

Reclaiming American Indian Maternal and Infant Health

For the first six years of my life, Mother's thoughts were so largely centered upon me that she sacrificed even companionship with my father in order to give me her full time. A weak or puny baby was a disgrace to a Lakota mother. It would be evidence to the tribes that she was not giving her child proper time and attention and not fulfilling her duty to the tribe. More than that, it was evidence that she has not used proper social discretion and defied age-old tradition. It was a law with the Lakotas that for the first six years of a child's life it should have the unrestricted care of the mother and that no other children should be born within this six-year period. To break this law was to lose the respect of the Tribe, and both father and mother suffered the penalty. A fine, healthy child was therefore a badge of pride and respect, and healthy babies were the rule.

Luther Standing Bear
"Land of the Spotted Eagle," Copyright 1933

by Thale Dillon, Christine Rinki, and Jennifer Giroux

Traditionally, Northern Plains and Rocky Mountain region Indian tribes considered their children sacred. Regrettably, childrearing practices, like so many other aspects of American Indian culture, have suffered over the past 100 to 150 years as a result of white America's westward expansion. The traditional norms described above are no longer observed by author Jennifer Giroux's great-great grandfather Luther Standing Bear's descendants or tribe, with great implications for maternal and child health.

Medical research and technology have made great strides in the United States during this same time period. Still, American Indian infants in the Rocky Mountains and on the Northern Plains die more frequently than white infants in the region, making infant death one of the major health problems facing tribes and urban Indians in the area.

Infant Characteristics and Maternal Risk Factors

Infant characteristics at birth provide information regarding the health of a pregnancy and an infant's risk of illness, death, or long-term disability. Some of the factors considered include birth weight, gestational period, and infant mortality.

Low birth weight and very low birth weight—defined as weighing less than 5 lbs 8 oz and 3 lbs 4 oz at birth—are both associated with a multitude of health problems, including

greater risk of increased chronic conditions and limitations of activity (Overpeck 1989). All low birth-weight infants are more likely to experience long-term disability or to die during the first year of life than are infants of normal weight, with infants born with a very low birth weight having the lowest survival rate of all. Major contributors to low birth weight are preterm births – infants born before 37 weeks of gestation – and multiple births (MCHB 2006). Reducing both low birth weight and very low birth weight infants are goals of the Healthy People 2010 initiative (www.healthypeople.gov).



The infant mortality rate, which relates the number of infant deaths to the number of live births for a population, is one of the most commonly used measures of the overall health of a population and serves as a fundamental measure of development. In fact, overall reduction of infant mortality in the United States has been hailed as one of the 10 greatest public health achievements of the 20th century (MMWR 1999). However, there is great disparity between the infant mortality rate in non-Hispanic white and other racial and ethnic populations, American Indians among them, a disparity to which differences in the rate of very low birth weight is a major contributor (MCHB 2006).

When considering infant mortality, a distinction is made between neonatal and postneonatal mortality. Neonatal deaths happen before an infant reaches 28 days of age, and one contributor is low or very low birth weight. Postneonatal deaths, on the other hand, happen when an infant is between



the ages of 28 days and 1 year and are less frequently connected to birth weight issues (MCHB 2006).

In Montana, the measures for infant mortality and low birth weight are both slightly higher for American Indians than for the population as a whole (Table 1).

However, when it comes to birth weight, it is important to keep in mind that large infants can also be unhealthy. When a baby is born large for gestational age, it is most often caused by maternal diabetes. Pre-existing, as well as pregnancy-onset (gestational) diabetes, if not monitored and managed during a pregnancy, can lead to excessive growth in an infant. Such babies often need to be delivered via Caesarean section, increasing the risk of complications and prolonging the mother's recovery time.

Additionally, pre-existing diabetes can cause problems early in the pregnancy (the first two months) as out-of-control blood sugar levels can affect the formation of a baby's organs, causing serious birth defects (MCHB 2007). Infants born to diabetic mothers may also be at higher risk of illness and death during infancy, as well as for the development of Type 1 diabetes later in life. The mother, if not already a diabetic herself, can go on to develop Type 2 diabetes (Pitkin 2003).

While all these factors are more common within the American Indian population, Indian mothers face additional challenges as well. In Montana, for example, Indian women have babies at a younger age than the overall state population, and they exhibit a higher incidence of alcohol, drug, and tobacco use during pregnancy, indicating that mothers and infants have stresses and challenges beyond the general Montana population.

