The Texas Birth Defects
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INSIDE THIS ISSUE:

Maltreatment of Children Under Age 2 With Specific Birth Defects: A Population-Based Study

Studies have shown that children with disabilities are at an increased risk for maltreatment, but what is not fully understood is whether the risk of maltreatment is elevated among children with specific types of birth defects. This population-based cohort study used data from the Texas Birth Defects Registry (TBDR) to determine whether children with specific birth defects were more likely to experience maltreatment than children without a birth defect before age 2.

For this study, records of children with birth defects from the Texas Birth Defects Registry and cases of maltreatment from Child Protective Services (CPS) records from the Texas Department of Family and Protective Services (TDFPS) were linked through vital statistics records. Data for about three million children born in Texas between 2002 and 2009 were included in the study. Poisson regression analyses were used to identify predictors of child maltreatment as well as associations between maltreatment and three selected birth defects: Down syndrome, cleft lip with or without cleft palate, and spina bifida.

Some main findings from this study were:

- Maltreated children with any of the three birth defects studied had a three- to six-fold elevated risk of medical neglect, compared to children without any birth defects.
- The adjusted risk of maltreatment before age 2 was significantly higher among children with spina bifida (58% higher) and children with cleft lip with or without cleft palate (40% higher) compared to children without any birth defects. A significant increased risk of maltreatment was not found in children with Down syndrome compared to unaffected children.

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(Maltreatment of Children Under Age 2 With Specific Birth Defects: A Population-Based Study, Continued from page 1)

- Some predictors of maltreatment identified by this study included: premature delivery or low birth weight; having a younger, single, or non-Hispanic white mother; and residence in an economically impoverished neighborhood.

Findings from this study suggest that the type of birth defect may be an important factor to consider when identifying young children at risk for maltreatment. Important future directions from this research include expanding the analysis to more types of birth defects, as well as extending observation to children throughout childhood to assess whether the risk of maltreatment persists or changes as children age. Findings from this research can help inform policies and intervention programs aiming to identify children at the highest risk of maltreatment.

Van Horne BS, Moffitt KB, Canfield M, Case A, Greeley CS, Morgan R, Mitchell LE. Maltreatment of children under age 2 with specific birth defects: a population-based study. Pediatrics. 2015; 136(6): e1504-e1512.

National Birth Defects Prevention Network Holds 18th Annual Meeting

The National Birth Defects Prevention Network (NBDPN) recently held its 18th annual National Birth Defects Prevention Meeting in Arlington, Virginia. A variety of plenary and breakout sessions covered birth defects clinical features, surveillance, etiologic findings, research, outcomes, and prevention issues. Session topics included:

- National Standards for Birth Defects Surveillance
- Asymmetry of Birth Defects: Embryology & Fetal Development, Laterality Defects, Common Defects and Rare Syndrome with Asymmetry, Prenatal Imaging for Selected Conditions
- Electronic Health Records and Informatics
- ICD-10 Coding
- Birth Defects Surveillance, Research, and Prevention Cluster Investigations
- Critical Congenital Heart Defects
- Multi-state Data Collaborative Projects
- NBDPS Research Projects
- Fetal Therapy for Birth Defects and Long-term Outcomes

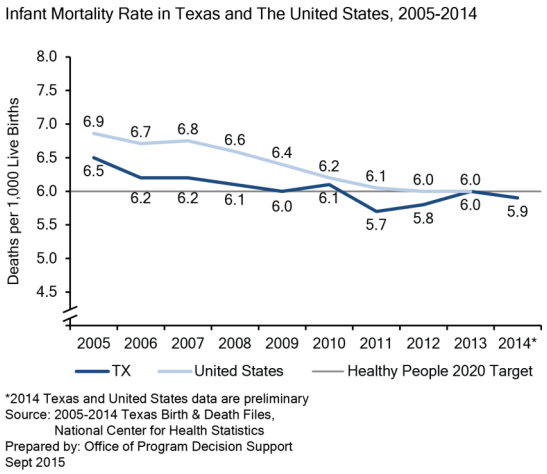
A number of the sessions included invited speakers from the Texas Birth Defects Epidemiology and Surveillance (BDES) Branch (Ann Phelps, Peter Langlois, Angela Scheuerle, Mark Canfield).

Furthermore, the BDES Branch was awarded the State Leadership Award. This is the second time Texas has won this award and is the only state to have won the award more than once. Two Branch staff members were recognized at the meeting. Dr. Mark Canfield, Branch Manager, received the Godfrey P. Oakley, Jr. Award for his lifetime contribution to the field of birth defects. Dr. Peter Langlois, Medical Research Specialist, received the President's Award for his recent, significant scientific contributions to the network. In 2016, the NBDPN will most likely hold its 19th annual meeting as a virtual meeting.

