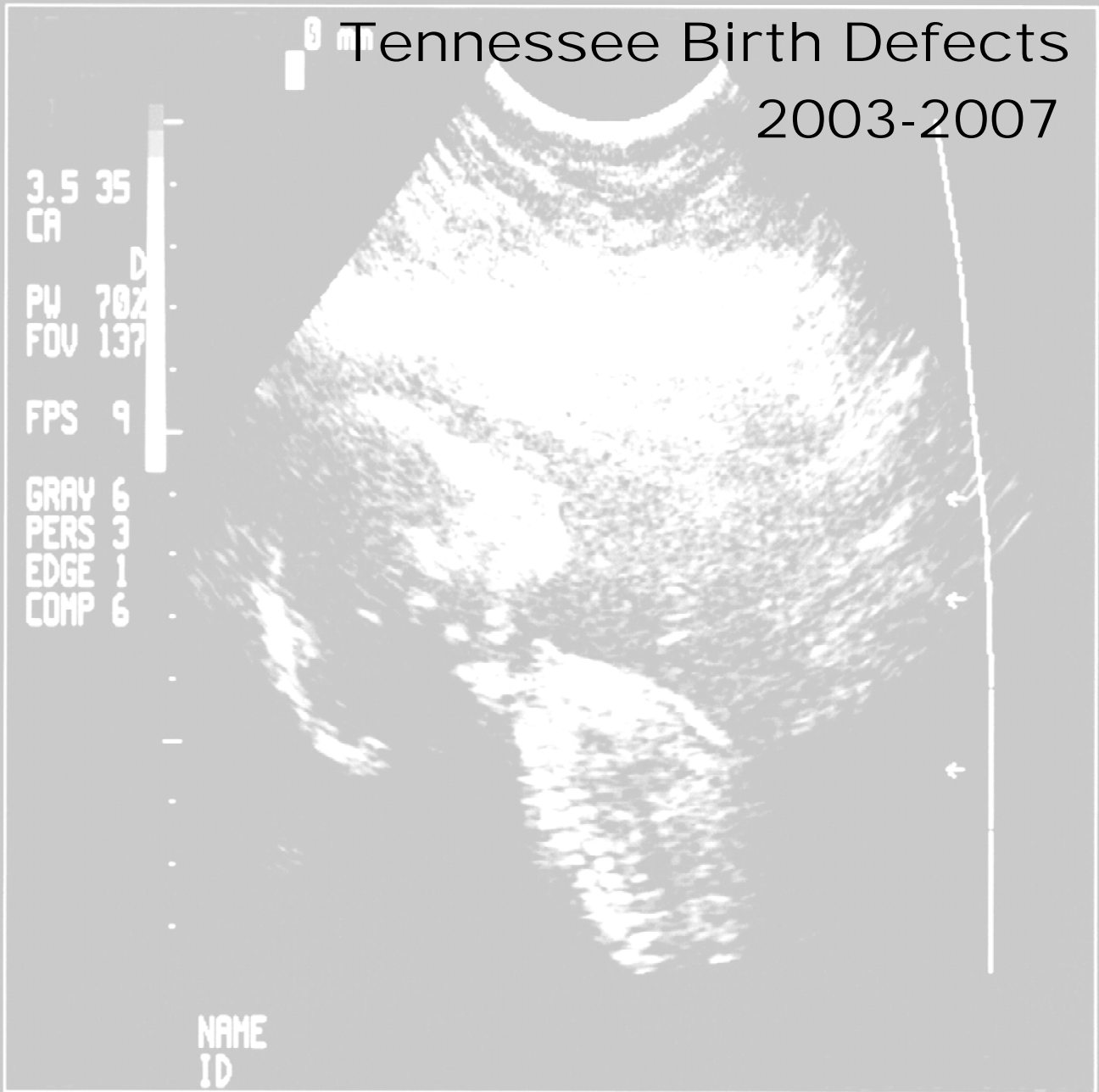


# Tennessee Birth Defects 2003-2007



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**Tennessee Department of Health Organization**

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### **Tennessee Birth Defects Registry:**

The Tennessee Birth Defects Registry (TBDR) was established in law (TCA 68-5-506) by the Tennessee State Legislature in June 2000. The TBDR was established with the mission of: 1) providing annual information on birth defects prevalence and trends; 2) to provide information on the possible association of environmental hazards and other potential causes of birth defects; 3) to evaluate current birth defects prevention initiatives, providing guidance and strategies for improving those initiatives; and 4) to provide families of children with birth defects information on public services available to children with birth defects. Initially, the TBDR was a pilot program conducting birth defects surveillance in Northeast Tennessee. Since then, the program has expanded to provide population-based surveillance of birth defects for the entire state of Tennessee. The TBDR was established in order to 1) provide information on birth defect prevalence and trends; 2) to provide information on possible association of environmental hazards, behavioral risk factors and other potential causes of birth defects; 3) to evaluate current birth defects prevention initiatives, providing guidance and strategies for improving those initiatives; and 4) to provide families of children with birth defects information on public services available to children with birth defects.

### **Birth Defect Definition:**

This report details the birth prevalence of 45 major birth defects for Tennessee infants who were born to resident mothers during the period 2003 through 2007. The tracking of these birth defects is recommended by the Centers of Disease Control and Prevention (CDC) and the National Birth Defects Prevention Network (NBDPN). These birth defects are classified as major birth defects because they require medical or surgical treatment, have serious adverse effects on health and development, or have a significant cosmetic impact. Additionally, the 45 birth defects can be organized within eight diagnostic categories plus fetal alcohol syndrome:

- Central Nervous System
- Eye and Ear
- Cardiovascular

- Orofacial
- Gastrointestinal
- Genitourinary
- Musculoskeletal
- Chromosomal

Birth defect counts include: 1) live-born infants diagnosed with a birth defect during the first year of life; and 2) diagnosed fetal-death cases that were at least 500 grams in weight or in the absence of weight at least 22 weeks gestation. However, the denominators for calculating birth defects rates include only live births and are reported per 10,000 live births.

**Data Sources:**

The primary data sources in compiling this report are the Hospital Discharge Data System (HDDS) and the Birth, Death and Fetal Death Statistical Data Systems, which are compiled, processed and stored by the Office of Vital Records and Health Statistics Division in the Office of Policy, Planning and Assessment (PPA). The Tennessee Birth Defects Registry (TBDR), which is responsible for production of this report, is housed in the Research Division of PPA. The HDDS contains admission-level records for all patients treated in Tennessee licensed hospitals and their outpatient treatment and rehabilitation centers. The TBDR uses these records to track the 45 major birth defects. Infants' HDDS records containing diagnostic codes corresponding to the tracked birth defects are extracted, compiled and linked with their birth certificate records. The linkages provide validity checks and add information such as maternal risk factors, demographics and street-level geography that are not available in the HDDS. Together these data systems provide statewide population-based birth defects surveillance for Tennessee.

**Data Limitations:**

Nonetheless, the use of administrative data systems such as these for birth defects and other types of public health surveillance has its limitations. The diagnostic codes used

in the HDDS can contain minor variants of birth defects that should not be coded as major birth defects. However the coding system, The International Classification of Diseases Version 9 Clinical Modification (ICD-9-CM), prevents distinguishing these differences for certain birth defects. As noted in previous reports, this has the effect of elevating rates for some of the more common birth defects, such as atrial septal defects and other heart defects and hypospadias, a common genitourinary defect. Less systematically, there are simple coding errors that result in noncases being miscoded as having a birth defect. We have also seen evidence that there may be increased use of diagnostic codes to support the “off-label” use of surgical and diagnostic procedures. This may be having the effect of artificially elevating some birth defects diagnoses including pyloric stenosis diagnoses. The best way to eliminate this problem would be to actively review all potential birth defects related medical records at all Tennessee hospitals. However, the TBDR does not have the capacity to perform this resource intensive review. Though not entirely eliminating the problem, the upcoming adoption of the of the International Classification of Diseases Version 10 Clinical Modification (ICD-10-CM) will likely diminish many coding-specific problems.

**Data Tables:**

Individual birth defect counts and rates are presented in tabular form for the state overall and broken down by infant sex, race/ethnicity and the five perinatal regions, which are served by Tennessee’s five designated Perinatal Center Hospitals (Tables 1-4). Additional tables provide breakdowns by potential birth defect risk factors: maternal age, smoking, education, body mass index (BMI), and diabetes (Tables 5-9). Finally, individual birth defects counts and rates for each of Tennessee’s 95 counties are presented in Table 10.

All of these tables provide 95% confidence intervals for each of the rates. A 95 percent confidence interval is the interval that contains the true prevalence, which can only be estimated, 95% of the time. Narrower confidence intervals support greater certainty regarding an estimated rate, whereas wider confidence intervals support less certainty. The width of a confidence interval is primarily dependent upon the number of birth

defects (exact Poisson) or the size of the population used to compute the rate (normal approximation). In this report, confidence intervals for 100 cases or less are exact Poisson. Otherwise confidence intervals are based on the normal approximation. Confidence intervals are effective for determining the likely range for birth defects rate estimates affected by random error. Confidence intervals are less effective for determining the likely range of birth defects rate estimates affected by systematic error due to limitations of the disease classification coding system or nonstandard coding practice.

Confidence intervals for rates become increasingly wider progressing through tables for the entire population to smaller subgroups and from more common to rarer birth defects. This indicates that estimates for smaller populations and especially for rarer birth defects in smaller populations should be evaluated with caution. For example in Table 10, which reports individual county-level data, a small number of birth defect cases may lead to very high rate estimates for counties with small birth populations. These and similar estimates will have wider confidence intervals indicating that the true underlying rate may be significantly different from the observed rate.

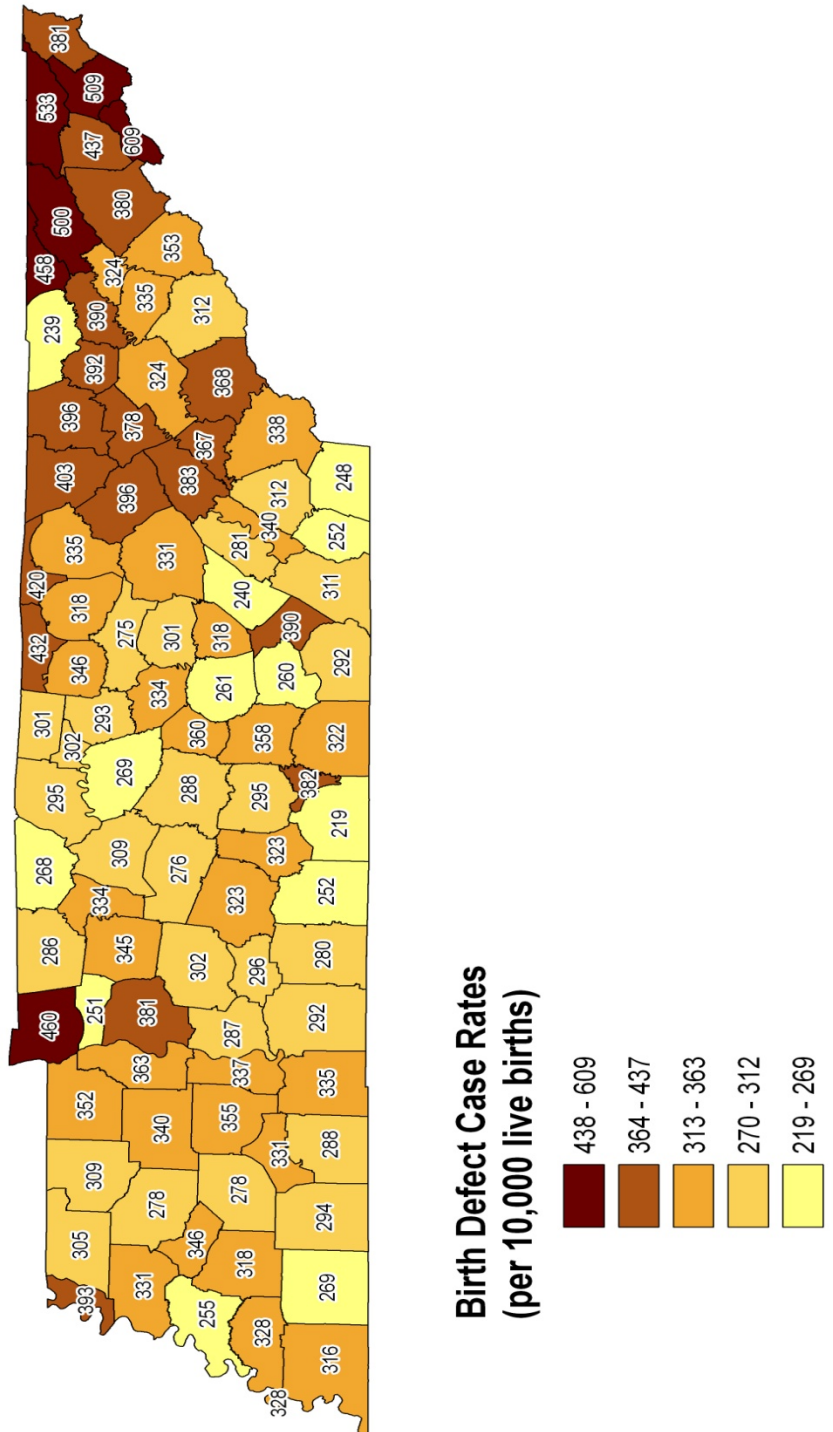
Additionally, all of the tables except for the overall state and county tables (Tables 1 and 10) include statistical significance indicators, showing whether differences in individual birth defects rates were related to or affected by the tabled risk factor. The potential differences were assessed using Poisson regression. Tables 2 through 9 present breakdowns by infant sex, race/ethnicity, region and maternal age, smoking, education, BMI and diabetes, respectively. All of these factors were related to some birth defects rates and to some birth defects more than others. Whereas infant sex, maternal age, smoking, BMI, and diabetes may affect birth defect rates more or less directly, maternal education is an indicator of socioeconomic status that most likely affects birth defect rates indirectly. Many of the birth defects are affected by more than one risk factor. When evaluating these results, it may be informative to consider possible interactions among risk factors, looking at the results for individual birth defects across the different tables.

Birth defects may occur alone or in conjunction with other defects. Therefore, birth defects counts and rates are presented in two ways: 1) the number of birth defect diagnoses (i.e., birth defects rate); and 2) the number of patients, or cases, affected by birth defects (i.e., case rate). For example, when an infant or case has multiple birth defect diagnoses, we count and report each diagnosis separately. The totals for each of the eight birth defects categories, however, represent the number of cases (or patients) with one or more diagnoses in that category. Since it is also possible for a case to have diagnoses in multiple categories, the category totals cannot be added to obtain the total number of Tennessee cases, as this would overestimate the cases (i.e., affected infants). More specifically, of the 13,252 infants diagnosed with a birth defect between 2003 and 2007, 2,632 (19.86%) had more than one birth defect and while each represents a single case within a category, some are counted as cases in more than one diagnostic category and others may have multiple diagnoses within a category.

Figures 1 and 2 are maps, showing the five Tennessee Perinatal Regions and the overall county-level birth defects rates for each of Tennessee's 95 counties, respectively. Tables 1 through 6 and 10 show the five-year (2003-2007) birth defect counts, rates and confidence intervals for the state overall and by infant sex, race/ethnicity, perinatal region, maternal age, maternal smoking and county of residence, respectively. Tables 7, 8 and 9 show the four-year (2004-2007) birth defect counts, rates and rate confidence intervals by maternal education, BMI, and diabetes respectively. Four-year rates are presented for these factors as they are based on data elements contained in the revised standard birth certificate, which was adopted in Tennessee in 2004. Definitions for each of the birth defects and a number of birth defects related terms are provided in the glossary at the end of the report.



## Major Birth Defects in Tennessee 2003 - 2007



**Figure 1. Tennessee County-Level Birth Defects Rates 2003-2007.**

# TENNESSEE PERINATAL REGIONS AND PERINATAL CENTERS

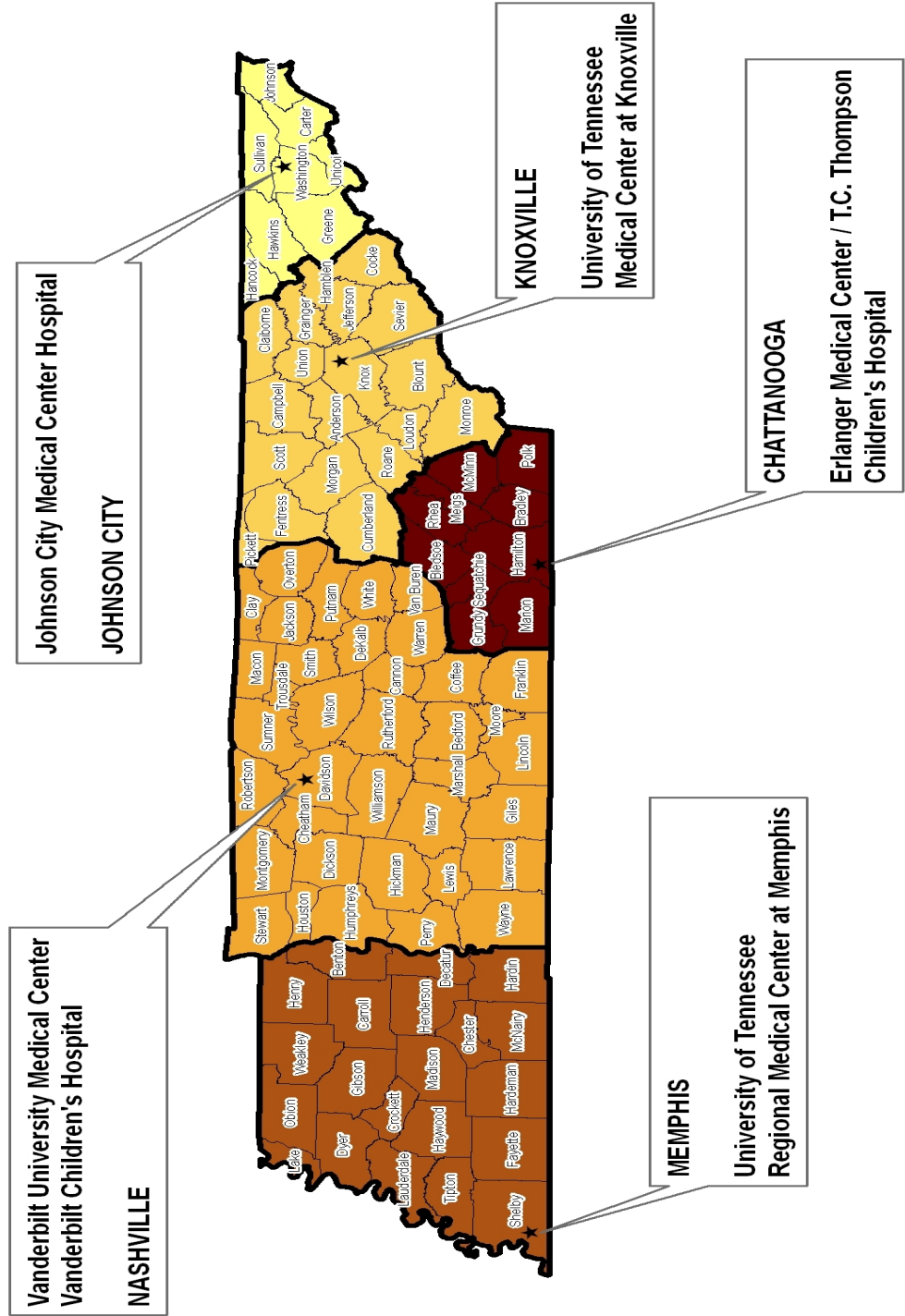


Figure 2. Tennessee Perinatal Regions and Perinatal Center Hospitals.

**Table 1: Birth Defects Counts and Rates by Organ System  
2003-2007**

<b>Defect</b>	<b>Count<sup>1</sup></b>	<b>Rate<sup>2</sup></b>	<b>95% CI<sup>3</sup></b>
Anencephalus	66	1.61	1.24-2.04
Spina Bifida	186	4.52	3.90-5.22
Hydrocephalus	296	7.2	6.40-8.07
Encephalocele	53	1.29	0.97-1.69
Microcephalus	346	8.42	7.55-9.35
<b>Total Central Nervous System Cases</b>	<b>916</b>	<b>22.28</b>	<b>20.86-23.77</b>
Aniridia	6	0.15	0.05-0.32
Anophthalmia/Microphthalmia	39	0.95	0.67-1.30
Congenital Cataract	89	2.16	1.74-2.66
Anotia/Microtia	25	0.61	0.39-0.90
<b>Total Ear and Eye Cases</b>	<b>152</b>	<b>3.7</b>	<b>3.13-4.33</b>
Common Truncus	42	1.02	0.74-1.38
Transposition of Great Arteries	267	6.49	5.74-7.32
Tetralogy of Fallot	231	5.62	4.92-6.39
Ventricular Septal Defect	1,775	43.18	41.19-45.23
Atrial Septal Defect	2,570	62.51	60.12-64.98
Endocardial Cushion Defect	153	3.72	3.16-4.36
Pulmonary Valve Atresia & Stenosis	442	10.75	9.77-11.80
Tricuspid Valve Atresia & Stenosis	45	1.09	0.80-1.46
Ebsteins Anomaly	24	0.58	0.37-0.87
Aortic Valve Stenosis	73	1.78	1.39-2.23
Hypoplastic Left Heart Syndrome	127	3.09	2.58-3.68
Patent Ductus Arteriosus <sup>4</sup>	2,141	52.08	49.90-54.33
Coarctation of Aorta	252	6.13	5.40-6.94
<b>Total Cardiovascular Cases</b>	<b>5,722</b>	<b>139.19</b>	<b>135.60-142.84</b>
Cleft Palate w/o Cleft Lip	300	7.3	6.49-8.17
Cleft Lip w/ & w/o Cleft Palate	435	10.58	9.61-11.62
Choanal Atresia	79	1.92	1.52-2.39
<b>Total Orofacial Cases</b>	<b>809</b>	<b>19.68</b>	<b>18.35-21.08</b>
Esophageal Atresia /Tracheoesophageal Fistula	110	2.68	2.20-3.23
Rectal & Large Intestinal Atresia /Stenosis	206	5.01	4.35-5.74
Pyloric Stenosis	1,731	42.11	40.15-44.14
Hirschsprungs Disease (congenital megacolon)	121	2.94	2.44-3.52
Biliary Atresia	34	0.83	0.57-1.16
<b>Total Gastrointestinal Cases</b>	<b>2,184</b>	<b>53.13</b>	<b>50.92-55.40</b>
Bladder Exstrophy	16	0.39	0.22-0.63
Hypospadias	2,097	51.01	48.85-53.24
Epispadias	40	0.97	0.70-1.32
Obstructive Genitourinary Defect	1,003	24.4	22.91-25.96
Renal Agenesis/Hypoplasia	176	4.28	3.67-4.96
<b>Total Genitourinary Cases</b>	<b>3,278</b>	<b>79.74</b>	<b>77.03-82.51</b>

*Continued on next page*

**Table 1: Birth Defects Counts and Rates by Organ System  
2003-2007**

<b>Defect</b>	<b>Count<sup>1</sup></b>	<b>Rate<sup>2</sup></b>	<b>95% CI<sup>3</sup></b>
Reduction Deformity (upper limbs)	88	2.14	1.72-2.64
Reduction Deformity (lower limbs)	63	1.53	1.18-1.96
Gastroschisis	206	5.01	4.35-5.74
Omphalocele	125	3.04	2.53-3.62
Diaphragmatic Hernia	137	3.33	2.80-3.94
Congenital Hip Dislocation	282	6.86	6.08-7.71
<b>Total Musculoskeletal Cases</b>	<b>871</b>	<b>21.19</b>	<b>19.80-22.64</b>
Trisomy 13	35	0.85	0.59-1.18
Down Syndrome	558	13.57	12.47-14.75
Trisomy 18	60	1.46	1.11-1.88
<b>Total Chromosomal Cases</b>	<b>648</b>	<b>15.76</b>	<b>14.57-17.02</b>
Fetal Alcohol Syndrome	85	2.07	1.65-2.56
<b>Total Cases</b>	<b>13,252</b>	<b>322.35</b>	<b>316.89-327.89</b>
Total Live Births	411,102		

<sup>1</sup> Counts include cases resulting from live births and fetal deaths.

<sup>2</sup> Rate per 10,000 live births.

<sup>3</sup> 95 percent confidence interval. Confidence intervals for 100 or less case are exact Poisson; otherwise confidence intervals are based on the normal approximation.

<sup>4</sup> Patent ductus arteriosus is only counted as a birth defect for birthweights of 2500 grams or more.

Diagnostic data were derived from the Tennessee Hospital Discharge Data System (2003-2008), the Tennessee Death Statistical System (2003-2008) and the Tennessee Fetal Death Statistical System (2003-2007).

Total live births and birth weight were derived from the Tennessee Birth Statistical system (2003-2007).

**Table 2: Birth Defects Counts and Rates by Infant Sex  
(2003-2007)**

Defect	Sex	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
Anencephalus	Male	30	1.43	0.96-2.04
	Female	36	1.79	1.25-2.48
Spina Bifida	Male	83	3.95	3.15-4.90
	Female	101	5.03	4.09-6.11
Hydrocephalus	Male	158	7.52	6.39-8.79
	Female	138	6.87	5.77-8.11
Encephalocele	Male	25	1.19	0.77-1.76
	Female	28	1.39	0.93-2.01
Microcephalus * (p<0.0001)	Male	137	6.52	5.47-7.71
	Female	208	10.35	8.99-11.86
Central Nervous System Cases * (p=0.0014)	Male	419	19.94	18.08-21.94
	Female	495	24.63	22.51-26.90
Anophthalmia/Microphthalmia	Male	18	0.86	0.51-1.35
	Female	21	1.04	0.65-1.60
Congenital Cataract	Male	42	2.00	1.44-2.70
	Female	47	2.34	1.72-3.11
Aniridia	Male	4	0.19	0.05-0.49
	Female	2	0.10	0.01-0.36
Anotia/Microtia	Male	15	0.71	0.40-1.18
	Female	10	0.50	0.24-0.92
Ear and Eye Cases	Male	77	3.66	2.89-4.58
	Female	75	3.73	2.94-4.68
Common Truncus	Male	25	1.19	0.77-1.76
	Female	17	0.85	0.49-1.35
Transposition of Great Arteries * (p=0.0011)	Male	163	7.76	6.61-9.04
	Female	104	5.18	4.23-6.27
Tetralogy of Fallot	Male	124	5.90	4.91-7.04
	Female	107	5.32	4.36-6.43
Ventricular Septal Defect	Male	873	41.54	38.83-44.39
	Female	902	44.89	42.00-47.91
Atrial Septal Defect * (p=0.0002)	Male	1,408	67.00	63.55-70.60
	Female	1,162	57.82	54.55-61.25
Endocardial Cushion Defect * (p=0.0481)	Male	66	3.14	2.43-4.00
	Female	87	4.33	3.47-5.34
Pulmonary Valve Atresia & Stenosis	Male	239	11.37	9.98-12.91
	Female	203	10.10	8.76-11.59
Tricuspid Valve Atresia & Stenosis	Male	25	1.19	0.77-1.76
	Female	20	1.00	0.61-1.54
Ebsteins Anomaly	Male	9	0.43	0.20-0.81
	Female	15	0.75	0.42-1.23
Aortic Valve Stenosis * (p=0.0011)	Male	51	2.43	1.81-3.19
	Female	22	1.09	0.69-1.66

*Continued on next page*

**Table 2: Birth Defects Counts and Rates by Infant Sex  
(2003-2007)**

<b>Defect</b>	<b>Sex</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
Hypoplastic Left Heart Syndrome * (p=0.0006)	Male	84	4.00	3.19-4.95
	Female	43	2.14	1.55-2.88
Patent Ductus Arteriosus * (p=0.0001)	Male	1,182	56.25	53.09-59.55
	Female	959	47.72	44.75-50.84
Coarctation of Aorta * (p=0.0001)	Male	159	7.57	6.44-8.84
	Female	93	4.63	3.74-5.67
Cardiovascular Cases * (p=0.0002)	Male	3,068	146.00	140.88-151.26
	Female	2,654	132.07	127.09-137.19
Cleft Palate w/o Cleft Lip	Male	146	6.95	5.87-8.17
	Female	154	7.66	6.50-8.97
Cleft Lip w/ & w/o Cleft Palate * (p<0.0001)	Male	285	13.56	12.03-15.23
	Female	150	7.46	6.32-8.76
Choanal Atresia	Male	41	1.95	1.40-2.65
	Female	38	1.89	1.34-2.60
Orofacial Cases * (p=0.0001)	Male	469	22.32	20.34-24.43
	Female	340	16.92	15.17-18.82
Esophageal Atresia/ Tracheoesophageal Fistula	Male	56	2.66	2.01-3.46
	Female	54	2.69	2.02-3.51
Rectal & Large Intestinal Atresia/ Stenosis (p=0.0035)	Male	125	5.95	4.95-7.09
	Female	79	3.93	3.11-4.90
Pyloric Stenosis * (p<0.0001)	Male	1,404	66.81	63.36-70.40
	Female	327	16.27	14.56-18.13
Hirschsprungs Disease (congenital megacolon) (p<0.0001)	Male	93	4.43	3.57-5.42
	Female	28	1.39	0.93-2.01
Biliary Atresia	Male	14	0.67	0.36-1.12
	Female	20	1.00	0.61-1.54
Gastrointestinal Cases * (p<0.0001)	Male	1,681	80.00	76.22-83.91
	Female	501	24.93	22.79-27.21
Renal Agenesis/Hypoplasia * (p=0.0002)	Male	113	5.38	4.43-6.47
	Female	61	3.04	2.32-3.90
Bladder Exstrophy	Male	7	0.33	0.13-0.69
	Female	8	0.40	0.17-0.78
Hypospadias	Male	2,097	99.79	95.57-104.16
	Female	0	0.00	0.00-0.18
Epispadias	Male	40	1.90	1.36-2.59
	Female	0	0.00	0.00-0.18
Obstructive Genitourinary Defect * (p<0.0001)	Male	703	33.45	31.03-36.02
	Female	300	14.93	13.29-16.72
Genitourinary Cases * (p<0.0001)	Male	2,913	138.63	133.64-143.75
	Female	362	18.01	16.21-19.97

*Continued on next page*

**Table 2: Birth Defects Counts and Rates by Infant Sex  
(2003-2007)**

Defect	Sex	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
Reduction Deformity (upper limbs)	Male	53	2.52	1.89-3.30
	Female	35	1.74	1.21-2.42
Reduction Deformity (lower limbs)	Male	32	1.52	1.04-2.15
	Female	31	1.54	1.05-2.19
Gastroschisis	Male	109	5.19	4.26-6.26
	Female	97	4.83	3.91-5.89
Omphalocele	Male	71	3.38	2.64-4.26
	Female	54	2.69	2.02-3.51
Congenital Hip Dislocation * (p<0.0001)	Male	77	3.66	2.89-4.58
	Female	205	10.20	8.85-11.70
Diaphragmatic Hernia * (p=0.0101)	Male	85	4.05	3.23-5.00
	Female	52	2.59	1.93-3.39
Musculoskeletal Cases * (p=0.0096)	Male	407	19.37	17.53-21.34
	Female	464	23.09	21.04-25.29
Trisomy 13	Male	17	0.81	0.47-1.30
	Female	18	0.90	0.53-1.42
Down Syndrome	Male	300	14.28	12.71-15.99
	Female	258	12.84	11.32-14.50
Trisomy 18 * (p=0.0055)	Male	20	0.95	0.58-1.47
	Female	40	1.99	1.42-2.71
Chromosomal Cases	Male	336	15.99	14.33-17.79
	Female	312	15.53	13.85-17.35
Fetal Alcohol Syndrome	Male	50	2.38	1.77-3.14
	Female	35	1.74	1.21-2.42
Total Cases * (p<0.0001)	Male	8,583	408.45	399.86-417.19
	Female	4,665	232.14	225.52-238.90
Total Live Births <sup>3</sup>	Male	210,135		
	Female	200,958		

<sup>1</sup>Rate per 10,000 live births .

<sup>2</sup>95 percent confidence interval.

<sup>3</sup>There were 4 birth defects cases and 9 live births of ambiguous or unknown sex.

\*Indicates a statistically significant difference.

**Table 3: Birth Defects Counts and Rates by Race/Ethnicity  
2003-2007**

Defect	Race	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
Anencephalus	White non-Hispanic	42	1.49	1.08-2.02
	Black non-Hispanic	12	1.41	0.73-2.47
	Hispanic	10	2.85	1.36-5.23
	Other/Unknown	2	2.04	0.25-7.36
Spina Bifida * (p=0.0004)	White non-Hispanic	129	4.59	3.83-5.45
	Black non-Hispanic	26	3.06	2.00-4.49
	Hispanic	30	8.54	5.76-12.19
	Other/Unknown	1	1.02	0.03-5.67
Hydrocephalus	White non-Hispanic	184	6.54	5.63-7.56
	Black non-Hispanic	79	9.31	7.37-11.60
	Hispanic	28	7.97	5.30-11.52
	Other/Unknown	5	5.09	1.65-11.88
Encephalocele	White non-Hispanic	33	1.17	0.81-1.65
	Black non-Hispanic	12	1.41	0.73-2.47
	Hispanic	8	2.28	0.98-4.49
	Other/Unknown	0	0	0.00-3.77
Microcephalus * (p=0.0231)	White non-Hispanic	216	7.68	6.69-8.77
	Black non-Hispanic	93	10.96	8.85-13.43
	Hispanic	32	9.11	6.23-12.86
	Other/Unknown	5	5.09	1.65-11.88
Central Nervous System Cases * (p=0.0008)	White non-Hispanic	586	20.83	19.18-22.59
	Black non-Hispanic	216	25.46	22.17-29.09
	Hispanic	101	28.75	23.42-34.93
	Other/Unknown	13	13.24	7.05-22.64
Anophthalmia/Microphthalmia	White non-Hispanic	21	0.75	0.46-1.14
	Black non-Hispanic	12	1.41	0.73-2.47
	Hispanic	4	1.14	0.31-2.92
	Other/Unknown	2	2.04	0.25-7.36
Congenital Cataract	White non-Hispanic	65	2.31	1.78-2.95
	Black non-Hispanic	15	1.77	0.99-2.92
	Hispanic	4	1.14	0.31-2.92
	Other/Unknown	5	5.09	1.65-11.88
Aniridia	White non-Hispanic	6	0.21	0.08-0.46
	Black non-Hispanic	0	0	0.00-0.44
	Hispanic	0	0	0.00-1.05
	Other/Unknown	0	0	0.00-3.77
Anotia/Microtia * (p=0.0183)	White non-Hispanic	19	0.68	0.41-1.05
	Black non-Hispanic	1	0.12	0.00-0.66
	Hispanic	5	1.42	0.46-3.32
	Other/Unknown	0	0	0.00-3.77

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**Table 3: Birth Defects Counts and Rates by Race/Ethnicity  
2003-2007**

Defect	Race	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
Ear and Eye Cases	White non-Hispanic	105	3.73	3.05-4.52
	Black non-Hispanic	27	3.18	2.10-4.63
	Hispanic	13	3.7	1.97-6.33
	Other/Unknown	7	7.13	2.87-14.69
Common Truncus	White non-Hispanic	34	1.21	0.84-1.69
	Black non-Hispanic	5	0.59	0.19-1.38
	Hispanic	3	0.85	0.18-2.50
	Other/Unknown	0	0	0.00-3.77
Transposition of Great Arteries	White non-Hispanic	197	7	6.06-8.05
	Black non-Hispanic	43	5.07	3.67-6.83
	Hispanic	24	6.83	4.38-10.16
	Other/Unknown	3	3.05	0.63-8.93
Tetralogy of Fallot	White non-Hispanic	161	5.72	4.87-6.68
	Black non-Hispanic	50	5.89	4.37-7.77
	Hispanic	12	3.42	1.76-5.97
	Other/Unknown	8	8.15	3.52-16.05
Ventricular Septal Defect * (p=0.0246)	White non-Hispanic	1257	44.69	42.25-47.23
	Black non-Hispanic	345	40.66	36.48-45.18
	Hispanic	146	41.56	35.09-48.87
	Other/Unknown	27	27.49	18.12-40.00
Atrial Septal Defect * (p<0.0001)	White non-Hispanic	1702	60.51	57.66-63.45
	Black non-Hispanic	668	78.73	72.87-84.93
	Hispanic	160	45.54	38.76-53.17
	Other/Unknown	40	40.73	29.10-55.46
Endocardial Cushion Defect	White non-Hispanic	108	3.84	3.15-4.64
	Black non-Hispanic	31	3.65	2.48-5.19
	Hispanic	11	3.13	1.56-5.60
	Other/Unknown	3	3.05	0.63-8.93
Pulmonary Valve Atresia & Stenosis	White non-Hispanic	303	10.77	9.59-12.06
	Black non-Hispanic	106	12.49	10.23-15.11
	Hispanic	26	7.4	4.83-10.84
	Other/Unknown	7	7.13	2.87-14.69
Tricuspid Valve Atresia & Stenosis	White non-Hispanic	31	1.1	0.75-1.56
	Black non-Hispanic	10	1.18	0.57-2.17
	Hispanic	3	0.85	0.18-2.50
	Other/Unknown	1	1.02	0.03-5.67
Ebsteins Anomaly	White non-Hispanic	19	0.68	0.41-1.05
	Black non-Hispanic	4	0.47	0.13-1.21
	Hispanic	1	0.28	0.01-1.59
	Other/Unknown	0	0	0.00-3.77
Aortic Valve Stenosis	White non-Hispanic	56	1.99	1.50-2.59
	Black non-Hispanic	10	1.18	0.57-2.17
	Hispanic	7	1.99	0.80-4.11
	Other/Unknown	0	0	0.00-3.77

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**Table 3: Birth Defects Counts and Rates by Race/Ethnicity  
2003-2007**

