Chapter 5 - Newborn Health

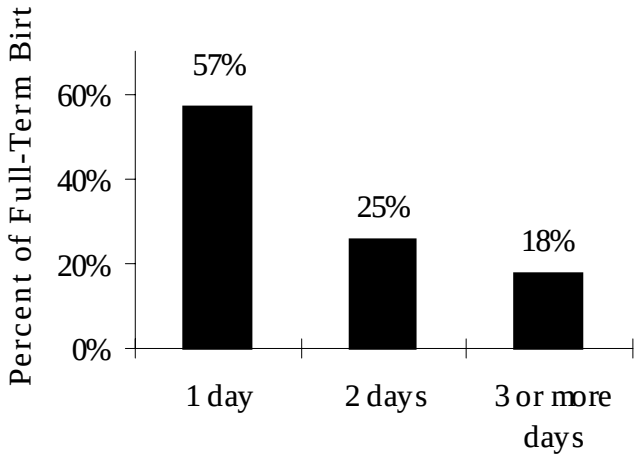
Infant morbidity and mortality are critical indicators of a community's health status. Chapter 5 identifies issues relating to the health and well-being of infants, especially newborns. It is intended to be a brief overview of health status indicators for infants. Topics identified in chapter 5 include newborn hospital stay and medical charges, newborn health care, newborn screening, newborn nutrition, birth defects, and causes of infant mortality.

Newborn Access to Care

Newborn Hospital Length of Stay

The average length of stay in a hospital following a vaginal birth declined by 46% between 1970 and 1992 in the United States according to the Centers for Disease Control and Prevention (Utah trend data are not available).[1] Most infants born in Utah during 1995 stayed in the hospital one day (Figure 5.1). This decline in the length of stay has been mainly financially driven by third party payers limiting coverage to less than a 48-hour postpartum (2 days immediately after birth) stay. This concerns families and health care providers since the first 48 hours of life is a critical time in the newborn period. Many problems such as heart or respiratory disorders become apparent in the first 12 hours of life as the baby transitions to life outside the uterus. However, problems such as jaundice, some heart defects, infections, and bowel obstruction may not be apparent in the first 12 hours.[2] The American Academy of Pediatrics Committee on Fetus and Newborn recommends that certain minimum criteria regarding each newborn's physical and psychosocial well-being be established prior to discharge. A short 12 or 24 hour stay may not be enough time to allow these criteria to be met.[2]

Figure 5.1 Length of Hospital Stay for Newborns: Utah, 1995



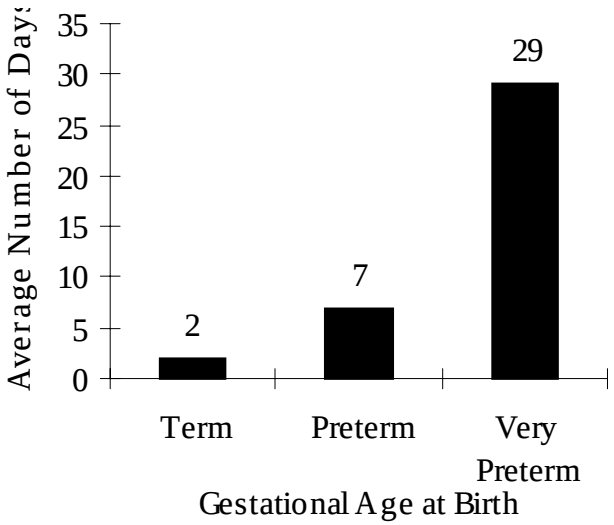
Source: Hospital Discharge Public Query Internet database, Office of Health Data Analysis, Utah Department of Health

New federal legislation in effect January 1, 1998 requires insurers and group health plans that offer maternity insurance (maternal and newborn care) to cover a minimum of 48 hours of hospital care following an uncomplicated vaginal delivery and 96 hours following an uncomplicated cesarean section delivery. The decision for a shorter hospital stay will be determined by the physician and the mother and be based on individual circumstances rather than cost.

Utah hospital discharge data (1995) indicate that very preterm infants stay in the hospital an average of 27 days longer than fullterm newborns (Figure 5.2). A normal pregnancy lasts about 40 weeks of gestation. A newborn's average hospital stay lengths depend on the infant's gestational age at birth:

- fullterm (more than 37 completed weeks of pregnancy) stay 2 days;
- preterm (at least 30 but under 37 completed weeks of pregnancy) stay 7 days; and
- very preterm (under 30 completed weeks of pregnancy) stay 29 days.[3]

Figure 5.2 Average Length of Hospital Stay for Term, Preterm and Very Preterm Infants: Utah, 1995



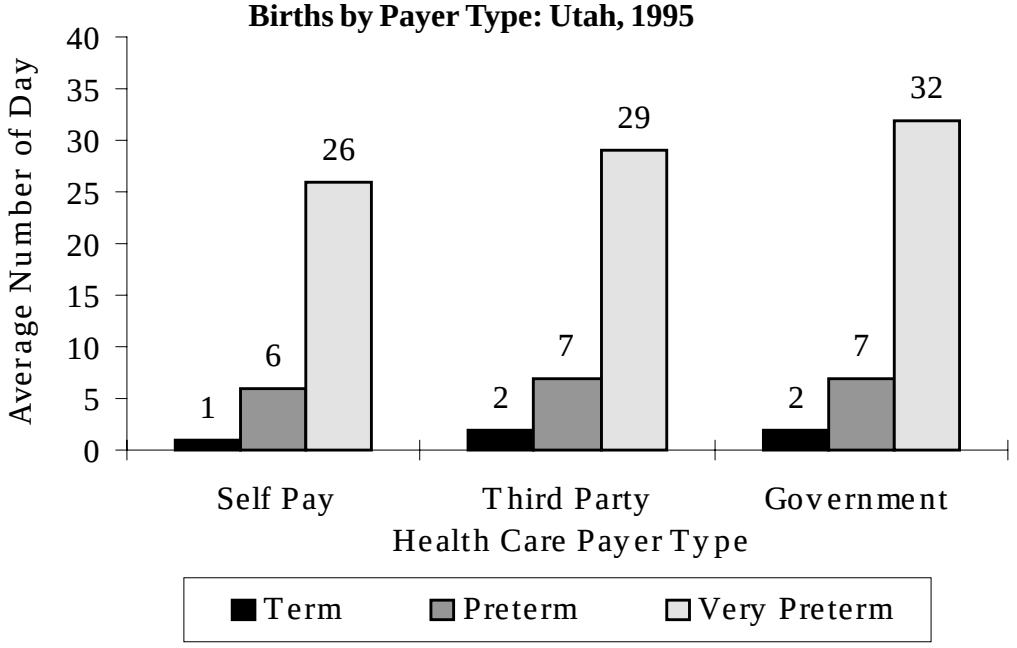
Source: Hospital Discharge Public Query Internet database, Office of Health Data Analysis, Utah Department of Health

There is a difference in the average number of days of hospital stay experienced by term, preterm and very preterm newborns in regard to payer type. The difference in term infants is one day. In the very preterm group, the average stays range from 26 to 32 days (Figure 5.3).[3] The reason for this variation is unknown, however, it is speculated that preterm infants with a government payer source may have increased health risk and therefore require additional health care.

