

## Utah Health Status Update:

# Planned Out-of-Hospital Births in Utah

December 2014

The U.S. Department of Health and Human Services recently published a data brief indicating that large changes in birthing patterns in the U.S. have occurred over the past century. In 1900, almost all births occurred outside a hospital, most of which occurred at home. This proportion fell to 44% by 1940 and to 1% by 1969.<sup>1</sup> Planned out-of-hospital (OOH) births are still relatively uncommon in Utah, but the trend is increasing (see Figure 1).

### Methods

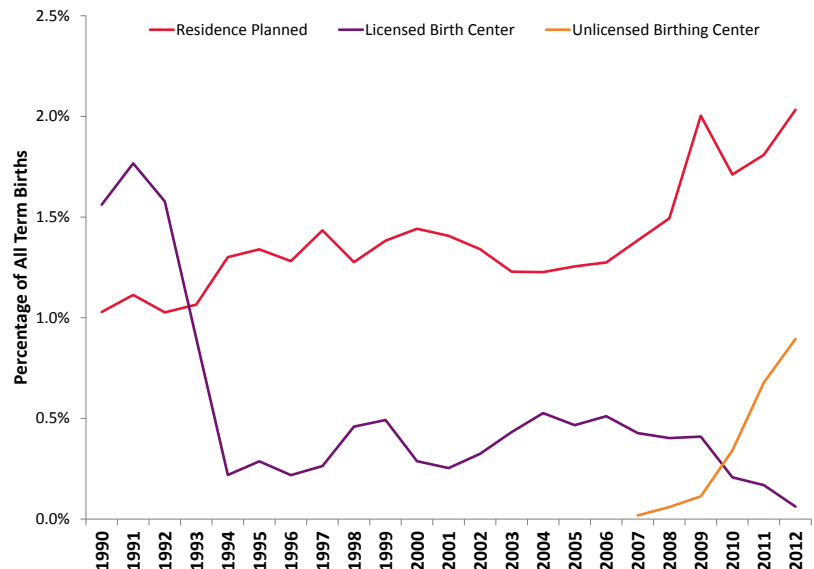
This report used 2010–2012 birth certificate and death certificate data collected by the Utah Department of Health Office of Vital Records and Statistics (OVRS). This time period was selected because changes to the Utah birth certificate occurred in 2009 that allowed for more detailed analysis on the three levels of midwives practicing in Utah; certified nurse midwives, licensed direct entry midwives, and unlicensed midwives.

This report examines recent trends and characteristics of planned OOH births among live, term births ( $\geq 37$  weeks) without lethal anomalies

- Women who planned out-of-hospital (OOH) births compared to women who planned in-hospital births tended to be older, White and non-Hispanic, married, self-pay, healthier pre-pregnancy weight, higher parity (5+ prior births), and of rural residence.
- Women who planned OOH births were also more likely to have no prenatal care or inadequate prenatal care, and less likely to begin care in the first trimester.
- While the largest number of neonatal deaths occurred among infants delivered in hospitals, the rate of neonatal death was more than double in the intended home birth setting.
- Numerous recommendations have been identified based on this analysis some of which include more precise collection of future data on this topic.

### Term Planned Out-of-hospital Births

Figure 1. Percentage of all term births that were planned out-of-hospital births by place of birth and year, Utah, 1990–2012



In 1990 two licensed birthing centers operated in Utah; one closed in 1994, accounting for the large drop in licensed birthing center births at that point. The other closed in 2013, leaving the state without any licensed birthing centers. The first unlicensed birthing center opened in 2007. Unlicensed birthing centers are exempt from the state birthing center regulations because they have only one birthing room. Unlicensed birthing centers have continued to open since then, and today Utah has 18 unlicensed birthing centers, accounting for the steep increase in births in these centers since 2007.

lies in Utah. One limitation of these data is that births to women with intent to deliver at home who ultimately deliver in the hospital, would be included in the hospital delivery data and cannot be identified. Data were analyzed using SAS version 9.2.

