

The Texas Birth Defects MONITOR



A Semi-Annual Data
and Research Update

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June 2007

THE 80TH SESSION OF THE TEXAS LEGISLATURE

INSIDE THIS ISSUE:

Hypospadias in Texas	2
Focus on Craniosynostosis	4
Update from the Texas Center for Birth Defects Research and Prevention	5
New Programs for Women at Risk for Alcohol-Exposed Pregnancy	6
Medicaid and CHIP Expand Coverage	6
Mercury and Texas Fish	7
FAS Conference	7

The 80th session of the Texas Legislature ended on May 31, 2007. Besides the all-important appropriations bill, several bills were passed of relevance to perinatal and child health:

H.B. 709 requires that a brochure be provided to pregnant women with educational information concerning the collection, processing, and storage of umbilical cord blood. This bill also requires the Texas Health and Human Services Commission to prepare and update a brochure based on nationally accepted, peer reviewed, scientific research information regarding stem cells contained in the umbilical cord blood after delivery of an infant and requires certain providers of perinatal services to give the brochure to pregnant women before the third trimester or as soon as reasonably feasible. Signed into law May 17, 2007; effective immediately. For more information, contact Chan McDermott, Texas Department of State Health Services, 512-458-7111 Ext. 6663, chan.mcdermott@dshs.state.tx.us.

H.B. 109 restores several features of the Children's Health Insurance Program (CHIP) and reinstates 12 months of continuous coverage instead of six months, and reinstates "income disregards" expenses that drop a family's income to the eligibility level, such as child care ex-

penses or work related expenses. This bill will also eliminate the assets test, and will reinstate a community outreach and education campaign to utilize school-based health clinics, community based organizations and coalitions to provide information and educate the community on CHIP, and eliminate the 90-day waiting period during all stages of the application process, unless the child was previously covered under another health benefits plan. Signed by the Governor June 15, 2007; effective immediately. For more information, contact Ramona McKissic 206-4536, Ramona.mckissic@hhsc.state.tx.us

SB909 requires the Texas Department of Criminal Justice (TDCJ) to establish a screening program to identify female inmates who are between the ages of 18 and 44; sentenced to a term of confinement of two years or less; and at risk for having a pregnancy with alcohol-related complications and to evaluate their family planning practices in relation to alcohol consumption. TDCJ will also provide a brief substance abuse intervention to all female inmates identified by the screening program as being at risk for having a pregnancy with alcohol-related complications; and an educational bro-

(Continued on page 4)

FROM THE REGISTRY

HYPOSPADIAS IN TEXAS

Hypospadias is a birth defect in males in which the urinary meatus (the outlet through which urine passes) is located along the ventral side of the penis or on the perineum, rather than at the tip of the glans. The location of the urinary meatus can be used to classify hypospadias as 1st degree (glandular or coronal meatus), 2nd degree (meatus along the underside of the shaft of the penis), or 3rd degree (meatus at the scrotum or perineum). Hypospadias may be surgically repaired for urologic, reproductive, psychological, or cosmetic reasons. Surgery to extend the urethra to the tip of the penis is usually performed when the child is 3 to 18 months of age, although the surgery can be performed at any age, even in adults.

The prevalence of hypospadias (all types combined) among deliveries during 1999-2003 to Texas resident mothers was 27.5 cases per 10,000 live births (95% confidence interval [CI] 26.7-28.3). By comparison, the Metropolitan Atlanta Congenital Defects Program reported the 1999-2003 prevalence of hypospadias or epispadias (a defect in which the urinary outlet is dorsal to the normal position) was 33.0 cases per 10,000 live births (NBDPN, 2006).

Thirty-seven percent of Texas hypospadias cases born during 1999-2003 were 1st degree (1854 cases), 7 percent (350 cases) were 2nd degree, and 4 percent (197 cases) were 3rd degree. Over half (2623 cases, 52%) of the hypospadias case records in the Texas Birth Defects Registry lacked information about the location of the urinary meatus. Such cases are called hypospadias NOS, meaning “not otherwise specified.”

