Major Birth Defects Data from Population-based Birth Defects Surveillance Programs in the United States, 2011-2015

The introduction, data collection procedure, and birth defects codes for the state-specific birth defects data are available in the article, "Population-based birth defects data in the United States, 2011-2015: A focus on eye and ear defects."

Additional information and program contacts on population-based birth defects surveillance programs are available on page S123-S177.

The state-specific birth defects tables were prepared by the National Center on Birth Defects and Developmental Disabilities, Centers for Disease Control and Prevention and approved by the state programs in August 2018.

The 41 population-based birth defects programs contributing data include:
Alaska Birth Defects Registry; Arizona Birth Defects Monitoring Program; Colorado Responds to Children with Special Needs Section; Delaware Birth Defects Registry; Florida Birth Defects Registry; Metropolitan Atlanta Congenital Defects Program; Hawaii Birth Defects Program; Illinois Adverse Pregnancy Outcomes Reporting System; Indiana Birth Defects and Problems Registry; Iowa Registry for Congenital and Inherited Disorders; Kansas Birth Defects Information System; Kentucky Birth Surveillance Registry; Louisiana Birth Defects Monitoring Network; Maine CDC Birth Defects Program; Maryland Birth Defects Reporting and Information System; Massachusetts Birth Defects Monitoring Program; Michigan Birth Defects Registry; Minnesota Birth Defects Information System; Mississippi Birth Defects Surveillance Registry; Missouri Birth Defects Surveillance System; Nebraska Birth Defect Registry; Nevada Birth Outcomes Monitoring System; New Jersey Special Child Health Services Registry; New Mexico Birth Defects Prevention and Surveillance System; New York State Congenital Malformations Registry; North Carolina Birth Defects Monitoring Program; Ohio Connections for Children with Special Needs; Oklahoma Birth Defects Registry; Oregon Birth Anomalies Surveillance System; Puerto Rico Birth Defects Surveillance and Prevention System; Rhode Island Birth Defects Program; South Carolina Birth Defects Program; Tennessee Birth Defects Surveillance System; Texas Birth Defects Epidemiology and Surveillance Branch; Utah Birth Defect Network; Vermont Birth Information Network; Virginia Congenital Anomalies and Reporting Education System; Washington State Birth Defects Surveillance System; West Virginia Birth Defects Surveillance System; Wisconsin Birth Defect Prevention and Surveillance System; and the U.S. Department of Defense Birth and Infant Health Registry.

Alaska

Birth Defects Counts and Prevalence 2011 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Anencephalus	<6	<6	0 ***0.0***	0 ***0.0***	<6	<6	
Anophthalmia/microphthalmia	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	<6	<6	
Anotia/microtia	7 ***2.9***	<6	<6	<6	9 ***8.3***	19 ***4.2***	
Aortic valve stenosis	0 ***0.0***	0 ***0.0***	0 ***0.0***	<6	<6	8 ***1.8***	
Atrial septal defect	312 ***129.9***	32 ***196.2***	51 ***161.2***	73 ***175.4***	264 ***243.2***	780 ***171.1***	
Atrioventricular septal defect (Endocardial cushion defect)	11 ***4.6***	<6	0 ***0.0***	<6	7 ***6.4***	26 ***5.7***	
Biliary atresia	<6	0 ***0.0***	0 ***0.0***	0 ***0.0***	<6	<6	
Bladder exstrophy	<6	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	<6	
Choanal atresia	6 ***2.5***	<6	0 ***0.0***	<6	<6	12 ***2.6***	
Cleft lip alone	24 ***10.0***	0 ***0.0***	<6	<6	19 ***17.5***	55 ***12.1***	
Cleft lip with cleft palate	22 ***9.2***	<6	<6	<6	20 ***18.4***	55 ***12.1***	
Cleft palate alone	40 ***16.7***	<6	<6	6 ***14.4***	35 ***32.2***	92 ***20.2***	
Cloacal exstrophy	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	
Clubfoot	❖	<6	❖	❖	❖	161 ***35.3***	
Coarctation of the aorta	10 ***4.2***	<6	<6	<6	6 ***5.5***	23 ***5.0***	
Common truncus (truncus arteriosus)	<6	<6	0 ***0.0***	<6	<6	14 ***3.1***	
Congenital cataract	❖	0 ***0.0***	0 ***0.0***	<6	❖	20 ***4.4***	
Congenital posterior urethral valves	20 ***16.3***	<6	<6	<6	<6	34 ***14.5***	1
Craniosynostosis	<6	0 ***0.0***	0 ***0.0***	<6	<6	8 ***1.8***	
Deletion 22q11.2	<6	0 ***0.0***	0 ***0.0***	0 ***0.0***	<6	6 ***1.3***	
Diaphragmatic hernia	<6	0 ***0.0***	<6	0 ***0.0***	15 ***13.8***	21 ***4.6***	
Double outlet right ventricle	<6	0 ***0.0***	0 ***0.0***	<6	<6	8 ***1.8***	
Ebstein anomaly	<6	0 ***0.0***	0 ***0.0***	0 ***0.0***	<6	<6	
Encephalocele	<6	<6	<6	<6	<6	10 ***2.2***	
Esophageal atresia/tracheoesophageal fistula	<6	0 ***0.0***	0 ***0.0***	0 ***0.0***	❖	13 ***2.9***	
Gastroschisis	16 ***6.7***	0 ***0.0***	<6	<6	17 ***15.7***	38 ***8.3***	
Holoprosencephaly	21 ***8.7***	7 ***42.9***	<6	6 ***14.4***	28 ***25.8***	66 ***14.5***	
Hypoplastic left heart syndrome	<6	0 ***0.0***	<6	<6	<6	7 ***1.5***	
Hypospadias	164 ***133.9***	7 ***82.4***	20 ***125.9***	12 ***55.0***	51 ***91.0***	266 ***113.8***	1
Interrupted aortic arch	12 ***5.0***	<6	0 ***0.0***	<6	13 ***12.0***	33 ***7.2***	

Alaska

Birth Defects Counts and Prevalence 2011 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Limb deficiencies (reduction defects)	22 ***9.2***	<6	<6	<6	15 ***13.8***	45 ***9.9***	
Omphalocele	24 ***10.0***	<6	<6	8 ***19.2***	25 ***23.0***	61 ***13.4***	
Pulmonary valve atresia and stenosis	15 ***6.2***	<6	<6	<6	29 ***26.7***	57 ***12.5***	
Rectal and large intestinal atresia/stenosis	11 ***4.6***	<6	<6	<6	16 ***14.7***	37 ***8.1***	
Renal agenesis/hypoplasia	15 ***6.2***	<6	<6	<6	11 ***10.1***	35 ***7.7***	
Single ventricle	<6	0 ***0.0***	<6	<6	<6	11 ***2.4***	
Small intestinal atresia/stenosis	10 ***4.2***	<6	0 ***0.0***	<6	10 ***9.2***	27 ***5.9***	
Spina bifida without anencephalus	<6	<6	<6	<6	6 ***5.5***	15 ***3.3***	
Tetralogy of Fallot	13 ***5.4***	<6	<6	<6	10 ***9.2***	31 ***6.8***	
Total anomalous pulmonary venous connection	<6	0 ***0.0***	0 ***0.0***	<6	<6	<6	
Transposition of the great arteries (TGA)	9 ***3.7***	0 ***0.0***	<6	<6	<6	20 ***4.4***	
Tricuspid valve atresia and stenosis	<6	0 ***0.0***	0 ***0.0***	0 ***0.0***	<6	<6	
Trisomy 13	<6	0 ***0.0***	0 ***0.0***	<6	0 ***0.0***	<6	
Trisomy 18	<6	0 ***0.0***	0 ***0.0***	<6	<6	11 ***2.4***	
Trisomy 21 (Down syndrome)	❖	<6	❖	❖	❖	74 ***16.2***	
Turner syndrome	<6	0 ***0.0***	0 ***0.0***	0 ***0.0***	<6	<6	2
Ventricular septal defect	186 ***77.4***	16 ***98.1***	28 ***88.5***	32 ***76.9***	186 ***171.3***	470 ***103.1***	
Total live births	**24,019**	**1,631**	**3,164**	**4,162**	**10,857**	**45,578**	**3**
Male live births	**12,252**	**849**	**1,589**	**2,180**	**5,603**	**23,384**	
Female live births	**11,767**	**782**	**1,575**	**1,982**	**5,254**	**22,192**	

Alaska

Birth Defects Counts and Prevalence 2011 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	38 ***9.5***	0 ***0.0***	38 ***8.3***	
Trisomy 13	<6	<6	<6	
Trisomy 18	❖	<6	11 ***2.4***	
Trisomy 21 (Down syndrome)	45 ***11.3***	29 ***51.1***	74 ***16.2***	
Total live births	**39,887**	**5,678**	**45,578**	**3**

Notes

1. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
2. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
3. Total live births includes unknown gender.

General comments

*Totals include unknown and/or other.

-<6 indicates cell size suppressed to protect confidentiality or to indicate a case count <6. A rhomboidal star (❖) is used to protect confidentiality where case counts in at least one other column are less than 6.

Arizona

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Anencephalus	22	3	35	1	5	67	
	1.2	***1.4***	***2.0***	***0.6***	***2.0***	***1.6***	
Anophthalmia/microphthalmia	25	6	14	4	7	56	
	1.3	***2.9***	***0.8***	***2.5***	***2.7***	***1.3***	
Anotia/microtia	16	4	25	3	7	55	
	0.9	***1.9***	***1.5***	***1.8***	***2.7***	***1.3***	
Aortic valve stenosis	30	0	18	2	7	57	
	1.6	***0.0***	***1.1***	***1.2***	***2.7***	***1.3***	
Atrioventricular septal defect (Endocardial cushion defect)	68	10	56	4	8	147	1
	4.6	***5.9***	***4.1***	***3.1***	***4.0***	***4.3***	
Biliary atresia	9	0	5	1	3	18	
	0.5	***0.0***	***0.3***	***0.6***	***1.2***	***0.4***	
Bladder exstrophy	6	0	2	0	0	8	
	0.3	***0.0***	***0.1***	***0.0***	***0.0***	***0.2***	
Choanal atresia	19	5	13	1	1	40	
	1.0	***2.4***	***0.8***	***0.6***	***0.4***	***0.9***	
Cleft lip alone	79	5	38	7	14	143	
	4.2	***2.4***	***2.2***	***4.3***	***5.5***	***3.3***	
Cleft lip with cleft palate	126	13	91	10	31	271	
	6.7	***6.2***	***5.3***	***6.2***	***12.2***	***6.3***	
Cleft palate alone	119	13	67	13	23	236	
	6.3	***6.2***	***3.9***	***8.0***	***9.0***	***5.5***	
Coarctation of the aorta	88	10	67	2	14	181	
	4.7	***4.8***	***3.9***	***1.2***	***5.5***	***4.2***	
Common truncus (truncus arteriosus)	15	1	5	2	1	24	
	0.8	***0.5***	***0.3***	***1.2***	***0.4***	***0.6***	
Congenital cataract	16	3	7	1	5	32	
	0.9	***1.4***	***0.4***	***0.6***	***2.0***	***0.7***	
Diaphragmatic hernia	53	4	44	5	9	115	
	2.8	***1.9***	***2.6***	***3.1***	***3.5***	***2.7***	
Double outlet right ventricle	31	6	38	5	10	90	
	2.1	***3.5***	***2.8***	***3.9***	***5.0***	***2.6***	
Ebstein anomaly	14	0	6	1	5	26	
	0.7	***0.0***	***0.4***	***0.6***	***2.0***	***0.6***	
Encephalocele	15	3	14	0	2	34	
	0.8	***1.4***	***0.8***	***0.0***	***0.8***	***0.8***	
Esophageal atresia/tracheoesophageal fistula	44	3	38	4	6	96	
	2.3	***1.4***	***2.2***	***2.5***	***2.4***	***2.2***	
Gastroschisis	112	18	123	8	37	298	
	6.0	***8.6***	***7.2***	***4.9***	***14.5***	***7.0***	
Holoprosencephaly	10	2	11	0	2	25	2
	0.7	***1.2***	***0.8***	***0.0***	***1.0***	***0.7***	
Hypoplastic left heart syndrome	46	9	28	3	6	92	
	2.5	***4.3***	***1.6***	***1.8***	***2.4***	***2.2***	
Interrupted aortic arch	12	3	8	1	2	26	2
	0.8	***1.8***	***0.6***	***0.8***	***1.0***	***0.8***	
Limb deficiencies (reduction defects)	51	11	37	3	12	114	
	2.7	***5.2***	***2.2***	***1.8***	***4.7***	***2.7***	
Omphalocele	56	7	32	4	2	101	
	3.0	***3.3***	***1.9***	***2.5***	***0.8***	***2.4***	
Pulmonary valve atresia and stenosis	120	14	88	9	23	255	
	6.4	***6.7***	***5.1***	***5.5***	***9.0***	***6.0***	
Pulmonary valve atresia	48	9	37	5	11	110	
	2.6	***4.3***	***2.2***	***3.1***	***4.3***	***2.6***	
Single ventricle	17	2	16	0	1	36	
	0.9	***1.0***	***0.9***	***0.0***	***0.4***	***0.8***	
Spina bifida without anencephalus	65	5	48	4	13	136	
	3.5	***2.4***	***2.8***	***2.5***	***5.1***	***3.2***	
Tetralogy of Fallot	81	8	49	10	22	171	
	4.3	***3.8***	***2.9***	***6.2***	***8.6***	***4.0***	

Arizona

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Total anomalous pulmonary venous connection	22 ***1.2***	3 ***1.4***	38 ***2.2***	4 ***2.5***	4 ***1.6***	71 ***1.7***	
Transposition of the great arteries (TGA)	75 ***4.0***	8 ***3.8***	53 ***3.1***	3 ***1.8***	4 ***1.6***	143 ***3.3***	
Dextro-transposition of great arteries (d-TGA)	52 ***2.8***	2 ***1.0***	34 ***2.0***	3 ***1.8***	2 ***0.8***	93 ***2.2***	
Tricuspid valve atresia and stenosis	15 ***0.8***	2 ***1.0***	11 ***0.6***	3 ***1.8***	3 ***1.2***	34 ***0.8***	
Tricuspid valve atresia	14 ***0.7***	2 ***1.0***	11 ***0.6***	3 ***1.8***	3 ***1.2***	33 ***0.8***	
Trisomy 13	22 ***1.2***	6 ***2.9***	9 ***0.5***	1 ***0.6***	3 ***1.2***	41 ***1.0***	
Trisomy 18	40 ***2.1***	3 ***1.4***	35 ***2.0***	5 ***3.1***	3 ***1.2***	86 ***2.0***	
Trisomy 21 (Down syndrome)	265 ***14.1***	29 ***13.8***	217 ***12.7***	26 ***16.0***	42 ***16.5***	580 ***13.6***	
Total live births	**187,608**	**21,006**	**171,012**	**16,236**	**25,508**	**427,533**	

Arizona

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	291	7	298	
	7.9	***1.2***	***7.0***	
Trisomy 13	30	11	41	
	0.8	***1.8***	***1.0***	
Trisomy 18	46	40	86	
	1.3	***6.7***	***2.0***	
Trisomy 21 (Down syndrome)	305	273	580	
	8.3	***45.5***	***13.6***	
Total live births	**367,457**	**60,035**	**427,533**	

Notes
1. Data for this condition begin mid-year 2011.
2. Data for this condition begin in 2012.

General comments
*Totals include unknown and/or other.
-Data for 2015 are provisional.
-Data for conditions exclude possible cases.
-Data for conditions exclude terminations.
-Stillborn cases are included in this report if there is a fetal death certificate, regardless of fetal weight or gestational age.

Colorado

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Anencephalus	16	4	14	0	0	40	
	0.8	***2.8***	***1.6***	***0.0***	***0.0***	***1.2***	
Anophthalmia/microphthalmia	36	1	22	2	1	68	
	1.8	***0.7***	***2.5***	***1.7***	***4.8***	***2.1***	
Anotia/microtia	22	1	43	4	0	87	
	1.1	***0.7***	***4.8***	***3.3***	***0.0***	***2.7***	
Aortic valve stenosis	66	3	26	2	0	102	
	3.3	***2.1***	***2.9***	***1.7***	***0.0***	***3.1***	
Atrial septal defect	2,369	235	1,173	152	35	4,290	
	116.8	***163.0***	***130.9***	***125.7***	***166.6***	***130.9***	
Atrioventricular septal defect (Endocardial cushion defect)	51	7	25	1	0	96	
	2.5	***4.9***	***2.8***	***0.8***	***0.0***	***2.9***	
Biliary atresia	26	0	12	0	1	47	
	1.3	***0.0***	***1.3***	***0.0***	***4.8***	***1.4***	
Bladder exstrophy	6	0	2	0	0	10	
	0.3	***0.0***	***0.2***	***0.0***	***0.0***	***0.3***	
Choanal atresia	38	1	17	1	0	61	
	1.9	***0.7***	***1.9***	***0.8***	***0.0***	***1.9***	
Cleft lip alone	81	7	38	4	0	138	
	4.0	***4.9***	***4.2***	***3.3***	***0.0***	***4.2***	
Cleft lip with cleft palate	150	7	78	6	2	259	
	7.4	***4.9***	***8.7***	***5.0***	***9.5***	***7.9***	
Cleft palate alone	175	8	70	19	3	298	
	8.6	***5.5***	***7.8***	***15.7***	***14.3***	***9.1***	
Cloacal exstrophy	116	16	78	11	1	228	
	5.7	***11.1***	***8.7***	***9.1***	***4.8***	***7.0***	
Clubfoot	363	16	163	18	6	619	
	17.9	***11.1***	***18.2***	***14.9***	***28.6***	***18.9***	
Coarctation of the aorta	188	15	65	4	0	297	
	9.3	***10.4***	***7.3***	***3.3***	***0.0***	***9.1***	
Common truncus (truncus arteriosus)	17	0	6	0	0	26	
	0.8	***0.0***	***0.7***	***0.0***	***0.0***	***0.8***	
Congenital cataract	46	1	21	3	1	80	
	2.3	***0.7***	***2.3***	***2.5***	***4.8***	***2.4***	
Congenital posterior urethral valves	28	3	9	2	0	55	1
	2.7	***4.1***	***2.0***	***3.3***	***0.0***	***3.3***	
Deletion 22q11.2	24	3	15	0	0	46	
	1.2	***2.1***	***1.7***	***0.0***	***0.0***	***1.4***	
Diaphragmatic hernia	32	4	17	1	0	59	
	1.6	***2.8***	***1.9***	***0.8***	***0.0***	***1.8***	
Double outlet right ventricle	31	6	23	3	0	69	
	1.5	***4.2***	***2.6***	***2.5***	***0.0***	***2.1***	
Ebstein anomaly	16	0	3	2	0	25	
	0.8	***0.0***	***0.3***	***1.7***	***0.0***	***0.8***	
Encephalocele	14	4	13	1	0	37	
	0.7	***2.8***	***1.5***	***0.8***	***0.0***	***1.1***	
Esophageal atresia/tracheoesophageal fistula	91	2	37	5	0	148	
	4.5	***1.4***	***4.1***	***4.1***	***0.0***	***4.5***	
Gastroschisis	74	6	46	2	3	145	
	3.6	***4.2***	***5.1***	***1.7***	***14.3***	***4.4***	
Holoprosencephaly	13	1	13	2	0	32	
	0.6	***0.7***	***1.5***	***1.7***	***0.0***	***1.0***	
Hypoplastic left heart syndrome	61	3	25	1	0	93	
	3.0	***2.1***	***2.8***	***0.8***	***0.0***	***2.8***	
Hypospadias	1,314	96	322	46	14	1,880	1
	126.6	***129.9***	***70.2***	***75.6***	***130.2***	***112.1***	
Interrupted aortic arch	42	9	22	2	0	81	
	2.1	***6.2***	***2.5***	***1.7***	***0.0***	***2.5***	
Limb deficiencies (reduction defects)	81	6	44	1	0	150	
	4.0	***4.2***	***4.9***	***0.8***	***0.0***	***4.6***	

Colorado

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Omphalocele	37	2	18	2	1	82	
	1.8	***1.4***	***2.0***	***1.7***	***4.8***	***2.5***	
Pulmonary valve atresia and stenosis	123	15	57	6	3	227	
	6.1	***10.4***	***6.4***	***5.0***	***14.3***	***6.9***	
Pulmonary valve atresia	35	7	21	0	1	70	
	1.7	***4.9***	***2.3***	***0.0***	***4.8***	***2.1***	
Rectal and large intestinal atresia/stenosis	84	11	47	7	3	173	
	4.1	***7.6***	***5.2***	***5.8***	***14.3***	***5.3***	
Renal agenesis/hypoplasia	107	10	45	6	4	199	
	5.3	***6.9***	***5.0***	***5.0***	***19.0***	***6.1***	
Single ventricle	12	2	5	0	1	24	
	0.6	***1.4***	***0.6***	***0.0***	***4.8***	***0.7***	
Small intestinal atresia/stenosis	93	7	61	7	1	176	
	4.6	***4.9***	***6.8***	***5.8***	***4.8***	***5.4***	
Spina bifida without anencephalus	58	3	38	2	1	115	
	2.9	***2.1***	***4.2***	***1.7***	***4.8***	***3.5***	
Tetralogy of Fallot	59	3	38	1	2	105	
	2.9	***2.1***	***4.2***	***0.8***	***9.5***	***3.2***	
Total anomalous pulmonary venous connection	18	1	17	2	0	40	
	0.9	***0.7***	***1.9***	***1.7***	***0.0***	***1.2***	
Transposition of the great arteries (TGA)	49	3	19	5	0	78	
	2.4	***2.1***	***2.1***	***4.1***	***0.0***	***2.4***	
Dextro-transposition of great arteries (d-TGA)	39	3	17	5	0	65	
	1.9	***2.1***	***1.9***	***4.1***	***0.0***	***2.0***	
Tricuspid valve atresia and stenosis	28	7	10	0	0	48	
	1.4	***4.9***	***1.1***	***0.0***	***0.0***	***1.5***	
Tricuspid valve atresia	25	7	10	0	0	45	
	1.2	***4.9***	***1.1***	***0.0***	***0.0***	***1.4***	
Trisomy 13	21	4	12	2	0	85	
	1.0	***2.8***	***1.3***	***1.7***	***0.0***	***2.6***	
Trisomy 18	31	7	16	7	0	151	
	1.5	***4.9***	***1.8***	***5.8***	***0.0***	***4.6***	
Trisomy 21 (Down syndrome)	254	30	187	13	3	739	
	12.5	***20.8***	***20.9***	***10.7***	***14.3***	***22.6***	
Turner syndrome	25	4	17	2	0	76	2
	2.5	***5.7***	***3.9***	***3.3***	***0.0***	***4.8***	
Ventricular septal defect	987	77	522	53	18	1,787	
	48.7	***53.4***	***58.3***	***43.8***	***85.7***	***54.5***	
Total live births	**202,823**	**14,416**	**89,608**	**12,097**	**2,101**	**327,683**	**3**
Male live births	**103,791**	**7,392**	**45,877**	**6,084**	**1,075**	**167,681**	
Female live births	**99,028**	**7,023**	**43,729**	**6,012**	**1,026**	**159,994**	

Colorado

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	133	6	145	
	4.9	***1.0***	***4.4***	
Trisomy 13	29	15	85	
	1.1	***2.6***	***2.6***	
Trisomy 18	41	25	151	
	1.5	***4.3***	***4.6***	
Trisomy 21 (Down syndrome)	247	263	739	
	9.2	***45.3***	***22.6***	
Total live births	**269,556**	**58,026**	**327,683**	**3**

Notes

1. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
2. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
3. Total live births includes unknown gender.

General comments

*Totals include unknown and/or other.

Delaware

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Anencephalus	3	2	0	0	0	5	
	1.1	***1.4***	***0.0***	***0.0***	***0.0***	***1.0***	
Anophthalmia/microphthalmia	3	5	3	0	0	11	
	1.1	***3.5***	***4.3***	***0.0***	***0.0***	***2.1***	
Anotia/microtia	11	4	9	2	0	26	
	3.9	***2.8***	***12.9***	***7.3***	***0.0***	***5.0***	
Aortic valve stenosis	5	1	3	1	0	10	
	1.8	***0.7***	***4.3***	***3.7***	***0.0***	***1.9***	
Atrial septal defect	82	38	30	7	0	160	1
	29.2	***27.0***	***43.1***	***25.6***	***0.0***	***30.5***	
Atrioventricular septal defect (Endocardial cushion defect)	14	13	6	0	0	34	
	5.0	***9.2***	***8.6***	***0.0***	***0.0***	***6.5***	
Biliary atresia	1	1	0	0	0	4	
	0.4	***0.7***	***0.0***	***0.0***	***0.0***	***0.8***	
Bladder exstrophy	2	1	0	0	0	3	
	0.7	***0.7***	***0.0***	***0.0***	***0.0***	***0.6***	
Choanal atresia	2	3	1	0	0	6	
	0.7	***2.1***	***1.4***	***0.0***	***0.0***	***1.1***	
Cleft lip alone	9	1	5	1	0	16	
	3.2	***0.7***	***7.2***	***3.7***	***0.0***	***3.1***	
Cleft lip with cleft palate	18	8	5	2	0	35	
	6.4	***5.7***	***7.2***	***7.3***	***0.0***	***6.7***	
Cleft palate alone	21	10	6	0	0	37	2
	7.5	***7.1***	***8.6***	***0.0***	***0.0***	***7.1***	
Cloacal exstrophy	1	1	0	0	0	2	
	0.4	***0.7***	***0.0***	***0.0***	***0.0***	***0.4***	
Clubfoot	43	19	12	4	0	81	
	15.3	***13.5***	***17.2***	***14.6***	***0.0***	***15.5***	
Coarctation of the aorta	24	6	5	4	0	39	
	8.6	***4.3***	***7.2***	***14.6***	***0.0***	***7.4***	
Common truncus (truncus arteriosus)	1	1	1	0	0	3	
	0.4	***0.7***	***1.4***	***0.0***	***0.0***	***0.6***	
Congenital cataract	6	1	1	2	0	10	
	2.1	***0.7***	***1.4***	***7.3***	***0.0***	***1.9***	
Congenital posterior urethral valves	3	5	0	1	0	9	3
	2.1	***7.0***	***0.0***	***7.0***	***0.0***	***3.4***	
Craniosynostosis	17	6	1	0	0	25	
	6.1	***4.3***	***1.4***	***0.0***	***0.0***	***4.8***	
Deletion 22q11.2	6	1	0	0	0	7	
	2.1	***0.7***	***0.0***	***0.0***	***0.0***	***1.3***	
Diaphragmatic hernia	5	0	0	1	0	6	
	1.8	***0.0***	***0.0***	***3.7***	***0.0***	***1.1***	
Double outlet right ventricle	3	3	1	1	0	9	
	1.1	***2.1***	***1.4***	***3.7***	***0.0***	***1.7***	
Ebstein anomaly	2	0	0	0	0	2	
	0.9	***0.0***	***0.0***	***0.0***	***0.0***	***0.5***	
Encephalocele	1	3	1	0	0	5	
	0.4	***2.1***	***1.4***	***0.0***	***0.0***	***1.0***	
Esophageal atresia/tracheoesophageal fistula	5	1	0	0	0	6	
	1.8	***0.7***	***0.0***	***0.0***	***0.0***	***1.1***	
Gastroschisis	19	11	5	2	0	38	
	6.8	***7.8***	***7.2***	***7.3***	***0.0***	***7.3***	
Holoprosencephaly	1	4	3	0	0	8	
	0.4	***2.8***	***4.3***	***0.0***	***0.0***	***1.5***	
Hypoplastic left heart syndrome	10	2	3	0	0	15	
	3.6	***1.4***	***4.3***	***0.0***	***0.0***	***2.9***	
Hypospadias	145	52	14	14	0	228	4
	101.6	***72.8***	***40.1***	***97.6***	***0.0***	***85.7***	
Interrupted aortic arch	0	0	1	0	0	1	
	0.0	***0.0***	***2.3***	***0.0***	***0.0***	***0.3***	

Delaware

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Limb deficiencies (reduction defects)	22	13	5	3	0	43	
	7.8	***9.2***	***7.2***	***11.0***	***0.0***	***8.2***	
Omphalocele	3	7	3	0	0	13	
	1.1	***5.0***	***4.3***	***0.0***	***0.0***	***2.5***	
Pulmonary valve atresia and stenosis	34	29	7	0	1	73	
	12.1	***20.6***	***10.1***	***0.0***	***91.7***	***13.9***	
Pulmonary valve atresia	8	3	4	0	0	15	
	2.9	***2.1***	***5.7***	***0.0***	***0.0***	***2.9***	
Rectal and large intestinal atresia/stenosis	17	6	0	2	0	25	
	6.1	***4.3***	***0.0***	***7.3***	***0.0***	***4.8***	
Renal agenesis/hypoplasia	27	7	2	1	0	37	
	9.6	***5.0***	***2.9***	***3.7***	***0.0***	***7.1***	
Single ventricle	1	1	1	0	0	3	
	0.4	***0.7***	***1.4***	***0.0***	***0.0***	***0.6***	
Small intestinal atresia/stenosis	10	8	4	0	0	22	
	3.6	***5.7***	***5.7***	***0.0***	***0.0***	***4.2***	
Spina bifida without anencephalus	3	5	3	0	0	11	
	1.1	***3.5***	***4.3***	***0.0***	***0.0***	***2.1***	
Tetralogy of Fallot	12	7	1	1	0	21	
	4.3	***5.0***	***1.4***	***3.7***	***0.0***	***4.0***	
Total anomalous pulmonary venous connection	3	1	5	1	0	10	
	1.3	***0.9***	***9.0***	***4.5***	***0.0***	***2.4***	
Transposition of the great arteries (TGA)	10	2	3	0	0	15	
	3.6	***1.4***	***4.3***	***0.0***	***0.0***	***2.9***	
Dextro-transposition of great arteries (d-TGA)	1	0	1	0	0	2	
	0.4	***0.0***	***1.4***	***0.0***	***0.0***	***0.4***	
Tricuspid valve atresia and stenosis	2	3	1	1	0	7	
	0.7	***2.1***	***1.4***	***3.7***	***0.0***	***1.3***	
Tricuspid valve atresia	2	1	0	1	0	4	
	0.7	***0.7***	***0.0***	***3.7***	***0.0***	***0.8***	
Trisomy 13	5	3	1	1	0	10	
	1.8	***2.1***	***1.4***	***3.7***	***0.0***	***1.9***	
Trisomy 18	8	1	4	2	0	15	
	2.9	***0.7***	***5.7***	***7.3***	***0.0***	***2.9***	
Trisomy 21 (Down syndrome)	40	16	16	5	0	78	
	14.3	***11.3***	***23.0***	***18.3***	***0.0***	***14.9***	
Turner syndrome	4	0	1	0	0	6	5
	2.9	***0.0***	***2.9***	***0.0***	***0.0***	***2.3***	
Ventricular septal defect	240	91	61	22	0	423	6
	85.6	***64.5***	***87.7***	***80.4***	***0.0***	***80.7***	
Total live births	**28,052**	**14,099**	**6,959**	**2,738**	**109**	**52,397**	
Male live births	**14,267**	**7,138**	**3,487**	**1,435**	**39**	**26,592**	
Female live births	**13,785**	**6,961**	**3,472**	**1,303**	**70**	**25,805**	

Delaware

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	36	2	38	
	8.0	***2.6***	***7.3***	
Trisomy 13	8	2	10	
	1.8	***2.6***	***1.9***	
Trisomy 18	3	12	15	
	0.7	***15.8***	***2.9***	
Trisomy 21 (Down syndrome)	41	37	78	
	9.2	***48.7***	***14.9***	
Total live births	**44,801**	**7,596**	**52,397**	

Notes

1. Data for this condition include atrial septal fenestrations and exclude atrial septal defects that self-close (not present after a month), which are considered patent foramen ovales.
2. Data for this condition include Pierre Robin anomalies with cleft palate.
3. Data for this condition include only cases involving surgical intervention. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
4. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
5. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
6. Data for this condition include probable cases only if the defect was found prenatally and the fetus died without a confirmatory autopsy.

General comments

*Totals include unknown and/or other.
-All heart defects require an echocardiogram report.
-Fetal deaths and terminations are included if the fetus weighed 350 grams or higher or 20 weeks gestation or greater.

Florida

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Anencephalus	42	26	22	<5	0	92	
	0.9	***1.1***	***0.7***		***0.0***	***0.9***	
Anophthalmia/microphthalmia	48	29	36	<5	0	116	
	1.0	***1.2***	***1.2***		***0.0***	***1.1***	
Anotia/microtia	30	17	45	8	0	104	
	0.6	***0.7***	***1.5***	***2.5***	***0.0***	***1.0***	
Aortic valve stenosis	71	20	37	<5	0	136	
	1.5	***0.8***	***1.2***		***0.0***	***1.3***	
Atrial septal defect	4,948	3,110	3,978	275	21	12,655	
	103.4	***131.1***	***132.3***	***86.2***	***161.2***	***117.4***	
Atrioventricular septal defect (Endocardial cushion defect)	197	122	88	10	<5	432	1
	4.1	***5.1***	***2.9***	***3.1***		***4.0***	
Biliary atresia	44	32	17	7	0	102	
	0.9	***1.3***	***0.6***	***2.2***	***0.0***	***0.9***	
Bladder exstrophy	15	<5	<5	0	0	24	
	0.3			***0.0***	***0.0***	***0.2***	
Choanal atresia	102	37	60	<5	<5	209	
	2.1	***1.6***	***2.0***			***1.9***	
Cleft lip alone	150	36	53	<5	0	249	
	3.1	***1.5***	***1.8***		***0.0***	***2.3***	
Cleft lip with cleft palate	270	92	157	15	<5	549	
	5.6	***3.9***	***5.2***	***4.7***		***5.1***	
Cleft palate alone	280	81	135	27	<5	537	
	5.8	***3.4***	***4.5***	***8.5***		***5.0***	
Cloacal exstrophy	275	148	180	10	<5	630	
	5.7	***6.2***	***6.0***	***3.1***		***5.8***	
Clubfoot	764	270	374	26	<5	1,471	
	16.0	***11.4***	***12.4***	***8.2***		***13.7***	
Coarctation of the aorta	387	143	161	15	0	726	
	8.1	***6.0***	***5.4***	***4.7***	***0.0***	***6.7***	
Common truncus (truncus arteriosus)	31	14	20	<5	0	69	
	0.6	***0.6***	***0.7***		***0.0***	***0.6***	
Congenital cataract	67	21	34	0	0	126	
	1.4	***0.9***	***1.1***	***0.0***	***0.0***	***1.2***	
Congenital posterior urethral valves	48	47	20	<5	0	116	2
	1.9	***3.9***	***1.3***		***0.0***	***2.1***	
Craniosynostosis	30	7	20	0	0	58	
	0.6	***0.3***	***0.7***	***0.0***	***0.0***	***0.5***	
Deletion 22q11.2	16	6	<5	0	0	27	
	0.3	***0.3***		***0.0***	***0.0***	***0.3***	
Diaphragmatic hernia	141	71	90	9	<5	318	
	2.9	***3.0***	***3.0***	***2.8***		***3.0***	
Double outlet right ventricle	111	56	66	9	<5	254	
	2.3	***2.4***	***2.2***	***2.8***		***2.4***	
Ebstein anomaly	44	13	16	<5	0	78	
	0.9	***0.5***	***0.5***		***0.0***	***0.7***	
Encephalocele	37	21	22	<5	0	83	
	0.8	***0.9***	***0.7***		***0.0***	***0.8***	
Esophageal atresia/tracheoesophageal fistula	113	60	65	8	<5	252	
	2.4	***2.5***	***2.2***	***2.5***		***2.3***	
Gastroschisis	275	60	125	10	<5	478	3
	5.7	***2.5***	***4.2***	***3.1***		***4.4***	
Holoprosencephaly	199	121	121	12	0	463	
	4.2	***5.1***	***4.0***	***3.8***	***0.0***	***4.3***	
Hypoplastic left heart syndrome	172	81	69	10	0	341	
	3.6	***3.4***	***2.3***	***3.1***	***0.0***	***3.2***	
Hypospadias	2,205	807	845	85	5	4,032	2
	89.5	***67.0***	***54.9***	***51.7***	***73.1***	***73.0***	
Interrupted aortic arch	44	24	31	<5	0	107	
	0.9	***1.0***	***1.0***		***0.0***	***1.0***	

Florida

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Limb deficiencies (reduction defects)	178	83	100	12	<5	381	
	3.7	***3.5***	***3.3***	***3.8***		***3.5***	
Omphalocele	114	83	40	<5	0	243	3
	2.4	***3.5***	***1.3***		***0.0***	***2.3***	
Pulmonary valve atresia and stenosis	389	290	275	17	0	1,001	
	8.1	***12.2***	***9.1***	***5.3***	***0.0***	***9.3***	
Pulmonary valve atresia	61	37	38	<5	0	148	
	1.3	***1.6***	***1.3***		***0.0***	***1.4***	
Rectal and large intestinal atresia/stenosis	187	91	120	12	<5	426	
	3.9	***3.8***	***4.0***	***3.8***		***4.0***	
Renal agenesis/hypoplasia	274	137	154	11	<5	592	
	5.7	***5.8***	***5.1***	***3.4***		***5.5***	
Single ventricle	68	34	41	5	0	151	
	1.4	***1.4***	***1.4***	***1.6***	***0.0***	***1.4***	
Small intestinal atresia/stenosis	222	102	125	17	0	477	
	4.6	***4.3***	***4.2***	***5.3***	***0.0***	***4.4***	
Spina bifida without anencephalus	146	44	79	8	0	280	
	3.0	***1.9***	***2.6***	***2.5***	***0.0***	***2.6***	
Tetralogy of Fallot	247	115	124	12	<5	520	
	5.2	***4.8***	***4.1***	***3.8***		***4.8***	
Total anomalous pulmonary venous connection	38	23	31	<5	0	96	
	0.8	***1.0***	***1.0***		***0.0***	***0.9***	
Transposition of the great arteries (TGA)	148	44	60	6	<5	266	
	3.1	***1.9***	***2.0***	***1.9***		***2.5***	
Dextro-transposition of great arteries (d-TGA)	122	36	54	5	<5	225	
	2.5	***1.5***	***1.8***	***1.6***		***2.1***	
Tricuspid valve atresia and stenosis	48	29	22	<5	0	105	4
	1.0	***1.2***	***0.7***		***0.0***	***1.0***	
Trisomy 13	52	29	24	0	0	106	
	1.1	***1.2***	***0.8***	***0.0***	***0.0***	***1.0***	
Trisomy 18	81	68	55	9	0	220	
	1.7	***2.9***	***1.8***	***2.8***	***0.0***	***2.0***	
Trisomy 21 (Down syndrome)	613	301	408	43	<5	1,413	
	12.8	***12.7***	***13.6***	***13.5***		***13.1***	
Turner syndrome	44	12	31	<5	0	92	5
	1.9	***1.0***	***2.1***		***0.0***	***1.8***	
Ventricular septal defect	2,948	1,360	2,111	157	9	6,765	6
	61.6	***57.3***	***70.2***	***49.2***	***69.1***	***62.8***	
Total live births	**478,733**	**237,275**	**300,590**	**31,891**	**1,303**	**1,077,568**	**7**
Male live births	**246,326**	**120,390**	**154,032**	**16,443**	**684**	**552,176**	
Female live births	**232,406**	**116,882**	**146,558**	**15,447**	**619**	**525,384**	

Florida

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	469	9	478	3
	5.2	***0.5***	***4.4***	
Trisomy 13	74	32	106	
	0.8	***1.9***	***1.0***	
Trisomy 18	107	113	220	
	1.2	***6.6***	***2.0***	
Trisomy 21 (Down syndrome)	706	707	1,413	
	7.8	***41.5***	***13.1***	
Total live births	**907,089**	**170,408**	**1,077,568**	**7**

Notes

1. Data for this condition include canal type atrioventricular septal defect.
2. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
3. Data for this condition may differ from previous reports due to ICD-9-CM coding system changes.
4. Data for this condition include congenital tricuspid stenosis.
5. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
6. Data for this condition include probable cases.
7. Total live births includes unknown gender.

General comments

*Totals include unknown and/or other.
-Data for conditions only includes live births.

Georgia (Metropolitan Atlanta Congenital Defects Program)

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total*	Notes
Anencephalus	16	15	10	1	0	51	
	3.0	***1.9***	***2.8***	***0.7***	***0.0***	***2.7***	
Anophthalmia/microphthalmia	11	12	7	0	0	32	
	2.1	***1.5***	***1.9***	***0.0***	***0.0***	***1.7***	
Anotia/microtia	7	5	10	4	0	28	
	1.3	***0.6***	***2.8***	***2.7***	***0.0***	***1.5***	
Aortic valve stenosis	16	4	7	0	0	29	
	3.0	***0.5***	***1.9***	***0.0***	***0.0***	***1.5***	
Atrial septal defect	74	175	44	16	0	341	
	14.0	***22.2***	***12.2***	***10.8***	***0.0***	***17.8***	
Atrioventricular septal defect (Endocardial cushion defect)	33	57	13	3	0	119	
	6.2	***7.2***	***3.6***	***2.0***	***0.0***	***6.2***	
Biliary atresia	2	1	2	0	1	9	
	0.4	***0.1***	***0.6***	***0.0***	***76.9***	***0.5***	
Bladder exstrophy	3	1	0	0	0	5	
	0.6	***0.1***	***0.0***	***0.0***	***0.0***	***0.3***	
Choanal atresia	3	8	4	0	0	15	
	0.6	***1.0***	***1.1***	***0.0***	***0.0***	***0.8***	
Cleft lip alone	24	14	11	6	0	56	
	4.5	***1.8***	***3.1***	***4.1***	***0.0***	***2.9***	
Cleft lip with cleft palate	27	32	21	10	0	106	
	5.1	***4.1***	***5.8***	***6.8***	***0.0***	***5.5***	
Cleft palate alone	26	28	14	11	0	86	
	4.9	***3.6***	***3.9***	***7.4***	***0.0***	***4.5***	
Cloacal exstrophy	0	1	0	1	0	2	
	0.0	***0.1***	***0.0***	***0.7***	***0.0***	***0.1***	
Clubfoot	63	114	34	16	1	249	
	11.9	***14.5***	***9.5***	***10.8***	***76.9***	***13.0***	
Coarctation of the aorta	43	39	19	6	0	114	
	8.1	***5.0***	***5.3***	***4.1***	***0.0***	***6.0***	
Common truncus (truncus arteriosus)	2	4	1	3	0	10	
	0.4	***0.5***	***0.3***	***2.0***	***0.0***	***0.5***	
Congenital cataract	2	13	2	3	0	25	
	0.4	***1.7***	***0.6***	***2.0***	***0.0***	***1.3***	
Congenital posterior urethral valves	4	19	7	2	0	37	1
	1.5	***4.8***	***3.8***	***2.7***	***0.0***	***3.8***	
Craniosynostosis	19	17	8	4	1	60	
	3.6	***2.2***	***2.2***	***2.7***	***76.9***	***3.1***	
Deletion 22q11.2	4	11	5	1	0	22	
	0.8	***1.4***	***1.4***	***0.7***	***0.0***	***1.2***	
Diaphragmatic hernia	15	21	9	3	0	59	
	2.8	***2.7***	***2.5***	***2.0***	***0.0***	***3.1***	
Double outlet right ventricle	6	21	9	4	0	45	
	1.1	***2.7***	***2.5***	***2.7***	***0.0***	***2.4***	
Ebstein anomaly	0	5	2	1	0	8	
	0.0	***0.6***	***0.6***	***0.7***	***0.0***	***0.4***	
Encephalocele	1	6	4	2	0	15	
	0.2	***0.8***	***1.1***	***1.4***	***0.0***	***0.8***	
Esophageal atresia/tracheoesophageal fistula	13	22	4	0	0	41	
	2.5	***2.8***	***1.1***	***0.0***	***0.0***	***2.1***	
Gastroschisis	22	25	19	2	0	76	
	4.2	***3.2***	***5.3***	***1.4***	***0.0***	***4.0***	
Holoprosencephaly	11	15	6	2	0	41	
	2.1	***1.9***	***1.7***	***1.4***	***0.0***	***2.1***	
Hypoplastic left heart syndrome	16	19	8	4	0	51	
	3.0	***2.4***	***2.2***	***2.7***	***0.0***	***2.7***	
Hypospadias	204	256	55	36	1	626	1
	75.4	***64.2***	***30.1***	***47.8***	***149.3***	***64.5***	
Interrupted aortic arch	4	5	2	0	0	14	
	0.8	***0.6***	***0.6***	***0.0***	***0.0***	***0.7***	

Georgia (Metropolitan Atlanta Congenital Defects Program)

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Limb deficiencies (reduction defects)	15	31	13	2	0	70	
	2.8	***3.9***	***3.6***	***1.4***	***0.0***	***3.7***	
Omphalocele	9	31	8	4	0	65	
	1.7	***3.9***	***2.2***	***2.7***	***0.0***	***3.4***	
Pulmonary valve atresia and stenosis	44	58	26	10	0	156	
	8.3	***7.4***	***7.2***	***6.8***	***0.0***	***8.2***	
Pulmonary valve atresia	11	22	6	3	0	44	
	2.1	***2.8***	***1.7***	***2.0***	***0.0***	***2.3***	
Rectal and large intestinal atresia/stenosis	26	31	17	5	0	81	
	4.9	***3.9***	***4.7***	***3.4***	***0.0***	***4.2***	
Renal agenesis/hypoplasia	35	48	10	9	0	114	
	6.6	***6.1***	***2.8***	***6.1***	***0.0***	***6.0***	
Single ventricle	2	7	5	2	0	18	
	0.4	***0.9***	***1.4***	***1.4***	***0.0***	***0.9***	
Small intestinal atresia/stenosis	18	27	7	0	0	56	
	3.4	***3.4***	***1.9***	***0.0***	***0.0***	***2.9***	
Spina bifida without anencephalus	23	23	8	3	0	65	
	4.3	***2.9***	***2.2***	***2.0***	***0.0***	***3.4***	
Tetralogy of Fallot	26	35	5	6	0	79	
	4.9	***4.4***	***1.4***	***4.1***	***0.0***	***4.1***	
Total anomalous pulmonary venous connection	6	6	7	5	0	25	
	1.1	***0.8***	***1.9***	***3.4***	***0.0***	***1.3***	
Transposition of the great arteries (TGA)	19	14	10	1	1	54	
	3.6	***1.8***	***2.8***	***0.7***	***76.9***	***2.8***	
Dextro-transposition of great arteries (d-TGA)	18	11	7	1	1	47	
	3.4	***1.4***	***1.9***	***0.7***	***76.9***	***2.5***	
Tricuspid valve atresia and stenosis	7	15	7	3	0	32	
	1.3	***1.9***	***1.9***	***2.0***	***0.0***	***1.7***	
Tricuspid valve atresia	6	4	2	3	0	15	
	1.1	***0.5***	***0.6***	***2.0***	***0.0***	***0.8***	
Trisomy 13	12	17	6	2	0	42	
	2.3	***2.2***	***1.7***	***1.4***	***0.0***	***2.2***	
Trisomy 18	16	29	9	5	0	74	
	3.0	***3.7***	***2.5***	***3.4***	***0.0***	***3.9***	
Trisomy 21 (Down syndrome)	89	102	64	18	0	311	
	16.8	***12.9***	***17.8***	***12.2***	***0.0***	***16.3***	
Turner syndrome	10	18	0	3	0	35	2
	3.9	***4.6***	***0.0***	***4.1***	***0.0***	***3.7***	
Ventricular septal defect	340	340	237	68	1	1,093	
	64.3	***43.2***	***65.9***	***45.9***	***76.9***	***57.2***	
Total live births	**52,893**	**78,787**	**35,956**	**14,809**	**130**	**191,043**	
Male live births	**27,062**	**39,858**	**18,286**	**7,530**	**67**	**97,111**	
Female live births	**25,831**	**38,929**	**17,670**	**7,279**	**63**	**93,931**	

Georgia (Metropolitan Atlanta Congenital Defects Program)

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	69	5	76	
	4.6	***1.2***	***4.0***	
Trisomy 13	27	15	42	
	1.8	***3.7***	***2.2***	
Trisomy 18	23	48	74	
	1.5	***11.7***	***3.9***	
Trisomy 21 (Down syndrome)	137	169	311	
	9.1	***41.2***	***16.3***	
Total live births	**149,980**	**41,046**	**191,043**	

Notes

1. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
2. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.

General comments

*Totals include unknown and/or other.
-Cases for which the date of delivery was unknown are included in the year of their last known prenatal test.
-Data for conditions prior to 2012 include 5 counties, from 2012-2015 only 3 of the original 5 counties are included.
-Elective terminations include all gestational ages.
-Live births include gestational ages greater than or equal to 20 weeks.
-Stillbirths include gestational ages greater than or equal to 20 weeks.

Hawaii

Birth Defects Counts and Prevalence 2012 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Anencephalus	2	0	0	1	0	4	
	4.7	***0.0***	***0.0***	***0.7***	***0.0***	***2.1***	
Anotia/microtia	1	0	0	0	0	1	
	2.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.5***	
Atrial septal defect	7	0	4	18	0	35	
	16.3	***0.0***	***134.2***	***13.3***	***0.0***	***18.4***	
Atrioventricular septal defect (Endocardial cushion defect)	1	0	1	3	0	5	
	2.3	***0.0***	***33.6***	***2.2***	***0.0***	***2.6***	
Biliary atresia	1	0	0	2	0	3	
	2.3	***0.0***	***0.0***	***1.5***	***0.0***	***1.6***	
Bladder exstrophy	1	0	0	0	0	1	
	2.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.5***	
Choanal atresia	1	0	0	0	0	1	
	2.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.5***	
Cleft lip alone	2	0	0	4	0	7	
	4.7	***0.0***	***0.0***	***3.0***	***0.0***	***3.7***	
Cleft lip with cleft palate	1	0	0	6	0	8	
	2.3	***0.0***	***0.0***	***4.4***	***0.0***	***4.2***	
Cleft palate alone	3	0	2	8	0	14	
	7.0	***0.0***	***67.1***	***5.9***	***0.0***	***7.4***	
Coarctation of the aorta	1	0	0	3	0	4	
	2.3	***0.0***	***0.0***	***2.2***	***0.0***	***2.1***	
Ebstein anomaly	0	0	0	1	0	1	
	0.0	***0.0***	***0.0***	***0.7***	***0.0***	***0.5***	
Encephalocele	0	0	0	2	0	2	
	0.0	***0.0***	***0.0***	***1.5***	***0.0***	***1.1***	
Esophageal atresia/tracheoesophageal fistula	1	0	0	3	0	5	
	2.3	***0.0***	***0.0***	***2.2***	***0.0***	***2.6***	
Gastroschisis	2	0	0	9	0	12	
	4.7	***0.0***	***0.0***	***6.7***	***0.0***	***6.3***	
Hypoplastic left heart syndrome	0	0	0	2	0	3	
	0.0	***0.0***	***0.0***	***1.5***	***0.0***	***1.6***	
Hypospadias	6	0	2	40	0	54	1
	27.6	***0.0***	***123.5***	***57.8***	***0.0***	***56.0***	
Omphalocele	0	0	1	3	0	4	
	0.0	***0.0***	***33.6***	***2.2***	***0.0***	***2.1***	
Pulmonary valve atresia and stenosis	5	0	1	5	0	12	
	11.7	***0.0***	***33.6***	***3.7***	***0.0***	***6.3***	
Pulmonary valve atresia	0	0	0	2	0	2	
	0.0	***0.0***	***0.0***	***1.5***	***0.0***	***1.1***	
Rectal and large intestinal atresia/stenosis	3	0	0	8	0	12	
	7.0	***0.0***	***0.0***	***5.9***	***0.0***	***6.3***	
Renal agenesis/hypoplasia	1	0	0	6	0	8	
	2.3	***0.0***	***0.0***	***4.4***	***0.0***	***4.2***	
Spina bifida without anencephalus	0	0	0	1	0	1	
	0.0	***0.0***	***0.0***	***0.7***	***0.0***	***0.5***	
Tetralogy of Fallot	1	0	0	1	0	2	
	2.3	***0.0***	***0.0***	***0.7***	***0.0***	***1.1***	
Total anomalous pulmonary venous connection	0	0	0	2	0	2	
	0.0	***0.0***	***0.0***	***1.5***	***0.0***	***1.1***	
Transposition of the great arteries (TGA)	0	1	1	6	0	8	
	0.0	***20.0***	***33.6***	***4.4***	***0.0***	***4.2***	
Tricuspid valve atresia and stenosis	0	0	1	3	0	4	
	0.0	***0.0***	***33.6***	***2.2***	***0.0***	***2.1***	
Tricuspid valve atresia	0	0	1	3	0	4	
	0.0	***0.0***	***33.6***	***2.2***	***0.0***	***2.1***	
Trisomy 13	0	0	0	2	0	2	
	0.0	***0.0***	***0.0***	***1.5***	***0.0***	***1.1***	
Trisomy 18	3	0	1	6	0	14	
	7.0	***0.0***	***33.6***	***4.4***	***0.0***	***7.4***	

Hawaii

Birth Defects Counts and Prevalence 2012 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Trisomy 21 (Down syndrome)	5	0	2	14	0	27	
	11.7	***0.0***	***67.1***	***10.3***	***0.0***	***14.2***	
Turner syndrome	1	0	0	1	0	2	2
	4.7	***0.0***	***0.0***	***1.5***	***0.0***	***2.1***	
Ventricular septal defect	8	0	4	29	0	50	
	18.7	***0.0***	***134.2***	***21.4***	***0.0***	***26.3***	
Total live births	**4,282**	**501**	**298**	**13,532**	**237**	**18,985**	
Male live births	**2,172**	**251**	**162**	**6,918**	**113**	**9,642**	
Female live births	**2,110**	**250**	**136**	**6,614**	**124**	**9,343**	

Hawaii

Birth Defects Counts and Prevalence 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	12	0	12	
	7.7	***0.0***	***6.3***	
Trisomy 13	1	1	2	
	0.6	***2.9***	***1.1***	
Trisomy 18	8	7	15	
	5.2	***20.6***	***7.9***	
Trisomy 21 (Down syndrome)	13	16	29	
	8.4	***47.2***	***15.3***	
Total live births	**15,497**	**3,392**	**18,985**	

Notes
1. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
2. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.

General comments
*Totals include unknown and/or other.

