3%
13	Suicide: 1.6%	Suicide: 1.1%
14	Parkinson's: 1.2%	Chronic Obstructive Pulmonary Disease: 1.1%
15	Alcohol Dependence: 1.1%	Alzheimer's: 1.1%

Other liver diseases, other respiratory diseases affecting the interstitium, and alcohol dependence now appear on the leading causes of death when they did not in 2006-2009.



Chart 13 Total Deaths by Age Group

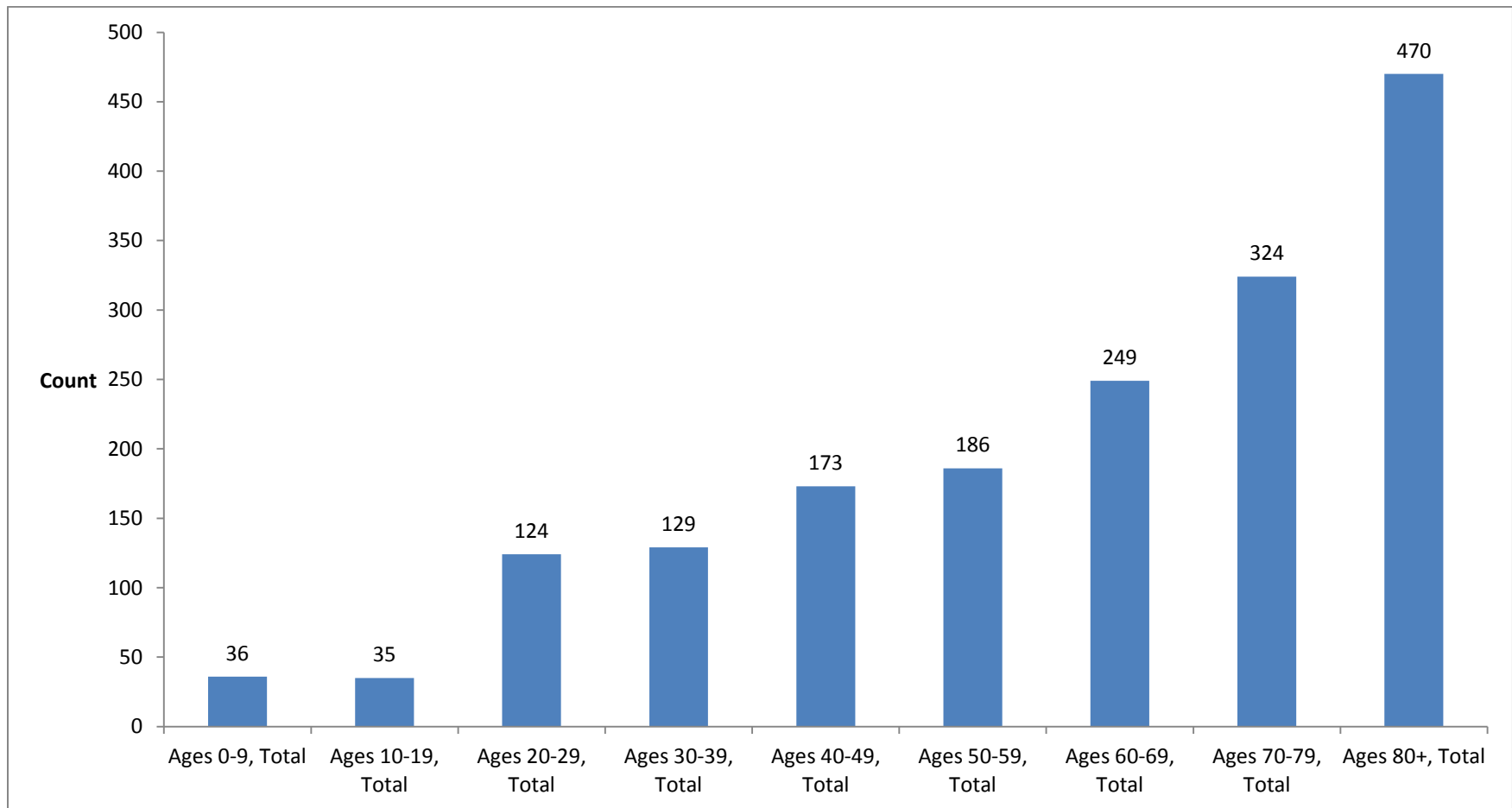


Chart 14 Total Deaths by Age Group, Male

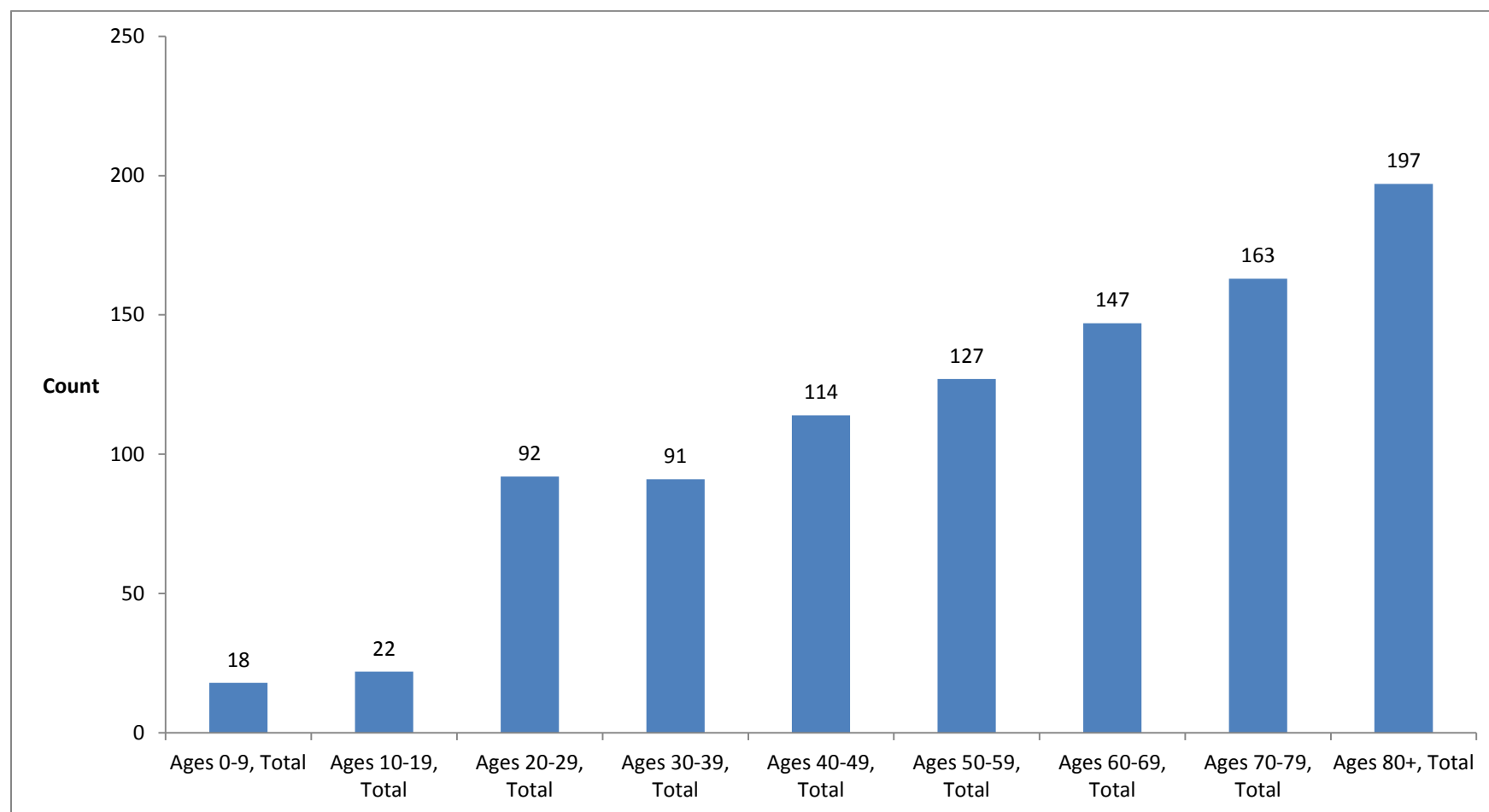
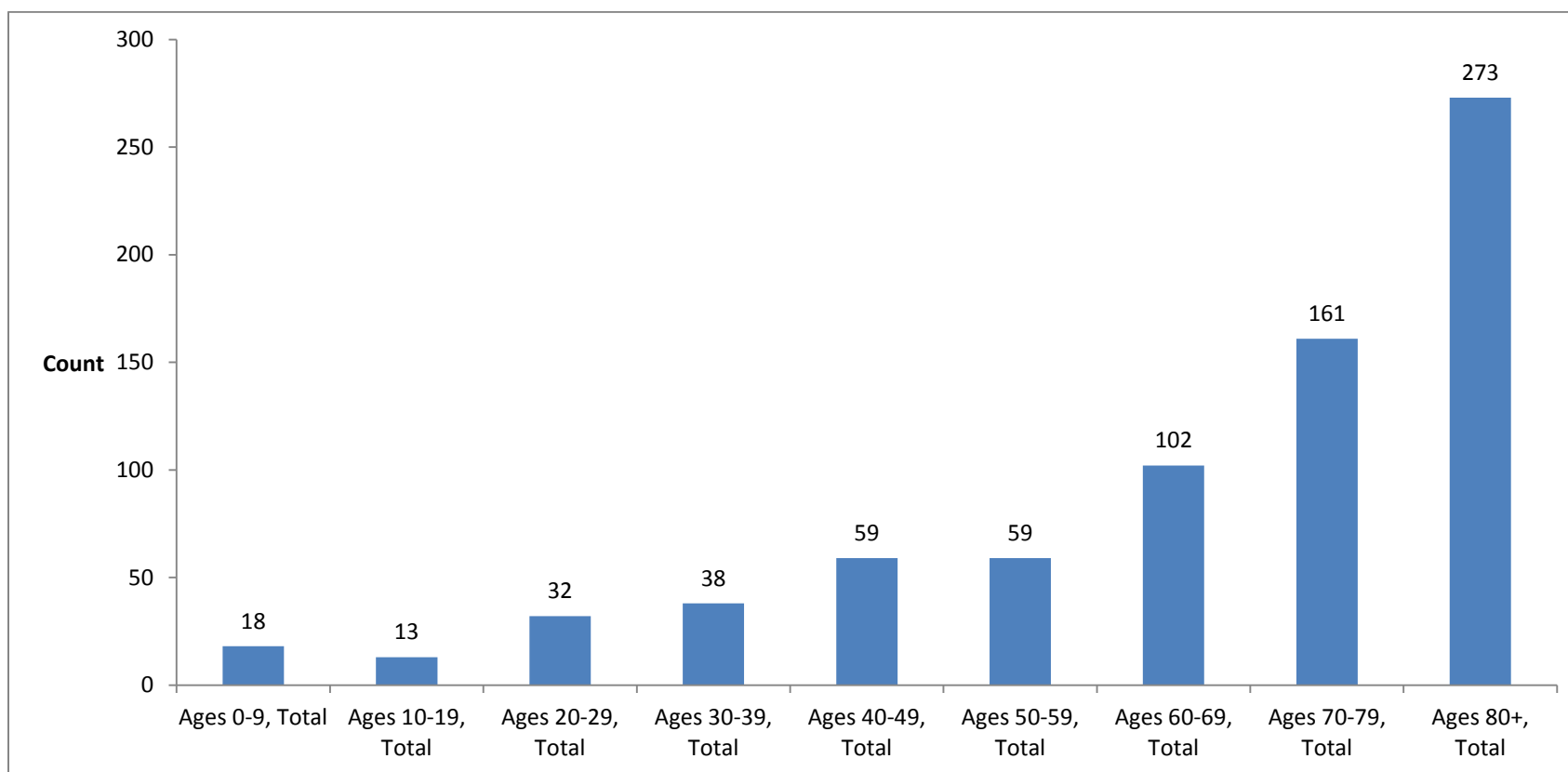


Chart 15 Total Deaths by Age Group, Female



37.1% of male deaths occurred from age 70 and older, and 57.5% of female deaths occurred from age 70 and older.

Chart 16 Mortality Rate by Age Group, Navajo Nation (NM) 2010-2013

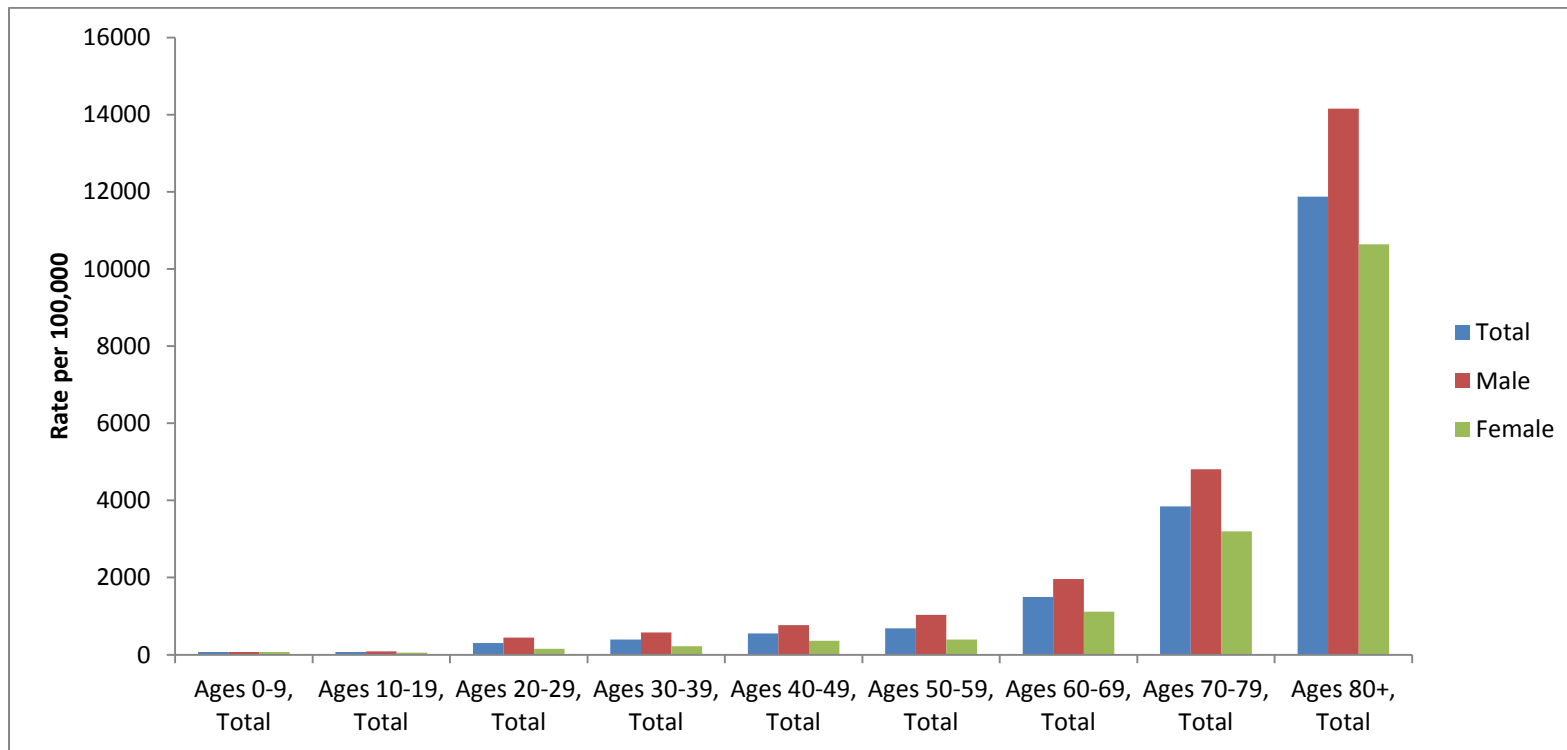


Table 9 Leading Causes of Death Ages 0-9

Cause	Count	Percent of Deaths in Age Group	Crude Rate
<b>Congenital Malformations</b>	8	22.2	15.91
<b>Certain conditions originating in the perinatal period</b>	6	16.7	11.94
<b>Unintentional Injury</b>	6	16.7	11.94
<b>All Other Causes</b>	16	44.4	31.83

Table 10 Leading Causes of Death Ages 0-9, Male

Cause	Count	Percent of Deaths in Age Group	Crude Rate
<b>Congenital Malformations</b>	4	22.2	15.52
<b>Unintentional Injury</b>	4	22.2	15.52
<b>All Other Causes</b>	10	55.6	38.80

Table 11 Leading Causes of Death Ages 0-9, Female

Cause	Count	Percent of Deaths in Age Group	Crude Rate
<b>Congenital Malformations</b>	4	22.2	16.33
<b>All Other Causes</b>	14	77.8	57.15

