

# Utah Health Status Update:

## Home Birth Trends in Utah, 1992–2005

December 2006

Utah Department of Health

### Introduction

For centuries giving birth at home was the norm throughout the world. Since the beginning of the 20th century, with advances in scientific medicine, emphasis has been increasingly placed on the hospital as the safest birth environment for both mother and newborn. In reaction to this medicalization of childbirth and fueled by the consumer and women's movements, the 1970s brought renewed interest in home birth. Nevertheless, much controversy has arisen regarding the relative safety of home birth. Studies comparing birth outcomes associated with home birth vs. hospital birth have been contradictory. Results of some studies have documented home birth as a relatively safe option, while others have observed elevated risk associated with home birth.

The rate of home birth in Utah has fluctuated around 1.2% over the past decade. However, Utah's rate has been much higher than the nation's. In 2000, the proportion of home births in Utah was double the national rate (1.4% vs. 0.6%, Figure 1). Too little is known about the birth outcomes among the home birth population. This study was conducted to examine birth outcomes among Utah women planning and delivering infants at home.

### Methods

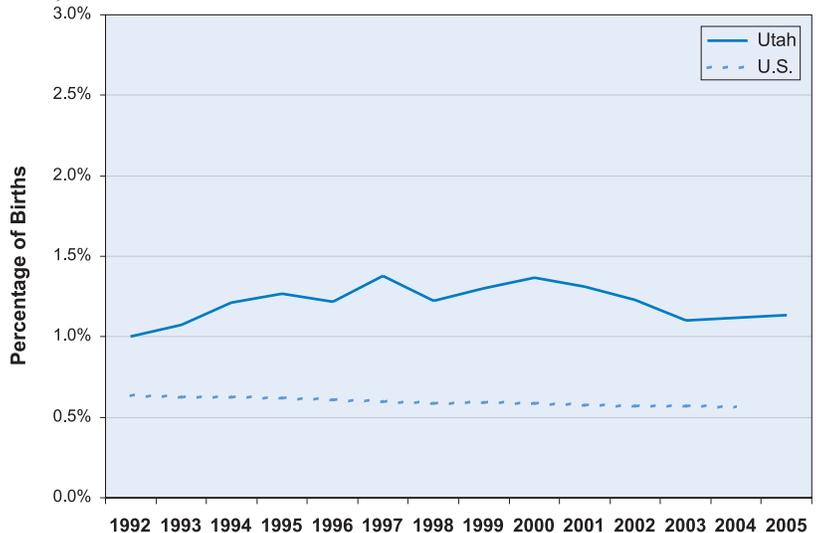
Utah birth certificate data from 1992 to 2005 were used for this study. A home birth was defined as a birth both intended for delivery at home and occurring at home. This study excluded unplanned home births and planned home births delivered elsewhere. The outcomes of home births were compared with all births in Utah.

### Results

There were 624,897 births during 1992–2005, of which 7,605 (1.2%) were planned home births. Table 1 compares demographic profiles of home birth mothers with all birth mothers. Compared to all births, women who planned home births were more likely to be older, married, and multiparous. They were less likely

### Home Births

Figure 1. Percentage of live births planned and delivered at home, Utah and U.S., 1992–2005



### Demographics of Mothers

Table 1. Demographic profiles of planned home birth mothers and all birth mothers, Utah, 1992–2005

| Maternal Characteristic               | Percent                          |                           |
|---------------------------------------|----------------------------------|---------------------------|
|                                       | Planned Home Births<br>(n=7,605) | All Births<br>(n=624,897) |
| <b>Age</b>                            |                                  |                           |
| Under 25 Years                        | 33.1%                            | 40.4%                     |
| 25–34 Years                           | 50.3%                            | 50.7%                     |
| Over 34 Years                         | 16.6%                            | 8.9%                      |
| <b>Education</b>                      |                                  |                           |
| Less Than High School Graduate        | 17.3%                            | 16.9%                     |
| High School Graduate                  | 40.9%                            | 37.9%                     |
| Post- High School Education           | 41.8%                            | 45.2%                     |
| <b>Hispanic</b>                       | 3.5%                             | 11.3%                     |
| <b>Married</b>                        | 90.9%                            | 83.3%                     |
| <b>Smoked During Pregnancy</b>        | 1.3%                             | 8.1%                      |
| <b>Prenatal Care in 1st Trimester</b> | 71.8%                            | 81.8%                     |
| <b>Parity</b>                         |                                  |                           |
| Nulliparous                           | 17.0%                            | 35.6%                     |
| Multiparous                           | 83.0%                            | 64.4%                     |