Second and 3rd degree hypospadias are considered to be more severe than 1st degree. The Texas prevalence for 2nd degree hypospadias was 1.9 cases per 10,000 live births (95% CI 1.7-2.1), and for 3rd degree was 1.1 per 10,000 (95% CI 0.9-1.2) (Figure 1). This can be compared to information from the

Figure 1. Prevalence of Hypospadias by Clinical Type, Texas, 1999-2003

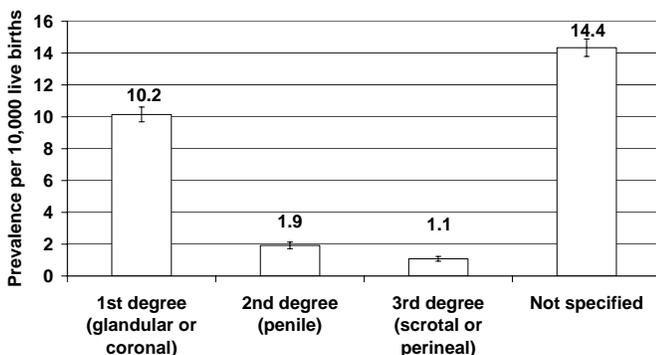


Table. Hypospadias overall and by maternal age, race/ethnicity, residence in a county bordering Mexico, and delivery year, Texas, 1999-2003

Characteristic	Number of cases	Prevalence (per 10,000 live births)	95% Confidence Interval for Prevalence
Total	5024	27.5	26.7 - 28.3
Maternal age group (p<0.0001)			
<20	656	24.3	22.5 - 26.2
20-24	1259	24.3	22.9 - 25.6
25-29	1351	27.8	26.3 - 29.3
30-34	1126	31.1	29.3 - 32.9
35-39	514	32.5	29.7 - 35.4
40+	118	36.5	29.9 - 43.1
Maternal race/ethnicity (p<0.0001)			
White	2729	39.1	37.6 - 40.5
African American	651	31.8	29.3 - 34.2
Hispanic	1479	17.3	16.4 - 18.2
Residence in a Mexico-border county (p<0.0001)			
Yes	429	18.0	16.3 - 19.7
No	4595	28.9	28.1 - 29.8
Year of delivery (trend test, p<0.0001)			
1999	1024	29.3	27.5 - 31.1
2000	1034	28.5	26.7 - 30.2
2001	982	26.9	25.2 - 28.6
2002	987	26.5	24.9 - 28.2
2003	997	26.4	24.8 - 28.1

California Birth Defects Monitoring Program, which, to our knowledge, collects and reports data on 2nd and 3rd degree hypospadias only. During 1999-2003, California reported the prevalence of hypospadias or epispadias was 1.8 cases per 10,000 live births (NBDPN, 2006).

In Texas, hypospadias varied by maternal age, being least prevalent among younger mothers and increasing in prevalence as maternal age increased (Table, p<0.0001). Similar patterns were observed for 1st degree, 2nd degree, 3rd degree, and hypospadias NOS, with each type of hypospadias being more common among older mothers and less common among younger mothers (data not shown).

Hypospadias showed statistically significant differences by maternal race/ethnic group (Table, p<0.0001). It was more common among deliveries to non-Hispanic White and African American mothers, and significantly less common among the offspring of Hispanic mothers. Similar patterns by maternal race/ethnicity were observed for 1st, 2nd, and 3rd degree hypospadias and for hypospadias NOS (data not shown).