Texas Meets Healthy People 2020 Goal in Reducing Infant Mortality Rate

The infant mortality rate (IMR) has decreased 7.7 percent in Texas, from 6.5 deaths per 1,000 live births in 2005 to 6.0 in 2013. Provisional data indicate that the IMR in 2014 is remaining stable at 5.9 deaths per 1,000 live births. These data indicate that Texas has met the Healthy People 2020 goal to reduce the IMR to 6.0 deaths per 1,000 live births.*

Birth defects are the leading cause of infant mortality. Roughly 20% of infant deaths are due to birth defects.



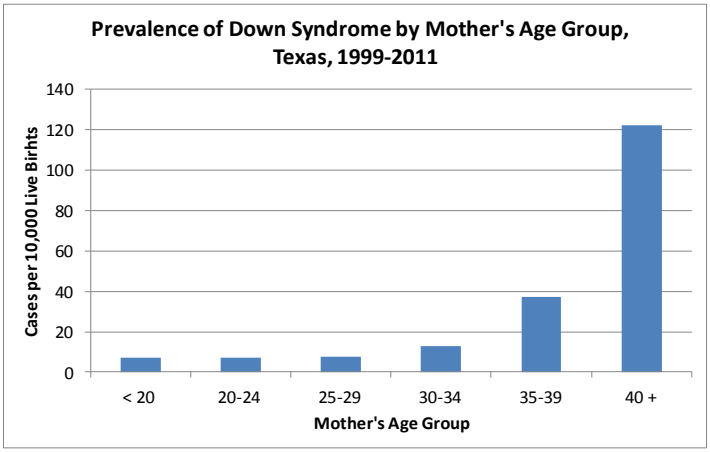
*2014 Texas and United States data are preliminary
Source: 2005-2014 Texas Birth & Death Files, National Center for Health Statistics
Prepared by: Office of Program Decision Support
Sept 2015

**Mandell, D.J., & Kormondy, M. 2015 Healthy Texas Babies: Data Book. Austin, TX. Division for Family and Community Health Services, Texas Department of State Health Services, 2015.*

Texas Passes Down Syndrome Information Act in the 2015 Legislative Session

House Bill 3374, the Down Syndrome Information Act, became effective September 1, 2015. This legislation requires Texas health care providers to provide information to expectant or new parents following their child's diagnosis of Down syndrome. The information sheet on Down syndrome, which will be posted to the Department of State Health Service's website, will include information about the disorder and treatment options, as well as a list of resources in Texas for affected families. Five states passed similar legislation in 2014, and more states, including Texas, continued to do so in 2015. The full text of the bill can be found here: http://www.capitol.state.tx.us/tlodocs/84R/billtext/html/HB03374F.htm.

Down syndrome, or Trisomy 21, is a genetic condition that is usually caused by an extra copy of the twenty-first chromosome. In Texas, the prevalence of Down syndrome is 13.4 cases per 10,000 live births, or approximately 1 in 750 births overall. Individuals with this condition usually have a mild to moderate range of intellectual disability and may have a variety of other birth defects. About half of infants born with the condition are also born with a heart defect. The figure below shows the prevalence of Down syndrome in Texas births by mother's age. Older mothers are more likely to have a baby with Down syndrome than younger mothers. The prevalence among babies born to mothers under age 30 is about 7 to 8 per 10,000 live births, while the prevalence among babies born to mothers age 40 or older is about 122 per 10,000 live births.



January is National Birth Defects Prevention Month

Birth defects are common, costly, and critical. Every 4½ minutes, a baby is born with a major birth defect in the United States. Become an active participant in National Birth Defects Prevention Month by joining the nationwide effort to raise awareness of birth defects, their causes, and their impact.

We know that not all birth defects can be prevented. However, we encourage all women to make healthy choices and adopt healthy habits to help lower their risk of having a baby born with a birth defect. This year we are encouraging all women to make a **PACT** for their own health and the family they may have one day. PACT stands for:

- **P**lan ahead
  - Get as healthy as you can before you get pregnant.
  - Get 400 micrograms (mcg) of folic acid every day.
- **A**void harmful substances
  - Avoid drinking alcohol and smoking.
  - Be careful with harmful exposures at work and home.
- **C**hoose a healthy lifestyle
  - Eat a healthy diet that includes fruits, vegetables, whole grains, low-fat dairy, lean proteins, and healthy fats and oils.
  - Be physically active.
  - Work to get medical conditions like diabetes under control.
- **T**alk to your healthcare provider
  - Get a medical checkup.
  - Discuss all medications, both prescription and over-the-counter.
  - Talk about your family medical history.

Women and their loved ones can participate in a PACT and take these important steps toward a healthy pregnancy. Share your own tips for healthy pregnancy using #LivingMyPACT on social media.

