Progress Toward Healthy Alaskans 2010 Goals for Alaska Native Babies: 1998-2000

Alaska Native Epidemiology Center
Alaska Native Health Board
July 2003

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Cover photo: Jean Sam and son Samuel Ticknor.
Baby belt made by Delores Slone, Athabascan.

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Acknowledgements

Data for births and fetal and infant deaths from January 1, 1998 to December 31, 2000 were provided by the Bureau of Vital Statistics, Department of Health and Social Services, State of Alaska. The data were provided in table format without identifying information such as names or dates of birth. More detailed information about births and fetal and infant death for single years is available from the Bureau of Vital Statistics Annual reports on their website at http://www.hss.state.ak.us/dph/bvs/

Rates of Fetal Alcohol Syndrome (FAS) by race were provided by the Fetal Alcohol Syndrome Surveillance Project of the State of Alaska, Department of Health and Social Services, Division of Public Health, Section of Epidemiology. This project is part of the National FAS Surveillance Network (DHSS June 2002). Details are available at: http://www.epi.hss.state.ak.us/mchepi/FAS/default.stm

Rates of Birth Defects were provided by the Alaska Birth Defects Registry of the State of Alaska, Department of Health and Social Services, Division of Public Health, Section of Epidemiology. This is a population based surveillance system for birth defects. Details of the Registry can be found at: http://www.epi.hss.state.ak.us/mchepi/ABDR/default.stm

Introduction to Birth and Fetal and Infant Death Data in Alaska

Race Determination

The Bureau of Vital Statistics assigns race on the birth certificate. Usually the mother or another family member fills out the section of the certificate describing family demographics. The baby is assigned the race of the mother according to National Center for Health Statistics standards (Bureau of Vital Statistics 2002). A child of an Alaska Native mother is classified as an Alaska Native but a child of a non-Native mother and an Alaska Native father is not classified as an Alaska Native, even though the family and community may consider the child an Alaska Native.

Death certificates are usually filled out by a Funeral Director or other official who may not know the individual who died and may determine race by observation. This can result in misclassification. White or Black people are misclassified least often; other minorities such as Alaska Natives, other American Indians, and Hispanics are misclassified more often. Since 1989, the Alaska Bureau of Vital Statistics has tried to match each resident's death certificate with their birth certificate to ensure that the race in the death record is the same as on the birth certificate. Misclassification can lead to a systematic underestimate of Alaska Native mortality.

Population Estimates for Birth Rates

The US Census is conducted every ten years. The State of Alaska produces intercensal estimates each year between the federal censuses. We used the intercensal population estimate for 1999 (the midpoint year between 1998 and 2000) multiplied by three to estimate population for the whole period. We chose to use the 1999 estimate multiplied by three, rather than adding together estimates for each individual year, because of the racial classification changes that began in 2000. Before 2000, respondents could only identify with one race. In the 2000 US Census, respondents could identify with more than one race, creating a discontinuity with previous years' estimates.

Rates

A rate is the number of events (for example, births or deaths) divided by the population, for some period of time, usually a year. The population may be the whole population or a segment such as newborns or pregnant women. It is customary to express rates per 1,000 or some other round number to facilitate comparisons with other published reports.

Birth

The crude birth rate is the total number of births divided by the total population for a given time period. The fertility rate is the total number of births divided by the number of women aged 15-44 years. The teen birth rate is the number of births to women age 15-19 divided by total number of women in that age group. Birth rates are expressed per 1,000 population or per 1,000 women.

Fetal Mortality

Fetal deaths are those that occur after 20 weeks of gestation but before normal delivery. The denominator for the fetal mortality rate is births in the same year(s) plus fetal deaths. The rate is expressed per 1,000 live births plus fetal deaths.

Infant Mortality

Infant mortality is divided into neonatal (birth through 28 days) and postneonatal (29 days through 1 year) mortality. The denominator for the neonatal and post-neonatal mortality rates is live births in the same year(s) and the rate is expressed per 1,000 live births.

Fetal Alcohol Syndrome

The denominator for FAS rates is live births and the rates are expressed per 1,000 live births. There can be a lag in FAS diagnosis because children may not be diagnosed until they are up to 6 years of age. Rates are reported per live births in year(s) of birth of FAS case(s) and are updated as more FAS cases are added to the FAS Surveillance Program's records (DHSS June 2002). Because of this, rates of FAS for more recent years of birth may be underestimates.