Table 12 Leading Causes of Death Ages 10-19

Cause	Count	Percent of Deaths in Age Group	Crude Rate
Unintentional Injury	18	51.4	36.30
Suicide	7	20.0	14.12
All Other Causes	10	28.6	20.16

Table 13 Leading Causes of Death Ages 10-19, Male

Cause	Count	Percent of Deaths in Age Group	Crude Rate
Unintentional Injury	8	36.4	32.29
Suicide	6	27.3	24.22
All Other Causes	8	36.4	32.29

Table 14 Leading Causes of Death Ages 10-19, Female

Cause	Count	Percent of Deaths in Age Group	Crude Rate
Unintentional Injury	10	76.9	40.3
All Other Causes	3	23.1	12.09

Table 15 Leading Causes of Death Ages 20-29

<b>Cause</b>	<b>Count</b>	<b>Percent of Deaths in Age Group</b>	<b>Crude Rate</b>
<b>Unintentional Injury</b>	66	53.2	159.92
<b>Suicide</b>	14	11.3	33.92
<b>Assault</b>	12	9.7	29.08
<b>Cancer</b>	6	4.8	14.54
<b>Chronic Liver Disease &amp; Cirrhosis</b>	6	4.8	14.54
<b>Ill-defined and unknown causes of mortality</b>	4	3.2	9.7
<b>All Other Causes</b>	16	12.9	38.77

Table 16 Leading Causes of Death Ages 20-29, Males

<b>Cause</b>	<b>Count</b>	<b>Percent of Deaths in Age Group</b>	<b>Crude Rate</b>
<b>Unintentional Injury</b>	48	52.2	232.11
<b>Assault</b>	11	12.0	53.19
<b>Suicide</b>	10	10.9	48.36
<b>Chronic Liver Disease &amp; Cirrhosis</b>	5	5.4	24.18
<b>Cancer</b>	4	4.3	19.34
<b>Ill-defined and unknown causes of mortality</b>	4	4.3	19.34
<b>All Other Causes</b>	10	10.9	48.36

Table 17 Leading Causes of Death Ages 20-29, Female

<b>Cause</b>	<b>Count</b>	<b>Percent of Deaths in Age Group</b>	<b>Crude Rate</b>
<b>Unintentional Injury</b>	18	56.3	87.41
<b>Suicide</b>	4	12.5	19.43
<b>All Other Causes</b>	10	31.3	48.56

Table 18 Leading Causes of Death Ages 30-39

Cause	Count	Percent of Deaths in Age Group	Crude Rate
Unintentional Injury	45	34.9	137.14
Chronic Liver Disease & Cirrhosis	20	15.5	60.95
Suicide	10	7.8	30.48
Alcohol Dependence	9	7.0	27.43
Assault	8	6.2	24.38
Cancer	7	5.4	21.33
Other Diseases of the Liver	5	3.9	15.24
Diabetes	4	3.1	12.19
All Other Causes	21	16.3	64.00

Table 19 Leading Causes of Death Ages 30-39, Male

Cause	Count	Percent of Deaths in Age Group	Crude Rate
Unintentional Injury	31	34.1	197.81
Chronic Liver Disease & Cirrhosis	13	14.3	82.95
Assault	8	8.8	51.05
Alcohol Dependence	7	7.7	44.67
Suicide	6	6.6	38.28
Cancer	4	4.4	25.52
Diabetes	4	4.4	25.52
All Other Causes	18	19.8	114.85

Table 20 Leading Causes of Death Ages 30-39, Female

Cause	Count	Percent of Deaths in Age Group	Crude Rate
Unintentional Injury	14	36.8	81.68
Chronic Liver Disease & Cirrhosis	7	18.4	40.84
Suicide	4	10.5	23.34
All Other Causes	13	34.2	75.85



Table 21 Leading Causes of Death Ages 40-49

<b>Cause</b>	<b>Count</b>	<b>Percent of Deaths in Age Group</b>	<b>Crude Rate</b>
<b>Unintentional Injury</b>	38	21.97	121.99
<b>Chronic Liver Disease &amp; Cirrhosis</b>	26	15.0	83.47
<b>Heart Disease</b>	14	8.1	44.95
<b>Suicide</b>	13	7.5	41.73
<b>Assault</b>	12	6.9	38.52
<b>Alcohol Dependence</b>	12	6.9	38.52
<b>Diabetes</b>	9	5.2	28.89
<b>Cancer</b>	8	4.6	25.68
<b>Influenza &amp; Pneumonia</b>	6	3.5	19.26
<b>Ill-defined and unknown causes of mortality</b>	5	2.9	16.05
<b>Injury, Undetermined Intent</b>	4	2.3	12.84
<b>All Other Causes</b>	26	15.0	83.47

Table 22 Leading Causes of Death Ages 40-49, Male

<b>Cause</b>	<b>Count</b>	<b>Percent of Deaths in Age Group</b>	<b>Crude Rate</b>
<b>Unintentional Injury</b>	28	24.6	188.95
<b>Chronic Liver Disease &amp; Cirrhosis</b>	14	12.3	94.47
<b>Heart Disease</b>	12	10.5	80.98
<b>Assault</b>	11	9.6	74.23
<b>Suicide</b>	10	8.8	67.48
<b>Alcohol Dependence</b>	8	7.0	53.98
<b>Diabetes</b>	8	7.0	53.98
<b>All Other Causes</b>	23	20.2	155.21

Table 23 Leading Causes of Death Ages 40-49, Female

Cause	Count	Percent of Deaths in Age Group	Crude Rate
Chronic Liver Disease & Cirrhosis	12	20.3	73.48
Unintentional Injury	10	16.9	61.24
Cancer	5	8.5	30.62
Alcohol Dependence	4	6.8	24.49
All Other Causes	28	47.5	171.46

Table 24 Leading Causes of Death Ages 50-59

Cause	Count	Percent of Deaths in Age Group	Crude Rate
Cancer	34	18.28	124.68
Unintentional Injury	32	17.2	117.35
Chronic Liver Disease & Cirrhosis	18	9.68	66.01
Heart Disease	17	9.14	62.34
Diabetes	14	7.53	51.34
Renal Failure	7	3.76	25.67
Alcohol Dependence	7	3.76	25.67
Other Diseases of the Liver	6	3.23	22.00
Influenza & Pneumonia	5	2.69	18.34
Stroke	4	2.15	14.67
All Other Causes	42	22.58	154.02

Table 25 Leading Causes of Death Ages 50-59, Male

Cause	Count	Percent of Deaths in Age Group	Crude Rate
Unintentional Injury	22	17.3	179.18
Cancer	19	15.0	154.75
Heart Disease	15	11.8	122.17
Chronic Liver Disease & Cirrhosis	13	10.2	105.88
Diabetes	11	8.7	89.59
Alcohol Dependence	6	4.7	48.87
Influenza & Pneumonia	5	3.9	40.72
All Other Causes	36	28.3	293.21

Table 26 Leading Causes of Death Ages 50-59, Female

<b>Cause</b>	<b>Count</b>	<b>Percent of Deaths in Age Group</b>	<b>Crude Rate</b>
<b>Cancer</b>	15	25.4	100.05
<b>Unintentional Injury</b>	10	16.9	66.70
<b>Chronic Liver Disease &amp; Cirrhosis</b>	5	8.5	33.35
<b>Renal Failure</b>	4	6.8	26.68
<b>All Other Causes</b>	25	42.4	166.76

Table 27 Leading Causes of Death Ages 60-69

<b>Cause</b>	<b>Count</b>	<b>Percent of Deaths in Age Group</b>	<b>Crude Rate</b>
<b>Cancer</b>	58	23.29	349.19
<b>Heart Disease</b>	42	16.87	252.86
<b>Diabetes</b>	33	13.25	198.68
<b>Unintentional Injury</b>	20	8.03	120.41
<b>Chronic Liver Disease &amp; Cirrhosis</b>	19	7.63	114.39
<b>Other Diseases of the Liver</b>	7	2.81	42.14
<b>Influenza &amp; Pneumonia</b>	7	2.81	42.14
<b>Alcohol Dependence</b>	7	2.81	42.14
<b>Septicemia</b>	6	2.41	36.12
<b>All Other Causes</b>	50	20.08	301.02

Table 28 Leading Causes of Death Ages 60-69, Male

<b>Cause</b>	<b>Count</b>	<b>Percent of Deaths in Age Group</b>	<b>Crude Rate</b>
<b>Cancer</b>	31	21.1	413.33
<b>Heart Disease</b>	30	20.4	400.00
<b>Diabetes</b>	18	12.2	240.00
<b>Unintentional Injury</b>	16	10.9	213.33
<b>Chronic Liver Disease &amp; Cirrhosis</b>	13	8.8	173.33
<b>Influenza &amp; Pneumonia</b>	6	4.1	80.00
<b>Alcohol Dependence</b>	6	4.1	80.00
<b>All Other Causes</b>	27	18.4	360.00

Table 29 Leading Causes of Death Ages 60-69, Female

<b>Cause</b>	<b>Count</b>	<b>Percent of Deaths in Age Group</b>	<b>Crude Rate</b>
<b>Cancer</b>	27	26.5	296.38
<b>Diabetes</b>	15	14.7	164.65
<b>Heart Disease</b>	12	11.8	131.72
<b>Chronic Liver Disease &amp; Cirrhosis</b>	6	5.9	65.86
<b>Other Diseases of the Liver</b>	6	5.9	65.86
<b>Unintentional Injury</b>	5	4.9	54.88
<b>Septicemia</b>	5	4.9	54.88
<b>All Other Causes</b>	26	25.5	285.4

Table 30 Leading Causes of Death Ages 70-79

<b>Cause</b>	<b>Count</b>	<b>Percent of Deaths in Age Group</b>	<b>Crude Rate</b>
<b>Cancer</b>	68	21.0	807.79
<b>Heart Disease</b>	65	20.1	772.15
<b>Diabetes</b>	28	8.6	332.62
<b>Unintentional Injury</b>	20	6.2	237.59
<b>Other Respiratory Diseases Primarily Affecting the Interstitialium</b>	14	4.3	166.31
<b>Stroke</b>	12	3.7	142.55
<b>Dementia</b>	12	3.7	142.55
<b>Renal Failure</b>	11	3.4	130.67
<b>Influenza &amp; Pneumonia</b>	8	2.5	95.03
<b>Other Diseases of the Liver</b>	6	1.9	71.28
<b>Parkinson's</b>	6	1.9	71.28
<b>Chronic Liver Disease &amp; Cirrhosis</b>	6	1.9	71.28
<b>Septicemia</b>	5	1.5	59.4
<b>Clostridium Difficile</b>	4	1.2	47.52
<b>Lung Disease Due to External Agents</b>	4	1.2	47.52
<b>All Other Causes</b>	55	17.0	653.36

Table 31 Leading Causes of Death Ages 70-79, Male

<b>Cause</b>	<b>Count</b>	<b>Percent of Deaths in Age Group</b>	<b>Crude Rate</b>
<b>Heart Disease</b>	39	23.9	1151.12
<b>Cancer</b>	32	19.6	944.51
<b>Diabetes</b>	17	10.4	501.77
<b>Unintentional Injury</b>	13	8.0	383.71
<b>Other Respiratory Diseases Primarily Affecting the Interstitial</b>	9	5.5	265.646
<b>Stroke</b>	6	3.7	177.1
<b>Dementia</b>	5	3.1	147.58
<b>Renal Failure</b>	4	2.5	118.06
<b>All Other Causes</b>	38	23.3	1121.61

Table 32 Leading Causes of Death Ages 70-79, Female

<b>Cause</b>	<b>Count</b>	<b>Percent of Deaths in Age Group</b>	<b>Crude Rate</b>
<b>Cancer</b>	36	22.4	715.71
<b>Heart Disease</b>	26	16.1	516.9
<b>Diabetes</b>	11	6.8	218.69
<b>Unintentional Injury</b>	7	4.3	139.17
<b>Dementia</b>	7	4.3	139.17
<b>Renal Failure</b>	7	4.3	139.17
<b>Stroke</b>	6	3.7	119.28
<b>Other Diseases of the Liver</b>	6	3.7	119.28
<b>Other Respiratory Diseases Primarily Affecting the Interstitial</b>	5	3.1	99.4
<b>Influenza &amp; Pneumonia</b>	5	3.1	99.4
<b>All Other Causes</b>	45	28.0	894.63



Table 33 Leading Causes of Death Ages 80+

<b>Cause</b>	<b>Count</b>	<b>Percent of Deaths in Age Group</b>	<b>Crude Rate</b>
<b>Heart Disease</b>	90	19.15	2273.88
<b>Cancer</b>	60	12.77	1515.92
<b>Dementia</b>	53	11.28	1339.06
<b>Diabetes</b>	45	9.57	1136.94
<b>Influenza &amp; Pneumonia</b>	38	8.09	960.08
<b>Unintentional Injury</b>	17	3.62	429.51
<b>Stroke</b>	15	3.19	378.98
<b>Other Respiratory Diseases Principally Affecting the Interstitialium</b>	15	3.19	378.98
<b>Parkinson's</b>	11	2.34	277.92
<b>Chronic Lower Respiratory Disease</b>	11	2.34	277.92
<b>Alzheimer's</b>	10	2.13	252.65
<b>Septicemia</b>	9	1.91	227.39
<b>Lung Disease Due to External Agents</b>	6	1.28	151.59
<b>Hypertension</b>	5	1.06	126.33
<b>Other Diseases of the Intestines</b>	5	1.06	126.33
<b>Urinary Tract Infection</b>	5	1.06	126.33
<b>Disorders of the gallbladder, biliary tract, and pancreas</b>	5	1.06	126.33
<b>Protein energy malnutrition</b>	5	1.06	126.33
<b>Other Respiratory Disorders</b>	4	0.85	101.06
<b>Gastrointestinal Hemorrhage</b>	4	0.85	101.06
<b>All Other Causes</b>	57	12.13	1440.12

Table 34 Leading Causes of Death Ages 80+, Male

<b>Cause</b>	<b>Count</b>	<b>Percent of Deaths in Age Group</b>	<b>Crude Rate</b>
<b>Heart Disease</b>	36	18.3	2586.21
<b>Cancer</b>	34	17.3	2442.53
<b>Dementia</b>	19	9.6	1364.94
<b>Influenza &amp; Pneumonia</b>	18	9.1	1293.1
<b>Diabetes</b>	14	7.1	1005.75
<b>Other Respiratory Diseases Principally Affecting the Interstitialium</b>	10	5.1	718.39
<b>Unintentional Injury</b>	7	3.6	502.87
<b>Stroke</b>	6	3.0	431.03
<b>Parkinson's</b>	6	3.0	431.03
<b>Chronic Lower Respiratory Disease</b>	5	2.5	359.2
<b>All Other Causes</b>	42	21.3	3017.24

Table 33 Leading Causes of Death Ages 80+, Female

<b>Cause</b>	<b>Count</b>	<b>Percent of Deaths in Age Group</b>	<b>Crude Rate</b>
<b>Heart Disease</b>	54	19.8	2104.44
<b>Dementia</b>	34	12.5	1325.02
<b>Diabetes</b>	31	11.4	1208.11
<b>Cancer</b>	26	9.5	1013.25
<b>Influenza &amp; Pneumonia</b>	20	7.3	779.42
<b>Unintentional Injury</b>	10	3.7	389.71
<b>Stroke</b>	9	3.3	350.74
<b>Alzheimer's</b>	7	2.6	272.8
<b>Chronic Lower Respiratory Disease</b>	6	2.2	233.83
<b>Septicemia</b>	6	2.2	233.83
<b>Other Respiratory Disease Principally Affecting the Interstitium</b>	5	1.8	194.86
<b>Parkinson's</b>	5	1.8	194.86
<b>Disorders of the gallbladder, biliary tract, and pancreas</b>	5	1.8	194.86
<b>Renal Failure</b>	5	1.8	194.86
<b>Other Respiratory Disorders</b>	4	1.5	155.88
<b>All Other Causes</b>	46	16.8	1792.67

Table 34 Leading 5 Causes of Death by Age Group, Total Population

Rank	0 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80+
1	Congenital Malformations	Unintentional Injury	Unintentional Injury	Unintentional Injury	Unintentional Injury	Cancer	Cancer	Cancer	Heart Disease
2	Certain Conditions in Perinatal Period	Suicide	Suicide	Chronic Liver Disease & Cirrhosis	Chronic Liver Disease & Cirrhosis	Unintentional Injury	Heart Disease	Heart Disease	Cancer
3	Unintentional Injury	Not Enough Data	Assault	Suicide	Heart Disease	Chronic Liver Disease & Cirrhosis	Diabetes	Diabetes	Dementia
4	Not Enough Data	Not Enough Data	Cancer	Alcohol Dependence	Suicide	Heart Disease	Unintentional Injury	Unintentional Injury	Diabetes
5	Not Enough Data	Not Enough Data	Chronic Liver Disease & Cirrhosis	Assault	Assault	Diabetes	Chronic Liver Disease & Cirrhosis	Other Respiratory Diseases Principally affecting the interstitium	Influenza & Pneumonia