The National Birth Defects Prevention Network is working together with many state and local organizations to raise awareness of birth defects and encourage women to make a **PACT** for prevention. Learn more about the effect you can have on birth defects awareness and prevention at **www.nbdpn.org/bdpm2016.php.**

World Birth Defects Day

The International Clearinghouse for Birth Defects Surveillance and Research (ICBDSR) and participating organizations are raising awareness of birth defects with World Birth Defects Day, held on March 3. The ICBDSR hopes to increase global awareness of birth defects and promote expansion of birth defects surveillance, prevention, research, and care with this event.

To learn more, visit http://www.icbdsr.org/page.asp?n=newsdetails&l=1&i=15947.

January 10-16 is Folic Acid Awareness Week

The United States Public Health Service recommends that *all* women of childbearing age consume 400 micrograms (400mcg or .4mg) of folic acid daily to prevent up to 50 - 70% of neural tube defects, such as spina bifida and anencephaly.

To learn about Folic Acid Awareness go to http://www.nbdpn.org/faaw.php.

Source acknowledgement: National Birth Defects Prevention Network Education and Outreach Committee.
http://www.nbdpn.org/national_birth_defects_prevent.php

Birth Defects Prevention Resources for Women and Families

Planning Ahead

CDC Preconception Health (www.cdc.gov/preconception/index.html)
Learn what you need to know now to have a safe pregnancy and healthy baby with CDC's preconception health web portal. The website provides checklists to aid in making preconception health and reproductive life plans.

CDC Folic Acid (www.cdc.gov/ncbddd/folicacid)
This site provides information on the importance of folic acid for the prevention of birth defects. Also featured are an online CDC folic acid publication order form, a FAQ section, folic acid fact sheets, and a quiz. A version in Spanish is also available.

What to Expect - Preconception (www.whattoexpect.com/preconception/landing-page.aspx)
What to Expect provides resources to prepare you for pregnancy as well as a forum to connect with other families and moms-to-be.

Avoiding Harmful Substances

CDC Alcohol Use in Pregnancy (www.cdc.gov/ncbddd/fasd/alcohol-use.html)
This website discusses why alcohol use in pregnancy is dangerous and provides links to resources for help with stopping drinking.

Become an EX: For pregnant and postpartum smokers (www.becomeanex.org/pregnant-smokers.php)
The American Legacy Foundation developed this EX program to help people quit smoking and to "re-learn life without cigarettes." It includes a section specifically for pregnant and postpartum smokers.

National Organization on Fetal Alcohol Syndrome (NOFAS) (www.nofas.org)
NOFAS offers resources for people and families affected by fetal alcohol spectrum disorders (FASD), including the Circle of Hope: a mentoring network for birth mothers, a resource directory, as well as multiple fact sheets and materials with tips for parents, caregivers, and teachers.

Choosing a Healthy Lifestyle

Text4Baby (https://www.text4baby.org/)
Text4baby is a free cell phone text messaging service for pregnant women and new moms. Text messages are sent three times a week with information on how to have a healthy pregnancy and a healthy baby.

CDC Physical Activity for Healthy, Pregnant, and Postpartum Women (www.cdc.gov/physicalactivity/everyone/guidelines/pregnancy.html)
This CDC webpage explains physical activity guidelines and gives suggestions for healthy types of exercise for pregnant women.

March of Dimes Eating and Nutrition During Pregnancy (www.marchofdimes.org/pregnancy/eating-healthy-during-pregnancy.aspx)
This website provides information on how to eat healthy during pregnancy, including an example menu and easy-to-understand guidelines about different types of foods and serving sizes.

Talking to Your Doctor

Mother to Baby: Medications & More During Pregnancy and Breastfeeding (www.mothertobaby.org)
MotherToBaby, a service of the non-profit Organization of Teratology Information Specialists, is dedicated to providing evidence-based information to mothers, health care professionals, and the general public about medications and other exposures during pregnancy and while breastfeeding.

My Family Health Portrait (https://familyhistory.hhs.gov/fhh-web/home.action)
Using My Family Health Portrait, you can record and print the health history for you and your family in order to share that information with your family members or your healthcare provider. You can also save your family health history so you can update it over time. These tools can help you talk with your healthcare provider about how your family's health relates to your own.

