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Navajo Childbirth in Transition

Alan G. Waxman

For the Navajo Indians, the transition from home-centered childbearing practices based on religious ritual to biomedically directed childbirth in hospitals was completed over a relatively short time in the middle decades of this century. For Anglo-American society, the acceptance of medically oriented childbirth occurred during an equally short period earlier in the century. The transition was driven for both by many common factors. For Navajo women it was additionally influenced by the social and economic changes that affected the Reservation following the beginning of the Second World War. This paper examines the changes in Navajo childbearing practices and, for comparison, those of the dominant American society. It reviews factors that permitted the acceptance of biomedical childbirth by Navajo women and explores the health implications of the transition.

INTRODUCTION

A society's cultural system of childbirth may be considered an adaptation of its greater belief system to the physiologic events surrounding pregnancy and parturition. Jordan (1978:67) asserts that the beliefs and practices associated with childbirth are "mutually dependent and internally consistent." Yet the childbearing practices of indigenous cultures around the world are undergoing change, and their internal consistency is being challenged as they are confronted by and absorbed into the biomedical model espoused by the economically developed nations. Such changes have been occurring over the past several decades among the Navajo Indians. In 1988, over 5,000 Native American women gave birth on or near the Navajo Indian Reservation (Milligan 1989). Over 99% delivered in hospitals (Boyce et al. 1986), their labors and deliveries conducted in accordance with the rituals of Western biomedicine. In this paper I explore the changes in childbearing practices made by Navajos in the space of two generations and draw parallels with the earlier transition from home to hospital birth made by the dominant Anglo-American society. I examine some of the aspects of the Navajo belief system that permitted the acceptance of biomedical childbirth and review the major forces of social and economic change that hastened its acceptance. Finally, the impact of the transition on maternal morbidity and on maternal, neonatal, and infant mortality will be discussed citing data from the Indian Health Service (IHS) and other epidemiologic studies.

In the past, as recently as the 1960s, a complex interweaving of ritual belief and proscription during the prenatal period led to a traditional way of giving birth that integrated both mother and infant into the cultural and religious fabric of Navajo

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society. The medicine man played an important role, combining health and religion in the performance of the Blessingway, a spiritual purification ceremony, during the prenatal period and, not infrequently, providing spiritual aid during labor and the birth (Kluckhohn and Leighton 1962; Bailey 1950; Begay 1985).

BIOMEDICINE AND AMERICAN CHILDBIRTH

Prior to the early nineteenth century Anglo-Americans, like the Navajos, entrusted the outcome of the childbed to Divine Providence (Dye 1986). Over the next hundred years, however, control of the birth process was relinquished to physicians as they first acquired and then monopolized knowledge of the anatomy and physiology of parturition, and later appeared able to direct its course and control its outcome (Wertz and Wertz 1977; Dye 1986).

At the turn of the current century in the United States, the vast majority of births (95%) occurred at home attended by a physician or midwife with the assistance and encouragement of the parturient's women friends, relatives and frequently, her husband (Hahn 1987; Newton 1987; Leavitt 1987; Wertz and Wertz 1977; Dye 1986). A clergyman might still have been in attendance for spiritual assistance, and in the event of complications, his opinions frequently received weight equal to or greater than those of the physician (Leavitt 1987; Dye 1986). Obstructed labor accompanied 5% of births, for which the doctor could offer operative delivery best carried out in the hospital. The surgeon's preference as to whether to operate or which procedure to perform, however, was often overridden by the patient's family members or clergyman (Leavitt 1987).

During this period changes were taking place in how Americans viewed hospitals and in the way they were marketed. Prior to the turn of the century most medical care was administered in the home with the use of hospitals reserved for the indigent and those with terminal conditions. For childbirth, the hospital was the domain of unwed mothers and the poor. Hospital birth carried a certain social stigma (Wertz and Wertz 1977).

As the 19th century drew to a close, however, advances in surgery and the advent of aseptic technique made treatments safer and the results more predictable. New hospitals were built and commercialization was introduced. Hospital care was actively marketed and elective surgery actually became quite trendy (Light 1986). The hospital for childbirth was seen by some as a hotel where a woman could give birth safely and efficiently. By the 1920s, the use of 'twilight sleep' analgesia held the promise of painless delivery. In-hospital childbirth had gained social respectability (Wertz and Wertz 1977).

Against this background, physicians began to consolidate their authority, first over complicated deliveries and ultimately over routine births. Their offer of safer and less painful childbirth, however, required that birth take place within their locus of control—the hospital. By the 1920s the majority of births in many cities had moved to the hospitals. As automobiles shortened the distance between the country and the city, rural women soon followed the trend started by their urban sisters. By 1939, half of all childbearing women and three quarters of those living in cities

gave birth in hospitals, and 90% of all births (including home births) were attended by physicians (Hahn 1987; Leavitt 1987; Wertz and Wertz 1977).

TRADITIONAL NAVAJO CHILDBIRTH

Knowledge of childbearing practices among the Navajos prior to the widespread use of hospital birth is based upon ethnographies from the late 1920s to the late 1940s. These practices and associated beliefs are assumed to predate widespread European contact and are reviewed here. I take the liberty of labeling them, "traditional."

The Navajo health and healing tradition encompasses a belief system which prescribes man's relationship with his natural, spiritual, and cultural world. Integral to this system is the concept that by his actions, omission or commission, a person may fall out of harmony with nature resulting in sickness for himself or his family. Disharmony is a consequence of the violation of the many taboos which surround everyday life. The nature of the sickness resulting from this disharmony is determined by and frequently patterned after the nature of the transgression. Bailey refers to this as "like produces like" (Bailey 1948). For example, if the proscription against a pregnant woman's tying knots is ignored, the baby will be tied up in the womb and childbirth will be difficult (Bailey 1950; Leighton and Kluckhohn 1947). This proscription against tying knots finds its basis in the Navajo origin legend in which the birth of Changing Woman, a progenitor of the Navajo, was blocked by the binding of a doorway (Begay 1985). This became generalized in practice to any tying or binding.

