

16. Maternal, Infant & Child Health



Goal:

Improve the health and well being of women, infants, children, and families.

16. Maternal, Infant & Child Health

Health Goal for the Year 2010: Improve the health and well-being of women, infants, children, and families.					
	Indicator	Alaska Data Source	U.S. Baseline	Alaska Baseline	Alaska Target Year 2010
1	Reduce fetal death rate (fetal deaths at 20 or more weeks of gestation per 1,000 live births + fetal deaths).	ABVS	6.8 (1997)	4.4 (1995-99) 5.1 (1999)	3.8
	Alaska Native	ABVS		4.8 (1995-99) 5.3 (1999)	3.8
2	Reduce infant death rate (infant deaths within 1 year of birth per 1,000 live births).	ABVS	7.1 (1999)	7.0 (1995-99) 5.5 (1999)	4.5
	Alaska Native	ABVS		10 (1995-99) 9.4 (1999)	4.5
3	Reduce neonatal death rate (deaths within the first 28 days of life, per 1,000 live births).	ABVS	4.7 (1999)	3.6 (1995-99) 2.5 (1999)	2.5
	Alaska Native	ABVS		4.5 (1995-99) 3.3 (1999)	2.5
4	Reduce postneonatal death rate (deaths between 28 days and 1 year per 1,000 live births).	ABVS	2.3 (1999)	3.4 (1995-1999) 3.0 (1999)	2.3
	Alaska Native	ABVS		5.5 (1995-1999) 6.1 (1999)	2.3
5	Reduce infant death rate related to all reportable birth defects (allowing for multiple causes of death per 1,000 live births, 5 year average).	AMIMR ¹	1.6 (1998) NVSS	1.8 (1993-97)	1.5
	Alaska Native	AMIMR		2.4 (1993-97)	1.5
6	Reduce death rate from sudden infant death syndrome (SIDS) and unexplained asphyxial deaths per 1,000 live births. ¹	AMIMR	0.72 (1998) SIDS only NVSS	1.7 (1993-97)	1.0
	Alaska Native	AMIMR		3 (1993-97)	1.0
7	Reduce the rate of child deaths.				
7a	Children aged 1 to 4 years (deaths per 100,000)	ABVS	34.7 (1999)	49.1 (1995-99) 41.3 (1999)	34.0
	Alaska Native	ABVS		112.7 (1995-99) 110.0 (1999)	34.0
7b	Children aged 5 to 9 years (deaths per 100,000)	ABVS	17.4 (1999)	23.7 (1995-99) 19.8(1999)	17.0
	Alaska Native	ABVS		46.2 (1995-99) 45.8 (1999)	17.0

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	Indicator	Alaska Data Source	U.S. Baseline	Alaska Baseline	Alaska Target Year 2010
8	Reduce the rate of adolescent and young adult deaths.				
8a	Adolescents aged 10 to 14 years (deaths per 100,000)	ABVS	21.1 (1999)	29.5 (1995-99) 14.3 (1999)	14.0
	Alaska Native	ABVS		52.2 (1995-99) 24.7 (1999)	14.0
8b	Adolescents aged 15 to 19 years (deaths per 100,000)	ABVS	69.8 (1999)	110.8 (1995-99) 110.7 (1999)	70.0
	Alaska Native	ABVS		231.6 (1995-99) 280.6 (1999)	70.0
8c	Young adults aged 20 to 24 years (deaths per 100,000)	ABVS	93.6 (1999)	159.9 (1995-99) 121.8 (1999)	90.0
	Alaska Native	ABVS		249.3 (1995-99) 177.6 (1999)	90.0
9	Increase the proportion of adolescents who report having positive factors for adolescent health and well being.	YRBS (potential)		Developmental	
10a	Reduce the rate of pregnancy associated deaths (the death of any woman, from any cause, while she is pregnant or within one year of termination of pregnancy, per 100,000 live births).	AMIMR		53.1 (1990-99)	50.0
	Alaska Native	AMIMR		103.5 (1990-99)	50.0
10b	Reduce the rate of pregnancy related deaths (deaths occurring during pregnancy or within one year after pregnancy and is caused by pregnancy related complications, per 100,000 live births).	AMIMR		7.4 (1990-99)	4.0
11	Increase the proportion of pregnant women who receive early and adequate prenatal care.				
11a	Women delivering live births who received prenatal care beginning in first trimester of pregnancy (percent of live births).	ABVS	83% (1999)	78% (1999)	85%
	Alaska Native	ABVS		71% (1999)	85%
11b	Women delivering live births who received adequate prenatal care (percent of live births with APNCU Index greater than or equal to 80). ²	ABVS	75% (1999)	67% (1999)	90%
	Alaska Native	ABVS		47% (1999)	90%

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	Indicator	Alaska Data Source	U.S. Baseline	Alaska Baseline	Alaska Target Year 2010
12	Reduce low and very low birth weight.				
12a	Low birth weight (LBW - births less than 2500 grams as percent of live births)	ABVS	7.6% (1999)	5.7% (1999)	4.0%
	Alaska Native	ABVS		5.9% (1999)	4.0%
12b	Very low birth weight (VLBW - births less than 1500 grams as percent of live births)	ABVS	1.5% (1999)	1.0% (1995-99)	0.8%
	Alaska Native	ABVS		1.1% (1995-99)	0.8%
13	Reduce total preterm births (<37 wks gestation).	ABVS	11.8% (1999)	10.0% (1995-99)	8.6%
	Alaska Native	ABVS		13.1% (1995-99)	8.6%
	Improve maternal and child health outcomes				
14	Increase the percentage of infants who are put down to sleep on their backs.	PRAMS	56% (1998) National Infant Sleep Position Study	59.0% (1998)	70.0%
15	Reduce the occurrence of spina bifida and other neural tube defects (rate per 10,000 live births).	Alaska Birth Defects Registry	6.0 (1996) Nat. Birth Defects Prevention Network	8.3 (1996-98)	3.1
16	Increase the proportion of women who take at least 400 mcg of folic acid each day from fortified foods or dietary supplements.	Alaska Folic Acid Survey	34% (2000) National March of Dimes Gallup Survey	44.1% (2000)	75.0%
	Alaska Native	Alaska Folic Acid Survey		16.6% (2000)	75.0%
17	Decrease proportion of women who delivered a live birth who report use of alcohol during last 3 months of pregnancy.	PRAMS	12.9% (1999) in past month SAMHSA/ NHSDA	4.1% (1998)	3.5%
	Alaska Native	PRAMS		3.7% (1998)	3.5%
18	Decrease proportion of women who delivered a live birth who report cigarette smoking during last 3 months of pregnancy.	PRAMS	13% (1998) NVSS during entire pregnancy ³	18.7% (1998)	15.0%
	Alaska Native	PRAMS		32.4% (1998)	15.0%