Source acknowledgement: National Birth Defects Prevention Network Education and Outreach Committee.
http://www.nbdpn.org/national_birth_defects_prevent.php

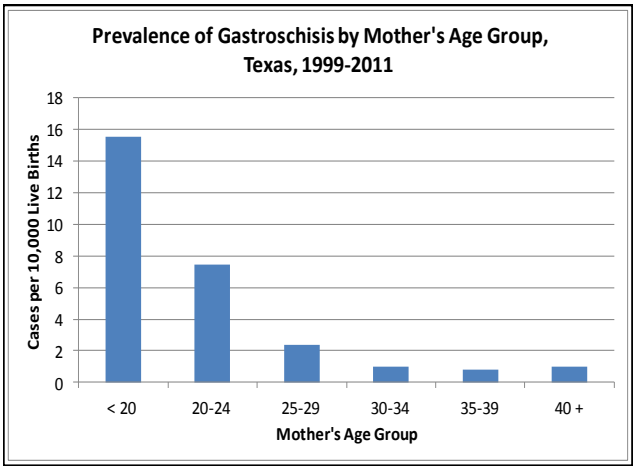
Selected Factors Associated with Gastroschisis in Texas

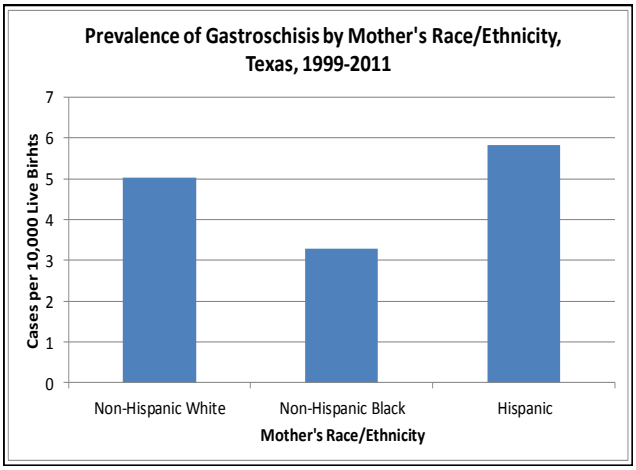
Gastroschisis is a birth defect in which the baby's intestines protrude through the abdominal wall. Gastroschisis has a unique risk profile compared to other birth defects. The most frequently reported risk factor for having a baby with gastroschisis is younger maternal age. Mothers less than 20 years old have the highest prevalence of babies with gastroschisis, where the occurrence in teen mothers is 15 times higher than in mothers 30 years of age or older. The figure below shows the prevalence of this condition by mother's age group.

Illustration of a baby with gastroschisis.

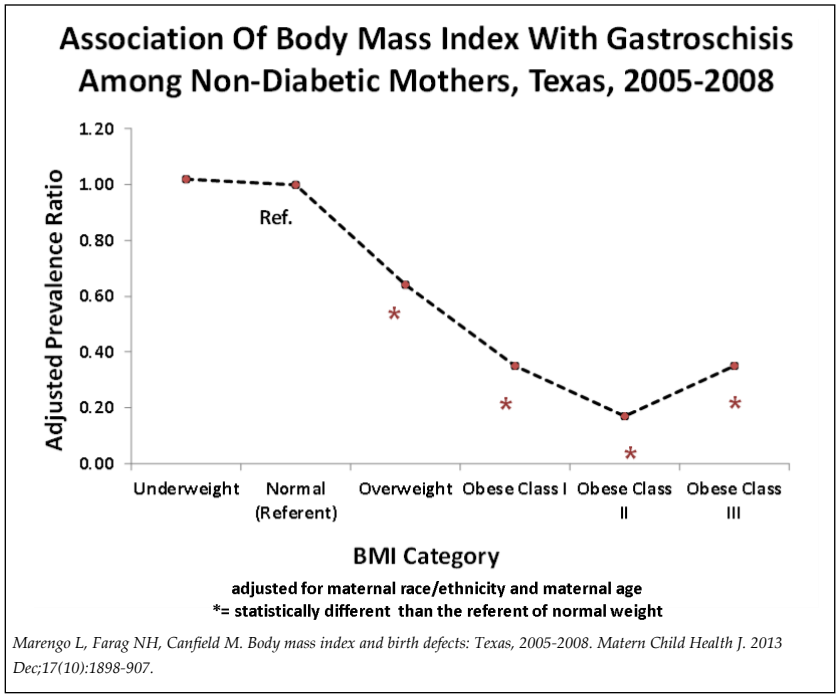
Content Source: Centers for Disease Control and Prevention, National Center on Birth Defects and Developmental Disabilities.

The risk of gastroschisis also varies by maternal race/ethnicity. The crude prevalence of gastroschisis is higher among babies of Hispanic mothers and lower among babies of non-Hispanic black mothers, compared to babies of non-Hispanic white mothers (see figure below). However, a more in-depth analysis in Texas revealed that after adjusting for other characteristics, such as maternal age, the difference in prevalence between Hispanics and whites disappeared and the difference in prevalence between blacks and whites widened. (Benjamin et al. 2010)





Additionally, high maternal body mass index (BMI), based on the mother's height and weight before pregnancy, is associated with a substantially decreased risk for gastroschisis. Compared to normal weight mothers, gastroschisis prevalence is 70-80% lower among babies born to obese Texas mothers. A graph showing the association between BMI and gastroschisis prevalence among non-diabetic mothers in Texas from 2005-2008 is shown on the next page.

