

# Utah Health Status Update:

## Gestational Diabetes

January 2008

Utah Department of Health

Gestational diabetes, defined as glucose intolerance with onset or first recognition during pregnancy, can adversely affect delivery, increase the risk of obesity and diabetes in offspring, and raise the prospect of type 2 diabetes in mothers.<sup>1-5</sup> Birth records from the Utah Office of Vital Records and Statistics show a steady increase in the prevalence of gestational diabetes among Utah mothers over the past decade, from 1.5% in 1997 to 3.3% in 2006 (Figure 1).<sup>6</sup>

Utah birth certificates contain information on three key risk factors: age at delivery, pre-pregnancy body mass index, and race/ethnicity.

The risk of gestational diabetes increases with age. Birth records from 2006 show that 2.3% of deliveries to mothers under age 30 were affected by gestational diabetes, compared to 5.6% of deliveries to mothers aged 30 and over (Figure 2). While the prevalence of gestational diabetes for younger mothers has been consistently lower over the past decade, prevalence has more than doubled for both age groups.

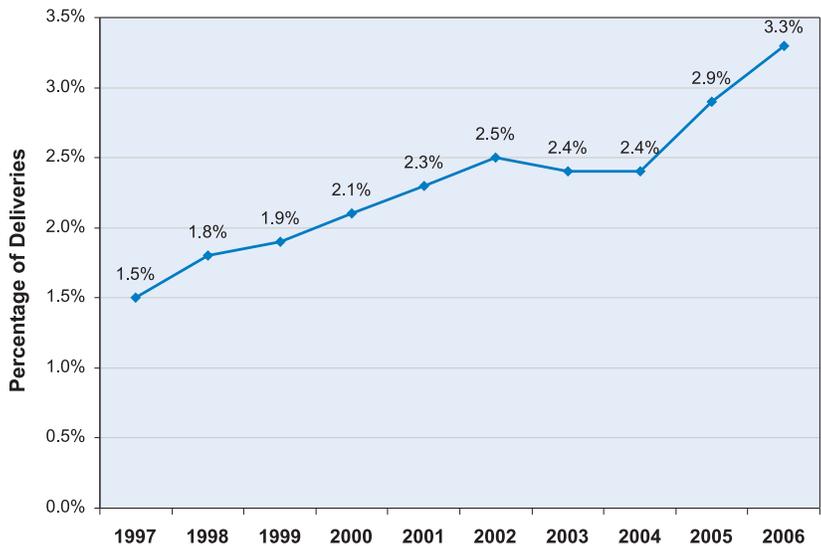
Body mass index (BMI) is calculated from mother's self-reported height and pre-pregnancy weight. The World Health Organization uses BMI to classify weight status into five categories: normal weight (BMI <25 kg/m<sup>2</sup>), pre-obese (BMI of 25–29.9), obese-Class I (BMI of 30–34.9), obese-Class II (BMI of 35–39.9), and obese-Class III (BMI of 40 and higher).<sup>7</sup> The risk of gestational diabetes increased with increasing BMI (Figure 3).

Non-Hispanic White and Black mothers had the lowest prevalence of gestational diabetes, both 2.3%. Over four percent of deliveries to Native Hawaiian/Pacific Islander and Hispanic/Latina mothers had gestational diabetes, 4.2% and 4.4%, respectively. Asian and American Indian mothers exhibited the highest prevalence of gestational diabetes, 5.6% and 6.3%, respectively. Just over two percent of mothers with unknown race/ethnicity had gestational diabetes (Figure 4).

