

# FIRST STEPS DATABASE

## INFANT MORTALITY AND SIDS

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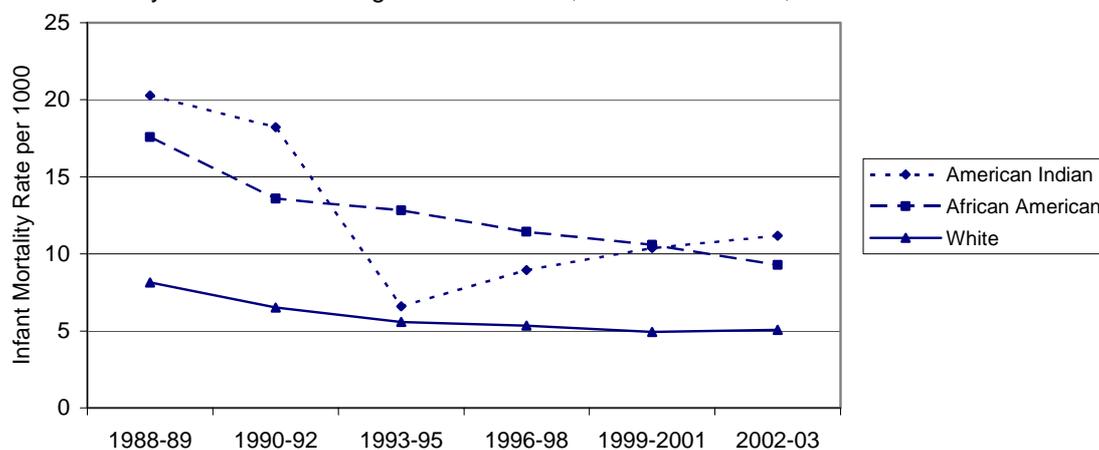
Infant mortality (deaths of liveborn infants during the first year of life) is often used as a standard measure of a population's health. The leading causes of infant death in the United States and in Washington State include birth defects, SIDS (Sudden Infant Death Syndrome), and disorders related to prematurity and low birth weight.

A number of factors contributed to improvements in infant mortality in Washington in the 1990s.

- The First Steps program, Washington's Medicaid maternity care program for low-income pregnant women that started in August 1989, increased access to prenatal care and provides enhanced prenatal care including smoking cessation. First Steps' enhanced prenatal services have been associated with decreases in low birth weight for certain high-risk women.
- New treatments for lung disease associated with prematurity have reduced mortality among very low birth weight infants although the estimated reduction in infant mortality attributed to this therapy is rather low (3%) (Schwartz et al., 1994).
- In 1992-94, pediatric providers and the Back to Sleep media campaign began to tell mothers to place their babies on their backs for sleep. SIDS rates have fallen dramatically since Back to Sleep has become a standard message for parents of newborn babies.

This report describes changes in infant mortality and SIDS, focusing on death rates for African American and American Indian infants, and suggests critical factors for success in eliminating disparities in health outcomes.

Infant Mortality Rates for Washington State: White, African American, and American Indian Infants



- In Washington State, the death rate for white infants has decreased by 37% from 8.1 per 1000 (1988-89) to 5.1 per 1000 (2002-03).
- For African American infants, the death rate steadily decreased, from 17.6 (1988-89) to 9.3 per 1000 (2002-03), representing a decrease of 47%. For American Indian infants, the death rate decreased by 45% from 20.3 (1988-89) to 11.2 per 1000 (2002-03). The gradual increase in American Indian infant mortality since the low point in 1993-95 is unexplained.
- The death rates for African American and American Indian infants remain higher than the rate for white infants (1.8 and 2.2 times higher, respectively). These disparities are smaller than in 1988-89 when these death rates were 2.2 and 2.5 times higher.

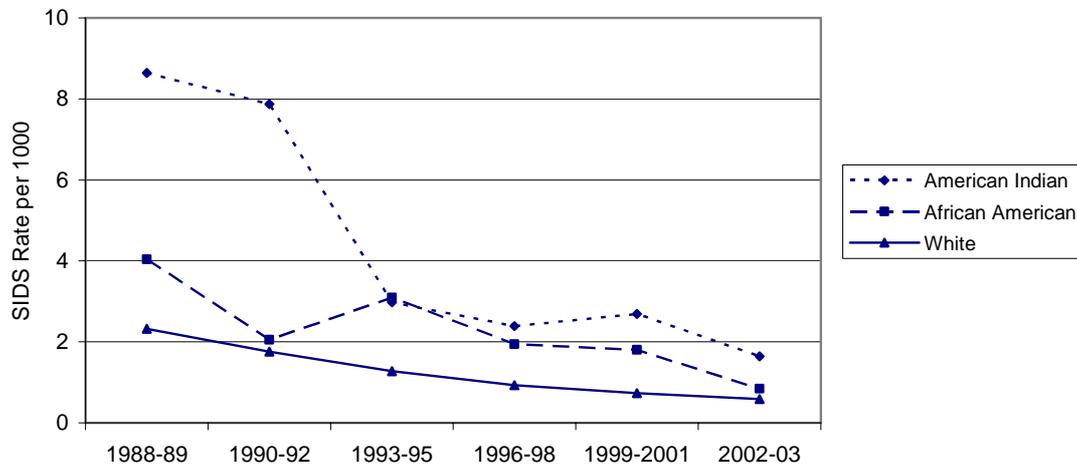
## SIDS (SUDDEN INFANT DEATH SYNDROME)

