

# Alaska Native Maternal and Child Health: Trends and Data



Alaska Native Epidemiology Center  
Division of Community Health Services  
Alaska Native Tribal Health Consortium

September 2008





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## **Acknowledgements**

The Alaska Native Tribal Health Consortium (ANTHC) EpiCenter wishes to express thanks to two Alaska Department of Health and Social Services, Division of Public Health departments: the Bureau of Vital Statistics and the Alaska Birth Defects Registry for providing the data for this publication. We would also like to thank the Indian Health Service, Maternal Child Health Closing the Gaps SIDS and Infant Mortality Initiative, which provided funding for this publication.

This report is available at the ANTHC EpiCenter website:

[www.anthc.org/cs/chs/epi/](http://www.anthc.org/cs/chs/epi/)

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## INTRODUCTION

The health of Alaska Native mothers and children is crucial to the well-being of all Alaska Native people. This publication provides health information on the number of Alaska Native infants who are born, die, or who experience difficulties such as birth defects, low birth weight, and prematurity each year. This book also contains information about the parents of these infants. The characteristics of parents can be associated with the health of their infants. Additionally, this book provides information on the health care, risk factors, and protective factors impacting pregnant women. This information is crucial for the planning and provision of optimal preconception care, prenatal preventive care, and acute health care. Alaska Tribal Health System leaders and program planners can examine this information to develop ways to maximize the health of the infants.

The data in this book has been analyzed to meet the needs of the Alaska Tribal Health System. With the exception of birth rates, all the information on parents and infants is categorized by the race of the infant. For example, the average number of prenatal visits is reported for the *mothers of Alaska Native infants* rather than just for Alaska Native mothers. This may include non-Native mothers who are partners with Alaska Native men. In the Alaska Tribal Health System, an infant is Alaska Native if either parent is Alaska Native. Being pregnant with an Alaska Native baby entitles the mother to maternity care through the course of her pregnancy, as well as six weeks post-partum care.

The data in this report is presented for Alaska Natives statewide, as well as by service region. It is crucial to have a regional breakdown to enable tribal health organizations to monitor the status of maternal and child health and to evaluate programs to meet needs in their service regions. For each indicator, information is also provided on mothers of Alaska White infants and their children for comparison purposes.

The book is organized into the following six chapters: 1) Birth Rates; 2) Characteristics of Parents; 3) Prenatal Risk Factors; 4) Prenatal Health - Protective Factors; 5) Birth Outcomes; and 6) Infant and Child Mortality. In the following section, the data sources and limitations associated with the data are discussed. Additionally, the first pages of each chapter provide a description of the data contained in that chapter. Appendix A describes how the service regions are geographically categorized according to community and census region.



### Birth Data

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The data for Alaska Native and Alaska White birth rates, parental characteristics, prenatal risk and protective factors, and birth outcome indicators was provided to the Alaska Native Tribal Health Consortium (ANTHC) EpiCenter by the Alaska Department of Health and Social Services (ADHHS), Division of Public Health, Bureau of Vital Statistics. The data on birth defects was provided by the Alaska Births Defects Registry housed in the Section of Women's, Children's, and Family Health, Division of Public Health, Alaska Department of Health and Social Services. US White birth data is from the following sources: *National Vital Statistics Reports*,<sup>(1)</sup> *Health, United States, 2005*,<sup>(2)</sup> and *Health, United States, 2007*.<sup>(3)</sup>

When the State of Alaska calculates maternal and child health data, race is assigned to the infant based on the race of the mother. For the purposes of this book, race is assigned in this way when calculating birth rates only. For all other statistics related to infants (i.e. infant mortality rate, parental demographics, gestational age, birth weight) race is based on the race of either parent. In other words, if the mother and/or the father are Alaska Native, then the child is considered Alaska Native. This method of classification is used for calculations involving infant data and also for parent data.

For example, when calculating the education level of mothers, the race of the infant is used to identify mothers. Thus, the corresponding data presented is the *education level of mothers of Alaska Native infants*. The mother could be Alaska Native or of any race provided the father of the baby is Alaska Native. This method of classification yields larger numbers of Alaska Native infants designated as Alaska Native as compared to the number classified by the State of Alaska, Bureau of Vital Statistics. This is important because the Alaska Tribal Health System serves pregnant women, as well as children if either parent is Alaska Native or American Indian. Thus, the data presented in this report may help maternal and child health providers and program directors to better understand the characteristics and size of the population they are serving.

When counting data related to Alaska White children, only births to White mothers in which the father was not Alaska Native is counted. For this reason, this number is smaller than the statistics reported by the state.

### Death Data

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Mortality rates for Alaska Native infants and youth below 20 years of age are included in this data book. Mortality data from the State of Alaska Bureau of Vital Statistics was used to calculate death rates for Alaska Native and Alaska White infants for years 1998-2005. For the years prior to 1998, infant mortality data came from the Alaska Area Indian Health Service publication, *Alaska Native Births and Infant Deaths 1980-1997*.<sup>(4)</sup> US White infant mortality data came from the *National Vital Statistics Reports, 2008*,<sup>(5)</sup> and the *Health, United States, 2005* <sup>(2)</sup> publication. The National Cancer Institute's SEER database was used to calculate mortality rates and leading causes of

## DATA SOURCES

death for Alaska Native and Alaska White children. However, the data used to calculate the all cause mortality rates by service region for children 0-4, 5-14, and 15-19 years came from the Alaska Bureau of Vital Statistics. Child mortality data for US White children came primarily from the *Child Health USA, 2005* publication.<sup>(6)</sup> Leading cause of injury death data for Alaska Natives and Alaska Whites came from the Web-based Injury Statistics Query and Reporting System, Centers for Disease Control and Prevention, Department of Health and Human Services.

### **Population**

For Alaska Native population estimates for 1990 to 2005, the National Cancer Institute's (NCI) SEER Database "bridged" 2000 population estimates were used. Bridged estimates are necessary because Census 2000 allowed multiple race designation rather than single race designation used in previous censuses. Race bridging is a method used to make multiple race and single race data collection systems comparable to permit estimation and analysis of race-specific statistics. For Alaska Native population estimates before 1990, Indian Health Service estimates were used. For population by service region, the 1990 Census age-gender distribution was applied to IHS population estimates for service regions. All data for service regions refers to Alaska Native infants only who are residents of the service regions. See Appendix A for a complete description of the tribal health corporations, villages and census areas and how they are categorized according to service region. State of Alaska estimates are used for Alaska White populations, and National Center for Health Statistics estimates are used for US White population estimates.

The focus of this report is to assess the status of maternal and child health among Alaska Native people. Alaska White statistics are presented as a comparison group for all indicators. US White data is presented when appropriate. However, the use of this comparison group is limited due to issues of comparability. As stated earlier, most of the indicators were calculated based on the race of the infant (as defined by the Alaska Native Tribal Health System), this is not how US White data is traditionally calculated. Therefore, a US White comparison group is only used for birth and mortality rates.

### **Healthy People 2010 Objectives**

The Healthy People initiative sets a strategic plan for health nationwide. The document, published by the US Department of Health and Human Services, presents 467 objectives to improve the health of Americans by the year 2010. For many of these objectives, baseline data and target goals are provided when available. The baseline data and targets listed in this report are for all races within the United States.<sup>(7)</sup>

### Data Limitations

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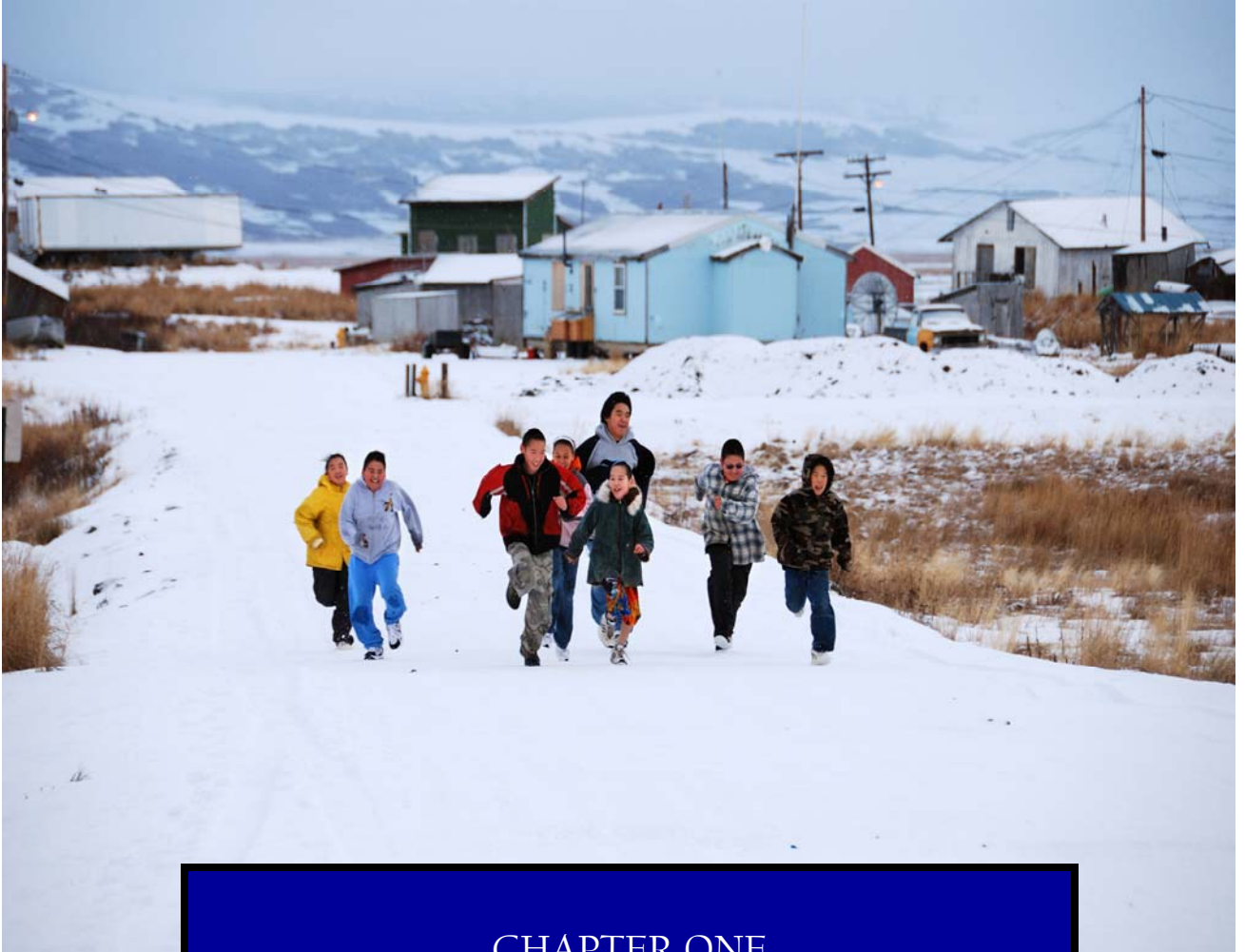
Data findings are only as good as the source of the data. One of the primary sources of data for this report is vital statistics data collected by the State of Alaska on birth certificate forms. This data is subject to the following limitations:

- Medical information may be classified inaccurately if the staff person who is filling out the forms is not familiar with the circumstances surrounding the birth;
- Medical personnel may classify the same condition, such as cause of death, differently depending on their background and medical training;
- Forms may have missing data. For example, not all birth certificates have the name and race of the father;
- Births and deaths are emotional times and relatives may have a difficult time filling out the forms accurately and completely;
- There is potential for self-reporting bias about behaviors that may not be considered socially appropriate (i.e. alcohol or tobacco use during pregnancy).

### References

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1. Martin, J. et al. Births: Final Data for 2005. *National Vital Statistics Reports; vol 56 no 6*. Hyattsville, Maryland: National Center for Health Statistics, 2007.
2. National Center for Health Statistics. *Health, United States; 2005*. Hyattsville, Maryland: Public Health Service, 2005.
3. National Center for Health Statistics. *Health, United States; 2007*. Hyattsville, Maryland: Public Health Service. 2007.
4. Alaska Native Tribal Health Consortium (ANTHC), Alaska Area Native Health Service, Division of Planning, Evaluation, and Health Statistics. *Alaska Native Births and Infant Deaths 1980-1997*. Anchorage, Alaska: ANTHC. August 2001.
5. Mathews TJ, MacDorman MF. Infant mortality data from the 2005 period: linked birth/infant death data set. *National Vital Statistics Reports, vol 57 no 2*. Hyattsville Maryland: National Center for Health Statistics. 2008.
6. U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau. *Child Health USA 2005*. Rockville, Maryland: U.S. Department of Health and Human Services. 2005.
7. U.S. Department of Health and Human Services. *Tracking Healthy People 2010*. Washington, DC: U.S. Government Printing Office. November 2000.



CHAPTER ONE  
BIRTH RATES

Photo by Kraig Haver

### **Crude Birth Rate**

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The Crude Birth Rate (CBR) is the total number of live births per 1000 persons in a population per year.<sup>(1)</sup> It is calculated by dividing the number of births in a population by the number of persons in the population. For Alaska Natives, the crude birth rate was calculated counting only births to Alaska Native mothers.

### **General Fertility Rate**

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The general fertility rate is calculated by dividing the total number of live births in a population by the number of women aged 15-44 years in that population. It is a more meaningful measure than CBR since it is not affected by the age distribution of the population.<sup>(1)</sup> For Alaska Natives, we calculated the fertility rate counting only births to Alaska Native mothers.

### **Teen Birth Rate**

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The Teen Birth Rate is the number of births to girls 15 to 19 years of age per 1000 females in this age group in the population per year.<sup>(2)</sup> Teen Birth Rates for Alaska Natives are calculated by dividing the number of live births to Alaska Native girls 15 to 19 years old by the total number of Alaska Native girls 15 to 19 years old.

The Healthy People 2010 Objectives for Teen Births is Objective 9-7, “Reduce pregnancies among adolescent females 15-17 years of age (1996 Baseline:68 per 1000; Target:43 per 1000).”<sup>(3)</sup>

### **Data Issues**

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When calculating crude birth, fertility, and teen birth rates for Alaska Native people only births to Alaska Native mothers were counted because the denominator for birth rates is specific to the race of the mother. An Alaska Native infant is an infant born to either an Alaska Native mother and/or Alaska Native father, thus, the birth rates in this book do not capture all Alaska Native births. In order to quantify the number of Alaska Native births that are not included in the calculated birth rates, there is a column that reports the number of births to non-Native mothers who are partners with Alaska Native fathers. The column is labeled “Alaska Native (AN) Fathers and Non-Native mothers.”

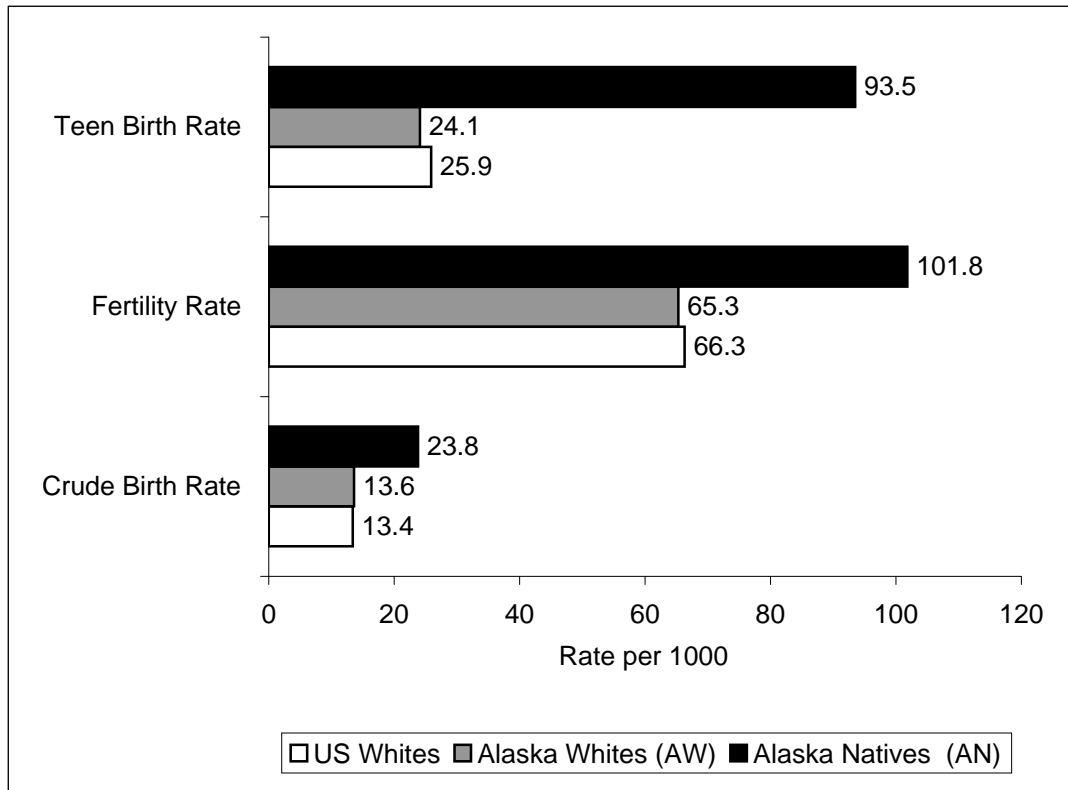
### **References**

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1. Mausner J, Kramer S. *Epidemiology – An Introductory Text*. Philadelphia: W.B. Saunders Company. 1985.
2. Centers of Disease Control. State-specific pregnancy rates among adolescents-United States, 1995-1997. *MMWR* 2000;49:605-611.
3. Health and Human Services. *Healthy People 2010. 2nd ed. With Understanding and Improving Health and Objectives for Improving Health*. Washington, DC: U.S. Government Printing Office, November 2000.

# BIRTH RATES

**Crude Birth, Fertility, and Teen Birth Rates**  
Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites<sup>(2)</sup>  
2005



**Crude Birth, Fertility and Teen Birth Rates**  
Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites<sup>(2)</sup>  
2005

	Alaska Natives (AN)			Alaska Whites (AW)		US Whites
	AN Fathers and non-Native Mothers*	AN Mothers	Rate per 1000	AW Mothers	Rate per 1000	Rate per 1000
Crude Birth Rate	342	2701	<b>23.8</b>	6359	<b>13.6</b>	<b>13.4</b>
Fertility Rate	342	2683	<b>101.8</b>	6346	<b>65.3</b>	<b>66.3</b>
Teen Birth Rate	49	428	<b>93.5</b>	465	<b>24.1</b>	<b>25.9</b>

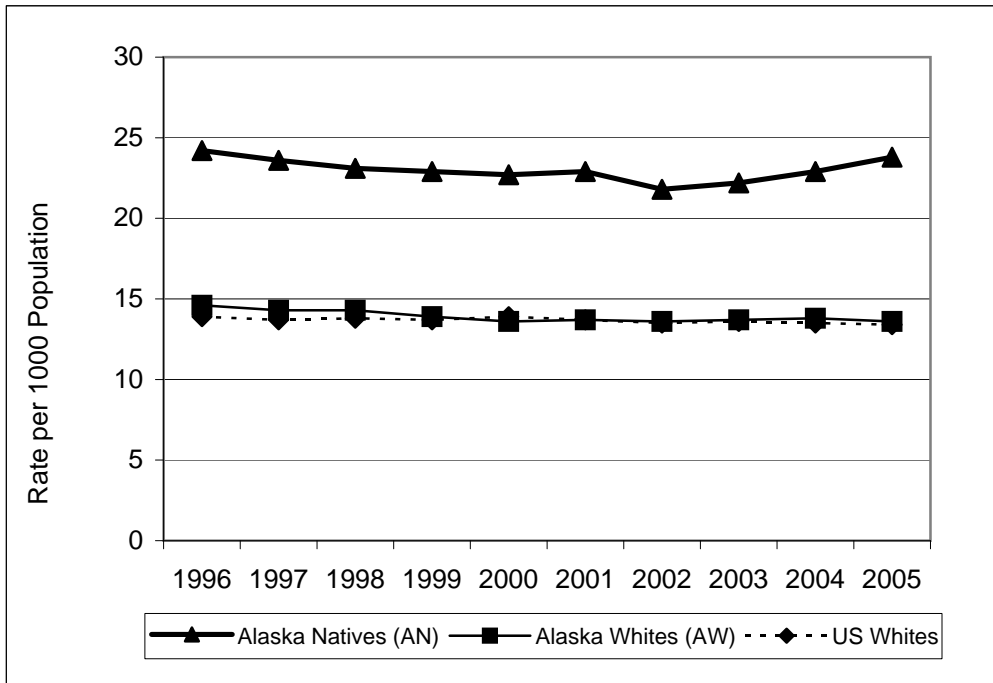
\*These births were not used to calculate birth rates because mother was non-Native.

Data Sources: (1) Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

(2) *National Vital Statistics Reports, 2007.*

# BIRTH RATES

**Crude Birth Rate**  
Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites<sup>(2)</sup>  
1996-2005



**Crude Birth Rate**  
Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites<sup>(2)</sup>  
1996-2005

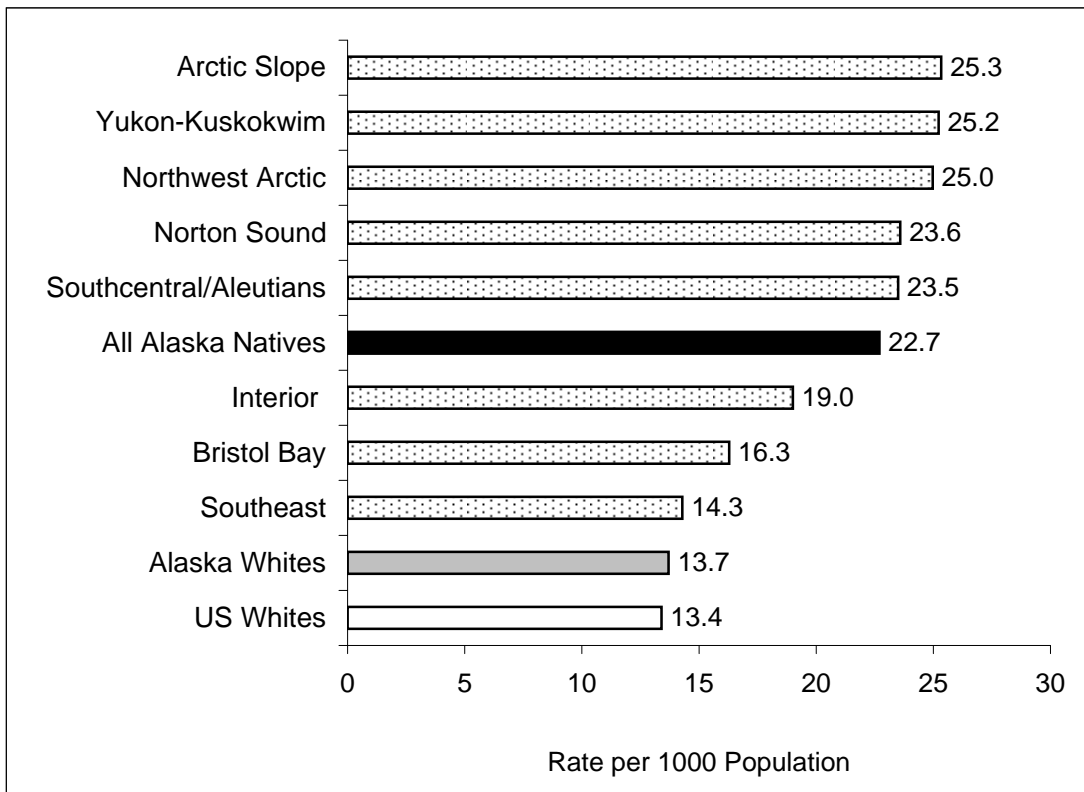
Year	Alaska Natives (AN)			Alaska Whites (AW)		US Whites
	AN Fathers and non-Native Mothers*	AN Mothers	Rate per 1000	AW Mothers	Rate per 1000	Rate per 1000
1996	291	2403	<b>24.2</b>	6607	<b>14.6</b>	<b>13.9</b>
1997	281	2391	<b>23.6</b>	6478	<b>14.3</b>	<b>13.7</b>
1998	316	2401	<b>23.1</b>	6534	<b>14.3</b>	<b>13.8</b>
1999	314	2426	<b>22.9</b>	6388	<b>13.9</b>	<b>13.7</b>
2000	330	2454	<b>22.7</b>	6212	<b>13.6</b>	<b>13.9</b>
2001	336	2495	<b>22.9</b>	6245	<b>13.7</b>	<b>13.7</b>
2002	331	2398	<b>21.8</b>	6197	<b>13.6</b>	<b>13.5</b>
2003	338	2461	<b>22.2</b>	6314	<b>13.7</b>	<b>13.6</b>
2004	328	2576	<b>22.9</b>	6431	<b>13.8</b>	<b>13.5</b>
2005	342	2701	<b>23.8</b>	6359	<b>13.6</b>	<b>13.4</b>

\*These births were not used to calculate birth rates because mother was non-Native.

Data Sources: (1) Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS. (2) *National Vital Statistics Reports, 2007.*

# BIRTH RATES

**Crude Birth Rate by Service Region<sup>a</sup>**  
 Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites<sup>(2)</sup>  
 2001-2005



**Crude Birth Rate by Service Region<sup>a</sup>**  
 Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites<sup>(2)</sup>  
 2001-2005

Service Region	Count	Rate
US Whites	na <sup>b</sup>	13.4
Alaska Whites	31,233	13.7
Southeast	1,133	14.3
Bristol Bay	477	16.3
Interior	1,153	19.0
<b>All Alaska Natives</b>	12,358	<b>22.7</b>
Southcentral/Aleutians	4,216	<b>23.5</b>
Norton Sound	936	<b>23.6</b>
Northwest Arctic	899	<b>25.0</b>
Yukon-Kuskokwim	2,970	<b>25.2</b>
Arctic Slope	574	<b>25.3</b>

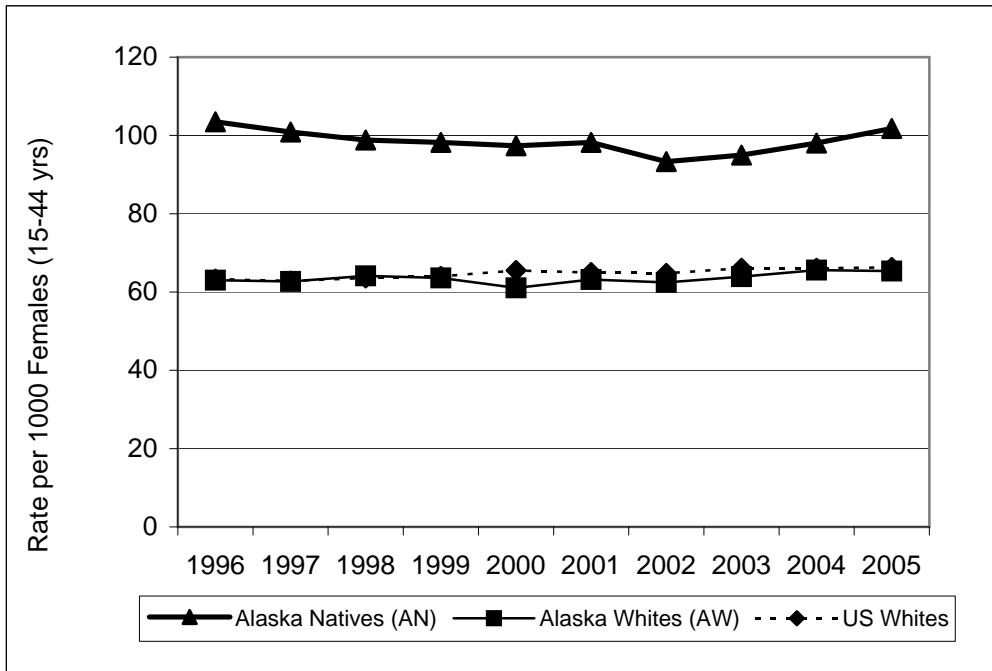
(a) All service region data is for Alaska Natives only. (b) Count not available.

Data Sources: (1) Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS. (2) *National Vital Statistics Reports, 2007*. US White data for 2005.



# BIRTH RATES

**Fertility Rate**  
Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites<sup>(2)</sup>  
1996-2005



**Fertility Rate**  
Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites<sup>(2)</sup>  
1996-2005

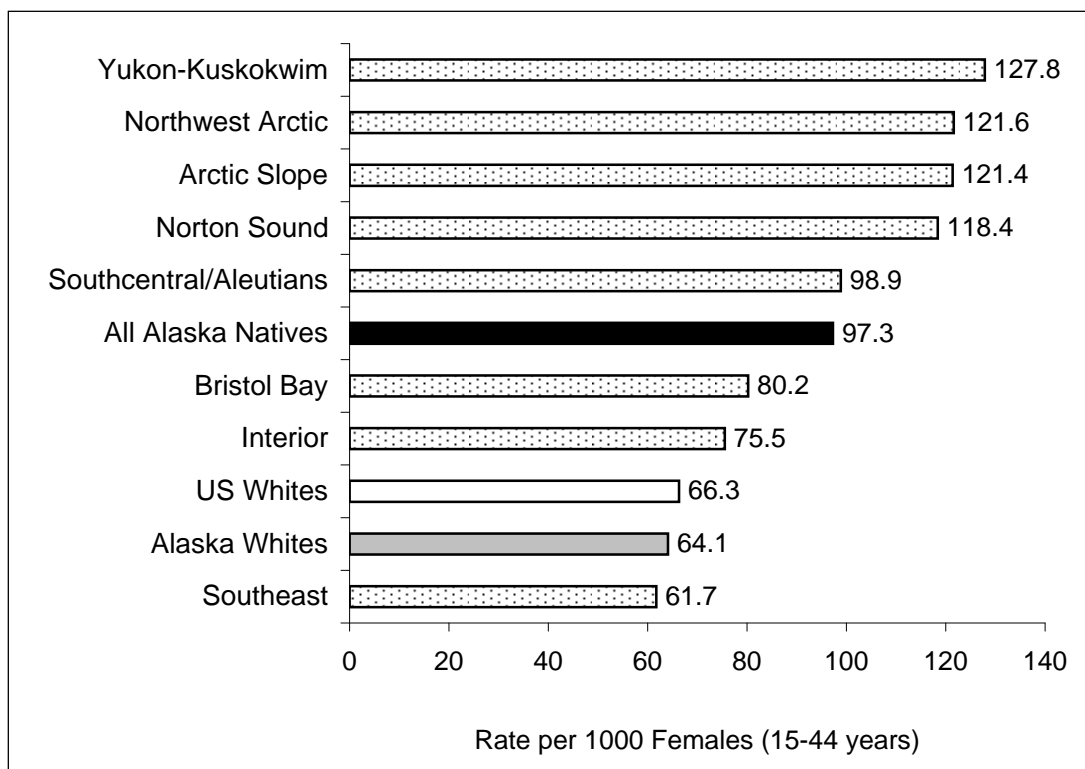
Year	Alaska Natives (AN)			Alaska Whites (AW)		US Whites
	AN Fathers and non-Native Mothers*	AN Mothers	Rate per 1000	AW Mothers	Rate per 1000	Rate per 1000
1996	290	2393	<b>103.5</b>	6597	<b>63.0</b>	<b>63.3</b>
1997	280	2376	<b>100.9</b>	6466	<b>62.7</b>	<b>62.8</b>
1998	316	2391	<b>98.8</b>	6518	<b>64.1</b>	<b>63.6</b>
1999	312	2416	<b>98.2</b>	6365	<b>63.6</b>	<b>64.0</b>
2000	330	2450	<b>97.3</b>	6199	<b>61.0</b>	<b>65.5</b>
2001	336	2480	<b>98.2</b>	6231	<b>63.2</b>	<b>65.0</b>
2002	331	2389	<b>93.3</b>	6181	<b>62.5</b>	<b>64.8</b>
2003	338	2448	<b>95.0</b>	6292	<b>63.9</b>	<b>66.1</b>
2004	328	2568	<b>98.1</b>	6411	<b>65.6</b>	<b>66.1</b>
2005	342	2683	<b>101.8</b>	6346	<b>65.3</b>	<b>66.3</b>

\*These births were not used to calculate birth rates because mother was non-Native.

Data Sources: (1) Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS. (2) *National Vital Statistics Reports, 2007.*

## BIRTH RATES

**Fertility Rate by Service Region<sup>a</sup>**  
 Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites<sup>(2)</sup>  
 2001-2005



**Fertility Rate by Service Region<sup>a</sup>**  
 Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites<sup>(2)</sup>  
 2001-2005

Service Region	Count	Rate
Southeast	1,132	61.7
Alaska Whites	31,130	64.1
US Whites	na <sup>b</sup>	66.3
Interior	1,150	75.5
Bristol Bay	473	80.2
<b>All Alaska Natives</b>	12,300	<b>97.3</b>
Southcentral/Aleutians	4,201	98.9
Norton Sound	928	118.4
Arctic Slope	569	121.4
Northwest Arctic	892	121.6
Yukon-Kuskokwim	2,955	127.8

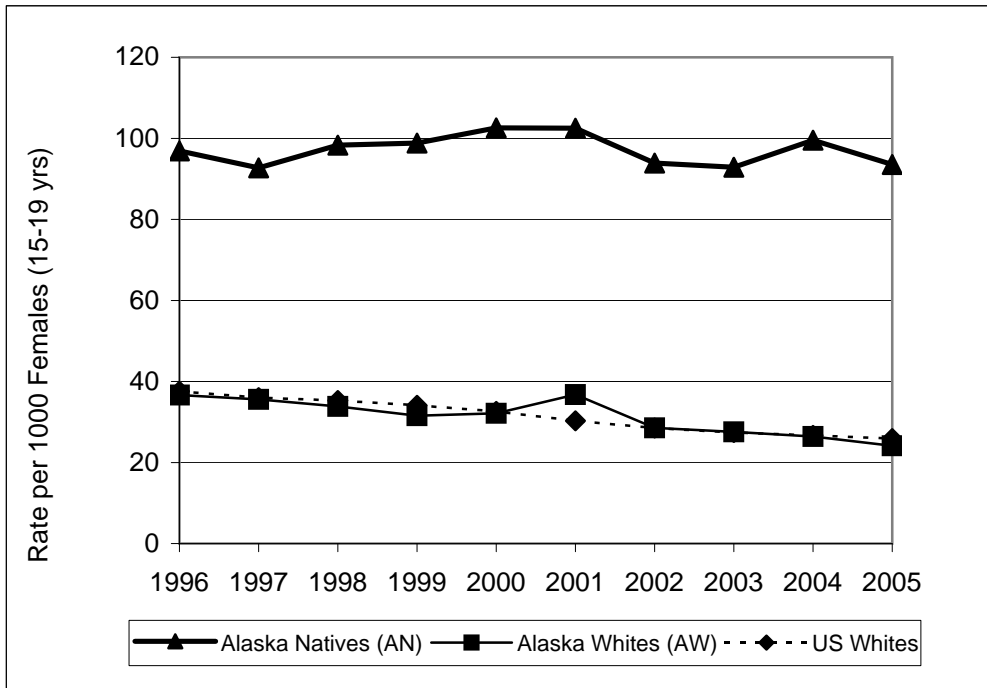
(a) All service region data is for Alaska Natives only. (b) Count not available.