Illinois

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Anencephalus	59	20	41	9	0	132	
	1.3	***1.5***	***3.0***	***1.9***	***0.0***	***1.7***	
Anophthalmia/microphthalmia	81	26	48	5	2	162	
	1.8	***2.0***	***3.5***	***1.0***	***34.6***	***2.0***	
Anotia/microtia	63	13	75	7	0	158	
	1.4	***1.0***	***5.4***	***1.5***	***0.0***	***2.0***	
Aortic valve stenosis	72	19	35	8	0	134	
	1.6	***1.4***	***2.5***	***1.7***	***0.0***	***1.7***	
Atrial septal defect	1,226	433	564	152	8	2,389	
	26.8	***32.7***	***41.0***	***31.8***	***138.4***	***30.1***	
Atrioventricular septal defect (Endocardial cushion defect)	213	78	84	17	0	393	1
	4.7	***5.9***	***6.1***	***3.6***	***0.0***	***5.0***	
Biliary atresia	9	6	6	5	0	26	
	0.2	***0.5***	***0.4***	***1.0***	***0.0***	***0.3***	
Bladder exstrophy	11	2	6	1	0	20	
	0.2	***0.2***	***0.4***	***0.2***	***0.0***	***0.3***	
Choanal atresia	52	17	23	2	0	94	
	1.1	***1.3***	***1.7***	***0.4***	***0.0***	***1.2***	
Cleft lip alone	143	39	43	15	2	243	
	3.1	***2.9***	***3.1***	***3.1***	***34.6***	***3.1***	
Cleft lip with cleft palate	219	62	126	22	1	430	
	4.8	***4.7***	***9.1***	***4.6***	***17.3***	***5.4***	
Cleft palate alone	255	58	92	22	2	429	
	5.6	***4.4***	***6.7***	***4.6***	***34.6***	***5.4***	
Cloacal exstrophy	12	3	4	1	0	20	
	0.3	***0.2***	***0.3***	***0.2***	***0.0***	***0.3***	
Clubfoot	436	137	191	37	2	804	
	9.5	***10.3***	***13.9***	***7.8***	***34.6***	***10.1***	
Coarctation of the aorta	199	41	86	18	1	345	
	4.4	***3.1***	***6.2***	***3.8***	***17.3***	***4.3***	
Common truncus (truncus arteriosus)	25	3	13	2	0	43	
	0.5	***0.2***	***0.9***	***0.4***	***0.0***	***0.5***	
Congenital cataract	41	28	16	4	0	89	
	0.9	***2.1***	***1.2***	***0.8***	***0.0***	***1.1***	
Congenital posterior urethral valves	36	19	12	3	0	70	2
	1.5	***2.8***	***1.7***	***1.2***	***0.0***	***1.7***	
Craniosynostosis	128	24	51	6	0	209	
	2.8	***1.8***	***3.7***	***1.3***	***0.0***	***2.6***	
Deletion 22q11.2	31	19	13	5	0	68	
	0.7	***1.4***	***0.9***	***1.0***	***0.0***	***0.9***	
Diaphragmatic hernia	134	31	53	10	1	230	
	2.9	***2.3***	***3.8***	***2.1***	***17.3***	***2.9***	
Double outlet right ventricle	64	32	39	11	0	146	
	1.4	***2.4***	***2.8***	***2.3***	***0.0***	***1.8***	
Ebstein anomaly	26	6	18	3	0	53	
	0.6	***0.5***	***1.3***	***0.6***	***0.0***	***0.7***	
Encephalocele	24	15	17	2	0	58	
	0.5	***1.1***	***1.2***	***0.4***	***0.0***	***0.7***	
Esophageal atresia/tracheoesophageal fistula	121	26	36	9	1	193	
	2.6	***2.0***	***2.6***	***1.9***	***17.3***	***2.4***	
Gastroschisis	153	70	90	5	0	318	
	3.3	***5.3***	***6.5***	***1.0***	***0.0***	***4.0***	
Holoprosencephaly	31	20	30	3	2	86	
	0.7	***1.5***	***2.2***	***0.6***	***34.6***	***1.1***	
Hypoplastic left heart syndrome	80	33	33	9	1	157	
	1.8	***2.5***	***2.4***	***1.9***	***17.3***	***2.0***	
Hypospadias	1,514	377	258	114	12	2,275	2
	64.5	***56.0***	***36.8***	***46.5***	***408.2***	***56.0***	
Interrupted aortic arch	19	14	11	0	0	44	
	0.4	***1.1***	***0.8***	***0.0***	***0.0***	***0.6***	

Illinois

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Limb deficiencies (reduction defects)	168	73	72	18	0	332	
	3.7	***5.5***	***5.2***	***3.8***	***0.0***	***4.2***	
Omphalocele	85	40	26	6	1	160	
	1.9	***3.0***	***1.9***	***1.3***	***17.3***	***2.0***	
Pulmonary valve atresia and stenosis	181	88	95	27	1	393	
	4.0	***6.6***	***6.9***	***5.7***	***17.3***	***5.0***	
Pulmonary valve atresia	12	9	8	1	0	30	3
	0.3	***0.7***	***0.6***	***0.2***	***0.0***	***0.4***	
Rectal and large intestinal atresia/stenosis	166	52	71	10	2	301	
	3.6	***3.9***	***5.2***	***2.1***	***34.6***	***3.8***	
Renal agenesis/hypoplasia	286	113	123	33	0	556	
	6.3	***8.5***	***8.9***	***6.9***	***0.0***	***7.0***	
Single ventricle	22	12	12	3	0	49	
	0.5	***0.9***	***0.9***	***0.6***	***0.0***	***0.6***	
Small intestinal atresia/stenosis	106	36	57	12	1	212	
	2.3	***2.7***	***4.1***	***2.5***	***17.3***	***2.7***	
Spina bifida without anencephalus	142	42	61	11	0	256	
	3.1	***3.2***	***4.4***	***2.3***	***0.0***	***3.2***	
Tetralogy of Fallot	164	63	70	22	2	321	
	3.6	***4.8***	***5.1***	***4.6***	***34.6***	***4.0***	
Total anomalous pulmonary venous connection	30	11	27	5	0	73	
	0.7	***0.8***	***2.0***	***1.0***	***0.0***	***0.9***	
Transposition of the great arteries (TGA)	131	30	46	9	0	216	
	2.9	***2.3***	***3.3***	***1.9***	***0.0***	***2.7***	
Dextro-transposition of great arteries (d-TGA)	109	26	35	7	0	177	
	2.4	***2.0***	***2.5***	***1.5***	***0.0***	***2.2***	
Tricuspid valve atresia and stenosis	130	45	77	10	1	263	4
	2.8	***3.4***	***5.6***	***2.1***	***17.3***	***3.3***	
Tricuspid valve atresia	22	9	14	2	0	47	5
	0.5	***0.7***	***1.0***	***0.4***	***0.0***	***0.6***	
Trisomy 13	47	17	28	4	0	96	
	1.0	***1.3***	***2.0***	***0.8***	***0.0***	***1.2***	
Trisomy 18	109	34	55	15	1	216	
	2.4	***2.6***	***4.0***	***3.1***	***17.3***	***2.7***	
Trisomy 21 (Down syndrome)	552	139	355	48	6	1,102	
	12.1	***10.5***	***25.8***	***10.1***	***103.8***	***13.9***	
Turner syndrome	41	13	22	3	0	79	6
	1.8	***2.0***	***3.2***	***1.3***	***0.0***	***2.0***	
Ventricular septal defect	1,899	516	901	214	11	3,542	7
	41.5	***38.9***	***65.4***	***44.8***	***190.3***	***44.6***	
Total live births	**457,112**	**132,599**	**137,727**	**47,738**	**578**	**793,927**	**8**
Male live births	**234,573**	**67,367**	**70,016**	**24,494**	**294**	**406,108**	
Female live births	**222,528**	**65,223**	**67,705**	**23,244**	**284**	**387,793**	

Illinois

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	301	17	318	
	5.7	***1.6***	***4.0***	
Trisomy 13	62	34	96	
	1.2	***3.2***	***1.2***	
Trisomy 18	121	93	216	
	2.3	***8.7***	***2.7***	
Trisomy 21 (Down syndrome)	499	602	1,102	
	9.4	***56.6***	***13.9***	
Total live births	**529,433**	**106,335**	**793,927**	**8**

Notes

1. Data for this condition include inlet ventricular septal defects including common atrioventricular canal type ventricular septal defect.
2. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
3. Data for this condition exclude cases with tetralogy of Fallot or cases with a ventricular septal defect.
4. Data for this condition include tricuspid stenosis or hypoplasia.
5. Data for this condition exclude tricuspid stenosis or hypoplasia.
6. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
7. Data for this condition exclude probable cases, and inlet ventricular septal defects including common atrioventricular canal type ventricular septal defects.
8. Total live births includes unknown gender.

General comments

*Totals include unknown and/or other.

-Data for conditions include live births from birth to age 2 years and fetal deaths (these include stillbirths of 20 weeks gestation or more, and miscarriages where the families chose to hold funerals).

Indiana

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total*	Notes
Anophthalmia/microphthalmia	20	2	1	0	0	24	
	0.6	***0.4***	***0.3***	***0.0***	***0.0***	***0.6***	
Anotia/microtia	26	3	10	2	0	42	
	0.8	***0.6***	***3.2***	***2.1***	***0.0***	***1.0***	
Aortic valve stenosis	35	0	3	0	0	38	
	1.1	***0.0***	***1.0***	***0.0***	***0.0***	***0.9***	
Atrial septal defect	837	142	72	19	1	1,088	
	26.4	***30.1***	***23.3***	***19.8***	***24.2***	***26.1***	
Atrioventricular septal defect (Endocardial cushion defect)	105	12	6	3	0	130	
	3.3	***2.5***	***1.9***	***3.1***	***0.0***	***3.1***	
Biliary atresia	15	2	3	0	0	21	
	0.5	***0.4***	***1.0***	***0.0***	***0.0***	***0.5***	
Choanal atresia	31	2	2	1	0	37	
	1.0	***0.4***	***0.6***	***1.0***	***0.0***	***0.9***	
Cleft lip alone	76	3	7	1	0	87	
	2.4	***0.6***	***2.3***	***1.0***	***0.0***	***2.1***	
Cleft lip with cleft palate	164	12	18	5	0	207	
	5.2	***2.5***	***5.8***	***5.2***	***0.0***	***5.0***	
Cleft palate alone	170	26	8	4	0	210	
	5.4	***5.5***	***2.6***	***4.2***	***0.0***	***5.0***	
Cloacal exstrophy	54	7	6	2	0	69	
	1.7	***1.5***	***1.9***	***2.1***	***0.0***	***1.7***	
Clubfoot	307	52	23	4	1	391	
	9.7	***11.0***	***7.4***	***4.2***	***24.2***	***9.4***	
Coarctation of the aorta	127	10	8	0	0	146	
	4.0	***2.1***	***2.6***	***0.0***	***0.0***	***3.5***	
Congenital cataract	14	4	2	1	0	22	
	0.4	***0.8***	***0.6***	***1.0***	***0.0***	***0.5***	
Congenital posterior urethral valves	21	8	2	0	0	31	1
	1.3	***3.3***	***1.3***	***0.0***	***0.0***	***1.4***	
Craniosynostosis	432	46	35	11	1	535	
	13.6	***9.7***	***11.3***	***11.5***	***24.2***	***12.8***	
Diaphragmatic hernia	74	9	6	1	0	93	
	2.3	***1.9***	***1.9***	***1.0***	***0.0***	***2.2***	
Double outlet right ventricle	47	6	0	1	0	58	
	1.5	***1.3***	***0.0***	***1.0***	***0.0***	***1.4***	
Ebstein anomaly	13	1	0	0	0	15	
	0.4	***0.2***	***0.0***	***0.0***	***0.0***	***0.4***	
Esophageal atresia/tracheoesophageal fistula	56	3	4	0	0	63	
	1.8	***0.6***	***1.3***	***0.0***	***0.0***	***1.5***	
Gastroschisis	94	12	11	2	0	123	
	3.0	***2.5***	***3.6***	***2.1***	***0.0***	***3.0***	
Holoprosencephaly	98	14	13	2	0	132	
	3.1	***3.0***	***4.2***	***2.1***	***0.0***	***3.2***	
Hypoplastic left heart syndrome	70	8	7	0	0	86	
	2.2	***1.7***	***2.3***	***0.0***	***0.0***	***2.1***	
Hypospadias	914	97	39	17	0	1,086	1
	56.1	***40.4***	***24.7***	***33.9***	***0.0***	***50.8***	
Interrupted aortic arch	18	3	1	1	0	24	
	0.6	***0.6***	***0.3***	***1.0***	***0.0***	***0.6***	
Limb deficiencies (reduction defects)	89	14	9	2	1	119	
	2.8	***3.0***	***2.9***	***2.1***	***24.2***	***2.9***	
Omphalocele	43	4	4	2	0	54	
	1.4	***0.8***	***1.3***	***2.1***	***0.0***	***1.3***	
Pulmonary valve atresia and stenosis	197	26	20	3	0	254	
	6.2	***5.5***	***6.5***	***3.1***	***0.0***	***6.1***	
Pulmonary valve atresia	33	3	6	2	0	44	
	1.0	***0.6***	***1.9***	***2.1***	***0.0***	***1.1***	
Rectal and large intestinal atresia/stenosis	108	13	9	3	1	135	
	3.4	***2.8***	***2.9***	***3.1***	***24.2***	***3.2***	

Indiana

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Renal agenesis/hypoplasia	109	19	7	2	0	139	
	3.4	***4.0***	***2.3***	***2.1***	***0.0***	***3.3***	
Single ventricle	17	4	0	1	0	25	
	0.5	***0.8***	***0.0***	***1.0***	***0.0***	***0.6***	
Small intestinal atresia/stenosis	87	12	2	3	0	104	
	2.7	***2.5***	***0.6***	***3.1***	***0.0***	***2.5***	
Spina bifida without anencephalus	94	10	9	1	2	118	
	3.0	***2.1***	***2.9***	***1.0***	***48.4***	***2.8***	
Tetralogy of Fallot	78	13	8	4	1	108	
	2.5	***2.8***	***2.6***	***4.2***	***24.2***	***2.6***	
Total anomalous pulmonary venous connection	22	2	3	0	0	27	
	0.7	***0.4***	***1.0***	***0.0***	***0.0***	***0.6***	
Transposition of the great arteries (TGA)	53	6	4	1	0	66	
	2.1	***1.6***	***1.6***	***1.3***	***0.0***	***2.0***	
Dextro-transposition of great arteries (d-TGA)	51	5	4	2	0	64	
	1.6	***1.1***	***1.3***	***2.1***	***0.0***	***1.5***	
Tricuspid valve atresia and stenosis	22	4	1	2	0	30	
	0.7	***0.8***	***0.3***	***2.1***	***0.0***	***0.7***	
Trisomy 13	17	3	1	0	0	22	
	0.5	***0.6***	***0.3***	***0.0***	***0.0***	***0.5***	
Trisomy 18	28	5	4	1	0	38	
	0.9	***1.1***	***1.3***	***1.0***	***0.0***	***0.9***	
Trisomy 21 (Down syndrome)	377	44	45	11	0	484	
	11.9	***9.3***	***14.6***	***11.5***	***0.0***	***11.6***	
Turner syndrome	23	2	0	0	0	25	2
	1.5	***0.9***	***0.0***	***0.0***	***0.0***	***1.2***	
Ventricular septal defect	962	131	102	22	1	1,252	
	30.3	***27.8***	***33.0***	***22.9***	***24.2***	***30.0***	
Total live births	**317,042**	**47,197**	**30,880**	**9,589**	**413**	**416,845**	
Male live births	**162,899**	**23,998**	**15,765**	**5,011**	**203**	**213,866**	
Female live births	**154,143**	**23,199**	**15,115**	**4,578**	**210**	**202,979**	

Indiana

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	121	2	123	
	3.3	***0.4***	***3.0***	
Trisomy 13	21	1	22	
	0.6	***0.2***	***0.5***	
Trisomy 18	23	15	38	
	0.6	***3.2***	***0.9***	
Trisomy 21 (Down syndrome)	310	174	484	
	8.4	***37.0***	***11.6***	
Total live births	**369,753**	**47,045**	**416,845**	

Notes
1. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
2. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.

General comments
*Totals include unknown and/or other.
-Data for conditions are provisional.
-Data for conditions include probable cases.

Iowa

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Anencephalus	31	4	4	1	0	44	
	1.9	***4.1***	***2.5***	***1.6***	***0.0***	***2.3***	
Anophthalmia/microphthalmia	17	4	5	0	0	28	
	1.1	***4.1***	***3.1***	***0.0***	***0.0***	***1.4***	
Anotia/microtia	31	1	8	2	0	43	
	1.9	***1.0***	***4.9***	***3.2***	***0.0***	***2.2***	
Aortic valve stenosis	37	0	2	0	0	39	
	2.3	***0.0***	***1.2***	***0.0***	***0.0***	***2.0***	
Atrial septal defect	496	41	50	10	0	603	
	31.2	***41.7***	***30.9***	***15.9***	***0.0***	***30.9***	
Atrioventricular septal defect (Endocardial cushion defect)	76	10	8	2	0	97	
	4.8	***10.2***	***4.9***	***3.2***	***0.0***	***5.0***	
Biliary atresia	5	0	1	0	0	6	
	0.3	***0.0***	***0.6***	***0.0***	***0.0***	***0.3***	
Bladder exstrophy	6	0	0	0	0	6	
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Choanal atresia	18	1	1	0	0	20	
	1.1	***1.0***	***0.6***	***0.0***	***0.0***	***1.0***	
Cleft lip alone	63	3	10	2	1	80	
	4.0	***3.1***	***6.2***	***3.2***	***11.3***	***4.1***	
Cleft lip with cleft palate	93	6	8	5	0	113	
	5.8	***6.1***	***4.9***	***7.9***	***0.0***	***5.8***	
Cleft palate alone	119	5	10	4	0	139	
	7.5	***5.1***	***6.2***	***6.3***	***0.0***	***7.1***	
Cloacal exstrophy	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Clubfoot	254	15	27	6	1	309	
	16.0	***15.3***	***16.7***	***9.5***	***11.3***	***15.8***	
Coarctation of the aorta	103	0	6	0	0	109	
	6.5	***0.0***	***3.7***	***0.0***	***0.0***	***5.6***	
Common truncus (truncus arteriosus)	10	1	2	0	0	13	
	0.6	***1.0***	***1.2***	***0.0***	***0.0***	***0.7***	
Congenital cataract	67	4	7	1	1	81	
	4.2	***4.1***	***4.3***	***1.6***	***11.3***	***4.2***	
Congenital posterior urethral valves	14	2	0	1	0	17	1
	1.7	***4.0***	***0.0***	***3.0***	***0.0***	***1.7***	
Craniosynostosis	98	5	10	2	0	117	
	6.2	***5.1***	***6.2***	***3.2***	***0.0***	***6.0***	
Deletion 22q11.2	28	4	1	1	0	34	
	1.8	***4.1***	***0.6***	***1.6***	***0.0***	***1.7***	
Diaphragmatic hernia	49	3	5	3	0	63	
	3.1	***3.1***	***3.1***	***4.8***	***0.0***	***3.2***	
Double outlet right ventricle	24	4	7	2	0	39	
	1.5	***4.1***	***4.3***	***3.2***	***0.0***	***2.0***	
Ebstein anomaly	14	1	2	1	0	18	
	0.9	***1.0***	***1.2***	***1.6***	***0.0***	***0.9***	
Encephalocele	18	1	0	0	0	20	
	1.1	***1.0***	***0.0***	***0.0***	***0.0***	***1.0***	
Esophageal atresia/tracheoesophageal fistula	48	1	3	2	0	54	
	3.0	***1.0***	***1.9***	***3.2***	***0.0***	***2.8***	
Gastroschisis	85	7	14	1	1	108	
	5.3	***7.1***	***8.6***	***1.6***	***11.3***	***5.5***	
Holoprosencephaly	17	4	2	0	0	24	
	1.1	***4.1***	***1.2***	***0.0***	***0.0***	***1.2***	
Hypoplastic left heart syndrome	38	5	4	1	0	48	
	2.4	***5.1***	***2.5***	***1.6***	***0.0***	***2.5***	
Hypospadias	539	24	26	11	0	603	1
	66.0	***47.7***	***32.2***	***33.5***	***0.0***	***60.4***	
Interrupted aortic arch	13	0	0	0	0	13	
	0.8	***0.0***	***0.0***	***0.0***	***0.0***	***0.7***	

Iowa

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Limb deficiencies (reduction defects)	95	2	12	2	0	112	2
	6.0	***2.0***	***7.4***	***3.2***	***0.0***	***5.7***	
Omphalocele	37	3	6	1	0	51	
	2.3	***3.1***	***3.7***	***1.6***	***0.0***	***2.6***	
Pulmonary valve atresia and stenosis	176	17	17	7	0	218	
	11.1	***17.3***	***10.5***	***11.1***	***0.0***	***11.2***	
Pulmonary valve atresia	15	2	2	1	0	20	
	0.9	***2.0***	***1.2***	***1.6***	***0.0***	***1.0***	
Rectal and large intestinal atresia/stenosis	55	4	8	1	0	69	
	3.5	***4.1***	***4.9***	***1.6***	***0.0***	***3.5***	
Renal agenesis/hypoplasia	85	5	11	1	0	104	
	5.3	***5.1***	***6.8***	***1.6***	***0.0***	***5.3***	
Single ventricle	8	1	1	0	0	10	
	0.5	***1.0***	***0.6***	***0.0***	***0.0***	***0.5***	
Small intestinal atresia/stenosis	59	5	3	0	0	69	
	3.7	***5.1***	***1.9***	***0.0***	***0.0***	***3.5***	
Spina bifida without anencephalus	62	3	12	0	0	79	
	3.9	***3.1***	***7.4***	***0.0***	***0.0***	***4.0***	
Tetralogy of Fallot	68	4	2	5	0	79	
	4.3	***4.1***	***1.2***	***7.9***	***0.0***	***4.0***	
Total anomalous pulmonary venous connection	8	1	4	1	0	14	
	0.5	***1.0***	***2.5***	***1.6***	***0.0***	***0.7***	
Transposition of the great arteries (TGA)	41	4	5	1	0	51	
	2.6	***4.1***	***3.1***	***1.6***	***0.0***	***2.6***	
Dextro-transposition of great arteries (d-TGA)	36	4	4	1	0	45	
	2.3	***4.1***	***2.5***	***1.6***	***0.0***	***2.3***	
Tricuspid valve atresia and stenosis	30	4	7	1	0	42	
	1.9	***4.1***	***4.3***	***1.6***	***0.0***	***2.2***	
Tricuspid valve atresia	6	1	1	1	0	9	
	0.4	***1.0***	***0.6***	***1.6***	***0.0***	***0.5***	
Trisomy 13	21	5	3	0	0	31	
	1.3	***5.1***	***1.9***	***0.0***	***0.0***	***1.6***	
Trisomy 18	39	1	6	6	0	56	
	2.4	***1.0***	***3.7***	***9.5***	***0.0***	***2.9***	
Trisomy 21 (Down syndrome)	212	14	25	4	0	264	
	13.3	***14.2***	***15.4***	***6.3***	***0.0***	***13.5***	
Turner syndrome	37	1	5	0	0	44	3
	4.8	***2.1***	***6.2***	***0.0***	***0.0***	***4.6***	
Ventricular septal defect	802	37	73	20	3	943	
	50.4	***37.6***	***45.1***	***31.7***	***34.0***	***48.3***	
Total live births	**159,191**	**9,830**	**16,202**	**6,307**	**883**	**195,072**	**4**
Male live births	**81,728**	**5,027**	**8,076**	**3,284**	**464**	**99,915**	
Female live births	**77,462**	**4,803**	**8,126**	**3,023**	**419**	**95,156**	

Iowa

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	107	1	108	
	6.2	***0.5***	***5.5***	
Trisomy 13	20	11	31	
	1.2	***5.0***	***1.6***	
Trisomy 18	34	22	56	
	2.0	***9.9***	***2.9***	
Trisomy 21 (Down syndrome)	160	104	264	
	9.3	***47.0***	***13.5***	
Total live births	**172,950**	**22,114**	**195,072**	**4**

Notes

1. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
2. Data for this condition exclude other specified and unspecified limb reductions.
3. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
4. Total live births includes unknown gender.

General comments

*Totals include unknown and/or other.
-Data for conditions exclude probable/possible cases.
-Fetal deaths defined as 20 or more weeks gestation and/or 350 grams or greater.
-Terminations include all gestational ages.
-Unspecified non-live births include spontaneous abortions.

Kansas

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Anencephalus	34 ***2.5***	<5	13 ***4.2***	0 ***0.0***	0 ***0.0***	51 ***2.7***	
Anophthalmia/microphthalmia	<5	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	<5	
Anotia/microtia	<5	0 ***0.0***	<5	<5	0 ***0.0***	<5	
Aortic valve stenosis	7 ***0.5***	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	7 ***0.4***	
Atrial septal defect	179 ***13.2***	30 ***23.3***	63 ***20.5***	6 ***10.3***	<5	304 ***16.0***	
Atrioventricular septal defect (Endocardial cushion defect)	14 ***1.0***	0 ***0.0***	<5	0 ***0.0***	0 ***0.0***	17 ***0.9***	
Biliary atresia	0 ***0.0***	<5	<5	<5	0 ***0.0***	<5	
Choanal atresia	<5	0 ***0.0***	<5	0 ***0.0***	0 ***0.0***	8 ***0.4***	
Cleft lip alone	18 ***1.3***	<5	5 ***1.6***	<5	<5	28 ***1.5***	
Cleft lip with cleft palate	19 ***1.4***	0 ***0.0***	11 ***3.6***	0 ***0.0***	<5	34 ***1.8***	
Cleft palate alone	49 ***3.6***	<5	19 ***6.2***	<5	0 ***0.0***	71 ***3.7***	
Cloacal exstrophy	16 ***1.2***	<5	<5	0 ***0.0***	0 ***0.0***	22 ***1.2***	
Clubfoot	84 ***6.2***	6 ***4.7***	23 ***7.5***	<5	0 ***0.0***	124 ***6.5***	
Coarctation of the aorta	15 ***1.1***	0 ***0.0***	<5	0 ***0.0***	0 ***0.0***	21 ***1.1***	
Common truncus (truncus arteriosus)	5 ***0.4***	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	5 ***0.3***	
Congenital cataract	<5	0 ***0.0***	<5	0 ***0.0***	0 ***0.0***	<5	
Congenital posterior urethral valves	<5	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	<5	1
Craniosynostosis	5 ***0.4***	<5	<5	0 ***0.0***	0 ***0.0***	8 ***0.4***	
Diaphragmatic hernia	24 ***1.8***	0 ***0.0***	13 ***4.2***	0 ***0.0***	0 ***0.0***	40 ***2.1***	
Double outlet right ventricle	<5	<5	<5	0 ***0.0***	0 ***0.0***	8 ***0.4***	
Ebstein anomaly	<5	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	<5	
Encephalocele	<5	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	<5	
Esophageal atresia/tracheoesophageal fistula	12 ***0.9***	<5	5 ***1.6***	0 ***0.0***	0 ***0.0***	19 ***1.0***	
Gastroschisis	62 ***4.6***	<5	20 ***6.5***	0 ***0.0***	<5	93 ***4.9***	
Holoprosencephaly	28 ***2.1***	<5	9 ***2.9***	<5	0 ***0.0***	43 ***2.3***	
Hypoplastic left heart syndrome	<5	<5	<5	0 ***0.0***	0 ***0.0***	10 ***0.5***	
Hypospadias	146 ***21.1***	19 ***28.9***	25 ***16.0***	5 ***17.0***	0 ***0.0***	205 ***21.1***	1
Interrupted aortic arch	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	<5	
Limb deficiencies (reduction defects)	30 ***2.2***	8 ***6.2***	7 ***2.3***	<5	0 ***0.0***	47 ***2.5***	
Omphalocele	18 ***1.3***	<5	16 ***5.2***	<5	0 ***0.0***	39 ***2.1***	

Kansas

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Pulmonary valve atresia and stenosis	27 ***2.0***	5 ***3.9***	11 ***3.6***	0 ***0.0***	0 ***0.0***	47 ***2.5***	
Rectal and large intestinal atresia/stenosis	21 ***1.6***	0 ***0.0***	10 ***3.3***	<5	0 ***0.0***	32 ***1.7***	
Renal agenesis/hypoplasia	17 ***1.3***	0 ***0.0***	6 ***2.0***	0 ***0.0***	0 ***0.0***	25 ***1.3***	
Single ventricle	0 ***0.0***	0 ***0.0***	<5	0 ***0.0***	0 ***0.0***	<5	
Small intestinal atresia/stenosis	21 ***1.6***	<5	7 ***2.3***	<5	0 ***0.0***	32 ***1.7***	
Spina bifida without anencephalus	31 ***2.3***	<5	13 ***4.2***	<5	0 ***0.0***	50 ***2.6***	
Tetralogy of Fallot	13 ***1.0***	0 ***0.0***	6 ***2.0***	<5	0 ***0.0***	21 ***1.1***	
Total anomalous pulmonary venous connection	<5	0 ***0.0***	<5	0 ***0.0***	0 ***0.0***	7 ***0.4***	
Transposition of the great arteries (TGA)	<5	0 ***0.0***	<5	<5	0 ***0.0***	8 ***0.4***	
Tricuspid valve atresia and stenosis	<5	0 ***0.0***	<5	0 ***0.0***	0 ***0.0***	5 ***0.3***	
Trisomy 13	6 ***0.4***	<5	<5	0 ***0.0***	0 ***0.0***	10 ***0.5***	
Trisomy 18	15 ***1.1***	<5	6 ***2.0***	0 ***0.0***	0 ***0.0***	23 ***1.2***	
Trisomy 21 (Down syndrome)	126 ***9.3***	11 ***8.6***	46 ***15.0***	10 ***17.2***	<5	205 ***10.8***	
Turner syndrome	11 ***1.7***	0 ***0.0***	<5	0 ***0.0***	0 ***0.0***	13 ***1.4***	2
Ventricular septal defect	146 ***10.8***	11 ***8.6***	77 ***25.1***	8 ***13.8***	<5	267 ***14.0***	
Total live births	**135,174**	**12,859**	**30,660**	**5,804**	**939**	**190,042**	**3**
Male live births	**69,136**	**6,575**	**15,630**	**2,934**	**470**	**97,094**	
Female live births	**66,038**	**6,284**	**15,029**	**2,870**	**469**	**92,947**	

Kansas

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	89	<5	93	
	5.3		***4.9***	
Trisomy 13	5	5	10	
	0.3	***2.3***	***0.5***	
Trisomy 18	13	10	23	
	0.8	***4.6***	***1.2***	
Trisomy 21 (Down syndrome)	117	88	205	
	6.9	***40.9***	***10.8***	
Total live births	**168,495**	**21,541**	**190,042**	**3**

Notes
1. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
2. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
3. Total live births includes unknown gender.

General comments
*Totals include unknown and/or other.
-Data for conditions include live births and fetal deaths/stillbirths.
-Data for conditions includes probable cases.
-Stillbirth means any complete expulsion or extraction from its mother of a human child the gestational age of which is not less than 20 completed weeks.

Kentucky

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Anencephalus	56	1	0	0	0	59	
	2.5	***0.4***	***0.0***	***0.0***	***0.0***	***2.1***	
Anophthalmia/microphthalmia	16	3	1	0	0	22	
	0.7	***1.3***	***0.7***	***0.0***	***0.0***	***0.8***	
Anotia/microtia	10	0	5	1	0	16	
	0.4	***0.0***	***3.7***	***3.9***	***0.0***	***0.6***	
Aortic valve stenosis	42	1	2	0	0	47	
	1.8	***0.4***	***1.5***	***0.0***	***0.0***	***1.7***	
Atrial septal defect	6,011	1,096	253	133	8	7,879	
	263.7	***463.4***	***186.2***	***519.9***	***301.9***	***283.9***	
Atrioventricular septal defect (Endocardial cushion defect)	88	13	2	1	0	114	
	3.9	***5.5***	***1.5***	***3.9***	***0.0***	***4.1***	
Biliary atresia	9	1	0	0	0	14	
	0.4	***0.4***	***0.0***	***0.0***	***0.0***	***0.5***	
Bladder exstrophy	6	1	0	1	0	8	
	0.3	***0.4***	***0.0***	***3.9***	***0.0***	***0.3***	
Choanal atresia	26	0	0	0	0	27	
	1.1	***0.0***	***0.0***	***0.0***	***0.0***	***1.0***	
Cleft lip alone	113	6	2	3	0	127	
	5.0	***2.5***	***1.5***	***11.7***	***0.0***	***4.6***	
Cleft lip with cleft palate	158	4	6	2	0	177	
	6.9	***1.7***	***4.4***	***7.8***	***0.0***	***6.4***	
Cleft palate alone	178	13	6	3	0	214	
	7.8	***5.5***	***4.4***	***11.7***	***0.0***	***7.7***	
Clubfoot	398	31	20	6	0	469	
	17.5	***13.1***	***14.7***	***23.5***	***0.0***	***16.9***	
Coarctation of the aorta	174	17	6	1	0	205	
	7.6	***7.2***	***4.4***	***3.9***	***0.0***	***7.4***	
Common truncus (truncus arteriosus)	21	3	0	0	0	26	
	0.9	***1.3***	***0.0***	***0.0***	***0.0***	***0.9***	
Congenital cataract	26	4	0	0	0	32	
	1.1	***1.7***	***0.0***	***0.0***	***0.0***	***1.2***	
Congenital posterior urethral valves	23	4	0	1	0	29	1
	2.0	***3.4***	***0.0***	***7.7***	***0.0***	***2.0***	
Deletion 22q11.2	5	0	0	0	0	5	
	0.2	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Diaphragmatic hernia	78	11	3	1	1	102	
	3.4	***4.7***	***2.2***	***3.9***	***37.7***	***3.7***	
Double outlet right ventricle	59	11	0	1	0	79	
	2.6	***4.7***	***0.0***	***3.9***	***0.0***	***2.8***	
Ebstein anomaly	21	2	1	0	0	25	
	0.9	***0.8***	***0.7***	***0.0***	***0.0***	***0.9***	
Encephalocele	26	4	2	0	0	34	
	1.1	***1.7***	***1.5***	***0.0***	***0.0***	***1.2***	
Esophageal atresia/tracheoesophageal fistula	68	6	1	0	0	75	
	3.0	***2.5***	***0.7***	***0.0***	***0.0***	***2.7***	
Gastroschisis	132	11	6	3	0	156	
	5.8	***4.7***	***4.4***	***11.7***	***0.0***	***5.6***	
Holoprosencephaly	115	12	7	1	2	145	
	5.0	***5.1***	***5.2***	***3.9***	***75.5***	***5.2***	
Hypoplastic left heart syndrome	72	7	1	0	0	87	
	3.2	***3.0***	***0.7***	***0.0***	***0.0***	***3.1***	
Hypospadias	1,155	104	19	14	0	1,334	1
	98.4	***87.5***	***27.5***	***107.3***	***0.0***	***93.6***	
Interrupted aortic arch	12	3	0	0	0	16	
	0.5	***1.3***	***0.0***	***0.0***	***0.0***	***0.6***	
Limb deficiencies (reduction defects)	114	10	3	1	0	135	
	5.0	***4.2***	***2.2***	***3.9***	***0.0***	***4.9***	
Omphalocele	49	2	3	0	0	55	
	2.1	***0.8***	***2.2***	***0.0***	***0.0***	***2.0***	

Kentucky

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Pulmonary valve atresia and stenosis	163	24	5	2	0	207	
	7.2	***10.1***	***3.7***	***7.8***	***0.0***	***7.5***	
Pulmonary valve atresia	28	3	0	1	0	33	
	1.2	***1.3***	***0.0***	***3.9***	***0.0***	***1.2***	
Rectal and large intestinal atresia/stenosis	114	11	9	4	3	146	
	5.0	***4.7***	***6.6***	***15.6***	***113.2***	***5.3***	
Renal agenesis/hypoplasia	121	12	7	4	1	156	
	5.3	***5.1***	***5.2***	***15.6***	***37.7***	***5.6***	
Single ventricle	12	3	0	0	0	18	
	0.5	***1.3***	***0.0***	***0.0***	***0.0***	***0.6***	
Small intestinal atresia/stenosis	81	11	2	4	0	108	
	3.6	***4.7***	***1.5***	***15.6***	***0.0***	***3.9***	
Spina bifida without anencephalus	83	7	3	4	0	104	
	3.6	***3.0***	***2.2***	***15.6***	***0.0***	***3.7***	
Tetralogy of Fallot	96	14	2	1	0	122	
	4.2	***5.9***	***1.5***	***3.9***	***0.0***	***4.4***	
Total anomalous pulmonary venous connection	17	2	2	0	0	27	
	0.7	***0.8***	***1.5***	***0.0***	***0.0***	***1.0***	
Transposition of the great arteries (TGA)	67	5	1	0	0	75	
	2.9	***2.1***	***0.7***	***0.0***	***0.0***	***2.7***	
Dextro-transposition of great arteries (d-TGA)	60	4	1	0	0	66	
	2.6	***1.7***	***0.7***	***0.0***	***0.0***	***2.4***	
Tricuspid valve atresia and stenosis	23	1	0	0	0	24	2
	1.0	***0.4***	***0.0***	***0.0***	***0.0***	***0.9***	
Trisomy 13	29	1	2	0	0	33	
	1.3	***0.4***	***1.5***	***0.0***	***0.0***	***1.2***	
Trisomy 18	49	12	2	2	0	68	
	2.1	***5.1***	***1.5***	***7.8***	***0.0***	***2.4***	
Trisomy 21 (Down syndrome)	309	39	25	6	0	426	
	13.6	***16.5***	***18.4***	***23.5***	***0.0***	***15.3***	
Turner syndrome	41	4	3	0	0	51	3
	3.7	***3.4***	***4.5***	***0.0***	***0.0***	***3.8***	
Ventricular septal defect	1,302	143	66	18	2	1,621	4
	57.1	***60.5***	***48.6***	***70.4***	***75.5***	***58.4***	
Total live births	**227,938**	**23,652**	**13,588**	**2,558**	**265**	**277,569**	**5**
Male live births	**117,336**	**11,881**	**6,905**	**1,305**	**124**	**142,504**	
Female live births	**110,585**	**11,770**	**6,682**	**1,253**	**141**	**135,046**	

Kentucky

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	150	4	156	
	6.2	***1.4***	***5.6***	
Trisomy 13	27	6	33	
	1.1	***2.1***	***1.2***	
Trisomy 18	34	34	68	
	1.4	***12.0***	***2.4***	
Trisomy 21 (Down syndrome)	238	155	426	
	9.8	***54.5***	***15.3***	
Total live births	**243,852**	**28,421**	**277,569**	**5**

Notes

1. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
2. Data for this condition include cases with stenosis and hypoplasia.
3. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
4. Data for this condition exclude inlet ventricular septal defect and common atrioventricular canal type ventricular sepatal defect.
5. Total live births includes unknown gender.

General comments

*Totals include unknown and/or other.

-Stillbirths are defined as a fetal death of 20 completed weeks gestation or more, calculated from the date last normal menstrual period began to the date of delivery, or in which the fetus weighs 350 grams or more.

Louisiana

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Anencephalus	16	9	<5	0	0	28	
	1.3	***1.0***		***0.0***	***0.0***	***1.2***	
Anophthalmia/microphthalmia	13	10	0	<5	<5	25	
	1.0	***1.1***	***0.0***			***1.0***	
Anotia/microtia	11	6	<5	0	<5	21	
	0.9	***0.7***		***0.0***		***0.9***	
Aortic valve stenosis	22	5	<5	0	0	28	
	1.7	***0.6***		***0.0***	***0.0***	***1.2***	
Atrial septal defect	723	655	90	18	9	1,523	
	57.1	***72.6***	***60.1***	***44.6***	***70.5***	***63.2***	
Atrioventricular septal defect (Endocardial cushion defect)	71	59	11	<5	0	148	
	5.6	***6.5***	***7.3***		***0.0***	***6.1***	
Biliary atresia	8	8	<5	<5	<5	20	
	0.6	***0.9***				***0.8***	
Bladder exstrophy	<5	<5	0	0	0	<5	
			0.0	***0.0***	***0.0***		
Choanal atresia	18	8	<5	<5	0	28	
	1.4	***0.9***			***0.0***	***1.2***	
Cleft lip alone	44	12	<5	<5	<5	60	
	3.5	***1.3***				***2.5***	
Cleft lip with cleft palate	67	45	10	<5	0	124	
	5.3	***5.0***	***6.7***		***0.0***	***5.1***	
Cleft palate alone	92	38	12	<5	<5	148	
	7.3	***4.2***	***8.0***			***6.1***	
Clubfoot	58	38	10	0	<5	108	
	7.2	***6.6***	***9.7***	***0.0***		***7.0***	
Coarctation of the aorta	68	35	9	<5	<5	118	
	5.4	***3.9***	***6.0***			***4.9***	
Common truncus (truncus arteriosus)	<5	6	<5	0	0	12	
		1.1		***0.0***	***0.0***	***0.8***	
Congenital cataract	16	15	0	<5	<5	33	
	1.3	***1.7***	***0.0***			***1.4***	
Congenital posterior urethral valves	36	28	<5	0	0	67	1
	5.5	***6.2***		***0.0***	***0.0***	***5.4***	
Craniosynostosis	56	22	0	<5	<5	82	
	11.2	***6.2***	***0.0***			***8.6***	
Deletion 22q11.2	15	10	<5	0	0	27	
	1.5	***1.4***		***0.0***	***0.0***	***1.4***	
Diaphragmatic hernia	25	21	6	0	0	54	
	2.0	***2.3***	***4.0***	***0.0***	***0.0***	***2.2***	
Double outlet right ventricle	25	14	<5	0	0	45	
	2.0	***1.6***		***0.0***	***0.0***	***1.9***	
Ebstein anomaly	8	<5	<5	0	<5	14	
	0.6			***0.0***		***0.6***	
Encephalocele	9	5	0	0	0	16	
	0.7	***0.6***	***0.0***	***0.0***	***0.0***	***0.7***	
Esophageal atresia/tracheoesophageal fistula	28	22	<5	<5	0	57	
	2.2	***2.4***			***0.0***	***2.4***	
Gastroschisis	33	23	8	0	<5	66	
	2.6	***2.6***	***5.3***	***0.0***		***2.7***	
Holoprosencephaly	<5	6	<5	0	0	9	
		1.2		***0.0***	***0.0***	***0.6***	
Hypoplastic left heart syndrome	25	24	<5	0	0	51	
	2.0	***2.7***		***0.0***	***0.0***	***2.1***	
Hypospadias	532	258	28	7	<5	840	1
	81.7	***56.7***	***37.0***	***33.9***		***68.3***	
Interrupted aortic arch	5	5	0	0	0	10	
	0.5	***0.6***	***0.0***	***0.0***	***0.0***	***0.5***	
Limb deficiencies (reduction defects)	47	30	5	0	<5	87	
	3.7	***3.3***	***3.3***	***0.0***		***3.6***	

Louisiana

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Omphalocele	17	24	0	0	<5	44	
	1.3	***2.7***	***0.0***	***0.0***		***1.8***	
Pulmonary valve atresia and stenosis	55	56	10	0	0	122	
	4.3	***6.2***	***6.7***	***0.0***	***0.0***	***5.1***	
Pulmonary valve atresia	<5	<5	<5	0	0	8	
				0.0	***0.0***	***0.6***	
Rectal and large intestinal atresia/stenosis	53	36	7	<5	0	98	
	4.2	***4.0***	***4.7***		***0.0***	***4.1***	
Renal agenesis/hypoplasia	53	34	<5	0	<5	92	
	4.2	***3.8***		***0.0***		***3.8***	
Single ventricle	<5	6	0	0	0	8	
		0.9	***0.0***	***0.0***	***0.0***	***0.4***	
Small intestinal atresia/stenosis	10	12	<5	0	0	26	
	2.0	***3.4***		***0.0***	***0.0***	***2.7***	
Spina bifida without anencephalus	44	27	5	0	<5	77	
	3.5	***3.0***	***3.3***	***0.0***		***3.2***	
Tetralogy of Fallot	45	51	11	<5	<5	114	
	3.6	***5.7***	***7.3***			***4.7***	
Total anomalous pulmonary venous connection	<5	<5	<5	0	0	<5	
				0.0	***0.0***		
Transposition of the great arteries (TGA)	25	17	8	0	0	51	
	2.0	***1.9***	***5.3***	***0.0***	***0.0***	***2.1***	
Dextro-transposition of great arteries (d-TGA)	23	16	7	0	0	46	
	1.8	***1.8***	***4.7***	***0.0***	***0.0***	***1.9***	
Tricuspid valve atresia and stenosis	14	9	<5	<5	0	27	
	1.3	***1.2***			***0.0***	***1.3***	
Tricuspid valve atresia	14	9	<5	0	0	25	
	1.3	***1.2***		***0.0***	***0.0***	***1.2***	
Trisomy 13	6	7	<5	0	<5	16	
	0.6	***0.9***		***0.0***		***0.8***	
Trisomy 18	26	20	<5	0	0	49	
	2.1	***2.2***		***0.0***	***0.0***	***2.0***	
Trisomy 21 (Down syndrome)	166	86	35	5	0	299	
	13.1	***9.5***	***23.4***	***12.4***	***0.0***	***12.4***	
Turner syndrome	8	6	<5	0	0	17	2
	1.3	***1.3***		***0.0***	***0.0***	***1.4***	
Ventricular septal defect	560	333	81	15	5	1,012	
	44.2	***36.9***	***54.1***	***37.2***	***39.2***	***42.0***	
Total live births	**126,654**	**90,175**	**14,983**	**4,036**	**1,277**	**240,953**	**3**
Male live births	**65,141**	**45,502**	**7,564**	**2,062**	**673**	**122,942**	
Female live births	**61,511**	**44,672**	**7,419**	**1,974**	**604**	**118,008**	

Louisiana

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	65	<5	66	
	3.0		***2.7***	
Trisomy 13	12	<5	16	
	0.6		***0.8***	
Trisomy 18	39	10	49	
	1.8	***4.3***	***2.0***	
Trisomy 21 (Down syndrome)	196	103	299	
	9.0	***43.9***	***12.4***	
Total live births	**217,475**	**23,478**	**240,953**	**3**

Notes

1. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
2. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
3. Total live births includes unknown gender.

General comments

*Totals include unknown and/or other.

-Data for conditions from 2011 are final and include only live births to Louisiana residents that occurred in 41/54 birth hospitals and covered 71% of total births.

-Data for conditions from 2012 are final and include only live births to Louisiana residents that occurred in 35/57 birth hospitals and covered 67% of total births.

-Data for conditions from 2013 are final and include only live births to Louisiana residents that occurred in 46/55 birth hospitals and covered 92% of total births.

-Data for conditions from 2014 are final and include only live births to Louisiana residents that occurred in 45/53 birth hospitals and covered 93% of total births.

-Data for conditions from 2015 are provisional and include only live births to Louisiana residents that occurred in 22/52 birth hospitals and covered 53% of total births.

-Data for conditions include live births that had a birth weight of >= 350 grams or a gestational age >= 20 weeks.

-Data for conditions include probable cases.

Maine

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Anencephalus	14	2	0	0	0	19	1
	2.4	***9.3***	***0.0***	***0.0***	***0.0***	***3.0***	
Anophthalmia/microphthalmia	1	0	0	0	0	1	2
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Anotia/microtia	9	0	0	0	0	10	
	1.5	***0.0***	***0.0***	***0.0***	***0.0***	***1.6***	
Aortic valve stenosis	2	0	0	0	0	2	2
	0.6	***0.0***	***0.0***	***0.0***	***0.0***	***0.5***	
Atrial septal defect	100	5	6	1	2	118	2
	28.6	***37.1***	***96.3***	***14.9***	***49.3***	***31.0***	
Atrioventricular septal defect (Endocardial cushion defect)	11	0	0	0	0	11	2
	3.1	***0.0***	***0.0***	***0.0***	***0.0***	***2.9***	
Biliary atresia	0	0	0	0	0	0	2
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Bladder exstrophy	1	0	0	0	0	1	2
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Choanal atresia	6	0	0	0	0	6	3
	1.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.9***	
Cleft lip alone	17	0	0	0	0	18	
	2.9	***0.0***	***0.0***	***0.0***	***0.0***	***2.8***	
Cleft lip with cleft palate	34	1	0	0	1	37	
	5.8	***4.7***	***0.0***	***0.0***	***15.6***	***5.8***	
Cleft palate alone	34	1	2	1	2	42	
	5.8	***4.7***	***19.2***	***9.0***	***31.2***	***6.6***	
Coarctation of the aorta	27	0	0	0	0	28	
	4.6	***0.0***	***0.0***	***0.0***	***0.0***	***4.4***	
Common truncus (truncus arteriosus)	1	0	0	0	0	1	
	0.2	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Congenital cataract	0	1	0	0	0	1	2
	0.0	***7.4***	***0.0***	***0.0***	***0.0***	***0.3***	
Diaphragmatic hernia	2	0	0	0	0	2	2
	0.6	***0.0***	***0.0***	***0.0***	***0.0***	***0.5***	
Ebstein anomaly	1	0	0	0	0	1	2
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Encephalocele	7	0	0	1	0	8	
	1.2	***0.0***	***0.0***	***9.0***	***0.0***	***1.3***	
Esophageal atresia/tracheoesophageal fistula	13	0	0	0	0	14	2
	3.7	***0.0***	***0.0***	***0.0***	***0.0***	***3.7***	
Gastroschisis	28	0	2	0	1	32	
	4.8	***0.0***	***19.2***	***0.0***	***15.6***	***5.0***	
Hypoplastic left heart syndrome	17	2	0	0	0	21	
	2.9	***9.3***	***0.0***	***0.0***	***0.0***	***3.3***	
Hypospadias	186	5	2	3	2	210	5
	61.8	***43.9***	***36.6***	***49.7***	***59.7***	***64.1***	
Limb deficiencies (reduction defects)	20	0	0	0	0	23	
	3.4	***0.0***	***0.0***	***0.0***	***0.0***	***3.6***	
Omphalocele	10	0	0	0	0	10	
	1.7	***0.0***	***0.0***	***0.0***	***0.0***	***1.6***	
Pulmonary valve atresia and stenosis	38	3	0	1	0	42	
	6.5	***14.0***	***0.0***	***9.0***	***0.0***	***6.6***	
Pulmonary valve atresia	7	2	0	0	0	9	
	1.2	***9.3***	***0.0***	***0.0***	***0.0***	***1.4***	
Rectal and large intestinal atresia/stenosis	17	0	0	1	0	19	2
	4.9	***0.0***	***0.0***	***14.9***	***0.0***	***5.0***	
Renal agenesis/hypoplasia	24	1	1	0	0	26	2
	6.9	***7.4***	***16.1***	***0.0***	***0.0***	***6.8***	
Spina bifida without anencephalus	22	0	0	0	0	23	
	3.8	***0.0***	***0.0***	***0.0***	***0.0***	***3.6***	
Tetralogy of Fallot	28	0	1	0	0	30	
	4.8	***0.0***	***9.6***	***0.0***	***0.0***	***4.7***	

Maine

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Transposition of the great arteries (TGA)	16 ***2.7***	1 ***4.7***	1 ***9.6***	1 ***9.0***	0 ***0.0***	19 ***3.0***	
Tricuspid valve atresia and stenosis	4 ***0.7***	1 ***4.7***	0 ***0.0***	0 ***0.0***	0 ***0.0***	5 ***0.8***	
Tricuspid valve atresia	4 ***0.7***	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	4 ***0.6***	
Trisomy 13	2 ***0.6***	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	2 ***0.5***	2
Trisomy 18	7 ***2.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	7 ***1.8***	2
Trisomy 21 (Down syndrome)	66 ***11.3***	4 ***18.7***	2 ***19.2***	2 ***18.0***	2 ***31.2***	81 ***12.7***	
Ventricular septal defect	73 ***20.9***	3 ***22.3***	4 ***64.2***	0 ***0.0***	0 ***0.0***	84 ***22.1***	2
Total live births	**58,520**	**2,142**	**1,039**	**1,109**	**642**	**63,583**	
Male live births	**30,089**	**1,139**	**546**	**604**	**335**	**32,782**	

Maine

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	32	0	32	
	5.9	***0.0***	***5.0***	
Trisomy 13	2	0	2	2
	0.6	***0.0***	***0.5***	
Trisomy 18	5	2	7	2
	1.5	***3.6***	***1.8***	
Trisomy 21 (Down syndrome)	49	29	81	
	9.0	***32.5***	***12.7***	
Total live births	**54,662**	**8,921**	**63,583**	

Notes
1. Data for this condition include probable cases.
2. Data for this condition begin in 2013.
3. Data for this condition begin in 2011.
4. Data for this condition end in 2011.
5. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.

General comments
*Totals include unknown and/or other.
-Fetal deaths are defined as those that occur at any gestational age.

Maryland

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Anencephalus	17	7	7	0	0	39	
	1.0	***0.6***	***1.3***	***0.0***	***0.0***	***1.1***	
Anophthalmia/microphthalmia	1	3	1	0	0	11	1
	0.1	***0.4***	***0.3***	***0.0***	***0.0***	***0.5***	
Anotia/microtia	8	0	2	1	0	13	
	0.5	***0.0***	***0.4***	***0.4***	***0.0***	***0.4***	
Aortic valve stenosis	2	0	0	0	0	3	
	0.1	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Atrial septal defect	26	16	8	1	0	66	
	1.6	***1.3***	***1.5***	***0.4***	***0.0***	***1.8***	
Atrioventricular septal defect (Endocardial cushion defect)	8	6	0	0	0	20	
	0.5	***0.5***	***0.0***	***0.0***	***0.0***	***0.5***	
Biliary atresia	1	0	0	0	0	1	1
	0.1	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Bladder exstrophy	3	2	1	0	0	9	
	0.2	***0.2***	***0.2***	***0.0***	***0.0***	***0.2***	
Choanal atresia	7	3	0	1	0	12	1
	0.7	***0.4***	***0.0***	***0.6***	***0.0***	***0.5***	
Cleft lip alone	36	7	8	4	0	69	
	2.2	***0.6***	***1.5***	***1.5***	***0.0***	***1.9***	
Cleft lip with cleft palate	46	14	11	2	0	87	1
	4.7	***2.0***	***3.3***	***1.2***	***0.0***	***4.0***	
Cleft palate alone	60	23	12	5	0	125	
	3.7	***1.9***	***2.2***	***1.9***	***0.0***	***3.4***	
Cloacal exstrophy	3	5	1	0	0	10	1
	0.3	***0.7***	***0.3***	***0.0***	***0.0***	***0.5***	
Clubfoot	30	25	14	2	0	89	
	1.8	***2.1***	***2.6***	***0.7***	***0.0***	***2.4***	
Coarctation of the aorta	8	7	1	5	0	27	1
	0.8	***1.0***	***0.3***	***3.1***	***0.0***	***1.2***	
Common truncus (truncus arteriosus)	2	0	0	1	0	6	
	0.1	***0.0***	***0.0***	***0.4***	***0.0***	***0.2***	
Congenital cataract	1	3	1	0	0	5	1
	0.1	***0.4***	***0.3***	***0.0***	***0.0***	***0.2***	
Congenital posterior urethral valves	1	1	0	0	0	2	2
	0.1	***0.2***	***0.0***	***0.0***	***0.0***	***0.1***	
Craniosynostosis	0	0	0	0	0	0	1
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Deletion 22q11.2	0	0	0	0	0	0	1
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Diaphragmatic hernia	15	14	2	2	0	45	
	0.9	***1.2***	***0.4***	***0.7***	***0.0***	***1.2***	
Double outlet right ventricle	11	12	3	3	0	35	
	0.7	***1.0***	***0.6***	***1.1***	***0.0***	***1.0***	
Ebstein anomaly	2	2	1	0	0	6	1
	0.2	***0.3***	***0.3***	***0.0***	***0.0***	***0.3***	
Encephalocele	6	7	1	2	0	19	
	0.4	***0.6***	***0.2***	***0.7***	***0.0***	***0.5***	
Esophageal atresia/tracheoesophageal fistula	22	10	3	3	0	48	
	1.3	***0.8***	***0.6***	***1.1***	***0.0***	***1.3***	
Gastroschisis	24	16	3	1	0	57	
	1.5	***1.3***	***0.6***	***0.4***	***0.0***	***1.6***	
Holoprosencephaly	8	8	6	1	0	28	
	0.5	***0.7***	***1.1***	***0.4***	***0.0***	***0.8***	
Hypoplastic left heart syndrome	6	6	0	1	0	25	1
	0.6	***0.8***	***0.0***	***0.6***	***0.0***	***1.1***	
Hypospadias	291	196	74	28	0	738	2
	34.6	***32.5***	***27.0***	***20.1***	***0.0***	***39.6***	
Interrupted aortic arch	3	3	0	1	0	10	1
	0.3	***0.4***	***0.0***	***0.6***	***0.0***	***0.5***	

Maryland

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Limb deficiencies (reduction defects)	34	38	15	3	1	113	
	2.1	***3.2***	***2.8***	***1.1***	***14.2***	***3.1***	
Omphalocele	8	8	0	0	1	28	
	0.5	***0.7***	***0.0***	***0.0***	***14.2***	***0.8***	
Pulmonary valve atresia and stenosis	7	8	1	2	0	29	1
	0.7	***1.1***	***0.3***	***1.2***	***0.0***	***1.3***	
Pulmonary valve atresia	4	4	0	1	0	13	1
	0.4	***0.6***	***0.0***	***0.6***	***0.0***	***0.6***	
Rectal and large intestinal atresia/stenosis	22	17	9	5	0	64	
	1.3	***1.4***	***1.7***	***1.9***	***0.0***	***1.8***	
Renal agenesis/hypoplasia	17	13	6	3	0	51	
	1.0	***1.1***	***1.1***	***1.1***	***0.0***	***1.4***	
Single ventricle	1	2	0	1	0	5	
	0.1	***0.2***	***0.0***	***0.4***	***0.0***	***0.1***	
Small intestinal atresia/stenosis	9	16	1	0	0	36	
	0.5	***1.3***	***0.2***	***0.0***	***0.0***	***1.0***	
Spina bifida without anencephalus	33	18	14	4	0	79	
	2.0	***1.5***	***2.6***	***1.5***	***0.0***	***2.2***	
Tetralogy of Fallot	40	14	3	4	1	77	
	2.4	***1.2***	***0.6***	***1.5***	***14.2***	***2.1***	
Total anomalous pulmonary venous connection	2	0	1	0	0	7	
	0.1	***0.0***	***0.2***	***0.0***	***0.0***	***0.2***	
Transposition of the great arteries (TGA)	4	1	0	0	0	6	1
	0.4	***0.1***	***0.0***	***0.0***	***0.0***	***0.3***	
Dextro-transposition of great arteries (d-TGA)	2	1	0	0	0	4	
	0.2	***0.1***	***0.0***	***0.0***	***0.0***	***0.2***	
Tricuspid valve atresia and stenosis	1	4	1	1	0	13	
	0.1	***0.3***	***0.2***	***0.4***	***0.0***	***0.4***	
Tricuspid valve atresia	1	4	1	1	0	13	
	0.1	***0.3***	***0.2***	***0.4***	***0.0***	***0.4***	
Trisomy 13	5	6	2	0	0	23	
	0.3	***0.5***	***0.4***	***0.0***	***0.0***	***0.6***	
Trisomy 18	10	16	8	0	0	49	
	0.6	***1.3***	***1.5***	***0.0***	***0.0***	***1.3***	
Trisomy 21 (Down syndrome)	114	88	64	11	0	359	
	6.9	***7.4***	***11.9***	***4.1***	***0.0***	***9.8***	
Turner syndrome	5	5	1	0	0	14	3
	0.6	***0.9***	***0.4***	***0.0***	***0.0***	***0.8***	
Ventricular septal defect	51	62	11	5	0	173	
	3.1	***5.2***	***2.0***	***1.9***	***0.0***	***4.7***	
Total live births	**164,357**	**118,536**	**53,718**	**26,729**	**702**	**364,741**	**4**
Male live births	**84,215**	**60,322**	**27,420**	**13,939**	**125**	**186,455**	
Female live births	**80,140**	**58,212**	**26,298**	**13,071**	**127**	**178,282**	

Maryland

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	35	4	57	
	1.2	***0.6***	***1.6***	
Trisomy 13	7	11	23	
	0.2	***1.6***	***0.6***	
Trisomy 18	23	21	49	
	0.8	***3.0***	***1.3***	
Trisomy 21 (Down syndrome)	164	153	359	
	5.6	***21.9***	***9.8***	
Total live births	**294,745**	**69,933**	**364,741**	**4**

Notes

1. Data for this condition begin in 2013.
2. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
3. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
4. Total live births includes unknown gender.

General comments

*Totals include unknown and/or other.