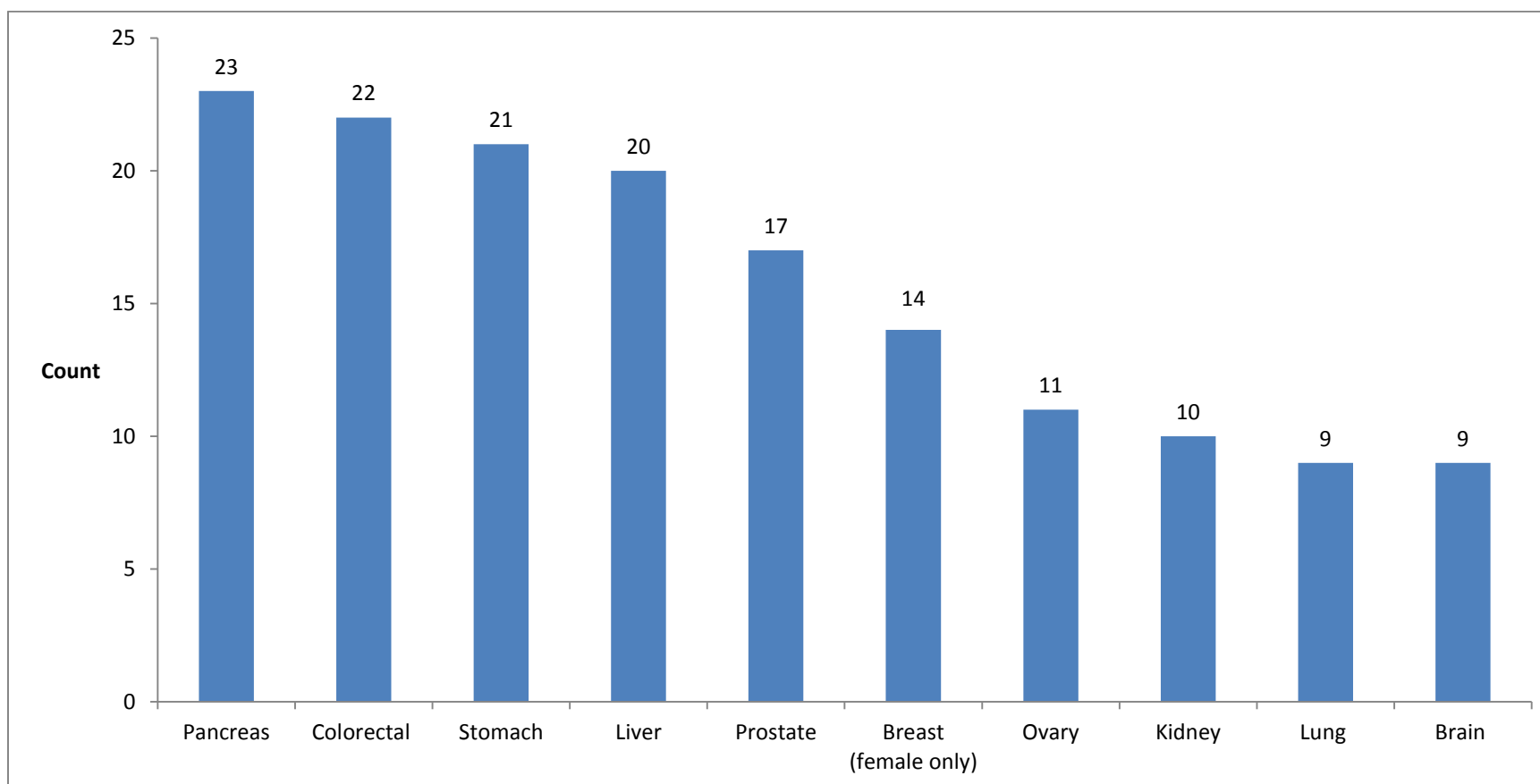
Table 35 Leading 5 Causes of Death by Age Group, Male Population

Rank	0 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80+
1	Congenital Malformations	Unintentional Injury	Unintentional Injury	Unintentional Injury	Unintentional Injury	Unintentional Injury	Cancer	Heart Disease	Heart Disease
2	Unintentional Injury	Suicide	Assault	Chronic Liver Disease & Cirrhosis	Chronic Liver Disease & Cirrhosis	Cancer	Heart Disease	Cancer	Cancer
3	Not Enough Data	Not Enough Data	Suicide	Assault	Heart Disease	Heart Disease	Diabetes	Diabetes	Dementia
4	Not Enough Data	Not Enough Data	Chronic Liver Disease & Cirrhosis	Alcohol Dependence	Assault	Chronic Liver Disease & Cirrhosis	Unintentional Injury	Unintentional Injury	Influenza & Pneumonia
5	Not Enough Data	Not Enough Data	Cancer	Suicide	Suicide	Diabetes	Chronic Liver Disease & Cirrhosis	Other Respiratory Diseases Principally Affecting the Interstitium	Diabetes

Table 36 Leading 5 Causes of Death by Age Group, Female Population

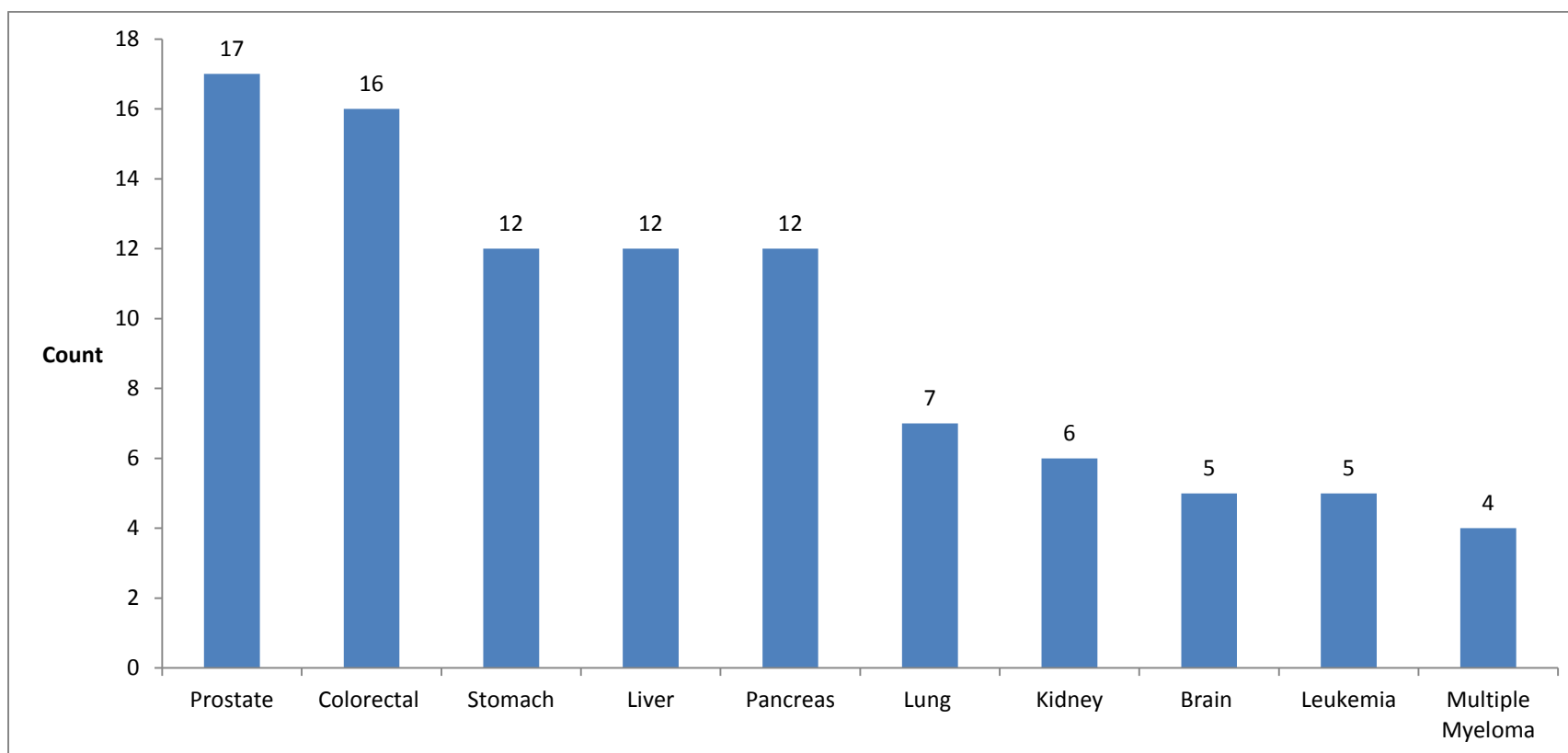
Rank	0 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80+
1	Congenital Malformations	Unintentional Injury	Unintentional Injury	Unintentional Injury	Chronic Liver Disease & Cirrhosis	Cancer	Cancer	Cancer	Heart Disease
2	Certain Conditions in Perinatal Period	Not Enough Data	Suicide	Chronic Liver Disease & Cirrhosis	Unintentional Injury	Unintentional Injury	Diabetes	Heart Disease	Dementia
3	Not Enough Data	Not Enough Data	Not Enough Data	Suicide	Cancer	Chronic Liver Disease & Cirrhosis	Heart Disease	Diabetes	Diabetes
4	Not Enough Data	Not Enough Data	Not Enough Data	Cancer	Alcohol Dependence	Renal Failure	Chronic Liver Disease & Cirrhosis	Unintentional Injury	Cancer
5	Not Enough Data	Not Enough Data	Not Enough Data	Not Enough Data	Suicide	Diabetes	Other Diseases of Liver	Dementia	Influenza & Pneumonia

Chart 17 Leading Cancer Sites



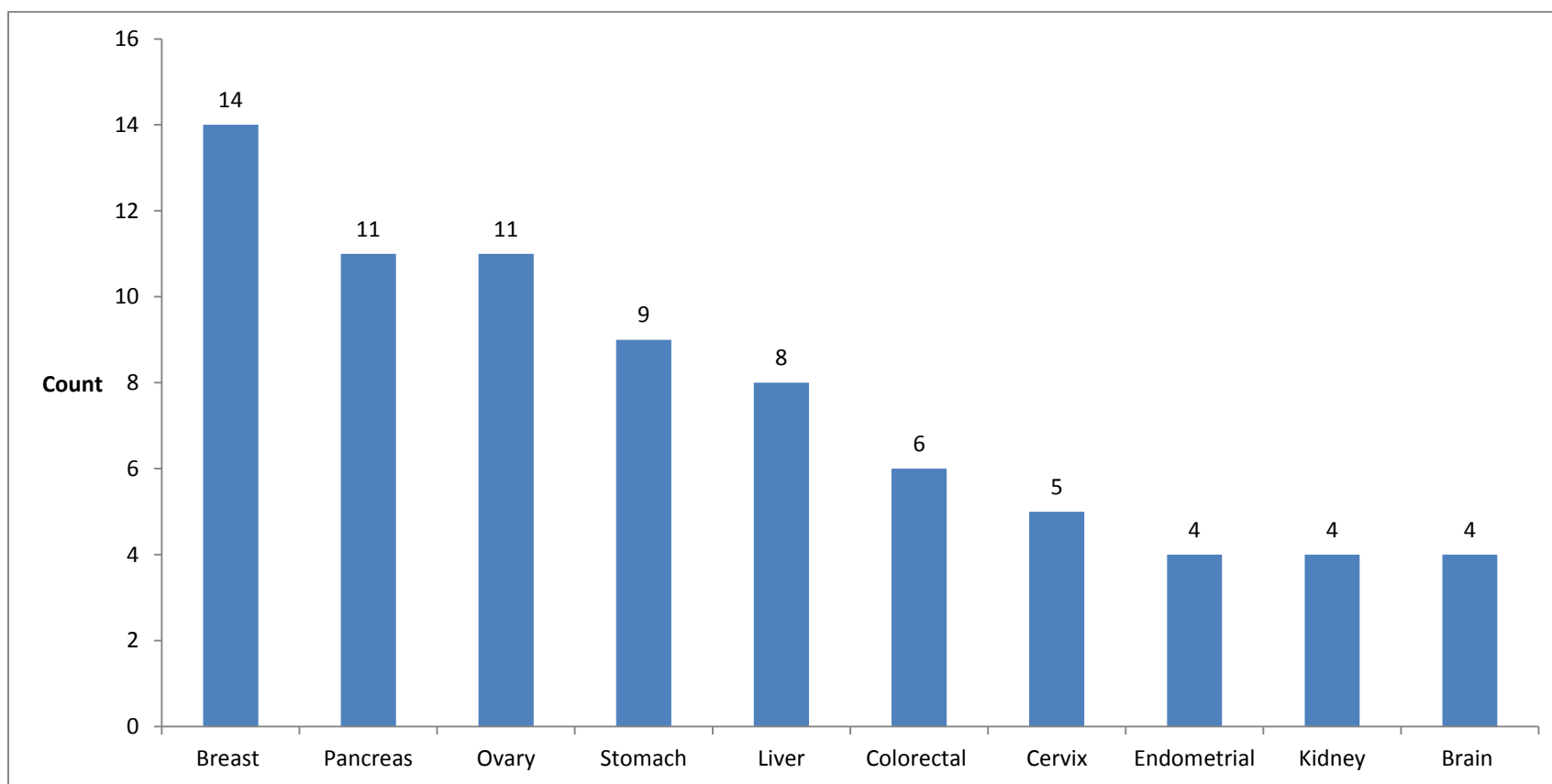
Note: 5.7% of all cancer deaths did not specify a site.

Chart 18 Leading Cancer Sites, Male



Note: 7.0% of all cancers did not specify a site.

Chart 19 Leading Cancer Sites, Female



Note: 4.3% of cancers did not specify a site.