Two limitations to this report are: 1) the criterion for diagnosing gestational diabetes may

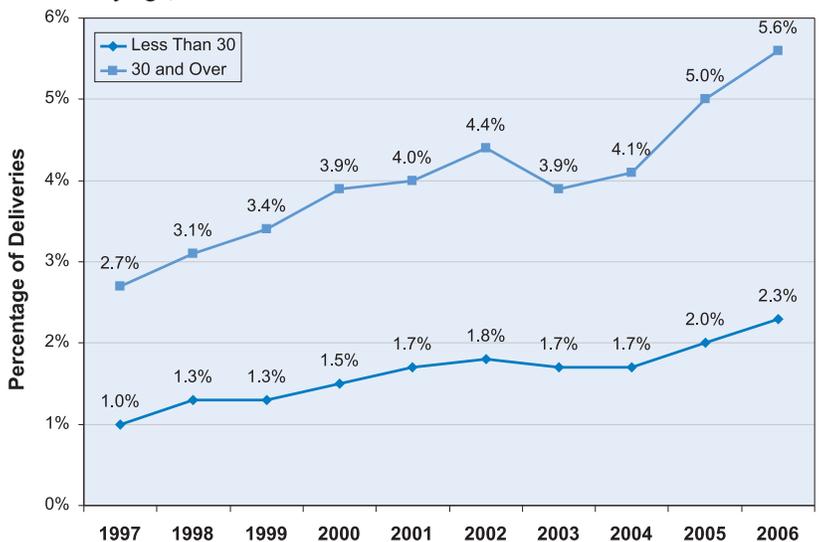
### Gestational Diabetes Prevalence

Figure 1. Percentage of deliveries impacted by gestational diabetes among Utah mothers, 1997–2006



### Gestational Diabetes by Age

Figure 2. Percentage of deliveries to Utah mothers affected by gestational diabetes by age, 1997–2006



vary among physicians<sup>8</sup>, and 2) studies suggest that gestational diabetes may be underreported on birth certificates.<sup>9</sup> This underreporting may constitute missed opportunity for identifying mothers who:

- Warrant treatment for high blood glucose levels during pregnancy
- May have had undiagnosed diabetes prior to pregnancy
- May have a high risk for developing permanent type 2 diabetes following delivery

Because gestational diabetes is an important risk factor for type 2 diabetes, women who have had gestational diabetes should be counseled by their physicians about ways to reduce their risk. Furthermore, it is important for them to have their blood glucose levels tested at their first postpartum checkup to ensure that they are within a normal range.<sup>10</sup>

**References:**

<sup>1</sup> Lauenborg J, Hansen T, Jensen D, Vestergaard H, Molsted-Pedersen L, Hornnes P, et al. (2004). Increasing Incidence of Diabetes After Gestational Diabetes. *Diabetes Care*, 27, 1194-1199.

<sup>2</sup> Dabela D, Hanson R, Lindsay R, Pettitt D, Imperatore G, Gabir M, et al. (2000). Intrauterine Exposure to Diabetes Conveys Risk for Type 2 Diabetes and Obesity. *Diabetes*, 49, 2208-2211.

<sup>3</sup> Schmidt M, Duncan B, Reichelt A, Branchtein L, Matos M, Costate Forti A, et al. (2001). Gestational Diabetes Mellitus Diagnosed with a 2-h 75-g Oral Glucose Tolerance Test and Adverse Pregnancy Outcomes. *Diabetes Care*, 24, 1151-1155.

<sup>4</sup> History of Gestational Diabetes Raises Life-long Diabetes Risk in Mother and Child. (2006, April 25). NIH News. Retrieved November 20, 2007, from National Institutes of Health, U.S. Department of Health and Human Services, National Institute of Diabetes and Digestive and Kidney Disease (NIDDK) Web site: <http://www.nidk.nih.gov/news/pr/apr2006/niddk-25.htm>

<sup>5</sup> O’Sullivan J: Subsequent morbidity among gestational diabetic women. In *Carbohydrate Metabolism in Pregnancy and the Newborn*. Stowers J, Sutherland H, Eds. Edinburgh, Churchill Livingstone, 1984, p. 174–180

<sup>6</sup> *Utah Birth Records* [Data file]. (2002-2006). Utah Department of Health: Office of Vital Records and Statistics.