Massachusetts

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total*	Notes
Anencephalus	45	7	17	4	0	85	
	2.0	***2.0***	***2.7***	***1.3***	***0.0***	***2.4***	
Anophthalmia/microphthalmia	24	6	11	3	0	45	
	1.1	***1.7***	***1.7***	***0.9***	***0.0***	***1.2***	
Anotia/microtia	51	8	20	8	0	90	
	2.3	***2.3***	***3.1***	***2.5***	***0.0***	***2.5***	
Aortic valve stenosis	36	2	5	2	0	45	
	1.6	***0.6***	***0.8***	***0.6***	***0.0***	***1.2***	
Atrial septal defect	536	95	157	66	1	872	
	24.0	***27.2***	***24.6***	***20.8***	***8.3***	***24.2***	
Atrioventricular septal defect (Endocardial cushion defect)	119	37	55	15	0	233	
	5.3	***10.6***	***8.6***	***4.7***	***0.0***	***6.5***	
Biliary atresia	8	3	6	6	0	23	
	0.4	***0.9***	***0.9***	***1.9***	***0.0***	***0.6***	
Bladder exstrophy	7	1	1	0	0	9	
	0.3	***0.3***	***0.2***	***0.0***	***0.0***	***0.2***	
Choanal atresia	20	2	4	1	0	27	
	0.9	***0.6***	***0.6***	***0.3***	***0.0***	***0.7***	
Cleft lip alone	85	10	19	17	0	134	
	3.8	***2.9***	***3.0***	***5.4***	***0.0***	***3.7***	
Cleft lip with cleft palate	111	9	39	15	0	177	
	5.0	***2.6***	***6.1***	***4.7***	***0.0***	***4.9***	
Cleft palate alone	138	23	37	24	2	227	1
	6.2	***6.6***	***5.8***	***7.6***	***16.5***	***6.3***	
Cloacal exstrophy	9	0	3	0	0	12	
	0.4	***0.0***	***0.5***	***0.0***	***0.0***	***0.3***	
Clubfoot	345	42	84	32	3	525	2
	15.5	***12.0***	***13.2***	***10.1***	***24.8***	***14.6***	
Coarctation of the aorta	119	17	24	10	0	170	
	5.3	***4.9***	***3.8***	***3.2***	***0.0***	***4.7***	
Common truncus (truncus arteriosus)	8	3	3	1	0	16	
	0.4	***0.9***	***0.5***	***0.3***	***0.0***	***0.4***	
Congenital cataract	65	9	26	3	0	104	
	2.9	***2.6***	***4.1***	***0.9***	***0.0***	***2.9***	
Congenital posterior urethral valves	21	8	7	7	0	47	3
	1.8	***4.5***	***2.1***	***4.3***	***0.0***	***2.5***	
Craniosynostosis	151	5	29	8	1	198	
	6.8	***1.4***	***4.5***	***2.5***	***8.3***	***5.5***	
Deletion 22q11.2	29	7	11	6	0	54	
	1.3	***2.0***	***1.7***	***1.9***	***0.0***	***1.5***	
Diaphragmatic hernia	71	10	20	8	1	110	
	3.2	***2.9***	***3.1***	***2.5***	***8.3***	***3.0***	
Double outlet right ventricle	37	6	16	8	0	68	
	1.7	***1.7***	***2.5***	***2.5***	***0.0***	***1.9***	
Ebstein anomaly	11	0	4	0	0	16	
	0.5	***0.0***	***0.6***	***0.0***	***0.0***	***0.4***	
Encephalocele	19	7	11	5	0	46	
	0.9	***2.0***	***1.7***	***1.6***	***0.0***	***1.3***	
Esophageal atresia/tracheoesophageal fistula	76	9	17	1	0	103	
	3.4	***2.6***	***2.7***	***0.3***	***0.0***	***2.9***	
Gastroschisis	70	10	30	8	1	123	
	3.1	***2.9***	***4.7***	***2.5***	***8.3***	***3.4***	
Holoprosencephaly	35	5	19	4	0	67	
	1.6	***1.4***	***3.0***	***1.3***	***0.0***	***1.9***	
Hypoplastic left heart syndrome	51	10	15	7	0	88	
	2.3	***2.9***	***2.4***	***2.2***	***0.0***	***2.4***	
Hypospadias	593	80	130	48	2	866	4
	51.9	***44.7***	***39.8***	***29.5***	***33.0***	***46.9***	
Interrupted aortic arch	8	3	1	0	0	12	
	0.4	***0.9***	***0.2***	***0.0***	***0.0***	***0.3***	

Massachusetts

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Limb deficiencies (reduction defects)	129	23	31	8	0	197	
	5.8	***6.6***	***4.9***	***2.5***	***0.0***	***5.5***	
Omphalocele	95	4	30	12	0	149	
	4.3	***1.1***	***4.7***	***3.8***	***0.0***	***4.1***	
Pulmonary valve atresia and stenosis	188	49	50	16	2	309	
	8.4	***14.0***	***7.8***	***5.1***	***16.5***	***8.6***	
Pulmonary valve atresia	12	3	2	2	0	19	
	0.5	***0.9***	***0.3***	***0.6***	***0.0***	***0.5***	
Rectal and large intestinal atresia/stenosis	88	10	25	9	0	139	
	3.9	***2.9***	***3.9***	***2.8***	***0.0***	***3.9***	
Renal agenesis/hypoplasia	106	14	14	11	1	156	5
	4.8	***4.0***	***2.2***	***3.5***	***8.3***	***4.3***	
Single ventricle	10	1	3	1	0	16	
	0.4	***0.3***	***0.5***	***0.3***	***0.0***	***0.4***	
Small intestinal atresia/stenosis	58	11	20	7	0	98	
	2.6	***3.1***	***3.1***	***2.2***	***0.0***	***2.7***	
Spina bifida without anencephalus	103	9	28	7	0	153	
	4.6	***2.6***	***4.4***	***2.2***	***0.0***	***4.2***	
Tetralogy of Fallot	118	16	26	14	1	179	6
	5.3	***4.6***	***4.1***	***4.4***	***8.3***	***5.0***	
Total anomalous pulmonary venous connection	9	3	7	9	0	28	
	0.4	***0.9***	***1.1***	***2.8***	***0.0***	***0.8***	
Transposition of the great arteries (TGA)	70	11	22	8	0	114	
	3.1	***3.1***	***3.4***	***2.5***	***0.0***	***3.2***	
Dextro-transposition of great arteries (d-TGA)	59	11	19	8	0	100	
	2.6	***3.1***	***3.0***	***2.5***	***0.0***	***2.8***	
Tricuspid valve atresia and stenosis	25	3	6	0	0	34	
	1.1	***0.9***	***0.9***	***0.0***	***0.0***	***0.9***	
Tricuspid valve atresia	16	3	4	0	0	23	
	0.7	***0.9***	***0.6***	***0.0***	***0.0***	***0.6***	
Trisomy 13	75	6	12	6	0	115	
	3.4	***1.7***	***1.9***	***1.9***	***0.0***	***3.2***	
Trisomy 18	151	24	42	26	0	271	
	6.8	***6.9***	***6.6***	***8.2***	***0.0***	***7.5***	
Trisomy 21 (Down syndrome)	588	74	140	58	1	924	
	26.4	***21.2***	***21.9***	***18.3***	***8.3***	***25.6***	
Turner syndrome	106	12	11	14	1	168	7
	9.8	***7.0***	***3.5***	***9.1***	***16.6***	***9.5***	
Ventricular septal defect	533	87	186	81	4	898	8
	23.9	***24.9***	***29.2***	***25.6***	***33.1***	***24.9***	
Total live births	**222,973**	**34,933**	**63,782**	**31,683**	**1,209**	**360,779**	**9**
Male live births	**114,268**	**17,881**	**32,623**	**16,255**	**606**	**184,811**	
Female live births	**108,702**	**17,050**	**31,158**	**15,428**	**603**	**175,962**	

Massachusetts

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	116	7	123	
	4.2	***0.8***	***3.4***	
Trisomy 13	45	70	115	
	1.6	***8.4***	***3.2***	
Trisomy 18	97	174	271	
	3.5	***20.9***	***7.5***	
Trisomy 21 (Down syndrome)	339	585	924	
	12.2	***70.4***	***25.6***	
Total live births	**277,653**	**83,117**	**360,779**	**9**

Notes

1. Data for this condition exclude isolated submucous cleft palate prior to 2014.
2. Data for this condition is limited to those who require casting or other treatment if the case is live birth.
3. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
4. Data for this condition exclude 1st degree and not otherwise specified prior to 2014. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
5. Data for this condition exclude isolated unilateral renal agenesis/hypoplasia prior to 2014.
6. Data for this condition include pulmonary atresia with ventricular septal defect.
7. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
8. Data for this condition exclude isolated muscular ventricular septal defect prior to 2014.
9. Total live births includes unknown gender.

General comments

*Totals include unknown and/or other.
-Data for conditions exclude possible/probable cases.
-Data for conditions include live births, stillbirths, and starting in 2011, unspecified non-live births.
-Stillbirths are defined as fetal deaths >= 20 weeks or >=350 grams.
-Unspecified non-live births include elective terminations and early losses <20 weeks and <350 grams.

Michigan

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Anencephalus	54	7	7	3	0	73	
	1.4	***0.7***	***1.7***	***1.8***	***0.0***	***1.3***	
Anophthalmia/microphthalmia	63	25	6	14	0	109	
	1.6	***2.4***	***1.5***	***8.2***	***0.0***	***1.9***	
Anotia/microtia	51	7	21	10	0	94	
	1.3	***0.7***	***5.2***	***5.8***	***0.0***	***1.7***	
Aortic valve stenosis	105	14	8	7	1	138	
	2.7	***1.3***	***2.0***	***4.1***	***4.5***	***2.4***	
Atrial septal defect	4,317	1,944	481	345	40	7,282	
	111.0	***187.1***	***118.7***	***201.7***	***179.2***	***128.1***	
Atrioventricular septal defect (Endocardial cushion defect)	234	65	24	24	2	357	
	6.0	***6.3***	***5.9***	***14.0***	***9.0***	***6.3***	
Biliary atresia	36	22	7	11	1	79	
	0.9	***2.1***	***1.7***	***6.4***	***4.5***	***1.4***	
Bladder exstrophy	13	1	2	0	0	16	
	0.3	***0.1***	***0.5***	***0.0***	***0.0***	***0.3***	
Choanal atresia	77	35	8	8	1	132	
	2.0	***3.4***	***2.0***	***4.7***	***4.5***	***2.3***	
Cleft lip alone	76	16	3	8	0	106	
	2.0	***1.5***	***0.7***	***4.7***	***0.0***	***1.9***	
Cleft lip with cleft palate	388	67	42	73	3	607	
	10.0	***6.4***	***10.4***	***42.7***	***13.4***	***10.7***	
Cleft palate alone	296	51	28	44	2	434	
	7.6	***4.9***	***6.9***	***25.7***	***9.0***	***7.6***	
Cloacal exstrophy	1	0	0	0	0	1	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Clubfoot	619	229	63	68	6	1,011	
	15.9	***22.0***	***15.5***	***39.8***	***26.9***	***17.8***	
Coarctation of the aorta	312	87	33	31	2	475	
	8.0	***8.4***	***8.1***	***18.1***	***9.0***	***8.4***	
Common truncus (truncus arteriosus)	48	29	4	9	1	93	
	1.2	***2.8***	***1.0***	***5.3***	***4.5***	***1.6***	
Congenital cataract	90	26	8	11	0	138	
	2.3	***2.5***	***2.0***	***6.4***	***0.0***	***2.4***	
Congenital posterior urethral valves	50	21	6	4	0	82	1
	2.5	***4.0***	***2.9***	***4.5***	***0.0***	***2.8***	
Craniosynostosis	273	56	27	25	1	389	
	7.0	***5.4***	***6.7***	***14.6***	***4.5***	***6.8***	
Deletion 22q11.2	29	6	2	5	0	43	
	0.7	***0.6***	***0.5***	***2.9***	***0.0***	***0.8***	
Diaphragmatic hernia	126	34	21	9	1	201	
	3.2	***3.3***	***5.2***	***5.3***	***4.5***	***3.5***	
Double outlet right ventricle	89	43	16	13	0	163	
	2.3	***4.1***	***3.9***	***7.6***	***0.0***	***2.9***	
Ebstein anomaly	38	9	3	3	0	54	
	1.0	***0.9***	***0.7***	***1.8***	***0.0***	***1.0***	
Encephalocele	37	18	7	6	0	72	
	1.0	***1.7***	***1.7***	***3.5***	***0.0***	***1.3***	
Esophageal atresia/tracheoesophageal fistula	112	21	10	6	0	152	
	2.9	***2.0***	***2.5***	***3.5***	***0.0***	***2.7***	
Gastroschisis	200	43	19	10	1	277	
	5.1	***4.1***	***4.7***	***5.8***	***4.5***	***4.9***	
Holoprosencephaly	212	108	29	26	1	384	
	5.5	***10.4***	***7.2***	***15.2***	***4.5***	***6.8***	
Hypoplastic left heart syndrome	164	57	23	18	0	268	
	4.2	***5.5***	***5.7***	***10.5***	***0.0***	***4.7***	
Hypospadias	1,602	376	108	120	6	2,271	1
	80.3	***71.3***	***52.2***	***136.0***	***52.0***	***78.0***	
Interrupted aortic arch	99	33	7	16	1	159	
	2.5	***3.2***	***1.7***	***9.4***	***4.5***	***2.8***	

Michigan

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Limb deficiencies (reduction defects)	172	60	20	21	1	280	
	4.4	***5.8***	***4.9***	***12.3***	***4.5***	***4.9***	
Omphalocele	66	23	6	3	0	99	
	1.7	***2.2***	***1.5***	***1.8***	***0.0***	***1.7***	
Pulmonary valve atresia and stenosis	362	177	50	33	4	643	
	9.3	***17.0***	***12.3***	***19.3***	***17.9***	***11.3***	
Pulmonary valve atresia	93	37	16	8	0	162	
	2.4	***3.6***	***3.9***	***4.7***	***0.0***	***2.9***	
Rectal and large intestinal atresia/stenosis	183	54	26	29	0	300	
	4.7	***5.2***	***6.4***	***17.0***	***0.0***	***5.3***	
Renal agenesis/hypoplasia	256	80	23	22	3	393	
	6.6	***7.7***	***5.7***	***12.9***	***13.4***	***6.9***	
Single ventricle	52	34	15	6	0	111	
	1.3	***3.3***	***3.7***	***3.5***	***0.0***	***2.0***	
Small intestinal atresia/stenosis	176	66	14	11	0	273	
	4.5	***6.4***	***3.5***	***6.4***	***0.0***	***4.8***	
Spina bifida without anencephalus	193	44	19	51	0	311	
	5.0	***4.2***	***4.7***	***29.8***	***0.0***	***5.5***	
Tetralogy of Fallot	218	74	23	35	1	357	
	5.6	***7.1***	***5.7***	***20.5***	***4.5***	***6.3***	
Total anomalous pulmonary venous connection	56	14	8	6	0	86	
	1.4	***1.3***	***2.0***	***3.5***	***0.0***	***1.5***	
Transposition of the great arteries (TGA)	167	50	24	18	0	264	
	4.3	***4.8***	***5.9***	***10.5***	***0.0***	***4.6***	
Dextro-transposition of great arteries (d-TGA)	55	13	2	7	0	79	
	1.4	***1.3***	***0.5***	***4.1***	***0.0***	***1.4***	
Tricuspid valve atresia and stenosis	50	16	9	4	0	82	
	1.3	***1.5***	***2.2***	***2.3***	***0.0***	***1.4***	
Tricuspid valve atresia	50	16	9	4	0	82	
	1.3	***1.5***	***2.2***	***2.3***	***0.0***	***1.4***	
Trisomy 13	21	16	4	5	0	47	
	0.5	***1.5***	***1.0***	***2.9***	***0.0***	***0.8***	
Trisomy 18	58	16	9	4	0	90	
	1.5	***1.5***	***2.2***	***2.3***	***0.0***	***1.6***	
Trisomy 21 (Down syndrome)	509	139	61	81	0	815	
	13.1	***13.4***	***15.1***	***47.4***	***0.0***	***14.3***	
Turner syndrome	0	0	0	0	0	0	2
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Ventricular septal defect	1,812	562	230	172	16	2,856	
	46.6	***54.1***	***56.8***	***100.6***	***71.7***	***50.2***	
Total live births	**388,897**	**103,918**	**40,518**	**17,102**	**2,232**	**568,365**	**3**
Male live births	**199,589**	**52,767**	**20,678**	**8,824**	**1,154**	**291,158**	
Female live births	**189,303**	**51,145**	**19,839**	**8,278**	**1,078**	**277,194**	

Michigan

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	268	9	277	
	5.4	***1.2***	***4.9***	
Trisomy 13	31	16	47	
	0.6	***2.1***	***0.8***	
Trisomy 18	42	47	90	
	0.9	***6.3***	***1.6***	
Trisomy 21 (Down syndrome)	428	381	815	
	8.7	***51.0***	***14.3***	
Total live births	**493,574**	**74,731**	**568,365**	**3**

Notes

1. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
2. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
3. Total live births includes unknown gender.

General comments

*Totals include unknown and/or other.

Minnesota

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Anencephalus	0	3	4	6	0	13	
	0.0	***1.2***	***3.7***	***3.3***	***0.0***	***1.1***	
Anophthalmia/microphthalmia	6	8	2	2	0	18	
	0.9	***3.2***	***1.9***	***1.1***	***0.0***	***1.5***	
Anotia/microtia	10	5	14	8	3	41	
	1.6	***2.0***	***13.0***	***4.5***	***22.7***	***3.4***	
Aortic valve stenosis	21	4	0	1	0	26	
	3.3	***1.6***	***0.0***	***0.6***	***0.0***	***2.2***	
Atrial septal defect	133	60	24	46	5	271	
	20.6	***24.2***	***22.3***	***25.6***	***37.9***	***22.5***	
Atrioventricular septal defect (Endocardial cushion defect)	42	14	8	8	0	72	1
	6.5	***5.6***	***7.4***	***4.5***	***0.0***	***6.0***	
Biliary atresia	4	3	1	3	0	11	
	0.6	***1.2***	***0.9***	***1.7***	***0.0***	***0.9***	
Bladder exstrophy	2	1	0	0	0	3	
	0.3	***0.4***	***0.0***	***0.0***	***0.0***	***0.2***	
Choanal atresia	8	6	3	0	0	17	
	1.2	***2.4***	***2.8***	***0.0***	***0.0***	***1.4***	
Cleft lip alone	23	9	2	5	0	40	
	3.6	***3.6***	***1.9***	***2.8***	***0.0***	***3.3***	
Cleft lip with cleft palate	36	15	8	12	1	72	
	5.6	***6.0***	***7.4***	***6.7***	***7.6***	***6.0***	
Cleft palate alone	49	10	4	8	1	73	
	7.6	***4.0***	***3.7***	***4.5***	***7.6***	***6.1***	
Coarctation of the aorta	37	11	5	1	1	55	
	5.7	***4.4***	***4.6***	***0.6***	***7.6***	***4.6***	
Common truncus (truncus arteriosus)	4	1	1	2	0	8	
	0.6	***0.4***	***0.9***	***1.1***	***0.0***	***0.7***	
Congenital cataract	15	11	0	3	1	31	
	2.3	***4.4***	***0.0***	***1.7***	***7.6***	***2.6***	
Congenital posterior urethral valves	9	7	0	2	0	18	2
	2.7	***5.5***	***0.0***	***2.2***	***0.0***	***2.9***	
Diaphragmatic hernia	16	7	2	5	0	30	
	2.5	***2.8***	***1.9***	***2.8***	***0.0***	***2.5***	
Double outlet right ventricle	8	12	4	1	0	25	
	1.2	***4.8***	***3.7***	***0.6***	***0.0***	***2.1***	
Ebstein anomaly	4	1	0	1	0	6	
	0.6	***0.4***	***0.0***	***0.6***	***0.0***	***0.5***	
Encephalocele	5	3	1	3	1	14	
	0.8	***1.2***	***0.9***	***1.7***	***7.6***	***1.2***	
Esophageal atresia/tracheoesophageal fistula	22	5	3	6	0	36	
	3.4	***2.0***	***2.8***	***3.3***	***0.0***	***3.0***	
Gastroschisis	10	4	6	9	0	29	
	1.6	***1.6***	***5.6***	***5.0***	***0.0***	***2.4***	
Hypoplastic left heart syndrome	14	4	2	1	0	21	
	2.2	***1.6***	***1.9***	***0.6***	***0.0***	***1.7***	
Hypospadias	266	109	20	25	3	430	2
	80.8	***85.7***	***36.8***	***27.4***	***45.3***	***69.8***	
Limb deficiencies (reduction defects)	23	8	2	8	1	43	3
	3.6	***3.2***	***1.9***	***4.5***	***7.6***	***3.6***	
Omphalocele	15	3	1	4	0	23	
	2.3	***1.2***	***0.9***	***2.2***	***0.0***	***1.9***	
Pulmonary valve atresia and stenosis	63	34	16	21	4	139	
	9.8	***13.7***	***14.9***	***11.7***	***30.3***	***11.5***	
Pulmonary valve atresia	3	4	0	4	0	11	
	0.5	***1.6***	***0.0***	***2.2***	***0.0***	***0.9***	
Rectal and large intestinal atresia/stenosis	22	13	5	8	0	48	
	3.4	***5.2***	***4.6***	***4.5***	***0.0***	***4.0***	
Renal agenesis/hypoplasia	33	13	4	7	0	58	
	5.1	***5.2***	***3.7***	***3.9***	***0.0***	***4.8***	

Minnesota

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Single ventricle	0	3	0	2	0	5	
	0.0	***1.2***	***0.0***	***1.1***	***0.0***	***0.4***	
Spina bifida without anencephalus	18	10	2	3	0	35	
	2.8	***4.0***	***1.9***	***1.7***	***0.0***	***2.9***	
Tetralogy of Fallot	22	4	2	2	1	32	4
	3.4	***1.6***	***1.9***	***1.1***	***7.6***	***2.7***	
Total anomalous pulmonary venous connection	8	1	2	7	0	18	5
	2.1	***0.6***	***3.2***	***6.3***	***0.0***	***2.5***	
Transposition of the great arteries (TGA)	13	6	3	2	1	25	
	2.0	***2.4***	***2.8***	***1.1***	***7.6***	***2.1***	
Tricuspid valve atresia	2	5	1	3	0	11	
	0.3	***2.0***	***0.9***	***1.7***	***0.0***	***0.9***	
Trisomy 13	4	7	1	1	1	14	
	0.6	***2.8***	***0.9***	***0.6***	***7.6***	***1.2***	
Trisomy 18	9	9	0	5	0	23	
	1.4	***3.6***	***0.0***	***2.8***	***0.0***	***1.9***	
Trisomy 21 (Down syndrome)	121	47	24	24	1	218	
	18.8	***18.9***	***22.3***	***13.4***	***7.6***	***18.1***	
Ventricular septal defect	433	151	80	92	20	787	6
	67.2	***60.9***	***74.4***	***51.3***	***151.4***	***65.3***	
Total live births	**64,409**	**24,807**	**10,753**	**17,938**	**1,321**	**120,534**	**7**
Male live births	**32,936**	**12,722**	**5,433**	**9,129**	**662**	**61,569**	

Minnesota

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	29	0	29	
	2.9	***0.0***	***2.4***	
Trisomy 13	7	7	14	
	0.7	***3.1***	***1.2***	
Trisomy 18	14	9	23	
	1.4	***4.0***	***1.9***	
Trisomy 21 (Down syndrome)	127	91	218	
	12.9	***40.9***	***18.1***	
Total live births	**98,308**	**22,224**	**120,534**	**7**

Notes

1. Data for this condition exclude inlet ventricular septal defect.
2. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
3. Data for this condition exclude other specified reduction defect of lower limb, transverse reduction defect of lower limb not otherwise specified, unspecified reduction defect of lower limb, and reduction defects of unspecified limb.
4. Data for this condition exclude pulmonary artery atresia with septal defect.
5. Data for this condition begin in 2013.
6. Data for this condition include inlet ventricular septal defect.
7. Total live births includes unknown gender.

General comments

*Totals include unknown and/or other.
-Data for conditions excludes probable and possible cases.
-Data for conditions include Hennepin and Ramsey Counties only.

Mississippi

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total*	Notes
Anencephalus	10	4	0	0	0	14	
	1.0	***0.5***	***0.0***	***0.0***	***0.0***	***0.7***	
Anophthalmia/microphthalmia	9	13	1	1	1	26	
	0.9	***1.6***	***1.8***	***4.2***	***8.5***	***1.3***	
Anotia/microtia	12	11	0	0	2	25	
	1.2	***1.3***	***0.0***	***0.0***	***17.1***	***1.3***	
Aortic valve stenosis	21	7	1	0	1	31	
	2.1	***0.8***	***1.8***	***0.0***	***8.5***	***1.6***	
Atrial septal defect	1,983	2,419	154	37	94	4,856	
	195.9	***290.6***	***280.2***	***155.5***	***802.0***	***250.1***	
Atrioventricular septal defect (Endocardial cushion defect)	67	57	4	0	0	132	
	6.6	***6.8***	***7.3***	***0.0***	***0.0***	***6.8***	
Biliary atresia	7	14	0	0	0	21	
	0.7	***1.7***	***0.0***	***0.0***	***0.0***	***1.1***	
Bladder exstrophy	3	1	0	0	0	5	
	0.3	***0.1***	***0.0***	***0.0***	***0.0***	***0.3***	
Choanal atresia	12	12	1	0	0	25	
	1.2	***1.4***	***1.8***	***0.0***	***0.0***	***1.3***	
Cleft lip alone	33	9	1	0	1	44	
	3.3	***1.1***	***1.8***	***0.0***	***8.5***	***2.3***	
Cleft lip with cleft palate	74	47	1	6	2	138	
	7.3	***5.6***	***1.8***	***25.2***	***17.1***	***7.1***	
Cleft palate alone	74	36	1	2	1	119	
	7.3	***4.3***	***1.8***	***8.4***	***8.5***	***6.1***	
Cloacal exstrophy	30	33	3	0	0	68	
	3.0	***4.0***	***5.5***	***0.0***	***0.0***	***3.5***	
Clubfoot	153	93	10	3	4	273	
	15.1	***11.2***	***18.2***	***12.6***	***34.1***	***14.1***	
Coarctation of the aorta	92	66	9	1	1	171	
	9.1	***7.9***	***16.4***	***4.2***	***8.5***	***8.8***	
Common truncus (truncus arteriosus)	12	11	0	0	0	23	
	1.2	***1.3***	***0.0***	***0.0***	***0.0***	***1.2***	
Congenital cataract	13	14	0	0	0	29	
	1.3	***1.7***	***0.0***	***0.0***	***0.0***	***1.5***	
Congenital posterior urethral valves	14	25	1	0	0	41	1
	2.7	***6.0***	***3.6***	***0.0***	***0.0***	***4.2***	
Craniosynostosis	45	20	3	0	1	73	
	4.4	***2.4***	***5.5***	***0.0***	***8.5***	***3.8***	
Deletion 22q11.2	4	8	0	0	0	12	
	0.4	***1.0***	***0.0***	***0.0***	***0.0***	***0.6***	
Diaphragmatic hernia	26	18	3	1	0	50	
	2.6	***2.2***	***5.5***	***4.2***	***0.0***	***2.6***	
Double outlet right ventricle	33	33	2	0	0	68	
	3.3	***4.0***	***3.6***	***0.0***	***0.0***	***3.5***	
Ebstein anomaly	10	6	0	0	0	17	
	1.0	***0.7***	***0.0***	***0.0***	***0.0***	***0.9***	
Encephalocele	13	12	0	0	3	28	
	1.3	***1.4***	***0.0***	***0.0***	***25.6***	***1.4***	
Esophageal atresia/tracheoesophageal fistula	20	18	2	1	0	42	
	2.0	***2.2***	***3.6***	***4.2***	***0.0***	***2.2***	
Gastroschisis	19	17	2	0	1	40	
	1.9	***2.0***	***3.6***	***0.0***	***8.5***	***2.1***	
Holoprosencephaly	41	36	8	1	2	89	
	4.1	***4.3***	***14.6***	***4.2***	***17.1***	***4.6***	
Hypoplastic left heart syndrome	55	34	3	0	0	93	
	5.4	***4.1***	***5.5***	***0.0***	***0.0***	***4.8***	
Hypospadias	393	352	10	1	0	779	1
	75.8	***84.3***	***36.1***	***8.2***	***0.0***	***79.1***	
Interrupted aortic arch	22	29	2	0	0	55	
	2.2	***3.5***	***3.6***	***0.0***	***0.0***	***2.8***	

Mississippi

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Limb deficiencies (reduction defects)	29	51	2	0	2	86	
	2.9	***6.1***	***3.6***	***0.0***	***17.1***	***4.4***	
Omphalocele	16	16	0	0	0	33	
	1.6	***1.9***	***0.0***	***0.0***	***0.0***	***1.7***	
Pulmonary valve atresia and stenosis	135	144	6	1	1	293	
	13.3	***17.3***	***10.9***	***4.2***	***8.5***	***15.1***	
Rectal and large intestinal atresia/stenosis	50	28	4	1	0	84	
	4.9	***3.4***	***7.3***	***4.2***	***0.0***	***4.3***	
Renal agenesis/hypoplasia	59	35	0	1	2	99	
	5.8	***4.2***	***0.0***	***4.2***	***17.1***	***5.1***	
Single ventricle	22	29	1	0	0	53	
	2.2	***3.5***	***1.8***	***0.0***	***0.0***	***2.7***	
Small intestinal atresia/stenosis	15	28	2	0	1	46	
	1.5	***3.4***	***3.6***	***0.0***	***8.5***	***2.4***	
Spina bifida without anencephalus	57	35	2	2	2	100	
	5.6	***4.2***	***3.6***	***8.4***	***17.1***	***5.1***	
Tetralogy of Fallot	57	65	4	2	0	132	
	5.6	***7.8***	***7.3***	***8.4***	***0.0***	***6.8***	
Total anomalous pulmonary venous connection	8	14	1	0	0	23	
	0.8	***1.7***	***1.8***	***0.0***	***0.0***	***1.2***	
Transposition of the great arteries (TGA)	39	23	3	2	0	68	
	3.9	***2.8***	***5.5***	***8.4***	***0.0***	***3.5***	
Tricuspid valve atresia and stenosis	10	15	1	0	0	26	
	1.0	***1.8***	***1.8***	***0.0***	***0.0***	***1.3***	
Trisomy 13	5	7	0	0	0	12	
	0.5	***0.8***	***0.0***	***0.0***	***0.0***	***0.6***	
Trisomy 18	16	17	1	0	1	35	
	1.6	***2.0***	***1.8***	***0.0***	***8.5***	***1.8***	
Trisomy 21 (Down syndrome)	144	102	18	2	7	277	
	14.2	***12.3***	***32.7***	***8.4***	***59.7***	***14.3***	
Turner syndrome	14	1	0	0	0	15	2
	2.8	***0.2***	***0.0***	***0.0***	***0.0***	***1.6***	
Ventricular septal defect	733	637	59	17	21	1,510	3
	72.4	***76.5***	***107.3***	***71.4***	***179.2***	***77.8***	
Total live births	**101,203**	**83,238**	**5,497**	**2,380**	**1,172**	**194,187**	
Male live births	**51,854**	**41,742**	**2,769**	**1,226**	**571**	**98,520**	
Female live births	**49,349**	**41,496**	**2,728**	**1,154**	**601**	**95,667**	

Mississippi

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	34	3	40	
	1.9	***1.9***	***2.1***	
Trisomy 13	9	2	12	
	0.5	***1.2***	***0.6***	
Trisomy 18	25	6	35	
	1.4	***3.7***	***1.8***	
Trisomy 21 (Down syndrome)	151	96	277	
	8.5	***59.4***	***14.3***	
Total live births	**178,004**	**16,169**	**194,187**	

Notes

1. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
2. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
3. Data for this condition exclude probable cases.

General comments

*Totals include unknown and/or other.

Missouri

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Anencephalus	37	7	6	0	0	50	
	1.3	***1.3***	***3.0***	***0.0***	***0.0***	***1.3***	
Anophthalmia/microphthalmia	28	1	2	1	0	33	
	1.0	***0.2***	***1.0***	***1.1***	***0.0***	***0.9***	
Anotia/microtia	13	5	8	2	0	28	
	0.5	***0.9***	***4.0***	***2.1***	***0.0***	***0.7***	
Aortic valve stenosis	36	3	5	0	0	45	
	1.3	***0.6***	***2.5***	***0.0***	***0.0***	***1.2***	
Atrial septal defect	3,968	1,092	272	115	6	5,648	
	141.0	***202.8***	***135.5***	***123.5***	***76.9***	***149.9***	
Atrioventricular septal defect (Endocardial cushion defect)	138	30	10	2	0	185	
	4.9	***5.6***	***5.0***	***2.1***	***0.0***	***4.9***	
Biliary atresia	23	10	5	3	0	42	
	0.8	***1.9***	***2.5***	***3.2***	***0.0***	***1.1***	
Bladder exstrophy	13	0	0	1	0	14	
	0.5	***0.0***	***0.0***	***1.1***	***0.0***	***0.4***	
Choanal atresia	56	13	4	1	0	75	
	2.0	***2.4***	***2.0***	***1.1***	***0.0***	***2.0***	
Cleft lip alone	150	22	8	3	1	192	
	5.3	***4.1***	***4.0***	***3.2***	***12.8***	***5.1***	
Cleft lip with cleft palate	196	31	13	4	1	258	
	7.0	***5.8***	***6.5***	***4.3***	***12.8***	***6.8***	
Cleft palate alone	173	21	17	3	0	215	
	6.1	***3.9***	***8.5***	***3.2***	***0.0***	***5.7***	
Cloacal exstrophy	190	54	13	5	0	273	
	6.7	***10.0***	***6.5***	***5.4***	***0.0***	***7.2***	
Clubfoot	503	80	23	18	1	649	
	17.9	***14.9***	***11.5***	***19.3***	***12.8***	***17.2***	
Coarctation of the aorta	202	24	18	3	0	249	
	7.2	***4.5***	***9.0***	***3.2***	***0.0***	***6.6***	
Common truncus (truncus arteriosus)	16	3	3	0	0	23	
	0.6	***0.6***	***1.5***	***0.0***	***0.0***	***0.6***	
Congenital cataract	34	6	1	1	0	44	
	1.2	***1.1***	***0.5***	***1.1***	***0.0***	***1.2***	
Congenital posterior urethral valves	34	14	1	1	0	52	1
	2.4	***5.1***	***1.0***	***2.1***	***0.0***	***2.7***	
Craniosynostosis	2	0	0	0	0	2	2
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Deletion 22q11.2	17	2	1	1	0	21	
	0.6	***0.4***	***0.5***	***1.1***	***0.0***	***0.6***	
Diaphragmatic hernia	112	28	7	4	1	155	
	4.0	***5.2***	***3.5***	***4.3***	***12.8***	***4.1***	
Double outlet right ventricle	71	17	5	2	0	97	
	2.5	***3.2***	***2.5***	***2.1***	***0.0***	***2.6***	
Ebstein anomaly	20	1	3	0	0	27	
	0.7	***0.2***	***1.5***	***0.0***	***0.0***	***0.7***	
Encephalocele	21	9	3	0	0	34	
	0.7	***1.7***	***1.5***	***0.0***	***0.0***	***0.9***	
Esophageal atresia/tracheoesophageal fistula	92	13	5	2	1	116	
	3.3	***2.4***	***2.5***	***2.1***	***12.8***	***3.1***	
Gastroschisis	153	29	14	2	0	202	
	5.4	***5.4***	***7.0***	***2.1***	***0.0***	***5.4***	
Holoprosencephaly	160	36	17	4	0	221	
	5.7	***6.7***	***8.5***	***4.3***	***0.0***	***5.9***	
Hypoplastic left heart syndrome	90	18	4	0	0	113	
	3.2	***3.3***	***2.0***	***0.0***	***0.0***	***3.0***	
Hypospadias	1,175	239	38	37	6	1,538	1
	81.4	***87.6***	***37.2***	***76.4***	***150.4***	***79.7***	
Interrupted aortic arch	24	4	4	0	0	33	
	0.9	***0.7***	***2.0***	***0.0***	***0.0***	***0.9***	

Missouri

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Limb deficiencies (reduction defects)	110	17	7	4	0	142	
	3.9	***3.2***	***3.5***	***4.3***	***0.0***	***3.8***	
Omphalocele	66	16	5	1	0	92	
	2.3	***3.0***	***2.5***	***1.1***	***0.0***	***2.4***	
Pulmonary valve atresia and stenosis	232	59	18	8	1	330	
	8.2	***11.0***	***9.0***	***8.6***	***12.8***	***8.8***	
Pulmonary valve atresia	35	4	2	0	0	43	
	1.2	***0.7***	***1.0***	***0.0***	***0.0***	***1.1***	
Rectal and large intestinal atresia/stenosis	124	28	10	4	1	173	
	4.4	***5.2***	***5.0***	***4.3***	***12.8***	***4.6***	
Renal agenesis/hypoplasia	135	31	12	5	0	186	
	4.8	***5.8***	***6.0***	***5.4***	***0.0***	***4.9***	
Single ventricle	34	6	3	1	0	46	
	1.2	***1.1***	***1.5***	***1.1***	***0.0***	***1.2***	
Small intestinal atresia/stenosis	110	28	10	4	0	160	
	3.9	***5.2***	***5.0***	***4.3***	***0.0***	***4.2***	
Spina bifida without anencephalus	64	8	2	0	0	75	
	2.3	***1.5***	***1.0***	***0.0***	***0.0***	***2.0***	
Tetralogy of Fallot	137	29	15	3	1	190	
	4.9	***5.4***	***7.5***	***3.2***	***12.8***	***5.0***	
Total anomalous pulmonary venous connection	31	5	3	0	0	41	
	1.1	***0.9***	***1.5***	***0.0***	***0.0***	***1.1***	
Transposition of the great arteries (TGA)	122	13	7	3	0	148	
	4.3	***2.4***	***3.5***	***3.2***	***0.0***	***3.9***	
Dextro-transposition of great arteries (d-TGA)	105	10	4	2	0	123	
	3.7	***1.9***	***2.0***	***2.1***	***0.0***	***3.3***	
Tricuspid valve atresia and stenosis	34	6	4	1	0	47	
	1.2	***1.1***	***2.0***	***1.1***	***0.0***	***1.2***	
Tricuspid valve atresia	34	6	4	1	0	47	
	1.2	***1.1***	***2.0***	***1.1***	***0.0***	***1.2***	
Trisomy 13	31	6	0	0	0	37	
	1.1	***1.1***	***0.0***	***0.0***	***0.0***	***1.0***	
Trisomy 18	40	9	6	1	0	56	
	1.4	***1.7***	***3.0***	***1.1***	***0.0***	***1.5***	
Trisomy 21 (Down syndrome)	366	78	42	11	2	516	
	13.0	***14.5***	***20.9***	***11.8***	***25.6***	***13.7***	
Turner syndrome	26	2	2	0	0	30	3
	1.9	***0.8***	***2.0***	***0.0***	***0.0***	***1.6***	
Ventricular septal defect	1,432	309	112	32	1	1,939	4
	50.9	***57.4***	***55.8***	***34.4***	***12.8***	***51.5***	
Total live births	**281,486**	**53,857**	**20,071**	**9,312**	**780**	**376,859**	**5**
Male live births	**144,390**	**27,288**	**10,206**	**4,843**	**399**	**193,044**	
Female live births	**137,090**	**26,566**	**9,865**	**4,469**	**381**	**183,806**	

Missouri

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	196	6	202	
	5.9	***1.4***	***5.4***	
Trisomy 13	26	11	37	
	0.8	***2.6***	***1.0***	
Trisomy 18	35	21	56	
	1.0	***5.0***	***1.5***	
Trisomy 21 (Down syndrome)	300	216	516	
	9.0	***51.0***	***13.7***	
Total live births	**334,408**	**42,372**	**376,859**	**5**

Notes

1. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
2. Data for this condition only include 2015.
3. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
4. Data for this condition exclude probable cases.
5. Total live births includes unknown gender.

General comments

*Totals include unknown and/or other.

-Fetal deaths are defined as more than 20 gestational weeks or 350 grams birth weight.

Nebraska

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total*	Notes
Anencephalus	24	0	4	0	0	48	
	2.5	***0.0***	***2.0***	***0.0***	***0.0***	***3.7***	
Anophthalmia/microphthalmia	12	1	0	0	1	15	
	1.2	***1.1***	***0.0***	***0.0***	***5.2***	***1.1***	
Anotia/microtia	18	0	3	1	0	32	
	1.9	***0.0***	***1.5***	***2.5***	***0.0***	***2.4***	
Aortic valve stenosis	16	0	1	0	0	19	
	1.7	***0.0***	***0.5***	***0.0***	***0.0***	***1.4***	
Atrial septal defect	34	1	1	2	1	41	
	3.5	***1.1***	***0.5***	***5.0***	***5.2***	***3.1***	
Atrioventricular septal defect (Endocardial cushion defect)	28	0	0	1	0	35	
	2.9	***0.0***	***0.0***	***2.5***	***0.0***	***2.7***	
Biliary atresia	3	0	0	0	0	3	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Bladder exstrophy	6	1	0	0	0	7	
	0.6	***1.1***	***0.0***	***0.0***	***0.0***	***0.5***	
Choanal atresia	22	0	0	1	0	28	
	2.3	***0.0***	***0.0***	***2.5***	***0.0***	***2.1***	
Cleft lip alone	35	3	4	3	3	56	
	3.6	***3.4***	***2.0***	***7.4***	***15.5***	***4.3***	
Cleft lip with cleft palate	55	2	2	6	2	80	
	5.7	***2.2***	***1.0***	***14.9***	***10.3***	***6.1***	
Cleft palate alone	47	2	3	2	1	63	
	4.9	***2.2***	***1.5***	***5.0***	***5.2***	***4.8***	
Cloacal exstrophy	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Clubfoot	152	11	11	3	4	204	
	15.8	***12.3***	***5.6***	***7.4***	***20.7***	***15.5***	
Coarctation of the aorta	72	1	4	1	0	91	
	7.5	***1.1***	***2.0***	***2.5***	***0.0***	***6.9***	
Common truncus (truncus arteriosus)	16	2	1	0	0	22	
	1.7	***2.2***	***0.5***	***0.0***	***0.0***	***1.7***	
Congenital cataract	17	0	3	2	0	25	
	1.8	***0.0***	***1.5***	***5.0***	***0.0***	***1.9***	
Congenital posterior urethral valves	1	1	0	0	0	2	1
	0.2	***2.2***	***0.0***	***0.0***	***0.0***	***0.3***	
Craniosynostosis	15	0	0	0	0	17	
	1.6	***0.0***	***0.0***	***0.0***	***0.0***	***1.3***	
Deletion 22q11.2	1	0	0	0	0	1	
	0.1	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Diaphragmatic hernia	16	3	2	1	1	27	
	1.7	***3.4***	***1.0***	***2.5***	***5.2***	***2.1***	
Double outlet right ventricle	17	2	2	1	2	30	
	1.8	***2.2***	***1.0***	***2.5***	***10.3***	***2.3***	
Ebstein anomaly	7	0	0	0	1	10	
	0.7	***0.0***	***0.0***	***0.0***	***5.2***	***0.8***	
Encephalocele	9	1	0	1	1	14	
	0.9	***1.1***	***0.0***	***2.5***	***5.2***	***1.1***	
Esophageal atresia/tracheoesophageal fistula	33	2	2	0	0	41	
	3.4	***2.2***	***1.0***	***0.0***	***0.0***	***3.1***	
Gastroschisis	44	3	10	1	1	66	
	4.6	***3.4***	***5.1***	***2.5***	***5.2***	***5.0***	
Holoprosencephaly	2	1	0	2	1	8	
	0.2	***1.1***	***0.0***	***5.0***	***5.2***	***0.6***	
Hypoplastic left heart syndrome	34	5	0	0	2	46	
	3.5	***5.6***	***0.0***	***0.0***	***10.3***	***3.5***	
Hypospadias	422	35	18	3	0	525	1
	85.1	***78.1***	***18.0***	***14.8***	***0.0***	***77.9***	
Interrupted aortic arch	9	0	1	0	0	12	
	0.9	***0.0***	***0.5***	***0.0***	***0.0***	***0.9***	

Nebraska

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Limb deficiencies (reduction defects)	60	5	3	1	0	76	
	6.2	***5.6***	***1.5***	***2.5***	***0.0***	***5.8***	
Omphalocele	24	5	2	1	0	35	
	2.5	***5.6***	***1.0***	***2.5***	***0.0***	***2.7***	
Pulmonary valve atresia and stenosis	71	4	3	2	2	92	
	7.4	***4.5***	***1.5***	***5.0***	***10.3***	***7.0***	
Pulmonary valve atresia	19	3	1	0	2	30	
	2.0	***3.4***	***0.5***	***0.0***	***10.3***	***2.3***	
Rectal and large intestinal atresia/stenosis	39	4	4	1	2	53	
	4.1	***4.5***	***2.0***	***2.5***	***10.3***	***4.0***	
Renal agenesis/hypoplasia	79	7	3	3	2	107	
	8.2	***7.8***	***1.5***	***7.4***	***10.3***	***8.2***	
Single ventricle	27	3	0	0	1	32	
	2.8	***3.4***	***0.0***	***0.0***	***5.2***	***2.4***	
Small intestinal atresia/stenosis	26	2	2	1	0	33	
	2.7	***2.2***	***1.0***	***2.5***	***0.0***	***2.5***	
Spina bifida without anencephalus	135	3	15	0	3	183	
	14.0	***3.4***	***7.7***	***0.0***	***15.5***	***13.9***	
Tetralogy of Fallot	33	3	1	3	0	44	
	3.4	***3.4***	***0.5***	***7.4***	***0.0***	***3.4***	
Total anomalous pulmonary venous connection	11	3	1	0	0	19	
	1.1	***3.4***	***0.5***	***0.0***	***0.0***	***1.4***	
Transposition of the great arteries (TGA)	37	3	0	0	0	48	
	3.8	***3.4***	***0.0***	***0.0***	***0.0***	***3.7***	
Dextro-transposition of great arteries (d-TGA)	37	3	0	0	0	48	
	3.8	***3.4***	***0.0***	***0.0***	***0.0***	***3.7***	
Tricuspid valve atresia and stenosis	15	3	0	0	0	21	
	1.6	***3.4***	***0.0***	***0.0***	***0.0***	***1.6***	
Trisomy 13	24	9	6	0	3	51	
	2.5	***10.1***	***3.1***	***0.0***	***15.5***	***3.9***	
Trisomy 18	114	12	6	6	0	150	
	11.9	***13.4***	***3.1***	***14.9***	***0.0***	***11.4***	
Trisomy 21 (Down syndrome)	519	12	42	33	6	699	
	54.0	***13.4***	***21.4***	***81.8***	***31.0***	***53.3***	
Turner syndrome	10	0	0	0	0	13	2
	2.1	***0.0***	***0.0***	***0.0***	***0.0***	***2.0***	
Ventricular septal defect	449	25	37	12	3	626	
	46.7	***27.9***	***18.9***	***29.7***	***15.5***	***47.7***	
Total live births	**96,161**	**8,947**	**19,582**	**4,035**	**1,937**	**131,223**	
Male live births	**49,575**	**4,483**	**10,021**	**2,023**	**978**	**67,365**	
Female live births	**46,586**	**4,464**	**9,561**	**2,012**	**959**	**63,858**	

Nebraska

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	60	6	66	
	5.2	***3.7***	***5.0***	
Trisomy 13	36	15	51	
	3.1	***9.1***	***3.9***	
Trisomy 18	90	60	150	
	7.8	***36.5***	***11.4***	
Trisomy 21 (Down syndrome)	444	255	699	
	38.7	***155.3***	***53.3***	
Total live births	**114,801**	**16,416**	**131,223**	

Notes
1. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
2. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.

General comments
*Totals include unknown and/or other.

Nevada

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total*	Notes
Anencephalus	2	0	3	0	0	6	
	0.3	***0.0***	***0.5***	***0.0***	***0.0***	***0.3***	
Anophthalmia/microphthalmia	4	3	7	2	0	18	
	0.5	***1.5***	***1.1***	***1.4***	***0.0***	***1.0***	
Anotia/microtia	5	0	3	1	0	11	
	0.7	***0.0***	***0.5***	***0.7***	***0.0***	***0.6***	
Aortic valve stenosis	12	0	8	1	0	23	
	1.6	***0.0***	***1.3***	***0.7***	***0.0***	***1.3***	
Atrial septal defect	1,958	647	1,329	358	25	4,797	
	268.6	***329.8***	***209.2***	***245.7***	***144.4***	***273.1***	
Atrioventricular septal defect (Endocardial cushion defect)	13	6	8	1	0	32	
	1.8	***3.1***	***1.3***	***0.7***	***0.0***	***1.8***	
Biliary atresia	7	2	3	1	0	16	
	1.0	***1.0***	***0.5***	***0.7***	***0.0***	***0.9***	
Bladder exstrophy	3	0	0	0	0	4	
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Choanal atresia	6	1	4	1	0	14	
	0.8	***0.5***	***0.6***	***0.7***	***0.0***	***0.8***	
Cleft lip alone	22	3	7	6	0	40	
	3.0	***1.5***	***1.1***	***4.1***	***0.0***	***2.3***	
Cleft lip with cleft palate	47	16	45	2	2	124	
	6.4	***8.2***	***7.1***	***1.4***	***11.6***	***7.1***	
Cleft palate alone	34	5	19	4	2	72	
	4.7	***2.5***	***3.0***	***2.7***	***11.6***	***4.1***	
Cloacal exstrophy	24	8	13	3	0	51	
	3.3	***4.1***	***2.0***	***2.1***	***0.0***	***2.9***	
Clubfoot	104	23	75	8	1	228	
	14.3	***11.7***	***11.8***	***5.5***	***5.8***	***13.0***	
Coarctation of the aorta	42	7	32	5	0	92	
	5.8	***3.6***	***5.0***	***3.4***	***0.0***	***5.2***	
Common truncus (truncus arteriosus)	1	2	5	0	0	9	
	0.1	***1.0***	***0.8***	***0.0***	***0.0***	***0.5***	
Congenital cataract	5	3	4	1	0	14	
	0.7	***1.5***	***0.6***	***0.7***	***0.0***	***0.8***	
Congenital posterior urethral valves	7	0	1	0	0	8	1
	1.9	***0.0***	***0.3***	***0.0***	***0.0***	***0.9***	
Craniosynostosis	64	13	24	4	0	118	
	8.8	***6.6***	***3.8***	***2.7***	***0.0***	***6.7***	
Deletion 22q11.2	0	0	0	0	0	1	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Diaphragmatic hernia	8	4	14	4	0	32	
	1.1	***2.0***	***2.2***	***2.7***	***0.0***	***1.8***	
Double outlet right ventricle	8	2	6	0	0	18	
	1.1	***1.0***	***0.9***	***0.0***	***0.0***	***1.0***	
Ebstein anomaly	3	0	4	0	0	8	
	0.4	***0.0***	***0.6***	***0.0***	***0.0***	***0.5***	
Encephalocele	3	0	1	2	0	6	
	0.4	***0.0***	***0.2***	***1.4***	***0.0***	***0.3***	
Esophageal atresia/tracheoesophageal fistula	16	2	10	0	0	30	
	2.2	***1.0***	***1.6***	***0.0***	***0.0***	***1.7***	
Gastroschisis	21	8	18	4	0	57	
	2.9	***4.1***	***2.8***	***2.7***	***0.0***	***3.2***	
Holoprosencephaly	36	9	16	8	0	69	
	4.9	***4.6***	***2.5***	***5.5***	***0.0***	***3.9***	
Hypoplastic left heart syndrome	11	3	11	1	0	28	
	1.5	***1.5***	***1.7***	***0.7***	***0.0***	***1.6***	
Hypospadias	201	35	76	22	0	359	1
	53.5	***34.9***	***23.4***	***29.1***	***0.0***	***39.8***	
Interrupted aortic arch	9	2	6	3	0	26	
	1.2	***1.0***	***0.9***	***2.1***	***0.0***	***1.5***	

Nevada

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Limb deficiencies (reduction defects)	18	4	12	2	0	39	
	2.5	***2.0***	***1.9***	***1.4***	***0.0***	***2.2***	
Omphalocele	5	1	7	2	0	20	
	0.7	***0.5***	***1.1***	***1.4***	***0.0***	***1.1***	
Pulmonary valve atresia and stenosis	68	26	39	3	3	149	
	9.3	***13.3***	***6.1***	***2.1***	***17.3***	***8.5***	
Rectal and large intestinal atresia/stenosis	27	1	22	1	0	55	
	3.7	***0.5***	***3.5***	***0.7***	***0.0***	***3.1***	
Renal agenesis/hypoplasia	26	7	19	5	3	64	
	3.6	***3.6***	***3.0***	***3.4***	***17.3***	***3.6***	
Single ventricle	2	2	2	0	0	6	
	0.3	***1.0***	***0.3***	***0.0***	***0.0***	***0.3***	
Small intestinal atresia/stenosis	24	7	19	2	1	55	
	3.3	***3.6***	***3.0***	***1.4***	***5.8***	***3.1***	
Spina bifida without anencephalus	11	3	8	2	0	29	
	1.5	***1.5***	***1.3***	***1.4***	***0.0***	***1.7***	
Tetralogy of Fallot	17	1	23	3	1	49	
	2.3	***0.5***	***3.6***	***2.1***	***5.8***	***2.8***	
Total anomalous pulmonary venous connection	5	0	2	0	0	9	
	0.7	***0.0***	***0.3***	***0.0***	***0.0***	***0.5***	
Transposition of the great arteries (TGA)	12	5	5	1	0	24	
	1.6	***2.5***	***0.8***	***0.7***	***0.0***	***1.4***	
Tricuspid valve atresia and stenosis	2	2	3	2	0	11	
	0.3	***1.0***	***0.5***	***1.4***	***0.0***	***0.6***	
Trisomy 13	6	3	7	1	0	18	
	0.8	***1.5***	***1.1***	***0.7***	***0.0***	***1.0***	
Trisomy 18	5	2	8	0	0	17	
	0.7	***1.0***	***1.3***	***0.0***	***0.0***	***1.0***	
Trisomy 21 (Down syndrome)	69	15	93	9	2	204	
	9.5	***7.6***	***14.6***	***6.2***	***11.6***	***11.6***	
Turner syndrome	5	3	5	1	0	15	2
	1.4	***3.1***	***1.6***	***1.4***	***0.0***	***1.8***	
Ventricular septal defect	372	83	331	61	8	936	3
	51.0	***42.3***	***52.1***	***41.9***	***46.2***	***53.3***	
Total live births	**72,910**	**19,619**	**63,535**	**14,573**	**1,731**	**175,629**	
Male live births	**37,544**	**10,037**	**32,518**	**7,564**	**933**	**90,277**	
Female live births	**35,366**	**9,582**	**31,017**	**7,009**	**798**	**85,352**	

Nevada

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	51	0	57	
	3.4	***0.0***	***3.2***	
Trisomy 13	8	6	18	
	0.5	***2.2***	***1.0***	
Trisomy 18	9	6	17	
	0.6	***2.2***	***1.0***	
Trisomy 21 (Down syndrome)	93	75	204	
	6.3	***27.6***	***11.6***	
Total live births	**148,274**	**27,134**	**175,629**	

Notes

1. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
2. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
3. Data for this condition exculde cases that are less than 2500 grams birth weight or less than 36 weeks gestation.

General comments

*Totals include unknown and/or other.
-Data for 2014-15 was collected passively from hospital discharge data.
-Data for conditions exclude probable/possible diagnoses.
-Data for conditions include live births and resident births only.

New Jersey
Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total*	Notes
Anencephalus	10	3	6	0	0	19	
	0.4	***0.4***	***0.4***	***0.0***	***0.0***	***0.4***	
Anophthalmia/microphthalmia	10	7	9	2	1	30	
	0.4	***0.9***	***0.7***	***0.3***	***20.2***	***0.6***	
Anotia/microtia	43	5	67	12	0	127	
	1.8	***0.7***	***4.9***	***2.1***	***0.0***	***2.5***	
Aortic valve stenosis	18	5	14	2	0	40	
	0.8	***0.7***	***1.0***	***0.3***	***0.0***	***0.8***	
Atrial septal defect	564	553	599	166	3	1,929	
	24.0	***72.9***	***43.5***	***28.6***	***60.5***	***37.3***	
Atrioventricular septal defect (Endocardial cushion defect)	61	29	42	5	0	139	
	2.6	***3.8***	***3.1***	***0.9***	***0.0***	***2.7***	
Biliary atresia	9	2	12	2	0	25	
	0.4	***0.3***	***0.9***	***0.3***	***0.0***	***0.5***	
Bladder exstrophy	3	0	3	1	0	8	
	0.1	***0.0***	***0.2***	***0.2***	***0.0***	***0.2***	
Choanal atresia	30	4	18	1	0	53	
	1.3	***0.5***	***1.3***	***0.2***	***0.0***	***1.0***	
Cleft lip alone	78	24	66	15	0	186	
	3.3	***3.2***	***4.8***	***2.6***	***0.0***	***3.6***	
Cleft lip with cleft palate	66	16	55	12	0	151	
	2.8	***2.1***	***4.0***	***2.1***	***0.0***	***2.9***	
Cleft palate alone	161	29	93	40	0	331	
	6.8	***3.8***	***6.8***	***6.9***	***0.0***	***6.4***	
Cloacal exstrophy	41	14	34	11	0	107	
	1.7	***1.8***	***2.5***	***1.9***	***0.0***	***2.1***	
Clubfoot	240	95	161	50	1	560	
	10.2	***12.5***	***11.7***	***8.6***	***20.2***	***10.8***	
Coarctation of the aorta	85	21	59	11	0	186	
	3.6	***2.8***	***4.3***	***1.9***	***0.0***	***3.6***	
Common truncus (truncus arteriosus)	6	4	4	1	0	17	
	0.3	***0.5***	***0.3***	***0.2***	***0.0***	***0.3***	
Congenital cataract	22	18	30	11	0	86	
	0.9	***2.4***	***2.2***	***1.9***	***0.0***	***1.7***	
Congenital posterior urethral valves	24	19	18	8	0	72	1
	2.0	***4.9***	***2.6***	***2.7***	***0.0***	***2.7***	
Craniosynostosis	99	18	77	18	0	219	
	4.2	***2.4***	***5.6***	***3.1***	***0.0***	***4.2***	
Deletion 22q11.2	4	1	2	0	0	7	
	0.2	***0.1***	***0.1***	***0.0***	***0.0***	***0.1***	
Diaphragmatic hernia	35	5	39	9	0	90	
	1.5	***0.7***	***2.8***	***1.6***	***0.0***	***1.7***	
Double outlet right ventricle	12	18	14	5	0	51	
	0.5	***2.4***	***1.0***	***0.9***	***0.0***	***1.0***	
Ebstein anomaly	9	2	6	3	0	20	
	0.4	***0.3***	***0.4***	***0.5***	***0.0***	***0.4***	
Encephalocele	2	4	4	1	0	12	
	0.1	***0.5***	***0.3***	***0.2***	***0.0***	***0.2***	
Esophageal atresia/tracheoesophageal fistula	59	14	29	11	0	119	
	2.5	***1.8***	***2.1***	***1.9***	***0.0***	***2.3***	
Gastroschisis	39	15	43	2	1	103	
	1.7	***2.0***	***3.1***	***0.3***	***20.2***	***2.0***	
Holoprosencephaly	92	49	68	13	0	226	
	3.9	***6.5***	***4.9***	***2.2***	***0.0***	***4.4***	
Hypoplastic left heart syndrome	26	16	19	0	0	62	
	1.1	***2.1***	***1.4***	***0.0***	***0.0***	***1.2***	
Hypospadias	1,157	241	372	174	1	1,987	1
	96.0	***62.7***	***53.4***	***58.3***	***39.4***	***75.4***	
Interrupted aortic arch	11	8	9	0	0	28	
	0.5	***1.1***	***0.7***	***0.0***	***0.0***	***0.5***	

New Jersey

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Limb deficiencies (reduction defects)	71	30	60	10	0	175	
	3.0	***4.0***	***4.4***	***1.7***	***0.0***	***3.4***	
Omphalocele	17	22	16	3	0	58	
	0.7	***2.9***	***1.2***	***0.5***	***0.0***	***1.1***	
Pulmonary valve atresia and stenosis	139	88	150	23	1	430	
	5.9	***11.6***	***10.9***	***4.0***	***20.2***	***8.3***	
Pulmonary valve atresia	13	10	18	0	0	49	
	0.6	***1.3***	***1.3***	***0.0***	***0.0***	***0.9***	
Rectal and large intestinal atresia/stenosis	55	24	53	19	0	160	
	2.3	***3.2***	***3.9***	***3.3***	***0.0***	***3.1***	
Renal agenesis/hypoplasia	140	30	65	23	0	263	
	6.0	***4.0***	***4.7***	***4.0***	***0.0***	***5.1***	
Single ventricle	2	3	3	4	0	12	
	0.1	***0.4***	***0.2***	***0.7***	***0.0***	***0.2***	
Small intestinal atresia/stenosis	57	27	56	6	0	152	
	2.4	***3.6***	***4.1***	***1.0***	***0.0***	***2.9***	
Spina bifida without anencephalus	34	17	48	7	0	110	
	1.4	***2.2***	***3.5***	***1.2***	***0.0***	***2.1***	
Tetralogy of Fallot	73	30	50	14	0	181	
	3.1	***4.0***	***3.6***	***2.4***	***0.0***	***3.5***	
Total anomalous pulmonary venous connection	8	8	18	7	0	43	
	0.3	***1.1***	***1.3***	***1.2***	***0.0***	***0.8***	
Transposition of the great arteries (TGA)	35	12	28	3	0	82	
	1.5	***1.6***	***2.0***	***0.5***	***0.0***	***1.6***	
Dextro-transposition of great arteries (d-TGA)	17	6	12	2	0	40	
	0.7	***0.8***	***0.9***	***0.3***	***0.0***	***0.8***	
Tricuspid valve atresia and stenosis	119	125	169	24	0	440	
	5.1	***16.5***	***12.3***	***4.1***	***0.0***	***8.5***	
Tricuspid valve atresia	119	125	169	24	0	440	
	5.1	***16.5***	***12.3***	***4.1***	***0.0***	***8.5***	
Trisomy 13	9	5	12	0	0	27	
	0.4	***0.7***	***0.9***	***0.0***	***0.0***	***0.5***	
Trisomy 18	20	18	13	3	0	54	
	0.9	***2.4***	***0.9***	***0.5***	***0.0***	***1.0***	
Trisomy 21 (Down syndrome)	242	89	227	35	0	611	
	10.3	***11.7***	***16.5***	***6.0***	***0.0***	***11.8***	
Turner syndrome	14	1	7	1	0	25	2
	1.2	***0.3***	***1.0***	***0.4***	***0.0***	***1.0***	
Ventricular septal defect	1,246	408	834	252	3	2,809	3
	53.0	***53.8***	***60.6***	***43.4***	***60.5***	***54.4***	
Total live births	**235,049**	**75,858**	**137,640**	**58,011**	**496**	**516,499**	**4**
Male live births	**120,520**	**38,449**	**69,688**	**29,854**	**254**	**263,643**	
Female live births	**114,528**	**37,405**	**67,950**	**28,157**	**242**	**252,849**	

New Jersey

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	96	5	103	
	2.4	***0.4***	***2.0***	
Trisomy 13	16	11	27	
	0.4	***1.0***	***0.5***	
Trisomy 18	21	32	54	
	0.5	***2.8***	***1.0***	
Trisomy 21 (Down syndrome)	257	329	611	
	6.4	***28.8***	***11.8***	
Total live births	**402,104**	**114,334**	**516,499**	**4**

Notes

1. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
2. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
3. Data for this condition only include confirmed cases.
4. Total live births includes unknown gender.

