

FETAL & INFANT DEATHS



"Priest, Yukon River" copyright Rie Muzoz. Ltd.

FETAL DEATHS

A fetal death is defined as the death of a fetus after the eighth week of gestation and before delivery. Alaska Statute 18.50.240 requires the filing of a fetal death certificate for each fetal death that occurs in the state when the pregnancy has lasted at least 20 weeks. The filing of certificates for fetal deaths which occur prior to the twentieth week of pregnancy is optional. This report includes information only for fetal deaths in which either the estimated gestation or the calculated gestation (last menstrual date subtracted from the date of delivery) is at least twenty weeks.

TABLE 2.1A FETAL DEATHS BY CENSUS AREA OF MOTHER'S RESIDENCE, ALASKA, 1998

CENSUS AREA OF MOTHER'S RESIDENCE	DEATHS
ANCHORAGE BOROUGH	16
BETHEL	2
DILLINGHAM	1
FAIRBANKS NORTH STAR BOROUGH	6
HAINES BOROUGH	1
JUNEAU BOROUGH	2
KENAI PENINSULA BOROUGH	3
KODIAK ISLAND BOROUGH	3
MATANUSKA-SUSITNA BOROUGH	1
NOME	1
PRINCE OF WALES-OUTER KETCHIKAN	1
WRANGELL-PETERSBURG	2
YUKON-KOYUKUK	1
TOTAL	40

TABLE 2.1B FETAL DEATHS BY NATIVE REGIONAL CORPORATION OF MOTHER'S RESIDENCE, ALASKA, 1998

NATIVE REGIONAL CORPORATION OF MOTHER'S RESIDENCE	DEATHS
BERING STRAITS CORP.	1
BRISTOL BAY CORP.	1
CALISTA CORP.	2
CHUGACH NATIVES INC.	1
COOK INLET REG CORP.	19
DOYON LTD.	7
KONIAG INC.	3
SEALASKA CORP.	6
TOTAL	40

TABLE 2.1C FETAL DEATHS AND FETAL DEATH RATE BY MOTHER'S RACE, ALASKA, 1994-1998

MOTHER'S RACE	FETAL DEATHS						TOTAL BIRTHS	1994-98 RATE
	1994	1995	1996	1997	1998	TOTAL		
WHITE	30	25	25	26	23	129	34,295	3.8
NATIVE	9	12	15	8	9	53	11,869	4.5
AFR/AM	4	5	5	3	6	23	2,231	10.3
ASIAN/PI	1		1	1	2	5	2,441	2.0
TOTAL	44	42	46	38	40	210	50,836	4.1

TABLE 2.2 FETAL DEATHS BY AGE AND RACE OF MOTHER, ALASKA, 1998

MOTHER'S AGE	MOTHER'S RACE				TOTAL
	WHITE	NATIVE	AFR/AM	ASIAN/PI	
18-19	2	1			3
20-24	7	4	4	1	16
25-29	7	1	1	1	10
30-34	4	1			5
35-39	2	1	1		4
40-44	1	1			2
TOTAL	23	9	6	2	40

TABLE 2.3 FETAL DEATHS BY LENGTH OF GESTATION AND WEIGHT, ALASKA, 1998

GESTATION	WEIGHT IN GRAMS								TOTAL
	<500	500-900	1000-1499	1599-1999	2000-2499	2500-4000	4000+	UNK	
20-24 WEEKS	7	2					1	2	12
25-28 WEEKS	2	2	1						5
29-32 WEEKS		2		1				2	5
33-36 WEEKS			1	2	1	1			5
37-41 WEEKS					1	10		1	12
42+ WEEKS					1				1
TOTAL	9	6	2	3	3	11	1	5	40

INFANT DEATHS

Infant deaths are defined as deaths which occur after a live birth and before an individual's first birthday. Infant mortality may be calculated by either of two methods: *birth cohort* or *death cohort*. The *birth cohort* method is calculated based on a comparison of the number of infants born in a calendar year with the number of those infants who die before reaching their first birthday. The *death cohort* method is calculated by dividing the number of infants who die in a calendar year by the number of infants born in that same year.

