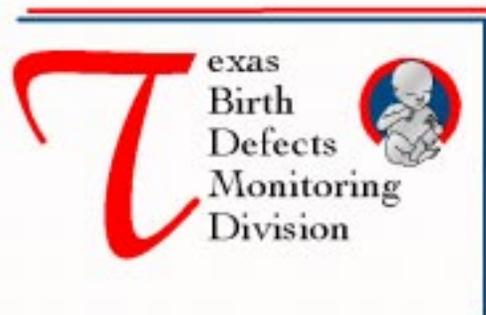


The Texas Birth Defects Monitor



Vol. 5, Issue 2

December 1999



From the Director

Binational Birth Defects Meeting

On September 1 and 2, the Texas Birth Defects Monitoring Division and the Texas Birth Defects Research Center hosted a meeting in San Antonio of 21 state and federal officials from Mexican and U.S. health agencies. The purpose of the meeting was to discuss enhanced and sustained communication, mutual interests, and potential collaboration in birth defects surveillance, prevention, and research.

The meeting was well-attended and many common goals were identified. It was clear that not only are birth defects issues a priority on both sides of the border, but also that the interdependent nature of the relationship between Texas and Mexican border states is recognized by those present. The following summarizes plans proposed at the September meeting:

- The key to an effective relationship will be a workable communications process. One principal birth defects liaison will be named from each of the five states (including Texas). Each key contact is responsible for keeping shared information flowing in both directions. The Pan American Health Organization (PAHO) will be responsible for facilitating communication between U.S. and Mexican Federal governments and state representatives. An e-mail distribution system and possibly a web site will be developed.
- One or two people chosen from each of the five states will comprise a data work group. This group convened in Monterrey in November to come up with a table and graphic of border-wide anencephaly figures, with a description of the methods behind those figures in each jurisdiction. In subsequent meetings, we hope to begin work on developing similar data on spina bifida and eventually other defects. Additional plans put forward by the work group include:
 - The group will support and seek funding to bring "active" birth defects surveillance to all five states.
 - The group will work collaboratively to implement strategies aimed at lowering the recurrence risk of NTDs in all five states.

Another work group meeting is planned for March 2000. I will continue to keep you up-to-date on this important collaboration.



Research from Texas Colleagues

Chromosome deletion that causes DiGeorge syndrome is found in mice

A mouse model for studying a congenital heart disease has provided clues about the genetic cause and a possible way to prevent the disorder.

Researchers at Baylor College of Medicine and Howard Hughes Medical Institute (HHMI) in Houston created the mouse model to study DiGeorge syndrome, a genetic disorder that causes potentially lethal heart defects. They identified the deleted portion of the chromosome that produces the defects and found that duplicating this chromosome region can prevent the defects.

Their study was reported in the September 23, 1999 issue of the scientific journal *Nature*.

DiGeorge syndrome occurs in one of every 4,000 babies. About eight percent of patients with the disorder die of a defect in the aorta that prevents the lower part of the body from receiving oxygenated blood. The defect must be surgically repaired during the first few days of life. Other patients with DiGeorge syndrome might develop related heart problems that require surgery within the first several months, facial abnormalities, mild retardation, or psychiatric problems.

In humans, the disorder has been traced to a missing

Continued on page 2

What 's Inside

UTMB: Early Test for Down Syndrome	2
The Pew Report	2
Texas Folic Acid Council Moves Forward	3
NBDPN Materials	3
Pilot Parent Program	3
Prenatal Care at the Turn of the Century	4
Announcements	6

Continued from page 1

portion of chromosome 22. This chromosome deletion, known as del22q11, spans approximately 25 genes, although which one of those missing genes causes the syndrome remains unknown. The deletion occurs on only one of the two chromosomes 22; the other chromosome in the pair is normal.

Dr. Antonio Baldini, assistant professor of pediatrics and associate professor of molecular and human genetics at Baylor and an associate in cardiology at Texas Children's Hospital, led the research team that developed the mouse model to study DiGeorge syndrome.

He found a region on mouse chromosome 16 that is similar in size and gene content to the chromosome deletion in humans. When that region was deleted on one of the two chromosomes 16, the mice developed heart defects shortly after 10 days of embryonic development, which corresponds to 27 to 29 days in humans. This confirmed that the chromosome deletion is responsible for the heart defects in DiGeorge syndrome and provided evidence of the time at which the defects occur.