Bailey's ethnography of the Ramah band of Navajos in the early 1940s described traditional attitudes toward the prenatal period. Pregnancy was not seen as a time for rest. Intercourse could continue throughout pregnancy until shortly before confinement. Prenatal proscriptions were classified into five general groups according to their objects: 1) animals; 2) natural phenomena, e.g., lightening or eclipse; 3) ceremonials or portions of ceremonials that must not be viewed; 4) ghosts, the dead, places where death has occurred; and 5) day to day activities, e.g., proper conduct while weaving, building, herding, or silversmithing. The taboos are numerous; Bailey listed 36 proscribed activities in the last category alone.

Taboos involved both husband and wife and could affect the woman during labor or the child before or after birth. For example, if a woman used a six pronged weaving comb, the child would be born with six toes. Turning a blanket upside down on the loom to finish it would cause the baby to be breech. The viewing of a ceremonial sandpainting by either parent during pregnancy could cause illness in the child after birth. Illnesses in later life were not infrequently attributed to taboos unknowingly violated by a parent before birth (Bailey 1950; Kluckhohn and Leighton 1962).

Interestingly, 25 years after Bailey's work, Evans and Fike (1975) interviewed Navajo nurses and other hospital personnel about their cultural beliefs and understandings related to pregnancy. The taboos they reported showed much continuity with those reported by Bailey. The authors were told, for example, that coming into

contact with death, funerals, or dead animals would result in having a sickly child. If the father is a *yei be chei* dancer he must not wear his mask while his wife is pregnant. To do so would result in the baby being born blind, mute, or with a deformed face. The pregnant woman who doesn't think happy thoughts would have difficulty with her pregnancy, labor, and delivery.

Begay (1985), in her study in the western part of the reservation in the early 1980s, notes similar taboos, including avoidance of tying knots and avoiding contact with death and disability.

Making too many preparations for the baby or naming the baby before its birth was considered very bad luck (Evans and Fike 1975). Leighton and Kluckhohn elaborated on this theme in their 1947 work. Baby clothes were not made, nor was a cradleboard prepared before the baby's arrival. The taboo against preparing for the child in advance of labor has implications for the acceptance of prenatal care.

The Blessingway, the only major ceremony used routinely for pregnant women, is traditionally performed as the woman approaches her time to deliver. It is widely used for many situations in addition to pregnancy and is felt by many to be the cornerstone of the Navajo ceremonial system (Kluckhohn and Leighton 1962; Bailey 1950; Begay 1985). The ceremony places the recipient in tune with the Holy People who created mankind. Its stories deal with birth and beginnings and were given to Navajo people by Changing Woman in part to facilitate their ability to give birth (Begay 1985).

The birth itself traditionally took place at home. Usually this was in the hogan, the Navajo dwelling with its eight sides and hard packed dirt floor, but it might also have taken place outside or in the summer shelter. In preparation, the parturient's husband or the female birth attendant prepared a surface for the labor and delivery. A shallow trough was dug in the hogan's floor, spread with warm sand and covered with a sheepskin. The sheepskin offered a place to kneel during labor and delivery and a surface to catch the amniotic fluid, blood and placenta. This birth discharge was felt to be dangerous and could cripple any person or animal coming into contact with it. There was also fear that it could be used for witchcraft. Great care was therefore taken to properly dispose of it after the birth¹ (Lockett 1939; Bailey 1950; Begay 1985).

A red woven sash was hung from a beam in the ceiling or from a special pole propped in place to support it. This sash was knotted and held onto during the late stages of labor and the birth.

The birth was generally attended by the husband and various female friends and family members. Bailey (1950) points out the strong tradition of mother-in-law avoidance which made assistance by both a woman's mother and husband unlikely. Among the women she interviewed, however, the majority indicated that if both husband and mother could not be present, they preferred to be attended by their husband.² A midwife also attended as did a medicine man if the parturient had not had a Blessingway prenatally or if complications required his attendance. Lockett (1939) and Begay (1985) make the point that the midwife was most often a family member with some experience in assisting at childbirth but who did not practice midwifery as her full time occupation. When labor was complicated, however, there were women with more acknowledged expertise who could be called on (Begay 1985). Except for the prescribing of herb tea in the prenatal period the midwife

generally provided no prenatal nor postpartum care. The seeking of prenatal help would have violated taboos against expressing concern about a possible adverse outcome (Begay 1985).

At the start of labor, the parturient was again given a tea made from local herbs. She disrobed, except for a few loose skirts, removed her jewelry and unbound her hair. The sash was prepared with corn pollen as directed by Changing Woman in the origin legend. This same pollen was placed in the parturient's mouth and on her body. To hasten labor those in attendance unbound their hair—ritually untying knots had the opposite effect of tying them. If a medicine man had been summoned he might perform portions of the Blessingway. He might ceremonially brush down the woman's body with an eagle feather or perform further untying by unravelling a rope prepared with slipknots over her abdomen while chanting songs from the Blessingway.

If labor was prolonged these rituals were repeated. The medicine man or midwife would direct the further unbinding of any object in the room which might be prolonging the labor. The act of untying extended to the untethering of any horses or other bound livestock in the area. Ultimately, the knot in the sash belt could be untied. Herbal teas were also used to hasten labor (Lockett 1939; Leighton and Kluckhohn 1947; Bailey 1950; Begay 1985).

If the presentation was other than vertex, one skilled at turning the baby was summoned. If malpresentation had been recognized prenatally, a midwife might have been consulted prior to labor to turn the baby³ (Lockett 1939; Bailey 1950).

As active labor proceeded, the mother-to-be knelt with her knees apart on the sheepskin while holding onto the sash above the knot. Her husband or other assistant put his arms around her and supported her from behind. As the final pains began, he applied gentle downward pressure on the abdomen rhythmically with the contractions to aid in the expulsion of the child (Bailey 1950; Leighton and Kluckhohn 1947). The Franciscan Fathers of St. Michaels, Arizona, writing in 1910, present a variation on the use of the sash belt. They indicate that the woman sat during labor "supported by means of a stout cord suspended from one of the beams, and passed under her arms and about her waist" (1910:450). Reichard (1928) also describes the sash as being tied around the parturient rather than as a support to hold onto. In her description, two women supported the parturient, one holding her hips and the other her knees. The midwife knelt in front to receive the baby.

To facilitate the removal of the placenta and to keep the umbilical cord from retracting into the womb, a grinding stone was tied to it. Both Lockett (1939) and Bailey (1950) report that if the placenta did not come out within 1½ to 2 hours a sticky salve was made from the prickly pear cactus which the midwife or medicine man would apply to his/her hands and attempt to remove the placenta manually. Begay (1985) reports that her informants had never heard of this practice.