to be Hispanic. Home birth mothers were much less likely to have used tobacco during pregnancy than overall birth mothers (1.3% vs. 8.1%,  $p < .05$ ). The majority of home births (79.8%) were attended by midwives.

Complications of labor and delivery, as collected in birth certificate data, were far less common in home births than all births, with the exception of measures of length of labor (*prolonged labor* and *precipitous labor*, Figure 2). Home births had lower incidence of bleeding such as *abruptio placenta* or *placenta previa*. However, home births were associated with increased risk in the *other excessive bleeding* category compared to all births (2.2% vs. 0.9%).

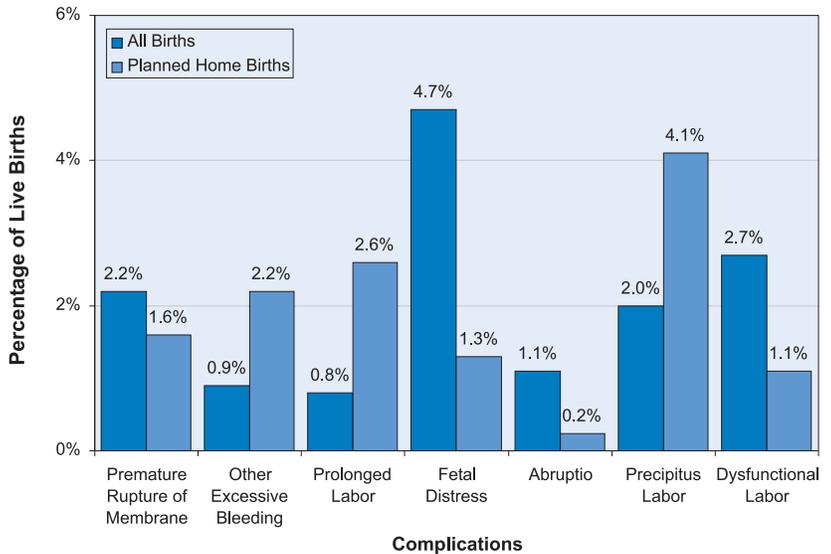
Lower rates of adverse birth outcomes were observed among home birth newborns compared to all newborns. Home birth newborns were much less likely to be found in either the *low birth weight* (< 2,500 grams) or *preterm* (< 37 weeks gestation) categories (Figure 3). Both one-minute and five-minute Apgar scores were higher among newborns born at home than among all newborns (data not shown).

### Conclusions

Women with a low risk of obstetric complications are generally eligible to deliver at home. This study found that home birth outcomes compared favorably with those of all births. There were however, some noteworthy differences. Home birth mothers had higher rates of *precipitous labor*, *prolonged labor*, and *other excessive bleeding*. This higher incidence of precipitous labor may be at least partially attributable to the higher proportions of home birth mothers who were multiparous. Prolonged labor among home births may be a function of avoiding drug induced labor and artificial stimulation of labor. It is difficult to explain the higher risk of excessive bleeding among home birth mothers. It will be important to further examine the causes of excessive bleeding in home births. These factors, along with the contradictory findings of previous studies, all point toward the imperative for further study regarding the safety of home births.