<b>Defect</b>	<b>Race</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
Hypoplastic Left Heart Syndrome	White non-Hispanic	88	3.13	2.51-3.85
	Black non-Hispanic	28	3.3	2.19-4.77
	Hispanic	10	2.85	1.36-5.23
	Other/Unknown	1	1.02	0.03-5.67
Patent Ductus Arteriosus * (p<0.0001)	White non-Hispanic	1398	49.7	47.13-52.37
	Black non-Hispanic	555	65.41	60.08-71.08
	Hispanic	155	44.12	37.45-51.64
	Other/Unknown	33	33.6	23.13-47.19
Coarctation of Aorta	White non-Hispanic	185	6.58	5.66-7.60
	Black non-Hispanic	45	5.3	3.87-7.10
	Hispanic	20	5.69	3.48-8.79
	Other/Unknown	2	2.04	0.25-7.36
Cardiovascular Cases * (p<0.0001)	White non-Hispanic	3861	137.26	132.96-141.66
	Black non-Hispanic	1369	161.34	152.91-170.12
	Hispanic	401	114.14	103.24-125.88
	Other/Unknown	91	92.66	74.60-113.77
Cleft Palate w/o Cleft Lip * (p<0.0001)	White non-Hispanic	236	8.39	7.35-9.53
	Black non-Hispanic	41	4.83	3.47-6.56
	Hispanic	11	3.13	1.56-5.60
	Other/Unknown	12	12.22	6.31-21.34
Cleft Lip w/ & w/o Cleft Palate * (p<0.0001)	White non-Hispanic	350	12.44	11.17-13.82
	Black non-Hispanic	46	5.42	3.97-7.23
	Hispanic	28	7.97	5.30-11.52
	Other/Unknown	11	11.2	5.59-20.04
Choanal Atresia	White non-Hispanic	63	2.24	1.72-2.87
	Black non-Hispanic	12	1.41	0.73-2.47
	Hispanic	4	1.14	0.31-2.92
	Other/Unknown	0	0	0.00-3.77
Orofacial Cases * (p<0.0001)	White non-Hispanic	644	22.89	21.16-24.73
	Black non-Hispanic	99	11.67	9.48-14.21
	Hispanic	43	12.24	8.86-16.49
	Other/Unknown	23	23.42	14.85-35.14
Esophageal Atresia/ Tracheoesophageal Fistula	White non-Hispanic	84	2.99	2.38-3.70
	Black non-Hispanic	18	2.12	1.26-3.35
	Hispanic	8	2.28	0.98-4.49
	Other/Unknown	0	0	0.00-3.77
Rectal & Large Intestinal Atresia/ Stenosis	White non-Hispanic	143	5.08	4.28-5.99
	Black non-Hispanic	41	4.83	3.47-6.56
	Hispanic	19	5.41	3.26-8.45
	Other/Unknown	3	3.05	0.63-8.93

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**Table 3: Birth Defects Counts and Rates by Race/Ethnicity  
2003-2007**

<b>Defect</b>	<b>Race</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
Pyloric Stenosis * (p<0.0001)	White non-Hispanic	1355	48.17	45.64-50.80
	Black non-Hispanic	193	22.75	19.65-26.19
	Hispanic	170	48.39	41.39-56.24
	Other/Unknown	13	13.24	7.05-22.64
Hirschsprungs Disease (congenital megacolon)	White non-Hispanic	80	2.84	2.25-3.54
	Black non-Hispanic	35	4.12	2.87-5.74
	Hispanic	6	1.71	0.63-3.72
	Other/Unknown	0	0	0.00-3.77
Biliary Atresia * (p=0.0103)	White non-Hispanic	18	0.64	0.38-1.01
	Black non-Hispanic	11	1.3	0.65-2.32
	Hispanic	1	0.28	0.01-1.59
	Other/Unknown	4	4.07	1.11-10.43
Gastrointestinal Cases * (p<0.0001)	White non-Hispanic	1,667	59.26	56.45-62.18
	Black non-Hispanic	296	34.88	31.02-39.09
	Hispanic	201	57.21	49.58-65.69
	Other/Unknown	20	20.36	12.44-31.45
Renal Agenesis/Hypoplasia	White non-Hispanic	121	4.3	3.57-5.14
	Black non-Hispanic	37	4.36	3.07-6.01
	Hispanic	16	4.55	2.60-7.40
	Other/Unknown	2	2.04	0.25-7.36
Bladder Exstrophy	White non-Hispanic	13	0.46	0.25-0.79
	Black non-Hispanic	3	0.35	0.07-1.03
	Hispanic	0	0	0.00-1.05
	Other/Unknown	0	0	0.00-3.77
Hypospadias * (p<0.0001)	White non-Hispanic	1,575	55.99	53.26-58.83
	Black non-Hispanic	430	50.68	46.00-55.70
	Hispanic	66	18.79	14.53-23.90
	Other/Unknown	26	26.47	17.29-38.79
Epispadias	White non-Hispanic	30	1.07	0.72-1.52
	Black non-Hispanic	8	0.94	0.41-1.86
	Hispanic	2	0.57	0.07-2.06
	Other/Unknown	0	0	0.00-3.77
Obstructive Genitourinary Defect * (p<0.0001)	White non-Hispanic	760	27.02	25.13-29.01
	Black non-Hispanic	148	17.44	14.75-20.49
	Hispanic	68	19.36	15.03-24.54
	Other/Unknown	27	27.49	18.12-40.00
Genitourinary Cases * (p<0.0001)	White non-Hispanic	2,456	87.31	83.89-90.83
	Black non-Hispanic	617	72.71	67.09-78.69
	Hispanic	150	42.7	36.14-50.10
	Other/Unknown	55	56	42.19-72.89
Reduction Deformity (upper limbs)	White non-Hispanic	59	2.1	1.60-2.71
	Black non-Hispanic	19	2.24	1.35-3.50
	Hispanic	8	2.28	0.98-4.49
	Other/Unknown	2	2.04	0.25-7.36

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**Table 3: Birth Defects Counts and Rates by Race/Ethnicity  
2003-2007**

<b>Defect</b>	<b>Race</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
Reduction Deformity (lower limbs)	White non-Hispanic	36	1.28	0.90-1.77
	Black non-Hispanic	20	2.36	1.44-3.64
	Hispanic	5	1.42	0.46-3.32
	Other/Unknown	2	2.04	0.25-7.36
Gastroschisis * (p=0.0490)	White non-Hispanic	159	5.65	4.81-6.60
	Black non-Hispanic	31	3.65	2.48-5.19
	Hispanic	12	3.42	1.76-5.97
	Other/Unknown	4	4.07	1.11-10.43
Omphalocele * (p=0.0221)	White non-Hispanic	80	2.84	2.25-3.54
	Black non-Hispanic	38	4.48	3.17-6.15
	Hispanic	6	1.71	0.63-3.72
	Other/Unknown	1	1.02	0.03-5.67
Congenital Hip Dislocation * (p<0.0001)	White non-Hispanic	226	8.03	7.02-9.15
	Black non-Hispanic	30	3.54	2.39-5.05
	Hispanic	19	5.41	3.26-8.45
	Other/Unknown	7	7.13	2.87-14.69
Diaphragmatic Hernia	White non-Hispanic	94	3.34	2.70-4.09
	Black non-Hispanic	29	3.42	2.29-4.91
	Hispanic	10	2.85	1.36-5.23
	Other/Unknown	4	4.07	1.11-10.43
Musculoskeletal Cases * (p=0.0372)	White non-Hispanic	633	22.5	20.78-24.33
	Black non-Hispanic	160	18.86	16.05-22.02
	Hispanic	58	16.51	12.54-21.34
	Other/Unknown	20	20.36	12.44-31.45
Trisomy 13	White non-Hispanic	23	0.82	0.52-1.23
	Black non-Hispanic	10	1.18	0.57-2.17
	Hispanic	2	0.57	0.07-2.06
	Other/Unknown	0	0	0.00-3.77
Down Syndrome	White non-Hispanic	388	13.79	12.45-15.24
	Black non-Hispanic	105	12.37	10.12-14.98
	Hispanic	56	15.94	12.04-20.70
	Other/Unknown	9	9.16	4.19-17.40
Trisomy 18	White non-Hispanic	37	1.32	0.93-1.81
	Black non-Hispanic	16	1.89	1.08-3.06
	Hispanic	7	1.99	0.80-4.11
	Other/Unknown	0	0	0.00-3.77
Chromosomal Cases	White non-Hispanic	444	15.78	14.35-17.32
	Black non-Hispanic	130	15.32	12.80-18.19
	Hispanic	65	18.5	14.28-23.58
	Other/Unknown	9	9.16	4.19-17.40
Fetal Alcohol Syndrome * (p<0.0001)	White non-Hispanic	46	1.64	1.20-2.18
	Black non-Hispanic	38	4.48	3.17-6.15
	Hispanic	0	0	0.00-1.05
	Other/Unknown	1	1.02	0.03-5.67

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<b>Table 3: Birth Defects Counts and Rates by Race/Ethnicity 2003-2007</b>				
<b>Defect</b>	<b>Race</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
Total Cases * (p<0.0001)	White non-Hispanic	9,466	336.51	329.77-343.36
	Black non-Hispanic	2,660	313.49	301.69-325.63
	Hispanic	914	260.17	243.57-277.60
	Other/Unknown	212	215.86	187.78-246.96
Total Live Births	White non-Hispanic	281,298		
	Black non-Hispanic	84,852		
	Hispanic	35,131		
	Other/Unknown	9,821		

<sup>1</sup>Rate per 10,000 live births

<sup>2</sup>95 percent confidence interval

\*Indicates a statistically significant difference.

**Table 4: Birth Defects Counts and Rates by Perinatal Region  
2003-2007**

<b>Defect</b>	<b>region</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
Anencephalus	Northeast	3	1.1	0.23-3.22
	East	5	0.69	0.22-1.60
	Southeast	7	1.87	0.75-3.85
	Middle	30	1.86	1.26-2.66
	West	21	1.87	1.15-2.85
Spina Bifida	Northeast	12	4.41	2.28-7.71
	East	39	5.36	3.81-7.32
	Southeast	17	4.54	2.65-7.27
	Middle	77	4.78	3.77-5.97
	West	41	3.64	2.61-4.94
Hydrocephalus	Northeast	25	9.19	5.95-13.57
	East	50	6.87	5.10-9.05
	Southeast	33	8.82	6.07-12.38
	Middle	99	6.15	5.00-7.48
	West	89	7.91	6.35-9.73
Encephalocele	Northeast	3	1.1	0.23-3.22
	East	7	0.96	0.39-1.98
	Southeast	4	1.07	0.29-2.74
	Middle	20	1.24	0.76-1.92
	West	19	1.69	1.02-2.64
Microcephalus * (p<0.0001)	Northeast	29	10.66	7.14-15.31
	East	71	9.75	7.61-12.30
	Southeast	47	12.56	9.23-16.70
	Middle	88	5.46	4.38-6.73
	West	111	9.86	8.11-11.87
Central Nervous System Cases * (p=0.0016)	Northeast	71	26.1	20.38-32.92
	East	169	23.21	19.84-26.98
	Southeast	105	28.05	22.95-33.96
	Middle	303	18.81	16.75-21.05
	West	268	23.81	21.04-26.83
Anophthalmia/Microphthalmia	Northeast	4	1.47	0.40-3.76
	East	7	0.96	0.39-1.98
	Southeast	2	0.53	0.06-1.93
	Middle	9	0.56	0.26-1.06
	West	17	1.51	0.88-2.42
Congenital Cataract	Northeast	8	2.94	1.27-5.79
	East	12	1.65	0.85-2.88
	Southeast	8	2.14	0.92-4.21
	Middle	34	2.11	1.46-2.95
	West	27	2.4	1.58-3.49

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<b>Table 4: Birth Defects Counts and Rates by Perinatal Region 2003-2007</b>				
<b>Defect</b>	<b>region</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
Aniridia	Northeast	0	0	0.00-1.36
	East	0	0	0.00-0.51
	Southeast	0	0	0.00-0.99
	Middle	6	0.37	0.14-0.81
	West	0	0	0.00-0.33
Anotia/Microtia * (p=0.0097)	Northeast	5	1.84	0.60-4.29
	East	8	1.1	0.47-2.16
	Southeast	4	1.07	0.29-2.74
	Middle	5	0.31	0.10-0.72
	West	3	0.27	0.05-0.78
Ear and Eye Cases	Northeast	16	5.88	3.36-9.55
	East	24	3.3	2.11-4.90
	Southeast	13	3.47	1.85-5.94
	Middle	53	3.29	2.47-4.30
	West	46	4.09	2.99-5.45
Common Truncus	Northeast	1	0.37	0.01-2.05
	East	12	1.65	0.85-2.88
	Southeast	4	1.07	0.29-2.74
	Middle	15	0.93	0.52-1.54
	West	10	0.89	0.43-1.63
Transposition of Great Arteries	Northeast	9	3.31	1.51-6.28
	East	54	7.42	5.57-9.68
	Southeast	28	7.48	4.97-10.81
	Middle	105	6.52	5.33-7.89
	West	71	6.31	4.93-7.96
Tetralogy of Fallot	Northeast	15	5.51	3.09-9.09
	East	43	5.9	4.27-7.95
	Southeast	27	7.21	4.75-10.50
	Middle	86	5.34	4.27-6.59
	West	60	5.33	4.07-6.86
Ventricular Septal Defect * (p=0.0371)	Northeast	129	47.42	39.59-56.35
	East	359	49.3	44.33-54.67
	Southeast	147	39.28	33.18-46.16
	Middle	663	41.16	38.09-44.42
	West	477	42.37	38.65-46.35
Atrial Septal Defect * (p<0.0001)	Northeast	454	166.89	151.89-182.98
	East	390	53.55	48.37-59.14
	Southeast	156	41.68	35.40-48.76
	Middle	705	43.77	40.60-47.13
	West	865	76.83	71.80-82.13

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**Table 4: Birth Defects Counts and Rates by Perinatal Region  
2003-2007**

Defect	region	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
Endocardial Cushion Defect	Northeast	10	3.68	1.76-6.76
	East	34	4.67	3.23-6.52
	Southeast	16	4.27	2.44-6.94
	Middle	51	3.17	2.36-4.16
	West	42	3.73	2.69-5.04
Pulmonary Valve Atresia & Stenosis * (p<0.0001)	Northeast	49	18.01	13.33-23.81
	East	62	8.51	6.53-10.91
	Southeast	23	6.15	3.90-9.22
	Middle	208	12.91	11.22-14.79
	West	100	8.88	7.23-10.80
Tricuspid Valve Atresia & Stenosis	Northeast	3	1.1	0.23-3.22
	East	10	1.37	0.66-2.53
	Southeast	4	1.07	0.29-2.74
	Middle	13	0.81	0.43-1.38
	West	15	1.33	0.75-2.20
Ebsteins Anomaly	Northeast	0	0	0.00-1.36
	East	7	0.96	0.39-1.98
	Southeast	0	0	0.00-0.99
	Middle	14	0.87	0.48-1.46
	West	3	0.27	0.05-0.78
Aortic Valve Stenosis	Northeast	3	1.1	0.23-3.22
	East	12	1.65	0.85-2.88
	Southeast	8	2.14	0.92-4.21
	Middle	33	2.05	1.41-2.88
	West	17	1.51	0.88-2.42
Hypoplastic Left Heart Syndrome	Northeast	8	2.94	1.27-5.79
	East	25	3.43	2.22-5.07
	Southeast	10	2.67	1.28-4.91
	Middle	51	3.17	2.36-4.16
	West	33	2.93	2.02-4.12
Patent Ductus Arteriosus * (p<0.0001)	Northeast	298	109.55	97.46-122.72
	East	330	45.31	40.56-50.48
	Southeast	139	37.14	31.22-43.85
	Middle	650	40.36	37.31-43.58
	West	724	64.31	59.71-69.17
Coarctation of Aorta	Northeast	16	5.88	3.36-9.55
	East	39	5.36	3.81-7.32
	Southeast	28	7.48	4.97-10.81
	Middle	110	6.83	5.61-8.23
	West	59	5.24	3.99-6.76

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**Table 4: Birth Defects Counts and Rates by Perinatal Region  
2003-2007**

Defect	region	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
Cardiovascular Cases * (p<0.0001)	Northeast	730	268.35	249.24-288.55
	East	1000	137.32	128.94-146.10
	Southeast	398	106.34	96.15-117.32
	Middle	1855	115.17	109.99-120.54
	West	1739	154.47	147.29-161.90
Cleft Palate w/o Cleft Lip	Northeast	27	9.93	6.54-14.44
	East	60	8.24	6.29-10.61
	Southeast	29	7.75	5.19-11.13
	Middle	120	7.45	6.18-8.91
	West	64	5.68	4.38-7.26
Cleft Lip w/ & w/o Cleft Palate * (p=0.0020)	Northeast	37	13.6	9.58-18.75
	East	94	12.91	10.43-15.80
	Southeast	41	10.95	7.86-14.86
	Middle	178	11.05	9.49-12.80
	West	85	7.55	6.03-9.34
Choanal Atresia	Northeast	9	3.31	1.51-6.28
	East	14	1.92	1.05-3.23
	Southeast	6	1.6	0.59-3.49
	Middle	28	1.74	1.16-2.51
	West	22	1.95	1.22-2.96
Orofacial Cases * (p=0.0001)	Northeast	72	26.47	20.71-33.33
	East	167	22.93	19.59-26.69
	Southeast	76	20.31	16.00-25.42
	Middle	324	20.12	17.99-22.43
	West	170	15.1	12.92-17.55
Esophageal Atresia/ Tracheoesophageal Fistula	Northeast	6	2.21	0.81-4.80
	East	14	1.92	1.05-3.23
	Southeast	10	2.67	1.28-4.91
	Middle	50	3.1	2.30-4.09
	West	30	2.66	1.80-3.80
Rectal & Large Intestinal Atresia/ Stenosis	Northeast	15	5.51	3.09-9.09
	East	41	5.63	4.04-7.64
	Southeast	15	4.01	2.24-6.61
	Middle	85	5.28	4.22-6.53
	West	50	4.44	3.30-5.86
Pyloric Stenosis * (p<0.0001)	Northeast	160	58.82	50.06-68.67
	East	360	49.43	44.46-54.81
	Southeast	163	43.55	37.12-50.77
	Middle	655	40.67	37.61-43.90
	West	393	34.91	31.54-38.54

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**Table 4: Birth Defects Counts and Rates by Perinatal Region  
2003-2007**

<b>Defect</b>	<b>region</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
Hirschsprungs Disease (congenital megacolon)	Northeast	13	4.78	2.54-8.17
	East	16	2.2	1.26-3.57
	Southeast	10	2.67	1.28-4.91
	Middle	43	2.67	1.93-3.60
	West	39	3.46	2.46-4.74
Biliary Atresia	Northeast	2	0.74	0.09-2.66
	East	4	0.55	0.15-1.41
	Southeast	3	0.8	0.17-2.34
	Middle	20	1.24	0.76-1.92
	West	5	0.44	0.14-1.04
Gastrointestinal Cases * (p<0.0001)	Northeast	193	70.95	61.29-81.70
	East	433	59.46	53.99-65.33
	Southeast	201	53.7	46.54-61.66
	Middle	846	52.53	49.05-56.19
	West	511	45.39	41.54-49.50
Renal Agenesis/Hypoplasia	Northeast	8	2.94	1.27-5.79
	East	38	5.22	3.69-7.16
	Southeast	14	3.74	2.04-6.28
	Middle	72	4.47	3.50-5.63
	West	44	3.91	2.84-5.25
Bladder Exstrophy	Northeast	2	0.74	0.09-2.66
	East	4	0.55	0.15-1.41
	Southeast	2	0.53	0.06-1.93
	Middle	5	0.31	0.10-0.72
	West	3	0.27	0.05-0.78
Hypospadias * (p<0.0001)	Northeast	119	43.75	36.24-52.35
	East	385	52.87	47.72-58.42
	Southeast	184	49.16	42.31-56.80
	Middle	922	57.24	53.61-61.06
	West	487	43.26	39.50-47.28
Epispadias	Northeast	1	0.37	0.01-2.05
	East	9	1.24	0.57-2.35
	Southeast	4	1.07	0.29-2.74
	Middle	17	1.06	0.61-1.69
	West	9	0.8	0.37-1.52
Obstructive Genitourinary Defect * (p<0.0001)	Northeast	103	37.86	30.90-45.92
	East	254	34.88	30.72-39.44
	Southeast	71	18.97	14.82-23.93
	Middle	378	23.47	21.16-25.96
	West	197	17.5	15.14-20.12

*Continued on next page*

**Table 4: Birth Defects Counts and Rates by Perinatal Region  
2003-2007**

Defect	region	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
Genitourinary Cases * (p<0.0001)	Northeast	224	82.34	71.91-93.86
	East	682	93.65	86.75-100.95
	Southeast	272	72.67	64.29-81.85
	Middle	1372	85.18	80.74-89.81
	West	728	64.66	60.05-69.54
Reduction Deformity (upper limbs)	Northeast	5	1.84	0.60-4.29
	East	19	2.61	1.57-4.07
	Southeast	10	2.67	1.28-4.91
	Middle	26	1.61	1.05-2.37
	West	28	2.49	1.65-3.59
Reduction Deformity (lower limbs)	Northeast	5	1.84	0.60-4.29
	East	11	1.51	0.75-2.70
	Southeast	3	0.8	0.17-2.34
	Middle	22	1.37	0.86-2.07
	West	22	1.95	1.22-2.96
Gastroschisis	Northeast	15	5.51	3.09-9.09
	East	42	5.77	4.16-7.80
	Southeast	14	3.74	2.04-6.28
	Middle	80	4.97	3.94-6.18
	West	55	4.89	3.68-6.36
Omphalocele	Northeast	4	1.47	0.40-3.76
	East	31	4.26	2.89-6.04
	Southeast	8	2.14	0.92-4.21
	Middle	45	2.79	2.04-3.74
	West	37	3.29	2.31-4.53
Congenital Hip Dislocation * (p=0.0004)	Northeast	25	9.19	5.95-13.57
	East	55	7.55	5.69-9.83
	Southeast	43	11.49	8.31-15.48
	Middle	105	6.52	5.33-7.89
	West	54	4.8	3.60-6.26
Diaphragmatic Hernia	Northeast	15	5.51	3.09-9.09
	East	22	3.02	1.89-4.57
	Southeast	11	2.94	1.47-5.26
	Middle	51	3.17	2.36-4.16
	West	38	3.38	2.39-4.63
Musculoskeletal Cases	Northeast	67	24.63	19.09-31.28
	East	173	23.76	20.35-27.57
	Southeast	87	23.25	18.62-28.67
	Middle	319	19.81	17.69-22.10
	West	225	19.99	17.46-22.77

*Continued on next page*

<b>Table 4: Birth Defects Counts and Rates by Perinatal Region 2003-2007</b>				
<b>Defect</b>	<b>region</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
Trisomy 13	Northeast	4	1.47	0.40-3.76
	East	4	0.55	0.15-1.41
	Southeast	2	0.53	0.06-1.93
	Middle	11	0.68	0.34-1.22
	West	14	1.24	0.68-2.09
Down Syndrome	Northeast	35	12.87	8.96-17.89
	East	100	13.73	11.17-16.70
	Southeast	52	13.89	10.38-18.22
	Middle	217	13.47	11.74-15.39
	West	154	13.68	11.60-16.02
Trisomy 18	Northeast	2	0.74	0.09-2.66
	East	12	1.65	0.85-2.88
	Southeast	8	2.14	0.92-4.21
	Middle	23	1.43	0.91-2.14
	West	15	1.33	0.75-2.20
Chromosomal Cases	Northeast	41	15.07	10.82-20.45
	East	115	15.79	13.04-18.96
	Southeast	62	16.57	12.70-21.24
	Middle	249	15.46	13.60-17.50
	West	181	16.08	13.82-18.60
Fetal Alcohol Syndrome	Northeast	8	2.94	1.27-5.79
	East	17	2.33	1.36-3.74
	Southeast	10	2.67	1.28-4.91
	Middle	26	1.61	1.05-2.37
	West	24	2.13	1.37-3.17
Total Cases * (p<0.0001)	Northeast	1,301	478.26	452.62-504.97
	East	2,492	342.19	328.89-355.90
	Southeast	1,112	297.11	279.90-315.10
	Middle	4,817	299.08	290.69-307.64
	West	3,530	313.55	303.29-324.07
Total Live Births <sup>3</sup>	Northeast	27,203		
	East	72,825		
	Southeast	37,427		
	Middle	161,063		
	West	112,581		

<sup>1</sup>Rate per 10,000 live births .

<sup>2</sup>95 percent confidence interval.

<sup>3</sup>There were 3 live births whose region of residence was unknown.

\*Indicates a statistically significant difference.

**Table 5: Birth Defects Counts and Rates by Maternal Age  
2003-2007**

<b>Defect</b>	<b>Age Group</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
<i>Anencephalus</i>	<i>Less than 20</i>	9	1.67	0.76-3.17
	<i>20 - 24</i>	25	2.02	1.31-2.98
	<i>25 - 29</i>	17	1.5	0.87-2.40
	<i>30 - 34</i>	12	1.53	0.79-2.67
	<i>35 - 39</i>	2	0.58	0.07-2.11
	<i>40 and older</i>	0	0	0.00-5.37
<i>Spina Bifida</i>	<i>Less than 20</i>	25	4.64	3.00-6.84
	<i>20 - 24</i>	48	3.87	2.86-5.14
	<i>25 - 29</i>	55	4.85	3.66-6.32
	<i>30 - 34</i>	31	3.95	2.68-5.61
	<i>35 - 39</i>	20	5.84	3.56-9.01
	<i>40 and older</i>	7	10.17	4.09-20.95
<i>Hydrocephalus</i>	<i>Less than 20</i>	44	8.16	5.93-10.96
	<i>20 - 24</i>	97	7.83	6.35-9.55
	<i>25 - 29</i>	76	6.71	5.28-8.39
	<i>30 - 34</i>	44	5.61	4.07-7.53
	<i>35 - 39</i>	31	9.05	6.15-12.84
	<i>40 and older</i>	4	5.81	1.58-14.88
<i>Encephalocele</i>	<i>Less than 20</i>	6	1.11	0.41-2.42
	<i>20 - 24</i>	15	1.21	0.68-2.00
	<i>25 - 29</i>	16	1.41	0.81-2.29
	<i>30 - 34</i>	11	1.4	0.70-2.51
	<i>35 - 39</i>	5	1.46	0.47-3.40
	<i>40 and older</i>	0	0	0.00-5.37
<i>Microcephalus *</i> ( <i>p=0.0111</i> )	<i>Less than 20</i>	64	11.87	9.14-15.16
	<i>20 - 24</i>	106	8.56	7.01-10.35
	<i>25 - 29</i>	86	7.59	6.07-9.37
	<i>30 - 34</i>	48	6.12	4.51-8.11
	<i>35 - 39</i>	34	9.92	6.87-13.86
	<i>40 and older</i>	8	11.62	5.02-22.89
<i>Central Nervous System Cases *</i> ( <i>p=0.0071</i> )	<i>Less than 20</i>	145	26.89	22.69-31.64
	<i>20 - 24</i>	280	22.6	20.03-25.41
	<i>25 - 29</i>	243	21.45	18.83-24.32
	<i>30 - 34</i>	139	17.71	14.89-20.91
	<i>35 - 39</i>	90	26.26	21.12-32.28
	<i>40 and older</i>	18	26.14	15.50-41.32
<i>Anophthalmia/Microphthalmia</i>	<i>Less than 20</i>	8	1.48	0.64-2.92
	<i>20 - 24</i>	18	1.45	0.86-2.30
	<i>25 - 29</i>	6	0.53	0.19-1.15
	<i>30 - 34</i>	5	0.64	0.21-1.49
	<i>35 - 39</i>	1	0.29	0.01-1.63
	<i>40 and older</i>	1	1.45	0.04-8.09

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**Table 5: Birth Defects Counts and Rates by Maternal Age  
2003-2007**

<b>Defect</b>	<b>Age Group</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
<i>Congenital Cataract</i>	<i>Less than 20</i>	9	1.67	0.76-3.17
	<i>20 - 24</i>	32	2.58	1.77-3.65
	<i>25 - 29</i>	25	2.21	1.43-3.26
	<i>30 - 34</i>	13	1.66	0.88-2.83
	<i>35 - 39</i>	7	2.04	0.82-4.21
	<i>40 and older</i>	2	2.9	0.35-10.49
<i>Aniridia</i>	<i>Less than 20</i>	0	0	0.00-0.69
	<i>20 - 24</i>	2	0.16	0.02-0.58
	<i>25 - 29</i>	2	0.18	0.02-0.64
	<i>30 - 34</i>	2	0.25	0.03-0.92
	<i>35 - 39</i>	0	0	0.00-1.08
	<i>40 and older</i>	0	0	0.00-5.37
<i>Anotia/Microtia</i>	<i>Less than 20</i>	4	0.74	0.20-1.90
	<i>20 - 24</i>	7	0.57	0.23-1.16
	<i>25 - 29</i>	6	0.53	0.19-1.15
	<i>30 - 34</i>	5	0.64	0.21-1.49
	<i>35 - 39</i>	2	0.58	0.07-2.11
	<i>40 and older</i>	1	1.45	0.04-8.09
<i>Ear and Eye Cases</i>	<i>Less than 20</i>	19	3.52	2.12-5.50
	<i>20 - 24</i>	58	4.68	3.56-6.05
	<i>25 - 29</i>	38	3.35	2.37-4.60
	<i>30 - 34</i>	23	2.93	1.86-4.40
	<i>35 - 39</i>	9	2.63	1.20-4.99
	<i>40 and older</i>	4	5.81	1.58-14.88
<i>Common Truncus</i>	<i>Less than 20</i>	6	1.11	0.41-2.42
	<i>20 - 24</i>	16	1.29	0.74-2.10
	<i>25 - 29</i>	12	1.06	0.55-1.85
	<i>30 - 34</i>	6	0.76	0.28-1.66
	<i>35 - 39</i>	2	0.58	0.07-2.11
	<i>40 and older</i>	0	0	0.00-5.37
<i>Transposition of Great Arteries</i>	<i>Less than 20</i>	30	5.56	3.75-7.94
	<i>20 - 24</i>	80	6.46	5.12-8.04
	<i>25 - 29</i>	68	6	4.66-7.61
	<i>30 - 34</i>	50	6.37	4.73-8.40
	<i>35 - 39</i>	36	10.5	7.36-14.54
	<i>40 and older</i>	3	4.36	0.90-12.73
<i>Tetralogy of Fallot *</i> <i>(p=0.0319)</i>	<i>Less than 20</i>	20	3.71	2.27-5.73
	<i>20 - 24</i>	73	5.89	4.62-7.41
	<i>25 - 29</i>	65	5.74	4.43-7.31
	<i>30 - 34</i>	37	4.71	3.32-6.50
	<i>35 - 39</i>	28	8.17	5.43-11.81
	<i>40 and older</i>	8	11.62	5.02-22.89

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**Table 5: Birth Defects Counts and Rates by Maternal Age  
2003-2007**

<b>Defect</b>	<b>Age Group</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
<i>Ventricular Septal Defect *</i> ( <i>p</i> <0.0001)	<i>Less than 20</i>	216	40.06	34.90-45.77
	<i>20 - 24</i>	469	37.86	34.51-41.45
	<i>25 - 29</i>	474	41.83	38.15-45.77
	<i>30 - 34</i>	333	42.43	38.00-47.24
	<i>35 - 39</i>	221	64.48	56.26-73.57
	<i>40 and older</i>	62	90.05	69.04-115.45
<i>Atrial Septal Defect *</i> ( <i>p</i> <0.0001)	<i>Less than 20</i>	368	68.25	61.45-75.59
	<i>20 - 24</i>	761	61.43	57.15-65.96
	<i>25 - 29</i>	660	58.25	53.89-62.86
	<i>30 - 34</i>	441	56.19	51.07-61.69
	<i>35 - 39</i>	275	80.24	71.04-90.31
	<i>40 and older</i>	63	91.5	70.31-117.07
<i>Endocardial Cushion Defect *</i> ( <i>p</i> <0.0001)	<i>Less than 20</i>	22	4.08	2.56-6.18
	<i>20 - 24</i>	31	2.5	1.70-3.55
	<i>25 - 29</i>	32	2.82	1.93-3.99
	<i>30 - 34</i>	31	3.95	2.68-5.61
	<i>35 - 39</i>	20	5.84	3.56-9.01
	<i>40 and older</i>	17	24.69	14.38-39.53
<i>Pulmonary Valve Atresia &amp; Stenosis *</i> ( <i>p</i> =0.0206)	<i>Less than 20</i>	56	10.39	7.85-13.49
	<i>20 - 24</i>	135	10.9	9.14-12.90
	<i>25 - 29</i>	104	9.18	7.50-11.12
	<i>30 - 34</i>	80	10.19	8.08-12.69
	<i>35 - 39</i>	57	16.63	12.60-21.55
	<i>40 and older</i>	10	14.52	6.96-26.71
<i>Tricuspid Valve Atresia &amp; Stenosis</i>	<i>Less than 20</i>	6	1.11	0.41-2.42
	<i>20 - 24</i>	10	0.81	0.39-1.48
	<i>25 - 29</i>	14	1.24	0.68-2.07
	<i>30 - 34</i>	4	0.51	0.14-1.31
	<i>35 - 39</i>	9	2.63	1.20-4.99
	<i>40 and older</i>	2	2.9	0.35-10.49
<i>Ebsteins Anomaly</i>	<i>Less than 20</i>	5	0.93	0.30-2.16
	<i>20 - 24</i>	10	0.81	0.39-1.48
	<i>25 - 29</i>	3	0.26	0.05-0.77
	<i>30 - 34</i>	4	0.51	0.14-1.31
	<i>35 - 39</i>	2	0.58	0.07-2.11
	<i>40 and older</i>	0	0	0.00-5.37
<i>Aortic Valve Stenosis</i>	<i>Less than 20</i>	14	2.6	1.42-4.36
	<i>20 - 24</i>	18	1.45	0.86-2.30
	<i>25 - 29</i>	26	2.29	1.50-3.36
	<i>30 - 34</i>	8	1.02	0.44-2.01
	<i>35 - 39</i>	7	2.04	0.82-4.21
	<i>40 and older</i>	0	0	0.00-5.37

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**Table 5: Birth Defects Counts and Rates by Maternal Age  
2003-2007**

<b>Defect</b>	<b>Age Group</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
<i>Hypoplastic Left Heart Syndrome</i>	<i>Less than 20</i>	15	2.78	1.56-4.59
	<i>20 - 24</i>	41	3.31	2.38-4.49
	<i>25 - 29</i>	31	2.74	1.86-3.88
	<i>30 - 34</i>	25	3.19	2.06-4.70
	<i>35 - 39</i>	14	4.08	2.23-6.85
	<i>40 and older</i>	1	1.45	0.04-8.09
<i>Patent Ductus Arteriosus *</i> <i>(p&lt;0.0001)</i>	<i>Less than 20</i>	272	50.45	44.63-56.81
	<i>20 - 24</i>	572	46.18	42.47-50.12
	<i>25 - 29</i>	579	51.1	47.02-55.43
	<i>30 - 34</i>	433	55.17	50.10-60.62
	<i>35 - 39</i>	231	67.4	58.99-76.68
	<i>40 and older</i>	53	76.98	57.66-100.69
<i>Coarctation of Aorta *</i> <i>(p=0.0444)</i>	<i>Less than 20</i>	40	7.42	5.30-10.10
	<i>20 - 24</i>	61	4.92	3.77-6.33
	<i>25 - 29</i>	72	6.35	4.97-8.00
	<i>30 - 34</i>	44	5.61	4.07-7.53
	<i>35 - 39</i>	25	7.29	4.72-10.77
	<i>40 and older</i>	10	14.52	6.96-26.71
<i>Cardiovascular Cases *</i> <i>(p&lt;0.0001)</i>	<i>Less than 20</i>	736	136.5	126.82-146.73
	<i>20 - 24</i>	1,636	132.07	125.75-138.63
	<i>25 - 29</i>	1,512	133.44	126.79-140.34
	<i>30 - 34</i>	1,060	135.07	127.06-143.45
	<i>35 - 39</i>	625	182.36	168.35-197.24
	<i>40 and older</i>	151	219.32	185.73-257.22
<i>Cleft Palate w/o Cleft Lip *</i> <i>(p=0.0195)</i>	<i>Less than 20</i>	32	5.93	4.06-8.38
	<i>20 - 24</i>	87	7.02	5.63-8.66
	<i>25 - 29</i>	75	6.62	5.21-8.30
	<i>30 - 34</i>	56	7.14	5.39-9.27
	<i>35 - 39</i>	41	11.96	8.58-16.23
	<i>40 and older</i>	9	13.07	5.98-24.81
<i>Cleft Lip w/ &amp; w/o Cleft Palate</i>	<i>Less than 20</i>	51	9.46	7.04-12.44
	<i>20 - 24</i>	150	12.11	10.25-14.21
	<i>25 - 29</i>	113	9.97	8.22-11.99
	<i>30 - 34</i>	75	9.56	7.52-11.98
	<i>35 - 39</i>	37	10.8	7.60-14.88
	<i>40 and older</i>	9	13.07	5.98-24.81
<i>Choanal Atresia</i>	<i>Less than 20</i>	6	1.11	0.41-2.42
	<i>20 - 24</i>	24	1.94	1.24-2.88
	<i>25 - 29</i>	22	1.94	1.22-2.94
	<i>30 - 34</i>	16	2.04	1.17-3.31
	<i>35 - 39</i>	6	1.75	0.64-3.81
	<i>40 and older</i>	5	7.26	2.36-16.95

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**Table 5: Birth Defects Counts and Rates by Maternal Age  
2003-2007**