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	Indicator	Alaska Data Source	U.S. Baseline	Alaska Baseline	Alaska Target Year 2010
19	Decrease proportion of women who delivered a live birth who report use of marijuana during pregnancy.	PRAMS	2.8% (1999) in past month SAMHSA/ NHSDA	4.1% (1998)	3.5%
20	Decrease proportion of women who delivered a live birth who report use of cocaine during pregnancy.	PRAMS		0.2% (1998)	0
21	Reduce the occurrence of fetal alcohol syndrome (FAS). (rate per 1,000 live births)	FAS Surveillance Program	Developmental	1.2 (1996-1998)	0.5
	Alaska Native	FAS Surveillance Program		4.6 (1996-1998)	0.5
22	Increase the proportion of mothers who breastfeed their babies at one month postpartum.	PRAMS	53% (1998) ⁴	75% (1998)	80.0%

¹ Alaska Maternal Infant Mortality Review. This committee reviews all infant deaths and may attribute death to something other than the cause listed on the death certificate. AMIMR figures on causes of infant death, therefore, will differ from those of the Alaska Bureau of Vital Statistics and are not comparable to national rates.

² APNCU - Adequacy of Prenatal Care Utilization Index (also called Kotelchuck Index) Adequate prenatal care is defined as a score of either "adequate" or "adequate plus," based on expected visits related to when the prenatal care began (adequacy of initiation) and the number of prenatal visits from when prenatal care began until delivery (adequacy of received services). See Appendix Technical Notes.

³ This figure is calculated from the Healthy People 2010 indicator (number of women having live births reporting abstaining from cigarette smoking during pregnancy - 87%)

⁴ Conglomerate estimate for 12 PRAMS states

AMIMR - Alaska Maternal Infant Mortality Review

ABVS - Alaska Bureau of Vital Statistics

YRBS - Youth Risk Behavior Survey

PRAMS - Alaska Pregnancy Risk Assessment Monitoring System

NVSS - National Vital Statistics System, CDC, National Center for Health Statistics

SAMHSA - Substance Abuse and Mental Health Services Administration

NHSDA - National Household Survey on Drug Abuse

FAS Surveillance Program -- Alaska Fetal Alcohol Surveillance Program

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Overview

The health of mothers, infants, and children is of critical importance in assuring a productive future for the next generation of Alaskans. Indicators of maternal, infant, child, and adolescent health are among the most important worldwide indicators of health status and social well-being.

Assessment of maternal, infant and child mortality is an important way to identify underlying health issues, to compare health status among specific populations and to evaluate trends. Infant mortality, in particular, is used universally to reflect the public health of nations and is one of the most critical of public health indices. Infant and maternal mortality rates in the United States have been steadily decreasing over the last several decades and are now at the lowest levels recorded; but despite impressive accomplishments, the United States ranks 25th among industrialized nations in infant mortality. The United States ranks 23rd among industrialized nations in child mortality (age 1 to 14), with a death rate almost three times that of Sweden, the nation ranked number one.¹

Modifying maternal behaviors and promoting healthy behaviors can prevent many infant, child and adolescent deaths. Risk factors such as tobacco use, alcohol and drug use and late or inadequate prenatal care are associated with poor infant and maternal outcomes. Behaviors that are protective against infant death include adequate intake of folic acid before conception and in early pregnancy, breastfeeding, and placing infants on their backs to sleep.

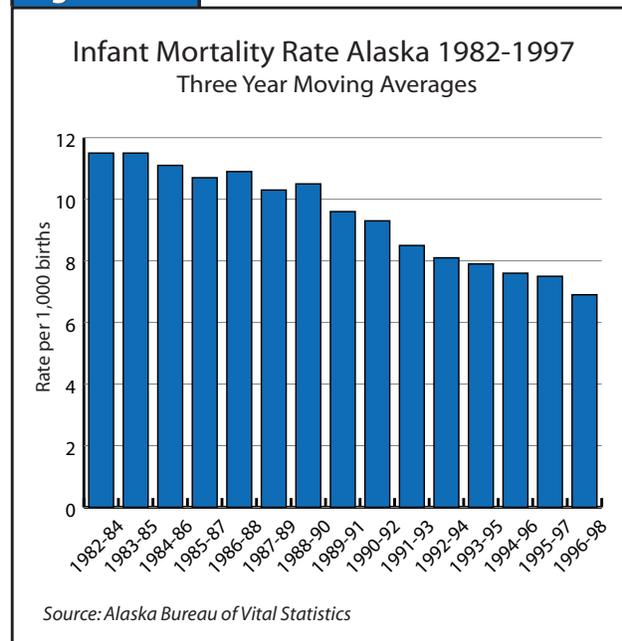
Issues and Trends in Alaska

Infant and Child Deaths

Improvements in medical care and environmental conditions over the last two decades have resulted in significant reductions in infant mortality in Alaska. Although Alaska historically ranked poorly in total infant mortality compared to other states, the infant mortality rate for Alaska in 1996-98 (6.9 infant deaths per 1,000 live births) was lower than the United States average and just under the Healthy People 2000 goal of 7.1 per thousand (Figure 16-1).

The Alaska Maternal and Infant Mortality Review Committee reviews all infant deaths in Alaska to assess risk factors and prevention opportunities. The

Figure 16-1



committee estimates that about 34 percent of infant deaths in Alaska are preventable, including 47 percent of Alaska Native infant deaths and 24 percent of non-Native infant deaths.² Pre-term birth, congenital anomalies and SIDS were leading causes of infant death (allowing for multiple causes) during 1992-97. Alaska Natives had higher cause-specific death rates for all causes of death examined.

The infant mortality rate is made up of two components: neonatal mortality (death in the first 28 days of life) and post-neonatal mortality (death after the first month but within the first year). The leading causes of neonatal death include birth defects, disorders related to short gestation and low birth weight (LBW) and pregnancy complications. Alaska's neonatal death rate, at 3.7 per 1,000 in 1994-1998, is lower than the United States average of 4.8 per thousand for 1998.