After the placenta was delivered, the cord was cut and the baby was bathed with yucca suds (Reichard 1928). The baby was then swaddled, and warmed by the fire (Bailey 1950; Begay 1985). The bath water was carefully disposed of by pouring it into a deep hole. It was considered dangerous since it contained some of the discharge of the delivery (Bailey 1950; Leighton and Kluckhohn 1947). Naming of the baby did not take place for several days to months after its birth. When the umbilical stump fell from the baby it was carefully buried in a symbolic place that

would direct the baby's future, i.e., for a boy it might be buried near the corral, for a girl, the loom.

Immediately after birth the midwife bound the new mother's abdomen using the same sash that supported her in labor. Warm juniper branches or a pillow were bound in the sash. This reversal of the unbinding practiced during labor was felt to return the woman to normal (Begay 1985). Lacerations of the birth canal were treated with topical herbal remedies and/or ceremonies but were otherwise left to heal on their own (Bailey 1950). If the new mother had chloasma, the increased facial pigmentation often seen in pregnancy, the infant's first stool was placed on her cheeks and allowed to dry. This was said to hasten the fading of the pigmentation (Bailey 1948, 1950; Reichard 1928; Kluckhohn and Leighton 1962; Begay 1985).

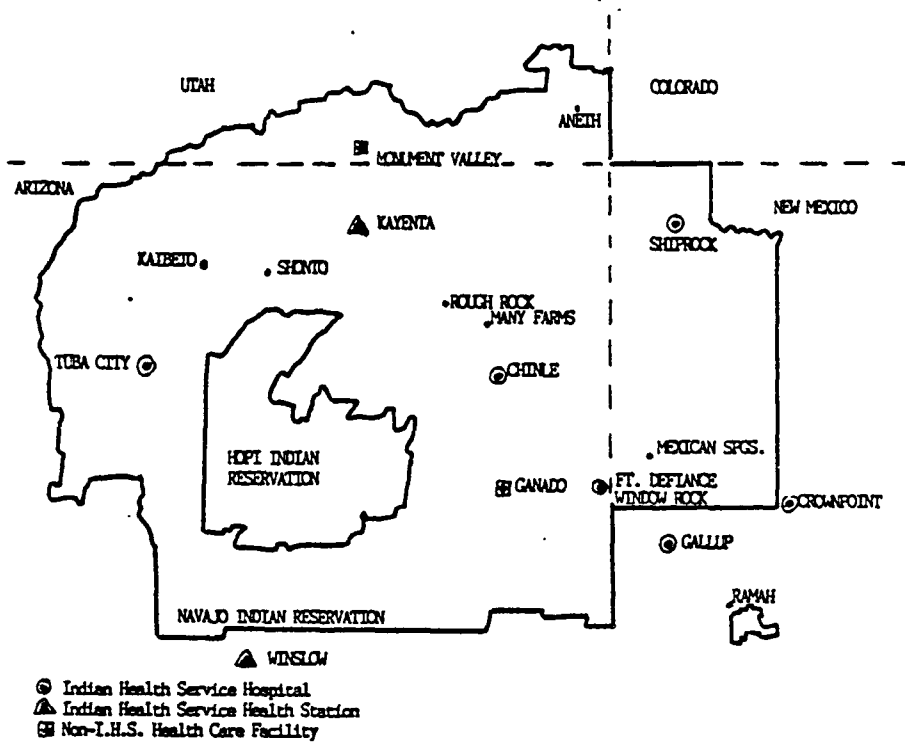
HOSPITAL BIRTHS AND THE INTRODUCTION OF PRENATAL CARE

While a small number of physicians brought the practice of Western medicine to the Navajo Reservation as early as 1880, the first hospitals did not open on the reservation until 1900 (Adair, Deuschle, and Barnett 1988; Kunitz 1983). By 1955, when responsibility for Indian health was transferred from the Bureau of Indian Affairs to the Public Health Service, the new Indian Health Service assumed responsibility for five hospitals for Navajos plus one serving the Hopi Reservation which also cared for Navajos. Medical care was also provided by mission hospitals at Ganado, Gallup, and Monument Valley (see Map 1).

As with mainstream America a half century earlier, many Navajos in the early 20th century saw the hospital as a place to go only to die (Leighton and Leighton 1944). Many avoided hospital care until their disease was far advanced and presented to emergency rooms only after more traditional avenues of care had been exhausted. In cases with pregnancy complications, this frequently meant a protracted labor, retained placenta, or eclamptic seizures ensued before the unfortunate parturient presented for medical care (Bailey 1950). By then death was an all too frequent outcome.

Since the hospital was seen as a place of death, it was also feared as a place to contract "ghost sickness," illness caused by contact with spirits of the dead (Kluckhohn and Leighton 1962). McCammon, writing of his experiences as an obstetrician at the Navaho Medical Center from 1948 to 1950, observed that his obstetric patients frequently signed themselves out of the hospital upon learning that a stillbirth or infant death had occurred in the building. He noted, further, that following such an occurrence, obstetric admissions commonly declined for the next two or three weeks (McCammon 1951).

Unlike the use of hospital care for complications of pregnancy, the use of hospitals for uncomplicated childbirth has occurred only recently. For example, only 52% of the 286 births to women in the Rough Rock—Many Farms area in the center of the reservation between 1956 and 1959 occurred in the hospital (McDermott 1960). Based on two surveys of women in the Tuba City Hospital catchment area (Slocumb and Kunitz 1977; Begay 1985), it is clear that the shift in that area from predominantly home-centered births to mostly hospital births took place during the 1940s. By 1969, all births to surveyed women had occurred in the hospital (Slocumb and



Map 1. Navajo Indian Reservation, 1988 Boundaries.

Kunitz 1977; Begay 1985) (Figure 1). By the late 1980s, the number of births in NAIHS hospitals averaged about 5,000 per year (Milligan 1985, 1989).

Prenatal care, as a part of the package of medical childbirth, has been encouraged by IHS hospital providers and community health personnel. Its widespread acceptance was hindered by logistic factors such as distance to clinics and long waits to see a doctor as well as the influence of the traditional proscriptions.

