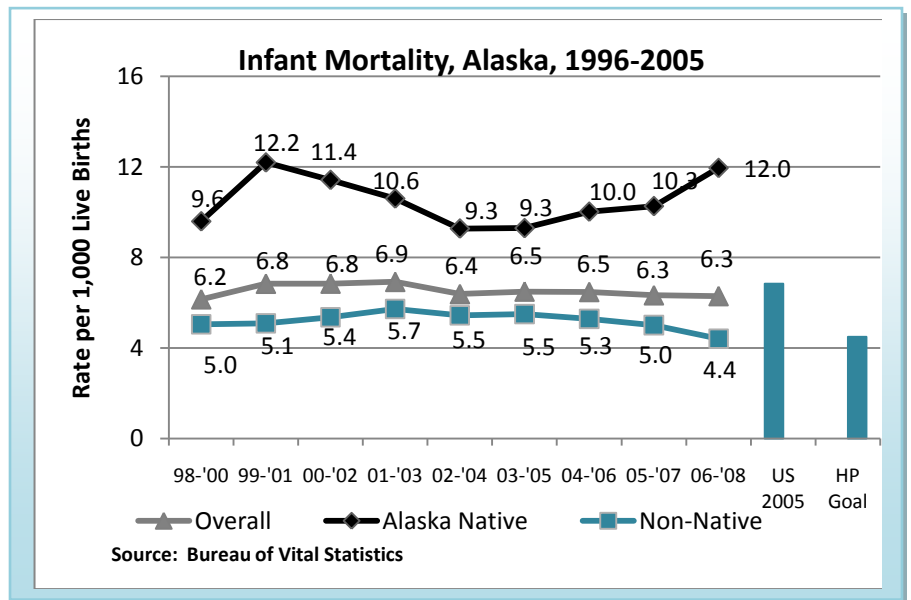




Focus On: Infants (Birth - 1)

Infant mortality (IMR) is the leading world-wide indicator of maternal and infant health status. It is also valuable in assessing the quality and accessibility of primary health care available to pregnant women and infants, and the impact of poor socio-economic conditions on maternal and infant health. Alaska's IMR ranked 20th in the Nation during 2004. The disparity between Alaska Natives and non-Natives has improved since the early 1990s but still persists. For the 2003-2005 period the Alaska Native rate is nearly twice that of non-Natives.¹ Factors associated with infant deaths vary according to the age of the infant. Infant deaths that occur in the neonatal period (birth to 28 days) are usually associated with pregnancy and delivery issues.

The Alaska Maternal-Infant Mortality Review (MIMR) was established in 1992 to evaluate preventable causes for the state's high IMR. The committee has reviewed over 99% of all known infant deaths during 1992-2002, allowing for multiple causes. During this review period, **preterm** birth (less than 37 weeks gestation) contributed to almost half (48%) of all neonatal deaths in Alaska. Other primary causes of neonatal death included **congenital anomalies** (33%), **perinatal events** (19%), and **infections** (12%). Infections associated with neonatal deaths included Group B Streptococcal sepsis and pneumonia, Gram negative sepsis and candida sepsis.² Medical advances, the introduction of neonatal intensive care units, perinatal regionalization, and improved access to prenatal care have contributed to declines in neonatal mortality, particularly in low birth weight and preterm infants.³



Medically indicated preterm births are defined as preterm birth following labor induction or Cesarean section without premature rupture of membranes (PROM). Medically indicated preterm births are increasing nationally as well as in Alaska and are a major contributor to increasing proportions of preterm births.² This increase coincides with a decrease in the cause specific infant mortality rate for preterm births and may indicate better monitoring of the mother and fetus. Recent studies have shown that only some interventions for preterm birth may be beneficial.¹ Compared to infants of normal weight, low birthweight

Trends in Three Categories of Preterm Birth, Alaska, 1996 - 2005:

- Premature Rupture of Membranes (PROM): increased by 17.9% - 18.7% among non-Native births, and 12.3% among Alaska Native births
- Medically Indicated: increased by 16.3% among non-Natives births, and declined by 16.5% among Alaska Native births
- Spontaneous (including all vaginal deliveries not induced and without PROM): stable at less than 1% of live births for both Alaska Native and non-Native mothers.



(LBW; less than 2,500 grams or 5.5 lbs.) and very low birthweight (VLBW; less than 1,500 grams or 3.3 lbs.) infants are at increased risk of death and delayed motor and social development. The majority of LBW and VLBW infants are born preterm. Studies suggest that smoking in the third trimester is particularly detrimental to fetal growth.¹ The occurrence of LBW could be reduced by an estimated 20% if all pregnant women were non-smokers.¹ Women are more likely to stop smoking during pregnancy, both spontaneously and with assistance, than at

other times in their lives. Since women are highly motivated to stop smoking during pregnancy, programs that encourage women to stop smoking before, during and after pregnancy deserve high priority.