Hypospadias was also significantly less prevalent among mothers who resided in a Texas county bordering Mexico than among mothers who resided elsewhere in Texas (Table, $p < 0.0001$). This may be attributable to the fact that 93% of mothers residing in counties bordering Mexico are of Hispanic ethnicity, and hypospadias is less frequent among the children of Hispanic mothers. When examined by type of hypospadias, we found that 1st degree, 2nd degree, and hypospadias NOS were all statistically significantly lower among residents of border counties (data not shown). However, for 3rd degree hypospadias there was no difference in prevalence between border (0.9 cases per 10,000 live births; 95% CI 0.6-1.4) and non-border residents (1.1 per 10,000; 95% CI 0.9-1.3) ($p = 0.42$).

The prevalence of hypospadias in Texas declined from 29.3 cases per 10,000 live births (95% CI 27.5-31.1) in 1999 to 26.4 per 10,000 (95% CI 24.8-28.1) in 2003, and the downward trend was statistically significant (Table, $p < 0.0001$). When examined by type, there were no significant changes over time in the prevalence of 2nd degree ($p = 0.52$) or 3rd degree hypospadias ($p = 0.83$) (Figure 2). However, the prevalence of unspecified hypospadias decreased significantly from 16.8 cases per 10,000 live births (95% CI 15.5-18.2) in 1999 to 12.00 per 10,000 (95% CI 10.9-13.1) in 2003 ($p < 0.0001$). Over the same time, 1st degree hypospadias increased from 8.7 cases per 10,000 live births (95% CI 7.7-9.7) in 1999 to 11.1 per 10,000 (95% CI 10.0-12.1) in

2003 ($p < 0.0001$). This indicates that over time registry case records became more likely to include information on the location of the urinary meatus, allowing more cases to be classified as 1st degree and fewer classified as unspecified hypospadias.

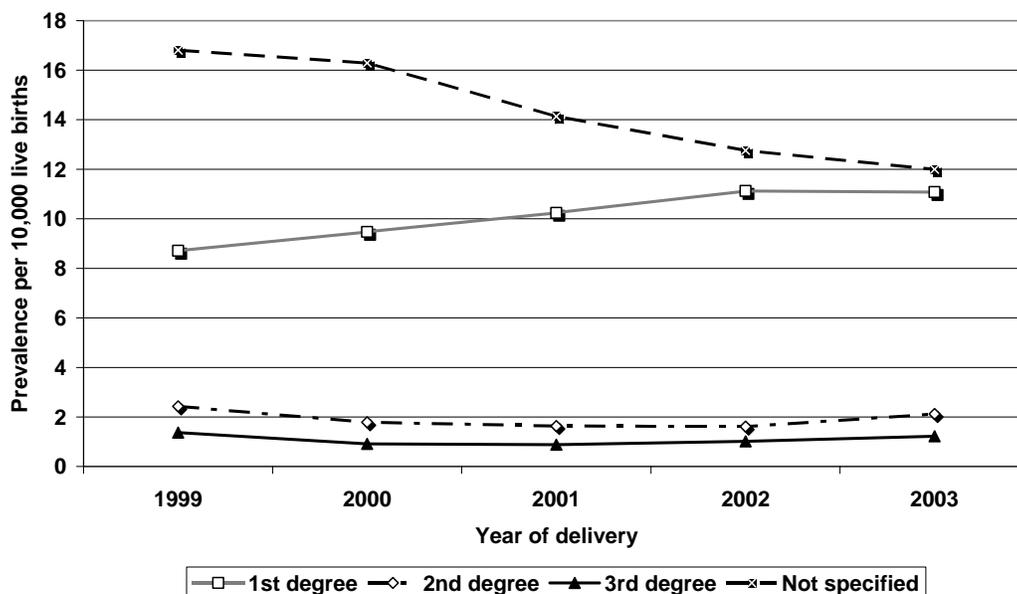
Nevertheless, the majority of hypospadias cases in the Texas Birth Defects Registry are of unspecified type. The location of the urinary meatus may not always be noted in the medical records at the time of birth or initial diagnosis. The degree of hypospadias would likely be specified in the medical records for a surgical repair, if surgery is done, but not all cases require surgery. Current recommendations are to perform repair surgery between 3 and 18 months of age. The Texas registry would not include information for any surgery performed after 1 year of age, however, because diagnostic information for the registry is collected only up to the child's first birthday.