### Descriptive Statistics

A total of 139,958 live term infants ( $\geq 37$  weeks) were born in Utah during 2010–2012. The majority of Utah births occurred in hospitals (136,265) and were attended by a MD/DO (123,661). Table 1 provides an overview of where Utah births occurred and their birth attendants for 2010–2012.

Women who planned out-of-hospital births (home, birth center) compared to women who planned in-hospital births tended to be older, White and non-Hispanic, married, and of rural residence. Women having births in the out-of-hospital setting also tended to be at a healthier weight prior to pregnancy, had five or more prior births, and paid for their deliveries out of pocket. (See Table 2 for more detailed information on demographics.) It should be noted that while women who chose OOH births had dramatically higher rates of self-pay than those who chose the hospital setting, one cannot assume that they were uninsured at the time of delivery. Because most insurance companies will not pay for OOH births, women who chose this setting must pay out of pocket for these services.

In addition, compared to women with in-hospital births, women who planned OOH births were more likely to have no prenatal care (home birth 1.9% vs. hospital 0.3%) or inadequate prenatal care, as defined by

the Kotelchuck Index† (home birth 39.1%, birth center 30.5%, vs. hospital 14.9%), and less likely to begin care in the first trimester (home birth 52.9%, birth center 48.5%, vs. hospital 75.3%). Women who had planned out-of-hospital births compared to women who had in-hospital births tended to have a lower risk profile with the exception of higher rates of premature rupture of membranes >12 hours, precipitous labor (<3 hours) and prolonged labor (>20 hours) (data not shown).

### Outcomes of Intended Out-of-hospital and In-hospital Births

Neonatal mortality among the entire cohort was studied in order to assess outcomes of planned OOH births. Neonatal mortality is defined as a death occurring the first 28 complete days of age and is an important measure of newborn and maternal health status and prenatal and postnatal medical care. For this study, we limited the analysis to term non-lethal anomalous neonatal deaths to Utah residents during the study period. In reviewing neonatal deaths, we found that while the largest number of neonatal deaths occurred among infants delivered in hospitals (N=136), the rate was only 1/1000 live births (95% CI 0.8, 1.1). It is concerning however, that the rate of neonatal death was more than double in the home birth setting (2.3/1000 live births; 95% CI 1.0, 5.1). There were too few neonatal deaths that occurred in unlicensed birth centers during the study period to calculate a reliable rate. The higher rate of neonatal mortality for planned home births in Utah mirrors a recently published meta-analysis in which women who had planned homebirths had lower rates of obstetric intervention and maternal morbidities but higher rates of neonatal mortality.<sup>2</sup>

We are limited in our ability to further analyze data by birth attendant or to rigorously assess outcomes in this analysis by the relatively small numbers in the OOH birth cohort during the study period. Numerous recommendations have been identified based on this analysis, some of which include more precise collection of future data on this topic. Changes to the Utah Birth Certificate have been made and changes to the Utah Fetal Death Certificate are in process. The Maternal and Child Health Bureau is also working collaboratively with Utah

†Kotelchuck Index: uses two crucial elements obtained from birth certificate data: initiation of prenatal care and the number of prenatal visits began until delivery based on gestational age at delivery.

## Place of Birth and Birth Attendant

Table 1. Live term non-anomalous births by place of birth and birth attendant, Utah residents, 2010–2012

Birth Attendant	Total	Hospital	Planned Home	Unlicensed Birth Center
State Total	139,958	136,265	2,595	1,098
MD/DO	123,661	123,654	**	5*
Naturopathic Physician	163	156	7*	0
Certified Nurse Midwife	12,421	11,800	167	454
Licensed Direct Entry Midwife	1,116	0	647	469
Other Midwife	1,811	0	1,648	157
Other	304	198	98	8*
Out of State Birth - Unknown Attendant	482			

\*Use caution in interpreting, the estimate has a coefficient of variation >30% and is therefore deemed unreliable by Utah Department of Health data reporting standards.

\*\*The estimate has been suppressed because the number of events is very small and not appropriate for publication.