Data Sources: (1) Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS. (2) *National Vital Statistics Reports, 2007*. US White data for 2005.

# BIRTH RATES

## Teen Birth Rate (15-19 years)

Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites<sup>(2)</sup>  
1996-2005



## Teen Birth Rate (15-19 years)

Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites<sup>(2)</sup>  
1996-2005

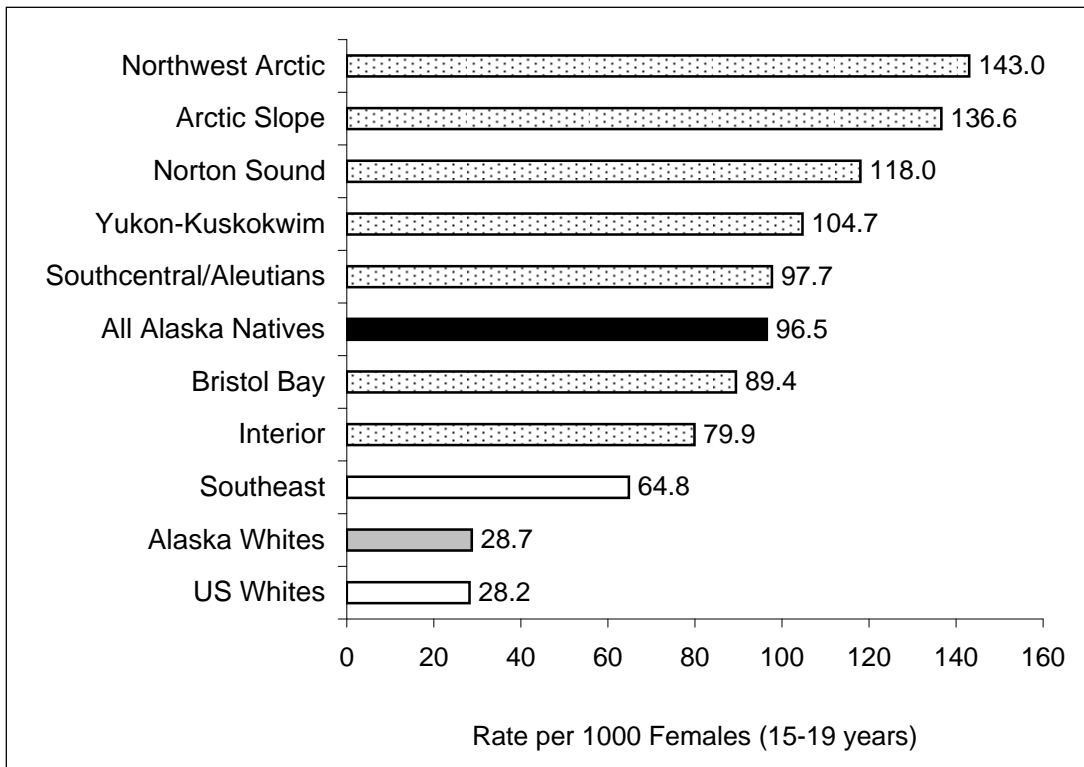
Year	Alaska Natives (AN)			Alaska Whites (AW)		US Whites
	AN Fathers and non-Native Mothers*	AN Mothers	Rate per 1000	AW Mothers	Rate per 1000	Rate per 1000
1996	45	388	96.9	596	36.6	37.6
1997	48	379	92.7	593	35.6	36.0
1998	49	412	98.3	584	33.9	35.3
1999	41	421	98.8	551	31.6	34.1
2000	48	446	102.6	557	32.1	32.6
2001	36	449	102.5	479	36.8	30.3
2002	34	416	93.9	514	28.6	28.5
2003	43	415	92.9	502	27.5	27.4
2004	57	451	99.5	503	26.4	26.7
2005	49	428	93.5	465	24.1	25.9

\*These births were not used to calculate birth rates because mother was non-Native.

Data Sources: (1) Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS. (2) *National Vital Statistics Reports, 2007.*

# BIRTH RATES

**Teen Birth Rate by Service Region<sup>a</sup>**  
 Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites<sup>(2)</sup>  
 2001-2005



**Teen Birth Rate by Service Region<sup>a</sup>**  
 Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites<sup>(2)</sup>  
 2001-2005

Service Region	Count	Rate
US Whites	na <sup>b</sup>	28.2
Alaska Whites	2,439	28.7
Southeast	204	64.8
Interior	193	79.9
Bristol Bay	80	89.4
<b>All Alaska Natives</b>	2,120	<b>96.5</b>
Southcentral/Aleutians	648	97.7
Yukon-Kuskokwim	500	104.7
Norton Sound	180	118.0
Arctic Slope	113	136.6
Northwest Arctic	202	143.0

(a) All service region data is for Alaska Natives only. (b) Count not available.

Data Sources: (1) Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS. (2) *National Vital Statistics Reports, 2007*. US White data for 2005.



CHAPTER TWO  
CHARACTERISTICS OF  
PARENTS

# CHARACTERISTICS OF PARENTS

## Age of Mother

---

Teens and older women (less than age 19 yrs. and older than age 35 yrs.) are at greatest risk of poor birth outcomes. Teens are less likely than older women to begin prenatal care in the first trimester.<sup>(1)</sup> Both young teens and older women are at higher risk of having a low birthweight infant.<sup>(1, 2)</sup>

## Age of Father

---

The age of the father is used as a proxy measure for socioeconomic status. Young fathers are more likely to come from economically disadvantaged families and this may affect their partner's utilization of prenatal care services.<sup>(3)</sup>

## Education Level of Parents

---

The education level of parents is used as a proxy measure for socioeconomic status and is known to be associated with a number of health outcomes including infant birth weight and pre-term delivery.<sup>(4, 5)</sup> Parents with lower educational attainment are less likely to utilize prenatal care services.<sup>(5)</sup> Inadequate utilization of prenatal care by mothers is associated with an increased risk of adverse birth outcomes.<sup>(4, 6)</sup> Research indicates that there is a relationship between low education levels, low birth weight and pre-term birth.<sup>(7)</sup>

## Marital Status of Mother

---

Marital status is used as a proxy indicator for socioeconomic status and social support. Research has shown unmarried mothers to be at greater risk of delivering a low-birth weight infant.<sup>(8)</sup> A recent Alaskan study found that among both Alaska Natives and non-Natives, the categories of unmarried and having a father's name missing from the birth certificate were associated with the highest post-neonatal mortality rates compared to all other categories of risk that were examined.<sup>(9)</sup> The relationship between marital status and birth outcomes varies by maternal age and race.<sup>(10)</sup>

## References

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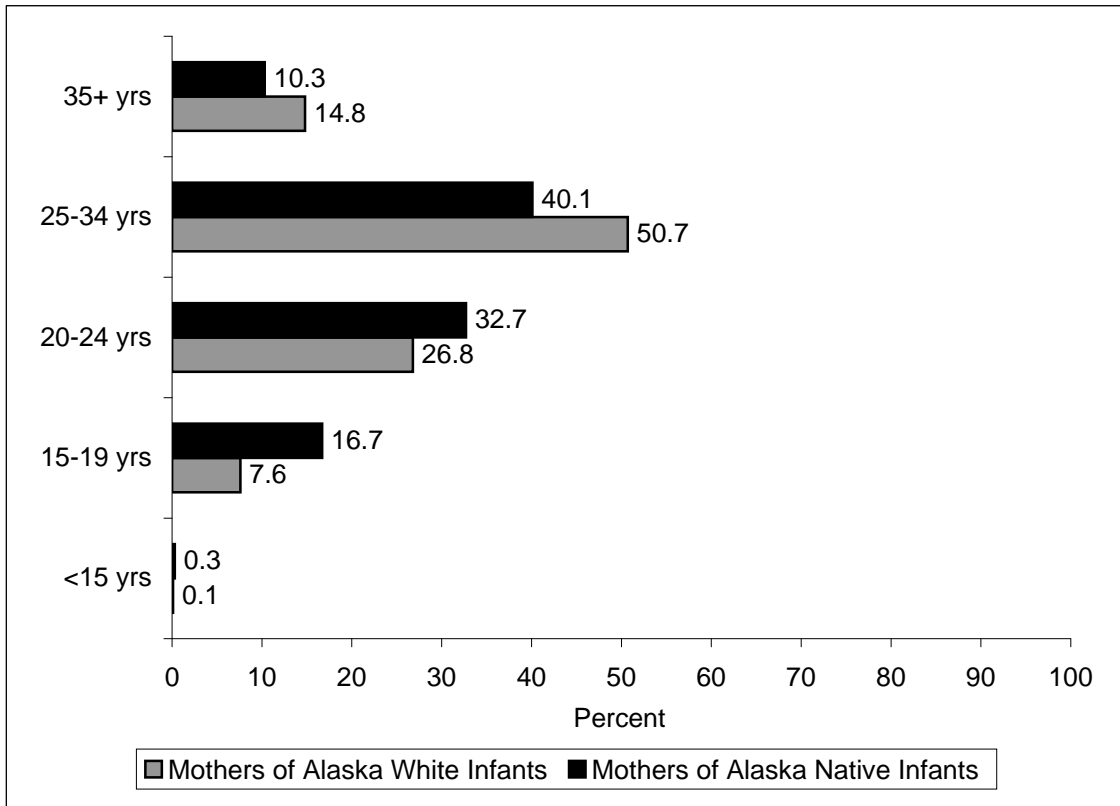
1. Makinson C. The health consequences of teenage fertility. *Family Planning Perspectives*. 1985;17(3):132-9.
2. Salihu H M, Shumpert M, Slay N, Kirby M, Russell S, Alexander GR. Childbearing Beyond Maternal Age 50 and Fetal Outcomes in the United States. *Obstetrics & Gynecology*. 2003;102 (5) :1006-1014.
3. Xi-Kuan C, Shi Wu W, Krewski D, Fleming N, Yang Q, Walker, MC. Paternal age and adverse birth outcomes: teenager or 40+, who is at risk? *Human Reproduction*. 2008 23(6):1290-1296. Available at <http://humrep.oxfordjournals.org/cgi/content/abstract/23/6/1290>. Accessed on July 1, 2008.
4. Bray I, Gunnell D, Smith GD. Advanced paternal age: how old is too old? *Journal of Epidemiology and Community Health*. 2006;60:851–853.
5. Finch BK. Socioeconomic gradients and low birth-weight. *Journal of Health Services Research and Policy*. 2003;December; 38(6 Pt 2):1819–1842.
6. Kiernan KE. Becoming a young parent: a longitudinal study of associated factors. *British Journal of Sociology*. 2007;48:406–408.

## CHARACTERISTICS OF PARENTS

7. Sonalde D, Soumya A. Maternal Education and Child Health: Is There a Strong Causal Relationship? *Demography*. 1998;35:71-81.
8. Sung JFC, et al. Interactive Effect of Race and Marital Status in Low Birthweight. *Ethnicity and Disease*. 1993;3:129-136.
9. Blabey M, Gessner B. "Three Maternal Risk Factors Associated with Elevated Risk of Postneonatal Mortality Among Alaska Native Population." *Maternal and Child Health Journal*. Published online 4 April 2008. At <http://www.springerlink.com/content/?k=three+maternal+risk+factors+associated+with+elevated+risk+of+postneonatal+mortality>. Accessed June 24, 2008.
10. Bennett T. Marital Status and Infant Health Outcomes. *Social Science and Medicine*. 1992;35:1179-1187.

# CHARACTERISTICS OF PARENTS

**Mothers by Age**  
of Alaska Native and Alaska White Infants  
2001-2005



**Mothers by Age**  
of Alaska Native and Alaska White Infants  
2001-2005

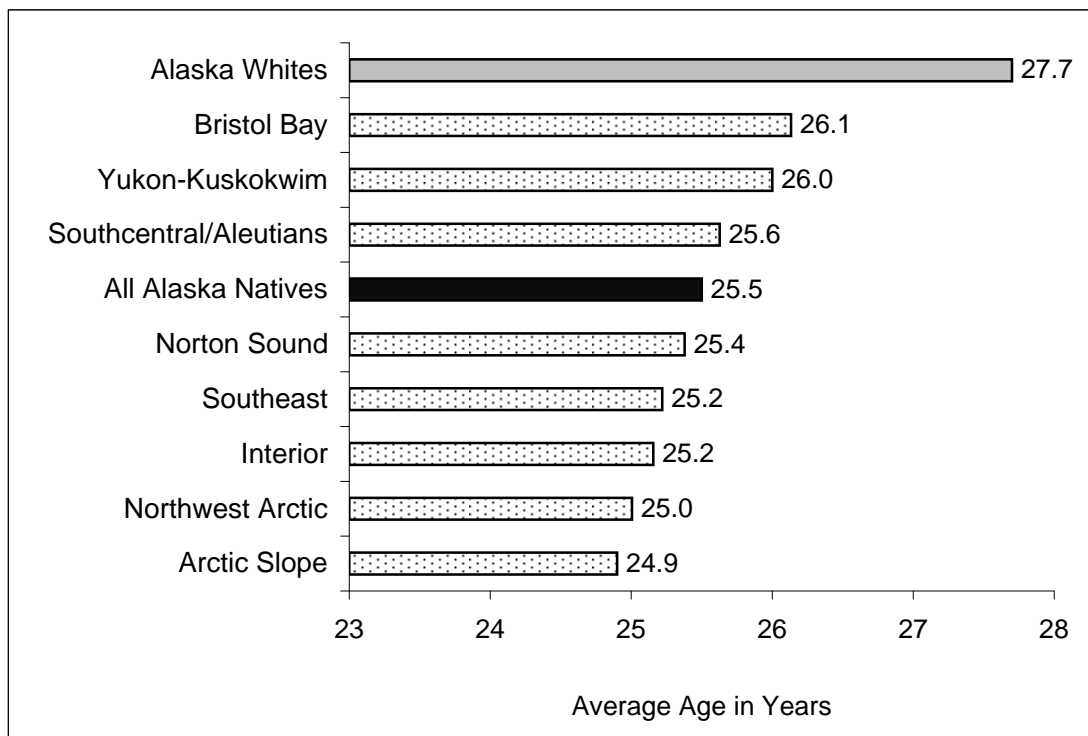
Age	Mothers of Alaska Native Infants		Mothers of Alaska White Infants	
	Count	%	Count	%
<15 yrs	39	<b>0.3</b>	22	<b>0.1</b>
15-19 yrs	2,344	<b>16.7</b>	2,260	<b>7.6</b>
20-24 yrs	4,602	<b>32.7</b>	7,957	<b>26.8</b>
25-34 yrs	5,640	<b>40.1</b>	15,052	<b>50.7</b>
35+ yrs	1,443	<b>10.3</b>	4,425	<b>14.8</b>
Total	14,068	<b>100</b>	29,716	<b>100</b>

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.



## CHARACTERISTICS OF PARENTS

**Average Age of Mothers at First Birth by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005



**Average Age of Mothers at First Birth by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005

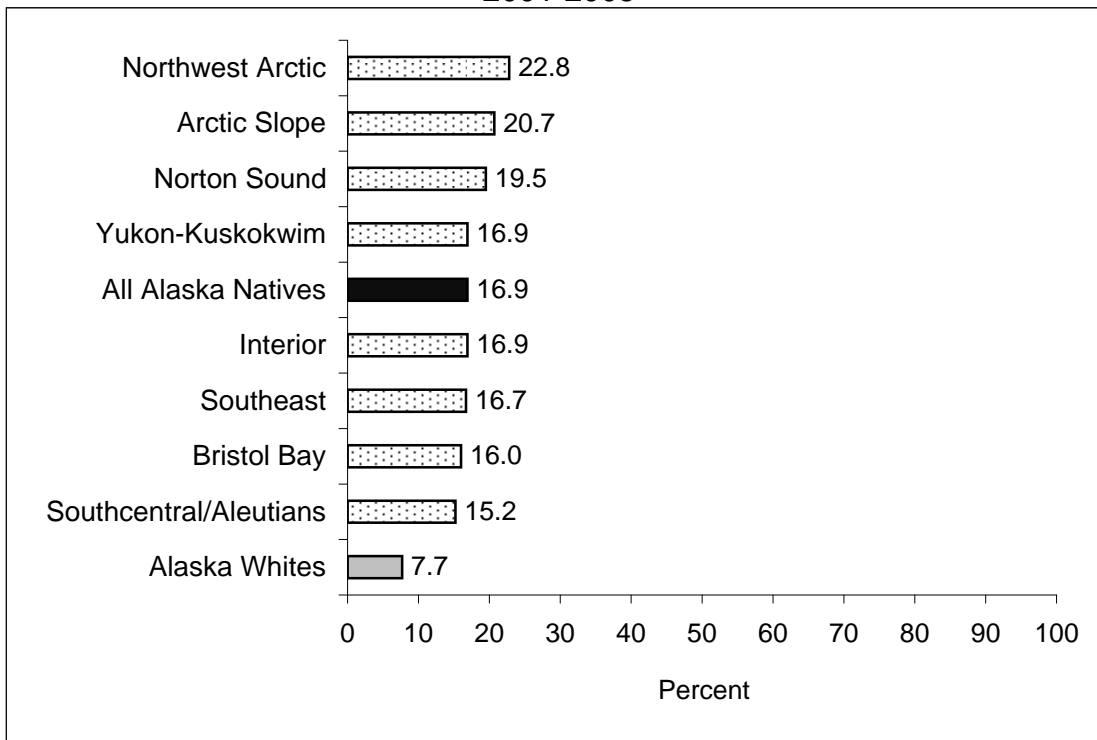
Service Region	Count	Average Age
Arctic Slope	563	24.9
Northwest Arctic	900	25.0
Interior	1,351	25.2
Southeast	1,417	25.2
Norton Sound	941	25.4
<b>All Alaska Natives</b>	13,694	25.5
Southcentral/Aleutians	5,093	25.6
Yukon-Kuskokwim	2,911	26.0
Bristol Bay	518	26.1
Alaska Whites	28,863	27.7

(a) All service region data is for Alaska Natives only.

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

## CHARACTERISTICS OF PARENTS

**Mothers <20 years of Age by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005



**Mothers <20 years of Age by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005

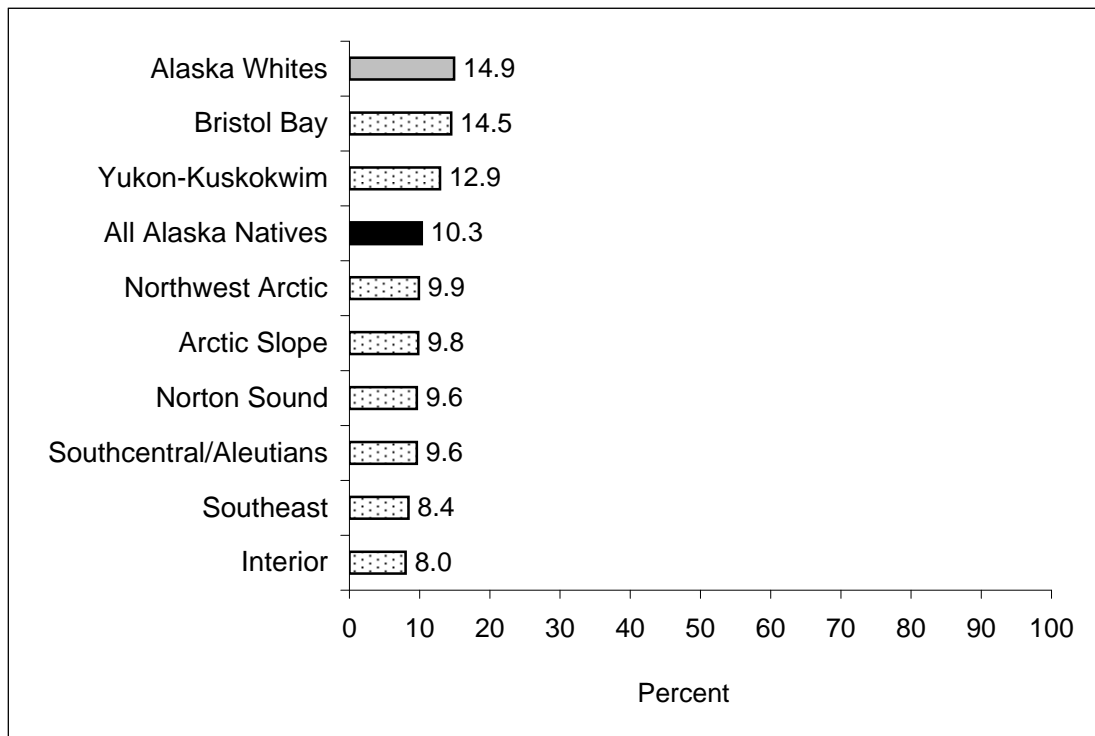
Service Region	Count	Percent
Alaska Whites	2,281	7.7
Southcentral/Aleutians	793	15.2
Bristol Bay	84	16.0
Southeast	241	16.7
Interior	232	16.9
<b>All Alaska Natives</b>	<b>2,377</b>	<b>16.9</b>
Yukon-Kuskokwim	509	16.9
Norton Sound	189	19.5
Arctic Slope	120	20.7
Northwest Arctic	209	22.8

(a) All service region data is for Alaska Natives only.

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

## CHARACTERISTICS OF PARENTS

**Mothers  $\geq 35$  years of Age by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005



**Mothers  $\geq 35$  years of Age by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005

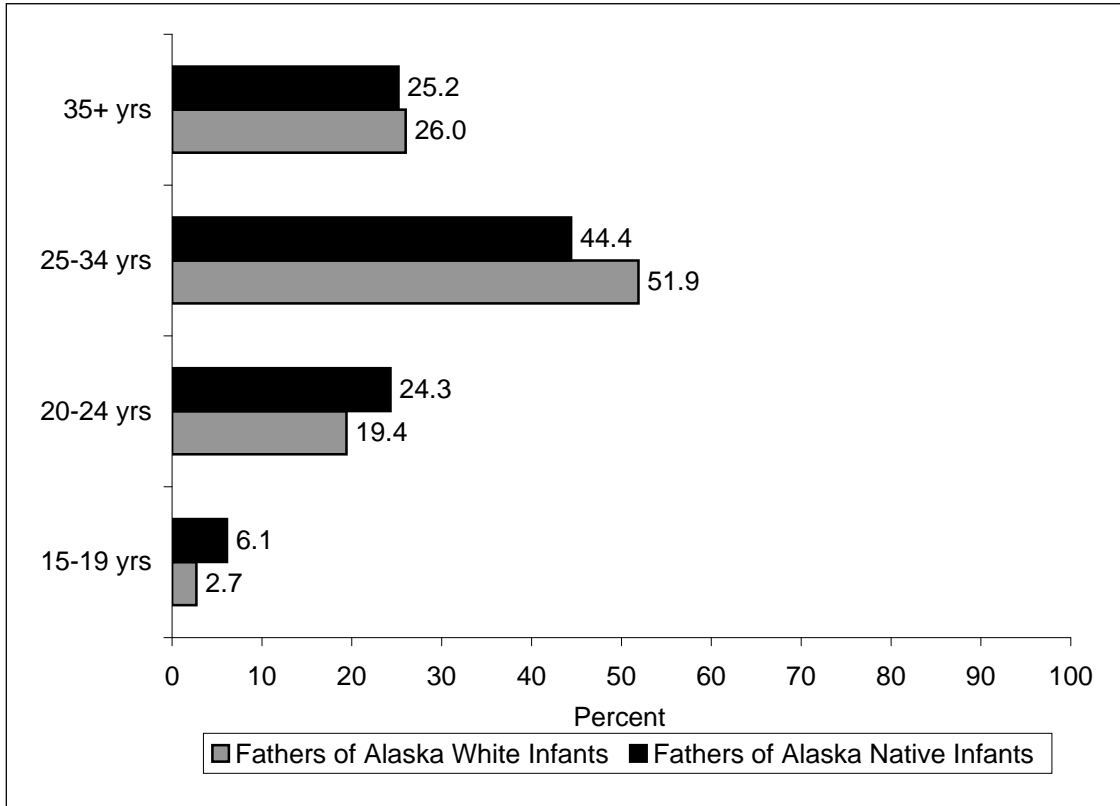
Service Region	Count	Percent
Interior	110	8.0
Southeast	121	8.4
Southcentral/Aleutians	502	9.6
Norton Sound	93	9.6
Arctic Slope	57	9.8
Northwest Arctic	91	9.9
<b>All Alaska Natives</b>	1,439	<b>10.3</b>
Yukon-Kuskokwim	389	12.9
Bristol Bay	76	14.5
Alaska Whites	4,424	14.9

(a) All service region data is for Alaska Natives only.

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

# CHARACTERISTICS OF PARENTS

**Fathers by Age**  
of Alaska Native and Alaska White Infants  
2001-2005



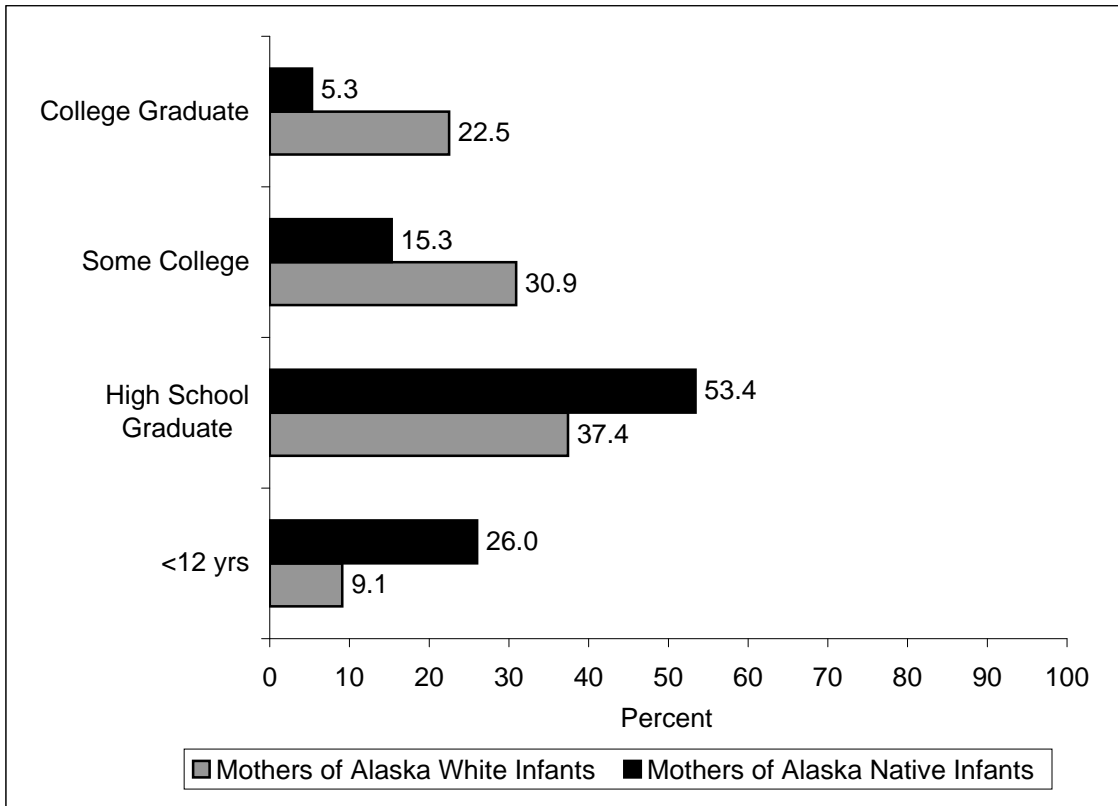
**Fathers by Age**  
of Alaska Native and Alaska White Infants  
2001-2005

Age	Fathers of Alaska Native Infants		Fathers of Alaska White Infants	
	Count	%	Count	%
15-19 yrs	756	6.1	759	2.7
20-24 yrs	3,034	24.3	5,572	19.4
25-34 yrs	5,543	44.4	14,847	51.9
35+ yrs	3,141	25.2	7,424	26.0
<b>Total</b>	<b>12,474</b>	<b>100</b>	<b>28,602</b>	<b>100</b>

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

# CHARACTERISTICS OF PARENTS

**Mothers by Education Level**  
of Alaska Native and Alaska White Infants  
2001-2005



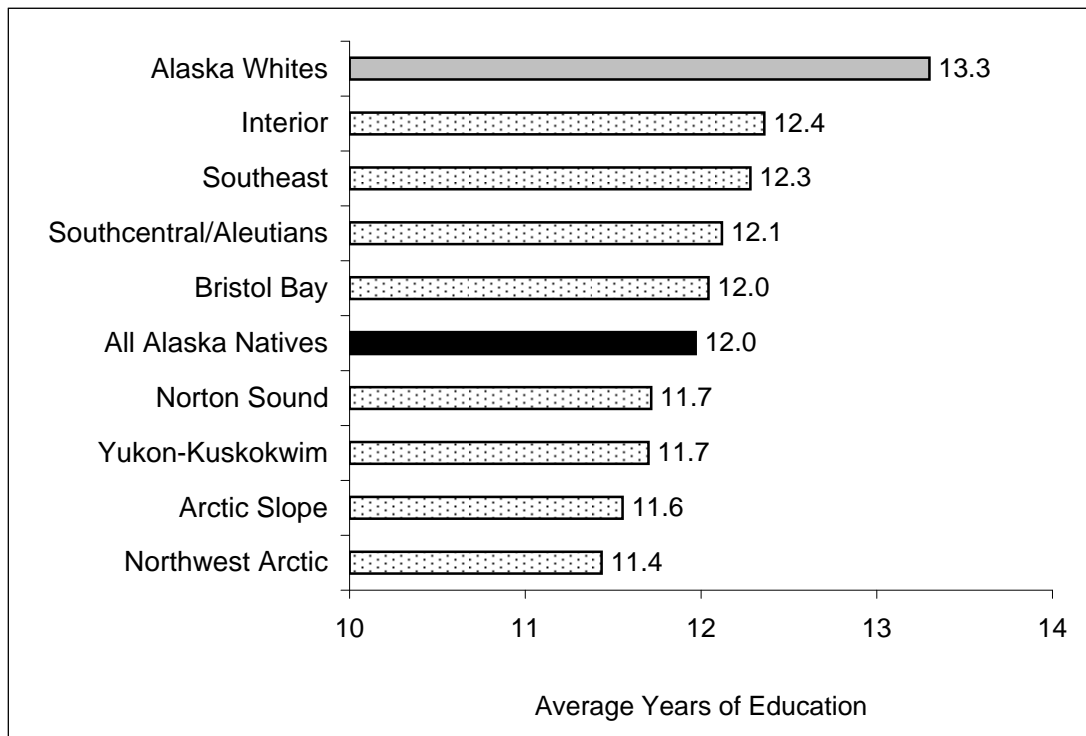
**Mothers by Education Level**  
of Alaska Native and Alaska White Infants  
2001-2005

Education Level	Mothers of Alaska Native Infants		Mothers of Alaska White Infants	
	Count	%	Count	%
<12 yrs	3,541	<b>26.0</b>	2,624	<b>9.1</b>
High School Graduate	7,305	<b>53.4</b>	10,738	<b>37.4</b>
Some College	2,098	<b>15.3</b>	8,881	<b>30.9</b>
College Graduate	731	<b>5.3</b>	6,458	<b>22.5</b>
<b>Total</b>	<b>13,675</b>	<b>100</b>	<b>28,701</b>	<b>100</b>

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

## CHARACTERISTICS OF PARENTS

**Average Education Level of Mothers by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005



**Average Education Level of Mothers by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005

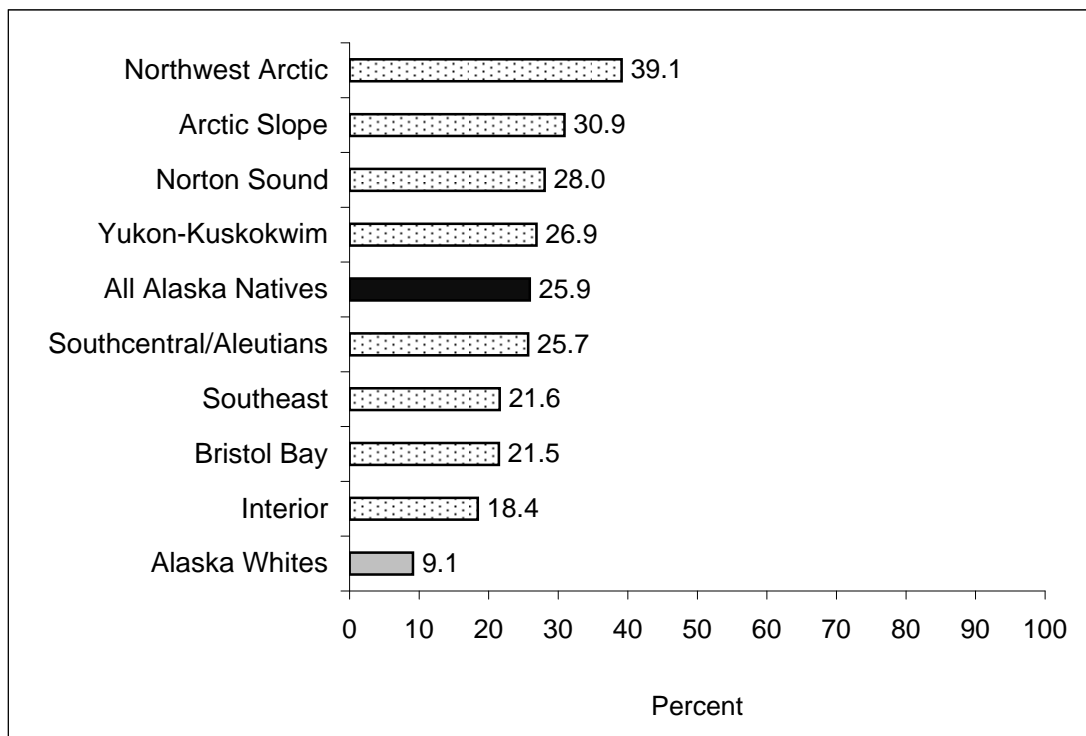
Service Region	Count	Average Years of Education
Northwest Arctic	885	11.4
Arctic Slope	573	11.6
Yukon-Kuskokwim	2,918	11.7
Norton Sound	952	11.7
<b>All Alaska Natives</b>	13,638	12.0
Bristol Bay	517	12.0
Southcentral/Aleutians	5136	12.1
Southeast	1381	12.3
Interior	1276	12.4
Alaska Whites	28,699	13.3

(a) All service region data is for Alaska Natives only.