Hospital Charges

There is a wide range of 1995 Utah hospital charges encountered for newborn hospital care. Utah 1995 hospital discharge data indicate that mean charges for a preterm infant were more than six times

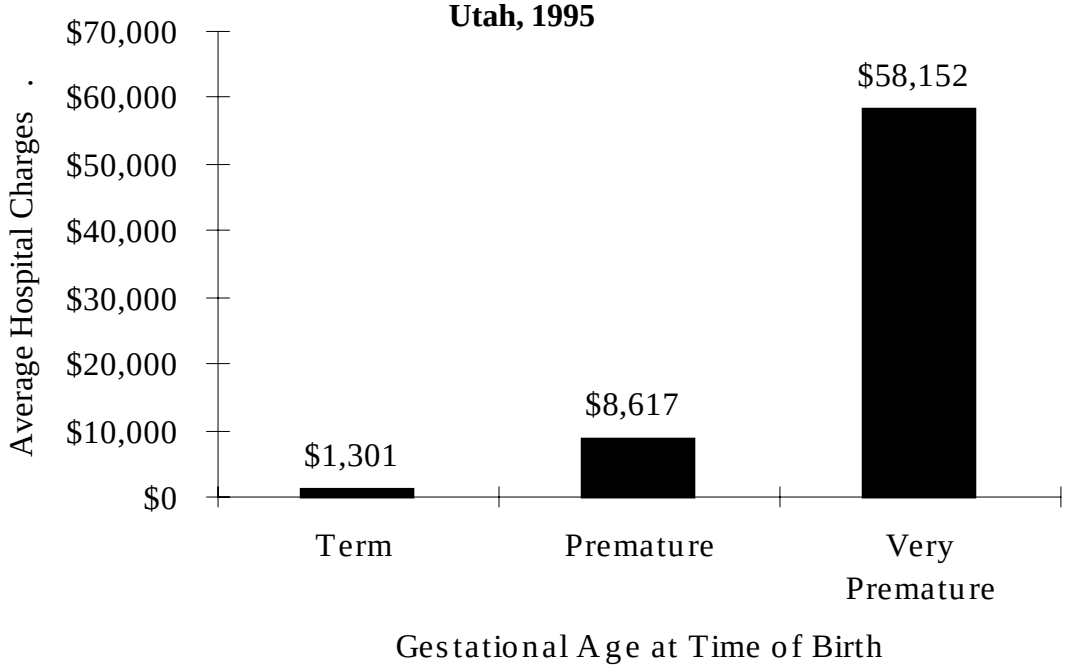
Figure 5.3 Average Length of Hospital Stay for Term, Preterm and Very Preterm Births by Payer Type: Utah, 1995



Source: Hospital Discharge Public Query Internet database, Office of Health Data Analysis, Utah Department of Health

as much as those for a term infant. Charges for a very preterm infant were more than forty-four times those for a term infant (Figure 5.4).[3]

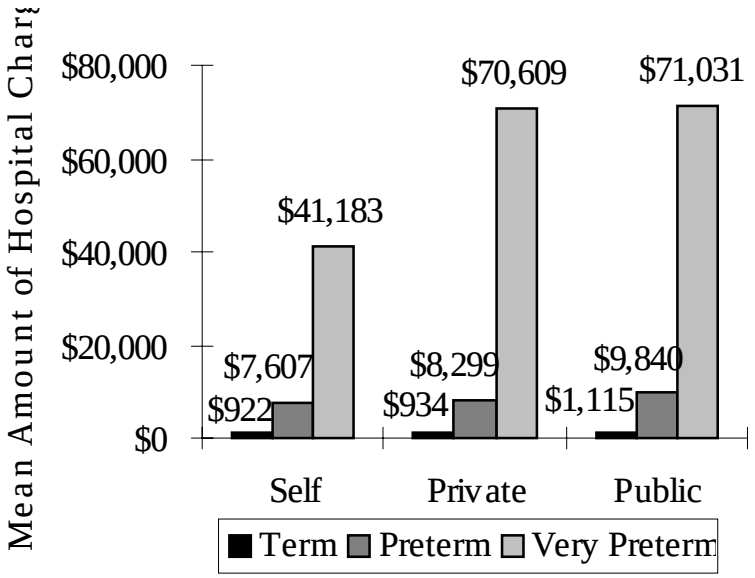
Figure 5.4 Average Hospital Charges for Term, Preterm and Very Preterm Infants Utah, 1995



Source: Hospital Discharge Public Query Internet database, Office of Health Data Analysis, Utah Department of Health

Hospital charges and length of stay vary among payer types. The largest variation of charges occurred among very preterm infants. The average charges for self-paid very-preterm infants were about 60% of charges by other payer types in Utah (Figure 5.5).[3]

Figure 5.5 Average Hospital Charges for Term, Preterm and Very Preterm Births By Payer Type: Utah, 1995



Source: Hospital Discharge Public Query Internet database, Office of Health Data Analysis, Utah Department of Health

Newborn Health Care

The Child Health Evaluation and Care (CHEC) program provides medical and dental checkups and treatment for children and youth from birth to age 21. The services are free to families with Medicaid and pay for all CHEC well-child screenings and authorized follow-up care as long as the child is enrolled in Medicaid. Available CHEC services include regular medical checkups, regular dental checkups, and diagnosis and treatment.[4]

Health professionals recommend that infants less than one year old get six CHEC visits per year. CHEC screening and prevention services include all of the following:

- A comprehensive health and development history review, including the assessment of both physical and mental development;
- A comprehensive physical examination;
- Appropriate immunizations according to age and health history;
- Laboratory tests, including blood lead level assessment appropriate to age and risk; and
- Health education, including infant care practices and follow-up health care.[4]

In Utah, 23,249 infants less than one year of age participated in the CHEC program in Fiscal Year 1995. Of those, 81% received at least one screening examination.[4]

WIC

The WIC Program (Women, Infants, and Children Special Supplemental Feeding Program) in Utah served 28,974 infants under one year of age in 1995. Approximately 40% of all infants born in Utah receive WIC services.[5] The WIC program provides nutritional screening and food supplements to enhance nutritional well-being. Infants comprise 34% of the total WIC population.[6]