## Maternal Characteristics

Table 2. Maternal characteristics of live term non-anomalous births by place of birth, Utah residents, 2010–2012

Characteristic	Home	Unlicensed Birth Center	Hospital
Older	16.4%	16.0%	10.6%
White	97.8%	97.5%	86.7%
Non-Hispanic	96.4%	97.1%	82.4%
Married	86.5%	94.2%	81.3%
Self-pay	92.0%	81.3%	3.9%
Less overweight or obese prior to pregnancy	27.9%	29.2%	40.4%
Higher parity (5+ births)	11.7%	10.2%	1.2%
Rural residence	30.7%	29.1%	22.7%

midwives and physician partners to begin to improve communication and reporting among in-hospital and OOH providers when a transfer to a hospital becomes needed.

### References

1. MacDorman MF, Mathews TJ, Declercq E. Home births in the United States, 1990–2009. NCHS data brief, no 84. Hyattsville,MD: National Center for Health Statistics.2012.
2. Wax JR, Lucas FL, Lamont M, et al. Maternal and newborn outcomes in planned home birth vs. planned hospital births: a metaanalysis. Am J Obstet Gynecol 2010; 203; 243-248.

## December 2014 Utah Health Status Update

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## Breaking News, December 2014

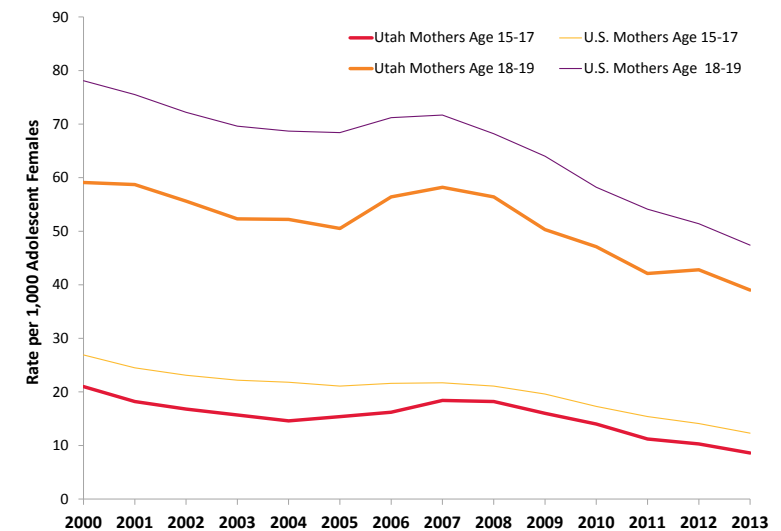
### Utah's Teen Pregnancy Reduction

Teen pregnancy is associated with serious and long-lasting consequences for women, children, and communities. For example, the rates of prematurity, low birthweight and infant mortality are higher among babies born to adolescent mothers. Only about half of these mothers will graduate from high school, resulting in lower educational attainment, limited employment opportunities, reduced earning potential, and a greater likelihood of poverty. The social and economic costs to communities are staggering. The National Campaign to Prevent Teen and Unplanned Pregnancy estimates that the cost of teen births in the U.S. exceeds \$9.4 billion annually.

The good news is that the adolescent birth rate in Utah has seen a steady decline since 2007, mirroring national trends. The current rate of 20.6 births per 1,000 females ages 15–19 years in 2013 equates to a 42% drop since 2007. This decline was even greater for some racial populations, with a 50% reduction among Hispanic youth and a 53% decrease for Pacific Islander adolescents. Due to this significant reduction, Utah now has one of the lowest teen birth rates in the country (10th according to 2012 America's Health Rankings data).

Several factors have contributed to this important success. Among them is an increased focus on quality education and youth development programs, provided through two federal teen pregnancy prevention grants, Abstinence Education and Personal Responsibility Education Programs (PREP), awarded to the Utah Department of Health. These programs enable states to educate and empower young people with the highest need, including those living in areas with birth rates that exceed the state average.

Adolescent Birth Rate by Age of Mother, Utah and U.S., 2000–2013



Source: Utah Birth Certificate Database, Office of Vital Records and Statistics, Utah Department of Health. Population Estimates: National Center for Health Statistics (NCHS) through a collaborative agreement with the U.S. Census Bureau, IBIS Version 2013.