<b>Defect</b>	<b>Age Group</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
<i>Orofacial Cases *</i> ( <i>p</i> =0.0136)	<i>Less than 20</i>	89	16.51	13.26-20.31
	<i>20 - 24</i>	258	20.83	18.36-23.53
	<i>25 - 29</i>	208	18.36	15.95-21.03
	<i>30 - 34</i>	147	18.73	15.83-22.02
	<i>35 - 39</i>	84	24.51	19.55-30.35
	<i>40 and older</i>	23	33.41	21.18-50.13
<i>Esophageal Atresia/Tracheoesophageal Fistula</i>	<i>Less than 20</i>	15	2.78	1.56-4.59
	<i>20 - 24</i>	33	2.66	1.83-3.74
	<i>25 - 29</i>	30	2.65	1.79-3.78
	<i>30 - 34</i>	15	1.91	1.07-3.15
	<i>35 - 39</i>	10	2.92	1.40-5.37
	<i>40 and older</i>	7	10.17	4.09-20.95
<i>Rectal &amp; Large Intestinal Atresia/Stenosis</i>	<i>Less than 20</i>	29	5.38	3.60-7.72
	<i>20 - 24</i>	68	5.49	4.26-6.96
	<i>25 - 29</i>	42	3.71	2.67-5.01
	<i>30 - 34</i>	43	5.48	3.97-7.38
	<i>35 - 39</i>	20	5.84	3.56-9.01
	<i>40 and older</i>	4	5.81	1.58-14.88
<i>Pyloric Stenosis *</i> ( <i>p</i> <0.0001)	<i>Less than 20</i>	317	58.79	52.50-65.63
	<i>20 - 24</i>	610	49.24	45.41-53.31
	<i>25 - 29</i>	439	38.74	35.20-42.54
	<i>30 - 34</i>	246	31.35	27.55-35.52
	<i>35 - 39</i>	105	30.64	25.06-37.09
	<i>40 and older</i>	13	18.88	10.05-32.29
<i>Hirschsprungs Disease (congenital megacolon)</i>	<i>Less than 20</i>	20	3.71	2.27-5.73
	<i>20 - 24</i>	41	3.31	2.38-4.49
	<i>25 - 29</i>	29	2.56	1.71-3.68
	<i>30 - 34</i>	19	2.42	1.46-3.78
	<i>35 - 39</i>	6	1.75	0.64-3.81
	<i>40 and older</i>	6	8.71	3.20-18.97
<i>Biliary Atresia</i>	<i>Less than 20</i>	4	0.74	0.20-1.90
	<i>20 - 24</i>	11	0.89	0.44-1.59
	<i>25 - 29</i>	11	0.97	0.48-1.74
	<i>30 - 34</i>	3	0.38	0.08-1.12
	<i>35 - 39</i>	4	1.17	0.32-2.99
	<i>40 and older</i>	1	1.45	0.04-8.09
<i>Gastrointestinal Cases *</i> ( <i>p</i> <0.0001)	<i>Less than 20</i>	381	70.66	63.74-78.13
	<i>20 - 24</i>	759	61.27	56.99-65.79
	<i>25 - 29</i>	545	48.1	44.14-52.31
	<i>30 - 34</i>	324	41.28	36.91-46.03
	<i>35 - 39</i>	143	41.73	35.17-49.15
	<i>40 and older</i>	31	45.03	30.59-63.91

**Continued on next page**

**Table 5: Birth Defects Counts and Rates by Maternal Age  
2003-2007**

<b>Defect</b>	<b>Age Group</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
<i>Renal Agenesis/Hypoplasia</i>	<i>Less than 20</i>	15	2.78	1.56-4.59
	<i>20 - 24</i>	44	3.55	2.58-4.77
	<i>25 - 29</i>	53	4.68	3.50-6.12
	<i>30 - 34</i>	45	5.73	4.18-7.67
	<i>35 - 39</i>	15	4.38	2.45-7.22
	<i>40 and older</i>	4	5.81	1.58-14.88
<i>Bladder Exstrophy</i>	<i>Less than 20</i>	2	0.37	0.04-1.34
	<i>20 - 24</i>	7	0.57	0.23-1.16
	<i>25 - 29</i>	3	0.26	0.05-0.77
	<i>30 - 34</i>	3	0.38	0.08-1.12
	<i>35 - 39</i>	1	0.29	0.01-1.63
	<i>40 and older</i>	0	0	0.00-5.37
<i>Hypospadias</i>	<i>Less than 20</i>	256	47.48	41.84-53.67
	<i>20 - 24</i>	603	48.68	44.87-52.72
	<i>25 - 29</i>	632	55.78	51.51-60.30
	<i>30 - 34</i>	399	50.84	45.97-56.08
	<i>35 - 39</i>	180	52.52	45.13-60.78
	<i>40 and older</i>	27	39.22	25.84-57.05
<i>Epispadias</i>	<i>Less than 20</i>	5	0.93	0.30-2.16
	<i>20 - 24</i>	13	1.05	0.56-1.79
	<i>25 - 29</i>	9	0.79	0.36-1.51
	<i>30 - 34</i>	11	1.4	0.70-2.51
	<i>35 - 39</i>	2	0.58	0.07-2.11
	<i>40 and older</i>	0	0	0.00-5.37
<i>Obstructive Genitourinary Defect *</i> <i>(p=0.0334)</i>	<i>Less than 20</i>	122	22.63	18.79-27.02
	<i>20 - 24</i>	267	21.55	19.05-24.30
	<i>25 - 29</i>	280	24.71	21.90-27.78
	<i>30 - 34</i>	228	29.05	25.40-33.08
	<i>35 - 39</i>	90	26.26	21.12-32.28
	<i>40 and older</i>	16	23.24	13.28-37.74
<i>Genitourinary Cases *</i> <i>(p=0.0045)</i>	<i>Less than 20</i>	398	73.81	66.74-81.44
	<i>20 - 24</i>	915	73.87	69.16-78.81
	<i>25 - 29</i>	956	84.37	79.10-89.89
	<i>30 - 34</i>	675	86.01	79.64-92.75
	<i>35 - 39</i>	288	84.03	74.61-94.32
	<i>40 and older</i>	46	66.81	48.91-89.12
<i>Reduction Deformity (upper limbs)</i>	<i>Less than 20</i>	13	2.41	1.28-4.12
	<i>20 - 24</i>	36	2.91	2.04-4.02
	<i>25 - 29</i>	19	1.68	1.01-2.62
	<i>30 - 34</i>	13	1.66	0.88-2.83
	<i>35 - 39</i>	6	1.75	0.64-3.81
	<i>40 and older</i>	1	1.45	0.04-8.09

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**Table 5: Birth Defects Counts and Rates by Maternal Age  
2003-2007**

<b>Defect</b>	<b>Age Group</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
<i>Reduction Deformity (lower limbs)</i>	<i>Less than 20</i>	10	1.85	0.89-3.41
	<i>20 - 24</i>	18	1.45	0.86-2.30
	<i>25 - 29</i>	20	1.77	1.08-2.73
	<i>30 - 34</i>	9	1.15	0.52-2.18
	<i>35 - 39</i>	5	1.46	0.47-3.40
	<i>40 and older</i>	1	1.45	0.04-8.09
<i>Gastroschisis *</i> <i>(p&lt;0.0001)</i>	<i>Less than 20</i>	77	14.28	11.27-17.85
	<i>20 - 24</i>	91	7.35	5.91-9.02
	<i>25 - 29</i>	25	2.21	1.43-3.26
	<i>30 - 34</i>	10	1.27	0.61-2.34
	<i>35 - 39</i>	2	0.58	0.07-2.11
	<i>40 and older</i>	1	1.45	0.04-8.09
<i>Omphalocele *</i> <i>(p=0.0147)</i>	<i>Less than 20</i>	21	3.89	2.41-5.95
	<i>20 - 24</i>	51	4.12	3.07-5.41
	<i>25 - 29</i>	26	2.29	1.50-3.36
	<i>30 - 34</i>	18	2.29	1.36-3.62
	<i>35 - 39</i>	5	1.46	0.47-3.40
	<i>40 and older</i>	4	5.81	1.58-14.88
<i>Congenital Hip Dislocation *</i> <i>(p=0.0467)</i>	<i>Less than 20</i>	38	7.05	4.99-9.67
	<i>20 - 24</i>	69	5.57	4.33-7.05
	<i>25 - 29</i>	69	6.09	4.74-7.71
	<i>30 - 34</i>	69	8.79	6.84-11.13
	<i>35 - 39</i>	29	8.46	5.67-12.15
	<i>40 and older</i>	8	11.62	5.02-22.89
<i>Diaphragmatic Hernia</i>	<i>Less than 20</i>	17	3.15	1.84-5.05
	<i>20 - 24</i>	40	3.23	2.31-4.40
	<i>25 - 29</i>	36	3.18	2.23-4.40
	<i>30 - 34</i>	28	3.57	2.37-5.16
	<i>35 - 39</i>	13	3.79	2.02-6.49
	<i>40 and older</i>	3	4.36	0.90-12.73
<i>Musculoskeletal Cases *</i> <i>(p&lt;0.0001)</i>	<i>Less than 20</i>	175	32.46	27.83-37.64
	<i>20 - 24</i>	292	23.57	20.95-26.44
	<i>25 - 29</i>	187	16.5	14.22-19.05
	<i>30 - 34</i>	142	18.09	15.24-21.33
	<i>35 - 39</i>	58	16.92	12.85-21.88
	<i>40 and older</i>	17	24.69	14.38-39.53
<i>Trisomy 13 *</i> <i>(p=0.0380)</i>	<i>Less than 20</i>	2	0.37	0.04-1.34
	<i>20 - 24</i>	8	0.65	0.28-1.27
	<i>25 - 29</i>	12	1.06	0.55-1.85
	<i>30 - 34</i>	4	0.51	0.14-1.31
	<i>35 - 39</i>	6	1.75	0.64-3.81
	<i>40 and older</i>	3	4.36	0.90-12.73

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**Table 5: Birth Defects Counts and Rates by Maternal Age  
2003-2007**

<b>Defect</b>	<b>Age Group</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
<i>Down Syndrome *</i> ( <i>p</i> <0.0001)	<i>Less than 20</i>	51	9.46	7.04-12.44
	<i>20 - 24</i>	84	6.78	5.41-8.40
	<i>25 - 29</i>	100	8.83	7.18-10.73
	<i>30 - 34</i>	98	12.49	10.14-15.22
	<i>35 - 39</i>	132	38.52	32.22-45.67
	<i>40 and older</i>	93	135.08	109.02-165.48
<i>Trisomy 18 *</i> ( <i>p</i> <0.0001)	<i>Less than 20</i>	8	1.48	0.64-2.92
	<i>20 - 24</i>	10	0.81	0.39-1.48
	<i>25 - 29</i>	12	1.06	0.55-1.85
	<i>30 - 34</i>	7	0.89	0.36-1.84
	<i>35 - 39</i>	14	4.08	2.23-6.85
	<i>40 and older</i>	9	13.07	5.98-24.81
<i>Chromosomal Cases *</i> ( <i>p</i> <0.0001)	<i>Less than 20</i>	60	11.13	8.49-14.32
	<i>20 - 24</i>	102	8.23	6.71-10.00
	<i>25 - 29</i>	122	10.77	8.94-12.86
	<i>30 - 34</i>	108	13.76	11.29-16.62
	<i>35 - 39</i>	152	44.35	37.58-51.99
	<i>40 and older</i>	104	151.05	123.42-183.03
<i>Fetal Alcohol Syndrome *</i> ( <i>p</i> <0.0001)	<i>Less than 20</i>	6	1.11	0.41-2.42
	<i>20 - 24</i>	18	1.45	0.86-2.30
	<i>25 - 29</i>	21	1.85	1.15-2.83
	<i>30 - 34</i>	15	1.91	1.07-3.15
	<i>35 - 39</i>	17	4.96	2.89-7.94
	<i>40 and older</i>	8	11.62	5.02-22.89
<i>Total Cases *</i> ( <i>p</i> <0.0001)	<i>Less than 20</i>	1,839	341.07	325.65-357.02
	<i>20 - 24</i>	3,935	317.67	307.82-327.75
	<i>25 - 29</i>	3,533	311.79	301.60-322.25
	<i>30 - 34</i>	2,381	303.39	291.33-315.83
	<i>35 - 39</i>	1,256	366.48	346.49-387.32
	<i>40 and older</i>	303	440.09	391.92-492.54
<i>Total Live Births<sup>3</sup></i>	<i>Less than 20</i>	53,919		
	<i>20 - 24</i>	123,872		
	<i>25 - 29</i>	113,312		
	<i>30 - 34</i>	78,479		
	<i>35 - 39</i>	34,272		
	<i>40 and older</i>	6,885		

<sup>1</sup>Rate per 10,000 live births .

<sup>2</sup>95 percent confidence interval.

<sup>3</sup>There were 5 birth defects cases and 363 live births missing maternal age.

\*Indicates a statistically significant difference.

**Table 6: Birth defects Counts and Rates by Maternal Smoking  
2003-2007**

Defect	Smoke10	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
Anencephalus	None	54	1.62	1.22-2.11
	Moderate	6	1.25	0.46-2.71
	Heavy	6	2.1	0.77-4.56
Spina Bifida	None	156	4.67	3.97-5.47
	Moderate	15	3.12	1.74-5.14
	Heavy	14	4.89	2.67-8.20
Hydrocephalus	None	235	7.04	6.17-8.00
	Moderate	35	7.27	5.07-10.12
	Heavy	24	8.38	5.37-12.47
Encephalocele	None	40	1.2	0.86-1.63
	Moderate	8	1.66	0.72-3.28
	Heavy	5	1.75	0.57-4.07
Microcephalus	None	263	7.88	6.96-8.89
	Moderate	49	10.18	7.53-13.46
	Heavy	32	11.18	7.64-15.78
Central Nervous System Cases	None	724	21.69	20.14-23.33
	Moderate	108	22.44	18.41-27.10
	Heavy	80	27.94	22.15-34.77
Anophthalmia/Microphthalmia * (p=0.0412)	None	37	1.11	0.78-1.53
	Moderate	1	0.21	0.01-1.16
	Heavy	1	0.35	0.01-1.95
Congenital Cataract	None	74	2.22	1.74-2.78
	Moderate	11	2.29	1.14-4.09
	Heavy	4	1.4	0.38-3.58
Aniridia	None	6	0.18	0.07-0.39
	Moderate	0	0	0.00-0.77
	Heavy	0	0	0.00-1.29
Anotia/Microtia	None	22	0.66	0.41-1.00
	Moderate	1	0.21	0.01-1.16
	Heavy	2	0.7	0.08-2.52
Ear and Eye Cases	None	132	3.95	3.31-4.69
	Moderate	13	2.7	1.44-4.62
	Heavy	7	2.44	0.98-5.04
Common Truncus	None	31	0.93	0.63-1.32
	Moderate	5	1.04	0.34-2.42
	Heavy	6	2.1	0.77-4.56
Transposition of Great Arteries	None	218	6.53	5.69-7.46
	Moderate	26	5.4	3.53-7.92
	Heavy	23	8.03	5.09-12.05
Tetralogy of Fallot	None	186	5.57	4.80-6.43
	Moderate	31	6.44	4.38-9.14
	Heavy	14	4.89	2.67-8.20

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**Table 6: Birth defects Counts and Rates by Maternal Smoking  
2003-2007**

<b>Defect</b>	<b>Smoke10</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
Ventricular Septal Defect	None	1425	42.7	40.51-44.97
	Moderate	216	44.89	39.10-51.29
	Heavy	133	46.45	38.89-55.05
Atrial Septal Defect * (p<0.0001)	None	1995	59.77	57.18-62.46
	Moderate	347	72.11	64.72-80.11
	Heavy	227	79.27	69.30-90.29
Endocardial Cushion Defect	None	119	3.57	2.95-4.27
	Moderate	24	4.99	3.20-7.42
	Heavy	10	3.49	1.67-6.42
Pulmonary Valve Atresia & Stenosis * (p<0.0001)	None	324	9.71	8.68-10.82
	Moderate	55	11.43	8.61-14.88
	Heavy	62	21.65	16.60-27.76
Tricuspid Valve Atresia & Stenosis	None	35	1.05	0.73-1.46
	Moderate	3	0.62	0.13-1.82
	Heavy	7	2.44	0.98-5.04
Ebsteins Anomaly	None	18	0.54	0.32-0.85
	Moderate	4	0.83	0.23-2.13
	Heavy	2	0.7	0.08-2.52
Aortic Valve Stenosis	None	59	1.77	1.35-2.28
	Moderate	9	1.87	0.86-3.55
	Heavy	5	1.75	0.57-4.07
Hypoplastic Left Heart Syndrome	None	104	3.12	2.55-3.78
	Moderate	15	3.12	1.74-5.14
	Heavy	8	2.79	1.21-5.50
Patent Ductus Arteriosus * (p=0.0066)	None	1796	53.81	51.35-56.36
	Moderate	221	45.93	40.07-52.40
	Heavy	124	43.3	36.02-51.63
Coarctation of Aorta	None	203	6.08	5.27-6.98
	Moderate	29	6.03	4.04-8.66
	Heavy	20	6.98	4.27-10.79
Cardiovascular Cases * (p=0.0029)	None	4560	136.63	132.69-140.65
	Moderate	700	145.47	134.89-156.65
	Heavy	459	160.29	145.96-175.65
Cleft Palate w/o Cleft Lip	None	232	6.95	6.09-7.91
	Moderate	39	8.1	5.76-11.08
	Heavy	28	9.78	6.50-14.13
Cleft Lip w/ & w/o Cleft Palate * (p=0.0017)	None	321	9.62	8.59-10.73
	Moderate	65	13.51	10.43-17.22
	Heavy	45	15.72	11.46-21.03
Choanal Atresia	None	58	1.74	1.32-2.25
	Moderate	11	2.29	1.14-4.09
	Heavy	10	3.49	1.67-6.42

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**Table 6: Birth defects Counts and Rates by Maternal Smoking  
2003-2007**

Defect	Smoke10	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
Orofacial Cases * (p=0.0001)	None	608	18.22	16.80-19.72
	Moderate	114	23.69	19.54-28.46
	Heavy	82	28.64	22.77-35.55
Esophageal Atresia/ Tracheoesophageal Fistula (p=0.0047)	None	77	2.31	1.82-2.88
	Moderate	25	5.2	3.36-7.67
	Heavy	8	2.79	1.21-5.50
Rectal & Large Intestinal Atresia/ Stenosis	None	162	4.85	4.14-5.66
	Moderate	28	5.82	3.87-8.41
	Heavy	16	5.59	3.19-9.07
Pyloric Stenosis * (p<0.0001)	None	1221	36.58	34.56-38.69
	Moderate	301	62.55	55.68-70.03
	Heavy	205	71.59	62.12-82.09
Hirschsprungs Disease (congenital megacolon)	None	92	2.76	2.22-3.38
	Moderate	20	4.16	2.54-6.42
	Heavy	9	3.14	1.44-5.97
Biliary Atresia	None	29	0.87	0.58-1.25
	Moderate	2	0.42	0.05-1.50
	Heavy	3	1.05	0.22-3.06
Gastrointestinal Cases * (p<0.0001)	None	1568	46.98	44.68-49.36
	Moderate	373	77.51	69.85-85.79
	Heavy	239	83.46	73.22-94.74
Renal Agenesis/Hypoplasia	None	139	4.16	3.50-4.92
	Moderate	24	4.99	3.20-7.42
	Heavy	12	4.19	2.17-7.32
Bladder Exstrophy	None	11	0.33	0.16-0.59
	Moderate	2	0.42	0.05-1.50
	Heavy	3	1.05	0.22-3.06
Hypospadias	None	1730	51.83	49.42-54.34
	Moderate	236	49.04	42.98-55.72
	Heavy	129	45.05	37.61-53.53
Epispadias	None	30	0.9	0.61-1.28
	Moderate	7	1.45	0.58-3.00
	Heavy	3	1.05	0.22-3.06
Obstructive Genitourinary Defect * (p=0.0190)	None	807	24.18	22.54-25.91
	Moderate	141	29.3	24.66-34.56
	Heavy	55	19.21	14.47-25.00
Genitourinary Cases	None	2,675	80.15	77.14-83.24
	Moderate	402	83.54	75.57-92.12
	Heavy	198	69.15	59.85-79.48
Reduction Deformity (upper limbs)	None	65	1.95	1.50-2.48
	Moderate	15	3.12	1.74-5.14
	Heavy	7	2.44	0.98-5.04

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**Table 6: Birth defects Counts and Rates by Maternal Smoking  
2003-2007**

Defect	Smoke10	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
Reduction Deformity (lower limbs)	None	54	1.62	1.22-2.11
	Moderate	7	1.45	0.58-3.00
	Heavy	2	0.7	0.08-2.52
Gastroschisis * (p<0.0001)	None	129	3.87	3.23-4.59
	Moderate	45	9.35	6.82-12.51
	Heavy	32	11.18	7.64-15.78
Omphalocele	None	94	2.82	2.28-3.45
	Moderate	18	3.74	2.22-5.91
	Heavy	13	4.54	2.42-7.76
Congenital Hip Dislocation * (p=0.0032)	None	241	7.22	6.34-8.19
	Moderate	34	7.07	4.89-9.87
	Heavy	7	2.44	0.98-5.04
Diaphragmatic Hernia	None	106	3.18	2.60-3.84
	Moderate	18	3.74	2.22-5.91
	Heavy	13	4.54	2.42-7.76
Musculoskeletal Cases * (p=0.0086)	None	671	20.1	18.61-21.68
	Moderate	126	26.18	21.81-31.18
	Heavy	73	25.49	19.98-32.05
Trisomy 13	None	32	0.96	0.66-1.35
	Moderate	3	0.62	0.13-1.82
	Heavy	0	0	0.00-1.29
Down Syndrome	None	462	13.84	12.61-15.16
	Moderate	60	12.47	9.51-16.05
	Heavy	35	12.22	8.51-17.00
Trisomy 18	None	46	1.38	1.01-1.84
	Moderate	7	1.45	0.58-3.00
	Heavy	7	2.44	0.98-5.04
Chromosomal Cases	None	535	16.03	14.70-17.45
	Moderate	70	14.55	11.34-18.38
	Heavy	42	14.67	10.57-19.83
Fetal Alcohol Syndrome * (p<0.0001)	None	29	0.87	0.58-1.25
	Moderate	26	5.4	3.53-7.92
	Heavy	29	10.13	6.78-14.55
Total Cases * (p<0.0001)	None	10,391	311.33	305.38-317.38
	Moderate	1,743	362.21	345.40-379.63
	Heavy	1,096	382.75	360.42-406.10
Total Live Births <sup>3</sup>	None	333,757		
	Moderate	48,121		
	Heavy	28,635		

<sup>1</sup>Rate per 10,000 live births .

<sup>2</sup>95 percent confidence interval.

<sup>3</sup>There were 22 birth defects cases and 589 live births whose maternal smoking status was unknown.

\*Indicates a statistically significant difference.



**Table 7: Birth Defects Counts and Rates by Maternal Education  
2004-2007**

<b>Defect</b>	<b>Maternal Education</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
Anencephalus * (p=0.0398)	No High School Diploma	23	2.49	1.58-3.74
	High School Diploma	18	1.42	0.84-2.24
	Bachelor or Some College	18	1.1	0.65-1.74
	Graduate Degree	2	0.73	0.09-2.64
Spina Bifida	No High School Diploma	51	5.53	4.12-7.27
	High School Diploma	49	3.86	2.85-5.10
	Bachelor or Some College	74	4.54	3.56-5.70
	Graduate Degree	10	3.66	1.75-6.72
Hydrocephalus * (p<0.0001)	No High School Diploma	101	10.95	8.92-13.31
	High School Diploma	101	7.95	6.48-9.66
	Bachelor or Some College	80	4.91	3.89-6.11
	Graduate Degree	12	4.39	2.27-7.66
Encephalocele	No High School Diploma	14	1.52	0.83-2.55
	High School Diploma	17	1.34	0.78-2.14
	Bachelor or Some College	19	1.17	0.70-1.82
	Graduate Degree	3	1.1	0.23-3.20
Microcephalus * (p<0.0001)	No High School Diploma	119	12.91	10.69-15.44
	High School Diploma	103	8.11	6.62-9.83
	Bachelor or Some College	109	6.69	5.49-8.06
	Graduate Degree	12	4.39	2.27-7.66
Central Nervous System Cases * (p<0.0001)	No High School Diploma	297	32.21	28.65-36.09
	High School Diploma	278	21.88	19.39-24.61
	Bachelor or Some College	292	17.91	15.91-20.09
	Graduate Degree	38	13.89	9.83-19.07
Anophthalmia/Microphthalmia	No High School Diploma	11	1.19	0.60-2.13
	High School Diploma	12	0.94	0.49-1.65
	Bachelor or Some College	14	0.86	0.47-1.44
	Graduate Degree	1	0.37	0.01-2.04
Congenital Cataract * (p=0.0264)	No High School Diploma	20	2.17	1.32-3.35
	High School Diploma	37	2.91	2.05-4.01
	Bachelor or Some College	23	1.41	0.89-2.12
	Graduate Degree	9	3.29	1.50-6.25
Aniridia	No High School Diploma	1	0.11	0.00-0.60
	High School Diploma	3	0.24	0.05-0.69
	Bachelor or Some College	1	0.06	0.00-0.34
	Graduate Degree	1	0.37	0.01-2.04
Anotia/Microtia	No High School Diploma	9	0.98	0.45-1.85
	High School Diploma	4	0.31	0.09-0.81
	Bachelor or Some College	9	0.55	0.25-1.05
	Graduate Degree	2	0.73	0.09-2.64

*Continued on next page*

**Table 7: Birth Defects Counts and Rates by Maternal Education  
2004-2007**

<b>Defect</b>	<b>Maternal Education</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
Ear and Eye Cases	No High School Diploma	41	4.45	3.19-6.03
	High School Diploma	52	4.09	3.06-5.37
	Bachelor or Some College	44	2.7	1.96-3.62
	Graduate Degree	13	4.75	2.53-8.13
Common Truncus	No High School Diploma	10	1.08	0.52-1.99
	High School Diploma	20	1.57	0.96-2.43
	Bachelor or Some College	10	0.61	0.29-1.13
	Graduate Degree	2	0.73	0.09-2.64
Transposition of Great Arteries	No High School Diploma	57	6.18	4.68-8.01
	High School Diploma	98	7.71	6.26-9.40
	Bachelor or Some College	99	6.07	4.94-7.39
	Graduate Degree	13	4.75	2.53-8.13
Tetralogy of Fallot	No High School Diploma	51	5.53	4.12-7.27
	High School Diploma	76	5.98	4.71-7.49
	Bachelor or Some College	81	4.97	3.95-6.17
	Graduate Degree	23	8.41	5.33-12.62
Ventricular Septal Defect	No High School Diploma	426	46.2	41.92-50.80
	High School Diploma	549	43.22	39.68-46.99
	Bachelor or Some College	672	41.22	38.16-44.45
	Graduate Degree	124	45.33	37.70-54.04
Atrial Septal Defect * (p<0.0001)	No High School Diploma	654	70.93	65.60-76.58
	High School Diploma	878	69.11	64.62-73.84
	Bachelor or Some College	890	54.59	51.06-58.29
	Graduate Degree	143	52.27	44.06-61.58
Endocardial Cushion Defect	No High School Diploma	31	3.36	2.28-4.77
	High School Diploma	52	4.09	3.06-5.37
	Bachelor or Some College	60	3.68	2.81-4.74
	Graduate Degree	10	3.66	1.75-6.72
Pulmonary Valve Atresia & Stenosis	No High School Diploma	116	12.58	10.40-15.09
	High School Diploma	127	10	8.33-11.89
	Bachelor or Some College	172	10.55	9.03-12.25
	Graduate Degree	27	9.87	6.50-14.36
Tricuspid Valve Atresia & Stenosis	No High School Diploma	10	1.08	0.52-1.99
	High School Diploma	16	1.26	0.72-2.05
	Bachelor or Some College	16	0.98	0.56-1.59
	Graduate Degree	3	1.1	0.23-3.20
Ebsteins Anomaly	No High School Diploma	6	0.65	0.24-1.42
	High School Diploma	5	0.39	0.13-0.92
	Bachelor or Some College	13	0.8	0.42-1.36
	Graduate Degree	0	0	0.00-1.35

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**Table 7: Birth Defects Counts and Rates by Maternal Education  
2004-2007**

<b>Defect</b>	<b>Maternal Education</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
Aortic Valve Stenosis	No High School Diploma	20	2.17	1.32-3.35
	High School Diploma	23	1.81	1.15-2.72
	Bachelor or Some College	27	1.66	1.09-2.41
	Graduate Degree	3	1.1	0.23-3.20
Hypoplastic Left Heart Syndrome	No High School Diploma	30	3.25	2.20-4.64
	High School Diploma	46	3.62	2.65-4.83
	Bachelor or Some College	42	2.58	1.86-3.48
	Graduate Degree	9	3.29	1.50-6.25
Patent Ductus Arteriosus * (p=0.0073)	No High School Diploma	445	48.26	43.88-52.96
	High School Diploma	736	57.94	53.83-62.28
	Bachelor or Some College	816	50.05	46.67-53.60
	Graduate Degree	141	51.54	43.38-60.78
Coarctation of Aorta	No High School Diploma	59	6.4	4.87-8.25
	High School Diploma	92	7.24	5.84-8.88
	Bachelor or Some College	89	5.46	4.38-6.72
	Graduate Degree	12	4.39	2.27-7.66
Cardiovascular Cases * (p<0.0001)	No High School Diploma	1362	147.71	139.97-155.77
	High School Diploma	1897	149.33	142.68-156.20
	Bachelor or Some College	2089	128.12	122.69-133.74
	Graduate Degree	363	132.69	119.39-147.07
Cleft Palate w/o Cleft Lip	No High School Diploma	64	6.94	5.35-8.86
	High School Diploma	98	7.71	6.26-9.40
	Bachelor or Some College	112	6.87	5.66-8.27
	Graduate Degree	25	9.14	5.91-13.49
Cleft Lip w/ & w/o Cleft Palate	No High School Diploma	96	10.41	8.43-12.71
	High School Diploma	155	12.2	10.36-14.28
	Bachelor or Some College	153	9.38	7.96-10.99
	Graduate Degree	31	11.33	7.70-16.08
Choanal Atresia	No High School Diploma	19	2.06	1.24-3.22
	High School Diploma	26	2.05	1.34-3.00
	Bachelor or Some College	28	1.72	1.14-2.48
	Graduate Degree	5	1.83	0.59-4.27
Orofacial Cases	No High School Diploma	178	19.3	16.57-22.36
	High School Diploma	278	21.88	19.39-24.61
	Bachelor or Some College	290	17.79	15.80-19.96
	Graduate Degree	61	22.3	17.06-28.64
Esophageal Atresia/ Tracheoesophageal Fistula	No High School Diploma	25	2.71	1.75-4.00
	High School Diploma	31	2.44	1.66-3.46
	Bachelor or Some College	43	2.64	1.91-3.55
	Graduate Degree	10	3.66	1.75-6.72

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**Table 7: Birth Defects Counts and Rates by Maternal Education  
2004-2007**

<b>Defect</b>	<b>Maternal Education</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
Rectal & Large Intestinal Atresia/ Stenosis	No High School Diploma	48	5.21	3.84-6.90
	High School Diploma	72	5.67	4.43-7.14
	Bachelor or Some College	75	4.6	3.62-5.77
	Graduate Degree	10	3.66	1.75-6.72
Pyloric Stenosis * (p<0.0001)	No High School Diploma	502	54.44	49.78-59.42
	High School Diploma	624	49.12	45.34-53.13
	Bachelor or Some College	541	33.18	30.44-36.10
	Graduate Degree	57	20.84	15.78-26.99
Hirschsprungs Disease (congenital megacolon) (p=0.0244)	No High School Diploma	36	3.9	2.73-5.41
	High School Diploma	43	3.38	2.45-4.56
	Bachelor or Some College	39	2.39	1.70-3.27
	Graduate Degree	3	1.1	0.23-3.20
Biliary Atresia	No High School Diploma	8	0.87	0.37-1.71
	High School Diploma	7	0.55	0.22-1.14
	Bachelor or Some College	16	0.98	0.56-1.59
	Graduate Degree	3	1.1	0.23-3.20
Gastrointestinal Cases * (p<0.0001)	No High School Diploma	616	66.81	61.63-72.30
	High School Diploma	771	60.69	56.48-65.13
	Bachelor or Some College	707	43.36	40.22-46.68
	Graduate Degree	81	29.61	23.51-36.80
Renal Agenesis/Hypoplasia	No High School Diploma	43	4.66	3.37-6.28
	High School Diploma	56	4.41	3.33-5.72
	Bachelor or Some College	67	4.11	3.18-5.22
	Graduate Degree	10	3.66	1.75-6.72
Bladder Exstrophy	No High School Diploma	3	0.33	0.07-0.95
	High School Diploma	6	0.47	0.17-1.03
	Bachelor or Some College	7	0.43	0.17-0.88
	Graduate Degree	0	0	0.00-1.35
Hypospadias * (p=0.0002)	No High School Diploma	391	42.41	38.31-46.82
	High School Diploma	683	53.76	49.81-57.95
	Bachelor or Some College	858	52.62	49.16-56.27
	Graduate Degree	161	58.85	50.11-68.68
Epispadias	No High School Diploma	9	0.98	0.45-1.85
	High School Diploma	14	1.1	0.60-1.85
	Bachelor or Some College	17	1.04	0.61-1.67
	Graduate Degree	0	0	0.00-1.35
Obstructive Genitourinary Defect * (p=0.0027)	No High School Diploma	203	22.02	19.09-25.26
	High School Diploma	287	22.59	20.05-25.36
	Bachelor or Some College	418	25.64	23.24-28.22
	Graduate Degree	93	33.99	27.44-41.65

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**Table 7: Birth Defects Counts and Rates by Maternal Education  
2004-2007**

<b>Defect</b>	<b>Maternal Education</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
Genitourinary Cases * (p<0.0001)	No High School Diploma	636	68.98	63.72-74.55
	High School Diploma	1033	81.31	76.43-86.43
	Bachelor or Some College	1339	82.12	77.78-86.64
	Graduate Degree	264	96.5	85.21-108.87
Reduction Deformity (upper limbs)	No High School Diploma	24	2.6	1.67-3.87
	High School Diploma	33	2.6	1.79-3.65
	Bachelor or Some College	27	1.66	1.09-2.41
	Graduate Degree	4	1.46	0.40-3.74
Reduction Deformity (lower limbs)	No High School Diploma	17	1.84	1.07-2.95
	High School Diploma	26	2.05	1.34-3.00
	Bachelor or Some College	17	1.04	0.61-1.67
	Graduate Degree	3	1.1	0.23-3.20
Gastroschisis * (p<0.0001)	No High School Diploma	63	6.83	5.25-8.74
	High School Diploma	82	6.45	5.13-8.01
	Bachelor or Some College	58	3.56	2.70-4.60
	Graduate Degree	3	1.1	0.23-3.20
Omphalocele * (p=0.0437)	No High School Diploma	38	4.12	2.92-5.66
	High School Diploma	44	3.46	2.52-4.65
	Bachelor or Some College	37	2.27	1.60-3.13
	Graduate Degree	6	2.19	0.80-4.77
Congenital Hip Dislocation * (p=0.0025)	No High School Diploma	53	5.75	4.31-7.52
	High School Diploma	77	6.06	4.78-7.58
	Bachelor or Some College	116	7.11	5.88-8.53
	Graduate Degree	35	12.79	8.91-17.79
Diaphragmatic Hernia	No High School Diploma	36	3.9	2.73-5.41
	High School Diploma	46	3.62	2.65-4.83
	Bachelor or Some College	47	2.88	2.12-3.83
	Graduate Degree	7	2.56	1.03-5.27
Musculoskeletal Cases * (p=0.0021)	No High School Diploma	225	24.4	21.32-27.81
	High School Diploma	294	23.14	20.57-25.95
	Bachelor or Some College	294	18.03	16.03-20.22
	Graduate Degree	56	20.47	15.46-26.58
Trisomy 13	No High School Diploma	8	0.87	0.37-1.71
	High School Diploma	9	0.71	0.32-1.34
	Bachelor or Some College	14	0.86	0.47-1.44
	Graduate Degree	4	1.46	0.40-3.74
Down Syndrome * (p=0.0015)	No High School Diploma	119	12.91	10.69-15.44
	High School Diploma	153	12.04	10.21-14.11
	Bachelor or Some College	221	13.55	11.83-15.46
	Graduate Degree	61	22.3	17.06-28.64
Trisomy 18	No High School Diploma	14	1.52	0.83-2.55
	High School Diploma	13	1.02	0.54-1.75
	Bachelor or Some College	29	1.78	1.19-2.55
	Graduate Degree	4	1.46	0.40-3.74

*Continued on next page*

**Table 7: Birth Defects Counts and Rates by Maternal Education  
2004-2007**

<b>Defect</b>	<b>Maternal Education</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
Chromosomal Cases * (p=0.0008)	No High School Diploma	140	15.18	12.77-17.92
	High School Diploma	175	13.78	11.81-15.97
	Bachelor or Some College	260	15.95	14.07-18.01
	Graduate Degree	69	25.22	19.63-31.92
Fetal Alcohol Syndrome * (p<0.0001)	No High School Diploma	42	4.56	3.28-6.16
	High School Diploma	29	2.28	1.53-3.28
	Bachelor or Some College	13	0.8	0.42-1.36
	Graduate Degree	0	0	0.00-1.35
Total Cases * (p<0.0001)	No High School Diploma	3171	343.9	332.04-356.09
	High School Diploma	4369	343.92	333.79-354.27
	Bachelor or Some College	4829	296.17	287.88-304.65
	Graduate Degree	839	306.69	286.28-328.16
Total Live Births <sup>3</sup>	No High School Diploma	92206		
	High School Diploma	127037		
	Bachelor or Some College	163046		
	Graduate Degree	27357		

<sup>1</sup>Rate per 10,000 live births

<sup>2</sup>95 percent confidence interval

<sup>3</sup>There were 44 cases of unknown educational status and 1,456 live births of unknown educational status

\* Indicates a statistically significant difference

**Table 8: Birth Defects Counts and Rates by Maternal BMI  
2004-2007**

<b>Defect</b>	<b>BMI Category</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
Anencephalus	Underweight	3	1.66	0.34-4.84
	Normal	13	0.85	0.45-1.45
	Overweight	12	1.64	0.85-2.87
	Obese	6	0.85	0.31-1.86
Spina Bifida * (p=0.0499)	Underweight	3	1.66	0.34-4.84
	Normal	63	4.11	3.16-5.25
	Overweight	28	3.83	2.54-5.53
	Obese	41	5.83	4.18-7.91
Hydrocephalus	Underweight	15	8.29	4.64-13.67
	Normal	103	6.72	5.48-8.14
	Overweight	56	7.66	5.78-9.94
	Obese	42	5.97	4.31-8.07
Encephalocele	Underweight	1	0.55	0.01-3.08
	Normal	21	1.37	0.85-2.09
	Overweight	7	0.96	0.38-1.97
	Obese	11	1.56	0.78-2.80
Microcephalus * (p=0.0088)	Underweight	27	14.92	9.83-21.70
	Normal	118	7.69	6.37-9.21
	Overweight	67	9.16	7.10-11.63
	Obese	77	10.95	8.64-13.69
Central Nervous System Cases	Underweight	48	26.52	19.55-35.16
	Normal	303	19.75	17.59-22.11
	Overweight	165	22.56	19.25-26.28
	Obese	173	24.61	21.08-28.56
Anophthalmia/Microphthalmia	Underweight	1	0.55	0.01-3.08
	Normal	15	0.98	0.55-1.61
	Overweight	8	1.09	0.47-2.16
	Obese	4	0.57	0.16-1.46
Congenital Cataract	Underweight	6	3.31	1.22-7.21
	Normal	39	2.54	1.81-3.48
	Overweight	13	1.78	0.95-3.04
	Obese	18	2.56	1.52-4.05
Aniridia	Underweight	0	0	0.00-2.04
	Normal	2	0.13	0.02-0.47
	Overweight	1	0.14	0.00-0.76
	Obese	2	0.28	0.03-1.03
Anotia/Microtia	Underweight	0	0	0.00-2.04
	Normal	9	0.59	0.27-1.11
	Overweight	3	0.41	0.08-1.20
	Obese	6	0.85	0.31-1.86