The research yielded a surprise to Baldini and colleagues: When mice with the chromosome deletion were bred with mice that had a duplication, or extra copy, of the same portion of chromosome 16, no heart defects developed. "This discovery might be useful in developing a preventive treatment for these heart defects, but much more research will be needed before such an application could be designed for humans," Baldini said. "The most important thing is that we now have a model on which we can test preventive strategies suitable to humans."

Other members of the research team in Baylor's Department of Molecular and Human Genetics were Dr. Allan Bradley, also an HHMI investigator, Dr. Elizabeth A. Lindsay, Dr. Annalisa Botta, Vesna Jurecic, Sandra Carattini-Rivera, and Yin-Chai Cheah. Dr. Howard M. Rosenblatt in the Department of Pediatrics also collaborated on the study, which was funded by the National Heart, Lung and Blood Institute.

UTMB Galveston Investigates Early Test for Down Syndrome

Does my baby have Down syndrome? It is a question that thousands of women across the state ask each year. Someday, researchers at the University of Texas Medical Branch in Galveston (UTMB) hope to be able to answer this question as early as 12 weeks in pregnancy. UTMB is participating in a nationwide prospective study to evaluate the effectiveness of first trimester maternal serum and ultrasound screening for Down syndrome and compare the effectiveness of first trimesters screening to maternal serum screening currently offered to women during the second trimester. UTMB is one of 11 centers across the United States to have been awarded the National Institute of Health's *First And Second Trimester Evaluation of Risk* (F.A.S.T.E.R.) trial and is the only center in Texas participating in this project.

Over the next two years, physicians at UTMB hope to

recruit 3000 women for the study, which involves a first trimester ultrasound to measure fetal nuchal translucency and collection of maternal blood to measure the levels of PAPP-A and HCG. Patients with an increased risk for Down syndrome by either first or second trimester screening will be offered genetic counseling and amniocentesis. First trimester ultrasound and maternal serum screening is free to all patients participating in the study.

"This is our opportunity to provide physicians and their patients with an earlier and potentially more accurate method of screening for Down syndrome and other fetal abnormalities," says Gary Hankins, MD, principal investigator on the F.A.S.T.E.R. trial at UTMB. "We will always be interested in bringing innovative and effective technology to the women of Texas."

Down syndrome, or Trisomy 21, is a chromosome problem that generally occurs by chance through a mistake in maternal cell division prior to conception. Individuals with Down syndrome have mental retardation and may have other serious birth defects including heart defects. Each year, more than 400 babies are born in Texas with Down syndrome, making it one of the most common causes of mental retardation. If you are interested in learning more about F.A.S.T.E.R. or enrolling patients in this study, contact Jennifer M. Lee, MS at (409) 772-1571 or jmlee@utmb.edu.

**Registries in the News****The Pew Report**

"Healthy from the Start," a report on birth defects and related conditions published by the Pew Environmental Health Commission, looked at low birth weight and preterm births, 20 different structural birth defects, and three developmental disabilities—cerebral palsy, mental retardation and autism. The study had three objectives:

- Examine the quality and comprehensiveness of state tracking systems to assess the ability of researchers to answer questions about causes and prevention strategies;
- Examine existing data from state birth defect registries to learn more about the rates and variations among states; and
- Investigate the connection between exposure to environmental toxicants and birth defects and related conditions.

The study found that less than half the nation's population is covered by state birth defects registries. One-third of all

Seventeen states, the District of Columbia, and Puerto Rico have no (birth defects monitoring) system at all.--The Pew Report

states have no system for tracking birth defects. Two-thirds collect basic information about structural birth defects, but there are wide variations in how the data are collected.

Thirty-three states have some form of tracking system, but many use the “passive” method that relies on reporting by doctors and hospitals. Of the 26 with data available at the time of the study, 16 rely on “passive” reporting by hospitals and doctors, which frequently underestimates the number of cases. Only 10 states (including Texas) use “active” methods, applying state resources to search out information about birth defects and related conditions in the general population. Seventeen states, the District of Columbia, and Puerto Rico have no system at all.

A report issued by the Pew Commission graded states’ birth defects surveillance according to seven criteria, including birth defects monitored, statewide coverage, follow-up, active versus passive surveillance, inclusion of fetal deaths, timeliness, and analytic capability. Texas received an “A,” with a favorable mark in all categories except timeliness and statewide coverage (the Texas Birth Defects Registry is now statewide, but was not during 1996, the most recent date of the data analyzed by this report). Copies of the report can be obtained at <http://pewenvirohealth.jhsph.edu/html/home/home.html> or by calling 410-659-2690.