Nutritional Status of Newborns

Good nutrition during infancy leads to healthier babies. Malnutrition in infants can result in poor brain development, infection and death. Although Utah does not have data on overall nutritional status of all Utah infants, data are available on infants served by WIC.[5]

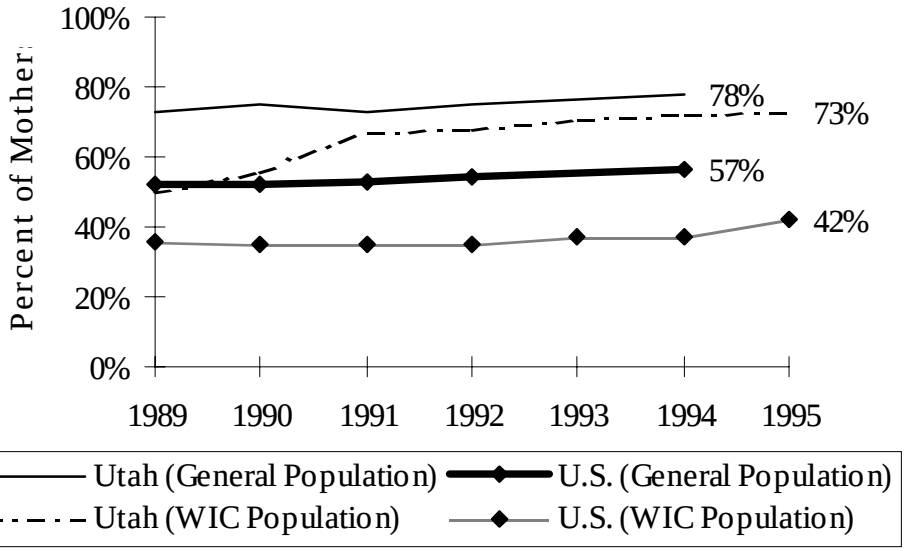
Breast Feeding

Advantages of breast feeding include immunological, nutritional, economic, environmental and psychosocial benefits.[5,6] The American Academy of Pediatrics (1981) recommends breast milk as the optimal nutritional source for infants. A goal of the Healthy People 2000 is for 75% of mothers to start breast feeding at birth and 50% to still be breast feeding six months later.

Nationwide, from 1984 to 1990, in-hospital breast feeding rates have declined. In 1990, breast feeding rates reached a low of 51.5%.[7,8] Since 1990, the rates have once again been on the rise. In Utah as well as nationally, breast feeding rates have increased markedly among the WIC population compared to the general population (Figure 5.6). This increase is believed to be result of mandated breast feeding promotion activities in the WIC Program.[5]

Mothers who breast feed:
- protect their infants from illness;
- give their infants a complete diet;
- save money (as much as $100 a month) otherwise spent to purchase formula;
- reduce production of and consumer waste from formula packages; and
- help their infants bond to them.[5,6]

Figure 5.6 Mothers Initiating Breast Feeding in General Population and WIC Population: Utah and United States, 1989-1995*



*Data were not available for general population 1993 and 1995.
Source: WIC population: CDC Pediatric Nutrition Surveillance Annual Summary Reports, 1989-1995. Tables 1C, 1D, Section 8, WIC Program, Utah Department of Health. General population (not necessarily random): Mothers Survey, Ross Laboratories 1989-1995

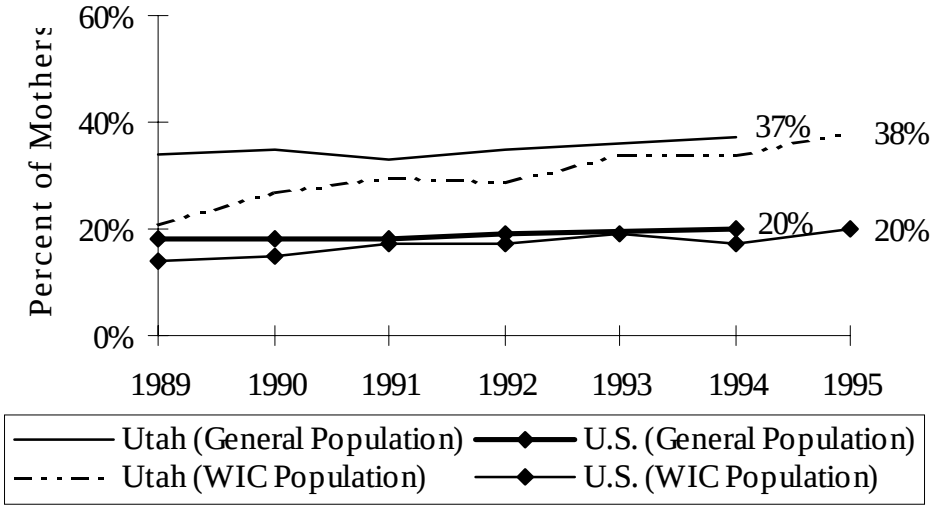
According to a national study, breast feeding rates are highest among women who:
- are college educated;
- are older than 30 years of age;
- have annual family incomes above $25,000;
- are married; or
- are residents of Mountain West and Pacific states.[8]

Since 1994, more Utah mothers in both the general population and in the WIC population initiated breast feeding and were still breast feeding six months later at a higher rate than nationally (Figure 5.7).[7,8] Although WIC mothers typically fall outside of the social strata favoring breast feeding as a feeding choice, breast feeding rates among Utah's WIC population have increased at a faster pace than the general population. This increase may be influenced by WIC's promotion of breast feeding and a supportive, positive environment for breast feeding mothers in WIC clinics.

Anemia

Anemia (hematocrit below the 5th percentile, adjusted for altitude) is one indicator of poor nutritional status. Anemic infants are at increased risk for delayed cognitive development and infections. The prevalence of anemia among infants receiving WIC services in Utah declined from 19% in 1991 to

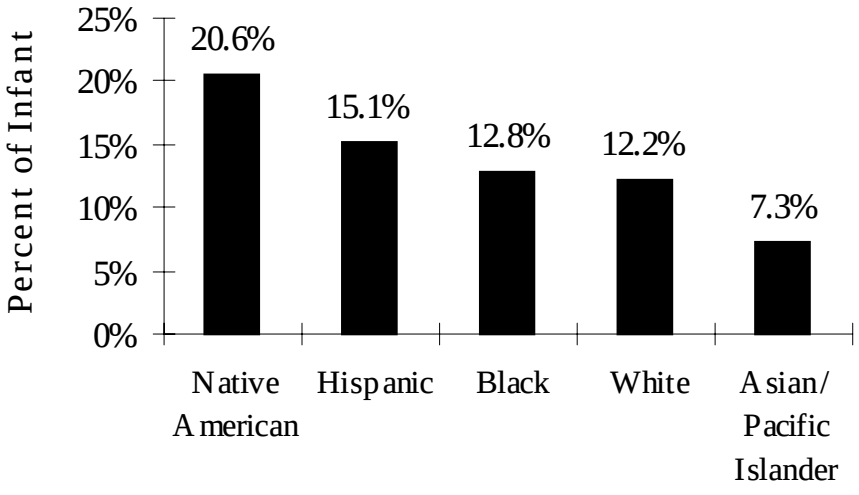
Figure 5.7 Trends in Six-Month Duration of Breast Feeding Among Mothers in General Population and WIC Population: Utah and United States, 1989-1995*