The birth cohort method is more relevant for calculating infant mortality rates because it calculates a rate for a specific group of infants, whereas the death cohort method calculates a rate based on comparing deaths in one year against births in that same year. The death cohort calculation includes infants who died in the report year (1998) but were born in the previous year, and excludes infants who were born in the report year but die in the next year. In this report, the birth cohort method is calculated on births from calendar year 1997. Birth cohort calculations are not included for 1998 in this report because not all 1999 death records were complete at the time this report was compiled.

The death cohort method is used in this report for calendar year 1998. This method compares the number of deaths of infants who died during 1998 prior to their first birthday with the number of infants who were born in 1998.

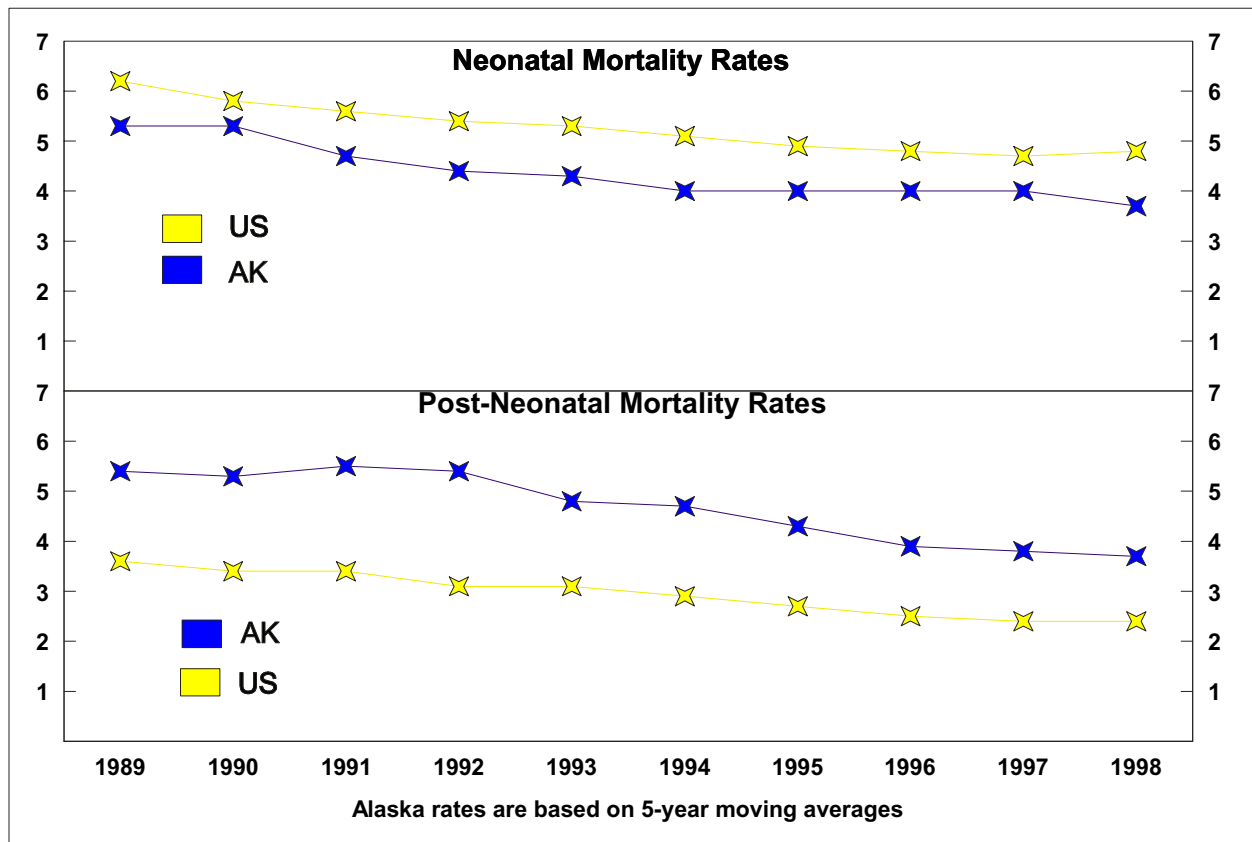
Infant Mortality Rates

Using the death cohort, the total number of infant deaths during 1998 was 59. This is a 22.4 percent decrease from 76 infant deaths during 1997.¹ Since relatively small changes in infant deaths can cause large fluctuations in the infant mortality rate (IMR) from one year to the next, Alaska's annual IMR is calculated on a five-year moving average. The 1994-1998 five-year average infant mortality rate was 7.4 deaths per 1,000 live births, down from 7.8 deaths per 1,000 live births for 1993-1997. The U.S. infant mortality rate of 7.2 deaths per 1,000 live births in 1998 is the same as in 1997.² Both the U.S. and Alaska infant mortality rates have been steadily decreasing in recent years, and both are now at the lowest rates ever recorded.