The first prenatal clinic at the Navaho Medical Center in 1948 attracted 40% of the women who ultimately delivered there (McCammon 1951). The clinic run by the Navajo-Cornell University Field Health Research Project⁴ at Many Farms from 1957 to 1961 was utilized for prenatal care by 54% of the 486 pregnant women in that community. Of those visiting the clinic for prenatal care, however, 43.4% did not do so until the last trimester of pregnancy (Loughlin 1965; Adair, Deuschle, and Barnett 1988). By 1968–71, the proportion of women delivering at the Fort Defiance Hospital having prenatal care had increased to 81.7%, of whom, 61.3% were seen in the first two trimesters (Slocumb and Kunitz 1977).

Prenatal care is much more the norm today. Ninety-five percent of childbearing women have at least one prenatal visit (Milligan 1989). Women who are more traditional in their orientation toward Navajo religious beliefs and healing practices are just as likely to use prenatal clinics as are less traditional women (Boyce et al. 1986). It is estimated, however, that 25% still wait until the last trimester to begin

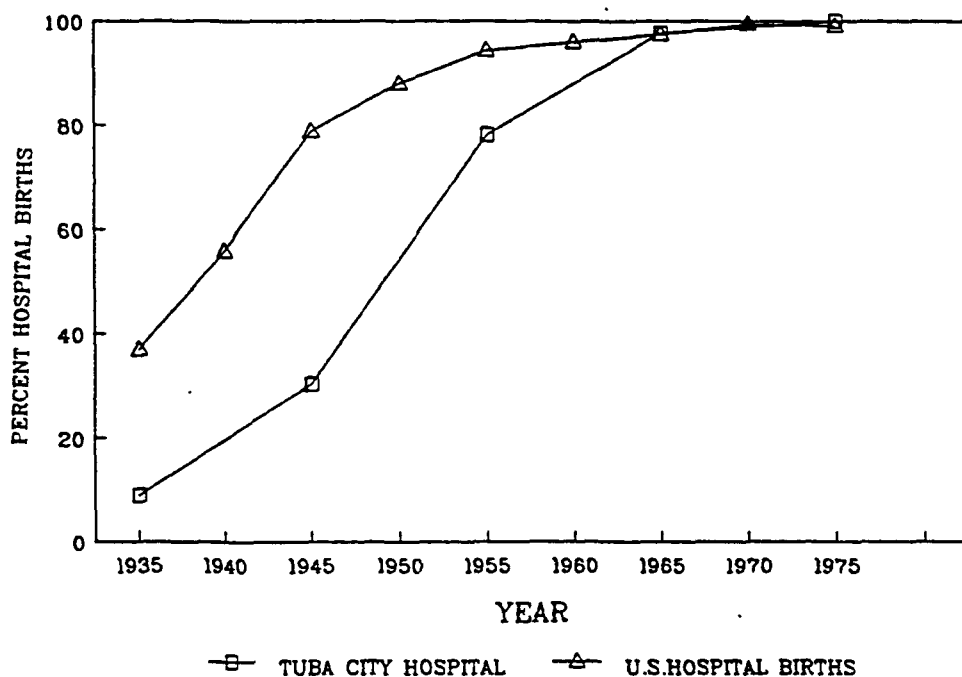


Figure 1. Percent of births in hospitals, Tuba City Hospital vs U.S. All races, 1935-1975. Tuba City data adapted from Slocumb and Kunitz (1977). Ten year averages centered at mid-decade. Source: U.S. all races. U.S.D.H.E.W. (1954), NCHS (1988b).

prenatal care (Milligan 1985) compared with 4% of American women in general (Brown 1988).

Begay (1985) suggests that for some modern Navajos prenatal care at IHS clinics may be used as a substitute for the more expensive Blessingway ceremony. She hypothesizes that the clinic visit might take the place of the Blessingway by "increasing positive thoughts and ensuring that things go well during childbirth" (Begay 1985: 110).

THE ACCEPTANCE OF BIOMEDICAL OBSTETRIC CARE

A number of social and economic factors interacted to make the biomedical approach to pregnancy and childbirth acceptable to Navajo women in the years following the start of World War II:

1. Reservation dwellers increasingly became exposed to and accepted the values of the dominant American society

With World War II and the decades that followed, there was a marked reduction in the physical and cultural isolation of the Navajo Reservation. Roads, radios, and ultimately television brought exposure to the social, cultural, and

material values of Anglo-America to all but the most remote parts of the reservation. With this relative loss of isolation, Navajos began to look at health care and childbearing in a different way.

Many Navajos served in the armed forces during World War II and, cut off from traditional healers, saw the efficacy of Western medicine. Many others worked in war-related industries and were exposed to life beyond the borders of the Reservation. In addition, postwar urban relocation programs further exposed Native Americans to the material culture of Anglo-Americans, accelerating acculturation. At the same time, in reservation hospitals, the government's physicians demonstrated greater ability to cure diseases, especially those caused by infectious agents. Navajos in the 1940s, like urban Americans at the turn of the century, began to see medical care as safe and efficacious (Adair, Deuschle, and Barnett 1988; Strauss and Chadwick 1979; Deloria 1981).

Aberle, in his 1953 study, demonstrated the influence of physical isolation and degree of acculturation on the use of hospitals for childbearing. He interviewed a random sample of women in Aneth, Utah and Mexican Springs, New Mexico, two Navajo communities very different in their degree of physical isolation and the acculturation of their residents. For Aneth residents the journey to the hospital required a 55 mile ride to Shiprock, more than half of the distance over unpaved dirt/mud roads. Mexican Springs, on the other hand, was three miles from a paved highway and 38 paved miles from the Navaho Medical Center at Fort Defiance. Furthermore, residents of Mexican Springs had only a 19 mile ride to Gallup where many had jobs and where a mission hospital was available for medical care. Not surprisingly, only 25% of the women interviewed in Aneth had ever delivered in a hospital, while 66% of those from Mexican Springs had had at least one hospital birth (Aberle 1982).

Loughlin (1965) suggests that in the late 1950s and early 1960s, many better-educated Navajo women who lived in towns found going to the hospital to deliver a more convenient option than returning to the family hogan located in a more remote part of the reservation. She notes, also, that many of the more acculturated young women preferred hospital delivery because it "removed the necessity for observing the taboos which many now find tedious" (Loughlin 1965:56).