*Data were not available for general population 1993 and 1995.
Source: WIC population: CDC Pediatric Nutrition Surveillance Annual Summary Reports, 1989-1995. Tables 1C, 1D, Section 8, WIC Program, Utah Department of Health. General population (not necessarily random): Mothers Survey, Ross Laboratories 1989-1995

13% in 1995. During this same time, the prevalence of low hematocrit among WIC infants nationwide decreased slightly from 17% to 15%. The drop in anemia for Utah WIC infants may be a result of overall improvements in public health and/or nutrition, most notably a concurrent increase in the percent of infants who are breastfed. Utah WIC data indicate that Hispanic and Native American infants are currently at increased risk for anemia compared with other groups (Figure 5.8).[5]

Figure 5.8 Prevalence of Anemia by Race/Ethnicity Among Infants Six to Eleven Months of Age: Utah WIC Population, 1995



Source: CDC Pediatric Nutrition Surveillance Annual Summary Reports, WIC Program, Utah Department of Health

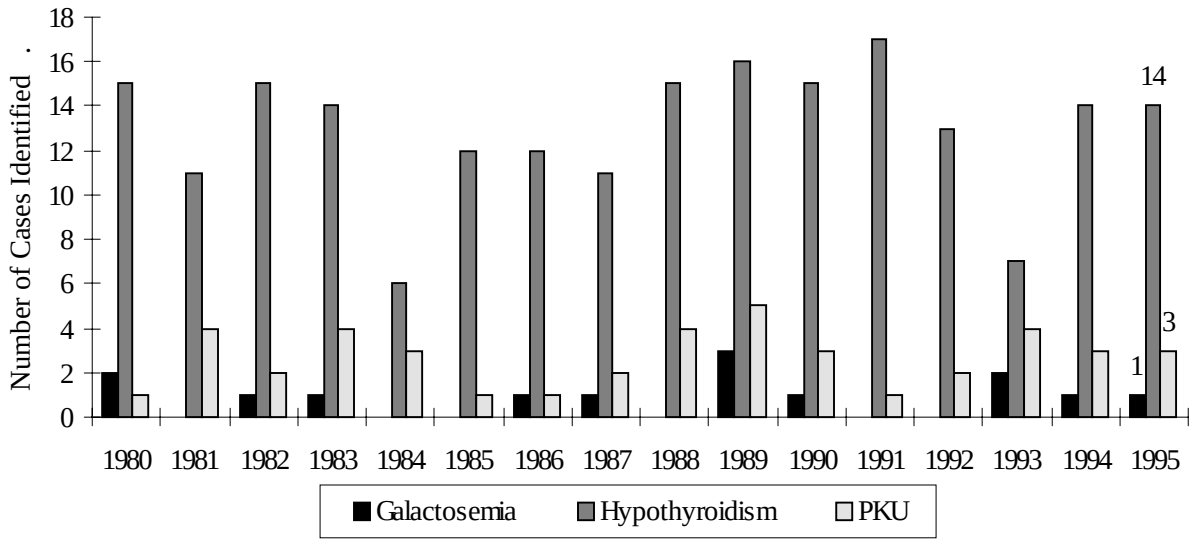
Newborn Screening for Metabolic Disorders

In 1965, Utah passed legislation mandating that all newborns be tested for phenylketonuria (PKU) and other metabolic diseases that may result in mental retardation such as congenital hypothyroidism (CH) and galactosemia.[9] The Healthy People 2000 goal is to have at least 95% of newborns screened and 90% of those testing positive for disease receiving appropriate treatment.[9] Newborn metabolic screening was performed on 99% of the infants born in Utah in 1995.[9]

Babies with these disorders of metabolism appear normal at birth. Early identification and treatment can result in normal growth and development and reduce the risk of poor health, disability and death. Although the number of newborns identified in a screening program is low, all newborns should have a metabolic screening exam because of the profound impact on the health and development of those infants affected. This blood exam is usually done at 48 hours of age or before a hospital discharge. A second blood exam is done again between 7 to 28 days of age.[9]

The incidence rates of these three metabolic disorders vary. Phenylketonuria (PKU) occurs once in 10,000 to 15,000 White births nationally as well as in Utah. It is rarely observed in other racial or ethnic groups. In Utah, three cases of PKU were identified during 1995 (Figure 5.9). A newborn with PKU has an excessive accumulation of an essential amino acid, phenylalanine, in the brain tissue which leads to progressive mental retardation. Treatment consists of life-long dietary restriction of phenylalanine, usually found in foods high in protein.[9]

Figure 5.9 Number of Cases of Selected Metabolic Disorders Identified by Newborn Screening: Utah, 1980-1995



Source: Newborn Screening Program, Utah Department of Health

Congenital hypothyroidism (CH) occurs in Utah to one infant in every 2,500-3,000 births. This rate is slightly higher than the national rate of one in 4,000 births. In 1995, 14 cases were identified in Utah (Figure 5.9). Deficiency of thyroid hormone in an infant causes mental and physical growth retardation if not identified and treated early in life. Treatment is a supplemental thyroid hormone.[9]

Galactosemia affects one out of 40,000-50,000 births. Of the 39,556 live births in Utah 1995, one infant was identified with galactosemia (Figure 5.9). Infants with galactosemia are unable to metabolize the sugar galactose resulting in multiple symptoms including failure to grow, cataracts, enlarged liver and sepsis. These symptoms can be severe in infancy and may lead to death or severe brain damage. Treatment consists of life-long dietary restriction of galactose, usually all milk and milk products, and other foods which may contain related substances.[9]