Texas Folic Acid Council Moves Forward

The Texas Folic Acid Council (TFAC) has recently accomplished several major milestones:

- Received funding from the March of Dimes Mission Investment Opportunities Program (MIOP) grant. This grant will help launch a statewide folic acid campaign which will include donated media time for public awareness messages, distribution of folic acid “starter kits”, and professional education initiatives.
- Established bylaws.
- Finalized a contract, through the MIOP funds, with a TFAC Coordinator who will ensure that the goals and objectives of the TFAC are accomplished over the next three years. Shari Furst has a degree in mass communications and seven years experience in working for a communications firm that had a contract with a federal agency for developing, testing, and distributing health information materials.

The goal of the TFAC is to conduct a statewide folic acid social marketing campaign to increase awareness of the benefits of folic acid in preventing neural tube birth defects (NTDs) and to increase consumption of folic acid among women in their childbearing years. State organizations, professional and industry representatives, government agencies, foundations and community organizations who support the TFAC’s goals and have statewide membership or stakeholders may apply for TFAC membership. Applications are available from Shari Furst, TFAC

Coordinator at sharifurst@earthlink.net. (A phone number will be available at a later date).

National Birth Defects Prevention Network Materials

The National Birth Defects Prevention Network (NBDPN) Education Committee has prepared a packet of information to help community health partners in promoting the prevention of birth defects. These materials are designed for use during Birth Defects Prevention Month (January), but are useful for other educational opportunities. The packet includes::

- Suggested (educational) Activities
- Letter to Health Care Providers
- Sample News Release
- Proclamation for Local/County Governments
- List of Internet Resources
- PDF version of Preventing Birth Defects Brochure

If you wish to receive a copy of the various templates please contact Jana Burdge, jburdge@health.state.pa.us, or Cara Mai, cwm7@cdc.gov.



Pilot Parent Program

The Pilot Parent Program, available in the Austin area through The Arc of the Capitol Area (an agency which serves people with mental retardation and other disabilities), provides support and information to families who have children with disabilities, chronic illness, and other special needs. Services include: information and referral, parent-to-parent matching for parents of children with similar needs, emotional support groups, informational meetings, special education assistance, and parent volunteer training. Pilot Parent also has a speaker’s bureau of parents with in-services available to colleges, professionals, and medical facilities; a monthly newsletter; and a small crisis fund and equipment exchange program for families to donate or obtain medical supplies and used equipment. Pilot Parent is staffed by parents of children with disabilities and special needs, and all services are free.

The Parent-to-Parent Support program is based upon the idea that the best support for parents as they face the challenges of having a child with disabilities comes from other parents. The Arc trains volunteer parents to support other parents; when one-to-one support is requested, a volunteer who has a child with similar disabilities or who has faced similar challenges calls the family in need. The volunteer listens without judgment and will reflect on common experiences, and can explain relevant resources. This program is unique in Texas. To obtain more information, contact Tammy McConley, Family Advocate, 512-416-1044 (Austin) or 512-244-8376 (Round Rock). Web site: www.main.org/arc.



From the Past

Prenatal Care at the Turn of the (Last) Century

Often called the “Gilded” or “Progressive” era, the end of 19th century was a period of unparalleled economic, educational, social, and scientific change in the United States. Women’s suffrage, the end of slavery, the Civil War, and technical inventions too numerous to mention mark the century. Confidence in rational thought, science, and American “know-how” was at an all-time high.

Before 1900, pregnancy was not considered subject for professional (medical) intervention, and most pregnant women were cared for, at least until delivery, by the relatives and neighbors who had themselves experienced pregnancy and childbirth.

By the end of the 19th century, prenatal care and the prevention of birth defects had undergone a major paradigm shift. Medical literature and practice no longer focused only on decreasing maternal mortality, but moved toward active care of the expectant mother with a goal of enhanced health for the infant. Application of rational, scientific thought was being incorporated into obstetric care.



Advice for the care of a pregnant woman (though quaintly worded) taken from texts of the day displays a remarkable consistency with today’s standards. Recommendations include:

- ✦ Establishing a relationship with a doctor as soon as a woman

knows that she is pregnant.