In discussing infant mortality, a distinction is made between neonatal mortality (deaths prior to the 28th day of life) and postneonatal mortality (deaths from the 28th day up to one year). Neonatal deaths are frequently associated with circumstances related to pregnancy and delivery while postneonatal deaths are often associated with living conditions. Alaska's neonatal mortality rate has generally been lower than the neonatal mortality rate for the United States, while its postneonatal mortality rate has been higher. Chart 2.1 provides a graphic comparison of the neonatal and postneonatal rates for Alaska and the United States.

- 1 Crondahl, J., Mitchell, P., Zenk, A., and Walden, S. Department of Health and Social Services, Division of Public Health, *Alaska Bureau of Vital Statistics 1997 Annual Report*, Juneau, Alaska, December 1998, p.53.
- 2 National Center for Health Statistics, U.S. Department of Health and Human Services, "Births and Deaths: Preliminary Data for 1998," *National Vital Statistics Report, Vol. 47, No. 25, October 5, 1999, Table 15, p. 32.*

CHART 2.1 NEONATAL AND POSTNEONATAL MORTALITY RATES PER 1,000 LIVE BIRTHS, ALASKA AND THE UNITED STATES, 1989-1998 (DEATH COHORT METHOD)



United States rates are single year rates and are provided by the National Center for Health Statistics.³ Alaska infant mortality rates are calculated using five-year moving averages per 1,000 live births and are based on the death-cohort method.

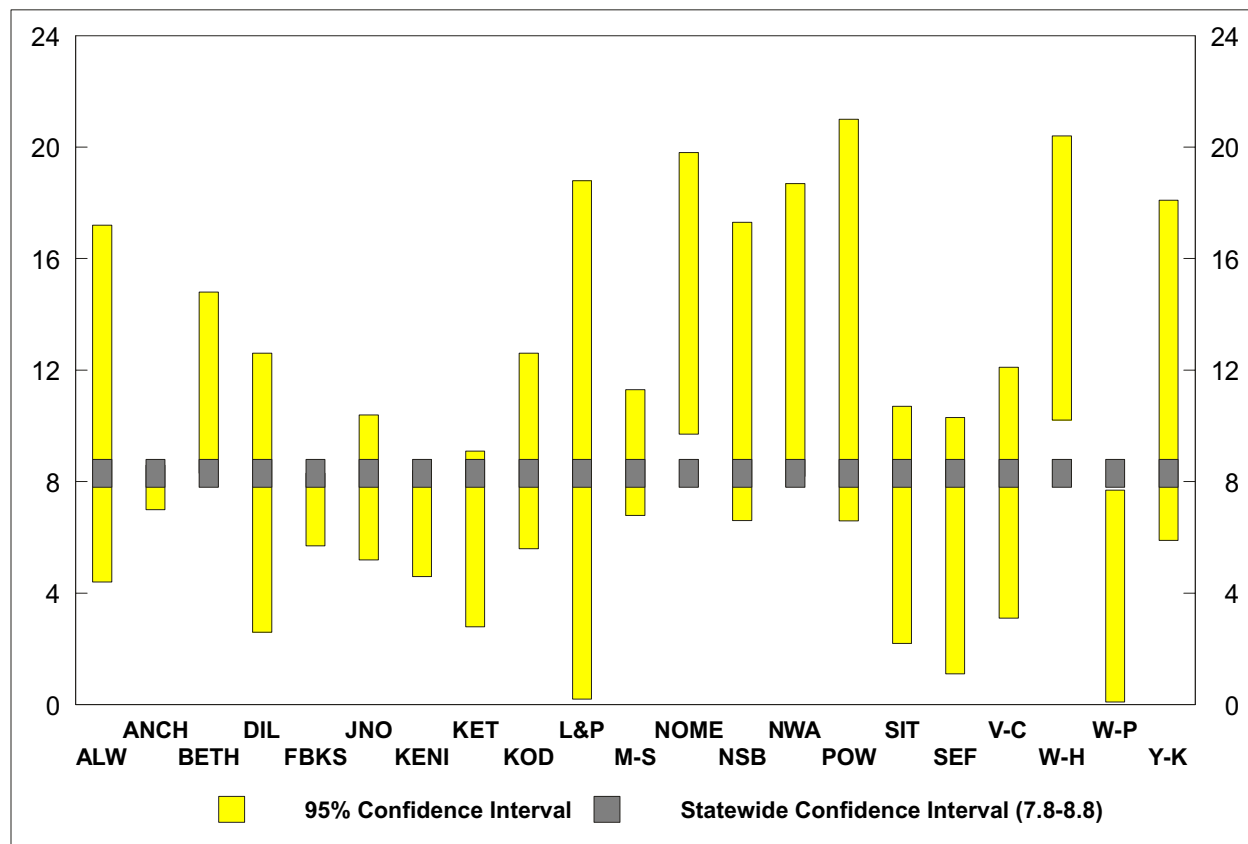
Chart 2.2 compares confidence intervals for infant mortality in individual census areas against the statewide average. When smaller populations, such as individual census areas, are analyzed, ten-year averages and 95 percent confidence intervals are used. The calculated infant mortality rate occurs at the midpoint of the confidence interval. The smaller the population, the larger the confidence interval. (For a detailed discussion of confidence intervals and statistical significance, refer to Appendix B.)