Post-neonatal deaths are typically caused by events experienced in infancy, including Sudden Infant Death Syndrome (SIDS), injuries and homicide. For 1994-98 Alaska's post-neonatal death rate was one and one-half times the 1998 United States rate. Nationally, SIDS is the leading cause of post-neonatal death among all racial and ethnic groups, representing nearly one-third of all cases of post-neonatal death in the United States. In Alaska, the proportion of infant deaths attributed to SIDS is similar, about 28 percent, but the cause specific death rate from SIDS and other asphyxial death (1.7 per 1,000) is over twice the

United States' SIDS rate. Alaska Natives have over twice the risk of infant death due to SIDS as whites. A reduction in SIDS deaths, particularly among Alaska Natives, would make a large contribution toward reducing the post-neonatal mortality rate for Alaska.

Childhood Deaths

Reducing the child death rate is a major public health concern and a significant challenge in Alaska. Alaskan children aged 1-4 have 1.5 times the risk of death as other American children. Alaska Native children aged 1-4 are at approximately three times the risk as whites (Figure 16-2) and Alaska Native children aged 5-9 have about two times the death rate of Alaskan white children (Figure 16-3).

Most deaths occurring during childhood are preventable. In Alaska and in the United States, injury is the leading cause of death for children of all ages. Four of the top five causes of childhood death in Alaska result from fatal injuries: motor vehicle accidents, drowning, burns and firearms. Unintentional injuries cause about 42 percent of childhood deaths, and deaths due to all natural causes account for a similar proportion of total child mortality in Alaska. Intentional injury (homicide) is the manner of death in 11 percent of childhood fatalities.

Figure 16-2

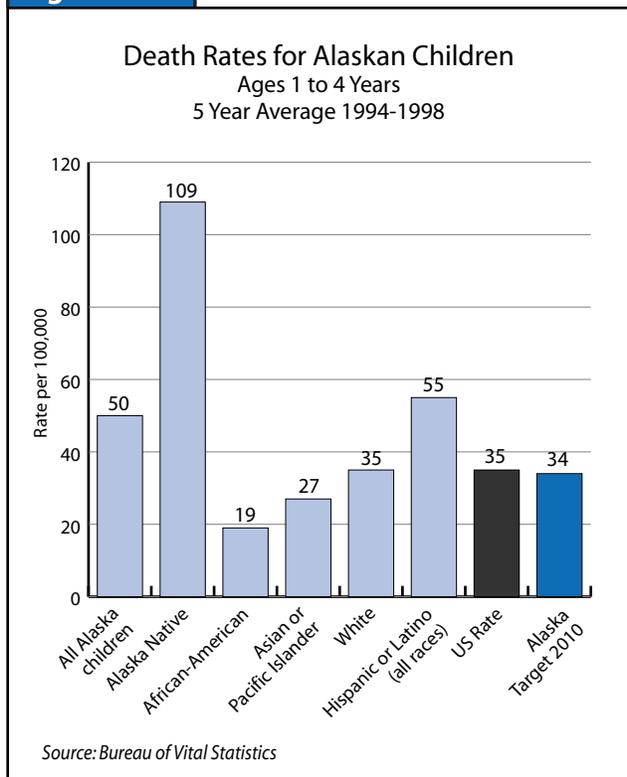
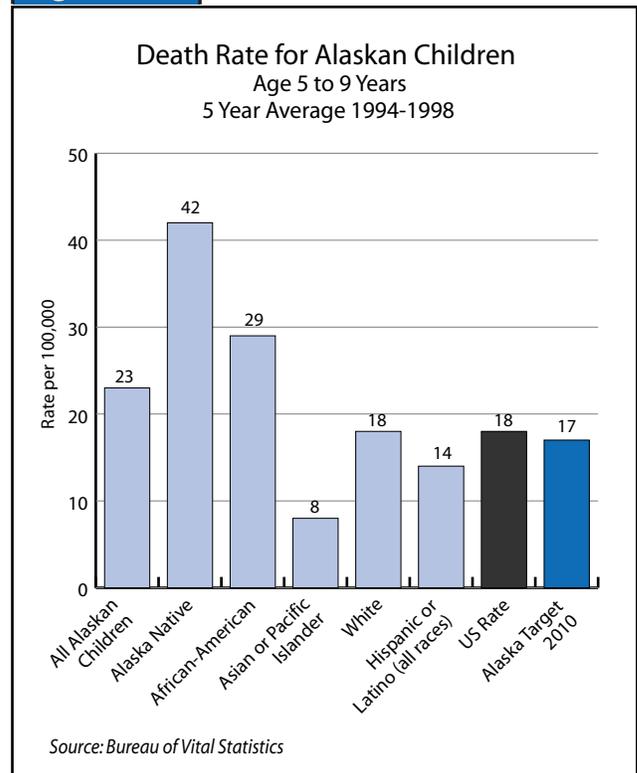


Figure 16-3



Deaths from unintentional injury are a particular concern for Alaskan's youngest children. Nationally, injury accounts for 13.8 deaths per 100,000 preschool children (aged 1 to 4 years). In Alaska, injury accounts for 24.6 deaths per 100,000 children age 1-4. Preschool children in Alaska are also twice as likely to die from an unintentional injury as children age 5-9 (12.9 per 100,000 in 1994-98). An unintentional injury death rate nearly twice that of all United States children in the same age group places Alaska's young children at an alarmingly high risks of death from injury.³

Deaths of Adolescents and Young Adults

The high mortality rates experienced by Alaskan children extend into adolescence and early adulthood. The excess mortality risk for adolescents and young adults is similar (about one and one half times national rates) to that of younger Alaskan children.

Only about one fifth of adolescent deaths in Alaska during 1998 were due to natural causes. The manner of death for 10-17 year olds was distributed as follows: 50 percent unintentional injury (accidents), 24 percent suicides, 21 percent natural causes, and 5 percent homicide. Leading causes of death for this

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age group include firearms, motor vehicles, drowning, strangulation, burns, cancer and nervous system disorders. Almost 80 percent of the deaths in this age group can be attributed to preventable causes.

Suicide is the fifth leading cause of death in Alaska and the second leading cause for youths age 15–24. The average suicide rates for Alaskan children 10-14 and 15-19 years of age during 1996-98 were 2.5 and 35 per 100,000 children per year, respectively. In comparison, the suicide rate in the United States for 15–19 year olds during 1995 was 11 per 100,000 per year -- three times lower than the Alaska rate. Suicide rates rose in Alaska during 1994-98.

Maternal Death, Illness and Injury

Maternal deaths are an important indicator of underlying health issues affecting women and young families. While few in number, maternal deaths are sentinel events that alert the public health community to larger problems that may account for significant morbidity among women of reproductive age and, perhaps more importantly, severely affect the behavioral and physical health of young children and families. Maternal mortality is described by two terms: pregnancy-associated mortality, which refers to all maternal deaths occurring during pregnancy or within one year of pregnancy from any cause; and pregnancy related mortality which refers to pregnancy associated deaths resulting from causes directly related to the pregnancy.