Obviously, healthy and thriving American Indian children are desirable for more reasons than just the traditional cultural values described in the introduction. For American Indian infants to grow up to become healthy and fully participating

members of today's society, they need a life start equal to that of white children. However, bringing attention to these traditional values illustrates the changes in Indian child populations, while also emphasizing that the health conditions seen in today's Indian infant and maternal populations are a recent development and clearly at odds with traditional American Indian values and ideals concerning mothers and babies.

Conventional wisdom, as well as research, tells us that for a woman to deliver and raise healthy babies, she needs to be healthy herself. With higher rates of teen pregnancies and poverty, lower levels of education and employment, and more limited access to quality health care among Montana's American Indian population, health outcomes compare unfavorably with those of the total population. For example, the median age at death for American Indian women is 64 years, while it is 81, a full 17 years more, for the overall female Montana population. However, it is worth noting that a shorter life expectancy is not related to a higher death rate. In Montana, American Indians have a lower death rate than the population as a whole (6.5 versus 9.1 deaths per 1,000 population).

Recently, public health efforts have been focused on improving the overall pre-conception health of American Indian women between the ages of 15 and 44 in order to

Table 1
Health Statistics

	American Indian Women	All Montana Women
Population	29,111	458,260
Median age (years)	30.2	40.8
Median age at death (years)	64	81
Fertility rates: teens (teen births per 1,000 teen females)	100.9	35.9
Fertility rates: all women (all births per 1,000 females of childbearing age)	98.0	60.7
Percentage of births where mother started prenatal care in 1st trimester	65%	83%
Percentage of births where mother received adequate prenatal care	50%	73%
Percent of babies born with low birth weight (below 5lbs 8oz)	7.3%	6.9%
Infant mortality rate (deaths per 1,000 live births)	8.0	6.2
Immunization rate for 2-year olds who are seen by a health care provider	85%	90%

Sources: U.S. Census Bureau, 2000; Office of Vital Statistics, Montana Department of Health and Human Services, 2000-2004; Indian Health Service Immunization Registry, 2005; Communicable Disease Control and Prevention Bureau, Montana Department of Health and Human Services, 2006.

Table 2
Level of Prenatal Care

	Adequate Plus	Adequate	Intermediate	Inadequate	No Care
American Indian women (MT)	18%	33%	20%	27%	2%
All Montana women	29%	45%	15%	10%	1%
	First Trimester	Second Trimester	Third Trimester	No Care	Unknown
American Indian women (MT)	65%	25%	7%	2%	1%
All Montana women	83%	14%	2%	1%	1%

Note: Adequate prenatal care is based on the Kotelchuck Index and is defined as receiving 80 percent or more of thus expected visits.

Source: Office of Vital Statistics, MT DPHHS, 2000-2004.

improve pregnancy-related outcomes. For example, American Indian women would benefit from improved access to prenatal care, as they currently start care later and complete fewer doctors' visits than their counterparts in the general population. Among births to American Indian women, 65 percent were to women who started prenatal care in the first trimester, while in the general population, the corresponding number is 83 percent.

Similarly, 50 percent of American Indian new mothers had received adequate prenatal care, while 73 percent of all Montana births were to women who had received adequate prenatal care (Table 2).

While the importance of early, high-quality prenatal care cannot be underestimated, the importance of overall health prior to becoming pregnant is heightened as over half of pregnancies are unplanned (Finer, 2006). The adverse effects associated by waiting to address health issues until a woman becomes pregnant or starts prenatal care get further compounded the longer she waits to see a doctor when she becomes pregnant.

Focusing on a woman's health before pregnancy can reduce the adverse effects of chronic conditions such as obesity, diabetes, hyperthyroidism, and hypertension on both herself and her infant. Regular medical attention can also help in reducing the consumption of tobacco, alcohol, and certain medicines that all have adverse effects on fetal development before a woman knows she is pregnant. Certain birth defects can be prevented by adequate folic acid (a B vitamin) intake prior to pregnancy, and avoiding alcohol and drug use (CDC 2008).