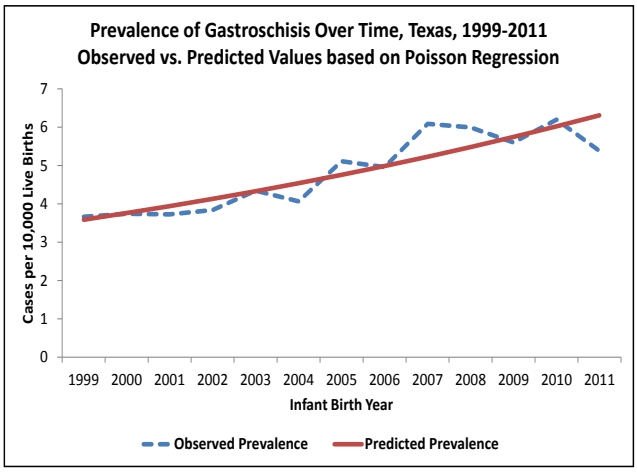


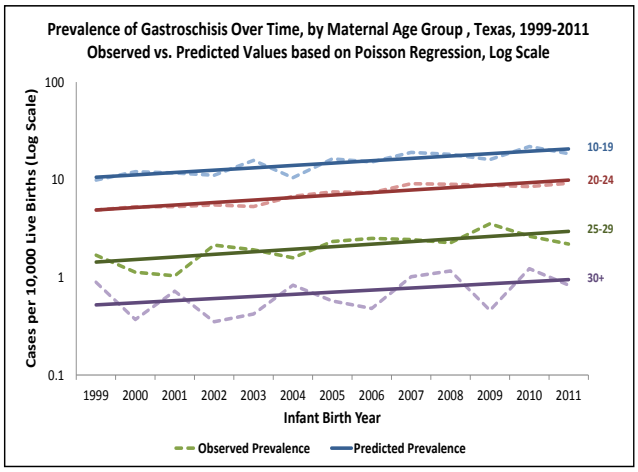
Marengo L, Farag NH, Canfield M. Body mass index and birth defects: Texas, 2005-2008. Matern Child Health J. 2013 Dec;17(10):1898-907.

Gastroschisis Time Trends in Texas

The prevalence of gastroschisis is increasing in Texas and other areas of the United States. The overall prevalence in Texas has increased nearly 5% each year from 1999 through 2011. This statistically significant upward trend is shown in the graph below, taken from a recent study on the time trends of gastroschisis conducted by Vo and Langlois (2015). This study looked at the prevalence of gastroschisis over time in Texas, by subgroups (for example: by maternal age, maternal race/ethnicity, and maternal body mass index) to see if the increase was happening faster or slower in specific subpopulations. The researchers concluded that, even though some subgroups have a higher prevalence than others, the increase over time seems to be happening similarly across all subgroups, including maternal age groups (see figure below).

The authors of this study propose that future research in this area continue to focus on lifestyle and behavioral factors, such as maternal diet, physical activity, drug/alcohol use, and medication use before and during pregnancy to understand what is causing this increase.





Nitrate, Nitrite, Nitrosatable Drugs and Pregnancy Outcomes

Nitrate and nitrite are nitrogen-oxygen compounds that can react with various organic and non-organic compounds. They are present in drinking water (although this is regulated by the Environmental Protection Agency), food, fertilizers, sewage, and multiple environmental sources. Animal studies have shown that various N-nitroso compounds (a product that results from reactions between compounds with amine or amide groups and nitrite) can be mutagenic and teratogenic (i.e. can cause mutations and birth defects). Numerous drugs that contain amide or secondary or tertiary amine groups have been found to be nitrosatable, in that they can react with nitrite in an acidic environment, such as that found in the stomach, to form N-nitroso compounds. An earlier epidemiologic study showed an association between nitrosatable drugs in the presence of a high nitrite diet and the risk of neural tube defects in Mexican Americans living along the border with Mexico (see Brender JD et al., Epidemiology; 15:330 -336).

Researchers undertook a series of studies to more fully understand the relationship between nitrate, nitrite, and nitrosatable drugs and the risk of adverse pregnancy outcomes, including a range of birth defects. The articles that resulted primarily from the National Birth Defects Prevention Study, the largest case-control study ever conducted in the United States on birth defects, are listed below. Also included (and indicated with an asterisk) are several articles published, as part of the dissertation work of Drs. Vuong and Shinde, on the relation between nitrosatable compounds and preterm and small-for-gestational-age (SGA) births.