*Continued on next page*

**Table 8: Birth Defects Counts and Rates by Maternal BMI  
2004-2007**

<b>Defect</b>	<b>BMI Category</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
Ear and Eye Cases	Underweight	7	3.87	1.55-7.97
	Normal	63	4.11	3.16-5.25
	Overweight	22	3.01	1.89-4.55
	Obese	28	3.98	2.65-5.76
Common Truncus	Underweight	4	2.21	0.60-5.66
	Normal	11	0.72	0.36-1.28
	Overweight	7	0.96	0.38-1.97
	Obese	11	1.56	0.78-2.80
Transposition of Great Arteries	Underweight	12	6.63	3.43-11.58
	Normal	95	6.19	5.01-7.57
	Overweight	51	6.97	5.19-9.17
	Obese	56	7.96	6.02-10.34
Tetralogy of Fallot	Underweight	10	5.52	2.65-10.16
	Normal	88	5.74	4.60-7.07
	Overweight	38	5.2	3.68-7.13
	Obese	43	6.12	4.43-8.24
Ventricular Septal Defect	Underweight	71	39.22	30.63-49.47
	Normal	656	42.77	39.56-46.17
	Overweight	292	39.92	35.48-44.78
	Obese	339	48.22	43.22-53.63
Atrial Septal Defect * (p<0.0001)	Underweight	116	64.08	52.95-76.86
	Normal	948	61.81	57.93-65.87
	Overweight	468	63.99	58.32-70.06
	Obese	600	85.34	78.65-92.45
Endocardial Cushion Defect	Underweight	8	4.42	1.91-8.71
	Normal	59	3.85	2.93-4.96
	Overweight	26	3.55	2.32-5.21
	Obese	27	3.84	2.53-5.59
Pulmonary Valve Atresia & Stenosis	Underweight	20	11.05	6.75-17.06
	Normal	159	10.37	8.82-12.11
	Overweight	82	11.21	8.92-13.92
	Obese	103	14.65	11.96-17.77
Tricuspid Valve Atresia & Stenosis	Underweight	4	2.21	0.60-5.66
	Normal	10	0.65	0.31-1.20
	Overweight	8	1.09	0.47-2.16
	Obese	10	1.42	0.68-2.62
Ebsteins Anomaly	Underweight	1	0.55	0.01-3.08
	Normal	10	0.65	0.31-1.20
	Overweight	5	0.68	0.22-1.60
	Obese	5	0.71	0.23-1.66
Aortic Valve Stenosis	Underweight	4	2.21	0.60-5.66
	Normal	28	1.83	1.21-2.64
	Overweight	13	1.78	0.95-3.04
	Obese	16	2.28	1.30-3.70

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**Table 8: Birth Defects Counts and Rates by Maternal BMI  
2004-2007**

<b>Defect</b>	<b>BMI Category</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
Hypoplastic Left Heart Syndrome	Underweight	4	2.21	0.60-5.66
	Normal	44	2.87	2.08-3.85
	Overweight	22	3.01	1.89-4.55
	Obese	28	3.98	2.65-5.76
Patent Ductus Arteriosus * (p<0.0001)	Underweight	75	41.43	32.59-51.93
	Normal	744	48.51	45.08-52.12
	Overweight	370	50.59	45.57-56.02
	Obese	518	73.68	67.47-80.30
Coarctation of Aorta	Underweight	9	4.97	2.27-9.44
	Normal	95	6.19	5.01-7.57
	Overweight	55	7.52	5.66-9.79
	Obese	45	6.4	4.67-8.56
Cardiovascular Cases * (p<0.0001)	Underweight	241	133.13	116.85-151.05
	Normal	2,067	134.76	129.01-140.70
	Overweight	1,009	137.96	129.58-146.74
	Obese	1,265	179.92	170.14-190.12
Cleft Palate w/o Cleft Lip	Underweight	15	8.29	4.64-13.67
	Normal	104	6.78	5.54-8.22
	Overweight	51	6.97	5.19-9.17
	Obese	69	9.81	7.64-12.42
Cleft Lip w/ & w/o Cleft Palate	Underweight	26	14.36	9.38-21.04
	Normal	168	10.95	9.36-12.74
	Overweight	64	8.75	6.74-11.17
	Obese	64	9.1	7.01-11.62
Choanal Atresia	Underweight	2	1.1	0.13-3.99
	Normal	25	1.63	1.05-2.41
	Overweight	16	2.19	1.25-3.55
	Obese	15	2.13	1.19-3.52
Orofacial Cases	Underweight	43	23.75	17.19-32.00
	Normal	295	19.23	17.10-21.56
	Overweight	131	17.91	14.98-21.25
	Obese	146	20.77	17.53-24.42
Esophageal Atresia/ Tracheoesophageal Fistula	Underweight	6	3.31	1.22-7.21
	Normal	39	2.54	1.81-3.48
	Overweight	17	2.32	1.35-3.72
	Obese	18	2.56	1.52-4.05
Rectal & Large Intestinal Atresia/Stenosis	Underweight	11	6.08	3.03-10.87
	Normal	82	5.35	4.25-6.64
	Overweight	31	4.24	2.88-6.02
	Obese	34	4.84	3.35-6.76

*Continued on next page*

**Table 8: Birth Defects Counts and Rates by Maternal BMI  
2004-2007**

<b>Defect</b>	<b>BMI Category</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
Pyloric Stenosis * (p=0.0019)	Underweight	115	63.53	52.45-76.26
	Normal	700	45.64	42.32-49.15
	Overweight	300	41.02	36.51-45.93
	Obese	324	46.08	41.20-51.38
Hirschsprungs Disease (congenital megacolon)	Underweight	8	4.42	1.91-8.71
	Normal	43	2.8	2.03-3.78
	Overweight	20	2.73	1.67-4.22
	Obese	26	3.7	2.42-5.42
Biliary Atresia	Underweight	1	0.55	0.01-3.08
	Normal	11	0.72	0.36-1.28
	Overweight	8	1.09	0.47-2.16
	Obese	10	1.42	0.68-2.62
Gastrointestinal Cases * (p=0.0008)	Underweight	139	76.79	64.55-90.67
	Normal	867	56.52	52.82-60.42
	Overweight	371	50.73	45.69-56.16
	Obese	411	58.46	52.94-64.39
Renal Agenesis/Hypoplasia	Underweight	10	5.52	2.65-10.16
	Normal	63	4.11	3.16-5.25
	Overweight	26	3.55	2.32-5.21
	Obese	45	6.4	4.67-8.56
Bladder Exstrophy	Underweight	2	1.1	0.13-3.99
	Normal	6	0.39	0.14-0.85
	Overweight	3	0.41	0.08-1.20
	Obese	4	0.57	0.16-1.46
Hypospadias * (p=0.0205)	Underweight	89	49.17	39.49-60.50
	Normal	807	52.61	49.04-56.37
	Overweight	360	49.22	44.27-54.58
	Obese	426	60.59	54.97-66.63
Epispadias	Underweight	0	0	0.00-2.04
	Normal	18	1.17	0.70-1.85
	Overweight	8	1.09	0.47-2.16
	Obese	5	0.71	0.23-1.66
Obstructive Genitourinary Defect	Underweight	55	30.38	22.89-39.55
	Normal	369	24.06	21.66-26.64
	Overweight	174	23.79	20.39-27.60
	Obese	195	27.74	23.98-31.91
Genitourinary Cases * (p=0.0046)	Underweight	149	82.31	69.62-96.64
	Normal	1,244	81.1	76.66-85.74
	Overweight	565	77.25	71.01-83.89
	Obese	659	93.73	86.71-101.17

*Continued on next page*

**Table 8: Birth Defects Counts and Rates by Maternal BMI  
2004-2007**

<b>Defect</b>	<b>BMI Category</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
Reduction Deformity (upper limbs)	Underweight	5	2.76	0.90-6.45
	Normal	31	2.02	1.37-2.87
	Overweight	13	1.78	0.95-3.04
	Obese	15	2.13	1.19-3.52
Reduction Deformity (lower limbs)	Underweight	4	2.21	0.60-5.66
	Normal	21	1.37	0.85-2.09
	Overweight	9	1.23	0.56-2.34
	Obese	10	1.42	0.68-2.62
Gastroschisis * (p<0.0001)	Underweight	15	8.29	4.64-13.67
	Normal	101	6.58	5.36-8.00
	Overweight	35	4.79	3.33-6.66
	Obese	12	1.71	0.88-2.98
Omphalocele	Underweight	9	4.97	2.27-9.44
	Normal	37	2.41	1.70-3.33
	Overweight	26	3.55	2.32-5.21
	Obese	22	3.13	1.96-4.74
Congenital Hip Dislocation	Underweight	14	7.73	4.23-12.98
	Normal	119	7.76	6.43-9.28
	Overweight	40	5.47	3.91-7.45
	Obese	37	5.26	3.71-7.25
Diaphragmatic Hernia	Underweight	10	5.52	2.65-10.16
	Normal	49	3.19	2.36-4.22
	Overweight	19	2.6	1.56-4.06
	Obese	31	4.41	3.00-6.26
Musculoskeletal Cases * (p=0.0020)	Underweight	53	29.28	21.93-38.30
	Normal	350	22.82	20.49-25.34
	Overweight	138	18.87	15.85-22.29
	Obese	120	17.07	14.15-20.41
Trisomy 13	Underweight	0	0	0.00-2.04
	Normal	13	0.85	0.45-1.45
	Overweight	3	0.41	0.08-1.20
	Obese	10	1.42	0.68-2.62
Down Syndrome * (p=0.0300)	Underweight	12	6.63	3.43-11.58
	Normal	218	14.21	12.39-16.23
	Overweight	98	13.4	10.88-16.33
	Obese	86	12.23	9.78-15.11
Trisomy 18	Underweight	1	0.55	0.01-3.08
	Normal	24	1.56	1.00-2.33
	Overweight	15	2.05	1.15-3.38
	Obese	9	1.28	0.59-2.43
Chromosomal Cases * (p=0.0108)	Underweight	13	7.18	3.82-12.28
	Normal	252	16.43	14.46-18.59
	Overweight	115	15.72	12.98-18.87
	Obese	104	14.79	12.09-17.92

*Continued on next page*

**Table 8: Birth Defects Counts and Rates by Maternal BMI  
2004-2007**

<b>Defect</b>	<b>BMI Category</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
Fetal Alcohol Syndrome * (p=0.0079)	Underweight	9	4.97	2.27-9.44
	Normal	35	2.28	1.59-3.17
	Overweight	8	1.09	0.47-2.16
	Obese	9	1.28	0.59-2.43
Total Cases * (p<0.0001)	Underweight	634	350.24	323.50-378.59
	Normal	4,901	319.52	310.64-328.60
	Overweight	2,299	314.34	301.62-327.46
	Obese	2,652	377.2	362.98-391.83
Total Live Births <sup>3</sup>	Underweight	18,102		
	Normal	153,385		
	Overweight	73,138		
	Obese	70,308		

<sup>1</sup>Rate per 10,000 live births .

<sup>2</sup>95 percent confidence interval.

<sup>3</sup>There were 566 birth defects cases and 17,328 live births whose maternal BMI was unknown.

\*Indicates a statistically significant difference.

**Table 9: Maternal Diabetes (Type1/Type2)  
2004-2007**

Defect	Diabetes	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
Anencephalus	YES	0	0	0.00-11.57
	NO	39	1.19	0.84-1.62
Spina Bifida * (p=0.0191)	YES	5	15.63	5.08-36.49
	NO	143	4.35	3.66-5.12
Hydrocephalus * (p=0.0097)	YES	7	21.89	8.80-45.10
	NO	222	6.75	5.89-7.69
Encephalocele	YES	1	3.13	0.08-17.42
	NO	42	1.28	0.92-1.73
Microcephalus	YES	6	18.76	6.89-40.84
	NO	301	9.15	8.14-10.24
Central Nervous System Cases * (p=0.0002)	YES	19	59.41	35.77-92.78
	NO	720	21.88	20.31-23.54
Anophthalmia/Microphthalmia	YES	0	0	0.00-11.57
	NO	29	0.88	0.59-1.27
Congenital Cataract	YES	0	0	0.00-11.57
	NO	80	2.43	1.93-3.03
Aniridia	YES	0	0	0.00-11.57
	NO	5	0.15	0.05-0.35
Anotia/Microtia	YES	0	0	0.00-11.57
	NO	19	0.58	0.35-0.90
Ear and Eye Cases	YES	0	0	0.00-11.57
	NO	126	3.83	3.19-4.56
Common Truncus	YES	2	6.25	0.76-22.59
	NO	34	1.03	0.72-1.44
Transposition of Great Arteries * (p<0.0001)	YES	13	40.65	21.65-69.51
	NO	211	6.41	5.58-7.34
Tetralogy of Fallot * (p=0.0031)	YES	7	21.89	8.80-45.10
	NO	180	5.47	4.70-6.33
Ventricular Septal Defect * (p<0.0001)	YES	59	184.49	140.43-237.97
	NO	1382	42	39.81-44.27
Atrial Septal Defect * (p<0.0001)	YES	79	247.03	195.57-307.87
	NO	2144	65.15	62.43-67.97
Endocardial Cushion Defect * (p<0.0001)	YES	9	28.14	12.87-53.42
	NO	115	3.49	2.89-4.19
Pulmonary Valve Atresia & Stenosis * (p=0.0019)	YES	11	34.4	17.17-61.55
	NO	369	11.21	10.10-12.42
Tricuspid Valve Atresia & Stenosis	YES	2	6.25	0.76-22.59
	NO	34	1.03	0.72-1.44
Ebsteins Anomaly	YES	1	3.13	0.08-17.42
	NO	21	0.64	0.40-0.98
Aortic Valve Stenosis	YES	1	3.13	0.08-17.42
	NO	61	1.85	1.42-2.38
Hypoplastic Left Heart Syndrome * (p=0.0262)	YES	4	12.51	3.41-32.03
	NO	104	3.16	2.58-3.83

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**Table 9: Maternal Diabetes (Type1/Type2)  
2004-2007**

<b>Defect</b>	<b>Diabetes</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
Patent Ductus Arteriosus * (p<0.0001)	YES	78	243.9	192.80-304.39
	NO	1715	52.12	49.68-54.64
Coarctation of Aorta * (p<0.0001)	YES	11	34.4	17.17-61.55
	NO	202	6.14	5.32-7.05
Cardiovascular Cases * (p<0.0001)	YES	186	581.61	501.02-671.48
	NO	4621	140.43	136.41-144.54
Cleft Palate w/o Cleft Lip	YES	4	12.51	3.41-32.03
	NO	247	7.51	6.60-8.50
Cleft Lip w/ & w/o Cleft Palate	YES	3	9.38	1.93-27.41
	NO	335	10.18	9.12-11.33
Choanal Atresia	YES	2	6.25	0.76-22.59
	NO	62	1.88	1.44-2.42
Orofacial Cases	YES	9	28.14	12.87-53.42
	NO	640	19.45	17.97-21.02
Esophageal Atresia/ Tracheoesophageal Fistula (p=0.0101)	YES	4	12.51	3.41-32.03
	NO	79	2.4	1.90-2.99
Rectal & Large Intestinal Atresia/ Stenosis	YES	2	6.25	0.76-22.59
	NO	167	5.08	4.33-5.91
Pyloric Stenosis	YES	14	43.78	23.93-73.45
	NO	1502	45.64	43.37-48.01
Hirschsprungs Disease (congenital megacolon)	YES	2	6.25	0.76-22.59
	NO	96	2.92	2.36-3.56
Biliary Atresia	YES	1	3.13	0.08-17.42
	NO	31	0.94	0.64-1.34
Gastrointestinal Cases	YES	22	68.79	43.11-104.15
	NO	1860	56.52	53.98-59.15
Renal Agenesis/Hypoplasia * (p<0.0001)	YES	12	37.52	19.39-65.55
	NO	141	4.28	3.61-5.05
Bladder Exstrophy	YES	0	0	0.00-11.57
	NO	16	0.49	0.28-0.79
Hypospadias * (p<0.0001)	YES	39	121.95	86.72-166.71
	NO	1706	51.84	49.41-54.36
Epispadias	YES	1	3.13	0.08-17.42
	NO	30	0.91	0.62-1.30
Obstructive Genitourinary Defect * (p=0.0118)	YES	16	50.03	28.60-81.25
	NO	811	24.65	22.98-26.40
Genitourinary Cases * (p<0.0001)	YES	64	200.13	154.12-255.56
	NO	2659	80.81	77.76-83.94
Reduction Deformity (upper limbs)	YES	1	3.13	0.08-17.42
	NO	67	2.04	1.58-2.59
Reduction Deformity (lower limbs)	YES	2	6.25	0.76-22.59
	NO	50	1.52	1.13-2.00
Gastroschisis	YES	1	3.13	0.08-17.42
	NO	164	4.98	4.25-5.81

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<b>Table 9: Maternal Diabetes (Type1/Type2) 2004-2007</b>				
<b>Defect</b>	<b>Diabetes</b>	<b>Count</b>	<b>Rate<sup>1</sup></b>	<b>95% CI<sup>2</sup></b>
Omphalocele	YES	1	3.13	0.08-17.42
	NO	95	2.89	2.34-3.53
Congenital Hip Dislocation	YES	4	12.51	3.41-32.03
	NO	214	6.5	5.66-7.44
Diaphragmatic Hernia	YES	2	6.25	0.76-22.59
	NO	112	3.4	2.80-4.10
Musculoskeletal Cases	YES	9	28.14	12.87-53.42
	NO	679	20.63	19.11-22.25
Trisomy 13	YES	1	3.13	0.08-17.42
	NO	26	0.79	0.52-1.16
Down Syndrome	YES	4	12.51	3.41-32.03
	NO	441	13.4	12.18-14.71
Trisomy 18	YES	1	3.13	0.08-17.42
	NO	49	1.49	1.10-1.97
Chromosomal Cases	YES	6	18.76	6.89-40.84
	NO	511	15.53	14.21-16.94
Fetal Alcohol Syndrome	YES	0	0	0.00-11.57
	NO	65	1.98	1.52-2.52
Total Cases * (p<0.0001)	YES	273	853.66	755.38-961.17
	NO	10,735	326.23	320.09-332.46
Total Live Births	YES	3,198		
	NO	329,063		

<sup>1</sup>Rate per 10,000 live births .

<sup>2</sup>95 percent confidence interval.

<sup>3</sup>There were 44 birth defects cases and whose maternal diabetes status was unknown all of these cases were fetal death cases.

\*Indicates a statistically significant difference.

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
Anderson	Anotia/Microtia	1	2.32	0.06-12.94
	Atrial Septal Defect	22	51.08	32.01-77.33
	Choanal Atresia	1	2.32	0.06-12.94
	Cleft Lip w/ & w/o Cleft Palate	10	23.22	11.13-42.70
	Cleft Palate w/o Cleft Lip	1	2.32	0.06-12.94
	Coarctation of Aorta	4	9.29	2.53-23.78
	Common Truncus	1	2.32	0.06-12.94
	Congenital Cataract	1	2.32	0.06-12.94
	Congenital Hip Dislocation	5	11.61	3.77-27.09
	Down Syndrome	6	13.93	5.11-30.32
	Endocardial Cushion Defect	1	2.32	0.06-12.94
	Esophageal Atresia/ Tracheoesophageal Fistula	1	2.32	0.06-12.94
	Fetal Alcohol Syndrome	1	2.32	0.06-12.94
	Gastroschisis	4	9.29	2.53-23.78
	Hirschsprungs Disease (congenital megacolon)	2	4.64	0.56-16.77
	Hydrocephalus	4	9.29	2.53-23.78
	Hypoplastic Left Heart Syndrome	1	2.32	0.06-12.94
	Hypospadias	38	88.23	62.44-121.10
	Microcephalus	3	6.97	1.44-20.36
	Obstructive Genitourinary Defect	13	30.18	16.07-51.61
	Omphalocele	3	6.97	1.44-20.36
	Patent Ductus Arteriosus	19	44.11	26.56-68.89
	Pulmonary Valve Atresia & Stenosis	4	9.29	2.53-23.78
	Pyloric Stenosis	19	44.11	26.56-68.89
	Rectal & Large Intestinal Atresia/Stenosis	5	11.61	3.77-27.09
	Reduction Deformity (lower limbs)	2	4.64	0.56-16.77
	Reduction Deformity (upper limbs)	4	9.29	2.53-23.78
	Renal Agenesis/Hypoplasia	3	6.97	1.44-20.36
	Spina Bifida	2	4.64	0.56-16.77
	Tetralogy of Fallot	2	4.64	0.56-16.77
	Transposition of Great Arteries	6	13.93	5.11-30.32
	Trisomy 18	1	2.32	0.06-12.94
	Ventricular Septal Defect	26	60.37	39.43-88.45
Total Cases	163	378.45	322.58-441.22	
Total Live Births	4307			

Bedford	Anencephalus	3	8.76	1.81-25.59
	Aortic Valve Stenosis	1	2.92	0.07-16.26
	Atrial Septal Defect	16	46.7	26.69-75.84
	Cleft Lip w/ & w/o Cleft Palate	5	14.59	4.74-34.06
	Cleft Palate w/o Cleft Lip	2	5.84	0.71-21.09
	Coarctation of Aorta	2	5.84	0.71-21.09



**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Common Truncus	3	8.76	1.81-25.59
	Congenital Hip Dislocation	2	5.84	0.71-21.09
	Diaphragmatic Hernia	3	8.76	1.81-25.59
	Down Syndrome	4	11.68	3.18-29.89
	Endocardial Cushion Defect	2	5.84	0.71-21.09
	Fetal Alcohol Syndrome	1	2.92	0.07-16.26
	Hirschsprungs Disease (congenital megacolon)	1	2.92	0.07-16.26
	Hydrocephalus	4	11.68	3.18-29.89
	Hypoplastic Left Heart Syndrome	1	2.92	0.07-16.26
	Hypospadias	14	40.86	22.34-68.56
	Microcephalus	4	11.68	3.18-29.89
	Obstructive Genitourinary Defect	5	14.59	4.74-34.06
	Omphalocele	3	8.76	1.81-25.59
	Patent Ductus Arteriosus	9	26.27	12.01-49.87
	Pulmonary Valve Atresia & Stenosis	3	8.76	1.81-25.59
	Pyloric Stenosis	18	52.54	31.14-83.03
	Rectal & Large Intestinal Atresia/Stenosis	1	2.92	0.07-16.26
	Reduction Deformity (lower limbs)	1	2.92	0.07-16.26
	Reduction Deformity (upper limbs)	1	2.92	0.07-16.26
	Renal Agenesis/Hypoplasia	6	17.51	6.43-38.12
	Spina Bifida	8	23.35	10.08-46.01
	Tetralogy of Fallot	1	2.92	0.07-16.26
	Transposition of Great Arteries	1	2.92	0.07-16.26
	Trisomy 18	1	2.92	0.07-16.26
	Ventricular Septal Defect	14	40.86	22.34-68.56
	Total Cases	101	294.8	240.12-358.22
	Total Live Births	3426		

Benton	Anophthalmia/Microphthalmia	1	12.09	0.31-67.37
	Atrial Septal Defect	4	48.37	13.18-123.84
	Choanal Atresia	1	12.09	0.31-67.37
	Cleft Lip w/ & w/o Cleft Palate	2	24.18	2.93-87.36
	Cleft Palate w/o Cleft Lip	1	12.09	0.31-67.37
	Gastroschisis	1	12.09	0.31-67.37
	Hydrocephalus	2	24.18	2.93-87.36
	Hypoplastic Left Heart Syndrome	1	12.09	0.31-67.37
	Hypospadias	6	72.55	26.63-157.92
	Microcephalus	2	24.18	2.93-87.36
	Obstructive Genitourinary Defect	3	36.28	7.48-106.01
	Omphalocele	1	12.09	0.31-67.37
	Patent Ductus Arteriosus	5	60.46	19.63-141.09
	Pulmonary Valve Atresia & Stenosis	1	12.09	0.31-67.37
	Pyloric Stenosis	5	60.46	19.63-141.09

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Rectal & Large Intestinal Atresia/Stenos	1	12.09	0.31-67.37
	Reduction Deformity (upper limbs)	1	12.09	0.31-67.37
	Renal Agenesis/Hypoplasia	1	12.09	0.31-67.37
	Tetralogy of Fallot	1	12.09	0.31-67.37
	Transposition of Great Arteries	1	12.09	0.31-67.37
	Total Cases	30	362.76	244.75-517.87
	Total Live Births	827		

Bledsoe	Anencephalus	1	14.99	0.38-83.53
	Atrial Septal Defect	2	29.99	3.63-108.31
	Cleft Palate w/o Cleft Lip	1	14.99	0.38-83.53
	Congenital Hip Dislocation	1	14.99	0.38-83.53
	Diaphragmatic Hernia	1	14.99	0.38-83.53
	Down Syndrome	1	14.99	0.38-83.53
	Esophageal Atresia/ Tracheoesophageal Fistula	1	14.99	0.38-83.53
	Hypospadias	2	29.99	3.63-108.31
	Patent Ductus Arteriosus	3	44.98	9.27-131.44
	Pulmonary Valve Atresia & Stenosis	1	14.99	0.38-83.53
	Pyloric Stenosis	3	44.98	9.27-131.44
	Spina Bifida	1	14.99	0.38-83.53
	Ventricular Septal Defect	3	44.98	9.27-131.44
	Total Cases	16	239.88	137.12-389.54
	Total Live Births	667		

Blount	Anencephalus	1	1.51	0.04-8.39
	Anotia/Microtia	1	1.51	0.04-8.39
	Atrial Septal Defect	30	45.19	30.49-64.51
	Choanal Atresia	1	1.51	0.04-8.39
	Cleft Lip w/ & w/o Cleft Palate	10	15.06	7.22-27.70
	Cleft Palate w/o Cleft Lip	6	9.04	3.32-19.67
	Coarctation of Aorta	3	4.52	0.93-13.21
	Common Truncus	1	1.51	0.04-8.39
	Congenital Cataract	2	3.01	0.36-10.88
	Congenital Hip Dislocation	3	4.52	0.93-13.21
	Diaphragmatic Hernia	2	3.01	0.36-10.88
	Down Syndrome	9	13.56	6.20-25.73
	Encephalocele	1	1.51	0.04-8.39
	Endocardial Cushion Defect	3	4.52	0.93-13.21
	Epispadias	1	1.51	0.04-8.39
	Esophageal Atresia/ Tracheoesophageal Fistula	1	1.51	0.04-8.39
	Fetal Alcohol Syndrome	1	1.51	0.04-8.39
	Gastroschisis	5	7.53	2.45-17.58

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Hydrocephalus	9	13.56	6.20-25.73
	Hypoplastic Left Heart Syndrome	1	1.51	0.04-8.39
	Hypospadias	34	51.21	35.46-71.56
	Microcephalus	5	7.53	2.45-17.58
	Obstructive Genitourinary Defect	44	66.28	48.16-88.97
	Omphalocele	1	1.51	0.04-8.39
	Patent Ductus Arteriosus	33	49.71	34.22-69.81
	Pulmonary Valve Atresia & Stenosis	8	12.05	5.20-23.74
	Pyloric Stenosis	27	40.67	26.80-59.17
	Rectal & Large Intestinal Atresia/Stenosis	4	6.03	1.64-15.43
	Reduction Deformity (lower limbs)	1	1.51	0.04-8.39
	Reduction Deformity (upper limbs)	1	1.51	0.04-8.39
	Renal Agenesis/Hypoplasia	2	3.01	0.36-10.88
	Spina Bifida	6	9.04	3.32-19.67
	Tetralogy of Fallot	3	4.52	0.93-13.21
	Transposition of Great Arteries	4	6.03	1.64-15.43
	Trisomy 18	1	1.51	0.04-8.39
	Ventricular Septal Defect	40	60.25	43.04-82.04
	Total Cases	244	367.53	322.85-416.65
	Total Live Births	6639		

Bradley	Anencephalus	3	4.94	1.02-14.44
	Anotia/Microtia	2	3.29	0.40-11.90
	Aortic Valve Stenosis	1	1.65	0.04-9.18
	Atrial Septal Defect	13	21.41	11.40-36.61
	Biliary Atresia	1	1.65	0.04-9.18
	Choanal Atresia	1	1.65	0.04-9.18
	Cleft Lip w/ & w/o Cleft Palate	10	16.47	7.90-30.29
	Cleft Palate w/o Cleft Lip	5	8.23	2.67-19.22
	Coarctation of Aorta	1	1.65	0.04-9.18
	Common Truncus	2	3.29	0.40-11.90
	Congenital Cataract	1	1.65	0.04-9.18
	Congenital Hip Dislocation	9	14.82	6.78-28.14
	Down Syndrome	2	3.29	0.40-11.90
	Encephalocele	1	1.65	0.04-9.18
	Esophageal Atresia/ Tracheoesophageal Fistula	1	1.65	0.04-9.18
	Gastroschisis	1	1.65	0.04-9.18
	Hirschsprungs Disease (congenital megacolon)	3	4.94	1.02-14.44
	Hydrocephalus	4	6.59	1.80-16.87
	Hypoplastic Left Heart Syndrome	2	3.29	0.40-11.90
	Hypospadias	27	44.47	29.30-64.69
	Microcephalus	9	14.82	6.78-28.14

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Obstructive Genitourinary Defect	7	11.53	4.64-23.75
	Patent Ductus Arteriosus	18	29.64	17.57-46.85
	Pulmonary Valve Atresia & Stenosis	4	6.59	1.80-16.87
	Pyloric Stenosis	19	31.29	18.84-48.86
	Rectal & Large Intestinal Atresia/Stenosis	3	4.94	1.02-14.44
	Reduction Deformity (lower limbs)	1	1.65	0.04-9.18
	Reduction Deformity (upper limbs)	3	4.94	1.02-14.44
	Renal Agenesis/Hypoplasia	3	4.94	1.02-14.44
	Spina Bifida	3	4.94	1.02-14.44
	Tetralogy of Fallot	4	6.59	1.80-16.87
	Transposition of Great Arteries	6	9.88	3.63-21.51
	Tricuspid Valve Atresia & Stenosis	2	3.29	0.40-11.90
	Trisomy 13	1	1.65	0.04-9.18
	Trisomy 18	1	1.65	0.04-9.18
	Ventricular Septal Defect	15	24.7	13.83-40.74
	Total Cases	153	251.98	213.63-295.22
	Total Live Births	6072		

Campbell	Aortic Valve Stenosis	1	4	0.10-22.30
	Atrial Septal Defect	11	44.02	21.97-78.76
	Choanal Atresia	1	4	0.10-22.30
	Cleft Lip w/ & w/o Cleft Palate	2	8	0.97-28.91
	Cleft Palate w/o Cleft Lip	2	8	0.97-28.91
	Coarctation of Aorta	1	4	0.10-22.30
	Congenital Hip Dislocation	3	12	2.48-35.08
	Down Syndrome	5	20.01	6.50-46.69
	Epispadias	1	4	0.10-22.30
	Esophageal Atresia/ Tracheoesophageal Fistula	1	4	0.10-22.30
	Fetal Alcohol Syndrome	2	8	0.97-28.91
	Gastroschisis	1	4	0.10-22.30
	Hydrocephalus	1	4	0.10-22.30
	Hypoplastic Left Heart Syndrome	1	4	0.10-22.30
	Hypospadias	22	88.04	55.17-133.29
	Microcephalus	5	20.01	6.50-46.69
	Obstructive Genitourinary Defect	10	40.02	19.19-73.59
	Patent Ductus Arteriosus	15	60.02	33.60-99.00
	Pulmonary Valve Atresia & Stenosis	3	12	2.48-35.08
	Pyloric Stenosis	12	48.02	24.81-83.88
	Rectal & Large Intestinal Atresia/Stenosis	1	4	0.10-22.30
	Renal Agenesis/Hypoplasia	2	8	0.97-28.91
	Spina Bifida	3	12	2.48-35.08
	Tetralogy of Fallot	2	8	0.97-28.91
	Transposition of Great Arteries	3	12	2.48-35.08

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Tricuspid Valve Atresia & Stenosis	1	4	0.10-22.30
	Ventricular Septal Defect	14	56.02	30.63-93.99
	Total Cases	99	396.16	322.00-482.32
	Total Live Births	2499		

Cannon	Aortic Valve Stenosis	1	13.33	0.34-74.29
	Atrial Septal Defect	2	26.67	3.23-96.33
	Congenital Cataract	1	13.33	0.34-74.29
	Congenital Hip Dislocation	1	13.33	0.34-74.29
	Down Syndrome	4	53.33	14.53-136.55
	Encephalocele	1	13.33	0.34-74.29
	Endocardial Cushion Defect	1	13.33	0.34-74.29
	Gastroschisis	1	13.33	0.34-74.29
	Hirschsprungs Disease (congenital megacolon)	2	26.67	3.23-96.33
	Hydrocephalus	1	13.33	0.34-74.29
	Hypoplastic Left Heart Syndrome	1	13.33	0.34-74.29
	Hypospadias	6	80	29.36-174.13
	Obstructive Genitourinary Defect	1	13.33	0.34-74.29
	Patent Ductus Arteriosus	3	40	8.25-116.90
	Pulmonary Valve Atresia & Stenosis	1	13.33	0.34-74.29
	Pyloric Stenosis	3	40	8.25-116.90
	Spina Bifida	2	26.67	3.23-96.33
	Transposition of Great Arteries	2	26.67	3.23-96.33
	Ventricular Septal Defect	5	66.67	21.65-155.58
	Total Cases	27	360	237.24-523.76
	Total Live Births	750		

Carroll	Atrial Septal Defect	9	51.93	23.75-98.58
	Cleft Lip w/ & w/o Cleft Palate	1	5.77	0.15-32.15
	Cleft Palate w/o Cleft Lip	1	5.77	0.15-32.15
	Coarctation of Aorta	1	5.77	0.15-32.15
	Common Truncus	1	5.77	0.15-32.15
	Congenital Cataract	2	11.54	1.40-41.69
	Congenital Hip Dislocation	1	5.77	0.15-32.15
	Down Syndrome	2	11.54	1.40-41.69
	Endocardial Cushion Defect	2	11.54	1.40-41.69
	Fetal Alcohol Syndrome	2	11.54	1.40-41.69
	Gastroschisis	3	17.31	3.57-50.59
	Hirschsprungs Disease (congenital megacolon)	1	5.77	0.15-32.15
	Hydrocephalus	1	5.77	0.15-32.15
	Hypospadias	10	57.7	27.67-106.12
	Microcephalus	1	5.77	0.15-32.15

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Obstructive Genitourinary Defect	8	46.16	19.93-90.96
	Omphalocele	1	5.77	0.15-32.15
	Patent Ductus Arteriosus	6	34.62	12.71-75.36
	Pulmonary Valve Atresia & Stenosis	2	11.54	1.40-41.69
	Pyloric Stenosis	9	51.93	23.75-98.58
	Rectal & Large Intestinal Atresia/Stenosis	1	5.77	0.15-32.15
	Reduction Deformity (lower limbs)	1	5.77	0.15-32.15
	Renal Agenesis/Hypoplasia	1	5.77	0.15-32.15
	Spina Bifida	1	5.77	0.15-32.15
	Tetralogy of Fallot	1	5.77	0.15-32.15
	Transposition of Great Arteries	3	17.31	3.57-50.59
	Ventricular Septal Defect	7	40.39	16.24-83.22
	Total Cases	59	340.45	259.15-439.15
	Total Live Births	1733		

Carter	Anencephalus	1	3.26	0.08-18.18
	Anotia/Microtia	1	3.26	0.08-18.18
	Atrial Septal Defect	55	179.45	135.18-233.57
	Cleft Lip w/ & w/o Cleft Palate	5	16.31	5.30-38.07
	Cleft Palate w/o Cleft Lip	5	16.31	5.30-38.07
	Coarctation of Aorta	3	9.79	2.02-28.60
	Congenital Cataract	2	6.53	0.79-23.57
	Congenital Hip Dislocation	3	9.79	2.02-28.60
	Diaphragmatic Hernia	1	3.26	0.08-18.18
	Down Syndrome	1	3.26	0.08-18.18
	Endocardial Cushion Defect	1	3.26	0.08-18.18
	Fetal Alcohol Syndrome	1	3.26	0.08-18.18
	Gastroschisis	4	13.05	3.56-33.41
	Hirschsprungs Disease (congenital megacolon)	5	16.31	5.30-38.07
	Hydrocephalus	1	3.26	0.08-18.18
	Hypospadias	17	55.46	32.31-88.80
	Microcephalus	1	3.26	0.08-18.18
	Obstructive Genitourinary Defect	18	58.73	34.81-92.81
	Patent Ductus Arteriosus	33	107.67	74.12-151.21
	Pulmonary Valve Atresia & Stenosis	7	22.84	9.18-47.06
	Pyloric Stenosis	18	58.73	34.81-92.81
	Rectal & Large Intestinal Atresia/Stenosis	2	6.53	0.79-23.57
	Reduction Deformity (lower limbs)	1	3.26	0.08-18.18
	Reduction Deformity (upper limbs)	1	3.26	0.08-18.18
	Renal Agenesis/Hypoplasia	2	6.53	0.79-23.57
	Spina Bifida	1	3.26	0.08-18.18
	Tetralogy of Fallot	1	3.26	0.08-18.18
	Ventricular Septal Defect	11	35.89	17.92-64.22

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Total Cases	156	508.97	432.23-595.41
	Total Live Births	3065		