Hypospadias overall and hypospadias of unspecified degree both declined in Texas from 1999 to 2003. Hypospadias was less common among mothers of Hispanic origin and among residents of counties bordering Mexico. The risk of hypospadias was lowest among younger mothers and increased with increasing maternal age.

For more information, contact Mary Ethen, M.P.H. at 512-458-7232 or mary.ethen@dshs.state.tx.us.

Reference:

Figure 2. Hypospadias Trends by Clinical Type, Texas, 1999-2003



(Continued from page 1)

chure describing the risks and dangers of consuming alcohol during pregnancy to all female inmates. Signed into law May 30, 2007; effective immediately. For more information, contact Carolyn Smith, Texas Office for the Prevention of Developmental Disabilities, 512-206-5869, Carolyn.smith@hhsc.state.tx.us

SB143 Fetal Infant Mortality Review. The bill authorizes establishment of fetal and infant mortality review teams by local health authorities, other local health officials, or the Department of State Health Services (DSHS). A key piece of this review process is a material interview, which is crucial to understanding a longer-term picture of the baby's development, mother's health care status and usage of prenatal health resources, interactions with existing community health systems, and other elements of day-to-day life that, in the end, may have contributed to the child's death. The review team will also review fetal deaths with an eye toward the systems that impacted the pregnancy loss, including those that may have played a part in the mother's health even before conception. The bill also amends the text of the sign required to be posted by sellers of cigarettes or tobacco products that currently warns against sales to a minor to provide additional health warnings for pregnant women. The Comptroller of Public Account will design and provide this warning sign. Signed into law June 16, 2007; effective September 1, 2007.

Also of interest is **HB1066** which establishes the Texas Health Services Authority as a public-private collaborative to promote, implement, and facilitate the voluntary and secure electronic exchange of health information, and create incentives to promote, implement, and facilitate the voluntary and secure electronic exchange of health information. While this effort is intended to reduce medical errors, it also has the potential to greatly improve the efficiency of active surveillance systems such as the Texas Birth Defects Registry.



FOCUS ON CRANIOSYNOSTOSIS

Craniosynostosis is premature closure of any of the cranial sutures. That is, the bones in the head fuse together too soon. This syndrome can affect one suture or multiple sutures (sagittal, coronal, lambdoidal, metopic), and often results in an abnormally shaped head. About one half of children with craniosynostosis demonstrate speech, cognitive, and/or behavioral abnormalities.

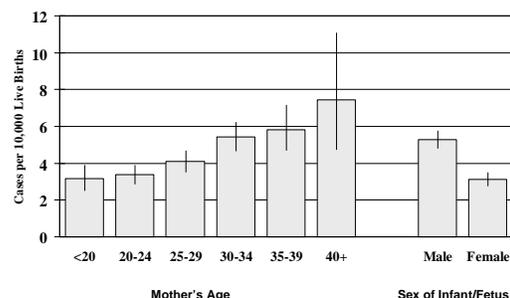
Craniosynostosis is associated with a number of syndromes; the most commonly reported ones are Crouzon's disease, Apert syndrome, Carpenter syndrome, Saethre-Chotzen syndrome, and Pfeiffer syndrome.

In Texas, craniosynostosis affects about 4 babies for every 10,000 live births. It is associated with greater maternal age and male infants (Figure 1); is lower among children of black mothers (Figure 2); and varies significantly by county (Figure 3). Some regional differences in birth prevalence of craniosynostosis are apparent (Figure 4).