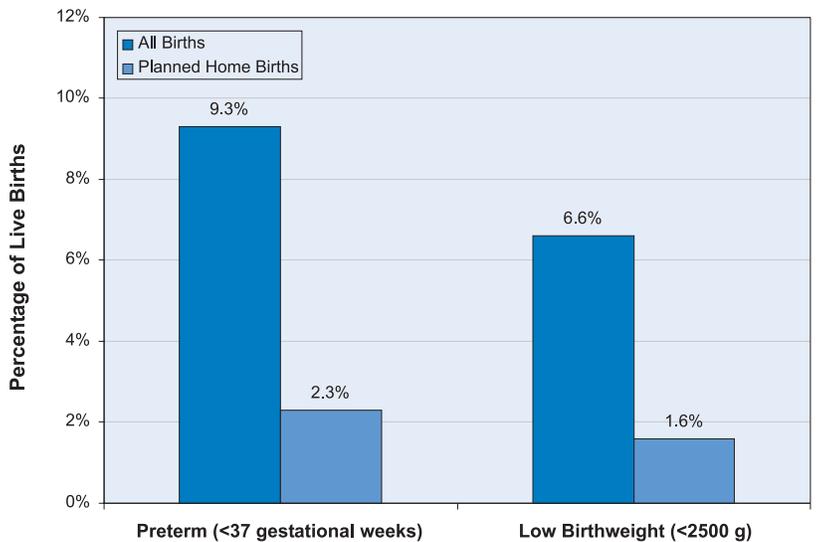
## Obstetric Complications

Figure 2. Comparison of obstetric complications, home births and all births, Utah, 1992–2005



## Newborn Birth Outcomes

Figure 3. Percentage of births that were preterm or low birth weight, home births and all births, Utah, 1992–2005



## December 2006 Utah Health Status Update

For additional information about this topic, contact either Shaheen Hossain, PhD, Manager, Data Resources Program, (801) 538-6855, email: [shossain@utah.gov](mailto:shossain@utah.gov) or Lois Bloebaum, MPA, Manager, Reproductive Health Program, (801) 538-9970, [lbloebaum@utah.gov](mailto:lbloebaum@utah.gov) at Utah Department of Health, Box 142001, Salt Lake City, UT 84114-2001; or the Office of Public Health Assessment, Utah Department of Health, Box 142101, Salt Lake City, UT 84114-2101, (801) 538-9947, FAX (801) 538-9346, email: [phdata@utah.gov](mailto:phdata@utah.gov).

## Breaking News, November 2006

### 2006 West Nile Virus Season

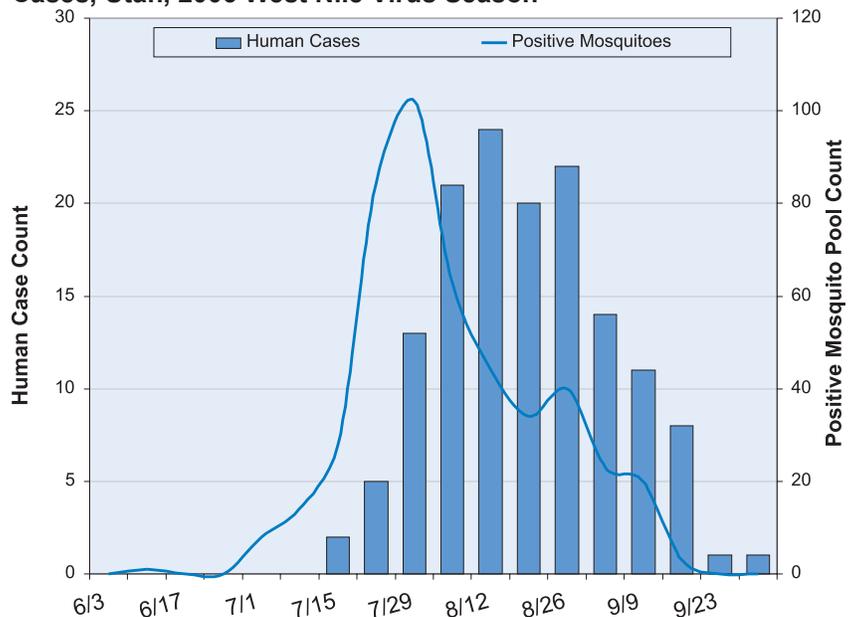
Active surveillance for the 2006 West Nile virus (WNV) season has ended in Utah. This has proven to be the most active season yet for the state. Activity was first detected in a dead bird on June 2, the earliest the virus has been found in a given season. Since first detection, activity steadily increased, including human case counts.