General comments

*Totals include unknown and/or other.
-Data for 2014 are provisional.
-Data for conditions include live births only.

New Mexico

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Anencephalus	7	0	15	1	4	27	
	2.5	***0.0***	***2.8***	***4.6***	***3.0***	***2.7***	
Cleft lip alone	14	1	44	1	20	82	
	4.0	***4.0***	***6.6***	***3.6***	***12.0***	***6.6***	
Cleft lip with cleft palate	19	2	48	1	18	90	
	5.5	***7.9***	***7.2***	***3.6***	***10.8***	***7.2***	
Cleft palate alone	34	3	33	0	13	84	
	9.8	***11.9***	***4.9***	***0.0***	***7.8***	***6.7***	
Common truncus (truncus arteriosus)	0	0	1	0	0	1	
	0.0	***0.0***	***0.1***	***0.0***	***0.0***	***0.1***	
Gastroschisis	11	2	48	0	14	75	
	3.2	***7.9***	***7.2***	***0.0***	***8.4***	***6.0***	
Hypoplastic left heart syndrome	4	1	7	1	3	16	
	1.2	***4.0***	***1.0***	***3.6***	***1.8***	***1.3***	
Hypospadias	117	8	106	6	12	252	1
	65.7	***63.0***	***31.3***	***41.8***	***14.2***	***39.7***	
Limb deficiencies (reduction defects)	25	0	47	1	12	86	
	7.2	***0.0***	***7.0***	***3.6***	***7.2***	***6.9***	
Renal agenesis/hypoplasia	3	0	19	0	3	25	
	0.9	***0.0***	***2.8***	***0.0***	***1.8***	***2.0***	
Spina bifida without anencephalus	19	2	37	0	12	71	
	5.5	***7.9***	***5.5***	***0.0***	***7.2***	***5.7***	
Tetralogy of Fallot	8	1	17	3	8	37	
	2.3	***4.0***	***2.5***	***10.8***	***4.8***	***3.0***	
Transposition of the great arteries (TGA)	6	1	7	0	6	20	
	1.7	***4.0***	***1.0***	***0.0***	***3.6***	***1.6***	
Trisomy 13	3	0	4	1	3	13	
	0.9	***0.0***	***0.6***	***3.6***	***1.8***	***1.0***	
Trisomy 18	4	0	8	2	4	30	
	1.2	***0.0***	***1.2***	***7.2***	***2.4***	***2.4***	
Trisomy 21 (Down syndrome)	41	4	89	1	21	169	
	11.8	***15.9***	***13.3***	***3.6***	***12.6***	***13.6***	
Total live births	**34,601**	**2,517**	**66,821**	**2,773**	**16,702**	**124,564**	
Male live births	**17,811**	**1,270**	**33,826**	**1,434**	**8,440**	**63,400**	

New Mexico

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	75	0	75	
	6.8	***0.0***	***6.0***	
Trisomy 13	7	4	13	
	0.6	***2.9***	***1.0***	
Trisomy 18	10	8	30	
	0.9	***5.7***	***2.4***	
Trisomy 21 (Down syndrome)	95	63	169	
	8.6	***45.1***	***13.6***	
Total live births	**110,580**	**13,984**	**124,564**	

Notes
1. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.

General comments
*Totals include unknown and/or other.

New York

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Anencephalus	17	4	5	1	0	31	
	0.3	***0.2***	***0.2***	***0.1***	***0.0***	***0.3***	
Anophthalmia/microphthalmia	56	24	41	9	0	141	
	1.0	***1.3***	***1.5***	***0.8***	***0.0***	***1.2***	
Anotia/microtia	65	21	71	28	1	201	
	1.1	***1.2***	***2.5***	***2.5***	***5.0***	***1.7***	
Aortic valve stenosis	98	21	44	9	0	178	
	1.7	***1.2***	***1.6***	***0.8***	***0.0***	***1.5***	
Atrial septal defect	2,960	1,921	2,151	697	6	8,267	
	51.6	***106.2***	***76.7***	***63.0***	***30.0***	***69.6***	
Atrioventricular septal defect (Endocardial cushion defect)	214	132	140	40	2	558	
	3.7	***7.3***	***5.0***	***3.6***	***10.0***	***4.7***	
Biliary atresia	57	25	41	22	0	155	
	1.0	***1.4***	***1.5***	***2.0***	***0.0***	***1.3***	
Bladder exstrophy	13	4	4	0	0	22	
	0.2	***0.2***	***0.1***	***0.0***	***0.0***	***0.2***	
Choanal atresia	113	27	53	9	0	218	
	2.0	***1.5***	***1.9***	***0.8***	***0.0***	***1.8***	
Cleft lip alone	185	33	55	36	2	328	
	3.2	***1.8***	***2.0***	***3.3***	***10.0***	***2.8***	
Cleft lip with cleft palate	283	58	127	56	3	567	
	4.9	***3.2***	***4.5***	***5.1***	***15.0***	***4.8***	
Cleft palate alone	399	71	143	98	0	752	
	7.0	***3.9***	***5.1***	***8.9***	***0.0***	***6.3***	
Clubfoot	965	268	433	152	3	1,924	
	16.8	***14.8***	***15.4***	***13.7***	***15.0***	***16.2***	
Coarctation of the aorta	337	93	176	42	3	694	
	5.9	***5.1***	***6.3***	***3.8***	***15.0***	***5.8***	
Common truncus (truncus arteriosus)	36	10	11	4	0	67	
	0.6	***0.6***	***0.4***	***0.4***	***0.0***	***0.6***	
Congenital cataract	90	48	61	15	0	234	
	1.6	***2.7***	***2.2***	***1.4***	***0.0***	***2.0***	
Congenital posterior urethral valves	60	36	26	14	0	144	1
	2.0	***3.9***	***1.8***	***2.4***	***0.0***	***2.4***	
Craniosynostosis	432	87	235	66	2	880	
	7.5	***4.8***	***8.4***	***6.0***	***10.0***	***7.4***	
Deletion 22q11.2	9	6	5	2	0	22	
	0.2	***0.3***	***0.2***	***0.2***	***0.0***	***0.2***	
Diaphragmatic hernia	144	52	75	39	0	326	
	2.5	***2.9***	***2.7***	***3.5***	***0.0***	***2.7***	
Double outlet right ventricle	82	36	66	19	0	217	
	1.4	***2.0***	***2.4***	***1.7***	***0.0***	***1.8***	
Ebstein anomaly	31	9	31	6	0	79	
	0.5	***0.5***	***1.1***	***0.5***	***0.0***	***0.7***	
Encephalocele	36	22	16	11	0	92	
	0.6	***1.2***	***0.6***	***1.0***	***0.0***	***0.8***	
Esophageal atresia/tracheoesophageal fistula	137	36	55	23	1	267	
	2.4	***2.0***	***2.0***	***2.1***	***5.0***	***2.2***	
Gastroschisis	152	47	81	7	0	301	
	2.6	***2.6***	***2.9***	***0.6***	***0.0***	***2.5***	
Holoprosencephaly	39	17	10	2	1	75	
	0.7	***0.9***	***0.4***	***0.2***	***5.0***	***0.6***	
Hypoplastic left heart syndrome	142	48	68	10	1	280	
	2.5	***2.7***	***2.4***	***0.9***	***5.0***	***2.4***	
Hypospadias	2,986	769	1,028	383	9	5,442	1
	101.2	***84.0***	***72.3***	***66.7***	***89.5***	***89.6***	
Interrupted aortic arch	45	16	30	10	0	105	
	0.8	***0.9***	***1.1***	***0.9***	***0.0***	***0.9***	
Limb deficiencies (reduction defects)	162	64	78	15	0	334	
	2.8	***3.5***	***2.8***	***1.4***	***0.0***	***2.8***	

New York

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Omphalocele	87	25	31	9	0	158	
	1.5	***1.4***	***1.1***	***0.8***	***0.0***	***1.3***	
Pulmonary valve atresia and stenosis	437	200	288	100	1	1,081	
	7.6	***11.1***	***10.3***	***9.0***	***5.0***	***9.1***	
Pulmonary valve atresia	45	12	27	15	0	110	
	0.8	***0.7***	***1.0***	***1.4***	***0.0***	***0.9***	
Rectal and large intestinal atresia/stenosis	220	61	86	49	2	459	
	3.8	***3.4***	***3.1***	***4.4***	***10.0***	***3.9***	
Renal agenesis/hypoplasia	309	85	159	40	0	624	
	5.4	***4.7***	***5.7***	***3.6***	***0.0***	***5.3***	
Single ventricle	30	14	25	6	0	78	
	0.5	***0.8***	***0.9***	***0.5***	***0.0***	***0.7***	
Small intestinal atresia/stenosis	220	95	116	46	3	509	
	3.8	***5.3***	***4.1***	***4.2***	***15.0***	***4.3***	
Spina bifida without anencephalus	139	36	61	21	1	278	
	2.4	***2.0***	***2.2***	***1.9***	***5.0***	***2.3***	
Tetralogy of Fallot	289	105	129	99	2	656	
	5.0	***5.8***	***4.6***	***8.9***	***10.0***	***5.5***	
Total anomalous pulmonary venous connection	61	32	47	19	0	175	
	1.1	***1.8***	***1.7***	***1.7***	***0.0***	***1.5***	
Transposition of the great arteries (TGA)	237	55	124	41	0	482	
	4.1	***3.0***	***4.4***	***3.7***	***0.0***	***4.1***	
Dextro-transposition of great arteries (d-TGA)	233	55	123	39	0	475	
	4.1	***3.0***	***4.4***	***3.5***	***0.0***	***4.0***	
Tricuspid valve atresia and stenosis	71	30	33	18	1	165	
	1.2	***1.7***	***1.2***	***1.6***	***5.0***	***1.4***	
Tricuspid valve atresia	58	26	22	15	1	131	
	1.0	***1.4***	***0.8***	***1.4***	***5.0***	***1.1***	
Trisomy 13	22	16	24	5	0	69	
	0.4	***0.9***	***0.9***	***0.5***	***0.0***	***0.6***	
Trisomy 18	60	37	47	8	0	159	
	1.0	***2.0***	***1.7***	***0.7***	***0.0***	***1.3***	
Trisomy 21 (Down syndrome)	723	277	378	102	3	1,583	
	12.6	***15.3***	***13.5***	***9.2***	***15.0***	***13.3***	
Turner syndrome	48	20	14	9	0	95	2
	1.7	***2.2***	***1.0***	***1.7***	***0.0***	***1.6***	
Ventricular septal defect	2,755	835	1,425	503	7	5,849	
	48.0	***46.2***	***50.8***	***45.4***	***35.0***	***49.2***	
Total live births	**573,799**	**180,867**	**280,361**	**110,686**	**2,000**	**1,188,246**	
Male live births	**294,922**	**91,585**	**142,137**	**57,408**	**1,006**	**607,690**	
Female live births	**278,871**	**89,281**	**138,222**	**53,278**	**994**	**580,547**	

New York

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	283	9	301	
	3.0	***0.4***	***2.5***	
Trisomy 13	34	32	69	
	0.4	***1.3***	***0.6***	
Trisomy 18	72	81	159	
	0.8	***3.2***	***1.3***	
Trisomy 21 (Down syndrome)	697	771	1,583	
	7.4	***30.9***	***13.3***	
Total live births	**938,899**	**249,280**	**1,188,246**	

Notes
1. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
2. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.

General comments
*Totals include unknown and/or other.

North Carolina

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total*	Notes
Anencephalus	81	30	26	3	1	160	
	2.4	***2.1***	***2.9***	***1.3***	***1.2***	***2.7***	
Anophthalmia/microphthalmia	57	16	11	4	1	91	
	1.7	***1.1***	***1.2***	***1.7***	***1.2***	***1.5***	
Anotia/microtia	40	9	38	6	2	95	
	1.2	***0.6***	***4.2***	***2.6***	***2.5***	***1.6***	
Aortic valve stenosis	86	23	14	2	1	127	
	2.6	***1.6***	***1.6***	***0.9***	***1.2***	***2.1***	
Atrial septal defect	1,793	865	444	97	56	3,261	
	53.5	***60.3***	***49.6***	***41.8***	***68.9***	***54.3***	
Atrioventricular septal defect (Endocardial cushion defect)	197	101	52	7	6	371	
	5.9	***7.0***	***5.8***	***3.0***	***7.4***	***6.2***	
Biliary atresia	14	14	3	2	0	33	
	0.4	***1.0***	***0.3***	***0.9***	***0.0***	***0.5***	
Bladder exstrophy	9	5	1	0	0	15	
	0.3	***0.3***	***0.1***	***0.0***	***0.0***	***0.2***	
Choanal atresia	49	12	13	2	0	76	
	1.5	***0.8***	***1.5***	***0.9***	***0.0***	***1.3***	
Cleft lip alone	135	44	25	5	4	218	
	4.0	***3.1***	***2.8***	***2.2***	***4.9***	***3.6***	
Cleft lip with cleft palate	187	45	61	11	9	318	
	5.6	***3.1***	***6.8***	***4.7***	***11.1***	***5.3***	
Cleft palate alone	244	47	31	10	4	337	
	7.3	***3.3***	***3.5***	***4.3***	***4.9***	***5.6***	
Cloacal exstrophy	10	8	1	0	0	19	
	0.3	***0.6***	***0.1***	***0.0***	***0.0***	***0.3***	
Clubfoot	661	268	136	21	15	1,117	
	19.7	***18.7***	***15.2***	***9.1***	***18.5***	***18.6***	
Coarctation of the aorta	178	54	35	9	2	278	
	5.3	***3.8***	***3.9***	***3.9***	***2.5***	***4.6***	
Common truncus (truncus arteriosus)	22	5	7	4	1	40	
	0.7	***0.3***	***0.8***	***1.7***	***1.2***	***0.7***	
Congenital cataract	29	17	9	3	0	58	
	0.9	***1.2***	***1.0***	***1.3***	***0.0***	***1.0***	
Congenital posterior urethral valves	67	31	13	0	5	119	1
	3.9	***4.3***	***2.9***	***0.0***	***12.1***	***3.9***	
Craniosynostosis	241	41	48	8	5	344	
	7.2	***2.9***	***5.4***	***3.5***	***6.2***	***5.7***	
Diaphragmatic hernia	96	45	29	5	1	181	
	2.9	***3.1***	***3.2***	***2.2***	***1.2***	***3.0***	
Double outlet right ventricle	56	25	12	1	1	96	
	1.7	***1.7***	***1.3***	***0.4***	***1.2***	***1.6***	
Ebstein anomaly	21	8	3	0	3	35	
	0.6	***0.6***	***0.3***	***0.0***	***3.7***	***0.6***	
Encephalocele	21	20	12	0	1	62	
	0.6	***1.4***	***1.3***	***0.0***	***1.2***	***1.0***	
Esophageal atresia/tracheoesophageal fistula	105	29	15	5	0	155	
	3.1	***2.0***	***1.7***	***2.2***	***0.0***	***2.6***	
Gastroschisis	162	47	36	3	7	260	
	4.8	***3.3***	***4.0***	***1.3***	***8.6***	***4.3***	
Holoprosencephaly	37	24	26	1	0	90	
	1.1	***1.7***	***2.9***	***0.4***	***0.0***	***1.5***	
Hypoplastic left heart syndrome	93	33	23	5	1	156	
	2.8	***2.3***	***2.6***	***2.2***	***1.2***	***2.6***	
Hypospadias	1,211	413	108	50	34	1,817	1
	70.4	***56.8***	***23.8***	***42.3***	***82.1***	***59.2***	
Interrupted aortic arch	26	15	4	3	1	50	
	0.8	***1.0***	***0.4***	***1.3***	***1.2***	***0.8***	
Limb deficiencies (reduction defects)	149	70	38	1	3	268	
	4.4	***4.9***	***4.2***	***0.4***	***3.7***	***4.5***	

North Carolina

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Omphalocele	73	63	19	3	2	172	
	2.2	***4.4***	***2.1***	***1.3***	***2.5***	***2.9***	
Pulmonary valve atresia and stenosis	281	153	71	15	12	536	
	8.4	***10.7***	***7.9***	***6.5***	***14.8***	***8.9***	
Pulmonary valve atresia	56	36	12	5	2	112	
	1.7	***2.5***	***1.3***	***2.2***	***2.5***	***1.9***	
Rectal and large intestinal atresia/stenosis	140	55	34	8	5	242	
	4.2	***3.8***	***3.8***	***3.5***	***6.2***	***4.0***	
Renal agenesis/hypoplasia	196	74	41	3	3	323	
	5.8	***5.2***	***4.6***	***1.3***	***3.7***	***5.4***	
Single ventricle	20	11	10	1	0	43	
	0.6	***0.8***	***1.1***	***0.4***	***0.0***	***0.7***	
Small intestinal atresia/stenosis	93	38	38	9	5	183	
	2.8	***2.6***	***4.2***	***3.9***	***6.2***	***3.0***	
Spina bifida without anencephalus	132	44	31	3	2	220	
	3.9	***3.1***	***3.5***	***1.3***	***2.5***	***3.7***	
Tetralogy of Fallot	146	77	34	12	2	272	
	4.4	***5.4***	***3.8***	***5.2***	***2.5***	***4.5***	
Total anomalous pulmonary venous connection	31	13	16	6	1	68	
	0.9	***0.9***	***1.8***	***2.6***	***1.2***	***1.1***	
Transposition of the great arteries (TGA)	102	46	18	2	4	175	
	3.0	***3.2***	***2.0***	***0.9***	***4.9***	***2.9***	
Dextro-transposition of great arteries (d-TGA)	71	26	9	2	4	115	
	2.1	***1.8***	***1.0***	***0.9***	***4.9***	***1.9***	
Tricuspid valve atresia and stenosis	83	51	22	6	5	169	
	2.5	***3.6***	***2.5***	***2.6***	***6.2***	***2.8***	
Tricuspid valve atresia	71	45	20	6	5	149	
	2.1	***3.1***	***2.2***	***2.6***	***6.2***	***2.5***	
Trisomy 13	30	34	22	3	1	97	
	0.9	***2.4***	***2.5***	***1.3***	***1.2***	***1.6***	
Trisomy 18	102	48	40	7	2	210	
	3.0	***3.3***	***4.5***	***3.0***	***2.5***	***3.5***	
Trisomy 21 (Down syndrome)	423	141	157	26	13	790	
	12.6	***9.8***	***17.5***	***11.2***	***16.0***	***13.1***	
Turner syndrome	41	7	8	1	1	66	2
	2.5	***1.0***	***1.8***	***0.9***	***2.5***	***2.2***	
Ventricular septal defect	1,548	587	479	95	26	2,747	
	46.2	***40.9***	***53.5***	***41.0***	***32.0***	***45.7***	
Total live births	**335,127**	**143,456**	**89,536**	**23,187**	**8,127**	**600,928**	**3**
Male live births	**172,092**	**72,688**	**45,327**	**11,808**	**4,143**	**306,831**	
Female live births	**163,033**	**70,762**	**44,206**	**11,379**	**3,984**	**294,086**	

North Carolina

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	253	7	260	
	4.9	***0.8***	***4.3***	
Trisomy 13	57	39	97	
	1.1	***4.7***	***1.6***	
Trisomy 18	120	88	210	
	2.3	***10.5***	***3.5***	
Trisomy 21 (Down syndrome)	393	394	790	
	7.6	***47.2***	***13.1***	
Total live births	**517,347**	**83,556**	**600,928**	**3**

Notes

1. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
2. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
3. Total live births includes unknown gender.

General comments

*Totals include unknown and/or other.

Ohio

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total*	Notes
Anencephalus	25	1	3	0	0	30	
	0.5	***0.1***	***0.9***	***0.0***	***0.0***	***0.4***	
Anophthalmia/microphthalmia	57	17	1	2	0	78	
	1.1	***1.5***	***0.3***	***1.0***	***0.0***	***1.1***	
Anotia/microtia	15	2	1	2	1	21	
	0.3	***0.2***	***0.3***	***1.0***	***8.7***	***0.3***	
Aortic valve stenosis	19	2	1	0	0	22	
	0.4	***0.2***	***0.3***	***0.0***	***0.0***	***0.3***	
Atrial septal defect	615	138	29	23	3	820	
	11.8	***11.8***	***8.7***	***11.9***	***26.0***	***11.7***	
Atrioventricular septal defect (Endocardial cushion defect)	61	15	3	1	0	80	
	1.2	***1.3***	***0.9***	***0.5***	***0.0***	***1.1***	
Biliary atresia	38	7	1	0	0	46	
	0.7	***0.6***	***0.3***	***0.0***	***0.0***	***0.7***	
Choanal atresia	64	8	1	1	0	75	
	1.2	***0.7***	***0.3***	***0.5***	***0.0***	***1.1***	
Cleft lip alone	159	18	6	4	2	190	
	3.0	***1.5***	***1.8***	***2.1***	***17.3***	***2.7***	
Cleft lip with cleft palate	257	32	13	5	0	309	
	4.9	***2.7***	***3.9***	***2.6***	***0.0***	***4.4***	
Cleft palate alone	420	44	17	20	1	504	
	8.1	***3.8***	***5.1***	***10.4***	***8.7***	***7.2***	
Clubfoot	268	48	16	9	0	345	
	5.1	***4.1***	***4.8***	***4.7***	***0.0***	***4.9***	
Coarctation of the aorta	224	30	11	2	0	270	
	4.3	***2.6***	***3.3***	***1.0***	***0.0***	***3.9***	
Common truncus (truncus arteriosus)	32	4	2	2	0	40	
	0.6	***0.3***	***0.6***	***1.0***	***0.0***	***0.6***	
Congenital cataract	75	16	4	1	0	96	
	1.4	***1.4***	***1.2***	***0.5***	***0.0***	***1.4***	
Deletion 22q11.2	41	3	1	0	0	46	
	0.8	***0.3***	***0.3***	***0.0***	***0.0***	***0.7***	
Diaphragmatic hernia	129	20	5	3	0	157	
	2.5	***1.7***	***1.5***	***1.6***	***0.0***	***2.2***	
Double outlet right ventricle	29	8	3	3	0	43	
	0.6	***0.7***	***0.9***	***1.6***	***0.0***	***0.6***	
Encephalocele	20	8	3	1	0	32	
	0.4	***0.7***	***0.9***	***0.5***	***0.0***	***0.5***	
Esophageal atresia/tracheoesophageal fistula	94	16	3	3	0	117	
	1.8	***1.4***	***0.9***	***1.6***	***0.0***	***1.7***	
Gastroschisis	106	21	9	1	1	142	
	2.0	***1.8***	***2.7***	***0.5***	***8.7***	***2.0***	
Holoprosencephaly	13	0	0	0	0	13	
	0.2	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Hypoplastic left heart syndrome	95	17	9	2	1	125	
	1.8	***1.5***	***2.7***	***1.0***	***8.7***	***1.8***	
Omphalocele	49	42	2	0	0	93	
	0.9	***3.6***	***0.6***	***0.0***	***0.0***	***1.3***	
Pulmonary valve atresia and stenosis	104	17	4	1	1	129	
	2.0	***1.5***	***1.2***	***0.5***	***8.7***	***1.8***	
Pulmonary valve atresia	49	8	1	0	1	61	
	0.9	***0.7***	***0.3***	***0.0***	***8.7***	***0.9***	
Rectal and large intestinal atresia/stenosis	124	14	8	8	1	155	
	2.4	***1.2***	***2.4***	***4.2***	***8.7***	***2.2***	
Renal agenesis/hypoplasia	248	45	12	3	0	312	
	4.8	***3.9***	***3.6***	***1.6***	***0.0***	***4.5***	
Spina bifida without anencephalus	208	27	13	3	1	252	
	4.0	***2.3***	***3.9***	***1.6***	***8.7***	***3.6***	
Tetralogy of Fallot	168	27	11	1	0	211	
	3.2	***2.3***	***3.3***	***0.5***	***0.0***	***3.0***	

Ohio

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Total anomalous pulmonary venous connection	28 ***0.5***	4 ***0.3***	4 ***1.2***	0 ***0.0***	0 ***0.0***	36 ***0.5***	
Transposition of the great arteries (TGA)	139 ***2.7***	24 ***2.1***	9 ***2.7***	4 ***2.1***	0 ***0.0***	179 ***2.6***	
Dextro-transposition of great arteries (d-TGA)	111 ***2.1***	23 ***2.0***	9 ***2.7***	3 ***1.6***	0 ***0.0***	148 ***2.1***	
Tricuspid valve atresia and stenosis	33 ***0.6***	11 ***0.9***	1 ***0.3***	1 ***0.5***	1 ***8.7***	47 ***0.7***	
Tricuspid valve atresia	33 ***0.6***	11 ***0.9***	1 ***0.3***	1 ***0.5***	1 ***8.7***	47 ***0.7***	
Trisomy 13	15 ***0.3***	4 ***0.3***	2 ***0.6***	0 ***0.0***	0 ***0.0***	22 ***0.3***	
Trisomy 18	36 ***0.7***	5 ***0.4***	2 ***0.6***	1 ***0.5***	1 ***8.7***	45 ***0.6***	
Trisomy 21 (Down syndrome)	549 ***10.5***	101 ***8.6***	30 ***9.0***	15 ***7.8***	1 ***8.7***	703 ***10.1***	
Turner syndrome	49 ***1.9***	5 ***0.9***	4 ***2.4***	3 ***3.2***	0 ***0.0***	62 ***1.8***	1
Ventricular septal defect	394 ***7.6***	84 ***7.2***	30 ***9.0***	17 ***8.8***	0 ***0.0***	528 ***7.6***	
Total live births	**521,622**	**116,870**	**33,467**	**19,271**	**1,155**	**698,003**	**2**
Female live births	**254,133**	**57,469**	**16,483**	**9,513**	**552**	**340,898**	

Ohio

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	136	6	142	
	2.2	***0.7***	***2.0***	
Trisomy 13	17	5	22	
	0.3	***0.6***	***0.3***	
Trisomy 18	29	16	45	
	0.5	***1.8***	***0.6***	
Trisomy 21 (Down syndrome)	389	314	703	
	6.4	***36.1***	***10.1***	
Total live births	**610,871**	**87,046**	**698,003**	**2**

Notes
1. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
2. Total live births includes unknown gender.

General comments
*Totals include unknown and/or other.
-Data for conditions include probable cases.
-Data for conditions include records linked to a birth certificate only.

Oklahoma

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Anencephalus	28	3	10	1	3	46	
	1.7	***1.2***	***2.6***	***1.3***	***1.1***	***1.7***	
Anophthalmia/microphthalmia	24	0	2	2	3	34	
	1.4	***0.0***	***0.5***	***2.6***	***1.1***	***1.3***	
Anotia/microtia	20	2	9	3	4	39	
	1.2	***0.8***	***2.4***	***3.8***	***1.4***	***1.5***	
Aortic valve stenosis	52	0	9	0	4	68	
	3.1	***0.0***	***2.4***	***0.0***	***1.4***	***2.6***	
Atrial septal defect	834	114	159	27	127	1,311	
	50.3	***46.5***	***41.6***	***34.5***	***44.8***	***49.5***	
Atrioventricular septal defect (Endocardial cushion defect)	82	13	20	3	7	132	
	4.9	***5.3***	***5.2***	***3.8***	***2.5***	***5.0***	
Biliary atresia	8	4	2	0	3	17	
	0.5	***1.6***	***0.5***	***0.0***	***1.1***	***0.6***	
Bladder exstrophy	5	0	1	0	1	7	
	0.3	***0.0***	***0.3***	***0.0***	***0.4***	***0.3***	
Choanal atresia	30	5	5	0	3	44	
	1.8	***2.0***	***1.3***	***0.0***	***1.1***	***1.7***	
Cleft lip alone	76	7	16	0	15	120	
	4.6	***2.9***	***4.2***	***0.0***	***5.3***	***4.5***	
Cleft lip with cleft palate	122	7	32	4	21	190	
	7.4	***2.9***	***8.4***	***5.1***	***7.4***	***7.2***	
Cleft palate alone	129	8	23	8	18	200	
	7.8	***3.3***	***6.0***	***10.2***	***6.4***	***7.6***	
Cloacal exstrophy	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Clubfoot	285	21	63	10	50	451	
	17.2	***8.6***	***16.5***	***12.8***	***17.6***	***17.0***	
Coarctation of the aorta	89	6	15	1	17	136	
	5.4	***2.4***	***3.9***	***1.3***	***6.0***	***5.1***	
Common truncus (truncus arteriosus)	6	3	1	0	1	12	
	0.4	***1.2***	***0.3***	***0.0***	***0.4***	***0.5***	
Congenital cataract	21	2	3	2	1	33	
	1.3	***0.8***	***0.8***	***2.6***	***0.4***	***1.2***	
Congenital posterior urethral valves	16	5	0	0	2	28	1
	1.9	***4.0***	***0.0***	***0.0***	***1.4***	***2.1***	
Craniosynostosis	40	4	10	2	9	99	
	2.4	***1.6***	***2.6***	***2.6***	***3.2***	***3.7***	
Deletion 22q11.2	10	2	1	0	3	16	
	0.6	***0.8***	***0.3***	***0.0***	***1.1***	***0.6***	
Diaphragmatic hernia	48	5	21	2	10	88	
	2.9	***2.0***	***5.5***	***2.6***	***3.5***	***3.3***	
Double outlet right ventricle	31	6	4	2	6	51	
	1.9	***2.4***	***1.0***	***2.6***	***2.1***	***1.9***	
Ebstein anomaly	12	0	6	1	0	20	
	0.7	***0.0***	***1.6***	***1.3***	***0.0***	***0.8***	
Encephalocele	11	3	6	0	6	26	
	0.7	***1.2***	***1.6***	***0.0***	***2.1***	***1.0***	
Esophageal atresia/tracheoesophageal fistula	45	1	7	2	5	62	
	2.7	***0.4***	***1.8***	***2.6***	***1.8***	***2.3***	
Gastroschisis	84	7	13	2	7	117	
	5.1	***2.9***	***3.4***	***2.6***	***2.5***	***4.4***	
Holoprosencephaly	15	4	5	1	4	29	
	0.9	***1.6***	***1.3***	***1.3***	***1.4***	***1.1***	
Hypoplastic left heart syndrome	46	0	12	2	3	66	
	2.8	***0.0***	***3.1***	***2.6***	***1.1***	***2.5***	
Hypospadias	336	44	18	6	44	464	1
	39.4	***35.2***	***9.2***	***15.3***	***30.4***	***34.2***	
Interrupted aortic arch	21	4	2	1	2	30	
	1.3	***1.6***	***0.5***	***1.3***	***0.7***	***1.1***	

Oklahoma

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Limb deficiencies (reduction defects)	83	11	16	1	7	120	
	5.0	***4.5***	***4.2***	***1.3***	***2.5***	***4.5***	
Omphalocele	37	10	8	0	6	64	
	2.2	***4.1***	***2.1***	***0.0***	***2.1***	***2.4***	
Pulmonary valve atresia and stenosis	133	15	21	4	11	191	
	8.0	***6.1***	***5.5***	***5.1***	***3.9***	***7.2***	
Pulmonary valve atresia	19	3	7	2	3	36	
	1.1	***1.2***	***1.8***	***2.6***	***1.1***	***1.4***	
Rectal and large intestinal atresia/stenosis	84	11	20	7	14	142	
	5.1	***4.5***	***5.2***	***8.9***	***4.9***	***5.4***	
Renal agenesis/hypoplasia	95	11	20	1	14	150	
	5.7	***4.5***	***5.2***	***1.3***	***4.9***	***5.7***	
Single ventricle	10	1	3	0	0	16	
	0.6	***0.4***	***0.8***	***0.0***	***0.0***	***0.6***	
Small intestinal atresia/stenosis	63	7	10	1	5	95	
	3.8	***2.9***	***2.6***	***1.3***	***1.8***	***3.6***	
Spina bifida without anencephalus	60	3	12	1	10	89	
	3.6	***1.2***	***3.1***	***1.3***	***3.5***	***3.4***	
Tetralogy of Fallot	75	6	6	6	11	108	
	4.5	***2.4***	***1.6***	***7.7***	***3.9***	***4.1***	
Total anomalous pulmonary venous connection	19	3	8	1	3	34	
	1.1	***1.2***	***2.1***	***1.3***	***1.1***	***1.3***	
Transposition of the great arteries (TGA)	60	7	14	2	9	98	
	3.6	***2.9***	***3.7***	***2.6***	***3.2***	***3.7***	
Dextro-transposition of great arteries (d-TGA)	55	7	12	2	8	87	
	3.3	***2.9***	***3.1***	***2.6***	***2.8***	***3.3***	
Tricuspid valve atresia and stenosis	25	4	5	1	1	39	
	1.5	***1.6***	***1.3***	***1.3***	***0.4***	***1.5***	
Tricuspid valve atresia	17	1	4	0	1	26	
	1.0	***0.4***	***1.0***	***0.0***	***0.4***	***1.0***	
Trisomy 13	11	3	3	1	1	20	
	0.7	***1.2***	***0.8***	***1.3***	***0.4***	***0.8***	
Trisomy 18	37	11	11	2	4	67	
	2.2	***4.5***	***2.9***	***2.6***	***1.4***	***2.5***	
Trisomy 21 (Down syndrome)	187	21	66	9	21	319	
	11.3	***8.6***	***17.3***	***11.5***	***7.4***	***12.0***	
Turner syndrome	20	1	3	0	4	31	2
	2.5	***0.8***	***1.6***	***0.0***	***2.9***	***2.4***	
Ventricular septal defect	960	102	200	36	111	1,481	
	57.9	***41.6***	***52.4***	***46.0***	***39.2***	***55.9***	
Total live births	**165,795**	**24,537**	**38,185**	**7,829**	**28,336**	**264,761**	**3**
Male live births	**85,220**	**12,512**	**19,582**	**3,929**	**14,483**	**135,764**	
Female live births	**80,572**	**12,024**	**18,602**	**3,899**	**13,853**	**128,991**	

Oklahoma

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	114	3	117	
	4.7	***1.2***	***4.4***	
Trisomy 13	16	4	20	
	0.7	***1.6***	***0.8***	
Trisomy 18	42	25	67	
	1.7	***10.2***	***2.5***	
Trisomy 21 (Down syndrome)	191	123	319	
	8.0	***50.0***	***12.0***	
Total live births	**240,053**	**24,580**	**264,761**	**3**

Notes

1. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
2. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
3. Total live births includes unknown gender.

General comments

*Totals include unknown and/or other.

-Fetal deaths are defined as baby born dead (without a heart rate), at or after 20th gestational week. Includes babies that died during labor. .

-Terminations are defined as fetus terminated by parental choice prior to 37 weeks. When labor is induced to deliver a fetus who is dead prior to the onset of labor it is not considered an elective termination.

Oregon

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Anencephalus	10	1	6	0	0	18	
	0.6	***2.1***	***1.4***	***0.0***	***0.0***	***0.8***	
Anophthalmia/microphthalmia	14	0	9	0	0	23	
	0.9	***0.0***	***2.1***	***0.0***	***0.0***	***1.0***	
Anotia/microtia	47	0	46	8	1	104	1
	3.0	***0.0***	***10.9***	***6.4***	***4.0***	***4.6***	
Aortic valve stenosis	84	2	24	3	2	118	
	5.4	***4.2***	***5.7***	***2.4***	***8.0***	***5.3***	
Atrial septal defect	2,554	124	925	156	76	4,027	
	165.5	***261.4***	***218.5***	***125.3***	***305.6***	***179.2***	
Atrioventricular septal defect (Endocardial cushion defect)	160	6	57	13	5	252	
	10.4	***12.6***	***13.5***	***10.4***	***20.1***	***11.2***	
Biliary atresia	15	2	3	2	0	24	
	1.0	***4.2***	***0.7***	***1.6***	***0.0***	***1.1***	
Bladder exstrophy	3	0	3	1	0	7	
	0.2	***0.0***	***0.7***	***0.8***	***0.0***	***0.3***	
Choanal atresia	45	2	10	4	0	63	
	2.9	***4.2***	***2.4***	***3.2***	***0.0***	***2.8***	
Cleft lip alone	24	1	12	3	1	47	
	1.6	***2.1***	***2.8***	***2.4***	***4.0***	***2.1***	
Cleft lip with cleft palate	143	2	41	11	2	209	
	9.3	***4.2***	***9.7***	***8.8***	***8.0***	***9.3***	
Cleft palate alone	148	2	33	9	2	203	
	9.6	***4.2***	***7.8***	***7.2***	***8.0***	***9.0***	
Cloacal exstrophy	120	2	44	4	1	177	
	7.8	***4.2***	***10.4***	***3.2***	***4.0***	***7.9***	
Clubfoot	404	12	97	22	2	554	
	26.2	***25.3***	***22.9***	***17.7***	***8.0***	***24.7***	
Coarctation of the aorta	54	0	24	3	2	90	
	3.5	***0.0***	***5.7***	***2.4***	***8.0***	***4.0***	
Common truncus (truncus arteriosus)	19	2	8	0	0	29	
	1.2	***4.2***	***1.9***	***0.0***	***0.0***	***1.3***	
Congenital cataract	79	4	21	4	0	114	
	5.1	***8.4***	***5.0***	***3.2***	***0.0***	***5.1***	
Congenital posterior urethral valves	55	3	14	1	1	80	2
	7.0	***12.3***	***6.5***	***1.6***	***7.8***	***6.9***	
Deletion 22q11.2	19	0	2	0	2	25	
	1.2	***0.0***	***0.5***	***0.0***	***8.0***	***1.1***	
Diaphragmatic hernia	72	5	30	6	1	120	
	4.7	***10.5***	***7.1***	***4.8***	***4.0***	***5.3***	
Double outlet right ventricle	48	2	13	4	1	72	
	3.1	***4.2***	***3.1***	***3.2***	***4.0***	***3.2***	
Ebstein anomaly	13	1	4	1	0	20	
	0.8	***2.1***	***0.9***	***0.8***	***0.0***	***0.9***	
Encephalocele	13	2	6	1	1	26	
	0.8	***4.2***	***1.4***	***0.8***	***4.0***	***1.2***	
Esophageal atresia/tracheoesophageal fistula	50	0	21	4	1	78	
	3.2	***0.0***	***5.0***	***3.2***	***4.0***	***3.5***	
Gastroschisis	77	1	24	4	1	117	
	5.0	***2.1***	***5.7***	***3.2***	***4.0***	***5.2***	
Holoprosencephaly	106	8	45	10	1	182	
	6.9	***16.9***	***10.6***	***8.0***	***4.0***	***8.1***	
Hypoplastic left heart syndrome	73	1	22	3	1	103	
	4.7	***2.1***	***5.2***	***2.4***	***4.0***	***4.6***	
Hypospadias	790	47	134	41	13	1,073	2
	99.8	***192.6***	***62.2***	***64.5***	***101.3***	***93.2***	
Interrupted aortic arch	71	2	19	2	1	99	
	4.6	***4.2***	***4.5***	***1.6***	***4.0***	***4.4***	
Limb deficiencies (reduction defects)	134	2	37	4	3	191	
	8.7	***4.2***	***8.7***	***3.2***	***12.1***	***8.5***	

Oregon

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Omphalocele	30	4	12	6	1	57	
	1.9	***8.4***	***2.8***	***4.8***	***4.0***	***2.5***	
Pulmonary valve atresia and stenosis	272	12	96	18	7	422	
	17.6	***25.3***	***22.7***	***14.5***	***28.1***	***18.8***	
Pulmonary valve atresia	37	0	12	3	1	53	
	2.4	***0.0***	***2.8***	***2.4***	***4.0***	***2.4***	
Rectal and large intestinal atresia/stenosis	88	1	35	5	3	142	
	5.7	***2.1***	***8.3***	***4.0***	***12.1***	***6.3***	
Renal agenesis/hypoplasia	160	5	61	9	6	253	
	10.4	***10.5***	***14.4***	***7.2***	***24.1***	***11.3***	
Single ventricle	53	1	11	3	2	71	
	3.4	***2.1***	***2.6***	***2.4***	***8.0***	***3.2***	
Small intestinal atresia/stenosis	63	2	30	4	2	107	
	4.1	***4.2***	***7.1***	***3.2***	***8.0***	***4.8***	
Spina bifida without anencephalus	119	3	35	4	5	174	
	7.7	***6.3***	***8.3***	***3.2***	***20.1***	***7.7***	
Tetralogy of Fallot	106	3	45	7	2	172	
	6.9	***6.3***	***10.6***	***5.6***	***8.0***	***7.7***	
Total anomalous pulmonary venous connection	24	0	12	1	0	40	
	1.6	***0.0***	***2.8***	***0.8***	***0.0***	***1.8***	
Transposition of the great arteries (TGA)	77	1	22	6	3	116	
	5.0	***2.1***	***5.2***	***4.8***	***12.1***	***5.2***	
Dextro-transposition of great arteries (d-TGA)	66	1	20	5	1	99	
	4.3	***2.1***	***4.7***	***4.0***	***4.0***	***4.4***	
Tricuspid valve atresia and stenosis	27	0	13	2	2	45	
	1.7	***0.0***	***3.1***	***1.6***	***8.0***	***2.0***	
Trisomy 13	14	1	5	0	0	20	
	0.9	***2.1***	***1.2***	***0.0***	***0.0***	***0.9***	
Trisomy 18	13	1	15	3	0	32	
	0.8	***2.1***	***3.5***	***2.4***	***0.0***	***1.4***	
Trisomy 21 (Down syndrome)	257	11	117	17	4	419	
	16.7	***23.2***	***27.6***	***13.6***	***16.1***	***18.6***	
Turner syndrome	15	2	3	1	1	22	3
	2.0	***8.7***	***1.4***	***1.6***	***8.3***	***2.0***	
Ventricular septal defect	1,018	27	449	62	28	1,647	4
	66.0	***56.9***	***106.1***	***49.8***	***112.6***	***73.3***	
Total live births	**154,299**	**4,744**	**42,325**	**12,455**	**2,487**	**224,727**	**5**
Male live births	**79,133**	**2,440**	**21,548**	**6,355**	**1,283**	**115,142**	
Female live births	**75,165**	**2,304**	**20,777**	**6,100**	**1,204**	**109,584**	

Oregon

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	112	5	117	
	6.0	***1.3***	***5.2***	
Trisomy 13	13	7	20	
	0.7	***1.9***	***0.9***	
Trisomy 18	18	14	32	
	1.0	***3.8***	***1.4***	
Trisomy 21 (Down syndrome)	244	175	419	
	13.0	***47.0***	***18.6***	
Total live births	**187,452**	**37,264**	**224,727**	**5**

Notes

1. Data sources for this condition include the Incorporated Oregon Early Hearing Detection and Intervention (EHDI) program and the Oregon Birth Anomalies Surveillance System.
2. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
3. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
4. Data for this condition include probable cases.
5. Total live births includes unknown gender.

General comments

*Totals include unknown and/or other.

Puerto Rico

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity		
Defect	**Hispanic**	**Total***	**Notes**
Anencephalus	75 ***4.1***	75 ***4.1***	
Anophthalmia/microphthalmia	30 ***1.6***	30 ***1.6***	
Anotia/microtia	54 ***3.0***	54 ***3.0***	
Aortic valve stenosis	19 ***1.0***	19 ***1.0***	
Atrial septal defect	520 ***28.5***	520 ***28.5***	
Atrioventricular septal defect (Endocardial cushion defect)	102 ***5.6***	102 ***5.6***	1
Bladder exstrophy	4 ***0.2***	4 ***0.2***	
Cleft lip alone	66 ***3.6***	66 ***3.6***	
Cleft lip with cleft palate	114 ***6.3***	114 ***6.3***	
Cleft palate alone	133 ***7.3***	133 ***7.3***	
Clubfoot	370 ***20.3***	370 ***20.3***	
Coarctation of the aorta	47 ***2.6***	47 ***2.6***	
Common truncus (truncus arteriosus)	7 ***0.4***	7 ***0.4***	
Deletion 22q11.2	1 ***0.2***	1 ***0.2***	
Double outlet right ventricle	43 ***2.4***	43 ***2.4***	
Ebstein anomaly	15 ***0.8***	15 ***0.8***	
Encephalocele	21 ***1.2***	21 ***1.2***	
Gastroschisis	85 ***4.7***	85 ***4.7***	
Hypoplastic left heart syndrome	38 ***2.1***	38 ***2.1***	
Hypospadias	463 ***49.3***	463 ***49.3***	2
Interrupted aortic arch	3 ***0.5***	3 ***0.5***	
Limb deficiencies (reduction defects)	124 ***6.8***	124 ***6.8***	
Omphalocele	41 ***2.2***	41 ***2.2***	
Pulmonary valve atresia and stenosis	177 ***9.7***	177 ***9.7***	
Pulmonary valve atresia	26 ***1.4***	26 ***1.4***	
Single ventricle	2 ***0.3***	2 ***0.3***	
Spina bifida without anencephalus	78 ***4.3***	78 ***4.3***	
Tetralogy of Fallot	71 ***3.9***	71 ***3.9***	
Total anomalous pulmonary venous connection	19 ***1.0***	19 ***1.0***	
Transposition of the great arteries (TGA)	54 ***3.0***	54 ***3.0***	
Dextro-transposition of great arteries (d-TGA)	15 ***0.8***	15 ***0.8***	
Tricuspid valve atresia and stenosis	15 ***0.8***	15 ***0.8***	

Puerto Rico

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity		
Defect	**Hispanic**	**Total***	**Notes**
Tricuspid valve atresia	15 ***0.8***	15 ***0.8***	
Trisomy 13	14 ***0.8***	14 ***0.8***	
Trisomy 18	45 ***2.5***	45 ***2.5***	
Trisomy 21 (Down syndrome)	204 ***11.2***	204 ***11.2***	
Turner syndrome	2 ***0.6***	2 ***0.6***	3
Ventricular septal defect	501 ***27.5***	501 ***27.5***	4
Total live births	**182,395**	**182,395**	
Male live births	**93,873**	**93,873**	
Female live births	**31,911**	**31,911**	

Puerto Rico

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	84	1	85	
	5.1	***0.6***	***4.7***	
Trisomy 13	9	5	14	
	0.5	***3.0***	***0.8***	
Trisomy 18	29	16	45	
	1.8	***9.5***	***2.5***	
Trisomy 21 (Down syndrome)	111	93	204	
	6.7	***55.3***	***11.2***	
Total live births	**165,524**	**16,829**	**182,395**	

Notes

1. Data for this condition only include atrioventricular canal.
2. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
3. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
4. Data for this condition exclude probable diagnosis and exclude inlet/posterior type ventricular septal defect only in the presence of atrioventricular canal.

General comments

*Totals include unknown and/or other.
-Fetal deaths include spontaneous abortions and stillbirths.
-There is no gestational age cut off for terminations.

Rhode Island

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total*	Notes
Anencephalus	8	2	1	0	0	11	
	2.6	***4.8***	***0.8***	***0.0***	***0.0***	***2.0***	
Anophthalmia/microphthalmia	2	3	2	0	0	9	
	0.6	***7.2***	***1.6***	***0.0***	***0.0***	***1.7***	
Anotia/microtia	0	0	3	0	0	3	
	0.0	***0.0***	***2.4***	***0.0***	***0.0***	***0.6***	
Aortic valve stenosis	4	0	1	0	0	6	
	1.3	***0.0***	***0.8***	***0.0***	***0.0***	***1.1***	
Atrial septal defect	72	17	26	1	2	127	
	23.2	***40.6***	***20.8***	***4.1***	***57.1***	***23.5***	
Atrioventricular septal defect (Endocardial cushion defect)	4	0	1	0	0	5	
	1.3	***0.0***	***0.8***	***0.0***	***0.0***	***0.9***	
Biliary atresia	0	0	1	0	0	1	
	0.0	***0.0***	***0.8***	***0.0***	***0.0***	***0.2***	
Bladder exstrophy	1	0	0	0	0	1	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Choanal atresia	2	1	1	0	0	5	
	0.6	***2.4***	***0.8***	***0.0***	***0.0***	***0.9***	
Cleft lip alone	13	0	6	0	0	20	
	4.2	***0.0***	***4.8***	***0.0***	***0.0***	***3.7***	
Cleft lip with cleft palate	19	0	8	1	1	30	1
	6.1	***0.0***	***6.4***	***4.1***	***28.6***	***5.6***	
Cleft palate alone	17	1	2	1	0	23	
	5.5	***2.4***	***1.6***	***4.1***	***0.0***	***4.3***	
Cloacal exstrophy	0	0	1	0	0	1	
	0.0	***0.0***	***0.8***	***0.0***	***0.0***	***0.2***	
Clubfoot	46	6	22	3	1	85	1
	14.8	***14.3***	***17.6***	***12.2***	***28.6***	***15.7***	
Coarctation of the aorta	10	0	5	0	0	16	
	3.2	***0.0***	***4.0***	***0.0***	***0.0***	***3.0***	
Common truncus (truncus arteriosus)	2	0	0	0	0	2	
	0.6	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	
Congenital cataract	3	1	3	1	0	8	
	1.0	***2.4***	***2.4***	***4.1***	***0.0***	***1.5***	
Congenital posterior urethral valves	4	1	1	0	0	7	2
	2.5	***4.7***	***1.6***	***0.0***	***0.0***	***2.5***	
Craniosynostosis	18	1	2	3	0	25	
	5.8	***2.4***	***1.6***	***12.2***	***0.0***	***4.6***	
Deletion 22q11.2	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Diaphragmatic hernia	7	0	3	1	0	11	
	2.3	***0.0***	***2.4***	***4.1***	***0.0***	***2.0***	
Double outlet right ventricle	2	0	1	1	0	4	
	0.6	***0.0***	***0.8***	***4.1***	***0.0***	***0.7***	
Ebstein anomaly	1	2	0	0	0	4	
	0.3	***4.8***	***0.0***	***0.0***	***0.0***	***0.7***	
Encephalocele	2	0	3	0	0	7	
	0.6	***0.0***	***2.4***	***0.0***	***0.0***	***1.3***	
Esophageal atresia/tracheoesophageal fistula	6	0	1	0	0	7	
	1.9	***0.0***	***0.8***	***0.0***	***0.0***	***1.3***	
Gastroschisis	12	1	12	0	0	26	1
	3.9	***2.4***	***9.6***	***0.0***	***0.0***	***4.8***	
Holoprosencephaly	0	0	1	0	0	1	3
	0.0	***0.0***	***0.8***	***0.0***	***0.0***	***0.2***	
Hypoplastic left heart syndrome	4	1	5	0	0	10	
	1.3	***2.4***	***4.0***	***0.0***	***0.0***	***1.9***	
Hypospadias	162	18	35	4	1	229	2
	102.4	***84.2***	***55.1***	***30.8***	***55.6***	***83.1***	
Interrupted aortic arch	1	0	0	0	0	1	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	

Rhode Island

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Limb deficiencies (reduction defects)	7	2	6	0	0	15	3
	2.3	***4.8***	***4.8***	***0.0***	***0.0***	***2.8***	
Omphalocele	5	1	3	1	0	11	
	1.6	***2.4***	***2.4***	***4.1***	***0.0***	***2.0***	
Pulmonary valve atresia and stenosis	16	1	6	5	0	30	
	5.2	***2.4***	***4.8***	***20.3***	***0.0***	***5.6***	
Pulmonary valve atresia	1	1	1	3	0	6	
	0.3	***2.4***	***0.8***	***12.2***	***0.0***	***1.1***	
Rectal and large intestinal atresia/stenosis	9	1	9	0	0	21	
	2.9	***2.4***	***7.2***	***0.0***	***0.0***	***3.9***	
Renal agenesis/hypoplasia	11	4	5	0	0	20	
	3.5	***9.6***	***4.0***	***0.0***	***0.0***	***3.7***	
Single ventricle	2	0	0	1	0	3	
	0.6	***0.0***	***0.0***	***4.1***	***0.0***	***0.6***	
Small intestinal atresia/stenosis	10	4	6	2	0	22	
	3.2	***9.6***	***4.8***	***8.1***	***0.0***	***4.1***	
Spina bifida without anencephalus	12	4	7	2	0	28	
	3.9	***9.6***	***5.6***	***8.1***	***0.0***	***5.2***	
Tetralogy of Fallot	11	2	3	0	0	17	
	3.5	***4.8***	***2.4***	***0.0***	***0.0***	***3.1***	
Total anomalous pulmonary venous connection	4	0	0	0	0	5	
	1.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.9***	
Transposition of the great arteries (TGA)	5	0	1	1	0	14	
	1.6	***0.0***	***0.8***	***4.1***	***0.0***	***2.6***	
Dextro-transposition of great arteries (d-TGA)	2	0	0	1	0	3	
	0.6	***0.0***	***0.0***	***4.1***	***0.0***	***0.6***	
Tricuspid valve atresia and stenosis	2	0	1	1	0	4	4
	0.6	***0.0***	***0.8***	***4.1***	***0.0***	***0.7***	
Tricuspid valve atresia	2	0	1	1	0	4	4
	0.6	***0.0***	***0.8***	***4.1***	***0.0***	***0.7***	
Trisomy 13	7	2	3	0	0	12	
	2.3	***4.8***	***2.4***	***0.0***	***0.0***	***2.2***	
Trisomy 18	6	3	3	0	0	13	
	1.9	***7.2***	***2.4***	***0.0***	***0.0***	***2.4***	
Trisomy 21 (Down syndrome)	36	8	16	0	1	69	
	11.6	***19.1***	***12.8***	***0.0***	***28.6***	***12.8***	
Turner syndrome	2	0	0	0	0	3	5
	1.3	***0.0***	***0.0***	***0.0***	***0.0***	***1.1***	
Ventricular septal defect	162	27	40	8	0	244	6
	52.2	***64.5***	***32.0***	***32.5***	***0.0***	***45.2***	
Total live births	**31,036**	**4,183**	**12,507**	**2,459**	**350**	**53,998**	**7**
Male live births	**15,817**	**2,139**	**6,354**	**1,299**	**180**	**27,566**	
Female live births	**15,218**	**2,043**	**6,153**	**1,164**	**170**	**26,429**	

Rhode Island

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	26	0	26	1
	5.8	***0.0***	***4.8***	
Trisomy 13	5	7	12	
	1.1	***7.4***	***2.2***	
Trisomy 18	4	9	13	
	0.9	***9.5***	***2.4***	
Trisomy 21 (Down syndrome)	31	35	69	
	7.0	***37.1***	***12.8***	
Total live births	**44,562**	**9,432**	**53,998**	**7**

Notes

1. Data for this condition include terminations in 2015.
2. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
3. Data for this condition include terminations in 2014.
4. Data for this condition include probable cases in 2015.
5. Data for this condition include stillbirths in 2014. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
6. Data for this condition include probable cases.
7. Total live births includes unknown gender.