Birth Defects

Birth defects in the Alaska Birth Defect Registry are ascertained from birth certificates and from later diagnosis. The denominator for birth defect rates is live births and the rate is expressed per 10,000 live births. This is different from most of the other rates presented in this document.

Comment on the Interpretation of Differences

Due to the relatively small number of events, we combined three years of data to achieve large enough numbers to calculate stable estimates of rates and to support statistical comparisons of Alaska Natives and non-Natives.

For all birth, mortality, and FAS rates a *rate ratio* was calculated by dividing the rate for Alaska Natives by the rate for non-Natives. A rate ratio less than 1.0 means Alaska Native have a lower rate than non-Natives, while a ratio greater than 1.0 means they have a higher rate. However the ratio itself does not tell us if the difference is statistically significant. In order to test signifi-

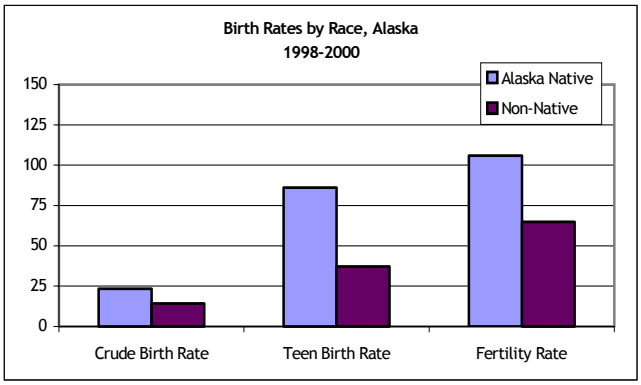
cance, a 95% confidence interval was calculated around the rate ratio. If this interval did not include 1.0, then the two groups were considered to have statistically significantly different rates at $p < .05$.

For yes/no variables, such as reported smoking or drinking during pregnancy, a chi-square (χ^2) test was conducted to compare Alaska Natives to non-Natives.

Summary of Vital Data for 1998-2000

Birth Rates

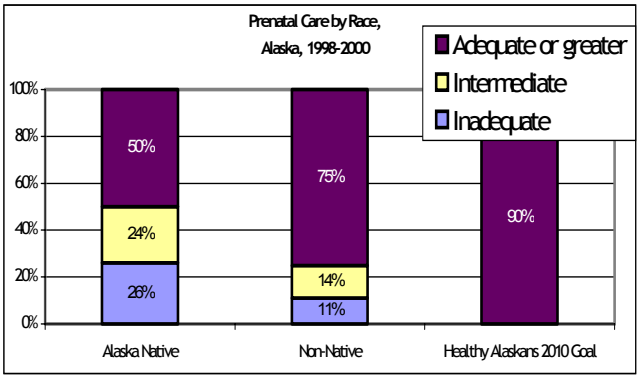
Alaska Natives have significantly higher crude birth rates, fertility rates and teen birth rates than non-Natives. The proportion of total births that were to teen mothers (age 15-19 years) was 18% for Natives and half that for non-Natives.



Data Source: Bureau of Vital Statistics, Department of Health and Social Services, State of Alaska

Prenatal Care

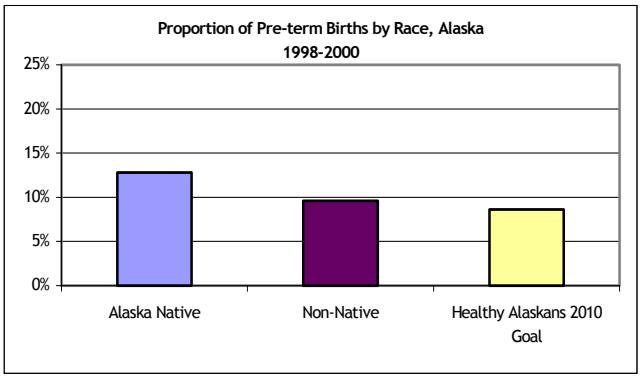
The APCNU Index looks at a combination of when prenatal care began and the number of prenatal visits. A ratio of actual to recommended visits is calculated. When the ratio is 110% or greater, care is considered 'adequate plus'. If the ratio is greater than 80% but less than 110%, care is considered 'adequate'. A ratio between 50 and 79 is considered 'intermediate' and a ratio of less than 50% is considered 'inadequate' (Bureau of Vital Statistics, 2002). We combined the 'adequate' and 'adequate plus' categories into one category labeled 'adequate or greater'. Only 50% of Alaska Native mothers had adequate or greater prenatal care from 1998-2000, significantly fewer than non-Natives. Both were below the Healthy Alaskans 2010 goal of 90% of births with adequate or greater care (DHHS April 2002).



