

# State of Alaska Department of Health and Social Services



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## Alaska Vital Statistics 2016 Annual Report



Division of Public Health  
Health Analytics and Vital Records Section  
September 2017



# Alaska Vital Statistics 2016 Annual Report

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# PREFACE

## PURPOSE OF THIS REPORT

The Alaska Vital Statistics Annual Report summarizes information on Alaska resident births, deaths, adoptions, marriages, and divorces. The purpose of this report is to provide a general reference for public health statistics and vital events in the state of Alaska.

## PREPARED BY

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The Alaska Vital Statistics Annual Report is available online at:

<http://dhss.alaska.gov/dph/VitalStats/Pages/data/>

## ADDITIONAL INFORMATION

We welcome any comments, questions, or concerns you may have about this report. The Health Analytics Unit is also available for special information requests on vital statistics data. The fee for research is \$75/hour. For further information, please contact the Health Analytics Unit at:

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Additional information, including how to obtain copies of vital event certificates, is available online at:

[www.vitalrecords.alaska.gov](http://www.vitalrecords.alaska.gov)

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Data and health indicators presented in this report are based upon information supplied by many people throughout the state. Birth mothers, doctors, midwives, other birth attendants, medical facilities, medical examiners, magistrates, funeral directors, and a host of other individuals complete information on vital records.

The Health Analytics and Vital Records Section staff extends our gratitude to each person who participates in our data gathering effort. Accurate data are essential to the Section's effort to report reliable vital event information, and contribute to public health efforts in Alaska. We appreciate the assistance of others in maintaining the integrity of our data.

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# EXECUTIVE SUMMARY

## SUMMARY OF POPULATION AND VITAL STATISTICS INFORMATION, 2016

### Alaska's Population<sup>1</sup>

Total Population	739,828
White	514,520
American Indian/Alaska Native	127,515
Black	35,887
Asian/Pacific Islander	61,906
Male	382,143
Female	357,685
Natural Increase	6,693 <sup>2</sup>
Natural Increase Rate	9.0 <sup>3</sup>

### Deaths

Total Resident Deaths	4,520
Crude Death Rate	611.0 <sup>4</sup>
Age-Adjusted Death Rate	742.5 <sup>5</sup>
Male Age-Adjusted Death Rate	875.6
Female Age-Adjusted Death Rate	619.4
Age-Adjusted Cancer Death Rate	152.5
Age-Adjusted Heart Disease Death Rate	136.3
Age-Adjusted Unintentional Injury Death Rate	61.9
Age-Adjusted Suicide Death Rate	25.3
Infant Mortality Rate	6.3 <sup>6</sup>
White Infant Mortality Rate	4.1
American Indian/Alaska Native Infant Mortality Rate	13.0
Black Infant Mortality Rate	9.6*
Asian/PI Infant Mortality Rate	5.2*

### Births

Total Births	11,213
Crude Birth Rate	15.2 <sup>3</sup>
White Crude Birth Rate	13.4
American Indian/Alaska Native Crude Birth Rate	19.4
Black Crude Birth Rate	13.5
Asian/Pacific Islander Crude Birth Rate	18.0
Teen Birth Rate	25.5 <sup>7</sup>
Fertility Rate	76.6 <sup>8</sup>
White Fertility Rate	70.4
American Indian/Alaska Native Fertility Rate	93.2
Black Fertility Rate	65.7
Asian/Pacific Islander Fertility Rate	77.9
Low Birth Weight Percentage	5.9 <sup>9</sup>
White Low Birth Weight Percentage	5.2
American Indian/Alaska Native Low Birth Weight Percentage	6.1
Black Low Birth Weight Percentage	11.0
Asian/Pacific Islander Low Birth Weight Percentage	7.7

### Other Vital Statistics

Fetal Deaths	91
Fetal Death Rate	5.2 <sup>6</sup>
Adoptions	570
Crude Adoption Rate	0.8 <sup>3</sup>
Marriages	5,272
Crude Marriage Rate	7.1 <sup>3</sup>
Divorces	2,942
Crude Divorce Rate	4.0 <sup>3</sup>

<sup>1</sup> Population estimates are from the Alaska Department of Labor, Administrative Services, Research and Analysis Section, Demographics Unit.

<sup>2</sup> Natural increase is the difference between live births and deaths. Natural increase does not include migration.

<sup>3</sup> Natural increase, birth, marriage, divorce, and adoption rates are events per 1,000 population.

<sup>4</sup> Crude death rates are deaths per 100,000 population.

<sup>5</sup> Age-adjusted death rates are adjusted to the U.S. 2000 standard population.

<sup>6</sup> Infant mortality and fetal death rates are 3-year averages (2014–2016) per 1,000 live births. Infant death rates are calculated using the death cohort method. See Appendix A.

<sup>7</sup> Teen birth rate is the number of births to teens per 1,000 females 15–19 years of age.

<sup>8</sup> Fertility rates are births per 1,000 females 15–44 years of age.

<sup>9</sup> Low birth weight percentages are infants born weighing less than 2,500 grams per 100 live births.

\*Rate is based on fewer than 20 occurrences, and may be statistically unreliable. Use with caution.

# INTRODUCTION

## ABOUT ALASKA

Alaska is the largest of the 50 states and contains approximately 16 percent of the country's landmass. Because of its size, Alaska has widely diverse geographic, climatic, and demographic characteristics, all of which affect public health.

Alaska contains roughly 586,412 square miles of land. The state population in 2016 was 739,828, or about 1.3 people per square mile. Alaska also claims the most northern, western and eastern points of land in the United States. It also contains more miles of coastline than all of the contiguous 48 states combined (6,640 miles not including islands), as well as more than 5,000 glaciers, 3 million fresh water lakes, and 3,000 rivers (of which the Yukon ranks among the longest in the United States). Much of the coastline and fresh water areas are used as transportation corridors, as well as fishing grounds. Remote lands are used for hunting and recreational activities.

Unique climatic conditions affect Alaska's people. Temperatures can range from highs up to 100°F, to lows that approach -80°F. Alaska experiences extremes in precipitation as well. Some areas of the state may receive up to 200 inches of precipitation annually, while other areas receive as little as 12 inches.

With diverse cultures, sparse population, severe temperatures, vast coastline, and outdoor lifestyles, the state experiences many unique health care challenges. One such challenge is assisting residents who live in remote areas of the state. A combination of Alaska Native Regional Corporations, the State of Alaska, and private health care entities provide health care in these areas through funding for public health facilities and workers.

The Health Analytics and Vital Records Section (HAVRS) Annual Report focuses on public health indicators in the state of Alaska. Some comparisons are made between Alaska health status indicators and national indicators. Although many similarities exist between Alaska and the rest of the United States, there are also many important differences. By reporting these indicators, our hope is to assist others

in evaluating the status of public health in Alaska. The events and vital statistics discussed throughout this report can provide a useful starting point for health care planners, providers, research professionals, policy makers, or others interested in Alaska public health.

## HOW VITAL STATISTICS ARE COLLECTED

The Alaska Vital Statistics Act (Alaska Statute (AS) 18.50) requires the Department of Health and Social Services to install, maintain, and operate a system of vital records. These records contain birth, death, fetal death, divorce, marriage, and adoption information.

When a birth occurs in Alaska, there is a legal process for recording that birth (AS 18.50.160). Generally, a physician, midwife, and/or hospital medical records staff person enters birth information into the Electronic Vital Records System (EVRS) database using information provided by the birth parent(s) and the delivery attendant.

Death certificates are typically entered by a funeral home staff member, and then certified by the attending physician or medical examiner. Death certificates should be filed within three days of the date of death (AS 18.50.230). After the data have been entered, they are then reviewed and registered by the Section's Registration Unit in Juneau.

Alaska participates in the State and Territorial Exchange of Vital Events system. This cooperative arrangement facilitates exchanges of vital records data between states and other jurisdictions. This insures that vital events, such as births or deaths of Alaska residents that occur out of state, are received and recorded. Conversely, records of births or deaths of non-residents that occur in Alaska are also forwarded to their respective state's registrar.

Under the Section's oversight, the Alaska Court System issues a marriage license and files a certificate for each marriage performed in the state. The certificate is filed with the local recording office of the Court System within seven days of the marriage (AS 18.50.270). The local recording office then forwards the certificate to HAVRS for registration

and permanent retention. Since 1997, the Section has been issuing marriage licenses in Juneau, and Anchorage, as well as registering and providing permanent retention of documents. Marriage licenses in other parts of the state continue to be issued by the Court System under the Section's oversight.

HAVRS began issuing marriage licenses to same-sex couples beginning October 13th, 2014. Marriage licenses are issued regardless of sexual orientation, or gender identity.

Divorce, dissolution, and annulment certificates are prepared by a clerk of the court from information provided by the petitioner, plaintiff, and (possibly) court documents. The completed certificate is then forwarded to HAVRS for final registration (AS 18.50.280).

For each adoption granted in Alaska, a report of adoption is prepared and registered with HAVRS (AS 18.50.210).

## HOW CERTIFICATES ARE PROCESSED

In 2013, HAVRS instituted an updated Electronic Vital Records System (EVRS). This replaces the previous database system (Lightspeed), and enables hospital and clinical staff, birth attendants, physicians, medical examiners, funeral home directors, and other qualified birth/death certifiers to record vital statistics information directly into the system.

As information is entered for each individual certificate, the system checks for invalid or improbable data. Missing or out-of-range information is returned to the facility or birth attendant for verification and/or correction. When the final certificate data have been entered into EVRS, the data are certified, recorded, and filed by HAVRS.

A physician or medical examiner determines causes of death, and narrative descriptions are entered on the death certificate. The narrative, or literal, causes of death are forwarded to the National Center for Health Statistics (NCHS), who code causes of death according to International Classification of Diseases Version 10 (ICD-10) standards. This coding is then returned to HAVRS, and uploaded into the corresponding EVRS record.

After vital records have been registered in EVRS, analysts perform additional quality assurance checks before the data are forwarded to the NCHS.

Waiting for all data to arrive and eliminating duplicate entries are both important steps for ensuring the most accurate report possible. Once the data are both accurate and complete, the Section's Health Analytics Unit generates statistical analyses on which the tables, charts, and narrative of this report are based.

There are a number of ways to report vital events including the numbers of observations, rates based on total populations, or rates based on specific populations. For a discussion of the use of vital statistics, and a comparison of different populations, see Appendix B.

## POPULATION ESTIMATES

Population estimates used in this report were obtained from the Alaska Department of Labor and Workforce Development, Division of Administrative Services, Research and Analysis Section, Demographics Unit. Totals are made by race, age, and geographic area. The 2016 Alaskan census population was 739,828 persons, with 382,143 males and 357,685 females. In 2016 there were 106.8 males for every 100 females in Alaska.

Population estimates are updated annually. The estimate of total population is revised each year to correspond to the United States Census Bureau's estimated state total. Using the decennial census as a base, birth, death, Internal Revenue Service, Alaska Permanent Fund, and education statistics are used to produce annual population estimates for geographic areas. Alaska is divided into 29 regional areas, made up of a combination of boroughs, census areas, and municipalities (see Appendix E).

Residents of the Anchorage Municipality comprised 40.4 percent of the state's population in 2016. About 82.4 percent of Alaska's population was concentrated into just six areas: Anchorage Municipality, Fairbanks North Star Borough, Juneau City and Borough, Kenai Peninsula Borough, Bethel Census Area, and Matanuska-Susitna Borough.



The age of a population is important when interpreting vital statistics, because behaviors and health risks of younger populations differ from those exhibited by older populations. Age, race, and sex distributions within a population are also important. In 2016, the most recent year for which data are available, the median age of Alaska residents was 32.8 years old for males, 34.3 years old for females, and 33.5 years old for all Alaskans overall. The median ages for the United States was 36.6 years old for males, 39.2 for females, and 37.9 years old overall.<sup>1</sup> For an example of the disparity of the age distribution of Alaska versus that of the United States, please refer to Appendix D. For further information about interpretation of vital statistics, refer to “How to Use Vital Statistics” within Appendix B.

PI), and Black or African American (Black). Records with unknown or missing race responses are included in overall state totals (Alaska).

## DETERMINATION OF RACE

The NCHS issues guidelines for determining the race of a child at birth. With few exceptions, the child’s race on the birth certificate is the same as the mother’s stated race. These guidelines became effective in 2003.

Sometimes race will be recorded differently on an individual’s death certificate. This can influence death rates, particularly in the case of infant mortality, where a child’s race may be reported as white on the birth certificate because the mother is white, and Alaska Native on the death certificate because the father is Alaska Native. Unless otherwise noted, the race of the deceased is based on the race provided on the death certificate.

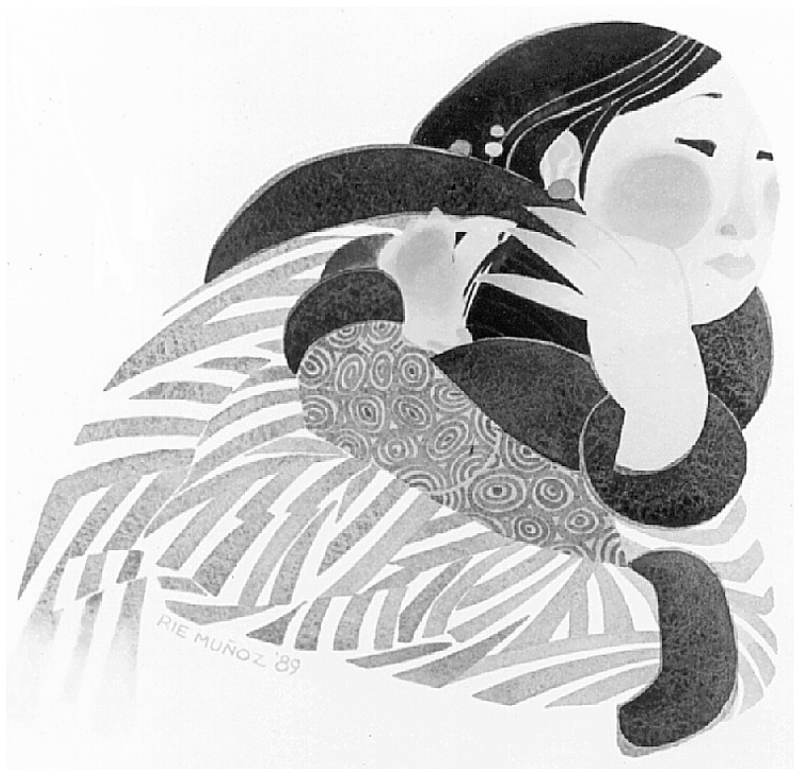
In order to permit comparison of vital event data over years where racial categories have changed, or where the birth or death certificates have been revised to permit identification of an individual as more than one race, this report uses NCHS standardized “bridged race” codes, and aggregated race groups.<sup>2</sup> The NCHS creates bridged race codes by using an algorithm to assign multiple-race respondents to a single-race category.

Racial categories used in this report are aggregated into the following race groups: Caucasian (White), American Indian or Alaska Native (AI/AN), Asian, Native Hawaiian, or Other Pacific Islander (Asian/

<sup>1</sup> See: U.S. Census Bureau, Age and Sex, 2016 American Community Survey 1-Year Estimates.

<sup>2</sup> See: United States Census 2000 Population with Bridged Race Categories, National Center for Health Statistics, Vital Health Stat 2(135), 2003”.

# BIRTHS



*"The Embrace"*  
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## In 2016...

- Alaska mothers gave birth to 11,213 babies.
- The month of June had the most births (982), while February had the fewest (840).
- The median age of mothers was 28 years and the median age of fathers was 30 years
- The youngest mother was 13 years old, and the youngest father was 14 years old.
- The oldest mother was 51 years old and the oldest father was 73 years old.
- Emma was the most popular girl's name and William was the most popular boy's name.



## Birth Summary

There were 11,213 live births to Alaska resident mothers in 2016, a 0.7 percent decrease from the previous year. The overall number of births has increased 1.5 percent from 2007.

Crude birth rates measure how many births occur per 1,000 members of the overall population. In 2016 there were 15.2 births per 1,000 population. In contrast, fertility rates measure how many births occur per 1,000 members of the female population between the ages 15 and 44. Because this measure

only takes into account the portion of the population that typically bears children, fertility rates are a more meaningful measure of birth patterns. In 2016 there were 76.4 births per 1,000 population. Since 2007, fertility rates decreased 1.5 percent.

Over the last five years, the Kusilvak Census Area has had the highest overall fertility rate, while the Aleutians East Borough has had the lowest, with 141.7 and 35.2 births per 1,000 population, respectively (see pg. 10).

**Table 1: Number of Births by Race (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	847	943	945	1,043	1,029	1,112	1,038	1,094	1,082	1,115
Black	453	423	465	461	511	418	510	510	472	483
AI/AN	2,775	2,883	2,955	2,888	2,830	2,797	2,456	2,430	2,387	2,478
White	6,737	7,061	6,807	6,976	6,947	6,688	7,273	7,039	7,012	6,914
<b>Alaska</b>	<b>11,052</b>	<b>11,437</b>	<b>11,317</b>	<b>11,470</b>	<b>11,441</b>	<b>11,166</b>	<b>11,453</b>	<b>11,398</b>	<b>11,294</b>	<b>11,213</b>

**Table 2: Crude Birth Rates by Race (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	19.3	20.7	19.4	20.5	19.3	20.0	18.1	18.7	18.0	18.0
Black	14.8	13.5	14.7	14.7	15.6	12.2	14.6	14.6	13.5	13.5
AI/AN	24.0	24.9	25.0	24.0	23.1	22.7	19.7	19.3	18.8	19.4
White	13.7	14.3	13.6	13.7	13.5	12.9	14.0	13.6	13.6	13.4
<b>Alaska</b>	<b>16.2</b>	<b>16.7</b>	<b>16.2</b>	<b>16.1</b>	<b>15.8</b>	<b>15.3</b>	<b>15.6</b>	<b>15.5</b>	<b>15.3</b>	<b>15.2</b>

**Table 3: Fertility Rates by Race (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	80.4	87.2	82.6	88.1	83.5	86.7	78.2	80.5	77.6	77.7
Black	69.6	64.4	71.9	72.7	77.2	60.0	71.7	71.6	65.4	65.4
AI/AN	110.3	114.7	117.0	112.9	110.3	108.0	94.1	92.4	90.2	93.0
White	67.2	70.9	68.1	69.9	69.2	66.1	72.0	70.2	70.8	70.2
<b>Alaska</b>	<b>77.6</b>	<b>80.4</b>	<b>79.1</b>	<b>79.8</b>	<b>78.9</b>	<b>76.0</b>	<b>77.6</b>	<b>77.4</b>	<b>77.0</b>	<b>76.4</b>

## Births by Age Group

Age-specific fertility rates (fertility rates by age group), can vary substantially. In 2016, mothers aged 25-29 had the highest overall fertility rate, with 128.3 births per 1,000 population. However, since 2007, this age group has experienced a 16.2 percent decrease in fertility rates. By comparison, mothers aged 35-39 had the largest percent increase in fertility rates, at 17.1 percent.

Over the same period, the overall teen (15-19) birth rate has declined 38.6 percent, with black or African American mothers experiencing the largest decrease of 66.5 percent. In 2016, American Indian/Alaska Native mothers had the highest overall teen rate with 45.8 births per 1,000 population, 2.6 and 2.7 times higher than white and black or African American teen rates, respectively. Over the last five years, the Kusilvak Census Area has had the highest overall teen rate, with 93.7 births per population (see pg. 11).

**Table 4: Age-Specific Fertility Rates (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
15-19	41.5	42.4	42.6	38.1	36.1	34.6	30.2	27.8	28.9	25.5
20-24	135.5	136.0	127.6	133.8	129.4	116.1	118.2	119.8	113.5	109.6
25-29	153.1	150.7	141.0	132.0	128.1	122.9	129.6	128.7	127.3	128.3
30-34	94.2	98.7	100.7	107.0	101.2	102.1	103.6	105.5	105.8	106.4
35-39	46.3	48.6	49.9	45.8	51.9	50.4	52.9	49.5	53.3	54.2
40-44	10.6	12.3	10.5	12.0	11.6	12.8	12.3	11.3	10.9	10.9
<b>Total</b>	<b>77.6</b>	<b>80.4</b>	<b>79.1</b>	<b>79.8</b>	<b>78.9</b>	<b>76.0</b>	<b>77.6</b>	<b>77.4</b>	<b>77.0</b>	<b>76.4</b>

**Table 5: Number of Teen (15-19) Births by Race (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	82	84	106	106	81	87	80	61	72	72
Black	70	53	54	53	49	49	45	40	35	25
AI/AN	456	489	473	421	386	348	264	234	280	236
White	484	480	462	368	353	329	308	293	257	241
<b>Alaska</b>	<b>1,118</b>	<b>1,116</b>	<b>1,103</b>	<b>952</b>	<b>876</b>	<b>820</b>	<b>708</b>	<b>644</b>	<b>662</b>	<b>582</b>

**Table 6: Teen (15-19) Birth Rates by Race (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	42.8	43.2	51.5	50.6	39.2	41.5	37.2	28.0	32.3	31.2
Black	50.5	37.2	39.1	40.3	36.5	34.9	31.1	28.0	24.4	16.9
AI/AN	72.3	80.8	80.9	75.4	71.9	67.6	51.2	45.8	54.2	45.8
White	28.0	28.4	27.8	23.0	22.8	21.9	20.9	20.2	18.2	17.3
<b>Alaska</b>	<b>41.5</b>	<b>42.4</b>	<b>42.6</b>	<b>38.1</b>	<b>36.1</b>	<b>34.6</b>	<b>30.2</b>	<b>27.8</b>	<b>28.9</b>	<b>25.5</b>

## Medical Services Utilization

In 2016, the overall percentage of mothers receiving first trimester prenatal care increased from 76.8 to 78.2 percent. Asian/Pacific Islander mothers were the least likely to initiate prenatal care during the first trimester of pregnancy.

Adequacy of prenatal care utilization is measured by an index that compares the number of prenatal visits with the expected number of visits for the

period when care began, and the delivery date (see Appendix C). Since 2007, the percentage of births rated as adequate has increased 12.4 percent.<sup>1</sup>

Over the same period, the overall percentage of births by cesarean section has increased by 1.3 percent. Black or African American mothers were most likely to receive a Cesarean section, while American Indian/Alaska Native mothers were least likely.