- ✦ Monthly checkups (with a great deal of emphasis on examining the state of the kidneys).
- ✦ Participating in moderate exercise.
- ✦ Avoiding alcohol and extreme emotional upset.

(From Galbraith, Anna M. “The Four Epochs of a Woman’s Life” W.B. Saunders Philadelphia:1903)

And in Texas—circa 1899

Hospital delivery and regular medical care was quickly becoming more common among white, urban women in the Northeast. However, most women in the United States at the turn of the century lived in rural settings, without access to or dependence on “modern” technology and professionals. This is all the more true for women in Texas, many of whom were still living a frontier lifestyle. Prenatal care was most commonly the wisdom and support of female family members and “granny midwives”.

According to the Texas Medical Journal, the following was true of obstetrical care at the end of the 19th century:

- Doctors’ rates for obstetrical care ran \$20-30, for up to four hours’ care.

- These fees were for delivery only—prenatal care was not recognized.

- Cesarean sections were performed—the going rate was \$250-500.



Hospital delivery was a rare event, and doctors were not as likely as midwives to be the birth attendant for Texas women at least through the turn of the twentieth century. Brackenridge Hospital (Austin) opened its doors on July 3, 1884. During 1898-1899, only six pregnant women were admitted, staying between 26-110 days (suggesting complications or other conditions). Hospitalized childbirth and prenatal care by medical doctors were rare in Texas well into the twentieth century.

Public Health and Birth Surveillance in Texas

Texas public health programs did not address maternal health until two decades into the 20th century: in 1922 the Bureau of Child Hygiene was established. By the end of that year, “a maternity home inspector surveyed maternity homes, lying-in hospitals, and baby farms. . .staff were stationed in counties carrying on health education, prenatal care of the mother, and care of the baby. . .” Information on births in Texas was not systematically gathered until 1903. Birth certificate information at that time was limited to county, name, sex, race or color, date of birth, place, legitimate or otherwise, foreign or native parents (nationality of each), name of mother, name of father, and whether stillborn or alive.

Looking Forward . . .

As we face a new century, the potential benefits of applying scientific research and knowledge to prenatal care and the prevention of birth defects are more encouraging than ever. These benefits, however, bring with them an unprecedented level of complexity. Could a 19th century care provider or expectant family imagined the decision-making dilemmas inherent in opportunities such as prenatal testing for birth defects and genetic disorders, fetal surgery, and the wide array of available fertility treatments? Will the scientists, ethicists, and parents of 2100 have devised solutions to these dilemmas? And if so, what new opportunities and dilemmas will they face?

Certainly the end of the 20th century is an exciting and challenging time for those concerned with prenatal care and the prevention of birth defects!



AS Corner

Texas Office for Prevention of Developmental Disabilities

The Texas Fetal Alcohol Syndrome (FAS) Consortium is sponsored by the Texas Office for Prevention of Developmental Disabilities (TOP) in collaboration with The Arc of Texas and the Texas Department of Mental Health and Mental Retardation. Its purpose is to prevent FAS and other Alcohol-Related Neurodevelopmental Disorders (ARND) as primary disabilities, to prevent the occurrence of secondary disabilities in various areas of life functioning, and to support the development and delivery of programs and services which meet the needs of individuals with these disabilities.

The Texas FAS Consortium is based in Austin. The membership includes individuals with FAS; biological, foster, and adoptive parents; state agency representatives; university and medical school-affiliated faculty and clinicians; and representatives of nonprofit direct service agencies.

TOP holds meetings quarterly in Austin at the Arc of Texas. Members in other parts of the state who cannot attend meetings carry out Consortium-sponsored activities in their communities. The agenda for each meeting includes a presentation on a topic of current relevance and common interest to the membership. Meetings also include time for an open forum.

For more information about the Texas FAS Consortium, contact Larry Camp, Executive Director of the Texas Office for Prevention of Developmental Disabilities, at 512-206-5869 or larry.camp@mhmr.state.tx.us. Additional information can be found at www.main.org/texasfasc/.

FAS Brochure Available

The Texas Office for the Prevention of Developmental Disabilities (TOP), in collaboration with TBDMD, has produced a new brochure about Fetal Alcohol Syndrome. Copies of this brochure can be obtained by contacting TOP at 909 W. 45th Street, Austin TX 78751, Phone 512-206-4544, Fax 512-206-4828. An electronic copy of the brochure (Adobe Acrobat format) can be obtained at the TBDMD web site, www.tdh.state.tx.us/tbdmd/index.