Data Source: Bureau of Vital Statistics, Department of Health and Social Services, State of Alaska; DHSS, Healthy Alaskans 2010 Vol. 1.

Pre-Term Births

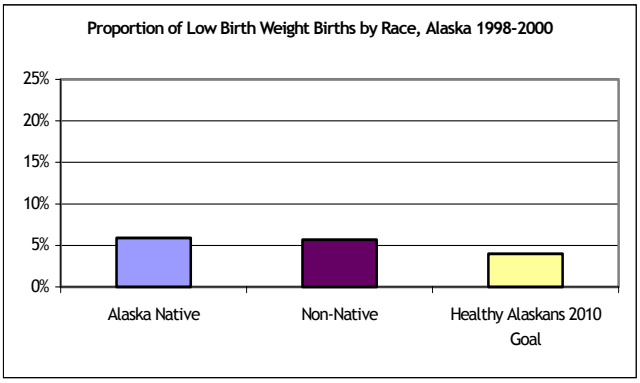
Pre-term infants (less than 37 weeks gestation) are at greater risk then full-term infants for many complications and even death. Alaska Natives have a significantly higher proportion of pre-term births than non-Natives.



Data Source: Bureau of Vital Statistics, Department of Health and Social Services, State of Alaska; DHSS, Healthy Alaskans

Low Birth Weight

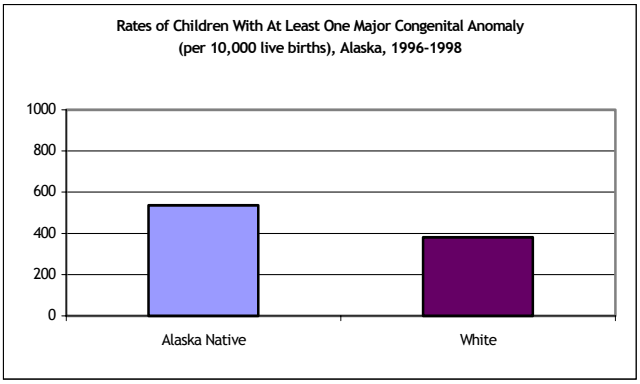
Low birth weight is weight less than 2500 grams (5.5 pounds) at birth. Low birth weight infants are at greater risk of death and long-term health problems than infants of normal weight. The proportion of babies that had low birth weight was similar for Alaska Natives and non-Natives.



Data Source: Bureau of Vital Statistics, Department of Health and Social Services, State of Alaska; DHSS, Healthy Alaskans 2010 Vol. 1.

Birth Defects

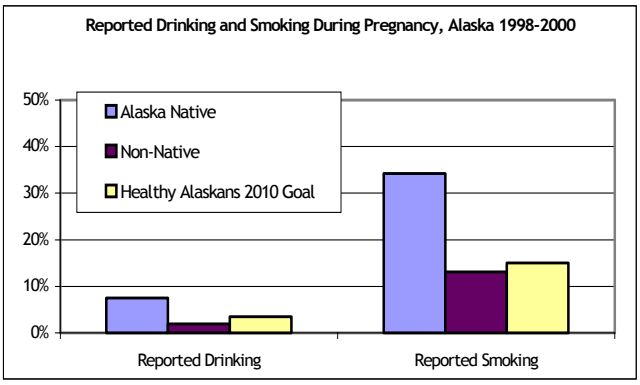
The Alaska Birth Defects Registry is a population based statewide surveillance system that collects data on Alaska children up to age one who are reported to the Registry with birth defects (children are reported up to age six for FAS). Major defects are often diagnosed at birth, whereas minor or complex defects are often diagnosed later in infancy. Some children are born with multiple birth defects. The rate of children diagnosed with at least one congenital anomaly (birth defect) is significantly higher for Alaska Natives than for Whites.



Data Source: Data provided by Lisa Allen, Alaska Birth Defects Registry, Section of Epidemiology, Division of Public Health, Department of Health and Social Services, 2003.

