

Mississippi Birth Defects Surveillance Registry Report 2008-2014

The Impact of Birth Defects

- Birth defects are an abnormality of structure, function, or metabolism whether genetically caused or a result of outside factors during a child’s developmental or fetal life.
- All birth defects are present during fetal development and/or at birth. They may present at that time or later in childhood.
- According to the Centers for Disease Control and Prevention (CDC), birth defects affect 1 in 33 babies and are a leading cause of infant mortality in the United States.
- The causes for many birth defects are uncertain. However, environmental factors, medications, diet habits and personal behaviors have been identified as possible contributors. While much is still unknown concerning the causes of birth defects, there is a growing amount of information regarding measures that can be used to prevent them.

The Goals of the Birth Defects Surveillance Registry

- To monitor, regularly and systematically, the births of children with defects for changes in incidence or other unusual patterns suggesting preventable causes.
- To ensure that children identified with birth defects are referred to services and their health and developmental outcomes are assessed periodically.
- To increase reporting to the registry to ensure long term follow up and delivery of services.

Birth Defects Surveillance Registry Flow Chart

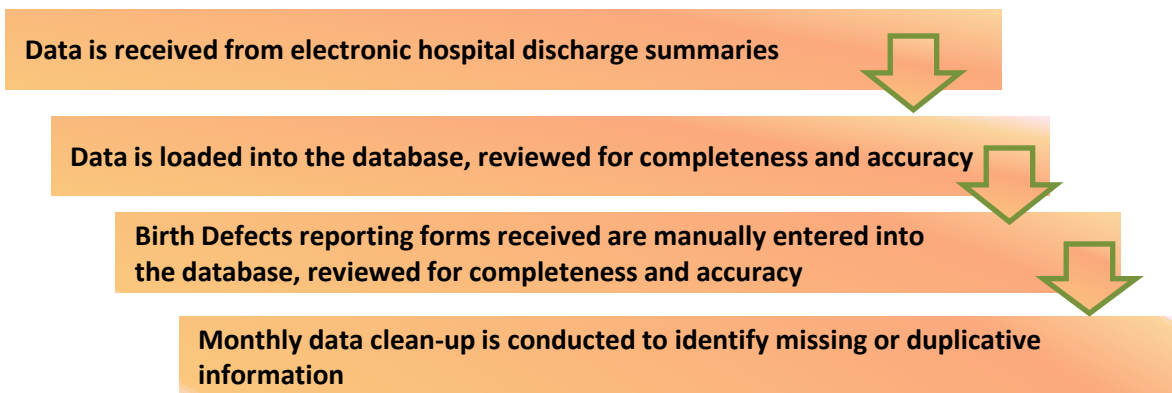


Table 1: Number of Children with Birth Defects in Mississippi, 2008-2014

Number of Birth Defects	Number of Children	Number of Cases
1	5,147	5,147
2	933	1,866
3	234	702
4	83	332
5	24	120
6	12	72
7	2	14
Total	6,435	8,253

Births Defects may involve many different organs including the brain, heart, lungs, liver, bones, and intestinal tract. These defects can occur for many reasons including inherited conditions, toxic exposure of the fetus (i.e. to alcohol), birth injury, and in many cases, for unknown reasons. They can have a serious, adverse effect on the health, development, or functional ability of the infant. Among the total of 283,486 live births in Mississippi from 2008 to 2014, there were a total of 6,435 children with at least one birth defect. Some children were reported to have more than one birth defect. The total number of cases with birth defects was 8,253 (Table 1)