Reading List

- *Fumonisin and Neural Tube Defects in South Texas:* A researcher with the Texas Department of Health discussed the potential relationship between fumonisins (mycotoxins produced by mold) and a neural tube defect cluster in South Texas. [Epidemiology 1999;10:198-200]
- *NTDs in South Texas:* Researchers at the Texas

Department of Health described the epidemiology of neural tube defects in the 14 Texas counties that border Mexico. [Am J Epidemiol 1999;149:1119-1127]

- *NTDs and Drinking Water:* A New Jersey study reports that neural tube defects were linked to drinking water disinfection by-products such as trihalomethanes. [Epidemiology 1999; 10: 383-390]
- *Risk Factors for Cryptorchidism and Hypospadias:* An Swedish investigation found that risk factors for both cryptorchidism and hypospadias included the presence of other birth defects, decreased parity, prematurity, and being small-for-gestational-age. This suggests that there may be a common etiology for the two malformations. [Epidemiology 1999; 10: 364-369]
- *Prenatal Screening of Down Syndrome:* Using data from other published studies, researchers in London suggest that using first- and second-trimester screening tools together detects more cases of Down syndrome with fewer false positive results than when either tool is used separately. [N Engl J Med 1999; 341:461-467] Editorial [N Engl J Med 1999; 341:521-522]
- *Recurrence Risk of Birth Defects:* Researchers in Denmark reported that different fathers or a higher socioeconomic status reduced recurrence risk. However, change in place of residence or occupation did not affect recurrence risk. [Am J Epidemiol 1999;150:598-604]
- *Zinc and NTDs:* An investigation in California found that periconceptional intake of zinc decreased risk for neural tube defects. However, this reduction may be due to other nutrients correlated with zinc intake. [Am J Epidemiol 1999;150:605-616]
- *NTD Prevention and Folic Acid:* Two reports from Great Britain evaluated the impact of NTD prevention strategies involving folic acid. Neither found a decline in NTD rates. Potential explanations for this observation were offered. [BMJ 1999;319:92-93; Lancet 1999;354:998-999]
- *Down syndrome and Folic Acid:* A recent study suggests that increased risk for Down syndrome may be related to abnormal folate metabolism and mutations in the methylenetetrahydrofolate reductase gene. [Am J Clin Nutr 1999;70:495-501]
- *Gastroschisis and Diet:* Researchers in California reported that maternal dietary inadequacy around the time of conception may be a risk factor for gastroschisis. [Teratology 1998;58:241-250]
- *NTDs and Maternal Weight:* An investigation in the United States found no significant relationship between maternal weight and risk of having an infant with a neural tube defect. This is contrary to the results found by several earlier studies. [Fetal Diagn Ther 1999;14:185-189]
- *Birth Defects and Multivitamins:* Researchers in Boston examined the relationship between maternal multivitamin consumption and risk for selected birth defects. They found that multivitamin consumption reduced the risk for cleft palate, limb reduction defects, and urinary tract defects. Moderate, non-significant decreases were observed for risk of cleft lip, hydrocephaly, and pyloric stenosis; no reduction was observed for conotruncal defects and ventricular septal defects. [Am J Epidemiol 1999;150:675-682]
- *Oral clefts and smoking:* An investigation conducted in Boston failed to find any association between maternal smoking and oral clefts. [Am J Epidemiol 1999;150:683-694]



Announcements

Texas Birth Defects Research Center Funded

The Texas Birth Defects Research Center was awarded more than \$800,000 for the year 2000 by the Centers for Disease Control and Prevention, National Center for Environmental Health, to continue birth defects research and prevention activities into its fourth year.

Scientific Advisory Committee Changes

Four new consumer representatives were appointed to the Scientific Advisory Committee on Birth Defects in Texas:

- David P. Andis, J.D., Spring TX
- Margaret W. DeMoss, M.P.H., Ft. Worth
- Monica C. Lopez, Houston
- James R. West, Ph.D., Texas A&M University

These new members join the following professional representatives already serving on the committee:

- Dianna M. Burns, M.D., East San Antonio Ped. Assoc.
- Miguel A. Cintron, M.D., Valley Women's Clinic, Harlingen
- Mr. Larry D. Edmonds, M.S.P.H., Birth Defects and Genetic Disease Branch (CDC)
- Richard H. Finnell, Ph.D., Center for Human Molecular Genetics, Munroe-Meyer Institute, Nebraska
- Frances M. Gardner, R.N.C., M.S., Dallas
- C. Antonio Jesurun, M.D., Texas Tech University Health Sciences Center, El Paso
- Celia I. Kaye, M.D., Ph.D., University of Texas Health Science Center, San Antonio

Concluding their terms after years of significant contributions are Lowell Sever, Ph.D., Kim Waller, Ph.D. of the U.T. School of Public Health, and Michael Katz, M.D. of the March of Dimes. We appreciate their contributions!