Cheatham	Anencephalus	1	4.13	0.10-22.99
	Anotia/Microtia	1	4.13	0.10-22.99
	Aortic Valve Stenosis	3	12.38	2.55-36.17
	Atrial Septal Defect	12	49.5	25.58-86.48
	Bladder Exstrophy	1	4.13	0.10-22.99
	Choanal Atresia	1	4.13	0.10-22.99
	Cleft Lip w/ & w/o Cleft Palate	3	12.38	2.55-36.17
	Cleft Palate w/o Cleft Lip	4	16.5	4.50-42.25
	Coarctation of Aorta	3	12.38	2.55-36.17
	Congenital Hip Dislocation	2	8.25	1.00-29.80
	Down Syndrome	2	8.25	1.00-29.80
	Ebsteins Anomaly	1	4.13	0.10-22.99
	Endocardial Cushion Defect	1	4.13	0.10-22.99
	Fetal Alcohol Syndrome	1	4.13	0.10-22.99
	Gastroschisis	3	12.38	2.55-36.17
	Hypoplastic Left Heart Syndrome	2	8.25	1.00-29.80
	Hypospadias	12	49.5	25.58-86.48
	Microcephalus	3	12.38	2.55-36.17
	Obstructive Genitourinary Defect	6	24.75	9.08-53.88
	Omphalocele	2	8.25	1.00-29.80
	Patent Ductus Arteriosus	4	16.5	4.50-42.25
	Pulmonary Valve Atresia & Stenosis	4	16.5	4.50-42.25
	Pyloric Stenosis	15	61.88	34.63-102.06
	Reduction Deformity (lower limbs)	1	4.13	0.10-22.99
	Spina Bifida	2	8.25	1.00-29.80
	Tricuspid Valve Atresia & Stenosis	1	4.13	0.10-22.99
	Ventricular Septal Defect	10	41.25	19.78-75.87
	Total Cases	81	334.16	265.36-415.33
	Total Live Births	2424		

Chester	Aortic Valve Stenosis	1	10.68	0.27-59.53
	Atrial Septal Defect	10	106.84	51.23-196.47
	Coarctation of Aorta	2	21.37	2.59-77.19
	Congenital Hip Dislocation	1	10.68	0.27-59.53
	Down Syndrome	2	21.37	2.59-77.19
	Gastroschisis	1	10.68	0.27-59.53
	Hypospadias	5	53.42	17.35-124.66
	Microcephalus	1	10.68	0.27-59.53
	Obstructive Genitourinary Defect	1	10.68	0.27-59.53
	Omphalocele	2	21.37	2.59-77.19
	Patent Ductus Arteriosus	8	85.47	36.90-168.41

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Pulmonary Valve Atresia & Stenosis	1	10.68	0.27-59.53
	Pyloric Stenosis	1	10.68	0.27-59.53
	Reduction Deformity (lower limbs)	1	10.68	0.27-59.53
	Transposition of Great Arteries	1	10.68	0.27-59.53
	Ventricular Septal Defect	8	85.47	36.90-168.41
	Total Cases	31	331.2	225.05-470.10
	Total Live Births	936		

Claiborne	Aortic Valve Stenosis	1	5.55	0.14-30.94
	Atrial Septal Defect	4	22.21	6.05-56.87
	Choanal Atresia	1	5.55	0.14-30.94
	Cleft Lip w/ & w/o Cleft Palate	2	11.1	1.34-40.11
	Cleft Palate w/o Cleft Lip	1	5.55	0.14-30.94
	Coarctation of Aorta	1	5.55	0.14-30.94
	Diaphragmatic Hernia	1	5.55	0.14-30.94
	Down Syndrome	2	11.1	1.34-40.11
	Ebsteins Anomaly	1	5.55	0.14-30.94
	Hypospadias	6	33.31	12.23-72.51
	Microcephalus	2	11.1	1.34-40.11
	Obstructive Genitourinary Defect	3	16.66	3.43-48.68
	Patent Ductus Arteriosus	7	38.87	15.63-80.08
	Pulmonary Valve Atresia & Stenosis	1	5.55	0.14-30.94
	Pyloric Stenosis	9	49.97	22.85-94.86
	Rectal & Large Intestinal Atresia/Stenosis	1	5.55	0.14-30.94
	Spina Bifida	1	5.55	0.14-30.94
	Tetralogy of Fallot	1	5.55	0.14-30.94
	Transposition of Great Arteries	2	11.1	1.34-40.11
	Tricuspid Valve Atresia & Stenosis	1	5.55	0.14-30.94
	Ventricular Septal Defect	2	11.1	1.34-40.11
	Total Cases	43	238.76	172.79-321.60
	Total Live Births	1801		

Clay	Cleft Lip w/ & w/o Cleft Palate	2	45.45	5.50-164.20
	Coarctation of Aorta	1	22.73	0.58-126.63
	Common Truncus	1	22.73	0.58-126.63
	Hypoplastic Left Heart Syndrome	1	22.73	0.58-126.63
	Hypospadias	1	22.73	0.58-126.63
	Pyloric Stenosis	9	204.55	93.54-388.29
	Rectal & Large Intestinal Atresia/Stenosis	2	45.45	5.50-164.20
	Reduction Deformity (lower limbs)	1	22.73	0.58-126.63
	Renal Agenesis/Hypoplasia	1	22.73	0.58-126.63
	Ventricular Septal Defect	2	45.45	5.50-164.20
	Total Cases	19	431.82	260.00-674.33



**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Total Live Births	440		

Cocke	Anophthalmia/Microthalmia	1	4.65	0.12-25.91
	Aortic Valve Stenosis	2	9.3	1.13-33.60
	Atrial Septal Defect	14	65.12	35.60-109.25
	Cleft Lip w/ & w/o Cleft Palate	2	9.3	1.13-33.60
	Cleft Palate w/o Cleft Lip	2	9.3	1.13-33.60
	Coarctation of Aorta	2	9.3	1.13-33.60
	Common Truncus	1	4.65	0.12-25.91
	Congenital Cataract	1	4.65	0.12-25.91
	Diaphragmatic Hernia	2	9.3	1.13-33.60
	Down Syndrome	1	4.65	0.12-25.91
	Hirschsprungs Disease (congenital megacolon)	2	9.3	1.13-33.60
	Hydrocephalus	2	9.3	1.13-33.60
	Hypospadias	12	55.81	28.84-97.50
	Microcephalus	2	9.3	1.13-33.60
	Obstructive Genitourinary Defect	8	37.21	16.06-73.32
	Omphalocele	1	4.65	0.12-25.91
	Patent Ductus Arteriosus	11	51.16	25.54-91.55
	Pulmonary Valve Atresia & Stenosis	3	13.95	2.88-40.78
	Pyloric Stenosis	13	60.47	32.20-103.40
	Tetralogy of Fallot	1	4.65	0.12-25.91
	Transposition of Great Arteries	1	4.65	0.12-25.91
	Tricuspid Valve Atresia & Stenosis	1	4.65	0.12-25.91
	Ventricular Septal Defect	7	32.56	13.09-67.08
	Total Cases	76	353.49	278.51-442.43
	Total Live Births	2150		

Coffee	Anencephalus	2	5.69	0.69-20.55
	Atrial Septal Defect	16	45.52	26.02-73.92
	Choanal Atresia	1	2.84	0.07-15.85
	Cleft Lip w/ & w/o Cleft Palate	6	17.07	6.26-37.15
	Cleft Palate w/o Cleft Lip	3	8.53	1.76-24.94
	Coarctation of Aorta	2	5.69	0.69-20.55
	Congenital Cataract	1	2.84	0.07-15.85
	Congenital Hip Dislocation	1	2.84	0.07-15.85
	Diaphragmatic Hernia	3	8.53	1.76-24.94
	Down Syndrome	8	22.76	9.83-44.85
	Endocardial Cushion Defect	1	2.84	0.07-15.85
	Esophageal Atresia/ Tracheoesophageal Fistula	2	5.69	0.69-20.55
	Fetal Alcohol Syndrome	1	2.84	0.07-15.85
	Gastroschisis	2	5.69	0.69-20.55

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Hirschsprungs Disease (congenital megacolon)	2	5.69	0.69-20.55
	Hydrocephalus	5	14.22	4.62-33.20
	Hypoplastic Left Heart Syndrome	1	2.84	0.07-15.85
	Hypospadias	23	65.43	41.48-98.18
	Microcephalus	2	5.69	0.69-20.55
	Obstructive Genitourinary Defect	8	22.76	9.83-44.85
	Patent Ductus Arteriosus	14	39.83	21.77-66.83
	Pulmonary Valve Atresia & Stenosis	2	5.69	0.69-20.55
	Pyloric Stenosis	31	88.19	59.93-125.18
	Spina Bifida	2	5.69	0.69-20.55
	Tetralogy of Fallot	1	2.84	0.07-15.85
	Transposition of Great Arteries	4	11.38	3.10-29.14
	Trisomy 13	1	2.84	0.07-15.85
	Ventricular Septal Defect	11	31.29	15.62-56.00
	Total Cases	126	358.46	298.60-426.80
	Total Live Births	3515		

Crockett	Atrial Septal Defect	8	83.86	36.20-165.23
	Cleft Lip w/ & w/o Cleft Palate	1	10.48	0.27-58.40
	Cleft Palate w/o Cleft Lip	1	10.48	0.27-58.40
	Congenital Cataract	1	10.48	0.27-58.40
	Congenital Hip Dislocation	2	20.96	2.54-75.73
	Down Syndrome	2	20.96	2.54-75.73
	Esophageal Atresia/ Tracheoesophageal Fistula	1	10.48	0.27-58.40
	Hydrocephalus	1	10.48	0.27-58.40
	Hypospadias	4	41.93	11.43-107.35
	Omphalocele	1	10.48	0.27-58.40
	Patent Ductus Arteriosus	6	62.89	23.08-136.89
	Pulmonary Valve Atresia & Stenosis	1	10.48	0.27-58.40
	Pyloric Stenosis	8	83.86	36.20-165.23
	Reduction Deformity (upper limbs)	1	10.48	0.27-58.40
	Tetralogy of Fallot	1	10.48	0.27-58.40
	Transposition of Great Arteries	1	10.48	0.27-58.40
	Ventricular Septal Defect	4	41.93	11.43-107.35
	Total Cases	33	345.91	238.13-485.80
	Total Live Births	954		

Cumberland	Atrial Septal Defect	17	64.74	37.71-103.65
	Choanal Atresia	2	7.62	0.92-27.51
	Cleft Lip w/ & w/o Cleft Palate	7	26.66	10.72-54.92
	Cleft Palate w/o Cleft Lip	3	11.42	2.36-33.39
	Coarctation of Aorta	1	3.81	0.10-21.22

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Diaphragmatic Hernia	1	3.81	0.10-21.22
	Down Syndrome	3	11.42	2.36-33.39
	Endocardial Cushion Defect	2	7.62	0.92-27.51
	Esophageal Atresia/ Tracheoesophageal Fistula	2	7.62	0.92-27.51
	Gastroschisis	2	7.62	0.92-27.51
	Hirschsprungs Disease (congenital megacolon)	1	3.81	0.10-21.22
	Hydrocephalus	2	7.62	0.92-27.51
	Hypospadias	11	41.89	20.91-74.95
	Microcephalus	3	11.42	2.36-33.39
	Obstructive Genitourinary Defect	4	15.23	4.15-39.00
	Patent Ductus Arteriosus	14	53.31	29.15-89.45
	Pulmonary Valve Atresia & Stenosis	2	7.62	0.92-27.51
	Pyloric Stenosis	19	72.35	43.56-112.99
	Rectal & Large Intestinal Atresia/Stenosis	3	11.42	2.36-33.39
	Renal Agenesis/Hypoplasia	3	11.42	2.36-33.39
	Spina Bifida	1	3.81	0.10-21.22
	Tetralogy of Fallot	2	7.62	0.92-27.51
	Transposition of Great Arteries	4	15.23	4.15-39.00
	Ventricular Septal Defect	10	38.08	18.26-70.03
	Total Cases	87	331.3	265.37-408.66
	Total Live Births	2626		

Davidson	Anencephalus	9	1.9	0.87-3.61
	Aniridia	5	1.06	0.34-2.47
	Anophthalmia/Microphthalmia	6	1.27	0.47-2.76
	Aortic Valve Stenosis	10	2.12	1.01-3.89
	Atrial Septal Defect	229	48.44	42.37-55.14
	Biliary Atresia	8	1.69	0.73-3.33
	Bladder Exstrophy	1	0.21	0.01-1.18
	Choanal Atresia	5	1.06	0.34-2.47
	Cleft Lip w/ & w/o Cleft Palate	46	9.73	7.12-12.98
	Cleft Palate w/o Cleft Lip	35	7.4	5.16-10.30
	Coarctation of Aorta	33	6.98	4.81-9.80
	Common Truncus	3	0.63	0.13-1.85
	Congenital Cataract	12	2.54	1.31-4.43
	Congenital Hip Dislocation	41	8.67	6.22-11.77
	Diaphragmatic Hernia	8	1.69	0.73-3.33
	Down Syndrome	72	15.23	11.92-19.18
	Ebsteins Anomaly	5	1.06	0.34-2.47
	Encephalocele	4	0.85	0.23-2.17
	Endocardial Cushion Defect	12	2.54	1.31-4.43
	Epispadias	7	1.48	0.60-3.05

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Esophageal Atresia/ Tracheoesophageal Fistula	17	3.6	2.09-5.76
	Fetal Alcohol Syndrome	15	3.17	1.78-5.23
	Gastroschisis	19	4.02	2.42-6.28
	Hirschsprungs Disease (congenital megacolon)	12	2.54	1.31-4.43
	Hydrocephalus	36	7.62	5.33-10.54
	Hypoplastic Left Heart Syndrome	10	2.12	1.01-3.89
	Hypospadias	305	64.52	57.48-72.18
	Microcephalus	19	4.02	2.42-6.28
	Obstructive Genitourinary Defect	123	26.02	21.62-31.05
	Omphalocele	18	3.81	2.26-6.02
	Patent Ductus Arteriosus	229	48.44	42.37-55.14
	Pulmonary Valve Atresia & Stenosis	49	10.37	7.67-13.70
	Pyloric Stenosis	136	28.77	24.14-34.03
	Rectal & Large Intestinal Atresia/Stenosis	24	5.08	3.25-7.55
	Reduction Deformity (lower limbs)	8	1.69	0.73-3.33
	Reduction Deformity (upper limbs)	9	1.9	0.87-3.61
	Renal Agenesis/Hypoplasia	18	3.81	2.26-6.02
	Spina Bifida	18	3.81	2.26-6.02
	Tetralogy of Fallot	28	5.92	3.94-8.56
	Transposition of Great Arteries	31	6.56	4.46-9.31
	Tricuspid Valve Atresia & Stenosis	3	0.63	0.13-1.85
	Trisomy 13	4	0.85	0.23-2.17
	Trisomy 18	9	1.9	0.87-3.61
	Ventricular Septal Defect	227	48.02	41.98-54.69
	Total Cases	1461	309.07	293.42-325.33
	Total Live Births	47271		

Decatur	Anencephalus	1	15.31	0.39-85.32
	Aortic Valve Stenosis	1	15.31	0.39-85.32
	Fetal Alcohol Syndrome	1	15.31	0.39-85.32
	Hydrocephalus	3	45.94	9.47-134.26
	Hypospadias	7	107.2	43.10-220.87
	Obstructive Genitourinary Defect	2	30.63	3.71-110.64
	Pyloric Stenosis	6	91.88	33.72-199.99
	Renal Agenesis/Hypoplasia	1	15.31	0.39-85.32
	Spina Bifida	2	30.63	3.71-110.64
	Total Cases	22	336.91	211.14-510.08
	Total Live Births	653		

Dekalb	Atrial Septal Defect	7	55.73	22.41-114.83
	Choanal Atresia	1	7.96	0.20-44.36

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Cleft Lip w/ & w/o Cleft Palate	2	15.92	1.93-57.52
	Coarctation of Aorta	1	7.96	0.20-44.36
	Congenital Hip Dislocation	1	7.96	0.20-44.36
	Diaphragmatic Hernia	1	7.96	0.20-44.36
	Down Syndrome	1	7.96	0.20-44.36
	Encephalocele	1	7.96	0.20-44.36
	Endocardial Cushion Defect	1	7.96	0.20-44.36
	Esophageal Atresia/ Tracheoesophageal Fistula	1	7.96	0.20-44.36
	Gastroschisis	2	15.92	1.93-57.52
	Hirschsprungs Disease (congenital megacolon)	1	7.96	0.20-44.36
	Hypospadias	8	63.69	27.50-125.50
	Microcephalus	1	7.96	0.20-44.36
	Obstructive Genitourinary Defect	3	23.89	4.93-69.80
	Patent Ductus Arteriosus	5	39.81	12.93-92.90
	Pulmonary Valve Atresia & Stenosis	3	23.89	4.93-69.80
	Pyloric Stenosis	7	55.73	22.41-114.83
	Rectal & Large Intestinal Atresia/Stenosis	2	15.92	1.93-57.52
	Reduction Deformity (upper limbs)	1	7.96	0.20-44.36
	Tetralogy of Fallot	1	7.96	0.20-44.36
	Ventricular Septal Defect	4	31.85	8.68-81.54
	Total Cases	42	334.39	241.00-452.00
	Total Live Births	1256		

Dickson	Anencephalus	2	6	0.73-21.66
	Aortic Valve Stenosis	1	3	0.08-16.71
	Atrial Septal Defect	10	29.99	14.38-55.14
	Choanal Atresia	2	6	0.73-21.66
	Cleft Lip w/ & w/o Cleft Palate	2	6	0.73-21.66
	Coarctation of Aorta	5	14.99	4.87-34.99
	Congenital Hip Dislocation	1	3	0.08-16.71
	Down Syndrome	5	14.99	4.87-34.99
	Endocardial Cushion Defect	2	6	0.73-21.66
	Esophageal Atresia/ Tracheoesophageal Fistula	3	9	1.85-26.29
	Gastroschisis	5	14.99	4.87-34.99
	Hydrocephalus	2	6	0.73-21.66
	Hypoplastic Left Heart Syndrome	3	9	1.85-26.29
	Hypospadias	25	74.96	48.51-110.66
	Microcephalus	1	3	0.08-16.71
	Obstructive Genitourinary Defect	5	14.99	4.87-34.99
	Omphalocele	1	3	0.08-16.71
	Patent Ductus Arteriosus	17	50.97	29.69-81.62

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Pulmonary Valve Atresia & Stenosis	4	11.99	3.27-30.71
	Pyloric Stenosis	18	53.97	31.99-85.30
	Rectal & Large Intestinal Atresia/Stenosis	2	6	0.73-21.66
	Reduction Deformity (upper limbs)	2	6	0.73-21.66
	Renal Agenesis/Hypoplasia	3	9	1.85-26.29
	Spina Bifida	2	6	0.73-21.66
	Tetralogy of Fallot	1	3	0.08-16.71
	Transposition of Great Arteries	4	11.99	3.27-30.71
	Ventricular Septal Defect	25	74.96	48.51-110.66
	Total Cases	115	344.83	284.68-413.92
	Total Live Births	3335		

Dyer	Anencephalus	1	3.94	0.10-21.98
	Atrial Septal Defect	16	63.12	36.08-102.49
	Choanal Atresia	1	3.94	0.10-21.98
	Cleft Palate w/o Cleft Lip	4	15.78	4.30-40.40
	Coarctation of Aorta	3	11.83	2.44-34.58
	Common Truncus	2	7.89	0.96-28.50
	Congenital Cataract	2	7.89	0.96-28.50
	Congenital Hip Dislocation	4	15.78	4.30-40.40
	Diaphragmatic Hernia	1	3.94	0.10-21.98
	Down Syndrome	1	3.94	0.10-21.98
	Gastroschisis	5	19.72	6.40-46.03
	Hirschsprungs Disease (congenital megacolon)	1	3.94	0.10-21.98
	Hypospadias	14	55.23	30.19-92.66
	Microcephalus	2	7.89	0.96-28.50
	Obstructive Genitourinary Defect	6	23.67	8.69-51.52
	Omphalocele	1	3.94	0.10-21.98
	Patent Ductus Arteriosus	6	23.67	8.69-51.52
	Pulmonary Valve Atresia & Stenosis	1	3.94	0.10-21.98
	Pyloric Stenosis	17	67.06	39.06-107.37
	Rectal & Large Intestinal Atresia/Stenosis	1	3.94	0.10-21.98
	Reduction Deformity (upper limbs)	1	3.94	0.10-21.98
	Renal Agenesis/Hypoplasia	1	3.94	0.10-21.98
	Spina Bifida	1	3.94	0.10-21.98
	Tetralogy of Fallot	2	7.89	0.96-28.50
	Transposition of Great Arteries	2	7.89	0.96-28.50
	Tricuspid Valve Atresia & Stenosis	1	3.94	0.10-21.98
	Ventricular Septal Defect	6	23.67	8.69-51.52
	Total Cases	84	331.36	264.29-410.26
	Total Live Births	2535		

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
Fayette	Atrial Septal Defect	16	70.48	40.29-114.46
	Choanal Atresia	1	4.41	0.11-24.54
	Cleft Palate w/o Cleft Lip	2	8.81	1.07-31.83
	Coarctation of Aorta	2	8.81	1.07-31.83
	Down Syndrome	6	26.43	9.70-57.53
	Encephalocele	2	8.81	1.07-31.83
	Endocardial Cushion Defect	1	4.41	0.11-24.54
	Esophageal Atresia/ Tracheoesophageal Fistula	1	4.41	0.11-24.54
	Gastroschisis	1	4.41	0.11-24.54
	Hirschsprungs Disease (congenital megacolon)	1	4.41	0.11-24.54
	Hydrocephalus	2	8.81	1.07-31.83
	Hypospadias	8	35.24	15.21-69.44
	Microcephalus	3	13.22	2.73-38.62
	Obstructive Genitourinary Defect	6	26.43	9.70-57.53
	Patent Ductus Arteriosus	17	74.89	43.62-119.91
	Pyloric Stenosis	5	22.03	7.15-51.40
	Rectal & Large Intestinal Atresia/Stenosis	3	13.22	2.73-38.62
	Reduction Deformity (upper limbs)	2	8.81	1.07-31.83
	Renal Agenesis/Hypoplasia	1	4.41	0.11-24.54
	Transposition of Great Arteries	1	4.41	0.11-24.54
	Trisomy 18	1	4.41	0.11-24.54
	Ventricular Septal Defect	8	35.24	15.21-69.44
	Total Cases	61	268.72	205.55-345.17
	Total Live Births	2270		

Fentress	Anencephalus	1	9.84	0.25-54.84
	Atrial Septal Defect	3	29.53	6.09-86.29
	Cleft Palate w/o Cleft Lip	1	9.84	0.25-54.84
	Coarctation of Aorta	1	9.84	0.25-54.84
	Common Truncus	1	9.84	0.25-54.84
	Down Syndrome	2	19.69	2.38-71.11
	Fetal Alcohol Syndrome	1	9.84	0.25-54.84
	Hydrocephalus	2	19.69	2.38-71.11
	Hypospadias	3	29.53	6.09-86.29
	Obstructive Genitourinary Defect	3	29.53	6.09-86.29
	Patent Ductus Arteriosus	6	59.06	21.67-128.54
	Pulmonary Valve Atresia & Stenosis	1	9.84	0.25-54.84
	Pyloric Stenosis	10	98.43	47.19-181.00
	Reduction Deformity (lower limbs)	1	9.84	0.25-54.84
	Reduction Deformity (upper limbs)	1	9.84	0.25-54.84
	Renal Agenesis/Hypoplasia	1	9.84	0.25-54.84
	Spina Bifida	2	19.69	2.38-71.11

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Transposition of Great Arteries	1	9.84	0.25-54.84
	Tricuspid Valve Atresia & Stenosis	1	9.84	0.25-54.84
	Ventricular Septal Defect	8	78.74	33.99-155.15
	Total Cases	34	334.65	231.74-467.63
	Total Live Births	1016		

Franklin	Aortic Valve Stenosis	1	4.53	0.11-25.25
	Atrial Septal Defect	13	58.9	31.37-100.72
	Bladder Exstrophy	1	4.53	0.11-25.25
	Choanal Atresia	3	13.59	2.80-39.72
	Cleft Lip w/ & w/o Cleft Palate	2	9.06	1.10-32.73
	Coarctation of Aorta	1	4.53	0.11-25.25
	Common Truncus	1	4.53	0.11-25.25
	Congenital Hip Dislocation	3	13.59	2.80-39.72
	Diaphragmatic Hernia	1	4.53	0.11-25.25
	Down Syndrome	1	4.53	0.11-25.25
	Gastroschisis	1	4.53	0.11-25.25
	Hydrocephalus	1	4.53	0.11-25.25
	Hypoplastic Left Heart Syndrome	3	13.59	2.80-39.72
	Hypospadias	6	27.19	9.98-59.17
	Microcephalus	1	4.53	0.11-25.25
	Obstructive Genitourinary Defect	5	22.66	7.36-52.87
	Omphalocele	2	9.06	1.10-32.73
	Patent Ductus Arteriosus	16	72.5	41.44-117.73
	Pulmonary Valve Atresia & Stenosis	2	9.06	1.10-32.73
	Pyloric Stenosis	11	49.84	24.88-89.18
	Reduction Deformity (lower limbs)	2	9.06	1.10-32.73
	Renal Agenesis/Hypoplasia	1	4.53	0.11-25.25
	Spina Bifida	1	4.53	0.11-25.25
	Tetralogy of Fallot	3	13.59	2.80-39.72
	Ventricular Septal Defect	9	40.78	18.65-77.41
	Total Cases	71	321.7	251.25-405.80
	Total Live Births	2207		

Gibson	Aortic Valve Stenosis	1	3.23	0.08-18.01
	Atrial Septal Defect	21	67.87	42.01-103.75
	Cleft Lip w/ & w/o Cleft Palate	4	12.93	3.52-33.10
	Cleft Palate w/o Cleft Lip	3	9.7	2.00-28.34
	Coarctation of Aorta	3	9.7	2.00-28.34
	Common Truncus	1	3.23	0.08-18.01
	Congenital Hip Dislocation	2	6.46	0.78-23.35
	Down Syndrome	1	3.23	0.08-18.01
	Esophageal Atresia/ Tracheoesophageal Fistula	1	3.23	0.08-18.01



**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Gastroschisis	1	3.23	0.08-18.01
	Hirschsprungs Disease (congenital megacolon)	3	9.7	2.00-28.34
	Hypoplastic Left Heart Syndrome	1	3.23	0.08-18.01
	Hypospadias	13	42.02	22.37-71.85
	Obstructive Genitourinary Defect	8	25.86	11.16-50.95
	Patent Ductus Arteriosus	15	48.48	27.13-79.96
	Pulmonary Valve Atresia & Stenosis	4	12.93	3.52-33.10
	Pyloric Stenosis	18	58.18	34.48-91.94
	Rectal & Large Intestinal Atresia/Stenosis	1	3.23	0.08-18.01
	Renal Agenesis/Hypoplasia	1	3.23	0.08-18.01
	Spina Bifida	2	6.46	0.78-23.35
	Tetralogy of Fallot	1	3.23	0.08-18.01
	Transposition of Great Arteries	1	3.23	0.08-18.01
	Tricuspid Valve Atresia & Stenosis	2	6.46	0.78-23.35
	Ventricular Septal Defect	12	38.78	20.04-67.75
	Total Cases	86	277.96	222.34-343.28
	Total Live Births	3094		

Giles	Atrial Septal Defect	6	35.13	12.89-76.46
	Cleft Palate w/o Cleft Lip	2	11.71	1.42-42.30
	Coarctation of Aorta	1	5.85	0.15-32.62
	Common Truncus	1	5.85	0.15-32.62
	Congenital Cataract	2	11.71	1.42-42.30
	Down Syndrome	3	17.56	3.62-51.33
	Encephalocele	1	5.85	0.15-32.62
	Endocardial Cushion Defect	2	11.71	1.42-42.30
	Epispadias	1	5.85	0.15-32.62
	Hydrocephalus	2	11.71	1.42-42.30
	Hypospadias	7	40.98	16.48-84.44
	Obstructive Genitourinary Defect	3	17.56	3.62-51.33
	Omphalocele	1	5.85	0.15-32.62
	Patent Ductus Arteriosus	8	46.84	20.22-92.29
	Pulmonary Valve Atresia & Stenosis	1	5.85	0.15-32.62
	Pyloric Stenosis	9	52.69	24.10-100.03
	Spina Bifida	2	11.71	1.42-42.30
	Tetralogy of Fallot	1	5.85	0.15-32.62
	Transposition of Great Arteries	1	5.85	0.15-32.62
	Trisomy 18	1	5.85	0.15-32.62
	Ventricular Septal Defect	7	40.98	16.48-84.44
	Total Cases	43	251.76	182.20-339.12
	Total Live Births	1708		

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
Grainger	Atrial Septal Defect	11	82.52	41.19-147.65
	Biliary Atresia	1	7.5	0.19-41.80
	Choanal Atresia	1	7.5	0.19-41.80
	Cleft Palate w/o Cleft Lip	2	15	1.82-54.20
	Coarctation of Aorta	1	7.5	0.19-41.80
	Congenital Cataract	1	7.5	0.19-41.80
	Congenital Hip Dislocation	1	7.5	0.19-41.80
	Down Syndrome	3	22.51	4.64-65.77
	Esophageal Atresia/ Tracheoesophageal Fistula	2	15	1.82-54.20
	Hydrocephalus	1	7.5	0.19-41.80
	Hypospadias	8	60.02	25.91-118.25
	Microcephalus	1	7.5	0.19-41.80
	Obstructive Genitourinary Defect	4	30.01	8.18-76.83
	Omphalocele	1	7.5	0.19-41.80
	Patent Ductus Arteriosus	6	45.01	16.52-97.97
	Pulmonary Valve Atresia & Stenosis	2	15	1.82-54.20
	Pyloric Stenosis	7	52.51	21.12-108.20
	Reduction Deformity (lower limbs)	1	7.5	0.19-41.80
	Spina Bifida	1	7.5	0.19-41.80
	Ventricular Septal Defect	8	60.02	25.91-118.25
Total Cases		52	390.1	291.32-511.57
Total Live Births		1333		

Greene	Anophthalmia/Microphthalmia	1	2.73	0.07-15.23
	Atrial Septal Defect	31	84.75	57.58-120.29
	Choanal Atresia	4	10.93	2.98-28.00
	Cleft Lip w/ & w/o Cleft Palate	5	13.67	4.44-31.90
	Cleft Palate w/o Cleft Lip	3	8.2	1.69-23.97
	Coarctation of Aorta	3	8.2	1.69-23.97
	Congenital Cataract	1	2.73	0.07-15.23
	Congenital Hip Dislocation	4	10.93	2.98-28.00
	Diaphragmatic Hernia	2	5.47	0.66-19.75
	Down Syndrome	6	16.4	6.02-35.70
	Encephalocele	2	5.47	0.66-19.75
	Endocardial Cushion Defect	1	2.73	0.07-15.23
	Esophageal Atresia/ Tracheoesophageal Fistula	1	2.73	0.07-15.23
	Hydrocephalus	4	10.93	2.98-28.00
	Hypoplastic Left Heart Syndrome	2	5.47	0.66-19.75
	Hypospadias	15	41.01	22.95-67.63
	Microcephalus	2	5.47	0.66-19.75
	Obstructive Genitourinary Defect	10	27.34	13.11-50.27
	Patent Ductus Arteriosus	40	109.35	78.12-148.90
	Pulmonary Valve Atresia & Stenosis	6	16.4	6.02-35.70

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Pyloric Stenosis	16	43.74	25.00-71.03
	Rectal & Large Intestinal Atresia/Stenosis	2	5.47	0.66-19.75
	Renal Agenesis/Hypoplasia	1	2.73	0.07-15.23
	Spina Bifida	2	5.47	0.66-19.75
	Tetralogy of Fallot	3	8.2	1.69-23.97
	Transposition of Great Arteries	1	2.73	0.07-15.23
	Tricuspid Valve Atresia & Stenosis	1	2.73	0.07-15.23
	Ventricular Septal Defect	19	51.94	31.27-81.11
	Total Cases	139	379.99	319.44-448.67
	Total Live Births	3658		

Grundy	Atrial Septal Defect	3	31.15	6.42-91.04
	Congenital Hip Dislocation	1	10.38	0.26-57.86
	Down Syndrome	4	41.54	11.32-106.35
	Endocardial Cushion Defect	3	31.15	6.42-91.04
	Fetal Alcohol Syndrome	1	10.38	0.26-57.86
	Gastroschisis	2	20.77	2.52-75.02
	Hirschsprungs Disease (congenital megacolon)	1	10.38	0.26-57.86
	Hypospadias	6	62.31	22.87-135.61
	Obstructive Genitourinary Defect	1	10.38	0.26-57.86
	Patent Ductus Arteriosus	4	41.54	11.32-106.35
	Pyloric Stenosis	4	41.54	11.32-106.35
	Renal Agenesis/Hypoplasia	1	10.38	0.26-57.86
	Tetralogy of Fallot	1	10.38	0.26-57.86
	Ventricular Septal Defect	4	41.54	11.32-106.35
	Total Cases	25	259.61	167.99-383.23
	Total Live Births	963		

Hamblen	Aortic Valve Stenosis	1	2.32	0.06-12.90
	Atrial Septal Defect	27	62.53	41.21-90.97
	Cleft Lip w/ & w/o Cleft Palate	2	4.63	0.56-16.73
	Cleft Palate w/o Cleft Lip	2	4.63	0.56-16.73
	Coarctation of Aorta	3	6.95	1.43-20.30
	Common Truncus	1	2.32	0.06-12.90
	Congenital Hip Dislocation	3	6.95	1.43-20.30
	Diaphragmatic Hernia	3	6.95	1.43-20.30
	Down Syndrome	10	23.16	11.10-42.59
	Ebsteins Anomaly	1	2.32	0.06-12.90
	Endocardial Cushion Defect	1	2.32	0.06-12.90
	Epispadias	1	2.32	0.06-12.90
	Gastroschisis	6	13.9	5.10-30.24

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Hirschsprungs Disease (congenital megacolon)	1	2.32	0.06-12.90
	Hydrocephalus	3	6.95	1.43-20.30
	Hypoplastic Left Heart Syndrome	3	6.95	1.43-20.30
	Hypospadias	21	48.63	30.10-74.34
	Microcephalus	4	9.26	2.52-23.72
	Obstructive Genitourinary Defect	7	16.21	6.52-33.40
	Omphalocele	1	2.32	0.06-12.90
	Patent Ductus Arteriosus	26	60.21	39.33-88.22
	Pulmonary Valve Atresia & Stenosis	6	13.9	5.10-30.24
	Pyloric Stenosis	23	53.27	33.76-79.92
	Rectal & Large Intestinal Atresia/Stenosis	2	4.63	0.56-16.73
	Spina Bifida	1	2.32	0.06-12.90
	Transposition of Great Arteries	1	2.32	0.06-12.90
	Ventricular Septal Defect	22	50.95	31.93-77.14
	Total Cases	140	324.22	272.74-382.60
	Total Live Births	4318		

Hamilton	Anencephalus	1	0.49	0.01-2.72
	Anophthalmia/Microphthalmia	1	0.49	0.01-2.72
	Anotia/Microtia	1	0.49	0.01-2.72
	Aortic Valve Stenosis	4	1.95	0.53-5.00
	Atrial Septal Defect	104	50.78	41.49-61.52
	Biliary Atresia	1	0.49	0.01-2.72
	Bladder Exstrophy	2	0.98	0.12-3.53
	Choanal Atresia	4	1.95	0.53-5.00
	Cleft Lip w/ & w/o Cleft Palate	21	10.25	6.35-15.67
	Cleft Palate w/o Cleft Lip	15	7.32	4.10-12.08
	Coarctation of Aorta	16	7.81	4.47-12.69
	Common Truncus	1	0.49	0.01-2.72
	Congenital Cataract	4	1.95	0.53-5.00
	Congenital Hip Dislocation	23	11.23	7.12-16.85
	Diaphragmatic Hernia	6	2.93	1.08-6.38
	Down Syndrome	36	17.58	12.31-24.33
	Encephalocele	1	0.49	0.01-2.72
	Endocardial Cushion Defect	9	4.39	2.01-8.34
	Epispadias	3	1.46	0.30-4.28
	Esophageal Atresia/Tracheoesophageal Fistula	6	2.93	1.08-6.38
	Fetal Alcohol Syndrome	9	4.39	2.01-8.34
	Gastroschisis	7	3.42	1.37-7.04
	Hirschsprungs Disease (congenital megacolon)	5	2.44	0.79-5.70
	Hydrocephalus	17	8.3	4.83-13.29

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Hypoplastic Left Heart Syndrome	2	0.98	0.12-3.53
	Hypospadias	114	55.66	45.91-66.86
	Microcephalus	28	13.67	9.08-19.76
	Obstructive Genitourinary Defect	44	21.48	15.61-28.84
	Omphalocele	6	2.93	1.08-6.38
	Patent Ductus Arteriosus	80	39.06	30.97-48.61
	Pulmonary Valve Atresia & Stenosis	13	6.35	3.38-10.85
	Pyloric Stenosis	82	40.04	31.84-49.70
	Rectal & Large Intestinal Atresia/Stenosis	7	3.42	1.37-7.04
	Reduction Deformity (upper limbs)	2	0.98	0.12-3.53
	Renal Agenesis/Hypoplasia	7	3.42	1.37-7.04
	Spina Bifida	5	2.44	0.79-5.70
	Tetralogy of Fallot	18	8.79	5.21-13.89
	Transposition of Great Arteries	12	5.86	3.03-10.23
	Tricuspid Valve Atresia & Stenosis	2	0.98	0.12-3.53
	Trisomy 13	1	0.49	0.01-2.72
	Trisomy 18	4	1.95	0.53-5.00
	Ventricular Septal Defect	89	43.45	34.90-53.47
	Total Cases	637	311	287.32-336.12
	Total Live Births	20482		

Hancock	Anophthalmia/Microthalamia	1	24.1	0.61-134.26
	Aortic Valve Stenosis	1	24.1	0.61-134.26
	Atrial Septal Defect	4	96.39	26.27-246.79
	Cleft Lip w/ & w/o Cleft Palate	2	48.19	5.84-174.09
	Cleft Palate w/o Cleft Lip	1	24.1	0.61-134.26
	Diaphragmatic Hernia	2	48.19	5.84-174.09
	Down Syndrome	1	24.1	0.61-134.26
	Endocardial Cushion Defect	1	24.1	0.61-134.26
	Gastroschisis	1	24.1	0.61-134.26
	Hypoplastic Left Heart Syndrome	1	24.1	0.61-134.26
	Hypospadias	2	48.19	5.84-174.09
	Microcephalus	1	24.1	0.61-134.26
	Obstructive Genitourinary Defect	2	48.19	5.84-174.09
	Patent Ductus Arteriosus	4	96.39	26.27-246.79
	Pyloric Stenosis	4	96.39	26.27-246.79
	Ventricular Septal Defect	3	72.29	14.91-211.26
	Total Cases	19	457.83	275.66-714.95
	Total Live Births	415		

