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Infant and Fetal Mortality in Alaska

Infant mortality 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.

The Alaska Maternal-Infant Mortality Review (MIMR) was established in 1992 to evaluate preventable causes for the state's high infant mortality rate (IMR). A panel of experts reviewed 99.5% of known Alaskan resident infant deaths from 1992 through 2001. The three leading causes of infant deaths, allowing for multiple causes, were SIDS/asphyxia, preterm birth, and congenital anomalies[^].

Seriousness

Healthy People 2010 Targets and National Data

Indicator	Alaska (2002-04) [†]	Nation (2004) [‡]	Healthy People 2010 [*]
Fetal mortality rate per 1,000 live births plus fetal deaths	5.4	6.4 (2002) [‡]	4.1
Infant Mortality rate per 1,000 live births	6.4	6.8	4.5
Neonatal mortality rate per 1,000 live births	2.9	4.5	2.9
Post-neonatal mortality rate per 1,000 live births	3.5	2.3	1.5
Infant mortality due to SIDS per 1,000 live births	2.0 [*] (1992-2002)	0.5	0.25

- Fetal mortality in Alaska was 31% higher than the Healthy People 2010 (HP2010) target.
- Alaska's 2002-2004 fetal mortality rate was nearly 16% lower than the national rate for 2002.
- During 2002-2004, 1 in 345 Alaskan infants died within their first month and 1 in 156 died before their first birthday. During this time period, an average of 65 infants died in Alaska annually.
- Although experiencing significant declines in infant mortality over the last decade and equaling national rates, Alaska's 2002-2004 infant mortality rate was 42% higher than the HP2010 target.
- Alaska's neonatal mortality rate met the HP2010 goal and during 2002-2004 was 36% lower than the 2004 national rate.

- Alaska's post-neonatal mortality rate was 2.3 times higher than the HP2010 target and 1.5 times that of the national rate.
- Alaska's SIDS rate for 1992-2002 was 8 times higher than the HP2010 target.
- The Alaska Maternal-Infant Mortality Review Committee determined that during 1992—2001, nearly 1 in 3 infant deaths were due to SIDS/asphyxia – accounting for 28.7% of all infant deaths during that time period.

Severity

All infant deaths are severe by definition.

Urgency

Fetal Mortality

- Over the last decade, the overall fetal mortality rate for Alaska remained fairly constant and has been consistently lower than the national rate.

Infant Mortality

- Overall infant mortality decreased 32% over the fifteen year period from 1990 to 2004. The rise in the IMR in the 1999-2001 period was almost all due to an increase in post-neonatal rather than neonatal mortality. (Figure 1)
- During 1990 – 2004, neonatal mortality in Alaska declined by almost 32%. (Figure 2)
- Although post-neonatal mortality in Alaska has declined significantly over the last two decades, there was a spike in the rates during the late 90s and early 2000s. (Figure 3)

- According to birth certificate data, infant mortality due to SIDS significantly declined in Alaska. However, the AK MIMR evaluation, which combines SIDS and asphyxia causes of death into a single category, shows an increase in SIDS/asphyxia over the latter years of the review period⁵. (Figure 4) This is troubling particularly when considering that the US SIDS rate declined 11% from 2000-2001⁵.

Disparities

Fetal Mortality

- While the overall fetal mortality rate for Alaska has remained nearly unchanged over the last decade, there has been a significant decrease for Alaska Natives (46%).
- During the 1990s, the average rate of fetal mortality was similar among infants born to Alaska Native and non-Native women. Over the last five years a disparity has developed due to the decrease of fetal mortality among Native women and an increase among non-Native women. (Figure 5)