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

## CHARACTERISTICS OF PARENTS

**Mothers with <12 years Education by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005



**Mothers with <12 years Education by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005

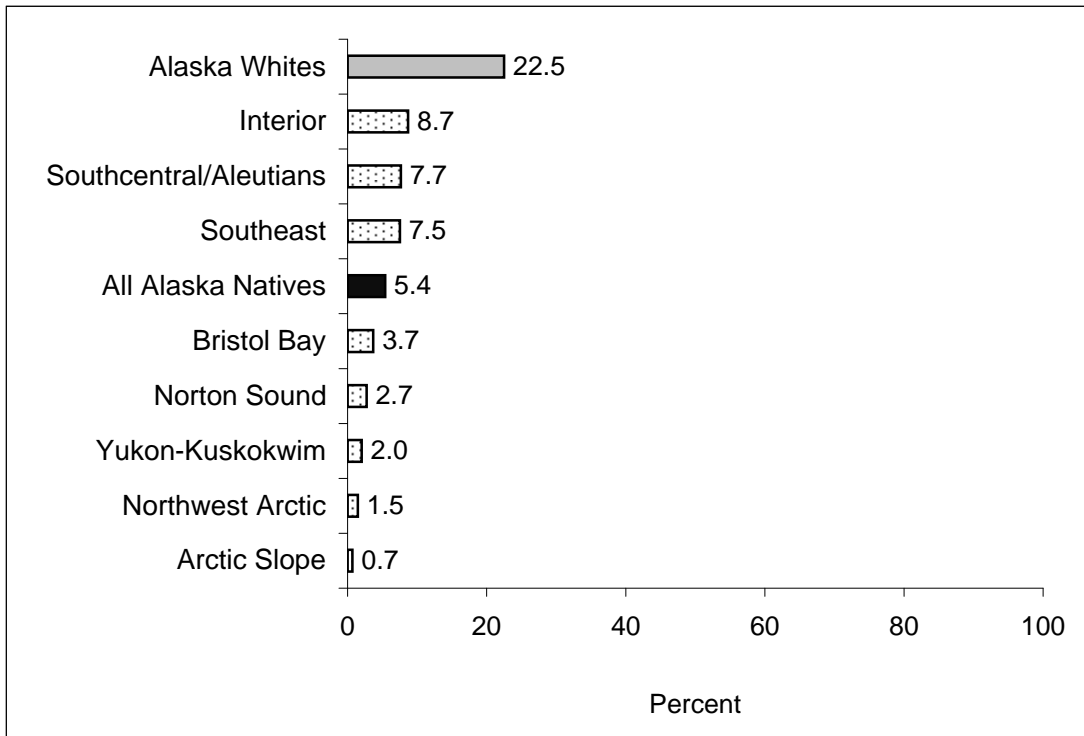
Service Region	Count	Percent
Alaska Whites	2,624	9.1
Interior	235	18.4
Bristol Bay	111	21.5
Southeast	298	21.6
Southcentral/Aleutians	1,319	25.7
<b>All Alaska Natives</b>	<b>3,537</b>	<b>25.9</b>
Yukon-Kuskokwim	784	26.9
Norton Sound	267	28.0
Arctic Slope	177	30.9
Northwest Arctic	346	39.1

(a) All service region data is for Alaska Natives only.

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

## CHARACTERISTICS OF PARENTS

**Mothers with College Degree by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005



**Mothers with College Degree by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005

Service Region	Count	Percent
Arctic Slope	4	0.7
Northwest Arctic	13	1.5
Yukon-Kuskokwim	59	2.0
Norton Sound	26	2.7
Bristol Bay	19	3.7
<b>All Alaska Natives</b>	730	5.4
Southeast	104	7.5
Southcentral/Aleutians	394	7.7
Interior	111	8.7
Alaska Whites	6,444	22.5

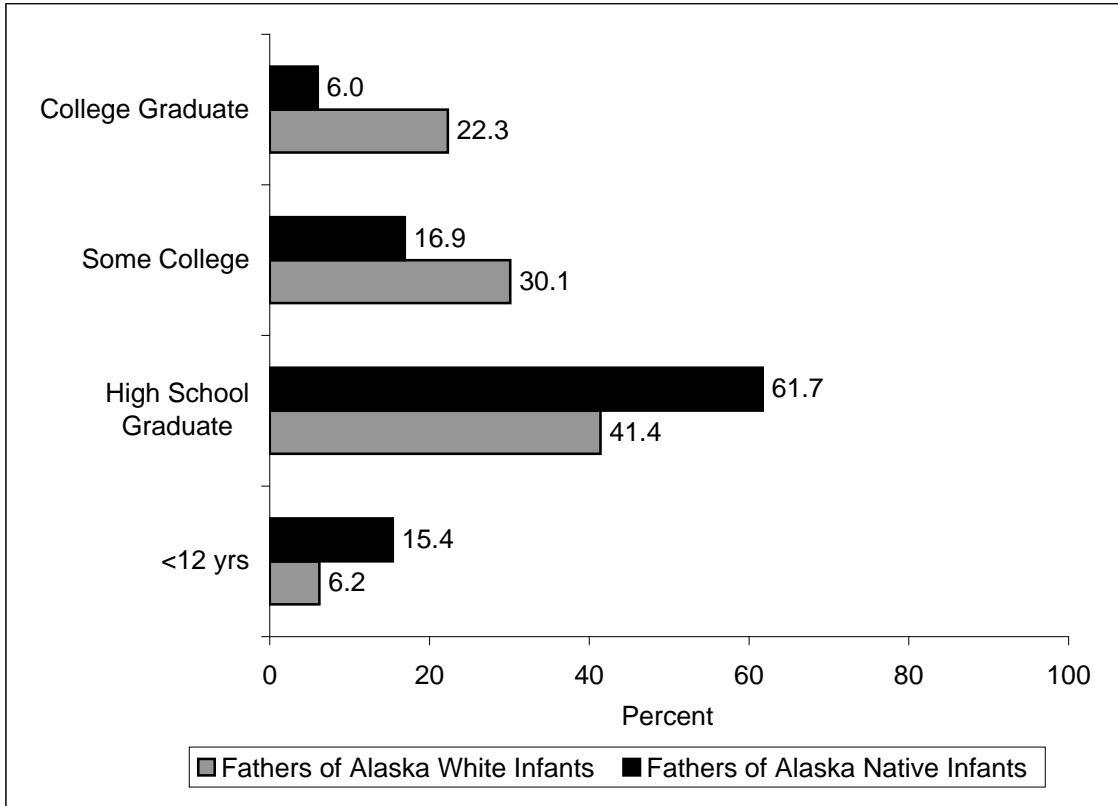
(a) All service region data is for Alaska Natives only.

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.



# CHARACTERISTICS OF PARENTS

**Fathers by Education Level**  
of Alaska Native and Alaska White Infants  
2001-2005



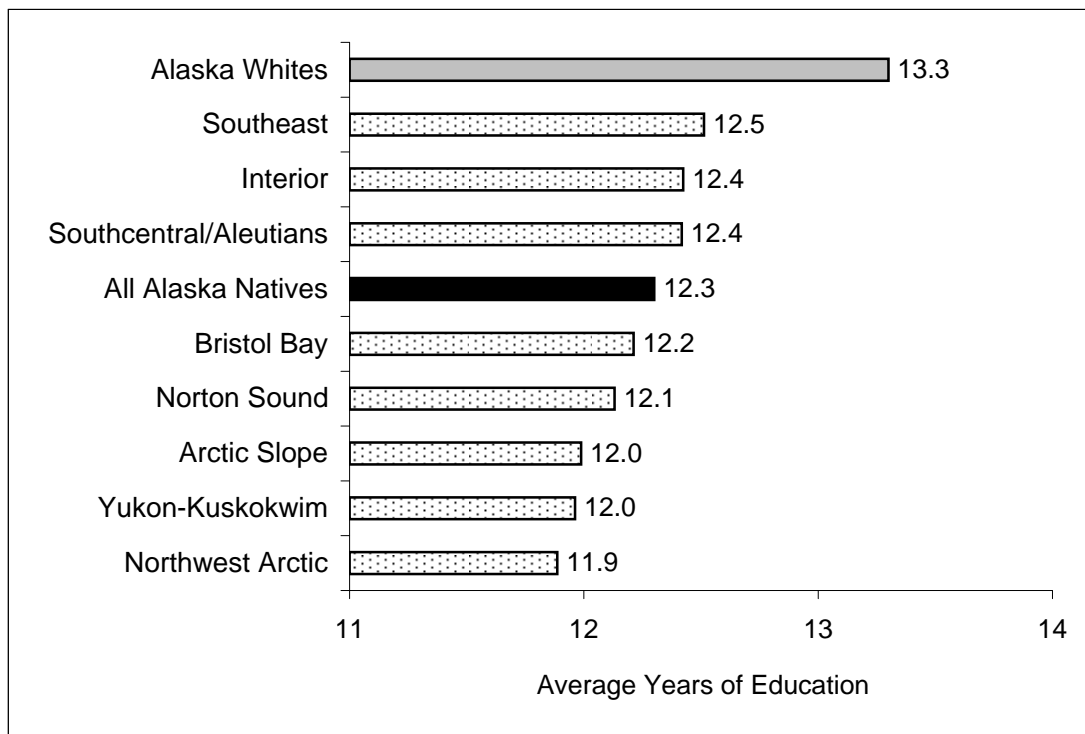
**Fathers by Education Level**  
of Alaska Native and Alaska White Infants  
2001-2005

Education Level	Fathers of Alaska Native Infants		Fathers of Alaska White Infants	
	Count	%	Count	%
<12 yrs	1,630	15.4	1,662	6.2
High School Graduate	6,505	61.7	11,035	41.4
Some College	1,783	16.9	8,014	30.1
College Graduate	633	6.0	5,948	22.3
<b>Total</b>	<b>10,551</b>	<b>100</b>	<b>26,659</b>	<b>100</b>

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

## CHARACTERISTICS OF PARENTS

**Average Education Level of Fathers by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005



**Average Education Level of Fathers by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005

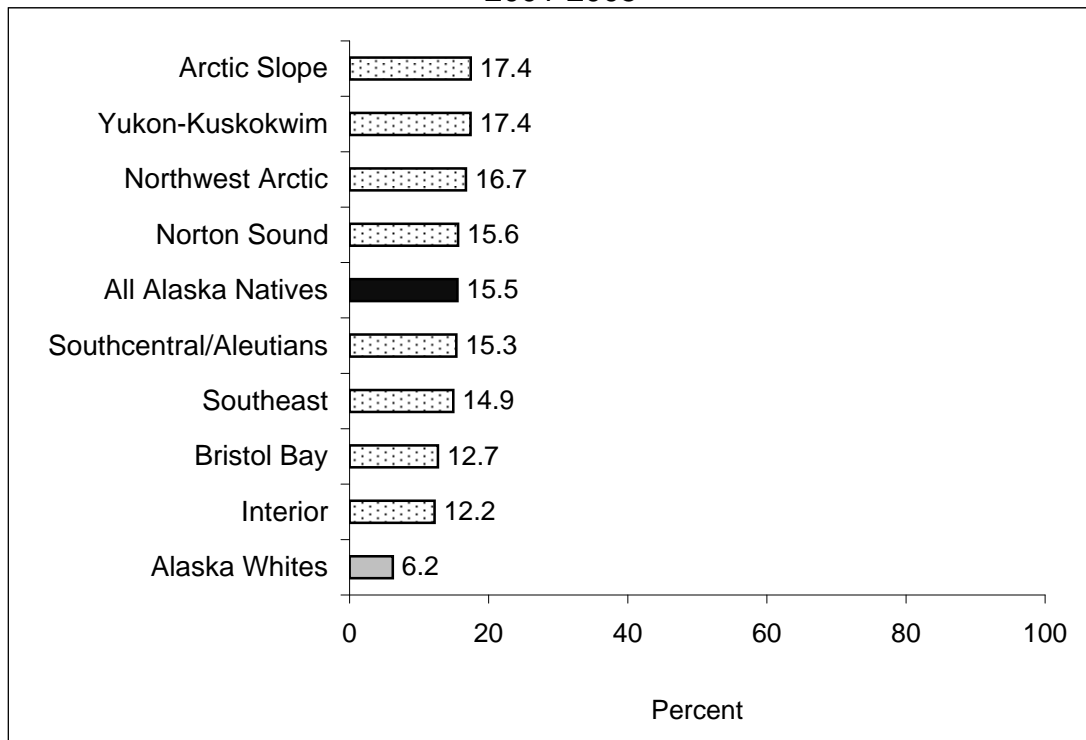
Service Region	Count	Average Years of Education
Northwest Arctic	562	11.9
Yukon-Kuskokwim	2,190	12.0
Arctic Slope	425	12.0
Norton Sound	641	12.1
Bristol Bay	386	12.2
<b>All Alaska Natives</b>	10,519	<b>12.3</b>
Southcentral/Aleutians	4,101	12.4
Interior	1,081	12.4
Southeast	1,133	12.5
Alaska Whites	26,657	13.3

(a) All service region data is for Alaska Natives only.

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

## CHARACTERISTICS OF PARENTS

**Fathers with <12 years Education by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005



**Fathers with <12 years Education by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005

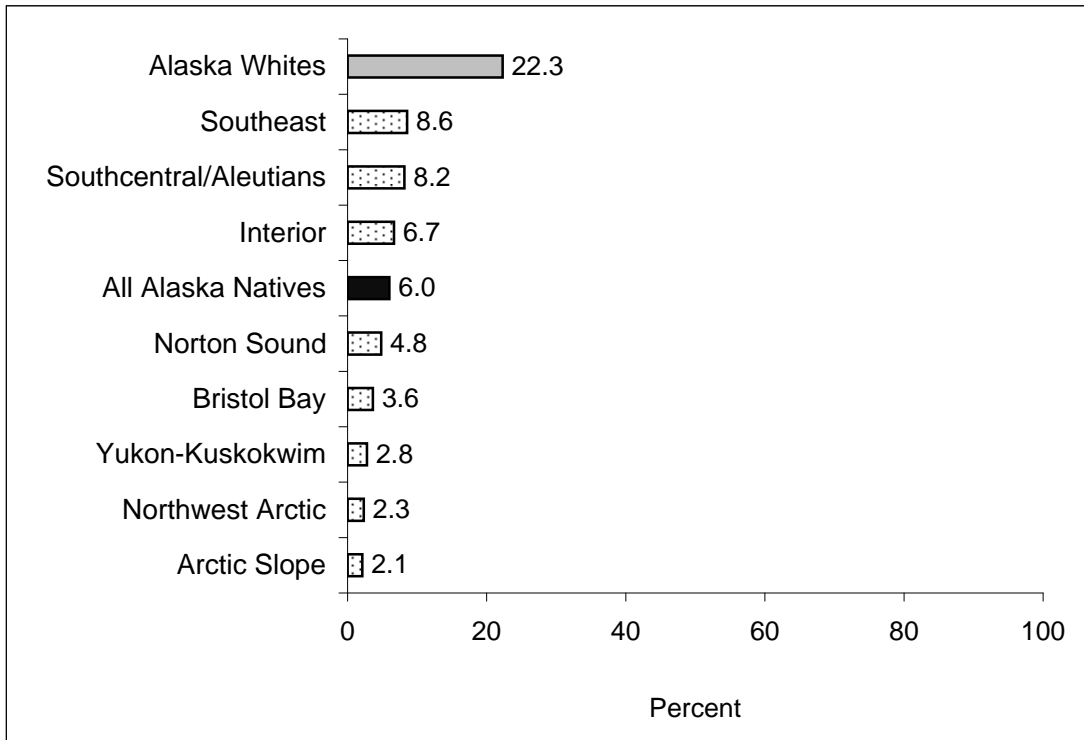
Service Region	Count	Percent
Alaska Whites	1,662	6.2
Interior	132	12.2
Bristol Bay	49	12.7
Southeast	169	14.9
Southcentral/Aleutians	629	15.3
<b>All Alaska Natives</b>	1,628	15.5
Norton Sound	100	15.6
Northwest Arctic	94	16.7
Yukon-Kuskokwim	381	17.4
Arctic Slope	74	17.4

(a) All service region data is for Alaska Natives only.

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

## CHARACTERISTICS OF PARENTS

**Fathers with a College Degree by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005



**Fathers with a College Degree by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005

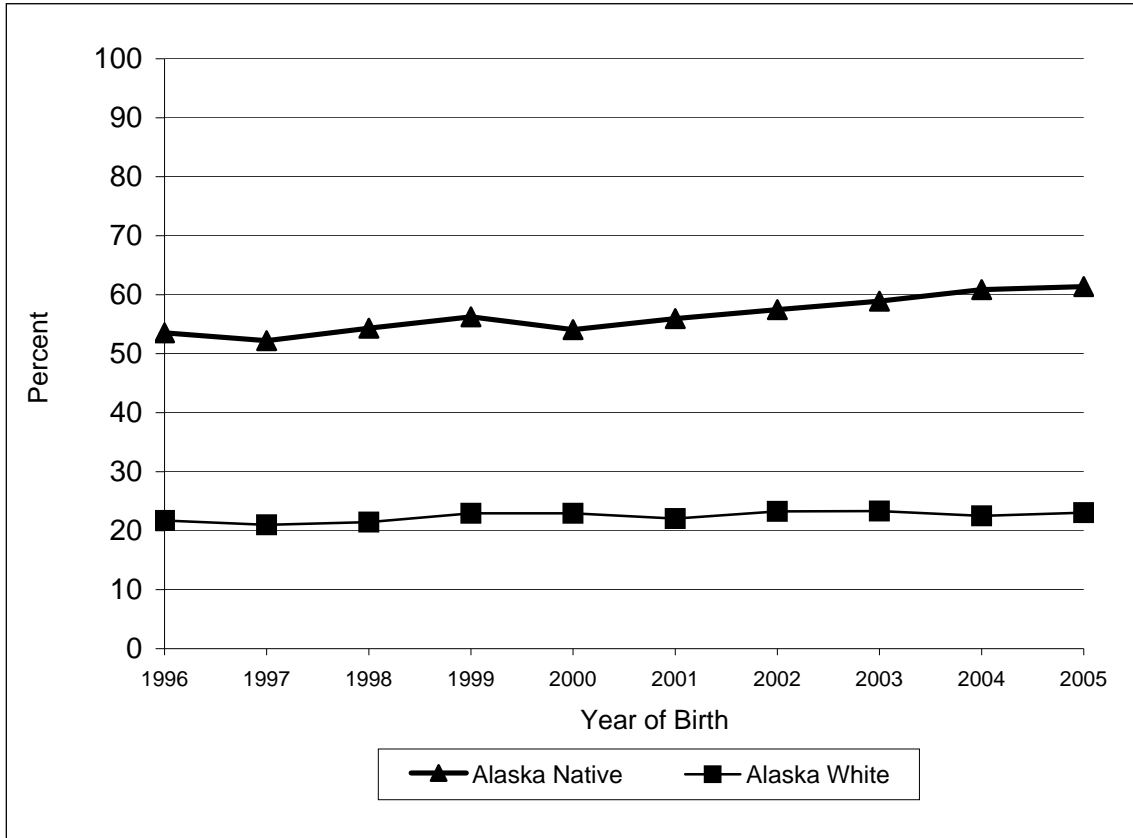
Service Region	Count	Percent
Arctic Slope	9	2.1
Northwest Arctic	13	2.3
Yukon-Kuskokwim	61	2.8
Bristol Bay	14	3.6
Norton Sound	31	4.8
<b>All Alaska Natives</b>	632	6.0
Interior	72	6.7
Southcentral/Aleutians	335	8.2
Southeast	97	8.6
Alaska Whites	5,947	22.3

(a) All service region data is for Alaska Natives only.

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

# CHARACTERISTICS OF PARENTS

## Unmarried Mothers of Alaska Native and Alaska White Infants 1996-2005



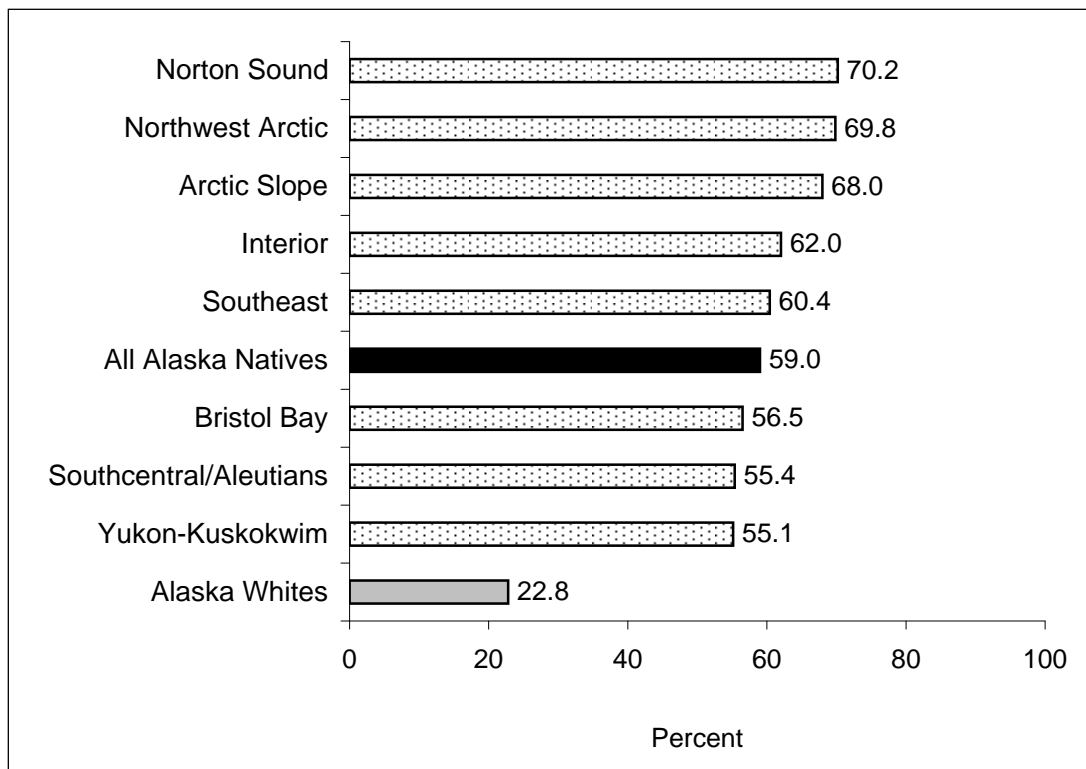
## Unmarried Mothers of Alaska Native and Alaska White Infants 1996-2005

Year	Alaska Native		Alaska White	
	Count	%	Count	%
1996	1,424	53.5	1,357	21.7
1997	1,375	52.2	1,290	21.0
1998	1,429	54.3	1,322	21.4
1999	1,493	56.3	1,382	22.9
2000	1,468	54.1	1,341	22.9
2001	1,553	55.9	1,298	22.1
2002	1,538	57.5	1,356	23.3
2003	1,622	58.9	1,388	23.3
2004	1,740	60.9	1,367	22.5
2005	1,839	61.4	1,381	23.1

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

## CHARACTERISTICS OF PARENTS

**Unmarried Mothers by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005



**Unmarried Mothers by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005

Service Region	Count	Percent
Alaska Whites	6,789	22.8
Yukon-Kuskokwim	1,657	55.1
Southcentral/Aleutians	2,885	55.4
Bristol Bay	296	56.5
<b>All Alaska Natives</b>	<b>8,277</b>	<b>59.0</b>
Southeast	873	60.4
Interior	852	62.0
Arctic Slope	395	68.0
Northwest Arctic	639	69.8
Norton Sound	680	70.2

(a) All service region data is for Alaska Natives only.

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.



CHAPTER THREE  
PRENATAL HEALTH –  
RISK FACTORS

# PRENATAL RISK FACTORS

## Maternal Smoking

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Maternal smoking during pregnancy is the single most preventable cause of illness and death among infants. Smoking increases a women's risk of preterm delivery, ectopic pregnancies and spontaneous abortions.<sup>(1, 2, 3)</sup> Infants of smoking mothers are more likely to have a low birth weight which increases the child's risk of morbidity and mortality.<sup>(3)</sup> Research has shown that infants born to smoking mothers weigh an average of 200 grams less than infants born to women who do not smoke. They are also up to three times more likely to die from Sudden Infant Death Syndrome (SIDS) than infants of mothers who do not smoke.<sup>(4)</sup>

The Healthy People 2010 Objective related to maternal smoking is Objective 16-17c, "An increase in reported abstinence in past month from cigarette smoking by pregnant women (1996 Baseline: 87%; 2010 Target: 99%)."<sup>(1)</sup>

## Maternal Smokeless Tobacco Use

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Studies of smokeless tobacco use by pregnant women demonstrate adverse reproductive outcomes, such as low birth weight and pre-eclampsia.<sup>(5, 6)</sup>

## Maternal Alcohol Use

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Maternal alcohol use refers to the consumption of alcohol during pregnancy. Pregnant women who consume more than six ounces of alcohol per day have a 20% chance of having a child with Fetal Alcohol Syndrome (FAS). Adverse physical and neurological problems may also occur at lower levels of exposure to alcohol.<sup>(7, 8)</sup> Maternal alcohol use is the leading preventable cause of birth defects and mental retardation.<sup>(9)</sup>

Fetal Alcohol Syndrome (FAS) is a disorder of birth defects that occurs in the children of women who drink alcohol during pregnancy. It is unknown whether amount, frequency or timing of alcohol consumption during pregnancy causes a difference in degree of fetal damage. Thus, the current recommendation is not to drink at all during pregnancy.<sup>(10, 11, 12)</sup> Fetal Alcohol Spectrum Disorder (FASD) describe the range of effects that can occur in an individual whose mother drank alcohol during pregnancy. These effects may be physical, mental, or behavioral.<sup>(12)</sup>

The Healthy People 2010 Objective related to maternal alcohol use is Objective 16-17a, "An increase in reported abstinence in past month from alcohol by pregnant women (1996-96 Baseline: 86%; 2010 Target: 94%)."<sup>(1)</sup>

## References

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1. US Department of Health and Human Services. *Healthy people 2010. 2nd ed. [2 vols.]*. Washington, DC: US Department of Health and Human Services. 2000.
2. Himmelberger DU, Brown BW Jr, Cohen EN. Cigarette smoking during pregnancy and the occurrence of spontaneous abortion and congenital abnormality. *American Journal of Epidemiology*. 1978;108:470-9.
3. Centers for Disease Control and Prevention (CDC). *What Do We Know About Tobacco Use and Pregnancy*. June 11, 2007.

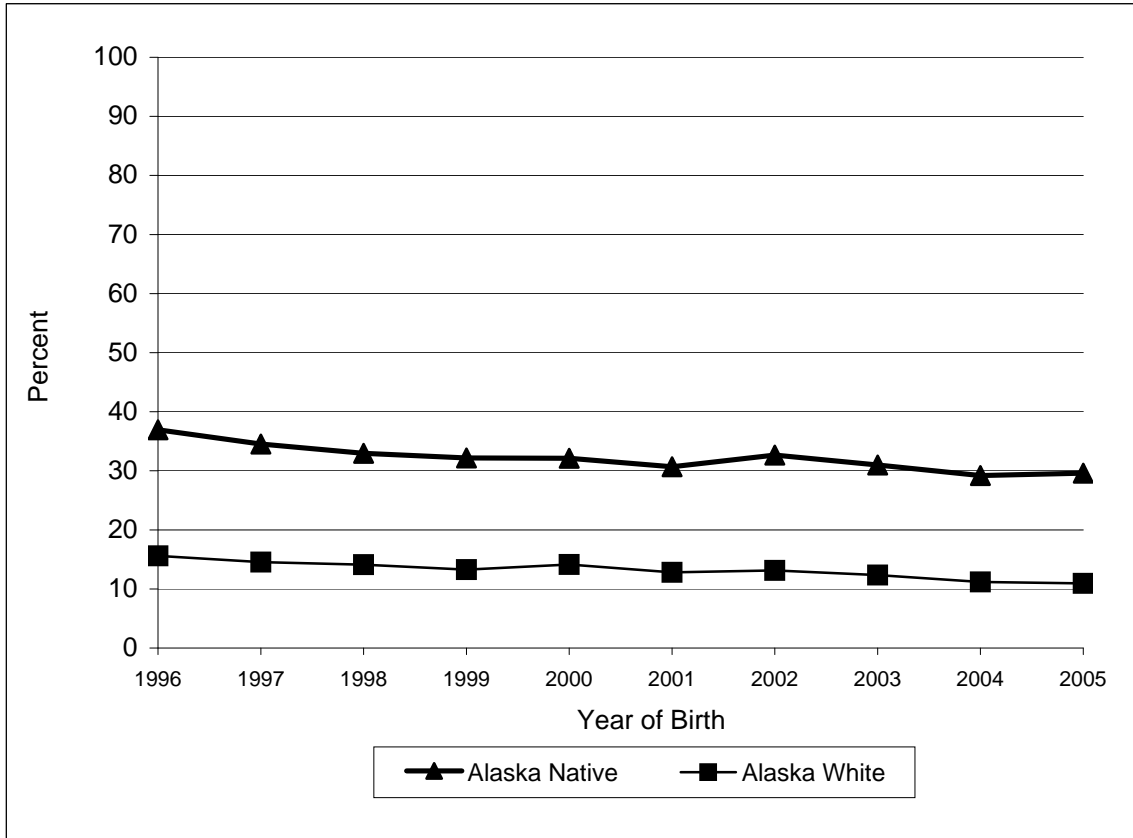


## PRENATAL RISK FACTORS

4. Segal MR, Wight S, Hanrahan JP, Tager IB. *Maternal smoking during pregnancy and birth outcomes with weight gain adjustments via varying-coefficient models*. Division of Biostatistics, University of California, San Francisco [http://www.hss.state.ak.us/dph/chronic/tobacco/PDF/pregnancy\\_fact\\_sheet.pdf](http://www.hss.state.ak.us/dph/chronic/tobacco/PDF/pregnancy_fact_sheet.pdf). Accessed June 20, 2008.
5. Krishna K. Tobacco chewing in pregnancy. *British Journal of Obstetrics and Gynecology*. 1978;85: 726-768.
6. Krishnamurthy S, Joshi S. Gender differences and low birth weight with maternal smokeless tobacco use in pregnancy. *Journal of Tropical Pediatrics*. 1993;39(4);253-254.
7. Institute of Medicine (IOM), Stratton KR, Howe CJ, Battaglia FC. *Fetal Alcohol Syndrome: Diagnosis, Epidemiology, Prevention, and Treatment*. Washington, DC: National Academy Press. 1996.
8. Centers for Disease Control and Prevention. *Fetal Alcohol Syndrome: Guidelines for Referral and Diagnosis*.. [http://www.cdc.gov/ncbddd/fas/documents/FAS\\_guidelines\\_accessible.pdf](http://www.cdc.gov/ncbddd/fas/documents/FAS_guidelines_accessible.pdf). Accessed on July 15, 2008.
9. Abel EL, Sokol RJ. Incidence of fetal alcohol syndrome and economic impact of FAS-related anomalies: Drug alcohol syndrome and economic impact of FAS-related anomalies. *Drug and Alcohol Dependency*. 1987; 19(1);51-70.
10. Ulleland CN. The offspring of alcoholic mothers. *Annals New York Academy of Sciences*. 1972; 197;167-169.
11. Streissguth A. *Fetal Alcohol Syndrome: A Guide for Families and Communities*. Baltimore: Brookes Publishing, 1997.
12. Astley SJ. *Diagnostic Guide for Fetal Alcohol Spectrum Disorders: The 4-Digit Diagnostic Code*. Seattle: University of Washington. PDF available at FAS Diagnostic and Prevention Network. 2004.

# PRENATAL RISK FACTORS

**Mothers Reporting Smoking During Pregnancy**  
of Alaska Native and Alaska White Infants  
1996-2005



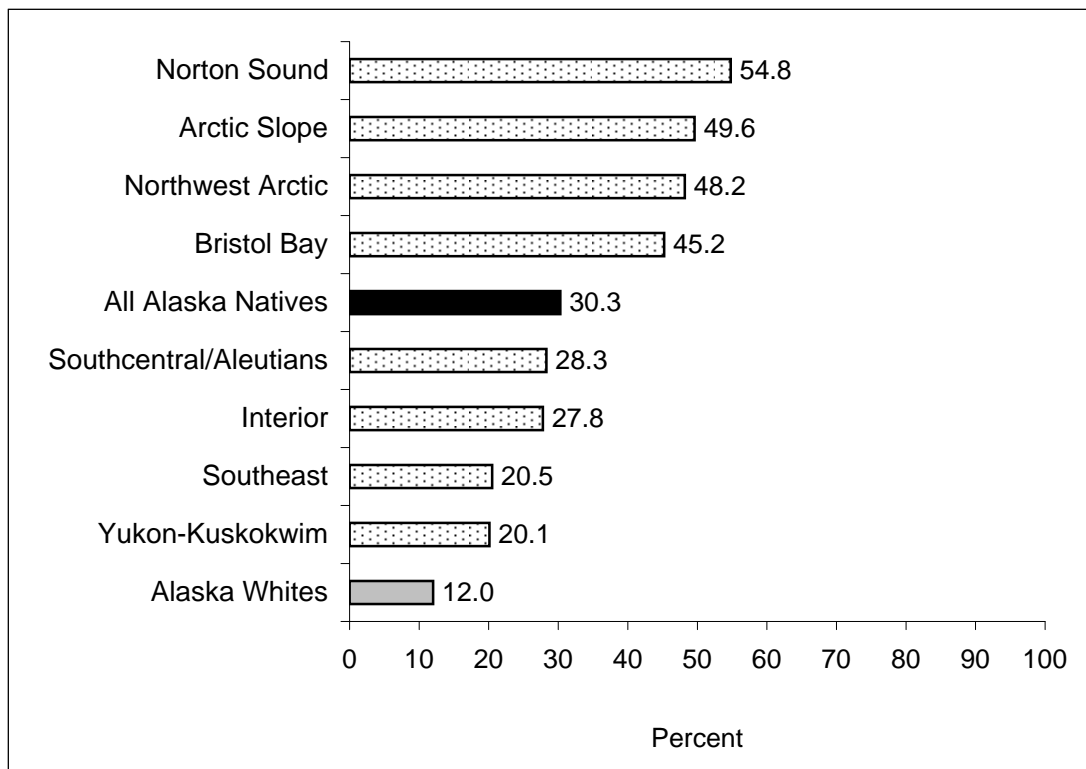
**Mothers Reporting Smoking During Pregnancy**  
of Alaska Native and Alaska White Infants  
1996-2005

Year	Alaska Native		Alaska White	
	Count	%	Count	%
1996	981	36.9	973	15.6
1997	908	34.5	893	14.6
1998	863	33.0	868	14.1
1999	850	32.2	798	13.3
2000	871	32.1	822	14.1
2001	845	30.7	748	12.8
2002	870	32.7	761	13.1
2003	850	31.0	731	12.4
2004	830	29.2	674	11.2
2005	884	29.6	654	10.9

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

## PRENATAL RISK FACTORS

**Mothers Reporting Smoking During Pregnancy by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005



**Mothers Reporting Smoking During Pregnancy by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005

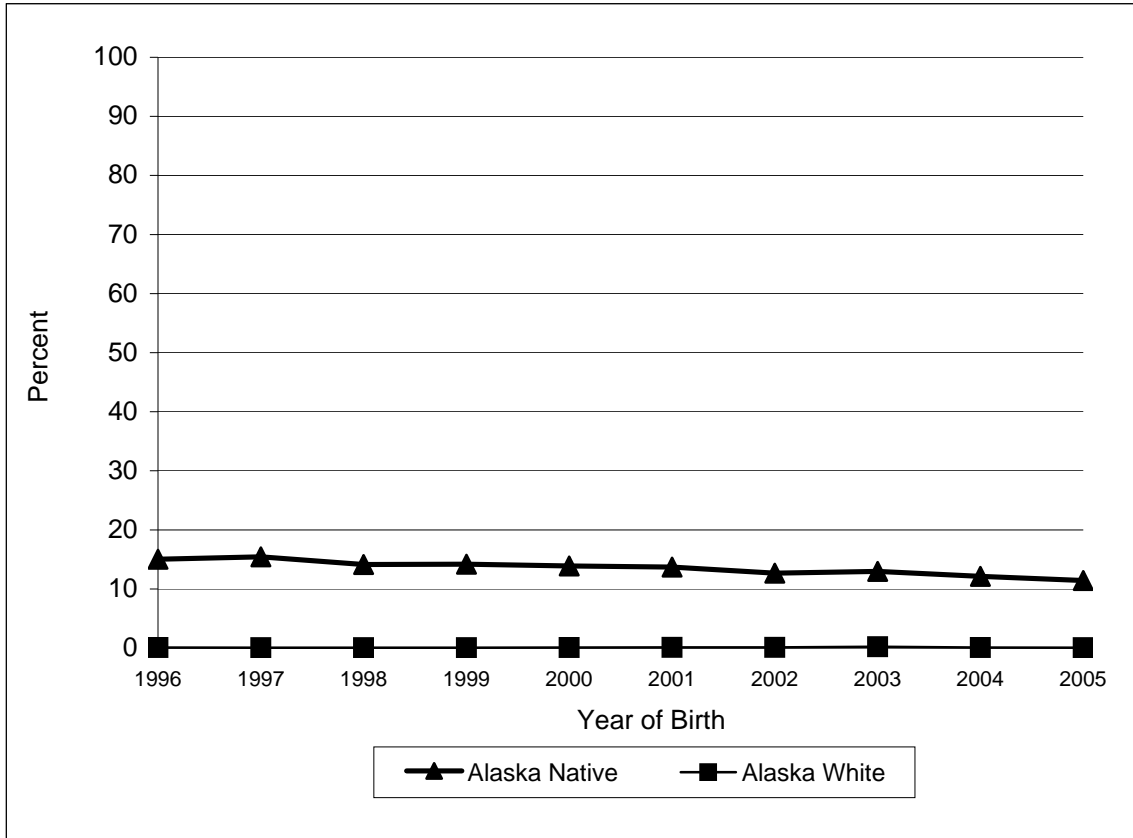
Service Region	Count	Percent
Alaska Whites	3,567	12.0
Yukon-Kuskokwim	603	20.1
Southeast	296	20.5
Interior	382	27.8
Southcentral/Aleutians	1,476	28.3
<b>All Alaska Natives</b>	<b>4,255</b>	<b>30.3</b>
Bristol Bay	237	45.2
Northwest Arctic	442	48.2
Arctic Slope	288	49.6
Norton Sound	531	54.8

(a) All service region data is for Alaska Natives only.