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## Community Health Indicators Spotlight, December 2014

### Adolescent Health

The Utah Department of Health has released a report showing, for the first time, adolescent health at the local health district (LHD) level. Findings from the report indicate that health problems vary widely within Utah. The data come from the Prevention Needs Assessment (PNA) survey, a random sample of students in grades 8, 10, and 12 released in the spring of 2013. Survey questions addressed substance abuse, tobacco use, asthma, diabetes, healthy weight, physical activity, nutrition, tanning, violence, and injury. Topics in the report include: lifestyles (computer screen time, physical activity, youth obesity, family meals, tanning, tobacco use); chronic conditions (asthma, diabetes); violence and injuries (motor vehicle safety, prescription drug abuse, bullying); and mental health (feeling sad or hopeless, psychological distress, suicide).

Highlights of the report include:

- Salt Lake County and Tooele County Health Districts had significantly higher rates of psychological distress, making a suicide plan, and attempting suicide compared to the state.
- One in four Utah students reported having been threatened or harassed over the Internet, by email, or by someone using a cell phone, with the highest prevalence seen in Salt Lake County Health District at 26.8%.
- At 5.8%, the prevalence of current use of e-cigarettes is higher among Utah students than current cigarette smoking (3.9%). In Weber-Morgan Health District, 20% of the students reported current e-cigarette use.
- Adolescents in Utah County (65.0%), Wasatch (65.2%), and Weber-Morgan (65.4%) Local Health Districts reported significantly higher rates of riding in a car with a driver who was texting compared to the state (61.3%).
- Central, Southeastern, Southwest, Tooele County, and TriCounty adolescents reported significantly lower seat belt use compared to the state.
- Only 17.6% of adolescents got the recommended amount of physical activity. Bear River, Central, Southwest, TriCounty, and Wasatch had significantly higher rates of recommended physical activity.

For a full copy of the 2013 Adolescent Health Report, visit <http://www.choosehealth.utah.gov/prek-12/schools/data.php>.

# Monthly Health Indicators Report

## (Data Through October 2014)

Monthly Report of Notifiable Diseases, October 2014	Current Month # Cases	Current Month # Expected Cases (5-yr average)	# Cases YTD	# Expected YTD (5-yr average)	YTD Standard Morbidity Ratio (obs/exp)
Campylobacteriosis (Campylobacter)	56	34	506	392	1.3
Shiga toxin-producing Escherichia coli (E. coli)	10	9	78	111	0.7
Hepatitis A (infectious hepatitis)	0	1	6	7	0.9
Hepatitis B, acute infections (serum hepatitis)	0	1	5	8	0.6
Influenza*	Weekly updates at <a href="http://health.utah.gov/epi/diseases/influenza">http://health.utah.gov/epi/diseases/influenza</a>				
Meningococcal Disease	0	0	1	5	0.2
Pertussis (Whooping Cough)	13	65	714	662	1.1
Salmonellosis (Salmonella)	28	24	317	278	1.1
Shigellosis (Shigella)	8	4	29	33	0.9
Varicella (Chickenpox)	11	32	180	307	0.6
Quarterly Report of Notifiable Diseases, 3rd Qtr 2014	Current Quarter # Cases	Current Quarter # Expected Cases (5-yr average)	# Cases YTD	# Expected YTD (5-yr average)	YTD Standard Morbidity Ratio (obs/exp)
HIV/AIDS†	27	23	65	79	0.8
Chlamydia	1,968	1,800	6,100	5,266	1.2
Gonorrhea	399	133	1,038	329	3.2
Syphilis	8	13	31	35	0.9
Tuberculosis	8	7	22	25	0.9
Medicaid Expenditures (in Millions) for the Month of October 2014	Current Month	Expected/Budgeted for Month	Fiscal YTD	Budgeted Fiscal YTD	Variance - over (under) budget
Capitated Mental Health	\$ 8.8	\$ 9.0	\$ 49.4	\$ 49.6	\$ (0.2)
Inpatient Hospital	\$ 11.4	\$ 15.8	\$ 43.2	\$ 50.7	\$ (7.5)
Outpatient Hospital	\$ 4.7	\$ 6.2	\$ 16.6	\$ 19.9	\$ (3.3)
Long Term Care	\$ 13.1	\$ 16.9	\$ 51.6	\$ 54.2	\$ (2.6)
Pharmacy	\$ 9.9	\$ 9.6	\$ 39.7	\$ 38.5	\$ 1.1
Physician/Osteo Services	\$ 7.1	\$ 6.4	\$ 16.6	\$ 20.4	\$ (3.8)
TOTAL MEDICAID	\$ 119.5	\$ 120.1	\$ 661.4	\$ 662.6	\$ (1.2)