Pregnancy related deaths are typically due to medical problems and or maternal complications occurring during pregnancy or delivery. The major causes of pregnancy related deaths are hemorrhage, ectopic pregnancy, pregnancy-induced hypertension, embolism, infection, and other complications of pregnancy and childbirth. Between 1990 and 1999, just 14 percent of pregnancy associated deaths in Alaska were pregnancy related. The pregnancy related mortality ratio for Alaska between 1990 and 1999 was 7.4 per 100,000 live births, lower than the United States average for 1991-97 (11.5 per 100,000) but higher than the Healthy People 2000 objective of 3.3 per 100,000.⁴

Despite Alaska's relatively low pregnancy related mortality ratio, the pregnancy associated mortality ratio in Alaska is high, about twice that reported by other states that have looked at this issue (53.1 per 100,000 live births). Native Alaskan women have three times the risk of pregnancy associated death as white women, but no increased risk of pregnancy related death.

Prenatal Care

Prenatal care includes three major components: risk assessment, treatment for medical conditions or risk reduction, and education. Each component can contribute to reductions in perinatal illness, disability, and death by identifying and mitigating potential risks and helping women to address behavioral factors, such as smoking and alcohol use, which contribute to poor outcomes. Assessment of the level of prenatal care is based on information provided by the mother on the birth certificate.

About 80 percent of Alaska women seek prenatal care during the first trimester of pregnancy. The proportion of mothers who received adequate prenatal care during pregnancy has decreased since 1994. Sixty-seven per cent of women who delivered live births in 1999 received adequate care during the prenatal period compared to 71 percent in 1990 and 74 percent in 1995. Only 48 percent of Native mothers received adequate care in 1998. Census areas with large Native populations and high birth rates had lower proportions of mothers with adequate prenatal care. Unmarried women and younger mothers were less likely to have received adequate care.

Low Birth Weight and Preterm Birth

The majority of neonatal and a substantial portion of post-neonatal infant deaths occur among infants born at low birth weight (LBW).

During the 1990s, the proportion of all live births resulting in a LBW or very low birth weight (VLBW) birth has been substantially lower in Alaska than in the United States as a whole (Figure 16-4).

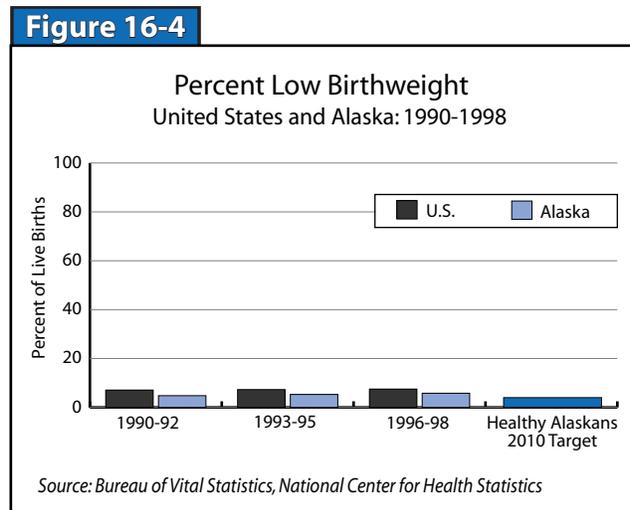
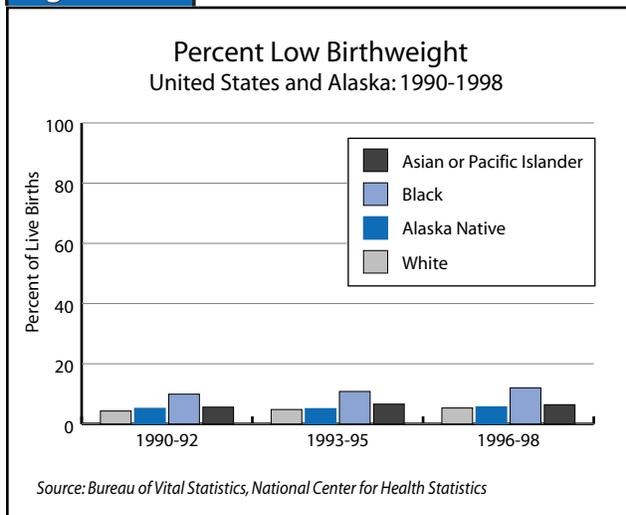


Figure 16-5

Unfortunately, the proportion of LBW and VLBW births has increased among all races during this decade in Alaska and the United States (Figure 16-5). Multiple gestation pregnancies, which have increased due to the use of reproductive technologies, often result in preterm and/or LBW births and are one cause of the national increase.

Approximately two-thirds of LBW infants and 98 percent of VLBW infants are born preterm (less than 37 weeks gestation). Preterm birth is the leading cause of those neonatal deaths not associated with birth defects. Because of the mortality, long-term morbidity and associated costs among survivors, prevention of preterm birth remains one of the highest public health priorities. The specific causes of preterm delivery, however, are not well understood. Effective interventions to prevent or treat preterm labor are not well established.⁵ Preterm birth is associated with a number of potentially modifiable risk factors, such as maternal smoking, alcohol use, short intervals between conceptions, infection, and pregnancies in younger teenagers. Prevention of these risk factors may ultimately decrease preterm births.

Preterm (or premature) delivery is the leading cause of infant mortality among African American infants and the second leading cause of infant mortality among white infants in the United States. A recent study found that preterm delivery rates declined nationally and in many states for African American women, while rates for white women increased nationally and in most states. However, African American women are still twice as likely to experience preterm delivery as are white women⁵. In Alaska, a similar disparity exists in the proportion of births that are preterm

among whites and African Americans. Alaska Natives also have twice the proportion of preterm births as white Alaskans.

Infant sleep position

The American Academy of Pediatrics has recommended that healthy full-term infants be put down to sleep on their backs. Much research has shown that a sleeping on the back rather than the stomach greatly decreases the risk of SIDS among healthy full-term infants. The National Institute of Child Health and Human Development and the Maternal and Child Health Bureau instituted the “Back to Sleep” campaign in 1994 to educate parents and health care providers about this recommendation. Alaska began collecting population-based information on this indicator through the Pregnancy Risk Assessment Monitoring System in 1996. Data collected through this survey of mothers who have recently delivered a live birth shows a 45 percent improvement in this indicator between 1996 and 1998, with 59 percent of new mothers reporting in 1998 that they place their infants to sleep in the supine (back) position.