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

# PRENATAL RISK FACTORS

**Mothers Reporting Smokeless Tobacco Use During Pregnancy  
of Alaska Native and Alaska White Infants  
1996-2005**



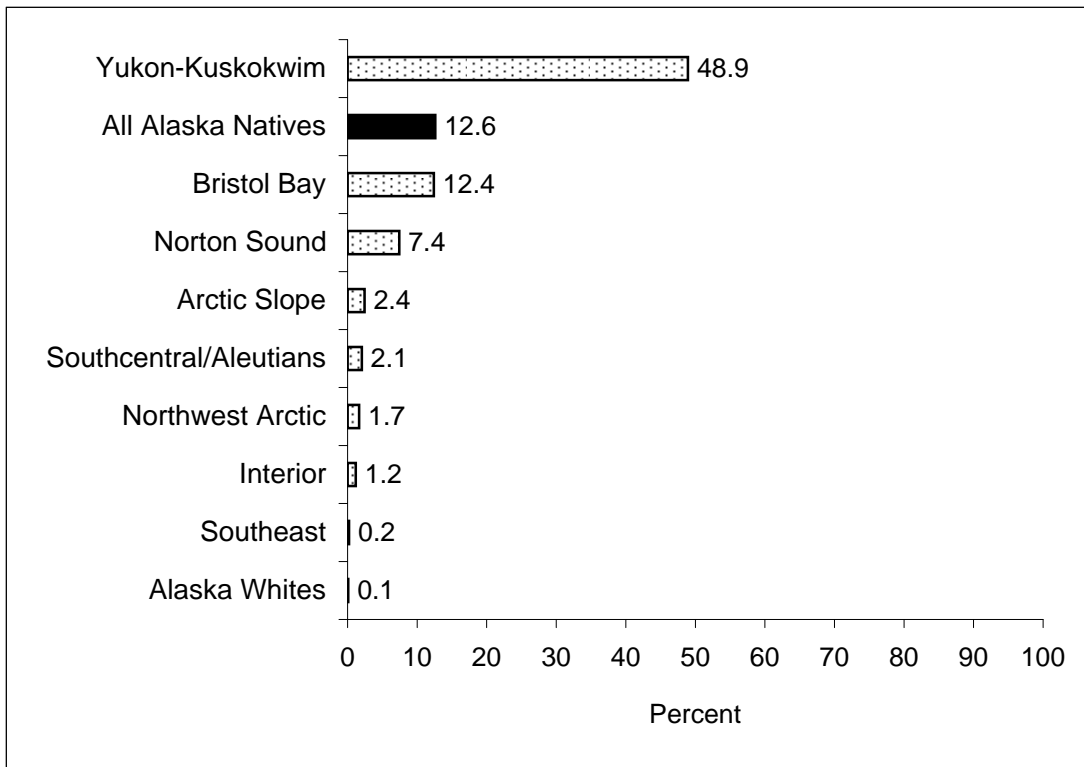
**Mothers Reporting Smokeless Tobacco Use During Pregnancy  
of Alaska Native and Alaska White Infants  
1996-2005**

Year	Alaska Native		Alaska White	
	Count	%	Count	%
1996	399	15.0	5	0.08
1997	406	15.4	3	0.05
1998	370	14.1	3	0.05
1999	374	14.2	3	0.05
2000	375	13.9	4	0.07
2001	375	13.7	7	0.12
2002	336	12.7	6	0.10
2003	355	13.0	13	0.22
2004	343	12.1	4	0.07
2005	341	11.4	3	0.05

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

## PRENATAL RISK FACTORS

**Mothers Reporting Smokeless Tobacco Use by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005



**Mothers Reporting Smokeless Tobacco Use by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005

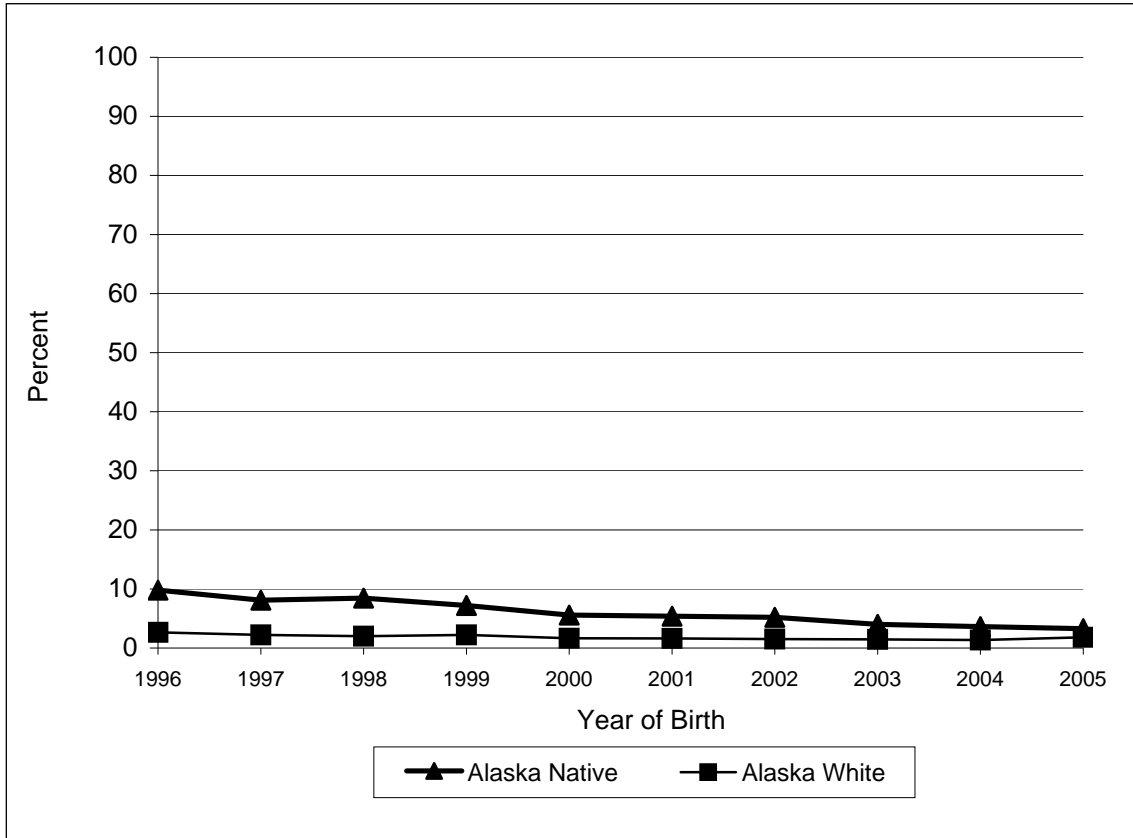
Service Region	Count	Percent
Alaska Whites	33	0.1
Southeast	3	0.2
Interior	16	1.2
Northwest Arctic	15	1.7
Southcentral/Aleutians	106	2.1
Arctic Slope	14	2.4
Norton Sound	71	7.4
Bristol Bay	65	12.4
<b>All Alaska Natives</b>	<b>1,749</b>	<b>12.6</b>
Yukon-Kuskokwim	1,459	48.9

(a) All service region data is for Alaska Natives only.

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

# PRENATAL RISK FACTORS

**Mothers Reporting Alcohol Use During Pregnancy**  
of Alaska Native and Alaska White Infants  
1996-2005



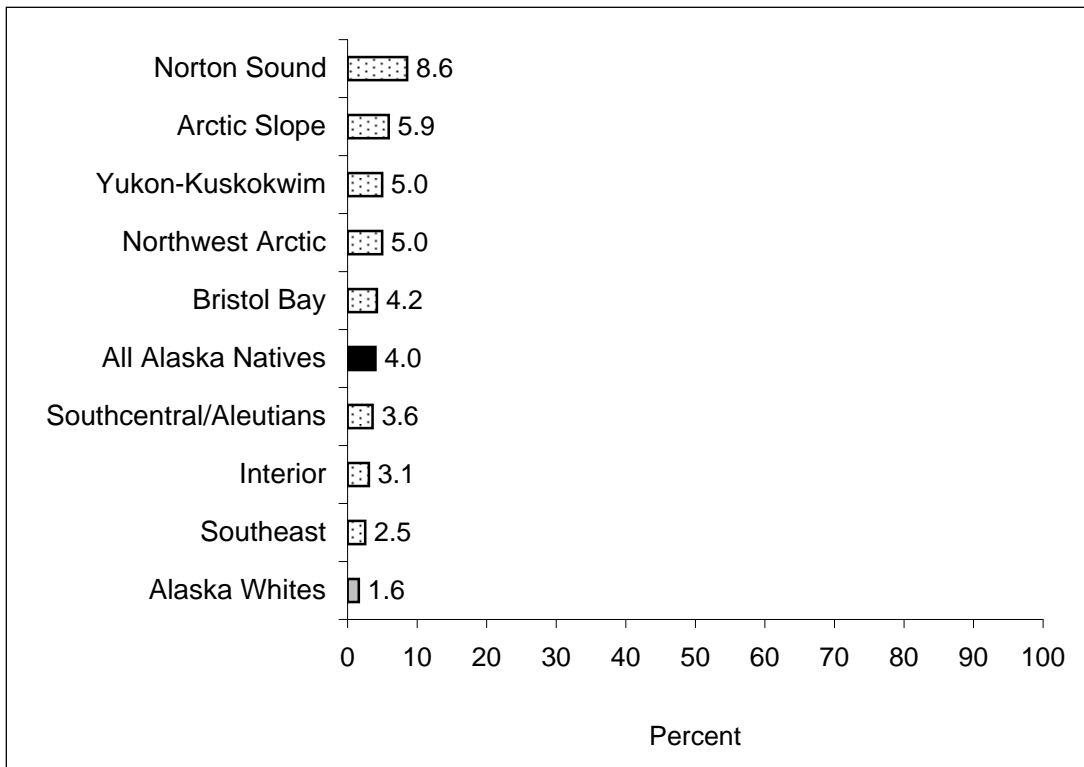
**Mothers Reporting Alcohol Use During Pregnancy**  
of Alaska Native and Alaska White Infants  
1996-2005

Year	Alaska Native		Alaska White	
	Count	%	Count	%
1996	260	9.8	165	2.6
1997	213	8.1	136	2.2
1998	221	8.4	124	2.0
1999	190	7.2	134	2.2
2000	151	5.6	96	1.7
2001	148	5.4	95	1.6
2002	138	5.2	88	1.5
2003	110	4.0	86	1.5
2004	103	3.6	81	1.3
2005	98	3.3	108	1.8

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

## PRENATAL RISK FACTORS

**Pregnant Mothers Reporting Alcohol Use by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005



**Pregnant Mothers Reporting Alcohol Use by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005

Service Region	Count	Percent
Alaska Whites	458	1.6
Southeast	36	2.5
Interior	42	3.1
Southcentral/Aleutians	186	3.6
<b>All Alaska Natives</b>	595	4.0
Bristol Bay	22	4.2
Northwest Arctic	45	5.0
Yukon-Kuskokwim	148	5.0
Arctic Slope	34	5.9
Norton Sound	82	8.6

(a) All service region data is for Alaska Natives only.

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.



CHAPTER FOUR  
PRENATAL HEALTH-  
PROTECTIVE FACTORS



# PRENATAL HEALTH - PROTECTIVE FACTORS

## Prenatal Care

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Prenatal care initiation allows for early detection, treatment, and management of medical and obstetric conditions, including pregnancy-induced hypertension and diabetes. It also provides the opportunity for encouraging healthy behaviors and preventing poor birth outcomes by educating women early in their pregnancies about proper nutrition, safe sexual practices, the dangers of tobacco (smoking and smokeless), alcohol and drugs, and other factors that might affect pregnancy outcomes.<sup>(1)</sup> Ideally, women should seek preconception care prior to becoming pregnant and have their first prenatal visit during the first trimester of pregnancy.

Infants of mothers who do not get prenatal care are three times more likely to have a low birth weight infant and the infant is five times more likely to die than those born to mothers who do get care. Typically, doctors schedule prenatal visits monthly for the first 28 weeks of pregnancy, every two weeks from 28 to 36 weeks, and weekly during the last month.<sup>(2)</sup>

The Healthy People 2010 Objectives related to prenatal care are:

- Objective 16-6a, “Increase the proportion of pregnant women beginning care in the first trimester of pregnancy (1998 Baseline: 83%; 2010 Target: 90%).”
- Objective 16-6b, “Increase in the proportion of pregnant women receiving early and adequate prenatal care (1998 Baseline: 74%; 2010 Target: 90%).<sup>(3)</sup>

## Kessner Index of Care

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Kessner Index of Care is a method of categorizing adequacy of prenatal care, based on the month the pregnancy care started, number of visits, and length of gestation. This index adjusts for the fact that women with short gestations have less time in which to make prenatal care visits. The Kessner Index assigns three levels of care—*adequate*, *intermediate*, and *inadequate*. “Adequate prenatal care” is defined as care that begins in the first trimester and includes nine visits throughout the pregnancy. “Intermediate prenatal care” is defined as care that begins during the first or second trimester and includes five to eight visits. “Inadequate prenatal care” is defined as beginning in the third trimester and includes no more than four visits.<sup>(4)</sup>

## Nutrition

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A mother getting proper nutrition before and during pregnancy reduces the risk of childhood morbidity and mortality.<sup>(5)</sup> Maternal weight gain refers to the amount of weight gained from conception to delivery. Recommended weight gain amounts are based on the mother’s pre-pregnancy weight. A minimum weight gain of at least 25 pounds is suggested for women of normal pre-pregnancy weight. A minimum weight gain of 15 pounds is suggested for women who are overweight or obese before pregnancy. Maternal obesity before pregnancy is associated

## PRENATAL HEALTH - PROTECTIVE FACTORS

with an increased risk for gestational diabetes, preeclampsia, eclampsia, Cesarean delivery, and delivery of a macrosomic infant.<sup>(6,7)</sup>

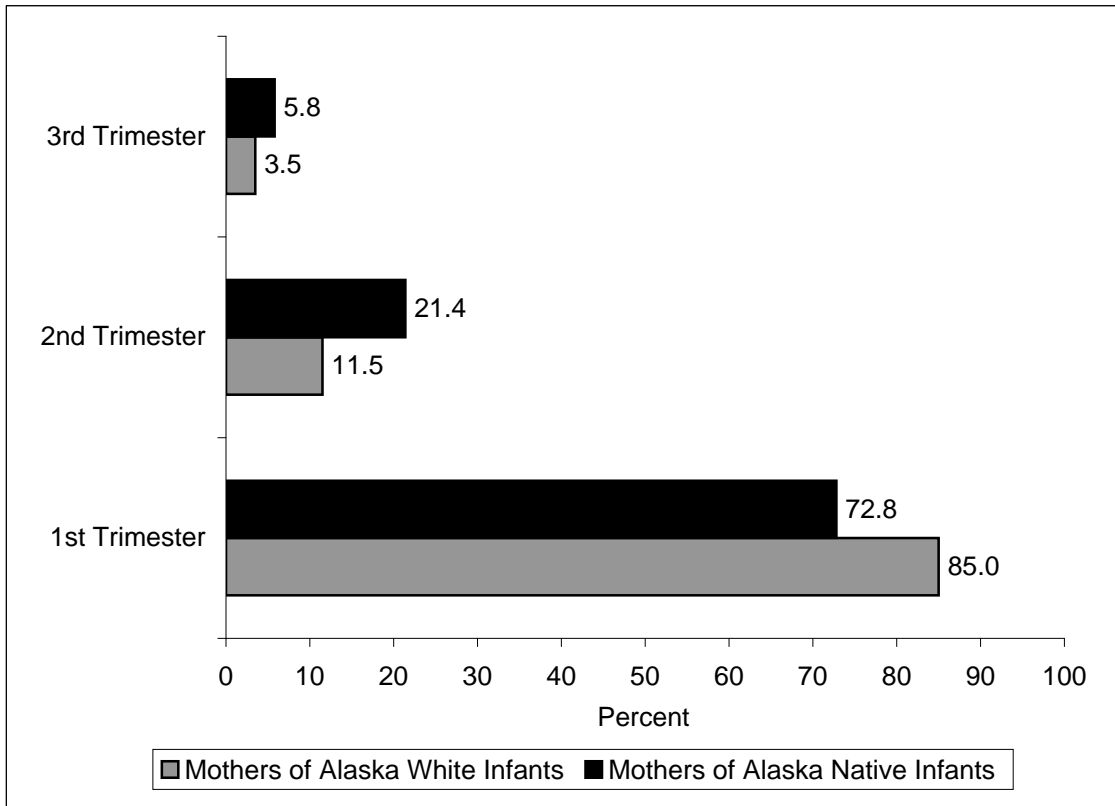
### References

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1. National Institute of Child Health and Human Development. *Care Before and During Pregnancy - Prenatal Care*. [http://156.40.88.3/about/womenhealth/prenatal\\_care.cfm](http://156.40.88.3/about/womenhealth/prenatal_care.cfm). Accessed July 15, 2007.
2. The National Women's Health Information Center (2006). "Prenatal Care" <http://www.womenshealth.gov/faq/prenatal.htm>. Accessed June 28, 2008.
3. US Department of Health and Human Services. *Healthy people 2010. 2nd ed. [2 vols.]*. Washington, DC: US Department of Health and Human Services. 2000.
4. Kessner, D. *Infant Death: An Analysis by Maternal Risk and Health Care*. Institute of Medicine, Contrasts in Health status. National Academy of Sciences, Washington, DC. 1973: Volume 1;(58-60).
5. Zimmermann MB. The adverse effects of mild-to-moderate iodine deficiency during pregnancy and childhood: a review. *Thyroid*. 2007;17(9):829-35.
6. Baeten JM, Bukusi EA, Lambe M. Pregnancy complications and outcomes among overweight and obese nulliparous women. *American Journal of Public Health*. 2001;91(3):436.
7. Hickey CA, Cliver SP, McNeal SF, et al. Prenatal weight gain patterns and birth weight among nonobese black and white women. *Obstetrics and Gynecology*. 1996;88 (4, Part 1):490-496.

# PRENATAL HEALTH - PROTECTIVE FACTORS

**Prenatal Care Initiation for Mothers**  
of Alaska Native and Alaska White Infants  
2001-2005



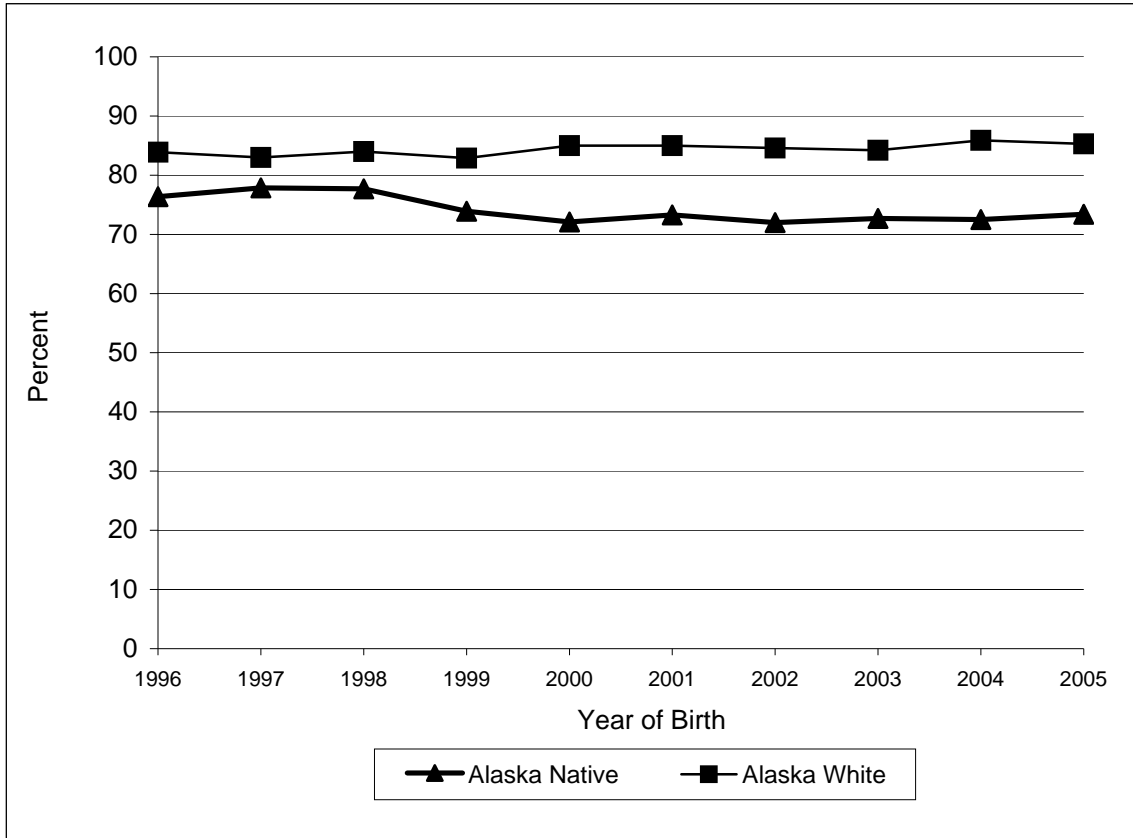
**Prenatal Care Initiation for Mothers**  
of Alaska Native and Alaska White Infants  
2001-2005

Age	Mothers of Alaska Native Infants		Mothers of Alaska White Infants	
	Count	%	Count	%
1st Trimester	9,893	<b>72.8</b>	24,449	<b>85.0</b>
2nd Trimester	2,909	<b>21.4</b>	3,296	<b>11.5</b>
3rd Trimester	786	<b>5.8</b>	1,015	<b>3.5</b>
Total	13,588	<b>100</b>	28,760	<b>100</b>

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

# PRENATAL HEALTH - PROTECTIVE FACTORS

**Mothers Starting Prenatal Care in the First Trimester  
of Alaska Native and Alaska White Infants  
1996-2005**



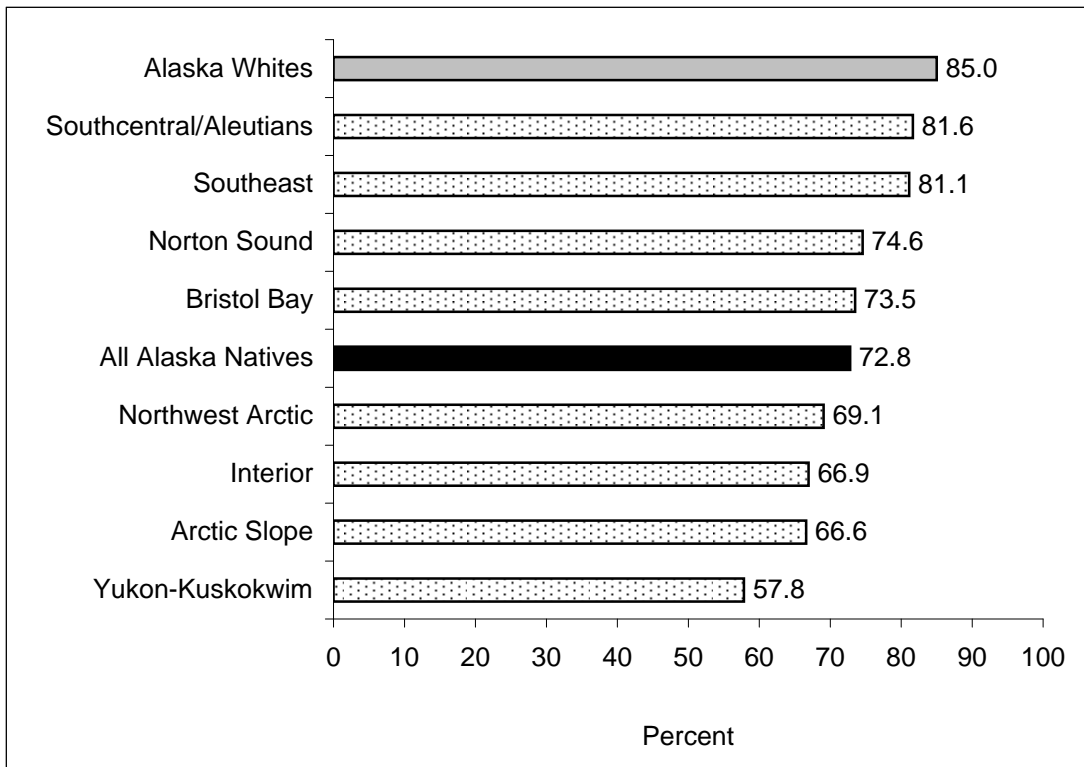
**Mothers Starting Prenatal Care in the First Trimester  
of Alaska Native and Alaska White Infants  
1996-2005**

Year	Alaska Native		Alaska White	
	Count	%	Count	%
1996	1,999	76.4	5,187	83.9
1997	2,014	77.9	5,039	83.0
1998	1,995	77.7	5,119	84.0
1999	1,922	73.9	4,947	82.9
2000	1,921	72.1	4,867	85.0
2001	1,950	73.3	4,872	85.0
2002	1,854	72.0	4,773	84.6
2003	1,940	72.7	4,815	84.2
2004	1,990	72.5	4,971	85.9
2005	2,159	73.4	5,018	85.3

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health.

## PRENATAL HEALTH - PROTECTIVE FACTORS

**Prenatal Care in the First Trimester by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005



**Prenatal Care in the First Trimester by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005

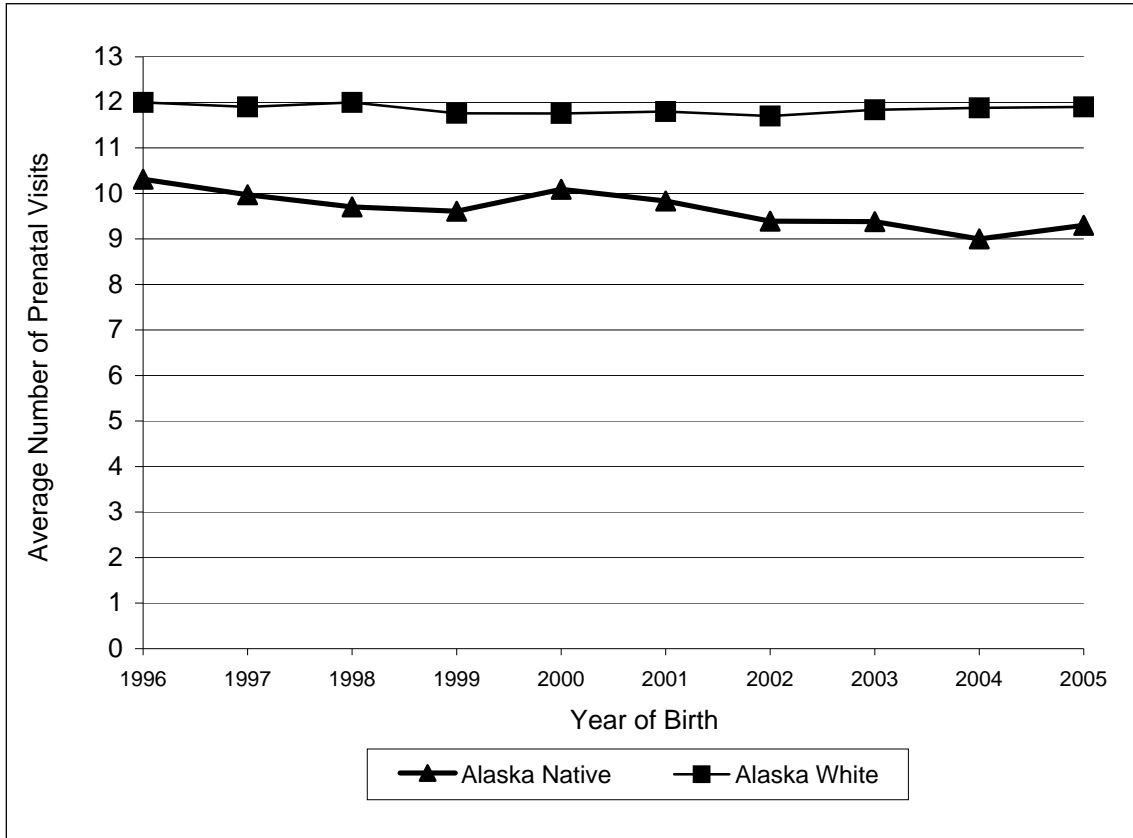
Service Region	Count	Percent
Yukon-Kuskokwim	1,669	57.8
Arctic Slope	375	66.6
Interior	877	66.9
Northwest Arctic	616	69.1
<b>All Alaska Natives</b>	9,873	<b>72.8</b>
Bristol Bay	383	73.5
Norton Sound	704	74.6
Southeast	1,083	81.1
Southcentral/Aleutians	4,166	81.6
Alaska Whites	24,447	85.0

(a) All service region data is for Alaska Natives only.

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health. ADHSS.