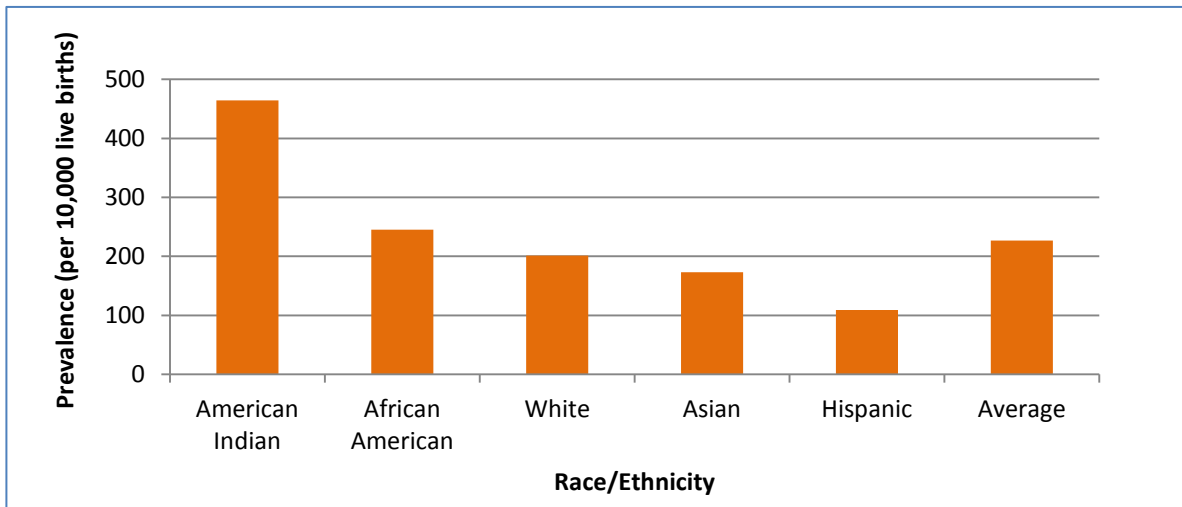
Table 2: Number of Birth Defects by Race/Ethnicity, 2008–2014

Birth Defects	White (Non-Hispanic)	African American (Non-Hispanic)	Hispanic	Asian (Non-Hispanic)	American Indian (Non-Hispanic)	Total*
Cardiovascular						
Aortic valve stenosis	21	5	1	0	0	28
Atrial septal defect	1547	1814	50	23	71	3645
Coarctation of aorta	49	37	2	0	0	89
Common truncus	10	6	1	0	0	17
Ebstein anomaly	11	7	0	0	0	18
Endocardial cushion defect	62	64	3	3	0	142
Hypoplastic left heart syndrome	53	30	0	0	0	87
Interrupted aortic arch (IAA)	4	2	1	1	0	8
Pulmonary valve atresia and stenosis	149	166	4	3	1	337
single ventricle	1	3	1	0	0	5
Tetralogy of Fallot	80	77	2	1	0	164
Transposition of great arteries	51	46	3	5	1	107
Tricuspid valve atresia and stenosis	10	24	1	2	0	38
Ventricular septal defect	697	628	42	14	18	1455
Central Nervous System						
Anencephaly	2	7	0	0	0	9
Encephalocele	5	4	1	0	1	11
Holoprosencephaly	4	7	0	0	0	11
Spina bifida without anencephaly	36	26	1	1	0	69
Chromosomal						
Down syndrome	120	97	7	1	3	241
Trisomy 13	7	7	0	1	0	16
Trisomy 18	19	11	2	0	1	34
Turner Syndrome	1	0	1	0	0	2
Ear						
Anotia/microtia	17	18	2	1	2	42
Eye						
Anophthalmia/microphthalmia	6	8	0	0	0	14
Congenital cataract	2	9	0	0	0	11
Gastrointestinal						
Biliary atresia	7	11	1	0	0	21
Esophageal atresia/tracheoesophageal fistula	33	22	2	0	2	60
Rectal and large intestinal atresia/stenosis	39	38	3	2	1	86
small intestinal atresia/stenosis	7	11	0	0	0	18
Genitourinary						
Cloacal exstrophy	2	7	1	0	0	10
Congenital posterior urethral valves	20	28	0	0	0	49
Hypospadias and Epispadias	406	466	10	4	1	909
Renal agenesis/hypoplasia	22	20	1	1	1	47
Musculoskeletal						
Clubfoot	6	0	1	0	0	7
Diaphragmatic hernia	24	25	2	1	0	58
Limb deficiencies (reduction defects)	43	43	1	1	1	94
Omphalocele	2	0	0	1	0	3
Orofacial						
Choanal atresia	4	2	0	0	0	7
Cleft lip alone (without cleft palate)	38	16	2	1	1	58
Cleft lip with cleft palate	75	55	3	5	2	147
Cleft palate alone (without clecft lip)	42	27	3	4	0	79
Grand Total	3,734	3,874	155	76	107	8,253