Hardeman	Atrial Septal Defect	19	113.98	68.63-177.99
	Cleft Palate w/o Cleft Lip	1	6	0.15-33.42
	Coarctation of Aorta	3	18	3.71-52.59
	Congenital Hip Dislocation	2	12	1.45-43.34

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Diaphragmatic Hernia	1	6	0.15-33.42
	Down Syndrome	2	12	1.45-43.34
	Epispadias	1	6	0.15-33.42
	Fetal Alcohol Syndrome	1	6	0.15-33.42
	Gastroschisis	2	12	1.45-43.34
	Hypospadias	3	18	3.71-52.59
	Microcephalus	2	12	1.45-43.34
	Obstructive Genitourinary Defect	1	6	0.15-33.42
	Patent Ductus Arteriosus	7	41.99	16.88-86.52
	Pulmonary Valve Atresia & Stenosis	3	18	3.71-52.59
	Pyloric Stenosis	4	24	6.54-61.44
	Reduction Deformity (lower limbs)	1	6	0.15-33.42
	Reduction Deformity (upper limbs)	1	6	0.15-33.42
	Spina Bifida	1	6	0.15-33.42
	Tetralogy of Fallot	1	6	0.15-33.42
	Ventricular Septal Defect	5	29.99	9.74-70.00
	Total Cases	49	293.94	217.46-388.62
	Total Live Births	1667		

Hardin	Aortic Valve Stenosis	2	13.95	1.69-50.38
	Atrial Septal Defect	9	62.76	28.70-119.14
	Choanal Atresia	1	6.97	0.18-38.85
	Cleft Lip w/ & w/o Cleft Palate	2	13.95	1.69-50.38
	Coarctation of Aorta	1	6.97	0.18-38.85
	Diaphragmatic Hernia	1	6.97	0.18-38.85
	Down Syndrome	2	13.95	1.69-50.38
	Endocardial Cushion Defect	1	6.97	0.18-38.85
	Esophageal Atresia/ Tracheoesophageal Fistula	3	20.92	4.31-61.14
	Gastroschisis	1	6.97	0.18-38.85
	Hydrocephalus	2	13.95	1.69-50.38
	Hypospadias	8	55.79	24.08-109.92
	Microcephalus	2	13.95	1.69-50.38
	Obstructive Genitourinary Defect	1	6.97	0.18-38.85
	Patent Ductus Arteriosus	5	34.87	11.32-81.37
	Pyloric Stenosis	12	83.68	43.24-146.18
	Reduction Deformity (upper limbs)	2	13.95	1.69-50.38
	Spina Bifida	1	6.97	0.18-38.85
	Transposition of Great Arteries	1	6.97	0.18-38.85
	Tricuspid Valve Atresia & Stenosis	1	6.97	0.18-38.85
	Trisomy 13	1	6.97	0.18-38.85
	Ventricular Septal Defect	8	55.79	24.08-109.92
	Total Cases	48	334.73	246.79-443.82
	Total Live Births	1434		

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
Hawkins	Anencephalus	1	3.13	0.08-17.42
	Atrial Septal Defect	70	218.89	170.62-276.54
	Biliary Atresia	1	3.13	0.08-17.42
	Choanal Atresia	1	3.13	0.08-17.42
	Cleft Lip w/ & w/o Cleft Palate	5	15.63	5.08-36.49
	Cleft Palate w/o Cleft Lip	4	12.51	3.41-32.03
	Coarctation of Aorta	2	6.25	0.76-22.59
	Congenital Cataract	1	3.13	0.08-17.42
	Congenital Hip Dislocation	2	6.25	0.76-22.59
	Diaphragmatic Hernia	2	6.25	0.76-22.59
	Down Syndrome	5	15.63	5.08-36.49
	Endocardial Cushion Defect	1	3.13	0.08-17.42
	Fetal Alcohol Syndrome	1	3.13	0.08-17.42
	Gastroschisis	1	3.13	0.08-17.42
	Hirschsprungs Disease (congenital megacolon)	1	3.13	0.08-17.42
	Hypoplastic Left Heart Syndrome	1	3.13	0.08-17.42
	Hypospadias	13	40.65	21.65-69.51
	Microcephalus	4	12.51	3.41-32.03
	Obstructive Genitourinary Defect	5	15.63	5.08-36.49
	Omphalocele	1	3.13	0.08-17.42
	Patent Ductus Arteriosus	35	109.44	76.23-152.21
	Pulmonary Valve Atresia & Stenosis	9	28.14	12.87-53.42
	Pyloric Stenosis	18	56.29	33.36-88.95
	Rectal & Large Intestinal Atresia/Stenosis	1	3.13	0.08-17.42
	Spina Bifida	2	6.25	0.76-22.59
	Tetralogy of Fallot	4	12.51	3.41-32.03
	Transposition of Great Arteries	3	9.38	1.93-27.41
	Tricuspid Valve Atresia & Stenosis	1	3.13	0.08-17.42
	Ventricular Septal Defect	20	62.54	38.20-96.59
	Total Cases	160	500.31	425.79-584.13
	Total Live Births	3198		

Haywood	Atrial Septal Defect	14	101.16	55.30-169.72
	Bladder Exstrophy	1	7.23	0.18-40.26
	Cleft Lip w/ & w/o Cleft Palate	4	28.9	7.88-74.00
	Cleft Palate w/o Cleft Lip	1	7.23	0.18-40.26
	Coarctation of Aorta	1	7.23	0.18-40.26
	Congenital Hip Dislocation	1	7.23	0.18-40.26
	Down Syndrome	1	7.23	0.18-40.26
	Epispadias	1	7.23	0.18-40.26
	Hirschsprungs Disease (congenital megacolon)	1	7.23	0.18-40.26
	Hydrocephalus	2	14.45	1.75-52.20

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Hypospadias	2	14.45	1.75-52.20
	Microcephalus	1	7.23	0.18-40.26
	Obstructive Genitourinary Defect	1	7.23	0.18-40.26
	Patent Ductus Arteriosus	11	79.48	39.68-142.21
	Pyloric Stenosis	3	21.68	4.47-63.35
	Rectal & Large Intestinal Atresia/Stenos	1	7.23	0.18-40.26
	Renal Agenesis/Hypoplasia	1	7.23	0.18-40.26
	Tetralogy of Fallot	1	7.23	0.18-40.26
	Transposition of Great Arteries	1	7.23	0.18-40.26
	Ventricular Septal Defect	8	57.8	24.95-113.90
	Total Cases	44	317.92	231.00-426.81
	Total Live Births	1384		

Henderson	Anophthalmia/Microphthalmia	1	5.39	0.14-30.00
	Anotia/Microtia	1	5.39	0.14-30.00
	Aortic Valve Stenosis	2	10.77	1.30-38.90
	Atrial Septal Defect	19	102.32	61.60-159.78
	Cleft Palate w/o Cleft Lip	3	16.16	3.33-47.21
	Coarctation of Aorta	1	5.39	0.14-30.00
	Common Truncus	1	5.39	0.14-30.00
	Congenital Hip Dislocation	1	5.39	0.14-30.00
	Down Syndrome	4	21.54	5.87-55.15
	Encephalocele	1	5.39	0.14-30.00
	Endocardial Cushion Defect	1	5.39	0.14-30.00
	Esophageal Atresia/ Tracheoesophageal Fistula	1	5.39	0.14-30.00
	Gastroschisis	1	5.39	0.14-30.00
	Hydrocephalus	4	21.54	5.87-55.15
	Hypoplastic Left Heart Syndrome	1	5.39	0.14-30.00
	Hypospadias	6	32.31	11.86-70.33
	Obstructive Genitourinary Defect	3	16.16	3.33-47.21
	Omphalocele	1	5.39	0.14-30.00
	Patent Ductus Arteriosus	16	86.16	49.25-139.92
	Pulmonary Valve Atresia & Stenosis	4	21.54	5.87-55.15
	Pyloric Stenosis	10	53.85	25.82-99.03
	Renal Agenesis/Hypoplasia	1	5.39	0.14-30.00
	Spina Bifida	1	5.39	0.14-30.00
	Tetralogy of Fallot	2	10.77	1.30-38.90
	Transposition of Great Arteries	3	16.16	3.33-47.21
	Tricuspid Valve Atresia & Stenosis	1	5.39	0.14-30.00
	Ventricular Septal Defect	7	37.7	15.16-77.67
	Total Cases	66	355.41	274.88-452.16
	Total Live Births	1857		



**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
Henry	Atrial Septal Defect	12	65.04	33.61-113.61
	Choanal Atresia	1	5.42	0.14-30.20
	Cleft Palate w/o Cleft Lip	2	10.84	1.31-39.16
	Coarctation of Aorta	1	5.42	0.14-30.20
	Congenital Cataract	2	10.84	1.31-39.16
	Congenital Hip Dislocation	1	5.42	0.14-30.20
	Down Syndrome	2	10.84	1.31-39.16
	Esophageal Atresia/ Tracheoesophageal Fistula	1	5.42	0.14-30.20
	Fetal Alcohol Syndrome	1	5.42	0.14-30.20
	Gastroschisis	1	5.42	0.14-30.20
	Hirschsprungs Disease (congenital megacolon)	2	10.84	1.31-39.16
	Hydrocephalus	2	10.84	1.31-39.16
	Hypoplastic Left Heart Syndrome	1	5.42	0.14-30.20
	Hypospadias	12	65.04	33.61-113.61
	Microcephalus	3	16.26	3.35-47.52
	Obstructive Genitourinary Defect	4	21.68	5.91-55.51
	Patent Ductus Arteriosus	7	37.94	15.26-78.17
	Pyloric Stenosis	10	54.2	25.99-99.67
	Reduction Deformity (lower limbs)	1	5.42	0.14-30.20
	Reduction Deformity (upper limbs)	1	5.42	0.14-30.20
	Renal Agenesis/Hypoplasia	1	5.42	0.14-30.20
	Spina Bifida	2	10.84	1.31-39.16
	Tetralogy of Fallot	2	10.84	1.31-39.16
	Trisomy 18	1	5.42	0.14-30.20
	Ventricular Septal Defect	5	27.1	8.80-63.24
	Total Cases	65	352.3	271.91-449.05
	Total Live Births	1845		

Hickman	Atrial Septal Defect	3	21.6	4.45-63.12
	Cleft Lip w/ & w/o Cleft Palate	1	7.2	0.18-40.11
	Coarctation of Aorta	1	7.2	0.18-40.11
	Congenital Cataract	1	7.2	0.18-40.11
	Congenital Hip Dislocation	1	7.2	0.18-40.11
	Down Syndrome	1	7.2	0.18-40.11
	Fetal Alcohol Syndrome	1	7.2	0.18-40.11
	Hypospadias	6	43.2	15.85-94.02
	Obstructive Genitourinary Defect	6	43.2	15.85-94.02
	Omphalocele	1	7.2	0.18-40.11
	Patent Ductus Arteriosus	1	7.2	0.18-40.11
	Pyloric Stenosis	13	93.59	49.84-160.04
	Rectal & Large Intestinal Atresia/Stenosis	3	21.6	4.45-63.12
	Reduction Deformity (upper limbs)	1	7.2	0.18-40.11

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Renal Agenesis/Hypoplasia	1	7.2	0.18-40.11
	Tetralogy of Fallot	4	28.8	7.85-73.73
	Transposition of Great Arteries	1	7.2	0.18-40.11
	Trisomy 18	1	7.2	0.18-40.11
	Ventricular Septal Defect	5	36	11.69-84.01
	Total Cases	42	302.38	217.92-408.72
	Total Live Births	1389		

Houston	Atrial Septal Defect	2	38.68	4.68-139.74
	Down Syndrome	1	19.34	0.49-107.77
	Fetal Alcohol Syndrome	1	19.34	0.49-107.77
	Hypospadias	1	19.34	0.49-107.77
	Obstructive Genitourinary Defect	2	38.68	4.68-139.74
	Patent Ductus Arteriosus	3	58.03	11.97-169.58
	Pyloric Stenosis	3	58.03	11.97-169.58
	Ventricular Septal Defect	2	38.68	4.68-139.74
	Total Cases	13	251.45	133.90-429.98
	Total Live Births	517		

Humphreys	Anencephalus	1	9.07	0.23-50.51
	Atrial Septal Defect	6	54.4	19.96-118.40
	Congenital Hip Dislocation	1	9.07	0.23-50.51
	Epispadias	1	9.07	0.23-50.51
	Gastroschisis	1	9.07	0.23-50.51
	Hydrocephalus	1	9.07	0.23-50.51
	Hypoplastic Left Heart Syndrome	1	9.07	0.23-50.51
	Hypospadias	8	72.53	31.31-142.91
	Microcephalus	1	9.07	0.23-50.51
	Obstructive Genitourinary Defect	5	45.33	14.72-105.79
	Patent Ductus Arteriosus	4	36.26	9.88-92.85
	Pulmonary Valve Atresia & Stenosis	3	27.2	5.61-79.49
	Pyloric Stenosis	4	36.26	9.88-92.85
	Reduction Deformity (upper limbs)	1	9.07	0.23-50.51
	Spina Bifida	1	9.07	0.23-50.51
	Tetralogy of Fallot	1	9.07	0.23-50.51
	Trisomy 18	1	9.07	0.23-50.51
	Ventricular Septal Defect	6	54.4	19.96-118.40
	Total Cases	42	380.78	274.43-514.70
	Total Live Births	1103		

Jackson	Atrial Septal Defect	6	109.29	40.11-237.88
	Cleft Lip w/ & w/o Cleft Palate	1	18.21	0.46-101.49
	Cleft Palate w/o Cleft Lip	2	36.43	4.41-131.60

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Diaphragmatic Hernia	1	18.21	0.46-101.49
	Down Syndrome	1	18.21	0.46-101.49
	Hypospadias	1	18.21	0.46-101.49
	Patent Ductus Arteriosus	6	109.29	40.11-237.88
	Pyloric Stenosis	4	72.86	19.85-186.55
	Reduction Deformity (upper limbs)	1	18.21	0.46-101.49
	Ventricular Septal Defect	2	36.43	4.41-131.60
	Total Cases	19	346.08	208.38-540.44
	Total Live Births	549		

Jefferson	Anophthalmia/Microphthalmia	2	7.12	0.86-25.73
	Anotia/Microtia	1	3.56	0.09-19.84
	Atrial Septal Defect	21	74.79	46.29-114.32
	Choanal Atresia	2	7.12	0.86-25.73
	Cleft Lip w/ & w/o Cleft Palate	4	14.25	3.88-36.47
	Cleft Palate w/o Cleft Lip	1	3.56	0.09-19.84
	Coarctation of Aorta	2	7.12	0.86-25.73
	Congenital Cataract	1	3.56	0.09-19.84
	Congenital Hip Dislocation	1	3.56	0.09-19.84
	Diaphragmatic Hernia	1	3.56	0.09-19.84
	Down Syndrome	1	3.56	0.09-19.84
	Endocardial Cushion Defect	3	10.68	2.20-31.22
	Gastroschisis	3	10.68	2.20-31.22
	Hydrocephalus	2	7.12	0.86-25.73
	Hypoplastic Left Heart Syndrome	1	3.56	0.09-19.84
	Hypospadias	16	56.98	32.57-92.53
	Microcephalus	5	17.81	5.78-41.55
	Obstructive Genitourinary Defect	6	21.37	7.84-46.51
	Omphalocele	2	7.12	0.86-25.73
	Patent Ductus Arteriosus	8	28.49	12.30-56.14
	Pulmonary Valve Atresia & Stenosis	2	7.12	0.86-25.73
	Pyloric Stenosis	15	53.42	29.90-88.10
	Rectal & Large Intestinal Atresia/Stenosis	2	7.12	0.86-25.73
	Reduction Deformity (upper limbs)	1	3.56	0.09-19.84
	Renal Agenesis/Hypoplasia	2	7.12	0.86-25.73
	Spina Bifida	1	3.56	0.09-19.84
	Tetralogy of Fallot	4	14.25	3.88-36.47
	Transposition of Great Arteries	3	10.68	2.20-31.22
	Ventricular Septal Defect	13	46.3	24.65-79.17
	Total Cases	94	334.76	270.52-409.64
	Total Live Births	2808		

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
Johnson	Atrial Septal Defect	14	161.48	88.28-270.93
	Biliary Atresia	1	11.53	0.29-64.26
	Cleft Lip w/ & w/o Cleft Palate	1	11.53	0.29-64.26
	Cleft Palate w/o Cleft Lip	1	11.53	0.29-64.26
	Down Syndrome	1	11.53	0.29-64.26
	Hirschsprungs Disease (congenital megacolon)	1	11.53	0.29-64.26
	Hypospadias	4	46.14	12.57-118.13
	Patent Ductus Arteriosus	7	80.74	32.46-166.35
	Pulmonary Valve Atresia & Stenosis	1	11.53	0.29-64.26
	Pyloric Stenosis	4	46.14	12.57-118.13
	Rectal & Large Intestinal Atresia/Stenosis	1	11.53	0.29-64.26
	Spina Bifida	1	11.53	0.29-64.26
	Ventricular Septal Defect	2	23.07	2.79-83.33
	Total Cases	33	380.62	262.02-534.55
	Total Live Births	867		

Knox	Anencephalus	2	0.77	0.09-2.79
	Anophthalmia/Microphthalmia	4	1.54	0.42-3.96
	Anotia/Microtia	2	0.77	0.09-2.79
	Aortic Valve Stenosis	6	2.32	0.85-5.04
	Atrial Septal Defect	140	54.07	45.48-63.80
	Biliary Atresia	2	0.77	0.09-2.79
	Bladder Exstrophy	3	1.16	0.24-3.39
	Choanal Atresia	3	1.16	0.24-3.39
	Cleft Lip w/ & w/o Cleft Palate	26	10.04	6.56-14.71
	Cleft Palate w/o Cleft Lip	25	9.65	6.25-14.25
	Coarctation of Aorta	14	5.41	2.96-9.07
	Common Truncus	6	2.32	0.85-5.04
	Congenital Cataract	3	1.16	0.24-3.39
	Congenital Hip Dislocation	18	6.95	4.12-10.99
	Diaphragmatic Hernia	8	3.09	1.33-6.09
	Down Syndrome	28	10.81	7.19-15.63
	Ebsteins Anomaly	3	1.16	0.24-3.39
	Encephalocele	4	1.54	0.42-3.96
	Endocardial Cushion Defect	15	5.79	3.24-9.55
	Epispadias	3	1.16	0.24-3.39
	Esophageal Atresia/ Tracheoesophageal Fistula	3	1.16	0.24-3.39
	Fetal Alcohol Syndrome	5	1.93	0.63-4.51
	Gastroschisis	12	4.63	2.39-8.10
	Hirschsprungs Disease (congenital megacolon)	5	1.93	0.63-4.51
	Hydrocephalus	13	5.02	2.67-8.59

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Hypoplastic Left Heart Syndrome	9	3.48	1.59-6.60
	Hypospadias	123	47.5	39.48-56.68
	Microcephalus	22	8.5	5.32-12.86
	Obstructive Genitourinary Defect	84	32.44	25.87-40.16
	Omphalocele	12	4.63	2.39-8.10
	Patent Ductus Arteriosus	122	47.12	39.13-56.26
	Pulmonary Valve Atresia & Stenosis	18	6.95	4.12-10.99
	Pyloric Stenosis	100	38.62	31.42-46.97
	Rectal & Large Intestinal Atresia/Stenosis	13	5.02	2.67-8.59
	Reduction Deformity (lower limbs)	6	2.32	0.85-5.04
	Reduction Deformity (upper limbs)	8	3.09	1.33-6.09
	Renal Agenesis/Hypoplasia	18	6.95	4.12-10.99
	Spina Bifida	11	4.25	2.12-7.60
	Tetralogy of Fallot	15	5.79	3.24-9.55
	Transposition of Great Arteries	20	7.72	4.72-11.93
	Tricuspid Valve Atresia & Stenosis	3	1.16	0.24-3.39
	Trisomy 13	2	0.77	0.09-2.79
	Trisomy 18	3	1.16	0.24-3.39
	Ventricular Septal Defect	122	47.12	39.13-56.26
	Total Cases	839	324.01	302.46-346.70
	Total Live Births	25894		

Lake	Atrial Septal Defect	3	84.27	17.38-246.27
	Cleft Palate w/o Cleft Lip	1	28.09	0.71-156.51
	Coarctation of Aorta	2	56.18	6.80-202.94
	Endocardial Cushion Defect	1	28.09	0.71-156.51
	Esophageal Atresia/ Tracheoesophageal Fistula	1	28.09	0.71-156.51
	Gastroschisis	1	28.09	0.71-156.51
	Hypoplastic Left Heart Syndrome	2	56.18	6.80-202.94
	Hypospadias	3	84.27	17.38-246.27
	Obstructive Genitourinary Defect	1	28.09	0.71-156.51
	Patent Ductus Arteriosus	2	56.18	6.80-202.94
	Pulmonary Valve Atresia & Stenosis	1	28.09	0.71-156.51
	Pyloric Stenosis	4	112.36	30.62-287.69
	Transposition of Great Arteries	1	28.09	0.71-156.51
	Ventricular Septal Defect	2	56.18	6.80-202.94
	Total Cases	14	393.26	214.99-659.81
	Total Live Births	356		

Lauderdale	Aortic Valve Stenosis	1	5.32	0.13-29.64
	Atrial Septal Defect	7	37.23	14.97-76.72
	Cleft Palate w/o Cleft Lip	3	15.96	3.29-46.63

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Congenital Cataract	1	5.32	0.13-29.64
	Diaphragmatic Hernia	1	5.32	0.13-29.64
	Down Syndrome	3	15.96	3.29-46.63
	Encephalocele	1	5.32	0.13-29.64
	Esophageal Atresia/ Tracheoesophageal Fistula	1	5.32	0.13-29.64
	Fetal Alcohol Syndrome	1	5.32	0.13-29.64
	Gastroschisis	2	10.64	1.29-38.43
	Hypospadias	8	42.55	18.37-83.85
	Microcephalus	1	5.32	0.13-29.64
	Obstructive Genitourinary Defect	1	5.32	0.13-29.64
	Omphalocele	1	5.32	0.13-29.64
	Patent Ductus Arteriosus	6	31.91	11.71-69.47
	Pulmonary Valve Atresia & Stenosis	4	21.28	5.80-54.48
	Pyloric Stenosis	6	31.91	11.71-69.47
	Renal Agenesis/Hypoplasia	1	5.32	0.13-29.64
	Tetralogy of Fallot	1	5.32	0.13-29.64
	Transposition of Great Arteries	1	5.32	0.13-29.64
	Ventricular Septal Defect	9	47.87	21.89-90.88
	Total Cases	48	255.32	188.25-338.53
	Total Live Births	1880		

Lawrence	Atrial Septal Defect	10	34.59	16.59-63.61
	Cleft Lip w/ & w/o Cleft Palate	5	17.3	5.62-40.36
	Cleft Palate w/o Cleft Lip	1	3.46	0.09-19.27
	Coarctation of Aorta	1	3.46	0.09-19.27
	Common Truncus	1	3.46	0.09-19.27
	Congenital Hip Dislocation	1	3.46	0.09-19.27
	Down Syndrome	6	20.75	7.62-45.17
	Encephalocele	1	3.46	0.09-19.27
	Endocardial Cushion Defect	1	3.46	0.09-19.27
	Esophageal Atresia/ Tracheoesophageal Fistula	1	3.46	0.09-19.27
	Gastroschisis	1	3.46	0.09-19.27
	Hirschsprungs Disease (congenital megacolon)	1	3.46	0.09-19.27
	Hypospadias	21	72.64	44.96-111.04
	Microcephalus	1	3.46	0.09-19.27
	Obstructive Genitourinary Defect	6	20.75	7.62-45.17
	Omphalocele	2	6.92	0.84-24.99
	Patent Ductus Arteriosus	10	34.59	16.59-63.61
	Pulmonary Valve Atresia & Stenosis	2	6.92	0.84-24.99
	Pyloric Stenosis	14	48.43	26.47-81.25
	Rectal & Large Intestinal Atresia/Stenosis	1	3.46	0.09-19.27

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Renal Agenesis/Hypoplasia	4	13.84	3.77-35.43
	Spina Bifida	2	6.92	0.84-24.99
	Tetralogy of Fallot	1	3.46	0.09-19.27
	Transposition of Great Arteries	2	6.92	0.84-24.99
	Tricuspid Valve Atresia & Stenosis	1	3.46	0.09-19.27
	Ventricular Septal Defect	12	41.51	21.45-72.51
	Total Cases	81	280.18	222.49-348.24
	Total Live Births	2891		

Lewis	Atrial Septal Defect	4	51.55	14.05-131.98
	Bladder Exstrophy	1	12.89	0.33-71.80
	Cleft Lip w/ & w/o Cleft Palate	1	12.89	0.33-71.80
	Cleft Palate w/o Cleft Lip	1	12.89	0.33-71.80
	Congenital Hip Dislocation	2	25.77	3.12-93.10
	Diaphragmatic Hernia	1	12.89	0.33-71.80
	Down Syndrome	2	25.77	3.12-93.10
	Endocardial Cushion Defect	1	12.89	0.33-71.80
	Epispadias	1	12.89	0.33-71.80
	Gastroschisis	1	12.89	0.33-71.80
	Hypospadias	3	38.66	7.97-112.98
	Omphalocele	2	25.77	3.12-93.10
	Patent Ductus Arteriosus	1	12.89	0.33-71.80
	Pyloric Stenosis	5	64.43	20.92-150.37
	Tetralogy of Fallot	2	25.77	3.12-93.10
	Transposition of Great Arteries	1	12.89	0.33-71.80
	Ventricular Septal Defect	4	51.55	14.05-131.98
	Total Cases	23	296.39	187.88-444.74
	Total Live Births	776		

Lincoln	Atrial Septal Defect	11	52.26	26.09-93.50
	Biliary Atresia	1	4.75	0.12-26.47
	Choanal Atresia	1	4.75	0.12-26.47
	Cleft Lip w/ & w/o Cleft Palate	2	9.5	1.15-34.32
	Coarctation of Aorta	3	14.25	2.94-41.65
	Down Syndrome	2	9.5	1.15-34.32
	Endocardial Cushion Defect	1	4.75	0.12-26.47
	Esophageal Atresia/ Tracheoesophageal Fistula	2	9.5	1.15-34.32
	Hydrocephalus	3	14.25	2.94-41.65
	Hypospadias	4	19	5.18-48.65
	Microcephalus	1	4.75	0.12-26.47
	Obstructive Genitourinary Defect	2	9.5	1.15-34.32
	Patent Ductus Arteriosus	6	28.5	10.46-62.04
	Pulmonary Valve Atresia & Stenosis	2	9.5	1.15-34.32

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Pyloric Stenosis	7	33.25	13.37-68.52
	Rectal & Large Intestinal Atresia/Stenosis	1	4.75	0.12-26.47
	Trisomy 18	2	9.5	1.15-34.32
	Ventricular Septal Defect	11	52.26	26.09-93.50
	Total Cases	46	218.53	159.98-291.49
	Total Live Births	2105		

Loudon	Anotia/Microtia	1	3.9	0.10-21.75
	Atrial Septal Defect	17	66.35	38.65-106.24
	Cleft Lip w/ & w/o Cleft Palate	3	11.71	2.41-34.22
	Cleft Palate w/o Cleft Lip	3	11.71	2.41-34.22
	Coarctation of Aorta	1	3.9	0.10-21.75
	Congenital Hip Dislocation	3	11.71	2.41-34.22
	Down Syndrome	7	27.32	10.99-56.30
	Endocardial Cushion Defect	3	11.71	2.41-34.22
	Fetal Alcohol Syndrome	1	3.9	0.10-21.75
	Gastroschisis	2	7.81	0.95-28.20
	Hydrocephalus	1	3.9	0.10-21.75
	Hypoplastic Left Heart Syndrome	1	3.9	0.10-21.75
	Hypospadias	16	62.45	35.70-101.41
	Microcephalus	3	11.71	2.41-34.22
	Obstructive Genitourinary Defect	13	50.74	27.02-86.77
	Omphalocele	2	7.81	0.95-28.20
	Patent Ductus Arteriosus	6	23.42	8.59-50.97
	Pulmonary Valve Atresia & Stenosis	1	3.9	0.10-21.75
	Pyloric Stenosis	16	62.45	35.70-101.41
	Rectal & Large Intestinal Atresia/Stenosis	3	11.71	2.41-34.22
	Reduction Deformity (upper limbs)	1	3.9	0.10-21.75
	Spina Bifida	2	7.81	0.95-28.20
	Transposition of Great Arteries	2	7.81	0.95-28.20
	Trisomy 18	2	7.81	0.95-28.20
	Ventricular Septal Defect	12	46.84	24.20-81.82
	Total Cases	94	366.9	296.49-448.98
	Total Live Births	2562		

McMinn	Aortic Valve Stenosis	1	3.32	0.08-18.50
	Atrial Septal Defect	11	36.52	18.23-65.35
	Cleft Palate w/o Cleft Lip	6	19.92	7.31-43.36
	Coarctation of Aorta	4	13.28	3.62-34.00
	Congenital Hip Dislocation	3	9.96	2.05-29.11
	Diaphragmatic Hernia	1	3.32	0.08-18.50
	Down Syndrome	3	9.96	2.05-29.11
	Encephalocele	2	6.64	0.80-23.99



**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Endocardial Cushion Defect	1	3.32	0.08-18.50
	Esophageal Atresia/ Tracheoesophageal Fistula	1	3.32	0.08-18.50
	Gastroschisis	3	9.96	2.05-29.11
	Hydrocephalus	4	13.28	3.62-34.00
	Hypoplastic Left Heart Syndrome	1	3.32	0.08-18.50
	Hypospadias	9	29.88	13.66-56.72
	Microcephalus	6	19.92	7.31-43.36
	Obstructive Genitourinary Defect	8	26.56	11.47-52.33
	Omphalocele	2	6.64	0.80-23.99
	Patent Ductus Arteriosus	10	33.2	15.92-61.06
	Pulmonary Valve Atresia & Stenosis	2	6.64	0.80-23.99
	Pyloric Stenosis	18	59.76	35.42-94.45
	Reduction Deformity (lower limbs)	1	3.32	0.08-18.50
	Reduction Deformity (upper limbs)	3	9.96	2.05-29.11
	Renal Agenesis/Hypoplasia	2	6.64	0.80-23.99
	Spina Bifida	5	16.6	5.39-38.74
	Transposition of Great Arteries	1	3.32	0.08-18.50
	Trisomy 18	2	6.64	0.80-23.99
	Ventricular Septal Defect	12	39.84	20.59-69.59
	Total Cases	94	312.08	252.20-381.90
	Total Live Births	3012		

McNairy	Anencephalus	1	6.4	0.16-35.67
	Aortic Valve Stenosis	1	6.4	0.16-35.67
	Atrial Septal Defect	11	70.42	35.15-126.01
	Cleft Lip w/ & w/o Cleft Palate	1	6.4	0.16-35.67
	Cleft Palate w/o Cleft Lip	3	19.21	3.96-56.13
	Coarctation of Aorta	1	6.4	0.16-35.67
	Congenital Cataract	1	6.4	0.16-35.67
	Down Syndrome	4	25.61	6.98-65.57
	Endocardial Cushion Defect	1	6.4	0.16-35.67
	Gastroschisis	3	19.21	3.96-56.13
	Hypospadias	6	38.41	14.10-83.61
	Obstructive Genitourinary Defect	1	6.4	0.16-35.67
	Omphalocele	1	6.4	0.16-35.67
	Patent Ductus Arteriosus	7	44.81	18.02-92.34
	Pulmonary Valve Atresia & Stenosis	1	6.4	0.16-35.67
	Pyloric Stenosis	8	51.22	22.11-100.92
	Rectal & Large Intestinal Atresia/Stenosis	1	6.4	0.16-35.67
	Transposition of Great Arteries	1	6.4	0.16-35.67
	Ventricular Septal Defect	4	25.61	6.98-65.57
	Total Cases	45	288.09	210.13-385.50
	Total Live Births	1562		

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
Macon	Atrial Septal Defect	8	56.02	24.18-110.39
	Cleft Lip w/ & w/o Cleft Palate	5	35.01	11.37-81.71
	Coarctation of Aorta	2	14.01	1.70-50.59
	Congenital Hip Dislocation	1	7	0.18-39.02
	Diaphragmatic Hernia	1	7	0.18-39.02
	Down Syndrome	3	21.01	4.33-61.39
	Gastroschisis	1	7	0.18-39.02
	Hydrocephalus	3	21.01	4.33-61.39
	Hypoplastic Left Heart Syndrome	1	7	0.18-39.02
	Hypospadias	6	42.02	15.42-91.45
	Patent Ductus Arteriosus	6	42.02	15.42-91.45
	Pulmonary Valve Atresia & Stenosis	3	21.01	4.33-61.39
	Pyloric Stenosis	10	70.03	33.58-128.78
	Transposition of Great Arteries	2	14.01	1.70-50.59
	Tricuspid Valve Atresia & Stenosis	1	7	0.18-39.02
	Trisomy 18	1	7	0.18-39.02
	Ventricular Septal Defect	6	42.02	15.42-91.45
	Total Cases	43	301.12	217.92-405.61
	Total Live Births	1428		

Madison	Anencephalus	2	2.9	0.35-10.47
	Anophthalmia/Microphthalmia	1	1.45	0.04-8.07
	Atrial Septal Defect	56	81.14	61.29-105.36
	Bladder Exstrophy	1	1.45	0.04-8.07
	Cleft Lip w/ & w/o Cleft Palate	4	5.8	1.58-14.84
	Cleft Palate w/o Cleft Lip	2	2.9	0.35-10.47
	Coarctation of Aorta	4	5.8	1.58-14.84
	Congenital Cataract	1	1.45	0.04-8.07
	Congenital Hip Dislocation	1	1.45	0.04-8.07
	Diaphragmatic Hernia	1	1.45	0.04-8.07
	Down Syndrome	10	14.49	6.95-26.64
	Ebsteins Anomaly	1	1.45	0.04-8.07
	Esophageal Atresia/ Tracheoesophageal Fistula	1	1.45	0.04-8.07
	Gastroschisis	5	7.24	2.35-16.91
	Hirschsprungs Disease (congenital megacolon)	2	2.9	0.35-10.47
	Hydrocephalus	1	1.45	0.04-8.07
	Hypoplastic Left Heart Syndrome	3	4.35	0.90-12.70
	Hypospadias	26	37.67	24.61-55.19
	Microcephalus	5	7.24	2.35-16.91
	Obstructive Genitourinary Defect	18	26.08	15.46-41.22
	Omphalocele	3	4.35	0.90-12.70
	Patent Ductus Arteriosus	38	55.06	38.96-75.57
	Pyloric Stenosis	25	36.22	23.44-53.47

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Rectal & Large Intestinal Atresia/Stenosis	6	8.69	3.19-18.92
	Reduction Deformity (lower limbs)	1	1.45	0.04-8.07
	Renal Agenesis/Hypoplasia	2	2.9	0.35-10.47
	Spina Bifida	3	4.35	0.90-12.70
	Tetralogy of Fallot	1	1.45	0.04-8.07
	Transposition of Great Arteries	2	2.9	0.35-10.47
	Tricuspid Valve Atresia & Stenosis	1	1.45	0.04-8.07
	Trisomy 13	1	1.45	0.04-8.07
	Ventricular Septal Defect	24	34.77	22.28-51.74
	Total Cases	192	278.18	240.22-320.44
	Total Live Births	6902		

Marion	Anotia/Microtia	1	5.84	0.15-32.53
	Aortic Valve Stenosis	1	5.84	0.15-32.53
	Atrial Septal Defect	8	46.7	20.16-92.02
	Cleft Lip w/ & w/o Cleft Palate	2	11.68	1.41-42.18
	Coarctation of Aorta	1	5.84	0.15-32.53
	Congenital Cataract	1	5.84	0.15-32.53
	Down Syndrome	1	5.84	0.15-32.53
	Endocardial Cushion Defect	1	5.84	0.15-32.53
	Hirschsprungs Disease (congenital megacolon)	1	5.84	0.15-32.53
	Hydrocephalus	1	5.84	0.15-32.53
	Hypoplastic Left Heart Syndrome	1	5.84	0.15-32.53
	Hypospadias	9	52.54	24.03-99.74
	Microcephalus	1	5.84	0.15-32.53
	Obstructive Genitourinary Defect	5	29.19	9.48-68.12
	Patent Ductus Arteriosus	8	46.7	20.16-92.02
	Pulmonary Valve Atresia & Stenosis	1	5.84	0.15-32.53
	Pyloric Stenosis	7	40.86	16.43-84.20
	Rectal & Large Intestinal Atresia/Stenosis	2	11.68	1.41-42.18
	Reduction Deformity (lower limbs)	1	5.84	0.15-32.53
	Reduction Deformity (upper limbs)	1	5.84	0.15-32.53
	Spina Bifida	2	11.68	1.41-42.18
	Transposition of Great Arteries	1	5.84	0.15-32.53
	Trisomy 18	1	5.84	0.15-32.53
	Ventricular Septal Defect	10	58.38	27.99-107.36
	Total Cases	50	291.89	216.64-384.82
	Total Live Births	1713		

Marshall	Anencephalus	1	5.22	0.13-29.06
	Aortic Valve Stenosis	1	5.22	0.13-29.06
	Atrial Septal Defect	7	36.52	14.68-75.24