Several census areas (Aleutians East, Bristol Bay, Denali, Haines Borough, Skagway-Hoonah-Angoon, and Yakutat) have been omitted from Chart 2.2 because occurrences of infant mortality are too few for rates to be reliable. Those census areas which have infant mortality rates significantly above the statewide 95% confidence interval of 7.8 to 8.8 deaths per 1,000 live births are Nome and Wade Hampton. Only Wrangell-Petersburg had a rate significantly below the statewide 95% confidence interval. The confidence intervals for all other areas fell at least partly within the range of the statewide average. The evidence suggests no difference in those cases.

3 Ibid., Table 14, p. 31.

FETAL AND INFANT DEATHS (continued) Alaska Bureau of Vital Statistics

CHART 2.2 95% CONFIDENCE INTERVALS FOR INFANT MORTALITY BY CENSUS AREA, ALASKA, 1989-1998 (DEATH COHORT)



Key for Chart 2.2

ALW Aleutians West
 ANCH Anchorage
 BETH Bethel
 DIL Dillingham
 FBKS Fairbanks
 JNO Juneau
 KENI Kenai

KET Ketchikan
 KOD Kodiak
 L&P Lake & Peninsula
 M-S Matanuska-Susitna
 NOME Nome
 NSB North Slope Borough
 NWA Northwest Arctic

POW Prince of Wales/Outer Ketchikan
 SIT Sitka
 SEF Southeast Fairbanks
 V-C Valdez/Cordova
 W-H Wade Hampton
 W-P Wrangell/Petersburg
 Y-K Yukon Koyukuk

Infant Deaths by Age

TABLE 2.4A INFANT DEATHS BY CENSUS AREA OF DECEDENT'S RESIDENCE AND AGE, ALASKA, 1998 (DEATH COHORT METHOD)

CENSUS AREA OF DECEDENT'S RESIDENCE	DECEDENT'S AGE		TOTAL
	NEONATAL	POST-NEONATAL	
ALEUTIANS WEST	2		2
ANCHORAGE BOROUGH	14	15	29
BETHEL	1	1	2
DILLINGHAM	1		1
FAIRBANKS NORTH STAR BOROUGH	1	2	3
JUNEAU BOROUGH	2		2
KENAI PENINSULA BOROUGH	1	3	4
KODIAK ISLAND BOROUGH	1	3	4
MATANUSKA-SUSITNA BOROUGH	1	1	2
NOME	1	2	3
NORTH SLOPE BOROUGH	1		1
NORTHWEST ARCTIC BOROUGH	1	1	2
PRINCE OF WALES-OUTER KETCHIKAN		1	1
SKAGWAY-HOONAH-ANGOON	1		1
WADE HAMPTON	1	1	2
TOTAL	29	30	59