# PRENATAL HEALTH - PROTECTIVE FACTORS

**Average Number of Prenatal Visits for Mothers  
of Alaska Native and Alaska White Infants  
1996-2005**



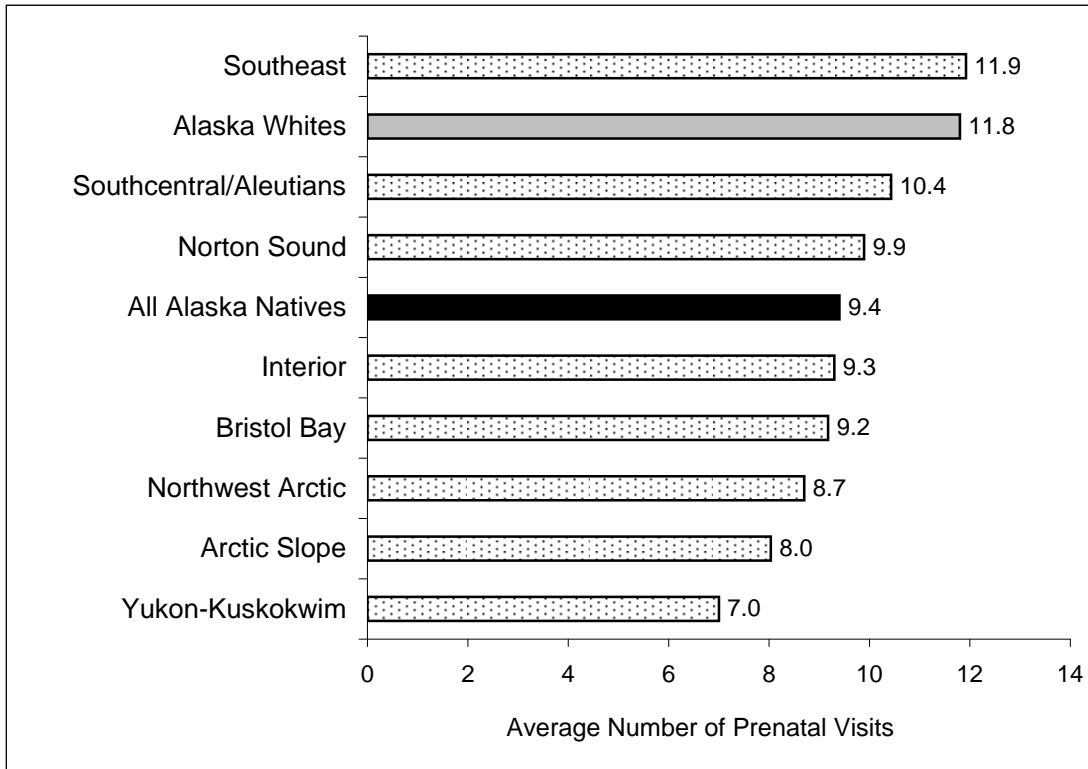
**Average Number of Prenatal Visits for Mothers  
of Alaska Native and Alaska White Infants  
1996-2005**

Year	Alaska Native		Alaska White	
	Count	Average	Count	Average
1996	2,619	10.3	6,193	12.0
1997	2,592	10.0	6,100	11.9
1998	2,550	9.7	6,108	12.0
1999	2,594	9.6	5,945	11.8
2000	2,643	10.1	5,596	11.8
2001	2,620	9.8	5,428	11.8
2002	2,541	9.4	5,331	11.7
2003	2,618	9.4	5,203	11.8
2004	2,724	9.0	5,320	11.9
2005	2,911	9.3	5,607	11.9

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

## PRENATAL HEALTH - PROTECTIVE FACTORS

**Average Number of Prenatal Visits by Service Region<sup>a</sup>**  
 Alaska Native and Alaska White Infants  
 2001-2005



**Average Number of Prenatal Visits by Service Region<sup>a</sup>**  
 Alaska Native and Alaska White Infants  
 2001-2005

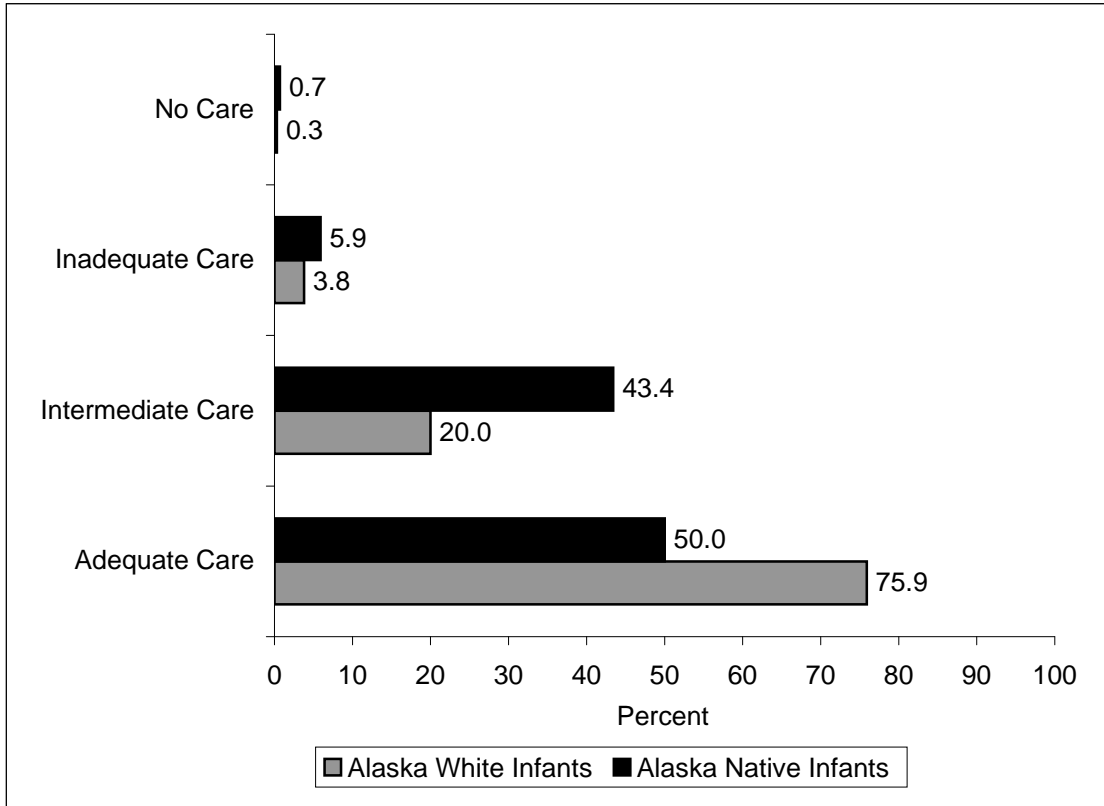
Service Region	Average
Yukon-Kuskokwim	7.0
Arctic Slope	8.0
Northwest Arctic	8.7
Bristol Bay	9.2
Interior	9.3
<b>All Alaska Natives</b>	<b>9.4</b>
Norton Sound	9.9
Southcentral/Aleutians	10.4
Alaska Whites	11.8
Southeast	11.9

(a) All service region data is for Alaska Natives only.

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

# PRENATAL PROTECTIVE FACTORS

**Kessner Index of Care**  
Alaska Native and Alaska White Infants  
2001-2005



**Kessner Index of Care**  
Alaska Native and Alaska White Infants  
2001-2005

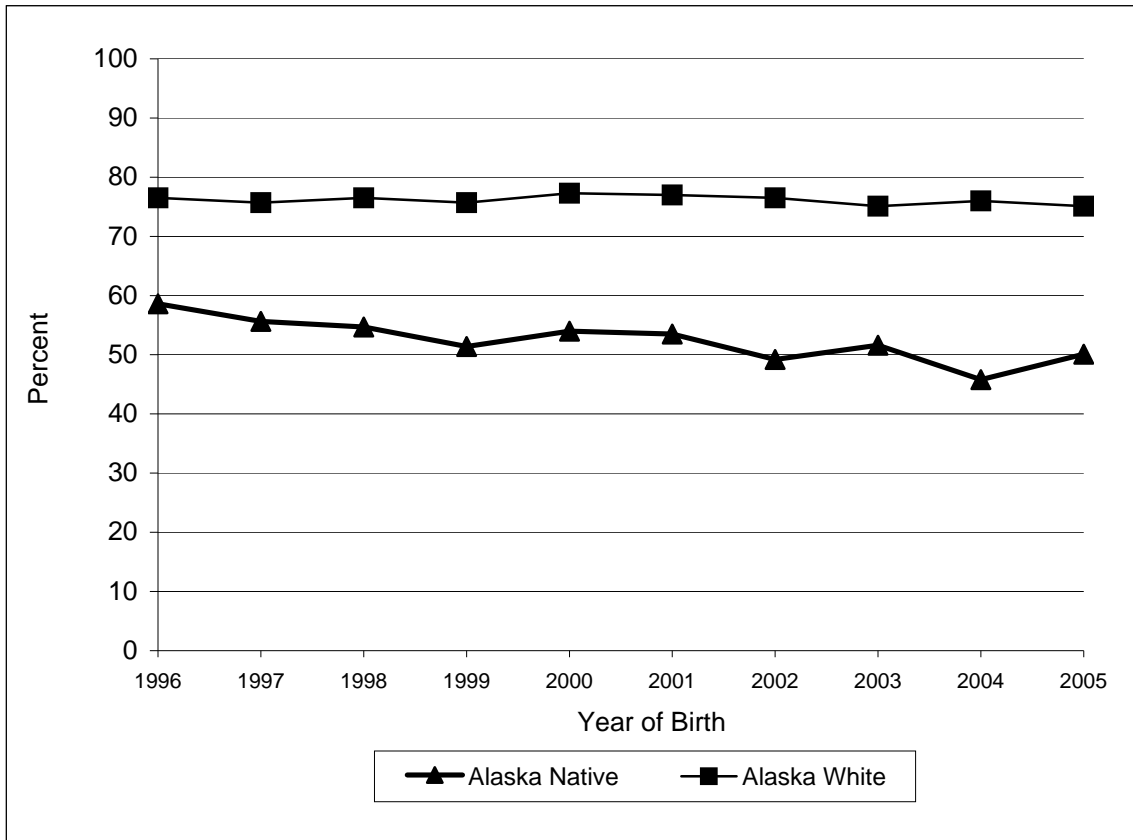
	Alaska Native Infants		Alaska White Infants	
	Count	%	Count	%
Adequate Care	6,682	50.0	20,330	75.9
Intermediate Care	5,797	43.4	5,355	20.0
Inadequate Care	786	5.9	1,015	3.8
No Care	96	0.7	72	0.3
<b>Total</b>	<b>13,361</b>	<b>100</b>	<b>26,772</b>	<b>100</b>

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.



# PRENATAL HEALTH - PROTECTIVE FACTORS

**Kessner Index - Adequate Prenatal Care**  
Alaska Native and Alaska White Infants  
1996-2005



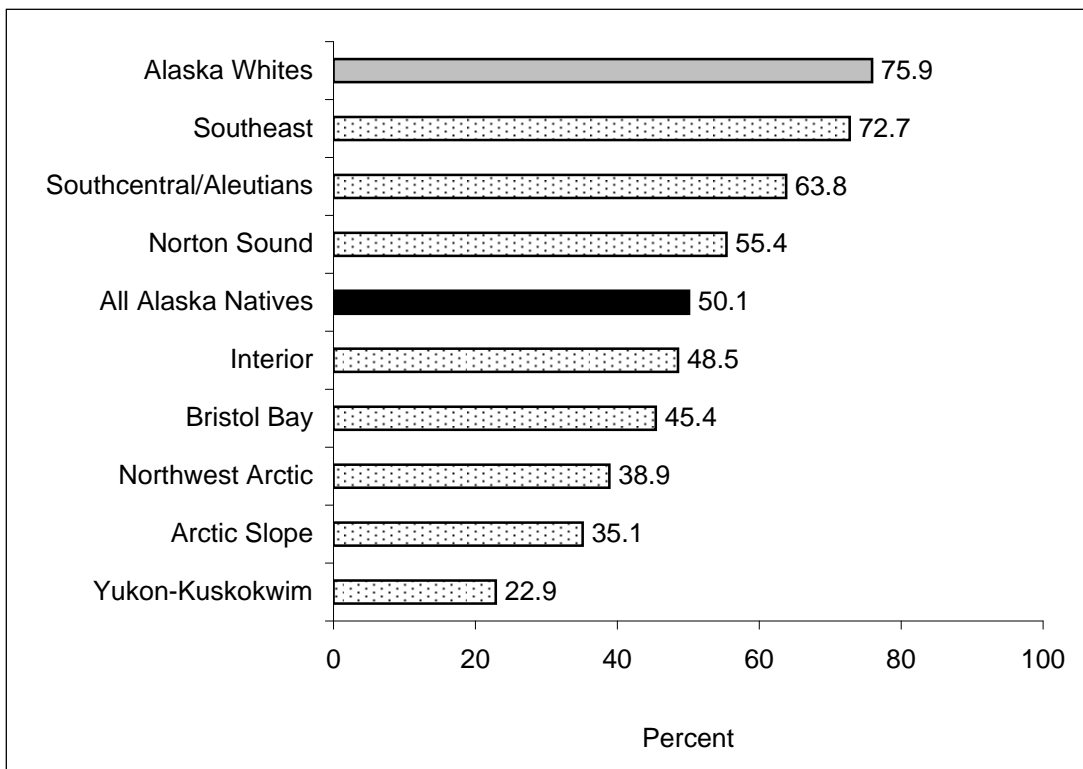
**Kessner Index - Adequate Prenatal Care**  
Alaska Native and Alaska White Infants  
1996-2005

Year	Alaska Native		Alaska White	
	Count	%	Count	%
1996	1563	58.6	4736	76.5
1997	1440	55.6	4602	75.7
1998	1390	54.7	4669	76.5
1999	1332	51.4	4501	75.7
2000	1430	54.0	4300	77.3
2001	1397	53.5	4156	77.0
2002	1245	49.2	4049	76.5
2003	1342	51.6	3905	75.1
2004	1236	45.8	4008	76.0
2005	1462	50.1	4212	75.1

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

## PRENATAL HEALTH - PROTECTIVE FACTORS

**Kessner Index - Adequate Prenatal Care by Service Region<sup>a</sup>**  
 Alaska Native and Alaska White Infants  
 2001-2005



**Kessner Index - Adequate Prenatal Care by Service Region<sup>a</sup>**  
 Alaska Native and Alaska White Infants  
 2001-2005

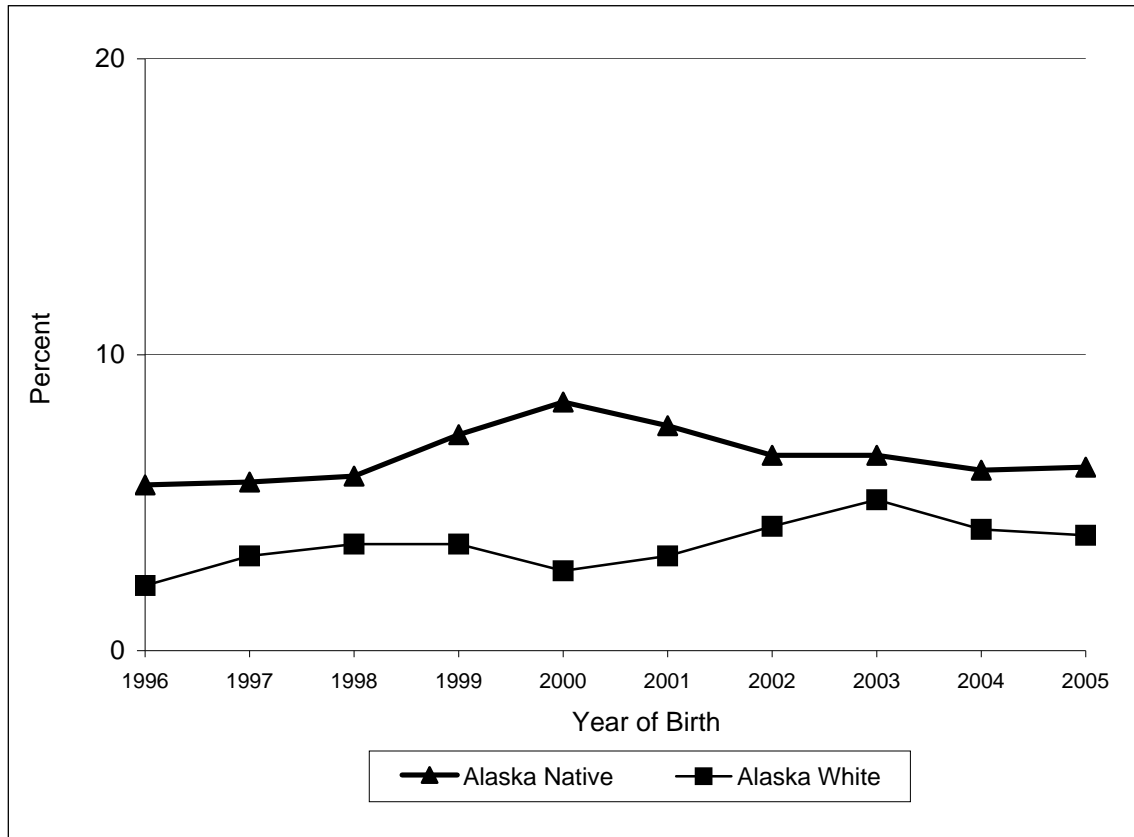
Service Region	Count	Percent
Yukon-Kuskokwim	658	<b>22.9</b>
Arctic Slope	199	<b>35.1</b>
Northwest Arctic	346	<b>38.9</b>
Bristol Bay	237	<b>45.4</b>
Interior	636	<b>48.5</b>
<b>All Alaska Natives</b>	6,671	<b>50.1</b>
Norton Sound	526	<b>55.4</b>
Southcentral/Aleutians	3,186	<b>63.8</b>
Southeast	883	<b>72.7</b>
Alaska Whites	20,328	<b>75.9</b>

(a) All service region data is for Alaska Natives only.

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

# PRENATAL HEALTH - PROTECTIVE FACTORS

## Kessner Index - Inadequate or No Prenatal Care Alaska Native and Alaska White Infants 1996-2005



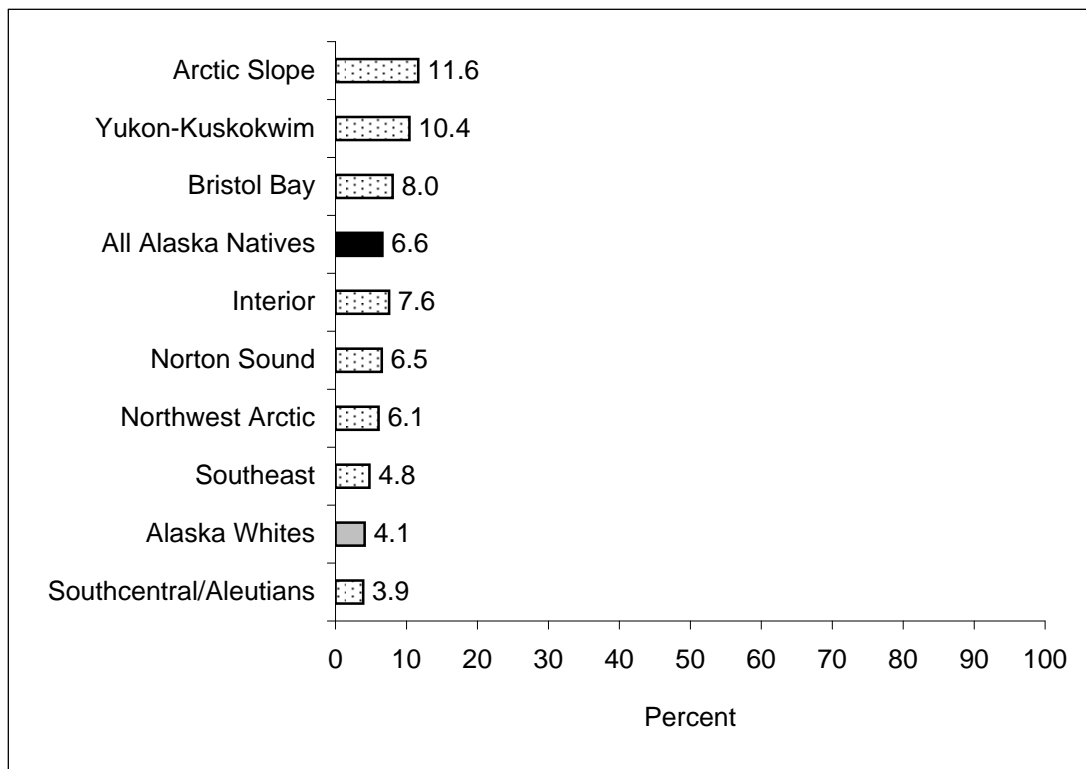
## Kessner Index - Inadequate or No Prenatal Care Alaska Native and Alaska White Infants 1996-2005

Year	Alaska Native		Alaska White	
	Count	%	Count	%
1996	148	5.6	133	2.2
1997	149	5.7	197	3.2
1998	150	5.9	218	3.6
1999	188	7.3	214	3.6
2000	221	8.4	154	2.7
2001	198	7.6	171	3.2
2002	166	6.6	237	4.2
2003	172	6.6	265	5.1
2004	166	6.1	219	4.1
2005	180	6.2	217	3.9

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

## PRENATAL HEALTH - PROTECTIVE FACTORS

**Kessner Index - Inadequate or No Prenatal Care by Service Region<sup>a</sup>**  
 Alaska Native and Alaska White Infants  
 2001-2005



**Kessner Index - Inadequate or No Prenatal Care by Service Region<sup>a</sup>**  
 Alaska Native and Alaska White Infants  
 2001-2005

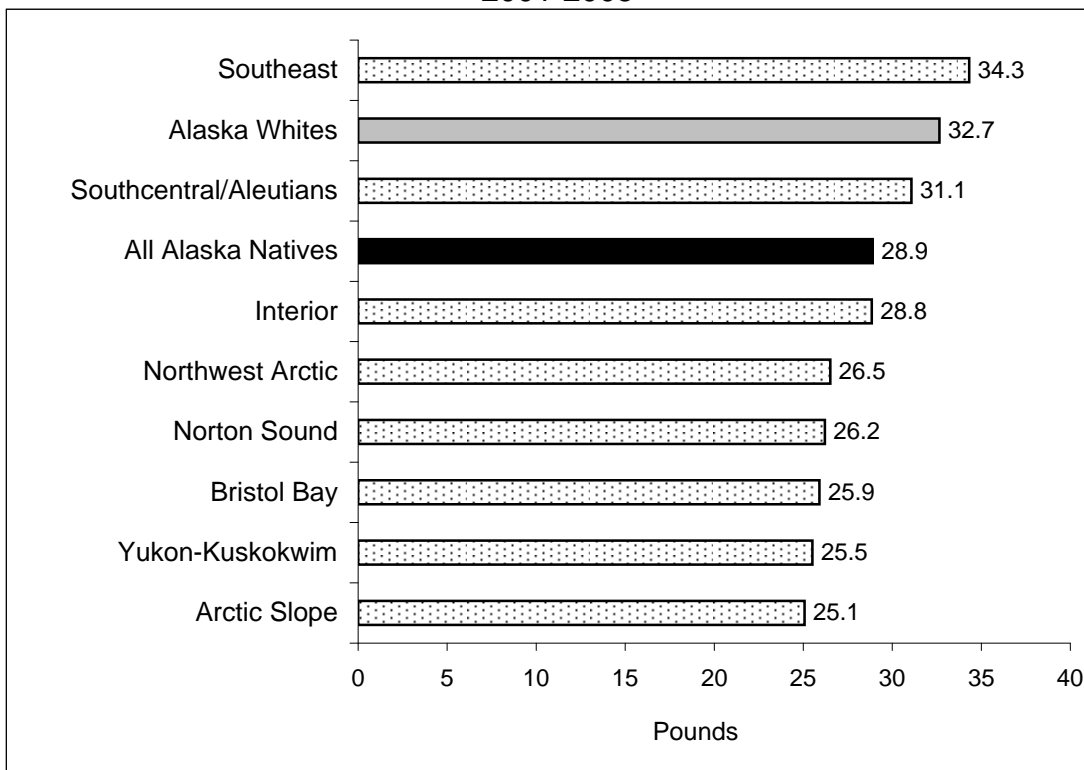
Service Region	Count	Percent
Southcentral/Aleutians	198	3.9
Alaska Whites	1,087	4.1
Southeast	58	4.8
Northwest Arctic	54	6.1
Norton Sound	62	6.5
Interior	99	7.6
<b>All Alaska Natives</b>	879	<b>6.6</b>
Bristol Bay	42	8.0
Yukon-Kuskokwim	300	10.4
Arctic Slope	66	11.6

(a) All service region data is for Alaska Natives only.

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

## PRENATAL HEALTH - PROTECTIVE FACTORS

**Average Pregnancy Weight Gain of Mothers by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005



**Average Pregnancy Weight Gain of Mothers by Service Region<sup>a</sup>**  
of Alaska Native and Alaska White Infants  
2001-2005

Service Region	Average Weight Gain (lbs.)
Arctic Slope	25.1
Yukon-Kuskokwim	25.5
Bristol Bay	25.9
Norton Sound	26.2
Northwest Arctic	26.5
Interior	28.8
<b>All Alaska Natives</b>	<b>28.9</b>
Southcentral/Aleutians	31.1
Alaska Whites	32.7
Southeast	34.3

(a) All service region data is for Alaska Natives only.

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.



CHAPTER FIVE  
BIRTH OUTCOMES

Photo by Clark Mishler

### **Low Birth Weight**

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Low Birth Weight (LBW) is defined as a birth weight of less than 2,500 grams (5 lb, 8 oz). LBW infants are at increased risk of serious health issues, lasting disabilities and even death. Risk factors that may lead to low and very low birthweight include smoking, low maternal weight gain, maternal or fetal stress, and infections and other.<sup>(1, 2)</sup>

The Healthy People 2010 Objective related to low birth weight is Objective 16-10a, “Reduce the percentage of low birth weight babies (1998 Baseline: 7.6%; 2010 Target: 5%).”<sup>(4)</sup>

### **Very Low Birth Weight**

---

Very Low Birth Weight (VLBW) is defined as a birth weight of less than 1,500 grams (3 lb, 4 oz). VLBW infants have a 25% chance of dying before the age of one.<sup>(2)</sup> The overall rate of VLBW infants in the US is increasing due to the greater numbers of multiple births.<sup>(3)</sup>

The Healthy People 2010 Objectives related to very low birth weight is, Objective 16-10b, “Reduce the percentage of very low birth weight babies (1998 Baseline: 1.4%; 2010 Target: 0.9%).”<sup>(4)</sup>

### **Length of Gestation**

---

The average length of human gestation is 280 days (40 weeks) starting from the first day of the woman’s last menstrual period. Human pregnancy can be divided into three trimesters. If the infant arrives between 38 to 42 weeks, the baby is considered full term. Premature births are one of the top causes of infant death in this country.<sup>(5)</sup>

The Healthy People 2010 Objective related to gestational age is, Objective 16-11a, “Reduce the percentage of preterm births (1998 Baseline: 11.6%; 2010 Target: 7.6%).”<sup>(4)</sup>

### **Moderate Preterm Birth**

---

Childbirth occurring between 32 and 36 weeks is considered moderate preterm birth. Current studies show that infants born only a few weeks prematurely are at increased risk of dying during the first month or year of life.<sup>(6)</sup>

The Healthy People 2010 Objective related to gestational age is, Objective 16-11b, “Reduce the percentage of live births at 32-36 weeks gestation (1998 Baseline: 9.6%; 2010 Target: 6.4%).”<sup>(4)</sup>

### Very Preterm Birth

---

Very Preterm Birth is defined as the birth of an infant before 32 completed weeks of gestation. All premature newborns are at risk for health problems, but these infants face the highest risk. These newborns usually are very small, and their organs are less developed than those of infants born later.<sup>(7, 8)</sup>

The Healthy People 2010 Objective related to very preterm birth is, Objective 16-11c, “Reduce the percentage of live births at less than 32 weeks gestation (1998 Baseline: 2.0%; 2010 Target: 1.1%).”<sup>(4)</sup>

### Birth Defects

---

Birth defects, which are a primary cause of infant deaths, play a role in over 20% of deaths of infants in the United States within the first year of life.<sup>(9)</sup> A birth defect will develop most often during the first three months of pregnancy, but they may not be discovered until birth or some time after birth. A defect may affect how the infant’s body looks, works, or both and can vary from mild to severe.

Approximately 3% of US infants have some form of birth defect. While we don’t know what causes many types of birth defects, there are some women who are at higher risk for having an infant with a defect. For example, women who are 35 years of age or older have a higher chance of having a baby with Downs syndrome. Also, if a mother smokes and uses alcohol they will have a higher risk of having a child with birth defects. In some cases, there are genetic factors that can lead to birth defects.<sup>(10)</sup>

The data for the following chart and table on birth defects came from the Alaska Birth Defects Registry, which was established in 1996. This registry is a passive surveillance system that collects data based on ICD-9 codes from health care providers, hospitals, and other health care facilities throughout Alaska. Possible limitations to birth defects data includes bias due to health care providers diagnosing cases differently, and differences in facility record keeping and reporting methods. Birth defects are rare events and Alaska’s population is relatively small. In order to provide reliable statistics, the data is aggregated over seven years, 1996-2002.<sup>(11)</sup>

The data presented on birth defects categorizes “major congenital anomalies” (birth defects) using 44 out of 45 diagnoses that the National Birth Defects Prevention Network (NBDPN) has defined as “major congenital anomalies.” The diagnoses are: anencephalus, spina bifida without anencephalus, encephalocele, microcephalus, hydrocephalus without spina bifida, anophthalmia/microphthalmia, congenital cataract, aniridia, anotia/microtia, common truncus, transposition of great arteries, Tetralogy of Fallot, ventricular septal defect, atrial septal defect, endocardial cushion defect, pulmonary valve atresia and stenosis, tricuspid valve atresia and stenosis, Ebstein’s anomaly, aortic valve stenosis, hypoplastic left heart syndrome, patent ductus arteriosus, coarctation of aorta, choanal atresia, cleft palate without cleft lip, cleft lip with and without cleft palate, esophageal atresia/tracheoesophageal fistula, pyloric



## BIRTH OUTCOMES

stenosis, rectal and large intestinal atresia/stenosis, Hirschsprung's disease (congenital megacolon), biliary atresia, hypospadias and epispadias, renal agenesis/hypoplasia, bladder exstrophy, obstructive genitourinary defect, congenital hip dislocation, reduction deformity-upper limbs, reduction deformity-lower limbs, diaphragmatic hernia, gastroschisis, omphalocele, Down's syndrome, trisomy 13, trisomy 18, and fetus or newborn affected by maternal alcohol use.<sup>(11)</sup>

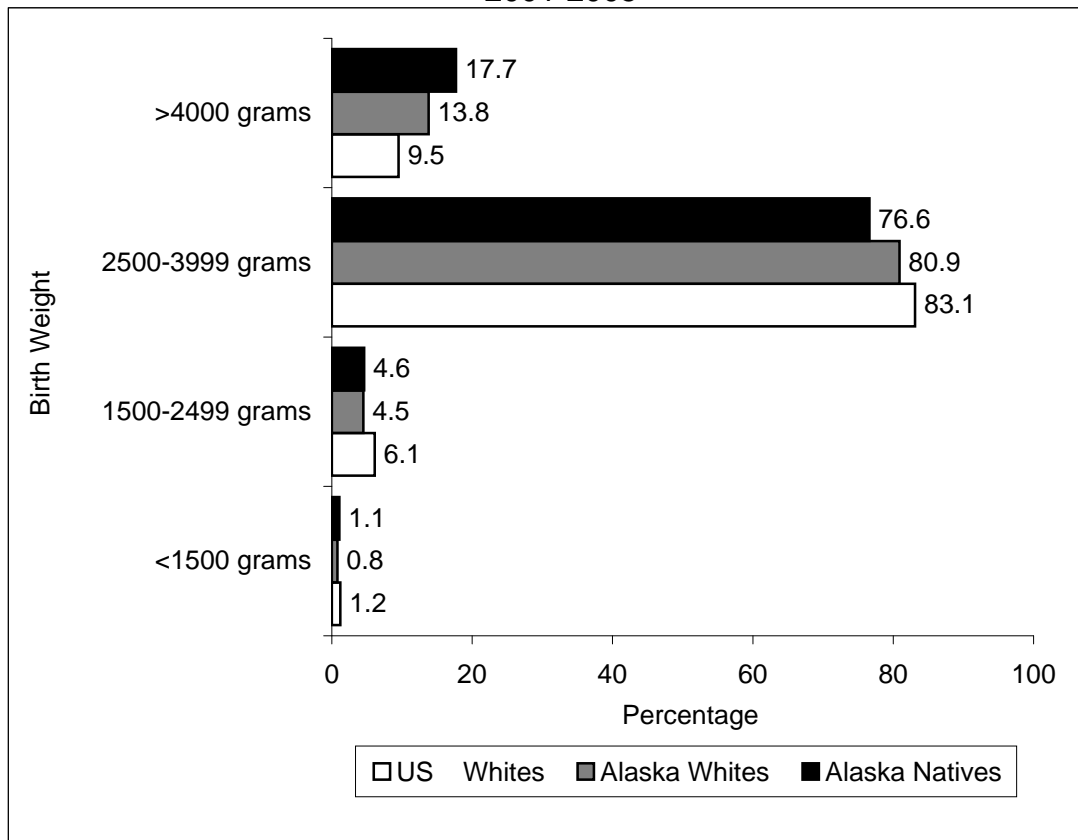
### References

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1. Ricketts, SA, Murray, EK, and Schwalberg, R. "Reducing Low Birthweight by Resolving Risks: Results from Colorado's Prenatal Plus Program." *American Journal Public Health*. 2005;57(11);1952-1957.
2. Mathews, TJ, Menacker, F, and MacDorman, MF. Infant mortality statistics from the 2000 period linked birth/infant death data set. *National Vital Statistics Reports, vol 50 no 12* Hyattsville, Maryland: National Center for Health Statistics. 2002.
3. MacDorman MF, Atkinson JO. Infant mortality statistics from the linked birth/infant death data set—1995 period data. *Monthly Vital Statistics Report, vol 46 no 6 supplement 2*. Hyattsville, Maryland: National Center for Health Statistics. 1998.
4. US Department of Health and Human Services. *Healthy people 2010. 2nd ed. [2 vols.]*. Washington, DC: US Department of Health and Human Services. 2000.
5. Martin, J.A., et al. Births: Final Data for 2004. *National Vital Statistics Reports, vol 55 no 1*. Hyattsville, Maryland: National Center for Health Statistics. 2006.
6. March of Dimes (2008). "Preterm Labor." [http://www.marchofdimes.com/pnhec/188\\_1080.asp](http://www.marchofdimes.com/pnhec/188_1080.asp). Accessed July 8, 2008.
7. March of Dimes (2008). "Fact Sheet – Preterm Birth." [http://www.marchofdimes.com/professionals/14332\\_1157.asp](http://www.marchofdimes.com/professionals/14332_1157.asp).
8. Kramer MS, Demissie K, Yang H, et al: The Contribution of Mild and Moderate Preterm Birth to Infant Mortality. *JAMA*. 200;284;843-849.
9. Centers for Disease Control and Prevention, Department of Health and Human Services. *Birth Defects*. <http://www.ded.gov/ncbddd/bd/default.htm>. Accessed June 2008.
10. Centers for Disease Control and Prevention. Department of Health and Human Services. *Birth Defects: Frequently Asked Questions*. <http://www.cdc.gov/ncbddd/bd/faq2.htm#Havehealthypregnancy>. Accessed June 2008.
11. Schoellhorn, KJ, Beery, AL. *Alaska Maternal and Child Health Data Book 2005: Birth Defects Surveillance Edition*. Anchorage, Alaska. Maternal and Child Health Epidemiology Unit, Section of Women's Children's and Family Health, Alaska Division of Public Health. May 2006.