**Table 7: Percent Receiving First Trimester Prenatal Care by Race (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	70.0	65.7	62.9	60.7	59.4	59.4	62.5	65.3	65.2	68.9
Black	77.7	73.3	67.5	70.9	66.5	67.7	73.3	72.7	75.4	77.8
AI/AN	68.0	66.1	70.7	70.6	72.1	70.6	73.1	72.9	73.1	73.7
White	82.9	82.0	76.7	75.5	77.4	75.9	77.2	77.3	79.9	81.3
<b>Alaska</b>	<b>77.7</b>	<b>76.2</b>	<b>73.3</b>	<b>72.6</b>	<b>73.8</b>	<b>72.5</b>	<b>74.8</b>	<b>74.7</b>	<b>76.8</b>	<b>78.2</b>

**Table 8: Adequacy of Prenatal Care Utilization by Race (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	52.2	46.7	45.3	46.8	47.7	50.3	46.9	52.5	51.8	52.5
Black	53.6	43.7	38.7	47.3	51.3	55.0	54.1	54.5	61.7	65.0
AI/AN	38.9	39.0	42.4	44.9	43.7	49.8	51.8	50.9	52.1	56.2
White	63.2	58.4	53.9	57.7	59.5	61.5	57.3	59.8	61.4	66.3
<b>Alaska</b>	<b>55.6</b>	<b>52.0</b>	<b>49.2</b>	<b>52.9</b>	<b>53.9</b>	<b>57.1</b>	<b>54.9</b>	<b>56.6</b>	<b>58.4</b>	<b>62.5</b>

**Table 9: Cesarean Section Rates by Race (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	23.8	28.7	24.7	24.9	25.3	26.4	26.2	27.4	23.7	27.2
Black	26.7	27.7	30.5	29.7	25.2	32.8	27.6	33.1	31.8	34.8
AI/AN	11.3	13.0	13.8	13.4	12.8	13.3	13.7	14.1	13.8	13.4
White	26.6	25.4	27.0	24.6	23.3	26.4	26.6	25.5	25.2	24.7
<b>Alaska</b>	<b>22.6</b>	<b>22.6</b>	<b>23.5</b>	<b>22.0</b>	<b>21.0</b>	<b>23.3</b>	<b>24.0</b>	<b>23.7</b>	<b>22.9</b>	<b>22.9</b>

<sup>1</sup> Calculations for first trimester care and adequate prenatal care utilization percentages include unknown/missing responses and therefore may not accurately reflect the level of prenatal care that Alaska women receive. The number of birth records with missing or unknown prenatal care visits and timing has generally decreased over time.

## Infant Health Characteristics

A low weight birth is one in which the infant weighs less than 2,500 grams (approximately 5.5 pounds). Since 2007, the overall percentage of low weight births has increased 5.4 percent. Black or African American mothers were most likely to experience a low weight birth, while white mothers were least likely. Over the last five years, the Aleutians West Census Area has had the highest overall percentage of low weight births (see pg. 15).

A preterm birth is one in which the delivery occurs before the 37th week of gestation. Since 2007, the overall percentage of preterm births has remained roughly stable. Black or African American mothers were most likely to experience a preterm birth, while white mothers were least likely. Over the last five years, the Dillingham Census Area has had the highest overall percentage of preterm births (see pg. 16).

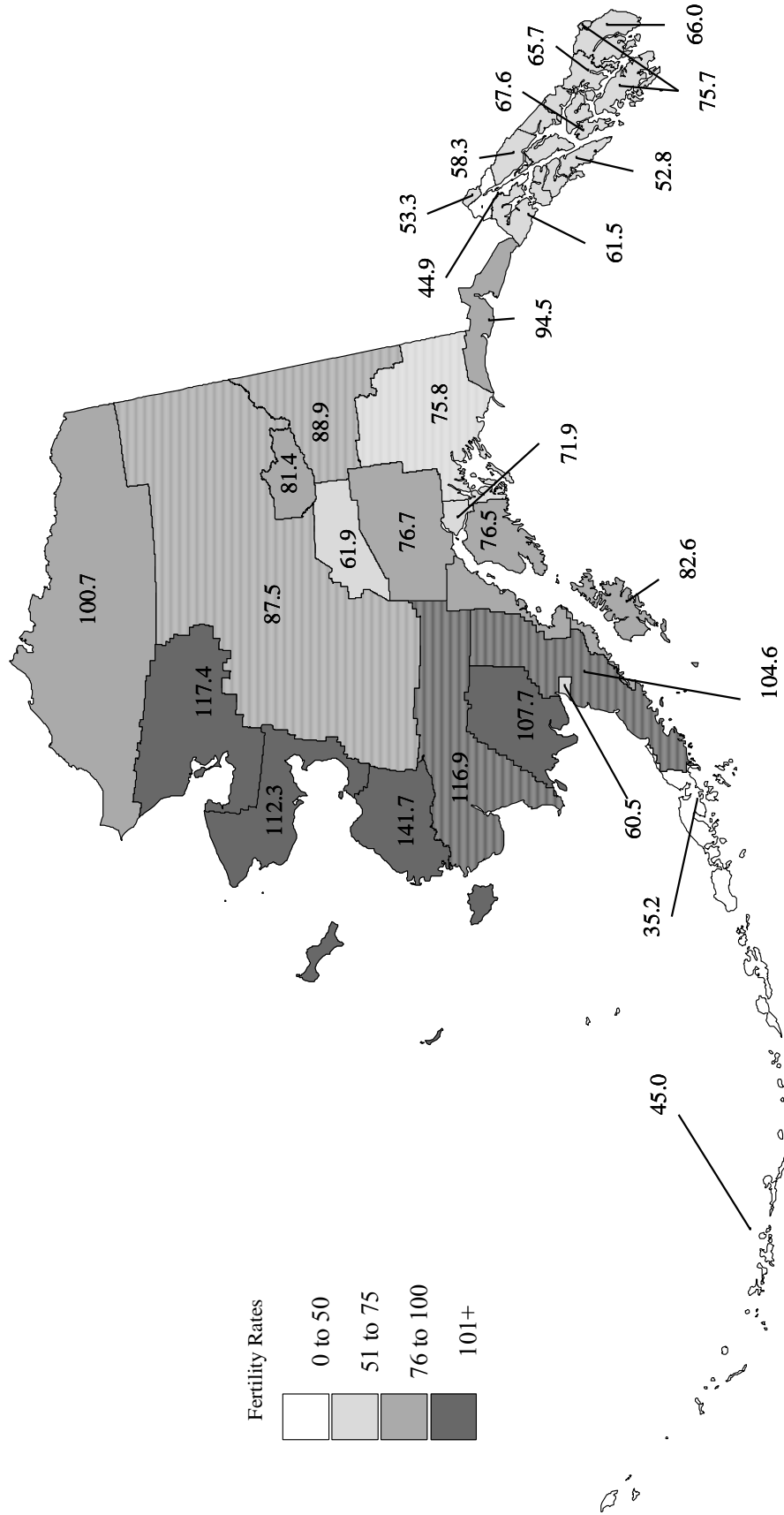
**Table 10: Low Birth Weight Percentages by Race (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	5.5	6.7	5.7	5.9	9.0	6.4	6.4	7.3	5.8	7.7
Black	11.0	11.8	12.9	11.3	8.6	10.8	6.9	10.0	7.8	11.0
AI/AN	4.8	6.5	6.3	6.2	6.0	6.7	5.6	6.7	6.6	6.1
White	5.6	5.3	5.2	5.1	5.3	4.8	5.6	5.2	5.4	5.2
<b>Alaska</b>	<b>5.6</b>	<b>5.9</b>	<b>5.9</b>	<b>5.7</b>	<b>6.0</b>	<b>5.6</b>	<b>5.7</b>	<b>5.9</b>	<b>5.8</b>	<b>5.9</b>

**Table 11: Preterm Birth Percentages by Race (2007-2016)**

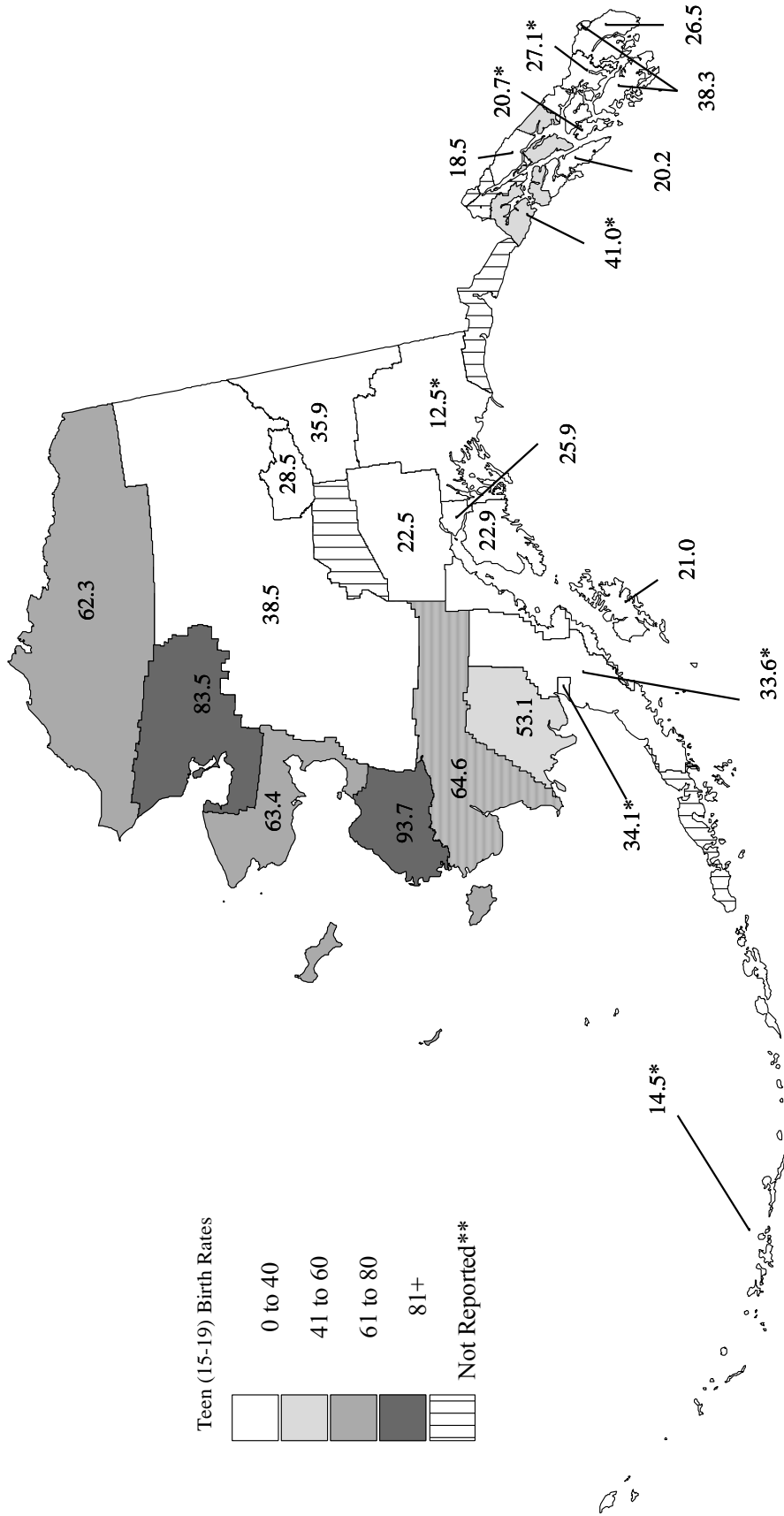
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	12.4	12.1	11.9	11.0	13.1	11.2	12.8	13.3	13.3	12.5
Black	13.9	13.7	18.1	14.3	11.9	12.4	9.2	12.4	11.0	13.7
AI/AN	11.7	12.9	13.8	11.5	12.5	11.5	12.9	13.1	14.2	13.4
White	9.4	8.9	9.1	8.5	8.9	7.7	8.8	8.6	8.7	8.9
<b>Alaska</b>	<b>10.4</b>	<b>10.3</b>	<b>11.0</b>	<b>9.7</b>	<b>10.4</b>	<b>9.2</b>	<b>10.0</b>	<b>10.2</b>	<b>10.3</b>	<b>10.5</b>

### Fertility Rates by Census Area or Borough 2012-2016



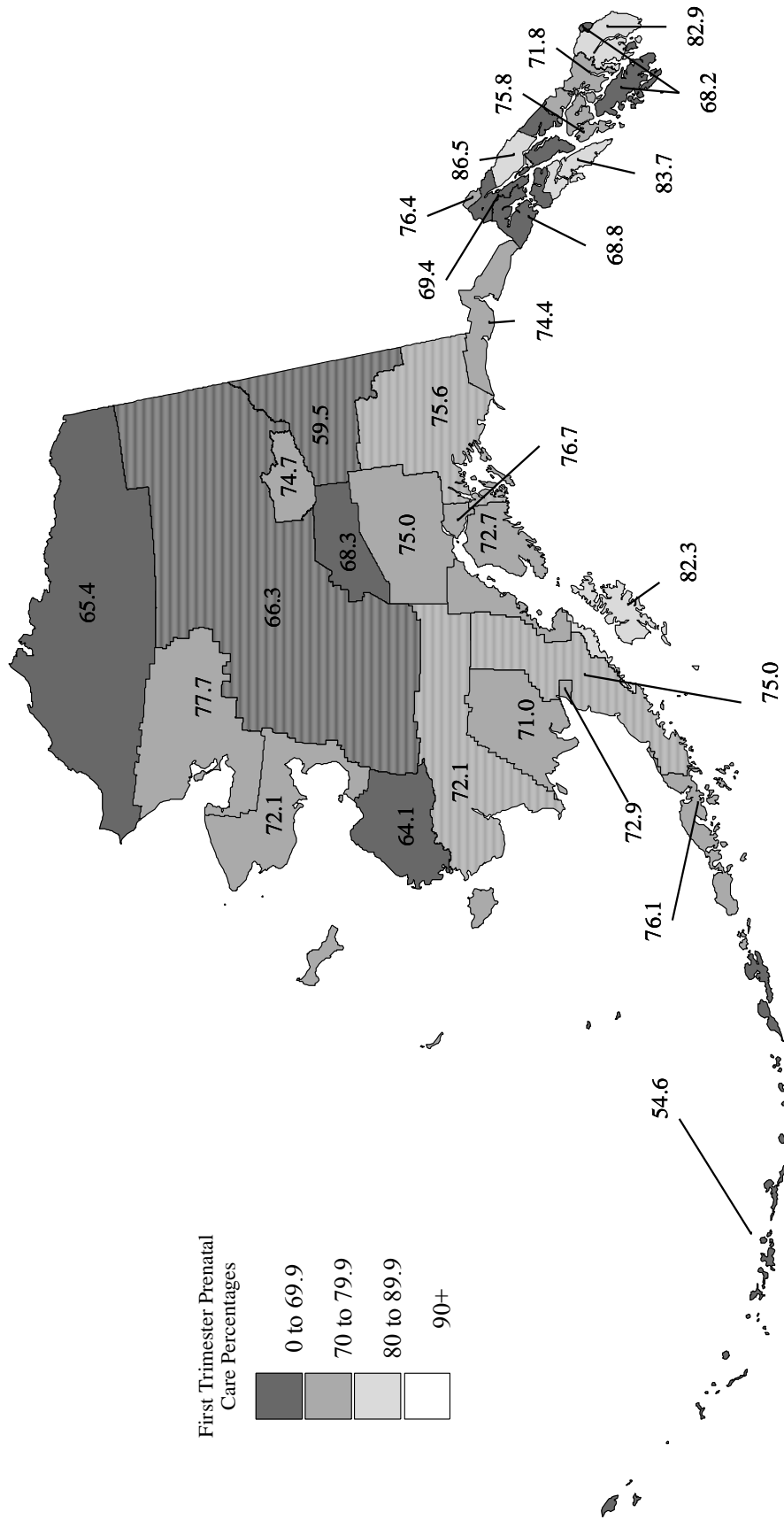
\*Rates based on fewer than 20 occurrences are statistically unreliable and should be used with caution.  
\*\*Rates based on fewer than 6 occurrences are not reported.

## Teen (15-19) Birth Rates by Census Area or Borough 2012-2016

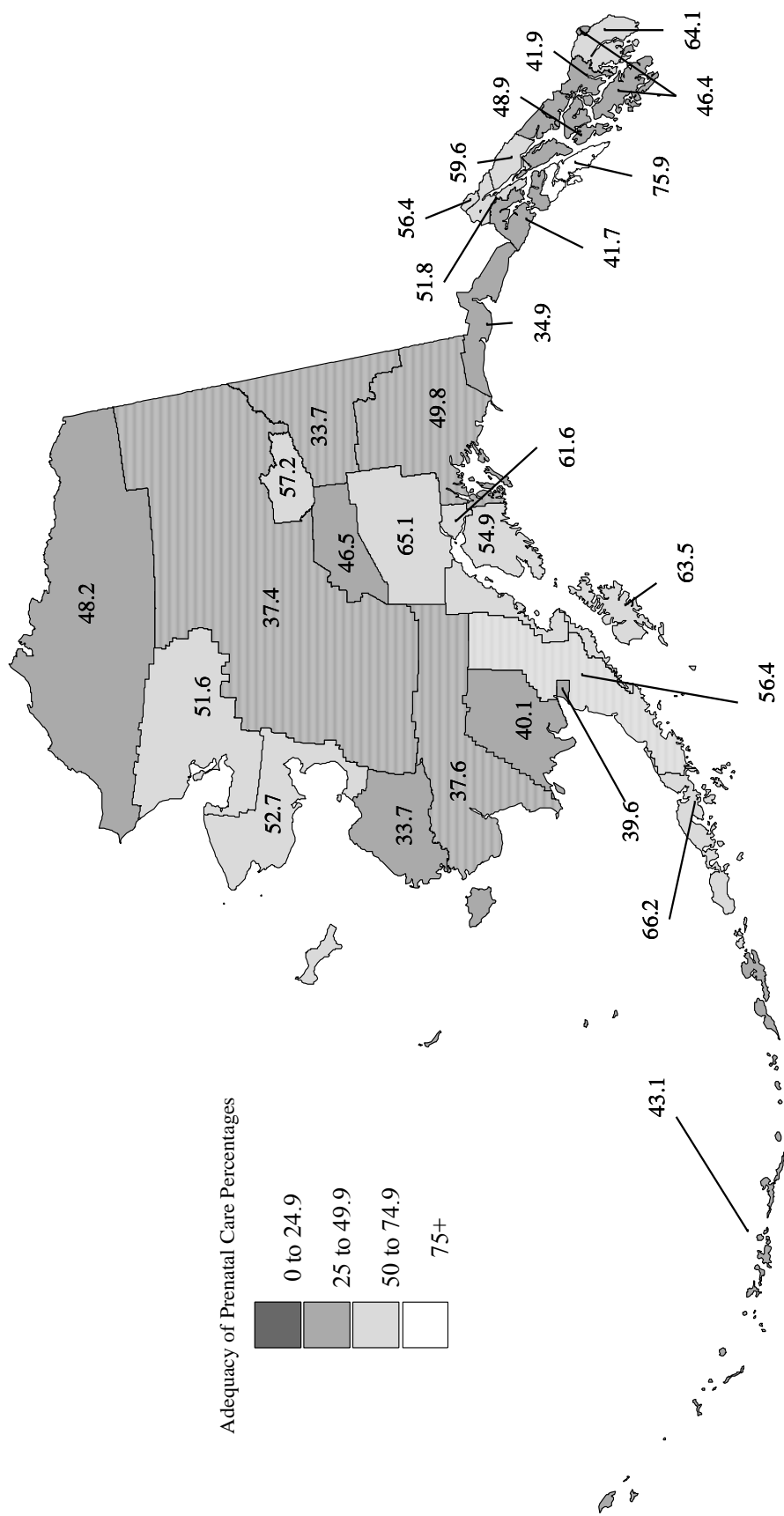


\*Rates based on fewer than 20 occurrences are statistically unreliable and should be used with caution.  
 \*\*Rates based on fewer than 6 occurrences are not reported.