2. Hospital delivery held the promise of safer, more comfortable childbirth

Like Anglo women of the 1920s, many Navajo obstetric patients in the 1940s and 1950s, especially those pregnant for the first time, were drawn to hospitals by the opportunity to receive pain medications during labor (McCammon 1951; Begay 1985). Other women came because they had had problems with previous pregnancies. In the 1960s Navajo area IHS hospitals gave away free "layettes" containing blankets, feeding utensils, small plastic tubs for bathing the infant, and other items for newborn care. This gift obviated the need for preparing in advance for the infant and as such was seen as a benefit of hospital birth (John C. Slocumb, personal communication, 1989). And, as McCammon (1951:1160) observed, "Many women frankly admitted that during the winter months they came to the hospital because it was warm and they were served acceptable food and had the use of inside toilets." This is a situation analogous to the urban woman of the 1920s viewing the hospital as "hotel."

3. As hospital births became more common, it became harder for young women to learn the rituals of childbirth at home

The increased use of boarding schools on the Reservation deprived young Navajo women of a major opportunity to learn about traditional childbearing practices. Before the 1950s young Navajo women were familiar with childbirth prior to becoming pregnant themselves, having watched and helped as their younger siblings, nieces and nephews were born. As more and more children went away to boarding schools, however, they became cut off from this source of learning. Delivery in the hospital setting, then, while unfamiliar, was not made more foreign by contrast to a home birth tradition they had never known (Begay 1985).

Moreover, in the 1980s fewer and fewer family matriarchs can share firsthand knowledge about traditional childbirth practices. No longer the repository of knowledge about traditional childbirth, the mothers of today's parturients very likely delivered in hospitals themselves, as did many of their own mothers.

4. The practitioners of traditional healing began to decline in number

The number of medicine men and women qualified to conduct ceremonies has declined since the 1930s. Henderson documented the decline in the relative numbers of medicine men in the Kaibito plateau region over the past fifty years, estimating that the ratio of singers to general population has decreased from 1:30 in the 1930s to 1:50 in the 1950s to 1:175 in the 1980s (1982: 167). In addition to the decrease in number of ceremonial singers per capita, there is a paucity of young men and women among their ranks.

Adair, Deuschle, and Barnett (1988) made similar observations in Many Farms in 1961. Eighty-eight percent of medicine men in that area were 50 years of age or older, and there were only six in training.

The greater acceptance of Western values has been both a cause and an effect of this decline. As the reservation's economic base moved primarily from livestock and subsistence farming to cash, few young men could afford the time and money needed to apprentice with an established medicine man and master the required rituals. The apprenticeship for a major ceremony might last as long as eight years (Kunitz 1983; Adair, Deuschle, and Barnett 1988; Henderson 1982). Furthermore, with Navajo youth spending much of their time away at day schools or boarding schools, and with increasing competition from Christian religions and the Native American Church, fewer have been motivated to pursue the training required to become medicine men (Adair, Deuschle, and Barnett 1988).

Both Henderson and Adair, Deuschle, and Barnett indicate an increased propensity for medicine men to learn and use abbreviated versions of ceremonies. Further, with the decrease in new medicine men, some ceremonies are becoming extinct as no new apprentices train to learn them⁵ (Adair, Deuschle, and Barnett 1988; Kunitz 1983; Henderson 1982).

While most medicine men can perform the Blessingway (Begay 1985; Henderson 1982), it is unknown how many can assist with pregnancy or childbirth. Furthermore, as Begay (1985) notes, the need for traditional Navajo midwives ceased to exist as the locus of childbirth moved exclusively to the hospital. She states that to her knowledge none are still practicing (1985:149).

5. The Navajo healing tradition tolerated the concomitant use of Western medicine

The use of non-Navajo healing practices, such as biomedicine, was never incompatible with Navajo healing. It was not unusual for Navajos to use curing techniques and rituals borrowed from other tribes or to seek a healing ceremony outside of the tribe. The traditional Navajo healing system addresses itself to the etiologies of sickness. Symptomatic relief, on the other hand could be acceptably obtained from non-traditional sources such as Western doctors, Native American Church Road Priests, or Hopi medicine men (Adair, Deuschle, and Barnett 1988; Kunitz 1983).

Researchers of the Navajo-Cornell University Project in the 1950s found that medicine men and Western doctors were able to coexist non-competitively, neither gaining patients at the expense of the other. They found medicine men among their clinic patients, and they noted that some of their patients were referred by medicine men (Adair, Deuschle, and Barnett 1988).

The parallel use of Navajo and Western religious and curing systems persists into the 1980s and can be seen in beliefs and practices related to pregnancy and childbirth. Milligan (1984), in her study on traditionality and nursing care, questioned 479 expectant Navajo women who attended IHS prenatal clinics in 1980. Seventy-five percent of her respondents indicated that they followed the "Navajo Way." Overlapping, however, 59% considered themselves Christian, 24% Mormon, and 49% subscribed to the Native American church. In spite of their use of prenatal care, her respondents held a high degree of adherence to traditional pregnancy-related beliefs and practices. Almost 80% of her respondents used corn pollen. Fifty-eight percent planned to have a Blessingway. Eighty-two percent indicated they would use a cradle board. Ninety-three percent planned to use the umbilical stump and 45% agreed with the taboo against tying knots.

Those caring for Navajo women during childbirth in IHS hospitals still see signs of the persistence of traditional practices. Meconium is occasionally seen drying on the cheeks of a primiparous new mother with chloasma. Outward preparations for the new family member are usually not made until after the birth. For example, the majority of women will not have chosen a name for the baby until after it is born. Baby clothes and blankets are seldom purchased ahead of time, nor to the chagrin of public health workers, is that modern correlate of the cradleboard, the infant carseat.

6. Those caring for Navajos tried to provide medical care that was culturally acceptable to the Navajo people

Analogous to the marketing of U.S. hospitals at the turn of the century, efforts have been made since the 1940s to make hospital care acceptable to pregnant Navajos (Leighton and Leighton 1944; Bailey 1948). This effort got its first big push with the work of Leighton and Leighton who in 1944 encouraged Indian Service health professionals to learn about Navajo culture and beliefs and include what they had learned in their practice. Today, traditional Navajo foods, such as stew, fry bread, blue corn meal mush are regularly served by hospital dietary departments. And while Leighton and Leighton (1944:64) observed, "certainly it would be impractical in most cases to have ceremonials performed in the hospital building," medicine men are now frequent attendants at the bedside of ill patients including, on occasion, helping with an unraveling ceremony for

protracted labor. Herbal medicines, too, are not infrequently brought by family members for a hospitalized patient.