Families Sought for Study

A five-year international study, funded by a grant from the National Institute of Child Health and Human Development, seeks to identify the factors responsible for variations in the outcomes of children born with Spina Bifida Myelomeningocele (SBM). SBM is a major, severely disabling birth defect, but knowledge of the factors responsible for neurobehavioral outcome is fragmentary. The project aims to make these fragments coherent. Once these connections are better understood, intervention programs to address specific problems can be developed.

The study, "Spina Bifida – Assessment of Neurobehavioral Development International (SANDI) Project", is seeking the participation of families with a member affected by a neural tube defect. Dr. Jack Fletcher of the University of Texas-Houston Health Science Center is heading this project.

Study participation involves an interview to document the

occurrence of spina bifida or any other neural tube defect in family members through a family tree, a brief questionnaire recording the child's lesion level and ethnicity, and lastly, a blood sample, approximately 5-7 mls or two teaspoons, from the child and his/her biological parents. Samples may be collected by the personal physician and shipped directly to the genetics laboratory at no cost, or may be obtained through a home visit by the study nurse.

For more information, contact Irene Townsend, R.N., the SANDI Nurse Research Coordinator at 713-500-3678 or via e-mail at itownsen@ped1.med.uth.tmc.edu.

1996-1997 Texas Birth Data

Publication of the Texas Birth Defects Registry Report of Birth Defects Among 1996-1997 Deliveries is anticipated by March 1, 2000. This is the third report of birth defects since the Registry's inception in March 1995. If you would like to receive a copy of this report when it becomes available, please e-mail sandy.wicker@tdh.state.tx.us or call 512-458-7232. Please let us know if you would like the Adobe PDF (electronic) version, or a paper copy.

CD-ROM available for Genetics Education

A new multimedia CD-ROM providing genetics education with CME credit for physicians and other health professionals is now available. "Genetics & Your Practice" is for doctors, nurses, social workers and other health care providers who want to improve their knowledge of genetics to serve their patients better. The price is \$9.00, including postage and handling. To order a copy use order # 09-1177-99 and call toll-free 800-367-6630.

Research Opportunity

The Robert Wood Johnson Foundation announces Phase II of *Smoke-Free Families: Innovations to Stop Smoking During and Beyond Pregnancy*. The aim of this program is to reduce rates of smoking in America's families by supporting research to develop and evaluate effective new interventions to help women quit smoking before, during, and after pregnancy.

More information can be obtained at <http://www.rwjf.org/new/jwnew.htm>. Richard Toth, Director, Office of Proposal Management, The Robert Wood Johnson Foundation, PO Box 2316, Princeton, NJ 08543-2316. E-mail@rwjf.org

National Group Elects Officers

The National Birth Defects Prevention Network has elected the following officers:

President-Elect: Mark Canfield, Ph.D., Texas Birth Defects Monitoring Division

Secretary Treasurer: Lisa Miller, M.D., M.S.P.H., Colorado Responds to Children with Special Needs

Awards Committee Members: Pam Costa, M.A., New Jersey Department of Health and Senior Services and Tim Flood, M.D., Arizona Department of Health Services

Regional Bulletins

Region 7/4N

Terri (T.J.) Sherry has been promoted to Program Manager. Before joining TBDMD in 1997 as a Field Supervisor, T.J. worked in rural health clinics as a nutritionist with WIC and as a dietitian with Texas MHMR, working with children with birth defects.

Region 2/3

Surveillance for delivery year 1998 in Region 2/3 is near completion. A big "thank you" to all of the facilities including birthing centers for helping us complete surveillance activities for the delivery year.

TBDMD staff is sorry to say good-bye to one of the original Region 2/3 Surveillance Specialists, Cindy Hubbard. At the same time, the Region is happy to welcome Julie Westphal, who joined the program in August.

Calendar

March 18, 2000

Easter Seals 60th Anniversary Gala, Westin Galleria Hotel, Dallas
Contact Toiya Honoré at (972) 394-8900 Ext. 1609.