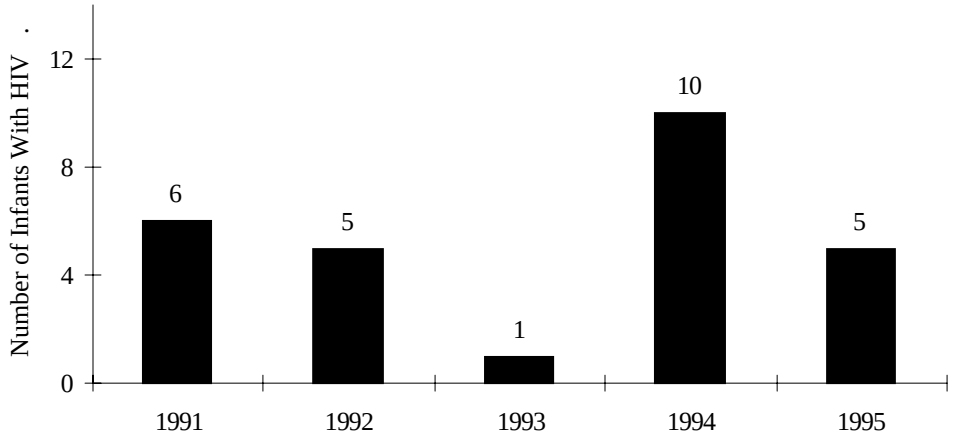
Infants With HIV/AIDS

Data on HIV (Human Immunodeficiency Virus), the virus that causes AIDS (Acquired Immunodeficiency Syndrome), among infants are limited. Infants are often not diagnosed with HIV or AIDS until they become ill with an opportunistic infection which may not occur in the first year of life. In the U.S., 90% of children under 13 years of age with AIDS acquired the infection from their mothers during pregnancy or birth.[10] Although HIV testing is not mandatory for pregnant women, CDC recommends that all pregnant women be screened for HIV. If a pregnant women is HIV positive, treatment is available to reduce the risk of transmission of the infection to the baby. Without treatment, 25% of infants born to an HIV infected mother will acquire the HIV infection.[11]

From 1986 to 1996, six cases of AIDS have been identified among infants less than one year of age in Utah. Of these six infants, four have died. In Utah one infant was diagnosed HIV positive but has not demonstrated symptoms of AIDS.[12]

During the years 1988 to 1995, the Utah Department of Health, Bureau of HIV/AIDS, in conjunction with the Centers for Disease Control and Prevention (CDC), participated in a seroprevalence survey to assess the HIV seropositivity of women of childbearing age. The survey assessed HIV prevalence among women who delivered babies in Utah. Excess newborn blood was tested for antibodies to HIV after required metabolic screening tests were completed. During this period , a total of 237,382 newborns were tested with 37 (0.02%) testing positive (Figure 5.10). The presence of HIV antibodies in the newborn's blood indicates maternal infection. The survey was done using a blinded study method. Therefore, it was not possible to follow infants born to infected mothers or determine the HIV status of these infants.[12]

Figure 5.10 Number of Infants Born to Mothers Infected by HIV: Utah, 1988-1995



Source: Bureau of HIV/AIDS Surveillance, Utah Department of Health

Birth Defects

Birth defects occur in an average of 4 of every 100 live births in the United States, with unknown causes in 69% of cases. Currently, environmental agents or maternal conditions cause approximately 3% and chromosomal or genetic abnormalities account for the remaining 28% of birth defects with known causes.

In 1994, the Neural Tube Defects (NTDs) Surveillance Project was created to actively determine all NTDs in Utah and serve as the prototype of a birth defects registry. In 1995, the Utah Birth Defects Surveillance Project began case identification and determination of infants with NTDs, trisomies 13, 18, and 21 (condition in which there are three copies of one chromosome instead of two) and oral-facial clefts. These three birth defects represent several of the most prevalent and easily identifiable conditions at birth. The 1995 data presented in Table 5.1 are based on all cases diagnosed prenatally and postnatally (pregnancy terminations are included).

Table 5.1 Number of Cases and Incidence Rate for Three Major Birth Defects: Utah, 1994-1995

	1994 Cases	1994 Rate/100,000 Live Births	1995 Cases	1995 Rate/100,000 Live Births
NTDs	32	81	31	78
Oral Facial Clefts	NC	NC	79	199
Trisomies	NC	NC	76	187
21	NC	NC	55	139
18	NC	NC	14	35
13	NC	NC	7	18

NC means data "not collected" in 1994.

Source: Birth Defects Surveillance Project Database, Pregnancy Riskline Program, Utah Department of Health

Trisomies

Trisomy 13 (Patau Syndrome) involves multiple physical defects, including serious brain malformations and heart defects. Minor malformations include cleft lip and palate, ear malformations, eye defects, extra fingers and/or toes, and severe mental retardation. Infants born with trisomy 13 usually do not live past the first year.[15]

Trisomy 18 (Edwards Syndrome) is also associated with early death; 50% of these newborns die within the first week of life. Malformations include heart defects, deformed and low set ears, small jaw, rocker bottom feet, overlapping fingers, and hypertelorism (abnormal width between the eyes). Failure to thrive and mental retardation are also common findings.[15]

Trisomy 21 (Down Syndrome) major malformations include heart defects, mental retardation, small ears, nose and mouth with a protruding tongue, and broad short hands with stubby fingers and transverse palmar creases. Stubby feet with a wide space between big and second toes are minor clinical manifestations. Infants born with Trisomy 21 have a variable life expectancy.[15]

Collectively, trisomies occur at a rate of 1 per 695 (187/100,000) live births with Trisomy 21 being the most prevalent of the three conditions. Advancing maternal age is a consistent and strong risk factor for trisomy 13, 18 and 21.[16] In 1995, the prevalence was 187/100,000 live births in Utah.

Oral-Facial Clefts

Oral-facial clefts include a wide range of anomalies from a minor cleft (fissure or elongated opening) in the lip to a major cleft involving the lip, and/or hard and soft palate (roof of the mouth). Surgery closes the clefts and prevents complications such as poor nutrition while aiding normal growth and development.[17] Oral-facial clefts occur at a rate of 1 per 600 live births.[17] Utah's 1995 data suggest a slightly higher rate of 1 per 500 live births. The increase may be due to the improved reporting system in addition to inclusion of terminated cases. Environmental agents known to increase the risk of oral clefts are anticonvulsant drugs, Accutane and excessive alcohol use. Genetic and chromosomal conditions have been identified in the cause of oral-facial clefts with considerable variation in frequency among racial groups.[15,16] Prevalence of oral-facial clefts in Utah is slightly higher than in most states that report these malformations. Twenty-five percent of isolated oral-facial clefts had a positive family history for clefts.[14]

Neural Tube Defects

Neural tube defects (NTDs) include several types of malformations of the cranium (skull), spine and nervous system such as spina bifida, anencephaly, and encephalocele. Spina bifida occurs in approximately 60%, anencephaly 35% and encephalocele 5% of babies affected with a defect in the closure of the neural tube. These defects represent medically serious anomalies that affect the mortality and

morbidity of these individuals. In 1994 and 1995, the prevalence of NTDs in Utah was approximately 78/100,000 and 81/100,000 live births, respectively.[13,14] The prevalence of NTDs nationwide is approximately 100/100,000 live births, but this may vary by region.