# First Trimester Prenatal Care by Census Area or Borough 2012-2016

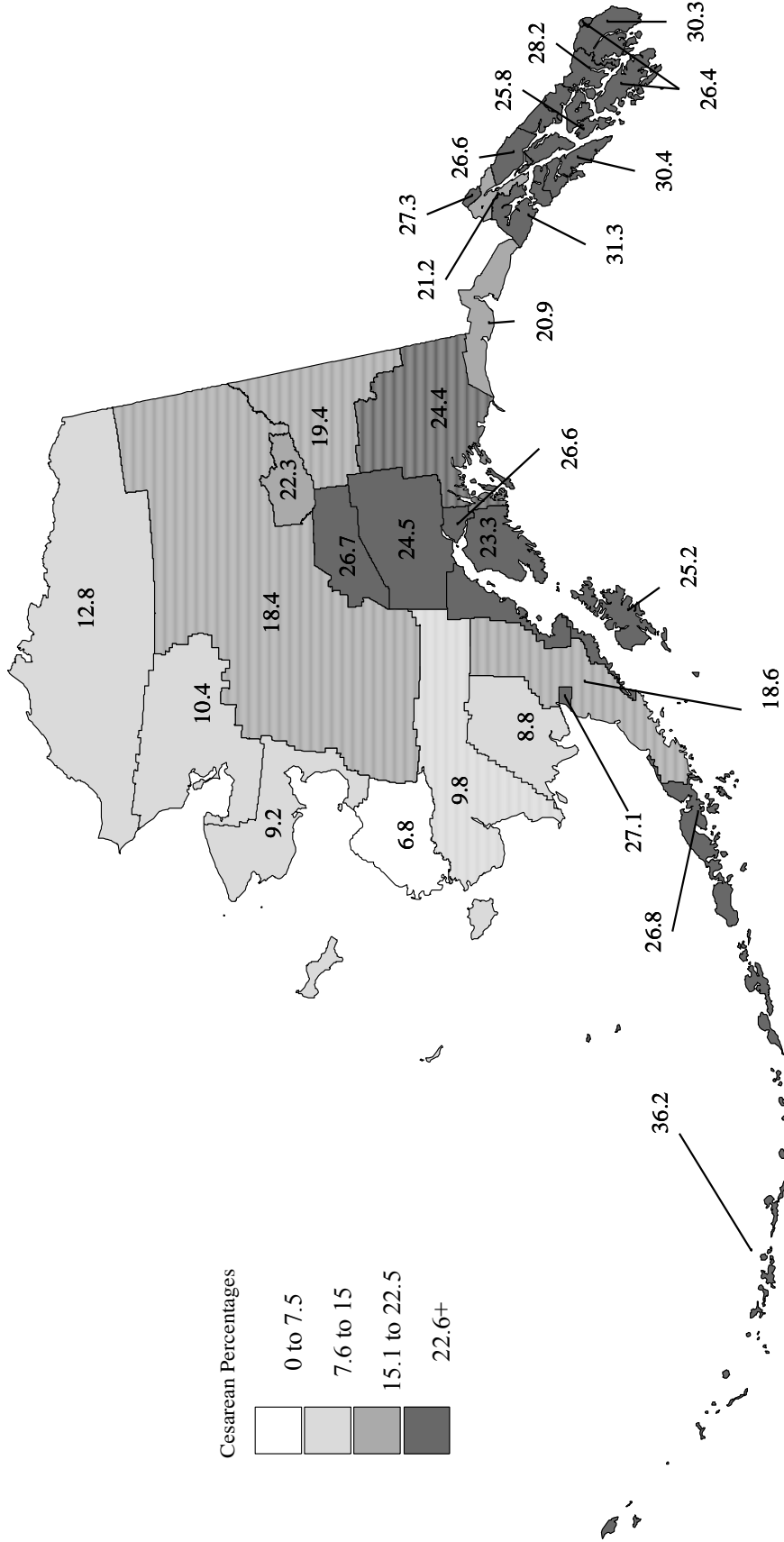


# Adequacy of Prenatal Care Utilization by Census Area or Borough 2012-2016

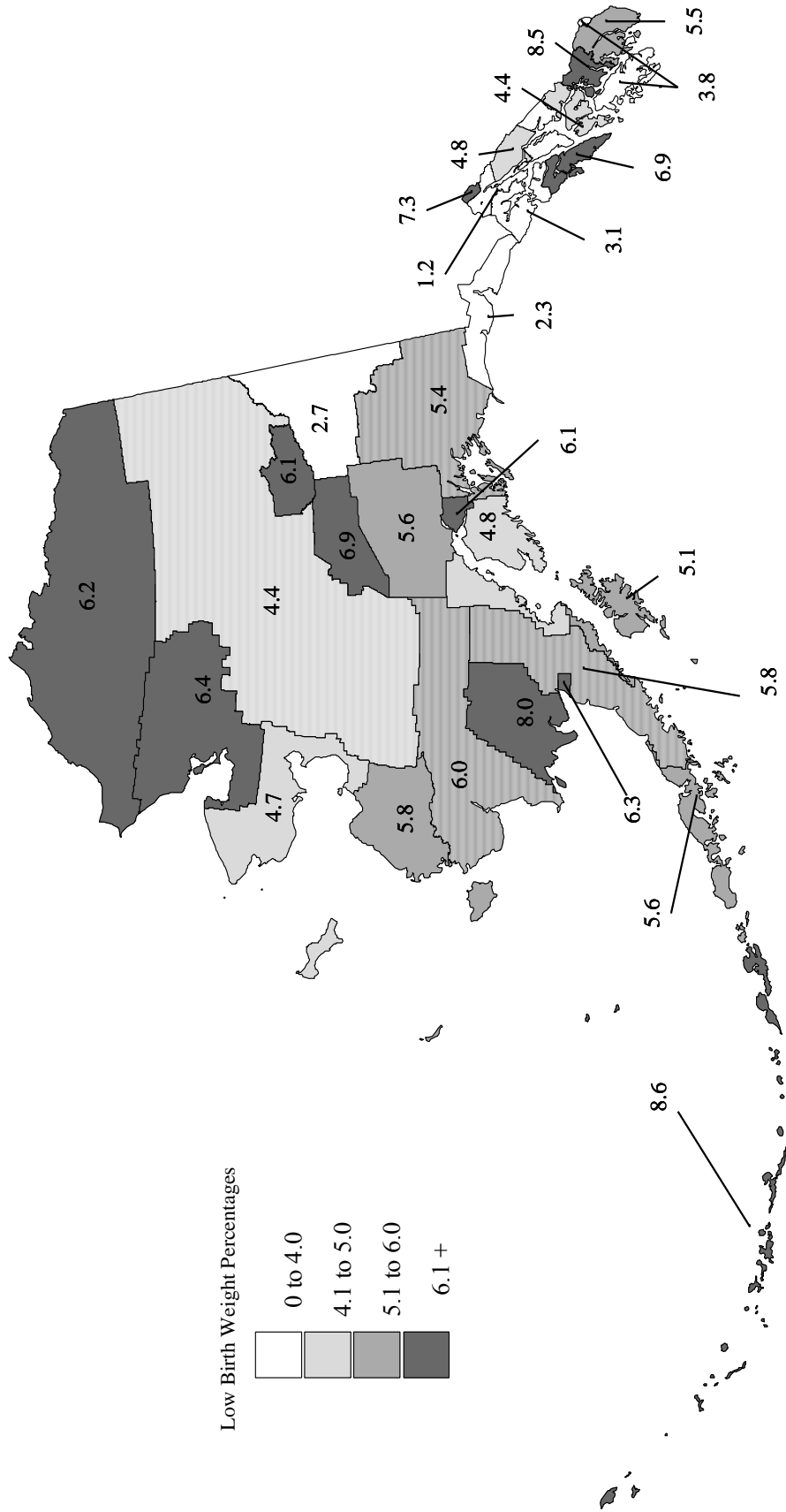




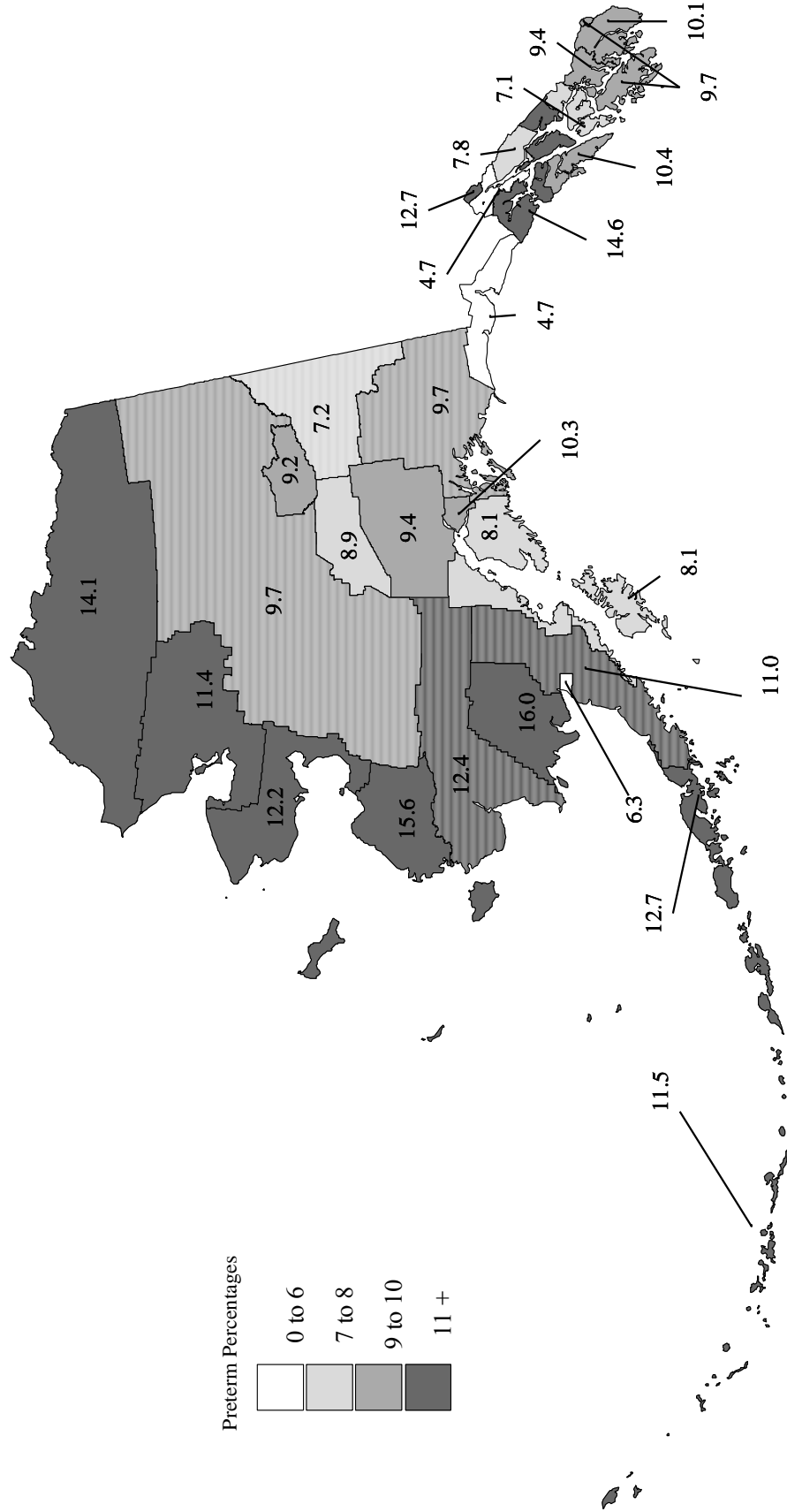
# Cesarean Percentages by Census Area or Borough 2012-2016



# Low Birth Weight Percentages by Census Area or Borough 2012-2016



# Preterm Birth Percentages by Census Area or Borough 2012-2016



# FETAL, INFANT, AND CHILD DEATHS



*"Priest, Yukon River"*  
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## In 2016...

- There were 91 fetal deaths. The three year moving average (2014-2016) fetal death rate was 6.7 deaths per 1,000 births and fetal deaths combined.
- There were 61 infant deaths. The three year moving average (2014-2016) infant death rate was 6.3 deaths per 1,000 births.
- There were 32 neonatal infant deaths. The leading cause of neonatal infant death was due to congenital malformations, deformations, and chromosomal abnormalities.
- There were 29 postneonatal infant deaths. The leading cause of postneonatal infant death was sudden infant death syndrome.
- There were 87 deaths of children and youth between one and nineteen. The leading cause of death was due to unintentional injuries.

## Fetal and Infant Death Summary

Fetal deaths are deaths prior to the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, excluding induced termination. The fetal mortality rate is the number of fetal deaths, per 1,000 live births and fetal deaths. Over the last three years the fetal mortality rate averaged 6.7 deaths per 1,000 live births and fetal deaths.

Infant deaths are deaths of children under 365 days of age. The infant mortality rate is the number of infant deaths per 1,000 live births for a given calendar year. Over the same three year period the infant mortality rate averaged 6.3 deaths per 1,000 live births.

**Table 12: Fetal Mortality Rates by Race (2005-2016)<sup>1, 2, 3</sup>**

	05-07	06-08	07-09	08-10	09-11	10-12	11-13	12-14	13-15	14-16
AI/AN	6.8	6.7	5.1	3.5	3.2	4.8	4.8	6.0	6.1	7.8
White	3.5	3.4	3.6	3.6	4.3	4.7	4.7	4.4	3.9	5.0
<b>Alaska</b>	<b>5.0</b>	<b>4.7</b>	<b>4.5</b>	<b>4.1</b>	<b>4.7</b>	<b>5.3</b>	<b>5.5</b>	<b>6.0</b>	<b>5.8</b>	<b>6.7</b>

**Table 13: Number of Infant Deaths by Race (2005-2016)<sup>1, 2</sup>**

	05-07	06-08	07-09	08-10	09-11	10-12	11-13	12-14	13-15	14-16
AI/AN	83	95	91	76	61	54	66	81	95	95
White	93	87	91	79	74	67	77	90	99	86
<b>Alaska</b>	<b>206</b>	<b>213</b>	<b>212</b>	<b>186</b>	<b>162</b>	<b>147</b>	<b>169</b>	<b>201</b>	<b>219</b>	<b>215</b>

**Table 14: Infant Mortality Rates by Race (2005-2016)<sup>1, 2</sup>**

	05-07	06-08	07-09	08-10	09-11	10-12	11-13	12-14	13-15	14-16
AI/AN	10.2	11.4	10.6	8.7	7.0	6.3	8.2	10.5	13.1	13.0
White	4.7	4.2	4.4	3.8	3.6	3.3	3.7	4.3	4.6	4.1
<b>Alaska</b>	<b>6.3</b>	<b>6.4</b>	<b>6.3</b>	<b>5.4</b>	<b>4.7</b>	<b>4.3</b>	<b>5.0</b>	<b>5.9</b>	<b>6.4</b>	<b>6.3</b>

<sup>1</sup> Due to the low number of reportable events in the Asian/PI and black populations, only the two predominant races in Alaska (American Indian/Alaska Native and white) are reported.

<sup>2</sup> Due to the low number of fetal, infant, and child deaths in Alaska, relatively small changes in the number of deaths can cause large fluctuations in rates from one year to the next. Therefore, Alaska's fetal death rate, infant mortality rates, and child death rates use a three-year sum/moving average in order to provide a more stable basis for analysis.

<sup>3</sup> Alaska Statute 18.50.240 requires the filing of a fetal death certificate for each death that occurs where the pregnancy has lasted at least twenty weeks. This table includes all fetal death records, regardless of gestation time.

## Neonatal Infant Deaths

Neonatal deaths are deaths of infants under 28 days of age. These deaths are frequently associated with circumstances related to pregnancy and/or delivery. The neonatal infant mortality rate is the number of neonatal infant deaths, per 1,000 live births for a given calendar year. Over the last three years, the infant mortality rate averaged 3.2 deaths per 1,000 live births.

During this period, American Indian/Alaska Native infants were 2.3 times as likely to die during the neonatal period than white infants. In 2016, congenital malformations, deformations, and chromosomal abnormalities were the leading cause of neonatal death.

**Table 15: Number of Neonatal Deaths by Race (2005-2016)<sup>1,2</sup>**

	05-07	06-08	07-09	08-10	09-11	10-12	11-13	12-14	13-15	14-16
AI/AN	33	33	31	25	21	23	26	33	37	41
White	53	47	40	34	37	43	47	48	54	50
<b>Alaska</b>	<b>106</b>	<b>100</b>	<b>89</b>	<b>78</b>	<b>77</b>	<b>82</b>	<b>90</b>	<b>100</b>	<b>108</b>	<b>110</b>

**Table 16: Neonatal Infant Mortality Rates by Race (2005-2016)<sup>1,2</sup>**

	05-07	06-08	07-09	08-10	09-11	10-12	11-13	12-14	13-15	14-16
AI/AN	4.0	3.9	3.6	2.9	2.4	2.7	3.2	4.3	5.1	5.6
White	2.7	2.3	1.9	1.6	1.8	2.1	2.2	2.3	2.5	2.4
<b>Alaska</b>	<b>3.3</b>	<b>3.0</b>	<b>2.6</b>	<b>2.3</b>	<b>2.2</b>	<b>2.4</b>	<b>2.6</b>	<b>2.9</b>	<b>3.2</b>	<b>3.2</b>

**Table 17: Number of Neonatal Deaths by Cause (2012-2016)**

	2012	2013	2014	2015	2016
Congenital malformations, deformations, and chromosomal abnormalities	8	9	6	12	9
Newborn affected by complications of placenta, cord, and membranes	6	1	1	1	6
Bacterial sepsis of newborn	3	0	4	7	4
Other	19	20	23	24	13
<b>Total</b>	<b>36</b>	<b>30</b>	<b>34</b>	<b>44</b>	<b>32</b>

<sup>1</sup> Due to the low number of reportable events in the Asian/PI and black populations, only the two predominant races in Alaska (American Indian/Alaska Native and white) are reported.

<sup>2</sup> Due to the low number of fetal, infant, and child deaths in Alaska, relatively small changes in the number of deaths can cause large fluctuations in rates from one year to the next. Therefore, Alaska's fetal death rate, infant mortality rates, and child death rates use a three-year sum/moving average in order to provide a more stable basis for analysis.

## Postneonatal Infant Deaths

Postneonatal deaths are deaths of infants between 28 and 364 days of age. These deaths are frequently associated with circumstances related to living conditions and/or home environment. The postneonatal infant mortality rate is the number of postneonatal infant deaths, per 1,000 live births for a given calendar year. Over the last three years, the postneonatal infant mortality rate averaged 3.3 deaths per 1,000 live births.

During this period, American Indian/Alaska Native infants were 4.4 times as likely to die during the postneonatal period than white infants. In 2016, sudden infant death syndrome was the leading cause of postneonatal death; this has been the leading cause for the past three years.

**Table 18: Number of Postneonatal Deaths by Race (2005-2016)<sup>1, 2</sup>**

	05-07	06-08	07-09	08-10	09-11	10-12	11-13	12-14	13-15	14-16
AI/AN	50	62	60	51	40	31	40	48	58	54
White	40	40	51	45	37	24	30	42	45	36
<b>Alaska</b>	<b>100</b>	<b>113</b>	<b>123</b>	<b>108</b>	<b>85</b>	<b>65</b>	<b>79</b>	<b>101</b>	<b>111</b>	<b>105</b>

**Table 19: Postneonatal Infant Mortality Rates by Race (2005-2016)<sup>1, 2</sup>**

	05-07	06-08	07-09	08-10	09-11	10-12	11-13	12-14	13-15	14-16
AI/AN	6.1	7.4	7.0	5.8	4.6	3.6	4.9	6.2	8.0	7.4
White	2.0	1.9	2.5	2.2	1.8	1.2	1.4	2.0	2.1	1.7
<b>Alaska</b>	<b>3.1</b>	<b>3.4</b>	<b>3.6</b>	<b>3.2</b>	<b>2.5</b>	<b>1.9</b>	<b>2.3</b>	<b>3.0</b>	<b>3.3</b>	<b>3.1</b>

**Table 20: Number of Postneonatal Infant Deaths by Cause (2012-2016)**

	2012	2013	2014	2015	2016
Sudden infant death syndrome	2	4	13	8	7
Other symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	10	5	10	5	5
Anoxic brain damage, not elsewhere classified	0	1	0	1	2
Congenital malformations, deformations, and chromosomal abnormalities	2	5	2	2	2
Septicemia	2	0	2	0	2
Other	9	20	14	19	11
<b>Total</b>	<b>25</b>	<b>35</b>	<b>41</b>	<b>35</b>	<b>29</b>

<sup>1</sup> Due to the low number of reportable events in the Asian/PI and black populations, only the two predominant races in Alaska (American Indian/Alaska Native and white) are reported.

<sup>2</sup> Due to the low number of fetal, infant, and child deaths in Alaska, relatively small changes in the number of deaths can cause large fluctuations in rates from one year to the next. Therefore, Alaska's fetal death rate, infant mortality rates, and child death rates use a three-year sum/moving average in order to provide a more stable basis for analysis.

## Child Mortality Summary

The under five child mortality rate is the number of deaths before a child's fifth birthday, per 1,000 live births. Over the last three years, the under five mortality rate averaged 8.1 deaths per 1,000 live births. During this period, American Indian/Alaska Native children were 3.2 times as likely to die before their fifth birthday than white children.

Mortality rates for children and teens aged 5-14 and 15-19 respectively, are calculated on an age-specific basis. Over the last three years, the age specific mortality rate for Alaska children and teens averaged 8.1 and 16.4 deaths per 100,000 population, respectively. American Indian/Alaska Native children and teens were 2.7 and 2 times as likely to die than white children or teens, respectively.

**Table 21: Child Under Five Mortality Rates by Race (2005-2016)<sup>1,2</sup>**

	05-07	06-08	07-09	08-10	09-11	10-12	11-13	12-14	13-15	14-16
AI/AN	11.9	13.4	13.0	11.7	9.7	9.0	10.6	13.5	16.9	17.0
White	5.2	5.2	5.5	4.9	4.5	4.2	4.6	5.1	5.8	5.3
<b>Alaska</b>	<b>7.3</b>	<b>7.6</b>	<b>7.6</b>	<b>6.9</b>	<b>6.0</b>	<b>5.7</b>	<b>6.3</b>	<b>7.3</b>	<b>8.1</b>	<b>8.1</b>

**Table 22: Child (5-14) Mortality Rates by Race (2005-2016)<sup>1,2</sup>**

	05-07	06-08	07-09	08-10	09-11	10-12	11-13	12-14	13-15	14-16
AI/AN	52.3	54.6	44.7	44.6	41.3	40.8	37.5	32.8	32.5	30.7
White	24.3	20.5	15.5	13.5	16.0	12.9	13.8	8.1	11.7	11.2
<b>Alaska</b>	<b>30.1</b>	<b>28.1</b>	<b>22.3</b>	<b>20.2</b>	<b>20.3</b>	<b>18.8</b>	<b>18.6</b>	<b>14.3</b>	<b>17.1</b>	<b>16.4</b>

**Table 23: Teen (15-19) Mortality Rates by Race (2005-2016)<sup>1,2</sup>**

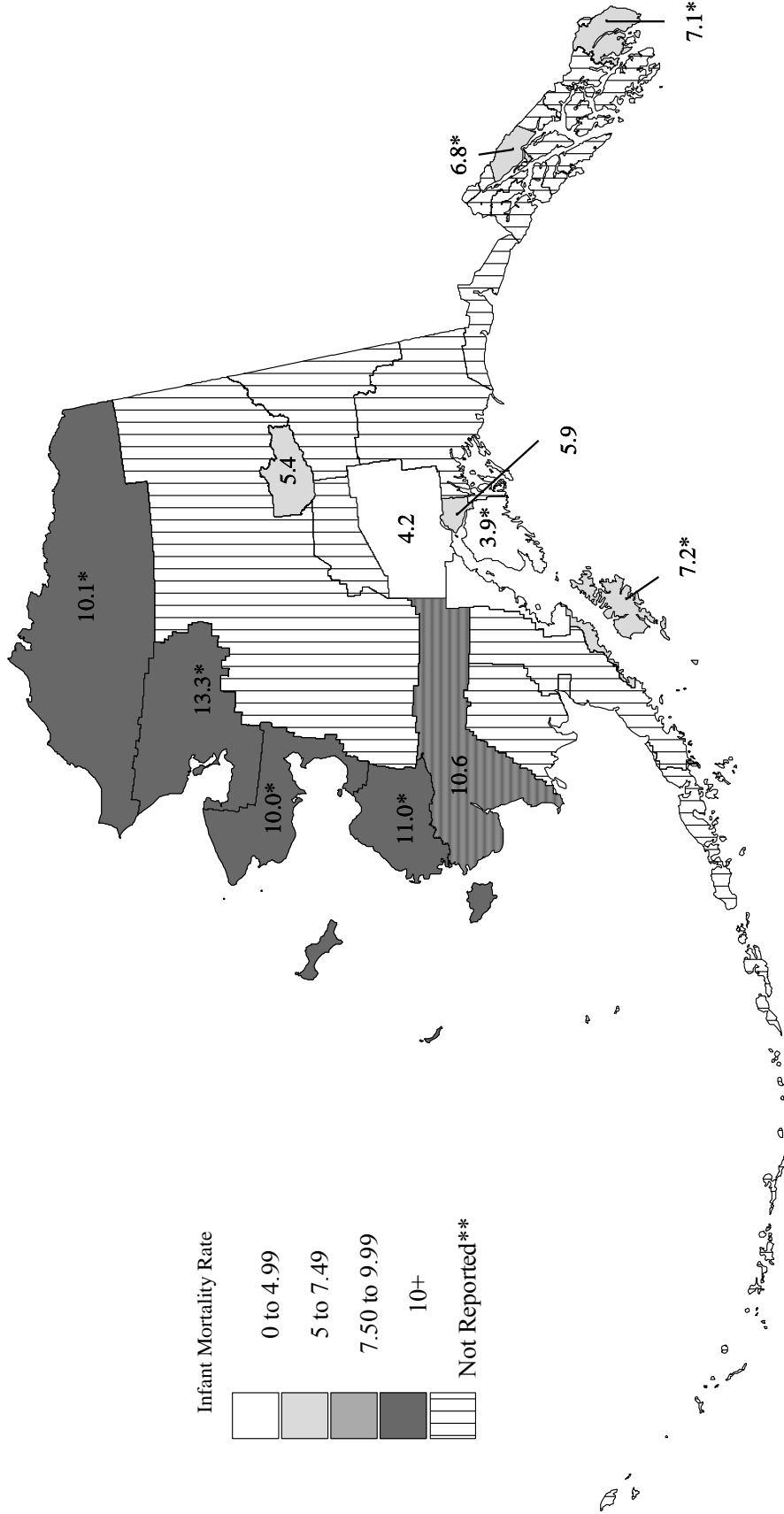
	05-07	06-08	07-09	08-10	09-11	10-12	11-13	12-14	13-15	14-16
AI/AN	187.1	178.6	177.2	185.7	193.0	176.5	150.5	133.8	142.9	160.7
White	58.3	61.8	65.7	60.8	56.6	48.1	50.5	53.7	53.8	60.2
<b>Alaska</b>	<b>90.8</b>	<b>89.6</b>	<b>88.9</b>	<b>84.0</b>	<b>82.4</b>	<b>72.8</b>	<b>68.9</b>	<b>67.9</b>	<b>71.4</b>	<b>80.1</b>

<sup>1</sup> Due to the low number of reportable events in the Asian/PI and black populations, only the two predominant races in Alaska (American Indian/Alaska Native and white) are reported.