<sup>7</sup> International Union of Nutritional Sciences. *The Global Challenge of Obesity and the International Obesity Task Force*. Retrieved November 20, 2007, from <http://www.iuns.org/features/obesity/tabfig.htm>

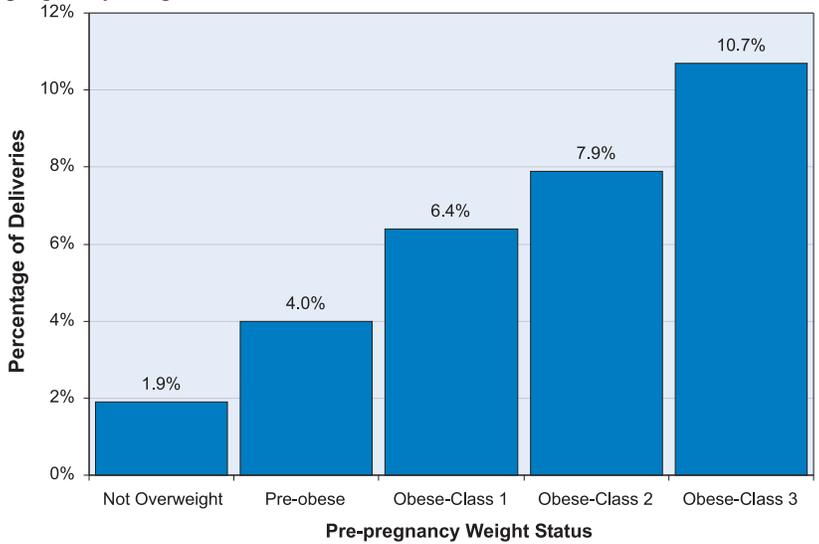
<sup>8</sup> Omori Y, & Jovanovic L. (2005). Proposal for the Reconsideration of the Definition of Gestational Diabetes [Letter to the editor]. *Diabetes Care*, 28, 2592-2593.

<sup>9</sup> Piper JM, Mitchel EF, Snowden M, Hall C, Adams M, & Taylor P. (1993). Validation of 1989 Tennessee Birth Certificates Using Maternal and Newborn Hospital Records. *American Journal of Epidemiology*, 137, 758-768.

<sup>10</sup> Ratner R. (2007). Prevention of Type 2 Diabetes in Women With Previous Gestational Diabetes. *Diabetes Care*, 30, S242-S245.

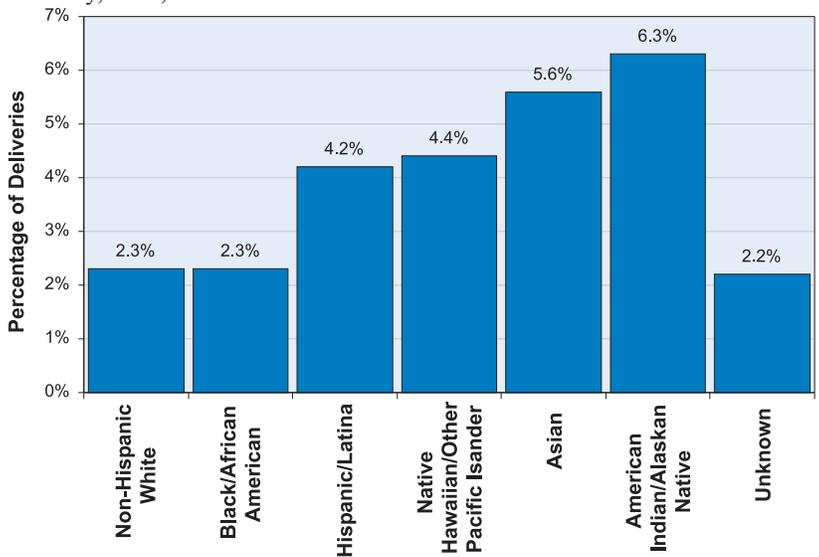
**Gestational Diabetes by Pre-pregnancy Weight**