Concurrent with the Alaska “Back to Sleep” campaign was a 45 percent decrease in the cause specific infant mortality rate for SIDS and other infant asphyxia⁶

Folic acid before and during pregnancy

Neural tube defects (NTDs) are severe birth defects involving incomplete development of the brain (anencephaly) or spinal cord (spinal bifida). The B-vitamin folic acid, when taken alone or in a vitamin supplement, has been proven to reduce the risk for an NTD affected pregnancy by 50 percent to 70 percent. The addition of folic acid to enriched grain products in the United States, which began in 1998, is associated with a 19 percent decrease in the rate of NTDs.⁷

Some women may not be consuming adequate quantities of folic acid in the crucial interval of three months before conception through the first three months of pregnancy. In 1998, the Institute of Medicine recommended that to reduce the risk of an NTD affected pregnancy all women capable of becoming pregnant should consume 400 micrograms of folic acid daily from fortified foods or supplements or a combination of the two, in addition to consuming folate-rich foods, such as orange juice, green vegetables, and beans.

The Alaska Folic Acid Committee seeks to increase the number of Alaska women of childbearing age who

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consume adequate amounts of folic acid. The committee, formed in 1999, provides educational programs and conducts promotional activities.

A survey of folic acid knowledge and use among Alaska women of childbearing age has provided baseline information for evaluating the efforts of the Alaska Folic Acid Committee. According to this telephone survey, 74 percent of women aged 18-44 have heard of folic acid, and about 41 percent knowingly take vitamins or supplements that contain folic acid. Twenty four percent of the women surveyed know that folic acid prevents birth defects. The survey also found that taking vitamin supplements that contain folic acid and the awareness of folic acid's benefits are higher among those with a higher education, for those who are older, who are married, and whose incomes are higher. There are also notable differences by race and by areas of Alaska, with lower vitamin use among non-whites and among those respondents in rural areas.

Prenatal Substance Exposure

Prenatal use of both legal and illicit drugs is a serious public health concern. Substance abuse during pregnancy is highly associated with poor birth and pregnancy outcomes, including spontaneous abortion, low birth weight, and preterm delivery. Heavy alcohol use is associated with FAS, and even moderate alcohol use has demonstrated effects on preterm delivery. The use of cocaine during pregnancy is associated with premature birth and impaired fetal growth. Smoking tobacco is one of the leading causes of death and disability among women in the United States and results in a range of well-documented effects on reproductive and perinatal health.

Approximately one in five women who deliver a live birth in Alaska smokes cigarettes during the last three months of pregnancy, one in 25 drinks alcohol, one in 25 uses marijuana and one in every 500 women who deliver a live birth uses cocaine during pregnancy. Prenatal drug and alcohol use has been identified as a priority concern in Alaska.

Reports of alcohol use during the last trimester of pregnancy declined an impressive 59 percent between 1991 and 1998 according to the Pregnancy Risk Assessment Monitoring System, which collects extensive information from a sample of women recently delivering a live birth. Older women, more educated women and white women are more likely to report any drinking during the last trimester of pregnancy, but Native women are more likely than non-Natives

to report heavier drinking (one or more drinks per week and/or more than five drinks at one sitting). For the years 1996 through 1998, about 2 percent of all women report heavier drinking, with 1.6 percent of non-Natives and 3 percent of Native women reporting heavier drinking during the last three months of pregnancy.

Tobacco use is far more prevalent than alcohol use during pregnancy. Almost 19 percent of recent mothers report smoking cigarettes during their last trimester compared to 4 percent who report drinking alcohol. Tobacco use declined by only 15 percent between 1991 and 1998 despite the multiple health problems clearly linked to cigarette smoking before and during pregnancy. Reproductive and perinatal effects of smoking are significant: decreased fertility, pregnancy complications, fetal and neonatal death, low birth weight, preterm birth, placenta previa, placental abruption, premature rupture of membranes, SIDS and respiratory problems.

Smoking rates underestimate the extent of tobacco use in pregnant women, especially pregnant Alaska Native women. Many Eskimo women, for example, chew smokeless tobacco or Iq'mik, a potent mixture of tobacco leaves and ashes.

Tobacco use has been called a gateway behavior for the use of other substances. Alaska women who smoke before pregnancy are five times more likely to use illicit drugs during pregnancy. Smoking appears to be a stronger predictor of illicit drug use than alcohol use: women who drink before pregnancy are only three times more likely to use illicit drugs during their pregnancy.

Illicit drug use during the prenatal period has declined in Alaska since 1991, according to findings of the Pregnancy Risk Assessment Monitoring System. While there has been no decline in the use of marijuana and cocaine prior to becoming pregnant, self-reported prenatal use of these drugs declined by 35 percent (6.3% to 4.1%) and 77 percent (0.9% to 0.2%) respectively between 1991 and 1998. During 1991 to 1998, teenagers and Alaska Native women were more likely than other women to use illicit drugs, both before and during pregnancy.⁸

Fetal Alcohol Syndrome (FAS)

FAS is one of the leading preventable causes of mental retardation and a leading cause of birth defects, including growth deficiency and microcephaly. Affected

children also are likely to show infantile irritability, poor coordination, hypotonia, and attention deficit/hyperactivity disorder. Because of these lifelong effects and because a safe level of alcohol consumption during pregnancy has not been identified, the American Academy of Pediatrics and the American College of Obstetricians and Gynecologists recommend that women who are pregnant or are planning a pregnancy abstain from the use of alcohol.^{9,10}

The diagnosis of FAS is based on three criteria: prenatal or postnatal growth retardation or both, central nervous system impairment, and characteristic facial malformations. Despite broad agreement on the importance of FAS, consistent diagnosis of the syndrome at birth has been difficult to achieve. This is due to the difficulty of evaluating an infant's central nervous system, lack of training among clinicians, inconsistent diagnostic criteria, clinicians' tendency to avoid associating their patients with the stigma of alcohol problems, and failures of mothers to report alcohol intake during pregnancy. Thus, accurately estimating the number or proportion of infants affected by FAS is challenging.

Alaska has historically ranked high in many of the national alcohol consumption indicators. According to the BRFSS and Vital Statistics, Alaska is in the top ten states in the country in terms of binge drinking and alcohol-related deaths. This has led to a long-standing assumption that Alaska has one of the highest fetal alcohol syndrome rates in the nation, an assumption difficult to confirm due to the lack of comparable national data.