Preconception health, however, does not end with the birth of a child. Postpartum care provides an opportunity to monitor and sustain woman's health in anticipation of her next pregnancy. Health care providers who treat women of reproductive age should make use of every opportunity to provide guidance that may improve the outcome of possible future pregnancies. Health programs that focus on mater-

nal and child health, such as WIC, Healthy Start, and public health clinics providing immunization and well-child visits, do in fact have a unique opportunity to ensure not only the well-being of the infant but also to improve and sustain the health of the mother, ensuring that her next pregnancy is healthy.

Data: Availability and Gaps

Health data are used to define the scope of a health program; provide information about sub-groups that are at highest risk; evaluate the effectiveness of programs and services; and, over time, assist health planners to determine whether health is improving or declining. An essential element in improving American Indian maternal and infant health in Montana is the access to high-quality and timely health data.

While data for Montana's total population are readily available in practically every health area, it is sorely lacking for racial group populations, American Indians among them. Most data available on Montanans and their health are not provided for each race or ethnicity, making evaluation of the unique needs of specific populations impossible. Furthermore, where data specific to American Indians are available, they are rarely provided at the tribal or reservation level, again complicating the task of determining if one tribe or reservation requires more attention than others.

For non-Indians, this latter need may be dismissed as unnecessary, assuming that the state's American Indian population should be considered as one entity. But each tribe, or at the very least each reservation, should be considered one racial group with unique characteristics and needs. While some tribes and reservations are financially wealthy, many are not, having poverty and unemployment rates much higher than off-reservation populations.

For example, employment rates vary from 83 percent on the Flathead Reservation, a relatively wealthy reservation, to 71 percent on Rocky Boy's Reservation. Likewise, poverty rates vary from 28 percent for the landless Little Shell Tribe, to 45.2 percent on the Fort Peck Reservation, where 50

Table 3
Education, Unemployment, and Poverty

	High School Graduate/ GED	Bachelor's Degree	Total Unemployment	All Ages in Poverty	Under 18 in Poverty	18 and Over in Poverty	65 and Over in Poverty
Montana total population	87%	24%	3.6%	14.3%	20.0%	13.0%	9.0%
American Indian population*	76%	11%	20.2%	36.9%	43.2%	32.9%	26.2%
Blackfeet Reservation	75%	9%	24.3%	27.7%	29.0%	27.0%	25.0%
Crow Reservation	75%	9%	22.9%	37.7%	44.0%	33.0%	23.0%
Flathead Reservation	75%	10%	16.6%	31.3%	34.0%	30.0%	12.0%
Fort Belknap Reservation	75%	10%	22.3%	33.5%	38.0%	30.0%	28.0%
Fort Peck Reservation	72%	9%	28.3%	45.2%	50.0%	41.0%	30.0%
Little Shell Tribe	73%	8%	20.3%	28.0%	34.0%	25.0%	24.0%
Northern Cheyenne Reservation	76%	10%	22.6%	41.8%	47.0%	37.0%	38.0%
Rocky Boy's Reservation	76%	11%	29.4%	25.4%	26.0%	25.0%	24.0%

*Includes reservation residents and nonresidents.

Source: U.S. Census Bureau, 2000.

percent of children under 18 live below the Federal Poverty Level (Table 3). The Census figures underlying these statistics, though reliable, are disadvantaged by being untimely as they are only collected through the decennial Census, the last of which took place in 2000.

With varying economic conditions, geographic location, and group size, it stands to reason that there will be differences related to health issues as well, including prenatal and infant health. The only detailed health statistics that are readily available are the immunization rate for 2-year-olds who have been seen by a health care provider, which can be obtained for each health care facility within the Billings Indian Health Services Area (Table 4).

There are considerable differences among the reservations, differences that do not necessarily follow economic patterns of prosperity. For example, the Flathead Reservation, which has a relatively low poverty rate and the highest rate of employment among the Montana tribes and reservations, shows the lowest immunization rate at 63 percent. Fort Peck, on the other hand, has the lowest levels of employment and a relatively high poverty rate, yet can boast an immunization rate of 91 percent, slightly higher than the overall Montana rate.

Additional Efforts

So even though surveillance systems exist both at the state and federal levels, tribes and reservations are not benefiting from timely access to detailed health data for their jurisdictions. However, in the areas of maternal and infant health, there is some good news in that there are several efforts underway to improve access to such data for tribes. Some examples include:

Table 4
Immunization Rates

	Immunization Rate
Montana total population	90%
American Indian population	85%
Blackfeet Reservation	94%
Crow Reservation	73%
Flathead Reservation	63%
Fort Belknap Reservation	83%
Fort Peck Reservation	91%
Little Shell Tribe	NA
Northern Cheyenne Reservation	92%
Rocky Boy's Reservation	87%

* Full immunization (4:3:3:1:3) includes 4 doses diphtheria, tetanus & pertussis; 3 doses polio; 3 doses H. influenza type b (Hib); 1 dose measles, mumps & rubella; 3 doses hepatitis B.
Source: Indian Health Services, Immunization Registry, 2005.