General comments

*Totals include unknown and/or other.

South Carolina

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total*	Notes
Anencephalus	43	8	9	<5	0	73	
	2.6	***0.9***	***3.9***		***0.0***	***2.5***	
Anophthalmia/microphthalmia	16	15	<5	0	0	32	
	1.0	***1.7***		***0.0***	***0.0***	***1.1***	
Anotia/microtia	19	10	7	<5	0	38	
	1.1	***1.1***	***3.0***		***0.0***	***1.3***	
Aortic valve stenosis	16	5	<5	<5	0	25	
	1.0	***0.6***			***0.0***	***0.9***	
Atrial septal defect	122	79	25	7	0	242	1
	7.3	***8.7***	***10.8***	***14.6***	***0.0***	***8.4***	
Atrioventricular septal defect (Endocardial cushion defect)	87	48	13	<5	0	155	
	5.2	***5.3***	***5.6***		***0.0***	***5.4***	
Biliary atresia	8	12	<5	0	0	24	
	0.5	***1.3***		***0.0***	***0.0***	***0.8***	
Bladder exstrophy	6	0	0	0	0	6	
	0.6	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Choanal atresia	22	14	0	0	0	36	
	1.3	***1.5***	***0.0***	***0.0***	***0.0***	***1.3***	
Cleft lip alone	44	20	11	<5	0	81	
	2.6	***2.2***	***4.7***		***0.0***	***2.8***	
Cleft lip with cleft palate	92	35	13	6	0	148	
	5.5	***3.9***	***5.6***	***12.5***	***0.0***	***5.2***	
Cleft palate alone	97	30	9	<5	0	142	
	5.8	***3.3***	***3.9***		***0.0***	***4.9***	
Coarctation of the aorta	96	37	9	<5	<5	151	
	5.8	***4.1***	***3.9***			***5.3***	
Common truncus (truncus arteriosus)	13	6	<5	<5	0	24	
	0.8	***0.7***			***0.0***	***0.8***	
Congenital cataract	11	9	<5	0	<5	24	
	0.7	***1.0***		***0.0***		***0.8***	
Congenital posterior urethral valves	18	11	<5	0	0	38	2
	2.1	***2.4***		***0.0***	***0.0***	***2.6***	
Diaphragmatic hernia	45	31	<5	<5	0	88	
	2.7	***3.4***			***0.0***	***3.1***	
Double outlet right ventricle	34	30	6	<5	0	73	
	2.0	***3.3***	***2.6***		***0.0***	***2.5***	
Ebstein anomaly	8	<5	<5	0	0	15	
	0.5			***0.0***	***0.0***	***0.5***	
Encephalocele	21	7	5	0	0	36	
	1.3	***0.8***	***2.2***	***0.0***	***0.0***	***1.3***	
Esophageal atresia/tracheoesophageal fistula	42	16	<5	<5	0	66	
	2.5	***1.8***			***0.0***	***2.3***	
Gastroschisis	89	26	8	0	0	131	
	5.4	***2.9***	***3.4***	***0.0***	***0.0***	***4.6***	
Hypoplastic left heart syndrome	64	39	5	<5	0	116	
	3.8	***4.3***	***2.2***		***0.0***	***4.0***	
Hypospadias	31	15	<5	<5	0	50	3
	3.6	***3.3***			***0.0***	***3.4***	
Interrupted aortic arch	6	9	0	<5	0	16	
	0.4	***1.0***	***0.0***		***0.0***	***0.6***	
Limb deficiencies (reduction defects)	87	48	15	<5	0	168	4
	5.2	***5.3***	***6.5***		***0.0***	***5.9***	
Omphalocele	35	25	9	<5	<5	79	
	2.1	***2.8***	***3.9***			***2.8***	
Pulmonary valve atresia and stenosis	138	122	23	<5	<5	295	
	8.3	***13.5***	***9.9***			***10.3***	
Pulmonary valve atresia	32	30	6	<5	0	71	
	1.9	***3.3***	***2.6***		***0.0***	***2.5***	
Rectal and large intestinal atresia/stenosis	61	38	<5	<5	0	107	
	3.7	***4.2***			***0.0***	***3.7***	

South Carolina

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Renal agenesis/hypoplasia	87	39	9	<5	0	144	
	5.2	***4.3***	***3.9***		***0.0***	***5.0***	
Single ventricle	<5	5	<5	<5	0	12	
		0.6			***0.0***	***0.4***	
Spina bifida without anencephalus	61	34	11	<5	0	118	
	3.7	***3.8***	***4.7***		***0.0***	***4.1***	
Tetralogy of Fallot	89	49	13	<5	0	159	
	5.4	***5.4***	***5.6***		***0.0***	***5.5***	
Total anomalous pulmonary venous connection	12	10	<5	<5	0	30	5
	0.7	***1.1***			***0.0***	***1.0***	
Transposition of the great arteries (TGA)	48	28	8	<5	0	86	
	2.9	***3.1***	***3.4***		***0.0***	***3.0***	
Tricuspid valve atresia and stenosis	23	15	<5	0	0	42	
	1.4	***1.7***		***0.0***	***0.0***	***1.5***	
Trisomy 13	17	13	6	<5	0	42	
	1.0	***1.4***	***2.6***		***0.0***	***1.5***	
Trisomy 18	34	17	9	0	0	81	
	2.0	***1.9***	***3.9***	***0.0***	***0.0***	***2.8***	
Trisomy 21 (Down syndrome)	190	74	49	9	0	337	
	11.4	***8.2***	***21.1***	***18.8***	***0.0***	***11.7***	
Ventricular septal defect	640	306	118	23	0	1,130	
	38.5	***33.9***	***50.7***	***47.9***	***0.0***	***39.4***	
Total live births	**166,285**	**90,326**	**23,255**	**4,800**	**942**	**286,946**	
Male live births	**85,126**	**45,914**	**11,887**	**2,516**	**479**	**146,598**	

South Carolina

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	128	<5	131	
	5.1		***4.6***	
Trisomy 13	28	14	42	
	1.1	***4.1***	***1.5***	
Trisomy 18	40	41	81	
	1.6	***12.1***	***2.8***	
Trisomy 21 (Down syndrome)	179	158	337	
	7.1	***46.6***	***11.7***	
Total live births	**253,033**	**33,905**	**286,946**	

Notes

1. Data for this condition are only collected when found with another reportable defect.
2. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
3. Data for this condition are only collected when found with another reportable defect. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
4. Data for this condition begin in 2014.
5. Data for this condition begin in 2012.

General comments

*Totals include unknown and/or other.
-Data for conditions exclude probable and possible cases.
-Fetal deaths are only collected from inpatient hospitalizations.
-Terminations in South Carolina are not usually performed after 20 weeks gestation.
-Total births are resident births.

Tennessee

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total*	Notes
Anencephalus	43	11	12	0	0	66	
	1.6	***1.3***	***3.4***	***0.0***	***0.0***	***1.6***	
Anophthalmia/microphthalmia	34	13	6	0	0	53	
	1.3	***1.6***	***1.7***	***0.0***	***0.0***	***1.3***	
Anotia/microtia	26	5	11	1	0	43	
	1.0	***0.6***	***3.1***	***1.1***	***0.0***	***1.1***	
Aortic valve stenosis	49	11	7	1	0	70	
	1.8	***1.3***	***2.0***	***1.1***	***0.0***	***1.7***	
Atrial septal defect	3,922	1,854	442	82	7	6,329	
	144.3	***223.0***	***126.0***	***89.6***	***120.5***	***157.2***	
Atrioventricular septal defect (Endocardial cushion defect)	148	51	17	6	1	224	
	5.4	***6.1***	***4.8***	***6.6***	***17.2***	***5.6***	
Biliary atresia	35	18	1	0	0	55	
	1.3	***2.2***	***0.3***	***0.0***	***0.0***	***1.4***	
Bladder exstrophy	5	2	2	0	0	9	
	0.2	***0.2***	***0.6***	***0.0***	***0.0***	***0.2***	
Choanal atresia	65	13	7	1	0	86	
	2.4	***1.6***	***2.0***	***1.1***	***0.0***	***2.1***	
Cleft lip alone	146	21	15	3	1	186	
	5.4	***2.5***	***4.3***	***3.3***	***17.2***	***4.6***	
Cleft lip with cleft palate	194	28	30	6	0	258	
	7.1	***3.4***	***8.6***	***6.6***	***0.0***	***6.4***	
Cleft palate alone	244	40	31	3	1	319	
	9.0	***4.8***	***8.8***	***3.3***	***17.2***	***7.9***	
Cloacal exstrophy	185	153	25	4	2	371	
	6.8	***18.4***	***7.1***	***4.4***	***34.4***	***9.2***	
Clubfoot	507	121	66	6	0	703	
	18.6	***14.6***	***18.8***	***6.6***	***0.0***	***17.5***	
Coarctation of the aorta	243	60	31	5	1	343	
	8.9	***7.2***	***8.8***	***5.5***	***17.2***	***8.5***	
Common truncus (truncus arteriosus)	24	9	4	0	0	37	
	0.9	***1.1***	***1.1***	***0.0***	***0.0***	***0.9***	
Congenital cataract	62	17	8	2	0	89	
	2.3	***2.0***	***2.3***	***2.2***	***0.0***	***2.2***	
Congenital posterior urethral valves	38	20	3	1	0	62	1
	2.7	***4.8***	***1.7***	***2.1***	***0.0***	***3.0***	
Craniosynostosis	60	5	7	0	0	73	
	11.0	***3.0***	***9.6***	***0.0***	***0.0***	***9.0***	
Deletion 22q11.2	7	2	1	0	0	10	
	0.3	***0.2***	***0.3***	***0.0***	***0.0***	***0.2***	
Diaphragmatic hernia	105	37	13	3	0	158	
	3.9	***4.4***	***3.7***	***3.3***	***0.0***	***3.9***	
Double outlet right ventricle	77	38	8	3	0	126	
	2.8	***4.6***	***2.3***	***3.3***	***0.0***	***3.1***	
Ebstein anomaly	47	12	6	4	0	69	
	1.7	***1.4***	***1.7***	***4.4***	***0.0***	***1.7***	
Encephalocele	28	16	4	0	0	48	
	1.0	***1.9***	***1.1***	***0.0***	***0.0***	***1.2***	
Esophageal atresia/tracheoesophageal fistula	90	20	14	1	0	125	
	3.3	***2.4***	***4.0***	***1.1***	***0.0***	***3.1***	
Gastroschisis	174	28	17	0	0	224	
	6.4	***3.4***	***4.8***	***0.0***	***0.0***	***5.6***	
Holoprosencephaly	189	54	21	5	1	270	
	7.0	***6.5***	***6.0***	***5.5***	***17.2***	***6.7***	
Hypoplastic left heart syndrome	98	36	13	1	1	151	
	3.6	***4.3***	***3.7***	***1.1***	***17.2***	***3.8***	
Hypospadias	1,641	422	89	32	3	2,198	1
	117.5	***100.5***	***50.0***	***67.6***	***100.0***	***106.8***	
Interrupted aortic arch	32	9	3	3	0	47	
	1.2	***1.1***	***0.9***	***3.3***	***0.0***	***1.2***	

Tennessee

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Limb deficiencies (reduction defects)	109	36	13	3	0	161	
	4.0	***4.3***	***3.7***	***3.3***	***0.0***	***4.0***	
Omphalocele	62	31	8	2	0	103	
	2.3	***3.7***	***2.3***	***2.2***	***0.0***	***2.6***	
Pulmonary valve atresia and stenosis	252	96	37	4	0	390	
	9.3	***11.5***	***10.5***	***4.4***	***0.0***	***9.7***	
Pulmonary valve atresia	15	6	3	0	0	24	
	0.6	***0.7***	***0.9***	***0.0***	***0.0***	***0.6***	
Rectal and large intestinal atresia/stenosis	147	51	13	3	0	214	
	5.4	***6.1***	***3.7***	***3.3***	***0.0***	***5.3***	
Renal agenesis/hypoplasia	178	52	16	3	0	249	
	6.5	***6.3***	***4.6***	***3.3***	***0.0***	***6.2***	
Single ventricle	43	15	5	1	0	65	
	1.6	***1.8***	***1.4***	***1.1***	***0.0***	***1.6***	
Small intestinal atresia/stenosis	136	47	22	3	1	210	
	5.0	***5.7***	***6.3***	***3.3***	***17.2***	***5.2***	
Spina bifida without anencephalus	120	33	21	1	0	176	
	4.4	***4.0***	***6.0***	***1.1***	***0.0***	***4.4***	
Tetralogy of Fallot	155	54	11	4	0	224	
	5.7	***6.5***	***3.1***	***4.4***	***0.0***	***5.6***	
Total anomalous pulmonary venous connection	38	10	5	3	0	56	
	1.4	***1.2***	***1.4***	***3.3***	***0.0***	***1.4***	
Transposition of the great arteries (TGA)	141	50	18	5	0	215	
	5.2	***6.0***	***5.1***	***5.5***	***0.0***	***5.3***	
Dextro-transposition of great arteries (d-TGA)	76	18	8	1	0	104	
	2.8	***2.2***	***2.3***	***1.1***	***0.0***	***2.6***	
Tricuspid valve atresia and stenosis	33	17	7	0	0	57	
	1.2	***2.0***	***2.0***	***0.0***	***0.0***	***1.4***	
Tricuspid valve atresia	33	17	7	0	0	57	
	1.2	***2.0***	***2.0***	***0.0***	***0.0***	***1.4***	
Trisomy 13	24	12	2	2	0	40	
	0.9	***1.4***	***0.6***	***2.2***	***0.0***	***1.0***	
Trisomy 18	35	18	7	0	0	61	
	1.3	***2.2***	***2.0***	***0.0***	***0.0***	***1.5***	
Trisomy 21 (Down syndrome)	404	105	75	11	2	598	
	14.9	***12.6***	***21.4***	***12.0***	***34.4***	***14.9***	
Turner syndrome	16	7	3	1	0	28	2
	1.2	***1.7***	***1.7***	***2.3***	***0.0***	***1.4***	
Ventricular septal defect	1,350	423	194	35	4	2,010	
	49.7	***50.9***	***55.3***	***38.2***	***68.8***	***49.9***	
Total live births	**271,857**	**83,147**	**35,086**	**9,152**	**581**	**402,601**	**3**
Male live births	**139,611**	**42,007**	**17,799**	**4,731**	**300**	**205,836**	
Female live births	**132,243**	**41,140**	**17,285**	**4,421**	**281**	**196,758**	

Tennessee

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	213	6	224	
	5.9	***1.3***	***5.6***	
Trisomy 13	31	9	40	
	0.9	***2.0***	***1.0***	
Trisomy 18	45	16	61	
	1.3	***3.6***	***1.5***	
Trisomy 21 (Down syndrome)	340	247	598	
	9.5	***55.5***	***14.9***	
Total live births	**358,013**	**44,514**	**402,601**	**3**

Notes

1. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
2. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
3. Total live births includes unknown gender.

General comments

*Totals include unknown and/or other.
-Data for conditions exclude terminations.
-Fetal deaths are defined as 350 grams or more, or 20 weeks gestation or more.

Texas

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total*	Notes
Anencephalus	130	27	267	17	3	451	
	1.9	***1.2***	***2.9***	***1.8***	***8.4***	***2.3***	
Anophthalmia/microphthalmia	165	47	297	21	0	539	
	2.5	***2.1***	***3.2***	***2.3***	***0.0***	***2.8***	
Anotia/microtia	147	36	491	19	2	699	
	2.2	***1.6***	***5.3***	***2.1***	***5.6***	***3.6***	
Aortic valve stenosis	181	27	258	14	2	484	
	2.7	***1.2***	***2.8***	***1.5***	***5.6***	***2.5***	
Atrial septal defect	5,395	1,973	8,455	605	21	16,661	
	80.4	***88.1***	***90.8***	***65.7***	***58.5***	***85.5***	
Atrioventricular septal defect (Endocardial cushion defect)	312	106	398	30	1	856	
	4.6	***4.7***	***4.3***	***3.3***	***2.8***	***4.4***	
Biliary atresia	33	17	62	12	1	129	
	0.5	***0.8***	***0.7***	***1.3***	***2.8***	***0.7***	
Bladder exstrophy	19	5	9	2	0	35	
	0.3	***0.2***	***0.1***	***0.2***	***0.0***	***0.2***	
Choanal atresia	114	38	112	5	0	273	
	1.7	***1.7***	***1.2***	***0.5***	***0.0***	***1.4***	
Cleft lip alone	291	58	258	26	0	640	
	4.3	***2.6***	***2.8***	***2.8***	***0.0***	***3.3***	
Cleft lip with cleft palate	476	102	806	56	10	1,463	
	7.1	***4.6***	***8.7***	***6.1***	***27.9***	***7.5***	
Cleft palate alone	398	94	519	60	2	1,091	
	5.9	***4.2***	***5.6***	***6.5***	***5.6***	***5.6***	
Cloacal exstrophy	1	0	4	0	0	5	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Clubfoot	1,195	375	1,592	101	6	3,313	
	17.8	***16.8***	***17.1***	***11.0***	***16.7***	***17.0***	
Coarctation of the aorta	405	95	507	41	1	1,062	
	6.0	***4.2***	***5.4***	***4.5***	***2.8***	***5.4***	
Common truncus (truncus arteriosus)	40	15	97	5	0	159	
	0.6	***0.7***	***1.0***	***0.5***	***0.0***	***0.8***	
Congenital cataract	131	45	170	8	0	356	
	2.0	***2.0***	***1.8***	***0.9***	***0.0***	***1.8***	
Congenital posterior urethral valves	73	33	60	15	0	183	1
	2.1	***2.9***	***1.3***	***3.1***	***0.0***	***1.8***	
Craniosynostosis	536	73	569	24	1	1,216	
	8.0	***3.3***	***6.1***	***2.6***	***2.8***	***6.2***	
Deletion 22q11.2	48	22	78	6	2	159	
	0.7	***1.0***	***0.8***	***0.7***	***5.6***	***0.8***	
Diaphragmatic hernia	183	47	266	17	0	515	
	2.7	***2.1***	***2.9***	***1.8***	***0.0***	***2.6***	
Double outlet right ventricle	81	36	146	14	0	279	
	1.2	***1.6***	***1.6***	***1.5***	***0.0***	***1.4***	
Ebstein anomaly	44	10	85	5	0	145	
	0.7	***0.4***	***0.9***	***0.5***	***0.0***	***0.7***	
Encephalocele	55	32	90	10	0	189	
	0.8	***1.4***	***1.0***	***1.1***	***0.0***	***1.0***	
Esophageal atresia/tracheoesophageal fistula	175	56	203	14	0	453	
	2.6	***2.5***	***2.2***	***1.5***	***0.0***	***2.3***	
Gastroschisis	352	86	629	19	2	1,100	
	5.2	***3.8***	***6.8***	***2.1***	***5.6***	***5.6***	
Holoprosencephaly	44	16	122	5	0	188	
	0.7	***0.7***	***1.3***	***0.5***	***0.0***	***1.0***	
Hypoplastic left heart syndrome	193	46	211	11	0	468	
	2.9	***2.1***	***2.3***	***1.2***	***0.0***	***2.4***	
Hypospadias	3,070	912	2,190	331	13	6,621	1
	89.2	***80.1***	***46.1***	***69.4***	***71.4***	***66.4***	
Interrupted aortic arch	36	24	61	5	0	128	
	0.5	***1.1***	***0.7***	***0.5***	***0.0***	***0.7***	

Texas

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Limb deficiencies (reduction defects)	367	141	534	31	5	1,089	
	5.5	***6.3***	***5.7***	***3.4***	***13.9***	***5.6***	
Omphalocele	157	51	186	13	0	411	
	2.3	***2.3***	***2.0***	***1.4***	***0.0***	***2.1***	
Pulmonary valve atresia and stenosis	624	250	1,130	64	3	2,097	
	9.3	***11.2***	***12.1***	***6.9***	***8.4***	***10.8***	
Pulmonary valve atresia	109	37	200	15	2	365	
	1.6	***1.7***	***2.1***	***1.6***	***5.6***	***1.9***	
Rectal and large intestinal atresia/stenosis	317	103	532	38	2	1,010	
	4.7	***4.6***	***5.7***	***4.1***	***5.6***	***5.2***	
Renal agenesis/hypoplasia	428	148	609	69	1	1,275	
	6.4	***6.6***	***6.5***	***7.5***	***2.8***	***6.5***	
Single ventricle	54	16	86	8	0	164	
	0.8	***0.7***	***0.9***	***0.9***	***0.0***	***0.8***	
Small intestinal atresia/stenosis	209	89	328	18	2	653	
	3.1	***4.0***	***3.5***	***2.0***	***5.6***	***3.3***	
Spina bifida without anencephalus	233	61	412	14	1	735	
	3.5	***2.7***	***4.4***	***1.5***	***2.8***	***3.8***	
Tetralogy of Fallot	312	115	437	47	4	933	2
	4.6	***5.1***	***4.7***	***5.1***	***11.1***	***4.8***	
Total anomalous pulmonary venous connection	76	23	202	21	1	326	
	1.1	***1.0***	***2.2***	***2.3***	***2.8***	***1.7***	
Transposition of the great arteries (TGA)	293	54	401	27	1	785	
	4.4	***2.4***	***4.3***	***2.9***	***2.8***	***4.0***	
Dextro-transposition of great arteries (d-TGA)	259	49	358	24	1	699	
	3.9	***2.2***	***3.8***	***2.6***	***2.8***	***3.6***	
Tricuspid valve atresia and stenosis	131	43	191	16	2	388	
	2.0	***1.9***	***2.1***	***1.7***	***5.6***	***2.0***	
Tricuspid valve atresia	59	23	63	8	1	156	
	0.9	***1.0***	***0.7***	***0.9***	***2.8***	***0.8***	
Trisomy 13	75	31	99	10	0	219	
	1.1	***1.4***	***1.1***	***1.1***	***0.0***	***1.1***	
Trisomy 18	163	55	249	31	1	508	
	2.4	***2.5***	***2.7***	***3.4***	***2.8***	***2.6***	
Trisomy 21 (Down syndrome)	850	206	1,522	100	3	2,717	
	12.7	***9.2***	***16.3***	***10.9***	***8.4***	***13.9***	
Turner syndrome	92	15	116	13	0	237	3
	2.8	***1.4***	***2.5***	***2.9***	***0.0***	***2.5***	
Ventricular septal defect	3,989	1,206	7,016	507	29	12,903	4
	59.4	***53.9***	***75.4***	***55.0***	***80.8***	***66.2***	
Total live births	**671,341**	**223,829**	**931,037**	**92,126**	**3,589**	**1,949,743**	
Male live births	**343,980**	**113,851**	**475,353**	**47,673**	**1,820**	**996,875**	
Female live births	**327,361**	**109,978**	**455,684**	**44,453**	**1,769**	**952,868**	

Texas

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	1,074	26	1,100	
	6.4	***1.0***	***5.6***	
Trisomy 13	147	72	219	
	0.9	***2.8***	***1.1***	
Trisomy 18	256	252	508	
	1.5	***9.7***	***2.6***	
Trisomy 21 (Down syndrome)	1,402	1,315	2,717	
	8.3	***50.7***	***13.9***	
Total live births	**1,690,121**	**259,515**	**1,949,743**	

Notes

1. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
2. Data for this condition exclude co-occuring ventricular septal defect/tetralogy of Fallot.
3. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
4. Data for this condition include inlet ventricular septal defect.

General comments

*Totals include unknown and/or other.

-Data for conditions exclude probable and possible cases.

-Fetal deaths are defined as spontaneous death of a conception product prior to the complete expulsion/extraction from its mother, regardless of gestational length. The labor onset may be natural/induced, the key is that the fetal death was spontaneous and not a result of an intended procedure.

Utah

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Anencephalus	30	1	13	0	0	47	
	1.5	***3.5***	***3.4***	***0.0***	***0.0***	***1.8***	
Anophthalmia/microphthalmia	27	1	9	1	0	38	
	1.4	***3.5***	***2.3***	***1.1***	***0.0***	***1.5***	
Anotia/microtia	54	0	30	10	2	96	
	2.7	***0.0***	***7.8***	***10.7***	***7.3***	***3.8***	
Aortic valve stenosis	77	1	15	3	1	97	
	3.9	***3.5***	***3.9***	***3.2***	***3.7***	***3.8***	
Atrial septal defect	770	11	168	38	12	1,001	1
	38.7	***38.5***	***43.8***	***40.6***	***44.1***	***39.2***	
Atrioventricular septal defect (Endocardial cushion defect)	136	2	19	9	0	167	
	6.8	***7.0***	***5.0***	***9.6***	***0.0***	***6.5***	
Biliary atresia	14	1	3	2	0	20	
	0.7	***3.5***	***0.8***	***2.1***	***0.0***	***0.8***	
Bladder exstrophy	3	0	0	1	0	4	
	0.2	***0.0***	***0.0***	***1.1***	***0.0***	***0.2***	
Choanal atresia	29	0	6	0	1	36	
	1.5	***0.0***	***1.6***	***0.0***	***3.7***	***1.4***	
Cleft lip alone	113	4	16	7	0	141	
	5.7	***14.0***	***4.2***	***7.5***	***0.0***	***5.5***	
Cleft lip with cleft palate	157	3	27	2	4	194	
	7.9	***10.5***	***7.0***	***2.1***	***14.7***	***7.6***	
Cleft palate alone	151	3	27	5	3	190	
	7.6	***10.5***	***7.0***	***5.3***	***11.0***	***7.4***	
Cloacal exstrophy	5	0	0	1	0	6	
	0.3	***0.0***	***0.0***	***1.1***	***0.0***	***0.2***	
Clubfoot	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Coarctation of the aorta	205	4	35	3	4	251	
	10.3	***14.0***	***9.1***	***3.2***	***14.7***	***9.8***	
Common truncus (truncus arteriosus)	16	0	6	0	0	22	
	0.8	***0.0***	***1.6***	***0.0***	***0.0***	***0.9***	
Congenital cataract	53	0	15	2	0	70	
	2.7	***0.0***	***3.9***	***2.1***	***0.0***	***2.7***	
Congenital posterior urethral valves	31	1	5	0	0	37	2
	3.0	***6.7***	***2.6***	***0.0***	***0.0***	***2.8***	
Craniosynostosis	230	3	50	2	6	292	
	11.6	***10.5***	***13.0***	***2.1***	***22.0***	***11.4***	
Deletion 22q11.2	27	1	7	3	2	40	
	1.4	***3.5***	***1.8***	***3.2***	***7.3***	***1.6***	
Diaphragmatic hernia	77	2	15	4	2	100	
	3.9	***7.0***	***3.9***	***4.3***	***7.3***	***3.9***	
Double outlet right ventricle	41	1	5	2	1	51	
	2.1	***3.5***	***1.3***	***2.1***	***3.7***	***2.0***	
Ebstein anomaly	25	0	8	0	0	33	
	1.3	***0.0***	***2.1***	***0.0***	***0.0***	***1.3***	
Encephalocele	26	0	3	0	0	30	
	1.3	***0.0***	***0.8***	***0.0***	***0.0***	***1.2***	
Esophageal atresia/tracheoesophageal fistula	58	1	9	2	2	72	
	2.9	***3.5***	***2.3***	***2.1***	***7.3***	***2.8***	
Gastroschisis	79	1	20	0	1	103	
	4.0	***3.5***	***5.2***	***0.0***	***3.7***	***4.0***	
Holoprosencephaly	30	1	10	0	0	41	
	1.5	***3.5***	***2.6***	***0.0***	***0.0***	***1.6***	
Hypoplastic left heart syndrome	60	3	8	4	1	77	
	3.0	***10.5***	***2.1***	***4.3***	***3.7***	***3.0***	
Hypospadias	807	11	64	27	6	921	2
	78.8	***74.0***	***32.7***	***56.4***	***43.4***	***70.1***	
Interrupted aortic arch	13	1	3	1	1	19	
	0.7	***3.5***	***0.8***	***1.1***	***3.7***	***0.7***	

Utah

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Limb deficiencies (reduction defects)	128	2	26	2	1	162	
	6.4	***7.0***	***6.8***	***2.1***	***3.7***	***6.3***	
Omphalocele	61	1	11	2	2	78	
	3.1	***3.5***	***2.9***	***2.1***	***7.3***	***3.1***	
Pulmonary valve atresia and stenosis	268	6	56	10	4	345	
	13.5	***21.0***	***14.6***	***10.7***	***14.7***	***13.5***	
Pulmonary valve atresia	13	0	4	2	0	19	
	0.7	***0.0***	***1.0***	***2.1***	***0.0***	***0.7***	
Rectal and large intestinal atresia/stenosis	85	2	12	5	0	104	
	4.3	***7.0***	***3.1***	***5.3***	***0.0***	***4.1***	
Renal agenesis/hypoplasia	89	2	16	6	3	116	
	4.5	***7.0***	***4.2***	***6.4***	***11.0***	***4.5***	
Single ventricle	10	0	3	0	0	13	
	0.5	***0.0***	***0.8***	***0.0***	***0.0***	***0.5***	
Small intestinal atresia/stenosis	62	2	19	3	0	86	
	3.1	***7.0***	***5.0***	***3.2***	***0.0***	***3.4***	
Spina bifida without anencephalus	81	2	12	1	1	100	
	4.1	***7.0***	***3.1***	***1.1***	***3.7***	***3.9***	
Tetralogy of Fallot	72	1	13	4	2	92	
	3.6	***3.5***	***3.4***	***4.3***	***7.3***	***3.6***	
Total anomalous pulmonary venous connection	24	0	11	2	1	38	
	1.2	***0.0***	***2.9***	***2.1***	***3.7***	***1.5***	
Transposition of the great arteries (TGA)	102	3	22	5	2	135	
	5.1	***10.5***	***5.7***	***5.3***	***7.3***	***5.3***	
Dextro-transposition of great arteries (d-TGA)	51	1	13	3	1	70	
	2.6	***3.5***	***3.4***	***3.2***	***3.7***	***2.7***	
Tricuspid valve atresia and stenosis	20	0	7	0	0	27	
	1.0	***0.0***	***1.8***	***0.0***	***0.0***	***1.1***	
Tricuspid valve atresia	14	0	3	0	0	17	
	0.7	***0.0***	***0.8***	***0.0***	***0.0***	***0.7***	
Trisomy 13	28	1	8	3	0	42	
	1.4	***3.5***	***2.1***	***3.2***	***0.0***	***1.6***	
Trisomy 18	70	3	13	2	1	94	
	3.5	***10.5***	***3.4***	***2.1***	***3.7***	***3.7***	
Trisomy 21 (Down syndrome)	322	4	85	20	6	442	
	16.2	***14.0***	***22.2***	***21.4***	***22.0***	***17.3***	
Turner syndrome	49	0	10	0	0	60	3
	5.1	***0.0***	***5.3***	***0.0***	***0.0***	***4.8***	
Ventricular septal defect	503	8	125	19	8	669	4
	25.3	***28.0***	***32.6***	***20.3***	***29.4***	***26.2***	
Total live births	**198,784**	**2,856**	**38,351**	**9,366**	**2,722**	**255,436**	**5**
Male live births	**102,402**	**1,487**	**19,588**	**4,784**	**1,381**	**131,343**	
Female live births	**96,381**	**1,369**	**18,763**	**4,582**	**1,341**	**124,092**	

Utah

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	100	3	103	
	4.5	***0.9***	***4.0***	
Trisomy 13	25	17	42	
	1.1	***5.3***	***1.6***	
Trisomy 18	67	27	94	
	3.0	***8.5***	***3.7***	
Trisomy 21 (Down syndrome)	221	221	442	
	9.9	***69.5***	***17.3***	
Total live births	**223,605**	**31,808**	**255,436**	**5**

Notes

1. Data for this condition exclude isolated secundum atrial septal defect beginning in 2014.
2. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
3. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
4. Data for this condition exclude inlet ventricular septal defect, and common atrioventricular canal type ventricular septal defect.
5. Total live births includes unknown gender.

General comments

*Totals include unknown and/or other.
-Stillbirths are based on >=20 weeks gestation.
-Terminations include any weeks' gestation.

Vermont

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Anencephalus	1	0	0	0	0	1	
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Anotia/microtia	5	0	1	1	0	7	
	1.8	***0.0***	***21.1***	***14.1***	***0.0***	***2.3***	
Aortic valve stenosis	12	0	1	0	0	13	
	4.3	***0.0***	***21.1***	***0.0***	***0.0***	***4.3***	
Atrial septal defect	275	4	6	7	1	296	
	98.9	***90.3***	***126.6***	***98.6***	***185.2***	***98.4***	
Atrioventricular septal defect (Endocardial cushion defect)	16	0	0	1	0	17	
	5.8	***0.0***	***0.0***	***14.1***	***0.0***	***5.6***	
Bladder exstrophy	1	0	0	1	0	2	
	0.4	***0.0***	***0.0***	***14.1***	***0.0***	***0.7***	
Cleft lip alone	12	0	0	0	0	13	
	4.3	***0.0***	***0.0***	***0.0***	***0.0***	***4.3***	
Cleft lip with cleft palate	13	0	0	0	0	13	
	4.7	***0.0***	***0.0***	***0.0***	***0.0***	***4.3***	
Cleft palate alone	24	0	1	0	0	25	
	8.6	***0.0***	***21.1***	***0.0***	***0.0***	***8.3***	
Coarctation of the aorta	17	0	0	0	0	17	
	6.1	***0.0***	***0.0***	***0.0***	***0.0***	***5.6***	
Common truncus (truncus arteriosus)	2	0	1	0	0	3	
	0.7	***0.0***	***21.1***	***0.0***	***0.0***	***1.0***	
Diaphragmatic hernia	14	0	0	0	0	15	
	5.0	***0.0***	***0.0***	***0.0***	***0.0***	***5.0***	
Double outlet right ventricle	4	0	0	1	0	5	
	1.4	***0.0***	***0.0***	***14.1***	***0.0***	***1.7***	
Ebstein anomaly	3	0	0	0	0	3	
	1.1	***0.0***	***0.0***	***0.0***	***0.0***	***1.0***	
Encephalocele	1	0	0	0	0	1	
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Esophageal atresia/tracheoesophageal fistula	6	0	1	1	0	8	
	2.2	***0.0***	***21.1***	***14.1***	***0.0***	***2.7***	
Gastroschisis	15	0	0	0	0	15	
	5.4	***0.0***	***0.0***	***0.0***	***0.0***	***5.0***	
Hypoplastic left heart syndrome	10	1	0	0	0	11	
	3.6	***22.6***	***0.0***	***0.0***	***0.0***	***3.7***	
Hypospadias	109	3	1	0	0	114	1
	75.7	***128.8***	***39.8***	***0.0***	***0.0***	***72.9***	
Limb deficiencies (reduction defects)	14	0	0	0	0	16	
	5.0	***0.0***	***0.0***	***0.0***	***0.0***	***5.3***	
Omphalocele	3	0	0	0	0	3	
	1.1	***0.0***	***0.0***	***0.0***	***0.0***	***1.0***	
Pulmonary valve atresia and stenosis	52	2	1	1	0	56	
	18.7	***45.1***	***21.1***	***14.1***	***0.0***	***18.6***	
Pulmonary valve atresia	5	2	0	0	0	7	
	1.8	***45.1***	***0.0***	***0.0***	***0.0***	***2.3***	
Rectal and large intestinal atresia/stenosis	17	0	0	0	0	17	
	6.1	***0.0***	***0.0***	***0.0***	***0.0***	***5.6***	
Renal agenesis/hypoplasia	15	0	0	1	0	16	
	5.4	***0.0***	***0.0***	***14.1***	***0.0***	***5.3***	
Small intestinal atresia/stenosis	8	0	0	1	0	9	2
	2.9	***0.0***	***0.0***	***14.1***	***0.0***	***3.0***	
Spina bifida without anencephalus	7	0	0	0	0	7	
	2.5	***0.0***	***0.0***	***0.0***	***0.0***	***2.3***	
Tetralogy of Fallot	8	1	0	1	0	10	
	2.9	***22.6***	***0.0***	***14.1***	***0.0***	***3.3***	
Transposition of the great arteries (TGA)	11	0	0	1	0	12	
	4.0	***0.0***	***0.0***	***14.1***	***0.0***	***4.0***	
Dextro-transposition of great arteries (d-TGA)	7	0	0	1	0	8	
	2.5	***0.0***	***0.0***	***14.1***	***0.0***	***2.7***	

Vermont

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Tricuspid valve atresia and stenosis	5	0	0	0	0	5	
	1.8	***0.0***	***0.0***	***0.0***	***0.0***	***1.7***	
Tricuspid valve atresia	1	0	0	0	0	1	
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Trisomy 13	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Trisomy 18	6	0	0	0	0	6	
	2.2	***0.0***	***0.0***	***0.0***	***0.0***	***2.0***	
Trisomy 21 (Down syndrome)	29	1	1	1	0	32	
	10.4	***22.6***	***21.1***	***14.1***	***0.0***	***10.6***	
Ventricular septal defect	174	3	1	6	0	189	
	62.6	***67.7***	***21.1***	***84.5***	***0.0***	***62.8***	
Total live births	**27,798**	**443**	**474**	**710**	**54**	**30,093**	**3**
Male live births	**14,407**	**233**	**251**	**379**	**32**	**15,631**	

Vermont

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	14	1	15	
	5.6	***2.0***	***5.0***	
Trisomy 13	0	0	0	
	0.0	***0.0***	***0.0***	
Trisomy 18	3	3	6	
	1.2	***5.9***	***2.0***	
Trisomy 21 (Down syndrome)	19	13	32	
	7.6	***25.8***	***10.6***	
Total live births	**25,044**	**5,045**	**30,093**	**3**

Notes
1. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
2. Data for this condition include only small intestinal atresia.
3. Total live births includes unknown gender.

General comments
*Totals include unknown and/or other.
-Data for conditions include live births and fetal deaths.
-Fetal deaths are defined as 20 week gestation and greater or a birth weight of more than 400 grams.

Virginia

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Anencephalus	12	5	3	2	0	24	
	0.4	***0.5***	***0.5***	***0.8***	***0.0***	***0.5***	
Anophthalmia/microphthalmia	15	9	3	1	1	34	
	0.5	***0.8***	***0.5***	***0.4***	***11.9***	***0.7***	
Anotia/microtia	29	6	10	5	0	52	
	1.0	***0.6***	***1.6***	***2.0***	***0.0***	***1.0***	
Aortic valve stenosis	29	10	4	1	1	49	
	1.0	***0.9***	***0.6***	***0.4***	***11.9***	***1.0***	
Atrial septal defect	2,756	1,447	987	319	13	5,927	
	96.1	***135.6***	***159.5***	***126.8***	***154.4***	***116.5***	
Atrioventricular septal defect (Endocardial cushion defect)	123	63	21	3	4	230	
	4.3	***5.9***	***3.4***	***1.2***	***47.5***	***4.5***	
Biliary atresia	24	15	6	5	0	50	
	0.8	***1.4***	***1.0***	***2.0***	***0.0***	***1.0***	
Bladder exstrophy	6	1	0	0	0	8	
	0.2	***0.1***	***0.0***	***0.0***	***0.0***	***0.2***	
Choanal atresia	32	14	4	3	0	58	
	1.1	***1.3***	***0.6***	***1.2***	***0.0***	***1.1***	
Cleft lip alone	83	20	15	11	0	134	
	2.9	***1.9***	***2.4***	***4.4***	***0.0***	***2.6***	
Cleft lip with cleft palate	189	36	39	22	0	305	
	6.6	***3.4***	***6.3***	***8.7***	***0.0***	***6.0***	
Cleft palate alone	231	46	33	14	1	339	
	8.1	***4.3***	***5.3***	***5.6***	***11.9***	***6.7***	
Cloacal exstrophy	121	65	30	13	1	249	
	4.2	***6.1***	***4.8***	***5.2***	***11.9***	***4.9***	
Clubfoot	305	123	65	14	2	546	
	10.6	***11.5***	***10.5***	***5.6***	***23.8***	***10.7***	
Coarctation of the aorta	164	70	34	13	1	298	
	5.7	***6.6***	***5.5***	***5.2***	***11.9***	***5.9***	
Common truncus (truncus arteriosus)	21	7	3	1	0	35	
	0.7	***0.7***	***0.5***	***0.4***	***0.0***	***0.7***	
Congenital cataract	24	16	3	1	0	46	
	0.8	***1.5***	***0.5***	***0.4***	***0.0***	***0.9***	
Congenital posterior urethral valves	21	19	6	1	0	53	1
	1.4	***3.5***	***1.9***	***0.8***	***0.0***	***2.0***	
Craniosynostosis	35	8	4	1	0	49	
	1.2	***0.7***	***0.6***	***0.4***	***0.0***	***1.0***	
Deletion 22q11.2	9	3	3	1	0	18	
	0.3	***0.3***	***0.5***	***0.4***	***0.0***	***0.4***	
Diaphragmatic hernia	67	30	15	4	0	129	
	2.3	***2.8***	***2.4***	***1.6***	***0.0***	***2.5***	
Double outlet right ventricle	50	28	11	8	1	103	
	1.7	***2.6***	***1.8***	***3.2***	***11.9***	***2.0***	
Ebstein anomaly	23	6	4	2	0	36	
	0.8	***0.6***	***0.6***	***0.8***	***0.0***	***0.7***	
Encephalocele	14	8	4	0	0	26	
	0.5	***0.7***	***0.6***	***0.0***	***0.0***	***0.5***	
Esophageal atresia/tracheoesophageal fistula	58	23	16	3	0	104	
	2.0	***2.2***	***2.6***	***1.2***	***0.0***	***2.0***	
Gastroschisis	96	27	25	6	2	167	
	3.3	***2.5***	***4.0***	***2.4***	***23.8***	***3.3***	
Holoprosencephaly	114	69	24	9	2	225	
	4.0	***6.5***	***3.9***	***3.6***	***23.8***	***4.4***	
Hypoplastic left heart syndrome	59	33	12	10	2	119	
	2.1	***3.1***	***1.9***	***4.0***	***23.8***	***2.3***	
Hypospadias	901	343	109	49	5	1,494	1
	61.3	***63.3***	***34.4***	***37.8***	***118.8***	***57.4***	
Interrupted aortic arch	23	15	4	0	2	45	
	0.8	***1.4***	***0.6***	***0.0***	***23.8***	***0.9***	

Virginia

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Limb deficiencies (reduction defects)	102	36	11	7	0	169	
	3.6	***3.4***	***1.8***	***2.8***	***0.0***	***3.3***	
Omphalocele	45	23	6	6	0	82	
	1.6	***2.2***	***1.0***	***2.4***	***0.0***	***1.6***	
Pulmonary valve atresia and stenosis	173	103	47	17	1	368	
	6.0	***9.7***	***7.6***	***6.8***	***11.9***	***7.2***	
Pulmonary valve atresia	2	1	3	0	0	6	
	0.1	***0.1***	***0.5***	***0.0***	***0.0***	***0.1***	
Rectal and large intestinal atresia/stenosis	94	49	25	12	0	196	
	3.3	***4.6***	***4.0***	***4.8***	***0.0***	***3.9***	
Renal agenesis/hypoplasia	130	40	28	6	0	218	
	4.5	***3.7***	***4.5***	***2.4***	***0.0***	***4.3***	
Single ventricle	35	18	8	2	0	68	
	1.2	***1.7***	***1.3***	***0.8***	***0.0***	***1.3***	
Small intestinal atresia/stenosis	107	44	22	8	0	201	
	3.7	***4.1***	***3.6***	***3.2***	***0.0***	***4.0***	
Spina bifida without anencephalus	72	45	26	7	0	165	
	2.5	***4.2***	***4.2***	***2.8***	***0.0***	***3.2***	
Tetralogy of Fallot	134	77	19	14	2	264	
	4.7	***7.2***	***3.1***	***5.6***	***23.8***	***5.2***	
Total anomalous pulmonary venous connection	16	10	12	4	1	47	
	0.6	***0.9***	***1.9***	***1.6***	***11.9***	***0.9***	
Transposition of the great arteries (TGA)	55	22	7	4	1	92	
	1.9	***2.1***	***1.1***	***1.6***	***11.9***	***1.8***	
Dextro-transposition of great arteries (d-TGA)	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Tricuspid valve atresia and stenosis	37	15	9	4	0	68	
	1.3	***1.4***	***1.5***	***1.6***	***0.0***	***1.3***	
Tricuspid valve atresia	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Trisomy 13	16	11	6	2	1	37	
	0.6	***1.0***	***1.0***	***0.8***	***11.9***	***0.7***	
Trisomy 18	38	20	6	2	0	76	
	1.3	***1.9***	***1.0***	***0.8***	***0.0***	***1.5***	
Trisomy 21 (Down syndrome)	317	124	103	29	1	613	
	11.1	***11.6***	***16.6***	***11.5***	***11.9***	***12.0***	
Turner syndrome	22	7	7	2	0	40	2
	1.6	***1.3***	***2.3***	***1.6***	***0.0***	***1.6***	
Ventricular septal defect	1,206	539	314	109	6	2,323	
	42.1	***50.5***	***50.7***	***43.3***	***71.3***	***45.7***	
Total live births	**286,647**	**106,729**	**61,878**	**25,160**	**842**	**508,831**	
Male live births	**147,009**	**54,169**	**31,715**	**12,954**	**421**	**260,333**	
Female live births	**139,630**	**52,556**	**30,159**	**12,203**	**421**	**248,498**	

Virginia

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	161	4	167	
	3.8	***0.4***	***3.3***	
Trisomy 13	20	17	37	
	0.5	***1.9***	***0.7***	
Trisomy 18	43	31	76	
	1.0	***3.4***	***1.5***	
Trisomy 21 (Down syndrome)	309	295	613	
	7.4	***32.7***	***12.0***	
Total live births	**418,678**	**90,153**	**508,831**	

Notes
1. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
2. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.

General comments
*Totals include unknown and/or other.

Washington

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Anencephalus	61	7	17	9	1	99	
	2.3	***3.7***	***2.1***	***2.0***	***1.5***	***2.3***	
Cleft palate alone	167	10	47	30	8	296	
	6.2	***5.3***	***5.9***	***6.7***	***12.1***	***6.7***	
Gastroschisis	110	9	39	9	8	196	
	4.1	***4.8***	***4.9***	***2.0***	***12.1***	***4.5***	
Hypospadias	870	63	109	105	17	1,261	1
	62.4	***40.4***	***27.0***	***45.4***	***49.2***	***54.4***	
Limb deficiencies (reduction defects)	97	12	25	10	1	167	
	3.6	***6.4***	***3.2***	***2.2***	***1.5***	***3.8***	
Omphalocele	57	3	14	8	2	87	
	2.1	***1.6***	***1.8***	***1.8***	***3.0***	***2.0***	
Spina bifida without anencephalus	96	5	19	5	2	142	2
	3.5	***2.7***	***2.4***	***1.1***	***3.0***	***3.2***	
Trisomy 21 (Down syndrome)	333	30	130	72	7	652	
	12.3	***15.9***	***16.4***	***16.0***	***10.6***	***14.8***	
Total live births	**271,101**	**18,836**	**79,272**	**44,972**	**6,607**	**439,788**	
Male live births	**139,522**	**15,578**	**40,419**	**23,147**	**3,453**	**231,986**	

Washington

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	172	7	196	
	4.7	***1.0***	***4.5***	
Trisomy 21 (Down syndrome)	278	299	652	
	7.6	***40.6***	***14.8***	
Total live births	**364,448**	**73,579**	**439,788**	

Notes

1. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
2. Data for this condition include meningomylocele/spina bifida.

General comments

*Totals include unknown and/or other.
-Data for conditions includes those with age less than or equal to 1 year.
-Data for condtions excludes cases from birth certificate only.
-Denominators are from the birth file.

West Virginia

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total*	Notes
Anencephalus	31	0	0	0	0	31	
	3.7	***0.0***	***0.0***	***0.0***	***0.0***	***3.4***	
Anophthalmia/microphthalmia	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Anotia/microtia	1	0	0	0	0	1	
	0.1	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Aortic valve stenosis	8	0	0	0	0	8	
	1.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.9***	
Atrial septal defect	1,222	48	7	3	0	1,306	
	145.8	***135.2***	***54.1***	***34.9***	***0.0***	***144.1***	
Atrioventricular septal defect (Endocardial cushion defect)	23	1	0	0	0	24	
	2.7	***2.8***	***0.0***	***0.0***	***0.0***	***2.6***	
Biliary atresia	8	1	0	0	0	9	
	1.0	***2.8***	***0.0***	***0.0***	***0.0***	***1.0***	
Bladder exstrophy	1	0	0	0	0	1	
	0.1	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Choanal atresia	11	1	0	0	0	13	
	1.3	***2.8***	***0.0***	***0.0***	***0.0***	***1.4***	
Cleft lip alone	5	0	0	0	0	5	
	0.6	***0.0***	***0.0***	***0.0***	***0.0***	***0.6***	
Cleft lip with cleft palate	42	0	0	0	0	42	
	5.0	***0.0***	***0.0***	***0.0***	***0.0***	***4.6***	
Cleft palate alone	55	0	0	0	0	55	
	6.6	***0.0***	***0.0***	***0.0***	***0.0***	***6.1***	
Cloacal exstrophy	23	2	0	1	0	28	
	2.7	***5.6***	***0.0***	***11.6***	***0.0***	***3.1***	
Clubfoot	130	3	0	0	0	133	
	15.5	***10.1***	***0.0***	***0.0***	***0.0***	***14.7***	
Coarctation of the aorta	38	1	0	0	0	41	
	4.5	***2.8***	***0.0***	***0.0***	***0.0***	***4.5***	
Common truncus (truncus arteriosus)	51	2	0	1	0	54	
	6.1	***5.6***	***0.0***	***11.6***	***0.0***	***6.0***	
Congenital cataract	6	0	0	0	0	6	
	0.7	***0.0***	***0.0***	***0.0***	***0.0***	***0.7***	
Congenital posterior urethral valves	5	0	0	1	0	6	1
	1.2	***0.0***	***0.0***	***21.3***	***0.0***	***1.3***	
Craniosynostosis	159	7	0	0	0	168	
	19.0	***19.7***	***0.0***	***0.0***	***0.0***	***18.5***	
Deletion 22q11.2	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Diaphragmatic hernia	23	1	0	0	0	24	
	2.7	***2.8***	***0.0***	***0.0***	***0.0***	***2.6***	
Double outlet right ventricle	17	0	0	0	0	19	
	2.0	***0.0***	***0.0***	***0.0***	***0.0***	***2.1***	
Ebstein anomaly	11	0	0	0	0	11	
	1.3	***0.0***	***0.0***	***0.0***	***0.0***	***1.2***	
Encephalocele	3	0	0	0	0	3	
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Esophageal atresia/tracheoesophageal fistula	13	0	0	0	0	15	
	1.6	***0.0***	***0.0***	***0.0***	***0.0***	***1.7***	
Gastroschisis	12	0	0	0	0	12	2
	2.4	***0.0***	***0.0***	***0.0***	***0.0***	***2.2***	
Holoprosencephaly	36	0	0	0	0	37	
	4.3	***0.0***	***0.0***	***0.0***	***0.0***	***4.1***	
Hypoplastic left heart syndrome	20	0	0	0	0	20	
	2.4	***0.0***	***0.0***	***0.0***	***0.0***	***2.2***	
Hypospadias	227	5	1	0	0	235	1
	53.0	***27.1***	***14.2***	***0.0***	***0.0***	***50.7***	
Interrupted aortic arch	5	0	0	0	0	5	
	0.6	***0.0***	***0.0***	***0.0***	***0.0***	***0.6***	

West Virginia

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Limb deficiencies (reduction defects)	15	1	0	0	0	17	
	1.8	***2.8***	***0.0***	***0.0***	***0.0***	***1.9***	
Omphalocele	8	0	0	0	0	8	2
	1.6	***0.0***	***0.0***	***0.0***	***0.0***	***1.5***	
Pulmonary valve atresia and stenosis	54	1	0	0	0	56	
	6.4	***2.8***	***0.0***	***0.0***	***0.0***	***6.2***	
Pulmonary valve atresia	13	1	0	0	0	14	
	1.6	***2.8***	***0.0***	***0.0***	***0.0***	***1.5***	
Rectal and large intestinal atresia/stenosis	22	1	1	0	0	24	
	2.6	***2.8***	***7.7***	***0.0***	***0.0***	***2.6***	
Renal agenesis/hypoplasia	31	1	0	0	0	33	
	3.7	***2.8***	***0.0***	***0.0***	***0.0***	***3.6***	
Single ventricle	8	0	0	0	0	8	
	1.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.9***	
Small intestinal atresia/stenosis	31	0	0	0	0	31	
	3.7	***0.0***	***0.0***	***0.0***	***0.0***	***3.4***	
Spina bifida without anencephalus	17	0	0	1	0	19	
	2.0	***0.0***	***0.0***	***11.6***	***0.0***	***2.1***	
Tetralogy of Fallot	38	1	1	0	0	40	
	4.5	***2.8***	***7.7***	***0.0***	***0.0***	***4.4***	
Total anomalous pulmonary venous connection	9	0	0	0	0	9	
	1.1	***0.0***	***0.0***	***0.0***	***0.0***	***1.0***	
Transposition of the great arteries (TGA)	24	0	0	0	0	26	
	2.9	***0.0***	***0.0***	***0.0***	***0.0***	***2.9***	
Dextro-transposition of great arteries (d-TGA)	21	0	0	0	0	23	
	2.5	***0.0***	***0.0***	***0.0***	***0.0***	***2.5***	
Tricuspid valve atresia and stenosis	5	0	0	0	0	6	
	0.6	***0.0***	***0.0***	***0.0***	***0.0***	***0.7***	
Tricuspid valve atresia	5	0	0	0	0	6	
	0.6	***0.0***	***0.0***	***0.0***	***0.0***	***0.7***	
Trisomy 13	4	0	0	0	0	4	
	0.5	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	
Trisomy 18	14	0	0	0	0	15	
	1.7	***0.0***	***0.0***	***0.0***	***0.0***	***1.7***	
Trisomy 21 (Down syndrome)	56	2	1	0	0	62	
	6.7	***5.6***	***7.7***	***0.0***	***0.0***	***6.8***	
Turner syndrome	2	0	0	0	0	2	3
	0.5	***0.0***	***0.0***	***0.0***	***0.0***	***0.5***	
Ventricular septal defect	306	10	0	3	0	326	
	36.5	***28.2***	***0.0***	***34.9***	***0.0***	***36.0***	
Total live births	**83,799**	**3,551**	**1,293**	**859**	**118**	**90,622**	
Male live births	**42,827**	**1,844**	**702**	**470**	**63**	**46,369**	
Female live births	**40,972**	**1,707**	**591**	**389**	**55**	**44,253**	

West Virginia

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	11	1	12	2
	2.3	***1.8***	***2.2***	
Trisomy 13	3	1	4	
	0.4	***1.1***	***0.4***	
Trisomy 18	9	6	15	
	1.1	***6.6***	***1.7***	
Trisomy 21 (Down syndrome)	41	21	62	
	5.0	***23.2***	***6.8***	
Total live births	**81,545**	**9,067**	**90,622**	

Notes

1. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
2. Data for this condition begin in 2013.
3. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.

General comments

*Totals include unknown and/or other.
-Data for conditions include probable cases.