New hospitals built at Chinle in 1983 and Crownpoint in 1987 have hogan-shaped ceremonial healing rooms, though they have not yet attracted widespread use among the area's traditional healers. The Chinle hospital has also introduced a hanging sash in the birthing rooms. While most of the new mothers are too young to have been exposed to a traditional hogan birth, some and many of the older parturients prefer to hold on to the sash during the latter stages of labor (Park W. Gloyd, personal communication, 1988).

NAVAJO OBSTETRICAL CARE TODAY

The Navajo population is young, half under 19 years of age. A sizable proportion is in or approaching the reproductive years. The crude birth rate averaged 31-34 per 1000 population during the years since 1975, with the 1988 reservation Indian population estimated at 181,282. As in-hospital births are now the norm, it is not surprising that conditions related to pregnancy, childbirth, and the puerperium are the leading cause of hospital admission and account for 39.6% of all admissions to Navajo Area IHS hospitals (NAIHS 1988).

Childbirth for Navajos today is difficult to distinguish from delivery at most modern American hospitals. Fully trained obstetricians-gynecologists are on the staffs at the IHS hospitals in Gallup, Fort Defiance, Shiprock, Chinle, and Tuba City. Fetal monitors are widely used in Navajo Area IHS hospitals as are IVs. Labor is induced or augmented as indicated in 26% of cases and 12% of newborns are delivered by Cesarean section (Waxman 1988; Milligan 1989). One respect in which delivery on the Navajo reservation differs from the American experience in general is the extensive use of certified nurse midwives. They attend 43% of Navajo Area births (Milligan 1989). By comparison, only 2.4% of U.S. births are attended by midwives, a figure that includes lay midwives as well as nurse midwives (U.S. National Center for Health Statistics 1988b).

The more serious complications of pregnancy are managed through a system of regionalized care that utilizes patient transfer to facilities of increasing levels of medical expertise. Women felt to be at low risk for complications may be cared for at hospitals staffed by family practitioners, such as those at Crownpoint or Winslow. Should problems arise, they are transferred to NAIHS facilities with obstetricians. In situations requiring neonatal intensive care or more sophisticated perinatal support, off-reservation medical centers are utilized. Patient transfer within the Navajo Area may require journeys of up to 120 miles by ambulance or aircraft. Off-reservation medical centers may be as far as 300 miles away in Albuquerque, Phoenix, or Tucson. In 1987, 261 women were transported from smaller hospitals to the obstetrics service of the Gallup Indian Medical Center, the major referral hospital for the reservation. That year, 1341 women delivered there. An additional 16 patients required transfer from Gallup to university medical centers in Albuquerque or Tucson (Waxman 1988).

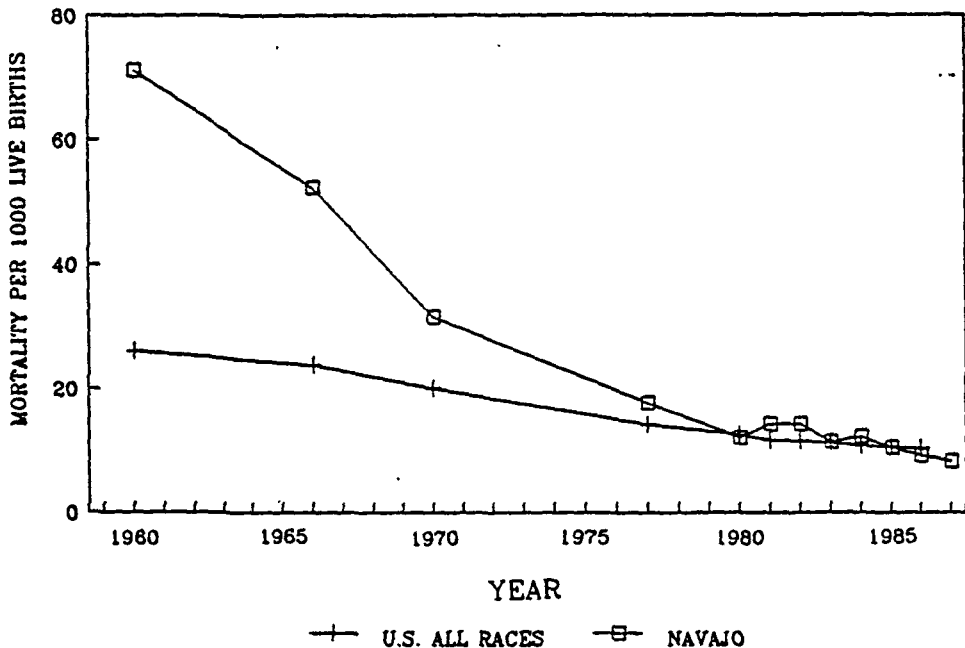
The technologic advantages offered by regionalized obstetric care are not without cost, however. Such patient transfers take a woman farther from her home and

family than she may have ever been. Family members frequently cannot make the trip to be with her, and in some cases, a premature infant born in a distant city must be left there after its mother's discharge to sufficiently grow so that it can be safely moved to a reservation hospital or discharged home.

As the traditional ways of labor and delivery have been superceded by the biomedical approach, indicators of maternal and infant health have shown marked improvement. Some of this improvement can be appropriately attributed to the application of medical technology. It also results, however, from improved socioeconomic conditions and from improvements in preventive services.

Infant mortality for all Indians in the U.S. dropped from 90% above the national average at the turn of the century to below the national average by 1985 (U.S. Medicine 1987; USPHS 1989). Among Navajos, neonatal mortality declined from 24.9 per 1000 live births in 1955 (Kunitz 1983) to 4.2 in 1987 (Milligan 1988). It has been below the U.S. rate throughout the 1980s. The Navajo infant mortality rate while declining dramatically over the past two decades, did not fall consistently below that of the U.S. for all races until after 1985 (Figure 2) because of the higher rate of postneonatal death (Milligan 1988; Kunitz 1983: 83).

The disparity between Navajos and the rest of the U.S. in the proportion of the infant mortality rate derived from neonatal vs. postneonatal deaths can be seen in Table I. While the two components of infant mortality are declining for both the U.S.