Vital Statistics

Vital statistics encompass health data collected from infants' birth and death certificates and are maintained by state vital registries. Birth and infant death data can describe the size and characteristics of newborns and their parents and can provide insight into the scope of infant mortality and leading causes of infant death.

Before 2008, Montana birth certificates did not include information on the mother's tribal affiliation. However, starting in 2008, in keeping with the 2003 revision of the U.S. Standard Certificates of Live Birth by the Department of Health and Human Services, an option is included for the mother to indicate the name of her enrolled or principle tribe. This

option has been included on Montana death certificates for some time, though it is to be completed by the funeral home director, which can render the information unreliable and difficult to analyze.

Additionally, Indian Health Services' Office of Program Statistics publishes a report, *Regional Differences in Indian Health*, comparing the health status of IHS areas, including maternal and infant health. The most recently published report uses data that are 10 years old. Efforts of the Northern Plains and Rocky Mountain Tribal Epidemiology Centers are underway to collaborate with state departments of health to develop systems of vital records reporting to tribes.

Pregnancy Risk Assessment Monitoring System (PRAMS)

The goal of PRAMS is to reduce infant mortality and improve maternal and infant health through collecting population-based information on maternal experiences and attitudes before, during, and after the most recent pregnancy. Issues covered include access to and utilization of services, content of prenatal care, breastfeeding, nutrition, depression, abuse, and tobacco use and exposure. Data are available at the state level, though not for all states, and for certain subgroups, provided that minimum response rates for the group are achieved. The State of Montana conducted a PRAMS survey in 2002. That sample included 128 women of American Indian heritage, representing a response rate of 68 percent, as reported by the Centers for Disease Control and Prevention (CDC). The CDC requires a response rate of 70 percent or more to publicly release any data. Thus no data for American Indians are available from this effort.

As a result, the Rocky Mountain Tribal Epidemiological Center (RMTEC) is working to implement an American Indian Pilot PRAMS in 2008, involving two Montana Tribes. The purpose of this pilot is two-fold:

To collect methodological information to aid Montana Maternal and Child Health (MCH) staff in increasing American Indian response rates in future PRAMS efforts; and

To gather currently unavailable maternal and child health data for use by RMTEC and the tribes in program planning.

RMTEC is seeking to support Montana in its next application for statewide funding for a PRAMS survey that fully includes the Tribes and uses innovative techniques (which follow the CDC's guidelines) to ensure adequate American Indian response rates.

Pregnancy Nutrition Surveillance System (PNSS)/Pediatric Nutrition Surveillance System (PedNSS)

These two program-based systems monitor the nutritional status of infants, children, and mothers who participate in federally-funded maternal and child health programs, such as WIC. Data collected for pregnant women include information on diabetes and hypertension during pregnancy, interpregnan-

cy intervals, and smoking, while for children data are collected on birth weight, anemia, breastfeeding, overweight, and underweight. Data collected by PNSS/PedNSS are reported for the nation and for any contributor of data. Contributors can be a state or a tribal government, and data can be reported at the county, agency, or clinic levels. Montana regularly contributes state-level data to the PNSS/PedNSS.

Conclusion

Without detailed knowledge of this kind, existing disparities cannot be addressed through individualized programs, and blanket solutions may be applied that are less than effective for the populations that are worst off and completely superfluous where conditions are better. For example, given the data available on immunization rates for the individual reservations, a targeted immunization campaign can be developed that would focus more on the Flathead Reservation, where immunization rates are low, and less on the Fort Peck Reservation, where rates are high. Only by recognizing disparities in health conditions among Montana's various populations can we create solutions that target every resident of our state rather than some arbitrary average. □

Thale Dillon is director of economic research for Montana Kids Count. Christine Rinki is an MCH epidemiologist for the Northern Plains Tribal Epidemiology Center. Jennifer Giroux is a medical epidemiologist with the Rocky Mountain Tribal Epidemiology Center.

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