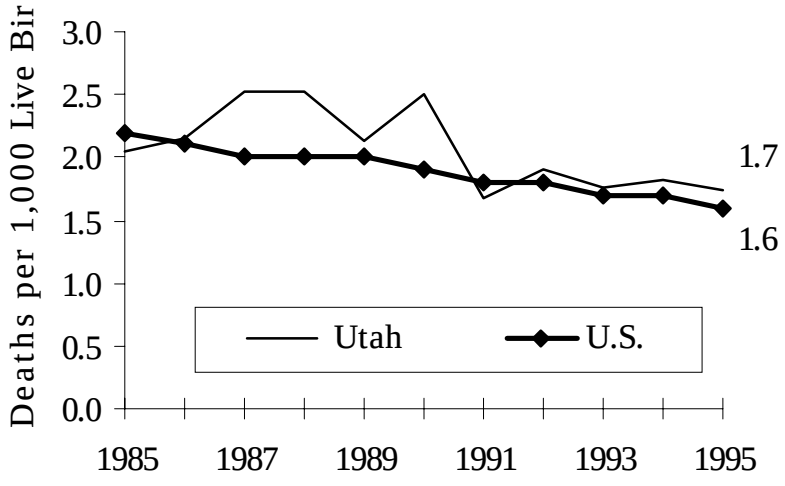
Some NTDs may be prevented with Folic Acid, a B vitamin, if a woman consumes this vitamin every day at least one month prior to conception (fertilization of egg and sperm). Many studies have demonstrated a 50%-70% reduction in risk for first and recurrent cases of spina bifida respectively.[18,19,20,21] The U.S. Public Health Service recommends all women of childbearing age consume multi-vitamins or folic acid supplements that contain 400 micrograms daily in order to reduce the risk of a NTD to the unborn child. For women who have had a previous pregnancy in which the baby had a NTD and are planning another pregnancy, the U.S. Public Health Service recommends 4.0 milligrams of folic acid at least one month prior to conception.

Infant Mortality

Birth Defects Role in Infant Deaths

Birth defects are one leading cause of infant mortality nationwide. Utah's rate exceeded that of the total U.S. population prior to 1991, however the rates have remained similar since 1991 (Figure 5.11).

Figure 5.11 Infant Mortality Rate Due to Congenital Anomalies Utah and United States, 1985-1995



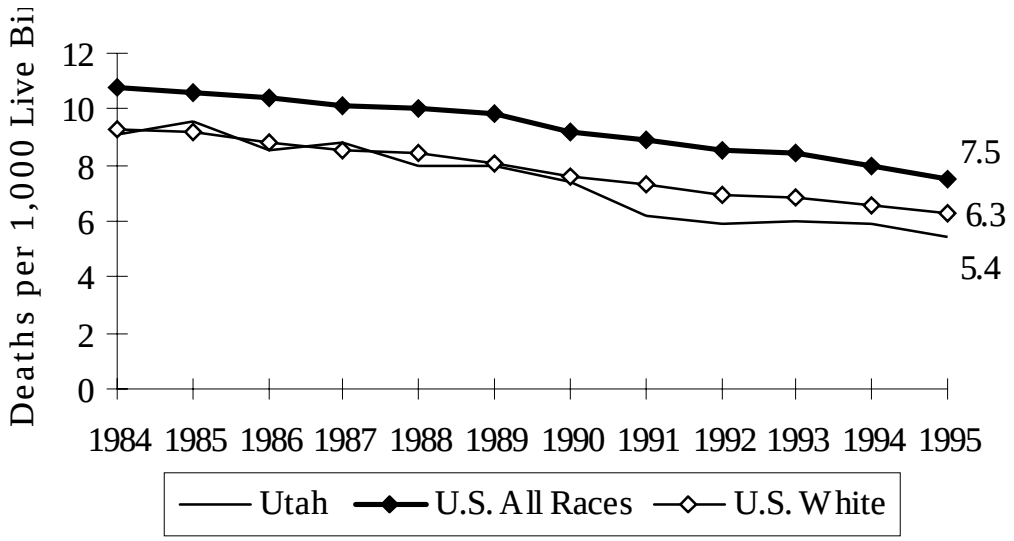
Sources: Utah: Bureau of Vital Statistics, Utah Department of Health
U.S.: National Center for Health Statistics, U.S. Department of Health and Human Services

The Healthy People 2000 Objectives include the recommendation to reduce the infant mortality rate (IMR) (number of infant deaths per 1,000 live births) to no more than 7 per 1,000 live births. The IMR has decreased in Utah as well as in the United States (Figure 5.12). The IMR for Black infants is much higher than for White infants.[22] Utah's population is approximately 89% White. Utah's 1995 IMR was slightly lower than the U.S. White IMR for the same year. This lower rate may reflect population characteristics unique to Utah:

- higher marriage rates;
- higher educational attainment; and
- higher median household income than the U.S. population (see Appendix A).

In 1990, the IMR in the U.S. was 9.2 per 1,000 live births, ranking the United States 19th internationally.[23] However, it is wise to use caution when comparing U.S. infant mortality to that of other industrialized nations because of the enormous regional and international differences in clinical practices and in the way live births and infant deaths are classified.[24]

Figure 5.12 Infant Mortality Rates per 1,000 Live Births Utah and United States, 1984-1995



Sources: Utah: Bureau of Vital Records, Utah Department of Health
U.S.: CDC News Release, Facts and Sheet, National Center for Health Statistics, U.S. Department of Health and Human Services

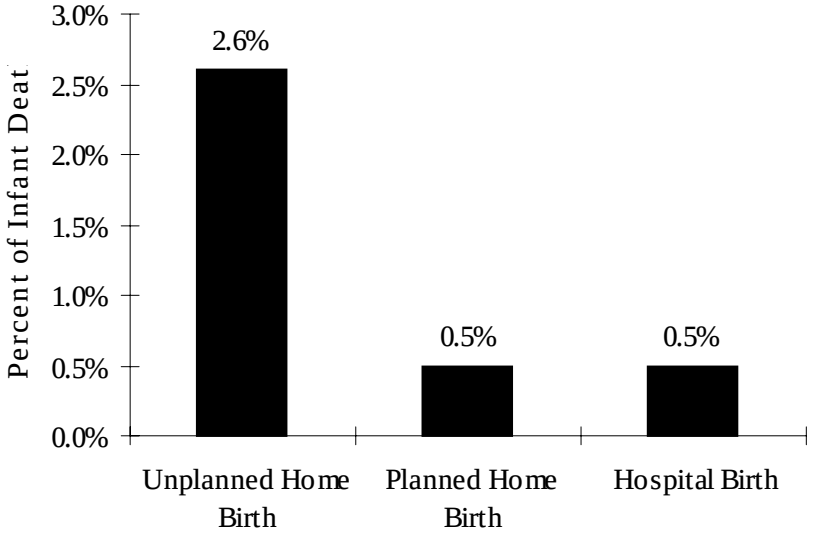
Location of Birth and Associated Birth Outcomes