* Total includes unknown race/ethnicity

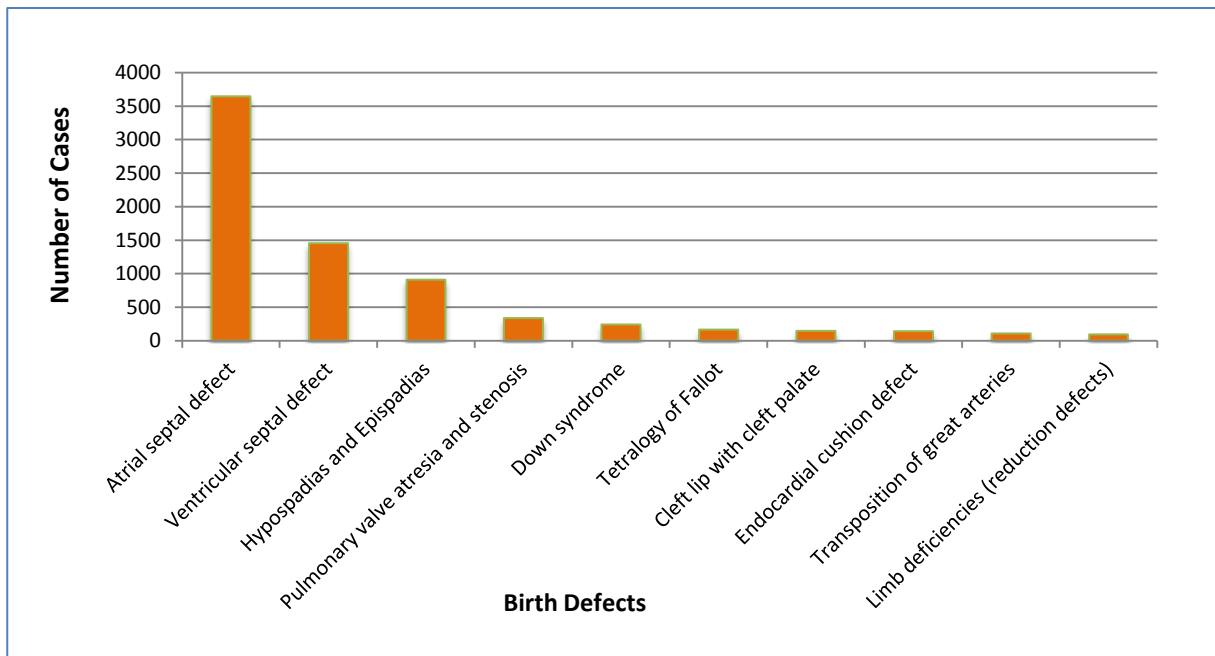
Some children had more than one birth defect; therefore, the total number of cases is more than the total number of children with birth defects.