SIDS is defined as the sudden death of an infant under one year of age which remains unexplained after a thorough case investigation, including performance of a complete autopsy, examination of the death scene, and review of the clinical history (Willinger et al., 1991).

No single factor or condition has been identified as the cause of SIDS. In fact, SIDS may have different causes in different infants. A number of risk factors for SIDS have been identified: prone or side sleeping position, infection, parental smoking, low birth weight, African American and American Indian race/ethnicity.

Until the cause of SIDS is known, the best strategy for reducing SIDS deaths is to reduce exposure to modifiable risk factors whenever possible. This is the basis for the Back to Sleep campaign, which emphasizes putting babies on their backs to sleep, providing a firm, flat sleeping surface, and avoiding overheating and exposure to tobacco smoke.

SIDS Rates for All Washington State: White, African American, and American Indian Infants



- In Washington State, among white infants, the death rate due to SIDS has decreased by 74% from 2.3 per 1000 (1988-89) to 0.6 per 1000 (2002-03).
- For African American infants, the death rate due to SIDS decreased by 80% from 4.0 per 1000 (1988-89) to 0.8 per 1000 (2002-03). For American Indian infants, the death rate due to SIDS decreased by 81% from 8.6 per 1000 (1988-89) to 1.6 per 1000 (2002-03).
- The SIDS death rates for African American and American Indian infants remain higher than the rate for white infants (1.3 and 2.7 times higher, respectively). These disparities are smaller than they were in 1988-89 when the SIDS rates were 1.7 and 3.7 times higher than the SIDS rate for white infants.

The reductions in the SIDS rates for all groups are encouraging. For American Indian infants, the reduction has been dramatic; however, the SIDS rate for American Indian infants remains 2.7 times higher than that for white infants. In 2002-03, the SIDS rate for African American infants was 1.3 times that for white infants.

**Technical Notes.** All mortality rates are cohort rates, where the denominator is the number of infants born alive in the specified time period and the numerator is the number of deaths to those infants within 365 days of the date of birth. SIDS deaths are tabulated only if the death occurred between 28 and 365 days of life. The stated race is that provided by the mother at the time of delivery; these three groups exclude persons of Hispanic ethnicity. Changes in reporting practices of coroners/medical examiners have played a role in the decline of SIDS rates. The designation of a particular infant death as SIDS (ICD-10 R95) or unexplained death (ICD-10 R99) may be a matter of personal preference on the part of the coroner/ medical examiner. While the numbers of African American and American Indian SIDS deaths are small, particularly in recent years as rates decreased, each group showed significant changes in IMR and SIDS from 1988-89 to 2002-03.

## DISCUSSION

Disparities in the health of African American and American Indian infants, as reflected by infant mortality and SIDS rates, have been reduced but not eliminated according to the data shown above. Poverty is an important risk factor for poor health outcomes, and in Washington State, as in many parts of the United States, African Americans and American Indians are financially less well off than whites. Pregnant women with family incomes at or below 185% of the Federal Poverty Level are eligible for Washington's First Steps program. Among women who gave birth in 2004, the proportions of American Indians and African Americans on First Steps, 77.5% and 68.5%, respectively, were about double the proportion of white women, 36.9%.

Limiting our comparison of death rates to infants whose mothers were on Medicaid (First Steps) controls for the different poverty rates in these groups. For African American infants, the death rate for Medicaid infants was just 1.1 times higher than that for white Medicaid infants in 2002-03, and for SIDS, the rates for African American Medicaid infants and white Medicaid infants were the same (1.1 per 1000) in 2002-03. For Medicaid infants, the disparity in SIDS rates between African Americans and whites has been eliminated.

For American Indian infants, the death rate for Medicaid infants was 1.8 times higher than that for white Medicaid infants in 2002-03, and for SIDS, the rate for American Indian Medicaid infants was 1.6 times higher than that for white Medicaid infants. For American Indians, the disparities have been reduced, but not eliminated, even after controlling for poverty.