NAVAJOS ON OR NEAR NAVAJO RESERVATION

Figure 2. Infant mortality rates, Navajo and U.S. All races, 1960-1987. Sources: NAIHS 1960-1980, Kunitz (1983). 1980-1987, Milligan (1988). U.S. All races 1960, NCHS (1988c). 1966-1977, USPHS (1989). 1980-1987, NCHS (1988).

TABLE I. Comparison of U.S. and NAIHS neonatal and postneonatal mortality rates.
Rates are per 1,000 live births. NAIHS—Navajo Area Indian Health Service.

Year	Neonatal		Postneonatal		Neonatal/Postneonatal Ratio	
	NAIHS	U.S.	NAIHS	U.S.	NAIHS	U.S.
1960	20.8	18.7	50.3	7.3	0.41	2.56
1966	19.3	17.2	33.0	6.5	0.59	2.65
1970	14.9	15.1	16.6	4.9	0.90	3.08
1977	8.7	9.9	8.9	4.2	0.98	2.36
1980	4.3	8.4	7.7	4.1	0.56	2.05
1981	4.1	7.8	10.1	3.8	0.41	2.05
1982	5.0	7.6	9.2	3.6	0.54	2.11
1983	5.8	7.3	5.4	3.9	1.07	1.87
1984	4.8	7.0	7.4	3.8	0.65	1.84
1985	4.8	7.0	5.7	3.7	0.84	1.89
1986	3.9	6.7	5.4	3.6	0.72	1.86
1987	4.2		4.1			

Sources: Kunitz (1983), USPHS (1989), Milligan (1988), NCHS (1988).

and its Navajo subset, the postneonatal mortality rate among Navajo infants has stayed approximately twice the neonatal rate throughout the 1980s. In the U.S. as a whole, on the other hand, the neonatal mortality is about twice the postneonatal rate. The decline in postneonatal mortality is largely a reflection of socioeconomic and environmental improvements, while declining neonatal mortality is more a function of access to hospitals and technologic advances in the neonatal care (Kunitz 1983; McCormick 1985). The different directions of the ratio of neonatal to postneonatal mortality seen in U.S. and Navajo infants indicates that while Navajo newborns have received the benefits of modern perinatal technology to the same degree as other American neonates, their families remain more subject to the effects of low socioeconomic status, e.g., high unemployment, poor sanitation, and low educational attainment.

Navajo maternal mortality has also decreased dramatically since hospital births have become the norm, though it still remains somewhat higher than that of the U.S. as a whole. Leighton and Kluckhohn (1947) estimated the Navajo maternal mortality ratio to be 1,000 maternal deaths per 100,000 live births in the early 1940s. This compared with 270 for the U.S. at the time. Historical maternal mortality data for Navajos, however, are limited to anecdotal accounts imprecise in both the number of deaths and the correct number of live births. For example, Bailey (1950:32) tells of one known maternal death in 57 known births from Ramah. McCammon (1951), in his series of 475 hospital births at the Navaho Medical Center in 1948–1950, included two deaths, one from tuberculosis and another from congestive heart failure. He lists a third death, from tuberculosis, in a woman giving birth at home.

Slocumb and Kunitz note that between 1940 and 1945, toxemia and sepsis were the most common causes of Indian maternal death followed closely by hemorrhage. In the years since World War II, with the advent of antibiotics and increased use of

hospitals, sepsis has declined in importance as a source of maternal mortality although, as noted below, it is still a factor (Slocumb and Kunitz 1977).

In the past eight years (fiscal years 1981–1988), there were eight obstetrically related maternal deaths among Navajo women using Navajo Area Indian Health Service hospitals and NAIHS contract facilities⁶ (Waxman unpublished). During this period there were approximately 40,900 live births in NAIHS and contract hospitals, for a ratio of 19.6 maternal deaths per 100,000 live births. This compares with 1986 maternal mortality ratios of 7.2 for U.S. all races and 16.0 for non-whites⁷ (U.S. National Center for Health Statistics 1988). Figure 3 shows the decline in Navajo and U.S. maternal mortality since 1969. Toxemia, hemorrhage, and sepsis remained the major causes of maternal death in the 1980s, as in past decades. Tuberculosis, the major cause of death in McCammon's series, was a factor in one recent eclampsia-associated death.

The change in Navajo birthing practices may have had an effect on perinatal morbidity not reflected in the mortality data. Acculturation is known to be associated with a number of adverse health consequences including, in different populations, hypertension and altered distributions of cancer (Boyce et al. 1986; McElroy and Townsend 1984). It is not unreasonable to speculate that acculturative stressors may contribute to complications of childbirth as well. Stress from other sources has been proposed as a cause of pregnancy-related complications, although attempts at

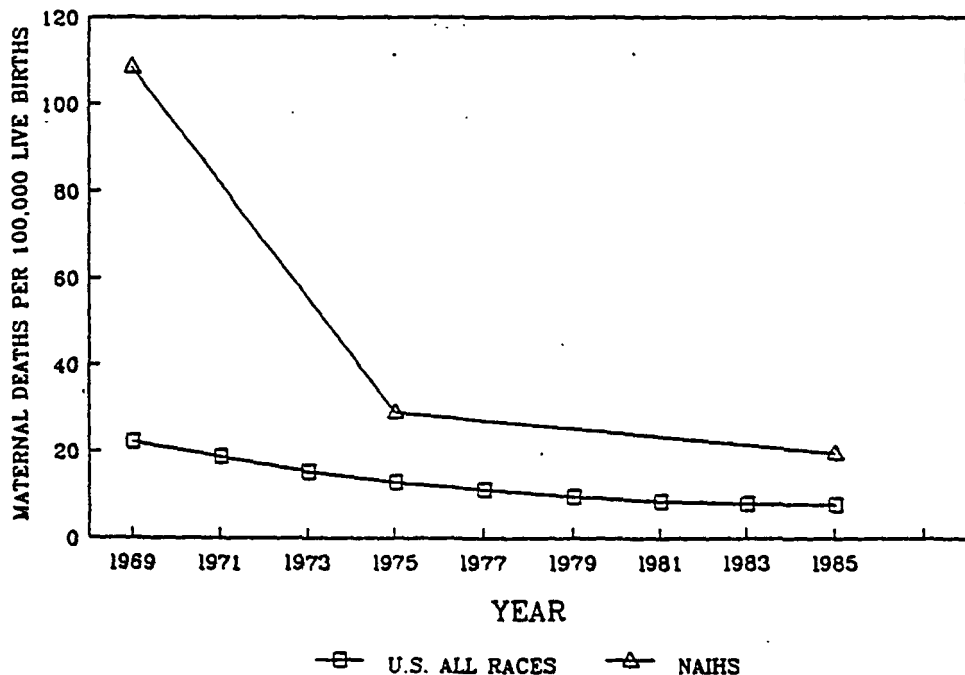


Figure 3. Maternal mortality rates, Navajo and U.S. All races, 1969–1985. NAIHS—Navajo Area Indian Health Service. NAIHS data is multiple year rates centered on the year specified. Sources: NAIHS 1969 and 1975, Kunitz (1983). 1985, Waxman (unpublished). U.S. All races, NCHS (1988c).