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Choanal Atresia	1	5.22	0.13-29.06
	Cleft Lip w/ & w/o Cleft Palate	1	5.22	0.13-29.06
	Cleft Palate w/o Cleft Lip	2	10.43	1.26-37.69
	Coarctation of Aorta	1	5.22	0.13-29.06
	Diaphragmatic Hernia	1	5.22	0.13-29.06
	Down Syndrome	2	10.43	1.26-37.69
	Esophageal Atresia/Tracheoesophageal Fistula	1	5.22	0.13-29.06
	Fetal Alcohol Syndrome	1	5.22	0.13-29.06
	Hydrocephalus	3	15.65	3.23-45.73
	Hypospadias	14	73.03	39.93-122.53
	Microcephalus	2	10.43	1.26-37.69
	Obstructive Genitourinary Defect	6	31.3	11.49-68.13
	Patent Ductus Arteriosus	7	36.52	14.68-75.24
	Pyloric Stenosis	15	78.25	43.79-129.05
	Rectal & Large Intestinal Atresia/Stenosis	1	5.22	0.13-29.06
	Reduction Deformity (lower limbs)	2	10.43	1.26-37.69
	Reduction Deformity (upper limbs)	2	10.43	1.26-37.69
	Renal Agenesis/Hypoplasia	1	5.22	0.13-29.06
	Spina Bifida	2	10.43	1.26-37.69
	Tetralogy of Fallot	1	5.22	0.13-29.06
	Trisomy 18	1	5.22	0.13-29.06
	Ventricular Septal Defect	4	20.87	5.69-53.43
	Total Cases	62	323.42	247.97-414.63
	Total Live Births	1917		

Maury	Atrial Septal Defect	21	39.22	24.28-59.96
	Cleft Lip w/ & w/o Cleft Palate	2	3.74	0.45-13.49
	Cleft Palate w/o Cleft Lip	6	11.21	4.11-24.39
	Coarctation of Aorta	3	5.6	1.16-16.38
	Congenital Hip Dislocation	5	9.34	3.03-21.79
	Diaphragmatic Hernia	4	7.47	2.04-19.13
	Down Syndrome	3	5.6	1.16-16.38
	Encephalocele	3	5.6	1.16-16.38
	Endocardial Cushion Defect	1	1.87	0.05-10.41
	Esophageal Atresia/ Tracheoesophageal Fistula	3	5.6	1.16-16.38
	Fetal Alcohol Syndrome	1	1.87	0.05-10.41
	Hirschsprungs Disease (congenital megacolon)	2	3.74	0.45-13.49
	Hydrocephalus	5	9.34	3.03-21.79
	Hypoplastic Left Heart Syndrome	3	5.6	1.16-16.38
	Hypospadias	35	65.37	45.53-90.92
	Microcephalus	8	14.94	6.45-29.44
	Obstructive Genitourinary Defect	21	39.22	24.28-59.96

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Omphalocele	2	3.74	0.45-13.49
	Patent Ductus Arteriosus	18	33.62	19.93-53.13
	Pulmonary Valve Atresia & Stenosis	2	3.74	0.45-13.49
	Pyloric Stenosis	32	59.77	40.88-84.38
	Rectal & Large Intestinal Atresia/Stenosis	5	9.34	3.03-21.79
	Reduction Deformity (lower limbs)	1	1.87	0.05-10.41
	Renal Agenesis/Hypoplasia	1	1.87	0.05-10.41
	Spina Bifida	5	9.34	3.03-21.79
	Tetralogy of Fallot	4	7.47	2.04-19.13
	Transposition of Great Arteries	5	9.34	3.03-21.79
	Trisomy 13	1	1.87	0.05-10.41
	Ventricular Septal Defect	16	29.88	17.08-48.53
	Total Cases	173	323.12	276.76-375.03
	Total Live Births	5354		

Meigs	Atrial Septal Defect	3	48.62	10.03-142.09
	Choanal Atresia	1	16.21	0.41-90.30
	Cleft Lip w/ & w/o Cleft Palate	1	16.21	0.41-90.30
	Coarctation of Aorta	1	16.21	0.41-90.30
	Congenital Hip Dislocation	1	16.21	0.41-90.30
	Down Syndrome	2	32.41	3.93-117.09
	Hypoplastic Left Heart Syndrome	1	16.21	0.41-90.30
	Hypospadias	3	48.62	10.03-142.09
	Microcephalus	1	16.21	0.41-90.30
	Patent Ductus Arteriosus	3	48.62	10.03-142.09
	Pyloric Stenosis	6	97.24	35.69-211.66
	Transposition of Great Arteries	1	16.21	0.41-90.30
	Ventricular Septal Defect	2	32.41	3.93-117.09
	Total Cases	21	340.36	210.68-520.27
	Total Live Births	617		

Monroe	Anotia/Microtia	1	3.64	0.09-20.27
	Atrial Septal Defect	13	47.29	25.18-80.87
	Choanal Atresia	1	3.64	0.09-20.27
	Cleft Lip w/ & w/o Cleft Palate	3	10.91	2.25-31.89
	Cleft Palate w/o Cleft Lip	2	7.28	0.88-26.28
	Coarctation of Aorta	2	7.28	0.88-26.28
	Congenital Cataract	2	7.28	0.88-26.28
	Congenital Hip Dislocation	3	10.91	2.25-31.89
	Diaphragmatic Hernia	1	3.64	0.09-20.27
	Down Syndrome	1	3.64	0.09-20.27
	Endocardial Cushion Defect	1	3.64	0.09-20.27
	Epispadias	1	3.64	0.09-20.27

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Gastroschisis	1	3.64	0.09-20.27
	Hydrocephalus	3	10.91	2.25-31.89
	Hypoplastic Left Heart Syndrome	1	3.64	0.09-20.27
	Hypospadias	11	40.01	19.98-71.60
	Microcephalus	4	14.55	3.97-37.26
	Obstructive Genitourinary Defect	13	47.29	25.18-80.87
	Patent Ductus Arteriosus	9	32.74	14.97-62.15
	Pyloric Stenosis	20	72.75	44.44-112.36
	Reduction Deformity (upper limbs)	1	3.64	0.09-20.27
	Spina Bifida	1	3.64	0.09-20.27
	Tetralogy of Fallot	1	3.64	0.09-20.27
	Trisomy 18	2	7.28	0.88-26.28
	Ventricular Septal Defect	18	65.48	38.81-103.48
	Total Cases	93	338.3	273.05-414.46
	Total Live Births	2749		

Montgomery	Anencephalus	5	3.77	1.22-8.80
	Anophthalmia/Microphthalmia	1	0.75	0.02-4.20
	Aortic Valve Stenosis	4	3.02	0.82-7.72
	Atrial Septal Defect	61	46.01	35.19-59.10
	Biliary Atresia	1	0.75	0.02-4.20
	Bladder Exstrophy	1	0.75	0.02-4.20
	Choanal Atresia	5	3.77	1.22-8.80
	Cleft Lip w/ & w/o Cleft Palate	14	10.56	5.77-17.72
	Cleft Palate w/o Cleft Lip	10	7.54	3.62-13.87
	Coarctation of Aorta	9	6.79	3.10-12.89
	Congenital Cataract	2	1.51	0.18-5.45
	Congenital Hip Dislocation	2	1.51	0.18-5.45
	Diaphragmatic Hernia	4	3.02	0.82-7.72
	Down Syndrome	18	13.58	8.05-21.46
	Ebsteins Anomaly	1	0.75	0.02-4.20
	Encephalocele	1	0.75	0.02-4.20
	Endocardial Cushion Defect	5	3.77	1.22-8.80
	Esophageal Atresia/ Tracheoesophageal Fistula	4	3.02	0.82-7.72
	Fetal Alcohol Syndrome	1	0.75	0.02-4.20
	Gastroschisis	10	7.54	3.62-13.87
	Hirschsprungs Disease (congenital megacolon)	7	5.28	2.12-10.88
	Hydrocephalus	8	6.03	2.60-11.89
	Hypoplastic Left Heart Syndrome	5	3.77	1.22-8.80
	Hypospadias	52	39.22	29.29-51.43
	Microcephalus	7	5.28	2.12-10.88
	Obstructive Genitourinary Defect	30	22.63	15.27-32.30
	Omphalocele	1	0.75	0.02-4.20

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Patent Ductus Arteriosus	59	44.5	33.87-57.40
	Pulmonary Valve Atresia & Stenosis	40	30.17	21.55-41.08
	Pyloric Stenosis	48	36.2	26.69-48.00
	Rectal & Large Intestinal Atresia/Stenosis	12	9.05	4.68-15.81
	Reduction Deformity (lower limbs)	1	0.75	0.02-4.20
	Reduction Deformity (upper limbs)	1	0.75	0.02-4.20
	Renal Agenesis/Hypoplasia	5	3.77	1.22-8.80
	Spina Bifida	5	3.77	1.22-8.80
	Tetralogy of Fallot	6	4.53	1.66-9.85
	Transposition of Great Arteries	11	8.3	4.14-14.84
	Tricuspid Valve Atresia & Stenosis	1	0.75	0.02-4.20
	Trisomy 13	2	1.51	0.18-5.45
	Ventricular Septal Defect	42	31.68	22.83-42.82
	Total Cases	379	285.84	257.79-316.12
	Total Live Births	13259		

Moore	Atrial Septal Defect	3	104.17	21.48-304.42
	Cleft Lip w/ & w/o Cleft Palate	2	69.44	8.41-250.85
	Esophageal Atresia/ Tracheoesophageal Fistula	1	34.72	0.88-193.46
	Gastroschisis	1	34.72	0.88-193.46
	Hypospadias	1	34.72	0.88-193.46
	Obstructive Genitourinary Defect	2	69.44	8.41-250.85
	Pulmonary Valve Atresia & Stenosis	1	34.72	0.88-193.46
	Rectal & Large Intestinal Atresia/Stenosis	2	69.44	8.41-250.85
	Tetralogy of Fallot	1	34.72	0.88-193.46
	Transposition of Great Arteries	1	34.72	0.88-193.46
	Trisomy 13	1	34.72	0.88-193.46
	Trisomy 18	1	34.72	0.88-193.46
	Total Cases	11	381.94	190.67-683.41
	Total Live Births	288		

Morgan	Atrial Septal Defect	4	35.21	9.60-90.15
	Cleft Lip w/ & w/o Cleft Palate	2	17.61	2.13-63.60
	Cleft Palate w/o Cleft Lip	2	17.61	2.13-63.60
	Common Truncus	1	8.8	0.22-49.05
	Congenital Cataract	1	8.8	0.22-49.05
	Congenital Hip Dislocation	2	17.61	2.13-63.60
	Down Syndrome	2	17.61	2.13-63.60
	Esophageal Atresia/ Tracheoesophageal Fistula	1	8.8	0.22-49.05
	Gastroschisis	2	17.61	2.13-63.60
	Hypoplastic Left Heart Syndrome	1	8.8	0.22-49.05

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Hypospadias	10	88.03	42.21-161.88
	Microcephalus	1	8.8	0.22-49.05
	Obstructive Genitourinary Defect	4	35.21	9.60-90.15
	Patent Ductus Arteriosus	5	44.01	14.29-102.72
	Pulmonary Valve Atresia & Stenosis	1	8.8	0.22-49.05
	Pyloric Stenosis	5	44.01	14.29-102.72
	Rectal & Large Intestinal Atresia/Stenosis	2	17.61	2.13-63.60
	Renal Agenesis/Hypoplasia	1	8.8	0.22-49.05
	Tetralogy of Fallot	2	17.61	2.13-63.60
	Ventricular Septal Defect	3	26.41	5.45-77.18
	Total Cases	45	396.13	288.93-530.06
	Total Live Births	1136		

Obion	Anencephalus	2	10.33	1.25-37.30
	Aortic Valve Stenosis	1	5.16	0.13-28.76
	Atrial Septal Defect	18	92.93	55.08-146.86
	Cleft Lip w/ & w/o Cleft Palate	1	5.16	0.13-28.76
	Coarctation of Aorta	1	5.16	0.13-28.76
	Diaphragmatic Hernia	2	10.33	1.25-37.30
	Down Syndrome	3	15.49	3.19-45.26
	Ebsteins Anomaly	1	5.16	0.13-28.76
	Encephalocele	1	5.16	0.13-28.76
	Endocardial Cushion Defect	1	5.16	0.13-28.76
	Epispadias	1	5.16	0.13-28.76
	Hydrocephalus	1	5.16	0.13-28.76
	Hypoplastic Left Heart Syndrome	1	5.16	0.13-28.76
	Hypospadias	3	15.49	3.19-45.26
	Microcephalus	1	5.16	0.13-28.76
	Obstructive Genitourinary Defect	5	25.81	8.38-60.24
	Omphalocele	1	5.16	0.13-28.76
	Patent Ductus Arteriosus	7	36.14	14.53-74.46
	Pulmonary Valve Atresia & Stenosis	4	20.65	5.63-52.87
	Pyloric Stenosis	11	56.79	28.35-101.61
	Rectal & Large Intestinal Atresia/Stenosis	1	5.16	0.13-28.76
	Reduction Deformity (upper limbs)	2	10.33	1.25-37.30
	Renal Agenesis/Hypoplasia	1	5.16	0.13-28.76
	Tetralogy of Fallot	1	5.16	0.13-28.76
	Transposition of Great Arteries	3	15.49	3.19-45.26
	Tricuspid Valve Atresia & Stenosis	2	10.33	1.25-37.30
	Ventricular Septal Defect	8	41.3	17.83-81.38
	Total Cases	59	304.59	231.86-392.90
	Total Live Births	1937		

Overton	Atrial Septal Defect	4	31.8	8.66-81.41
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**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Cleft Lip w/ & w/o Cleft Palate	3	23.85	4.92-69.69
	Cleft Palate w/o Cleft Lip	2	15.9	1.93-57.43
	Diaphragmatic Hernia	2	15.9	1.93-57.43
	Down Syndrome	3	23.85	4.92-69.69
	Encephalocele	1	7.95	0.20-44.29
	Fetal Alcohol Syndrome	1	7.95	0.20-44.29
	Gastroschisis	1	7.95	0.20-44.29
	Hypospadias	7	55.64	22.37-114.65
	Microcephalus	2	15.9	1.93-57.43
	Obstructive Genitourinary Defect	3	23.85	4.92-69.69
	Patent Ductus Arteriosus	3	23.85	4.92-69.69
	Pulmonary Valve Atresia & Stenosis	1	7.95	0.20-44.29
	Pyloric Stenosis	8	63.59	27.45-125.30
	Spina Bifida	1	7.95	0.20-44.29
	Tetralogy of Fallot	1	7.95	0.20-44.29
	Tricuspid Valve Atresia & Stenosis	1	7.95	0.20-44.29
	Ventricular Septal Defect	2	15.9	1.93-57.43
	Total Cases	40	317.97	227.15-432.97
	Total Live Births	1258		

Perry	Atrial Septal Defect	1	22.08	0.56-122.99
	Common Truncus	1	22.08	0.56-122.99
	Congenital Cataract	1	22.08	0.56-122.99
	Down Syndrome	1	22.08	0.56-122.99
	Endocardial Cushion Defect	1	22.08	0.56-122.99
	Gastroschisis	2	44.15	5.35-159.48
	Hypospadias	3	66.23	13.66-193.54
	Microcephalus	1	22.08	0.56-122.99
	Obstructive Genitourinary Defect	1	22.08	0.56-122.99
	Patent Ductus Arteriosus	3	66.23	13.66-193.54
	Pyloric Stenosis	1	22.08	0.56-122.99
	Renal Agenesis/Hypoplasia	1	22.08	0.56-122.99
	Ventricular Septal Defect	1	22.08	0.56-122.99
	Total Cases	13	286.98	152.81-490.73
	Total Live Births	453		

Pickett	Atrial Septal Defect	2	69.93	8.47-252.61
	Cleft Lip w/ & w/o Cleft Palate	1	34.97	0.88-194.81
	Cleft Palate w/o Cleft Lip	1	34.97	0.88-194.81
	Congenital Hip Dislocation	1	34.97	0.88-194.81
	Diaphragmatic Hernia	1	34.97	0.88-194.81
	Hirschsprungs Disease (congenital megacolon)	1	34.97	0.88-194.81
	Hypospadias	2	69.93	8.47-252.61

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Obstructive Genitourinary Defect	2	69.93	8.47-252.61
	Patent Ductus Arteriosus	2	69.93	8.47-252.61
	Pulmonary Valve Atresia & Stenosis	1	34.97	0.88-194.81
	Pyloric Stenosis	2	69.93	8.47-252.61
	Ventricular Septal Defect	3	104.9	21.63-306.55
	Total Cases	12	419.58	216.80-732.92
	Total Live Births	286		

Polk	Anencephalus	1	10.79	0.27-60.10
	Atrial Septal Defect	3	32.36	6.67-94.58
	Congenital Hip Dislocation	1	10.79	0.27-60.10
	Hydrocephalus	3	32.36	6.67-94.58
	Hypospadias	3	32.36	6.67-94.58
	Obstructive Genitourinary Defect	2	21.57	2.61-77.94
	Patent Ductus Arteriosus	1	10.79	0.27-60.10
	Pyloric Stenosis	5	53.94	17.51-125.87
	Rectal & Large Intestinal Atresia/Stenosis	1	10.79	0.27-60.10
	Spina Bifida	1	10.79	0.27-60.10
	Tetralogy of Fallot	1	10.79	0.27-60.10
	Transposition of Great Arteries	1	10.79	0.27-60.10
	Ventricular Septal Defect	5	53.94	17.51-125.87
	Total Cases	23	248.11	157.28-372.29
	Total Live Births	927		

Putnam	Anotia/Microtia	1	2.15	0.05-11.95
	Aortic Valve Stenosis	2	4.29	0.52-15.50
	Atrial Septal Defect	16	34.33	19.62-55.74
	Biliary Atresia	1	2.15	0.05-11.95
	Choanal Atresia	1	2.15	0.05-11.95
	Cleft Lip w/ & w/o Cleft Palate	3	6.44	1.33-18.81
	Cleft Palate w/o Cleft Lip	3	6.44	1.33-18.81
	Coarctation of Aorta	6	12.87	4.72-28.02
	Congenital Hip Dislocation	4	8.58	2.34-21.97
	Diaphragmatic Hernia	4	8.58	2.34-21.97
	Down Syndrome	8	17.16	7.41-33.82
	Encephalocele	1	2.15	0.05-11.95
	Endocardial Cushion Defect	1	2.15	0.05-11.95
	Esophageal Atresia/ Tracheoesophageal Fistula	1	2.15	0.05-11.95
	Gastroschisis	3	6.44	1.33-18.81
	Hydrocephalus	4	8.58	2.34-21.97
	Hypoplastic Left Heart Syndrome	1	2.15	0.05-11.95
	Hypospadias	18	38.62	22.89-61.03

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Microcephalus	3	6.44	1.33-18.81
	Obstructive Genitourinary Defect	8	17.16	7.41-33.82
	Omphalocele	1	2.15	0.05-11.95
	Patent Ductus Arteriosus	14	30.04	16.42-50.40
	Pulmonary Valve Atresia & Stenosis	5	10.73	3.48-25.03
	Pyloric Stenosis	29	62.22	41.67-89.36
	Rectal & Large Intestinal Atresia/Stenosis	1	2.15	0.05-11.95
	Spina Bifida	1	2.15	0.05-11.95
	Tetralogy of Fallot	1	2.15	0.05-11.95
	Transposition of Great Arteries	2	4.29	0.52-15.50
	Trisomy 18	1	2.15	0.05-11.95
	Ventricular Septal Defect	19	40.76	24.54-63.66
	Total Cases	128	274.62	229.10-326.53
	Total Live Births	4661		

Rhea	Anophthalmia/Microthalmia	1	4.76	0.12-26.49
	Atrial Septal Defect	6	28.53	10.47-62.10
	Cleft Lip w/ & w/o Cleft Palate	6	28.53	10.47-62.10
	Coarctation of Aorta	2	9.51	1.15-34.35
	Congenital Cataract	1	4.76	0.12-26.49
	Congenital Hip Dislocation	2	9.51	1.15-34.35
	Diaphragmatic Hernia	3	14.27	2.94-41.69
	Down Syndrome	2	9.51	1.15-34.35
	Endocardial Cushion Defect	2	9.51	1.15-34.35
	Epispadias	1	4.76	0.12-26.49
	Gastroschisis	1	4.76	0.12-26.49
	Hydrocephalus	1	4.76	0.12-26.49
	Hypoplastic Left Heart Syndrome	1	4.76	0.12-26.49
	Hypospadias	7	33.29	13.38-68.58
	Microcephalus	2	9.51	1.15-34.35
	Obstructive Genitourinary Defect	1	4.76	0.12-26.49
	Patent Ductus Arteriosus	8	38.04	16.42-74.96
	Pulmonary Valve Atresia & Stenosis	2	9.51	1.15-34.35
	Pyloric Stenosis	16	76.08	43.49-123.55
	Tetralogy of Fallot	1	4.76	0.12-26.49
	Transposition of Great Arteries	4	19.02	5.18-48.70
	Ventricular Septal Defect	3	14.27	2.94-41.69
	Total Cases	59	280.55	213.56-361.88
	Total Live Births	2103		

Roane	Atrial Septal Defect	11	41.32	20.63-73.94
	Cleft Lip w/ & w/o Cleft Palate	6	22.54	8.27-49.06
	Cleft Palate w/o Cleft Lip	2	7.51	0.91-27.14

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Congenital Hip Dislocation	6	22.54	8.27-49.06
	Diaphragmatic Hernia	1	3.76	0.10-20.93
	Down Syndrome	7	26.3	10.57-54.18
	Encephalocele	1	3.76	0.10-20.93
	Endocardial Cushion Defect	2	7.51	0.91-27.14
	Epispadias	1	3.76	0.10-20.93
	Fetal Alcohol Syndrome	2	7.51	0.91-27.14
	Gastroschisis	2	7.51	0.91-27.14
	Hydrocephalus	2	7.51	0.91-27.14
	Hypoplastic Left Heart Syndrome	2	7.51	0.91-27.14
	Hypospadias	18	67.62	40.08-106.86
	Microcephalus	6	22.54	8.27-49.06
	Obstructive Genitourinary Defect	7	26.3	10.57-54.18
	Patent Ductus Arteriosus	9	33.81	15.46-64.18
	Pulmonary Valve Atresia & Stenosis	2	7.51	0.91-27.14
	Pyloric Stenosis	17	63.86	37.20-102.25
	Rectal & Large Intestinal Atresia/Stenosis	1	3.76	0.10-20.93
	Reduction Deformity (upper limbs)	1	3.76	0.10-20.93
	Renal Agenesis/Hypoplasia	2	7.51	0.91-27.14
	Spina Bifida	2	7.51	0.91-27.14
	Tetralogy of Fallot	1	3.76	0.10-20.93
	Transposition of Great Arteries	1	3.76	0.10-20.93
	Tricuspid Valve Atresia & Stenosis	2	7.51	0.91-27.14
	Trisomy 18	1	3.76	0.10-20.93
	Ventricular Septal Defect	13	48.84	26.00-83.51
	Total Cases	102	383.17	312.42-465.15
	Total Live Births	2662		

Robertson	Aortic Valve Stenosis	1	2	0.05-11.15
	Atrial Septal Defect	20	40.01	24.44-61.79
	Cleft Lip w/ & w/o Cleft Palate	10	20	9.59-36.79
	Cleft Palate w/o Cleft Lip	4	8	2.18-20.49
	Coarctation of Aorta	2	4	0.48-14.45
	Congenital Cataract	1	2	0.05-11.15
	Congenital Hip Dislocation	3	6	1.24-17.54
	Diaphragmatic Hernia	3	6	1.24-17.54
	Down Syndrome	7	14	5.63-28.85
	Ebsteins Anomaly	2	4	0.48-14.45
	Endocardial Cushion Defect	4	8	2.18-20.49
	Esophageal Atresia/ Tracheoesophageal Fistula	2	4	0.48-14.45
	Gastroschisis	4	8	2.18-20.49
	Hydrocephalus	1	2	0.05-11.15
	Hypoplastic Left Heart Syndrome	1	2	0.05-11.15

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Hypospadias	22	44.01	27.58-66.63
	Obstructive Genitourinary Defect	14	28.01	15.31-46.99
	Omphalocele	1	2	0.05-11.15
	Patent Ductus Arteriosus	19	38.01	22.88-59.35
	Pulmonary Valve Atresia & Stenosis	6	12	4.40-26.12
	Pyloric Stenosis	14	28.01	15.31-46.99
	Rectal & Large Intestinal Atresia/Stenosis	2	4	0.48-14.45
	Reduction Deformity (upper limbs)	1	2	0.05-11.15
	Renal Agenesis/Hypoplasia	2	4	0.48-14.45
	Spina Bifida	1	2	0.05-11.15
	Tetralogy of Fallot	1	2	0.05-11.15
	Transposition of Great Arteries	4	8	2.18-20.49
	Ventricular Septal Defect	15	30.01	16.79-49.49
	Total Cases	134	268.05	224.59-317.48
	Total Live Births	4999		

Rutherford	Anencephalus	2	1.14	0.14-4.12
	Aniridia	1	0.57	0.01-3.18
	Anophthalmia/Microphthalmia	2	1.14	0.14-4.12
	Anotia/Microtia	1	0.57	0.01-3.18
	Aortic Valve Stenosis	3	1.71	0.35-5.00
	Atrial Septal Defect	60	34.23	26.12-44.06
	Biliary Atresia	4	2.28	0.62-5.84
	Choanal Atresia	3	1.71	0.35-5.00
	Cleft Lip w/ & w/o Cleft Palate	19	10.84	6.53-16.93
	Cleft Palate w/o Cleft Lip	13	7.42	3.95-12.68
	Coarctation of Aorta	9	5.13	2.35-9.75
	Common Truncus	2	1.14	0.14-4.12
	Congenital Cataract	5	2.85	0.93-6.66
	Congenital Hip Dislocation	9	5.13	2.35-9.75
	Diaphragmatic Hernia	8	4.56	1.97-8.99
	Down Syndrome	20	11.41	6.97-17.62
	Ebsteins Anomaly	1	0.57	0.01-3.18
	Encephalocele	1	0.57	0.01-3.18
	Endocardial Cushion Defect	4	2.28	0.62-5.84
	Epispadias	4	2.28	0.62-5.84
	Esophageal Atresia/ Tracheoesophageal Fistula	2	1.14	0.14-4.12
	Fetal Alcohol Syndrome	2	1.14	0.14-4.12
	Gastroschisis	10	5.7	2.74-10.49
	Hirschsprungs Disease (congenital megacolon)	3	1.71	0.35-5.00
	Hydrocephalus	6	3.42	1.26-7.45
	Hypoplastic Left Heart Syndrome	8	4.56	1.97-8.99

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Hypospadias	127	72.45	60.39-86.20
	Microcephalus	11	6.27	3.13-11.23
	Obstructive Genitourinary Defect	43	24.53	17.75-33.04
	Omphalocele	5	2.85	0.93-6.66
	Patent Ductus Arteriosus	52	29.66	22.15-38.90
	Pulmonary Valve Atresia & Stenosis	24	13.69	8.77-20.37
	Pyloric Stenosis	52	29.66	22.15-38.90
	Rectal & Large Intestinal Atresia/Stenosis	12	6.85	3.54-11.96
	Reduction Deformity (lower limbs)	2	1.14	0.14-4.12
	Renal Agenesis/Hypoplasia	13	7.42	3.95-12.68
	Spina Bifida	6	3.42	1.26-7.45
	Tetralogy of Fallot	11	6.27	3.13-11.23
	Transposition of Great Arteries	7	3.99	1.61-8.23
	Tricuspid Valve Atresia & Stenosis	3	1.71	0.35-5.00
	Trisomy 13	1	0.57	0.01-3.18
	Trisomy 18	2	1.14	0.14-4.12
	Ventricular Septal Defect	58	33.09	25.12-42.77
	Total Cases	505	288.08	263.50-314.33
	Total Live Births	17530		

Scott	Atrial Septal Defect	9	56.68	25.92-107.59
	Cleft Lip w/ & w/o Cleft Palate	3	18.89	3.90-55.21
	Cleft Palate w/o Cleft Lip	1	6.3	0.16-35.09
	Coarctation of Aorta	1	6.3	0.16-35.09
	Congenital Hip Dislocation	2	12.59	1.53-45.49
	Down Syndrome	2	12.59	1.53-45.49
	Gastroschisis	1	6.3	0.16-35.09
	Hirschsprungs Disease (congenital megacolon)	1	6.3	0.16-35.09
	Hydrocephalus	2	12.59	1.53-45.49
	Hypoplastic Left Heart Syndrome	1	6.3	0.16-35.09
	Hypospadias	7	44.08	17.72-90.82
	Microcephalus	2	12.59	1.53-45.49
	Obstructive Genitourinary Defect	8	50.38	21.75-99.26
	Omphalocele	5	31.49	10.22-73.48
	Patent Ductus Arteriosus	9	56.68	25.92-107.59
	Pulmonary Valve Atresia & Stenosis	1	6.3	0.16-35.09
	Pyloric Stenosis	11	69.27	34.58-123.94
	Rectal & Large Intestinal Atresia/Stenosis	2	12.59	1.53-45.49
	Renal Agenesis/Hypoplasia	1	6.3	0.16-35.09
	Tetralogy of Fallot	2	12.59	1.53-45.49
	Transposition of Great Arteries	2	12.59	1.53-45.49
	Trisomy 13	1	6.3	0.16-35.09
	Trisomy 18	2	12.59	1.53-45.49

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Ventricular Septal Defect	10	62.97	30.20-115.81
	Total Cases	64	403.02	310.37-514.66
	Total Live Births	1588		

Sequatchie	Anencephalus	1	11.48	0.29-63.97
	Aortic Valve Stenosis	1	11.48	0.29-63.97
	Atrial Septal Defect	3	34.44	7.10-100.66
	Biliary Atresia	1	11.48	0.29-63.97
	Cleft Lip w/ & w/o Cleft Palate	1	11.48	0.29-63.97
	Cleft Palate w/o Cleft Lip	2	22.96	2.78-82.95
	Coarctation of Aorta	3	34.44	7.10-100.66
	Common Truncus	1	11.48	0.29-63.97
	Congenital Cataract	1	11.48	0.29-63.97
	Congenital Hip Dislocation	2	22.96	2.78-82.95
	Down Syndrome	1	11.48	0.29-63.97
	Esophageal Atresia/ Tracheoesophageal Fistula	1	11.48	0.29-63.97
	Hydrocephalus	3	34.44	7.10-100.66
	Hypoplastic Left Heart Syndrome	2	22.96	2.78-82.95
	Hypospadias	4	45.92	12.51-117.58
	Obstructive Genitourinary Defect	3	34.44	7.10-100.66
	Patent Ductus Arteriosus	4	45.92	12.51-117.58
	Pyloric Stenosis	3	34.44	7.10-100.66
	Rectal & Large Intestinal Atresia/Stenosis	2	22.96	2.78-82.95
	Reduction Deformity (upper limbs)	1	11.48	0.29-63.97
	Renal Agenesis/Hypoplasia	1	11.48	0.29-63.97
	Tetralogy of Fallot	2	22.96	2.78-82.95
	Transposition of Great Arteries	2	22.96	2.78-82.95
	Ventricular Septal Defect	4	45.92	12.51-117.58
	Total Cases	34	390.36	270.32-545.48
	Total Live Births	871		

Sevier	Anencephalus	1	1.92	0.05-10.71
	Anotia/Microtia	1	1.92	0.05-10.71
	Aortic Valve Stenosis	1	1.92	0.05-10.71
	Atrial Septal Defect	20	38.46	23.49-59.40
	Biliary Atresia	1	1.92	0.05-10.71
	Bladder Exstrophy	1	1.92	0.05-10.71
	Choanal Atresia	1	1.92	0.05-10.71
	Cleft Lip w/ & w/o Cleft Palate	8	15.38	6.64-30.31
	Cleft Palate w/o Cleft Lip	3	5.77	1.19-16.86
	Coarctation of Aorta	1	1.92	0.05-10.71
	Congenital Hip Dislocation	4	7.69	2.10-19.70

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Diaphragmatic Hernia	1	1.92	0.05-10.71
	Down Syndrome	8	15.38	6.64-30.31
	Ebsteins Anomaly	1	1.92	0.05-10.71
	Encephalocele	1	1.92	0.05-10.71
	Endocardial Cushion Defect	2	3.85	0.47-13.89
	Esophageal Atresia/ Tracheoesophageal Fistula	3	5.77	1.19-16.86
	Fetal Alcohol Syndrome	3	5.77	1.19-16.86
	Hirschsprungs Disease (congenital megacolon)	3	5.77	1.19-16.86
	Hydrocephalus	1	1.92	0.05-10.71
	Hypoplastic Left Heart Syndrome	2	3.85	0.47-13.89
	Hypospadias	24	46.15	29.57-68.67
	Microcephalus	2	3.85	0.47-13.89
	Obstructive Genitourinary Defect	18	34.62	20.52-54.71
	Omphalocele	3	5.77	1.19-16.86
	Patent Ductus Arteriosus	18	34.62	20.52-54.71
	Pulmonary Valve Atresia & Stenosis	4	7.69	2.10-19.70
	Pyloric Stenosis	28	53.85	35.78-77.82
	Rectal & Large Intestinal Atresia/Stenosis	2	3.85	0.47-13.89
	Reduction Deformity (upper limbs)	1	1.92	0.05-10.71
	Renal Agenesis/Hypoplasia	3	5.77	1.19-16.86
	Spina Bifida	5	9.62	3.12-22.44
	Tetralogy of Fallot	7	13.46	5.41-27.74
	Transposition of Great Arteries	3	5.77	1.19-16.86
	Tricuspid Valve Atresia & Stenosis	1	1.92	0.05-10.71
	Trisomy 13	1	1.92	0.05-10.71
	Ventricular Septal Defect	18	34.62	20.52-54.71
	Total Cases	162	311.54	265.41-363.38
	Total Live Births	5200		

Shelby	Anencephalus	13	1.77	0.94-3.03
	Anophthalmia/Microphthalmia	14	1.91	1.04-3.21
	Anotia/Microtia	2	0.27	0.03-0.99
	Aortic Valve Stenosis	7	0.96	0.38-1.97
	Atrial Septal Defect	577	78.73	72.44-85.42
	Biliary Atresia	4	0.55	0.15-1.40
	Bladder Exstrophy	1	0.14	0.00-0.76
	Choanal Atresia	16	2.18	1.25-3.55
	Cleft Lip w/ & w/o Cleft Palate	62	8.46	6.49-10.85
	Cleft Palate w/o Cleft Lip	32	4.37	2.99-6.16
	Coarctation of Aorta	31	4.23	2.87-6.00
	Common Truncus	3	0.41	0.08-1.20
	Congenital Cataract	17	2.32	1.35-3.71



**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Congenital Hip Dislocation	34	4.64	3.21-6.48
	Diaphragmatic Hernia	29	3.96	2.65-5.68
	Down Syndrome	106	14.46	11.84-17.49
	Ebsteins Anomaly	1	0.14	0.00-0.76
	Encephalocele	12	1.64	0.85-2.86
	Endocardial Cushion Defect	33	4.5	3.10-6.32
	Epispadias	6	0.82	0.30-1.78
	Esophageal Atresia/ Tracheoesophageal Fistula	18	2.46	1.46-3.88
	Fetal Alcohol Syndrome	17	2.32	1.35-3.71
	Gastroschisis	25	3.41	2.21-5.04
	Hirschsprungs Disease (congenital megacolon)	28	3.82	2.54-5.52
	Hydrocephalus	62	8.46	6.49-10.85
	Hypoplastic Left Heart Syndrome	23	3.14	1.99-4.71
	Hypospadias	324	44.21	39.53-49.29
	Microcephalus	83	11.33	9.02-14.04
	Obstructive Genitourinary Defect	112	15.28	12.58-18.39
	Omphalocele	24	3.27	2.10-4.87
	Patent Ductus Arteriosus	523	71.36	65.38-77.75
	Pulmonary Valve Atresia & Stenosis	69	9.41	7.33-11.92
	Pyloric Stenosis	203	27.7	24.02-31.78
	Rectal & Large Intestinal Atresia/Stenosis	31	4.23	2.87-6.00
	Reduction Deformity (lower limbs)	15	2.05	1.15-3.38
	Reduction Deformity (upper limbs)	15	2.05	1.15-3.38
	Renal Agenesis/Hypoplasia	30	4.09	2.76-5.84
	Spina Bifida	27	3.68	2.43-5.36
	Tetralogy of Fallot	40	5.46	3.90-7.43
	Transposition of Great Arteries	44	6	4.36-8.06
	Tricuspid Valve Atresia & Stenosis	7	0.96	0.38-1.97
	Trisomy 13	12	1.64	0.85-2.86
	Trisomy 18	12	1.64	0.85-2.86
	Ventricular Septal Defect	335	45.71	40.95-50.88
	Total Cases	2318	316.29	303.54-329.43
	Total Live Births	73288	.	