In addition, various researchers have identified the following risk factors associated with craniosynostosis:

- Increased maternal age
- Increased paternal age
- Urban residence (coronal and lambdoidal)
- Residence at high altitude
- Paternal occupations of agriculture, forestry or mechanics
- Maternal smoking
- Maternal use of nitrosatable drugs
- Use of assisted reproductive technology
- Thyroid disease

Figure 1: Craniosynostosis, Texas, 1999-2003



RESEARCH CENTER UPDATE

WELCOME NEW COLLABORATOR

We are pleased to announce the addition of Dr. Chuck Huber as a collaborator of the Texas Center for Birth Defects Research and Prevention. Dr. Huber is an Assistant Professor of Biostatistics at the School of Rural Public Health, Texas A & M University, College Station. His areas of interest/expertise include genetic epidemiology and categorical and longitudinal/multilevel data analysis.

Dr. Huber is a biostatistician by training, but is quite fluent in genetics, having spent 7 years working with Craig Hanis at the Human Genetics Center in Houston. He has an ongoing grant at the moment to develop methods for power calculations for longitudinal genetic association studies using simulations.

RECENT PUBLICATIONS FROM THE TEXAS CENTER

- Archer, N. P., Langlois, P. H., Suarez, L., Brender, J., & Shanmugam, R. (2007). Association of paternal age with prevalence of selected birth defects. *Birth Defects Res A Clin Mol Teratol*, 79, 27-34.
- Brender, J. D., Suarez, L., Felkner, M., Gilani, Z., Stinchcomb, D., Moody, K., Henry, J., & Hendricks, K. (2006). Maternal exposure to arsenic, cadmium, lead, and mercury and neural tube defects in offspring. *Environ Res*, 101, 132-139.
- Carmichael, S. L., Shaw, G. M., Yang, W., Laurent, C., Herring, A., Royle, M. H., & Canfield, M. A. (2006). Correlates of intake of folic acid-containing supplements among pregnant women. *Am J Obstet Gynecol*, 194, 203-210.
- Case AP, Ramadhani TA, Canfield MA, Beverly L, Wood R. Folic Acid supplementation among diabetic, overweight, or obese women of childbearing age. *J Obstet Gynecol Neonatal Nurs*. 2007 Jul-Aug;36 (4):335-41.

Figure 2: Craniosynostosis, Texas
1999-2003

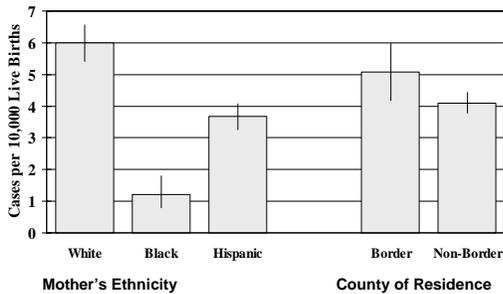


Figure 3: Craniosynostosis, Texas
1999-2003

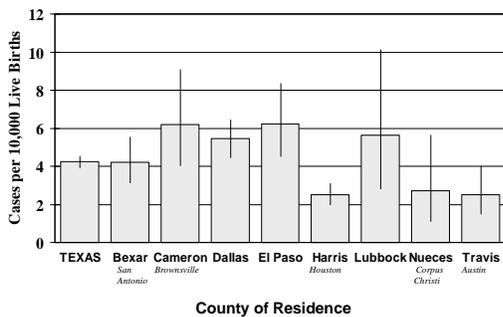
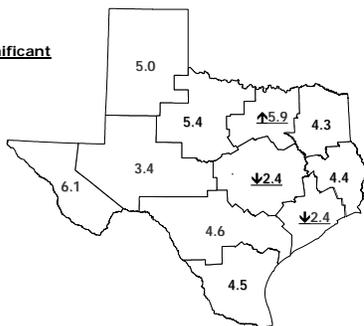


Figure 4: Craniosynostosis
1999-2003

State rate = 4.2
Statistically Significant
↑ or ↓



FAS CORNER

NEW PROGRAMS FOR AT-RISK WOMEN

In 2005 the Texas Department of State Health Services (DSHS) funded seven new Pregnant, Post-Partum Intervention (PPI) Programs. This brought the total number statewide to eleven. These programs provide intervention services for pregnant and post-partum women who are at risk of using, abusing or becoming dependent on alcohol and other drugs (AOD). The programs vary in scope and size, but all are required to provide education on the effects of AOD on the fetus, parenting education, along with screening and referral for substance abuse, domestic violence and mental health problems. The programs are sited in a variety of environments from Child Protective Services offices to alternative high schools.