Figure 1: Prevalence of Children with Birth Defects by Race/Ethnicity, 2008–2014



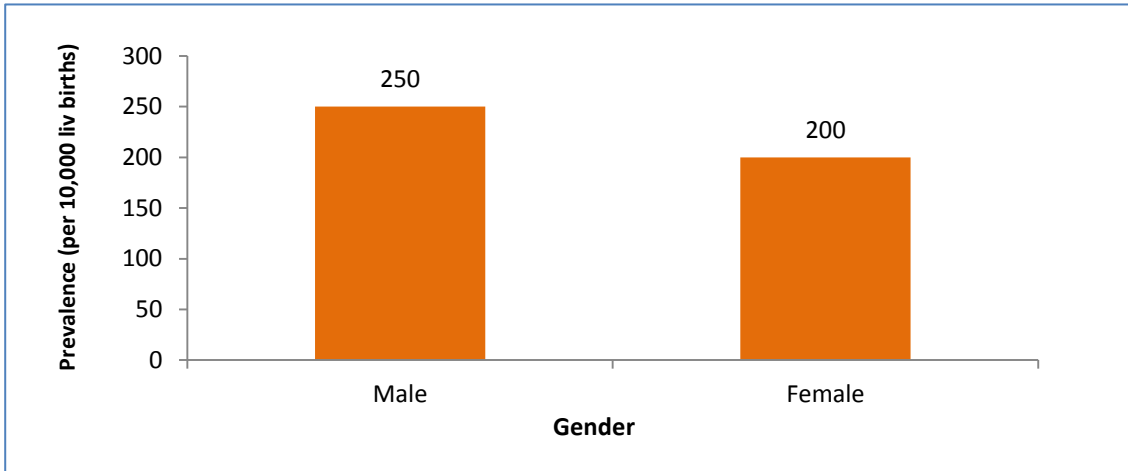
There were 283,486 live births in Mississippi during 2008-2014; of that total, 6,435 children had birth defects. The prevalence of infants with major birth defects was 227 per 10,000 live births. The highest prevalence was among American-Indian children, with a prevalence of 464 per 10,000 live births, followed by African American (245 per 10,000 live births), White (201 per 10,000 live births), Asian (173 per 10,000 live births), and Hispanic (109 per 10,000 live births).

Figure 2: Top 10 Birth Defects, 2008-2014



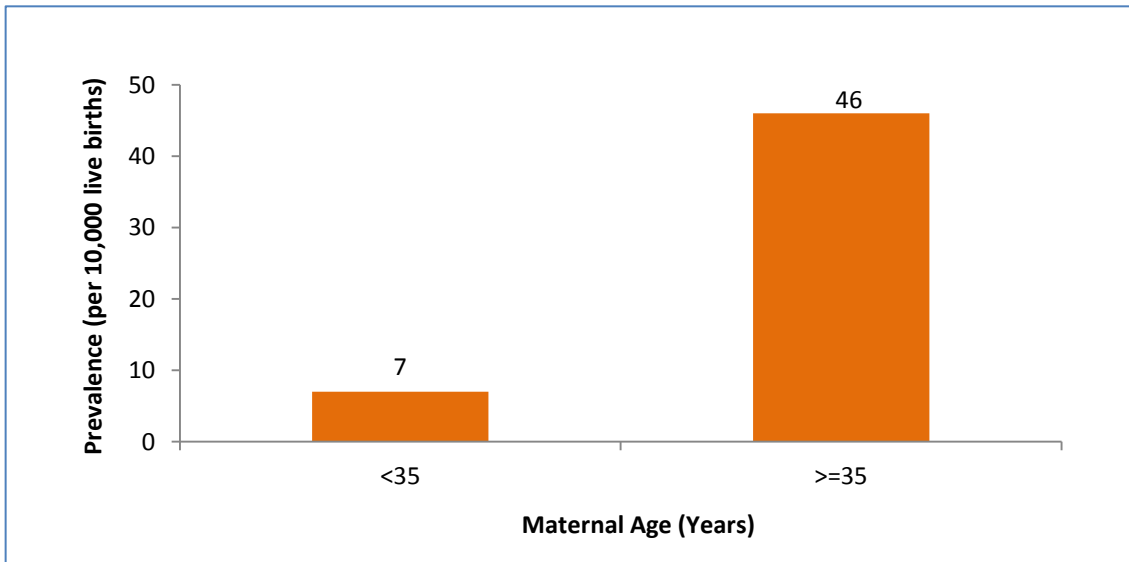
The 10 leading birth defects account for approximately 88% of the total cases of the major birth defects (Figure 2)