<sup>2</sup> Due to the low number of fetal, infant, and child deaths in Alaska, relatively small changes in the number of deaths can cause large fluctuations in rates from one year to the next. Therefore, Alaska's fetal death rate, infant mortality rates, and child death rates use a three-year sum/moving average in order to provide a more reasonable basis for comparison.



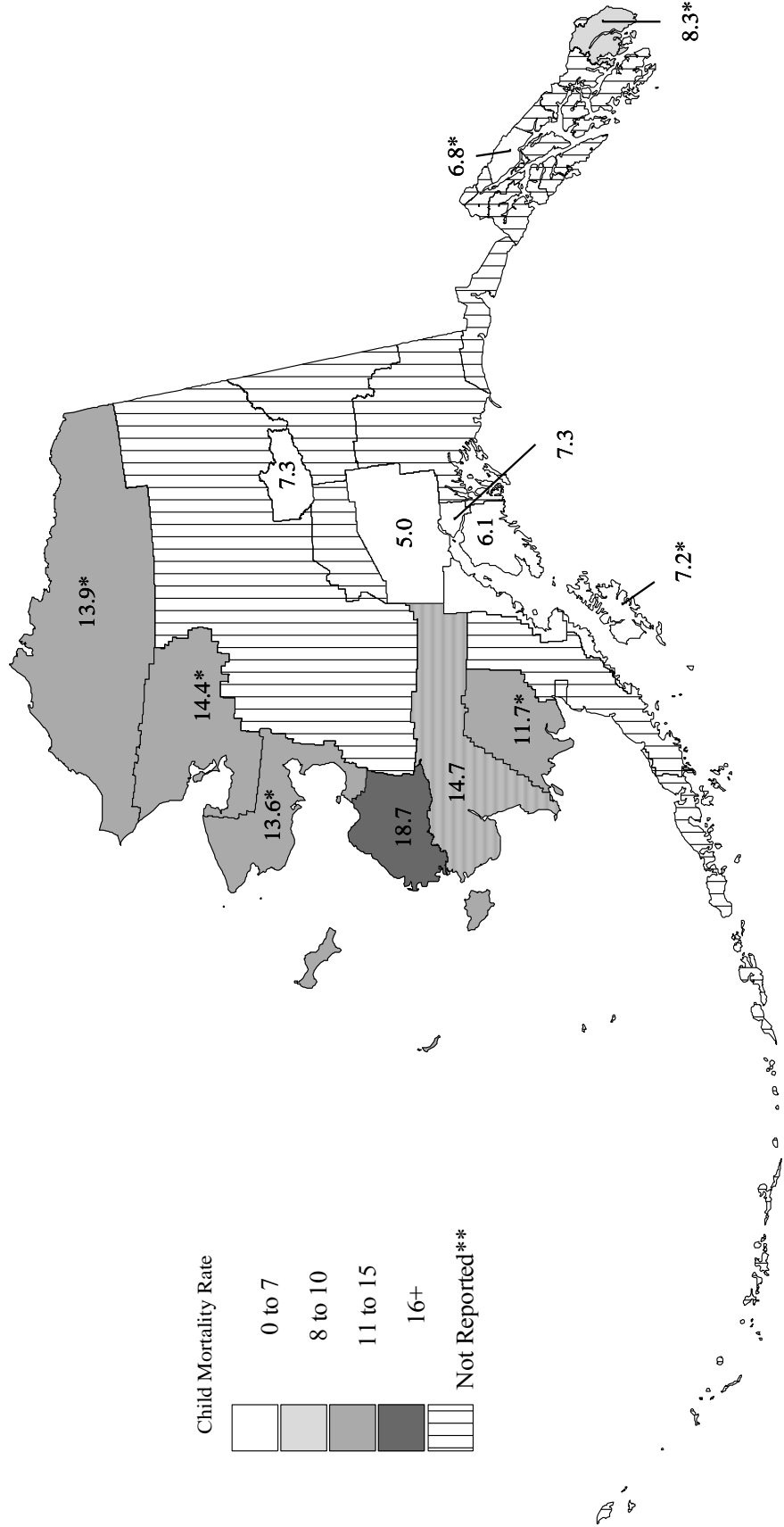
# Infant Mortality Rates by Census Area or Borough 2012-2016



\*Rates based on fewer than 20 occurrences are statistically unreliable and should be used with caution.

\*\*Rates based on fewer than 6 occurrences are not reported.

## Child Mortality Rates by Census Area or Borough 2012-2016



Child Mortality Rate

- 0 to 7
- 8 to 10
- 11 to 15
- 16+
- Not Reported\*\*

\*Rates based on fewer than 20 occurrences are statistically unreliable and should be used with caution.  
 \*\*Rates based on fewer than 6 occurrences are not reported.

# DEATHS



*“Seabirds, St. George”  
Copyright Rie Munoz, Ltd.*

## In 2016...

- There were 4,520 deaths among Alaska residents.
- The month of December had the most deaths (439), while February had the fewest (337).
- The oldest age of death was 111 years among women, and 104 among men.
- The median age of death was 71 years among women, 66 among men, and 68 among Alaskans overall.
- The median age of death was 70, 63, 62, and 68 years among white, American Indian/Alaska Native, black or African American, and Asian/PI Alaskans, respectively.

## Death Summary

In 2016, 4,520 Alaska residents died (including residents traveling out of state). White and American Indian/Alaska Native residents made up 90.6 percent of deaths. Crude death rates, which measure how many people died per 100,000 members of the population, have increased 17.9 percent since 2007.

Because populations with higher proportions of elderly people tend to have higher crude death rates, age-adjusted death rates are preferred when comparing populations. Age-adjusted rates are

estimated using U.S. year 2000 standard populations (see Appendix B).

In 2016, Alaska's age-adjusted death rate was 742.5 deaths per 100,000 standard population. This was a 5.5 percent decrease since 2007. Over this period, black or African American Alaskans experienced the largest decrease in age-adjusted death rates, at 27.2 percent. Conversely, Asian/PI Alaskans have experienced the largest increase, at 18.7 percent.

**Table 24: Number of Deaths by Race (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	112	111	135	131	154	160	170	179	184	222
Black	97	102	90	100	103	124	128	119	140	125
AI/AN	816	805	858	863	898	893	920	931	1,021	1,053
White	2,423	2,452	2,511	2,596	2,680	2,719	2,756	2,866	2,934	3,040
<b>Alaska</b>	<b>3,472</b>	<b>3,499</b>	<b>3,612</b>	<b>3,731</b>	<b>3,860</b>	<b>3,923</b>	<b>4,001</b>	<b>4,129</b>	<b>4,326</b>	<b>4,520</b>

**Table 25: Crude Death Rates by Race (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	255.0	243.5	277.6	257.2	288.5	288.4	296.8	305.6	306.3	358.6
Black	317.0	324.5	285.4	318.5	314.3	362.6	367.0	340.9	399.1	348.3
AI/AN	707.0	694.2	727.3	716.6	734.1	724.0	737.7	739.1	804.7	825.8
White	494.3	496.5	502.5	511.6	521.0	524.7	531.0	554.0	569.5	590.8
<b>Alaska</b>	<b>510.5</b>	<b>509.5</b>	<b>517.6</b>	<b>525.3</b>	<b>534.0</b>	<b>536.5</b>	<b>543.7</b>	<b>560.4</b>	<b>586.8</b>	<b>611.0</b>

**Table 26: Age-Adjusted Death Rates by Race (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	435.2	409.5	493.1	443.5	485.8	485.1	481.3	484.5	472.5	516.5
Black	790.7	830.8	654.6	731.6	657.4	700.9	641.4	617.8	702.0	575.5
AI/AN	1197.0	1116.9	1209.6	1164.0	1161.4	1144.6	1162.5	1149.2	1190.3	1226.1
White	727.7	721.3	709.2	712.9	685.8	664.2	651.4	661.3	665.3	665.0
<b>Alaska</b>	<b>785.8</b>	<b>768.6</b>	<b>769.6</b>	<b>771.4</b>	<b>745.6</b>	<b>723.9</b>	<b>714.2</b>	<b>722.8</b>	<b>737.2</b>	<b>742.5</b>

## Years of Potential Life Lost and Life Expectancy

Years of potential life lost (YPLL) is a way to estimate the public health impact of premature mortality, and is defined as the difference between an expected natural lifespan (assumed to be 75 years), and the actual age of death before that time.<sup>1</sup> For example, YPLL for a 65 year old decedent would be equal to 75 minus 65, or 10 years of potential life lost. In 2016, there were 61,154 years of potential life lost resulting from all causes of death. This is a 16.7 percent increase from 2007.

In 2016, Alaska's age-adjusted YPLL rate was 8,301.6 YPLL per 100,000 standard population under 75, a 6 percent increase since 2007.

Between 2014 and 2016, Alaska's overall average life expectancy was 76.2 years.<sup>2</sup> Life expectancy by race can vary substantially, with American Indian/Alaska Native people having the shortest average life expectancy (69.5 years), and Asian/PI people having the longest (80 years).

**Table 27: Years of Potential Life Lost by Race (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	1,735	1,733	1,926	1,837	2,030	2,359	2,033	2,083	2,360	3,477
Black	1,888	1,906	1,853	1,812	1,784	2,391	2,234	2,690	2,555	2,450
AI/AN	16,354	16,756	16,384	16,254	17,118	16,326	17,189	17,130	20,257	19,446
White	31,899	29,987	31,481	30,121	31,539	31,777	32,259	32,832	32,480	34,018
<b>Alaska</b>	<b>52,419</b>	<b>51,041</b>	<b>51,921</b>	<b>50,711</b>	<b>52,955</b>	<b>53,525</b>	<b>54,373</b>	<b>55,175</b>	<b>58,538</b>	<b>61,154</b>

**Table 28: Age-Adjusted Years of Potential Life Lost Rates by Race (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	4,087.8	3,913.3	4,188.0	3,863.6	3,960.8	4,451.1	3,773.9	3,643.0	4,004.4	5,787.1
Black	6,977.8	7,160.7	6,426.6	6,341.1	6,381.9	8,029.5	6,993.4	7,853.4	8,176.5	7,100.6
AI/AN	15,268.8	15,349.0	14,818.3	14,549.4	15,048.8	14,230.6	14,765.0	14,622.4	16,822.0	16,154.0
White	6,470.5	6,019.2	6,181.6	5,749.9	5,962.8	5,881.2	5,964.1	6,051.2	6,056.9	6,451.3
<b>Alaska</b>	<b>7,830.3</b>	<b>7,561.0</b>	<b>7,507.0</b>	<b>7,188.4</b>	<b>7,356.5</b>	<b>7,290.6</b>	<b>7,351.8</b>	<b>7,462.1</b>	<b>7,948.1</b>	<b>8,301.6</b>

**Table 29: Life Expectancy by Race (2005-2016)**

	05-07	06-08	07-09	08-10	09-11	10-12	11-13	12-14	13-15	14-16
Asian/PI	79.9	80.5	80.9	80.9	80.7	80.6	80.5	80.5	80.5	80.0
Black	76.7	76.4	76.5	76.7	77.2	76.8	76.7	76.7	76.4	76.5
AI/AN	70.0	69.9	69.9	70.1	70.2	70.2	70.3	70.4	69.8	69.5
White	77.2	77.1	77.2	77.5	77.6	77.8	77.9	77.9	77.9	77.7
<b>Alaska</b>	<b>76.0</b>	<b>76.0</b>	<b>76.1</b>	<b>76.3</b>	<b>76.4</b>	<b>76.6</b>	<b>76.6</b>	<b>76.7</b>	<b>76.5</b>	<b>76.2</b>

<sup>1</sup> Between 2014 and 2016, the average expectation of life for Alaska residents was actually slightly longer (76.2 years), however 75 years is a commonly used baseline life expectancy that provides a constant standard for YPLL estimates. This is the value used for YPLL estimates throughout the report. See Appendix B.

<sup>2</sup> Life expectancy is estimated using a three year moving average to provide a more reasonable basis for comparisons. Infant population estimates by race are not available between 2000 and 2009, so life expectancy is calculated using birth estimates for these years.

## Leading and Select Causes of Death Summary

In 2016, the top ten leading causes of death claimed the lives of 3,246 Alaskans, making up 71.8% of all deaths. Cancer was the most common cause of death, followed by heart disease, and unintentional injuries. Since last year, influenza and pneumonia has replaced assault and homicide as the tenth leading cause of death. The top ten leading causes of death were responsible for a total of 42,204 YPLL.

In addition to the top ten leading causes of death, trends in three select causes of death are also presented. Select causes are separate cause of death categories of special interest. Because these categories can contain deaths that may also include one more leading cause categories (for example firearm-related deaths can include deaths due to both unintentional injury or intentional self-harm), they are discussed separately to prevent overlap with leading cause categories.

**Table 30: Leading Causes of Death (2016)**

Rank	Leading Cause of Death	Deaths	Rates		Years of Potential Life Lost (YPLL)		
			Crude Rate	Age Adjusted Rate	YPLL	YPLL Rank	YPLL Average
1	Malignant Neoplasms (Cancer)	974	131.7	152.5	8,892	2	9.1
2	Heart Disease	814	110.0	136.3	7,257	3	8.9
3	Unintentional Injuries	429	58.0	61.9	12,195	1	28.4
4	Chronic Lower Respiratory Diseases	236	31.9	40.4	1,333	9	5.6
5	Cerebrovascular Diseases (Stroke)	193	26.1	38.2	942	11	4.9
6	Intentional Self-harm (Suicide)	186	25.1	25.3	7,242	4	38.9
7	Chronic Liver Disease & Cirrhosis	123	16.6	15.9	2,743	5	22.3
8	Diabetes	122	16.5	18.6	1,148	10	9.4
9	Alzheimer's Disease	109	14.7	25.4	55	30	0.5
10	Influenza and Pneumonia	60	8.1	12.4	397	13	6.6

**Table 31: Select Causes of Death (2016)**

Select Cause of Death	Deaths	Rates		Years of Potential Life Lost (YPLL)	
		Crude Rate	Age Adjusted Rate	YPLL	YPLL Average
Alcohol-Induced	182	24.6	22.9	4,202	23.1
Firearm-Related	174	23.5	23.4	7,056	40.6
Drug-Induced	131	17.7	17.4	4,499	34.3

**Malignant Neoplasm (Cancer) Deaths**

ICD-10: C00-C97

Malignant neoplasms, or cancers, were the leading cause of death in Alaska, and claimed the lives of 974 people (534 males and 440 females). More Alaskans died from cancer of the trachea, bronchus, and lung than any other single type of cancer (226 people, or 23.2 percent of all cancer deaths).

Among the leading causes of death in Alaska, cancer ranked second in total YPLL, with 8,892 years lost. On average, 9.1 years of life were lost prematurely for each cancer death. Since 2007, the crude death

rate for cancer has increased seven percent, while the age-adjusted death rate has decreased 17.1 percent.

Over the last five years, the Lake and Peninsula Borough has had the highest overall age-adjusted cancer death rate, with 312.9\* deaths per 100,000 standard population (see pg. 41).

**Table 32: Number of Deaths Due to Cancer (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	29	33	36	33	47	39	49	41	45	43
Black	25	28	10	28	20	28	32	24	26	22
AI/AN	180	154	173	178	177	181	213	170	190	191
White	599	635	671	631	685	672	710	728	696	705
<b>Alaska</b>	<b>837</b>	<b>856</b>	<b>891</b>	<b>880</b>	<b>935</b>	<b>923</b>	<b>1,012</b>	<b>968</b>	<b>962</b>	<b>974</b>

**Table 33: Crude Rates of Deaths Due to Cancer (2007-2016)<sup>1</sup>**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AI/AN	156.0	132.8	146.6	147.8	144.7	146.7	170.8	135.0	149.7	149.8
White	122.2	128.6	134.3	124.3	133.2	129.7	136.8	140.7	135.1	137.0
<b>Alaska</b>	<b>123.1</b>	<b>124.6</b>	<b>127.7</b>	<b>123.9</b>	<b>129.3</b>	<b>126.2</b>	<b>137.5</b>	<b>131.4</b>	<b>130.5</b>	<b>131.7</b>

**Table 34: Age-Adjusted Rates of Deaths Due to Cancer (2007-2016)<sup>1</sup>**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AI/AN	274.6	223.2	251.2	238.9	240.7	242.4	274.9	212.6	235.4	222.8
White	170.1	175.4	181.3	165.7	165.3	154.7	151.0	154.2	143.0	144.3
<b>Alaska</b>	<b>184.0</b>	<b>180.9</b>	<b>184.5</b>	<b>176.1</b>	<b>174.1</b>	<b>163.5</b>	<b>167.7</b>	<b>159.0</b>	<b>153.1</b>	<b>152.5</b>

<sup>1</sup> Due to the low number of reportable events in the Asian/PI and black or African American populations, only the two predominant races in Alaska (American Indian/Alaska Native and white) are reported.

\* Rates based on fewer than 20 occurrences are statistically unreliable, and should be used with caution.

## Heart Disease Deaths

ICD-10: I00-I09, I11, I20-I51

Heart diseases were the second leading cause of death in Alaska, and claimed the lives of 814 people (520 males and 294 females). More Alaskans died from atherosclerotic cardiovascular disease than any other single type of heart disease (186 people, or 22.9 percent of all heart disease deaths).

Among the leading causes of death in Alaska, heart disease ranked third in total YPLL, with 7,257 years lost. On average, 8.9 years of life were lost prematurely for each heart disease death. Since 2007,

the crude death rate for heart disease has increased 22.9 percent, while the age-adjusted death rate has decreased 11.3 percent.

Over the last five years, the Lake and Peninsula Borough has had the highest overall age-adjusted heart disease death rate, with 336.4\* deaths per 100,000 standard population (see pg. 42).

**Table 35: Number of Deaths Due to Heart Disease (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	17	21	28	32	28	24	30	31	33	33
Black	16	19	32	14	18	20	22	17	30	18
AI/AN	106	114	144	155	146	131	156	158	174	186
White	467	470	501	501	540	528	494	564	589	568
<b>Alaska</b>	<b>609</b>	<b>626</b>	<b>710</b>	<b>707</b>	<b>735</b>	<b>706</b>	<b>705</b>	<b>779</b>	<b>835</b>	<b>814</b>

**Table 36: Crude Rates of Deaths Due to Heart Disease (2007-2016)<sup>1</sup>**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AI/AN	91.8	98.3	122.1	128.7	119.4	106.2	125.1	125.4	137.1	145.9
White	95.3	95.2	100.3	98.7	105.0	101.9	95.2	109.0	114.3	110.4
<b>Alaska</b>	<b>89.5</b>	<b>91.1</b>	<b>101.7</b>	<b>99.5</b>	<b>101.7</b>	<b>96.5</b>	<b>95.8</b>	<b>105.7</b>	<b>113.3</b>	<b>110.0</b>

**Table 37: Age-Adjusted Rates of Deaths Due to Heart Disease (2007-2016)<sup>1</sup>**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AI/AN	191.9	171.2	219.3	223.8	206.8	182.4	216.8	206.6	224.8	246.4
White	151.3	148.5	148.4	141.1	142.4	130.7	122.4	136.7	138.1	123.2
<b>Alaska</b>	<b>153.6</b>	<b>149.4</b>	<b>159.2</b>	<b>151.3</b>	<b>147.9</b>	<b>134.3</b>	<b>132.4</b>	<b>142.9</b>	<b>149.6</b>	<b>136.3</b>

<sup>1</sup> Due to the low number of reportable events in the Asian/PI and black or African American populations, only the two predominant races in Alaska (American Indian/Alaska Native and white) are reported.

\* Rates based on fewer than 20 occurrences are statistically unreliable, and should be used with caution.



## Unintentional Injury Deaths

ICD-10: V01-X59, Y85-Y86

Unintentional injuries were the third leading cause of death in Alaska, and claimed the lives of 429 people (311 males and 118 females) last decade. More Alaskans died from accidental poisoning and exposure to noxious substances than any other single type of unintentional injury (125 people, or 29.1 percent of all unintentional injury deaths).

Among the leading causes of death in Alaska, unintentional injuries ranked first in total YPLL, with 12,195 years lost. On average, 28.4 years of life were lost prematurely for each unintentional injury death.

Since 2007, the crude rate for unintentional injuries has increased 11.1 percent, while the age-adjusted rate has increased 9.4 percent. The median age at death from unintentional injuries was 48 years. This was significantly below the median cancer and heart disease ages of 69 and 71 years, respectively.

Over the last five years, the Yukon-Koyukuk Census Area has had the highest overall age-adjusted unintentional injury death rate, with 176.6 deaths per 100,000 standard population (see pg. 43).

**Table 38: Number of Deaths Due to Unintentional Injuries (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	11	4	4	3	8	9	12	10	4	11
Black	9	4	2	10	6	12	9	11	12	13
AI/AN	116	101	124	104	111	117	104	112	141	125
White	217	219	208	242	258	225	225	243	215	268
<b>Alaska</b>	<b>355</b>	<b>331</b>	<b>339</b>	<b>366</b>	<b>384</b>	<b>366</b>	<b>354</b>	<b>378</b>	<b>384</b>	<b>429</b>

**Table 39: Crude Rates of Deaths Due to Unintentional Injuries (2007-2016)<sup>1</sup>**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AI/AN	100.5	87.1	105.1	86.4	90.7	94.9	83.4	88.9	111.1	98.0
White	44.3	44.3	41.6	47.7	50.2	43.4	43.4	47.0	41.7	52.1
<b>Alaska</b>	<b>52.2</b>	<b>48.2</b>	<b>48.6</b>	<b>51.5</b>	<b>53.1</b>	<b>50.1</b>	<b>48.1</b>	<b>51.3</b>	<b>52.1</b>	<b>58.0</b>

**Table 40: Age-Adjusted Rates of Deaths Due to Unintentional Injuries (2007-2016)<sup>1</sup>**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AI/AN	111.4	103.9	131.4	100.4	100.2	118.1	98.9	109.9	128.8	115.1
White	47.9	48.7	43.5	53.5	53.2	44.7	45.7	47.5	45.3	53.8
<b>Alaska</b>	<b>56.6</b>	<b>54.0</b>	<b>53.3</b>	<b>58.5</b>	<b>57.1</b>	<b>53.8</b>	<b>52.5</b>	<b>54.5</b>	<b>57.1</b>	<b>61.9</b>

<sup>1</sup> Due to the low number of reportable events in the Asian/PI and black or African American populations, only the two predominant races in Alaska (American Indian/Alaska Native and white) are reported.