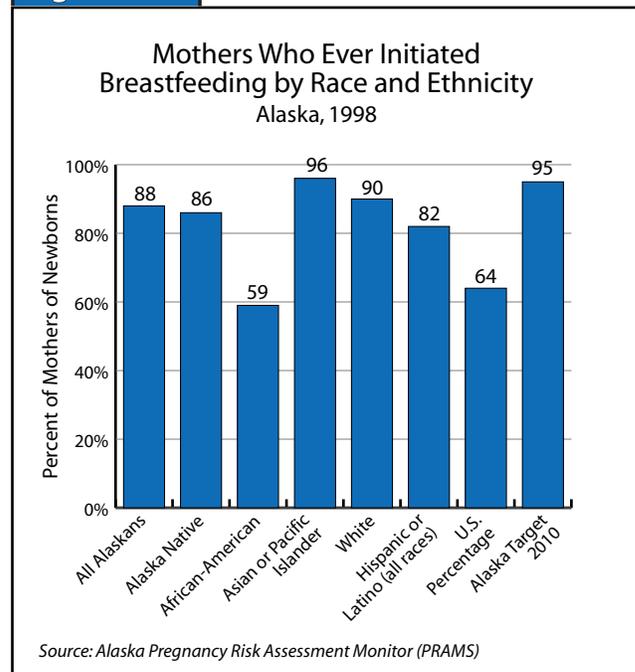
National rates of FAS vary from 0.2 to 2.0 live births per 1,000. The Alaska FAS Prevention Project found the prevalence of fetal alcohol syndrome in Alaskan children born during 1977-1992 to be 0.8 per 1,000 births. The study also found that fetal alcohol syndrome occurred disproportionately in Alaska Native children born during those same years, 3.0 per 1,000 births. While this higher rate in Alaska Native children may be due in part to case finding methodology, Alaska Natives are at higher risk of FAS than non-Natives.¹¹

Breastfeeding

Breast milk is widely acknowledged to be the most complete form of nutrition for infants, with a range of benefits for infants' health, growth, immunity, and development. The benefits of breastfeeding include a reduced incidence of diarrhea, respiratory and ear in-

fections, and reduced cost to the family. In addition, breastfeeding has been shown to improve maternal health, with demonstrated effects, including reduction in postpartum bleeding, earlier return to pre-pregnancy weight, reduced risk of pre-menopausal breast cancer, and reduced risk of osteoporosis, continuing long after the postpartum period. The American Academy of Pediatrics states that breastfeeding is "the ideal method of feeding and nurturing infants." Overall, breastfeeding initiation rates in Alaska are

Figure 16-6



quite high (Figure 16-5) and have been increasing -- from 84 percent in 1993 to 86 percent in 1997. Even though Alaska has an excellent initiation rate, more work needs to be done to encourage breastfeeding women to continue through at least the sixth month, if possible. In PRAMS analyses using 1991-1993 data, only 32 percent were still breastfeeding the infant at 6 months. Education of new mothers and their partners, education of health providers, changes in routine maternity ward practices, social support, support from employers, and greater media portrayal of breastfeeding as the normal method of infant feeding are needed to increase breastfeeding rates among those at highest risk as well as to encourage continuation of breastfeeding past the first few weeks.

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Current Strategies and Resources

Infant and Child Deaths

Reducing racial disparities is particularly relevant to infant deaths. Race-specific infant mortality rates for both Alaska Natives and African Americans are almost twice that of whites in Alaska. Reductions in the post neonatal death rate are essential to reducing these disparities. Post neonatal death may be associated with long-standing social problems and environmental conditions that are complex and difficult to address. For example, data collected through the Maternal and Infant Mortality Review shows that if infant deaths associated with parental tobacco, alcohol, or illicit substance use are excluded from analysis, much of the traditional disparity between Native and non-Native infant mortality rates disappears.

Parent education will play an important role in reducing SIDS deaths in Alaska. Despite the common occurrence of physiological abnormalities and parental drug use (both known risk factors for SIDS) among infants who die of SIDS in Alaska, deaths rarely occur in the absence of mechanical risk factors such as prone sleeping, sleeping with another person or sleeping outside of a standard infant crib.¹²

SIDS incidence in Alaska declined 45 percent after initiation of the “Back to Sleep” campaign that encourages caregivers to put infants to sleep on their backs. Successful interventions such as this illustrate how, with targeted educational programs that address known SIDS risk factors, the 2010 objective for post neonatal mortality can be met.

Childhood Deaths

Alaska’s high injury death rate for children must be examined in the context of high rates in other age groups. Alaskans in general face a greater risk of dying from an injury than the average American. During 1995 there were 2.8 residential fire deaths per 100,000 persons among all Alaskan residents compared to 1.2 among United States residents. During 1995 there were 8.5 drowning deaths per 100,000 persons among all Alaskan residents compared to 1.7 among United States residents. Only the motor vehicle crash death rate per 100 million vehicle miles traveled for all Alaskans is identical to that among United States residents at 1.7. Preventing childhood injury deaths will involve improving the overall risk of injury for all Alaskans.

Another useful approach to reducing the child death rate in Alaska is to design specific, targeted interventions for preventing early childhood death. The Alaska Child Fatality Review Team investigates all child deaths that occur outside the hospital environment. Careful analysis of the findings of the Alaska Child Fatality Review Team will provide a better understanding of the risk factors for child mortality in Alaska, thereby providing data on which to base targeted interventions for specific sub-populations and geographic regions.

Deaths of Adolescents and Young Adults

The deaths of adolescents and young adults are largely preventable. Mortality is a sentinel event, a marker for underlying health concerns in a community. Improving behavioral, environmental and social lifestyle factors that influence the lives of young people is critical to reducing the occurrence of preventable deaths. One way to assess progress in making improvements in these areas is to measure the prevalence of protective factors that have been demonstrated to be inversely associated with poor health outcomes.

Social science research over the past forty years has identified protective factors that positively impact such risk factors for adolescent morbidity and mortality as delinquency, substance use (including tobacco) and unintended pregnancy. Protective factors that have most often been associated with improved adolescent social and physical wellness include: feelings of connectedness to family, school and adults outside the family, involvement in meaningful extracurricular activities, late initiation of high risk behaviors, healthy nutritional practices, and physical fitness. A favorable combination of these protective factors is a predictor of adolescent wellness.

Alaska adolescent health programs have taken a leading role in promoting the collection of population-based information on protective factors. Using population-based survey data, a composite index of protective factors that is reflective of healthy behavior and adolescent resiliency may be developed. The statewide prevalence of this composite measure might be used as an indicator of adolescent wellness and can be routinely measured and tracked to assess Alaska’s progress toward promoting improved adolescent health.