Key factors which made these improvements possible include:

- A very strong statewide program (First Steps, Medicaid's maternity care program) with the express purpose to ensure healthy birth outcomes for low-income families, together with an excellent medical system for perinatal care;
- Overall improvements in measures of birth outcomes over time along with regular monitoring of outcomes for high-risk groups;
- Risk factor data that suggested targeted interventions for high-risk groups, and implementation of these interventions in 2002.

While these factors favored reduction, and elimination in some cases, of disparities, these changes occurred over a fifteen-year time period, and only with adequate monitoring of outcomes and risk factors for high-risk groups were targeted interventions successful. The differences between African Americans and American Indians demonstrate this.

A 2002 report (RDA fact sheet Number 9.52) noted that the 25% decrease in SIDS rates for African American infants from 1990-92 to 1998-99 was much less than the decreases for whites (53%) and for American Indians (76%). As well, in 1998, African American mothers reported the lowest rate of back sleep position according to Washington's PRAMS survey of new mothers.<sup>1</sup> These data suggested that the Back to Sleep message needed reinforcement in the African American community, and DSHS, in partnership with DOH, implemented a targeted intervention in Pierce County. A respected member of the African American community, a health professional, was recruited to educate parents, caregivers, and medical providers about sleep position. These data were also shared with SeaKing Public Health, which had its own

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<sup>1</sup> PRAMS (Pregnancy Risk Assessment Monitoring System) is a survey sponsored by the Centers for Disease Control and Prevention and conducted in Washington by the Department of Health. PRAMS records new mothers' answers to the question "How do you *most often* lay your baby down to sleep now?"

programs to reach high-risk pregnant women. In addition, the SIDS Foundation of Washington hired staff to perform outreach to American Indian communities.

By 2002-03, the proportion of African American Medicaid mothers who reported their baby's sleep position was mostly on his or her back had increased to 63.2% from 39.4% in 1996-98. After a 50% decrease from 1988-89 to 1999-2001 (from 4.0 per 1000 to 1.8), the SIDS death rate among African American infants decreased another 50%, to 0.8 per 1000, from 1999-2001 to 2002-03.

On the other hand, in 2002-03, the proportion of American Indian mothers who reported their baby's sleep position was mostly on his or her back (82%) was higher than that of any other group, yet the American Indian SIDS rate was also higher than any other group. Sleep position is not the only risk factor for SIDS. Maternal smoking during pregnancy and exposure to second-hand smoke are also risk factors. Indeed, 22% of American Indian Medicaid women who gave birth in 2004 reported smoking during pregnancy, a rate nearly twice that of African Americans (12.2%) and slightly less than the rate among whites (26.0%). For all groups, smoking rates are higher among Medicaid women than among non-Medicaid women.

The high rate of smoking among American Indians, together with the high rate of back sleep position in this group, suggests that smoking cessation and reducing exposure to second-hand smoke may be more important strategies to reduce SIDS among American Indians than greater efforts to reinforce the Back to Sleep message. Additional risk factors, known or as yet unidentified, may also be at work here. The October 2005 American Academy of Pediatrics policy statement (<http://www.aap.org/ncepr/revisedsids.pdf>) outlines eleven recommendations to reduce the risk of SIDS in the general population.

Another complexity is the relationship between low birth weight and infant mortality. Low birth weight is a major risk factor for infant mortality. However, while the African American infant mortality for Medicaid infants was just 1.1 times higher than that for whites in 2002-03, the low birth weight rate was 1.8 times higher (9.2% compared to 5.1%). This finding is consistent with other research which has shown that birth-weight specific mortality rates are higher for white infants than for African American infants.

While many questions remain to be answered in this area, the critical factors for success may serve as a model for eliminating disparities for other health outcomes:

- Access to quality medical care;
- Regular monitoring of health outcomes, overall and for high-risk groups;
- Identifying trends in known risk factors, overall and for high-risk groups;
- Targeted interventions based on outcome and risk factor data, including partnerships with community-based organizations and culturally appropriate messages.

Many challenges remain to sustain health improvements for Washington's infants and to achieve further reductions in death from SIDS.

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Data sources for this report include the Department of Health Center for Health Statistics and PRAMS project, and the First Steps Database. The First Steps Database was developed as a program monitoring tool for First Steps. The database links Medicaid claims and eligibility with birth and death certificates. Additional copies of this report (#9.81) and a list of references may be requested from DSHS Research and Data Analysis (phone 360-902-0707). RDA reports are available at the website, [www1.dshs.wa.gov/rda](http://www1.dshs.wa.gov/rda).