- In 2007, 77% of very low birthweight infants were delivered at facilities for high risk deliveries and neonates.⁴

Post-neonatal mortality is more often caused by environmental conditions than problems with pregnancy and childbirth. According to MIMR-CDR consensus decisions, Sudden Infant Death Syndrome (**asphyxia** of unknown etiology) and unintentional suffocation contributed to half of all post-neonatal deaths in Alaska during 1992-2002. Other primary causes of post-neonatal death included congenital anomalies (20%), infection (16%), and **physical trauma** (11%). Infections associated with post-neonatal deaths included pneumonia and bronchiolitis due to a variety of viral and bacterial causes and bacterial meningitis. Of 47 post-neonatal deaths due to physical trauma, the committee determined that at least 26 were possible or probable victims of neglect or abuse. **Unintentional injuries** included motor vehicle accidents, house fires, carbon monoxide poisoning, and drowning.²

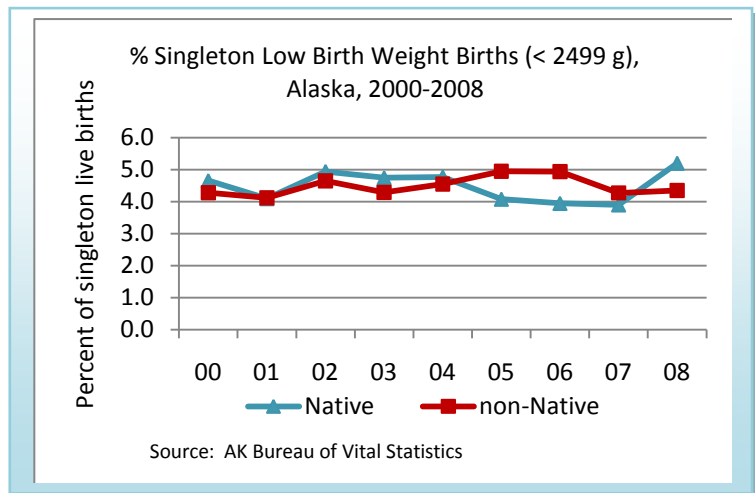
What Risk Factors Are Associated With Infant Mortality?

Maternal education is one of the strongest predictors of infant mortality worldwide, including in Alaska, even when controlling for maternal age. Lack of maternal education may be reflected in lack of understanding of how to care for an infant, how to implement prevention measures, and how to recognize early signs of serious illness.¹

Infants born to women who **smoke** prenatally have increased risk of mortality from most causes, especially SIDS, preterm delivery, and low birth weight. A recent evaluation found that lack of information for the **father** on the birth certificate is strongly associated with post-neonatal death.¹

What Does Science Tell Us About Early Childhood Development?⁵

"The period between birth and three years is a time of rapid linguistic, social, emotional, and motor development. Language rich, nurturing, and responsive caregiving fosters healthy development in this period. When inadequate stimulation is provided or barriers to opportunities for productive learning exist, these can lead to early disparities in capability that generally persist in the absence of effective intervention".⁵





Early infancy is the time when parent-child bonding occurs and emerging attachments by the baby are built. Excessive stress in infants is associated with effects on the nervous and hormone systems that can damage the developing brain architecture and lead to lifelong problems in learning, behavior, physical health and mental health.⁶ Families at lower socio-economic levels face significantly more barriers to providing an optimal environment for infants than families at the higher socio-economic level.

Health Related Socio-economic Factors	
% non-marital births	38% (2008) ^a
% births covered by Medicaid	50% (2007) ^a
% new moms with annual income < \$10,000	16% (2007) ^c
% children < 5 living in poverty	14% (2008) ^b
% children < 6 in low-income working families	17% (2007) ^b
% births to mothers with < 12 years education	14% (2008) ^a
% mothers still breastfeeding 8 wks after delivery	71% (2007) ^c
% new moms with postpartum depression symptoms	14% (2007) ^c

Data sources:

- ^a Alaska Bureau of Vital Statistics
- ^b Kids Count Program
- ^c Alaska PRAMS

Early Interventions

Newborn screening programs can detect certain harmful or potentially fatal disorders that aren't apparent at birth. Early intervention and treatment could avoid or mitigate lifelong impairment. The Early Hearing Detection and Intervention (EHDI) program has achieved nearly 100% screening of in-hospital births and has significantly improved the rate of out-of-hospital birth screening.⁷ The Newborn Metabolic Screening Program (NBMS) has achieved a 100% screening rate in 2008 and a 100% rate of screen positive newborns who receive timely follow-up.⁷

Related Title V State Priorities, 2005-2010⁷

- Reduce the rate of child abuse and neglect.
- Reduce the rate of post-neonatal mortality.

Related Title V State Performance Measures, 2005-2010⁷

#4. Rate of substantiated reports of harm to children per one thousand children age 0 to 18.
 FFY 2007 - 15 per 1,000 FFY 2008 - 18 per 1,000

#8. Prevalence at birth of Fetal Alcohol Spectrum Disorders (FASD), per 1,000 live births.*

Reporting Year	Birth Years	Rate	Number
2006	1997-1999	20.9	623
2007	1998-2000	21.9	654
2008	1999-2001	19.2	574
2009	2000 - 2002	16.9	505

* average age of diagnosis for FAS is 5-6 years.



Related Title V National Performance Measures, 2005-2010⁷

#1. The % of screen positive newborns who received timely follow up to definitive diagnosis and clinical management for condition(s) mandated by their State-sponsored newborn screening programs.

Year	Percent	Number
2005	92.6	25
2006	100.0	36
2007	100.0	44
2008	100.0	195

#11. The % of mothers who breastfeed their infants at 6 months of age.

Child's Birth		
Year	Percent	Error*
2000	40.9	± 13.8
2001	53.2	± 7.5
2002	49.4	± 6.2
2003	43.8	± 6.2
2004	59	± 6.1
2005	53	± 8.2

* Survey results subject to a margin of error.

#12. % of newborns who have been screened for hearing before hospital discharge.

Year	Percent	Number
2002	65.4	6430
2003	80.8	8081
2004	87.3	8968
2005	90.5	9351
2006	90.4	9837
2007	95.3	9899
2008	97.7	10426

#13. % of children without health insurance.

2005 - 9.2% 2006 - 9.4% 2007 - 11.2%

#17. Percent of very low birth weight infants delivered at facilities for high-risk deliveries.

Year	Rate	Number
2003	75.3	67
2004	74.8	89
2005	76.8	73
2006	78.1	96
2007	76.8	76



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