DSHS staff developed a PPI Risk Assessment questionnaire modeled on PRAMS. Extensive information is gathered regarding the mental health, particularly depression, occurrence of domestic violence and the use of AOD by both the mother and her partner.

This follows evidence based practices to intervene with women who are at risk of using AOD because of a history of abuse and violence, familial substance abuse, mental health problems, involvement with a using partner or teen pregnancy.

The PPI programs add another piece to a slowly growing continuum of care for pregnant and parenting women with substance abuse/dependency problems. Specifically, they are a bridge to helping a woman enter treatment and one for pregnant and perinatal women to stabilize and receive support after leaving treatment.

At the state level, DSHS WIC and Community Mental Health & Substance Abuse Service staff has presented two informational classes on substance abuse and available services for WIC personnel via the Interactive Direct Learning program. Two more classes are in development.

Consolidation has also helped with cross-system integration and coordination. The need to sequence services and maximize resources for pregnant and parenting women remains central to the wellbeing of infants born in Texas.

On an average day in Texas . . .

- 1243 pregnancies are diagnosed
- 1091 babies are born
- 39 have one or more major structural or chromosomal abnormalities
- Every other day a baby is be born with a neural tube defect (spina bifida or anencephaly)
- Texas Medicaid pays \$15,659 to treat children with spina bifida
- 2-3 infants die due to congenital malformations
- 3.6 million women of childbearing age do not take a folic acid supplement.

For more information, please contact Judy Brow, Specialized Female Services Coordinator at:

judy.brow@dshs.state.tx.us. Free information and education materials can be ordered from the federal Mental Health and Substance Abuse Services Administration clearinghouse: <http://ncadi.samhsa.gov/>. The Clearinghouse materials include information for clinicians, parents and the general public.

LIVING WITH BIRTH DEFECTS **MEDICAID AND CHIP PROGRAMS EXPAND** **COVERAGE**

Since January 1, 2007 the Texas Women's Health Program has provided women earning up to 185 percent of the federal poverty limit with gynecological exams, related health screenings and birth control through Texas Medicaid. The state also is adding a new type of coverage to the Children's Health Insurance Program (CHIP) to provide prenatal care for the unborn children of low-income women who do not qualify for Medicaid.

The new CHIP coverage is designed to cover unborn babies of low-income women who don't qualify for Medicaid. The program covers basic prenatal care, including doctor's visits, tests, education and counseling. Once born, the child will receive traditional CHIP coverage.

The program covers unborn children of pregnant women who:

- Have a household income greater than 185% of the Federal Poverty Level (FPL) and at or below 200 percent FPL.
- Have a household income at or below 200% FPL but do not qualify for Medicaid because of immigration status.

A fact sheet describing the new benefits can be found online at http://www.dshs.state.tx.us/mch/pdf/Provider_Fact_Sheet.pdf or by calling (512) 458-7321

ANNOUNCEMENTS

MERCURY AND TEXAS FISH

The Texas Department of State Health Services (DSHS) has issued an advisory warning people to limit consumption of freshwater drum and largemouth bass from Clear Lake and Hills Lake and bowfin from Clear Lake. Both lakes are in Panola County in East Texas. The advisory was issued after laboratory testing detected elevated levels of mercury in the three species.

Adults and children 12 and older are advised to eat no more than two 8-ounce servings per month. Children under 12 should eat no more than two 4-ounce servings per month. Pregnant women, women who could become pregnant and mothers who are breastfeeding are advised not to eat any of the freshwater drum and largemouth bass from the lakes or bowfin from Clear Lake. No other species of fish from the two lakes are included in the warning.