**Chronic Lower Respiratory Disease (Chronic Obstructive Pulmonary Disease) Deaths**

ICD-10: J40-J47

Chronic lower respiratory diseases (CLRDs), or chronic obstructive pulmonary diseases, were the fourth leading cause of death in Alaska, and claimed the lives of 263 people (124 males and 112 females).

Over the last five years, the Kusilvak Census Area has had the highest overall age-adjusted CLRD death rate, with 93.2\* deaths per 100,000 standard population (see pg. 44).

Among the leading causes of death in Alaska, CLRDs ranked ninth in total YPLL, with 1,333 years lost. On average, 5.6 years of life were lost prematurely for each CLRD death. Since 2007, the overall crude death rate for CLRD has increased 25.6 percent, while the age-adjusted rate has decreased 11 percent.

**Table 41: Number of Deaths Due to CLRD (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	3	4	4	3	4	7	3	4	11	10
Black	1	2	4	2	5	5	2	4	5	3
AI/AN	33	44	41	44	46	48	41	47	47	63
White	135	131	146	126	138	128	151	135	141	160
<b>Alaska</b>	<b>173</b>	<b>182</b>	<b>195</b>	<b>176</b>	<b>193</b>	<b>189</b>	<b>197</b>	<b>192</b>	<b>204</b>	<b>236</b>

**Table 42: Crude Rates of Deaths Due to CLRD (2007-2016)<sup>1</sup>**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AI/AN	28.6	37.9	34.8	36.5	37.6	38.9	32.9	37.3	37.0	49.4
White	27.5	26.5	29.2	24.8	26.8	24.7	29.1	26.1	27.4	31.1
<b>Alaska</b>	<b>25.4</b>	<b>26.5</b>	<b>27.9</b>	<b>24.8</b>	<b>26.7</b>	<b>25.8</b>	<b>26.8</b>	<b>26.1</b>	<b>27.7</b>	<b>31.9</b>

**Table 43: Age-Adjusted Rates of Deaths Due to CLRD (2007-2016)<sup>1</sup>**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AI/AN	55.8	76.5	77.7	76.9	69.2	72.5	61.4	70.8	68.1	83.2
White	46.4	42.3	47.3	38.1	38.9	36.1	36.1	34.4	32.7	35.5
<b>Alaska</b>	<b>45.4</b>	<b>45.4</b>	<b>49.9</b>	<b>41.5</b>	<b>41.4</b>	<b>40.2</b>	<b>37.1</b>	<b>37.8</b>	<b>36.9</b>	<b>40.4</b>

<sup>1</sup> Due to the low number of reportable events in the Asian/PI and black or African American populations, only the two predominant races in Alaska (American Indian/Alaska Native and white) are reported.

\* Rates based on fewer than 20 occurrences are statistically unreliable, and should be used with caution.

## Cerebrovascular Disease (Stroke) Deaths

ICD-10: I60-I69

Cerebrovascular disease, or stroke, was the fifth leading cause of death in Alaska, and claimed the lives of 193 people (94 males and 99 females).

Among the leading causes of death in Alaska, cerebrovascular disease ranked eleventh in total YPLL, with 942 years lost. On average, 4.9 years of life were lost prematurely for each stroke death. Since 2007, the overall crude death rate for stroke

has increased 14 percent, while the age-adjusted rate has decreased 18.2 percent.

Over the last five years, the Kusilvak Census Area has had the highest overall age-adjusted stroke death rate, with 78.9\* deaths per 100,000 standard population (see pg. 46).

**Table 44: Number of Deaths Due to Stroke (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	9	12	11	12	10	11	12	10	18	17
Black	5	12	5	3	4	4	5	2	3	8
AI/AN	26	32	41	30	31	35	42	36	36	36
White	113	111	105	119	124	137	128	107	121	129
<b>Alaska</b>	<b>156</b>	<b>169</b>	<b>162</b>	<b>167</b>	<b>169</b>	<b>187</b>	<b>188</b>	<b>157</b>	<b>178</b>	<b>193</b>

**Table 45: Crude Rates of Deaths Due to Stroke (2007-2016)<sup>1</sup>**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AI/AN	22.5	27.6	34.8	24.9	25.3	28.4	33.7	28.6	28.4	28.2
White	23.1	22.5	21.0	23.4	24.1	26.4	24.7	20.7	23.5	25.1
<b>Alaska</b>	<b>22.9</b>	<b>24.6</b>	<b>23.2</b>	<b>23.5</b>	<b>23.4</b>	<b>25.6</b>	<b>25.5</b>	<b>21.3</b>	<b>24.1</b>	<b>26.1</b>

**Table 46: Age-Adjusted Rates of Deaths Due to Stroke (2007-2016)<sup>1</sup>**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AI/AN	56.6	58.6	76.2	54.1	52.3	64.3	66.6	49.5	48.5	55.3
White	43.9	39.4	36.2	37.7	38.0	39.1	36.1	28.8	32.9	33.5
<b>Alaska</b>	<b>46.7</b>	<b>44.2</b>	<b>42.1</b>	<b>40.8</b>	<b>39.4</b>	<b>41.7</b>	<b>40.0</b>	<b>31.6</b>	<b>35.3</b>	<b>38.2</b>

<sup>1</sup> Due to the low number of reportable events in the Asian/PI and black or African American populations, only the two predominant races in Alaska (American Indian/Alaska Native and white) are reported.

\* Rates based on fewer than 20 occurrences are statistically unreliable, and should be used with caution.

**Intentional Self-Harm (Suicide) Deaths**

ICD-10: U03, X60-X84, Y87.0

Intentional self-harm, or suicide, was the sixth leading cause of death in Alaska, and claimed the lives of 186 people (142 males and 44 females). More Alaskans died from discharge of firearms than any other mechanism (110 people, or 59.1 percent of all suicides).

Among the leading causes of death in Alaska, suicide ranked fourth in total YPLL, with 7,242 years lost. On average 38.9 years of life were lost prematurely

for each suicide death. Since 2007, the crude death rate for suicides has increased 14.6 percent, while the age-adjusted rate has increased 11.9 percent.

American Indian/Alaska Native people were 2.1 times as likely to commit suicide than white people in 2016. Over the last five years, the Kusilvak Census Area has had the highest overall age-adjusted suicide death rate, with 126.5 deaths per 100,000 standard population (see pg. 45).

**Table 47: Number of Deaths Due to Suicide (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	3	3	5	5	2	4	2	4	6	11
Black	5	2	2	5	7	7	5	7	5	7
AI/AN	46	52	44	50	46	54	57	38	64	58
White	95	110	89	102	85	99	105	115	120	106
<b>Alaska</b>	<b>149</b>	<b>167</b>	<b>140</b>	<b>163</b>	<b>142</b>	<b>167</b>	<b>172</b>	<b>167</b>	<b>200</b>	<b>186</b>

**Table 48: Crude Rates of Deaths Due to Suicide (2007-2016)<sup>1</sup>**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AI/AN	39.9	44.8	37.3	41.5	37.6	43.8	45.7	30.2	50.4	45.5
White	19.4	22.3	17.8	20.1	16.5	19.1	20.2	22.2	23.3	20.6
<b>Alaska</b>	<b>21.9</b>	<b>24.3</b>	<b>20.1</b>	<b>23.0</b>	<b>19.6</b>	<b>22.8</b>	<b>23.4</b>	<b>22.7</b>	<b>27.1</b>	<b>25.1</b>

**Table 49: Age-Adjusted Rates of Deaths Due to Suicide (2007-2016)<sup>1</sup>**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AI/AN	38.9	43.8	34.8	40.0	36.9	44.0	46.3	28.9	49.5	43.4
White	20.2	21.2	17.1	19.1	16.3	18.9	20.4	21.9	22.7	20.5
<b>Alaska</b>	<b>22.6</b>	<b>24.0</b>	<b>19.6</b>	<b>22.6</b>	<b>20.0</b>	<b>23.0</b>	<b>23.5</b>	<b>22.3</b>	<b>27.1</b>	<b>25.3</b>

<sup>1</sup> Due to the low number of reportable events in the Asian/PI and black or African American populations, only the two predominant races in Alaska (American Indian/Alaska Native and white) are reported.

**Chronic Liver Disease & Cirrhosis Deaths**

ICD-10: K70, K73-K74

Chronic liver disease and cirrhosis was the seventh leading cause of death in Alaska, and claimed the lives of 123 people (57 males and 66 females).

Among the leading causes of death in Alaska, chronic liver disease and cirrhosis ranked fifth in total YPLL, with 2,743 years lost. On average, 18.6 years of life

were lost prematurely for each chronic liver disease and cirrhosis death. Since 2007, the overall crude death rate for chronic liver disease and cirrhosis has increased 61.2 percent, while the age-adjusted rate has increased 39.5 percent. This was the largest percent increase in age adjusted mortality for any leading cause of death.

**Table 50: Number of Deaths Due to Chronic Liver Disease & Cirrhosis (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	0	2	1	0	0	0	1	0	1	2
Black	0	0	1	0	2	1	2	2	6	2
AI/AN	26	17	21	21	25	31	25	26	36	43
White	44	40	70	46	70	57	54	56	68	72
<b>Alaska</b>	<b>70</b>	<b>59</b>	<b>94</b>	<b>70</b>	<b>98</b>	<b>89</b>	<b>82</b>	<b>84</b>	<b>113</b>	<b>123</b>

**Table 51: Crude Rates of Deaths Due to Chronic Liver Disease & Cirrhosis (2007-2016)<sup>1</sup>**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AI/AN	22.5	14.7*	17.8	17.4	20.4	25.1	20.0	20.6	28.4	33.7
White	9.0	8.1	14.0	9.1	13.6	11.0	10.4	10.8	13.2	14.0
<b>Alaska</b>	<b>10.3</b>	<b>8.6</b>	<b>13.5</b>	<b>9.9</b>	<b>13.6</b>	<b>12.2</b>	<b>11.1</b>	<b>11.4</b>	<b>15.3</b>	<b>16.6</b>

**Table 52: Age-Adjusted Rates of Deaths Due to Liver Disease & Cirrhosis (2007-2016)<sup>1</sup>**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AI/AN	26.3	17.8*	21.1	22.4	25.4	32.0	24.3	25.5	36.6	38.5
White	10.2	8.4	13.4	8.0	11.7	10.2	9.3	8.5	11.5	12.2
<b>Alaska</b>	<b>11.4</b>	<b>9.2</b>	<b>13.9</b>	<b>9.8</b>	<b>12.9</b>	<b>12.4</b>	<b>11.0</b>	<b>10.3</b>	<b>14.8</b>	<b>15.9</b>

<sup>1</sup> Due to the low number of reportable events in the Asian/PI and black or African American populations, only the two predominant races in Alaska (American Indian/Alaska Native and white) are reported.

\* Rates based on fewer than 20 occurrences are statistically unreliable, and should be used with caution.

**Diabetes Mellitus Deaths**

ICD-10: E10-E14

Diabetes Mellitus was the eighth leading cause of death in Alaska, and claimed the lives of 122 people (74 males and 48 females).

Among the leading causes of death in Alaska, diabetes ranked tenth in total YPLL, with 1,148 years lost. On average, 9.4 years of life were lost prematurely

for each diabetes death. Since 2007, the crude rate of deaths due to Diabetes Mellitus has increased 7.8 percent, while the age-adjusted rate has decreased 22.2 percent. This was the largest percent decrease in age adjusted mortality for any leading cause of death.

**Table 53: Number of Deaths Due to Diabetes (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	8	8	5	6	14	11	13	12	12	9
Black	4	3	1	4	7	3	8	7	8	5
AI/AN	6	10	13	12	21	21	11	17	24	16
White	86	72	64	64	63	71	80	76	96	88
<b>Alaska</b>	<b>104</b>	<b>93</b>	<b>84</b>	<b>86</b>	<b>106</b>	<b>106</b>	<b>112</b>	<b>113</b>	<b>140</b>	<b>122</b>

**Table 54: Crude Rates of Deaths Due to Diabetes (2007-2016)<sup>1</sup>**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AI/AN	5.2*	8.6*	11.0*	10.0*	17.2	17.0	8.8*	13.5*	18.9	12.5*
White	17.5	14.6	12.8	12.6	12.2	13.7	15.4	14.7	18.6	17.1
<b>Alaska</b>	<b>15.3</b>	<b>13.5</b>	<b>12.0</b>	<b>12.1</b>	<b>14.7</b>	<b>14.5</b>	<b>15.2</b>	<b>15.3</b>	<b>19.0</b>	<b>16.5</b>

**Table 55: Age-Adjusted Rates of Deaths Due to Diabetes (2007-2016)<sup>1</sup>**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AI/AN	10.9*	16.5*	23.5*	19.0*	33.2	25.2	15.6*	22.7*	27.9	20.7*
White	26.1	23.4	17.6	18.8	15.2	16.3	17.5	15.8	20.0	17.5
<b>Alaska</b>	<b>23.9</b>	<b>22.5</b>	<b>18.2</b>	<b>19.6</b>	<b>20.2</b>	<b>18.4</b>	<b>19.6</b>	<b>18.9</b>	<b>22.9</b>	<b>18.6</b>

<sup>1</sup> Due to the low number of reportable events in the Asian/PI and black or African American populations, only the two predominant races in Alaska (American Indian/Alaska Native and white) are reported.

\* Rates based on fewer than 20 occurrences are statistically unreliable, and should be used with caution.

**Alzheimer's Disease Deaths**

ICD-10: G30

Alzheimer's disease was the ninth leading cause of death in Alaska, and claimed the lives of 109 people (43 males and 66 females).

Among the leading causes of death in Alaska, Alzheimer's disease ranked thirtieth in total YPLL,

with 30 years lost. On average, 0.5 years of life were lost prematurely for each Alzheimer's disease death. Since 2007, the crude death rate for Alzheimer's disease has increased 53.1 percent, while the age-adjusted rate has increased 13.9 percent.

**Table 56: Number of Deaths Due to Alzheimer's Disease (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	0	4	2	2	0	2	1	1	2	8
Black	1	0	2	2	3	1	2	1	4	1
AI/AN	8	11	4	11	12	6	8	9	10	17
White	56	64	59	69	57	93	60	57	51	81
<b>Alaska</b>	<b>65</b>	<b>79</b>	<b>67</b>	<b>85</b>	<b>72</b>	<b>102</b>	<b>71</b>	<b>68</b>	<b>67</b>	<b>109</b>

**Table 57: Crude Rates of Deaths Due to Alzheimer's Disease (2007-2016)<sup>1</sup>**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AI/AN	6.9*	9.5*	**	9.1*	9.8*	4.9*	6.4*	7.1*	7.9*	13.3*
White	11.4	13.0	11.8	13.6	11.1	17.9	11.6	11.0	9.9	15.7
<b>Alaska</b>	<b>9.6</b>	<b>11.5</b>	<b>9.6</b>	<b>12.0</b>	<b>10.0</b>	<b>13.9</b>	<b>9.6</b>	<b>9.2</b>	<b>9.1</b>	<b>14.7</b>

**Table 58: Age-Adjusted Rates of Deaths Due to Alzheimer's Disease (2007-2016)<sup>1</sup>**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AI/AN	19.3*	27.6*	**	21.2*	23.9*	12.4*	15.9*	19.0*	19.8*	30.3*
White	24.5	27.2	24.1	27.0	20.7	30.9	20.1	18.1	15.9	24.6
<b>Alaska</b>	<b>22.3</b>	<b>26.6</b>	<b>21.6</b>	<b>25.9</b>	<b>20.4</b>	<b>26.8</b>	<b>18.6</b>	<b>17.1</b>	<b>16.5</b>	<b>25.4</b>

<sup>1</sup> Due to the low number of reportable events in the Asian/PI and black or African American populations, only the two predominant races in Alaska (American Indian/Alaska Native and white) are reported.

\* Rates based on fewer than 20 occurrences are statistically unreliable, and should be used with caution.

\*\* Rates based on fewer than 6 occurrences are not reported.

## Influenza and Pneumonia Deaths

ICD-10: J09-J18X

Influenza and pneumonia were the tenth leading causes of death in Alaska, and claimed the lives of 60 people (29 male and 31 female).

Among the leading causes of death in Alaska, influenza and pneumonia ranked thirteenth in total

YPLL, with 397 years lost. On average, 6.6 years of life were lost prematurely for each influenza and pneumonia death. Since 2007, the overall crude death rate for influenza and pneumonia has increased 19.1 percent, while the age-adjusted rate has decreased 5.3 percent.

**Table 59: Number of Deaths Due to Influenza and Pneumonia (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	1	0	2	1	3	4	2	4	2	1
Black	0	1	2	2	0	3	1	1	0	2
AI/AN	11	19	19	20	24	17	17	21	13	19
White	34	31	28	40	31	28	46	42	26	38
<b>Alaska</b>	<b>46</b>	<b>51</b>	<b>51</b>	<b>64</b>	<b>58</b>	<b>52</b>	<b>66</b>	<b>68</b>	<b>41</b>	<b>60</b>

**Table 60: Crude Rates of Deaths Due to Influenza and Pneumonia (2007-2016)<sup>1</sup>**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AI/AN	9.5*	16.4*	16.1*	16.6	19.6	13.8*	13.6*	16.7	10.2*	14.9*
White	6.9	6.3	5.6	7.9	6.0	5.4	8.9	8.1	5.0	7.4
<b>Alaska</b>	<b>6.8</b>	<b>7.4</b>	<b>7.3</b>	<b>9.0</b>	<b>8.0</b>	<b>7.1</b>	<b>9.0</b>	<b>9.2</b>	<b>5.6</b>	<b>8.1</b>

**Table 61: Age-Adjusted Rates of Deaths Due to Influenza and Pneumonia (2007-2016)<sup>1</sup>**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AI/AN	23.8*	29.9*	29.9*	38.9	33.7	20.0*	24.4*	32.1	21.1*	29.8*
White	11.9	11.1	9.7	11.9	9.4	7.8	12.7	11.9	6.7	10.6
<b>Alaska</b>	<b>13.1</b>	<b>13.3</b>	<b>12.6</b>	<b>15.8</b>	<b>12.6</b>	<b>9.9</b>	<b>13.9</b>	<b>13.9</b>	<b>8.2</b>	<b>12.4</b>

<sup>1</sup> Due to the low number of reportable events in the Asian/PI and black or African American populations, only the two predominant races in Alaska (American Indian/Alaska Native and white) are reported.

\* Rates based on fewer than 20 occurrences are statistically unreliable, and should be used with caution.



**Alcohol-Induced Deaths**

ICD-10: E24.4, F10, G31.2, G62.1, G72.1, I42.6, K29.2, K70, K85.2, K86.0, R78.0, X45, X65, Y15

Alcohol-induced mortality is a select category that includes deaths due to alcohol psychoses, alcohol dependence syndrome, non-dependent abuse of alcohol, alcohol-induced chronic liver disease and cirrhosis, and alcohol poisoning. It does not include deaths due to traumatic injury such as motor vehicle accidents.

In 2016, alcohol-induced deaths claimed the lives of 182 people (104 male and 78 female). Since 2007, the crude death rate for alcohol-induced deaths has

increased 16 percent while the age-adjusted rate has increased 11.2 percent. Alcohol-induced deaths were responsible for 4,202 YPLL, with 23.1 years lost prematurely for each death, on average.

Over the last five years, the Yukon-Koyukuk Census Area has had the highest overall age-adjusted alcohol-induced death rate, with 91.9 deaths per 100,000 standard population (see pg. 47).

**Table 62: Number of Alcohol-Induced Deaths (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	3	1	1	0	0	0	0	0	1	2
Black	0	2	1	0	1	1	1	3	4	2
AI/AN	69	66	63	62	61	63	58	62	79	91
White	72	75	83	58	67	56	67	73	74	82
<b>Alaska</b>	<b>144</b>	<b>147</b>	<b>149</b>	<b>122</b>	<b>130</b>	<b>122</b>	<b>126</b>	<b>139</b>	<b>160</b>	<b>182</b>

**Table 63: Crude Rates of Alcohol-Induced Deaths (2007-2016)<sup>1</sup>**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AI/AN	59.8	56.9	53.4	51.5	49.9	51.1	46.5	49.2	62.3	71.4
White	14.7	15.2	16.6	11.4	13.0	10.8	12.9	14.1	14.4	15.9
<b>Alaska</b>	<b>21.2</b>	<b>21.4</b>	<b>21.4</b>	<b>17.2</b>	<b>18.0</b>	<b>16.7</b>	<b>17.1</b>	<b>18.9</b>	<b>21.7</b>	<b>24.6</b>

**Table 64: Age-Adjusted Rates of Alcohol-Induced Deaths (2007-2016)<sup>1</sup>**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AI/AN	72.8	68.7	64.4	61.2	58.3	61.8	52.6	60.4	70.6	80.2
White	13.1	14.5	16.1	9.6	11.4	9.2	11.4	11.3	12.1	13.3
<b>Alaska</b>	<b>20.6</b>	<b>21.7</b>	<b>21.9</b>	<b>16.3</b>	<b>17.3</b>	<b>15.8</b>	<b>16.4</b>	<b>17.8</b>	<b>20.4</b>	<b>22.9</b>

<sup>1</sup> Due to the low number of reportable events in the Asian/PI and black or African American populations, only the two predominant races in Alaska (American Indian/Alaska Native and white) are reported.

**Firearm-Related Deaths**

ICD-10: W32-W34, X72-X74, X93-X95, Y22-Y24, Y35.0

Firearm-related mortality is a select category that includes deaths due to the discharge of a firearm, either by unintentional discharge (accidental), assault (homicide), intentional self-harm (suicide), legal intervention, or undetermined intent.

In 2016, firearm-related deaths claimed the lives of 174 people (140 male and 34 female). Since 2007, the crude death rate for firearm-related deaths has

increased 33.5 percent while the age-adjusted rate has increased 28.6 percent. Firearm-related deaths were responsible for 7,056 YPLL, with 40.6 years lost prematurely for each death, on average.

Over the last five years, the Kusilvak Census Area has had the highest overall age-adjusted firearm-related death rate, with 73.9 deaths per 100,000 standard population (see pg. 48).

**Table 65: Number of Firearm-Related Deaths (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	2	3	6	7	2	7	2	3	4	10
Black	5	5	2	4	5	7	5	9	13	11
AI/AN	30	37	33	41	39	31	42	32	46	49
White	83	96	63	91	78	85	94	97	111	100
<b>Alaska</b>	<b>120</b>	<b>141</b>	<b>104</b>	<b>143</b>	<b>126</b>	<b>132</b>	<b>144</b>	<b>144</b>	<b>176</b>	<b>174</b>

**Table 66: Crude Rates of Firearm-Related Deaths (2007-2016)<sup>1</sup>**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AI/AN	26.0	31.9	28.0	34.0	31.9	25.1	33.7	25.4	36.3	38.4
White	16.9	19.4	12.6	17.9	15.2	16.4	18.1	18.7	21.5	19.4
<b>Alaska</b>	<b>17.6</b>	<b>20.5</b>	<b>14.9</b>	<b>20.1</b>	<b>17.4</b>	<b>18.1</b>	<b>19.6</b>	<b>19.5</b>	<b>23.9</b>	<b>23.5</b>

**Table 67: Age-Adjusted Rates of Firearm-Related Deaths (2007-2016)<sup>1</sup>**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AI/AN	24.3	31.1	27.1	32.4	31.4	25.1	33.3	25.8	34.7	37.3
White	17.5	19.3	12.1	17.7	14.9	16.0	18.5	18.4	21.2	19.5
<b>Alaska</b>	<b>18.2</b>	<b>20.7</b>	<b>14.9</b>	<b>20.2</b>	<b>17.5</b>	<b>17.8</b>	<b>20.0</b>	<b>19.2</b>	<b>23.6</b>	<b>23.4</b>

<sup>1</sup> Due to the low number of reportable events in the Asian/PI and black or African American populations, only the two predominant races in Alaska (American Indian/Alaska Native and white) are reported.