Figure 3. Percentage of deliveries with gestational diabetes by mother’s pre-pregnancy weight status, Utah, 2006



**Gestational Diabetes by Race/Ethnicity**

Figure 4. Percentage of deliveries with gestational diabetes by mother’s race/ethnicity, Utah, 2002-2006



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**Utah Health Status Update**

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## Breaking News, December 2007

### Osteoporosis in Utah

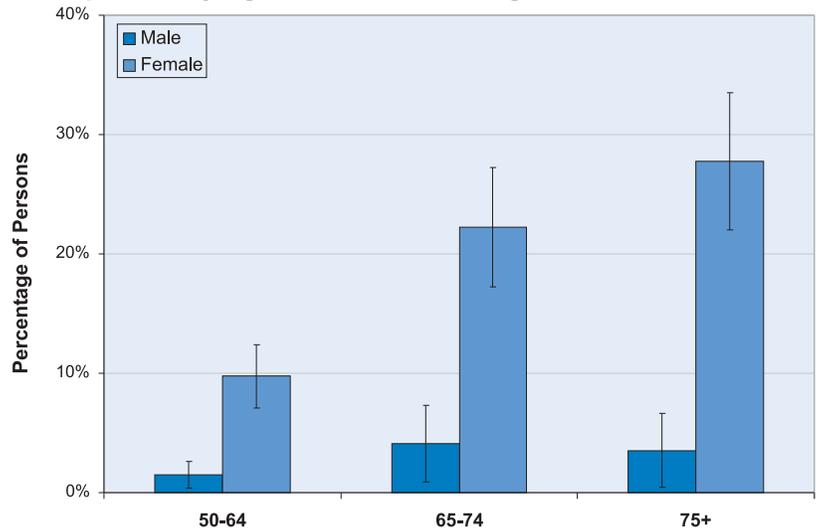
Of people aged 50 and older, 2.4% of males and 16.3% of females reported having been told they have osteoporosis, according to a 2006 Utah Behavioral Risk Factor Surveillance Survey. Of those diagnosed over half of males (55.7%) and females (52.9%) reported taking prescription medicine for osteoporosis. Fewer men (12.5%) reported that they had ever had a bone density test than females (60.4%). (This difference in testing may be due to insurance, including Medicare, not covering the cost of screening for men.) Additionally, females (79%) were more likely than males (21%) to have been told by a doctor, nurse, or other health professional how to prevent osteoporosis.

By 2020, one in two Americans aged 50 and older will be at risk for fractures from osteoporosis or low bone mass.<sup>1</sup> Most fractures among older adults are caused by falls, and in Utah falls are the leading cause of injury among older adults.

It is also of note that osteoporosis rates for women increased for ages 65–74 years (22.3%) and 75 years and older (27.7%). In addition to age, sex and an individual's measure of body fat based on height and weight all play a role in determining the risk and prevention of osteoporosis.