# BIRTH OUTCOMES

**Birthweight**  
Alaska Native,<sup>(1)</sup> Alaska White,<sup>(1)</sup> and US White Infants<sup>(2)</sup>  
2001-2005



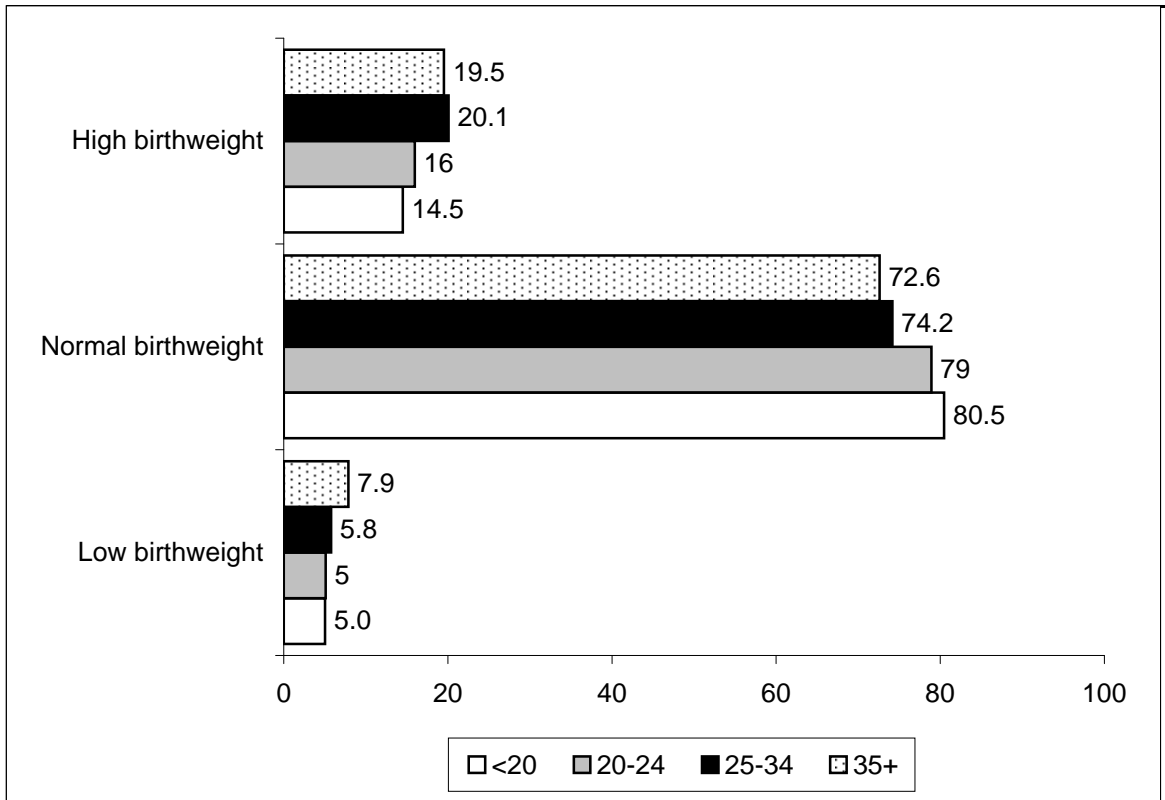
**Birthweight**  
Alaska Native,<sup>(1)</sup> Alaska White,<sup>(1)</sup> and US White Infants<sup>(2)</sup>  
2001-2005

Birth Weight	Alaska Natives		Alaska Whites		US Whites
	Count	%	Count	%	%
<1500 grams	147	1.1	251	0.8	1.2
1500-2499 grams	643	4.6	1,322	4.5	6.1
2500-3999 grams	10,734	76.6	24,002	80.9	83.1
>4000 grams	2,484	17.7	4,079	13.8	9.5
<b>Total</b>	<b>14,008</b>	<b>100</b>	<b>29,654</b>	<b>100</b>	<b>100</b>

Data Sources: (1) Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.  
(2) *National Vital Statistics Reports, 2007*. US White data for 2005.

# BIRTH OUTCOMES

**Birthweight by Age of Mother**  
of Alaska Native Infants  
2001-2005



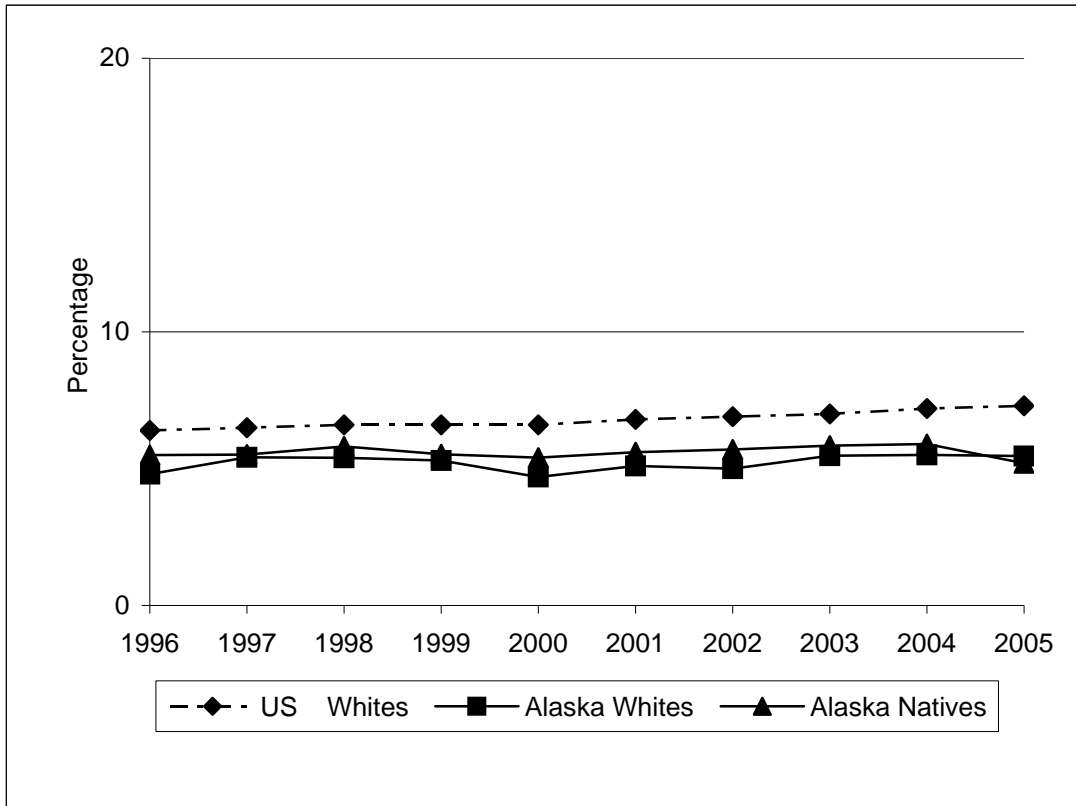
**Birthweight by Age of Mother**  
of Alaska Native Infants  
2001-2005

Age (years)	Low birthweight (<2500 grams)	Normal Birthweight	High Birthweight (>4000 grams)
	%	%	%
<20	5.0	80.5	14.5
20-24	5.1	78.9	16
25-34	5.8	74.2	20.1
35+	7.9	72.6	19.5

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

# BIRTH OUTCOMES

**Low Birthweight**  
Alaska Native,<sup>(1)</sup> Alaska White,<sup>(1)</sup> and US White Infants<sup>(2)</sup>  
2001-2005



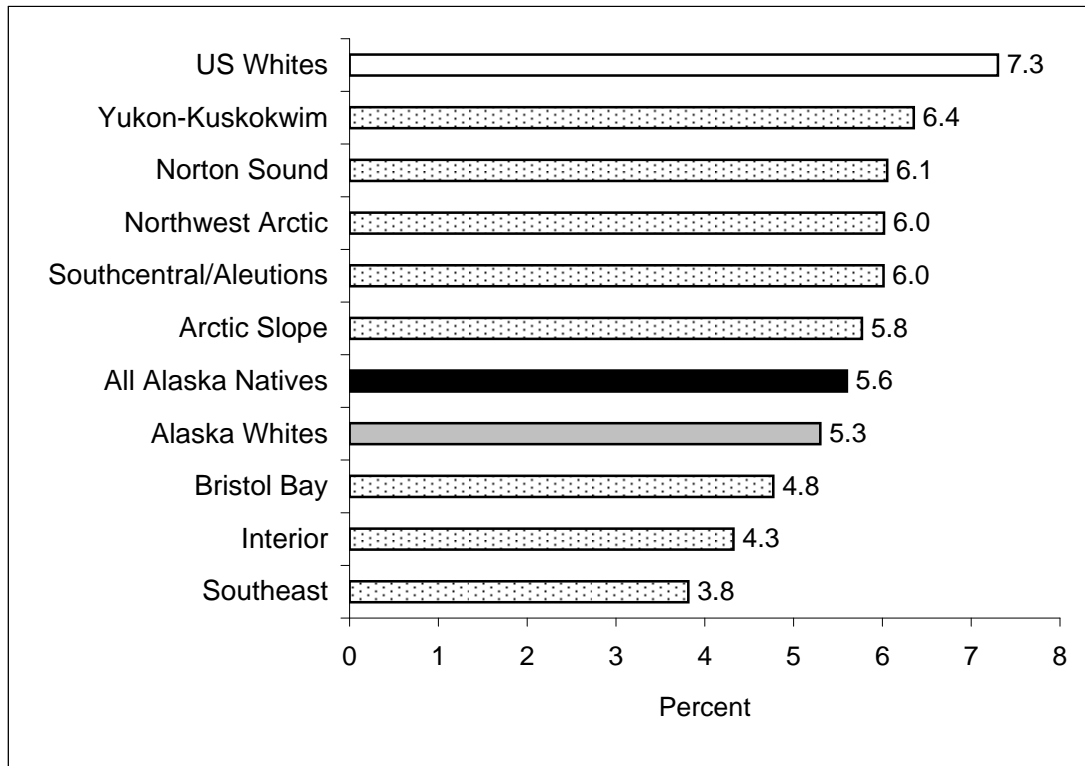
**Low Birthweight**  
Alaska Native,<sup>(1)</sup> Alaska White,<sup>(1)</sup> and US White Infants<sup>(2)</sup>  
2001-2005

Birth Weight	Alaska Natives		Alaska Whites		US Whites
	Count	%	Count	%	%
1996	146	5.5	300	4.8	6.4
1997	144	5.5	331	5.4	6.5
1998	153	5.8	335	5.4	6.6
1999	147	5.5	316	5.3	6.6
2000	148	5.4	276	4.7	6.6
2001	155	5.6	297	5.1	6.8
2002	152	5.7	289	5.0	6.9
2003	160	5.8	327	5.5	7.0
2004	169	5.9	332	5.5	7.2
2005	154	5.2	328	5.5	7.3

Data Sources: (1) Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.  
(2) National Vital Statistics Reports, 2007.

## BIRTH OUTCOMES

**Low Birthweight Infants by Service Region<sup>a</sup>**  
 Alaska Native,<sup>(1)</sup> Alaska White,<sup>(1)</sup> and US White Infants<sup>(2)</sup>  
 2001-2005



**Low Birthweight Infants by Service Region<sup>a</sup>**  
 Alaska Native,<sup>(1)</sup> Alaska White,<sup>(1)</sup> and US White Infants<sup>(2)</sup>  
 2001-2005

Service Region	Count	Percent
Southeast	55	3.8
Interior	59	4.3
Bristol Bay	25	4.8
Alaska Whites	1,573	5.3
<b>All Alaska Natives</b>	788	5.6
Arctic Slope	33	5.8
Southcentral/Aleutians	313	6.0
Northwest Arctic	55	6.0
Norton Sound	58	6.1
Yukon-Kuskokwim	190	6.4
US Whites	166,101	7.3

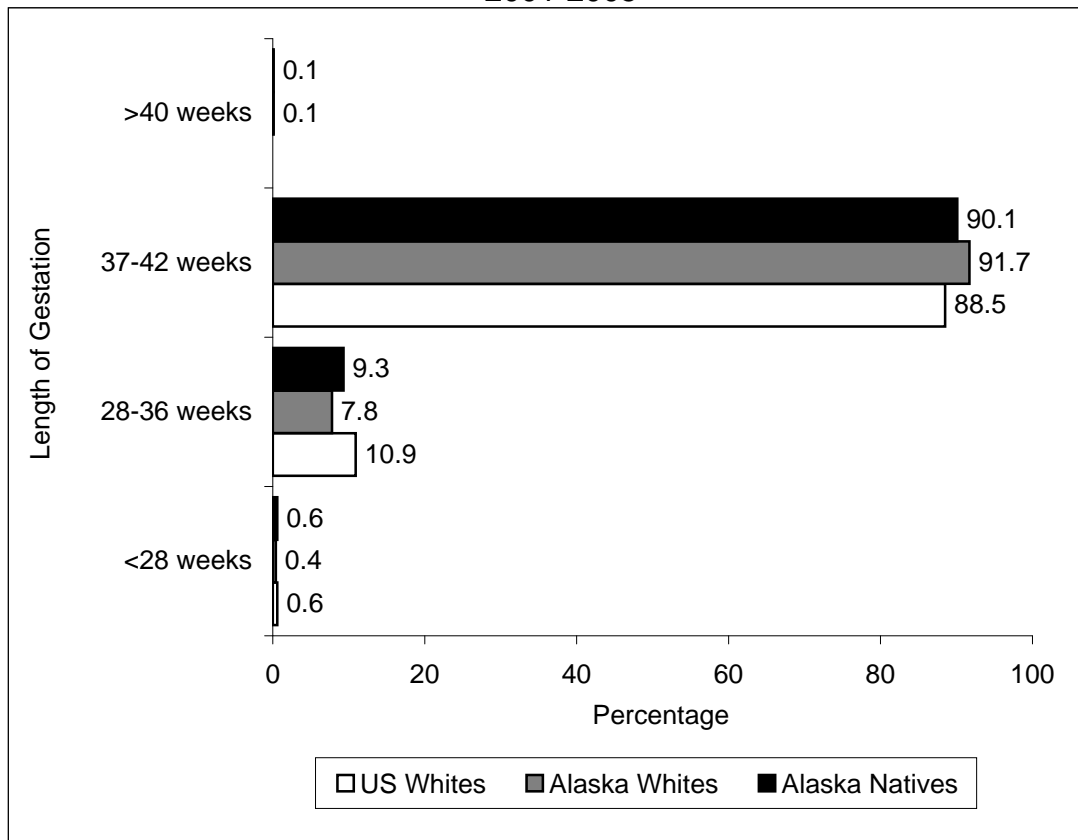
(a) All service region data is for Alaska Natives only.

Data Sources: (1) Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

(2) *National Vital Statistics Reports, 2007*. US White data for 2005.

## BIRTH OUTCOMES

**Length of Gestation**  
Alaska Native,<sup>(1)</sup> Alaska White,<sup>(1)</sup> and US White Infants<sup>(2)</sup>  
2001-2005



**Length of Gestation**  
Alaska Native,<sup>(1)</sup> Alaska White,<sup>(1)</sup> and US White Infants<sup>(2)</sup>  
2001-2005

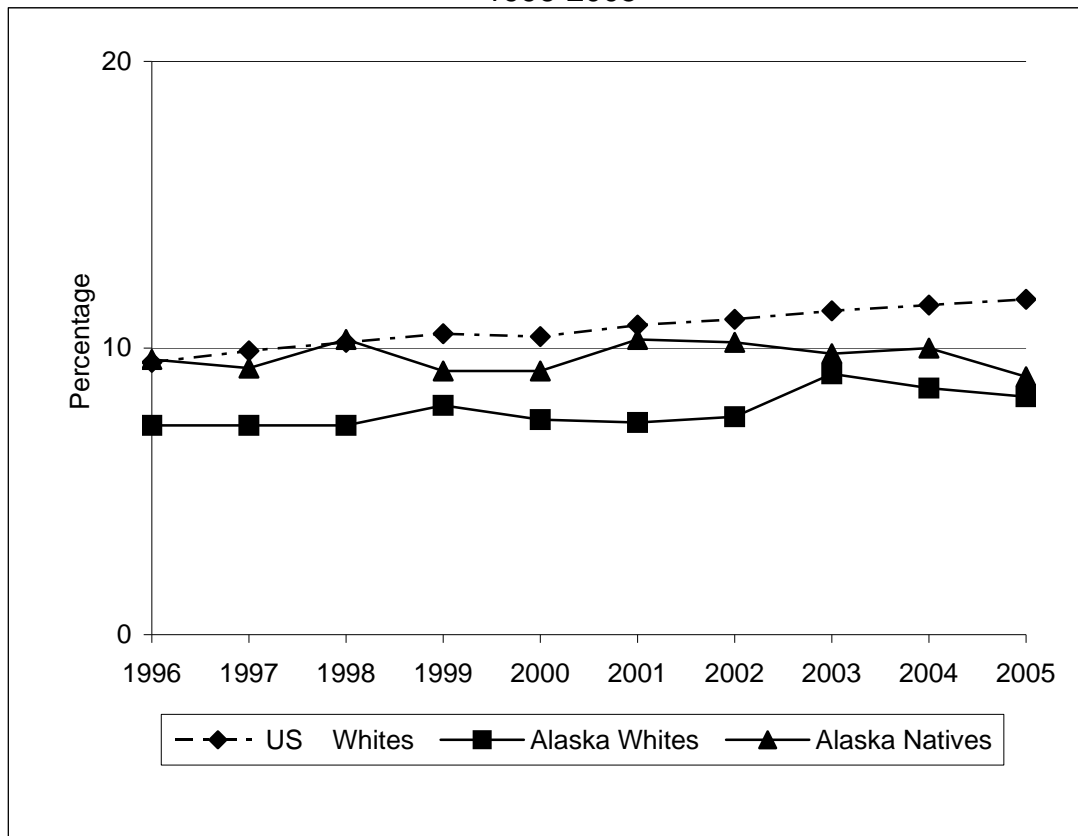
Gestational Age	Alaska Natives		Alaska Whites		US Whites
	Count	%	Count	%	%
<28 weeks	79	0.6	109	0.4	0.6
28-36 weeks	1,294	9.3	2,312	7.8	10.9
37-42 weeks	12,592	90.1	27,103	91.7	88.5
>40 weeks	7	0.1	21	0.1	
<b>Total</b>	<b>13,972</b>	<b>100</b>	<b>29,545</b>	<b>100</b>	<b>100</b>

Data Sources: (1) Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.  
(2) *National Vital Statistics Reports, 2007*. US White data for 2005.

## BIRTH OUTCOMES

### Preterm Birth (<37 weeks)

Alaska Native,<sup>(1)</sup> Alaska White,<sup>(1)</sup> and US White Infants<sup>(2)</sup>  
1996-2005



### Preterm Birth (<37 weeks)

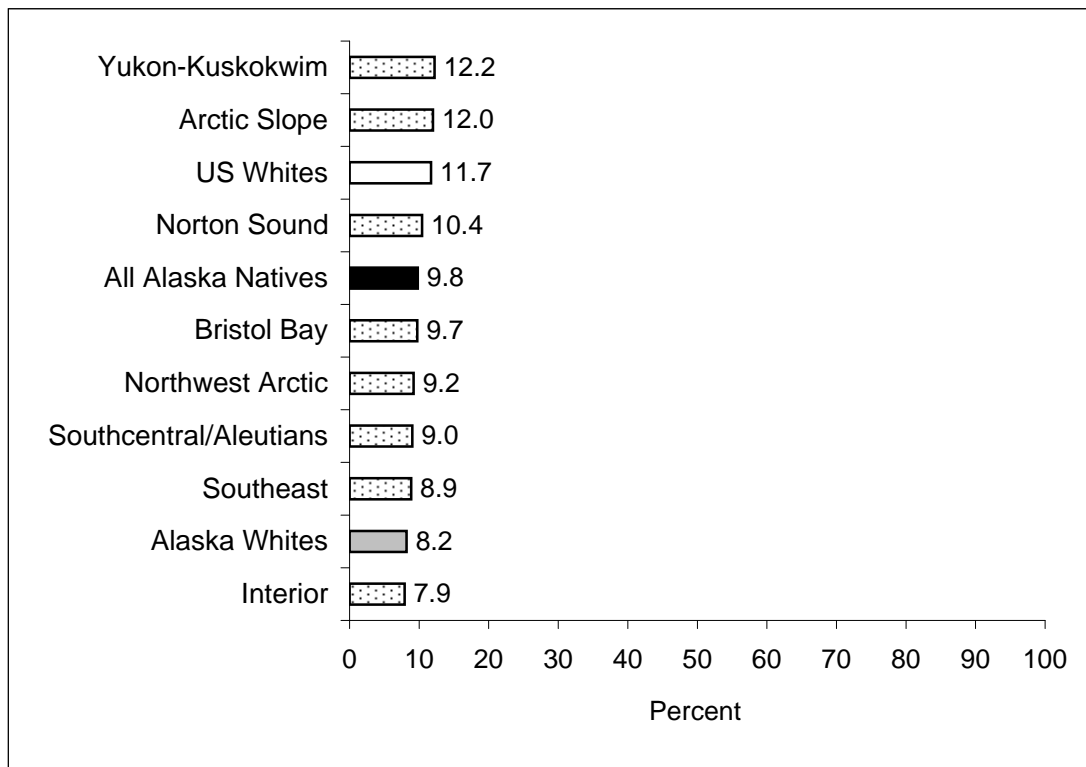
Alaska Native,<sup>(1)</sup> Alaska White<sup>(1)</sup> and US White Infants<sup>(2)</sup>  
1996-2005

Year	Alaska Natives		Alaska Whites		US Whites
	Count	%	Count	%	%
1996	254	9.6	454	7.3	9.5
1997	244	9.3	449	7.3	9.9
1998	270	10.3	450	7.3	10.2
1999	243	9.2	482	8.0	10.5
2000	249	9.2	437	7.5	10.4
2001	283	10.3	434	7.4	10.8
2002	270	10.2	440	7.6	11.0
2003	267	9.8	534	9.1	11.3
2004	285	10.0	519	8.6	11.5
2005	268	9.0	494	8.3	11.7

Data Sources: (1) Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.  
(2) National Vital Statistics Reports, 2007.

## BIRTH OUTCOMES

**Preterm Births (<37 weeks) by Service Region<sup>a</sup>**  
 Alaska Native,<sup>(1)</sup> Alaska White,<sup>(1)</sup> and US White Infants<sup>(2)</sup>  
 2001-2005



**Preterm Births (<37 weeks) by Service Region<sup>a</sup>**  
 Alaska Native,<sup>(1)</sup> Alaska White,<sup>(1)</sup> and US White Infants<sup>(2)</sup>  
 2001-2005

Service Region	Count	Percent
Interior	108	7.9
Alaska Whites	2,421	8.2
Southeast	123	8.9
Southcentral/Aleutians	469	9.0
Northwest Arctic	84	9.2
Bristol Bay	51	9.7
All Alaska Natives	1,371	9.8
Norton Sound	100	10.4
US Whites	265,466	11.7
Arctic Slope	69	12.0
Yukon-Kuskokwim	367	12.2

(a) All service region data is for Alaska Natives only.

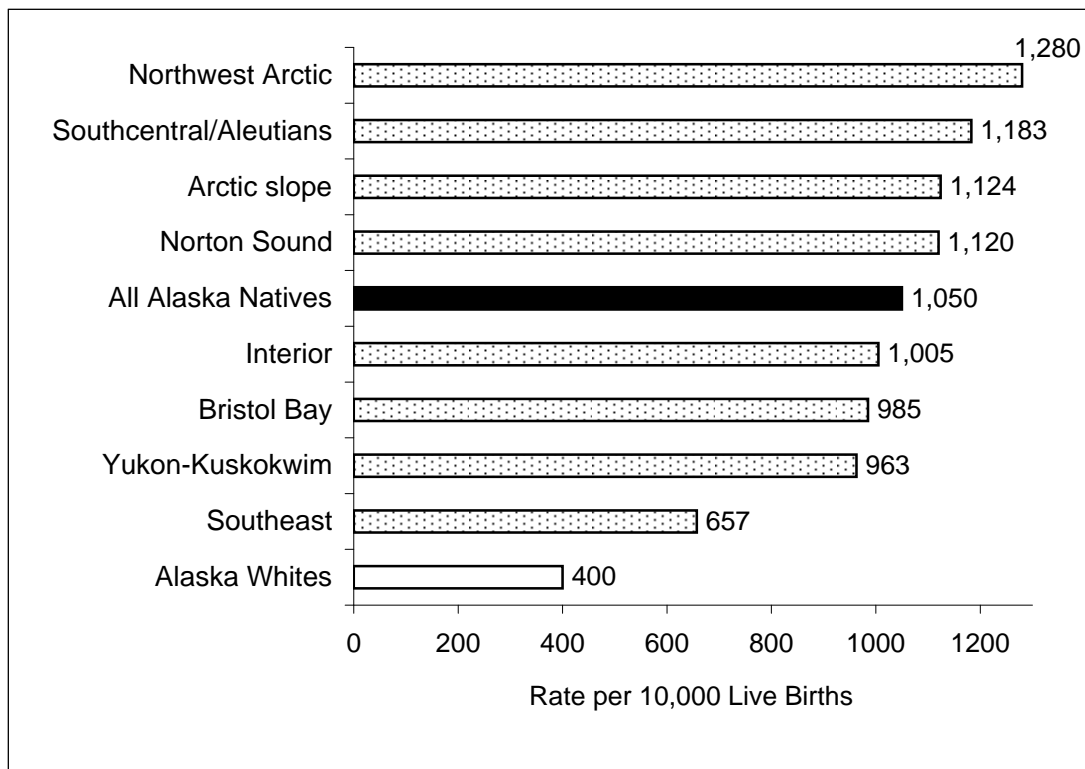
Data Sources: (1) Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

(2) *National Vital Statistics Reports, 2007*. US White data for 2005.



## BIRTH OUTCOMES

### Prevalence of Major Birth Defects by Service Region<sup>a</sup> Alaska Native and Alaska White Infants 1996-2002



### Prevalence of Major Birth Defects by Service Region<sup>a</sup> Alaska Native and Alaska White Infants 1996-2002

Service Region	Count <sup>b</sup>	Rate per 10,000 Live Births
Alaska Whites	1,089	400
Southeast	109	657
Yukon-Kuskokwim	414	963
Bristol Bay	72	985
Interior	163	1,005
<b>All Alaska Natives</b>	1,784	1,050
Norton Sound	146	1,120
Arctic slope	80	1,124
Southcentral/Aleutians	643	1,183
Northwest Arctic	157	1,280

(a) All service region data is for Alaska Natives only. (b) Count is total number of infants born with birth defects during 1996-2002.

Data Source: Alaska Birth Defects Registry, Division of Public Health, ADHSS.



CHAPTER SIX  
INFANT AND CHILD  
MORTALITY

# INFANT MORTALITY

## Infant Mortality Rate

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The Infant Mortality Rate (IMR) is the number of children under a year of age who died divided by the number of live births during the year. It is used to compare the health and well-being of populations within and across countries.<sup>(1)</sup> Specifically, this rate can provide information on the quality and accessibility of primary health care available to pregnant women and infants and on the impact of poverty and substandard living conditions on maternal and infant health.<sup>(2)</sup> IMR can be affected by various factors such as level of education of the mother, income level, sanitary conditions, prenatal and postnatal care.<sup>(1, 3)</sup>

The Healthy People 2010 Objective related to infant mortality is, Objective 16-1c, “Reduce all infant deaths (1998 Baseline: 7.2 per 1000 live births; 2010 Target: 4.5 per 1000 live births).”<sup>(6)</sup>

## Neonatal Mortality Rate

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Neonatal mortality rate (NMR) refers to a death of a live-born baby within the first 28 days of life. Deaths occurring at this time, are typically associated with events and complications that occur during the prenatal period and delivery.<sup>(3)</sup>

The Healthy People 2010 Objective related to neonatal mortality is, Objective 16-1d, “Reduce neonatal deaths (within the first 28 days of life) (1998 Baseline: 4.8 per 1000 live births; 2010 Target: 2.9 per 1000 live births).”<sup>(6)</sup>

## Post-neonatal Mortality Rate

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Post-neonatal Mortality Rate is defined as the death of a live born infant after 28 through 364 days of life. Post-neonatal deaths are more likely to be associated with conditions or events that arise after the delivery, including Sudden Infant Death Syndrome, injuries and homicide.<sup>(4)</sup> A recent study found that risk factors for post-neonatal death among Alaska Native babies include prenatal alcohol or tobacco use, low maternal education levels, and unmarried maternal status.<sup>(5)</sup>

The Healthy People 2010 Objective related to post-neonatal mortality is, Objective 16-1e, “Reduce post-neonatal deaths (between 28 days and 1 year) (1998 Baseline: 2.4 per 1000 live births; 2010 Target: 1.2 per 1000 live births).”<sup>(6)</sup>

## Child Mortality

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Child Mortality is reported for children in the following age groups: 0-4 years, 5-14 years, and 15-19 years. Child mortality is higher in low-income countries than in wealthier countries.<sup>(7)</sup>

The Healthy People 2010 Objectives related to child mortality are:

- Objective 16-2a, “Reduce deaths of children aged 1-4 years old (1998 Baseline: 34.6 per 100,000 live births; 2010 Target: 18.6 per 100,000).”
- Objective 16-2b, “Reduce deaths to children aged 5-9 years old (1998 Baseline: 17.7 per 100,000 live births; 2010 Target: 12.3 per 100,000).”

## INFANT MORTALITY

- Objective 16-3a, “Reduce deaths to children aged 10-14 years old (1998 Baseline: 22.1 per 100,000; 2010 Target: 16.8 per 100,000).”
- Objective 16-3b, “Reduce deaths to adolescents aged 15-19 years (1998 Baseline: 70.6 per 100,000; 2010 Target: 39.8 per 100,000).”<sup>(6)</sup>

### References

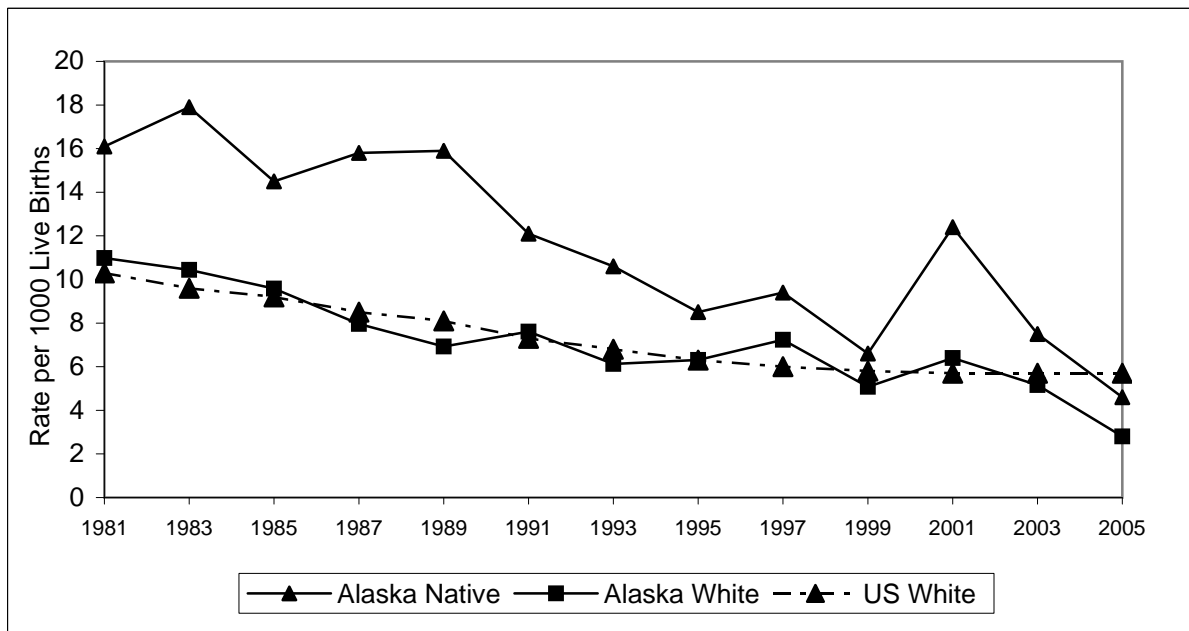
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1. Martin JA, Hamilton BE, Sutton PD, Ventura SJ, Menacker F, Kirmeyer S, Munson ML. Births: Final data for 2005. *National Vital Statistics Report*, vol 56 no 6.. Hyattsville, MD: National Center for Health Statistics. 2007.
2. Alaska Department of Health and Social Services, Women’s, Children’s, & Family Health Section. Infant and Fetal Mortality in Alaska. Title V Fact Sheet: Needs Assessment Update. 2:3. 2007.
3. Cheung, Yin-Bun. On the definition of gestational-age-specific mortality. *American Journal of Epidemiology*. 160:3 2003.
4. Semenciw RM, Morrison HI, Lindsay J, Silins J, Sherman GJ, Mao Y, et al. Risk factors for postneonatal mortality: Results from a record linkage study. *International Journal of Epidemiology*. 15:369 –72 1986.
5. Blabey M, Gessner B. “Three Maternal Risk Factors Associated with Elevated Risk of Post-neonatal Mortality Among Alaska Native Population.” *Maternal and Child Health Journal*. Published online 4 April 2008. At <http://www.springerlink.com/content/?k=three+maternal+risk+factors+associated+with+elevated+risk+of+postneonatal+mortality>. Accessed June 24, 2008.
6. Health and Human Services. Healthy People 2010. 2nd ed. *With Understanding and Improving Health and Objectives for Improving Health*. Washington, DC: U.S. Government Printing Office, November 2000.
7. UNICEF (2000). Reduce Child Mortality. <http://www.unicef.org/mdg/childmortality.html>.

# INFANT AND CHILD MORTALITY

## Infant Mortality Rate

Alaska Native,<sup>(1)</sup> Alaska White,<sup>(1)</sup> and US White<sup>(2)</sup> Infants  
1981-2005



## Infant Mortality Rate

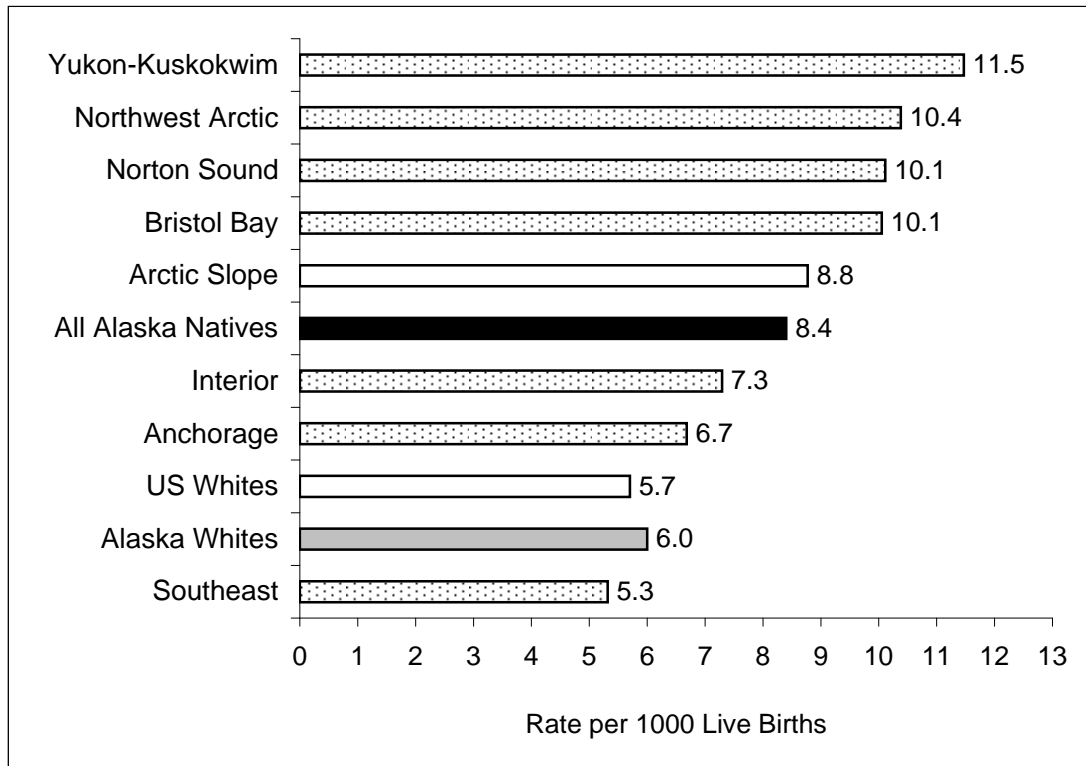
Alaska Native,<sup>(1)</sup> Alaska White,<sup>(1)</sup> and US White<sup>(2)</sup> Infants  
1981-2005

Year	Alaska Native		Alaska White		US White
	Deaths	Rate per 1000	Deaths	Rate per 1000	Rate per 1000
1981	36	16.1	78	11.0	10.3
1983	48	17.9	88	10.4	9.6
1985	40	14.5	87	9.6	9.2
1987	45	15.8	62	8.0	8.5
1989	48	15.9	55	6.9	8.1
1991	37	12.1	60	7.6	7.3
1993	29	10.6	46	6.1	6.8
1995	22	8.5	44	6.3	6.3
1997	25	9.4	45	7.2	6.0
1999	18	6.6	31	5.1	5.8
2001	35	12.4	38	6.4	5.7
2003	21	7.5	31	5.2	5.7
2005	14	4.6	17	2.8	5.7

Data Sources: (1) Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS and *Alaska Native Births and Deaths, 1980-1997*. (2) *Health, United States, 2007* and *Vital Statistics Reports, Vol 57(2), 2008*.