Figure 3: Prevalence of Birth Defects by Gender, 2008-2014



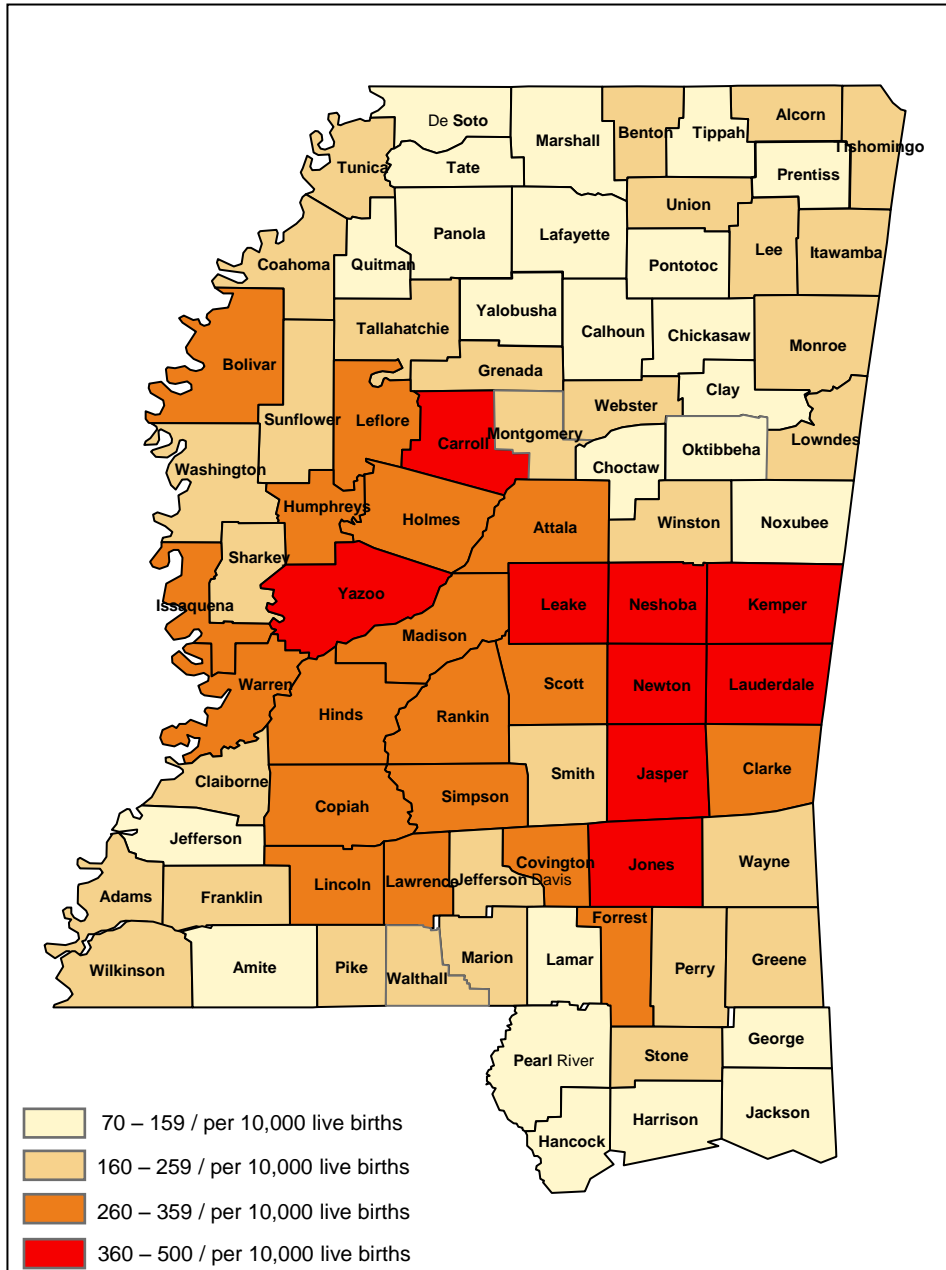
Birth defects among Mississippi males was significantly higher than that among females. The prevalence of birth defects for males is 250 per 10,000 live births compared to 200 per 10,000 live births for female.