Of the 156,573 births in Utah from 1992-1995, 98% took place in hospitals. Of those, a very small percentage (0.5%) of infants died within one year of birth (N=852). Unplanned home births appear to carry the highest risk for infant mortality. Of the 183 unplanned home deliveries in Utah between

1992-1995, 2.7% (N=5) of the babies died. Infants born at a planned home birth (N=1791) died less than 0.5% (N=6) of the time (Figure 5.13). [25]

Women planning a home birth or birth at a birthing center are generally a very low-risk population because providers usually exclude women who are at high risk for complications. Women delivering at a hospital include both low risk and high risk populations. Although infant mortality was similar for hospital births and planned home births, the similar rates reflect the increased risk of poor outcomes for home births due to unexpected problems arising during labor and delivery without adequate medical equipment and support.

Figure 5.13 Infant Death Ratios by Location of Birth: Utah, 1992-1995



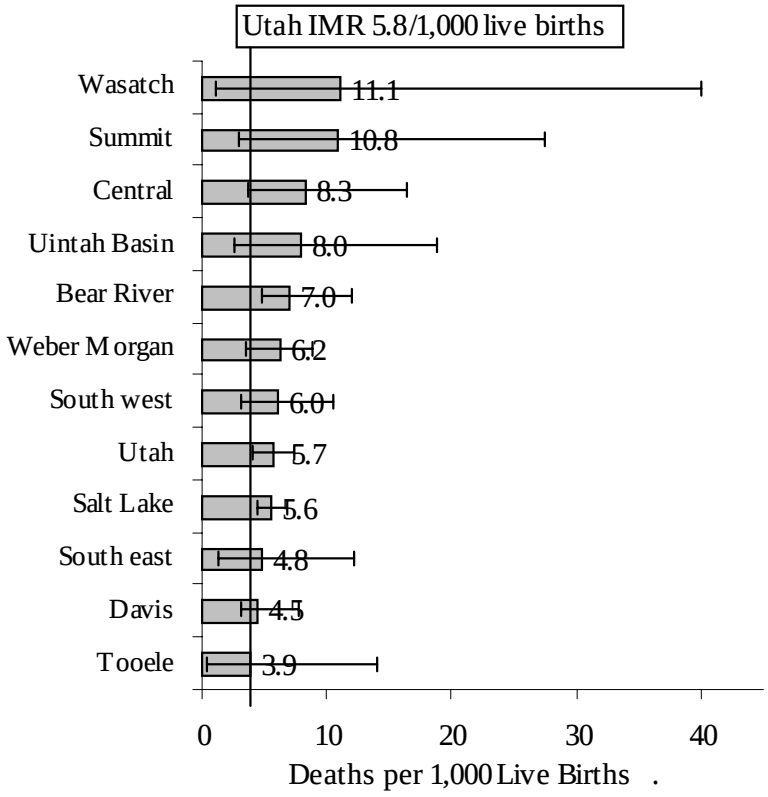
Source: Bureau of Vital Records, Utah Department of Health

Infant Mortality Rates by Locale

There are areas of the state where the Infant Mortality Rate (IMR) continues to exceed the year 2000 objective (Figure 5.14). [25] In order to show the stability of ratios in local health districts that have small populations confidence intervals have been included. The bar on top of each graph can be interpreted as the range in which we are 95% confident that the true rate lies. A narrow confidence interval (a small range) may indicate that the result is based on a larger number of cases than one with a wide confidence interval (a large range).

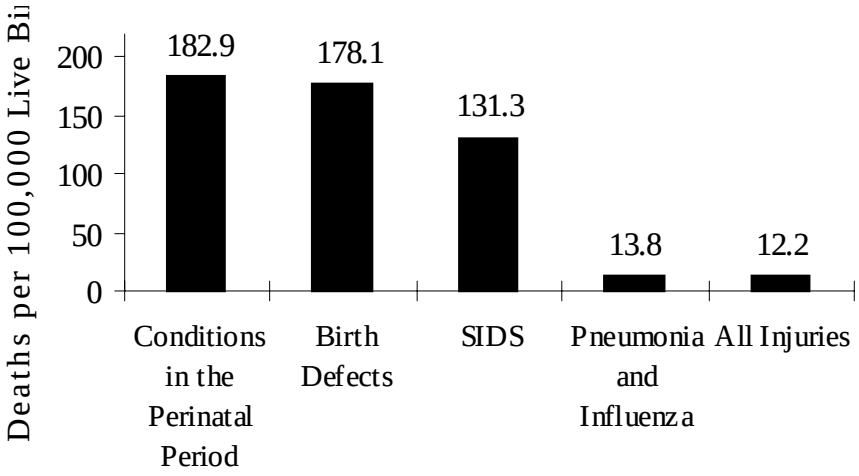
During 1991-1995, the leading causes of death for all Utah infants were conditions in the perinatal period, birth defects, Sudden Infant Death Syndrome (SIDS), pneumonia and influenza, and injuries other than motor vehicle accidents (Figure 5.15). There has been a steadily declining trend in Utah for both neonatal and post neonatal infant mortality with the greatest percentage of decline occurring during 1985-1988 (Figure 5.16).[25]

Figure 5.14 Infant Mortality Rates by Local Health District: Utah, 1993-1995



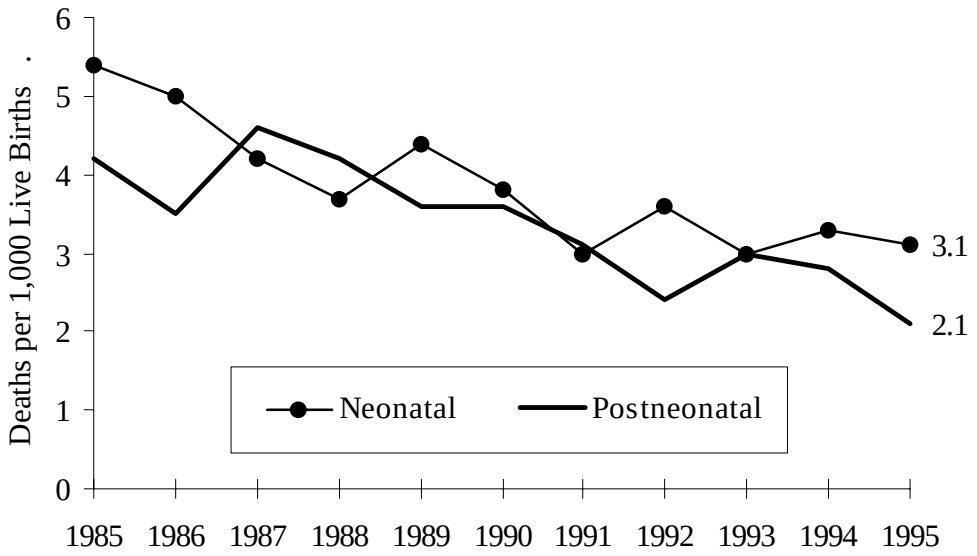
Note: Bar superimposed on each health district rate represent a 95% confidence interval.
Source: Bureau of Vital Records, Utah Department of Health