Wisconsin

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total*	Notes
Anencephalus	9	3	1	1	0	14	
	0.4	***1.0***	***0.3***	***0.7***	***0.0***	***0.4***	
Anophthalmia/microphthalmia	7	1	1	0	0	9	
	0.3	***0.3***	***0.3***	***0.0***	***0.0***	***0.3***	
Anotia/microtia	13	1	6	1	2	24	
	0.6	***0.3***	***1.9***	***0.7***	***5.7***	***0.8***	
Aortic valve stenosis	15	2	1	1	2	21	
	0.7	***0.6***	***0.3***	***0.7***	***5.7***	***0.7***	
Atrial septal defect	1,197	162	149	73	35	1,649	
	52.9	***51.9***	***47.2***	***49.5***	***99.0***	***52.4***	
Atrioventricular septal defect (Endocardial cushion defect)	41	8	7	5	0	63	
	1.8	***2.6***	***2.2***	***3.4***	***0.0***	***2.0***	
Biliary atresia	1	1	1	0	0	3	
	0.1	***0.8***	***0.8***	***0.0***	***0.0***	***0.2***	
Bladder exstrophy	5	0	1	0	0	7	
	0.2	***0.0***	***0.3***	***0.0***	***0.0***	***0.2***	
Choanal atresia	20	3	6	1	1	32	
	0.9	***1.0***	***1.9***	***0.7***	***2.8***	***1.0***	
Cleft lip alone	72	6	7	5	2	93	
	3.2	***1.9***	***2.2***	***3.4***	***5.7***	***3.0***	
Cleft lip with cleft palate	47	11	9	1	2	70	
	2.1	***3.5***	***2.9***	***0.7***	***5.7***	***2.2***	
Cleft palate alone	113	7	13	11	5	156	
	5.0	***2.2***	***4.1***	***7.5***	***14.1***	***5.0***	
Cloacal exstrophy	92	11	15	8	1	129	
	4.1	***3.5***	***4.8***	***5.4***	***2.8***	***4.1***	
Clubfoot	375	47	45	11	5	496	
	16.6	***15.1***	***14.3***	***7.5***	***14.1***	***15.8***	
Coarctation of the aorta	85	10	9	3	3	111	
	3.8	***3.2***	***2.9***	***2.0***	***8.5***	***3.5***	
Common truncus (truncus arteriosus)	7	1	1	0	1	10	
	0.3	***0.3***	***0.3***	***0.0***	***2.8***	***0.3***	
Congenital cataract	15	2	4	0	1	22	
	0.7	***0.6***	***1.3***	***0.0***	***2.8***	***0.7***	
Congenital posterior urethral valves	20	5	1	1	1	28	1
	1.7	***3.1***	***0.6***	***1.3***	***5.5***	***1.7***	
Deletion 22q11.2	5	0	0	0	0	5	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Diaphragmatic hernia	55	4	3	2	2	66	
	2.4	***1.3***	***1.0***	***1.4***	***5.7***	***2.1***	
Double outlet right ventricle	23	4	1	0	0	29	
	1.0	***1.3***	***0.3***	***0.0***	***0.0***	***0.9***	
Ebstein anomaly	14	0	0	0	0	15	
	0.6	***0.0***	***0.0***	***0.0***	***0.0***	***0.5***	
Encephalocele	10	3	3	2	0	21	
	0.4	***1.0***	***1.0***	***1.4***	***0.0***	***0.7***	
Esophageal atresia/tracheoesophageal fistula	53	7	3	4	0	69	
	2.3	***2.2***	***1.0***	***2.7***	***0.0***	***2.2***	
Gastroschisis	94	9	20	5	3	137	
	4.2	***2.9***	***6.3***	***3.4***	***8.5***	***4.4***	
Holoprosencephaly	58	13	8	6	1	91	
	2.6	***4.2***	***2.5***	***4.1***	***2.8***	***2.9***	
Hypoplastic left heart syndrome	37	5	4	2	3	51	
	1.6	***1.6***	***1.3***	***1.4***	***8.5***	***1.6***	
Hypospadias	884	89	66	27	7	1,097	1
	76.3	***55.9***	***41.1***	***35.2***	***38.3***	***68.1***	
Interrupted aortic arch	6	2	0	2	1	11	
	0.3	***0.8***	***0.0***	***1.7***	***3.5***	***0.4***	
Limb deficiencies (reduction defects)	69	8	8	5	1	93	
	3.1	***2.6***	***2.5***	***3.4***	***2.8***	***3.0***	

Wisconsin

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Omphalocele	39	5	3	2	0	49	
	1.7	***1.6***	***1.0***	***1.4***	***0.0***	***1.6***	
Pulmonary valve atresia and stenosis	100	12	12	4	4	135	
	4.4	***3.8***	***3.8***	***2.7***	***11.3***	***4.3***	
Pulmonary valve atresia	10	0	1	1	0	12	
	0.4	***0.0***	***0.3***	***0.7***	***0.0***	***0.4***	
Rectal and large intestinal atresia/stenosis	72	7	9	12	2	106	
	3.2	***2.2***	***2.9***	***8.1***	***5.7***	***3.4***	
Renal agenesis/hypoplasia	131	15	7	7	0	162	
	5.8	***4.8***	***2.2***	***4.7***	***0.0***	***5.1***	
Single ventricle	1	0	1	0	1	3	
	0.1	***0.0***	***0.5***	***0.0***	***4.6***	***0.2***	
Small intestinal atresia/stenosis	65	7	10	4	1	87	
	2.9	***2.2***	***3.2***	***2.7***	***2.8***	***2.8***	
Spina bifida without anencephalus	56	8	12	2	1	79	
	2.5	***2.6***	***3.8***	***1.4***	***2.8***	***2.5***	
Tetralogy of Fallot	56	9	9	3	0	80	
	2.5	***2.9***	***2.9***	***2.0***	***0.0***	***2.5***	
Total anomalous pulmonary venous connection	7	0	2	1	3	13	
	0.4	***0.0***	***0.8***	***0.8***	***10.5***	***0.5***	
Transposition of the great arteries (TGA)	60	8	5	3	0	81	
	2.7	***2.6***	***1.6***	***2.0***	***0.0***	***2.6***	
Dextro-transposition of great arteries (d-TGA)	32	4	4	2	0	46	
	1.4	***1.3***	***1.3***	***1.4***	***0.0***	***1.5***	
Tricuspid valve atresia and stenosis	14	1	2	0	0	17	
	0.8	***0.4***	***0.8***	***0.0***	***0.0***	***0.7***	
Tricuspid valve atresia	14	1	2	0	0	17	
	0.8	***0.4***	***0.8***	***0.0***	***0.0***	***0.7***	
Trisomy 13	16	2	4	1	0	24	
	0.7	***0.6***	***1.3***	***0.7***	***0.0***	***0.8***	
Trisomy 18	35	5	5	3	0	51	
	1.5	***1.6***	***1.6***	***2.0***	***0.0***	***1.6***	
Trisomy 21 (Down syndrome)	248	27	43	19	2	342	
	11.0	***8.7***	***13.6***	***12.9***	***5.7***	***10.9***	
Turner syndrome	15	0	5	2	0	22	2
	1.7	***0.0***	***4.0***	***3.5***	***0.0***	***1.8***	
Ventricular septal defect	590	76	118	37	14	847	
	26.1	***24.4***	***37.4***	***25.1***	***39.6***	***26.9***	
Total live births	**226,229**	**31,189**	**31,562**	**14,747**	**3,537**	**314,632**	**3**
Male live births	**115,816**	**15,920**	**16,050**	**7,678**	**1,830**	**161,138**	
Female live births	**88,285**	**12,278**	**12,479**	**5,648**	**1,348**	**122,863**	

Wisconsin

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	136	1	137	
	5.0	***0.2***	***4.4***	
Trisomy 13	12	12	24	
	0.4	***2.8***	***0.8***	
Trisomy 18	25	26	51	
	0.9	***6.2***	***1.6***	
Trisomy 21 (Down syndrome)	178	164	342	
	6.5	***38.9***	***10.9***	
Total live births	**272,498**	**42,133**	**314,632**	**3**

Notes

1. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
2. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
3. Total live births includes unknown gender.

General comments

*Totals include unknown and/or other.

Department of Defense

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total*	Notes
Anencephalus	26	1	4	1	2	34	
	0.7	***0.1***	***0.5***	***0.3***	***2.0***	***0.6***	
Anophthalmia/microphthalmia	52	21	12	7	1	94	
	1.3	***2.6***	***1.6***	***2.4***	***1.0***	***1.6***	
Anotia/microtia	97	10	32	14	3	158	
	2.4	***1.2***	***4.4***	***4.8***	***3.0***	***2.6***	
Aortic valve stenosis	129	21	13	3	4	173	
	3.2	***2.6***	***1.8***	***1.0***	***4.0***	***2.9***	
Atrial septal defect	4,747	1,035	873	277	87	7,171	1
	119.1	***129.1***	***120.0***	***95.9***	***87.3***	***118.5***	
Atrioventricular septal defect (Endocardial cushion defect)	228	60	36	13	3	345	2
	5.7	***7.5***	***4.9***	***4.5***	***3.0***	***5.7***	
Biliary atresia	43	23	9	4	1	81	
	1.1	***2.9***	***1.2***	***1.4***	***1.0***	***1.3***	
Bladder exstrophy	25	3	0	0	0	29	
	0.6	***0.4***	***0.0***	***0.0***	***0.0***	***0.5***	
Choanal atresia	103	19	21	6	4	157	
	2.6	***2.4***	***2.9***	***2.1***	***4.0***	***2.6***	
Cleft lip alone	278	31	32	24	5	376	
	7.0	***3.9***	***4.4***	***8.3***	***5.0***	***6.2***	
Cleft lip with cleft palate	309	37	52	31	9	446	
	7.8	***4.6***	***7.1***	***10.7***	***9.0***	***7.4***	
Cleft palate alone	465	57	80	34	11	658	
	11.7	***7.1***	***11.0***	***11.8***	***11.0***	***10.9***	
Cloacal exstrophy	322	72	52	16	5	479	
	8.1	***9.0***	***7.1***	***5.5***	***5.0***	***7.9***	
Clubfoot	875	166	137	48	13	1,264	
	22.0	***20.7***	***18.8***	***16.6***	***13.0***	***20.9***	
Coarctation of the aorta	454	80	52	18	13	631	
	11.4	***10.0***	***7.1***	***6.2***	***13.0***	***10.4***	
Common truncus (truncus arteriosus)	97	12	12	5	1	131	
	2.4	***1.5***	***1.6***	***1.7***	***1.0***	***2.2***	
Congenital cataract	128	41	27	8	4	216	
	3.2	***5.1***	***3.7***	***2.8***	***4.0***	***3.6***	
Congenital posterior urethral valves	78	18	7	4	2	113	3
	3.8	***4.4***	***1.9***	***2.7***	***3.9***	***3.6***	
Craniosynostosis	141	22	21	4	2	195	
	3.5	***2.7***	***2.9***	***1.4***	***2.0***	***3.2***	
Deletion 22q11.2	52	10	5	1	2	70	
	1.3	***1.2***	***0.7***	***0.3***	***2.0***	***1.2***	
Diaphragmatic hernia	184	48	37	14	5	296	
	4.6	***6.0***	***5.1***	***4.8***	***5.0***	***4.9***	
Double outlet right ventricle	138	36	19	8	1	206	
	3.5	***4.5***	***2.6***	***2.8***	***1.0***	***3.4***	
Ebstein anomaly	63	10	8	5	2	90	
	1.6	***1.2***	***1.1***	***1.7***	***2.0***	***1.5***	
Encephalocele	53	8	9	1	1	73	
	1.3	***1.0***	***1.2***	***0.3***	***1.0***	***1.2***	
Esophageal atresia/tracheoesophageal fistula	119	20	17	6	2	166	
	3.0	***2.5***	***2.3***	***2.1***	***2.0***	***2.7***	
Gastroschisis	227	32	57	15	8	346	
	5.7	***4.0***	***7.8***	***5.2***	***8.0***	***5.7***	
Holoprosencephaly	269	47	32	13	8	383	
	6.8	***5.9***	***4.4***	***4.5***	***8.0***	***6.3***	
Hypoplastic left heart syndrome	178	40	14	9	2	247	
	4.5	***5.0***	***1.9***	***3.1***	***2.0***	***4.1***	
Hypospadias	2,444	469	304	140	58	3,484	3
	119.0	***114.6***	***81.5***	***94.0***	***113.4***	***111.9***	
Interrupted aortic arch	102	21	15	7	3	149	
	2.6	***2.6***	***2.1***	***2.4***	***3.0***	***2.5***	

Department of Defense

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total***	**Notes**
Limb deficiencies (reduction defects)	212	43	40	9	4	315	
	5.3	***5.4***	***5.5***	***3.1***	***4.0***	***5.2***	
Omphalocele	82	23	8	4	0	121	
	2.1	***2.9***	***1.1***	***1.4***	***0.0***	***2.0***	
Pulmonary valve atresia and stenosis	548	163	120	39	15	907	
	13.8	***20.3***	***16.5***	***13.5***	***15.1***	***15.0***	
Pulmonary valve atresia	35	13	9	4	0	62	
	0.9	***1.6***	***1.2***	***1.4***	***0.0***	***1.0***	
Rectal and large intestinal atresia/stenosis	241	39	43	22	4	354	
	6.0	***4.9***	***5.9***	***7.6***	***4.0***	***5.9***	
Renal agenesis/hypoplasia	281	60	43	20	3	412	
	7.1	***7.5***	***5.9***	***6.9***	***3.0***	***6.8***	
Single ventricle	118	30	15	8	1	175	
	3.0	***3.7***	***2.1***	***2.8***	***1.0***	***2.9***	
Small intestinal atresia/stenosis	212	54	29	14	5	320	
	5.3	***6.7***	***4.0***	***4.8***	***5.0***	***5.3***	
Spina bifida without anencephalus	194	22	35	7	4	268	
	4.9	***2.7***	***4.8***	***2.4***	***4.0***	***4.4***	
Tetralogy of Fallot	269	49	42	29	5	401	
	6.8	***6.1***	***5.8***	***10.0***	***5.0***	***6.6***	
Total anomalous pulmonary venous connection	47	9	14	4	2	79	
	1.2	***1.1***	***1.9***	***1.4***	***2.0***	***1.3***	
Transposition of the great arteries (TGA)	169	25	19	10	1	227	
	4.2	***3.1***	***2.6***	***3.5***	***1.0***	***3.8***	
Dextro-transposition of great arteries (d-TGA)	153	23	19	10	1	209	
	3.8	***2.9***	***2.6***	***3.5***	***1.0***	***3.5***	
Tricuspid valve atresia and stenosis	66	18	12	3	0	101	4
	1.7	***2.2***	***1.6***	***1.0***	***0.0***	***1.7***	
Trisomy 13	38	13	8	4	0	64	
	1.0	***1.6***	***1.1***	***1.4***	***0.0***	***1.1***	
Trisomy 18	69	24	9	2	1	110	
	1.7	***3.0***	***1.2***	***0.7***	***1.0***	***1.8***	
Trisomy 21 (Down syndrome)	587	113	91	32	14	851	
	14.7	***14.1***	***12.5***	***11.1***	***14.0***	***14.1***	
Turner syndrome	43	7	11	6	2	70	5
	2.2	***1.8***	***3.1***	***4.3***	***4.1***	***2.4***	
Ventricular septal defect	2,888	532	482	162	60	4,210	6
	72.5	***66.4***	***66.3***	***56.1***	***60.2***	***69.6***	
Total live births	**398,464**	**80,169**	**72,729**	**28,877**	**9,965**	**605,057**	
Male live births	**205,419**	**40,930**	**37,316**	**14,895**	**5,115**	**311,319**	
Female live births	**193,045**	**39,239**	**35,413**	**13,982**	**4,850**	**293,738**	

Department of Defense

Birth Defects Counts and Prevalence 2011 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	305	6	346	
	5.8	***1.0***	***5.7***	
Trisomy 13	38	25	64	
	0.7	***4.2***	***1.1***	
Trisomy 18	67	38	110	
	1.3	***6.4***	***1.8***	
Trisomy 21 (Down syndrome)	519	297	851	
	9.9	***50.0***	***14.1***	
Total live births	**524,466**	**59,364**	**605,057**	

Notes

1. Data for this condition include patent foramen ovale.
2. Data for this condition include inlet ventricular septal defect.
3. Data for this condition include male and unknown gender cases only. Prevalence is calculated per 10,000 male live births.
4. Data for this condition include cases with tricuspid stenosis or hypoplasia.
5. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
6. Data for this condition include inlet ventricular septal defect and probable ventricular septal defect.

General comments

*Totals include unknown and/or other.
-Criteria for a case: One diagnosis from institutional records, or 2 diagnoses from professional encounter records.
-Data for conditions exclude infants that appear as multiples of same gender are excluded from analysis.
-Data for conditions include live births only.
-Race/ethnicity for the Department of Defense Birth and Infant Health Registry is based on the military parent through whom the infant receives military health care benefits. This may be the infant's mother or father.

STATE BIRTH DEFECTS SURVEILLANCE

PROGRAM DIRECTORY

Updated September 2018

Prepared by the National Center on Birth Defects and Developmental Disabilities, Centers for Disease Control and Prevention

Acknowledgement: State birth defects program directors provided the information for the directory. Their names can be found under the 'contact' section of each state profile.

Alabama

Alabama Zika Birth Defects Surveillance Program (AZBDSP)

Purpose: Surveillance, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Advocacy Groups, Universities, Early Childhood Prevention Programs, Centers for Disease Control and Prevention, Bureau of Communicable Disease
Program status: Currently collecting data
Start year: 2016
Earliest year of available data: 2016
Organizational location: Department of Health (Maternal and Child Health)
Population covered annually: 60,000
Statewide: Yes
Current legislation or rule: The Notifiable Disease Administrative Code, Chapter 420-4-1, establishes the authority for Zika virus surveillance to include Zika related birth defect surveillance. A new rule is in the process of being established to provide authority to create an Alabama Birth Defects Registry.

Case Definition

Outcomes covered: Zika related birth defects
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (All gestational ages)
Age: Up to 24 months of age for infants that meet eligibility criteria
Residence: State residents

Surveillance Methods

Case ascertainment: Passive case-finding with case confirmation
Vital records: Reported by Communicable Disease
Other sources: Calls from health care providers

Case Ascertainment

Conditions warranting chart review in newborn period: Infants born to mother's at risk for Zika virus transmission that are approved for Zika testing, and infants born with Zika related birth defects that are reported to the program.

Data Collected

Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Pregnancy/delivery complications, Family history

Data Collection Methods and Storage

Database collection and storage: Access, National Electronic Disease Surveillance System

Data Analysis

Data analysis software: SAS
Quality assurance: Validity checks, Comparison/verification between multiple data sources, Timeliness
Data use and analysis: Service delivery, Referral, Prevention projects

Funding

Funding source: 100% CDC grant

Contacts

Rachael Montgomery, BSN, RN
Alabama Department of Public Health
201 Monroe Street
Montgomery, Alabama 36104
Phone: **334-206-5955** ***Fax:*** **334-206-3791**
Email: **rachael.montgomery@adph.state.al.us**

Janice Smiley, MSN
Alabama Department of Public Health
201 Monroe Street
Montgomery, Alabama 36104
Phone: 334-206-2928 *Fax:* 334-206-2983
Email: janice.smiley@adph.state.al.us

Alaska

Alaska Birth Defects Registry (ABDR)

Purpose: Surveillance, Research
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Community Nursing Services, Early Childhood Prevention Programs, Legislators
Program status: Currently collecting data
Start year: 1996
Earliest year of available data: 1996
Organizational location: Department of Health (Epidemiology/Environment, Maternal and Child Health)
Population covered annually: 11,000
Statewide: Yes
Current legislation or rule: 7 AAC 27.012
Legislation year enacted: 1996

Case Definition
Outcomes covered: Selected major birth defects based on ICD-10-CM code list
Pregnancy outcome: Livebirths (All gestational ages and birth weights)
Age: Birth to sixth birthday
Residence: In and out of state births to Alaska residents

Surveillance Methods
Case ascertainment: Passive case-finding with limited case confirmation
Vital records: Birth certificates
Other state based registries: Programs for children with special needs, Newborn hearing screening program, Newborn metabolic screening program, Genetics clinics, specialty clinics (heart, cleft lip/palate, neurodevelopmental), Maternal Child Death Review (MCDR), public health nursing, Alaska Dept. of Behavioral Health (AKAIMS)
Delivery hospitals: Reports are generated by the health information management departments, within hospitals and health care facilities, for any child encountered with a reportable ICD-10 code.
Pediatric & tertiary care hospitals: Reports are generated by the health information management departments, within hospitals and health care facilities, for any child encountered with a reportable ICD-10 code.
Third party payers: Medicaid databases, Indian health services
Other specialty facilities: Genetic counseling/clinic genetic facilities
Other sources: Physician reports, Alaska Health Information Exchange, AK AIMS (Alaska Dept. of Behavioral Health)

Case Ascertainment
Conditions warranting chart review in newborn period: All Codes included in the current NBDPN list of birth defects listing (see: http://www.nbdpn.org/docs/Appendix_3_1_BirthDefectsDescriptions2015.pdf) are sampled for review. Other collected conditions/codes will are sampled and reviewed based upon incoming requests and/or need. The current report is based only on reported ICD codes. for adjusted estimates please visit http://www.dhss.alaska.gov/dph/wcfh/Pages/mchepi/abdr/Data_Reports.aspx for condition specific reports
Coding: ICD-10-CM

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage
Data collection: Printed abstract/report filled out by staff, Printed abstract/report submitted by other agencies (hospitals, etc.), Electronic file/report filled out by staff at facility (laptop, web-based, etc.), Electronic file/report submitted by other agencies (hospitals, etc.)
Database collection and storage: Access

Data Analysis
Data analysis software: R
Quality assurance: Validity checks, Re-abstraction of cases, Double-checking of assigned codes, Comparison/verification between multiple data sources, Timeliness
Data use and analysis: Routine statistical monitoring, Rates by demographic and other variables, Time trends, Needs assessment, Grant proposals, Education/public awareness

System Integration
System links: Link case finding data to final birth file
System integration: No.

Funding
Funding source: 20% General state funds, 80% MCH funds

Other
Web site:
http://www.dhss.alaska.gov/dph/wcfh/Pages/mchepi/abdr/default.aspx
Surveillance reports on file:
http://www.dhss.alaska.gov/dph/wcfh/Pages/mchepi/abdr/Data_Reports.aspx
Additional information on file:
1)http://www.dhss.alaska.gov/dph/wcfh/Documents/mchepi/abdr/Prevalence_Estimates/SurveillanceNotes_v1.pdf
2)http://www.dhss.alaska.gov/dph/wcfh/Documents/mchepi/abdr/Prevalence_Estimates/DataCollectionMethods_v1.pdf

Contacts
Alaska Birth Defects Registry
Alaska Dept. of Health and Social Services
MCH-Epidemiology
Phone: **907-269-8097**
Email: **hssbirthdefreg@alaska.gov**

Arizona

Arizona Birth Defects Monitoring Program (ABDMP)

Purpose: Surveillance, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Community Nursing Services
Program status: Currently collecting data
Start year: 1986
Earliest year of available data: 1986
Organizational location: Department of Health (Public Health Statistics)
Population covered annually: 87,000
Statewide: Yes
Current legislation or rule: Legislation enacted 1988; Rule effective 1991 Statute: 36-133; Rule: Arizona Administrative Code R9-4-Article 5
Legislation year enacted: 1988

Case Definition
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (Any gestational age or weight if a fetal death certificate was issued), Elective terminations (If fetal death certificate was issued and medical records are available)
Age: Up to one year after delivery. If the nature of a defect diagnosed in the first year of life is more precisely diagnosed later in the child's life, and this information is contained in the chart at the time of our review, then the more precise diagnosis and information is used.
Residence: Arizona birth to an Arizona resident mother

Surveillance Methods
Case ascertainment: Active Case Finding
Vital records: Birth certificates, Fetal birth certificate, Hospital Discharge Database
Delivery hospitals: Disease index or discharge index
Pediatric & tertiary care hospitals: Disease index or discharge index
Other specialty facilities: Prenatal diagnostic facilities (ultrasound, etc.), Genetic counseling/clinical genetic facilities
Other sources: Midwifery Facilities, Physician reports

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any chart with a selected list of ICD-9-CM codes outside 740-759/ICD-10-CM codes outside Q00-Q99, Any birth certificate with a birth defect box checked, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), All stillborn infants, All prenatal diagnosed or suspected cases
Conditions warranting chart review beyond the newborn period: Any infant with a codable defect
Coding: CDC coding system based on BPA

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal diagnostic information, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage
Data collection: Printed abstract/report filled out by staff
Database collection and storage: Access, Oracle

Data Analysis
Data analysis software: SAS, Access
Quality assurance: Validity checks, Re-abstraction of cases, Double-checking of assigned codes, Comparison/verification between multiple data sources, Clinical review, Timeliness
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Time-space cluster analyses, Observed vs. expected analyses, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Needs assessment, Service delivery, Referral, Grant proposals, Education/public awareness, Prevention projects

System Integration
System links: Link to other state registries/databases, Link case finding data to final birth file, We have provided data to environmental programs for their pages and databases

Funding
Funding source: 3% General state funds, 9% MCH funds, 44% CDC grant, 44.44% Other (CDC Zika grant)

Other
Web site: http://azdhs.gov/phs/phstats/bdr/index.htm and azhealth.gov/birth-defects
Surveillance reports on file: Annual Reports;
Additional information on file: Arizona Data/Fact Sheets; Resources
Other comments: To contact the ABDMP email abdmp@azdhs.gov

Contacts
Dianna Contreras
Arizona Department of Health Services
150 North 18th Avenue, Suite 550
Phoenix, AZ 85007
Phone: **602-542-7335** ***Fax:*** **602-542-7447**
Email: **dianna.contreras@azdhs.gov**

Timothy J. Flood, MD
Arizona Department of Health Services
150 North 18th Avenue, Suite 550
Phoenix, AZ 85007
Phone: 602-542-7331 *Fax:* 602-542-7447
Email: floodt@azdhs.gov

Arkansas

Arkansas Reproductive Health Monitoring System (ARHMS)

Purpose: Surveillance, Research
Partner: Local Health Departments, Hospitals, Advocacy Groups, Universities, Legislators
Program status: Currently collecting data
Start year: 1980
Earliest year of available data: 1980
Organizational location: Arkansas Children's Hospital
Population covered annually: 40,000
Statewide: Yes
Current legislation or rule: Acts 1985, No. 214
Legislation year enacted: 1985

Case Definition
Outcomes covered: Major congenital malformations, 740.000-759.990, plus select others outside this range
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (All gestational ages), Elective terminations (All gestational ages)
Age: Birth to second birthday
Residence: In and out of state births to Arkansas residents

Surveillance Methods
Case ascertainment: Active Case Finding
Vital records: Birth certificates
Delivery hospitals: Disease index or discharge index, Obstetrics logs (i.e., labor & delivery), ICU/NICU logs or charts, Surgery logs, Cardiac catheterization laboratories, Specialty outpatient clinics, Reports are generated by the health information management departments, within hospitals and health care facilities, for any child encountered with a reportable ICD-9 code.
Pediatric & tertiary care hospitals: Disease index or discharge index, ICU/NICU logs or charts, Cardiac catheterization laboratories, Specialty outpatient clinics, Reports are generated by the health information management departments, within hospitals and health care facilities, for any child encountered with a reportable ICD-9 code.
Other specialty facilities: Prenatal diagnostic facilities (ultrasound, etc.), Genetic counseling/clinical genetic facilities
Other sources: Physician reports

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any chart with a selected list of ICD-9-CM codes outside 740-759/ICD-10-CM codes outside Q00-Q99, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), All prenatal diagnosed or suspected cases
Conditions warranting chart review beyond the newborn period: Any infant with a codable defect
Coding: CDC coding system based on BPA, ICD-9-CM/ICD-10-CM

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Prenatal diagnostic information
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Family history

Data Collection Methods and Storage
Data collection: Electronic file/report filled out by staff at facility (laptop, web-based, etc.)
Database collection and storage: Access

Data Analysis
Data analysis software: SAS, Access, STATA
Quality assurance: Validity checks, Double-checking of assigned codes, Comparison/verification between multiple data sources, Timeliness
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Needs assessment, Grant proposals, Education/public awareness, Prevention projects

System Integration
System links: Link to other state registries/databases, Link case finding data to final birth file
System integration: No.

Funding
Funding source: 100% General state funds

Other
Web site: http://arbirthdefectsresearch.uams.edu/
Surveillance reports on file: Online data query system available through the Arkansas Department of Health:http://www.healthy.arkansas.gov/programsServices/healthStatistics/Pages/Statistics.aspx

Contacts
Elizabeth Sellars, MD
ARHMS, Section of Birth Defect Research, AR Children's Research Institute
13 Children's Way, Slot 512-22
Little Rock, AR 72202
Phone: **501-364-2966** ***Fax:*** **501-364-1564**
Email: **EASellars@uams.edu**

Xiaoyi (Joy) Shan, Ph.D
ARHMS, AR Children's Research Institute
13 Children's Way, Slot 512-40
Little Rock, AR 72202
Phone: 501-364-5034 *Fax:* 501-364-5107
Email: xshan@uams.edu

California

California Birth Defects Monitoring Program (CBDMP)

Purpose: Surveillance, Research
Partner: Local Health Departments, Hospitals, Universities
Program status: Currently collecting data
Start year: 1983
Earliest year of available data: 1983
Organizational location: Department of Health (Genetic Disease Screening Program, Center for Family Health), 70,000
Statewide: No, CBDMP currently monitors a sampling of California births that are demographically similar to the state as a whole and whose birth defects rates and trends have been reflective of those throughout California. Furthermore, CBDMP has statutory authority to conduct active surveillance anywhere in the state when warranted by environmental incidents or concerns.
Current legislation or rule: California Health and Safety Code, Division 102, Part 2, Chapter 1, Sections 103825-103855, effective 1982, recodified 1996
Legislation year enacted: 1982

Case Definition
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (All gestational ages), Elective terminations (All gestational ages)
Age: One year
Residence: In-state births to residents of counties monitored by CBDMP

Surveillance Methods
Case ascertainment: Active Case Finding
Delivery hospitals: Disease index or discharge index, Discharge summaries, Obstetrics logs (i.e., labor & delivery), Regular nursery logs, ICU/NICU logs or charts, Pediatric logs, Postmortem/pathology logs, Surgery logs, Cardiac catheterization laboratories, Specialty outpatient clinics
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries, ICU/NICU logs or charts, Pediatric logs, Postmortem/pathology logs, Surgery logs, Laboratory logs, Cardiac catheterization laboratories
Other specialty facilities: Cytogenetic laboratories, Genetic counseling/clinical genetic facilities

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any chart with a selected list of ICD-9-CM codes outside 740-759/ICD-10-CM codes outside Q00-Q99, Any chart with selected procedure codes, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), All stillborn infants, All elective abortions, All neonatal deaths, All prenatal diagnosed or suspected cases
Conditions warranting chart review beyond the newborn period: Facial dysmorphism or abnormal facies, Failure to thrive, CNS condition (e.g. seizure), GI condition (e.g. intestinal blockage), GU condition (e.g. recurrent infections), Cardiovascular condition, All infant deaths (excluding prematurity), Ocular conditions, Any infant with a codable defect
Coding: CDC BPA codes but modified for use in California

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Family history

Data Collection Methods and Storage
Data collection: Electronic file/report filled out by staff at facility (laptop, web-based, etc.)
Database collection and storage: SQL server

Data Analysis
Data analysis software: SAS
Quality assurance: Validity checks, Re-abstraction of cases, Double-checking of assigned codes, Comparison/verification between multiple data sources, Clinical review, Validity checks are done on all abstracts
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Capture-recapture analyses, Observed vs. expected analyses, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Needs assessment, Grant proposals, Education/public awareness

System Integration
System links: Link case finding data to final birth file, Hospital discharge. CBDMP links case finding data to final vital statistics fetal death files

Funding
Funding source: 100% Other (CBDMP Special Fund)

Other
Web site:
https://www.cdph.ca.gov/Programs/CFH/DGDS/Pages/cbdmp/default.aspx
Surveillance reports on file: Birth defect fact sheets and California regional birth defect data available on the website.
Additional information on file: Please send inquiries to gdspcbdmp@cdph.ca.gov

Contacts
Valorie Eckert, MPH
California Birth Defects Monitoring Program/Genetic Disease Screening ProgramCalifornia Department of Public Health
1615 Capitol Avenue
Sacramento, CA 95814
Phone: **916-341-6674** ***Fax:*** **916-341-6499**
Email: **Valorie.Eckert@cdph.ca.gov**

Barbara Warmerdam
California Birth Defects Monitoring Program/Genetic Disease Screening ProgramCalifornia Department of Public Health
1615 Capitol Avenue
Sacramento, CA 95814
Phone: 916-341-6677 *Fax:* 916-341-6499
Email: Barbara.Warmerdam@cdph.ca.gov

Centers for Disease Control and Prevention (Metropolitan Atlanta Congenital Defects Program)

Metropolitan Atlanta Congenital Defects Program (MACDP)

Purpose: Surveillance, Research
Partner: Local Health Departments, Hospitals, Advocacy Groups, Universities, Laboratories, Prenatal Diagnostic Providers
Program status: Currently collecting data
Start year: 1967
Earliest year of available data: 1968
Organizational location: CDC, National Center on Birth Defects and Developmental Disabilities
Population covered annually: 35000
Statewide: No, Births to mothers residing within one of three central counties in the metropolitan Atlanta area of the state of Georgia

Case Definition
Outcomes covered: All major structural and genetic birth defects
Pregnancy outcome: Livebirths (>=20 weeks), Fetal deaths - stillbirths, spontaneous abortions, etc. (20 weeks gestation and greater), Elective terminations (All gestational ages)
Age: Before 6 years of age
Residence: Births to mothers residing in one of three central metropolitan Atlanta counties

Surveillance Methods
Case ascertainment: Active Case Finding
Vital records: Birth certificates
Delivery hospitals: Disease index or discharge index, Discharge summaries, Obstetrics logs (i.e., labor & delivery), ICU/NICU logs or charts, Pediatric logs, Postmortem/pathology logs, Induction logs and miscarriage logs
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries, Specialty outpatient clinics
Other specialty facilities: Prenatal diagnostic facilities (ultrasound, etc.), Cytogenetic laboratories, Genetic counseling/clinical genetic facilities

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any chart with a selected list of ICD-9-CM codes outside 740-759/ICD-10-CM codes outside Q00-Q99, Any birth certificate with a birth defect box checked, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), Infants with low birth weight or low gestation (Birth weight < 2500 grams and/or 20-36 weeks gestation), All stillborn infants, All elective abortions, All neonatal deaths, All infants in NICU or special care nursery, All infants with low APGAR scores, All prenatal diagnosed or suspected cases
Conditions warranting chart review beyond the newborn period: Facial dysmorphism or abnormal facies, Failure to thrive, CNS condition (e.g. seizure), GI condition (e.g. intestinal blockage), Cardiovascular condition, All infant deaths (excluding prematurity), Any infant with a codable defect
Coding: CDC coding system based on BPA

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Family history

Data Collection Methods and Storage
Data collection: Printed abstract/report filled out by staff, Electronic file/report filled out by staff at facility (laptop, web-based, etc.)
Database collection and storage: Access, SQL Server, SAS

Data Analysis
Data analysis software: SPSS, SAS, Access
Quality assurance: Validity checks, Double-checking of assigned codes, Comparison/verification between multiple data sources, Clinical review, Timeliness
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Time-space cluster analyses, Observed vs. expected analyses, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Education/public awareness, Prevention projects, Survival analysis

System Integration
System links: Link case finding data to final birth file, National Death Index; Death and Fetal Death Records; Laboratory Records

Funding
Funding source: 100% Other (Intramural CDC funding)

Other
Web site: http://www.cdc.gov/ncbddd/bd/macdp.htm
Surveillance reports on file: MACDP 40th Anniversary Surveillance Report
Additional information on file: CDC/BPA Defect Code; Including prenatal diagnoses in BD monitoring
Other comments: The 40th Anniversary Surveillance Report was published:Correa A, Cragan JD, Kucik JE, et al. Reporting birth defects surveillance data 1968-2003. Birth Defects Research Part A. 2007;79(2):65-186.

Contacts
Janet D. Cragan, MD, MPH
Centers for Disease Control and Prevention
1600 Clifton Rd., MS E-86
Atlanta, GA 30333
Phone: **404-498-3807** ***Fax:*** **770-488-3263**
Email: **JCragan@cdc.gov**

Colorado

Colorado Responds to Children with Special Needs Section (CRCSN)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Community Nursing Services, Early Childhood Prevention Programs, Legislators
Program status: Currently collecting data
Start year: 1988
Earliest year of available data: 1989
Organizational location: Department of Health (Vital Statistics, Center for Health and Environmental Data (CHED))
Population covered annually: 64,386(2017)
Statewide: Yes
Current legislation or rule: Colorado Revised Statutes (CRS) 25-1.5-101.25-1.5-105
Legislation year enacted: 1985

Case Definition
Outcomes covered: Structural birth defects, fetal alcohol syndrome,selected genetic and metabolic disorders; muscular dystrophy;selected developmental disabilities; very low birth weight (less than 1500 grams);others with medical risk factors for developmental delay.
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (All gestational ages, Less than 20 weeks gestation, 20 weeks gestation and greater)
Age: Up to the 5th birthday (up to 10th birthday for fetal alcohol syndrome)
Residence: Events occurring in-state- or out-of-state Colorado residents

Surveillance Methods
Case ascertainment: Passive case-finding with case confirmation
Vital records: Birth certificates, Death certificates, Fetal birth certificate
Other state based registries: Newborn hearing screening program, Newborn metabolic screening program
Delivery hospitals: Disease index or discharge index, Specialty outpatient clinics
Pediatric & tertiary care hospitals: Disease index or discharge index, Specialty outpatient clinics
Third party payers: Medicaid databases
Other specialty facilities: Cytogenetic laboratories
Other sources: Physician reports

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), Selected chart reviews for prenatal to age 3 (28 conditions), minimal active case ascertainment data sources
Coding: ICD-10-CM, Program specific 'extended' code for added detail: 9CM and 10CM

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.)
Mother: Identification information (name, address, date-of-birth, etc.), Gravidity/parity, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage
Data collection: Printed abstract/report submitted by other agencies (hospitals, etc.), Electronic file/report filled out by staff at facility (laptop, web-based, etc.), Electronic file/report submitted by other agencies (hospitals, etc.), 99% of data are collected in electronic format
Database collection and storage: SQL-web based

Data Analysis
Data analysis software: Epi-Info, SAS, Access, Arcview (GIS software) ; Maptitude, SaTScan, Centrus
Quality assurance: Re-abstraction of cases, Comparison/verification between multiple data sources, Timeliness, Records linkage and de-duplication
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Time-space cluster analyses, Observed vs. expected analyses, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Needs assessment, Referral, Grant proposals, Education/public awareness, Prevention projects, Environmental Studies

System Integration
System links: Link to other state registries/databases, Link case finding data to final birth file, Link to environmental databases

Funding
Funding source: 26% General state funds, 31% Service fees, 43% CDC grant

Other
Web site: http://www.cdphe.state.co.us

Contacts
Margaret Frances Ruttenber, MSPH
Colorado Respond to Children with Special Need Section
4300 Cherry Creek Drive, South
Denver, Colorado 80246-1530
Phone: **303-692-2636** ***Fax:*** **303-691-7930**
Email: **margaret.ruttenber@state.co.us**

Carol Stanton, MBA
Colorado Respond to Children with Special Need Section
4300 Cherry Creek Drive, South
Denver, Colorado 80246-1530
Phone: 303-692-2621 *Fax:* 303-691-7930
Email: carol.stanton@state.co.us

Connecticut

Connecticut Birth Defects Registry (CT BDR)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services, Reporting for MCH Block Grant
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Early Childhood Prevention Programs, Legislators
Program status: Currently collecting data
Start year: 2002
Earliest year of available data: 2000
Organizational location: Department of Health (Maternal and Child Health)
Population covered annually: 37,000
Statewide: Yes
Current legislation or rule: Section 19a-53 (Formerly Sec. 19-21) of the general statutes was replaced (Effective October 1, 2017)
Legislation year enacted: 2017

Case Definition

Outcomes covered: All major structural birth defects; biochemical, genetic and hearing impairment through linkage with Newborn Screening System; any condition which places a child at risk for needing specialized medical care (i.e., complications of prematurity, cancer, trauma, etc.) ICD-9 codes 740 thru 759.9 and 760.71 (prior to ICD10 implementation still in the system although can no longer be selected). ICD10 codes include the entire Q series as well as some recommended by CDC in the provided crosswalk. Also Zika associated birth defects including those in ICD10 H series are included.
Pregnancy outcome: Livebirths (All gestational ages and birth weights, PDA = to 2500 gms birth weight)
Age: Up to one year after delivery for birth defects, but reported up to age 5
Residence: All in-state births are reported but reporting is done on in-state births to state residents

Surveillance Methods

Case ascertainment: Passive case-finding without case confirmation, All Zika associated birth defects as identified by the USBDS are currently rapid ascertainment (within 12 hours of being entered) and referred to the CT DPH Infectious Disease program for follow-up to see if a Zika association is connected.
Vital records: Birth certificates, Death certificates, Matched birth/death file, Fetal birth certificate, inpatient hospitalizations and emergency room visits
Other state based registries: Programs for children with special needs, Newborn hearing screening program, Newborn metabolic screening program, Developmental Disabilities Surveillance
Delivery hospitals: Disease index or discharge index, Discharge summaries, Reports from health care professionals in newborn nurseries and NICUs
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries, Reports from health care professionals in pediatric inpatient and outpatient services planned for future
Other sources: Midwifery Facilities, Physician reports, Mandatory reporting by health care providers and facilities; CYSHCN Programs; Newborn Screening System (for genetic disorders and hearing impairment).

Case Ascertainment

Conditions warranting chart review in newborn period: Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease)
Coding: ICD-10-CM

Data Collected

Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Illnesses/conditions

Data Collection Methods and Storage

Data collection: Printed abstract/report filled out by staff, Printed abstract/report submitted by other agencies (hospitals, etc.), Electronic file/report filled out by staff at facility (laptop, web-based, etc.), Electronic file/report submitted by other agencies (hospitals, etc.)
Database collection and storage: Access, Mainframe, Web based database

Data Analysis

Data analysis software: SAS, Access, Arc GIS
Quality assurance: Validity checks, Comparison/verification between multiple data sources, Timeliness
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Time-space cluster analyses, Observed vs. expected analyses, Epidemiologic studies (using only program data), Needs assessment, Referral, Grant proposals, Education/public awareness, Prevention projects, Provider education

System Integration

System links: Link to other state registries/databases, Link case finding data to final birth file
System integration: We are integrated with the newborn metabolic and early hearing and detection intervention program. Vital Records imports into the Maven Newborn Screening System (NSS). This database also links with the Lead program and the Children and Youth with Special Health Care Needs program.

Funding

Funding source: 80% General state funds, 20% MCH funds

Other

Web site: http://www.ct.gov/dph/birthdefectsregistry
Surveillance reports on file: NBDPN annual reports, state profiles

Contacts

Karin C Davis, BS Public Health
Connecticut Department of Public Health
410 Capitol Avenue, MS #11MAT
Hartford, CT 6134
Phone: **(860) 509-7499** ***Fax:*** **(860) 509-7720**
Email: **karin.davis@ct.gov**

Delaware

Delaware Birth Defects Registry (DBDR)

Purpose: Surveillance
Partner: Local Health Departments, Hospitals, Early Childhood Prevention Programs, Birthing Centers, Newborn Screening, Delaware Healthy Mothers and Infants Consortium
Program status: Currently collecting data
Start year: 2010
Earliest year of available data: 2007
Organizational location: Department of Health (Maternal and Child Health)
Population covered annually: 12,000
Statewide: Yes
Current legislation or rule: House Bill No. 197, an act to amend Title 16 of the Delaware Code relating to Birth Defects
Legislation year enacted: 1997

Case Definition

Outcomes covered: Selected major birth defects, selected metabolic defects, genetic diseases, and infant morality.
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (20 week gestation and greater or greater than 350 grams.), Elective terminations (20 week gestation and greater or greater than 350 grams.)
Age: Birth to 1 year
Residence: In-state births to state resident

Surveillance Methods

Case ascertainment: Active Case Finding
Vital records: Birth certificates, Death certificates, Matched birth/death file
Other state based registries: Programs for children with special needs, Newborn hearing screening program, Newborn screening program, Cancer registry, AIDS/HIV registry
Delivery hospitals: Disease index or discharge index, Discharge summaries, Obstetrics logs (i.e., labor & delivery), ICU/NICU logs or charts, Pediatric logs, Postmortem/pathology logs, Surgery logs, High risk pregnancy logs
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries, ICU/NICU logs or charts, Postmortem/pathology logs, Surgery logs, Specialty outpatient clinics
Other specialty facilities: Prenatal diagnostic facilities (ultrasound, etc.), Genetic counseling/clinical genetic facilities
Other sources: Midwifery Facilities

Case Ascertainment

Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any chart with a selected list of ICD-9-CM codes outside 740-759/ICD-10-CM codes outside Q00-Q99, Any birth certificate with a birth defect box checked, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), All stillborn infants, All neonatal deaths, All prenatal diagnosed or suspected cases
Conditions warranting chart review beyond the newborn period: Facial dysmorphism or abnormal facies, CNS condition (e.g. seizure), GI condition (e.g. intestinal blockage), GU condition (e.g. recurrent infections), Cardiovascular condition, All infant deaths (excluding prematurity), Ocular conditions, Any infant with a codable defect
Coding: CDC coding system based on BPA, ICD-9-CM/ICD-10-CM

Data Collected

Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage

Data collection: Printed abstract/report submitted by other agencies (hospitals, etc.), Electronic file/report filled out by staff at facility (laptop, web-based, etc.), Electronic file/report submitted by other agencies (hospitals, etc.)
Database collection and storage: Redcap

Data Analysis

Data analysis software: SAS
Quality assurance: Validity checks, Re-abstraction of cases, Double-checking of assigned codes, Comparison/verification between multiple data sources, Clinical review
Data use and analysis: Routine statistical monitoring, Baseline rates, Rates by demographic and other variables, Time trends, Observed vs. expected analyses, Epidemiologic studies (using only program data)

System Integration

System links: Link to Newborn Bloodspot and Hearing Screening.

Funding

Funding source: 40% General state funds, 60% MCH funds

Other

Web site: http://dhss.delaware.gov/dhss/dph/chca/dphbdr1.html
Surveillance reports on file: Analysis of the 2007 Delaware Birth Defects Registry: http://dhss.delaware.gov/dhss/dph/chca/files/birthdefectsregistryreport2007.pdf

Contacts

Dana R Thompson, MPH
Christiana Care Health System
4735 Ogletown Stanton Road
Newark, DE 19718
Phone: **302-733-5032** ***Fax:*** **302-733-5044**
Email: **Dana.Thompson@ChristianaCare.org**

District of Columbia

DC Birth Defects Surveillance System (DC BDSS)

Purpose: Surveillance, Referral to Services
Partner: Hospitals, Help Me Grow
Program status: Currently collecting data
Start year: 2017
Earliest year of available data: 2015
Organizational location: Department of Health (Center for Policy, Planning, and Evaluation)
Population covered annually: 9300
Statewide: Yes
Current legislation or rule: TBD

Case Definition
Outcomes covered: Any birth defect will be collected with focus on major birth defects
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (20 weeks gestation and greater)
Age: 2 years
Residence: In-state resident at birth or time of report

Surveillance Methods
Case ascertainment: Passive case-finding without case confirmation
Vital records: Birth certificates, Death certificates, Fetal birth certificate
Other state based registries: Newborn hearing screening program, Newborn metabolic screening program
Delivery hospitals: Disease index or discharge index
Pediatric & tertiary care hospitals: Disease index or discharge index
Other sources: Physician reports

Case Ascertainment
Coding: ICD-10-CM

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage
Data collection: Electronic file/report filled out by staff at facility (laptop, web-based, etc.), Electronic file/report submitted by other agencies (hospitals, etc.)
Database collection and storage: REDCap

Data Analysis
Data analysis software: SAS
Quality assurance: Validity checks, Comparison/verification between multiple data sources
Data use and analysis: Routine statistical monitoring, Baseline rates, Observed vs. expected analyses, Education/public awareness

System Integration
System links: Link case finding data to final birth file

Contacts
Sarah Warner, MPH
DC Health, Center for Policy, Planning, and Evaluation
899 North Capitol Street, NE 6th Floor
Washington, DC 20002
Phone: **202-442-5843** ***Fax:*** **202-442-8060**
Email: **sarah.warner@dc.gov**

Preetha Iyengar, MD
DC Health, Center for Policy, Planning, and Evaluation
899 North Capitol Street, NE 6th Floor
Washington, DC 20002
Phone: 202-442-8141 *Fax:* 202-442-8060
Email: preetha.iyengar@dc.gov

Florida

Florida Birth Defects Registry (FBDR)

Purpose: Surveillance, Research, Educate health care professionals, women of childbearing age and general public about birth defects.
Partner: Local Health Departments, Hospitals, Advocacy Groups, Universities, Early Childhood Prevention Programs, Legislators, Federal and state agencies
Program status: Currently collecting data
Start year: 1998
Earliest year of available data: 1998
Organizational location: Department of Health (Epidemiology/Environment), University
Population covered annually: 224,273 in 2015
Statewide: Yes
Current legislation or rule: Section 381.0031(1,2) F.S., allows for development of a list of reportable conditions. Birth defects were added to the list in July 1999.
Legislation year enacted: 1999

Case Definition
Outcomes covered: Major structural malformations and genetic disorders
Pregnancy outcome: Livebirths (20 week gestation and greater)
Age: Until age 1
Residence: Florida

Surveillance Methods
Case ascertainment: Passive case-finding with case confirmation, FL has one CDC funded cooperative agreement which use active case ascertainment which is linked to the passive surveillance program.
Vital records: Birth certificates, Death certificates, Matched birth/death file
Other state based registries: Programs for children with special needs
Delivery hospitals: Disease index or discharge index
Pediatric & tertiary care hospitals: Disease index or discharge index

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease)
Coding: ICD-10-CM

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage
Data collection: Electronic file/report submitted by other agencies (hospitals, etc.)
Database collection and storage: Access, Dedicated server for birth defects data

Data Analysis
Data analysis software: SAS, SQL, dBASE
Quality assurance: Validity checks, Re-abstraction of cases, Comparison/verification between multiple data sources, Timeliness
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Time-space cluster analyses, Capture-recapture analyses, Observed vs. expected analyses, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Grant proposals, Education/public awareness, Prevention projects

System Integration
System links: Link to other state registries/databases, Link case finding data to final birth file, Link to environmental databases, Maternal linked file.
System integration: The department has created a maternally linked file beginning with 1998. The birth defects data has been included in this linked file.Birth defects data are displayed on the department's Environmental Public Health Tracking Program site (www.floridatracking.com) and the Florida Community Health Assessment Resource Tool Set (www.flhealthcharts.com)

Funding
Funding source: 75% General state funds, 25% CDC grant

Other
Web site: www.fbdr.org
Surveillance reports on file: Publications, procedure manauals, electronic case ascertaintment dababase and educational materials
Other comments: CDC/NCBDDD Cooperative Agreement for enhanced surveillance of selected birth defects, referral for services and prevention activities.

Contacts
Heather R. Lake-Burger, MS/MPH
Florida Department of Health
4052 Bald Cypress Way, Bin A24
Tallahassee, FL 32399-1712
Phone: **850-245-4444, ext. 2828** ***Fax:*** **850-245-8250**
Email: **Heather.Lake-Burger@flhealth.gov**

Melissa Murray-Jordan, MPH
Florida Department of Health
4052 Bald Cypress Way, Bin A24
Tallahassee, FL 32399-1712
Phone: 850-245-4577 *Fax:* 850-245-8250
Email: Melissa.Jordan@flhealth.goMelissa.Jordan@flhealth.gov

Georgia

Georgia Birth Defects Registry (GBDR)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Early Childhood Prevention Programs, Legislators
Program status: Program has not started collecting data
Start year: 2017
Organizational location: Department of Health (Epidemiology/Environment)
Population covered annually: 129,940 live births in 2016.
Statewide: Yes
Current legislation or rule: Birth defects are reportable under State Laws Official Code of Georgia Annotated (OCGA) 31-12-2 and 31-1-3.2, which mandate the reporting of notifiable diseases and newborn hearing screening, and Chapters 290-5-24 of the Rules of Department of Human Resources, which regulate the reporting of notifiable diseases and metabolic disorders.
Legislation year enacted: Updated in 2003.

Case Definition

Outcomes covered: NBDPN core and recommended birth defects; Zika-associated birth defects per CDC guidelines, June 2017.
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (20 weeks gestation and greater), Elective terminations (20 weeks gestation and greater)
Age: Up to six years of age, per Georgia law.
Residence: In- and out-of-state births to state residents.

Surveillance Methods

Case ascertainment: Passive case-finding without case confirmation
Vital records: Birth certificates, Death certificates, Fetal death certificates
Other state based registries: Newborn hearing screening program, Newborn metabolic screening program, Zika Active Monitoring System, GBDRIS
Delivery hospitals: Hospital Discharge Data from Georgia hospitals.
Pediatric & tertiary care hospitals: Hospital Discharge Data from Georgia hospitals.
Other sources: Metropolitan Atlanta Congenital Defects Program (MACDP)

Case Ascertainment

Conditions warranting chart review in newborn period: Zika-associated birth defects
Coding: ICD-10-CM

Data Collected

Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage

Data collection: Printed abstract/report submitted by other agencies (hospitals, etc.), Electronic file/report submitted by other agencies (hospitals, etc.), Cases can be called/faxed in directly, identified through passive reporting of line lists from select birthing hospitals to our web-based reporting platform, or identified through flags on electronic birth certificates.
Database collection and storage: Oracle

Data Analysis

Data analysis software: SAS, Microsoft Excel 2013.
Quality assurance: Validity checks, Double-checking of assigned codes, Comparison/verification between multiple data sources, Timeliness, As a part of Zika birth defects surveillance, we confirm all electronic birth certificates and passive line list cases through medical record review and abstraction. We will automate the quality assurance processes once the web-based birth defects registry is active.
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Monitoring outbreaks and cluster investigations, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Service delivery, Referral, Grant proposals

System Integration

System links: Zika Active Monitoring System (lab and clinical data); Zika Pregnancy Registry (CDC initiative)
System integration: We are in the process of building a registry for our web-based reporting platform. This registry will have the capacity to identify and link cases from flagged electronic birth certificates, hospital line lists with reported birth defect cases, cases directly called in and manually entered into the registry, and those submitted by MACDP. Subsequently, we aim to match children identified with intervention referral services (e.g. Children's Medical Services, CMS).

Funding

Funding source: 100% CDC grant

Other

Web site: https://dph.georgia.gov/birth-defects
Additional information on file: In Georgia, active surveillance is performed by the Metropolitan Atlanta Congenital Defects Program (MACDP) and is presently the data source for the NBDPN Annual Report. MACDP performs medical record abstraction for all birth defect cases born to mothers who reside within Dekalb, Fulton, or Gwinett counties at the time of delivery. This catchment area constitutes roughly 27% of all live births in Georgia.
Other comments: The Georgia Department of Public Health (DPH) is working toward statewide reporting in 2018. We are constructing a web-based statewide birth defects registry that will capture and link MACDP cases, in addition to those reported directly to DPH, flagged on vital records (e.g. electronic birth certificates), or submitted through regular hospital reporting. A procedure manual for the Georgia Birth Defects Registry will be available upon completion of the development of the Registry. Providers interested in reporting birth defects should contact the Birth Defects Registry staff (birthdefects@dph.ga.gov) for more information.

Contacts

Jerusha E. Barton, MPH
Epidemiology Section, Georgia Department of Public Health
2 Peachtree St., NW, Suite 14-133
Atlanta, GA 30303
Phone: **404-463-0782** ***Fax:*** **404-463-1416**
Email: **jerusha.barton@dph.ga.gov**

J. Michael Bryan, PhD, MPH
Epidemiology Section, Georgia Department of Public Health
2 Peachtree St., NW, Suite 14-293
Atlanta, GA 30303
Phone: 404-657-2578 *Fax:* 404-463-1416
Email: michael.bryan@dph.ga.gov

Hawaii

Hawaii Birth Defects Program (HBDP)

Purpose: Surveillance, Referral to Services
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Early Childhood Prevention Programs, Iowa Registry for Congenital and Inherited Disorders
Program status: Currently collecting data
Start year: 1988
Earliest year of available data: 1986
Organizational location: Department of Health (Children with Special Health Needs Branch)
Population covered annually: 19,000
Statewide: Yes
Current legislation or rule: Hawaii Revised Statutes - sec. 321-421 through 426Hawaii Revised Statutes - sec. 324-41 through 44
Legislation year enacted: 2002

Case Definition
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (All gestational ages), Elective terminations (All gestational ages)
Age: Up to one year after delivery
Residence: All in-state births

Surveillance Methods
Case ascertainment: Active Case Finding
Delivery hospitals: Disease index or discharge index, Discharge summaries, Obstetrics logs (i.e., labor & delivery), Regular nursery logs, ICU/NICU logs or charts, Pediatric logs, Postmortem/pathology logs, Surgery logs, Specialty outpatient clinics
Other specialty facilities: Prenatal diagnostic facilities (ultrasound, etc.), Cytogenetic laboratories, Genetic counseling/clinical genetic facilities

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease)
Conditions warranting chart review beyond the newborn period: Facial dysmorphism or abnormal facies, CNS condition (e.g. seizure), GI condition (e.g. intestinal blockage), GU condition (e.g. recurrent infections), Cardiovascular condition, Ocular conditions, Auditory/hearing conditions, Any infant with a codable defect
Coding: CDC coding system based on BPA

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Family history

Data Collection Methods and Storage
Data collection: Electronic file/report filled out by staff at facility (laptop, web-based, etc.)
Database collection and storage: Access

Data Analysis
Data analysis software: SAS
Quality assurance: Validity checks, Double-checking of assigned codes, Clinical review
Data use and analysis: Epidemiologic studies (using only program data)

Funding
Funding source: 30% CDC grant, 70% Other (State of Hawaii Birth Defects Special Fund)

Other
Web site: http://health.hawaii.gov/genetics/programs/hbdhome/

Contacts
Jonathan B. Kimura, MSCP
Hawaii Birth Defects Program, Hawaii State Department of Health
741 Sunset Avenue
Honolulu, Hawaii 96816
Phone: **808-733-9065** ***Fax:*** **808-733-9068**
Email: **jonathan.kimura@doh.hawaii.gov**

Sylvia Mann, MS, CGC
Genomics Section, Hawaii State Department of Health
741 Sunset Avenue
Honolulu, Hawaii 96816
Phone: 808-733-9063 *Fax:* 808-733-9068
Email: sylvia@hawaiigenetics.org

Idaho

Program status: No surveillance program

Contacts

Pam Harder
Idaho Dept of Health & Welfare
450 West State Street
Boise, ID 83720
Phone: **208 334-6658** ***Fax:*** **208-334-4946**
Email: **pam.harder@dhw.idaho.gov**

Jacquie Watson
Childrens Special Health Program, Idaho Department of Health and Welfare
450 West State Street
Boise, ID 83720
Phone: 208-334-5963 *Fax:* 208-334-4946
Email: jacquie.watson@dhw.idaho.gov

Illinois

Adverse Pregnancy Outcomes Reporting System (APORS)

Purpose: Surveillance, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Community Nursing Services, Early Childhood Prevention Programs, Drug-testing laboratories; Departments of Human Services, Health and Family Services, Children and Family Services; Newborn Metabolic Screening Program, Specialized Care for Children
Program status: Currently collecting data
Start year: 1986
Earliest year of available data: 1989
Organizational location: Department of Health (Epidemiology/Environment)
Population covered annually: 155,000
Statewide: Yes
Current legislation or rule: Illinois Health and Hazardous Substances Registry Act (410 ILCS 525/)77 Illinois Administrative Code 840
Legislation year enacted: 1984; last amended 2008

Case Definition

Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (20 weeks gestation and greater, or the family chose to hold a funeral)
Age: Up to 2 years after delivery
Residence: In and out of state births to state residents

Surveillance Methods

Case ascertainment: Passive case-finding with case confirmation
Vital records: Birth certificates, Death certificates, Matched birth/death file, Fetal birth certificate
Other state based registries: Newborn hearing screening program, Newborn metabolic screening program, Hospital discharge data
Delivery hospitals: Discharge summaries, Reporting from all hospital nurseries
Pediatric & tertiary care hospitals: Discharge summaries, Reporting from all hospital nurseries

Case Ascertainment

Conditions warranting chart review in newborn period: Any birth certificate with a birth defect box checked, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), All prenatal diagnosed or suspected cases, APORS collects and refers cases of neonatal deaths, infants with gestational age less than 31 weeks, infants with prenatal drug exposure (excluding marijuana), serious congenital infections, endocrine, metabolic and immune disorders, hemoglobinopathies, coagulation defects, leukemia, intrauterine growth restriction, seizures, conditions leading to more than 72 hours on a ventilator, and selected other conditions. Only charts of infants identified with selected birth defects are reviewed.
Conditions warranting chart review beyond the newborn period: Any infant with a codable defect
Coding: CDC coding system based on BPA

Data Collected

Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Prenatal care
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage

Data collection: Printed abstract/report filled out by staff, Printed abstract/report submitted by other agencies (hospitals, etc.), Electronic file/report filled out by staff at facility (laptop, web-based, etc.), Electronic file/report submitted by other agencies (hospitals, etc.)
Database collection and storage: Access, Purpose-built system linked with Vital Record System

Data Analysis

Data analysis software: SAS, Access
Quality assurance: Validity checks, Re-abstraction of cases, Double-checking of assigned codes, Comparison/verification between multiple data sources, Data/hospital audits, Timeliness
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Time trends, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Needs assessment, Service delivery, Referral, Grant proposals, Education/public awareness

System Integration

System links: Link to other state registries/databases, Link case finding data to final birth file
System integration: Cases are collected in a database that is a module of the Vital Record reporting system. Cases may be initiated from the birth certificate, by hospital staff or by APORS staff. Local community health agencies have access to cases in their jurisdiction for provision of case-management services. APORS cases are also included in the Illinois Healthcare and Family Services Enterprise Data Warehouse where they are available to Illinois' Department of Human Services, Department of Children and Family Services, and Department of Healthcare and Family Services staffs.