<sup>1</sup>National Osteoporosis Foundation: <http://www.nof.org/>

**Percentage of Persons Who Reported Ever Being Told They Had Osteoporosis by Age and Sex, Utahns Aged 50+, 2006**

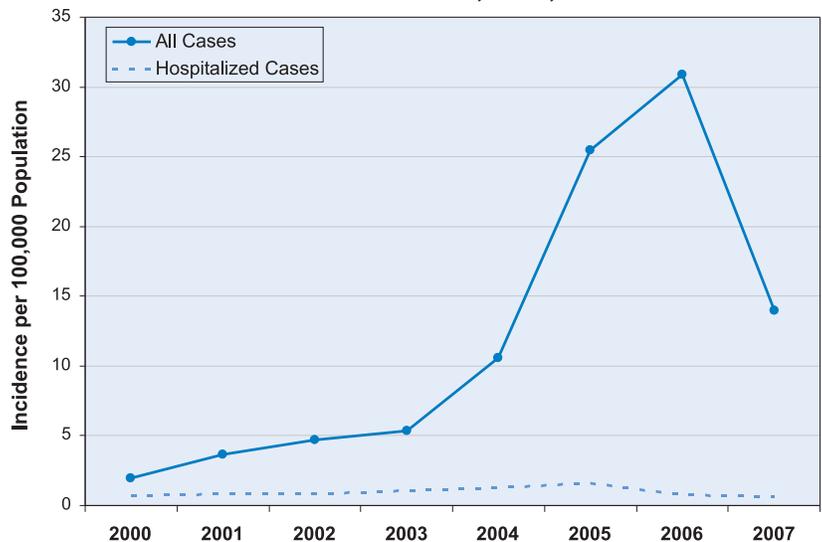


## Community Health Indicators Spotlight, December 2007

### Pertussis Update

Pertussis is a contagious, vaccine-preventable bacterial disease; symptoms include an inspiratory whoop, post-tussive vomiting and paroxysmal cough. After several decades of stable pertussis activity in Utah, reported cases began increasing in 2001, mirroring national trends. From 2000 to 2006, rates of reported pertussis in Utah increased from 2.0 to 30.6 per 100,000 persons per year. Utah reported one of the highest state-specific rates in 2006. Data analyses have suggested that that adults aged 20+ years and adolescents aged 10–19 years had the greatest proportionate increases in pertussis rates. The rates of hospitalized pertussis in infants, which may more accurately reflect community disease occurrence, have remained stable overall. It is likely that increased testing, diagnosis, and disease recognition contributed to the increased rates.

**Annual Incidence of Pertussis Cases\*, Utah, 2000–2007\*\***



\* Confirmed and probable  
\*\* As of December 14, 2007

In comparison to the dramatic increases in cases recently seen, it appears pertussis rates have decreased in Utah over the past year. As of December 14, 2007, 369 pertussis cases have been reported to the UDOH for 2007. This is compared to 715 cases reported in 2006 at this time last year. The number of hospitalizations slightly decreased from 19 in 2006 to 15 cases in 2007. The majority of reported cases continue to occur in adults aged 20+ years.

# Monthly Health Indicators Report

(Data Through November 2007)

Monthly Report of Notifiable Diseases, November 2007	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)	20	18	310	268	1.2
Enterotoxigenic Escherichia coli (E. coli)	7	6	135	95	1.4
Hepatitis A (infectious hepatitis)	0	2	7	32	0.2
Hepatitis B (serum hepatitis)	1	4	13	38	0.3
Influenza <sup>†</sup>	Weekly updates at <a href="http://health.utah.gov/epi/diseases/flu">http://health.utah.gov/epi/diseases/flu</a>				
Measles (Rubeola, Hard Measles)	0	0	0	0	--
Meningococcal Diseases	1	1	12	6	1.9
Norovirus	0	2*	17	14*	1.2
Pertussis (Whooping Cough)	34	35	388	346	1.1
Salmonellosis (Salmonella)	17	15	281	251	1.1
Shigellosis (Shigella)	7	5	40	49	0.8
Varicella (Chickenpox)	89	78*	757	598*	1.3
Viral Meningitis	11	10	133	159	0.8
Notifiable Diseases Reported Quarterly, 3rd Qtr 2007	Current Quarter # Cases	Current Quarter # Expected Cases (5-yr average)	# Cases YTD	# Expected YTD (5-yr average)	YTD Standard Morbidity Ratio (obs/exp)
HIV	21	21	65	62	1.0
AIDS	9	14	29	34	0.8
Chlamydia	1,353	1,101	4,030	2,951	1.4
Gonorrhea	187	153	599	414	1.4
Tuberculosis	6	10	28	26	1.1
Program Enrollment for the Month of November 2007	Current Month	Previous Month	% Change <sup>s</sup> From Previous Month	1 Year Ago	% Change <sup>s</sup> From 1 Year Ago
Medicaid	158,140	158,696	-0.4%	165,456	-4.4%
PCN (Primary Care Network)	20,204	19,882	+1.6%	17,028	+18.7%
CHIP (Children's Health Ins. Plan)	30,651	29,158	+5.1%	34,074	-10.0%