## INFANT AND CHILD MORTALITY

**Infant Mortality Rate by Service Region<sup>a</sup>**  
 Alaska Native,<sup>(1)</sup> Alaska White,<sup>(1)</sup> and US White<sup>(2)</sup> Infants  
 1994-2003



**Infant Mortality Rate by Service Region<sup>a</sup>**  
 Alaska Native,<sup>(1)</sup> Alaska White,<sup>(1)</sup> and US White<sup>(2)</sup> Infants  
 1994-2003

Service Region	Count	Rate
Southeast	16	5.3
Alaska Whites	376	6.0
US Whites	na <sup>b</sup>	5.7
Anchorage	63	6.7
Interior	19	7.3
<b>All Alaska Natives</b>	223	8.4
Arctic Slope	9	8.8
Bristol Bay	12	10.1
Norton Sound	18	10.1
Northwest Arctic	18	10.4
Yukon-Kuskokwim	68	11.5

(a) All service region data is for Alaska Natives only. (b) Count not available.

Data Sources: (1) Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.(2) *Health, United States, 2007*. US White data for 2003.

# INFANT AND CHILD MORTALITY

**Neonatal and Post-neonatal Mortality Rates**  
Alaska Native,<sup>(1)</sup> Alaska White,<sup>(1)</sup> and US White <sup>(2)</sup> Infants  
2001-2005



**Neonatal and Post-neonatal Mortality Rates**  
Alaska Native,<sup>(1)</sup> Alaska White,<sup>(1)</sup> and US White <sup>(2)</sup> Infants  
2001-2005

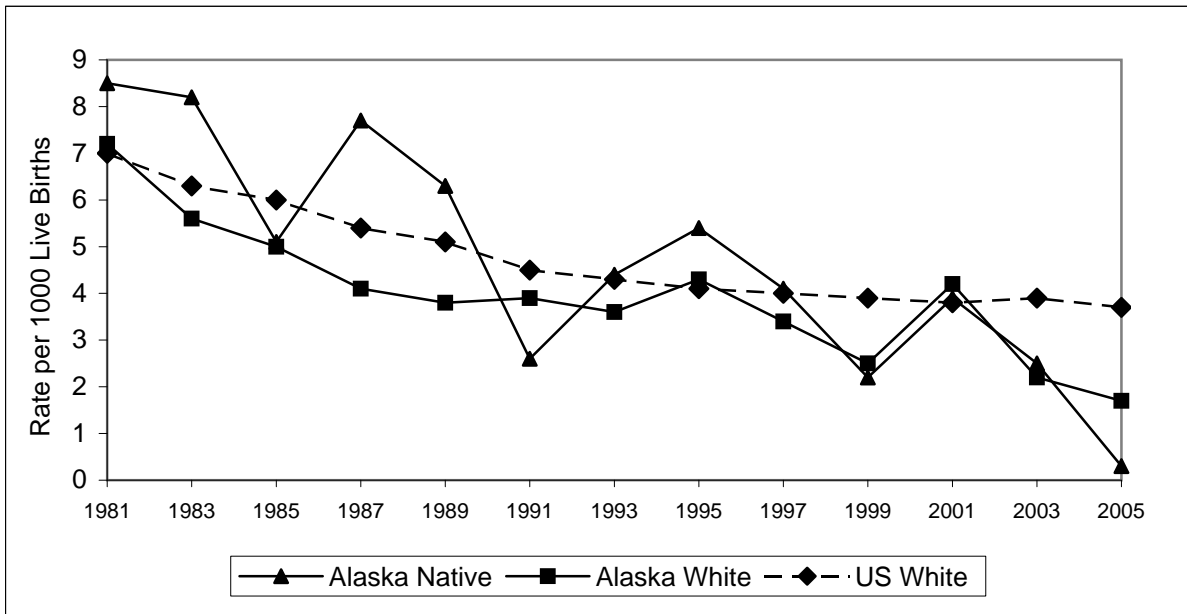
	Alaska Natives		Alaska Whites		US Whites
	Count	Rate per 1000	Count	Rate per 1000	Rate per 1000
Neonatal Mortality	39	2.7	73	2.4	3.7
Post-Neonatal Mortality	78	4.7	82	2.2	2.1

Data Sources: (1) Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.  
(2) *National Vital Statistics Reports, Vol 57(2), 2008*. US White data for 2005.

# INFANT AND CHILD MORTALITY

## Neonatal Mortality Rate

Alaska Native,<sup>(1)</sup> Alaska White,<sup>(1)</sup> and US White <sup>(2)</sup> Infants  
1981-2005



## Neonatal Mortality Rate

Alaska Native,<sup>(1)</sup> Alaska White,<sup>(1)</sup> and US White <sup>(2)</sup> Infants  
1981-2005

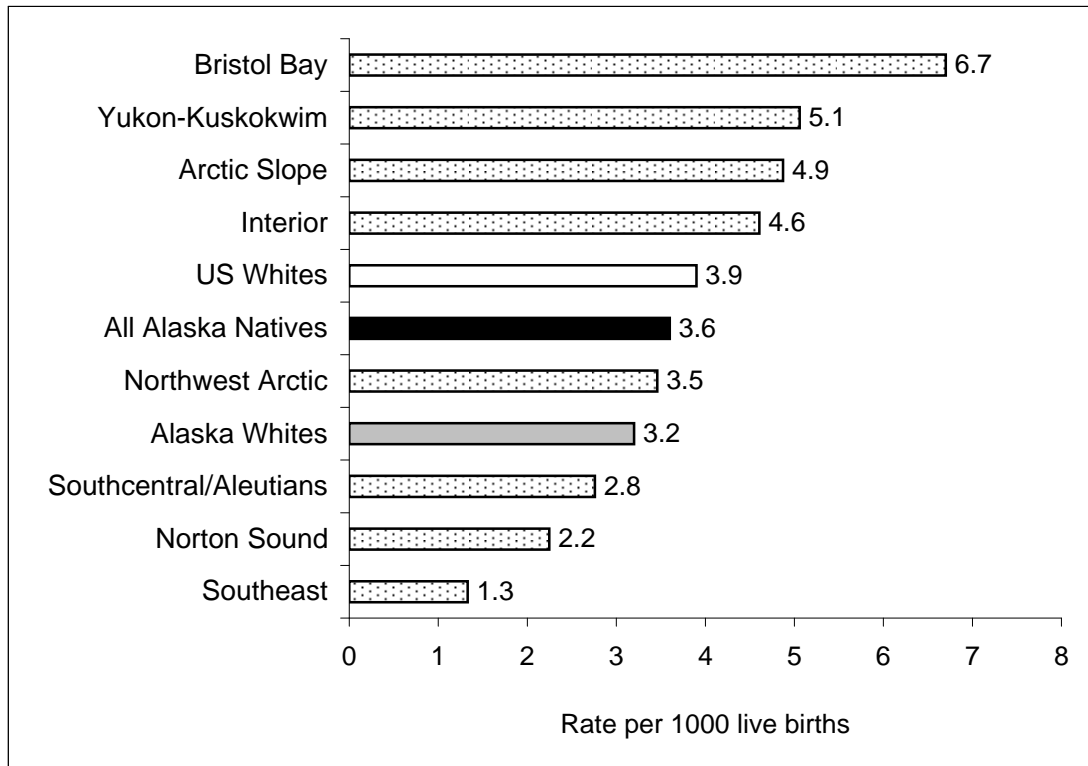
Year	Alaska Native		Alaska White		US White
	Deaths	Rate per 1000	Deaths	Rate per 1000	Rate per 1000
1981	19	8.5	51	7.2	7.0
1983	22	8.2	47	5.6	6.3
1985	14	5.1	45	5.0	6.0
1987	22	7.7	32	4.1	5.4
1989	19	6.3	30	3.8	5.1
1991	8	2.6	31	3.9	4.5
1993	12	4.4	27	3.6	4.3
1995	14	5.4	30	4.3	4.1
1997	11	4.1	21	3.4	4.0
1999	6	2.2	15	2.5	3.9
2001	11	3.9	25	4.2	3.8
2003	7	2.5	13	2.2	3.9
2005	1	0.3	10	1.7	3.7

Data Sources: (1) Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS and *Alaska Native Births and Deaths, 1980-1997*. (2) *Health, United States, 2007* and *Vital Statistics Reports, Vol 57(2), 2008*.



## INFANT AND CHILD MORTALITY

**Neonatal Mortality Rate by Service Region<sup>a</sup>**  
 Alaska Native,<sup>(1)</sup> Alaska White,<sup>(1)</sup> and US White<sup>(2)</sup> Infants  
 1994-2003



**Neonatal Mortality Rate by Service Region<sup>a</sup>**  
 Alaska Native,<sup>(1)</sup> Alaska White,<sup>(1)</sup> and US White<sup>(2)</sup> Infants  
 1994-2003

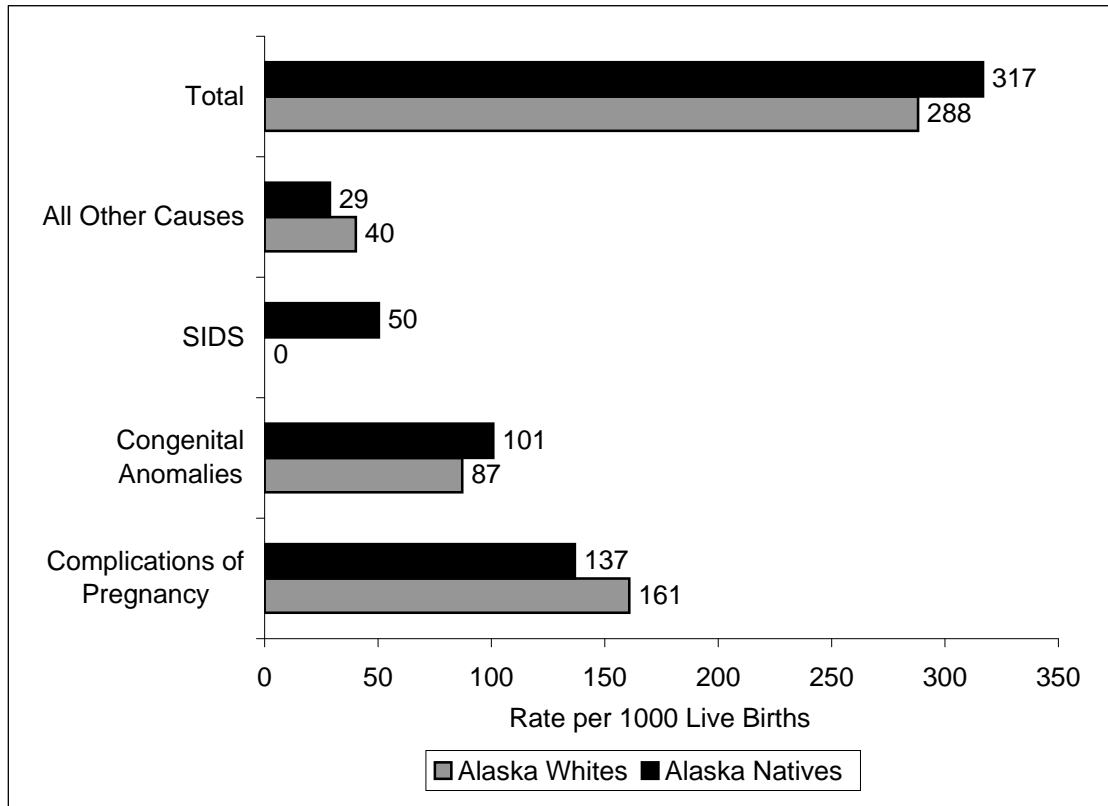
Service Region	Count	Rate
Southeast	4	1.3
Norton Sound	4	2.2
Southcentral/Aleutians	26	2.8
Alaska Whites	200	3.2
Northwest Arctic	6	3.5
<b>All Alaska Natives</b>	95	<b>3.6</b>
US Whites	na <sup>b</sup>	3.9
Interior	12	4.6
Arctic Slope	5	4.9
Yukon-Kuskokwim	30	5.1
Bristol Bay	8	6.7

(a) All service region data is for Alaska Natives only. (b) Count not available.

Data Sources: (1) Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.(2) *Health, United States, 2007*. US White data for 2003.

# INFANT AND CHILD MORTALITY

## Leading Causes of Neonatal Mortality Alaska Native and Alaska White Infants 1999-2003



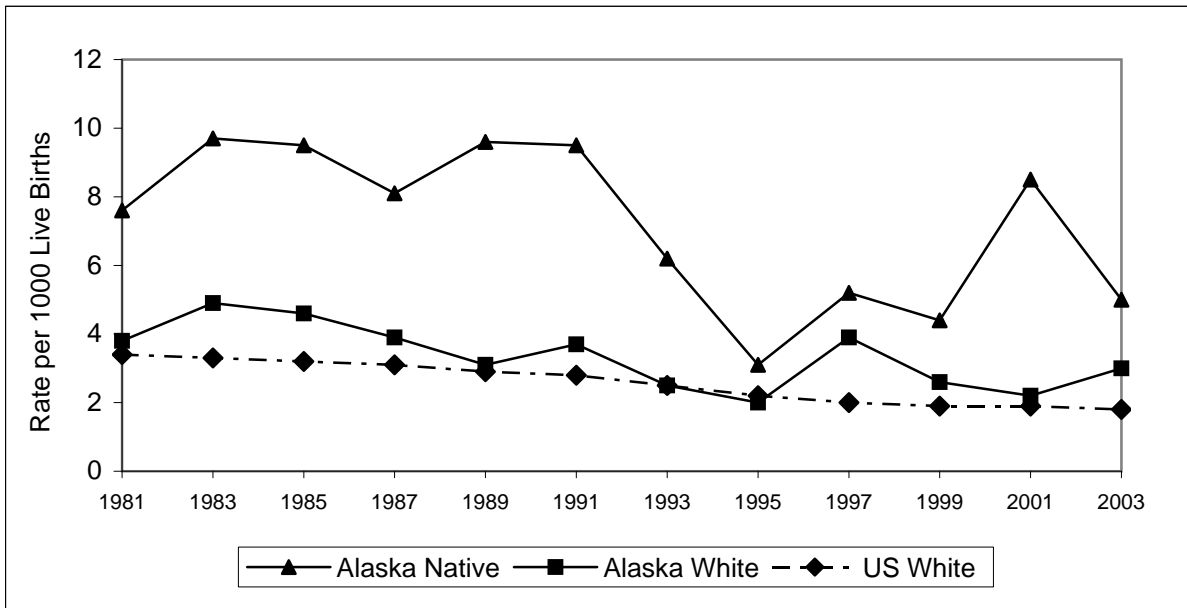
## Leading Causes of Neonatal Mortality Alaska Native and Alaska White Infants 1999-2003

Type of Injury	Alaska Natives		Alaska Whites	
	Count	Rate	Count	Rate
Complications of Pregnancy	19	136.8	48	160.8
Congenital Anomalies	14	100.8	26	87.1
SIDS	7	50.4	0	0
All Other Causes	4	28.8	12	40.2
Total	44	316.8	86	288.1

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

# INFANT AND CHILD MORTALITY

**Post-neonatal Mortality Rate**  
Alaska Native,<sup>(1)</sup> Alaska White,<sup>(1)</sup> and US White <sup>(2)</sup> Infants  
1981-2005



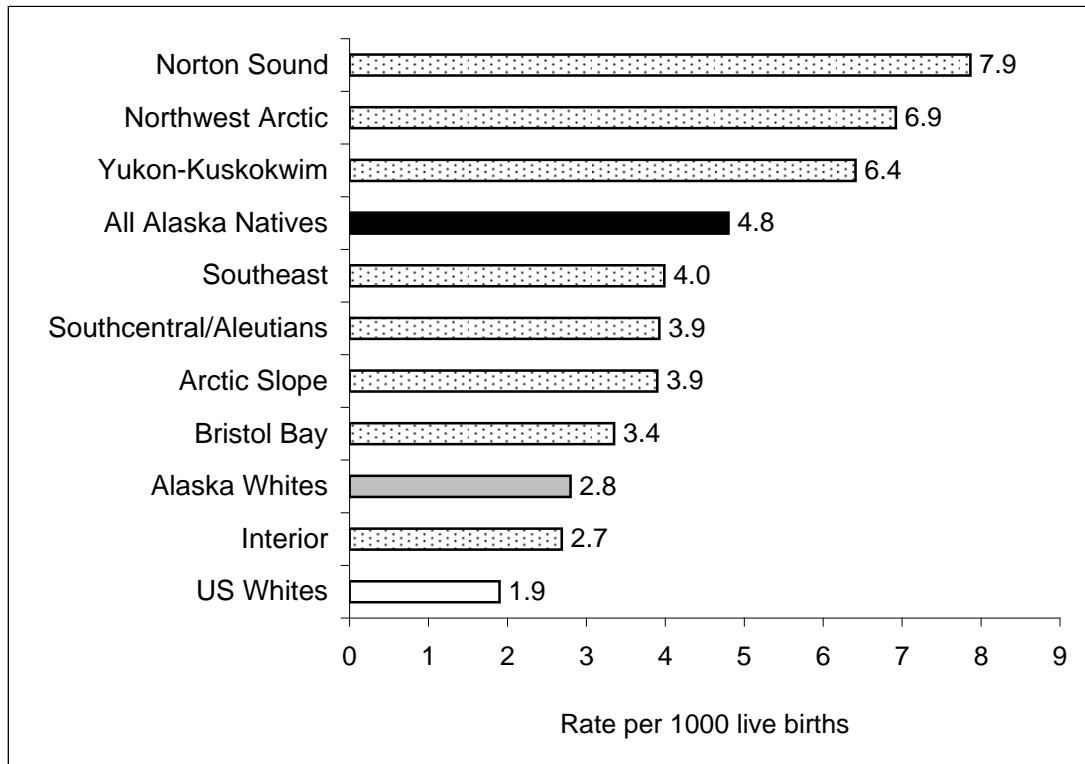
**Post-neonatal Mortality Rate**  
Alaska Native,<sup>(1)</sup> Alaska White,<sup>(1)</sup> and US White <sup>(2)</sup> Infants  
1981-2005

Year	Alaska Native		Alaska White		US White
	Deaths	Rate per 1000	Deaths	Rate per 1000	Rate per 1000
1981	17	7.6	27	3.8	3.4
1983	26	9.7	41	4.9	3.3
1985	26	9.5	42	4.6	3.2
1987	23	8.1	30	3.9	3.1
1989	29	9.6	25	3.1	2.9
1991	29	9.5	29	3.7	2.8
1993	17	6.2	19	2.5	2.5
1995	8	3.1	14	2.0	2.2
1997	14	5.2	24	3.9	2.0
1999	12	4.4	16	2.6	1.9
2001	24	8.5	13	2.2	1.9
2003	14	5.0	18	3.0	1.8
2005	13	4.3	7	1.2	2.1

Data Sources: (1) Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS and *Alaska Native Births and Deaths, 1980-1997*. (2) *Health, United States, 2007* and *Vital Statistics Reports, Vol 57(2), 2008*.

## INFANT AND CHILD MORTALITY

**Post-neonatal Mortality Rate by Service Region<sup>a</sup>**  
 Alaska Native,<sup>(1)</sup> Alaska White,<sup>(1)</sup> and US White <sup>(2)</sup> Infants  
 1994-2003



**Post-neonatal Mortality Rate by Service Region<sup>a</sup>**  
 Alaska Native,<sup>(1)</sup> Alaska White,<sup>(1)</sup> and US White <sup>(2)</sup> Infants  
 1994-2003

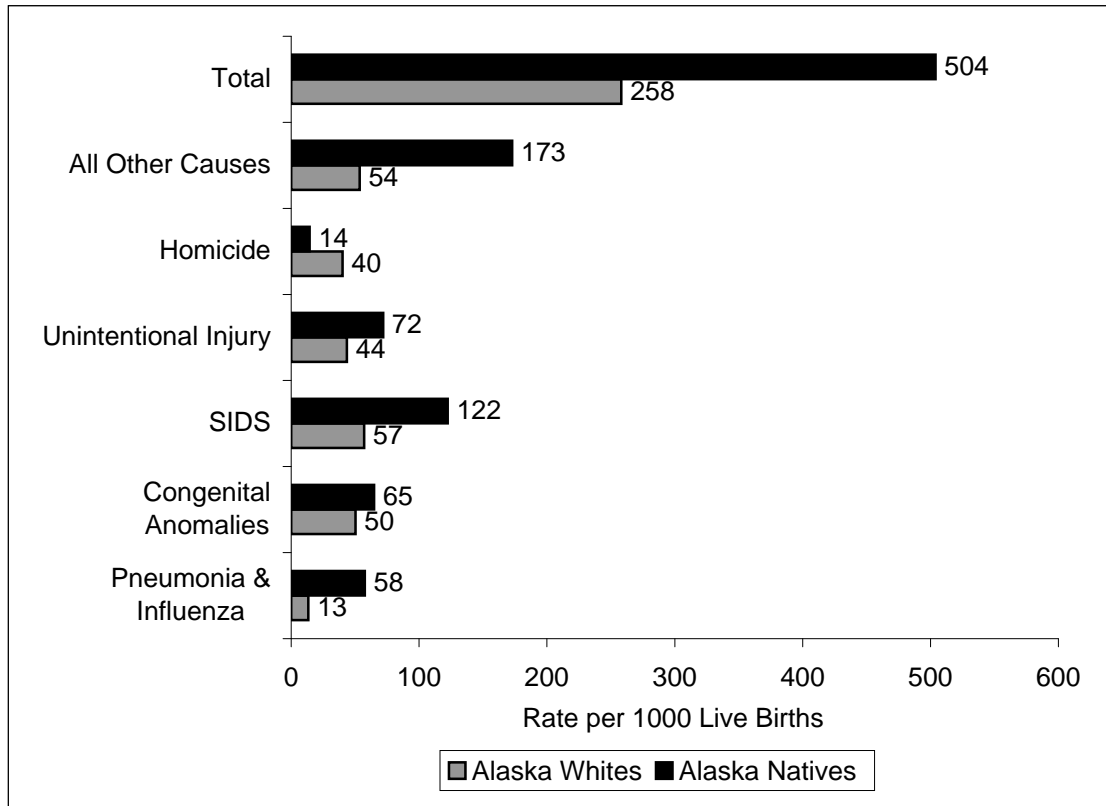
Service Region	Count	Rate
US Whites	na <sup>b</sup>	1.9
Interior	7	2.7
Alaska Whites	176	2.8
Bristol Bay	4	3.4
Arctic Slope	4	3.9
Southcentral/Aleutians	37	3.9
Southeast	12	4.0
<b>All Alaska Natives</b>	128	<b>4.8</b>
Yukon-Kuskokwim	38	6.4
Northwest Arctic	12	6.9
Norton Sound	14	7.9

(a) All service region data is for Alaska Natives only. (b) Count not available.

Data Sources: (1) Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.(2) *Health, United States, 2007*. US White data for 2003.

# INFANT AND CHILD MORTALITY

## Leading Causes of Post-neonatal Mortality Alaska Native and Alaska White Infants 1999-2003



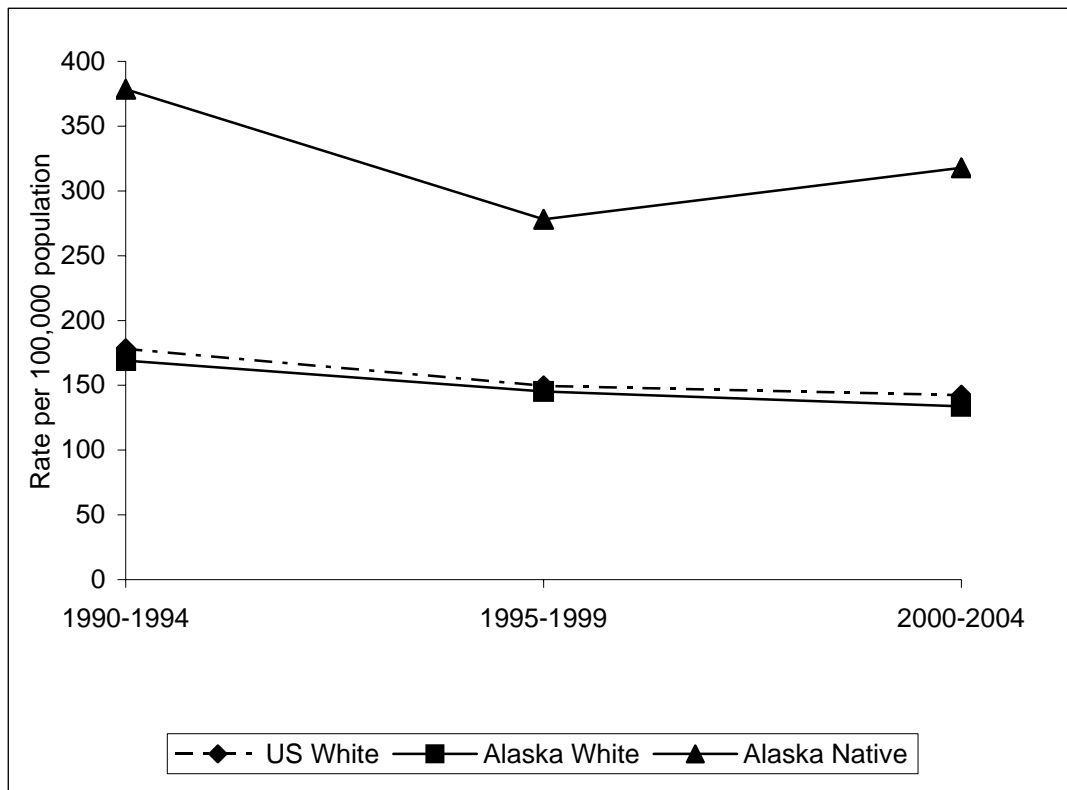
## Leading Causes of Post-neonatal Mortality Alaska Native and Alaska White Infants 1999-2003

Type of Injury	Alaska Natives		Alaska Whites	
	Count	Rate	Count	Rate
Pneumonia & Influenza	8	57.6	6	13.4
Congenital Anomalies	9	64.8	15	50.3
SIDS	17	122.4	17	57.0
Unintentional Injury	10	72.0	13	43.6
Homicide	2	14.4	12	40.2
All Other Causes	24	172.8	16	53.6
Total	70	503.9	77	258.1

Data Source: Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS.

# INFANT AND CHILD MORTALITY

**All Cause Mortality Rate, 0-4 year olds**  
 Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites<sup>(2)</sup>  
 1990-2004



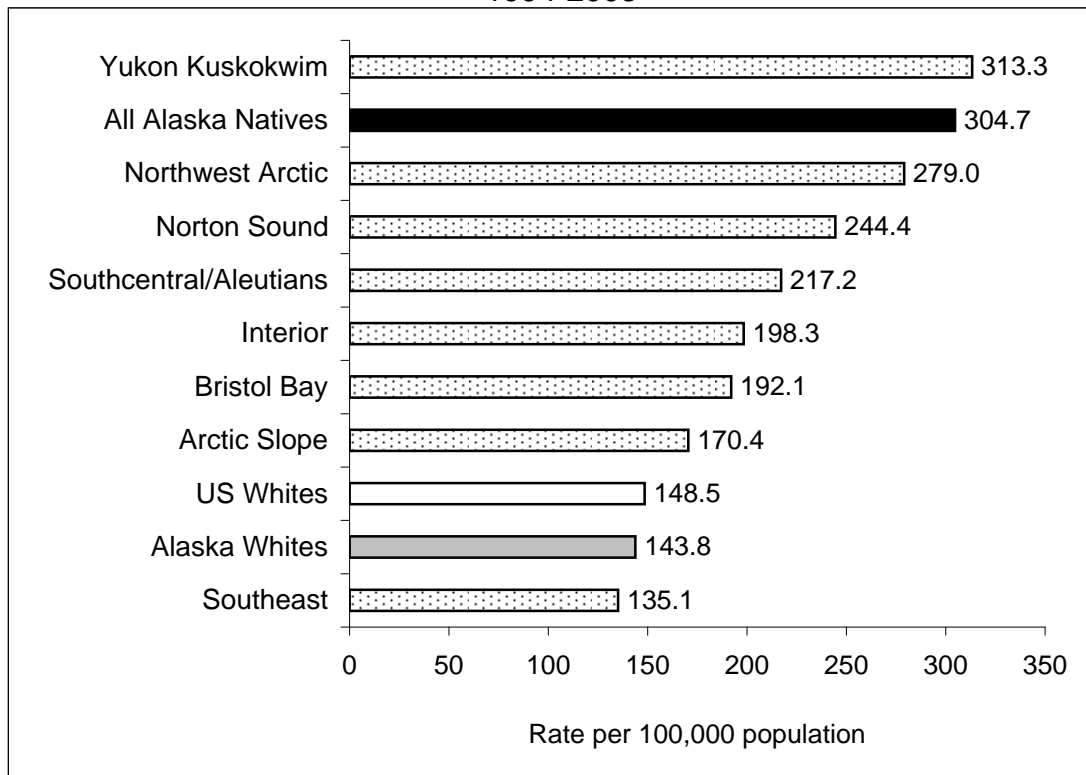
**All Cause Mortality Rate, 0-4 year olds**  
 Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites<sup>(2)</sup>  
 1990-2004

Year	Alaska Native		Alaska White		US White	
	Count	Rate	Count	Rate	Count	Rate
1990-1994	234	<b>378.5</b>	327	<b>169.1</b>	136,660	<b>178.2</b>
1995-1999	152	<b>278.1</b>	239	<b>145.2</b>	112,992	<b>149.5</b>
2000-2004	174	<b>317.9</b>	210	<b>133.7</b>	108,581	<b>142.4</b>

Data Sources: (1) National Cancer Institute's SEER Data Base. (2) *Child Health, USA 2005*.

## INFANT AND CHILD MORTALITY

**All Cause Mortality Rate by Service Region, 0-4 year olds <sup>a</sup>**  
 Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites <sup>(2)</sup>  
 1994-2003



**All Cause Mortality Rate by Service Region, 0-4 year olds <sup>a</sup>**  
 Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites <sup>(2)</sup>  
 1994-2003

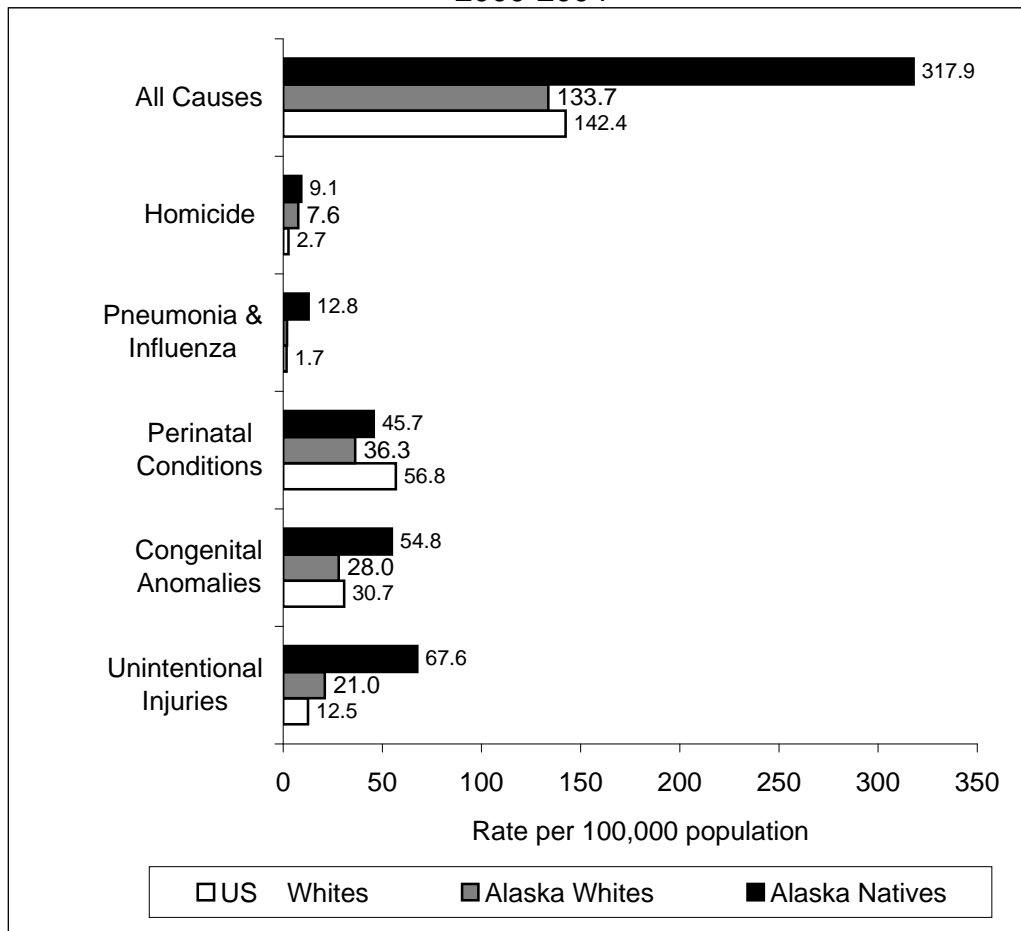
Service Region	Count	Rate
Southeast	24	<b>135.1</b>
Alaska Whites	460	<b>143.8</b>
US Whites	225,066	<b>148.5</b>
Arctic Slope	12	<b>170.4</b>
Bristol Bay	16	<b>192.1</b>
Interior	30	<b>198.3</b>
Southcentral/Aleutians	88	<b>217.2</b>
Norton Sound	30	<b>244.4</b>
Northwest Arctic	24	<b>279.0</b>
<b>All Alaska Natives</b>	329	<b>304.7</b>
Yukon Kuskokwim	105	<b>313.3</b>

(a) All service region data is for Alaska Natives only.

Data Sources: (1) Alaska Bureau of Vital Statistics, Division of Public Health, ADHSS. (2) *Child Health, USA 2005*. US White data for 2003.