Funding

Funding source: 52% General state funds, 42% CDC grant

Other

Web site: http://www.dph.illinois.gov/data-statistics/epidemiology/apors
Surveillance reports on file: Birth Defects and Other Adverse Pregnancy Outcomes in Illinois 2005-2009Trends in the Prevalence of Birth Defects in Illinois and Chicago 2002-2014
Additional information on file: QC reports, fact sheets

Contacts

Jane Fornoff, MA, MSC, DPhil
Illinois Department of Public Health
535 W Jefferson St, Fl 3
Springfield, IL 62761
Phone: **217-785-7133** ***Fax:*** **217-524-1770**
Email: **jane.fornoff@illinois.gov**

Teifu Shen, Shen
Illinois Department of Public Health
535 W Jefferson St, Fl 3
Springfield, IL 62761
Phone: 217-785-1873 *Fax:* 217-524-1770
Email: teifu.shen@illinois.gov

Indiana

Indiana Birth Defects & Problems Registry (IBDPR)

Purpose: Surveillance, Per statute research and referrals should be completed, however, due to limitations those processes are currently on hold.
Partner: Hospitals, Advocacy Groups, Legislators
Program status: Currently collecting data
Start year: 2002
Earliest year of available data: 2003 birth data is available in 2006
Organizational location: Department of Health (Maternal and Child Health)
Population covered annually: 85,000
Statewide: Yes
Current legislation or rule: IC 16-38-4-7Rule 410 IAC 21-3
Legislation year enacted: 2001

Case Definition

Outcomes covered: Major birth defects, genetic disease, fetal alcohol syndrome, neonatal abstinence syndrome, pervasive developmental disorders, metabolic disorders, hearing loss, congenital blood disorders, and certain eye disorders.
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (Less than 20 weeks gestation, 20 weeks gestation and greater, We only capture if mom had a past stillbirth or spontaneous abortion, not for the current child. For spontaneous abortions we quantify it as less than 20 weeks gestation and for stillbirth we quantify it as 20 weeks gestation or greater.)
Age: Up to 5 years (FAS); all individuals with Autism Spectrum Disorders; up to 3 years for all other birth defects
Residence: In- and out-of-state (as reported to IBDPR) births to state residents

Surveillance Methods

Case ascertainment: Passive case-finding with case confirmation, case confirmation for hospital discharge data; w/o case confirmation for direct physician reporting
Vital records: Birth certificates, Death certificates, Matched birth/death file
Other state based registries: Newborn hearing screening program, Newborn metabolic screening program, Developmental Disabilities Surveillance
Delivery hospitals: Discharge summaries
Pediatric & tertiary care hospitals: Discharge summaries
Other specialty facilities: Genetic counseling/clinic genetic facilities
Other sources: Midwifery Facilities, Physician reports

Case Ascertainment

Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any chart with a selected list of ICD-9-CM codes outside 740-759/ICD-10-CM codes outside Q00-Q99, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease)
Conditions warranting chart review beyond the newborn period: Any infant with a codable defect
Coding: ICD-10-CM

Data Collected

Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications, Family history

Data Collection Methods and Storage

Data collection: Electronic file/report filled out by staff at facility (laptop, web-based, etc.), Electronic file/report submitted by other agencies (hospitals, etc.)
Database collection and storage: Oracle

Data Analysis

Data analysis software: SAS, SQL
Quality assurance: Data/hospital audits
Data use and analysis: Due to systemic limitations and lack of confidence, birth defect data is not currently used for programmatic needs. Following a data system rebuild, we strive to perform biosurveillance and population health awareness activities, individual patient referrals to services, and drive programmatic decisions regarding perinatal health and infant mortality.

System Integration

System links: Link to other state registries/databases, Link case finding data to final birth file, The birth defects registry is linked to other program databases (see below). However, data sharing is limited to demographics.
System integration: The database is linked with birth, death, newborn hearing screening, newborn metabolic and pulse oximetry screening data.

Funding

Funding source: 20% Service fees, 80% CDC grant

Other

Web site: www.birthdefects.in.gov
Surveillance reports on file: Indiana's IBDPR Rule (410 IAC 21-3), Progress Report to the Indiana Legislature, and most recent statistics from IBDPR
Other comments: Our website is being updated

Contacts

Allison Forkner, MPH
Indiana State Department of Health
2 North Meridian Street, 2E
Indianapolis, IN 46204
Phone: **317-233-7848** ***Fax:*** **317-234-2995**
Email: **AForkner@isdh.in.gov**

Megan Griffie, PhD, MS
Indiana State Department of Health
2 North Meridian St, 2E
Indianapolis, IN 46204
Phone: 317-233-1231 *Fax:* 317-234-2995
Email: MGriffie@isdh.IN.gov

Iowa

Iowa Registry for Congenital and Inherited Disorders (IRCID)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services, Prevention education programs
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Legislators
Program status: Currently collecting data
Start year: 1983
Earliest year of available data: 1983
Organizational location: University
Population covered annually: 39,014 average live births per year (2011-2015)
Statewide: Yes
Current legislation or rule: Iowa Code 136A, Iowa Administrative Code 641-4.7
Legislation year enacted: 1986; Revised 2001, 2003, 2004, 2009, 2013

Case Definition
Outcomes covered: Major birth defects, muscular dystrophy, fetal deaths with and without birth defects, newborn screening disorders
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (All gestational ages), Elective terminations (All gestational ages)
Age: 2 years
Residence: Maternal residence in Iowa at time of delivery

Surveillance Methods
Case ascertainment: Active Case Finding
Vital records: Birth certificates, Death certificates, Fetal death certificates, Fetal Death Evaluation Protocol
Other state based registries: Programs for children with special needs, Newborn hearing screening program, Developmental Disabilities Surveillance, Cancer registry, Iowa Perinatal Care Program
Delivery hospitals: Disease index or discharge index, Discharge summaries, ICU/NICU logs or charts, Cardiac catheterization laboratories, Specialty outpatient clinics, Collect verbatim summaries of surgical reports, diagnostic test results, consultation reports, and autopsy/surgical pathology reports.
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries, ICU/NICU logs or charts, Cardiac catheterization laboratories, Specialty outpatient clinics, Collect verbatim summaries of surgical reports, diagnostic test results, consultation reports, and autopsy/surgical pathology reports.
Other specialty facilities: Prenatal diagnostic facilities (ultrasound, etc.), Cytogenetic laboratories, Genetic counseling/clinical genetic facilities, Maternal serum screening facilities
Other sources: Physician reports, Outpatient surgery facilities; IHA Discharge Data

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any chart with a selected list of ICD-9-CM codes outside 740-759/ICD-10-CM codes outside Q00-Q99, Any chart with selected procedure codes, Any birth certificate with a birth defect box checked, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), All stillborn infants, All elective abortions, All neonatal deaths, All infants in NICU or special care nursery, All prenatal diagnosed or suspected cases
Conditions warranting chart review beyond the newborn period: Facial dysmorphism or abnormal facies, Failure to thrive, Developmental delay, CNS condition (e.g. seizure), GI condition (e.g. intestinal blockage), GU condition (e.g. recurrent infections), Cardiovascular condition, All infant deaths (excluding prematurity), Ocular conditions, Auditory/hearing conditions, Any infant with a codable defect
Coding: CDC coding system based on BPA, ICD-9-CM/ICD-10-CM

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Family history

Data Collection Methods and Storage
Data collection: Electronic file/report filled out by staff at facility (laptop, web-based, etc.)
Database collection and storage: Access, Oracle, PC Server, FileMaker Pro

Data Analysis
Data analysis software: SAS
Quality assurance: Validity checks, Re-abstraction of cases, Double-checking of assigned codes, Comparison/verification between multiple data sources, Clinical review, Timeliness
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Time-space cluster analyses, Capture-recapture analyses, Observed vs. expected analyses, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Needs assessment, Service delivery, Referral, Grant proposals, Education/public awareness, Prevention projects

System Integration
System links: Link case finding data to final birth file, Link to environmental databases

Funding
Funding source: 100% General state funds

Other
Web site: http://www.public-health.uiowa.edu/ircid/

Contacts
Paul A. Romitti, Ph.D.
Iowa Registry for Congenital and Inherited Disorders
UI Research Park 201 IREH
Iowa City, IA 52242-5000
Phone: **319-384-1549** ***Fax:*** **319-353-4095**
Email: **paul-romitti@uiowa.edu**

Carrie J. Fall, B.A.S.
Iowa Registry for Congenital and Inherited Disorders
UI Research Park 201 IREH
Iowa City, IA 52242-5000
Phone: 319-335-4511 *Fax:* 319-335-4030
Email: carrie-fall@uiowa.edu

Kansas

Kansas Birth Defects Program

Purpose: Surveillance
Partner: Hospitals, Environmental Agencies/Organizations, Universities
Program status: Interested in developing a surveillance program
Start year: 1985
Earliest year of available data: 1985
Organizational location: Department of Health (Epidemiology/Environment, Maternal and Child Health, Vital Statistics)
Population covered annually: 38,048
Statewide: Yes
Current legislation or rule: K.S.A. 65-1,241 through 65-1,246
Legislation year enacted: 2004

Case Definition

Outcomes covered: The outcome data below are available from Office of Vital Statistics. Live births and stillbirths (fetal deaths) information are used as part of the Birth Defects Information System (BDIS). Thirteen anomalies (and 'other' congenital anomalies) are listed on the birth certificate and are reported, however, these are not linked to ICD-9 codes. In addition to major birth defects, low birth weight (<=1,200 grams), low Apgar scores (<=5 at five minutes), seizure or serious neurologic dysfunction, and significant birth injury [skeletal fracture(s), peripheral nerve injury, and/or soft tissue/solid organ hemorrhage which requires intervention] are also reported to BDIS.
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (20 weeks gestation and greater)
Age: Under five years of age with a primary diagnosis of a congenital anomaly or abnormal condition
Residence: In state and out of state births to Kansas residents and in-state births to out of state residents

Surveillance Methods

Case ascertainment: Passive case-finding without case confirmation
Vital records: Birth certificates, Stillbirth (fetal death) certificates
Other state based registries: Programs for children with special needs, Newborn hearing screening program, Newborn metabolic screening program
Delivery hospitals: Reports
Pediatric & tertiary care hospitals: Reports
Other sources: Physician reports, Kansas Health Information Network

Case Ascertainment

Conditions warranting chart review in newborn period: Currently only Zika virus related birth defects
Coding: ICD-10-CM

Data Collected

Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage

Data collection: Printed abstract/report submitted by other agencies (hospitals, etc.), Electronic file/report submitted by other agencies (hospitals, etc.), In Kansas, birth defects (congenital anomalies) are collected through four data sources: live birth certificates, stillbirth (fetal death) certificates, Kansas Health Information Network and the congenital malformations and fetal alcohol syndrome reporting form. The live birth and stillbirth (fetal death) certificates data (congenital anomalies and abnormal conditions) contained within the Vital Statistics Integrated Information System are extracted, downloaded and transferred to Auris (the Birth Defects Information System). Any additional reports of congenital anomalies from physicians, hospitals and freestanding birthing centers are entered manually into Auris.
Database collection and storage: SQL Server

Data Analysis

Data analysis software: SAS
Quality assurance: Office of Vital Statistics conducts verification on live birth and stillbirth (fetal death) certificate data.
Data use and analysis: Baseline rates, Rates by demographic and other variables, Time trends, Grant proposals, Ad-hoc upon request (e.g. cluster investigations)

System Integration

System links: Link case finding data to final birth file
System integration: Our program has a link with vital statistics records. The Birth Defects program uses the same data system (Auris) and shares information with Newborn Hearing Screening and Newborn Metabolic Screening program.

Funding

Funding source: 25% MCH funds, 75% Other (CDC-RFA-DD16-1605: "Surveillance, intervention, and referral to services activities for infants with microcephaly and other adverse outcomes linked with the Zika virus.")

Other

Web site: http://www.kdheks.gov/bfh/birth_defects.htm

Contacts

Jamie S. Kim, MPH
Kansas Department of Health and Environment
1000 SW Jackson, Suite 220
Topeka, Kansas 66612-1274
Phone: 785-296-6467 *Fax:* 785-296-6553
Email: Jamie.Kim@ks.gov

Heather Smith, MPH
Kansas Department of Health and Environment
1000 SW Jackson, Suite 220
Topeka, Kansas 66612-1274
Phone: 785-296-4747 *Fax:* 785-296-6553
Email: Heather.Smith@ks.gov

Kentucky

Kentucky Birth Surveillance Registry (KBSR)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Advocacy Groups, Universities, Community Nursing Services, Early Childhood Prevention Programs, Genetic Clinics, Laboratories,
Program status: Currently collecting data
Start year: 1998
Earliest year of available data: 1998
Organizational location: Department of Health (Maternal and Child Health)
Population covered annually: 56,000
Statewide: Yes
Current legislation or rule: Kentucky Revised Statute 211.660 Kentucky birth surveillance registry - Department's authority to promulgate administrative regulations. Effective: July 15, 2002
Legislation year enacted: 2002

Case Definition

Outcomes covered: KBSR collects information concerning birth defects, stillbirths, and high-risk conditions for Kentucky residents birth to age five. Diagnoses include the following ICD-9 codes:• All congenital anomalies codes - 740-759• Dwarfism not elsewhere classified - 259.4.• Metabolic/storage disorders - 270-279, Excluding codes 274, 276 and 278.• Hereditary hemolytic anemia - 282.• Neurologic disorders of brain and spinal cord - 334-335.• Cerebral palsy - 343.• Teratogens (noxious influences) - 760.7 and all subcategories, from 760.70 to 760.79.• Infant of diabetic mother - 775.0.• Failure to thrive - 783.4.• Small for gestational age - 764.0• Neonatal Abstinence Syndrome – 760.79• Fetal Alcohol Syndrome – 760.71
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (A fetal death of twenty (20) completed weeks' gestation or more, calculated from the date last normal menstrual period began to the date of delivery or in which the fetus weighs three hundred fifty (350) grams or more.)
Age: Up to 5 years of age
Residence: In and out of state births to state residents

Surveillance Methods

Case ascertainment: Passive case-finding with case confirmation
Vital records: Birth certificates, Death certificates, Matched birth/death file, Fetal birth certificate
Other state based registries: Newborn CCHD Screening
Delivery hospitals: Discharge summaries, ICU/NICU logs or charts, Pediatric logs, Surgery logs, Specialty outpatient clinics
Pediatric & tertiary care hospitals: Discharge summaries, ICU/NICU logs or charts, Pediatric logs, Surgery logs, Laboratory logs, Specialty outpatient clinics
Other specialty facilities: Cytogenetic laboratories, Genetic counseling/clinical genetic facilities

Case Ascertainment

Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any chart with a selected list of ICD-9-CM codes outside 740-759/ICD-10-CM codes outside Q00-Q99, Any birth certificate with a birth defect box checked, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), All prenatal diagnosed or suspected cases
Conditions warranting chart review beyond the newborn period: Any infant with a codable defect
Coding: ICD-10-CM

Data Collected

Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage

Data collection: Electronic file/report filled out by staff at facility (laptop, web-based, etc.), Electronic file/report submitted by other agencies (hospitals, etc.)
Database collection and storage: Online database developed in-house

Data Analysis

Data analysis software: SAS
Quality assurance: Validity checks, Re-abstraction of cases, Double-checking of assigned codes, Comparison/verification between multiple data sources, Timeliness
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Epidemiologic studies (using only program data), Service delivery, Referral, Grant proposals, Education/public awareness, Prevention projects

System Integration

System links: Link to other state registries/databases, Link case finding data to final birth file
System integration: Birth records from vitals statistics are linked with all cases in the KBSR database. Data from the state Newborn CCHD Screening database and the state Neonatal Abstinence Syndrome surveillance system are incorporated into KBSR.

Funding

Funding source: 100% CDC grant

Other

Web site: https://chfs.ky.gov/agencies/dph/dmch/ecdb/Pages/kbsr.aspx
Surveillance reports on file: Birth Defect Specific Fact Sheets (English and Spanish) and Data Briefs; Contact of Partners

Contacts

Monica L Clouse, MPH
Kentucky Department for Public Health
275 E Main St
Frankfort, KY 40601
Phone: **502-564-4830**
Email: **monica.clouse@ky.gov**

Louisiana

Louisiana Birth Defects Monitoring Network (LBDMN)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs, Legislators
Program status: Currently collecting data
Start year: 2005
Earliest year of available data: 2005
Organizational location: Department of Health (LDH/OPH/CCPH/BFH/Title V CYSHCN Programs)
Population covered annually: 62,000
Statewide: Yes
Current legislation or rule: Law: LA R.S. 40:31.41 - 40:31.48, 2001. LDH Rule: LAC 48:V. Chapters 161 and 163
Legislation year enacted: 2001

Case Definition
Outcomes covered: Major structural birth defects and selected genetic conditions including CDC recommended conditions associated with Congenital Zika Syndrome.
Pregnancy outcome: Livebirths (greater than or equal to 20 weeks gestation or greater than or equal to 350 grams), Fetal deaths - stillbirths, spontaneous abortions, etc. (20 weeks gestation and greater)
Age: Up to third birthday except for Zika which is up to 12 months
Residence: In and out of state births to state residents

Surveillance Methods
Case ascertainment: Active Case Finding, Combination of active and passive case ascertainment, population based
Vital records: Birth certificates, Death certificates, Matched birth/death file, Fetal birth certificate
Delivery hospitals: Disease index or discharge index, Discharge summaries, ICU/NICU logs or charts
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries, ICU/NICU logs or charts, Specialty outpatient clinics
Third party payers: Medicaid databases
Other sources: Louisiana Hospital Inpatient Discharge Data (LAHIDD)

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any chart with a selected list of ICD-9-CM codes outside 740-759/ICD-10-CM codes outside Q00-Q99, Any birth certificate with a birth defect box checked, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), Any chart with selected ICD-10 Q00-Q99 codes, N13.1-N13.4; E78.71-E78.72; H90.0-91.9
Conditions warranting chart review beyond the newborn period: Any infant with a codable defect
Coding: CDC coding system based on BPA, ICD-9-CM/ICD-10-CM

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Family history

Data Collection Methods and Storage
Data collection: Electronic file/report filled out by staff at facility (laptop, web-based, etc.)
Database collection and storage: Custom built web-based database.

Data Analysis
Data analysis software: SAS, ArcGIS
Quality assurance: Validity checks, Re-abstraction of cases, Double-checking of assigned codes, Comparison/verification between multiple data sources, Data/hospital audits, Clinical review, Timeliness
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Time-space cluster analyses, Observed vs. expected analyses, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Needs assessment, Referral, Grant proposals, Education/public awareness, Prevention projects

System Integration
System links: Link to other state registries/databases, Link case finding data to final birth file, Link case finding data to final death file
System integration: Integrated with Louisiana Electronic Event Registration System (LEERS) birth and death records and Louisiana Early Hearing Detection and Intervention (LA-EHDI) Program database.

Funding
Funding source: 100% Other (MCH Title V Block GrantState Matching Funds)

Other
Web site: www.dhh.la.gov/lbdmn
Surveillance reports on file: Louisiana Morbidity Report, May-June 2009, Vol 20, No 3; Results from 2006-2008 Birth Defects Surveillance System; 2013 Annual NBDPN Data Report; Presentations of analysis using 2006-2008 data concerning ASD Reporting; Cleft Lip/Palate and Hearing Loss;

Contacts
Dionka C Pierce, MPH
LDH/OPH/CCPH/BFH/CSHS/LBDMNRoom 2060
1450 Poydras St., Ste 1950
New Orleans, LA 70112
Phone: **504-568-5629** ***Fax:*** **504-568-7529**
Email: **Dionka.Pierce@la.gov**

Julie A Johnston, BS
LDH/OPH/CCPH/BFH/LBDMN
PO BOX 60630
New Orleans, LA 70160-0630
Phone: 225-342-2017 *Fax:* 504-568-7529
Email: Julie.Johnston@la.gov

Maine

Maine CDC Birth Defects Program (MBDP)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services, Education
Partner: Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Community Nursing Services, Early Childhood Prevention Programs, March of Dimes, Maine Tracking Network
Program status: Currently collecting data
Start year: 1999
Earliest year of available data: 2003
Organizational location: Department of Health (Division of Population Health/MCH Unit/CSHN)
Population covered annually: 12,593
Statewide: Yes
Current legislation or rule: 22 MRSA c. 1687
Legislation year enacted: 1999

Case Definition
Outcomes covered: Selected major birth defects: NTD, clefts, gastroschisis, omphalocele, trisomy 21, reduction deformities of upper and lower limb, hypospadias and major heart defects
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (Less than 20 weeks gestation, 20 weeks gestation and greater, Prenatally diagnosed at any gestation), Elective terminations (Prenatally diagnosed at any gestation)
Age: Through age 1
Residence: All in-state births to Maine residents

Surveillance Methods
Case ascertainment: Passive case ascertainment with active case confirmation
Vital records: Birth certificates, Death certificates, Matched birth/death file, Fetal birth certificate
Other state based registries: Programs for children with special needs, Newborn hearing screening program, Newborn metabolic screening program
Delivery hospitals: Disease index or discharge index, Discharge summaries, Obstetrics logs (i.e., labor & delivery), Regular nursery logs, ICU/NICU logs or charts, Pediatric logs, Postmortem/pathology logs, Surgery logs, Specialty outpatient clinics
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries, ICU/NICU logs or charts, Pediatric logs, Postmortem/pathology logs, Surgery logs, Laboratory logs, Cardiac catheterization laboratories, Specialty outpatient clinics
Other specialty facilities: Prenatal diagnostic facilities (ultrasound, etc.), Cytogenetic laboratories, Genetic counseling/clinical genetic facilities, Maternal serum screening facilities
Other sources: Midwifery Facilities, Physician reports, Children with Special Health Needs

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any birth certificate with a birth defect box checked, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), All stillborn infants, All infants in NICU or special care nursery, All prenatal diagnosed or suspected cases
Conditions warranting chart review beyond the newborn period: Cardiovascular condition, Any infant with a codable defect
Coding: ICD-10-CM

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications, Family history

Data Collection Methods and Storage
Data collection: Printed abstract/report filled out by staff, Printed abstract/report submitted by other agencies (hospitals, etc.), Electronic file/report filled out by staff at facility (laptop, web-based, etc.), Electronic file/report submitted by other agencies (hospitals, etc.), Electronic scanning of printed records
Database collection and storage: Oracle, Microsoft SQL Server

Data Analysis
Data analysis software: SAS, Stat-exact
Quality assurance: Validity checks, Re-abstraction of cases, Double-checking of assigned codes, Comparison/verification between multiple data sources, Data/hospital audits, Clinical review, Timeliness
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Needs assessment, Service delivery, Referral, Grant proposals, Education/public awareness, Prevention projects

System Integration
System links: Link to other state registries/databases, Link case finding data to final birth file
System integration: Newborn Hearing/ Newborn Bloodspot Screening Programs

Funding
Funding source: 100% MCH funds

Other
Web site:
http://www.maine.gov/dhhs/mecdc/population-health/mch/cshn/birth-defects/index.html

Contacts
Patricia Williams
Department of Health & Human Services
11 State House Station, 286 Water St. 7th floor
Augusta, ME 4333
Phone: **207-287-4802** ***Fax:*** **207-287-5355**
Email: **Patricia.Williams@maine.gov**

Diane Haberman, MSW, LCSW
Department of Health & Human Services
11 State House Station, 286 Water St. 7th floor
Augusta, ME 4333
Phone: 207-287-8424 *Fax:* 207-287-5355
Email: Diane.Haberman@maine.gov

Maryland

Maryland Birth Defects Reporting and Information System (BDRIS)

Purpose: Surveillance, Referral to Services
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs, Legislators
Program status: Currently collecting data
Start year: 1983
Earliest year of available data: 1984
Organizational location: Department of Health (Epidemiology/Environment, Prevention and Health Promotion Administration)
Population covered annually: 75,000
Statewide: Yes
Current legislation or rule: Health-General Article, Section 18-206; Annotated Code of Maryland
Legislation year enacted: 1982

Case Definition
Outcomes covered: Selected birth defects - anencephaly, spina bifida, hydrocephaly, cleft lip, cleft palate, esophageal atresia/stenosis, rectal/anal atresia, hypospadias, reduction deformity - upper or lower limb, congenital hip dislocation, and Down syndrome until 2009, then all significant birth defects
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (20 weeks gestation and greater, Or >=500 grams weight; reports accepted on fetal deaths <500 grams or <20 weeks gestation if sent to us.), Elective terminations (Reports accepted on terminations <500 grams or <20 weeks gestation if sent to us.BDRIS has no specific legal authority to collect information on terminations. Maryland does not require that any certificate be filed with Vital Records for a termination unless the body is transported for burial.)
Age: Newborn
Residence: All in-state births

Surveillance Methods
Case ascertainment: Passive case-finding with case confirmation, Beginning active case finding July 2018.
Vital records: Birth certificates, Death certificates, Matched birth/death file, Fetal birth certificate
Other state based registries: Programs for children with special needs, Newborn hearing screening program, Newborn metabolic screening program, Sickle Cell Disease, Critical Congenital Heart Defect follow Up Program
Delivery hospitals: Primary source: sentinel birth defects hospital report form; electronic reporting began 5/1/13
Pediatric & tertiary care hospitals: transfers from delivery hospitals, if screening not done at delivery hospital.
Other sources: Midwifery Facilities

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), All fetal death certificates
Coding: ICD-10-CM

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage
Data collection: Printed abstract/report filled out by staff, Printed abstract/report submitted by other agencies (hospitals, etc.), Electronic file/report filled out by staff at facility (laptop, web-based, etc.)
Database collection and storage: Access, Mainframe, Visual dBASE, SAS, ASCII files; as of 5/1/13 data stored on vendor server

Data Analysis
Data analysis software: SAS
Quality assurance: Validity checks, Double-checking of assigned codes, Comparison/verification between multiple data sources, Data/hospital audits, Timeliness
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Identification of potential cases for other epidemiologic studies, Service delivery, Referral, Grant proposals, Education/public awareness

System Integration
System integration: As of 5/1/13, the birth defects data collection is integrated into the same electronic system in which we collect hearing and CCHD screening data.

Funding
Funding source: 100% General state funds

Other
Web site: http://phpa.dhmh.maryland.gov/genetics/SitePages/bdris.aspx
Surveillance reports on file: All reports submitted to CDC

Contacts
Monika Piccardi, RN, BSN
Maryland Dept. of Health
201 W. Preston Street, Room 423 N
Baltimore, MD 21201
Phone: **410-767-6737** ***Fax:*** **443-333-7956**
Email: **monika.piccardi@maryland.gov**

Jed Miller, MD
Maryland Dept. of Health
201 W. Preston Street, Room 423
Baltimore, MD 21201
Phone: 410-767-5642 *Fax:* 443-333-7956
Email: Jed.miller1@maryland.gov

Massachusetts

Massachusetts Birth Defects Monitoring Program (MBDMP)

Purpose: Surveillance, Research, Public health program evaluation, Assist community health assessments
Partner: Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Maternal and Child Health Programs, State Lab
Program status: Currently collecting data
Start year: 1997
Earliest year of available data: 1999
Organizational location: Department of Public Health (Bureau of Family Health and Nutrition)
Population covered annually: 72,000
Statewide: Yes
Current legislation or rule: Massachusetts General Laws, Chapter 111, Section 67E in 1963. In 2002 the Massachusetts legislature amended this statute, expanding the birth defects monitoring program. In 2009 regulations for a Congenital Anomalies Registry, 105 CMR 302.000, were promulgated.
Legislation year enacted: 1963 (amended 2002, regulations 2009)

Case Definition

Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (>= 20 weeks gestation or >= 350 grams), Unspecified non-live births (elective terminations at any gestational age, spontaneous losses < 20 weeks and < 350 grams)
Age: 1 year
Residence: In- and out-of-state births to state residents

Surveillance Methods

Case ascertainment: Active Case Finding
Vital records: Birth certificates, Death certificates, Matched birth/death file, Fetal death certificate
Delivery hospitals: Disease index or discharge index, Postmortem/pathology logs, Specialty outpatient clinics
Pediatric & tertiary care hospitals: Disease index or discharge index, Postmortem/pathology logs, Specialty outpatient clinics
Other specialty facilities: Prenatal diagnostic facilities (ultrasound, etc.), Cytogenetic laboratories, Genetic counseling/clinical genetic facilities
Other sources: Accepting physician reports sent to us.

Case Ascertainment

Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any chart with a selected list of ICD-9-CM codes outside 740-759/ICD-10-CM codes outside Q00-Q99, Any birth certificate with a birth defect box checked, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), All stillborn infants, All prenatally diagnosed or suspected cases
Conditions warranting chart review beyond the newborn period: All infant deaths (excluding prematurity), Any infant with a codable defect
Coding: CDC coding system based on BPA, ICD=9=CM

Data Collected

Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Family history

Data Collection Methods and Storage

Data collection: Printed abstract/report filled out by staff, Electronic file/report filled out by staff at facility (laptop, web-based, etc.)
Database collection and storage: Microsoft (MS) Access

Data Analysis

Data analysis software: SAS, MS Access, MS Excel, Tableau
Quality assurance: Validity checks, Re-abstraction of cases, Double-checking of assigned codes, Comparison/verification between multiple data sources, Clinical review, Timeliness, Data/hospital audits as needed
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Observed vs. expected analyses, Epidemiologic studies (using program data), Identification of potential cases for other epidemiologic studies, Grant proposals, Education/public awareness

System Integration

System links: Link to other state registries/databases, Link case finding data to final birth file and final fetal death file.
System integration: Link birth defects data to MDPH Pregnancy to Early Life Longitudinal (PELL) data system.

Funding

Funding source: 60% General state funds, 40% MCH funds

Other

Web site: www.mass.gov/dph/birthdefects
Surveillance reports on file: Annual or bi-annual reports since 1999

Contacts

Mahsa M. Yazdy, PhD, MPH
Massachusetts Department of Public Health, Bureau of Family Health and Nutrition
250 Washington Street, 5th floor
Boston, MA 2108
Phone: **617-624-6045** ***Fax:*** **617-624-5574**
Email: **mahsa.yazdy@state.ma.us**

Cathleen A. Higgins, BA
Massachusetts Department of Public Health, Bureau of Family Health and Nutrition
250 Washington Street, 5th floor
Boston, MA 2108
Phone: 617-624-5510 *Fax:* 617-624-5574
Email: cathleen.higgins@state.ma.us

Michigan

Michigan Birth Defects Registry (MBDR)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services, Prevalence and mortality statistics
Partner: Local Health Departments, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs, Outpatient Pediatrics clinics for HL7 reporting pilot
Program status: Currently collecting data
Start year: 1992
Earliest year of available data: 1992
Organizational location: Department of Health (Epidemiology/Environment, Vital Statistics)
Population covered annually: 115,000
Statewide: Yes
Current legislation or rule: Public Act 236 of 1988
Legislation year enacted: 1988

Case Definition
Outcomes covered: Congenital anomalies, certain infectious diseases, conditions caused by maternal exposures and other diseases of major organ systems
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (20 weeks or >400 grams)
Age: Up to two years after delivery except that reporting to age 12 for FASD beginning in 2013
Residence: Michigan births regardless of residence, out of state births diagnosed or treated in Michigan regardless of residence

Surveillance Methods
Case ascertainment: Passive case-finding without case confirmation
Vital records: Birth certificates, Death certificates, Matched birth/death file, Fetal birth certificate, Fetal deaths since 2004 only
Other state based registries: Programs for children with special needs, Newborn hearing screening program, Newborn metabolic screening program, Cancer registry
Delivery hospitals: Disease index or discharge index, Discharge summaries, ICU/NICU logs or charts, Specialty outpatient clinics
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries, ICU/NICU logs or charts, Specialty outpatient clinics
Third party payers: Medicaid databases
Other specialty facilities: Cytogenetic laboratories, Genetic counseling/clinical genetic facilities
Other sources: Physician reports, Pediatric Dentistry

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any chart with a selected list of ICD-9-CM codes outside 740-759/ICD-10-CM codes outside Q00-Q99, Any birth certificate with a birth defect box checked, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease)
Conditions warranting chart review beyond the newborn period: Facial dysmorphism or abnormal facies, Failure to thrive, CNS condition (e.g. seizure), GI condition (e.g. intestinal blockage), GU condition (e.g. recurrent infections), Cardiovascular condition, All infant deaths (excluding prematurity), Childhood deaths between 1 and 6, Ocular conditions, Auditory/hearing conditions, Any infant with a codable defect
Coding: ICD-10-CM

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage
Data collection: Printed abstract/report filled out by staff, Printed abstract/report submitted by other agencies (hospitals, etc.), Electronic file/report filled out by staff at facility (laptop, web-based, etc.), Electronic file/report submitted by other agencies (hospitals, etc.)
Database collection and storage: FoxPro

Data Analysis
Data analysis software: SPSS, SAS, Access, Fox-pro, Excel
Quality assurance: Validity checks, Re-abstraction of cases, Double-checking of assigned codes, Comparison/verification between multiple data sources, Data/hospital audits, Timeliness
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Observed vs. expected analyses, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Needs assessment, Service delivery, Referral, Grant proposals, Education/public awareness

System Integration
System links: Link to other state registries/databases, Link case finding data to final birth file, CSHCS, WIC
System integration: No, data from vital records and other sources are extracted and loaded into registry as opposed to truly integrated database structures.

Funding
Funding source: 10% CDC grant, 90% Other (60% Vital Records Fees, 30% newborn screen revenue)

Other
Web site:
http://www.michigan.gov/mdch/0,1607,7-132-2944_4670---,00.html
Additional information on file:
Http://www.michigan.gov/mdch/0,1607,7-132-2945_5221-16665--,00.html

Contacts
Georgetta Alverson
Michigan Birth Defects Registry
333 S. Grand Ave.
Lansing, MI 48933
Phone: **517-335-8855** ***Fax:*** **517-335-8711**
Email: **alversong@michigan.gov**

Lorrie Kay Simmons, RHIT
Michigan Department of Community Health
333 S. Grand Ave.
Lansing, MI 48933
Phone: 517-335-9197 *Fax:* 517-335-8711
Email: simmonsI@michigan.gov

Minnesota

Minnesota Birth Defects Information System (BDIS)

Purpose: Surveillance, Research, Referral to Services, Targeted prevention to higher risk populations.
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs
Program status: Currently collecting data
Start year: 2005
Earliest year of available data: 2006
Organizational location: Department of Health (Maternal and Child Health)
Population covered annually: 70,000
Statewide: No, Currently covering about 97% of live births in MN. Statewide surveillance is expected to be completed by the end of 2018. Coverage is complete for smaller regions of the state. Prevalence estimates from 2006-2010 are available for the two largest counties in Minnesota, Hennepin and Ramsey counties, which account for just over 40% of MN births.
Current legislation or rule: MS 144.2215-2219
Legislation year enacted: 2004

Case Definition

Outcomes covered: Major structural and genetic defects diagnosed up to 1 year of age identified by CDC and NBDPN.
Pregnancy outcome: Livebirths (All gestational ages and birth weights)
Age: Up to 1 year after delivery
Residence: In-state and out of state births to state residents

Surveillance Methods

Case ascertainment: Active Case Finding
Vital records: Birth certificates, Death certificates, Matched birth/death file
Other state based registries: Newborn hearing screening program, Newborn metabolic screening program, Newborn CCHD screening
Delivery hospitals: Disease index or discharge index, Specialty outpatient clinics
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries, Specialty outpatient clinics
Other sources: Statewide de-identified hospital discharge dataset; Any case reported by local public health agency

Case Ascertainment

Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any birth certificate with a birth defect box checked, Any chart with an ICD10 Q00-Q99; All deaths prior to age 2 with a birth defect indicated as cause of death on death certificates, starting with 2009 births
Coding: CDC coding system based on BPA

Data Collected

Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Family history

Data Collection Methods and Storage

Data collection: Electronic file/report filled out by staff at facility (laptop, web-based, etc.), Electronic file/report submitted by other agencies (hospitals, etc.), Remote access to medical records in some reporting facilities
Database collection and storage: Web-based department-wide integrated disease surveillance database. Maven platform by Consilience Software.

Data Analysis

Data analysis software: SAS
Quality assurance: Validity checks, Re-abstraction of cases, Double-checking of assigned codes, Comparison/verification between multiple data sources, Data/hospital audits, Clinical review, Timeliness
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Identification of potential cases for other epidemiologic studies, Needs assessment, Referral, Education/public awareness, Prevention projects, Collaboration with Environmental Public Health Tracking Program

System Integration

System links: Link to other state registries/databases, Link case finding data to final birth file, Sharing of confirmed cases with key contacts at local public health agencies for service referral. LPH staff can log on to our the birth defects database to view relevant case information. In 2012, LPH began entering follow up and service/program updates into BDIS.
System integration: The Birth Defects Information System (BDIS) is integrated with Newborn Hearing program and Heritable Conditions. The databases share a model on the same platform, but they are managed separately. (This platform, Maven by Consilience Software, is also used by many infectious disease surveillance systems in MN and access is limited by disease/user role.) Additional integration with the Newborn CCHD Screening program takes place in 2017 as universal newborn CCHD screening is implemented.

Funding

Funding source: 90% General state funds, 10% CDC grant

Other

Web site:
http://www.health.state.mn.us/divs/cfh/program/cyshn/bdmaintro.cfm

Contacts

Sook Ja Cho, PhD, MPH, BSN
Minnesota Department of Health
85 East 7th Place, PO Box 64882
St. Paul, MN 55164
Phone: **651-201-4931** ***Fax:*** **651-201-3590**
Email: **sook.ja.cho@state.mn.us**

Barbara Frohnert, MPH
Minnesota Department of Health
85 East 7th Place, PO Box 64882
St. Paul, MN 55164
Phone: 651-201-5953 *Fax:* 651-201-3590
Email: barbara.frohnert@state.mn.us

Mississippi

Mississippi Birth Defects Surveillance Registry

Purpose: Surveillance, Referral to Services
Partner: Local Health Departments, Hospitals, Advocacy Groups, Title V Children with Special Healthcare Needs
Program status: Currently collecting data
Start year: 2000
Earliest year of available data: 2000
Organizational location: Department of Health (Maternal and Child Health, Genetic Services Bureau)
Population covered annually: 38,000
Statewide: Yes
Current legislation or rule: Section 41-21-205 of the Mississippi Code of 1972
Legislation year enacted: 1997

Case Definition

Outcomes covered: The infant/fetus must have a reportable structural defect, newborn screening disorder, functional or metabolic disorder, genetically determined or a defect resulting from an environmental influence during embryonic or fetal life.
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (20 weeks gestation and greater)
Age: Birth to 21 years
Residence: In and out of state births to state residents

Surveillance Methods

Case ascertainment: Passive case-finding without case confirmation, Active case-finding for Zika related birth defects
Vital records: Matched birth/death file
Other state based registries: Programs for children with special needs, Newborn hearing screening program, Newborn metabolic screening program
Delivery hospitals: Discharge summaries
Pediatric & tertiary care hospitals: Discharge summaries, Specialty outpatient clinics
Other specialty facilities: Genetic counseling/clinic genetic facilities
Other sources: Physician reports

Case Ascertainment

Conditions warranting chart review in newborn period: Zika related birth defects
Coding: ICD-10-CM

Data Collected

Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)
Father: Demographic information (race/ethnicity, sex, etc.), Family history

Data Collection Methods and Storage

Data collection: Printed abstract/report filled out by staff, Printed abstract/report submitted by other agencies (hospitals, etc.), Electronic file/report submitted by other agencies (hospitals, etc.)
Database collection and storage: Access, New web based program (in development)

Data Analysis

Data analysis software: SPSS, SAS, Access
Quality assurance: Validity checks, Comparison/verification between multiple data sources, Timeliness
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Epidemiologic studies (using only program data), Referral, Education/public awareness

System Integration

System links: Link case finding data to final birth file, Newborn Screening ProgramNewborn screening program database and Early Hearing program database

Funding

Funding source: 100% Genetic screening revenues

Other

Web site: www.HealthyMS.com

Contacts

Alyce L. Stewart, DrPH, MPH, MCHES
Mississippi State Department of Health
570 East Woodrow Wilson Ave
Jackson, Mississippi 39215-1700
Phone: **601 576-7619** ***Fax:*** **601 576-7498**
Email: **alyce.stewart@msdh.ms.gov**

Ninglong Han, MS
Mississippi State Department of Health
570 East Woodrow Wilson Ave
Jackson, Mississippi 39215-1700
Phone: 601 576-8165 *Fax:* 601 576-8168
Email: ninglong.han@msdh.ms.gov

Missouri

Missouri Birth Defect Surveillance System

Purpose: Surveillance, Research
Partner: Environmental Agencies/Organizations, Legislators
Program status: Currently collecting data
Start year: 1985
Earliest year of available data: 1980
Organizational location: Department of Health (Vital Statistics)
Population covered annually: 76,000
Statewide: Yes

Case Definition
Outcomes covered: ICD-9 codes 740-759, ICD-10 codes Q-codes, plus genetic, metabolic, and other disorders
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (Fetal death certificates are only source of data)
Age: Up to one year after delivery
Residence: In- and out-of-state births to state residents

Surveillance Methods
Case ascertainment: Passive case-finding without case confirmation, Population-based
Vital records: Birth certificates, Death certificates, Matched birth/death file, Fetal birth certificate

Delivery hospitals: Discharge summariesPediatric logs
Pediatric & tertiary care hospitals: Discharge summaries Specialty outpatient clinics

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any birth certificate with a birth defect box checked, All stillborn infants, Missouri is currently using CDC/NCBDD grant to abstract birth defects
Conditions warranting chart review beyond the newborn period: Any infant with a codable defect
Coding: ICD-9-CM, ICD-10-CM

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Prenatal care, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage
Data collection: Electronic file/report filled out by staff at facility (laptop, web-based, etc.), Electronic file/report submitted by other agencies (hospitals, etc.)
Database collection and storage: SAS

Data Analysis
Data analysis software: SAS
Quality assurance: Validity checksDouble-checking of assigned codes, Comparison/verification between multiple data sources***Data use and analysis:*** Routine statistical monitoring, Baseline rates, Rates by demographic and other variables, Time trends, Education/public awareness

System Integration
System links: Link case finding data to final birth file

Funding
Funding source: 100% MCH funds

Other
Web site: http://health.mo.gov/data/birthdefectsregistry/index.php
Surveillance reports on file: MO Birth Defects Report 1996-2000

Contacts
Loise Wambuguh, PhD
Missouri Dept of Health, Bureau of Vital Statistics

PO Box 570, 920 Wildwood Drive
Jefferson City, MO 65102
Phone: **573-751-6343** ***Fax:*** **573-526-4102**
Email: **loise.wambuguh@health.mo.gov**

Elizabeth McCarthy, MS
Missouri Dept of Health, Bureau of Vital Statistics
PO Box 570, 920 Wildwood Drive
Jefferson City, MO 65102
Phone: 573-751-6078 *Fax:* 573-526-4102
Email: Elizabeth.McCarthy@health.mo.gov

Montana

Montana Birth Outcomes Monitoring System (MBOMS)

Program status: No surveillance program
Start year: 1999
Earliest year of available data: 2000
Organizational location: Department of Health (Maternal and Child Health)
Population covered annually: 12,000
Current legislation or rule: None

Case Definition
Outcomes covered: Major structural birth defects, chromosomal anomalies specified in the CDC 45 reportables for births occurring in calendar years 200 through 2004. Registry suspended beginning with calendar year 2005 births due to loss of CDC funding.

Contacts
Rachel Donahoe
Montana Dept. of Public Health and Human Services PO Box 202951
Helena, MT 59620
Phone: **406-444-3617** ***Fax:*** **406-444-2750**
Email: **rdonahoe@mt.gov**

Nebraska

Nebraska Birth Defect Registry (NBDR)

Purpose: Surveillance, Research
Partner: Hospitals, Universities, Early Childhood Prevention Programs, Vital Statistics, Maternal Child Health
Program status: Currently collecting data
Start year: 1972
Earliest year of available data: 1973
Organizational location: Department of Health (Vital Statistics, Office of Epidemiology and Informatics)
Population covered annually: 27,000
Statewide: Yes
Current legislation or rule: Laws 1972, LB 1203, §1, §2, §3, §4(alternate citation: Public Health & Welfare [Codes] §71-645, §71-646, §71-647, §71-648, §71-649)
Legislation year enacted: 1972

Case Definition
Pregnancy outcome: Livebirths (=> 20 weeks, => 500 grams), Fetal deaths - stillbirths, spontaneous abortions, etc. (=> 20 weeks, => 500 grams)
Age: Up to one year after delivery
Residence: In state birth to state resident, out of state births to state residents when Out State Jurisdiction allows use of data

Surveillance Methods
Case ascertainment: Passive case-finding without case confirmation
Vital records: Birth certificates, Death certificates, Fetal death certificate
Delivery hospitals: Disease index or discharge index, Discharge summaries, Obstetrics logs (i.e., labor & delivery), Regular nursery logs, ICU/NICU logs or charts, Pediatric logs
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries, ICU/NICU logs or charts, Specialty outpatient clinics
Other specialty facilities: Genetic counseling/clinic genetic facilities
Other sources: Midwifery Facilities, Physician reports

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any birth certificate with a birth defect box checked
Coding: ICD-10-CM

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage
Data collection: Electronic file/report filled out by staff at facility (laptop, web-based, etc.), Electronic file/report submitted by other agencies (hospitals, etc.)
Database collection and storage: SQL

Data Analysis
Data analysis software: SAS, Reports from Netsmart
Quality assurance: Validity checks, Double-checking of assigned codes, Comparison/verification between multiple data sources, Timeliness
Data use and analysis: Routine statistical monitoring, Baseline rates, Rates by demographic and other variables, Time trends, Grant proposals

System Integration
System links: Link to other state registries/databases
System integration: Births, Deaths, Fetal deaths

Funding
Funding source: 100% MCH funds

Other
Web site:
http://dhhs.ne.gov/publichealth/Pages/vitalrecords_partners.aspx
Surveillance reports on file:
Http://dhhs.ne.gov/publichealth/Pages/ced_vs.aspx

Contacts
Ming Qu
NE Department of Health & Human Services
301 Centennial Mall South
Lincoln, NE 68509
Phone: **402-471-0566** ***Fax:*** **402-471-1371**
Email: **Ming.Qu@nebraska.gov**

Nila Irwin
NE Department of Health & Human Services
1033 O St Suite 130
Lincoln, NE 68509
Phone: 402-471-0354 *Fax:* 402-742-2388
Email: Nila.Irwin@nebraska.gov

Nevada

Nevada Birth Outcomes Monitoring System (NBOMS)

Purpose: Surveillance, Research
Partner: Hospitals, Early Childhood Prevention Programs, Legislators, Nevada Bureau of Child, Family & Community Wellness, Nevada Division of Public and Behavioral Health
Program status: Currently collecting data
Start year: 2000
Earliest year of available data: 2005
Organizational location: Department of Health (Maternal and Child Health), Nevada Department of Health and Human Services, Office of Analytics for Nevada Division of Public and Behavioral Health
Population covered annually: 35,658
Statewide: Yes
Current legislation or rule: NRS 442.300 - 442.330 - Birth Defects Registry Legislation *** Regulation = NAC 442
Legislation year enacted: 1999

Case Definition
Outcomes covered: Major birth defects and genetic diseases
Pregnancy outcome: Livebirths (Other gestational birth age and/or birth weight criterion), Fetal deaths - stillbirths, spontaneous abortions, etc. (20 weeks gestation and greater), Elective terminations (20 weeks gestation and greater)
Age: Birth to 7 years of age
Residence: In-state births

Surveillance Methods
Case ascertainment: 2011-2013 data combination of active & passive, Population-based, Hospital-based. 2014 and subsequent data passive data collection (hospital discharge data).
Vital records: Birth certificates, Death certificates, Matched birth/death file, Fetal birth certificate, hospital medical records, diagnostic/laboratory reports
Other state based registries: Newborn hearing screening program, Newborn metabolic screening program, Cancer registry, AIDS/HIV registry
Delivery hospitals: Disease index or discharge index, Discharge summaries, Obstetrics logs (i.e., labor & delivery), Pediatric logs, Postmortem/pathology logs, Surgery logs, Cardiac catheterization laboratories, Specialty outpatient clinics
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries
Other specialty facilities: Genetic counseling/clinic genetic facilities
Other sources: Physician reports

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any chart with a selected list of ICD-9-CM codes outside 740-759/ICD-10-CM codes outside Q00-Q99, Any birth certificate with a birth defect box checked
Conditions warranting chart review beyond the newborn period: Facial dysmorphism or abnormal facies, Failure to thrive, Developmental delay, CNS condition (e.g. seizure), GI condition (e.g. intestinal blockage), GU condition (e.g. recurrent infections), Cardiovascular condition, Any infant with a codable defect
Coding: ICD-10-CM

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Illnesses/conditions, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Illnesses/conditions, Family history

Data Collection Methods and Storage
Data collection: Printed abstract/report filled out by staff, Electronic file/report filled out by staff at facility (laptop, web-based, etc.)
Database collection and storage: Access

Data Analysis
Data analysis software: SAS, Access
Quality assurance: Double-checking of assigned codes, Comparison/verification between multiple data sources, Data/hospital audits, Timeliness
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Needs assessment, Service delivery, Referral, Grant proposals, Education/public awareness, Prevention projects

Funding
Funding source: 70% MCH funds, 30% CDC grant

Other
Surveillance reports on file:
Http://dpbh.nv.gov/Programs/NBOMS/dta/Publications/Nevada_Birth_Outcomes_Monitoring_System_%28NBOMS%29_-_Publications/

Contacts
Jie Zhang, MS
Nevada Birth Outcomes Monitoring System, Office of Public Health Informatics and Epidemiology (OPHIE), Division of Public and Behavioral Health, Department of Health and Human Services
4126 Technology Way, Suite 200
Carson City, NV 89706
Phone: **775-684-5933**
Email: **jzhang@health.nv.gov**

Kyra Morgan, MS
Director's Office, Nevada Department of Health and Human Services
4126 Technology Way, Suite 200
Carson City, NV 89706
Phone: 775-684-4161
Email: kmorgan@health.nv.gov

New Hampshire

New Hampshire Zika Birth Conditions Program

Purpose: Surveillance, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Universities, Legislators
Program status: Currently collecting data
Start year: 2016 Zika only
Earliest year of available data: 2016 Zika only
Organizational location: Department of Health (Maternal and Child Health)
Population covered annually: 12,500
Statewide: Yes
Current legislation or rule: RSA 141:J, NH Administrative Rules He-P 3012
Legislation year enacted: 2008

Case Definition
Outcomes covered: Zika related birth defects
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (All gestational ages)
Age: Up to one year after delivery
Residence: In-state birth to state resident

Surveillance Methods
Case ascertainment: Active Case Finding
Vital records: Birth certificates, Death certificates
Other state based registries: Newborn hearing screening program, Newborn metabolic screening program, Developmental Disabilities Surveillance, Bureau of Infectious Disease Control
Delivery hospitals: Disease index or discharge index, Discharge summaries, Obstetrics logs (i.e., labor & delivery), Regular nursery logs, ICU/NICU logs or charts, Postmortem/pathology logs, Surgery logs, Specialty outpatient clinics
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries, ICU/NICU logs or charts, Postmortem/pathology logs, Surgery logs, Laboratory logs, Specialty outpatient clinics
Other sources: Physician reports

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any chart with a selected list of ICD-9-CM codes outside 740-759/ICD-10-CM codes outside Q00-Q99, Any chart with selected procedure codes, All stillborn infants
Conditions warranting chart review beyond the newborn period: CNS condition (e.g. seizure)
Coding: ICD-10-CM

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications, Family history
Father: Demographic information (race/ethnicity, sex, etc.), Illnesses/conditions

Data Collection Methods and Storage
Data collection: Printed abstract/report filled out by staff
Database collection and storage: None at this time

Data Analysis
Data analysis software: SPSS
Quality assurance: Double-checking of assigned codes, Comparison/verification between multiple data sources
Data use and analysis: Monitoring outbreaks and cluster investigations, Referral

Funding
Funding source: 100% CDC grant

Contacts
Suzann Beauregard, Registered Nurse
Maternal and Child Health Section, Division of Public Health Services, New Hampshire Department of Health and Human Services
29 Hazen Drive
Concord, NH 3301
Phone: **603-271-4521**
Email: **Suzann.Beauregard@dhhs.nh.gov**

Paulette Valliere, MPH
Maternal and Child Health Section, Division of Public Health Services, New Hampshire Department of Health and Human Services
29 Hazen Drive
Concord, NH 3301
Phone: 603-271-4587
Email: Paulette.Valliere@dhhs.nh.gov

New Jersey

Special Child Health Services Registry (SCHS Registry)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Community Nursing Services, Early Childhood Prevention Programs, Legislators, Neurodevelopmental Centers; Federally Qualified Health Care Centers; State Parent Advocacy Network; AAP NJ Chapter; all three (3) NJ MCH Consortia
Program status: Currently collecting data
Start year: 1928
Earliest year of available data: 1985
Organizational location: Department of Health (Family Health Services/Special Child Health and Early Intervention Services)
Population covered annually: 103,000
Statewide: Yes
Current legislation or rule: NJSA 26:8-40.2 et seq., NJAC 8:20 - Ammended: 1990, 1991, 1992, 2005, Readopted: 2010, Rule Amendments Adopted: 2009; Readopted: 2010
Legislation year enacted: 1983

Case Definition
Outcomes covered: All birth defects (structural, genetic, and biochemical), all Autism Spectrum Disorders, and severe hyperbillirubinemia >25, are required to be reported; all special needs and any condition which places a child at risk (e.g. prematurity, asthma, developmental delay) are also reported, but not required.
Pregnancy outcome: Livebirths (All gestational ages and birth weights)
Age: Mandated reporting of birth defects diagnosed through age 5, voluntary reporting of birth defects diagnosed > age 6 and all children diagnosed with Special Needs conditions who are 22 years or younger. Autism mandated up to 22 years.
Residence: All NJ residents born in or out of state

Surveillance Methods
Case ascertainment: combination of active & passive, Population-based, with annual audits
Vital records: Birth certificates, Death certificates, Matched birth/death file
Other state based registries: Programs for children with special needs, Newborn hearing screening program, Newborn metabolic screening program, Autism Registry
Delivery hospitals: Disease index or discharge index, Discharge summaries, Specialty outpatient clinics, Quality assurance visit consisting of chart review of 3 month period -staff of BDR does not actively look at logs and discharge summaries but depends on staff of various hospitals and agencies to do same.
Pediatric & tertiary care hospitals: Discharge summaries, ICU/NICU logs or charts, Pediatric logs, Laboratory logs, quality assurance visit consisting of chart review of 3 month period
Third party payers: Universal billing database is used for quality assurance activities
Other sources: Midwifery Facilities, Physician reports, Special Child Health Services county-based Case Management Units, parents, medical examiners, Autism diagnosticians and treatment centers

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Chart reviews are conducted on infants/children with mandated conditions that are in the 3 month audit window
Coding: ICD-10-CM

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage
Data collection: Printed abstract/report filled out by staff, Printed abstract/report submitted by other agencies (hospitals, etc.), Electronic file/report filled out by staff at facility (laptop, web-based, etc.), Electronic file/report submitted by other agencies (hospitals, etc.)
Database collection and storage: Mainframe, SAS; PostgreSQL

Data Analysis
Data analysis software: SAS, Access
Quality assurance: Validity checks, Double-checking of assigned codes, Comparison/verification between multiple data sources, Data/hospital audits, Clinical review, Timeliness, Merge registry with birth certificate registry and the death certificate registry
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Needs assessment, Service delivery, Referral, Grant proposals, Education/public awareness, Prevention projects

System Integration
System links: Link to other state registries/databases, Link case finding data to final birth file, link to hearing screening registry
System integration: Autism Registry is fully integrated. Newborns having failed Pulse Oximetry Screening are integrated with Registry. Newborn hearing screening registry provides direct report to the SCHS Registry. Metabolic screening program provides direct report to SCHS Registry. Autism Registry is included in the Registry. Special Child Health Services county-based Case Management Referral System is included in the Registry.

Funding
Funding source: 90% MCH funds, 10% CDC grant

Other
Web site: http://www.nj.gov/health/fhs/bdr/

Contacts
Mary M. Knapp, MSN, RN
New Jersey Department of Health, Special Child Health and Early Intervention Services, Early Identification & Monitoring Program
PO Box 364
Trenton, NJ 8625
Phone: **609-292-5676** ***Fax:*** **609-292-8235**
Email: **Mary.Knapp@doh.nj.gov**

New Mexico

New Mexico Birth Defects Prevention and Surveillance System (NM BDPASS)

Purpose: Surveillance, Referral to Prevention/Intervention Services
Partner: Hospitals
Program status: Currently collecting data
Start year: 1995
Earliest year of available data: 1995
Organizational location: Department of Health (Epidemiology/Environment)
Population covered annually: 28,000
Statewide: Yes
Current legislation or rule: In January 2000, birth defects became a reportable condition. These conditions must be reported to the New Mexico Department of Health's Epidemiology and Response Division. Specifically, the conditions must be reported to the Environmental Health Epidemiology Bureau.
Legislation year enacted: 2000

Case Definition

Outcomes covered: 740.0-760.01, with emphasis on 12 birth defects that are nationally consistent data and measures for the Environmental Public Health Tracking Program.
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc., Elective terminations (All gestational ages)
Age: Birth through age 4
Residence: Births to New Mexico residents occurring in New Mexico.