Chart 20 Unintentional Injury Types

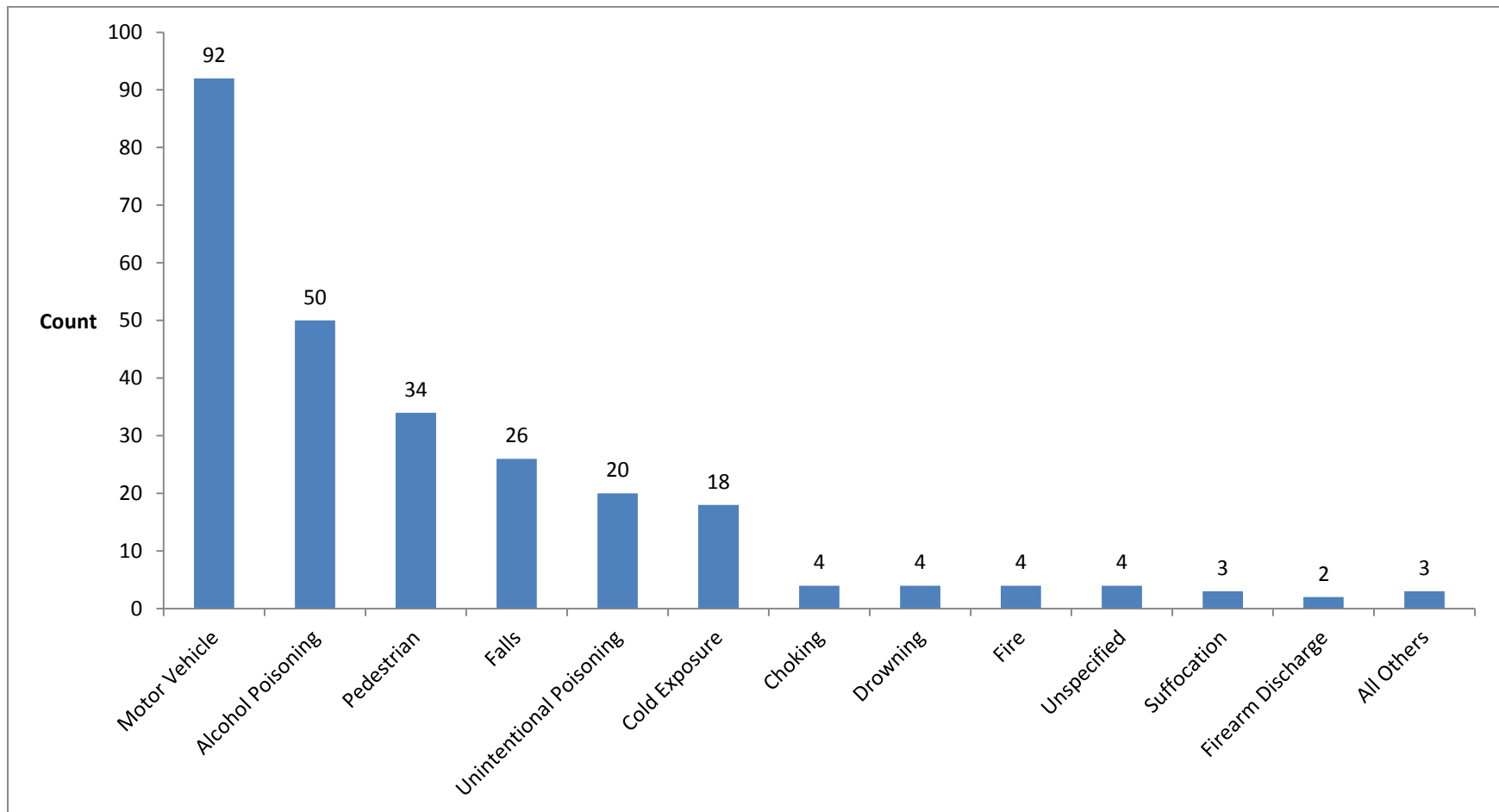


Chart 21 Unintentional Injury Types, Male

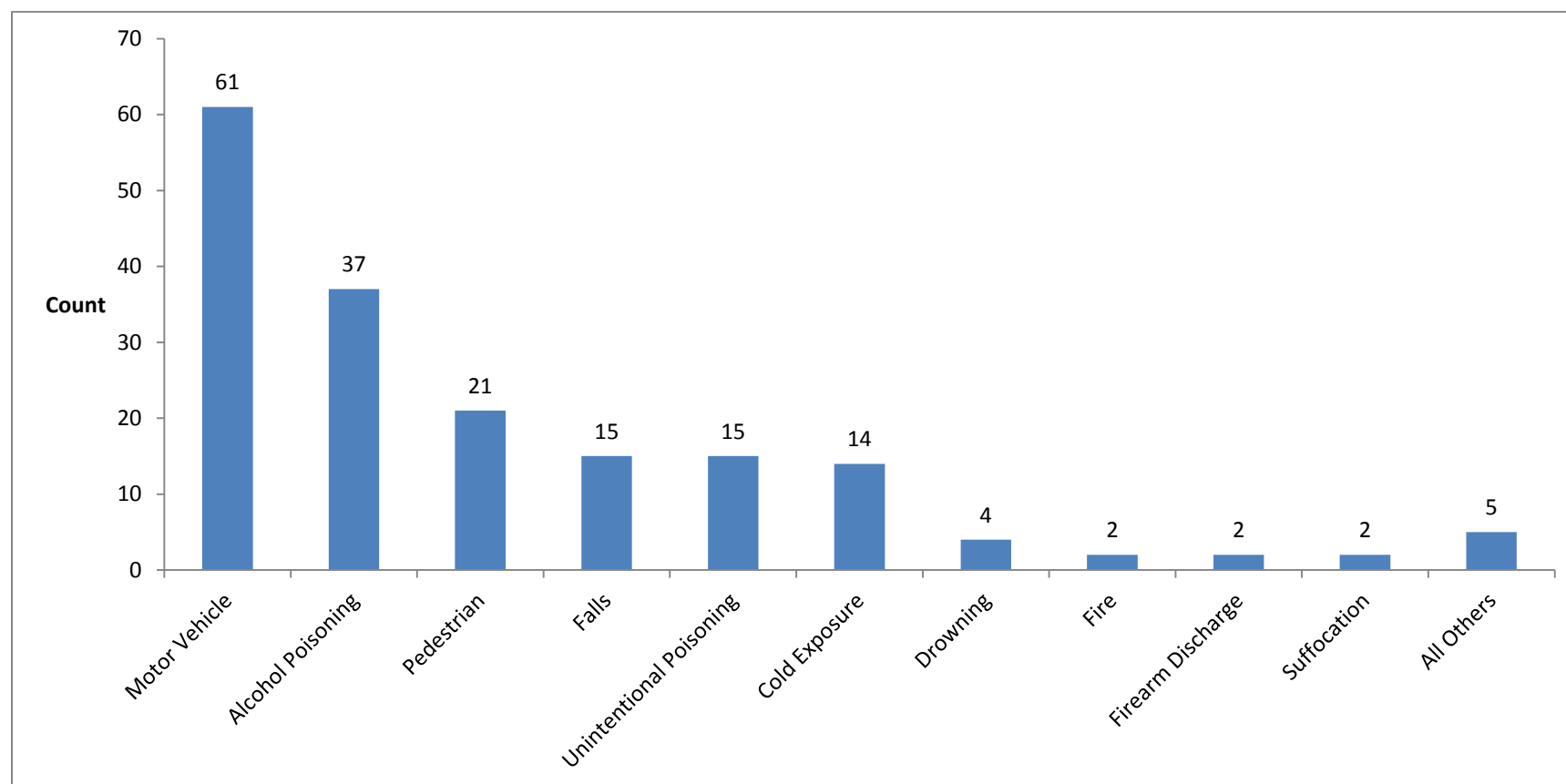


Chart 22 Unintentional Injury Types, Female

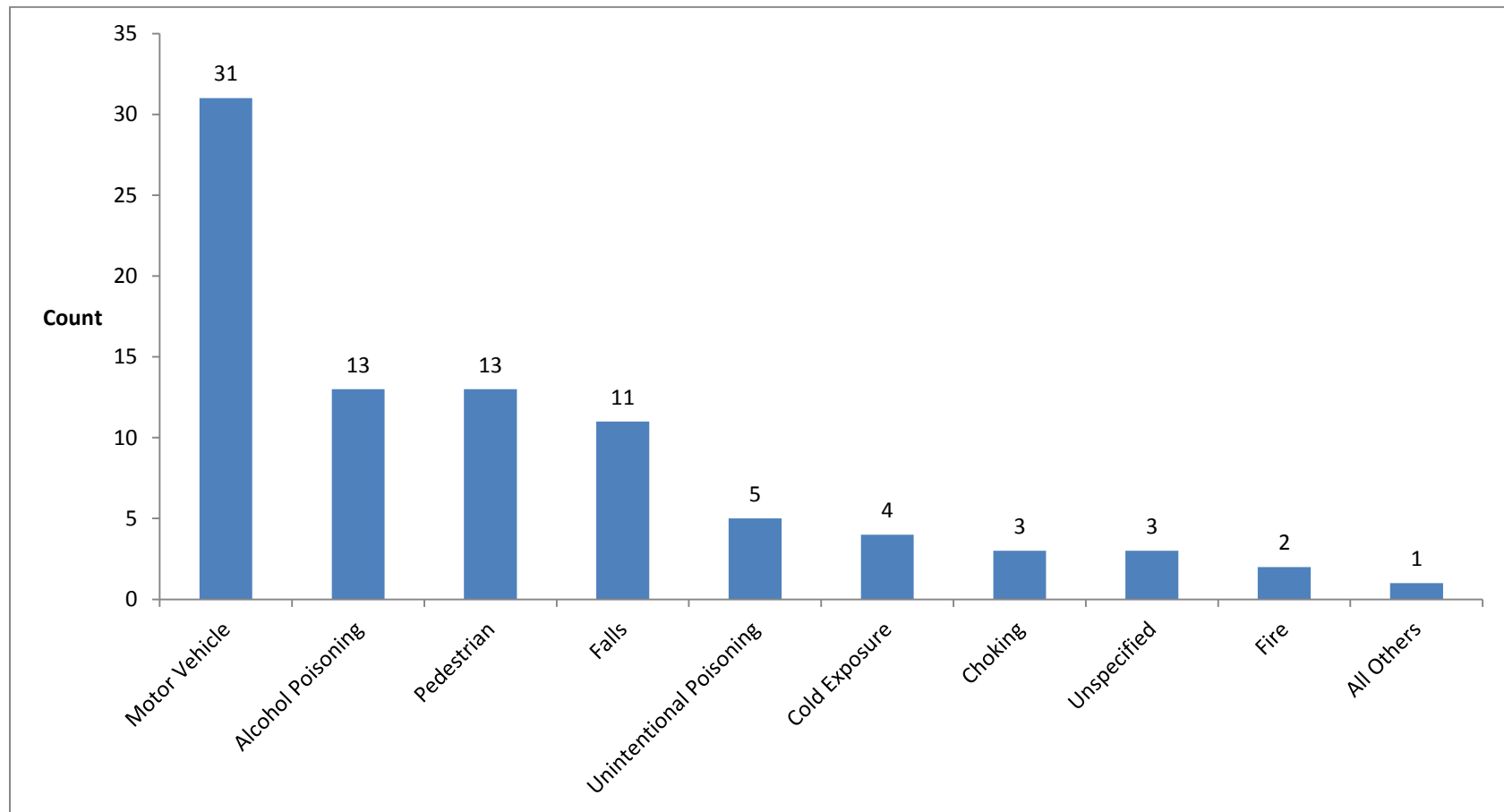


Chart 23 Intentional Injuries by Sex

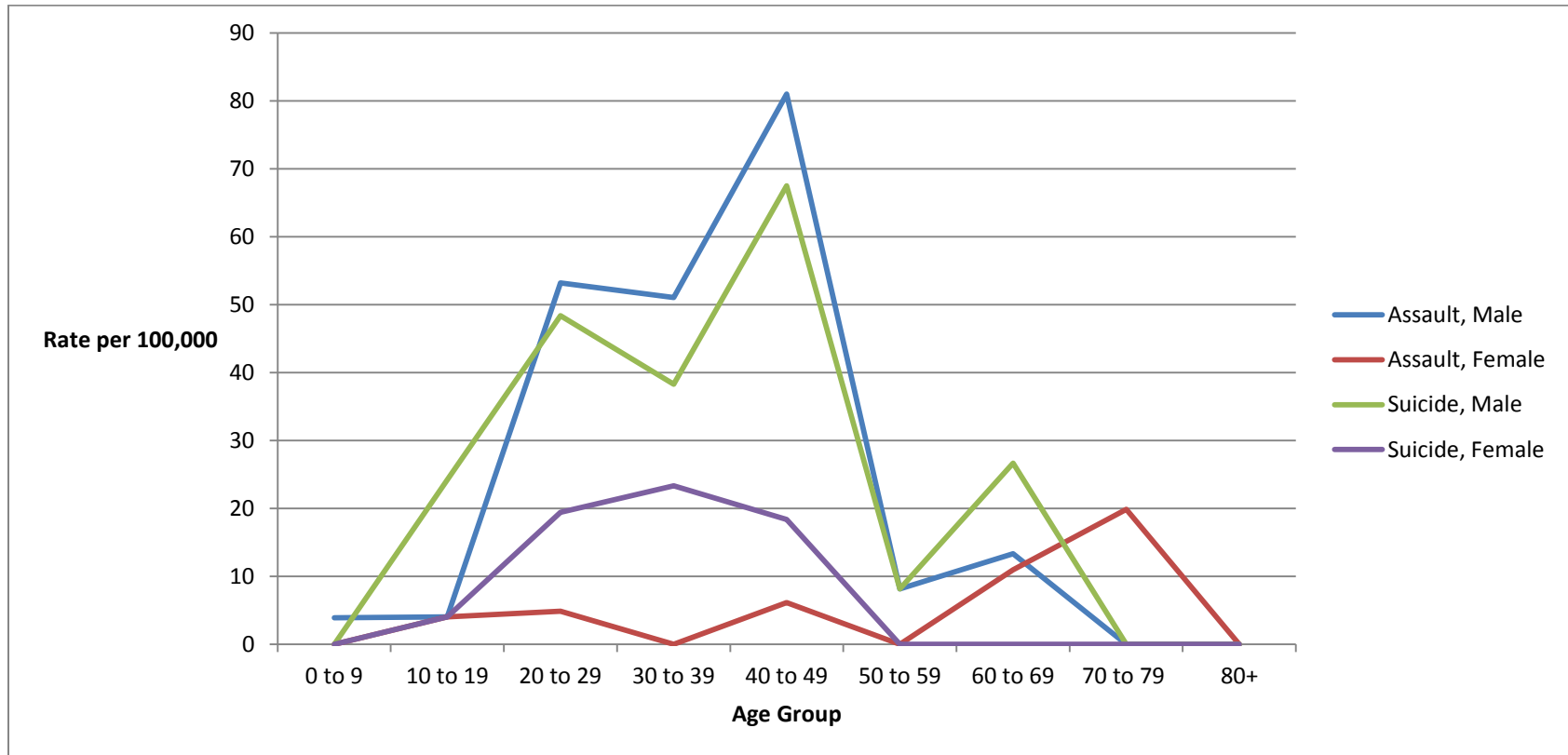


Chart 24 Assaults by Age Group, Total Population

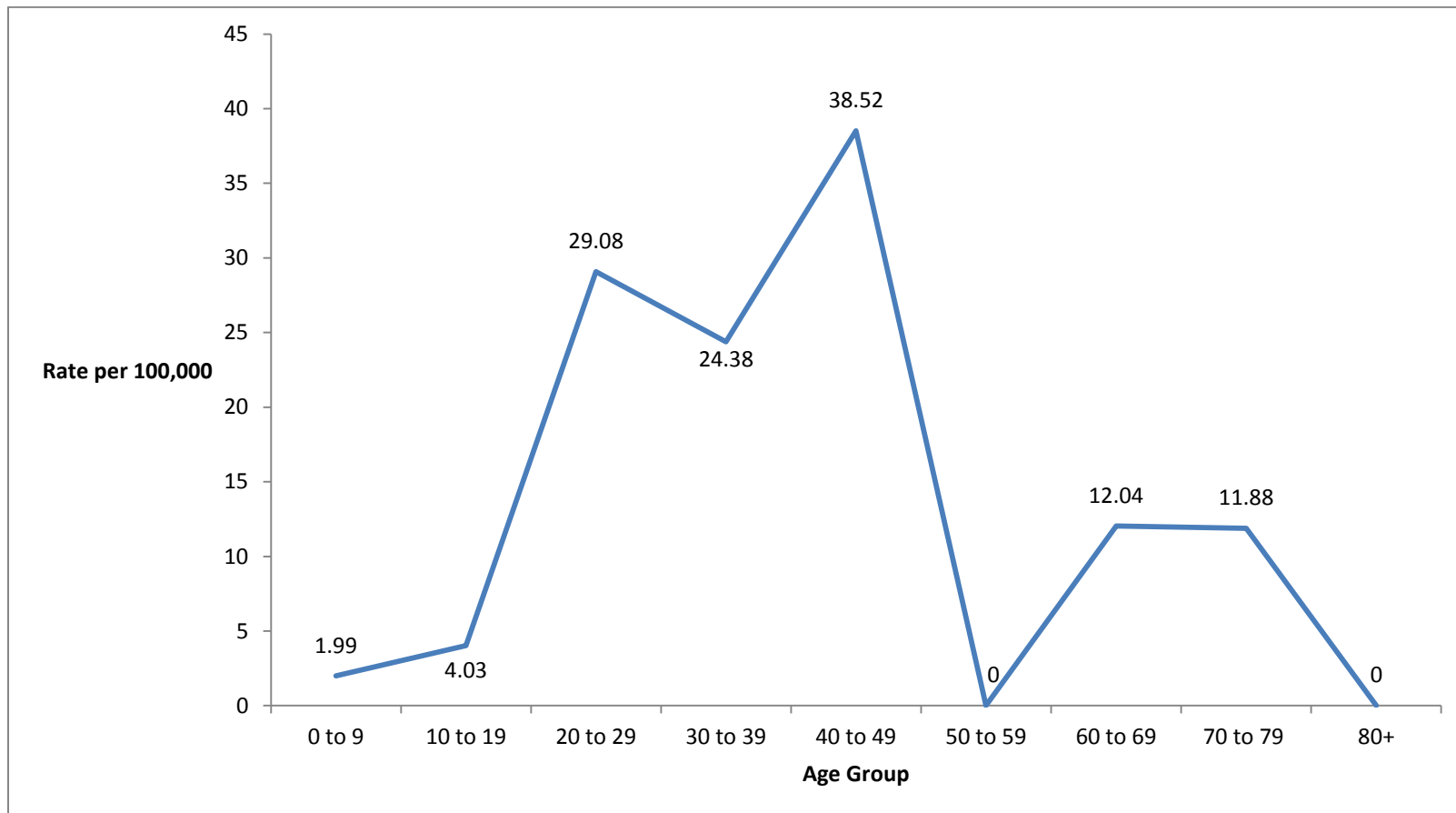


Chart 25 Assaults by Age Group, Male Population

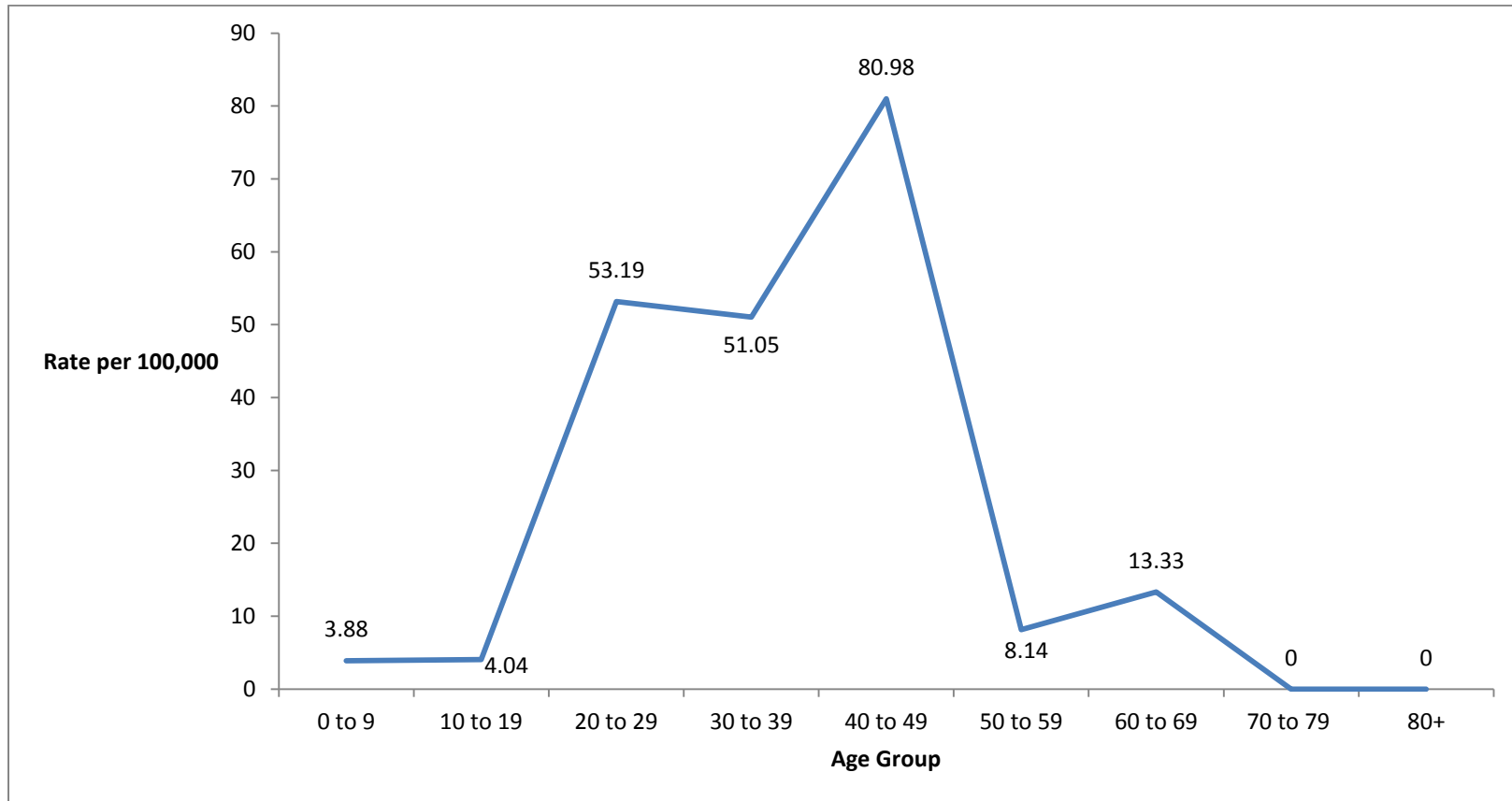


Chart 26 Assaults by Age Group, Female Population

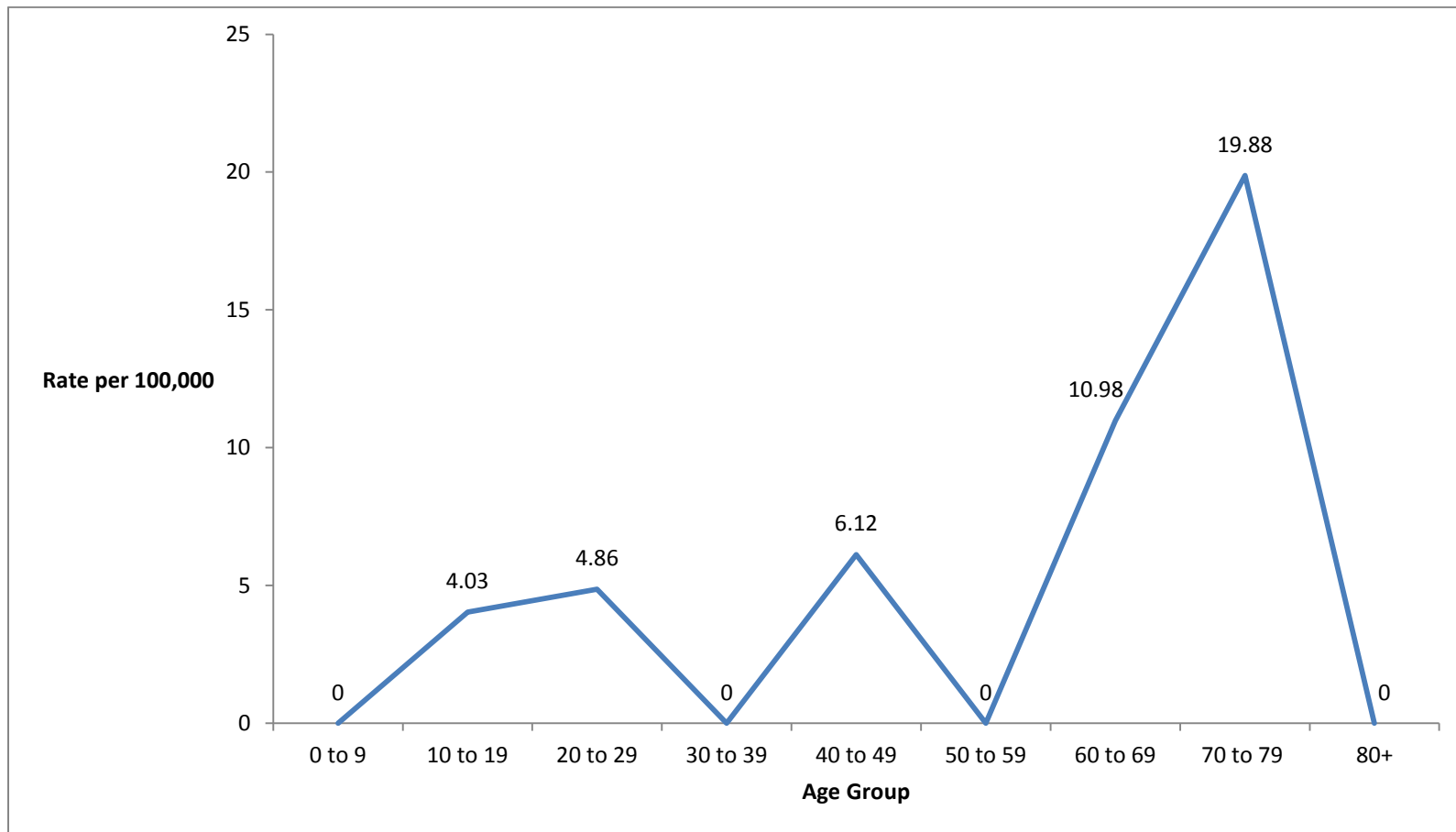