TABLE 2.4B INFANT DEATHS BY NATIVE REGIONAL CORPORATION OF DECEDENT'S RESIDENCE AND AGE, ALASKA, 1998 (DEATH COHORT METHOD)

NATIVE REGIONAL CORPORATION OF DECEDENT'S RESIDENCE	DECEDENT'S AGE		TOTAL
	NEONATAL	POST-NEONATAL	
ALEUT CORP.	2		2
ARCTIC SLOPE CORP.	1		1
BERING STRAITS CORP.	1	2	3
BRISTOL BAY CORP.	1		1
CALISTA CORP.	2	2	4
COOK INLET REG CORP.	16	19	35
DOYON LTD.	1	2	3
KONIAG INC.	1	3	4
NANA REGIONAL CORP.	1	1	2
SEALASKA CORP.	3	1	4
TOTAL	29	30	59

FETAL AND INFANT DEATHS (continued) Alaska Bureau of Vital Statistics

TABLE 2.4C INFANT DEATHS BY RACE, SEX, AND AGE OF DECEDENT, ALASKA, 1998 (DEATH COHORT METHOD)

DECEDENT'S RACE	DECEDENT'S AGE		TOTAL
	NEONATAL	POST-NEONATAL	
WHITE	19	13	32
NATIVE	8	10	18
AFR/AM		6	6
ASIAN/PI	2	1	3
TOTAL	29	30	59

DECEDENT'S SEX	DECEDENT'S AGE		TOTAL
	NEONATAL	POST-NEONATAL	
FEMALE	7	10	17
MALE	22	20	42
TOTAL	29	30	59

TABLE 2.5A INFANT DEATHS BY CENSUS AREA OF DECEDENT'S RESIDENCE AND AGE, ALASKA, BIRTH YEAR 1997 (BIRTH COHORT METHOD)

CENSUS AREA OF DECEDENT'S RESIDENCE	DECEDENT'S AGE		TOTAL
	NEONATAL	POST-NEONATAL	
ANCHORAGE BOROUGH	13	13	26
BETHEL	3	3	6
FAIRBANKS NORTH STAR BOROUGH	7	3	10
JUNEAU BOROUGH	1	1	2
KENAI PENINSULA BOROUGH	2	1	3
KETCHIKAN GATEWAY BOROUGH		2	2
KODIAK ISLAND BOROUGH	1		1
MATANUSKA-SUSITNA BOROUGH	3	4	7
NOME	2	3	5
PRINCE OF WALES-OUTER KETCHIKAN	1	1	2
SOUTHEAST FAIRBANKS	1		1
WADE HAMPTON	1	2	3
WRANGELL-PETERSBURG	1		1
TOTAL	36	33	69

TABLE 2.5B INFANT DEATHS BY NATIVE REGIONAL CORPORATION OF DECEDENT'S RESIDENCE AND AGE, ALASKA, BIRTH YEAR 1997 (BIRTH COHORT METHOD)

NATIVE REGIONAL CORPORATION OF DECEDENT'S RESIDENCE	DECEDENT'S AGE		TOTAL
	NEONATAL	POST-NEONATAL	
BERING STRAITS CORP.	2	3	5
CALISTA CORP.	4	5	9
COOK INLET REG CORP.	18	18	36
DOYON LTD.	8	3	11
KONIAG INC.	1		1
SEALASKA CORP.	3	4	7
TOTAL	36	33	69

TABLE 2.5C INFANT DEATHS BY RACE, SEX, AND AGE OF DECEDENT, ALASKA, BIRTH YEAR 1997 (BIRTH COHORT METHOD)

DECEDENT'S RACE	DECEDENT'S AGE		TOTAL
	NEONATAL	POST-NEONATAL	
WHITE	20	15	35
NATIVE	11	16	27
AFR/AM	3		3
ASIAN/PI	2	2	4
TOTAL	36	33	69

DECEDENT'S RACE	NEONATAL	POST-NEONATAL	TOTAL
FEMALE	12	17	29
MALE	24	16	40
TOTAL	36	33	69

Infant Mortality Rates by Race

Table 2.6A shows 5-year moving average infant mortality rates by race for the years 1994 through 1998. To ensure consistent reporting and calculation of rates by race, all death certificates for decedents who were born in Alaska in 1989 or later are matched with the birth certificate and the child's race at birth is used for calculating deaths and death rates by race.