Reported Smoking and Alcohol Use

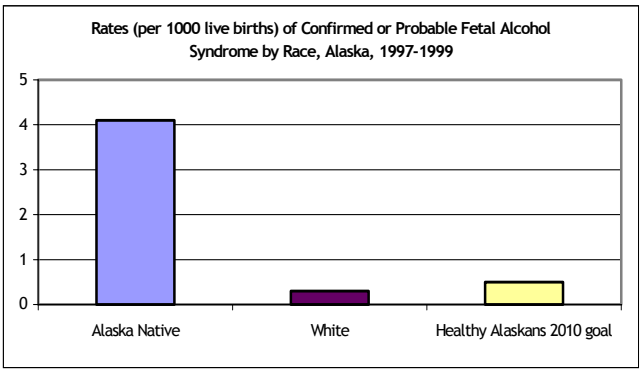
Both smoking and drinking during pregnancy are risk factors for premature birth and low birth weight. In addition, drinking can cause Fetal Alcohol Syndrome (FAS), a devastating and entirely preventable birth defect. Data on smoking and drinking during pregnancy were self-reported by the mother and recorded on the birth certificate. The data are missing for some births. Both smoking and alcohol use during pregnancy are significantly higher for Alaska Natives than non-Natives and higher than the Healthy Alaskans 2010 goals. [Editor's Note: Data on the birth certificate refers to smoking and alcohol use at any time during pregnancy and the Healthy Alaskans 2010 goals are for the last 3 months of pregnancy.]



Data Source: Bureau of Vital Statistics, Department of Health and Social Services, State of Alaska; DHSS, Healthy Alaskans

Fetal Alcohol Syndrome

The Fetal Alcohol Syndrome Surveillance Project is a population based statewide surveillance system that collects information on children reported to the Alaska Birth Defects Registry with the ICD-9 code 760.71 (affected by prenatal alcohol exposure) and 742.1 (microcephaly). These children are considered to be potential cases of FAS. Medical charts are reviewed for documentation of specific criteria that meet a standardized case definition for FAS. Although some children are diagnosed at birth, many children with FAS are not diagnosed until after age three. For birth years 1997-1999, only Alaska Natives and whites met the criteria for confirmed or probable FAS. The rate of FAS is significantly higher for Alaska Natives than for Whites and is substantially above the Health Alaskans 2010 goal. Increased awareness of maternal alcohol use and excellent documentation by Alaska Native health organizations may result in more vigilant reporting of potential cases of FAS to the Alaska Birth Defects Registry.

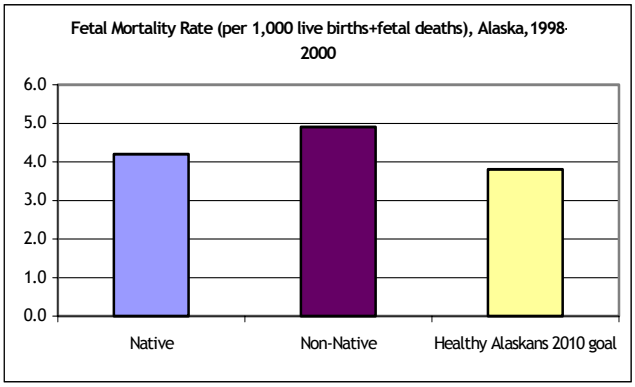


Data Source: Data provided by Susan Merrick, FAS Surveillance Project, Section of Epidemiology, Division of Public Health, Department of Health and Social Services, State of Alaska, 2003; DHSS, Healthy Alaskans 2010 Vol. 1.

Fetal and Infant Mortality Rates

Fetal Mortality Rate

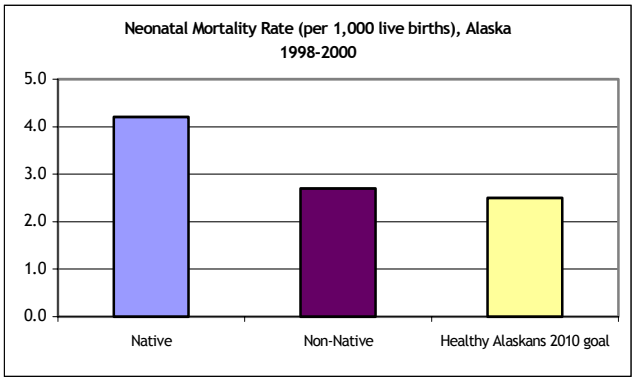
Fetal deaths are those that occur after 20 weeks of gestation. The fetal mortality rate for Alaska Natives is not significantly different than that for non-Natives. The Alaska Native mortality rate is only slightly higher than the Healthy Alaskans goal of 3.8 per 1,000 live births plus fetal deaths.