## Drug-Induced Deaths

ICD-10: D52.1, D59.0, D59.2, D61.1, D64.2, E06.4, E16.0, E23.1, E24.2, E27.3, E66.1, F11.0-F11.5, F11.7-F11.9, F12.0-F12.5, F12.7-F12.9, F13.0-F13.5, F13.7-F13.9, F14.0-F14.5, F14.7-F14.9, F15.0-F15.5, F15.7-F15.9, F16.0-F16.5, F16.7-F16.9, F17.0, F17.3-F17.5, F17.7-F17.9, F18.0-F18.5, F18.7-F18.9, F19.0-F19.5, F19.7-F19.9, G21.1, G24.0, G25.1, G25.4, G25.6, G44.4, G62.0, G72.0, I95.2, J70.2, J70.3, J70.4, L10.5, L27.0, L27.1, M10.2, M32.0, M80.4, M81.4, M83.5, M87.1, R50.2, R78.1, R78.2, R78.3, R78.4, R78.5, X40-X44, X60-X64, X85, Y10-Y14

Drug-induced mortality is a select category that includes deaths due to dependent and non-dependent use of drugs (legal and illegal use), due to poisoning from medically prescribed, or other drugs. It excludes injuries, other causes indirectly related to drug use, and newborn deaths due to the mother's drug use.

accounted for 123 deaths, or 93.9 percent of drug-induced deaths. Since 2007, the crude death rate for drug-induced deaths has increased 60.9 percent while the age-adjusted rate has increased 65.7 percent. Drug-induced deaths were responsible for 4,499 YPLL, with 34.3 years lost prematurely for each death, on average.

In 2016, drug-induced deaths claimed the lives of 131 people (84 male and 47 female). Drug overdoses specifically (X40-X44, X60-X64, X85, Y10-Y14)

**Table 68: Number of Drug-Induced Deaths (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	0	1	2	1	1	2	4	3	1	3
Black	2	4	2	5	1	5	3	5	4	9
AI/AN	11	30	28	12	16	28	22	27	39	23
White	62	96	100	63	89	95	81	91	79	91
<b>Alaska</b>	<b>75</b>	<b>132</b>	<b>132</b>	<b>84</b>	<b>107</b>	<b>131</b>	<b>110</b>	<b>127</b>	<b>126</b>	<b>131</b>

**Table 69: Crude Rates of Drug-Induced Deaths (2007-2016)<sup>1</sup>**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AI/AN	9.5*	25.9	23.7	10.0*	13.1*	22.7	17.6	21.4	30.7	18.0
White	12.6	19.4	20.0	12.4	17.3	18.3	15.6	17.6	15.3	17.7
<b>Alaska</b>	<b>11.0</b>	<b>19.2</b>	<b>18.9</b>	<b>11.8</b>	<b>14.8</b>	<b>17.9</b>	<b>14.9</b>	<b>17.2</b>	<b>17.1</b>	<b>17.7</b>

**Table 70: Age-Adjusted Rates of Drug-Induced Deaths (2007-2016)<sup>1</sup>**

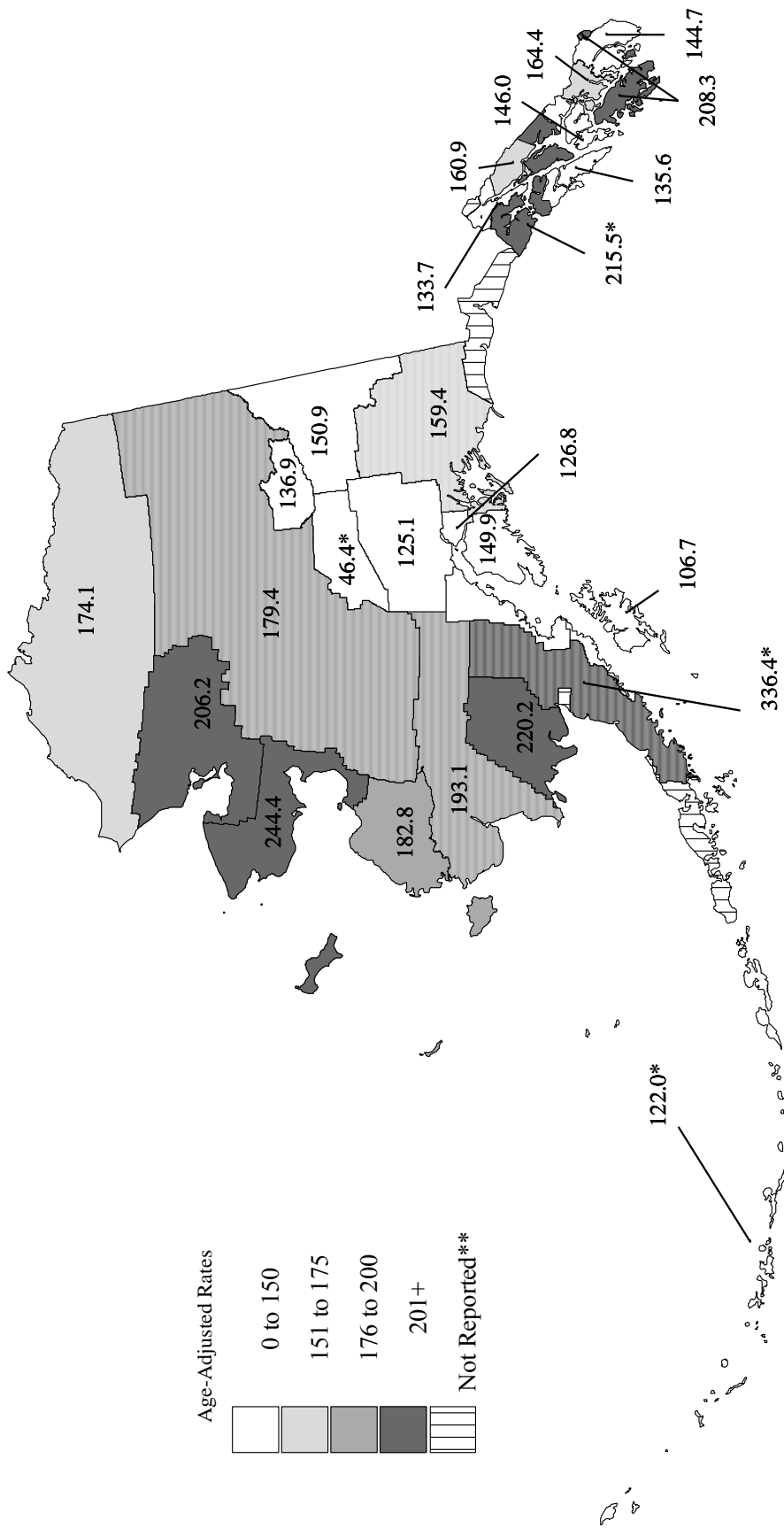
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AI/AN	10.6*	28.5	27.4	11.4*	14.3*	25.1	20.9	25.5	33.7	18.7
White	11.7	18.5	18.3	12.0	15.9	17.8	15.0	16.6	14.7	17.3
<b>Alaska</b>	<b>10.5</b>	<b>19.0</b>	<b>18.0</b>	<b>11.8</b>	<b>14.2</b>	<b>17.7</b>	<b>14.9</b>	<b>17.1</b>	<b>16.8</b>	<b>17.4</b>

<sup>1</sup> Due to the low number of reportable events in the Asian/PI and black or African American populations, only the two predominant races in Alaska (American Indian/Alaska Native and white) are reported.

\* Rates based on fewer than 20 occurrences are statistically unreliable, and should be used with caution.



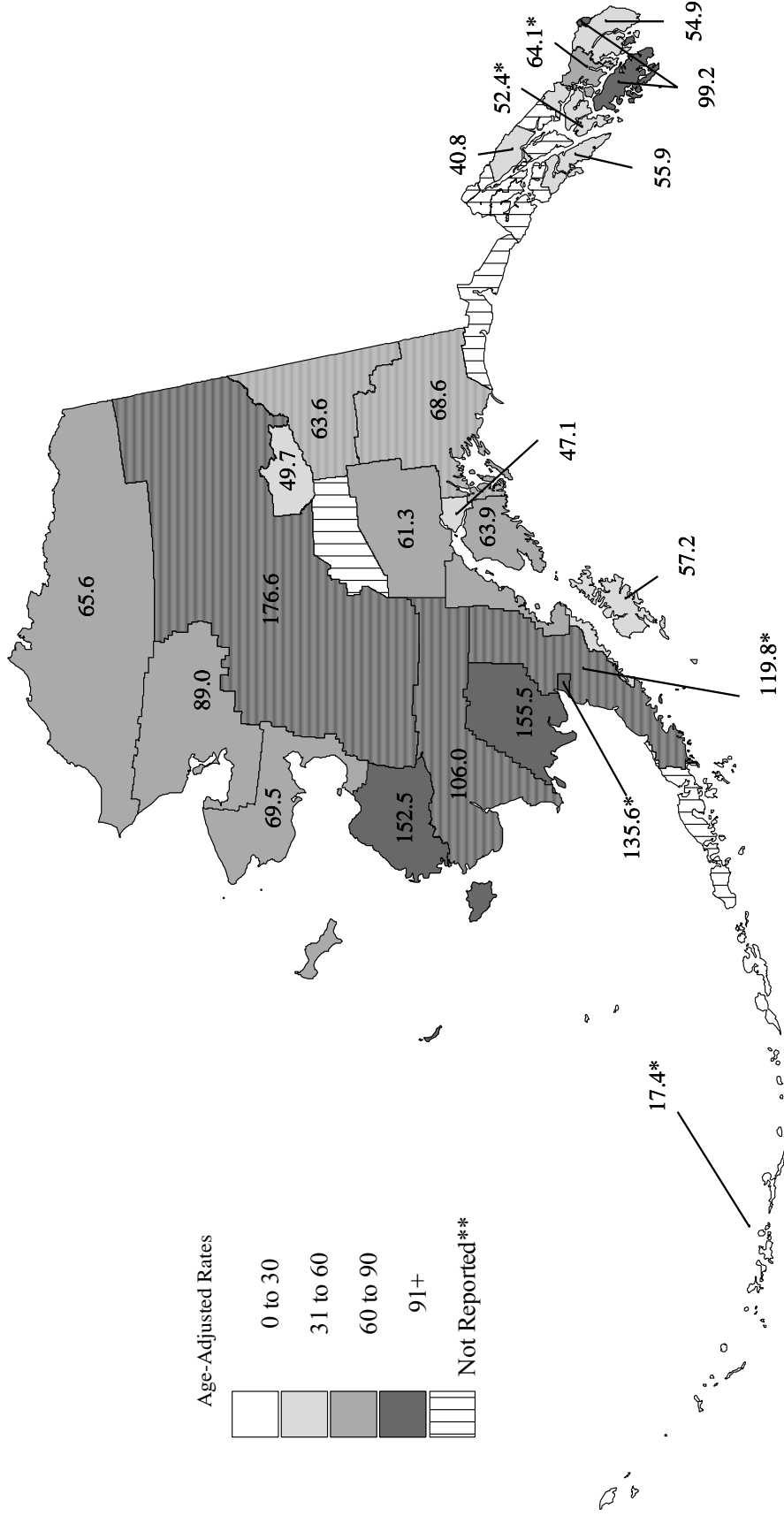
# Heart Disease Deaths by Census Area or Borough 2012-2016



\*Rates based on fewer than 20 occurrences are statistically unreliable and should be used with caution.

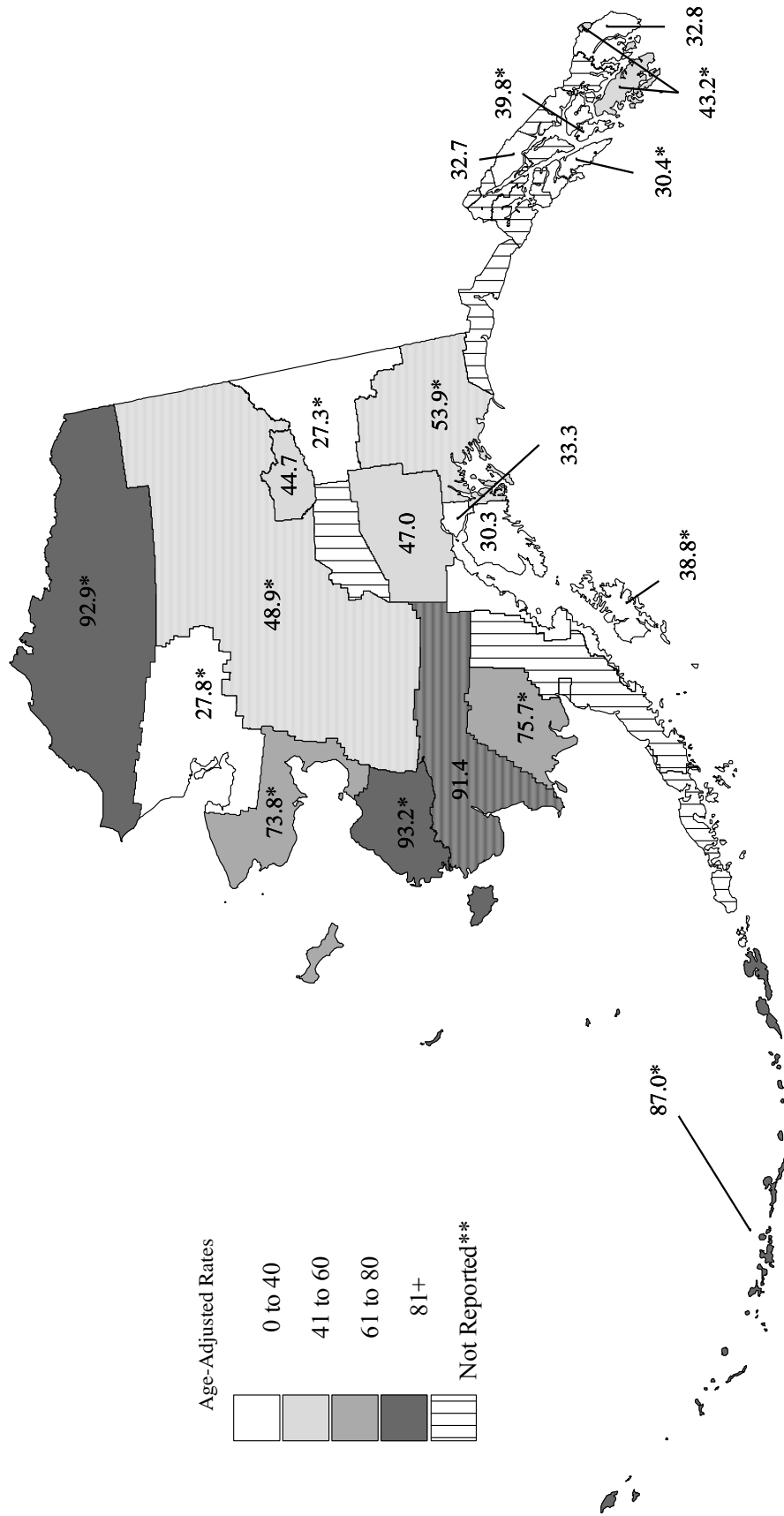
\*\*Rates based on fewer than 6 occurrences are not reported.

## Unintentional Injury Deaths by Census Area or Borough 2012-2016



\*Rates based on fewer than 20 occurrences are statistically unreliable and should be used with caution.  
 \*\*Rates based on fewer than 6 occurrences are not reported.

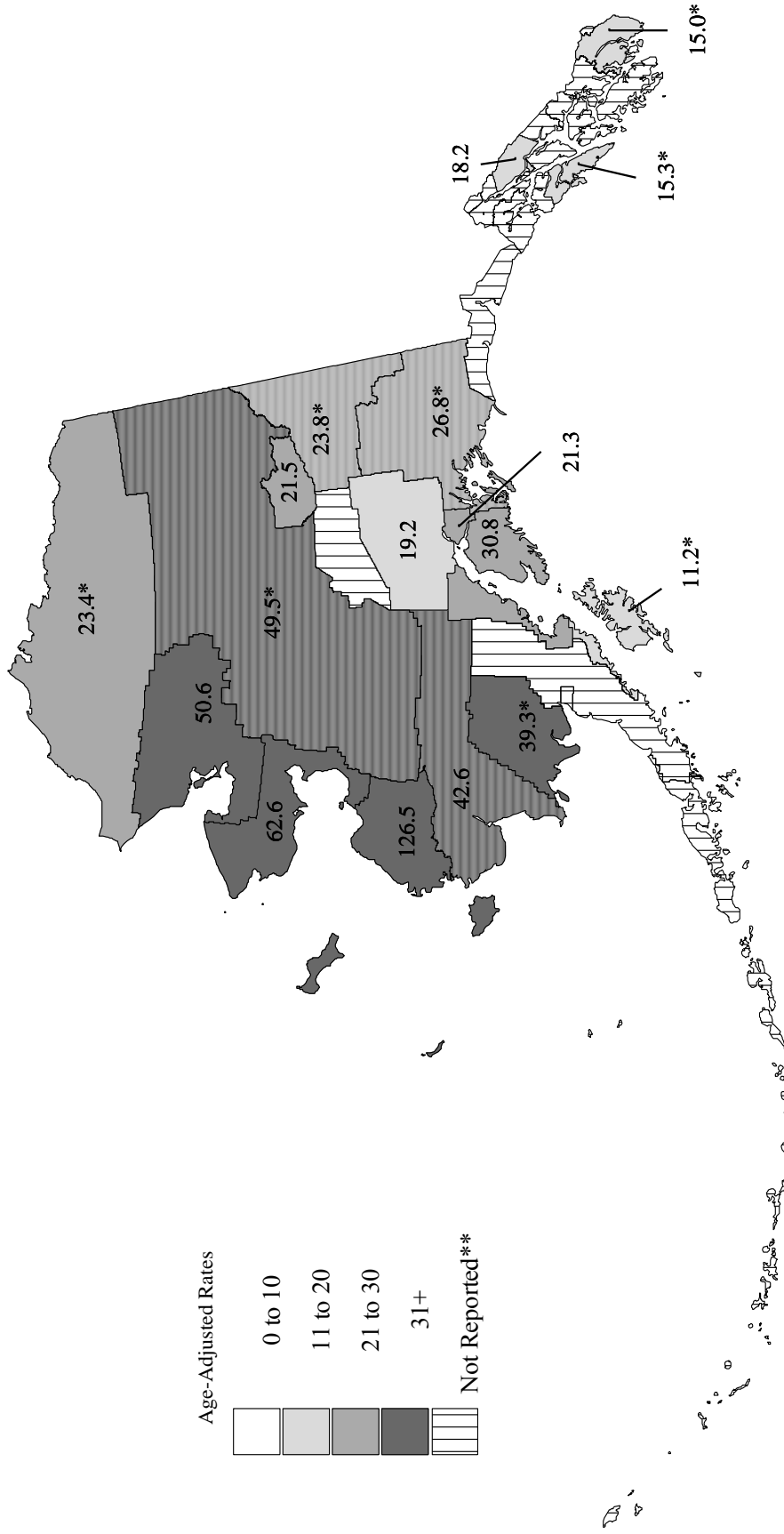
# Chronic Lower Respiratory Disease Deaths by Census Area or Borough 2012-2016



\*Rates based on fewer than 20 occurrences are statistically unreliable and should be used with caution.

\*\*Rates based on fewer than 6 occurrences are not reported.

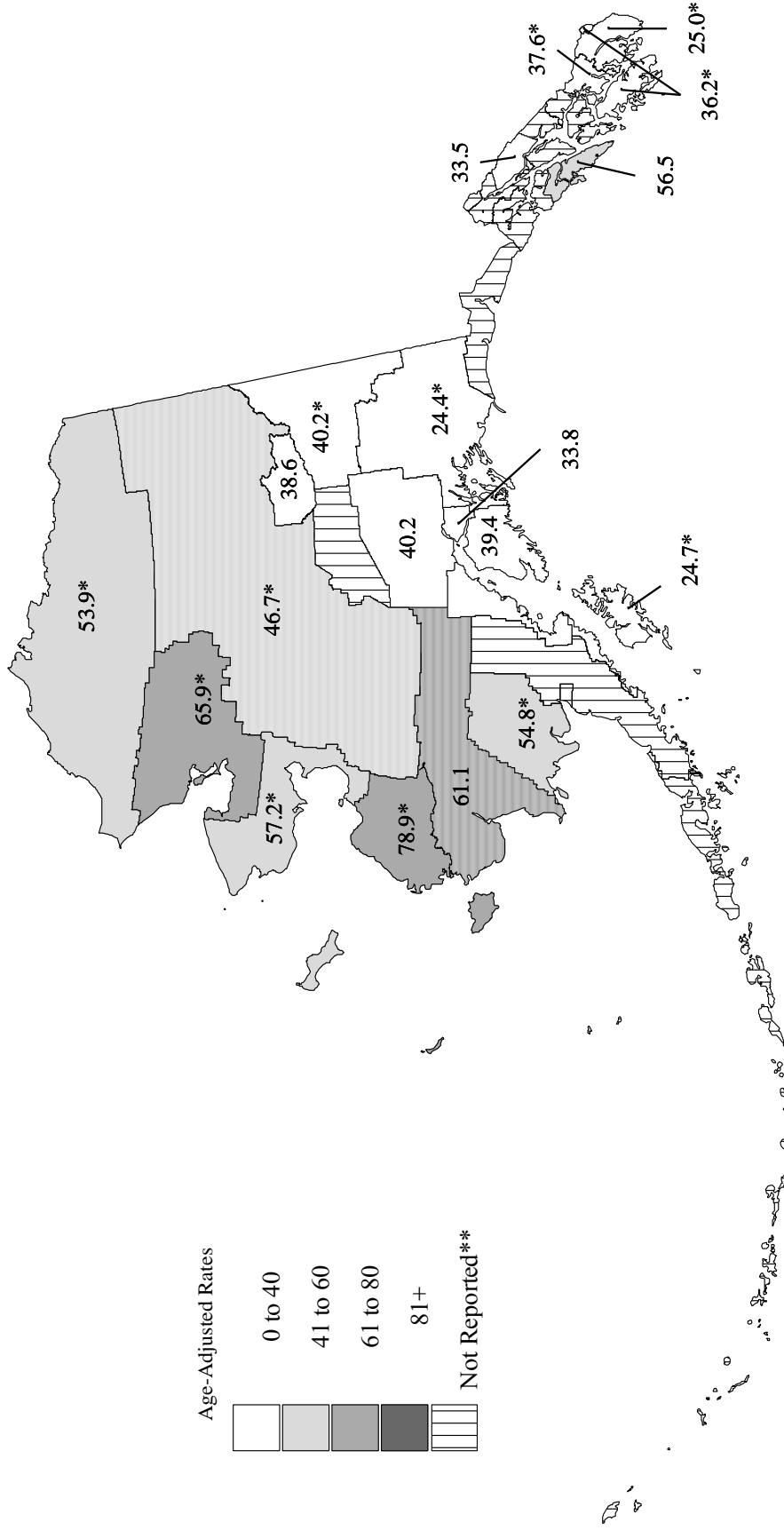
## Suicide Deaths by Census Area or Borough 2012-2016



\*Rates based on fewer than 20 occurrences are statistically unreliable and should be used with caution.  
 \*\*Rates based on fewer than 6 occurrences are not reported.