Chart 27 Suicides by Age Group, Total Population

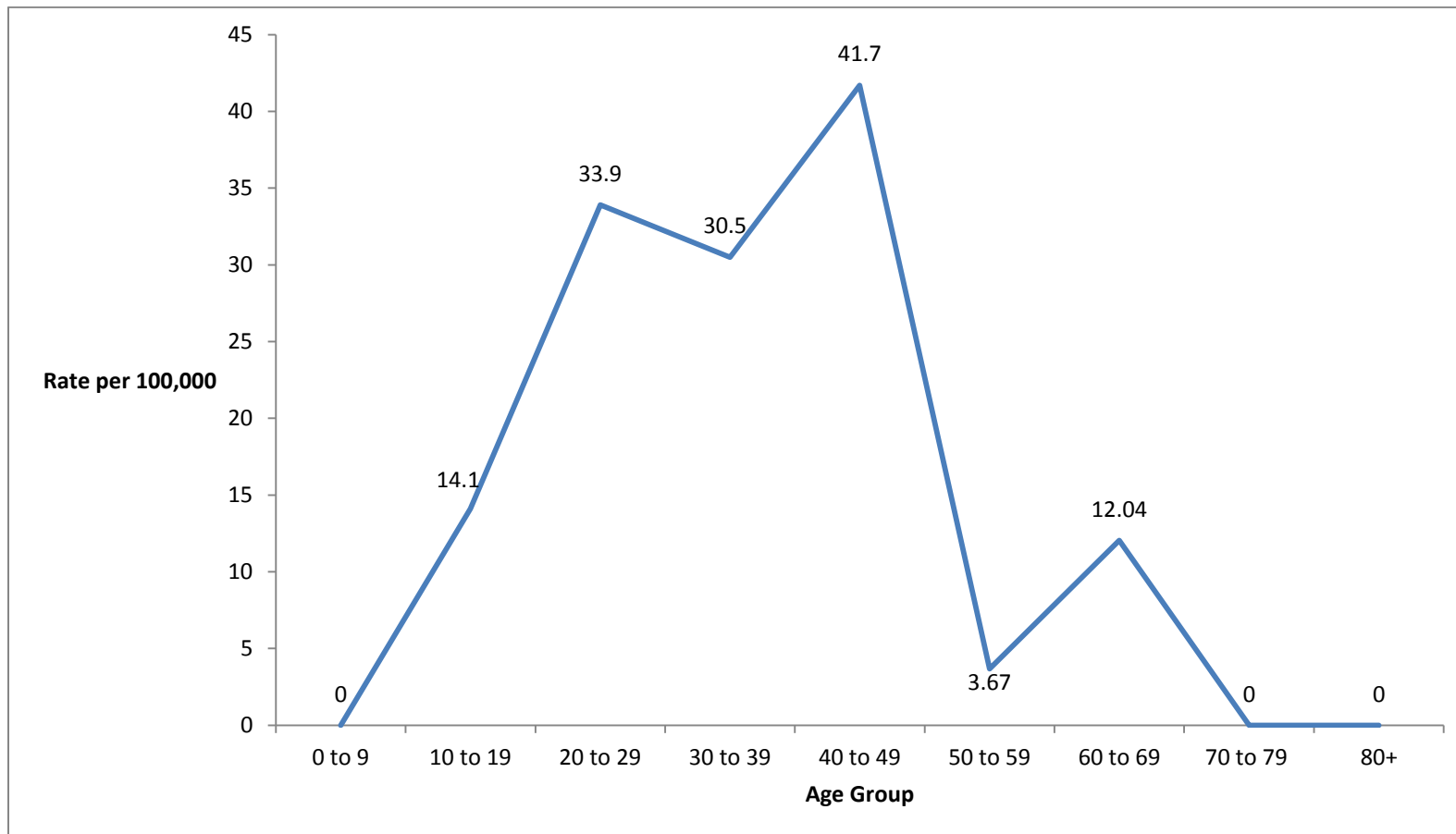




Chart 28 Suicides by Age Group, Male Population

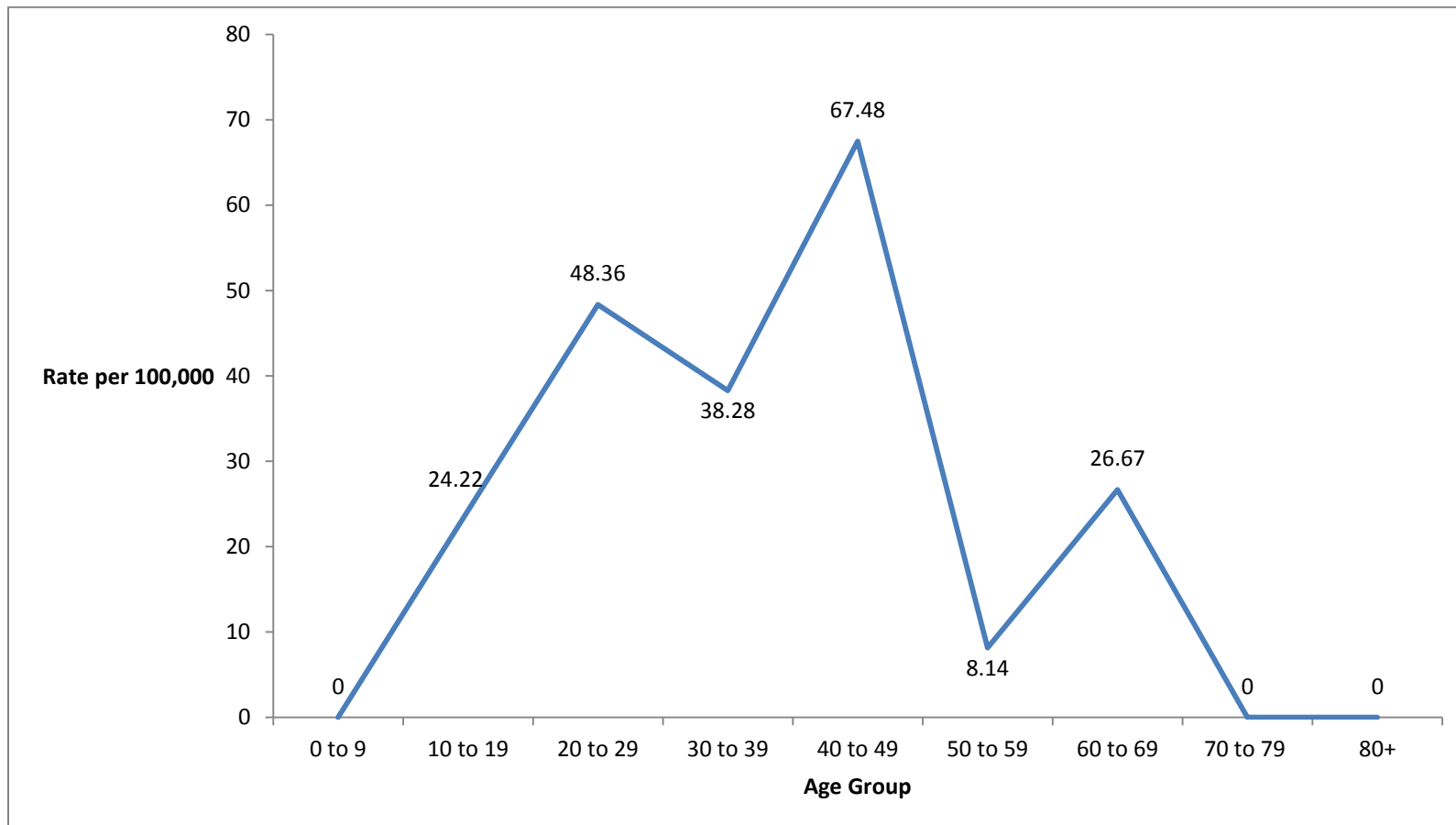


Chart 29 Suicides by Age Group, Female Population

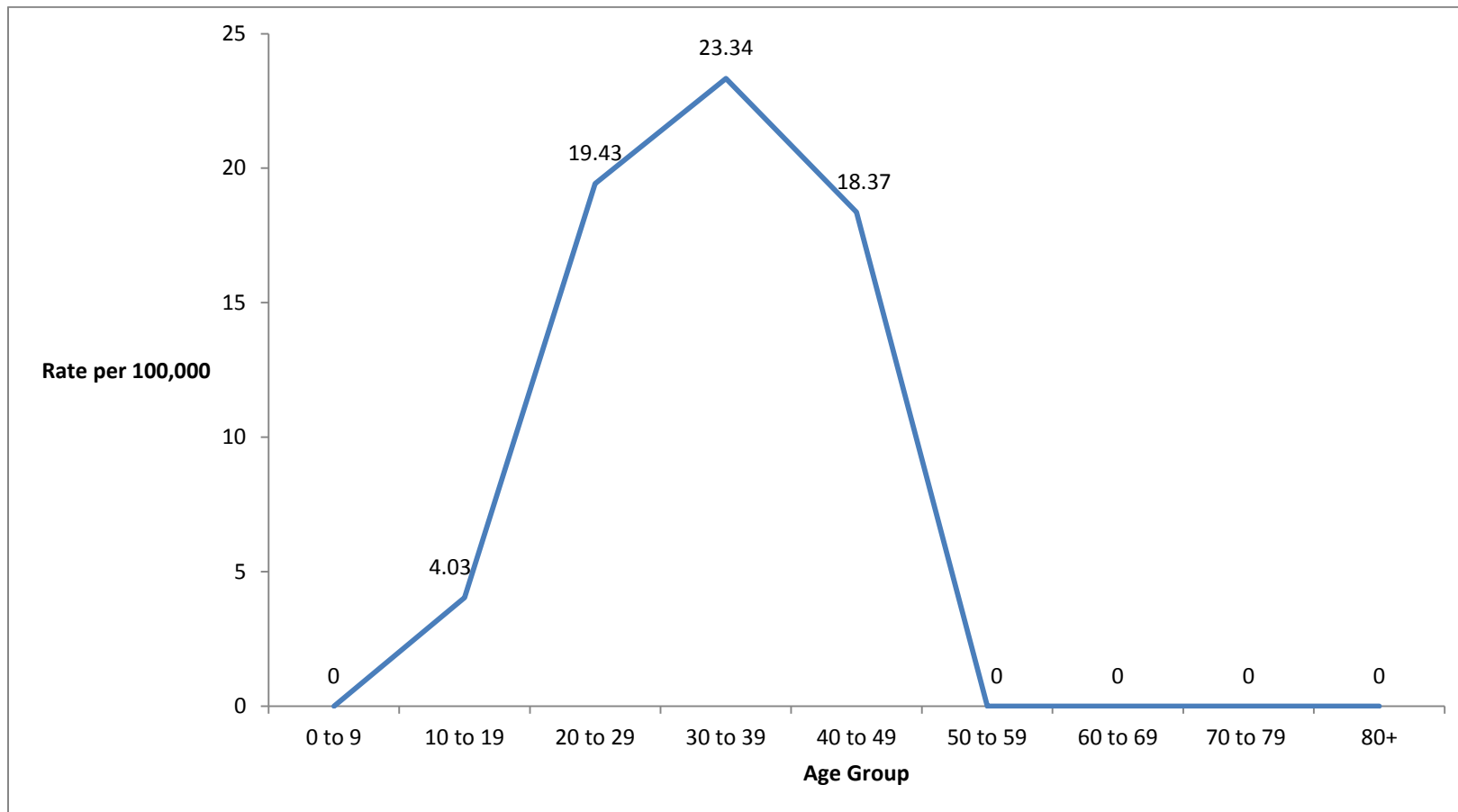


Table 37 Suicide Method by Sex

Method	Male	Percent of Total	Female	Percent of Total	Total	Percent of Total
Hanging, Strangulation and Suffocation	20	57.1%	5	41.7%	25	53.2%
Poisoning	4	11.4%	5	41.7%	9	19.1%
Firearm	8	22.9%	0	0%	8	17.0%
Jumping or lying before moving object	3	8.6%	1	8.3%	4	8.5%
Unspecified means	0	0%	1	8.3%	1	2.1%
All methods	35		12		47	