TABLE 2.6A BIRTHS AND INFANT DEATHS (DEATH COHORT METHOD) BY DEATH YEAR AND FIVE-YEAR MOVING AVERAGE INFANT MORTALITY RATES BY RACE, ALASKA, 1994-1998

RACE	1994			1995			1996			1997			1998		
	BTHS	DTHS	5-YR RATE	BTHS	DTHS	5-YR RATE	BTHS	DTHS	5-YR RATE	BTHS	DTHS	5-YR RATE	BTHS	DTHS	5-YR RATE
WHITE	7,371	44	6.9	6,985	43	6.6	6,713	40	6.3	6,597	42	6.1	6,629	32	5.9
NATIVE	2,346	28	14.0	2,304	26	12.6	2,407	25	11.9	2,398	27	11.7	2,414	18	10.4
AFR/AM	497	5	10.5	449	6	10.8	435	5	11.2	455	4	11.2	395	6	11.7
ASIAN/PI	468	5	9.3	485	8	10.0	494	3	9.9	512	4	10.5	482	3	9.4
TOTAL	10,682	82	8.8	10,223	83	8.3	10,049	73	8.0	9,962	77	7.8	9,920	59	7.4

FETAL AND INFANT DEATHS (continued) Alaska Bureau of Vital Statistics

TABLE 2.6B INFANT DEATHS (DEATH COHORT METHOD) BY DEATH YEAR, BIRTH WEIGHT, AND AGE AT DEATH (NEONATAL OR POST-NEONATAL), AND INFANTS SURVIVING FIRST YEAR OF LIFE BY BIRTH YEAR AND BIRTH WEIGHT, 1989-1998

YEAR	BIRTH WEIGHT IN GRAMS AND AGE																					TOTAL
	<500			500-999			1000-1499			1500-2499			2500-3999			4000+			UNKNOWN			
	NN*	PNN	SUR	NN	PNN	SUR	NN	PNN	SUR	NN	PNN	SUR	NN	PNN	SUR	NN	PNN	SUR	NN	PNN	SUR	
1989	7			14	2	25	9	4	40	6	7	459	12	38	9,179		5	1,827	3	2	21	11,660
1990	5			17	1	38	8	1	43	9	9	444	20	48	9,393		3	1,856	1	3	1	11,900
1991	13		2	9	2	22	3		44	7	8	432	8	41	9,227	1	9	1,853	1	4	2	11,688
1992	3			13	1	28	6	2	57	5	6	453	18	38	9,207		5	1,871	1	2	11	11,727
1993	5			15	1	21	3	3	52	8	5	434	12	29	8,729	4	1	1,744	3	1	19	11,089
1994	5		2	9	2	28	4	1	57	2	5	473	9	36	8,303		4	1,705	5		32	10,682
1995	8		1	14		18	6	3	46	6	4	436	13	22	8,057	2		1,553	2	3	29	10,223
1996	8			11	1	28		1	44	5	3	446	9	24	7,901	2	6	1,541	1	2	16	10,049
1997	7		3	10	6	33	2	1	57	4	6	453	9	23	7,815	2	4	1,493	2	1	31	9,962
1998	4		3	11	2	27	6		70	3	4	460	4	20	7,765		2	1,510	1	2	26	9,920

* NN = Neonatal death; PNN = Post-neonatal death; SUR = survived first year of life.

Infant Deaths by Cause of Death

Although the same coding system (ICD9) is used in reporting causes of death for infants and the general population, the codes are grouped differently since causes of death for infants up to one year of age differ from those in the general population. For specific causes of death for infant mortality refer to Appendix C, Table C.3.