Published articles (in chronological order):

- Griesenbeck JS, Steck MD, Huber Jr. JC, Sharkey JR, Rene AA, Brender JD. Development of estimates of dietary nitrates, nitrites, and nitrosamines for use with the Short Willett Food Frequency Questionnaire. Nutr J. 2009;8:16.
- Griesenbeck JS, Brender JD, Sharkey JR, Steck MD, Huber Jr. JC, Rene AA, McDonald TJ, Romitti PA, Canfield MA, Langlois PH, Suarez L, and the National Birth Defects Prevention Study. Maternal characteristics associated with the dietary intake of nitrate, nitrites, and nitrosamines in women of child-bearing age. Environ Health. 2010;9:10.
- Brender JD, Kelley KE, Werler MM, Langlois PH, Suarez L, Canfield MA. Prevalence and patterns of nitrosatable drug use among U.S. women during early pregnancy. Birth Defects Res A Clin Mol Teratol. 2011;91:258-264.
- Brender JD, Werler MM, Kelley KE, Vuong AM, Shinde MU, Zheng Q, Huber Jr. JC, Sharkey JR, Griesenbeck JS, Romitti PA, Langlois PH, Suarez L, Canfield MA, and the National Birth Defects Prevention Study. Nitrosatable drug exposure during early pregnancy and neural tube defects in offspring. Am J Epidemiol. 2011;174:1286-95.
- Brender JD, Werler MM, Shinde MU, Vuong AM, Kelley KE, Huber JC Jr., Sharkey JR, Griesenbeck JS, Romitti P, Malik S, Suarez L, Langlois PH, Canfield M. Nitrosatable drug exposure during the first trimester of pregnancy and selected congenital malformations. Birth Defects Res A Clin Mol Teratol. 2012;94:701-713.
- Huber JC Jr., Brender JD, Zheng Q, Sharkey JR, Vuong A, Shinde M, Griesenbeck JS, Suarez L, Langlois PH, Canfield MA, Romitti PA, Weyer PJ. Maternal dietary intake of nitrates, nitrites, and nitrosamines and selected birth defects in offspring: a case-control study. Nutrition Journal. 2013;12:34.
- Shinde MU, Vuong AM, Brender JD, Werler MM,

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Kelley KE, Huber Jr. JC, Sharkey JR, Zheng Q, Suarez L, Langlois PH, Canfield MA, Romitti PA, Malik S, National Birth Defects Prevention Study. Prenatal exposure to nitrosatable drugs, vitamin C and risk of selected birth defects. Birth Defects Res A Clin Mol Teratol. 2013;97:515-531.

- Brender JD, Weyer PJ, Romitti PA, Mohanty BP, Shinde MU, Vuong AM, Sharkey JR, Dwivedi D, Horel SA, Kantamneni J, Huber JC Jr., Zheng Q, Werler MM, Kelley KE, Griesenbeck JS, Zhan FB, Langlois PH, Suarez L, Canfield MA and the National Birth Defects Prevention Study. Prenatal nitrate intake from drinking water and selected birth defects in offspring of participants in the National Birth Defects Prevention Study. Environ Health Perspect. 2013;121:1083-1089.
- Weyer PJ, Brender JD, Romitti PA, Kantamneni JR, Crawford D, Sharkey JR, Shinde MU, Horel SA, Vuong AM, Langlois PH. Assessing bottled water nitrate concentrations to evaluate total drinking water nitrate exposure and risk of birth defects. J Water Health. 2014;12:755-762.
- *Vuong AM, Shinde MU, Brender JD, Shipp EM, Huber Jr. JC, Zhen Q, McDonald TJ, Sharkey JR, Hoyt AT, Werler MM, Kelley KE, Langlois PH, Canfield MA, and the National Birth Defects Prevention Study. Nitrosatable drug exposure during pregnancy and preterm and small-for-gestational-age births. Paediatr Perinat Epidemiol. 2015;29:60-71.
- *Vuong AM, Shinde MU, Brender JD, Shipp EM, Huber Jr. JC, Sharkey JR, McDonald TJ, Werler MM, Kelley KE, Griesenbeck JS, Langlois PH, Canfield MA and the National Birth Defects Prevention Study. Prenatal exposure to nitrosatable drugs, dietary intake of nitrites, and preterm births. American Journal of Epidemiology, in press, 2015.

Exposure to various categories of nitrosatable drugs was associated with several types of birth defects, as shown in the table on the next page.

Higher nitrite intake strengthened the associations between nitrosatable drugs and various birth defects, including anencephaly, cleft lip, cleft palate, conotruncal heart defects, single ventricle, and atrioventricular septal defects. Daily supplementation with preparations containing vitamin C, a known inhibitor of nitrosation, decreased the associations between nitrosatable drug exposure and several defects, including anencephaly, transverse limb deficiency, cleft lip without cleft palate, conotruncal heart defects, perimembranous ventricular septal defect, and atrial septal defects.