Medicaid Expenditures (in Millions) for the Month of November 2007	Current Month	Expected/Budgeted for Month	Fiscal YTD	Budgeted Fiscal YTD	Variance - over (under) budget
Capitated Mental Health	\$ 1.6	\$ 9.0	\$ 34.8	\$ 36.0	(\$ 6.2)
Inpatient Hospital	\$ 20.9	\$ 16.3	\$ 75.8	\$ 74.7	\$ 1.1
Outpatient Hospital	\$ 6.0	\$ 6.7	\$ 29.5	\$ 31.1	(\$ 1.6)
Long Term Care	\$ 15.0	\$ 16.5	\$ 74.4	\$ 79.5	(\$ 5.2)
Pharmacy	\$ 6.8	\$ 10.5	\$ 49.4	\$ 55.1	(\$ 5.7)
Physician/Osteo Services <sup>‡</sup>	\$ 5.4	\$ 5.5	\$ 22.8	\$ 25.0	(\$ 2.2)
TOTAL HCF MEDICAID	\$ 149.7	\$ 156.7	\$ 575.6	\$ 600.4	(\$ 24.8)
Health Care System Measures	Number of Events	Rate per 100 Population	% Change <sup>s</sup> From Previous Year	Total Charges in Millions	% Change <sup>s</sup> From Previous Year
Overall Hospitalizations (2006)	272,404	9.9%	-0.9%	\$ 3,874.8	+10.7%
Non-maternity Hospitalizations (2006)	161,398	5.7%	-2.5%	\$ 3,235.3	+11.0%
Emergency Department Encounters (2005)	664,523	25.0%	+3.5%	\$ 553.2	+21.2%
Outpatient Surgery (2005)	308,300	11.7%	-0.5%	\$ 947.7	+12.1%
Annual Community Health Measures	Current Data Year	Population at Risk	Number Affected	Percent/Rate	% Change <sup>s</sup> From Previous Year
Overweight and Obesity (Adults 18+)	2006	1,777,802	976,000	54.9%	+1.3%
Cigarette Smoking (Adults 18+)	2006	1,777,802	174,200	9.8%	-15.0%
Influenza Immunization (Adults 65+)	2006	217,313	156,700	72.1%	+3.4%
Health Insurance Coverage (Uninsured)	2006	2,582,371	306,500	11.9%	+2.5%
Motor Vehicle Crash Injury Deaths	2006	2,582,371	296	11.5 / 100,000	-0.7%
Suicide Deaths	2006	2,582,371	357	13.8 / 100,000	+1.6%
Diabetes Prevalence	2006	2,582,371	105,600	4.1%	-0.7%
Coronary Heart Disease Deaths	2006	2,582,371	1,563	60.5 / 100,000	-2.3%
All Cancer Deaths	2006	2,582,371	2,600	100.7 / 100,000	+1.4%
Births to Adolescents (Ages 15-17)	2006	58,992	981	16.6 / 1,000	+5.9%
Early Prenatal Care	2006	53,475	42,237	79.0%	+0.3%
Infant Mortality	2006	53,475	269	5.0 / 1,000	+12.2%
Childhood Immunization (4:3:1:3:3)	2006	51,016	41,000	80.4%	+8.5%

\* Due to limited historical data, the average is based upon 3 years of data for norovirus, varicella, and 4 years of data for West Nile virus infections.

† Active influenza surveillance has started for the 2007-2008 season in Utah. Activity remains low. As of December 14, 2007, 19 influenza-associated hospitalizations have been reported for the current season. More information can be found at <http://health.utah.gov/epi/diseases/flu>.

§ % Change could be due to random variation.

‡ Medicaid payments reported under Physician/Osteo Services do not include enhanced physician payments.

Note: Active surveillance for West Nile Virus has ended until the 2007 season.