Alaska’s Adolescent Health Program has put forward five recommendations to improve adolescent health. First, we need to assure that programs, ser-

vices and technical assistance related to adolescent health and teen pregnancy prevention are based upon a researched holistic framework. Prevention efforts must be age, gender, and culturally sensitive while focusing on the family, schools and community, not on the adolescent behavior alone. Secondly, we need to support adolescent health programs and services that reduce risk factors and increase the protective factors associated with early sexual activity and other risk behavior. Vulnerable preteens who experience multiple risk factors (including physical and sexual abuse) that may lead to early sexual intercourse, need additional support services and education before they reach adolescence. Effective programs focus on the strengths and developing capabilities of adolescents. Active youth involvement in all stages of program and service planning, delivery and evaluation will increase the program success.

The third recommendation is that we support age-appropriate comprehensive health education in grades K-12 as part of the academic curriculum. Health education is part of a holistic coordinated school health program. Recommendation four calls for an exploration of options to increase access of health services by adolescents. Teen services can be provided in school linked health centers, or sites adjacent to malls or places where adolescents frequent. Family planning clinics that are currently providing services to teens should explore expanding hours to increase teen access. To increase the quality of health care services for adolescents the guidelines developed by the Society for Adolescent Medicine should be followed.¹³

The fifth recommendation calls on the Division of Public Health to develop, in collaboration with other state agencies, questions to add to the YRBS to form a “protective factor index”. These data will be extremely helpful in determining the number of adolescents who report having a positive wellness profile, but the data is most meaningful if the legislature modifies current state law (Chapter 63, SLA 99) requiring “active parental consent” for youth partaking in anonymous surveys administered in public schools. Student participation in the YRBS has significantly decreased since this law went into effect, making this valuable data source less useful.

Maternal Death, Illness and Injury

The National Centers for Disease Control estimate that as many as 50 percent of pregnancy related deaths are misclassified and therefore not routinely detected. The Alaska Section of Maternal Child and Family Health

will further enhance surveillance for pregnancy associated deaths. The Maternal Infant Mortality Review Committee now reviews all maternal deaths identified through enhanced surveillance.

Most pregnancy-associated deaths are preventable and opportunities for preventive intervention are high in this population. Pregnant women and recent mothers have frequent contact with the health care system. Effective assessment of behavioral, social and medical risks, along with targeted referral and follow up will do much to eliminate disparities and reduce the number of pregnancy associated deaths in Alaska, as well as protect the health of young families. This effort will require excellent coordination between medical providers and other service agencies.

Pregnant women have been identified as a group at increased risk of death or injury from domestic violence.¹⁴ The Pregnancy Risk Assessment Monitoring System (PRAMS) shows that over a thousand Alaskan women experienced domestic abuse during pregnancy in 1996-1997. Alaska Native and teenaged mothers were at increased risk of experiencing physical abuse before or during pregnancy.¹⁵ Domestic violence screening, therefore, should be an integral part of prenatal and post-partum care.

Prenatal Care

Prenatal care is a useful indicator of access to health care services. Inadequate prenatal care is a risk factor for infant death and other poor infant and maternal health outcomes.

Many Alaskan women face significant barriers to obtaining adequate prenatal care. Even when reimbursement is assured through tribal health associations or Medicaid, pregnant women may have to travel great distances for care and face long waiting periods at busy clinics or hospitals. Those living in remote villages may have to leave families and jobs for three days or more to make a single prenatal visit. Rates of adequate prenatal care for Alaskan women who gave birth in 1999 were lowest in Bethel, Wade Hampton, and Southeast Fairbanks areas where travel is difficult and cultural barriers to care are significant.¹⁶ Collaboration with tribal health organizations is crucial to decrease the disparities in prenatal care utilization by Alaska Native women.

Birth certificate data on prenatal care identifies the regions and the regional health care organizations that have low rates of early and adequate care. Informing

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providers of the prenatal care rates in their area involves them in improving care. Use of prenatal care services may be improved by providing more culturally appropriate services, reducing waiting times for appointments and visits, and delivering some services closer to the pregnant woman's home.

Low birth weight and preterm birth

Although Alaska's low birth weight rate is among the lowest in the nation, trends in LBW and preterm birth in the state mirror the national experience. Increases in the use of intensive prenatal care in the last ten years have not decreased rates of LBW or preterm deliveries.

In the absence of effective interventions to address the root causes of LBW and pre-maturity, health care providers must continue to address risk factor such as smoking, drug and alcohol use, and inadequate prenatal care.

Infant sleep position

"Back to Sleep" is an example of an educational intervention that can have a profound impact on infant survival. The effectiveness of this recommendation should be highlighted in educational programs. Educational intervention for "Back to Sleep" includes teaching mothers to use a firm surface under the infant and to remove all soft or loose items from the sleep environment. Reaching the 2010 target is possible with increased attention to this risk factor and targeted programs for at risk mothers.

PRAMS data suggest that the number of infants put to sleep on their backs could be improved. Health care providers can improve parent education on SIDS prevention by modeling safe sleeping positions and bedding in the hospital after delivery and by reinforcing "Back to Sleep" education at the two and four month immunization visits during the peak ages for SIDS.

Folic acid before and during pregnancy

The Alaska Folic Acid Committee survey findings suggest that a tremendous opportunity exists in Alaska to increase the number of women who know that folic acid prevents birth defects and to increase the consumption of folic acid among women who may become pregnant. Education directed at adolescents or young women who have never been pregnant is crucial, since supplementation should begin before conception. Schools and community organizations could reach many of the women at risk.

Prenatal Substance Exposure

It has been estimated that if all pregnant women stopped smoking a 10 percent reduction in fetal and infant deaths would follow. Pregnancy is an opportune time to accentuate smoking cessation, because of the frequent contact with the health care system and the added motivation of protecting infant health. Protocols for smoking cessation have been published and should be fully utilized in Alaska prenatal settings. Cessation programs for pregnant tobacco chewers are another need. More importantly, resources should be mobilized to promote tobacco cessation for women and youth of all ages. Tobacco cessation is a public health priority that has shown little improvement in Alaska over the last decade.

Prenatal drug use often extends into the post neonatal period – a particularly vulnerable period for infants and families. Findings from the Alaska Maternal Infant Mortality Review point out that postnatal parental drug use is a more important cause of infant mortality than prenatal drug use. Between 1992 and 1997, 48 percent of infant deaths occurred to infants whose mothers had a documented history of cigarette smoking, alcohol use, or illicit substance use. Drug use directly contributed to more than seven percent of infant deaths over this time period.¹⁷ Alaska Natives had ten times the risk of a drug related infant death than non-Natives, and women with less than 12 years of education had over 27 times the risk of a drug-related infant death. These findings point out opportunities for identifying at risk women during the prenatal period and extending outreach to these women after delivery.