Data Source: Bureau of Vital Statistics, Department of Health and Social Services, State of Alaska; DHSS, Healthy Alaskans

Neonatal Mortality Rate

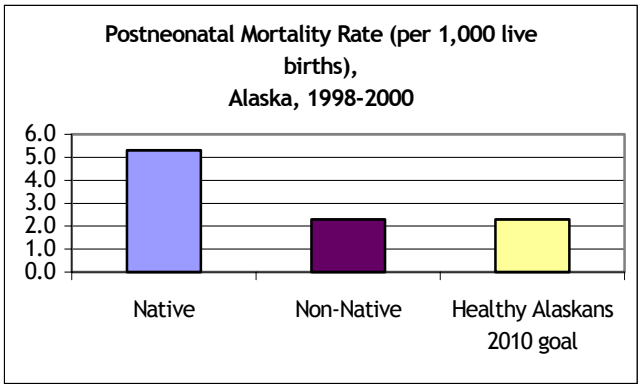
Neonatal deaths are those that occur before 28 days of life. Alaska Natives have a significantly higher neonatal mortality rate than non-Natives. The neonatal mortality rate for Alaska Natives is nearly twice the Healthy Alaskans 2010 goal of 2.5 deaths per 1000 live births.



Data Source: Bureau of Vital Statistics, Department of Health and Social Services, State of Alaska; DHSS, Healthy Alaskans 2010 Vol. 1.

Postneonatal Mortality Rate

Postneonatal deaths are those that occur between 28 days and 1 year of age. The rate of postneonatal mortality for Alaska Natives is significantly higher than that for non-Natives. The rate for Alaska Natives more than double the Healthy Alaskans 2010 goal of 2.3 deaths per 1000 live births, while non-Natives matched that goal for the period 1998-2000.



Data Source: Bureau of Vital Statistics, Department of Health and Social Services, State of Alaska; DHSS, Healthy Alaskans 2010 Vol. 1.

Birth Data Table for 1998-2000

	Alaska Native		Non-Native		Statistical Test	
	N	Rate/1,000	N	Rate/1,000	Rate Ratio	95% CI
Crude Rate	7,368	23.4	22,197	14.3	1.64	1.59, 1.68
Teen Birth Rate	1,307	86.0	2,050	37.1	2.32	2.16, 2.48
Fertlity Rate	7,368	106.0	22,197	64.7	1.63	1.59, 1.68
		Proportion		Proportion	χ^2	p
Mother's Age, years						
<15	20	0.3%	21	0.1%		
15-19	1307	17.7%	2050	9.2%		
20-24	2244	30.5%	5752	25.9%		
25-29	1829	24.8%	6326	28.5%		
30-34	1195	16.2%	4814	21.7%		
35-39	612	8.2%	2566	11.6%		
40-44	156	21.0%	619	2.8%		
45+	5	10.0%	40	0.2%		
Reported Drinking	550	7.5%	420	1.9%	541.3	<.05
Reported Smoking	2500	34.2%	2880	13.1%	1631.9	<.05
Prenatal Care:						
Initiation of Care						
1st trimester	5279	73.4%	18133	83.3%		
APNCU index					1497.8	<.05
Adequate or greater	3559	49.9%	15984	74.2%		
Intermediate	1697	23.8%	3039	14.1%		
Inadequate	1824	25.6%	2448	11.4%		
Pre-Term	940	12.8%	2123	9.6%	60.7	<.05
Low Birth Weight	436	5.9%	1265	5.7%	0.49	>.05

Mortality Data Table for 1998-2000

	Alaska Native		Non-Native		Statistical Test	
	N	Rate	N	Rate	Rate Ratio	95% CI
Fetal Mortality[1]	31	4.2	111	4.9	0.85	0.57 - 1.27
Neonatal Mortality[2]	31	4.2	61	2.7	1.55	1.01 - 2.39
Postneonatal Mortality[2]	39	5.3	52	2.3	2.29	1.51 - 3.47

Congenital Anomaly Data Table for 1996-1998

	Alaska Native		White		Statistical Test	
1996-1998	N	Rate/10,000 live births	N	Rate/10,000 live births	Rate Ratio	95% CI
Children with at least one congenital anomaly	387	536.9	755	380.3	1.41	1.25 - 1.60

Fetal Alcohol Syndrome Data Table for 1997-1999

	Alaska Native		White	
1997-1999	Rate/1,000 live births	95% CI	Rate/1,000 live births	95% CI
Fetal Alcohol Syndrome	4.1	2.62 - 5.64	0.3	0.03 - 0.48

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