Regular ingestion of methyl mercury, the mercury compound in the fish, can harm the human brain and nervous system. Young children are especially at risk. The brain and nervous system in a developing fetus can be permanently damaged if the mother-to-be eats foods containing elevated levels of mercury during pregnancy.

Mercury is a naturally occurring element that gets into air and water from the weathering of the earth's crust, from the burning of fossil fuels and from some industrial discharges and emissions.

There is no risk of mercury poisoning from fishing, skiing or swimming in the two lakes.

A colorful handout about mercury in fish (a known teratogen) is available for download from the Texas department of State Health Services' Environmental and Consumer Safety Section. This handout can be found at:

<http://www.dshs.state.tx.us/seafood/PDF2/MercuryinFishYouCatchfromTexasWaters.pdf>

FAS CONFERENCE

The Texas Office for Prevention of Developmental Disabilities will present "Alcohol Exposed Pregnancy: Prevention, Assessment, and Intervention with Women and Children at Risk" Monday November 12 2007 1:00 PM to Tuesday November 13 2007 4:15 PM. A registration fee of \$100 includes the speakers below and a plenary lunch:

- Grace Chang, MD, MPH, Dept of Psychiatry, Harvard Medical School, and Boston's Brigham and Women's Hospital
- Sterling Clarren, MD, CEO and Scientific Director at Vancouver's Centre for Community Child Health Research
- Louise Floyd, DSN, RN, Team Leader of the FAS Prevention Team at NCBDDD
- Kenneth Warren, PhD, Director (acting) Office of Science Policy and Communications, National Institute on Alcohol Abuse and Alcoholism
- Mary Marden Velasquez, PhD Associate Dean for Research, Director Center for Social Work Research, UT Austin
- Michael Lindsey, JD, PhD, CEO Nestor Consulting Dallas.

Breakout sessions speakers include a substance abuse treatment panel, a parent panel, and others.

The event will be held at the Omni Austin Southpark--rooms at \$85 per night can be reserved by October 21, 2007. CEUs for nurses, social workers, counselors, and criminal justice are being sought.

For more information, top@hhsc.state.tx.us, (512) 206-4544.

The *Monitor* is published twice a year by the Birth Defects Epidemiology and Surveillance Branch, Texas Department of State Health Services:

- Glenda Rubin Kane, Chair, Texas Department of State Health Services Council
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- Debra Stabeno, Assistant Commissioner for Prevention and Preparedness Services
- Casey S. Blass, Director, Disease Prevention and Intervention Section
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October 13, 2007. Houston Child Life Conference 2007 "Changing the World of Hospitalized Children". Contact: qmfrankl@texaschildrenshospital.org.

October 16-19, 2007 Texas Environmental Health Association Annual Educational Conference, Austin. Contact: Ginger Shaffer 903-572-7278, gingershaffer@mythea.org.

October 17-19, 2007 Spirituality in Pediatrics: Caring for the Whole Child. Texas Children's Hospital, Houston. Contact: 832-824-2514, ClergySymposium@texaschildrenshospital.org

October 19-21, 2007 Arc of Texas Family Retreat Weekend and Annual Meeting, Camp for All, northwest of Brenham. Contact: 800-252-9729, secretary@thearcoftexas.org

December 2-4. Vital Statistics Annual Conference

December 14-17. 13th Annual Maternal Child Health Epidemiology Conference. Atlanta GA. Contact: 402-561-7500, citymch@unmc.edu

January 28-February 2 Society for Maternal-Fetal Medicine Annual Meeting, Dallas. Contact: 202-863-2476, smfm@smfm.org.

February 2008: National Birth Defects Prevention Network Annual Meeting. TBA. Contact: Cara Mai, 404-498-3918, cwm7@cdc.gov.

February 20-23, 2008 Inclusion Works! Conference, Renaissance Hotel, Austin. Contact: 800-252-9729, secretary@thearcoftexas.org