Certain causes of death are associated with factors such as age and birth weight. For instance, Sudden Infant Death Syndrome (SIDS) almost always occurs in the postneonatal period. Respiratory Distress Syndrome generally occurs in low birth weight infants. The single greatest cause of infant death in Alaska is Sudden Infant Death Syndrome. In the five-year period from 1994 through 1998, 89 infants were reported to have died of SIDS, a rate of 1.8 per thousand live births. This is the same as 1993-1997. This compares with a rate of 0.6 per thousand live births for the United States in 1998.⁴ The United States rate for SIDS deaths dropped 45.5% since 1994 when the rate was 1.1 deaths per thousand live births.

Because of its mysterious nature, Sudden Infant Death Syndrome can never be positively determined; rather, it is a diagnosis which occurs after other causes of death have been ruled out. What we can say about SIDS is that it affects normally healthy, sleeping infants under one year of age. One potential risk factor for SIDS is putting infants to sleep on their stomachs (the prone position).⁵

4 Ibid., Table 15, p.32.

5 Willinger, Marian, Ph.D., Hoffman, H., M.A., and Hartford, R., Ph.D., "Infant Sleep Position and Risk for Sudden Infant Death Syndrome: Report of Meeting Held January 13 and 14, 1994," National Institutes of Health, Bethesda, MD, *Pediatrics*, Vol. 93, No. 5, May 1994, p. 814.

TABLE 2.7 INFANT DEATHS BY SELECTED CAUSES OF DEATH AND AGE, ALASKA, 1998 (DEATH COHORT METHOD)

CAUSE OF DEATH	AGE AT DEATH		TOTAL
	NEONATAL	POST-NEONATAL	
SEPTICEMIA		1	1
BLOOD AND BLOOD-FORMING ORGAN DISEASES	1		1
BRONCHITIS AND BRONCHIOLITIS	1		1
GASTRITIS,DUODENITIS,AND NONINFECTIVE ENTERITIS AND COLITIS		1	1
CONGENITAL ANOMALIES	9	4	13
MATERNAL COMPLICATIONS OF PREGNANCY	1		1
PLACENTA,CORD,AND MEMBRANE COMPLICATIONS	3		3
LABOR & DELIVERY: OTHER COMPLICATIONS	1		1
SHORT GESTATION & LOW BIRTHWEIGHT RELATED DISORDERS	4		4
INTRAUTERINE HYPOXIA & BIRTH ASPHYXIA	2		2
RESPIRATORY DISTRESS SYNDROME	2		2
HEMOLYTIC DISEASE OF NEWBORN	1		1
SIDS		18	18
ACCIDENTS & ADVERSE EFFECTS		2	2
ALL OTHER CAUSES	4	4	8
TOTAL	29	30	59

TABLE 2.8 INFANT DEATHS BY SELECTED CAUSES OF DEATH AND RACE, ALASKA, 1998 (DEATH COHORT METHOD)

CAUSE OF DEATH	RACE				TOTAL
	WHITE	NATIVE	AFR/AM	ASIAN/PI	
SEPTICEMIA			1		1
BLOOD AND BLOOD-FORMING ORGAN DISEASES	1				1
BRONCHITIS AND BRONCHIOLITIS		1			1
GASTRITIS,DUODENITIS,AND NONINFECTIVE ENTERITIS AND COLITIS		1			1
CONGENITAL ANOMALIES	10	3			13
MATERNAL COMPLICATIONS OF PREGNANCY				1	1
PLACENTA,CORD,AND MEMBRANE COMPLICATIONS	1	1		1	3
LABOR & DELIVERY: OTHER COMPLICATIONS		1			1
SHORT GESTATION & LOW BIRTHWEIGHT RELATED DISORDERS	3	1			4
INTRAUTERINE HYPOXIA & BIRTH ASPHYXIA	2				2
RESPIRATORY DISTRESS SYNDROME		2			2
HEMOLYTIC DISEASE OF NEWBORN	1				1
SIDS	9	5	4		18
ACCIDENTS & ADVERSE EFFECTS	1			1	2
ALL OTHER CAUSES	4	3	1		8
TOTAL	32	18	6	3	59