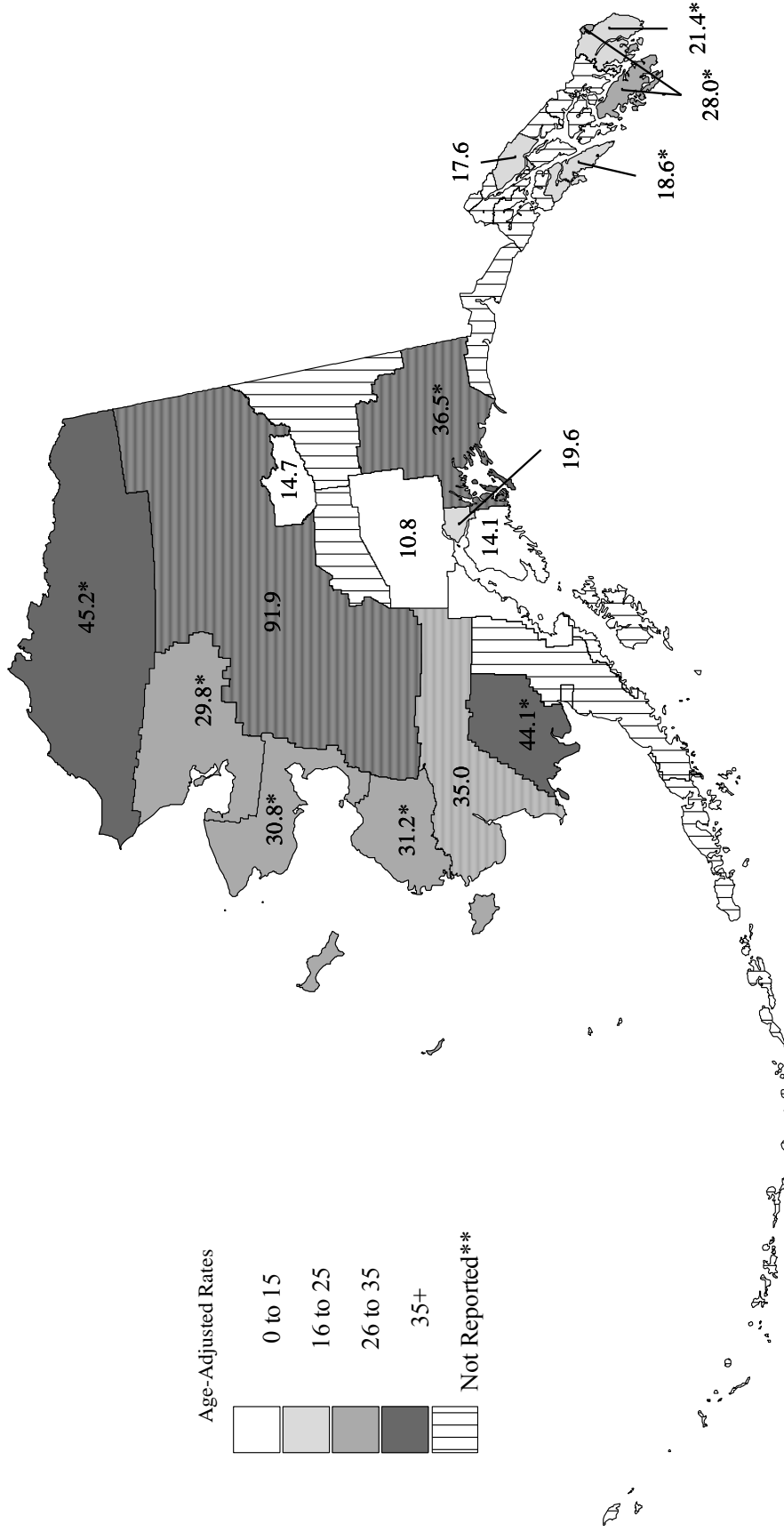


## Stroke Deaths by Census Area or Borough 2012-2016



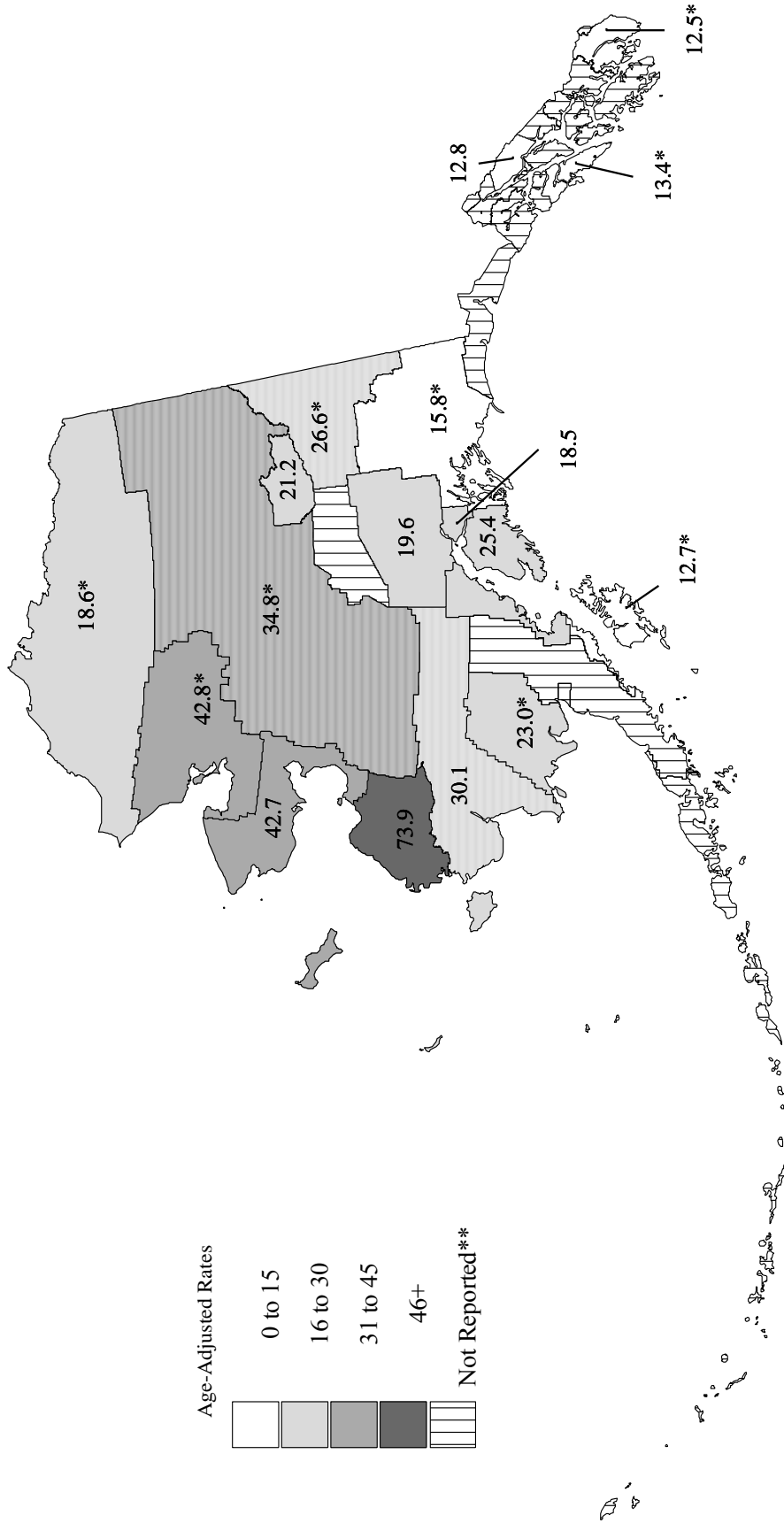
\*Rates based on fewer than 20 occurrences are statistically unreliable and should be used with caution.  
 \*\*Rates based on fewer than 6 occurrences are not reported.

## Alcohol-Induced Deaths by Census Area or Borough 2012-2016



\*Rates based on fewer than 20 occurrences are statistically unreliable and should be used with caution.  
 \*\*Rates based on fewer than 6 occurrences are not reported.

# Firearm-Related Deaths by Census Area or Borough 2012-2016



\*Rates based on fewer than 20 occurrences are statistically unreliable and should be used with caution.

\*\*Rates based on fewer than 6 occurrences are not reported.

# ADOPTIONS



*"Picking Blueberries"*  
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## In 2016...

- There were 570 adoptions recorded in Alaska.
- 421 adoptions took place through the Alaska state court system.
- 23 adoptions took place through the Alaska Native tribal court system.
- The median age at adoption was 4 years old.

## Adoption Summary

There were 570 registered adoptions in 2016. More American Indian/Alaska Native children were adopted than any other racial category. Adoption rates measure the number of adoptions per 1,000 population. Over the last decade, adoption rates have decreased 20 percent.

percent of adoptions took place through Alaska state courts, while 4 percent were through the Alaska Native Tribal courts. Adoptions of Alaska Native children to at least one Alaska Native adoptive parent (cultural adoption), made up 22.1 percent of adoptions.

Most adoptions occur through the Alaska state court or Alaska Native tribal court systems. In 2016, 73.9

**Table 71: Number of Adoptions by Race (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	6	19	14	21	25	28	20	18	21	21
Black	22	23	18	15	18	14	23	18	19	12
AI/AN	362	413	406	439	446	454	416	408	326	312
White	252	263	276	279	273	261	309	295	266	222
<b>Alaska</b>	<b>657</b>	<b>730</b>	<b>733</b>	<b>763</b>	<b>772</b>	<b>767</b>	<b>783</b>	<b>747</b>	<b>642</b>	<b>570</b>

**Table 72: Adoption Rates by Race (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asian/PI	0.1	0.4	0.3	0.4	0.5	0.5	0.3	0.3	0.3	0.3
Black	0.7	0.7	0.6	0.5	0.5	0.4	0.7	0.5	0.5	0.3
AI/AN	3.1	3.6	3.4	3.6	3.6	3.7	3.3	3.2	2.6	2.4
White	0.5	0.5	0.6	0.5	0.5	0.5	0.6	0.6	0.5	0.4
<b>Alaska</b>	<b>1.0</b>	<b>1.1</b>	<b>1.1</b>	<b>1.1</b>	<b>1.1</b>	<b>1.0</b>	<b>1.1</b>	<b>1.0</b>	<b>0.9</b>	<b>0.8</b>

**Table 73: Number of Adoptions by Type (2007-2016)<sup>1</sup>**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
State Courts	464	503	514	538	557	528	580	550	467	421
Cultural	186	215	211	216	199	201	185	134	152	126
Tribal Courts	7	12	8	9	16	38	18	63	23	23
<b>Total</b>	<b>657</b>	<b>730</b>	<b>733</b>	<b>763</b>	<b>772</b>	<b>767</b>	<b>783</b>	<b>747</b>	<b>642</b>	<b>570</b>

<sup>1</sup> Court adoptions of Alaska-born children to out of state adoptive parents are counted under State Courts. Adoptions of out of state-born children to Alaska adoptive parents are registered in the state of occurrence, and are not included. Annual Reports published prior to 2015 include adoptions of foreign-born children to Alaska adoptive parents. This report includes only adoptions of Alaska-born children.

# MARRIAGES AND SEPARATIONS



*"Tenakee Wedding"*  
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## In 2016...

- There were 5,272 marriages in Alaska, including approximately 81 same-sex marriages.
- The month of June had the most marriages (731).
- The median age at marriage was 28 years for women, and 30 for men.
- There were 2,942 separations in Alaska, including 1,579 divorces.
- The median age at separation was 36 for women, and 38 for men.

## Marriage Summary

There were 5,272 registered marriages in 2016. Marriages where both partners were Alaska residents made up 86 percent of all marriages, while those where neither partner was a resident made up 8.4 percent.

Marriage rates measure the number of marriages that occurred in Alaska, per 1,000 population. In 2016, there were 7.1 marriages per 1,000 population. Over the last decade, marriage rates have decreased 19.1 percent.

**Table 74: Marriage Rates (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>8.6</b>	<b>8.5</b>	<b>7.8</b>	<b>8.0</b>	<b>7.8</b>	<b>7.3</b>	<b>7.3</b>	<b>7.6</b>	<b>7.4</b>	<b>7.1</b>

**Table 75: Marriages By Residency Status (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Two Residents	4,742	4,722	4,621	4,873	4,840	4,534	4,644	4,816	4,717	4,534
One Non-Resident	482	490	357	411	390	380	353	330	328	297
Two Non-Residents	603	592	472	400	394	414	402	421	444	441
<b>Total</b>	<b>5,827</b>	<b>5,804</b>	<b>5,450</b>	<b>5,684</b>	<b>5,624</b>	<b>5,328</b>	<b>5,399</b>	<b>5,567</b>	<b>5,489</b>	<b>5,272</b>

**Table 76: Marriages By Age Group (2007-2016)**

### Party A Age Group

	<15	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55+	Total
<15	0	0	0	2	0	0	0	0	0	0	2
15-19	0	1,179	2,551	334	75	20	11	3	6	4	4,183
20-24	0	605	8,593	4,279	1,109	343	114	71	31	26	15,171
25-29	1	60	1,847	5,844	3,122	1,118	369	182	84	58	12,685
30-34	0	12	348	1,529	2,762	1,558	729	304	145	90	7,477
35-39	0	3	103	408	845	1,366	886	469	244	147	4,471
40-44	0	3	46	105	279	513	942	792	443	277	3,400
45-49	0	0	15	35	102	191	489	849	722	624	3,027
50-54	0	0	2	12	25	60	159	385	721	976	2,340
55+	0	0	4	6	5	18	59	177	367	2,046	2,682
<b>Total</b>	<b>1</b>	<b>1,862</b>	<b>13,509</b>	<b>12,554</b>	<b>8,324</b>	<b>5,187</b>	<b>3,758</b>	<b>3,232</b>	<b>2,763</b>	<b>4,248</b>	<b>55,438</b>

## Separation Summary

There were 1,579 divorces in 2016, and 2,942 separations total. There are three administrative procedures for ending a marriage in Alaska: dissolution, divorce and annulment.<sup>1</sup> Dissolutions and divorces made up the majority of separations, accounting for 46.2 and 53.7 percent, respectively.

Separation rates measure the number separations (i.e. divorces, as well as other decrees) that occurred in Alaska, per 1,000 population. In 2016, there were four separations per 1,000 population. Over the last decade, separation rates have decreased 11.1 percent.

**Table 77: Separation Rates (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>4.5</b>	<b>4.6</b>	<b>4.6</b>	<b>4.8</b>	<b>4.9</b>	<b>4.6</b>	<b>4.5</b>	<b>4.1</b>	<b>4.2</b>	<b>4.0</b>

**Table 78: Separations By Decree Type (2007-2016)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Dissolution	1,654	1,661	1,746	1,814	1,655	1,643	1,574	1,439	1,480	1,359
Divorce	1,368	1,479	1,443	1,590	1,845	1,724	1,734	1,607	1,605	1,579
Annulment	6	5	4	11	13	12	5	4	12	4
<b>Total</b>	<b>3,038</b>	<b>3,150</b>	<b>3,199</b>	<b>3,419</b>	<b>3,515</b>	<b>3,380</b>	<b>3,314</b>	<b>3,050</b>	<b>3,097</b>	<b>2,942</b>

**Table 79: Separations By Age Group (2007-2016)**

### Party A Age Group

	<15	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55+	Total
<15	0	0	0	2	1	0	0	0	0	0	<b>3</b>
15-19	0	35	204	18	6	1	4	0	0	0	<b>268</b>
20-24	0	41	2,302	1,452	246	62	24	9	7	9	<b>4,152</b>
25-29	0	3	493	2,787	1,624	475	185	56	22	32	<b>5,677</b>
30-34	5	1	78	607	2,051	1,246	501	178	80	53	<b>4,800</b>
35-39	1	0	20	127	553	1,619	1,165	497	163	122	<b>4,267</b>
40-44	0	0	6	52	169	532	1,398	1,001	460	243	<b>3,861</b>
45-49	0	0	2	17	49	158	548	1,177	809	556	<b>3,316</b>
50-54	0	0	1	8	15	68	151	398	912	933	<b>2,486</b>
55+	1	1	1	1	12	28	61	179	401	1,985	<b>2,670</b>
<b>Total</b>	<b>7</b>	<b>81</b>	<b>3,107</b>	<b>5,071</b>	<b>4,726</b>	<b>4,189</b>	<b>4,037</b>	<b>3,495</b>	<b>2,854</b>	<b>3,933</b>	<b>31,500</b>

<sup>1</sup> Separation records with missing/unknown decree types are included under "Total".



# APPENDIX A: DEFINITION OF TERMS

**Age-Adjusted Death Rate:** A summary of age-specific death rates standardized to one age distribution (such as the 2000 standard population). This summary allows comparisons to be made between populations with different age distributions (see Appendix B for specific instructions on calculating age-adjusted rates).

**Age-Specific Rate:** The number of events (live births or deaths) for a specific age group divided by the population for the same age group, multiplied by a constant of proportionality (usually 1,000).

**Cause of Death:** The cause of death reported is the underlying cause of death and is based on information contained on the death certificate, defined by the World Health Organization's International Classification of Diseases - Tenth Revision as the disease or injury which initiated the train of morbid events leading directly to death, or the circumstances of the injury or violence which produced the fatality.

**Constant of Proportionality:** A constant number (often 1,000 or 100,000) which is used for calculating a rate so that comparisons are possible and more understandable. (It is easier to compare 21.7 to 21.3 than it is to compare 0.0217 to 0.0213.)

**Crude Rate:** The number of events (live births, deaths, divorces, marriages, or adoptions) divided by the estimated population, multiplied by a constant of proportionality (usually 1,000 or 100,000 for deaths).

**Infant Mortality Rate:** The number of infant deaths divided by the number of live births, multiplied by a constant of proportionality (usually 1,000). The IMR in this report is calculated using the "death cohort" method. The death cohort method is determined by dividing the number of infant deaths by the number of live births in a calendar year. For example, to calculate the death cohort infant mortality rate for the current year, divide the total number of infant deaths for that year by the total number of live births that occurred the same year, and multiply the result by a constant of proportionality (usually 1,000). By using the death cohort infant mortality method, some infant deaths will be counted in the current year even if that infant was actually born the year before. Other deaths

to infants born in the current year who died before their first birthday that year will not be counted.

**Fertility Rate:** The total number of live births divided by the number of women in the estimated population between ages 15 and 44, multiplied by a constant of proportionality (usually 1,000).

**Gestation:** The period beginning with the first day of the last normal menstrual period and ending with the day of birth. Births occurring between 37 and 41 weeks gestational age are considered full-term.

**ICD-10:** International Classification of Diseases - Tenth Revision. The official classification system which codifies all diseases and injuries. ICD-10 was first introduced in 1999. All deaths between 1978 and 1998 were coded using ICD-9.

**Live Birth:** A birth where the baby exhibits signs of life after delivery. These signs include breathing, beating of the heart, pulsation of the umbilical cord and movement of voluntary muscles.

**Location of Occurrence:** The place or location where a vital event occurred.

**Location of Residence:** Most tables report Alaska resident information and are based upon or are categorized by location of actual residence. The location of actual residence; i.e., census area, is not necessarily the same as a person's "legal residence". The location of residence during a tour of military duty or while attending college is considered actual residence.

**Low Birth Weight:** An infant born weighing less than 2,500 grams (approximately 5.5 pounds).

**Natural Increase:** Population change that results when the number of births exceed the number of deaths. Natural increase does not include population changes as a result of migration in and out of Alaska.

**Neonatal Infant Mortality Rate:** The number of deaths to infants less than 28 days of age divided by the number of live births, multiplied by a constant of proportionality (usually 1,000).

**Postneonatal Infant Mortality Rate:** The number of deaths to infants from 28 days up to one year old divided by the number of live births, multiplied by a constant of proportionality (usually 1,000).

**Race of Child:** The reported race of the mother is considered the race of the child. Prior to 1989, races of both parents were taken into consideration when determining the race of the child using a look-up table. Beginning in 1989, the National Centers for Health Statistics (NCHS) recommended that all states adopt the same standard for determining the race of the child at birth.

**Standard Population:** Age-adjusted rates are calculated using U.S. year 2000 standard population weights (see Table A.1). This weighting convention is based on a longstanding coordinated agreement among federal and state agencies to use a uniform standard for age adjustment of mortality data.<sup>1</sup>

**Teen Birth Rate:** The number of births to females ages 15–19 divided by the estimated population of females ages 15–19, multiplied by a constant of proportionality (usually 1,000).

**Years of Potential Life Lost:** The difference between a constant, representing the assumed life span in years of an individual (typically 75), and the actual age of death. (See Appendix B for calculation of years of life lost.)

**Table A.1: U.S. Year 2000 Standard Population and Weight**

Age	2000 US Standard Population Million	Weight
0–4 years	69,135	0.069135
5–14 years	145,565	0.145565
15–24 years	138,646	0.138646
25–34 years	135,573	0.135573
35–44 years	162,613	0.162613
45–54 years	134,834	0.134834
55–64 years	87,247	0.087247
65–74 years	66,037	0.066037
75–84 years	44,842	0.044842
>85 years	15,508	0.015508
TOTAL	1,000,000	1.0000000

<sup>1</sup> See: Age Adjustment Using the 2000 Projected U.S. Population, National Center for Health Statistics, Healthy People Statistical Notes (20), 2001.

# APPENDIX B: TECHNICAL NOTES

## HOW TO USE VITAL STATISTICS

### VITAL EVENTS

Vital events are registered with the Health Analytics and Vital Records Section, and include live births, fetal deaths (after at least 20 weeks gestation), deaths, adoptions, marriages, and divorces. Information on each of these events is provided on standard forms.

### RELIABILITY OF THE DATA

The reliability of vital records may vary depending on the data collection method. For instance, some information on birth and death certificates is collected and provided by health facilities or medical professionals (birth weight, complications of labor and delivery, cause of death, etc.), while other information is self-reported or reported by relatives (smoking during pregnancy, marital status of deceased, etc.). The Section makes every effort to complete, verify, and correct information which is missing, invalid, or inconsistent. Ultimately, the reliability of the data depends on everyone who is involved in data collection, storage and retrieval: Section staff, medical professionals, magistrates, funeral directors, marriage commissioners, judges, and each individual involved in, or witness to, a vital event.