Smith	Atrial Septal Defect	2	17.75	2.15-64.10
	Choanal Atresia	1	8.87	0.22-49.44
	Cleft Lip w/ & w/o Cleft Palate	1	8.87	0.22-49.44
	Coarctation of Aorta	2	17.75	2.15-64.10
	Down Syndrome	1	8.87	0.22-49.44
	Encephalocele	1	8.87	0.22-49.44
	Hirschsprungs Disease (congenital megacolon)	2	17.75	2.15-64.10

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Hypoplastic Left Heart Syndrome	1	8.87	0.22-49.44
	Hypospadias	8	70.98	30.64-139.87
	Microcephalus	1	8.87	0.22-49.44
	Patent Ductus Arteriosus	2	17.75	2.15-64.10
	Pulmonary Valve Atresia & Stenosis	2	17.75	2.15-64.10
	Pyloric Stenosis	5	44.37	14.41-103.54
	Rectal & Large Intestinal Atresia/Stenosis	1	8.87	0.22-49.44
	Spina Bifida	1	8.87	0.22-49.44
	Ventricular Septal Defect	8	70.98	30.64-139.87
	Total Cases	33	292.81	201.57-411.23
	Total Live Births	1127		

Stewart	Anencephalus	1	14.39	0.36-80.17
	Atrial Septal Defect	6	86.33	31.68-187.91
	Cleft Lip w/ & w/o Cleft Palate	1	14.39	0.36-80.17
	Coarctation of Aorta	2	28.78	3.48-103.95
	Congenital Cataract	1	14.39	0.36-80.17
	Diaphragmatic Hernia	1	14.39	0.36-80.17
	Down Syndrome	1	14.39	0.36-80.17
	Esophageal Atresia/ Tracheoesophageal Fistula	1	14.39	0.36-80.17
	Hydrocephalus	1	14.39	0.36-80.17
	Hypoplastic Left Heart Syndrome	1	14.39	0.36-80.17
	Hypospadias	6	86.33	31.68-187.91
	Obstructive Genitourinary Defect	2	28.78	3.48-103.95
	Patent Ductus Arteriosus	5	71.94	23.36-167.89
	Pulmonary Valve Atresia & Stenosis	6	86.33	31.68-187.91
	Pyloric Stenosis	4	57.55	15.68-147.36
	Rectal & Large Intestinal Atresia/Stenosis	1	14.39	0.36-80.17
	Tetralogy of Fallot	1	14.39	0.36-80.17
	Transposition of Great Arteries	1	14.39	0.36-80.17
	Tricuspid Valve Atresia & Stenosis	1	14.39	0.36-80.17
	Ventricular Septal Defect	6	86.33	31.68-187.91
	Total Cases	32	460.43	314.94-649.99
	Total Live Births	695		

Sullivan	Anophthalmia/Microphthalmia	2	2.42	0.29-8.73
	Anotia/Microtia	1	1.21	0.03-6.73
	Aortic Valve Stenosis	2	2.42	0.29-8.73
	Atrial Septal Defect	176	212.64	182.38-246.48
	Choanal Atresia	2	2.42	0.29-8.73
	Cleft Lip w/ & w/o Cleft Palate	10	12.08	5.79-22.22
	Cleft Palate w/o Cleft Lip	4	4.83	1.32-12.37

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Coarctation of Aorta	5	6.04	1.96-14.10
	Common Truncus	1	1.21	0.03-6.73
	Congenital Cataract	3	3.62	0.75-10.59
	Congenital Hip Dislocation	10	12.08	5.79-22.22
	Diaphragmatic Hernia	4	4.83	1.32-12.37
	Down Syndrome	13	15.71	8.36-26.86
	Encephalocele	1	1.21	0.03-6.73
	Endocardial Cushion Defect	3	3.62	0.75-10.59
	Epispadias	1	1.21	0.03-6.73
	Esophageal Atresia/ Tracheoesophageal Fistula	4	4.83	1.32-12.37
	Fetal Alcohol Syndrome	3	3.62	0.75-10.59
	Gastroschisis	4	4.83	1.32-12.37
	Hirschsprungs Disease (congenital megacolon)	5	6.04	1.96-14.10
	Hydrocephalus	11	13.29	6.63-23.78
	Hypoplastic Left Heart Syndrome	2	2.42	0.29-8.73
	Hypospadias	43	51.95	37.60-69.98
	Microcephalus	16	19.33	11.05-31.39
	Obstructive Genitourinary Defect	30	36.25	24.45-51.74
	Omphalocele	3	3.62	0.75-10.59
	Patent Ductus Arteriosus	109	131.69	108.13-158.86
	Pulmonary Valve Atresia & Stenosis	13	15.71	8.36-26.86
	Pyloric Stenosis	47	56.78	41.72-75.51
	Rectal & Large Intestinal Atresia/Stenosis	7	8.46	3.40-17.43
	Renal Agenesis/Hypoplasia	3	3.62	0.75-10.59
	Spina Bifida	3	3.62	0.75-10.59
	Tetralogy of Fallot	3	3.62	0.75-10.59
	Transposition of Great Arteries	5	6.04	1.96-14.10
	Trisomy 13	3	3.62	0.75-10.59
	Ventricular Septal Defect	42	50.74	36.57-68.59
	Total Cases	441	532.8	484.23-584.93
	Total Live Births	8277		

Sumner	Anencephalus	1	1.03	0.03-5.72
	Atrial Septal Defect	54	55.46	41.66-72.36
	Biliary Atresia	1	1.03	0.03-5.72
	Choanal Atresia	2	2.05	0.25-7.42
	Cleft Lip w/ & w/o Cleft Palate	13	13.35	7.11-22.83
	Cleft Palate w/o Cleft Lip	9	9.24	4.23-17.55
	Coarctation of Aorta	4	4.11	1.12-10.52
	Common Truncus	1	1.03	0.03-5.72
	Congenital Cataract	2	2.05	0.25-7.42
	Congenital Hip Dislocation	4	4.11	1.12-10.52

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Diaphragmatic Hernia	3	3.08	0.64-9.00
	Down Syndrome	9	9.24	4.23-17.55
	Ebsteins Anomaly	1	1.03	0.03-5.72
	Encephalocele	2	2.05	0.25-7.42
	Endocardial Cushion Defect	2	2.05	0.25-7.42
	Epispadias	1	1.03	0.03-5.72
	Esophageal Atresia/ Tracheoesophageal Fistula	5	5.14	1.67-11.98
	Gastroschisis	5	5.14	1.67-11.98
	Hirschsprungs Disease (congenital megacolon)	5	5.14	1.67-11.98
	Hydrocephalus	6	6.16	2.26-13.41
	Hypoplastic Left Heart Syndrome	2	2.05	0.25-7.42
	Hypospadias	46	47.24	34.59-63.02
	Microcephalus	8	8.22	3.55-16.19
	Obstructive Genitourinary Defect	22	22.59	14.16-34.21
	Patent Ductus Arteriosus	48	49.3	36.35-65.36
	Pulmonary Valve Atresia & Stenosis	5	5.14	1.67-11.98
	Pyloric Stenosis	51	52.38	39.00-68.87
	Rectal & Large Intestinal Atresia/Stenosis	3	3.08	0.64-9.00
	Reduction Deformity (lower limbs)	1	1.03	0.03-5.72
	Reduction Deformity (upper limbs)	4	4.11	1.12-10.52
	Renal Agenesis/Hypoplasia	4	4.11	1.12-10.52
	Spina Bifida	2	2.05	0.25-7.42
	Tetralogy of Fallot	2	2.05	0.25-7.42
	Transposition of Great Arteries	8	8.22	3.55-16.19
	Ventricular Septal Defect	41	42.11	30.22-57.12
	Total Cases	287	294.75	261.63-330.90
	Total Live Births	9737		

Tipton	Anencephalus	1	2.66	0.07-14.84
	Atrial Septal Defect	21	55.94	34.63-85.51
	Biliary Atresia	1	2.66	0.07-14.84
	Choanal Atresia	1	2.66	0.07-14.84
	Cleft Palate w/o Cleft Lip	2	5.33	0.65-19.25
	Common Truncus	2	5.33	0.65-19.25
	Congenital Hip Dislocation	4	10.66	2.90-27.28
	Diaphragmatic Hernia	1	2.66	0.07-14.84
	Down Syndrome	2	5.33	0.65-19.25
	Endocardial Cushion Defect	1	2.66	0.07-14.84
	Esophageal Atresia/ Tracheoesophageal Fistula	1	2.66	0.07-14.84
	Fetal Alcohol Syndrome	1	2.66	0.07-14.84
	Gastroschisis	1	2.66	0.07-14.84

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Hydrocephalus	5	13.32	4.32-31.08
	Hypospadias	18	47.95	28.42-75.78
	Microcephalus	4	10.66	2.90-27.28
	Obstructive Genitourinary Defect	7	18.65	7.50-38.42
	Patent Ductus Arteriosus	25	66.6	43.09-98.31
	Pulmonary Valve Atresia & Stenosis	2	5.33	0.65-19.25
	Pyloric Stenosis	15	39.96	22.36-65.90
	Rectal & Large Intestinal Atresia/Stenosis	3	7.99	1.65-23.35
	Reduction Deformity (lower limbs)	2	5.33	0.65-19.25
	Reduction Deformity (upper limbs)	2	5.33	0.65-19.25
	Renal Agenesis/Hypoplasia	1	2.66	0.07-14.84
	Tetralogy of Fallot	3	7.99	1.65-23.35
	Transposition of Great Arteries	2	5.33	0.65-19.25
	Trisomy 18	1	2.66	0.07-14.84
	Ventricular Septal Defect	10	26.64	12.77-48.99
	Total Cases	123	327.65	272.30-390.94
	Total Live Births	3754		

Trousdale	Anencephalus	1	21.6	0.55-120.34
	Congenital Hip Dislocation	1	21.6	0.55-120.34
	Hirschsprungs Disease (congenital megacolon)	1	21.6	0.55-120.34
	Hydrocephalus	1	21.6	0.55-120.34
	Hypospadias	4	86.39	23.54-221.20
	Microcephalus	1	21.6	0.55-120.34
	Patent Ductus Arteriosus	2	43.2	5.23-156.04
	Pyloric Stenosis	2	43.2	5.23-156.04
	Renal Agenesis/Hypoplasia	1	21.6	0.55-120.34
	Ventricular Septal Defect	1	21.6	0.55-120.34
	Total Cases	14	302.38	165.31-507.33
	Total Live Births	463		

Unicoi	Atrial Septal Defect	13	141.46	75.33-241.89
	Choanal Atresia	1	10.88	0.28-60.63
	Cleft Lip w/ & w/o Cleft Palate	2	21.76	2.64-78.61
	Cleft Palate w/o Cleft Lip	2	21.76	2.64-78.61
	Congenital Cataract	1	10.88	0.28-60.63
	Congenital Hip Dislocation	1	10.88	0.28-60.63
	Down Syndrome	1	10.88	0.28-60.63
	Fetal Alcohol Syndrome	1	10.88	0.28-60.63
	Gastroschisis	2	21.76	2.64-78.61
	Hirschsprungs Disease (congenital megacolon)	1	10.88	0.28-60.63

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Hypospadias	6	65.29	23.96-142.11
	Microcephalus	1	10.88	0.28-60.63
	Obstructive Genitourinary Defect	3	32.64	6.73-95.40
	Patent Ductus Arteriosus	10	108.81	52.18-200.11
	Pyloric Stenosis	9	97.93	44.78-185.91
	Reduction Deformity (upper limbs)	1	10.88	0.28-60.63
	Renal Agenesis/Hypoplasia	1	10.88	0.28-60.63
	Spina Bifida	2	21.76	2.64-78.61
	Trisomy 18	1	10.88	0.28-60.63
	Total Cases	56	609.36	460.31-791.31
	Total Live Births	919		

Union	Atrial Septal Defect	14	111.91	61.18-187.76
	Cleft Lip w/ & w/o Cleft Palate	3	23.98	4.94-70.08
	Coarctation of Aorta	1	7.99	0.20-44.54
	Down Syndrome	3	23.98	4.94-70.08
	Ebsteins Anomaly	1	7.99	0.20-44.54
	Endocardial Cushion Defect	1	7.99	0.20-44.54
	Epispadias	1	7.99	0.20-44.54
	Fetal Alcohol Syndrome	1	7.99	0.20-44.54
	Gastroschisis	1	7.99	0.20-44.54
	Hydrocephalus	2	15.99	1.94-57.75
	Hypoplastic Left Heart Syndrome	1	7.99	0.20-44.54
	Hypospadias	3	23.98	4.94-70.08
	Microcephalus	1	7.99	0.20-44.54
	Obstructive Genitourinary Defect	3	23.98	4.94-70.08
	Patent Ductus Arteriosus	5	39.97	12.98-93.27
	Pulmonary Valve Atresia & Stenosis	2	15.99	1.94-57.75
	Pyloric Stenosis	7	55.96	22.50-115.29
	Transposition of Great Arteries	1	7.99	0.20-44.54
	Ventricular Septal Defect	10	79.94	38.33-147.00
	Total Cases	49	391.69	289.77-517.85
	Total Live Births	1251		

Van Buren	Atrial Septal Defect	2	70.67	8.56-255.29
	Choanal Atresia	1	35.34	0.89-196.88
	Cleft Palate w/o Cleft Lip	1	35.34	0.89-196.88
	Congenital Cataract	1	35.34	0.89-196.88
	Congenital Hip Dislocation	1	35.34	0.89-196.88
	Down Syndrome	1	35.34	0.89-196.88
	Endocardial Cushion Defect	1	35.34	0.89-196.88
	Gastroschisis	1	35.34	0.89-196.88
	Hypospadias	1	35.34	0.89-196.88
	Patent Ductus Arteriosus	2	70.67	8.56-255.29

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Pyloric Stenosis	1	35.34	0.89-196.88
	Total Cases	9	318.02	145.43-603.70
	Total Live Births	283		

Warren	Anotia/Microtia	1	3.73	0.09-20.81
	Atrial Septal Defect	15	56.01	31.35-92.38
	Biliary Atresia	1	3.73	0.09-20.81
	Cleft Lip w/ & w/o Cleft Palate	3	11.2	2.31-32.74
	Cleft Palate w/o Cleft Lip	4	14.94	4.07-38.24
	Coarctation of Aorta	3	11.2	2.31-32.74
	Congenital Hip Dislocation	1	3.73	0.09-20.81
	Down Syndrome	4	14.94	4.07-38.24
	Encephalocele	1	3.73	0.09-20.81
	Endocardial Cushion Defect	1	3.73	0.09-20.81
	Esophageal Atresia/ Tracheoesophageal Fistula)	1	3.73	0.09-20.81
	Gastroschisis	2	7.47	0.90-26.98
	Hirschsprungs Disease (congenital megacolon)	1	3.73	0.09-20.81
	Hydrocephalus	1	3.73	0.09-20.81
	Hypoplastic Left Heart Syndrome	1	3.73	0.09-20.81
	Hypospadias	9	33.61	15.37-63.80
	Microcephalus	4	14.94	4.07-38.24
	Obstructive Genitourinary Defect	5	18.67	6.06-43.57
	Patent Ductus Arteriosus	5	18.67	6.06-43.57
	Pulmonary Valve Atresia & Stenosis	5	18.67	6.06-43.57
	Pyloric Stenosis	14	52.28	28.58-87.71
	Rectal & Large Intestinal Atresia/Stenosis	1	3.73	0.09-20.81
	Reduction Deformity (lower limbs)	1	3.73	0.09-20.81
	Spina Bifida	2	7.47	0.90-26.98
	Tetralogy of Fallot	4	14.94	4.07-38.24
	Transposition of Great Arteries	3	11.2	2.31-32.74
	Ventricular Septal Defect	4	14.94	4.07-38.24
	Total Cases	70	261.39	203.75-330.24
	Total Live Births	2678		

Washington	Anencephalus	1	1.47	0.04-8.19
	Anotia/Microtia	3	4.41	0.91-12.89
	Atrial Septal Defect	91	133.74	107.68-164.21
	Bladder Exstrophy	2	2.94	0.36-10.62
	Choanal Atresia	1	1.47	0.04-8.19
	Cleft Lip w/ & w/o Cleft Palate	7	10.29	4.14-21.20
	Cleft Palate w/o Cleft Lip	7	10.29	4.14-21.20

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Coarctation of Aorta	3	4.41	0.91-12.89
	Congenital Hip Dislocation	5	7.35	2.39-17.15
	Diaphragmatic Hernia	4	5.88	1.60-15.05
	Down Syndrome	7	10.29	4.14-21.20
	Endocardial Cushion Defect	3	4.41	0.91-12.89
	Esophageal Atresia/ Tracheoesophageal Fistula	1	1.47	0.04-8.19
	Fetal Alcohol Syndrome	2	2.94	0.36-10.62
	Gastroschisis	3	4.41	0.91-12.89
	Hydrocephalus	9	13.23	6.05-25.11
	Hypoplastic Left Heart Syndrome	2	2.94	0.36-10.62
	Hypospadias	19	27.92	16.81-43.61
	Microcephalus	4	5.88	1.60-15.05
	Obstructive Genitourinary Defect	35	51.44	35.83-71.54
	Patent Ductus Arteriosus	60	88.18	67.29-113.51
	Pulmonary Valve Atresia & Stenosis	13	19.11	10.17-32.67
	Pyloric Stenosis	44	64.67	46.99-86.82
	Rectal & Large Intestinal Atresia/Stenosis	2	2.94	0.36-10.62
	Reduction Deformity (lower limbs)	4	5.88	1.60-15.05
	Reduction Deformity (upper limbs)	3	4.41	0.91-12.89
	Renal Agenesis/Hypoplasia	1	1.47	0.04-8.19
	Spina Bifida	1	1.47	0.04-8.19
	Tetralogy of Fallot	4	5.88	1.60-15.05
	Tricuspid Valve Atresia & Stenosis	1	1.47	0.04-8.19
	Trisomy 13	1	1.47	0.04-8.19
	Trisomy 18	1	1.47	0.04-8.19
	Ventricular Septal Defect	32	47.03	32.17-66.39
	Total Cases	297	436.51	388.27-489.08
	Total Live Births	6804		

Wayne	Atrial Septal Defect	6	72.99	26.79-158.88
	Coarctation of Aorta	1	12.17	0.31-67.78
	Esophageal Atresia/ Tracheoesophageal Fistula	1	12.17	0.31-67.78
	Gastroschisis	1	12.17	0.31-67.78
	Hirschsprungs Disease (congenital megacolon)	1	12.17	0.31-67.78
	Hypospadias	5	60.83	19.75-141.95
	Microcephalus	1	12.17	0.31-67.78
	Obstructive Genitourinary Defect	3	36.5	7.53-106.66
	Patent Ductus Arteriosus	3	36.5	7.53-106.66
	Pyloric Stenosis	5	60.83	19.75-141.95
	Renal Agenesis/Hypoplasia	1	12.17	0.31-67.78
	Tetralogy of Fallot	1	12.17	0.31-67.78



**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Transposition of Great Arteries	3	36.5	7.53-106.66
	Ventricular Septal Defect	3	36.5	7.53-106.66
	Total Cases	24	291.97	187.07-434.42
	Total Live Births	822		

Weakley	Atrial Septal Defect	15	87.57	49.01-144.42
	Cleft Lip w/ & w/o Cleft Palate	3	17.51	3.61-51.18
	Cleft Palate w/o Cleft Lip	2	11.68	1.41-42.18
	Coarctation of Aorta	2	11.68	1.41-42.18
	Diaphragmatic Hernia	1	5.84	0.15-32.53
	Down Syndrome	1	5.84	0.15-32.53
	Encephalocele	2	11.68	1.41-42.18
	Gastroschisis	1	5.84	0.15-32.53
	Hydrocephalus	1	5.84	0.15-32.53
	Hypospadias	1	5.84	0.15-32.53
	Obstructive Genitourinary Defect	8	46.7	20.16-92.02
	Patent Ductus Arteriosus	7	40.86	16.43-84.20
	Pulmonary Valve Atresia & Stenosis	2	11.68	1.41-42.18
	Pyloric Stenosis	13	75.89	40.41-129.77
	Tetralogy of Fallot	2	11.68	1.41-42.18
	Transposition of Great Arteries	2	11.68	1.41-42.18
	Ventricular Septal Defect	7	40.86	16.43-84.20
	Total Cases	53	309.4	231.77-404.69
	Total Live Births	1713		

White	Atrial Septal Defect	10	65.49	31.40-120.43
	Biliary Atresia	1	6.55	0.17-36.49
	Cleft Lip w/ & w/o Cleft Palate	3	19.65	4.05-57.41
	Cleft Palate w/o Cleft Lip	2	13.1	1.59-47.31
	Coarctation of Aorta	1	6.55	0.17-36.49
	Congenital Hip Dislocation	2	13.1	1.59-47.31
	Down Syndrome	1	6.55	0.17-36.49
	Encephalocele	1	6.55	0.17-36.49
	Gastroschisis	1	6.55	0.17-36.49
	Hypospadias	7	45.84	18.43-94.45
	Microcephalus	1	6.55	0.17-36.49
	Obstructive Genitourinary Defect	2	13.1	1.59-47.31
	Patent Ductus Arteriosus	3	19.65	4.05-57.41
	Pulmonary Valve Atresia & Stenosis	5	32.74	10.63-76.41
	Pyloric Stenosis	6	39.29	14.42-85.52
	Renal Agenesis/Hypoplasia	1	6.55	0.17-36.49
	Spina Bifida	1	6.55	0.17-36.49
	Transposition of Great Arteries	1	6.55	0.17-36.49
	Ventricular Septal Defect	10	65.49	31.40-120.43

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Total Cases	46	301.24	220.54-401.83
	Total Live Births	1527		

Williamson	Anencephalus	1	0.98	0.02-5.45
	Anotia/Microtia	1	0.98	0.02-5.45
	Aortic Valve Stenosis	4	3.91	1.07-10.01
	Atrial Septal Defect	33	32.25	22.20-45.29
	Biliary Atresia	1	0.98	0.02-5.45
	Cleft Lip w/ & w/o Cleft Palate	12	11.73	6.06-20.49
	Cleft Palate w/o Cleft Lip	6	5.86	2.15-12.76
	Coarctation of Aorta	7	6.84	2.75-14.10
	Common Truncus	1	0.98	0.02-5.45
	Congenital Cataract	1	0.98	0.02-5.45
	Congenital Hip Dislocation	10	9.77	4.69-17.97
	Down Syndrome	13	12.71	6.77-21.73
	Endocardial Cushion Defect	3	2.93	0.60-8.57
	Epispadias	1	0.98	0.02-5.45
	Gastroschisis	1	0.98	0.02-5.45
	Hirschsprungs Disease (congenital megacolon)	1	0.98	0.02-5.45
	Hydrocephalus	2	1.95	0.24-7.06
	Hypoplastic Left Heart Syndrome	2	1.95	0.24-7.06
	Hypospadias	66	64.5	49.89-82.06
	Microcephalus	3	2.93	0.60-8.57
	Obstructive Genitourinary Defect	21	20.52	12.70-31.37
	Patent Ductus Arteriosus	41	40.07	28.75-54.36
	Pulmonary Valve Atresia & Stenosis	19	18.57	11.18-29.00
	Pyloric Stenosis	25	24.43	15.81-36.07
	Rectal & Large Intestinal Atresia/Stenosis	6	5.86	2.15-12.76
	Reduction Deformity (upper limbs)	2	1.95	0.24-7.06
	Renal Agenesis/Hypoplasia	7	6.84	2.75-14.10
	Spina Bifida	7	6.84	2.75-14.10
	Tetralogy of Fallot	4	3.91	1.07-10.01
	Transposition of Great Arteries	5	4.89	1.59-11.40
	Tricuspid Valve Atresia & Stenosis	1	0.98	0.02-5.45
	Trisomy 13	1	0.98	0.02-5.45
	Trisomy 18	2	1.95	0.24-7.06
	Ventricular Septal Defect	45	43.98	32.08-58.85
	Total Cases	282	275.61	244.37-309.72
	Total Live Births	10232		

Wilson	Aortic Valve Stenosis	1	1.49	0.04-8.33
	Atrial Septal Defect	23	34.38	21.79-51.59

**Table 10: Birth Defects by County of Maternal Residence**

County	Birth Defect	Count	Rate <sup>1</sup>	95% CI <sup>2</sup>
	Biliary Atresia	1	1.49	0.04-8.33
	Cleft Lip w/ & w/o Cleft Palate	8	11.96	5.16-23.56
	Cleft Palate w/o Cleft Lip	8	11.96	5.16-23.56
	Coarctation of Aorta	4	5.98	1.63-15.31
	Congenital Cataract	3	4.48	0.92-13.10
	Congenital Hip Dislocation	5	7.47	2.43-17.44
	Diaphragmatic Hernia	2	2.99	0.36-10.80
	Down Syndrome	9	13.45	6.15-25.54
	Ebsteins Anomaly	3	4.48	0.92-13.10
	Endocardial Cushion Defect	3	4.48	0.92-13.10
	Epispadias	1	1.49	0.04-8.33
	Esophageal Atresia/ Tracheoesophageal Fistula	2	2.99	0.36-10.80
	Gastroschisis	1	1.49	0.04-8.33
	Hirschsprungs Disease (congenital megacolon)	1	1.49	0.04-8.33
	Hydrocephalus	3	4.48	0.92-13.10
	Hypoplastic Left Heart Syndrome	2	2.99	0.36-10.80
	Hypospadias	34	50.82	35.19-71.02
	Microcephalus	1	1.49	0.04-8.33
	Obstructive Genitourinary Defect	15	22.42	12.55-36.98
	Omphalocele	3	4.48	0.92-13.10
	Patent Ductus Arteriosus	22	32.88	20.61-49.79
	Pulmonary Valve Atresia & Stenosis	8	11.96	5.16-23.56
	Pyloric Stenosis	26	38.86	25.39-56.94
	Rectal & Large Intestinal Atresia/Stenosis	2	2.99	0.36-10.80
	Reduction Deformity (lower limbs)	1	1.49	0.04-8.33
	Renal Agenesis/Hypoplasia	1	1.49	0.04-8.33
	Spina Bifida	3	4.48	0.92-13.10
	Tetralogy of Fallot	4	5.98	1.63-15.31
	Transposition of Great Arteries	5	7.47	2.43-17.44
	Ventricular Septal Defect	26	38.86	25.39-56.94
	Total Cases	180	269.06	231.18-311.37
	Total Live Births	6690		

## Glossary of Terms

<b>Agenesis</b>	Absence of part(s) of the body. Lack of development or failure to develop part(s) of the body.	<b>Chromosome abnormalities</b>	A major group of genetic diseases in which alterations of chromosome number or structure occur and are observable by microscope.
<b>Alpha-fetoprotein</b>	A protein produced by the fetus during gestation. The level of this protein can be measured during the pregnancy. The level of this protein is elevated in pregnancies with neural tube defects and may be decreased in pregnancies with Down syndrome.	<b>Cleft lip</b>	The congenital failure of the fetal components of the lip to fuse or join, forming a groove or fissure in the lip. Infants with this condition can have difficulty feeding and may use assistive devices for feeding. This condition is corrected when the infant can tolerate surgery.
<b>Amniocentesis</b>	A method of prenatal diagnosis which a small amount of amniotic fluid is withdrawn to obtain fetal cells, which can be tested for the presence of some genetic diseases.	<b>Cleft palate</b>	The congenital failure of the palate to fuse properly forming a grooved depression or fissure in the roof of the mouth. This defect varies in degree of severity. The fissure can extend into the hard and soft palate and into the nasal cavities. Infants with this condition have difficulty feeding, and may use assistive devices for feeding. Surgical correction is begun as soon as possible. Children with cleft palates are at high risk for hearing problems due to ear infections.
<b>Anencephalus</b>	Congenital absence of the skull, with cerebral hemispheres completely missing or reduced to small masses attached to the base of the skull. Anencephaly is not compatible with life.	<b>Coarctation of the aorta</b>	Localized narrowing of the aorta. This condition can vary from mild to severe.
<b>Aniridia</b>	The complete absence of the iris of the eye or a defect of the iris.	<b>Common truncus arteriosus</b>	A congenital heart defect in which the common arterial trunk fails to divide into pulmonary artery and aorta.
<b>Anophthalmia</b>	A developmental defect characterized by complete absence of the eyes, or by the presence of vestigial eyes.	<b>Confidence interval (95%)</b>	The interval that contains the true prevalence (which can only be estimated) 95% of the time.
<b>Anotia</b>	A congenital absence of one or both ears.	<b>Congenital</b>	Existing at or dating from birth although the defect may not be recognized at the time of birth.
<b>Aortic valve stenosis</b>	A cardiac anomaly characterized by a narrowing or stricture of the aortic valve.	<b>Congenital hip dislocation</b>	Location of the head of the femur (bone of the upper leg) outside its normal location in the cup-shaped cavity formed by the hip bones (acetabulum).
<b>Aplasia</b>	Absence of a tissue or organ due to lack of cell proliferation.	<b>Diaphragmatic hernia</b>	A failure of the diaphragm to form completely, leaving a hole. Abdominal organs can protrude through the hole into the chest cavity and interfere with development of the heart and lungs. Usually life-threatening and requires emergent surgery.
<b>Atresia</b>	Absence or closure of a normal opening.	<b>Down syndrome (Trisomy 21)</b>	The chromosomal abnormality characterized by an extra copy of chromosome 21. In rare cases this syndrome is caused by translocation. Down syndrome is characterized by moderate to severe retardation, sloping forehead, small ear canals, flat-bridge of the nose and short fingers and toes. Many infants have congenital heart disease.
<b>Atrial septal defect</b>	A congenital cardiac malformation in which there are one or several openings in the atrial septum (wall between the right and left atria). Most common type is called ostium secundum defect.	<b>Dysgenesis</b>	Anomalous or disorganized formation of an organ.
<b>Biliary atresia</b>	A congenital absence or underdevelopment of one or more of the ducts in the biliary tract.	<b>Dysplasia</b>	Disorganized cell structure or arrangement within a tissue or organ.
<b>Bladder exstrophy</b>	Incomplete closure of the anterior wall of the bladder and the abdominal cavity. The upper urinary tract is generally normal. Often associated with anorectal and genital malformations.	<b>Ebstein anomaly</b>	A congenital heart defect in which the tricuspid valve is displaced downward into the right ventricle.
<b>Congenital cataract</b>	An opacity (clouding) of the lens of the eye that has its origin prenatally.		
<b>Choanal atresia or stenosis</b>	A congenital anomaly in which a bony or membranous formation blocks the passageway between the nose and the pharynx.		
<b>Chromosome</b>	Threadlike structure in cells that individual genes are arranged along.		

<b>Edwards syndrome</b>	See Trisomy 18.	<b>Hirschsprung's disease</b>	The congenital absence of autonomic ganglia (nerves controlling involuntary and reflexive movement) in the muscles of the colon. This results in immobility of the intestines and may cause obstruction or stretching of the intestines. This condition is repaired surgically in early childhood by the removal of the affected portion of the intestine.
<b>Embryonic period</b>	The first eight weeks after fertilization, during which most, but not all, organs are formed.	<b>Holocephalus</b>	The abnormal accumulation of fluid within the spaces of the brain.
<b>Encephalocele</b>	Herniation of the brain through a defect in the skull.	<b>Hydrocephalus</b>	The abnormal accumulation of fluid within the skull.
<b>Endocardial cushion defect</b>	In the complete form, a septal defect involving both the upper chambers (atria, atrial septal defect) and lower chambers (ventricles, ventricular septal defect) such that there is a single large atrioventricular septal defect. There are incomplete forms as well.	<b>Hyperplasia</b>	Overgrowth characterized by an increase in the number of cells of tissue.
<b>Epispadias</b>	Displacement of the opening of the urethra (urethral meatus) dorsally and proximally (on top and closer to the body) in relation to the tip of the glans of the penis.	<b>Hypoplasia</b>	A condition of arrested development in which an organ or part remains below the normal size or in an immature state.
<b>Esophageal stenosis or atresia</b>	A narrowing or incomplete formation of the esophagus. Usually a surgical emergency. Frequently associated with a Tracheoesophageal Fistula.	<b>Hypoplastic left heart syndrome</b>	Atresia, or a marked hypoplasia, of the aortic valve, atresia or marked hypoplasia for the mitral valve, with hypoplasia of the ascending aorta and underdevelopment of the left ventricle.
<b>Extremely low birth weight</b>	Birth weight less than 1,000 grams, regardless of gestational age.	<b>Hypospadias</b>	A congenital defect in which the urinary meatus (urinary outlet) is on the underside of the penis or on the perineum (area between the genitals and anus). The urinary sphincters are not defective so incontinence does not occur. The condition may be surgically corrected if needed for cosmetic, urologic, or reproductive reasons.
<b>Fetal alcohol syndrome</b>	A constellation of physical abnormalities (including characteristic abnormal facial features and growth retardation), and problems of behavior and cognition in children born to mothers who drank alcohol during pregnancy.	<b>Infant death</b>	Death of a live-born infant before 12 months of age.
<b>Fetal death (stillborn)</b>	Death prior to complete expulsion or extraction of an infant or fetus of 500 grams or more, or, in absence of weight, of 22 weeks' gestation or greater: death is indicated by the fact that, after expulsion or extraction, the fetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord or definite movement of voluntary muscles (68-3-102).	<b>Live birth</b>	Spontaneous delivery of an infant that exhibits signs of life, including a heartbeat, spontaneous breathing, or movement of voluntary muscles. Transient cardiac contractions and fleeting respiratory efforts or gasps are not necessarily considered signs of life by all programs.
<b>Fetal period</b>	The period from the ninth week after fertilization through delivery.	<b>Lower limb reduction defects</b>	The congenital absence of a portion of the lower limb. There are two general types of defect, transverse and longitudinal. Transverse defects appear like amputations, or like missing segments of the limb. Longitudinal defects are missing rays of the limb (for example, a missing tibia and great toe).
<b>Fetal ultrasound</b>	A diagnostic examination of the fetus using ultrasound (sound waves at a frequency above what is detectable to human hearing).	<b>Low birth weight</b>	Birth weight less than 2,500 grams, regardless of gestational age.
<b>Fistula</b>	An abnormal passage from an internal organ to the body surface or between two internal organs or structures.	<b>Malformation</b>	A primary morphologic defect resulting from an abnormal developmental process.
<b>Folic acid deficiency</b>	A lack of folic acid in the mother's diet which may lead to an increased risk for neural tube defects. Current recommendations from the March of Dimes indicate that women who are or may become pregnant should take a folic acid supplement to decrease the risk of neural tube defect.	<b>Maternal serum screening</b>	A diagnostic method that examines the mother's blood serum for indicators of anomalies in the process of fetal development.
<b>Gastroschisis</b>	A congenital opening of the abdominal wall with protrusion of the intestines. This condition is surgically treated.	<b>Mental retardation</b>	A condition of below average intellectual ability (IQ less than 70) that is present from birth or infancy.
<b>Genetic counseling</b>	The delivery of information about the risks, natural history, and management of genetic diseases to patients and/or their families.	<b>Microcephaly</b>	Congenital smallness of the head, with corresponding smallness of the brain.

<b>Microphthalmia</b>	The congenital abnormal smallness of one or both eyes. Can occur in the presence of other ocular defects.	<b>Pulmonary valve atresia or stenosis</b>	Failure of formation of the pulmonary valve or a narrowing or obstruction of the pulmonary valve, resulting in obstruction of blood flow from the right ventricle to the pulmonary artery.
<b>Microtia</b>	A small or maldeveloped external ear and atretic or stenotic external auditory canal.	<b>Pyloric stenosis</b>	A narrowing of the outlet from the stomach to the small intestine resulting in complete or partial obstruction of the passage of food and gastric contents.
<b>Multifactorial</b>	A term used to describe characteristics or diseases that are caused by a combination of multiple genetic and environmental factors.	<b>Rectal and large intestinal atresia/stenosis</b>	Complete or partial occlusion of the lumen of one or more segments of the large intestine and/or rectum.
<b>Multiple congenital anomaly</b>	Term used to describe the presence of more than one anomaly at birth.	<b>Reduction defects: lower and upper limbs</b>	The congenital absence of a portion of the lower or upper limbs. There are two general types of defect, transverse and longitudinal. Transverse defects appear like amputations with the complete or partial absence of the arm or leg. Longitudinal defects are missing rays of the limb and may involve the preaxial (thumb or big toe side) or central parts of the arm or leg.
<b>Mutagen</b>	Substance that is known to cause a mutation.	<b>Renal agenesis or dysgenesis</b>	The failure, or deviation, of embryonic development of the kidney.
<b>Mutations</b>	Alterations in the sequence of DNA.	<b>Spina bifida</b>	An incomplete closure of the vertebral spine (usually posterior) through which spinal cord tissue or membranes (meninges) covering the spine herniated.
<b>Neonatal death</b>	Death of a live-born infant within the first 28 days after birth. <i>Early neonatal death</i> refers to death during the first 7 days. <i>Late neonatal death</i> refers to death after 7 days but before 29 days.	<b>Stenosis</b>	A narrowing or constriction the diameter of a bodily passage or orifice.
<b>Neonatal (newborn) period</b>	The first 28 days following delivery of a live-born infant.	<b>Stenosis or atresia of the small intestine</b>	A narrowing or incomplete formation of the small intestine obstructing movement through the digestive tract.
<b>Neural tube defect</b>	A defect resulting from failure of the neural tube to close in the first month of pregnancy. The major conditions include anencephaly, spina bifida, and encephalocele.	<b>Syndrome</b>	A pattern of multiple primary malformations or defects all due to a single underlying cause (for example, Down syndrome).
<b>Obstructive genitourinary defect</b>	Stenosis or atresia of the urinary tract at any level. Severity of the defect depends largely upon the level of the obstruction. Urine accumulates behind the obstruction.	<b>Teratogen</b>	A substance in the environment that can cause a birth defect.
<b>Omphalocele</b>	The protrusion of intestines into the umbilicus. The defect is usually closed surgically soon after birth.	<b>Term infant</b>	An infant born after 37 complete weeks and before 42 complete weeks of gestation.
<b>Patau Syndrome</b>	See Trisomy 13	<b>Tetralogy of Fallot</b>	The simultaneous presence of a ventricular septal defect, pulmonic stenosis, a malpositioned aorta that overrides the ventricular septum, and right ventricular hypertrophy.
<b>Patent ductus arteriosus</b>	A blood vessel between the pulmonary artery and the aorta. This is normal in fetal life, but can cause problems after birth, particularly in premature infants.	<b>Transposition of the great arteries</b>	A congenital malformation in which the aorta arises from the right ventricle and the pulmonary artery from the left ventricle (opposite of normal), so that the venous return from the peripheral circulation is recirculated without being oxygenated in the lungs. Immediate surgical correction is needed. When this is not associated with other cardiac defects, and not corrected, it is fatal.
<b>Periconceptual</b>	At or around the time of conception.	<b>Tricuspid valve atresia or stenosis</b>	A congenital cardiac condition characterized by the absence or constriction of the tricuspid valve.
<b>Perinatal</b>	Before, during, or after delivery. The exact time period may vary from 20 to 28 complete weeks of gestation through 7 to 28 days after delivery, depending on the context in which the term is used.	<b>Trisomy</b>	A chromosomal abnormality characterized by one more than the normal number of chromosomes. Normally, cells contain two of each chromosome. In trisomy, cells contain three copies of a specific
<b>Postnatal</b>	After delivery.		
<b>Postterm infant</b>	An infant born after 42 completed weeks of gestation.		
<b>Prenatal</b>	Before delivery.		
<b>Preterm infant</b>	An infant born before 37 completed weeks of gestation.		
<b>Pulmonary artery anomaly</b>	Abnormality in the formation of the pulmonary artery such as stenosis or atresia.		

chromosome.

**Trisomy 13  
(Patau  
syndrome)**

The chromosomal abnormality caused by an extra chromosome 13. Characterized by impaired midline facial development, cleft lip and palate, polydactyly and severe mental retardation. Most infants do not survive beyond 6 months of life.

**Trisomy 18  
(Edwards  
syndrome)**

The chromosomal abnormality caused by an extra copy of chromosome 18. It is characterized by mental retardation, growth retardation, low-set ears, skull malformation and short digits. Survival for more than a few months is rare.

**Trisomy 21  
Ventricular  
Septal Defect**

See Down Syndrome.

A congenital cardiac malformation in which there are one or several openings in the ventricular system (Muscular and fibrous wall between the right and left ventricle or right and left lower chambers of the heart).

**Very Low Birth  
Weight**

Birthweight less than 1,500 grams, regardless of gestational age.