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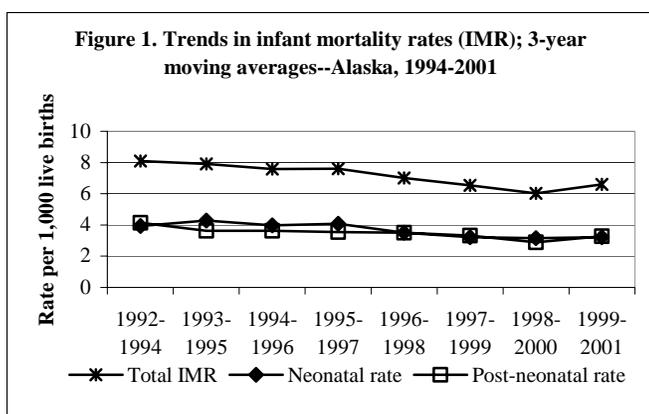
Findings of the Alaska Maternal-Infant Mortality Review, 1992-2001

Background/Methods

During the late 1980s, Alaska's infant mortality rate (IMR) was 1.2 times greater than that of the United States overall. In response, the Alaska Section of Women's, Children's, and Family Health established the Maternal-Infant Mortality Review (MIMR) program. For every infant death, MIMR coordinates retrospective reviews by a committee of health-care providers and public health practitioners to evaluate the circumstances surrounding the death and make recommendations for reducing Alaska's IMR. The MIMR committee reviewed 755 of the 759 (99.5%) known Alaskan infant deaths that occurred during 1992 through 2001. This report summarizes their consensus findings.

Results

The 3-year moving average IMR in Alaska declined from 8.1 per 1,000 live births in 1992-1994 to 6.0 in 1998-2000, but increased to 6.6 in 1999-2001 (Figure 1). The rise during the last period was almost all due to an increase in post-neonatal (age 28-364 days) mortality. Allowing for multiple contributing causes, Sudden Infant Death Syndrome (SIDS) or asphyxia, preterm birth, and congenital anomalies were the three leading cause of death categories evaluated during all years examined (Table 1). Compared to non-Natives, Alaska Natives had twice the total risk of infant mortality and higher cause-specific IMRs for almost all evaluated causes of death. During the neonatal period, 88% of deaths related to preterm birth; during the post-neonatal period, 89% of deaths related to SIDS/asphyxia.



Of the 755 infant deaths that were reviewed,

- 77 (10%) had a committee finding of substance use that may have contributed to the death by any caretaker;
- 50 (7%) had a committee finding of possible neglect or abuse, including intentional trauma, suffocation, failure to thrive, and intentional maternal abdominal trauma; and,
- 36 (5%) had a committee finding of possible errors in medical interventions or lack of appropriate care.

Discussion

The increase in Alaska's IMR at the end of the study period is similar to a recent trend in the United States IMR, which rose from 6.8 per 1,000 live births in 2001 to 7.0 in 2002.¹ However, the national increase was primarily in deaths among neonates (age 0-27 days), rather than post-neonates, as was seen in Alaska.

Reducing the prevalence of known risk factors could potentially prevent many infant deaths in Alaska. Maternal drug use is a modifiable risk factor for some preterm and low

birth weight births, some birth defects, child maltreatment, and infant mortality from SIDS and perinatal disorders. Independent risk factors for SIDS include maternal smoking, prone or side sleep positions, a soft sleep surface or non-standard bed, and bed-sharing with a parent who is impaired by alcohol or other drugs. All deaths related to abuse and neglect are potentially preventable; however, no intervention has yet been scientifically proven to prevent abuse or neglect.

The finding that Alaska Native race is a statistically significant risk factor for infant mortality for most causes of death is consistent with previous studies.^{2,3} The reasons for these findings are unknown, but may relate to a combination of ethnic differences in dietary, genetic, environmental, and health service factors.⁴

Recommendations

1. Health-care providers should inform women of childbearing age that prenatal drug and tobacco use are risk factors for preterm birth and infant death due to SIDS, neglect/abuse, birth defects, and other perinatal causes.
2. Health-care providers should educate caretakers of infants about the major known risk factors for SIDS, including prone positioning of the child for sleep, bed-sharing with an impaired parent or a parent who smokes, and sleeping on a non-standard sleep surface such as a sofa or waterbed.
3. Health-care providers should focus on early identification of women at risk of delivering a preterm infant, and referral of infants born preterm to appropriate treatment facilities.
4. Organizations providing health care to Alaska Natives should implement programs to reduce common and important risk factors for infant mortality among Alaska Natives.

References

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4. Hessol NA, Fuentes-Afflick E. Ethnic differences in neonatal and postneonatal mortality. *Pediatrics*. 2005;115:e44-51.

Table 1. Cause-specific infant mortality rates (IMR) per 1,000 live births and Rate Ratios (RR) by Alaska Native status--Alaska MIMR, 1992-2001

	Total IMR	Native IMR	Non-Native IMR	RR
<i>Summary</i>				
All infant mortality	7.3	11.4	6.0	1.9*
Neonatal mortality	3.7	4.9	3.3	1.5*
Post-neonatal mortality	3.6	6.5	2.7	2.4*
<i>Cause-specific rates</i>				
SIDS or asphyxia	2.1	4.0	1.5	2.7*
Preterm birth	2.1	3.0	1.8	1.7*
Congenital anomalies	1.9	2.7	1.6	1.6*
Infections	1.1	1.8	0.8	2.2*
Perinatal issues†	0.7	0.8	0.7	1.2
Neglect or abuse	0.5	0.8	0.4	2.2*
Sub-optimal medical care	0.4	0.5	0.3	1.6

*Statistical significance based on 95% confidence interval
†e.g., placental abruption

The full report from this analysis is available online at: http://www.epi.alaska.gov/bulletins/docs/rr2006_03.pdf