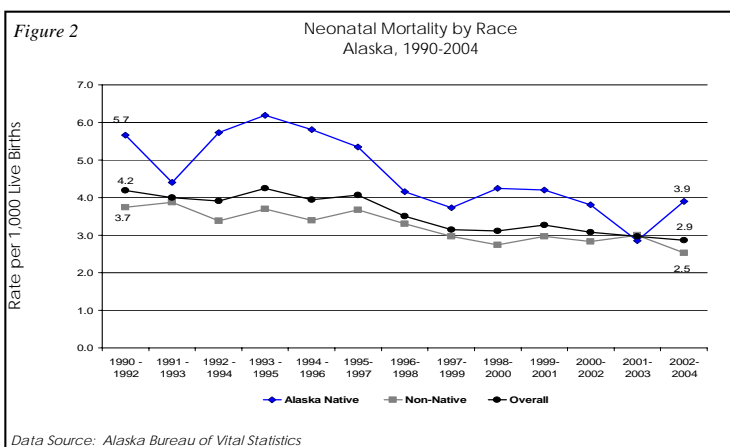
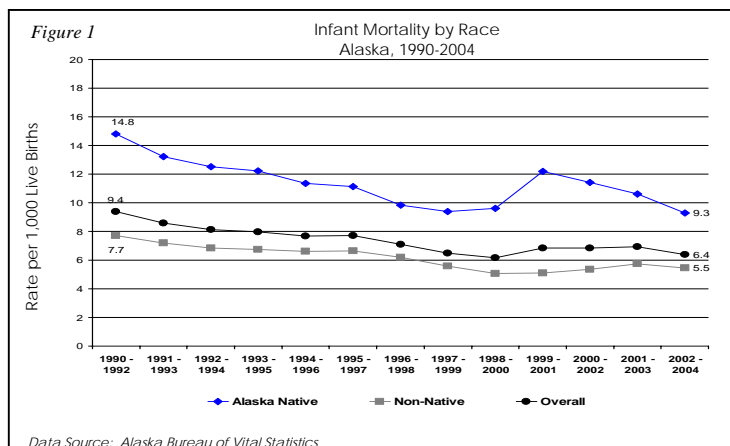
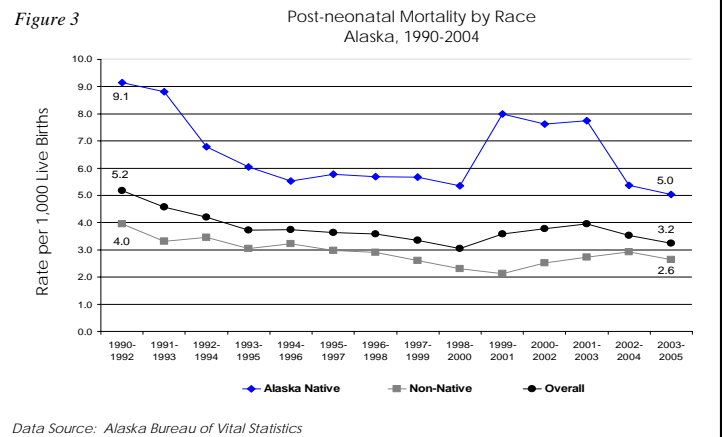


Figure 3



Infant Mortality

Neonatal and post-neonatal deaths have different risk factors. During 1992-2001, post-neonatal mortality rates varied by over four-fold within subcategories based on maternal characteristics.

- The highest infant mortality rates occurred among mothers who had less than 12 years of education, were under 20 years of age, and resided in the Northern and Southwestern regions of Alaska.
- Neonatal, post-neonatal, and overall infant mortality rates were higher for Alaska Natives compared with non-Natives regardless of etiologic category for the Alaska MIMR study data.
- 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 among non-Natives. (Figure 3)
- The Alaska MIMR found that during the 1992-2001 review period the infant mortality rate due to SIDS/asphyxia was 2.7 times higher among Alaska Natives compared to non-Natives.

Economic Loss

Economic loss associated with fetal and infant mortality was not evaluated. However, there are costs associated with poor birth outcomes that put infants at increased risk of death in the first year, such as low birth weight, preterm birth, congenital anomalies, and metabolic disorders. Economic loss is addressed separately for these issues in their respective Women's, Children's, and Family Health Fact Sheets.

Interventions & Recommendations

Prenatal care: Early and adequate prenatal care may improve birth outcomes by identifying women with increased risks of poor birth outcomes early in pregnancy. Complications during the fetal and neonatal periods may benefit most from early and continuous prenatal care – fetal

deaths are often associated with maternal complications of pregnancy and birth defects.

Smoking Cessation: Infants born to women who smoke prenatally have increased risk of mortality from most causes, especially SIDS, preterm delivery, and low birth weight. Furthermore, prenatal smoking and drinking have been shown to greatly increase rates of fetal mortality.¹ Smoking cessation is recommended for improved infant health and birth outcomes. Refer to the fact sheets 'Low Birth Weight and Preterm Births in Alaska' and 'Prenatal Tobacco Use in Alaska' in this series for more information on this intervention.

Infant sleep position: The American Academy of Pediatrics (AAP) recommends that infants be placed to sleep on their backs to reduce the risk of SIDS.² Refer to the fact sheet 'Infant Sleep Position and Co-Sleeping in Alaska' in this series for more detail on the AAP

unknown etiology, maltreatment, unintentional injury, infection, and non-lethal congenital anomaly.

Maternal education: 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, implement prevention measures, and recognize early signs of serious illness.

Intervention Effectiveness

Prenatal care: Medical advances and improved access to prenatal care have contributed to declines in infant mortality during the neonatal period (from birth up to 29 days), particularly in preterm infants. Since many women who lack adequate prenatal care may also have risk factors related to poverty and young maternal age – factors which cannot be fully addressed through more adequate prenatal care – there is concern that increased use of prenatal care alone may not be sufficient to significantly improve birth outcomes.³

Smoking cessation: Some studies suggest that eliminating maternal smoking may lead to a 10% reduction in all infant deaths and a 12% reduction in deaths from perinatal conditions.¹

Infant sleep position: Placing infants to sleep on their backs is a modifiable behavior that has been shown to reduce the risk of Sudden Infant Death Syndrome (SIDS). Concurrent with the Alaska "Back to Sleep" campaign, initiated in 1996, rates of SIDS or asphyxia of unknown etiology declined 45% between 1992-1996 and 1997.⁴

Capacity

Propriety

Supporting initiatives to reduce fetal and infant mortality falls within the overall mission of the Women's, Children's, and Family Health Section. National initiatives have been set forth to address fetal and infant mortality objectives (HP2010) and the Maternal and Child Health Bureau requires that indicators related to reducing infant mortality (NOM#1-5; HSI #8A-B) are monitored and assessed on a yearly basis.