Figure 5.15 Average Annual Death Rates for Infants Under One Year of Age per 100,000 Live Births: Utah, 1991-1995



Source: Bureau of Vital Records, Utah Department of Health

Figure 5.16 Neonatal and Postneonatal Infant Mortality Rates per 1,000 Live Births Utah, 1985-1995



Source: Bureau of Vital Records, Utah Department of Health

Neonatal Death

Infant deaths are divided into two categories according to age, neonatal (deaths under 28 days) and postneonatal (deaths between 28 days and under 1 year of age.) The causes of neonatal deaths in Utah during 1995 are listed in Table 5.2. These data illustrate the importance of developing strategies to address the preventable causes and conditions originating in the perinatal period, which include preterm delivery. During the years 1992-1994, the infant mortality rate among Utah infants born preterm was 19.2/1,000 live births compared to the overall infant mortality rate of 6/1,000 live births.[25]

Postneonatal Death

Sudden Infant Death Syndrome (SIDS) and birth defects accounted for over 50% of the total post-neonatal deaths in Utah in 1995 (Table 5.3) These data illustrate the importance of continued monitoring and research for SIDS and birth defects.

SIDS remains the leading cause of death for infants from one month to one year of age in Utah and the U.S. However, the rate of SIDS declined 33% in the U.S. and 46% in Utah from 1992 to 1995 (Figure 5.17).[23,25] One reason for the decline in the SIDS rate may be credited to the "Back to Sleep" program. In 1992, the American Academy of Pediatrics (AAP) recommended that infants be placed

Table 5.2 Causes of Death for Infants 0-28 Days Old: Utah, 1995

Cause of Death	Number of Deaths	Rate/100,000 Live Births
Total Conditions Originating in the Perinatal Period	**65**	**164**
Newborn affected by maternal complications of pregnancy	12	30
Disorders relating to short gestation and unspecified low birthweight	12	30
Respiratory Distress Syndrome and other respiratory conditions	10	25
Newborn affected by complications of placenta, cord and membranes	10	25
Other ill defined conditions originating in the perinatal period	6	15
Infections specific to perinatal period	6	15
Birth Trauma	5	13
Intrauterine hypoxia and birth asphyxia	4	10
Total Birth Defects	**53**	**134**
Heart and circulatory anomalies	16	40
Other and unspecified birth defects	11	28
Respiratory system anomalies	8	20
Genitourinary system anomalies	6	15
Anencephalus and other CNS anomalies	6	15
Musculoskeletal system anomalies	5	13
Chromosomal anomalies	1	3
Total Other Causes of Death	**3**	**8**
Total All Causes of Neonatal Death	**121**	**306**

Source: Bureau of Vital Records, Utah Department of Health

on their backs to sleep rather than on their stomachs. This recommendation was made after several studies from other countries such as England, Australia, and New Zealand indicated a reduction in the SIDS rate with back sleeping. The AAP along with the U.S. Public Health Service, the National SIDS Alliance, and the Association of SIDS Program Professionals implemented a national "Back to Sleep" public awareness campaign to promote back sleeping and other SIDS risk reduction measures.[26]

Table 5.3 Causes of Death for Infants 28 Days to 1 Year Old: Utah, 1995

Cause of Death	Number of Deaths	Rate/100,000 Live Births
SIDS	30	76
Birth defects	16	40
Conditions originating in the perinatal period	9	23
Accidents	7	18
Other causes	6	15
Undetermined	3	8
Diseases of the respiratory system	3	8
Diseases of nervous system and sense organs	3	8
Diseases of the digestive system	2	5
Homicide	2	5
Viral disease	2	5
Septicemia	1	3
Meningitis	1	3
Total Causes of Postneonatal Death	**85**	**215**

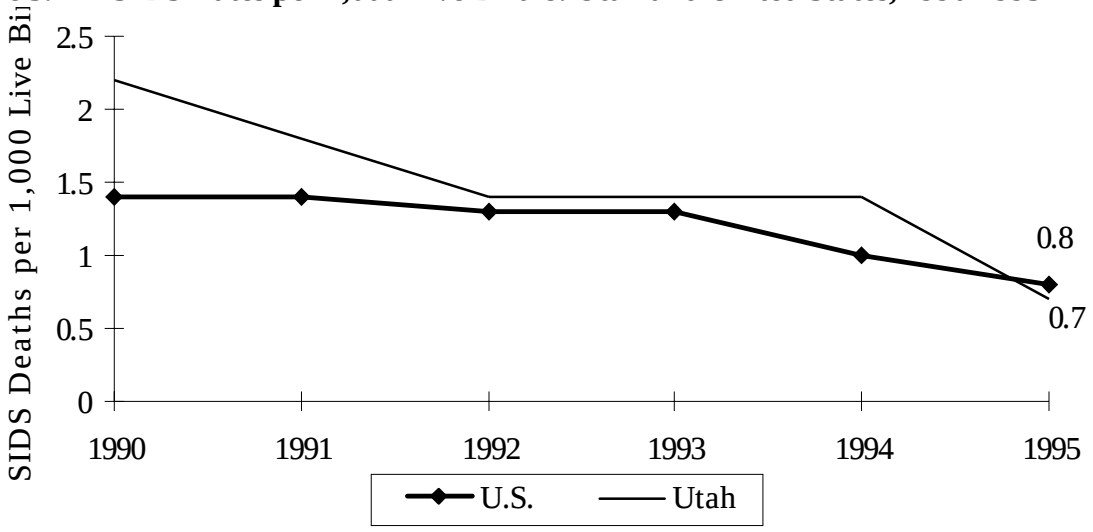
Source: Bureau of Vital Records, Utah Department of Health

Although SIDS is still considered not preventable or predictable, certain modifiable risk factors have been identified. These risk factors include:

- stomach sleep position;
- soft bedding;
- overheating; and
- exposure to environmental tobacco smoke.

Avoidance of these risk factors and inclusion of breast feeding and early and regular prenatal care may reduce the risk of SIDS.[26]

Figure 5.17 SIDS Rates per 1,000 Live Births: Utah and United States, 1990-1995



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