158 human cases have been reported to the Utah Department of Health for the 2006 season. Cases were reported from 12 counties: Box Elder, Cache, Carbon, Davis, Duchesne, Iron, Juab, Salt Lake, Tooele, Uintah, Utah, and Weber. Utah County reported the most human cases (66).

The total number of cases ranged in age from 1–88 years. 42% of all cases resulted in the more serious neuroinvasive form of the disease. Five fatalities were reported for the 2006 season. The fatalities all occurred in individuals aged  $\geq 65$  years. Additionally, 14 potential blood donors were found to have WNV infection, but did not develop any symptoms of disease. Blood units donated by these individuals were destroyed to prevent them from entering Utah's blood supply.

In total for the 2006 season, WNV infection has been reported in 59 horses, 76 dead birds, 107 sentinel chickens, and 466 mosquito pools. 19 Utah counties have reported WNV activity: Box Elder, Cache, Carbon, Davis, Duchesne, Emery, Grand, Iron, Juab, Millard, Salt Lake, Sanpete, Summit, Tooele, Uintah, Utah, Wasatch, Washington, and Weber.

**Human West Nile Virus Cases and West Nile Virus Positive Mosquito Pools by Week of Onset of Symptoms for Human Cases, Utah, 2006 West Nile Virus Season**



## Community Health Indicators Spotlight, November 2006

### Autism in Utah

Autism spectrum disorders (ASDs) are among the fastest growing developmental disabilities in the U.S. The Centers for Disease Control and Prevention (CDC) estimates that approximately half a million children under age 21 are affected by the disorder. The costs to families in terms of emotional strain and altered lifestyles are incalculable, however economic costs to society are estimated to be nearly \$3.4 million per individual over a lifetime (Gatz, 2006). The estimated cost of lifelong care can be reduced by 2/3 with early diagnosis and intervention (New England Center for Children, 2006).

The Utah Registry of Autism and Developmental Disabilities (URADD), in collaboration with the CDC, and the Autism and Developmental Disabilities Monitoring network, recently completed a three year study to determine the prevalence and to identify potential risk factors related to ASDs. Although final prevalence results will not be released until early 2007, the preliminary analysis has been completed. This study consisted of record reviews of nearly 5,000 8-year-old children in 2002 from Salt Lake, Davis, and Utah counties. URADD queried 33 medical sources and 8 school districts for children flagged for school autism exceptionality or identified with ICD-9 codes for Autism. These cases were then linked to Vital Records birth data from 1994 to obtain additional data both on study participants and on their birth mothers.

Preliminary analysis found significant differences between the group diagnosed with autism and the general birth cohort. The autistic group was 82.5% male, compared to 51.7% male in the birth cohort ( $p < .0001$ ). The study found a significant difference in mean birth weight among the autism cases compared to the general birth cohort (3192 grams vs. 3338,  $p < .005$ ). Additionally, the study observed significantly higher rates of breech presentation (9.7% vs. 4.1%,  $p < .0067$ ) and Cesarean section delivery (20.2% vs. 9.2%,  $p < .0001$ ) among children identified with autism than among those from the general birth cohort.

Findings from this analysis have identified risk factors which provide insights that may aid early diagnosis and intervention. Early intensive behavioral interventions have been shown to greatly reduce the number and magnitude of skill deficits and problem behaviors associated with autism thus significantly improving a child's chances for normal development.