Economic Feasibility

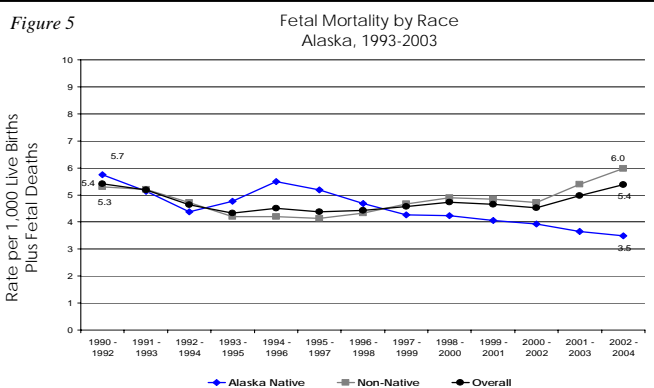
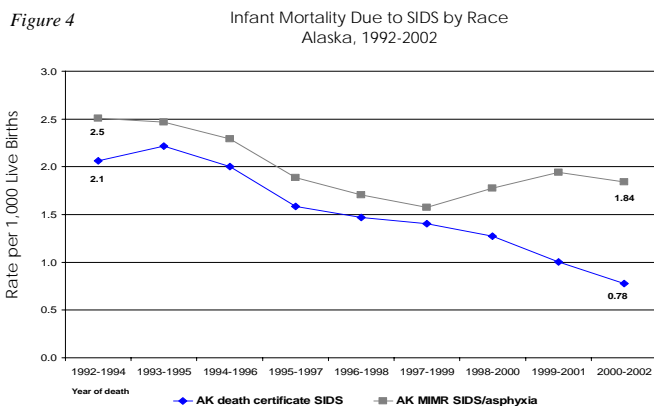
Economic feasibility was not evaluated.

Acceptability

Promoting the reduction of mortality among Alaskan infants is acceptable.

Resources

Data: Alaska Bureau of Vital Statistics; Alaska Maternal-Infant Mortality Review (MIMR)



recommendations.

Involved father: A recent evaluation found that lack of information for the father is strongly associated with post-neonatal death. The lack of an identifiable father figure for an infant may modify the risk of many direct causes of post-neonatal death may including SIDS, asphyxia of

“Back to Sleep” Campaign
MOD Prematurity Campaign

Legality

Not an issue.

References

- ¹ U.S. Department of Health and Human Services. The Health Consequences of Smoking: A Report of the Surgeon General. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health. 2004.
- ² American Academy of Pediatrics. Changing Concepts of Sudden Infant Death Syndrome: Diagnostic Coding Shifts, Controversies Regarding the Sleep Environment, and New Variables to Consider in Reducing Risk. *Pediatrics*. 116 (5):1245-1255. Nov 2005.
- ³ Misra, DP and Guyer, B. Benefits and Limitations of Prenatal Care: From Counting Visits to Measuring content. *JAMA* 279:20. 1998
- ⁴ Gessner BG. Findings of the Alaska Maternal-Infant Mortality Review, 1999. Family Health Dataline. State of Alaska, Department of Health and Social Services, Section of Maternal, Child and Family Health. 6:2. 2000.
- ⁵ Mathews TJ, Menacker F, MacDorman MF. Infant mortality statistics from the 2001 period linked birth/infant death data set. National Vital Statistics Report. Hyattsville, Maryland:National Center for Health Statistics, 2003:52:1-28.

Data Sources

[†] Alaska Bureau of Vital Statistics: State of Alaska, DHSS, DPH. Jan 2005.

* Healthy People 2010. U.S. Department of Health and Human Services. Healthy People 2010. 2nd ed. With understanding and improving health and objectives for improving health. 2 Vols. Washington, DC: U.S. Government Printing Office. 2000.

[^] Blabey M, Gessner B. Findings of the Alaska Maternal-Infant Mortality Review 1992-2001. State of Alaska, DHSS, DPH, MCH-Epidemiology Unit. *Epidemiology Bulletin*, Vol. No. 10, Number 3, June 30, 2006.

[†]Kochanek KD, Smith BL. Deaths: Preliminary Data for 2002. National Vital Statistics Reports; 52(13). Hyattsville, Maryland: National Center for Health Statistics. 2004.

[¥] Minino AM, Heron MP, Smith BL. Deaths: Preliminary Data for 2004. National Vital Statistics Reports; 54(19). Hyattsville, Maryland: National Center for Health Statistics. 2006.

Notes

Due to the small numbers of events, fetal and infant mortality data are expressed as three-year moving averages for Alaska. For comparability, national rates are presented for the same time periods.

National mortality data for 2004 is preliminary.