Figure 4: Prevalence of Chromosomal Birth Defects by Maternal Age, 2008-2014



Chromosomal birth defects includes: down syndrome, trisomy 18, trisomy 13, and turner syndrome. The prevalence of chromosomal abnormalities increases with the maternal age. Mothers who were 35 years or older had a significantly higher risk of chromosomal birth defects than those who were less than 35 years old (46 versus 7 cases per 10,000 live births).

Figure 5: Prevalence of Birth Defects by County, 2008-2014



This map indicates the prevalence (per 10,000 live births) of birth defects by county of residence. Neshoba county had the highest rate of birth defects followed by Newton, Jasper, Lauderdale, and Jones. The prevalence of birth defects for the remaining counties in the state are found in Table 3.

Table 3: Number and Prevalence of Birth Defects by County, 2008-2014

County	Number of children with birth defects	Number of births	Prevalence of birth defects (per 10,000 live births)	County	Number of children with birth defects	Number of births	Prevalence of birth defects (per 10,000 live births)
Neshoba	159	3,201	500	Montgomery	20	959	210
Newton	103	2,139	480	Pike	87	4,197	210
Jasper	76	1,636	460	Washington	118	5,845	200
Lauderdale	323	7,592	430	Greene	19	974	200
Jones	280	7,131	390	Tunica	27	1,416	190
Kemper	26	686	380	Union	49	2,573	190
Carroll	25	683	370	Winston	29	1,576	180
Leake	83	2,304	360	Stone	28	1,533	180
Yazoo	99	2,773	360	Tishomingo	25	1,397	180
Madison	326	9,201	350	Lowndes	101	5,683	180
Bolivar	138	3,954	350	Marion	45	2,538	180
Copiah	94	2,781	340	Adams	49	2,772	180
Scott	111	3,310	340	Claiborne	16	910	180
Attala	63	1,900	330	Sharkey	9	532	170
Rankin	446	13,602	330	Wilkinson	14	859	160
Hinds	803	24,529	330	Walthall	22	1,356	160
Warren	146	4,563	320	Lee	131	8,333	160
Holmes	65	2,147	300	Jefferson	12	786	150
Issaquena	3	103	290	Clay	26	1,705	150
Simpson	72	2,502	290	Noxubee	18	1,186	150
Clarke	39	1,360	290	Quitman	12	797	150
Humphreys	30	1,071	280	Chickasaw	27	1,829	150
Leflore	102	3,697	280	Yalobusha	16	1,111	140
Forrest	213	7,848	270	Oktibbeha	57	3,958	140
Lincoln	92	3,402	270	Amite	14	1,004	140
Covington	52	1,981	260	Lamar	76	5,466	140
Lawrence	31	1,211	260	Prentiss	32	2,323	140
Tallahatchie	32	1,266	250	Tippah	26	1,964	130
Franklin	17	678	250	Harrison	234	19,725	120
Alcorn	76	3,113	240	Pearl River	57	4,838	120
Benton	17	699	240	Tate	28	2,423	120
Monroe	75	3,127	240	Calhoun	15	1,315	110
Jefferson Davis	26	1,088	240	Pontotoc	35	3,073	110
Webster	21	887	240	Choctaw	8	705	110
Smith	33	1,432	230	Lafayette	38	3,711	100
Sunflower	59	2,601	230	Panola	36	3,711	100
Wayne	45	2,013	220	Jackson	111	11,836	90
Perry	24	1,101	220	George	24	2,573	90
Coahoma	70	3,233	220	Marshall	28	3,339	80
Itawamba	40	1,887	210	De Soto	110	14,773	70
Grenada	42	2,004	210	Hancock	25	3,446	70

For questions regarding this report contact the MSDH Birth Defects Surveillance Registry/Office of Health Data and Research at 601-576-7619.