# Monthly Health Indicators Report

(Data Through October 2006)

| <b>Monthly Report of Notifiable Diseases, October 2006</b>  | <b>Current Month # Cases</b>   | <b>Current Month # Expected Cases (5-yr average)</b>   | <b># Cases YTD</b>                              | <b># Expected YTD (5-yr average)</b> | <b>YTD Standard Morbidity Ratio (obs/exp)</b> |
|---|--------------------------------|--|---|--------------------------------------|---|
| Campylobacteriosis (Campylobacter)                          | 28                             | 24   | 247   | 242                                  | 0.9   |
| Enterotoxigenic Escherichia coli (E. coli)                  | 12                             | 10   | 134   | 74                                   | 1.7   |
| Hepatitis A (infectious hepatitis)                          | 1                              | 3  | 12  | 39                                   | 0.3   |
| Hepatitis B (serum hepatitis)                               | 1                              | 5  | 23  | 35                                   | 0.6   |
| Measles (Rubeola, Hard Measles)                             | 0                              | 0  | 0   | 0                                    | --  |
| Meningococcal Diseases                                      | 0                              | 0  | 5   | 6                                    | 0.8   |
| Norovirus   | 0                              | 0*   | 5   | 11*                                  | 0.4   |
| Pertussis (Whooping Cough)                                  | 51                             | 28   | 712   | 195                                  | 3.5   |
| Salmonellosis (Salmonella)                                  | 21                             | 25   | 239   | 227                                  | 1.0   |
| Shigellosis (Shigella)                                      | 13                             | 6  | 65  | 41                                   | 1.4   |
| Varicella (Chickenpox)                                      | 118                            | 47*  | 700   | 419*                                 | 1.4   |
| Viral Meningitis  | 16                             | 25   | 70  | 145                                  | 0.4   |
| West Nile (Human cases/Equine cases)†                       | 6 / 3                          | 1 / 4*   | 158 / 59  | 21 / 36                              | 7.4 / 1.6                                     |
| <b>Notifiable Diseases Reported Quarterly, 3rd Qtr 2006</b> | <b>Current Quarter # Cases</b> | <b>Current Quarter # Expected Cases (5-yr average)</b> | <b># Cases YTD</b>                              | <b># Expected YTD (5-yr average)</b> | <b>YTD Standard Morbidity Ratio (obs/exp)</b> |
| HIV   | 20                             | 19   | 130   | 60                                   | 2.2   |
| AIDS  | 13                             | 12   | 50  | 38                                   | 1.3   |
| Chlamydia   | 1,348                          | 1,042  | 3,717   | 2,577                                | 1.4   |
| Gonorrhea   | 190                            | 128  | 623   | 316                                  | 2.0   |
| Tuberculosis  | 8                              | 12   | 25  | 27                                   | 0.9   |
| <b>Program Enrollment for the Month of October 2006</b>     | <b>Current Month</b>           | <b>Previous Month</b>                                  | <b>% Change<sup>s</sup> From Previous Month</b> | <b>1 Year Ago</b>                    | <b>% Change<sup>s</sup> From 1 Year Ago</b>   |
| Medicaid  | 165,357                        | 168,196  | -1.7%   | 177,992                              | -7.1%   |
| PCN (Primary Care Network)                                  | 17,372                         | 17,093   | +1.6%   | 15,476                               | +12.3%  |
| CHIP (Children's Health Ins. Plan)                          | 35,270                         | 35,180   | +0.3%   | 33,263                               | +6.0%   |