### COMPARING DIFFERENT POPULATIONS

Please note that all of the numbers in the following examples are hypothetical for purposes of illustration.

Comparing the number of events in two separate locations may not be meaningful. We can guess that Anchorage will have more births than Juneau because Anchorage has a larger population. A more meaningful question is, what is the number of births compared to the size of the population? To make this comparison, we calculate a rate or a ratio by dividing the number of events by the population for which that event could have occurred. For instance, if there were 4,200 births in Anchorage and a population of 280,000 people, then the ratio of births to population

would be  $4,200/280,000$  or 0.015 births for every person living in Anchorage. If there were 500 births in Juneau and a population of 30,000 then the ratio of births to population in Juneau would be  $500/30,000$  or 0.016666 births for every person living in Juneau.

Since small decimal numbers are difficult to interpret, we change the ratio to a rate by multiplying it by a constant of proportionality. This constant of proportionality can be any number, as long as the same number is used in calculating every rate. To calculate birth rates, we usually use a constant of proportionality of 1,000. Using this method, the birth rate for Anchorage would be  $0.015 \times 1,000$  or 15.0 births per 1,000 population. The birth rate for Juneau would be  $0.016666 \times 1,000$  or 16.7 births per 1,000 population. This number is usually rounded to the nearest tenth. We can see that while there are fewer births in Juneau in this example, the rate per 1,000 population is greater.

The birth rates described in the prior paragraph are crude birth rates because they compare events to the total population. A more meaningful comparison would use only the female population of childbearing ages (15–44 years of age). Let's assume that the number of women ages 15–44 in Anchorage is 60,000 and in Juneau is 7,300. The Anchorage fertility rate would be  $(4,200/60,000) \times 1,000$  or 70.0 births for every 1,000 women of childbearing age. The Juneau fertility rate would be  $(500/7,300) \times 1,000$  or 68.5 births for every 1,000 women of childbearing age. While Anchorage would have a lower crude birth rate than Juneau in this example, the Anchorage fertility rate would be higher than for Juneau. This is because the ratio of women of childbearing age to the total population in Anchorage ( $60,000/280,000$  or 0.2143) is lower than in Juneau ( $7,300/30,000$  or 0.2433).

### CONSTANT OF PROPORTIONALITY

In calculating crude birth rates and fertility rates, we use a constant of proportionality of 1,000. Vital statistics may be reported with different constants of proportionality. Readers may familiarize themselves with how rates are calculated so that validity is

maintained when comparing rates. Unless rates are calculated with the same constant of proportionality, comparisons will lead to incorrect conclusions. For instance, in this report we calculate death rates per 100,000 population. If the another publication reported deaths per 1,000 population, you would need to convert the rates in this report (by dividing by 100) or the death rates in the other report (by multiplying by 100) in order to make a valid comparison.

### SMALL POPULATIONS & FEW EVENTS

Data based on small populations and few events require particular care in data analysis. In Alaska, variability is expected when looking at small groups within the population. Precautions are taken to avoid drawing false conclusions from random or unusual events. A method that is used in this report to provide greater reliability is moving averages. (For an explanation of moving averages, see “Vital Statistics Formulas” below.)

### VITAL STATISTICS FORMULAS

#### AGE-ADJUSTED RATES

Age-adjusted rates are calculated so comparisons can be made between populations that have different age distributions. For example, a population with a high proportion of young people, generally will have a lower crude death rate than a population with a high percentage of elderly persons. Age-adjusted rates are more appropriate than crude rates when comparing health indicators for populations that have different age distributions. The age-adjusted rates in this report were calculated using the standard population based on the decennial U.S. Census of 2000 (see the Standard Population in Appendix A).

$$\text{Age-Adjusted Death Rate} = \Sigma m_a (p_a / p)$$

$\Sigma$  is summation

$m_a$  is the age-specific death rate

$p_a$  is the standard population for the age group

$p$  is the total standard population

### MOVING AVERAGES

Calculations of 3-year, 5-year, and 10-year moving averages are performed when single-year rates are not reliable due to a small number of observations. When calculations are based on small numbers, moving averages can help to smooth out rates which would vary widely from one year to another, or otherwise be below standard reporting thresholds.

In Alaska, single-year infant mortality rates are seldom good indicators for the state of health within populations because rates can fluctuate dramatically from year to year. In Alaska, 132 infants died during 1988 and 108 infants died during 1989. The single-year infant mortality rates during 1988 and 1989 were 11.7 and 9.3, respectively. The 3-year moving average infant mortality rate (using 1986, 1987, and 1988 data) was 11.0 and (using 1987, 1988, and 1989) 10.4 infant deaths per 1,000 live births.

### YEARS OF POTENTIAL LIFE LOST

Years of potential life lost (YPLL) is the difference between a constant, representing the expected natural lifespan of an individual, and the age of a decedent who dies before that constant. The constant used in the calculation is ultimately arbitrary, but 75 is a common standard given that this is close to the median natural lifespan expected in many developed countries. This is the constant value used in this report. YPLL is a useful way to estimate the impact of specific causes of death, and emphasizes mortality in younger populations. For each cause of death, YPLL is calculated as follows:

$$YPLL = \Sigma (75 - age)$$

YPLL is years of potential life lost

$\Sigma$  is summation

75 constant that represents years of potential life

*age* is the age of the decedent at death.

**EXPECTATION OF LIFE**

Expectation of life is the number of years that infants born in a specific year can expect to live if they experience the same age-specific death rates for all

persons who died during their birth year. Table B.1 illustrates the calculation of life expectancy for all Alaskans based on data from the three year period, 2014-2016.

**Table B.1: Expectation of Life For All Alaskans (2014-2016)**

	A	B	C	D	E	F	G	H	I	J
Age at Death	Deaths	Population	Ratio	Proportion Dying in Age Group	Proportion living in Age Group	# Living at Beginning of Age Group	Number Dying in Age Group	# Living In Age Group	Cumulative Population	Years Left at Beginning of Age Group
00	215	32,213	0.006674324	0.006652125	0.993347875	100,000	665	99,435	7,623,803	76.2
1-4	61	127,201	0.000479556	0.001915927	0.998084073	99,335	190	396,865	7,524,368	75.7
5-9	22	162,799	0.000135136	0.000675452	0.999324548	99,145	67	495,558	7,127,503	71.9
10-14	30	153,383	0.000195589	0.000977466	0.999022534	99,078	97	495,148	6,631,945	66.9
15-19	116	144,875	0.00080069	0.003995453	0.996004547	98,981	395	493,918	6,136,797	62
20-24	254	158,048	0.001607107	0.008003378	0.991996622	98,586	789	490,958	5,642,879	57.2
25-29	308	173,774	0.001772417	0.00882299	0.99117701	97,797	863	486,828	5,151,921	52.7
30-34	277	170,468	0.001624938	0.00809182	0.99190818	96,934	784	482,710	4,665,093	48.1
35-39	267	144,025	0.001853845	0.009226463	0.990773537	96,150	887	478,533	4,182,383	43.5
40-44	337	131,894	0.002555082	0.012694323	0.987305677	95,263	1,209	473,293	3,703,850	38.9
45-49	492	136,473	0.003605109	0.017864535	0.982135465	94,054	1,680	466,070	3,230,557	34.3
50-54	792	157,321	0.005034293	0.024858601	0.975141399	92,374	2,296	456,130	2,764,487	29.9
55-59	1176	159,748	0.007361595	0.036142801	0.963857199	90,078	3,256	442,250	2,308,357	25.6
60-64	1241	136,712	0.009077477	0.044380232	0.955619768	86,822	3,853	424,478	1,866,107	21.5
65-69	1259	94,733	0.013289983	0.064313117	0.935686883	82,969	5,336	401,505	1,441,629	17.4
70-74	1287	57,121	0.022531118	0.106648326	0.893351674	77,633	8,279	367,468	1,040,124	13.4
75-79	1227	33,722	0.036385742	0.166759537	0.833240463	69,354	11,565	317,858	672,656	9.7
80-84	1329	21,099	0.062988767	0.272096309	0.727903691	57,789	15,724	249,635	354,798	6.1
85+	2286	18,220	0.12546652	0.477543347	0.522456653	42,065	42,065	105,163	105,163	2.5

**Column A:** Total deaths during five years  
**Column B:** Sum of population for each of the five years  
**Column C:** Ratio (A/B)  
**Column D:** Proportion dying in the age group  
 For less than 1 year:  $(2 * C) / (2 + C)$ ;  
 for 1–4: years:  $(2 * 4 * C) / (2 + 4 * (1.25 * C))$ ;  
 all others  $(2 * 5 * C) / (2 + 5 * C)$   
**Column E:** Proportion living in age group (1-D)  
**Column F:** Number living at beginning of age  
 For less than 1 year: 100,000; all others:  
 $E * F$  (both from next younger age group)

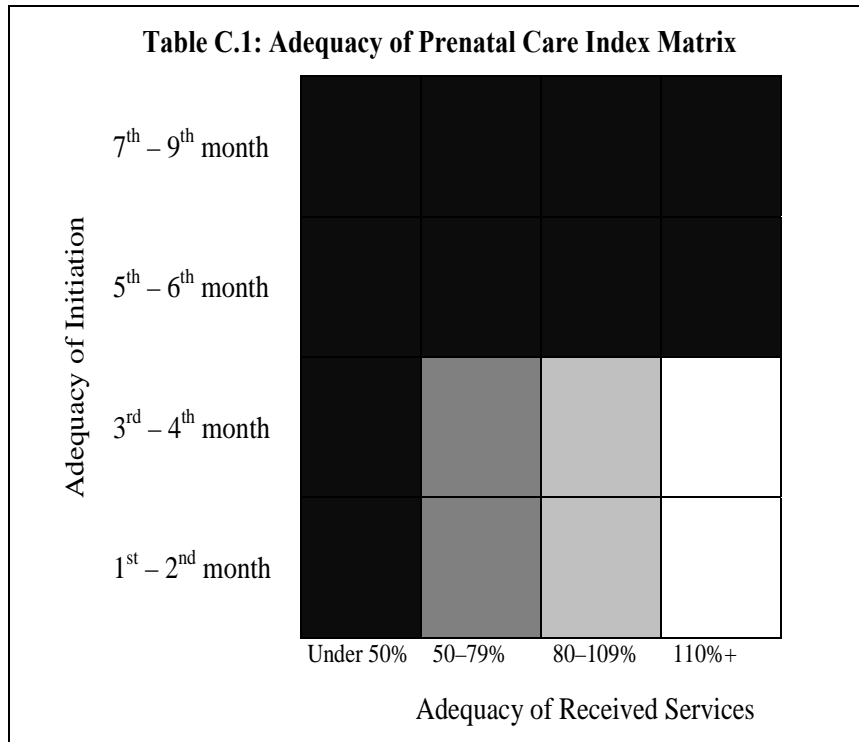
**Column G:** Number dying in the age group  
 $F$  (this age group) -  $F$  (next older age group)  
**Column H:** Number living in the age group  
 For less than one year:  $F - (.85 * G)$ ; for  
 1–4 years:  $4 * F - (2.5 * G)$ ; all others:  
 $(5 * F) - (2.5 * G)$   
**Column I:** Cumulative population Sum of H for  
 this and all older age groups  
**Column J:** Years left at beginning of age (I/F)

# APPENDIX C: PRENATAL CARE

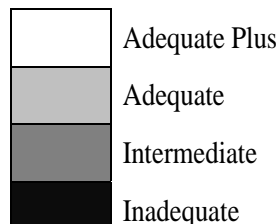
## ADEQUACY OF PRENATAL CARE

The Adequacy of Prenatal Care Utilization (APNCU)<sup>1</sup> index makes use of two types of prenatal care information obtained from birth certificate data: when prenatal care began (adequacy of initiation) and the number of prenatal visits from when prenatal care began until delivery (adequacy of received services). The APNCU index classifies the adequacy of initiation as follows: pregnancy months 1 and 2, months 3 and 4, months 5 and 6, and months 7 to 9. To classify the adequacy of received services, the number of prenatal visits is compared to the expected number of visits for the period between when care began and the delivery date. The expected number of visits is based on the American College of Obstetricians and Gynecologists

prenatal care standards for uncomplicated pregnancies and is adjusted for the gestational age when care began and for the gestational age at delivery. A ratio of observed to expected visits is calculated and grouped into four categories—Inadequate (received less than 50% of expected visits), Intermediate (50%–79%), Adequate (80%–109%), and Adequate Plus (110%). The final APNCU index measure combines these two dimensions into a single summary score. The chart below summarizes the two dimensions of the APNCU index.



### Summary Index



<sup>1</sup> Kotelchuck M. An evaluation of the Kessner Adequacy of Prenatal Care Index and a proposed Adequacy of Prenatal Care Utilization Index. American Journal of Public Health, 1994;84:1414-1420.



# APPENDIX D: POPULATION OVERVIEW

## ALASKA'S POPULATION

Population estimates used in this report are provided by the Alaska Department of Labor and Workforce Development, Research and Analysis Section, Demographics Unit.

**Table D.1: Estimated Population of Alaska by Age Group, Sex, and Race (2016)**

Age Group	Alaska			White			AI/AN		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
00-04	52,966	27,065	25,901	32,758	16,738	16,020	12,401	6,360	6,041
05-09	54,707	28,249	26,458	33,717	17,348	16,369	12,814	6,655	6,159
10-14	51,262	26,299	24,963	31,525	16,240	15,285	11,374	5,840	5,534
15-19	48,196	25,355	22,841	29,512	15,613	13,899	10,893	5,736	5,157
20-24	50,655	27,293	23,362	32,820	17,919	14,901	9,740	4,927	4,813
25-29	57,880	30,192	27,688	38,972	20,397	18,575	10,551	5,368	5,183
30-34	57,662	29,801	27,861	40,704	21,325	19,379	9,320	4,762	4,558
35-39	49,613	25,653	23,960	35,534	18,612	16,922	7,511	3,779	3,732
40-44	42,780	22,062	20,718	30,376	15,866	14,510	6,373	3,237	3,136
45-49	44,902	23,135	21,767	32,709	17,140	15,569	6,369	3,183	3,186
50-54	50,248	26,037	24,211	36,850	19,364	17,486	7,556	3,808	3,748
55-59	53,071	27,355	25,716	40,540	21,130	19,410	7,063	3,437	3,626
60-64	46,906	24,271	22,635	36,692	19,372	17,320	5,674	2,733	2,941
65-69	33,641	17,723	15,918	26,486	14,340	12,146	4,106	2,000	2,106
70-74	20,027	10,170	9,857	15,778	8,263	7,515	2,425	1,120	1,305
75-79	11,814	5,853	5,961	9,122	4,668	4,454	1,601	732	869
80-84	7,217	3,267	3,950	5,487	2,596	2,891	1,013	408	605
85+	6,281	2,363	3,918	4,938	1,912	3,026	731	256	475
Total	739,828	382,143	357,685	514,520	268,843	245,677	127,515	64,341	63,174

**Table D.2: Estimated Population of Alaska by Age Group, Sex, and Race (2015)**

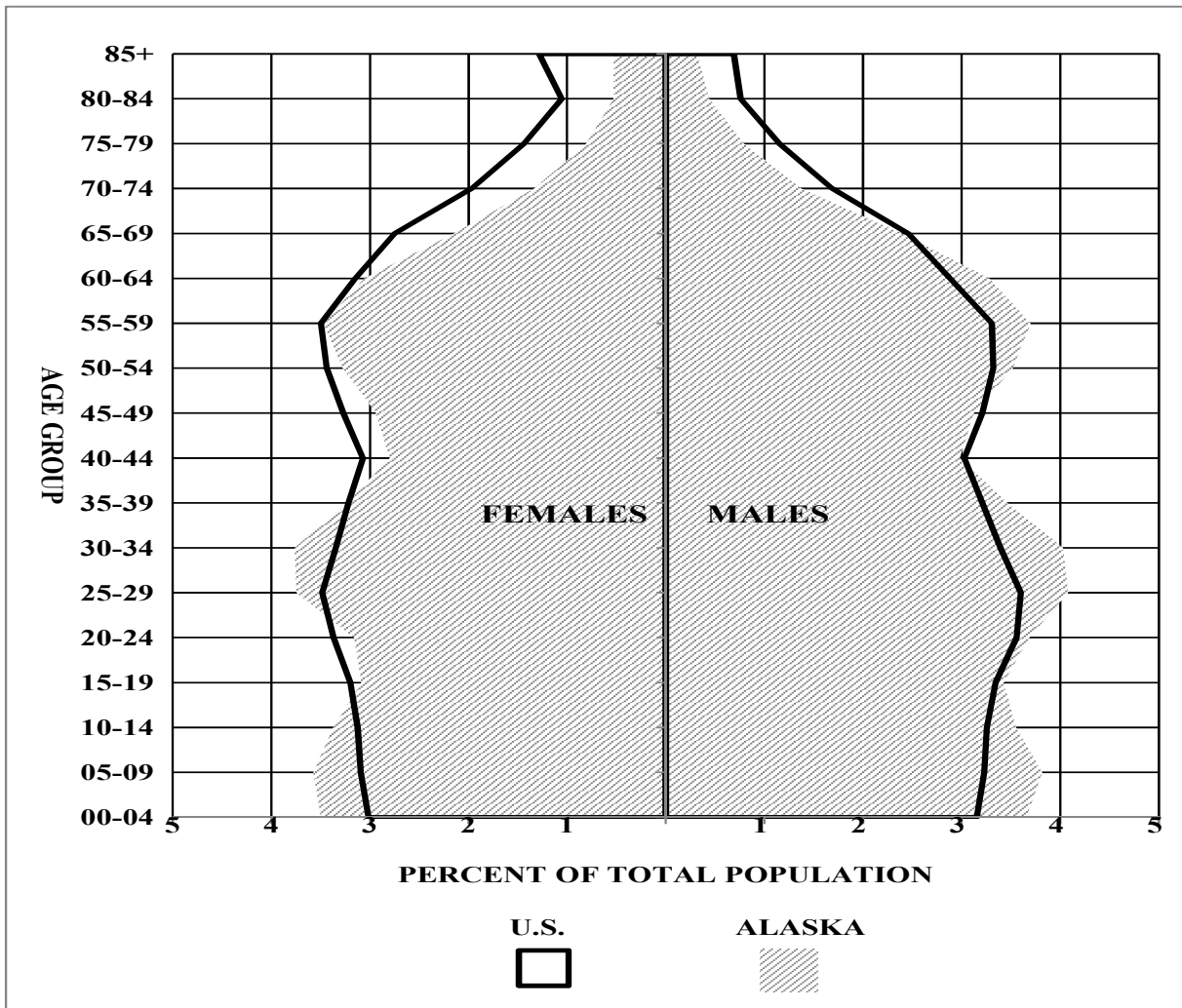
Age Group	Alaska			White			AI/AN		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
00-04	53,033	27,076	25,957	32,717	16,667	16,050	12,865	6,571	6,294
05-09	54,123	28,028	26,095	33,634	17,390	16,244	12,451	6,489	5,962
10-14	50,887	26,102	24,785	31,359	16,210	15,149	11,323	5,776	5,547
15-19	48,138	25,221	22,917	29,746	15,660	14,086	10,819	5,650	5,169
20-24	52,919	28,841	24,078	34,560	19,074	15,486	10,137	5,183	4,954
25-29	58,191	30,520	27,671	39,623	20,939	18,684	10,460	5,322	5,138
30-34	56,916	29,529	27,387	40,546	21,326	19,220	8,982	4,570	4,412
35-39	47,811	24,729	23,082	34,268	17,978	16,290	7,317	3,701	3,616
40-44	43,958	22,731	21,227	31,560	16,525	15,035	6,390	3,248	3,142
45-49	45,270	23,335	21,935	32,964	17,225	15,739	6,629	3,347	3,282
50-54	52,548	27,372	25,176	39,003	20,587	18,416	7,627	3,807	3,820
55-59	53,083	27,383	25,700	40,984	21,431	19,553	6,848	3,308	3,540
60-64	45,547	23,786	21,761	35,663	19,027	16,636	5,540	2,716	2,824
65-69	31,454	16,604	14,850	24,797	13,444	11,353	3,850	1,858	1,992
70-74	19,075	9,739	9,336	15,017	7,893	7,124	2,405	1,130	1,275
75-79	11,153	5,487	5,666	8,552	4,352	4,200	1,527	708	819
80-84	7,004	3,145	3,859	5,331	2,516	2,815	1,003	383	620
85+	6,073	2,260	3,813	4,821	1,816	3,005	706	268	438
Total	737,183	381,888	355,295	515,145	270,060	245,085	126,879	64,035	62,844

**Table D.3: Estimated Population of Alaska by Age Group, Sex, and Race (2014)**

Age Group	Alaska			White			AI/AN		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
00-04	53,415	27,242	26,173	32,898	16,737	16,161	13,065	6,661	6,404
05-09	53,969	28,010	25,959	33,728	17,470	16,258	12,307	6,456	5,851
10-14	51,234	26,311	24,923	31,727	16,408	15,319	11,287	5,740	5,547
15-19	48,541	25,346	23,195	30,462	15,986	14,476	10,656	5,542	5,114
20-24	54,474	29,573	24,901	35,572	19,575	15,997	10,620	5,412	5,208
25-29	57,703	30,190	27,513	39,935	21,030	18,905	10,051	5,117	4,934
30-34	55,890	28,927	26,963	39,967	20,972	18,995	8,746	4,398	4,348
35-39	46,601	24,086	22,515	33,488	17,528	15,960	7,058	3,566	3,492
40-44	45,156	23,345	21,811	32,820	17,174	15,646	6,384	3,229	3,155
45-49	46,301	23,928	22,373	33,763	17,697	16,066	6,957	3,519	3,438
50-54	54,525	28,361	26,164	40,862	21,517	19,345	7,669	3,812	3,857
55-59	53,594	27,527	26,067	41,666	21,683	19,983	6,738	3,272	3,466
60-64	44,259	23,298	20,961	34,777	18,700	16,077	5,345	2,629	2,716
65-69	29,638	15,650	13,988	23,388	12,727	10,661	3,600	1,700	1,900
70-74	18,019	9,203	8,816	14,235	7,461	6,774	2,284	1,102	1,182
75-79	10,755	5,262	5,493	8,165	4,154	4,011	1,519	700	819
80-84	6,878	3,076	3,802	5,197	2,445	2,752	1,029	403	626
85+	5,866	2,164	3,702	4,711	1,740	2,971	651	261	390
Total	736,818	381,499	355,319	517,361	271,004	246,357	125,966	63,519	62,447



Figure D.1: Population Distribution by Age Group, and Sex: Alaska<sup>1</sup> and the U.S.<sup>2</sup> (2016)



<sup>1</sup>Alaska Department of Labor and Workforce Development, Research and Analysis Section.

<sup>2</sup>United States Census Bureau, Population Division.

# APPENDIX E: MAPS

## Alaska Borough/Census Areas



Note: Based on 2013 Geography  
Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

### Borough and Census Area Map of Alaska