March 9-12, 2000

Annual Clinical Genetics Meeting, Palm Springs, California
American College of Medical Genetics. Contact Gwen Cantrell,
Phone (301) 571-1887, E-mail gcantrel@faseb.org

May 25-28, 2000

Hydrocephalus 2000: Forward Together, 6th Annual
Conference for Families and Professionals, Scottsdale, AZ
Phone: (415) 732-7040, E-mail: hydroassoc@aol.com

June 4-7, 2000

The AWOHNN 2000 Convention, Association of Women's
Health, Obstetric, and Neonatal Nurses (AWOHNN), Seattle,
Washington. Contact: Ada Phillips at (800) 673-8499, ext.
2425, E-mail adap@awhonn.org.

June 24 - 29, 2000

Teratology Society Meeting, The Breakers, Palm Beach, Florida.
Contact: (703) 438-3104, E-mail: tshq@teratology.org

June 26-30, 2000

The Spina Bifida Association of America 2000 Annual Conference,
Milwaukee, Wisconsin (800) 558-3862

HAPPY NEW YEAR
2000



Contact Us

Central Office:

Texas Birth Defects Monitoring Division

Bureau of Epidemiology, Texas Department of Health
1100 West 49th Street, Austin, Texas 78756
(512) 458-7232 FAX (512) 458-7330

Region 1/9/10:

Texas Birth Defects Monitoring Division
Texas Department of Health
6070 Gateway East, Suite 401
El Paso, Texas 79905
(915) 783-1186 FAX (915) 783-1192

Region 2/3:

Texas Birth Defects Monitoring Division
Texas Department of Health
P.O. Box 181869
Arlington, Texas 76096-1869
(817) 264-4416 FAX (817) 264-4188

Region 5/6:

Texas Birth Defects Monitoring Division
Texas Department of Health
5425 Polk Avenue, Suite J
Houston, Texas 77023
(713) 767-3310
FAX (713) 767-3322

Region 7/4:

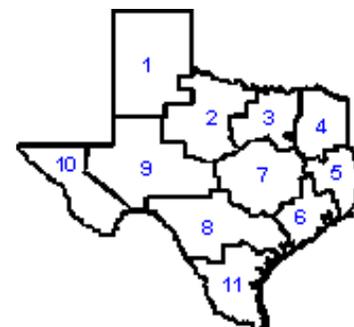
Texas Birth Defects
Monitoring Division
Texas Department of
Health
2408 South 37th St.
Temple, Texas 76504
(254) 778-6744
FAX (254) 778-4066

Region 8:

Texas Birth Defects
Monitoring Division
Texas Department of Health
7430 Louis Pasteur Drive
San Antonio, Texas 78229
(210) 949-2076 FAX (210) 949-2104

Region 11:

Texas Birth Defects Monitoring Division
Texas Department of Health
601 West Sesame Drive
Harlingen, Texas 78550
(956) 444-3204 FAX (956) 444-3296



The *Texas Birth Defects Monitor* is published twice a year by the Texas Department of Health.

Walter Wilkerson, Jr., M.D.
Chair, Texas Board of Health

William R. Archer III, M.D.
Commissioner of Health

Patti Patterson, M.D.
Executive Deputy Commissioner

Sharilyn Stanley, M.D.
Acting Associate Commissioner,
Disease Control and Prevention

Dennis Perrotta, Ph.D., C.I.C.
Chief, Bureau of Epidemiology

Mark A. Canfield, Ph.D.
Director, Texas Birth Defects
Monitoring Division

Editor: Amy Case, MAHS, Texas Birth Defects Monitoring Division Information Specialist

Contributors: Mark A. Canfield, Ph.D., Mathias Forrester, and Kristi Craft, Texas Birth Defects Monitoring Division; Larry Camp, LMSW-ACP, Texas Office for the Prevention of Developmental Disabilities; Jennifer Lee, MS, UTMB Galveston.

To be added to the mailing list for this or other free publications from the Division, please contact us at (512) 458-7232 or e-mail sandy.wicker@tdh.state.tx.us.



Would you like to receive the Texas Birth Defects Monitor electronically? This publication is now available via e-mail in Adobe Acrobat format. If you would like to receive future issues this way, please send an e-mail to amy.case@tdh.state.tx.us. Please include your e-mail address and let us know if you still want to receive a paper copy.