# INFANT AND CHILD MORTALITY

**Leading Cause of Death, 0-4 year olds**  
Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites<sup>(2)</sup>  
2000-2004



**Leading Cause of Death, 0-4 year olds**  
Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites<sup>(2)</sup>  
2000-2004

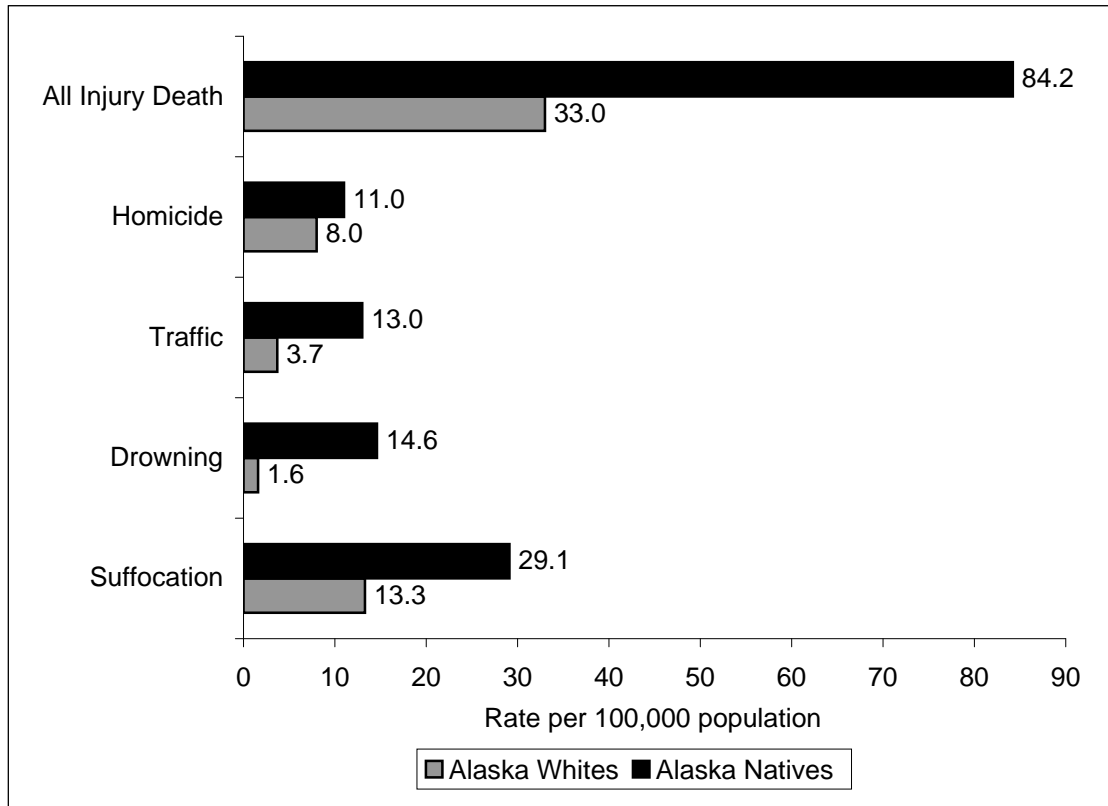
Cause of Death	Alaska Natives		Alaska Whites		US Whites
	Count	Rate	Count	Rate	Rate
Unintentional Injuries	37	67.6	33	21.0	12.5
Congenital Anomalies	30	54.8	44	28.0	30.7
Perinatal Conditions	25	45.7	57	36.3	56.8
Pneumonia & Influenza	7	12.8	3	1.9	1.7
Homicide	5	9.1	12	7.6	2.7
All Causes	174	317.9	210	133.7	142.4

Data Sources: (1) National Cancer Institute's SEER Data Base. (2) *Child Health, USA 2005*.



# INFANT AND CHILD MORTALITY

**Leading Cause of Injury Death, 0-4 year olds**  
Alaska Natives and Alaska Whites  
2000-2005



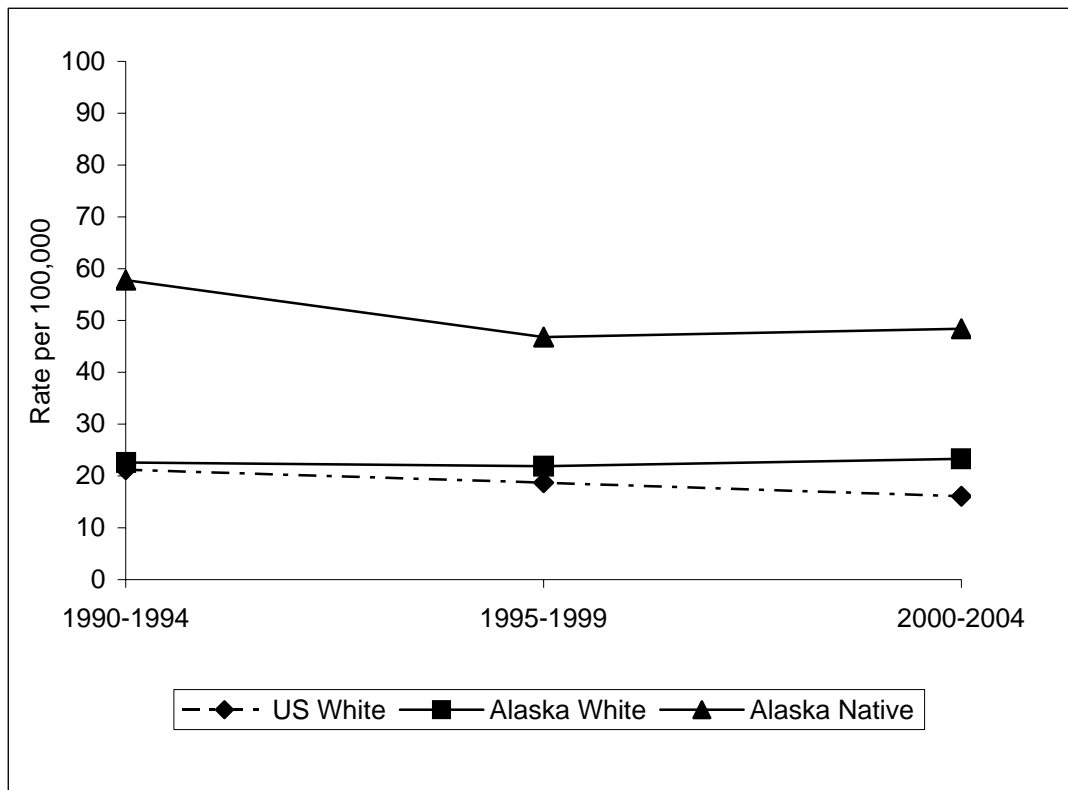
**Leading Cause of Injury Death, 0-4 year olds**  
Alaska Natives and Alaska Whites  
2000-2005

Type of Injury	Alaska Natives		Alaska Whites	
	Count	Rate	Count	Rate
Suffocation	18	<b>29.1</b>	25	<b>13.3</b>
Drowning	9	<b>14.6</b>	3	<b>1.6</b>
Traffic	8	<b>13.0</b>	7	<b>3.7</b>
Homicide	5	<b>11.0</b>	15	<b>8.0</b>
All Injury Death	52	<b>84.2</b>	62	<b>33.0</b>

Data Source: Web-based Injury Statistics Query and Reporting System, Centers for Disease Control and Prevention, DHHS.

# INFANT AND CHILD MORTALITY

**All Cause Mortality Rate, 5-14 year olds**  
 Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites<sup>(2)</sup>  
 1990-2004



**All Cause Mortality Rate, 5-14 year olds**  
 Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites<sup>(2)</sup>  
 1990-2004

Year	Alaska Native		Alaska White		US White	
	Count	Rate	Count	Rate	Count	Rate
1990-1994	59	<b>57.8</b>	83	<b>22.6</b>	30,976	<b>21.2</b>
1995-1999	56	<b>46.8</b>	82	<b>21.9</b>	29,206	<b>18.7</b>
2000-2004	58	<b>48.4</b>	83	<b>23.3</b>	25,689	<b>16.1</b>

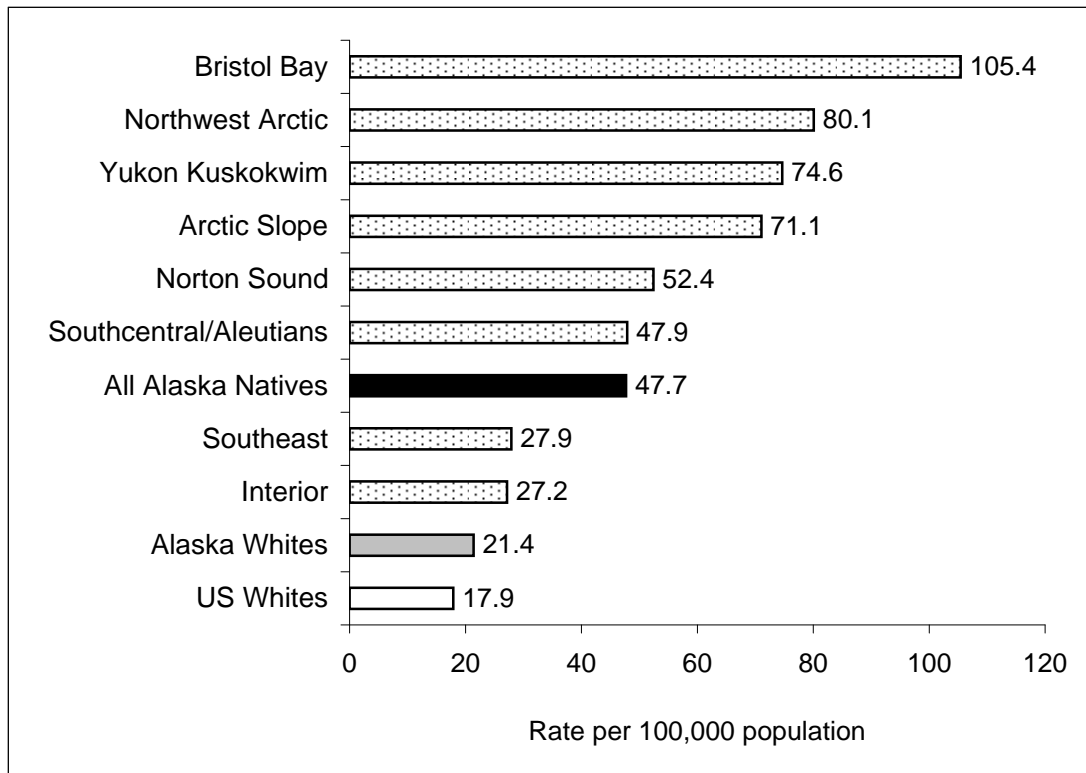
Data Sources: (1) National Cancer Institute's SEER Data Base. (2) *Child Health, USA 2005*.

## INFANT AND CHILD MORTALITY

### All Cause Mortality Rate by Service Region, 5-14 year olds <sup>a</sup>

Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites <sup>(2)</sup>

1994-2003



### All Cause Mortality Rate by Service Region, 5-14 year olds <sup>a</sup>

Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites <sup>(2)</sup>

1994-2003

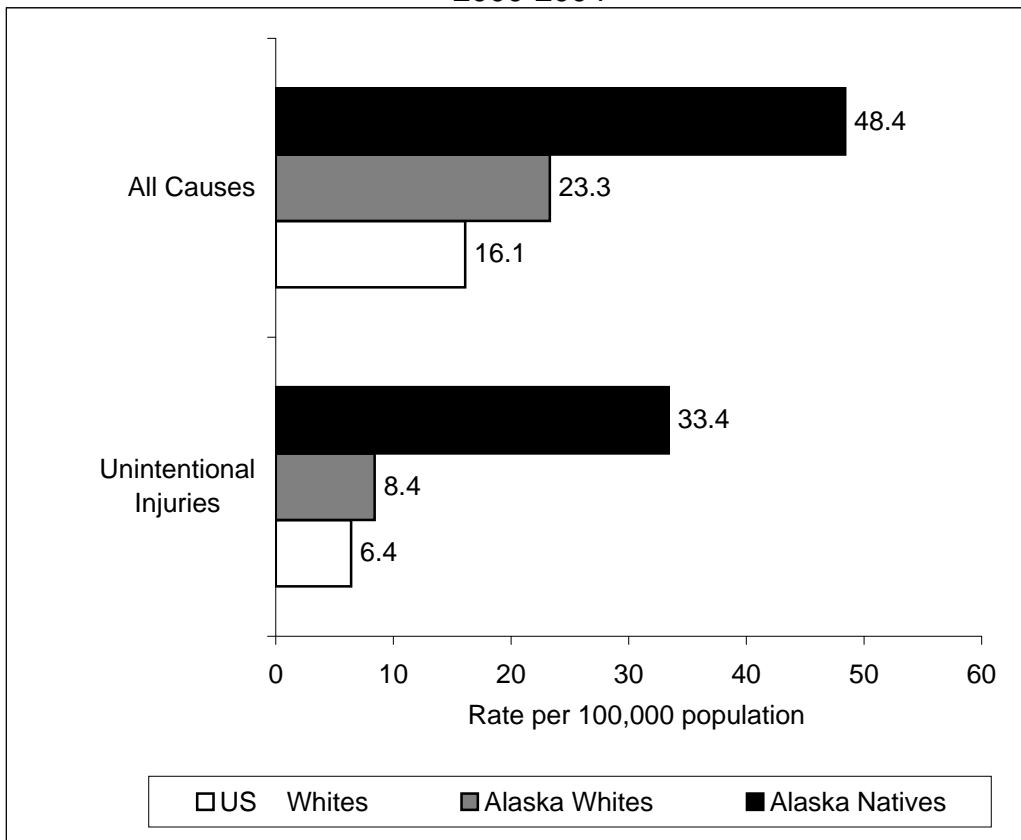
Service Region	Count	Rate
US Whites	56,079	17.9
Alaska Whites	158	21.4
Interior	7	27.2
Southeast	8	27.9
<b>All Alaska Natives</b>	115	47.7
Southcentral/Aleutians	31	47.9
Norton Sound	9	52.4
Arctic Slope	7	71.1
Yukon Kuskokwim	35	74.6
Northwest Arctic	11	80.1
Bristol Bay	7	105.4

(a) All service region data is for Alaska Natives only.

Data Sources: (1) Alaska Bureau of Vital Statistics, Division of Public Health. (2) *Child Health, USA 2005*. US White data for 2003.

# INFANT AND CHILD MORTALITY

**Leading Cause of Death, 5-14 year olds**  
 Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites <sup>(2)</sup>  
 2000-2004



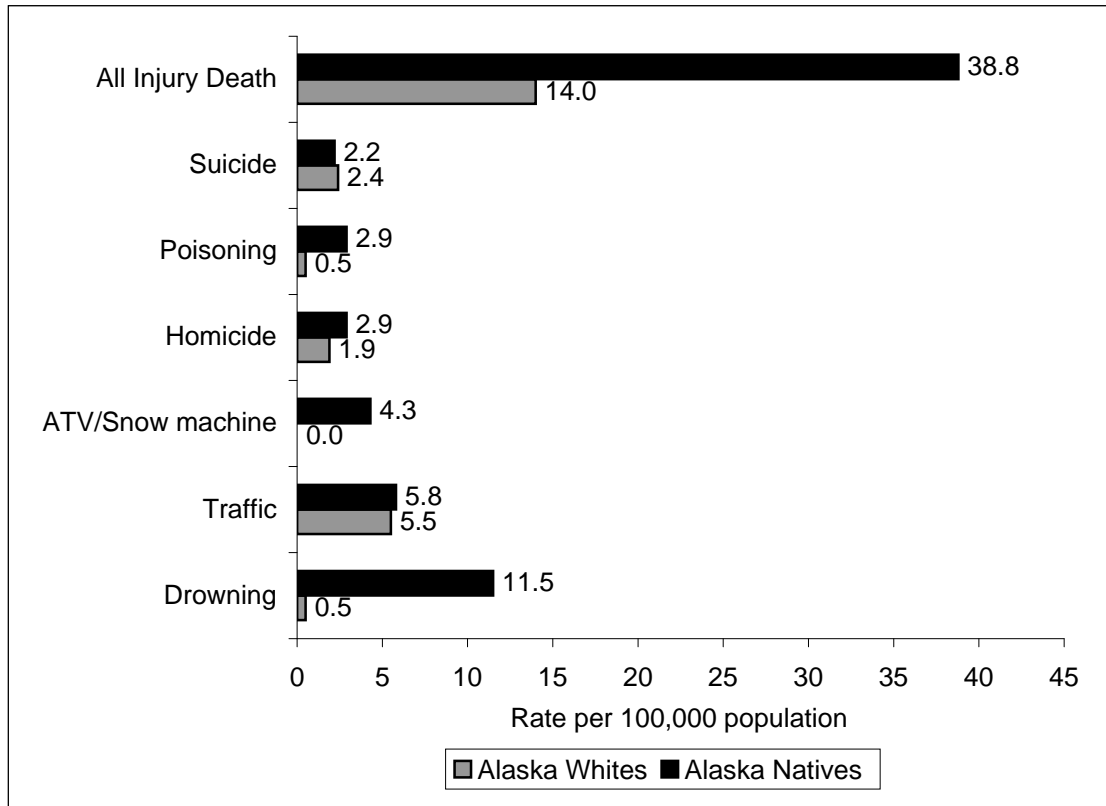
**Leading Cause of Death, 5-14 year olds**  
 Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites <sup>(2)</sup>  
 2000-2004

Cause of Death	Alaska Natives		Alaska Whites		US Whites
	Count	Rate	Count	Rate	Rate
Unintentional Injuries	40	33.4	30	8.4	6.4
All Causes	58	48.4	83	23.3	16.1

Data Sources: (1) National Cancer Institute's SEER Data Base. (2) *Child Health, USA 2005*.

# INFANT AND CHILD MORTALITY

**Leading Cause of Injury Death, 5-14 year olds**  
Alaska Natives and Alaska Whites  
2000-2005



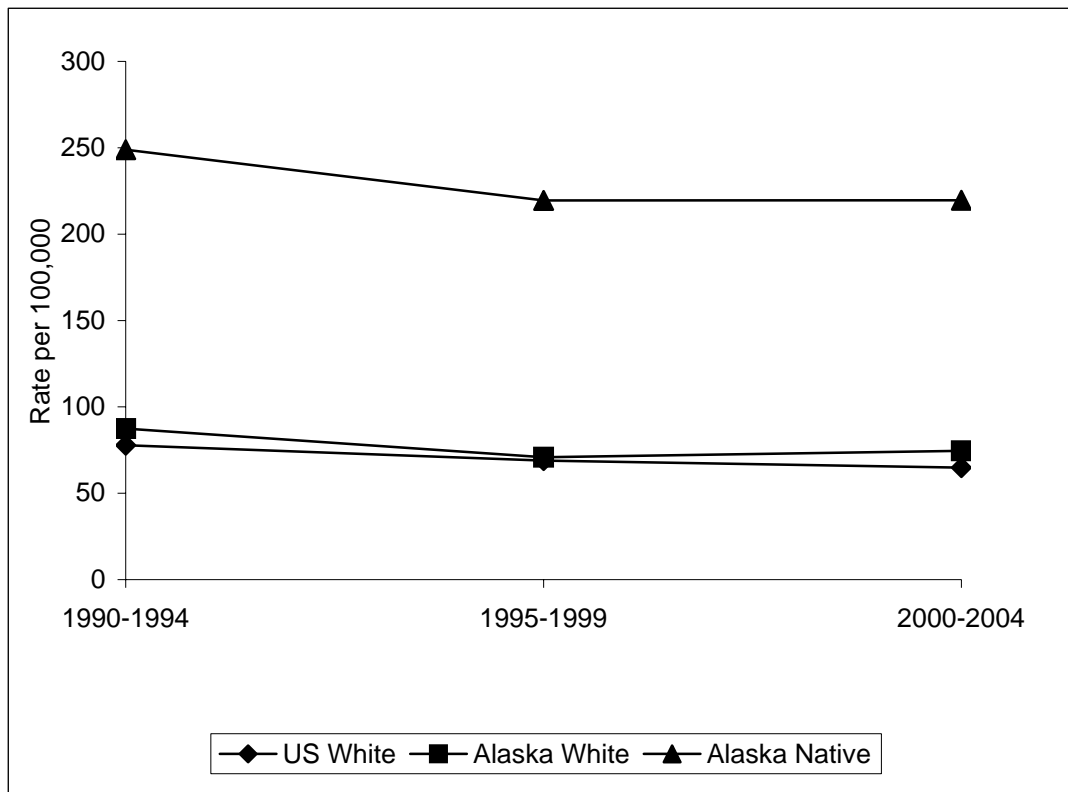
**Leading Cause of Injury Death, 5-14 year olds**  
Alaska Natives and Alaska Whites  
2000-2005

Type of Injury <sup>(a)</sup>	Alaska Natives		Alaska Whites	
	Count	Rate	Count	Rate
Drowning	16	11.5	2	0.5
Traffic	8	5.8	23	5.5
ATV/Snow machine	6	4.3	0	0.0
Homicide	4	2.9	8	1.9
Poisoning	4	2.9	2	0.5
Suicide	3	2.2	10	2.4
All Injury Death	54	38.8	59	14.0

Data Source: Web-based Injury Statistics Query and Reporting System, Centers for Disease Control and Prevention, DHHS.

# INFANT AND CHILD MORTALITY

**All Cause Mortality Rate, 15-19 year olds**  
 Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites<sup>(2)</sup>  
 1990-2004



**All Cause Mortality Rate, 15-19 year olds**  
 Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites<sup>(2)</sup>  
 1990-2004

Year	Alaska Native		Alaska White		US White	
	Count	Rate	Count	Rate	Count	Rate
1990-1994	94	<b>248.9</b>	129	<b>87.4</b>	54,436	<b>77.8</b>
1995-1999	102	<b>219.5</b>	118	<b>70.9</b>	52,683	<b>68.9</b>
2000-2004	132	<b>219.6</b>	141	<b>74.6</b>	51,963	<b>64.8</b>

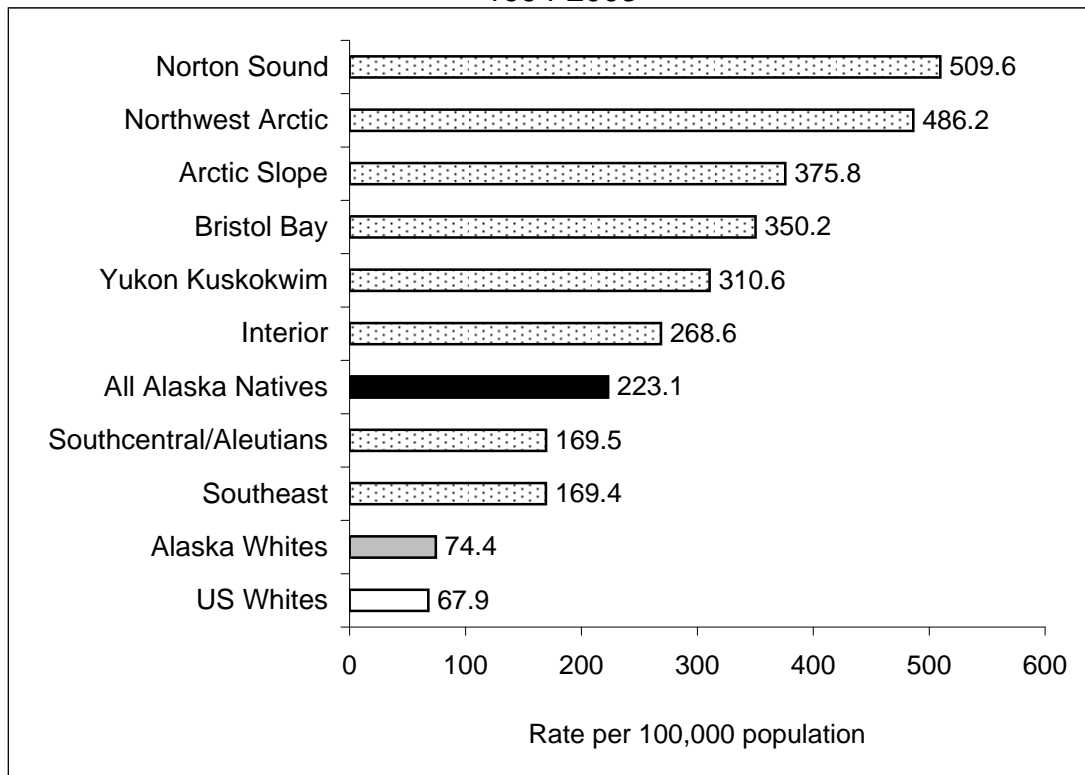
Data Sources: (1) National Cancer Institute's SEER Data Base. (2) *Child Health, USA 2005*.

## INFANT AND CHILD MORTALITY

### All Cause Mortality Rate by Service Region, 15-19 year olds <sup>a</sup>

Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites <sup>(2)</sup>

1994-2003



### All Cause Mortality Rate by Service Region, 15-19 year olds<sup>a</sup>

Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites <sup>(2)</sup>

1994-2003

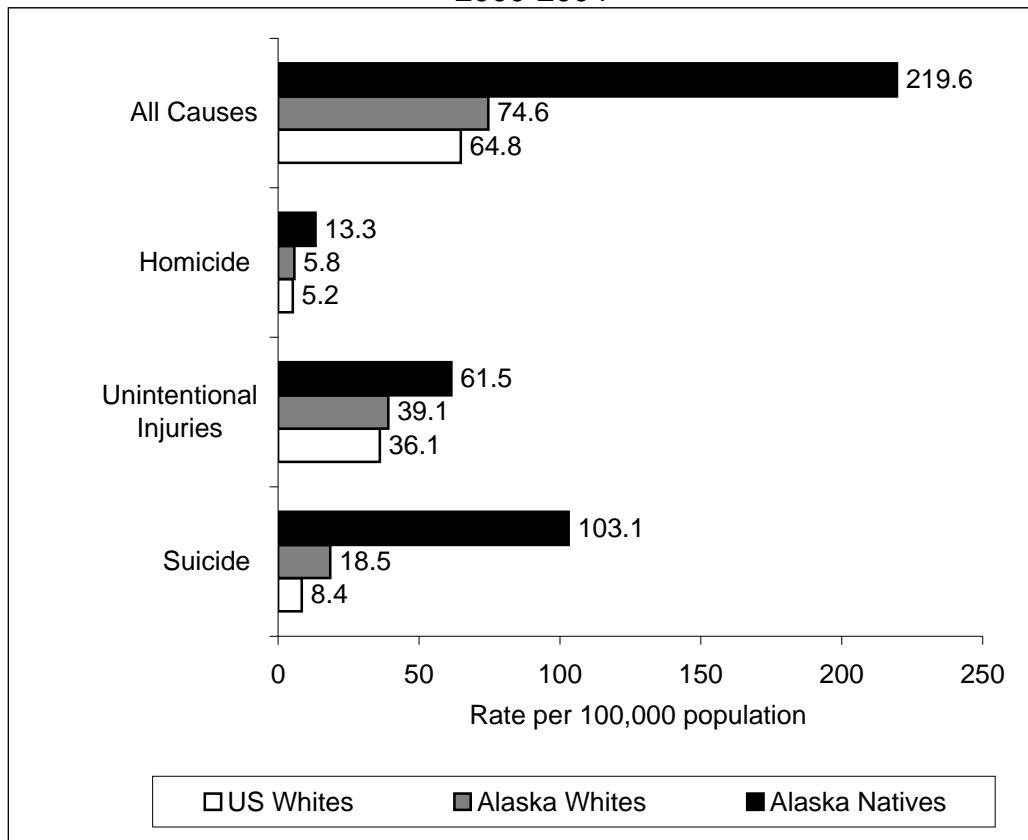
Service Region	Count	Rate
US Whites	104,969	67.9
Alaska Whites	251	74.4
Southeast	19	169.4
Southcentral/Aleutians	46	169.5
<b>All Alaska Natives</b>	227	<b>223.1</b>
Interior	27	268.6
Yukon Kuskokwim	57	310.6
Bristol Bay	13	350.2
Arctic Slope	11	375.8
Northwest Arctic	28	486.2
Norton Sound	26	509.6

(a) All service region data is for Alaska Natives only.

Data Sources: (1) Alaska Bureau of Vital Statistics, Division of Public Health. (2) *Child Health, USA 2005*. US White data for 2003.

# INFANT AND CHILD MORTALITY

**Leading Cause of Death, 15-19 year olds**  
Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites <sup>(2)</sup>  
2000-2004



**Leading Cause of Death, 15-19 year olds**  
Alaska Natives,<sup>(1)</sup> Alaska Whites,<sup>(1)</sup> and US Whites <sup>(2)</sup>  
2000-2004

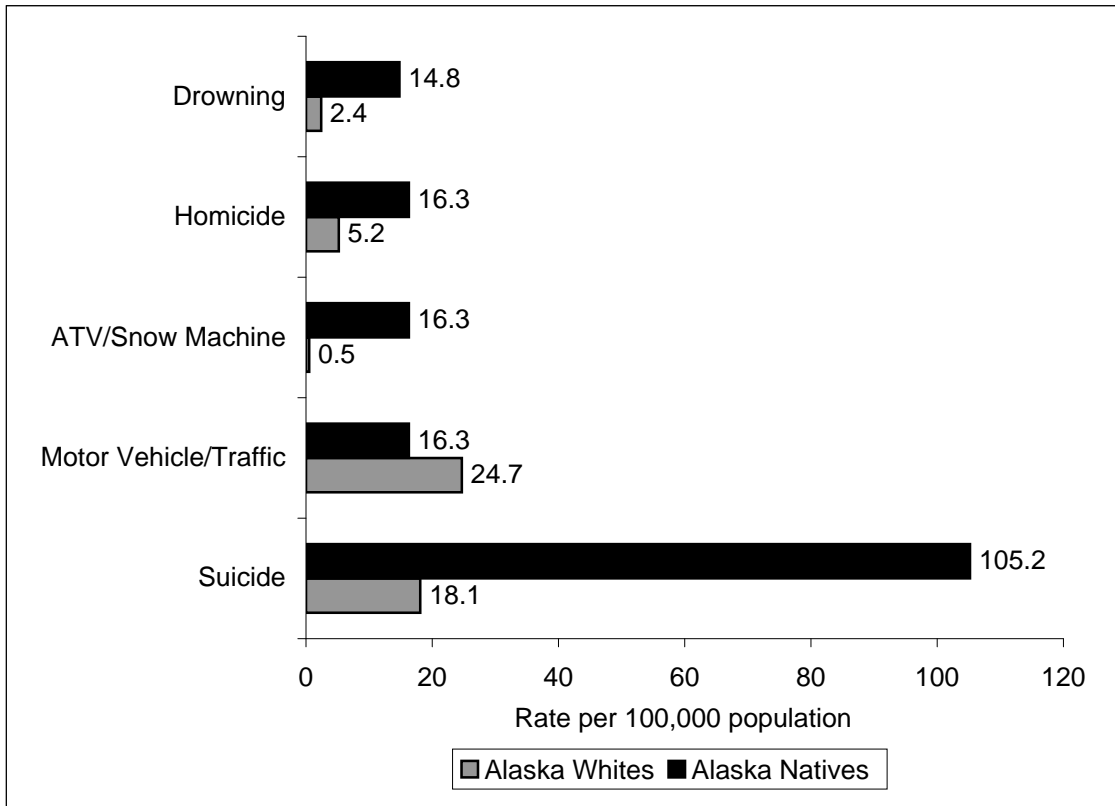
Cause of Death	Alaska Natives		Alaska Whites		US Whites
	Count	Rate	Count	Rate	Rate
Suicide	62	103.1	35	18.5	8.4
Unintentional Injuries	37	61.5	74	39.1	36.1
Homicide	8	13.3	11	5.8	5.2
All Causes	132	219.6	141	74.6	64.8

Data Sources: (1) National Cancer Institute's SEER Data Base. (2) *Child Health, USA 2005*.



# INFANT AND CHILD MORTALITY

**Leading Cause of Injury Death, 15-19 year olds**  
Alaska Natives and Alaska Whites  
2000-2005



**Leading Cause of Injury Death, 15-19 year olds**  
Alaska Natives and Alaska Whites  
2000-2005

Type of Injury <sup>(a)</sup>	Alaska Natives		Alaska Whites	
	Count	Rate	Count	Rate
Suicide	71	105.2	38	18.1
Motor Vehicle/Traffic	11	16.3	52	24.7
ATV/Snow Machine	11	16.3	1	0.5
Homicide	11	16.3	11	5.2
Drowning	10	14.8	5	2.4
All Injury Death	134	198.5	132	62.8

Data Source: Web-based Injury Statistics Query and Reporting System, Centers for Disease Control and Prevention, DHHS.

## APPENDIX A

### Classification of Service Region Data

Service Region	Tribal Health Corporation/Village	Census Area/Borough
Anchorage	Alaska Native Tribal Health Consortium, Southcentral Foundation	Anchorage Municipality, Matanuska-Susitna Borough, Kenai Peninsula Borough, Kodiak Island Borough, Valdez-Cordova, Aleutians East Borough, Aleutians West Borough
	Aleutian Pribilof Islands Association	Aleutians East Borough, Aleutians West Borough
	Chickaloon	Matanuska-Susitna Borough
	Chitna	
	Chugachmuit	Kenai Peninsula Borough, Valdez/Cordova
	Copper River Native Association	Denali Borough, Southeast Fairbanks, Valdez/Cordova
	Eastern Aleutian Tribes	Aleutians East Borough
	Native Village of Eklutna	Anchorage Municipality
	Kenaitze Indian Tribe	Kenai Peninsula Borough
	Knik Tribal Council	Matanuska-Susitna Borough
	Kodiak Area Native Association	Kodiak Island Borough
	Mt. Sanford Tribal Consortium	Valdez/Cordova
	Southcentral Foundation	Anchorage Municipality, Matanuska-Susitna Borough
	St. George Island	
Seldovia Village Tribe	Kenai Peninsula Borough	
Native Village of Tyonek	Kenai Peninsula Borough	
Ninilchik Village Traditional Council	Kenai Peninsula Borough	
Arctic Slope	Arctic Slope Native Association	North Slope Borough
Bristol Bay	Bristol Bay Area Health Corporation	Dillingham, Lake and Peninsula Borough, Bristol Bay Borough

## APPENDIX A

IHS Service Region	Tribal Health Corporation/Village	Census Area/Borough
Interior	Tanana Chiefs Conference  Council of Athabascan Tribal Governments  Tanana Tribal Council	Denali Borough, Fairbanks North Star Borough, Southeast Fairbanks, Yukon-Koyukuk
Northwest Arctic	Maniilaq Association	Northwest Arctic Borough
Southeast      Ketchikan	Southeast Alaska Regional Health Consortium   Metlakatla Indian Community Ketchikan Indian Community Hoonah Indian Community Yakutat Tlingit Tribe	Yakutat Borough, Skagway-Hoonah-Angoon, Haines Borough, Juneau Borough, Sitka Borough, Wrangell-Petersburg, Prince of Wales/Outer Ketchikan  Prince of Wales/Outer Ketchikan Ketchikan-Gateway Borough  Yakutat Borough
Norton Sound	Norton Sound Health Corporation	Nome
Yukon-Kuskokwim Delta	Yukon-Kuskokwim Health Corporation	Bethel, Wade-Hampton