Table 38 Years of Potential Life Lost

<b>Cause</b>	<b>Total Years Lost</b>	<b>Male Years Lost</b>	<b>Female Years Lost</b>
<b>Unintentional Injury</b>	9,410.1	6,219.4	3,190.7
<b>Cancer</b>	2,994.9	1,383.5	1,611.4
<b>Chronic Liver Disease &amp; Cirrhosis</b>	2,673.4	1,624.0	1,049.4
<b>Suicide</b>	2,082.7	1,485.5	597.2
<b>Heart Disease</b>	1,914.7	1,292.7	622.0
<b>Assault</b>	1,554.7	1,373.2	181.5
<b>Diabetes</b>	1,300.0	889.3	410.7
<b>Alcohol Dependence</b>	1,087.8	818	269.8
<b>Congenital Malformations</b>	813.3	428.8	384.5
<b>Influenza &amp; Pneumonia</b>	687.6	254.2	433.4
<b>Septicemia</b>	656.3	250	406.3
<b>Ill-defined and Unknown Causes of Mortality</b>	645.8	493.5	152.3
<b>Other Diseases of the Liver</b>	624.4	240.4	384.0
<b>Certain Conditions Originating in the Perinatal Period</b>	492.8	249.5	243.3
<b>Injury, Undetermined Intent</b>	443.5	293.1	150.4