This series of studies indicate that nitrosatable drugs may function as potential teratogens in humans, particularly in the presence of higher dietary intake of nitrate and nitrite. Among NBDPS mothers of babies without major congenital malformations, nitrosatable drug use during the first trimester of pregnancy was fairly common (24%). Further, five of the ten most commonly taken nitrosatable drugs in this study population were available over the counter. We observed modestly increased risk (from 20 to 100%) for nine types of birth defects, from the three categories of nitrosatable drugs (secondary and tertiary amines; amides). Nitrosatable drug exposure, especially prenatal exposure to secondary amines during the second and third trimester of pregnancy, may also increase the risk of preterm births (34 to 37% in the current study.) Prenatal exposure to amides had a borderline association with SGA infants.

These findings underscore the importance of cautioning women in their childbearing years, especially those who are pregnant, to check with their healthcare providers and/or pharmacist before taking medications, including OTC preparations. On the other hand, higher estimated dietary intakes of nitrate, nitrite, and nitrosamines were not associated with birth defects in this study population, unless coupled with nitrosatable compounds such as certain drugs.

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(Nitrates, Nitrites, and Pregnancy Outcomes, Continued from page 9)

This research also found an association between higher (versus lower) intake of nitrate from drinking water sources and birth defects, including spina bifida, limb deficiencies, and oral cleft defects. Although studies in the past have attributed associations between higher levels of nitrate in drinking water and birth defects to the natural formation of N-nitroso compounds, the levels of nitrate associated with these defects were relatively low, suggesting that concomitant pollutants or other factors associated with these sources of water might be responsible for the associations. Since some of the highest nitrate levels in drinking water have been detected in private wells, women of childbearing age who obtain their drinking water from these types of wells should consider having their drinking water tested for nitrate and other routinely monitored contaminants that are tested in public water systems. Alternately, they might consider switching to purified bottle water if pregnant or trying to conceive.

While more research is indicated on the potential beneficial effects of vitamin C in preventing birth defects associated with nitrosatable drugs, results of this research indicate that the vitamin C might reduce the impact of such drugs on risk of birth defects. Based on results from experimental studies, fruits or vegetables (or their juices) that contain vitamin C might need to be consumed shortly before or concomitantly with drugs that are nitrosatable. Further research is indicated on the timing of supplementation and ingestion of foods high in vitamin C in relation to exposure to nitrosatable compounds and pregnancy outcomes.

Thanks to Jean Brender, Ph.D. for her contribution. For a list of nitrosatable drugs, refer to the Web Appendix in Nitrosatable Drug Exposure During Early Pregnancy and Neural Tube Defects in Offspring (Brender et al. 2011): http://aje.oxfordjournals.org/content/174/11/1286.long.

This research was funded in part by grants 5R01ES015634 and 3R01ES015634-03S from the National Institute of Environmental Health Sciences (NIEHS), and also supported in part through a cooperative agreement (U01DD000494) between the Centers for Disease Control and Prevention (CDC) and the Texas Department of State Health Services (DSHS), as well as by Title V Maternal and Child Health Block grant funds from the Office of Title V and Family Health, Texas DSHS. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the CDC.

Significant Associations of Selected Birth Defects with Nitrosatable Drugs, by Drug Class

Nitrosatable Drug Category	Associated Birth Defects
Secondary Amines	Longitudinal limb deficiencies (aOR)=1.46, 95% CI 1.04, 2.04)* Transverse limb deficiencies (aOR=1.42, 95% CI 1.07, 1.90) Atrioventricular septal defects (aOR = 1.97; 95% CI 1.19, 3.26)
Tertiary Amines	Anencephaly (aOR=1.96, 95% CI 1.40, 2.73) Spina bifida (aOR 1.48, 95% CI 1.15, 1.91) Cleft lip with cleft palate (aOR=1.25, 95% CI 1.03, 1.51) Hypoplastic left heart syndrome (aOR=1.50, 95% CI 1.10, 2.04) Single ventricle (aOR=1.61, 95% CI 1.06, 2.45)
Amides	Hypoplastic left heart syndrome (aOR=1.49, 95% CI 1.02, 2.17) Septal heart defects (aOR=1.24, 95% CI 1.04, 1.49) Single ventricle (aOR=1.84, 95% CI 1.15, 2.95)