Program Enrollment for the Month of October 2014	Current Month	Previous Month	% Change‡ From Previous Month	1 Year Ago	% Change‡ From 1 Year Ago
Medicaid	278,208	275,766	+0.9%	257,295	+8.1%
PCN (Primary Care Network)	20,515	19,829	+3.5%	15,094	+35.9%
CHIP (Children's Health Ins. Plan)	15,868	15,640	+1.5%	34,300	-53.7%
Health Care System Measures	Annual Visits		Annual Charges		
Health Care System Measures	Number of Events	Rate per 100 Population	% Change‡ From Previous Year	Total Charges in Millions	% Change‡ From Previous Year
Overall Hospitalizations (2012)	281,605	9.2%	-1.2%	\$ 6,146.4	+5.6%
Non-maternity Hospitalizations (2012)	177,753	5.7%	-0.3%	\$ 5,208.7	+6.1%
Emergency Department Encounters (2012)	683,079	22.7%	+1.0%	\$ 1,451.9	+10.9%
Outpatient Surgery (2011)	376,054	12.7%	+2.4%	\$ 1,878.5	+6.5%
Annual Community Health Measures	Current Data Year	Number Affected	Percent/Rate	% Change‡ From Previous Year	State Rank <sup>  </sup> (1 is best)
Obesity (Adults 18+)	2013	483,800	24.1%	-0.5%	9 (2013)
Cigarette Smoking (Adults 18+)	2013	207,000	10.3%	-2.2%	1 (2013)
Influenza Immunization (Adults 65+)	2013	162,900	57.4%	+2.5%	39 (2013)
Health Insurance Coverage (Uninsured)	2013	336,500	11.6%	-12.1%	n/a
Motor Vehicle Traffic Crash Injury Deaths	2013	192	6.6 / 100,000	-7.8%	14 (2012)
Poisoning Deaths	2013	630	21.7 / 100,000	-6.2%	48 (2012)
Suicide Deaths	2013	570	19.6 / 100,000	+2.9%	47 (2012)
Diabetes Prevalence (Adults 18+)	2013	142,500	7.1%	-1.1%	10 (2013)
Poor Mental Health (Adults 18+)	2013	328,700	16.4%	+4.6%	21 (2013)
Coronary Heart Disease Deaths	2013	1,515	52.2 / 100,000	+1.0%	3 (2011)
All Cancer Deaths	2013	2,961	102.1 / 100,000	+1.9%	1 (2011)
Stroke Deaths	2013	831	28.6 / 100,000	+3.1%	17 (2011)
Births to Adolescents (Ages 15-17)	2013	573	8.6 / 1,000	-16.3%	10 (2012)
Early Prenatal Care	2013	38,905	76.4%	+1.2%	n/a
Infant Mortality	2013	262	5.1 / 1,000	+6.7%	16 (2011)
Childhood Immunization (4:3:1:3:3:1)	2013	40,600	80.5%	+7.5%	16 (2013)

\* Influenza activity is minimal in Utah. Influenza-like illness activity is below baseline statewide. As of November 16, 2014, 21 influenza-associated hospitalizations have been reported to the UDOH. More information can be found at <http://health.utah.gov/epi/diseases/influenza/index.html>.

† Diagnosed HIV infections, regardless of AIDS diagnosis.

‡ % Change could be due to random variation.

|| State rank based on age-adjusted rates.

Notes: Data for notifiable diseases are preliminary and subject to change upon the completion of ongoing disease investigations. Active surveillance has ended for West Nile Virus until the 2015 season.