Chart 30 Years of Potential Life Lost, Top 15

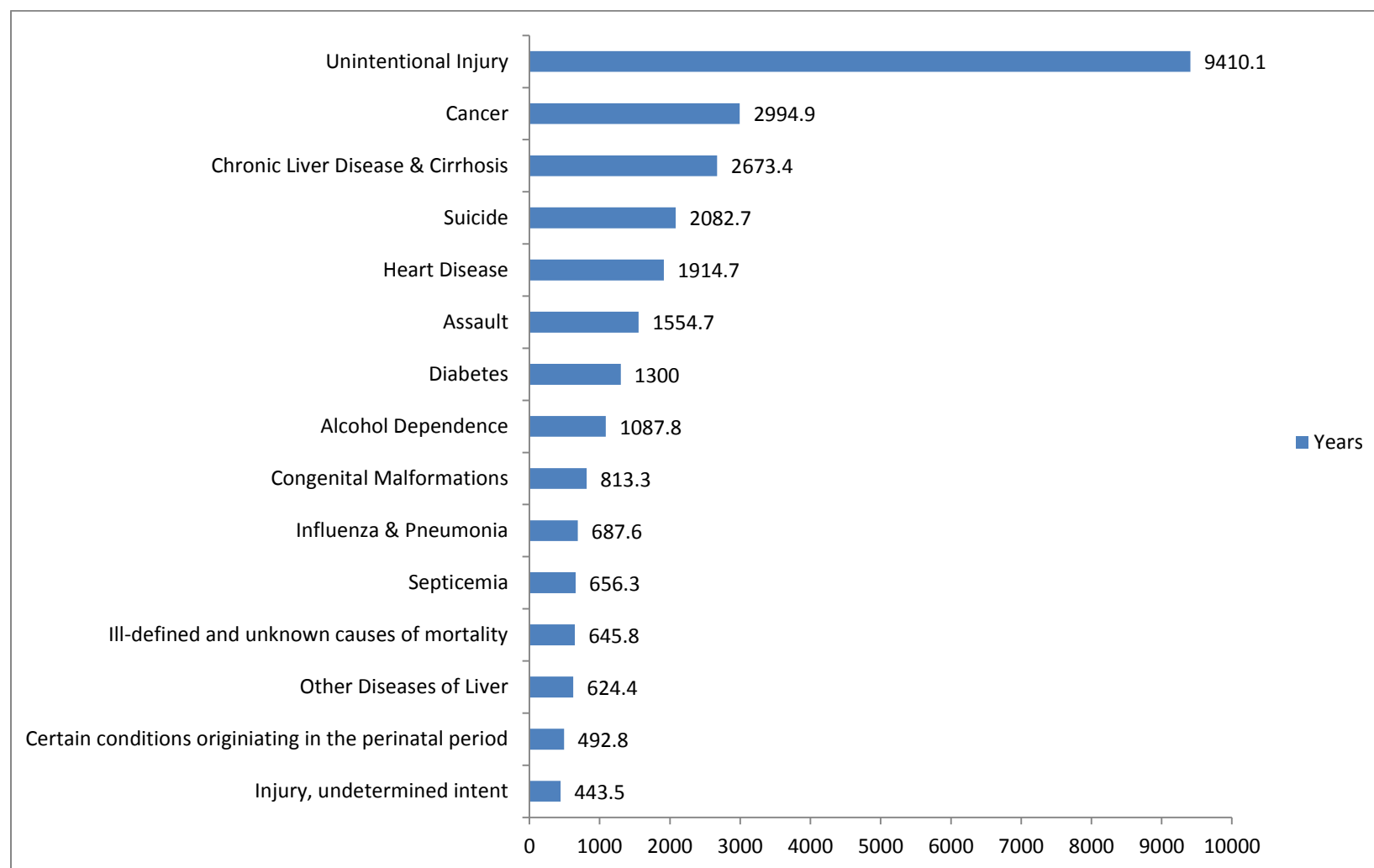


Chart 31 Years of Potential Life Lost, Male Top 15

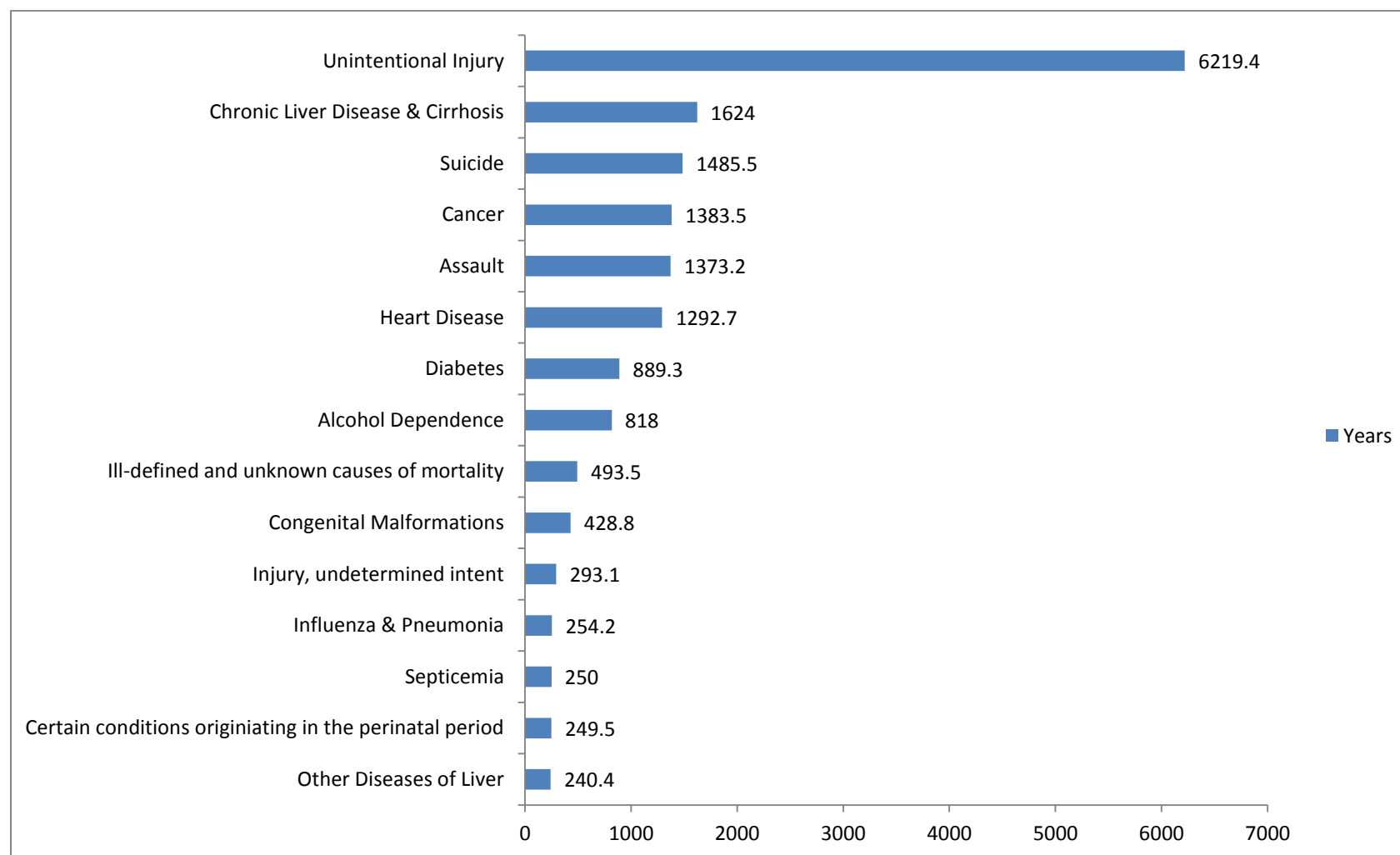


Chart 32 Years of Potential Life Lost, Female Top 15

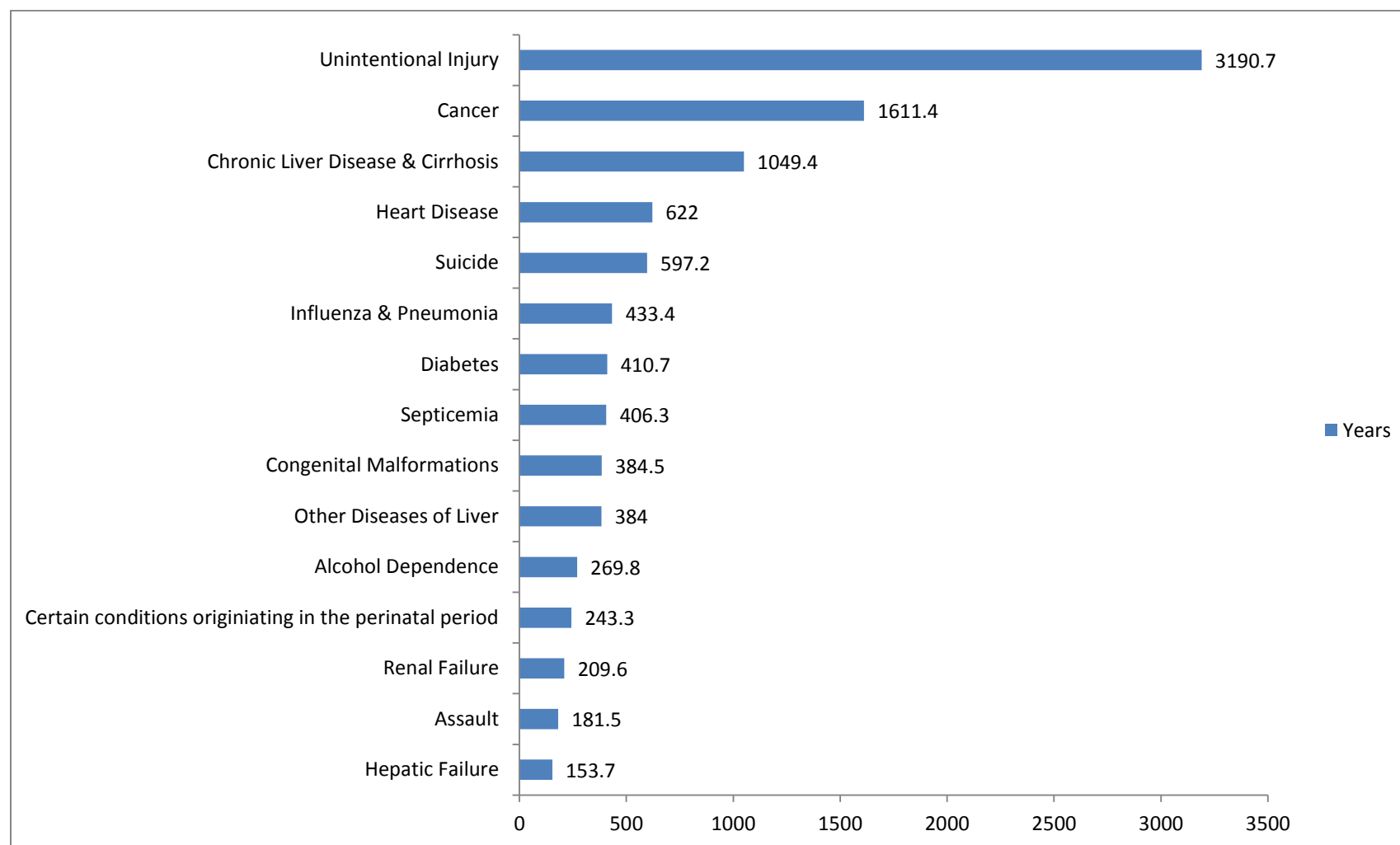


Chart 33 Age Adjusted All-Cause Mortality with Comparisons

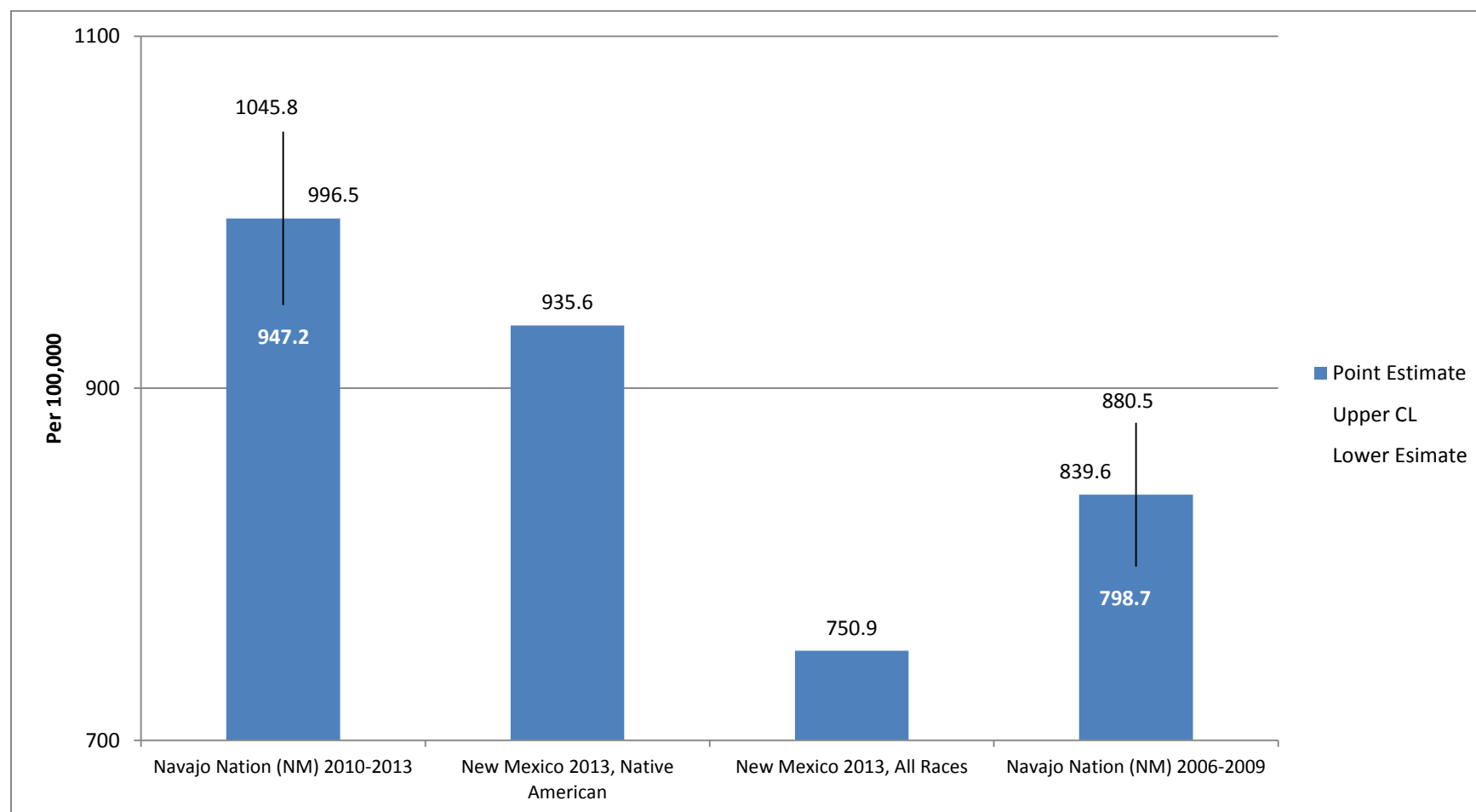




Chart 34 Age Adjusted All-Cause Mortality with Comparisons, Male

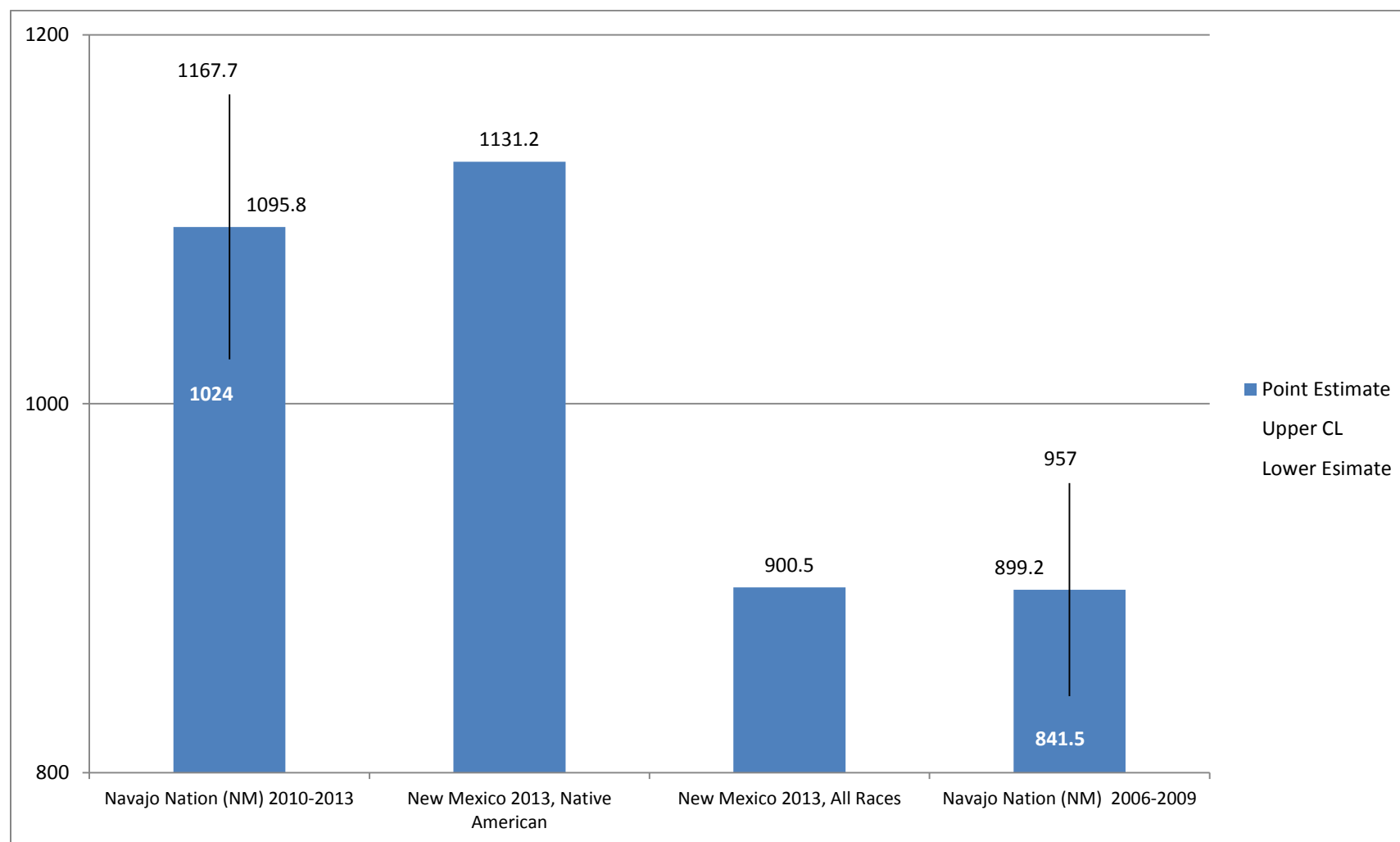


Chart 35 Age Adjusted All-Cause Mortality with Comparisons, Females

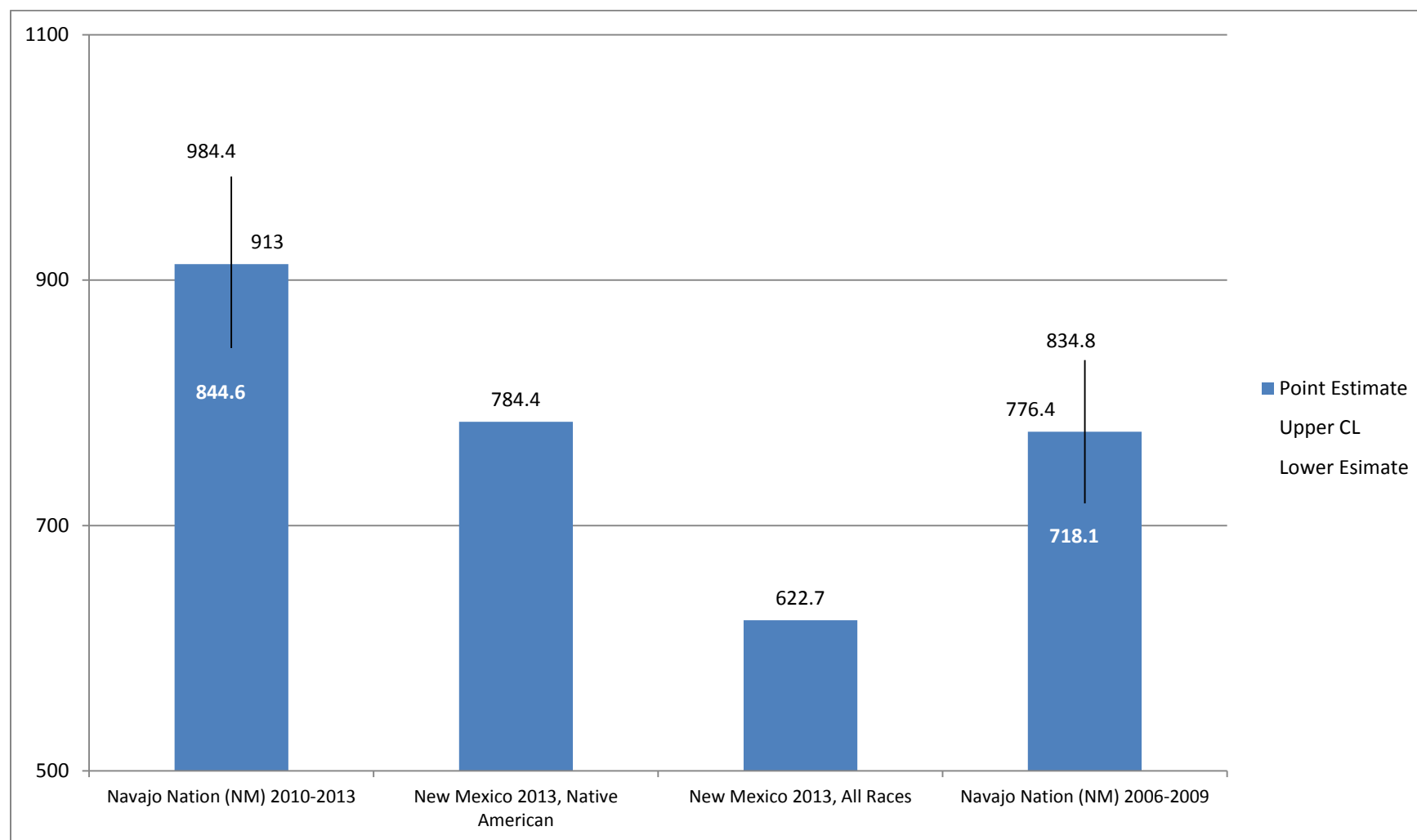
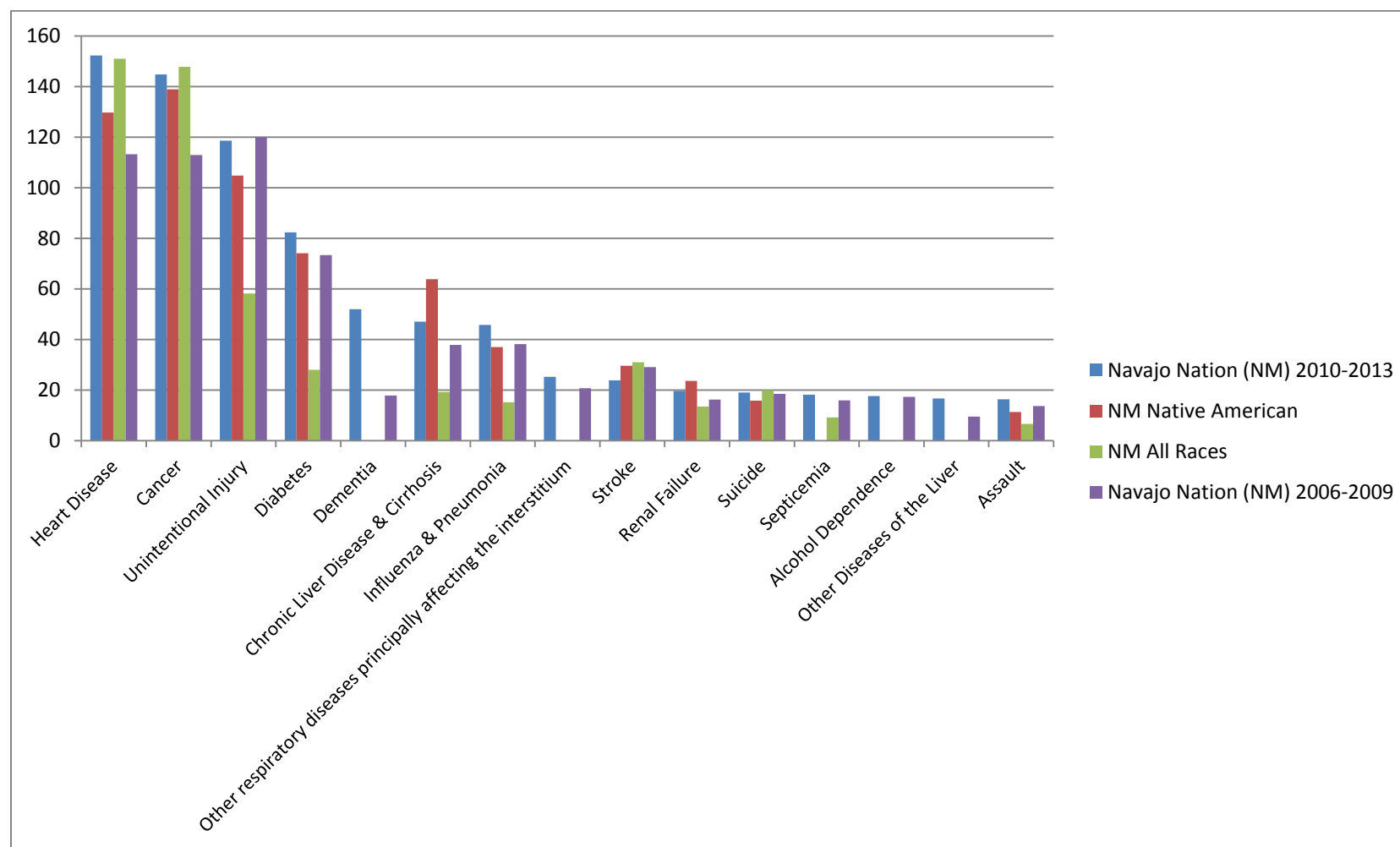
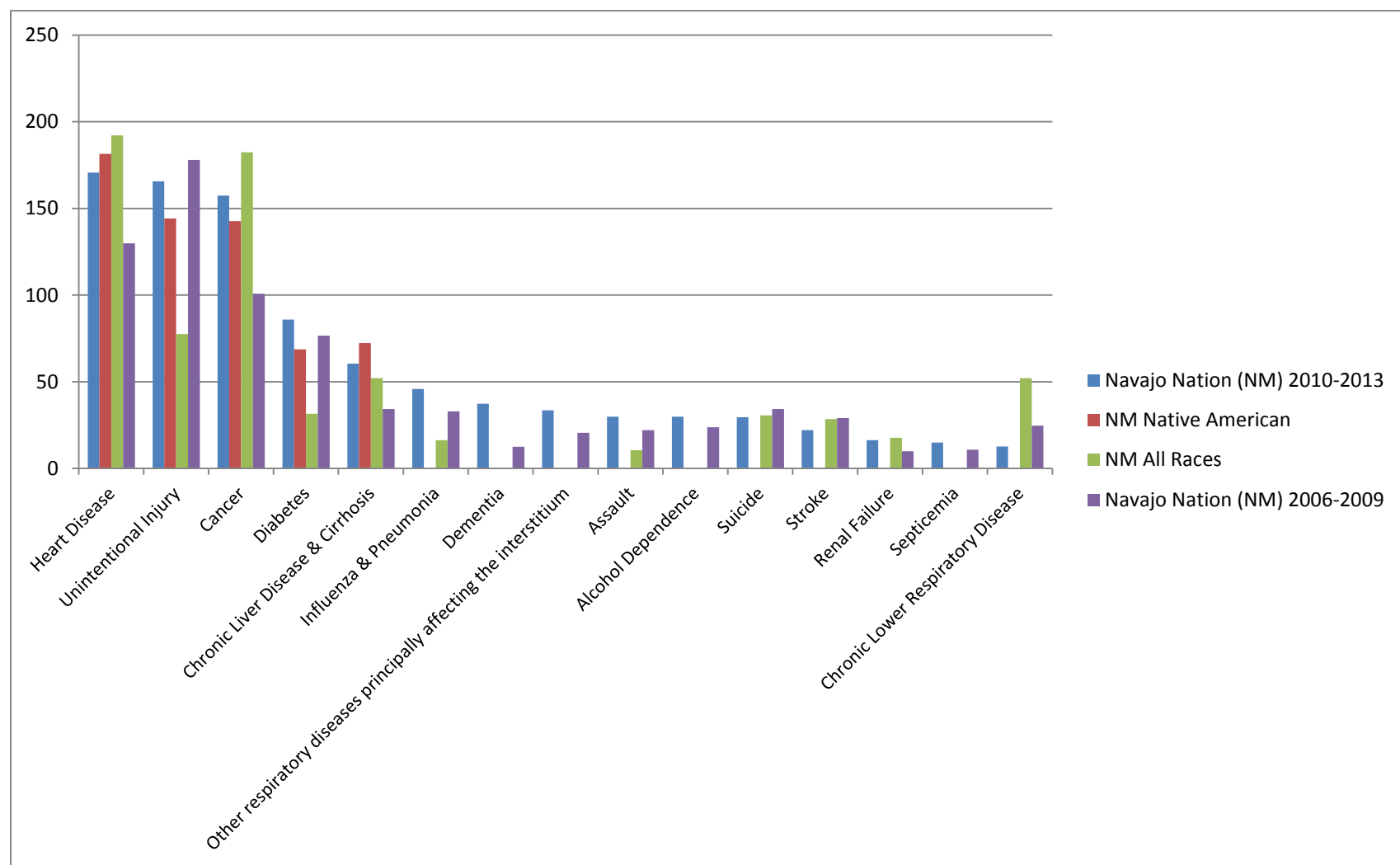