Fetal alcohol syndrome (FAS)

The Alaska FAS Surveillance Project (AFASSP) is continuing the work of the Alaska FAS Prevention project by collecting information useful in monitoring the prevalence of FAS in Alaska. The AFASSP is using methods that are comparable to those used by other states in the nation, making it possible to compare FAS rates.

Besides monitoring the prevalence of FAS, it is critical to have information about women who drink during pregnancy so that prevention activities can be effectively developed and delivered. This information provides a better understanding of the types of behaviors associated with drinking during pregnancy. It also serves as a reminder that many of the mothers who drink during their pregnancies have numerous health-related issues to be addressed. Recent analysis of FAS

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surveillance data showed that 50 percent of Alaskan children who had been reported as being exposed to alcohol had mothers who also used cocaine or marijuana during pregnancy. Sixty-eight percent smoked tobacco during pregnancy, and 8 percent did not have any prenatal care. These numbers are significantly greater than what is found in the general population. Reduction in the prevalence of FAS depends on understanding the factors that place women at risk of having an alcohol-affected pregnancy.

Breastfeeding

Education and support of the large proportion of women who initiate breastfeeding has the potential to increase continuation rates. Workplace strategies that make it possible for women to continue nursing while they work and social marketing campaigns to change attitudes about breastfeeding outside the home may help to increase the number of infants who are breastfed for six to twelve months. Child health providers should routinely assess for barriers to breastfeeding throughout the first year.

Data Issues and Needs

Improving the health of infants, children, and young adults is a broad objective that requires extraordinary levels of cooperation and coordination among health care providers, social service providers, public safety organizations, schools, and community and tribal organizations. Existing data must be shared and made comprehensible to professionals and consumers.

The YRBS is a crucial source of data on tobacco, alcohol, and drug use, risk factors for injury, sexual activity, and utilization of preventive health services in adolescence. Participation by Alaskan school districts has been inconsistent in the past. Widespread use of the survey is important for planning a variety of prevention and intervention programs for families.

Hospital discharge data is not currently available in Alaska. Analysis of discharge data could provide useful information about serious and chronic childhood illnesses such as asthma. Hospitalizations for complications of pregnancy and the post-partum period could be a useful supplement to birth certificate information.

Intimate partner violence and family violence are major causes of death, injury, and illness (including mental illness) in children and women of childbearing

age. Victimization data is collected nationally but is not available at the state level. The State of Alaska Council on Domestic Violence and Sexual Assault began data collection in 2000 and will soon be able to provide state-specific information on these important indicators.

Related Focus Areas

A variety of objectives in other *Healthy Alaskans* chapters are linked to objectives in *Maternal, Infant, and Child Health*.

- *Nutrition and Overweight*
- *Tobacco*
- *Substance Abuse*
- *Mental Health*
- *Injury Prevention*
- *Violence and Abuse Prevention*
- *Oral Health*
- *Family Planning*
- *Immunization and Infectious Diseases*
- *Sexually Transmitted Diseases/HIV*

Examples of linkages include the *Nutrition and Overweight* indicators relating to growth retardation in children, overweight in children and adolescents, and anemia in children and pregnant woman. Elimination of tobacco and substance abuse during pregnancy improves maternal and infant health. Mood disorders, especially depression, and other mental health issues are factors in teen pregnancy and poor outcomes for infants. Treatment for children and youth with mental health problems and screening of children are indicators that connect the *Mental Health* chapter to *Maternal, Infant and Child Health*. Reduction of unintentional injuries, the major cause of death in childhood, links the Injury Prevention chapter to *Maternal, Infant, and Child Health*.

Reducing maltreatment of children is an indicator in the *Violence and Abuse Prevention* chapter and reduces the incidence of serious emotional disorders in children. *Oral Health* and *Maternal, Infant, and Child Health* are linked. Dental caries are an infectious disease, and reducing a mother's cavity causing bacteria will limit the amount of bacteria passed on to her baby. Furthermore, baby bottle tooth decay is a significant problem and cause of caries in the primary teeth of infants and toddlers. Planned pregnancies are more likely to result in good prenatal care and limited substance exposure during the early stages of pregnancy, linking this chapter to

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Family Planning. Many indicators in *Immunization and Infectious Diseases* are connected to Maternal, Infant, and Child Health, including maintaining effective vaccination coverage among young children and adolescents and reducing infectious diseases in children, such as hepatitis B and meningitis. Screening of pregnant women for sexually transmitted diseases and HIV infection is common and will result in healthier pregnant woman and infants (*Sexually Transmitted Diseases* chapter).

Endnotes

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Alaska

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www.alaskabreastfeeding.com/

Alaska Childrens Trust

www.educ.state.ak.us/EarlyDev/trust/home.html

Alaska Family Violence Prevention Project

www.hss.state.ak.us/dph/mcfh/akfvpp/default.htm

Alaska Injury Prevention Center

www.alaska-ipc.org/

Alaska WIC

www.hss.state.ak.us/dph/mcfh/WIC/default.htm

Association of Alaska School Boards

www.aasb.org/

Denali Kidcare

www.hss.state.ak.us/dma/DenaliKidCare/

Department of Education and
Early Development

<http://www.eed.state.ak.us/>

DHSS: Division of Family and Youth Services

www.hss.state.ak.us/dfys/

Alaska (continued)

DHSS: Section of Maternal, Child,
and Family Health

www.hss.state.ak.us/dph/mcfh/

DHSS: Section of Public Health Nursing

www.hss.state.ak.us/dph/nursing/default.htm

Fetal Alcohol Syndrome: State of Alaska

www.hss.state.ak.us/fas/

Parents, Inc. Families Assisting Families of Children
with Disabilities

www.parentsinc.org/

State of Alaska Council on Domestic Violence
and Sexual Assault

www.dps.state.ak.us/Cdvsa/

National

National SIDS Resource Center

www.circsol.com/sids

American Academy of Pediatrics

www.aap.org

Baby Friendly Hospital Initiative (breastfeeding)

www.babyfriendlyusa.org

Child Health Toolbox

www.ahrq.gov/chtoolbox/

Child Trends

www.childtrends.org/HomePg.asp

Kaiser Family Foundation State Health Facts On-line

statehealthfacts.kff.org

KidsCount

www.aecf.org/kidscount/

March of Dimes

www.modimes.org/

National Maternal and Child Health Clearinghouse

www.nmchc.org

SAFE KIDS

www.safekids.org/tier2_rl.cfm?folder_id=520

Search Institute: 40 Developmental Assets

www.search-institute.org/assets/forty.htm

Chapter Notes