| <b>Medicaid Expenditures (in Millions) for the Month of October 2006</b> | <b>Current Month</b>     | <b>Expected/Budgeted for Month</b> | <b>Fiscal YTD</b>                              | <b>Budgeted Fiscal YTD</b>       | <b>Variance - over (under) budget</b>          |
|--|--------------------------|------------------------------------|--|----------------------------------|--|
| Capitated Mental Health  | \$ 5.52                  | \$ 7.72                            | \$ 38.45                                       | \$ 40.66                         | (\$ 2.2)                                       |
| Inpatient Hospital   | \$ 13.96                 | \$ 14.76                           | \$ 47.34                                       | \$ 48.14                         | (\$ 0.8)                                       |
| Outpatient Hospital  | \$ 6.06                  | \$ 5.55                            | \$ 21.26                                       | \$ 20.75                         | \$ 0.5   |
| Long Term Care   | \$ 14.85                 | \$ 14.53                           | \$ 57.16                                       | \$ 56.84                         | \$ 0.3   |
| Pharmacy   | \$ 9.62                  | \$ 10.72                           | \$ 39.32                                       | \$ 40.42                         | (\$ 1.1)                                       |
| Physician/Osteo Services   | \$ 4.54                  | \$ 4.78                            | \$ 20.39                                       | \$ 20.63                         | (\$ 0.2)                                       |
| <b>TOTAL HCF MEDICAID</b>  | <b>\$ 106.58</b>         | <b>\$ 120.26</b>                   | <b>\$ 422.93</b>                               | <b>\$ 436.60</b>                 | <b>(\$ 13.7)</b>                               |
| <b>Health Care System Measures</b>                                       | <b>Number of Events</b>  | <b>Rate per 100 Population</b>     | <b>% Change<sup>s</sup> From Previous Year</b> | <b>Total Charges in Millions</b> | <b>% Change<sup>s</sup> From Previous Year</b> |
| Overall Hospitalizations (2005)  | 268,652                  | 10.0%                              | -1.3%  | \$ 3,501.7                       | +8.6%  |
| Non-maternity Hospitalizations (2005)                                    | 161,474                  | 5.8%                               | -1.6%  | \$ 2,914.5                       | +8.2%  |
| Emergency Department Encounters (2004)                                   | 627,078                  | 24.2%                              | -4.2%  | \$ 456.6                         | +14.7%   |
| Outpatient Surgery (2004)  | 303,123                  | 11.7%                              | +6.0%  | \$ 845.3                         | +15.6%   |
| <b>Annual Community Health Measures</b>                                  | <b>Current Data Year</b> | <b>Population at Risk</b>          | <b>Number Affected</b>                         | <b>Percent/Rate</b>              | <b>% Change<sup>s</sup> From Previous Year</b> |
| Overweight and Obesity (Adults 18+)                                      | 2005                     | 1,740,474                          | 942,900  | 54.2%                            | -3.9%  |
| Cigarette Smoking (Adults 18+)   | 2005                     | 1,740,474                          | 200,600  | 11.5%                            | +9.7%  |
| Influenza Immunization (Adults 65+)                                      | 2005                     | 212,582                            | 148,300  | 69.7%                            | -7.6%  |
| Health Insurance Coverage (Uninsured)                                    | 2005                     | 2,528,926                          | 292,800  | 11.6%                            | +13.5%   |
| Motor Vehicle Crash Injury Deaths  | 2005                     | 2,528,926                          | 292  | 11.6 / 100,000                   | -4.5%  |
| Suicide Deaths   | 2005                     | 2,528,926                          | 344  | 13.6 / 100,000                   | -11.1%   |
| Diabetes Prevalence  | 2005                     | 2,528,926                          | 104,200  | 4.1%                             | +8.7%  |
| Coronary Heart Disease Deaths  | 2005                     | 2,528,926                          | 1,567  | 62.0 / 100,000                   | -4.6%  |
| All Cancer Deaths  | 2005                     | 2,528,926                          | 2,512  | 99.3 / 100,000                   | +0.4%  |
| Births to Adolescents (Ages 15-17)                                       | 2005                     | 58,374                             | 917  | 15.7 / 1,000                     | +5.8%  |
| Early Prenatal Care  | 2005                     | 51,517                             | 40,587   | 78.8%                            | +1.0%  |
| Infant Mortality   | 2005                     | 51,517                             | 231  | 4.5 / 1,000                      | -13.3%   |
| Childhood Immunization (4:3:1:3:3)                                       | 2005                     | 50,043                             | 37,100   | 74.1%                            | +3.9%  |

\* Due to limited historical data, the average is based upon 3 years of data for norovirus, varicella, and West Nile virus infections.  
 § % Change could be due to random variation.  
 Note: Active surveillance has ended for influenza until the 2006 season.