Chart 30 Age Adjusted Leading Causes of Death with Comparisons



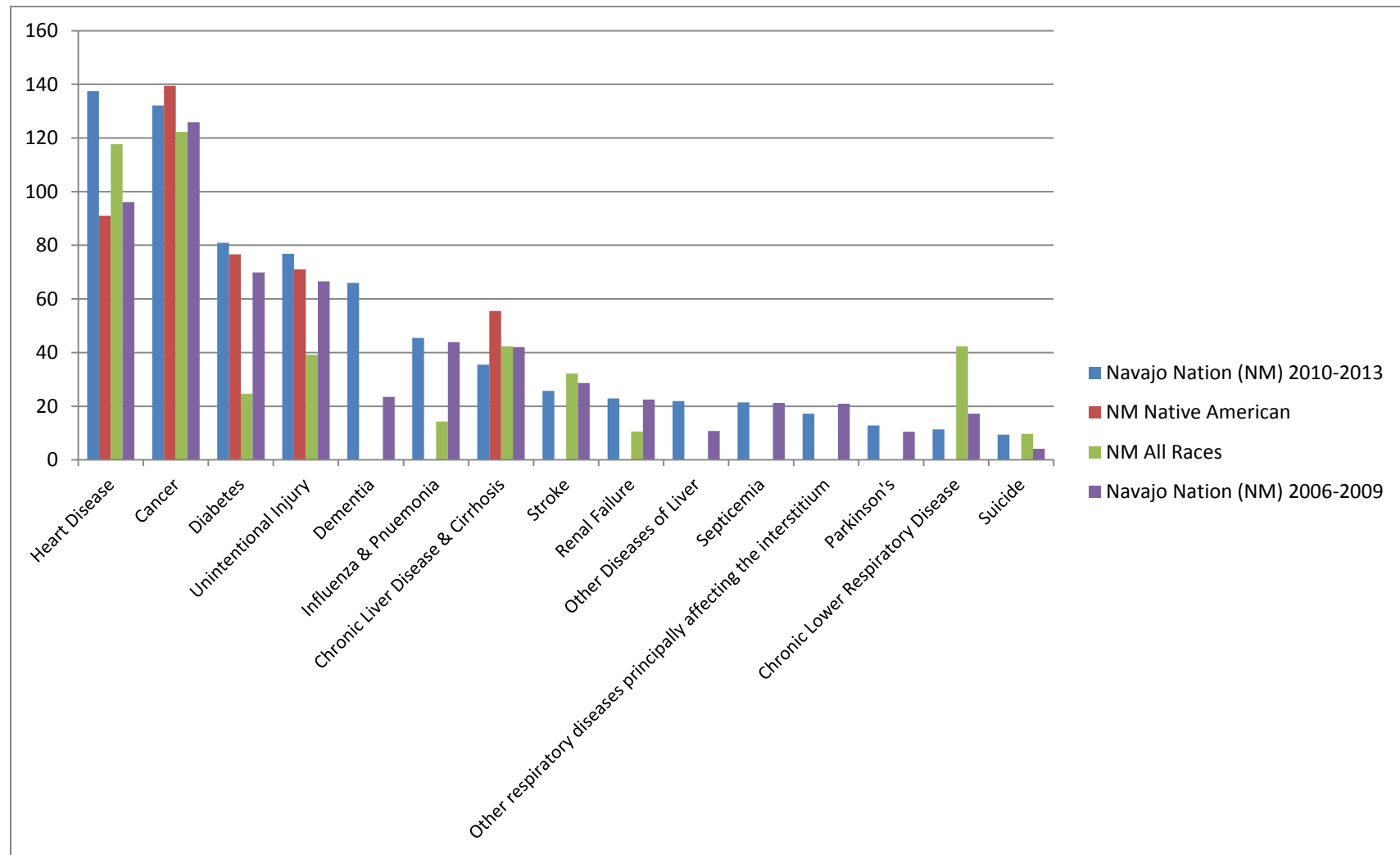
Notes: Heart Disease and Dementia were significantly higher in 2010-2013 than 2006-2009. 2010-2013 was significantly higher than NM All Races for Unintentional Injuries, Chronic Liver Disease & Cirrhosis, Diabetes, Influenza & Pneumonia, Septicemia and Assault. 2010-2013 data were significantly lower than NM All Races for Chronic Lower Respiratory Disease. 2010-2013 data were significantly higher than NM Native American for Heart Disease. 2010-2013 data were significantly lower than NM Native American for Chronic Lower Respiratory Disease, and Chronic Liver Disease & Cirrhosis.

Chart 37 Age Adjusted Leading Causes of Death with Comparisons, Male



Notes: There was a significant increase from 2006-2009 to 2010-2013 for Cancer, Chronic Liver Disease & Cirrhosis, and Dementia. 2010-2013 Navajo rates are higher than NM All Races rates for Unintentional Injury, Diabetes, Influenza & Pneumonia, and Assault. 2010-2013 Navajo rates are lower than NM All Races for Chronic Lower Respiratory Disease.

Chart 38 Age Adjusted Leading Causes of Death with Comparisons, Female



Notes: There has been an increase in Dementia from 2006-2009 to 2010-2013. 2010-2013 Navajo had higher rates than NM All Races for Unintentional Injuries, Diabetes, Influenza & Pneumonia, and Renal Failure. 2010-2013 Navajo had lower rates for Chronic Lower Respiratory Disease than NM All Races. 2010-2013 Navajo had higher rates of Heart Disease than NM Native American, and had lower rates of Chronic Liver Disease & Cirrhosis than NM AIAN.

Table 39 Select Causes of Death Navajo NM 2010-2013 and New Mexico 2013, Age Adjusted

Cause	Navajo Nation (NM) 2010- 2013	NM 2013	Cause	Navajo Nation (NM) 2010- 2013	NM 2013
Tuberculosis	3.97	0.2	Syphilis	0	0
HIV	2.2	1.1	All Cancer (Codes C00-C97)	138.52	147.8
Stomach Cancer	14.09	3.7	Colon, rectum, anus cancer	12.33	14.6
Pancreas Cancer	13.68	10.6	Trachea, bronchus, lung cancer	4.96	31.2
Breast Cancer	6.97	9.5	Cervix, uteri, corpus uteri, ovary cancer	12.7	6.9
Prostate Cancer	11.81	9.3	Urinary Tract	5.7	9.5
Non-Hodgkin's Lymphoma	2.65	4.3	Leukemia	2.49	6.0
All Other Cancers	51.14	42.2	Diabetes	82.30	28.0
Alzheimer's	8.85	15.8	Major Cardiovascular Disease	190.46	195.8
Diseases of the heart	152.23	151.0	Hypertensive Disease	9.56	11.7
Ischemic Heart Disease	98.95	101.4	Other Diseases of Heart	43.72	38.0
Essential Hypertension	8.69	7.8	Stroke	23.91	31.0
Artherosclerosis	1.36	1.2	Other Diseases of the Circulatory System	4.26	4.9
Influenza & Pneumonia	45.74	15.2	Chronic Lower Respiratory Disease	12.0	46.3
Peptic Ulcer	0.69	1.6	Chronic Liver Disease & Cirrhosis	47.03	19.3
Nephritis, nephrotic syndrome and nephrosis	22.43	13.5	Pregnancy, childbirth and the puerperium	0	0.2
Certain conditions originating in the perinatal period	2.55	3.7	Congenital malformations, deformations and chromosomal abnormalities	3.11	2.9
Sudden infant death syndrome	0	0	Symptoms, signs and abnormal clinical and laboratory findings not elsewhere classified	12.58	12.3
Motor Vehicle Accidents	49.49	14.6	All other and unspecified accidents and adverse effects	69.09	44.8
Suicide	19.0	20.0	Assault	16.42	6.7
All other external causes	4.64	2.4	All other diseases	265.41	158.7

Table 40 Select Causes of Death Navajo NM 2010-2013 and New Mexico 2013, Age Adjusted Male

Cause	Navajo Nation (NM) 2010- 2013	NM 2013	Cause	Navajo Nation (NM) 2010- 2013	NM 2013
Tuberculosis	3.98	0.3	Syphilis	0	0.1
HIV	4.73	1.9	All Cancer (Codes C00-C97)	148.73	182.3
Stomach Cancer	17.02	4.5	Colon, rectum, anus cancer	18.89	18.2
Pancreas Cancer	13.04	12.0	Trachea, bronchus, lung cancer	7.47	38.1
Breast Cancer	NA	NA	Cervix, uteri, corpus uteri, ovary cancer	NA	NA
Prostate Cancer	23.75	22.0	Urinary Tract	6.75	13.9
Non-Hodgkin's Lymphoma	2.37	5.9	Leukemia	4.7	8.5
All Other Cancers	54.75	59.3	Diabetes	85.92	31.6
Alzheimer's	6.2	11.9	Major Cardiovascular Disease	205.96	236.6
Diseases of the heart	170.65	192.1	Hypertensive Disease	11.45	14.0
Ischemic Heart Disease	126.59	136.2	Other Diseases of Heart	32.61	42.0
Essential Hypertension	7.67	8.0	Stroke	22.08	28.6
Artherosclerosis	0.92	1.2	Other Diseases of the Circulatory System	4.63	6.6
Influenza & Pneumonia	45.83	16.4	Chronic Lower Respiratory Disease	12.64	52.1
Peptic Ulcer	0	1.8	Chronic Liver Disease & Cirrhosis	60.49	24.5
Nephritis, nephrotic syndrome and nephrosis	20.35	17.7	Pregnancy, childbirth and the puerperium	NA	NA
Certain conditions originating in the perinatal period	3.56	4.0	Congenital malformations, deformations and chromosomal abnormalities	3.5	3.2
Sudden infant death syndrome	0	0	Symptoms, signs and abnormal clinical and laboratory findings not elsewhere classified	16.93	15.4
Motor Vehicle Accidents	67.38	20.3	All other and unspecified accidents and adverse effects	98.19	59.0
Suicide	29.6	30.7	Assault	29.93	10.5
All other external causes	6.22	3.6	All other diseases	247.25	176.7

Table 41 Select Causes of Death Navajo NM 2010-2013 and New Mexico 2013, Age Adjusted Female

Cause	Navajo Nation (NM) 2010- 2013	NM 2013	Cause	Navajo Nation (NM) 2010- 2013	NM 2013
Tuberculosis	4.03	0.1	Syphilis	0	0
HIV	0	0.3	All Cancer (Codes C00-C97)	128.44	122.2
Stomach Cancer	11.38	3.0	Colon, rectum, anus cancer	6.43	11.8
Pancreas Cancer	14.14	9.6	Trachea, bronchus, lung cancer	2.95	26.2
Breast Cancer	13.3	17.3	Cervix, uteri, corpus uteri, ovary cancer	24.26	12.9
Prostate Cancer	NA	NA	Urinary Tract	4.8	6.2
Non-Hodgkin's Lymphoma	2.95	3.0	Leukemia	0.55	4.0
All Other Cancers	46.02	28.1	Diabetes	80.97	24.7
Alzheimer's	11.55	18.10	Major Cardiovascular Disease	178.48	161.9
Diseases of the heart	137.51	117.7	Hypertensive Disease	8.0	9.6
Ischemic Heart Disease	74.89	73.2	Other Diseases of Heart	54.62	34.9
Essential Hypertension	9.67	7.3	Stroke	25.76	32.2
Artherosclerosis	1.76	1.2	Other Diseases of the Circulatory System	3.78	3.5
Influenza & Pneumonia	45.47	14.3	Chronic Lower Respiratory Disease	11.37	42.3
Peptic Ulcer	1.3	1.3	Chronic Liver Disease & Cirrhosis	35.46	14.3
Nephritis, nephrotic syndrome and nephrosis	24.16	10.6	Pregnancy, childbirth and the puerperium	0	0.5
Certain conditions originating in the perinatal period	1.65	3.4	Congenital malformations, deformations and chromosomal abnormalities	2.75	2.6
Sudden infant death syndrome	0	0	Symptoms, signs and abnormal clinical and laboratory findings not elsewhere classified	9.0	9.4
Motor Vehicle Accidents	33.37	9.2	All other and unspecified accidents and adverse effects	43.49	30.8
Suicide	9.43	9.7	Assault	4.25	2.9
All other external causes	3.23	1.3	All other diseases	284.63	142.8



## Technical Notes

**Age-adjustment rates:** Age is a major factor for disease and mortality rates (e.g. older persons are much more likely to die due to chronic disease issues such as heart disease, cancer, Alzheimer's). For purposes of comparing the same population to itself over time, or different populations to each other it becomes necessary to adjust rates for age in the event that the populations being compared have a different underlying age structure. Age-adjustments is done by first calculating disease rates for each unique age group. In this report the age groups are 0-9, 10-19, 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, and 80 and older. The age specific disease rate is then multiplied by the standard population for that age group, which indicates the number of disease cases in that age group. All age-adjusted rates in this report are based on the 2000 U.S. population (U.S. Census Bureau) standard. Each of these estimated age group specific disease counts are then added together and divided by the total standard population to generate an age-adjusted rate.

For example, population A and population B might each have a heart disease rate of 200/100,000. Population A has an older population than population B. We want to learn which population would have a higher heart disease rate if each population had the same age structure. Population A had median age of 52, and population B had a median age of 39. After adjusting for age, Population A's rate was 106/100,000, while Population B's rate was 170/100,000. This indicates that heart disease is actually having a much bigger impact on Population B in spite of what the original mortality rate indicated.

**Population Numbers:** Population data for 2010-2013 were estimated from 2010 U.S. Census Bureau data found in Summary File 2 and from 2013 American Community Survey (ACS) 5 year estimates. Persons included for Navajo Nation tribal grouping alone or in combination found within New Mexico portions of the Navajo Nation Reservation. Additionally, Navajo tribal grouping alone or in combination persons were included from the following border towns: Bloomfield City, Cuba Village, Farmington City, Gallup City, Grants City, Kirtland CDP, Socorro City, Thoreau Census Designated Place (CDP), Tse Bonito, Waterflow CDP, and Zuni Pueblo. Percent population change was calculated for the time period from 2010 to 2013. This percent change was then applied uniformly across the time period. For example if the 2013 New Mexico population was 120 and the 2010 Arizona population was 90 then the population change was 33.3%. The average change for New Mexico was 10 persons per year. The estimated 2011 population would be 100, and for 2012 would be 110. The total New Mexico population for 2010-2013 would be 420. This process was used to calculate both total populations and age group populations.

**ICD-10 code:** All causes of death were reported using the International Classification of Diseases (ICD) system. This is the standard diagnostic tool for epidemiology, health management and clinical settings by which diseases and health problems, including mortality, are classified. By using this system specific causes of death can be identified, or several specific causes can be grouped into broader categories. For example lung cancer can be reported as a specific cause of death, or grouped into "cancers of the respiratory system and intrathoracic organs", or simply

“Cancer”. The 10<sup>th</sup> Revision of the ICD system was endorsed by the Forth-third World Health Assembly in May 1990 and came into use in World Health Organization (WHO) member states as of 1994.

**Limitations:** Each death record contains information on a single underlying cause of death and up to twenty additional multiple causes. Only the single underlying cause of death is available to the Navajo Epidemiology Center at this time. Many chronic diseases are frequently co-morbid conditions (e.g. Heart Disease & Diabetes), so without the multiple causes the impact of these chronic diseases may be under represented in this report. Using the single underlying cause of death is consistent with how the National Division of Vital Statistics reports mortality data, however. As outlined above in the technical notes the population numbers for 3 years is an estimate. If the patterns in population change in the New Mexico portion of the Navajo Nation changed during these years the rates may be inaccurate. That is why there are 95% Confidence Intervals presented for the leading causes of death. Racial misclassification on the death certificate is also possible, especially for Native American populations. The following statement is taken from the (National Vital Statistics Reports, Vol. 65, No. 5, June 30, 2016.

“Death counts and rates for Hispanic, AIAN, and API persons should be interpreted with caution because of misreporting of race on the death certificate. A number of studies have been conducted (1-4) on the reliability of race reported on the death certificate by comparing race on the death certificate with that reported on another data collection instrument, such as the census or a survey. Differences may arise because of differences in who provides race information on the compared records. Race information on the death certificate is reported by the funeral director as provided by an informant or, in the absence of an informant, on the basis of observation. In contrast, race on the census or on the Current Population Survey is obtained while the person is alive and is self-reported or reported by another household member familiar with the person; therefore, it may be considered more valid. A high level of agreement between the death certificate and the census or survey report is essential to ensure unbiased death rates by race.”

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