confirming a relationship have been inconclusive (Nuckolls, Cassel, and Kaplan 1972; Chalmers 1983; Dinnerstein and Burrows 1983; Klaus 1986; Molfese et al. 1987).

Two recent studies by Boyce et al. (1986, 1989) show an effect of acculturative stress on pregnancy outcome in Navajo women who adhere to traditional pregnancy-related beliefs and practices. Traditionality was measured using a modification of the instrument developed by Milligan (1984). Traditionality was based on five factors: 1) religious preference: Navajo Way, Christianity, Native American Church; 2) use of corn pollen in ritual observances; 3) use of traditional healers; 4) having had a Kinaalda (puberty ceremony); and 5) planning a Blessingway for the baby. After controlling for socioeconomic status, established obstetric risk factors, and other possible confounding variables, the authors found a significant positive association between traditionality and maternal complications with the most "traditional" women having twice the rate of complications of their least "traditional," most acculturated counterparts. There was no association with neonatal outcome. In trying to explain this relationship, they suggest that a high degree of traditionality might be a marker for social isolation or some other social stressor which affects pregnancy outcome (Boyce et al. 1986). They also found the interaction between traditionality and cervical colonization with the microorganism, *Mycoplasma hominis*, significantly associated with premature rupture of the membranes and with endometritis. Neither variable alone was a significant risk factor. To explain this specific case of increased infectious morbidity, they hypothesized that acculturation may place a stress on a woman's immune system making her more susceptible to infection in the presence of a potential pathogen (Boyce et al. 1989). Their findings suggest that at least for Navajos, the maintenance of traditional beliefs and religious practices in the face of a rapidly changing society may adversely affect pregnancy outcomes.

IMPACT OF THE TRANSITION

In the foregoing discussion I have shown the transition that has occurred in the childbearing practices of Anglo and Navajo women during this century. In the process of change there have been gains and losses. The loss of control over the birthing process experienced by women with the relocation of childbirth into the hospital environment has, for some, been a source of stress and dissatisfaction (Jordan 1978). However, there will never be a return to delivery at home for the majority of women, Navajo or non-Navajo. The perception of what technology can offer and the desire for a perfect pregnancy outcome will not permit it.

The improvement in maternal and perinatal morbidity and mortality both on and off the Navajo Reservation during this century have been remarkable. While much of it is a consequence of improved sanitation, nutrition, and general standard of living, much of the improvement must also be attributed to the medicalization of childbirth and especially the acceptance of prenatal care. Prenatal diagnosis and treatment of maternal conditions, prevention and treatment of puerperal sepsis, safety of operative deliveries, improved survival of sick and premature newborns are all largely the products of medical technology. For Navajos the gains are made

more impressive by the magnitude of the mortality to mothers and infants just a few decades ago.

For most Navajo women living on or near the reservation, the new rituals of pregnancy and childbirth represent a compromise; some of the traditional beliefs and practices have been retained, even as the practices of Western obstetrics are being accepted. As the studies by Boyce et al. (1986, 1989) suggest, however, those women who adhere most steadfastly to the traditional taboos and rituals of pregnancy may not find the compromise working to their advantage, with increased morbidity a result. As Navajo society changes, however, the developing admixture of the traditional beliefs and practices with those of biomedicine appear to be developing the internal consistency and interdependence necessary to serve the majority of today's Navajo women quite well.

NOTES

The opinions expressed in this paper are those of the author and do not necessarily reflect the views of the Indian Health Service.

1. The bundle containing the afterbirth was either buried or disposed of in a shady place or in a tree (Bailey 1950; Lockett 1939). In moving the locus of delivery into the hospital, the responsibility for disposal of these dangerous products was transferred from the involved family members to hospital personnel. This was for some a drawing card for hospital delivery with the reassurance that these tissues would be incinerated (John C. Slocumb, personal communication, 1989).
2. Aberle (1982) found the practice of mother-in-law taboo to be the exception by the time of his 1953 study, with only 11% of his respondents observing the taboo.
3. Two methods were utilized. One, direct abdominal manipulation was not unlike external cephalic version as practiced in modern obstetrics. The other involved propping the woman with hips elevated, holding her legs and gently shaking until the baby was turned to the proper position. Songs from the Blessingway were also frequently chanted during these maneuvers (Lockett 1939; Leighton 3 and Kluckhohn 1947; Bailey 1950).
4. This project, organized jointly by the Cornell University Medical College, the Navajo tribe, and the U.S. Public Health Service included among its objectives the development of culturally acceptable methods of delivering Western medical care to Navajo people. Its affiliated clinic in Many Farms functioned from 1957 to 1961 (Adair, Deuschle, and Barnett 1988).
5. In an attempt to reverse this trend, the National Institute for Mental Health funded a school for medicine men from 1968–1983. Most of the trainees were older than fifty, however, and many were already accomplished singers enrolled for a refresher or to learn additional ceremonies. The program graduated 104 medicine men and women over its thirteen-year life (Adair, Deuschle, and Barnett 1988; Frisbie 1987).
6. A ninth maternal death involved a Navajo woman living and working on a neighboring Apache reservation.
7. An important difference in definition between the Navajo and NCHS data should be born in mind when comparing the two ratios. NCHS defines a maternal death as any occurring within 42 days of the termination of the pregnancy. The deaths reported to the NAIHS all were in women who died without having been discharged from the hospital following the delivery or termination of their pregnancies. If any deaths occurred after a patient had been discharged they may have escaped reporting, and the difference between Navajo and NCHS maternal mortality ratios would be understated.

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