*Note: aOR= adjusted odds ratio (relative risk), CI= confidence interval

Epidemiologic Alert: Zika Virus and Microcephaly in Brazil

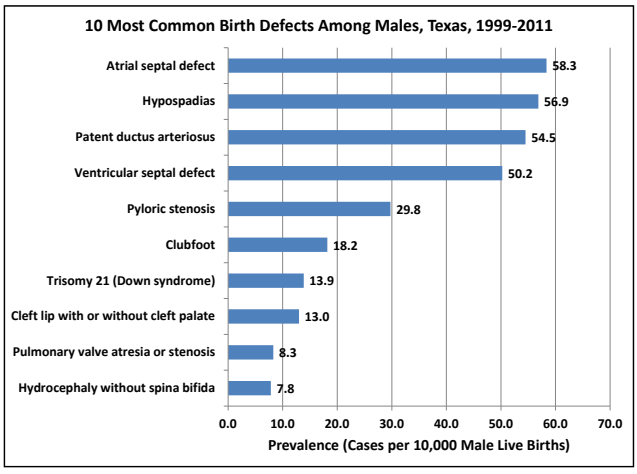
Brazil authorities are reporting a recent substantial increase in babies born with microcephaly, possibly attributed to the Zika virus found in and spread by mosquitos that are also common to Texas. Though the Zika vector is present in some areas of Texas, Zika has not been reported in Texas other than the rare travel-associated case. We are beginning to more closely examine and monitor the prevalence of microcephaly and related conditions in Texas.

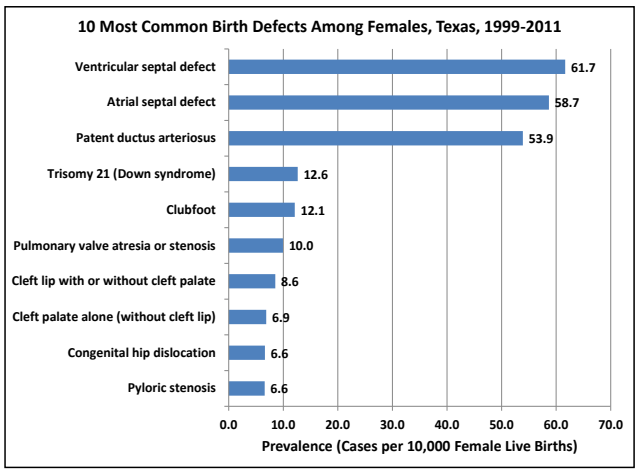
For more information, please consult the Pan American Health Organization and World Health Organization's 'Epidemiological Alert: Neurological syndrome, congenital malformations, and Zika virus infection. Implications for public health in Americas, available at http://www.paho.org/hq/index.php.

10 Most Common Birth Defects in Texas by Infant Sex

In Texas, boys are 39% more likely than girls to be born with one or more structural birth defects or chromosomal disorders (see citation below).

Here we present graphically the ten most common birth defect categories in boys and girls. Notable sex differences among conditions listed here include the urethral defect hypospadias that occurs only in boys, and a 4.5–fold male-to-female difference in the prevalence of pyloric stenosis (a narrowing of the pyloric sphincter at the outlet of the stomach). Club foot and cleft lip occur approximately 50% more frequently in boys than in girls, whereas the prevalence of cleft palate is higher in girls (prevalence=6.9 cases per 10,000 live births) than in boys (prevalence=5.2; not ranked in boys here). Also not ranked in boys here is congenital hip dislocation (prevalence=2.4 cases per 10,000 live births), which is 64% less common in boys than in girls (prevalence=6.6 cases per 10,000 live births).





Note: These are crude/unadjusted sex-specific rates. Data taken from the Texas Birth Defects Registry Report of Birth Defects Among 1999 - 2011 Deliveries, available at https://www.dshs.state.tx.us/birthdefects/data/BD_Data_99-11/Report-of-Birth-Defects-Among-1999-2011-Deliveries.aspx.

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2016 Calendar

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- January: National Birth Defects Prevention Month
- January 10-16: National Folic Acid Awareness Week
- January 23-26: Association of Maternal and Child Health Programs (AMCHP) Annual Conference, Washington, DC
- February: American Heart Month
- February 1-6: Society for Maternal-Fetal Medicine Annual Meeting, Atlanta Georgia
- February 13-16: 16th Annual International Symposium on Congenital Heart Disease, St. Petersburg, Florida
- February 14: Congenital Heart Defect Awareness Day
- February 25-28: NEO Conference 2016: The Conference for Neonatology, Orlando, FL
- Spring 2014: March of Dimes March for Babies (check with MOD for specific dates and locations)
- March 3: World Birth Defects Day
- April: National Autism Awareness Month
- April 4-10: National Public Health Week
- April 17-20: National Family Planning & Reproductive Health 2015 National Conference, Alexandria, VA
- June 25-29: 55th Annual Meeting of the Teratology Society, San Antonio, TX
- July: National Cleft and Craniofacial Awareness & Prevention Month
- July: Gastroschisis Awareness Month
- September: Childhood Cancer Awareness Month
- September: Newborn Screening Awareness Month
- October: National Spina Bifida Awareness Month
- October: National Down Syndrome Awareness Month
- November: Prematurity Awareness Month (March of Dimes)

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