Surveillance Methods

Case ascertainment: Passive case-finding with case confirmation for selected defects
Vital records: Birth certificates, Death certificates, Fetal birth certificate
Delivery hospitals: Birthing hospital reports
Pediatric & tertiary care hospitals: specialty outpatient clinics, including neurosurgery, plastic surgery, pediatric surgical specialists, prenatal diagnostic providers
Third party payers: Children's Medical Services
Other specialty facilities: Prenatal diagnostic facilities (ultrasound, etc.), Genetic counseling/clinical genetic facilities

Case Ascertainment

Conditions warranting chart review in newborn period: Cardiovascular conditions, renal agenesis/hypoplasia bilateral
Conditions warranting chart review beyond the newborn period: Cardiovascular condition
Coding: CDC coding system based on BPA, ICD-9-CM/ICD-10-CM

Data Collected

Infant/fetus: Identification information (name, address, date-of-birth, etc.), Birth measurements (weight, gestation, Apgars, etc.), Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.)

Data Collection Methods and Storage

Data collection: Electronic file/report filled out by staff at facility (laptop, web-based, etc.), Electronic file/report submitted by other agencies (hospitals, etc.)
Database collection and storage: Stata, version 13.1

Data Analysis

Data analysis software: Stata version 13.1
Quality assurance: Comparison/verification between multiple data sources
Data use and analysis: Routine statistical monitoring, Rates by demographic and other variables

Funding

Funding source: 100% CDC grant

Other

Web site:
https://nmtracking.org/en/health_effects/birthdefects/about_birthdefects/

Contacts

Heidi R Krapfl, MS
NM Department of Health, Epidemiology and Response Division
1190 St. Francis Drive, Suite N1304
Santa Fe, NM 87505
Phone: **505-476-3577** ***Fax:*** **505-827-0013**
Email: **heidi.krapfl@state.nm.us**

New York

New York State Congenital Malformations Registry (CMR)

Purpose: Surveillance, Research, Public health education
Partner: Hospitals, Universities, CDC
Program status: Currently collecting data
Start year: 1982
Earliest year of available data: 1983
Organizational location: Department of Health (Epidemiology/Environment)
Population covered annually: 240,000
Statewide: Yes
Current legislation or rule: Public Health Law Article 2, Title II, Section 225(5)(t) and Article 2, Title I, Section 206(1)(j): Codes, Rules and Regulations, Chapter 1, State Sanitary Code, Part 22.3
Legislation year enacted: 1982

Case Definition

Outcomes covered: Major structural, functional or biochemical abnormality determined genetically or induced during gestation. A detailed list is available upon request.
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (20 weeks gestation and greater), Elective terminations (All gestational ages, Applies to active surveillance studies)
Age: As of 5/25/16: 10 years for heart defects, muscular dystrophy, genetic conditions, FAS; 2 years for all other defects
Residence: In-state and out-of-state births to state residents; in-state births to non-residents; all children born in or residing in New York

Surveillance Methods

Case ascertainment: Combination of active and passive case ascertainment; population-based
Other state based registries: NYS Dept. of Health statewide hospital discharge database
Delivery hospitals: Disease index or discharge index, Discharge summaries, Obstetrics logs (i.e., labor & delivery), Regular nursery logs, ICU/NICU logs or charts, Surgery logs, Cardiac catheterization laboratories, Specialty outpatient clinics, MFM practices in regions where active surveillance is conducted.
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries, ICU/NICU logs or charts, Surgery logs, Laboratory logs, Cardiac catheterization laboratories, Specialty outpatient clinics
Other specialty facilities: Prenatal diagnostic facilities (ultrasound, etc.), Cytogenetic laboratories

Case Ascertainment

Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any chart with a selected list of ICD-9-CM codes outside 740-759/ICD-10-CM codes outside Q00-Q99, All stillborn infants, All prenatal diagnosed or suspected cases, Ascertainment of stillbirths and prenatally diagnosed cases applies to special studies
Conditions warranting chart review beyond the newborn period: Any infant with a codable defect
Coding: CDC coding system based on BPA, ICD-9-CM prior to 1992; both ICD-9-CM and ICD-10-CM from September 2015; Only ICD-10-CM from 2016

Data Collected

Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Illnesses/conditions
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage

Data collection: Printed abstract/report submitted by other agencies (hospitals, etc.), Electronic file/report submitted by other agencies (hospitals, etc.)
Database collection and storage: Access, Oracle

Data Analysis

Data analysis software: SAS, Access
Quality assurance: Validity checks, Comparison/verification between multiple data sources, Data/hospital audits, Timeliness
Data use and analysis: Routine statistical monitoring, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Observed vs. expected analyses, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Grant proposals, Education/public awareness

Funding

Funding source: 14% General state funds, 8% MCH funds, 9% CDC grant, 69% Other (State Superfund, Other)

Other

Web site: http://www.health.ny.gov/birthdefects
Surveillance reports on file: Reports for 1983 - 2008 births

Contacts

Michele Herdt, PhD
New York State Department of Health
Empire State Plaza, Corning Tower, Room 1203
Albany, NY 12237
Phone: **518-402-7996** ***Fax:*** **518-402-7959**
Email: **michele.herdt@health.ny.gov**

Marilyn L. Browne, PhD
New York State Department of Health
Empire State Plaza, Corning Tower, Room 1203
Albany, NY 12237
Phone: 518-402-7990 *Fax:* 518-402-7959
Email: marilyn.browne@health.ny.gov

North Carolina

N.C. Birth Defects Monitoring Program (NCBDMP)

Purpose: Surveillance, Research
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs, Communicable disease programs; State Laboratory for Public Health
Program status: Currently collecting data
Start year: 1987
Earliest year of available data: 1989
Organizational location: Department of Health (State Center for Health Statistics)
Population covered annually: 121,000
Statewide: Yes
Current legislation or rule: NCGS 130A-131
Legislation year enacted: 1995

Case Definition
Outcomes covered: Major birth defects
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (20 weeks gestation and greater), Elective terminations (All gestational ages)
Age: 1 year
Residence: NC resident births, including out of state deliveries

Surveillance Methods
Case ascertainment: Active Case Finding
Vital records: Birth certificates, Death certificates, Fetal birth certificate
Other state based registries: Newborn metabolic screening program
Delivery hospitals: Disease index or discharge index, Discharge summaries, Obstetrics logs (i.e., labor & delivery), ICU/NICU logs or charts, Postmortem/pathology logs, Surgery logs, Specialty outpatient clinics
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries, ICU/NICU logs or charts, Pediatric logs, Postmortem/pathology logs, Surgery logs, Specialty outpatient clinics
Other specialty facilities: Prenatal diagnostic facilities (ultrasound, etc.), Genetic counseling/clinical genetic facilities
Other sources: Positive pulse oximetry screening database

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any chart with a selected list of ICD-9-CM codes outside 740-759/ICD-10-CM codes outside Q00-Q99, Any birth certificate with a birth defect box checked, All stillborn infants, All prenatal diagnosed or suspected cases, Failed newborn pulse oximetry screen
Conditions warranting chart review beyond the newborn period: Any infant with a codable defect
Coding: CDC coding system based on BPA

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage
Data collection: Printed abstract/report submitted by other agencies (hospitals, etc.), Electronic file/report filled out by staff at facility (laptop, web-based, etc.), Electronic file/report submitted by other agencies (hospitals, etc.)
Database collection and storage: Access

Data Analysis
Data analysis software: SAS, Access
Quality assurance: Validity checks, Re-abstraction of cases, Double-checking of assigned codes, Clinical review, Timeliness
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Time-space cluster analyses, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Grant proposals, Education/public awareness, Prevention projects

System Integration
System links: Link case finding data to final birth file, Link to environmental databases, Early Intervention Program

Other
Web site: http://www.schs.state.nc.us/units/bdmp/

Contacts
Nina E. Forestieri, MPH
State Center for Health Statistics
222 N. Dawson St.
Raleigh, NC 27603
Phone: **919-733-4728** ***Fax:*** **919-733-8485**
Email: **nina.forestieri@dhhs.nc.gov**

Jennifer Stock
State Center for Health Statistics
222 N. Dawson St.
Raleigh, NC 27603
Phone: 919-733-4728 *Fax:* 919-733-8485
Email: jennifer.stock@dhhs.nc.gov

North Dakota

North Dakota Birth Defects Monitoring System (NDBDMS)

Purpose: Surveillance
Partner: Advocacy Groups, Division of Special Health Services.
Program status: Currently collecting data
Start year: 2002
Earliest year of available data: 1994
Organizational location: Department of Health (Maternal and Child Health, Vital Statistics, Office of the State Epidemiologist.)
Population covered annually: 10,738-This data is for CY 2017.
Statewide: Yes
Current legislation or rule: North Dakota Century Code:1. 23-41-04. Birth report of child with special health care needs made to department.Within three days after the birth in this state of a child born with a visible congenital deformity, the licensed maternity hospital or home in which the child was born, or the legally qualified physician or other person in attendance at the birth of the child outside of a maternity hospital, shall furnish the department a report concerning the child with the information required by the department.2. 23-41-05. Birth report of child with special health care needs - Use - Confidential.The information contained in the report furnished to the department under section 23-39-04 concerning a child with a visible congenital deformity may be used by the department for the care and treatment of the child pursuant to this chapter. The report is confidential and is solely for the use of the department in the performance of its duties. The report is not open to public inspection nor considered a public record.
Legislation year enacted: 1941

Case Definition
Pregnancy outcome: Livebirths (Other gestational birth age and/or birth weight criterion), Fetal deaths - stillbirths, spontaneous abortions, etc. (20 weeks gestation and greater)
Age: 12 months or within the year of birth.
Residence: In-state birth/s to state resident.

Surveillance Methods
Case ascertainment: Passive case-finding without case confirmation
Vital records: Birth certificates, Death certificates, Matched birth/death file, Fetal birth certificate
Other state based registries: Programs for children with special needs
Pediatric & tertiary care hospitals: Specialty outpatient clinics
Other sources: Physician reports

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any birth certificate with a birth defect box checked, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease)
Coding: ICD-10-CM

Data Collected
Infant/fetus: Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage
Data collection: Electronic file/report filled out by staff at facility (laptop, web-based, etc.), Electronic file/report submitted by other agencies (hospitals, etc.)
Database collection and storage: Access, Excel and SPSS

Data Analysis
Data analysis software: SPSS, Access
Quality assurance: Validity checks, Double-checking of assigned codes, Comparison/verification between multiple data sources, Clinical review
Data use and analysis: Routine statistical monitoring, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Epidemiologic studies (using only program data), Needs assessment, Service delivery, Referral, Grant proposals, Education/public awareness

Funding
Funding source: 100% Other (State System Development Initiative (SSDI))

Other
Web site: http://www.ndhealth.gov/cshs/
Surveillance reports on file: North Dakota Birth Defects Monitoring System Summary Report 2001-2005North Dakota Birth Defects Monitoring System Summary Report 1995-1999

Contacts
Devaiah Muthappa Muccatira, MS
Office of the State Epidemiologist
600 East Boulevard Avenue, Dept.301
Bismarck, North Dakota 58505-200
Phone: **701-328-4963** ***Fax:*** **701-328-1645**
Email: **dmuccatira@nd.gov**

Tamara Lynn Lelm, RN, MPH
Division of Special Health Services, North Dakota Department of Health
600 East Boulevard Avenue, Dept.301
Bismarck, North Dakota 58505-200
Phone: 701-328-4814 *Fax:* 701-328-1645
Email: tlelm@nd.gov

Ohio

Ohio Connections for Children with Special Needs (OCCSN)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs, Ohio Collaborative to Prevent Infant Mortality, ODH Office of Health Preparedness, ODH Bureau of Infectious Diseases
Program status: Currently collecting data
Start year: 2006
Earliest year of available data: 2008
Organizational location: Department of Health (Maternal and Child Health)
Population covered annually: 138,000
Statewide: Yes
Current legislation or rule: Ohio Revised Code (ORC) 3705.30-3705.36 authorizes the department to implement a statewide birth defects information system and mandates hospital reporting (2000).Ohio Administrative Code (OAC) 3701-57-01 to 3701-57-04 specifies conditions to be reported and methods for reporting (2015).
Legislation year enacted: 2000

Case Definition

Outcomes covered: Major congenital anomalies as recommended by stakeholders in Ohio; Zika-related birth defects; 7 targets of newborn screening for critical congenital heart disease
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (20 weeks gestation and greater)
Age: Up to 5 years of age
Residence: Ohio resident children up to 5 years of age

Surveillance Methods

Case ascertainment: Passive case-finding with case confirmation, Active case finding for Zika-related birth defects until April, 2018; passive case-finding with diagnostic validation for certain disorders; Passive case finding only for all other disorders
Vital records: Birth certificates, Death certificates, Matched birth/death file
Other state based registries: Programs for children with special needs, Newborn hearing screening program, Newborn screening for CCHD data system - electronic birth certificate system
Delivery hospitals: Hospital medical records and other electronic administrative data sets
Pediatric & tertiary care hospitals: Discharge summaries, Laboratory logs, Hospital medical records and other electronic administrative data sets
Other sources: Genetics Clinic Data within some hospitals

Case Ascertainment

Conditions warranting chart review in newborn period: Any birth certificate with a birth defect box checked, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), ICD-10 codes or named congenital anomalyICD-10 codes or named congenital anomalies
Coding: ICD-10-CM

Data Collected

Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage

Data collection: Electronic file/report submitted by other agencies (hospitals, etc.), Hospital reporters upload file to secure website for integration. Small volume hospitals can manually key data into secure user interface.
Database collection and storage: SQL server

Data Analysis

Data analysis software: SAS, Access, MS Excel
Quality assurance: Validity checks, Comparison/verification between multiple data sources, Clinical review, Timeliness
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Observed vs. expected analyses, Referral, Grant proposals, Education/public awareness, Prevention projects

System Integration

System links: Link to other state registries/databases, OCCSN data system shares common demographic file with Vital Statistics and Genetics Program data systems.

Funding

Funding source: 100% MCH funds

Other

Web site:
http://www.odh.ohio.gov/odhprograms/cmh/bdefects/birthdefects1.aspx
Surveillance reports on file: 2012 Annual Report
Additional information on file: OCCSN data system user guide for 1) reporting hospitals; 2) case abstractors; and 3) Hospital contacts for Zika-related birth defects

Contacts

Kirstan Duckett, MPH
Ohio Department of Health
246 N. High Street
Columbus, OH 43215
Phone: **614-728-2427** ***Fax:*** **614-564-2504**
Email: **Kirstan.Duckett@odh.ohio.gov**

Anna Starr, BS
Ohio Department of Health
246 N. High Street
Columbus, OH 43215
Phone: 614-995-5333 *Fax:* 614-564-2504
Email: Anna.Starr@odh.ohio.gov

Oklahoma

Oklahoma Birth Defect Registry (OBDR)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services, Data used to educate public in the Oklahoma initiative to reduce Infant Mortality
Partner: Local Health Departments, Hospitals, Advocacy Groups, Universities, Community Nursing Services, Early Childhood Prevention Programs
Program status: Currently collecting data
Start year: 1992
Earliest year of available data: 1992 abbreviated data
Organizational location: Department of Health (Screening and Special Services)
Population covered annually: 53,000
Statewide: Yes
Current legislation or rule: 63 - 1-550.2
Legislation year enacted: 1992

Case Definition
Pregnancy outcome: Livebirths (20 week gestation and greater), Fetal deaths - stillbirths, spontaneous abortions, etc. (20 weeks gestation and greater, * We collect all gestational ages but only those 20 week gestation and greater are included in most analyses and annual reporting.), Elective terminations (20 weeks gestation and greater, * We collect all gestational ages but only those 20 week gestation and greater are included in most analyses and annual reporting.)
Age: 24 months after delivery
Residence: Oklahoma

Surveillance Methods
Case ascertainment: Active Case Finding
Vital records: Birth certificates, Death certificates, Medical Examiner's autopsy reports
Other state based registries: Newborn metabolic screening program
Delivery hospitals: Disease index or discharge index, Discharge summaries, Specialty outpatient clinics
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries, Specialty outpatient clinics
Other specialty facilities: Prenatal diagnostic facilities (ultrasound, etc.)
Other sources: MFM/Neonatology Case Conference

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any chart with a selected list of ICD-9-CM codes outside 740-759/ICD-10-CM codes outside Q00-Q99, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), All stillborn infants, All elective abortions, All neonatal deaths, All prenatal diagnosed or suspected cases
Coding: CDC coding system based on BPA

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications, Family history

Data Collection Methods and Storage
Data collection: Printed abstract/report filled out by staff
Database collection and storage: Access

Data Analysis
Data analysis software: SAS, Access, ArcGIS
Quality assurance: Validity checks, Re-abstraction of cases, Double-checking of assigned codes, Comparison/verification between multiple data sources, Timeliness
Data use and analysis: Routine statistical monitoring, Baseline rates, Rates by demographic and other variables, Time trends, Referral, Education/public awareness, Prevention projects

System Integration
System links: Link to other state registries/databases

Funding
Funding source: 57% MCH funds, 43% CDC grant

Other
Web site:
https://www.ok.gov/health/Community_&_Family_Health/Screening_&_Special_Services/Oklahoma_Birth_Defects_Registry/index.html
Surveillance reports on file: Yes

Contacts
Lisa R Caton, MS, RN
Oklahoma State Department of Health
1000 NE 10th St, Room 709
Oklahoma City, OK 73117
Phone: **405-271-6617** ***Fax:*** **405-271-4892**
Email: **lisarc@health.ok.gov**

Linsay Denson, MS, RDMS
Oklahoma State Department of Health
1000 NE 10th St, Room 710
Oklahoma City, OK 73117
Phone: 405-271-6617 *Fax:* 405-271-4892
Email: LindsayXD@health.ok.gov

Oregon

Oregon Birth Anomalies Surveillance System (BASS)

Purpose: Surveillance
Partner: Local Health Departments, Hospitals, Advocacy Groups, Universities, Early Childhood Prevention Programs
Program status: Currently collecting data
Start year: 2013
Earliest year of available data: 2008
Organizational location: Department of Health (Maternal and Child Health)
Population covered annually: 45,000
Statewide: Yes
Current legislation or rule: None

Case Definition
Outcomes covered: NBDPN core, recommended, and extended anomalies for surveillance, plus microcephaly and congenital hearing loss cases.
Pregnancy outcome: Livebirths (All gestational ages and birth weights)
Age: 6 years and 0 months
Residence: Oregon resident births (in and out-of-state)

Surveillance Methods
Case ascertainment: Passive case-finding without case confirmation
Vital records: Birth certificates, Death certificates
Other state based registries: Newborn hearing screening program
Delivery hospitals: Hospital Discharge Data
Pediatric & tertiary care hospitals: Hospital Discharge Data
Third party payers: Medicaid databases
Other sources: Hospital Discharge Data

Case Ascertainment
Coding: ICD-10-CM, ICD-10 for Death certificates

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage
Data collection: Administrative data sets sharing with data use agreements in place: Birth Certificate, Death Certificate, Hospital Discharge Data and Medicaid claims
Database collection and storage: Access, SQL/SPSS

Data Analysis
Data analysis software: SPSS, Access, Link Plus
Quality assurance: Validity checks, Double-checking of assigned codes, Comparison/verification between multiple data sources
Data use and analysis: Routine statistical monitoring, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Grant proposals, Education/public awareness

System Integration
System links: Oregon Environmental Public Health Tracking System

Funding
Funding source: 50% MCH funds, 50% CDC grant

Other
Web site:
http://public.health.oregon.gov/HealthyPeopleFamilies/DataReports/Pages/birth-anomalies.aspx

Contacts
Vivian Siu, MPH, MURP
Maternal and Child Health Section, Center for Prevention and Health Promotion, Oregon Public Health Division. Oregon Health Authority
800 NE Oregon St, Suite 825
Portland, OR 97232
Phone: **971-673-0244**
Email: **vivian.w.siu@state.or.us**

Suzanne B Zane, DVM, MPH
Maternal and Child Health Section, Center for Prevention and Health Promotion, Oregon Public Health Division. Oregon Health Authority
800 NE Oregon St, Suite 850
Portland, OR 97232
Phone: 971-673-0559
Email: suzanne.zane@state.or.us

Pennsylvania

Pennsylvania Birth Defects Surveillance Program (PA-BDSP)

Purpose: Surveillance of Zika-related birth defects only
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs
Program status: Currently collecting data
Start year: 2017
Earliest year of available data: 2016 (Zika-related birth defects only)
Organizational location: Department of Health (Epidemiology/Environment)
Population covered annually: 117,895
Statewide: No, Excludes Philadelphia City/County
Current legislation or rule: None

Case Definition
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (After 18 weeks gestation)
Age: 1 year
Residence: In-state birth to state resident

Surveillance Methods
Case ascertainment: Passive case-finding with case confirmation
Vital records: Birth certificates, Death certificates, Fetal birth certificate
Delivery hospitals: Disease index or discharge index
Pediatric & tertiary care hospitals: Disease index or discharge index

Case Ascertainment
Conditions warranting chart review in newborn period: ICD-10 CM code for Zika-related birth defects
Conditions warranting chart review beyond the newborn period: Any infant with a codable defect
Coding: ICD-10-CM

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications, Family history

Data Collection Methods and Storage
Data collection: Electronic file/report filled out by staff at facility (laptop, web-based, etc.)
Database collection and storage: REDCap Cloud

Data Analysis
Data analysis software: SAS
Quality assurance: Validity checks, Re-abstraction of cases, Double-checking of assigned codes, Timeliness
Data use and analysis: Baseline rates, CDC cooperative agreement

System Integration
System links: Link case finding data to final birth file

Funding
Funding source: 100% CDC grant

Contacts
Sharon Watkins, PhD
PA Department of Health, Bureau of Epidemiology
625 Forster Street, Health & Welfare Bldg. 9th Floor East
Harrisburg, PA 17120
Phone: **717-787-3350**
Email: **shawatkins@pa.gov**

Puerto Rico

Puerto Rico Birth Defects Surveillance and Prevention System (PR-BDSPS)

Purpose: Surveillance, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Advocacy Groups, Universities, Community Nursing Services, Early Childhood Prevention Programs
Program status: Currently collecting data
Start year: 1995
Earliest year of available data: 1995
Organizational location: Department of Health (Services for Children with Special Medical Needs Division)
Population covered annually: 30,000
Statewide: Yes
Current legislation or rule: Law #351
Legislation year enacted: 2004

Case Definition
Outcomes covered: Selected birth defects covered: Neural Tube defects, microcephaly, holoprocencephaly, cleft lip and/or cleft palate, anotia, microtia, anophthalmia, microphthalmia, limb defects, talipes equinovarus, gastroschisis, omphalocele, craniosynostosis, Trisomy 13, 18 and 21, Tuner syndrome, 22q11.2 deletion syndrome, Albinism, Jarcho-Levin syndrome, Prader Willi syndrome, major congenital heart defects, ambiguous genitalia, Hypospadias , and bladder extrophy. Birth Defects potentially related to Zika virus covered: congenital hearing loss (unilateral or bilateral) congenital hip dislocation with associated brain anomalies, arthrogryposis, eye anomalies(coloboma; congenital cataract; chorioretinal atrophy, scarring and pigmentary changes; intraocular calcifications; optic nerve abnormalities) and brain abnormalities with and without microcephaly(intracranial calcifications; cerebral/cortical atrophy; abnormal cortical gyral patterns; corpus callosum abnormalities; porencephaly; hydranencephaly; fetal brain disruption sequence; other mayor brain abnormalities).
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (20 weeks gestation and greater), Elective terminations (All gestational ages)
Age: Up to 6 years after delivery
Residence: In-state births to state residents

Surveillance Methods
Case ascertainment: Active Case Finding
Vital records: Birth certificates, Death certificates
Other state based registries: Programs for children with special needs, Newborn hearing screening program, Newborn metabolic screening program
Delivery hospitals: Disease index or discharge index, Discharge summaries, Obstetrics logs (i.e., labor & delivery), Regular nursery logs, ICU/NICU logs or charts, Pediatric logs, Postmortem/pathology logs, Surgery logs, Specialty outpatient clinics
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries, ICU/NICU logs or charts, Pediatric logs, Postmortem/pathology logs, Surgery logs
Third party payers: Medicaid databases, Health Maintenance organizations (HMOs)
Other specialty facilities: Prenatal diagnostic facilities (ultrasound, etc.), Cytogenetic laboratories
Other sources: Physician reports

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any birth certificate with a birth defect box checked, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), All neonatal deaths, All infants in NICU or special care nursery, All prenatal diagnosed or suspected cases
Conditions warranting chart review beyond the newborn period: Facial dysmorphism or abnormal facies, Cardiovascular condition, Ocular conditions, Auditory/hearing conditions
Coding: ICD-10-CM

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage
Data collection: Printed abstract/report filled out by staff, Printed abstract/report submitted by other agencies (hospitals, etc.)
Database collection and storage: Access, REDCap

Data Analysis
Data analysis software: SPSS, Access, Excel
Quality assurance: Validity checks, Re-abstraction of cases, Double-checking of assigned codes, Comparison/verification between multiple data sources, Clinical review, Timeliness
Data use and analysis: Routine statistical monitoring, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Service delivery, Referral, Grant proposals, Education/public awareness, Prevention projects

Funding
Funding source: 51.4% MCH funds, 48.6% CDC grant

Contacts
Carla P Espinet, MPH
Puerto Rico Department of Health
PO Box 70184
San Juan, PR 936
Phone: **787-765-2929 x4571**
Email: **carlaespinet@salud.pr.gov**

Miguel Valencia, MD
Puerto Rico Department of Health
PO Box 70184
San Juan, PR 936
Phone: 787-765-2929 x4572
Email: mvalencia@salud.pr.gov

Rhode Island

Rhode Island Birth Defects Program (RIBDP)

Purpose: Surveillance, Referral to Services, Referral to Prevention/Intervention Services
Partner: Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Community Nursing Services, Early Childhood Prevention Programs, Families
Program status: Currently collecting data
Start year: 2000
Earliest year of available data: 2002
Organizational location: Department of Health (Center for Health Data and Analysis)
Population covered annually: 10,800
Statewide: Yes
Current legislation or rule: Title 23, Chapter 13.3 of Rhode Island General Laws requires the development of a birth defects surveillance, reporting, and information system that will a) describe the occurrence of birth defects in children up to age five; b) detect trends of morbidity and mortality; and c) identify newborns and children with birth defects to intervene on a timely basis for treatment.
Legislation year enacted: 2003

Case Definition

Outcomes covered: All birth defects and genetic diseases
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (All gestational ages), Elective terminations (All gestational ages)
Age: Birth up to 5 years
Residence: RI maternal residence

Surveillance Methods

Case ascertainment: Combination of active and passive case ascertainment
Vital records: Birth certificates, Death certificates, Matched birth/death file
Other state based registries: Programs for children with special needs, Newborn hearing screening program, Newborn metabolic screening program, RI has an integrated child health information system called KIDSNET, which links data from 10 programs including: Newborn Developmental Risk Screening, Newborn Bloodspot Screening, Newborn Hearing Screening, Home Visiting, Immunization, etc.
Delivery hospitals: Discharge summaries
Pediatric & tertiary care hospitals: Discharge summaries, Specialty outpatient clinics
Other specialty facilities: Prenatal diagnostic facilities (ultrasound, etc.), Cytogenetic laboratories, Genetic counseling/clinical genetic facilities, Maternal serum screening facilities
Other sources: Physician reports

Case Ascertainment

Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any chart with a selected list of ICD-9-CM codes outside 740-759/ICD-10-CM codes outside Q00-Q99, All stillborn infants, All elective abortions, All infants in NICU or special care nursery, All prenatal diagnosed or suspected cases, Chart reviews are conducted for infants born at the regional perinatal center and the 4 other maternity hospitals who were identified with an ICD-9-CM code 740-759 and 760.71 or an ICD-10 Q code and other sentinel conditions
Conditions warranting chart review beyond the newborn period: Any infant with a codable defect
Coding: ICD-10-CM

Data Collected

Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications, Family history

Data Collection Methods and Storage

Data collection: Printed abstract/report submitted by other agencies (hospitals, etc.), Electronic file/report filled out by staff at facility (laptop, web-based, etc.), Electronic file/report submitted by other agencies (hospitals, etc.)
Database collection and storage: Access, Oracle

Data Analysis

Data analysis software: SAS, Access
Quality assurance: Validity checks, Re-abstraction of cases, Double-checking of assigned codes, Comparison/verification between multiple data sources, Data/hospital audits, Timeliness
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Observed vs. expected analyses, Epidemiologic studies (using only program data), Needs assessment, Service delivery, Referral, Grant proposals, Education/public awareness, Prevention projects

System Integration

System links: Link to other state registries/databases, KIDSNET, hospital discharge data
System integration: Integrated into KIDSNET for web-based provider reporting

Funding

Funding source: 5% General state funds, 10% MCH funds, 85% CDC grant

Other

Web site: www.health.ri.gov/programs/birthdefects
Surveillance reports on file: 2016 Rhode Island Birth Defects Data Book

Contacts

Samara Viner-Brown, MS
Rhode Island Department of Health
3 Capitol Hl
Providence, RI 2908
Phone: **(401)222-5122**
Email: **samara.vinerbrown@health.ri.gov**

Kristen St. John, MPH
Rhode Island Department of Health
3 Capitol Hl
Providence, RI 2908
Phone: (401)222-5123
Email: Kristen.stjohn@health.ri.gov

South Carolina

South Carolina Birth Defects Program (SCBDP)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs, Greenwood Genetics Center (GGC)
Program status: Currently collecting data
Start year: GGC began monitoring in 1992; transitioned to SC DHEC and expanded in 2006
Earliest year of available data: Full data available beginning in 2006
Organizational location: Department of Health (Health Improvement and Equity)
Population covered annually: 58,135
Statewide: Yes
Current legislation or rule: A281, R308, H4115
Legislation year enacted: 2004

Case Definition

Outcomes covered: Central nervous system defects, eye and ear defects, cardiovascular defects, orofacial defects, gastrointestinal defects, genitourinary defects, musculoskeletal defects, and chromosomal defects
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (All gestational ages), Elective terminations (All gestational ages)
Age: Up to two years of age
Residence: In-state births to state residents

Surveillance Methods

Case ascertainment: Active Case Finding
Vital records: Birth certificates, The birth certificate data is NTD-specific
Other state based registries: First Sound (EHDI) sends a report of cases of hearing loss
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries
Other sources: NTD reports from a few geneticists

Case Ascertainment

Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any chart with a selected list of ICD-9-CM codes outside 740-759/ICD-10-CM codes outside Q00-Q99, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), All prenatal diagnosed or suspected cases, inpatient elective abortions, prenatally diagnosed cases found through problem pregnancy codes, and select ICD-10/9 codes outside of that range
Conditions warranting chart review beyond the newborn period: Any infant with a codable defect
Coding: ICD-10-CM

Data Collected

Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications

Data Collection Methods and Storage

Data collection: Electronic file/report filled out by staff at facility (laptop, web-based, etc.), Electronic scanning of printed records
Database collection and storage: Access, SQL Server

Data Analysis

Data analysis software: SAS, Access, Arc-GIS, Microsoft Excel
Quality assurance: Validity checks, Double-checking of assigned codes, Comparison/verification between multiple data sources, Clinical review, We look at comparison between multiple data sources for NTD only
Data use and analysis: Routine statistical monitoring, Baseline rates, Rates by demographic and other variables, Time trends, Needs assessment, Referral, Grant proposals, Education/public awareness, Prevention projects

System Integration

System links: Link case finding data to final birth file
System integration: SCBDP data is integrated with SC Vital Records.

Funding

Funding source: 60% General state funds, 10% MCH funds, 30% CDC grant

Other

Web site:
http://www.scdhec.gov/Health/FamilyPlanning/DataStaticsonPregnancyBabyHealth/BirthDefects/

Contacts

Vinita Oberoi Leedom, MPH, CIC
SC Department of Health and Environmental Control
2100 Bull Street
Columbia, SC 29201
Phone: **803-898-0771** ***Fax:*** **803-898-3236**
Email: **leedomvo@dhec.sc.gov**

Katherine Craigue Zielke, MPH, RN
SC Department of Health and Environmental Control
2100 Bull Street
Columbia, SC 29201
Phone: 803-898-2379 *Fax:* 803-898-3236
Email: zielkekc@dhec.sc.gov

South Dakota

Program status: No surveillance program

Contacts

Linda Ahrendt
SD Dept Health
600 E. Capitol Ave.
Pierre, SD 57501
Phone: **605-773-3361** ***Fax:*** **605-773-5683**
Email: **linda.ahrendt@state.sd.us.us**

Tennessee

Tennessee Birth Defects Surveillance System (TNBDSS)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Advocacy Groups, Universities, Early Childhood Prevention Programs, Legislators
Program status: Currently collecting data
Start year: 2000
Earliest year of available data: 1999
Organizational location: Department of Health (Maternal and Child Health)
Population covered annually: 80,559
Statewide: Yes
Current legislation or rule: TCA 68-5-506
Legislation year enacted: 2000

Case Definition
Outcomes covered: 46 major structural birth defects
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (Prior to July 1st 2010: 500 grams or more, or in the absence of weight, 22 completed weeks of gestation or more; July 1st 2010 and later: 350 grams or more, or in the absence of weight, 20 completed weeks of gestation or more)
Age: Up to 5 years old
Residence: In and out of state births to state residents

Surveillance Methods
Case ascertainment: Passive case-finding with case confirmation, Passive case-finding without case confirmation
Vital records: Birth certificates, Death certificates, Matched birth/death file, Fetal birth certificate
Other state based registries: Newborn hearing screening program, Newborn metabolic screening program, Hospital Discharge Data System
Delivery hospitals: Disease index or discharge index, Discharge summaries, Obstetrics logs (i.e., labor & delivery), Regular nursery logs, ICU/NICU logs or charts, Pediatric logs, Specialty outpatient clinics
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries, ICU/NICU logs or charts, Pediatric logs, Specialty outpatient clinics
Other sources: Midwifery Facilities

Case Ascertainment
Conditions warranting chart review in newborn period: ICD-10 codes from 23 Zika-related birth defects
Conditions warranting chart review beyond the newborn period: CNS condition (e.g. seizure), Auditory/hearing conditions
Coding: ICD-10-CM

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage
Data collection: Electronic file/report filled out by staff at facility (laptop, web-based, etc.), Electronic file/report submitted by other agencies (hospitals, etc.)
Database collection and storage: SAS and REDCap

Data Analysis
Data analysis software: SAS, Arc-GIS
Quality assurance: Validity checks, Double-checking of assigned codes, Comparison/verification between multiple data sources, Clinical review
Data use and analysis: Routine statistical monitoring, Baseline rates, Rates by demographic and other variables, Time trends, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Referral, Grant proposals, Education/public awareness

System Integration
System links: Link to other state registries/databases, Link case finding data to final birth file

Funding
Funding source: 100% CDC grant

Other
Web site: www.tn.gov/health
Surveillance reports on file: Tennessee Birth Defects Registry Report 2009-2013

Contacts
Katherine Lolley, MPH, CPH
Tennessee Dept. of Health
710 James Robertson Parkway, 7th Floor
Nashville, TN 37243
Phone: **615-253-4145** ***Fax:*** **615-532-7189**
Email: **Katherine.Lolley@tn.gov**

Carolina Clark, MD, MPH
Tennessee Dept. of Health
710 James Robertson Parkway, 8th Floor
Nashville, TN 37243
Phone: 615-532-6936 *Fax:* 615-532-7189
Email: Carolina.Clark@tn.gov

Texas

Texas Birth Defects Epidemiology and Surveillance Branch (TBDES)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Legislators, Researchers (NBDPN, NBDPS, ICBDSR)
Program status: Currently collecting data
Start year: 1994
Earliest year of available data: 1996
Organizational location: Department of Health (Epidemiology/Environment)
Population covered annually: 403,439 in 2015
Statewide: Yes
Current legislation or rule: Health and Safety Code, Title 2, Subtitle D, Section1, Chapter 87
Legislation year enacted: 1993

Case Definition

Outcomes covered: All major structural birth defects and fetal alcohol syndrome.
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (All gestational ages), Elective terminations (All gestational ages)
Age: Up to one year after delivery and up to 6 years for FAS, special studies and childhood genetic disorders diagnosed after infancy.
Residence: In and out of state births to state residents

Surveillance Methods

Case ascertainment: Active Case Finding, Population-based, includes entire state
Vital records: Fetal death certificates for delivery year 2009 to present
Delivery hospitals: Disease index or discharge index, Discharge summaries, Obstetrics logs (i.e., labor & delivery), Regular nursery logs, ICU/NICU logs or charts, Pediatric logs, Postmortem/pathology logs, Surgery logs, Cardiac catheterization laboratories, Specialty outpatient clinics, Genetics, stillbirths and radiology logs
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries, ICU/NICU logs or charts, Pediatric logs, Postmortem/pathology logs, Surgery logs, Laboratory logs, Cardiac catheterization laboratories, Specialty outpatient clinics, genetics, stillbirths and radiology logs
Other sources: Midwifery Facilities, Licensed birthing centers

Case Ascertainment

Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any chart with a selected list of ICD-9-CM codes outside 740-759/ICD-10-CM codes outside Q00-Q99, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), Infants with low birth weight or low gestation (<34 weeks gestational age), All stillborn infants
Conditions warranting chart review beyond the newborn period: CNS condition (e.g. seizure), GI condition (e.g. intestinal blockage), GU condition (e.g. recurrent infections), Cardiovascular condition, Any infant with a codable defect
Coding: CDC coding system based on BPA

Data Collected

Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Family history

Data Collection Methods and Storage

Data collection: Printed abstract/report filled out by staff, Electronic file/report filled out by staff at facility (laptop, web-based, etc.)
Database collection and storage: Oracle

Data Analysis

Data analysis software: SAS, Access
Quality assurance: Validity checks, Re-abstraction of cases, Double-checking of assigned codes, Comparison/verification between multiple data sources, Clinical review, Timeliness, Re-casefinding, re-review of medical records
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Time-space cluster analyses, Capture-recapture analyses, Observed vs. expected analyses, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Needs assessment, Service delivery, Referral, Grant proposals, Education/public awareness, Prevention projects, Link registry to vital records for demographic data, special projects linking to other files (Texas Health Data for geocodes, Newborn Screening data).

System Integration

System links: Link to other state registries/databases, Link to environmental databases, Statewide hospital discharge datasets

Funding

Funding source: 26% General state funds, 73% MCH funds, 1% CDC grant

Other

Web site: https://www.dshs.texas.gov/birthdefects/
Surveillance reports on file: See website for publication and surveillance reports

Contacts

Mark A Canfield, PhD
Birth Defects Epidemiology and Surveillance Branch
P.O. Box 149347, Mail Code 1964
Austin, TX 78714-9347
Phone: **512-776-7232** ***Fax:*** **512-776-7330**
Email: **Mark.Canfield@dshs.texas.gov**

Adrienne T Hoyt, M.S., M.P.H., M.A.L.A., M.A.L.S.
Birth Defects Epidemiology and Surveillance Branch
P.O. Box 149347, Mail Code 1964
Austin, TX 78714-9347
Phone: 512-776-6381 *Fax:* 512-776-7330
Email: adrienne.hoyt@dshs.texas.gov

Utah

Utah Birth Defect Network (UBDN)

Purpose: Surveillance, Research, Referral to Prevention/Intervention Services, General Birth Defect Prevention Education
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs, Community Health Centers
Program status: Currently collecting data
Start year: 1994
Earliest year of available data: 1994
Organizational location: Department of Health (CSHCN)
Population covered annually: 50,000
Statewide: Yes
Current legislation or rule: Birth Defect Rule (R398-5)
Legislation year enacted: 1999

Case Definition

Outcomes covered: All major structural birth defects and Zika associated birth defects.
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (All gestational ages), Elective terminations (All gestational ages)
Age: 2 years based on mandatory reporting
Residence: Utah maternal residence

Surveillance Methods

Case ascertainment: Combination of active and passive case ascertainment; population-based
Vital records: Birth certificates, Death certificates, Matched birth/death file, Fetal birth certificate
Other state based registries: Programs for children with special needs, Newborn hearing screening program, Newborn metabolic screening program, CCHD screening program, Autism Registry
Delivery hospitals: Disease index or discharge index, Discharge summaries, ICU/NICU logs or charts, Specialty outpatient clinics, Champions report live births delivered at their respective hospitals
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries, ICU/NICU logs or charts, Cardiac catheterization laboratories, Specialty outpatient clinics
Other specialty facilities: Prenatal diagnostic facilities (ultrasound, etc.), Genetic counseling/clinical genetic facilities
Other sources: Physician reports, Lay midwives

Case Ascertainment

Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any chart with a selected list of ICD-9-CM codes outside 740-759/ICD-10-CM codes outside Q00-Q99, Any chart with selected procedure codes, Any birth certificate with a birth defect box checked, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), All stillborn infants, All neonatal deaths, All infants in NICU or special care nursery, All prenatal diagnosed or suspected cases, All fetal death certificates, NICU reports, infant deaths are reviewed
Conditions warranting chart review beyond the newborn period: Facial dysmorphism or abnormal facies, Failure to thrive, Cardiovascular condition, All infant deaths (excluding prematurity), Childhood deaths between 1 and 6, Any infant with a codable defect
Coding: CDC coding system based on BPA

Data Collected

Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Illnesses/conditions, Family history

Data Collection Methods and Storage

Data collection: Printed abstract/report filled out by staff, Printed abstract/report submitted by other agencies (hospitals, etc.), Electronic file/report filled out by staff at facility (laptop, web-based, etc.), Electronic file/report submitted by other agencies (hospitals, etc.), Electronic file/report filled out by staff using remote access from office (laptop, web-based, etc.)
Database collection and storage: Access

Data Analysis

Data analysis software: SAS, Access
Quality assurance: Validity checks, Double-checking of assigned codes, Comparison/verification between multiple data sources, Clinical review, Timeliness, Logical checks, duplicate check in tracking and surveillance module, case record form checked for completeness, timeliness through system
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Time trends, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Referral, Grant proposals, Education/public awareness, Prevention projects, Oral Facial Cleft Case-Control Study, UT Center for Birth Defects Research and Prevention, International Clearinghouse for Birth Defects, Local studies

System Integration

System links: Link to other state registries/databases, Link to environmental databases, Link to Utah genealogic population database, Link to vital records
System integration: The database is linked with birth, death, and pulse oximetry screening data. Newborns having failed Pulse Oximetry Screening are integrated with UBDN.

Funding

Funding source: 80% MCH funds, 20% CDC grant

Other

Web site: http://www.health.utah.gov/birthdefect
Surveillance reports on file: Http://ibis.health.utah.gov
Other comments: IBIS indicators are online.

Contacts

Amy E Nance, MPH
Utah Birth Defect Network
44 N Mario Capecchi Drive, PO Box 144699
Salt Lake City, UT 84114
Phone: **801-883-4661** ***Fax:*** **801-323-1578**
Email: **aenance@utah.gov**

Vermont

Birth Information Network (BIN)

Purpose: Surveillance, Referral to Services
Partner: Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs, Hospital Association
Program status: Currently collecting data
Start year: 2006
Earliest year of available data: 2006
Organizational location: Department of Health (Division of Health Surveillance / Statistics)
Population covered annually: 6000
Statewide: Yes
Current legislation or rule: Act 32 (TITLE 18 VSA §5087)
Legislation year enacted: 2003

Case Definition
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (20 week gestation and greater or a birth weight of more than 400 grams)
Age: Up to one year after delivery
Residence: In and out of state births to state residents

Surveillance Methods
Case ascertainment: Passive case-finding with case confirmation
Vital records: Birth certificates, Death certificates, Matched birth/death file, Fetal birth certificate
Other state based registries: Programs for children with special needs, Newborn hearing screening program, Newborn metabolic screening program
Delivery hospitals: Discharge summaries, Specialty outpatient clinics
Pediatric & tertiary care hospitals: Discharge summaries, Specialty outpatient clinics
Third party payers: Medicaid databases, Multi-payer claims database
Other specialty facilities: Cytogenetic laboratories
Other sources: Physician reports, Autopsy reports

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with selected procedure codes, Any birth certificate with a birth defect box checked, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), Any chart with an ICD-9-CM or ICD-10-CM code corresponding to a condition monitored by Vermont's registry.
Conditions warranting chart review beyond the newborn period: Any infant with a codable defect
Coding: ICD-10-CM

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage
Data collection: Printed abstract/report submitted by other agencies (hospitals, etc.), Electronic file/report submitted by other agencies (hospitals, etc.)
Database collection and storage: Access

Data Analysis
Data analysis software: SPSS, Access, Excel
Quality assurance: Comparison/verification between multiple data sources, Clinical review, Timeliness
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Observed vs. expected analyses, Identification of potential cases for other epidemiologic studies, Referral, Grant proposals, Education/public awareness

System Integration
System links: Link to other state registries/databases, Link case finding data to final birth file, Link to environmental databases

Funding
Funding source: 5% General state funds, 95% CDC grant

Other
Web site:
http://www.healthvermont.gov/health-statistics-vital-records/registries/birth-information-network

Contacts
Brennan Martin, MPH
Vermont Department of Health
P.O. Box 70, 108 Cherry Street
Burlington, VT 5402
Phone: **802-863-7611** ***Fax:*** **802-865-7701**
Email: **brennan.martin@vermont.gov**

Peggy Brozicevic, B.A.
Vermont Department of Health
P.O. Box 70, 108 Cherry Street
Burlington, VT 5402
Phone: 802-863-7298 *Fax:* 802-865-7701
Email: peggy.brozicevic@vermont.gov

Virginia

Virginia Congenital Anomalies and Reporting Education System (VaCARES)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals
Program status: Currently collecting data
Start year: 1985
Earliest year of available data: 2004
Organizational location: Department of Health (Office of Family Health Services, Division of Child and Family Health)
Population covered annually: 101,000
Statewide: Yes
Current legislation or rule: Code of Virginia, § 32.1-69.1https://law.lis.virginia.gov/vacodefull/title32.1/chapter2/article8.1/
Legislation year enacted: 1985

Case Definition
Outcomes covered: Major and non-major birth defects
Pregnancy outcome: Livebirths (All gestational ages and birth weights)
Age: Up to 2 years of age
Residence: Any diagnoses occurring in-state

Surveillance Methods
Case ascertainment: Passive case-finding without case confirmation
Vital records: Birth certificates
Other state based registries: Newborn hearing screening program, Newborn metabolic screening program
Delivery hospitals: Discharge summaries
Pediatric & tertiary care hospitals: Discharge summaries
Other specialty facilities: Genetic counseling/clinic genetic facilities

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease)
Coding: ICD-10-CM

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, Illnesses/conditions, Prenatal care, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage
Data collection: Printed abstract/report submitted by other agencies (hospitals, etc.), Electronic file/report filled out by staff at facility (laptop, web-based, etc.)
Database collection and storage: Web-based reporting system is linked to electronic birth certificate and populates Oracle data tables

Data Analysis
Data analysis software: SAS
Data use and analysis: Public health program evaluation, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Epidemiologic studies (using only program data), Needs assessment, Referral, Grant proposals, Education/public awareness

System Integration
System links: Link to other state registries/databases, Link case finding data to final birth file
System integration: VaCARES is part of the Virginia Vital Events Screening and Tracking System, which also houses electronic birth certificate reporting and the Virginia Early Hearing Detection and Intervention tracking systems.

Funding
Funding source: 34% MCH funds, 5% Genetic screening revenues, 61% CDC grant

Other
Web site: http://www.vdh.virginia.gov/livewell/programs/vacares/

Contacts
Jennifer Olsen Macdonald, MPH, BSN, RN
Virginia Department of Health
109 Governor Street
Richmond, VA 23219
Phone: **(804) 864-7729**
Email: **jennifer.macdonald@vdh.virginia.gov**

Colin Benusa, MPH
Virginia Department of Health
109 Governor Street
Richmond, VA 23219
Phone: 804-864-7767
Email: colin.benusa@vdh.virginia.gov

Washington

Washington State Birth Defects Surveillance System (BDSS)

Purpose: Surveillance
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Universities
Program status: Currently collecting data
Start year: 1986 (active), 1991 (passive)
Earliest year of available data: 1987
Organizational location: Department of Health (Office of Family & Community Health Improvement)
Population covered annually: 90,000 est
Statewide: Yes
Current legislation or rule: Notifiable Conditions: WAC 246-101
Legislation year enacted: 2000

Case Definition
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (20 weeks gestation and greater)
Age: We ascertain cases through 1 year of age for structural defects and to age 10 for FAS/FAE, Cerebral Palsy and Autism
Residence: Resident births; children born, diagnosed, or treated in-state

Surveillance Methods
Case ascertainment: Passive case-finding without case confirmation
Vital records: Birth certificates, Fetal birth certificate
Delivery hospitals: Disease index or discharge index
Pediatric & tertiary care hospitals: Disease index or discharge index

Case Ascertainment
Coding: ICD-10-CM

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Tests and procedures, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.)
Father: Identification information (name, address, date-of-birth, etc.)

Data Collection Methods and Storage
Data collection: Printed abstract/report submitted by other agencies (hospitals, etc.), Electronic file/report submitted by other agencies (hospitals, etc.), Case-finding Log listing of all data elements required for each case are completed by Medical Records staff, sometimes in conjunction with hospital Information Systems staff. Several facilities submit print-outs from data query of internal system of discharge data. Minimal use of diskette or other forms of electronic data transfer. A web-based reporting system is currently in development.
Database collection and storage: Web-based SQL server

Data Analysis
Data analysis software: SAS, Stata
Quality assurance: Validity checks
Data use and analysis: Routine statistical monitoring, Baseline rates, Monitoring outbreaks and cluster investigations, Time trends, Observed vs. expected analyses

System Integration
System links: Link case finding data to final birth file

Funding
Funding source: 70% General state funds, 30% MCH funds

Contacts
Kevin Beck, MA
Washington Dept. of Health
PO Box 47835
Olympia, WA 98504-7835
Phone: **360-236-3492** ***Fax:*** **360-236-2323**
Email: **kevin.beck@doh.wa.gov**

Teresa Vollan, MPH
Washington Dept. of Health; Maternal and Child Health; CSHCN
PO Box 47835
Olympia, WA 98504-7835
Phone: 360-236-3581 *Fax:* 360-236-2323
Email: teresa.vollan@doh.wa.gov

West Virginia

West Virginia Birth Defects Surveillance System

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Hospitals, Universities, Early Childhood Prevention Programs
Program status: Currently collecting data
Start year: 1989
Earliest year of available data: 1989
Organizational location: Department of Health (Maternal and Child Health)
Population covered annually: 20,000
Statewide: Yes
Current legislation or rule: WV State Code 16-5-12a
Legislation year enacted: 1991; updated 2002

Case Definition
Outcomes covered: ICD-9-CM codes 740-759, 760, 764, 765, 766 with transition to ICD-10
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (20 weeks gestation and greater), Elective terminations (20 weeks gestation and greater)
Age: 0-6 years
Residence: In and out of state births to state residents

Surveillance Methods
Case ascertainment: Passive case-finding without case confirmation
Vital records: Birth certificates, Death certificates, Matched birth/death file, Fetal birth certificate, Elective termination certificates
Other state based registries: Programs for children with special needs, Newborn hearing screening program, Newborn metabolic screening program, Infant and Maternal Mortality Review Panel
Delivery hospitals: Discharge summaries
Pediatric & tertiary care hospitals: Discharge summaries
Other sources: Pediatric referrals of children not identified on birth certificate

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any chart with a selected list of ICD-9-CM codes outside 740-759/ICD-10-CM codes outside Q00-Q99, Any birth certificate with a birth defect box checked, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), Infants with low birth weight or low gestation (<2500 grams or <37 weeks), All stillborn infants, All elective abortions, All neonatal deaths, All infants in NICU or special care nursery
Conditions warranting chart review beyond the newborn period: Facial dysmorphism or abnormal facies, Failure to thrive, Developmental delay, CNS condition (e.g. seizure), GI condition (e.g. intestinal blockage), GU condition (e.g. recurrent infections), Cardiovascular condition, All infant deaths (excluding prematurity), Childhood deaths between 1 and 6, Ocular conditions, Auditory/hearing conditions, Any infant with a codable defect
Coding: ICD-10-CM

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.)

Data Collection Methods and Storage
Data collection: Printed abstract/report submitted by other agencies (hospitals, etc.), Electronic file/report submitted by other agencies (hospitals, etc.)
Database collection and storage: Access

Data Analysis
Data analysis software: Access
Quality assurance: Comparison/verification between multiple data sources, Timeliness
Data use and analysis: Routine statistical monitoring, Baseline rates, Rates by demographic and other variables, Time trends, Epidemiologic studies (using only program data), Needs assessment, Service delivery, Referral, Grant proposals, Education/public awareness, Prevention projects

System Integration
System links: Link to other state registries/databases, Link case finding data to final birth file

Funding
Funding source: 100% MCH funds

Other
Web site: http://wvdhhr.org/omcfh

Contacts
Kathy Cummons, MSW
Research, Evaluation and Planning Division
350 Capitol St. Room 427
Charleston, WV 25301
Phone: **304-558-5388** ***Fax:*** **304-558-3510**
Email: **kathy.g.cummons@wv.gov**

Melissa A. Baker, MA
Office of Maternal, Child and Family Health
350 Capitol St. Room 427
Charleston, WV 25301
Phone: 304-356-4438 *Fax:* 304-558-3510
Email: melissa.a.baker@wv.gov

Wisconsin

Wisconsin Birth Defect Prevention and Surveillance System (WBDPSS)

Purpose: Surveillance, Research, Referral to Services
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs
Program status: Currently collecting data
Start year: 2004
Earliest year of available data: 2005
Organizational location: Department of Health (Maternal and Child Health, Department of Health Services, Division of Public Health)
Population covered annually: average 69,000
Statewide: Yes
Current legislation or rule: State statute 253.12 Birth defect prevention and surveillance system. Enacted December 2000.Department of Health Services rules, Chapter DHS 116 Wisconsin Birth Defect Prevention and Surveillance System. Enacted April 2003.
Legislation year enacted: 2000

Case Definition
Outcomes covered: A list of 87 specific birth defects are collected. The list may be viewed on our website at https://www.dhs.wisconsin.gov/cyshcn/birthdefects/index.htm. It is an appendix to the reporting form DPH 40054. The list was developed by the Scientific Committee of the Council on Birth Defect Prevention and Surveillance and is included as an appendix in the rules.
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (20 weeks gestation and greater)
Age: Up to 2 years after delivery
Residence: All children born in and/or receiving services in the state

Surveillance Methods
Case ascertainment: Passive case-finding without case confirmation, Work with reporters who report batches from EMRs to assure reporting quality
Vital records: Matched birth/death file, compare registry reports to vital records periodically for selected birth defects

Case Ascertainment
Coding: ICD-10-CM, State assigned codes assigned to all conditions collected. Reporters combine ICD-9-CM or ICD-10 with text searches to derive defects that share an ICD code.

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.)
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage
Data collection: Printed abstract/report submitted by other agencies (hospitals, etc.), Electronic file/report filled out by staff at facility (laptop, web-based, etc.), Electronic file/report submitted by other agencies (hospitals, etc.), Can submit one report on the website or upload multiple reports. A paper form is also available that is entered by state birth defects staff.
Database collection and storage: Oracle

Data Analysis
Data analysis software: SAS
Quality assurance: Validity checks, Comparison/verification between multiple data sources
Data use and analysis: Routine statistical monitoring, Rates by demographic and other variables, Time trends, Observed vs. expected analyses, Referral, Grant proposals, Prevention projects

Funding
Funding source: 100% Other (birth certificate fees)

Other
Web site: https://www.dhs.wisconsin.gov/cyshcn/birthdefects/index.htm
Surveillance reports on file: Posted on the website

Contacts
Peggy Helm-Quest, MSEd, MHSA
Wisconsin Department of Health Services, Division of Public Health
1 W Wilson St
Madison, WI 53703
Phone: **608-267-2945** ***Fax:*** **608-267-3824**
Email: **Peggy.HelmQuest@wi.gov**

Wyoming

Program status: Interested in developing a surveillance program

Contacts

Amy Spieker, MPH
Wyoming Department of Health
6101 Yellowstone Rd, Ste 420
Cheyenne, WY 82002
Phone: **307-777-5769** ***Fax:*** **307-777-8687**
Email: **amy.spieker@wyo.gov**

Ashley Busacker, PhD
CDC/WDH
6101 Yellowstone Rd, Ste 510
Cheyenne, WY 82002
Phone: 307-777-6936
Email: ashley.busacker@wyo.gov

Department of Defense

United States Department of Defense (DoD) Birth and Infant Health Research (BIHR)

Purpose: Surveillance, Research
Partner: Hospitals, Universities, Other DoD Programs
Program status: Currently collecting data
Start year: 1998
Earliest year of available data: 1998; data for formal analysis beginning with 2001
Organizational location: Deployment Health Research Department, Naval Health Research Center
Population covered annually: Approximately 100,000 per year
Statewide: No, National/Worldwide; includes all DoD beneficiaries
Current legislation or rule: Assistant Secretary of Defense, Health Affairs Policy Memorandum
Legislation year enacted: 1998

Case Definition
Outcomes covered: Outcomes include those birth defects listed in the case definition of the National Birth Defects Prevention Network. For a birth defect to be represented, the diagnosis must appear at least once in an inpatient record, or at least twice on two separate dates for outpatient encounters. Same sex multiples are excluded from analysis.
Pregnancy outcome: Livebirths (All gestational ages and birth weights)
Age: Birth up to one year after delivery
Residence: Worldwide; any birth to a US military beneficiary

Surveillance Methods
Case ascertainment: Active Case Finding, Passive case-finding with case confirmation, Passive case-finding without case confirmation, Electronic diagnostic codes from all inpatient and outpatient healthcare encounters of US military beneficiaries at both civilian and military care facilities.
Delivery hospitals: Disease index or discharge index, Discharge summaries, Specialty outpatient clinics, All inpatient and outpatient encounters at both civilian and military care facilities are captured in standardized DoD data
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries, Specialty outpatient clinics, All inpatient and outpatient encounters at both civilian and military care facilities are captured in standardized DoD data
Third party payers: All inpatient and outpatient encounters at both civilian and military care facilities are captured in standardized DoD data
Other sources: Validation of standardized electronic data performed by active case ascertainment and chart review of a random sample of births from military facilities

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759/ICD-10-CM code Q00-Q99, Any chart with a selected list of ICD-9-CM codes outside 740-759/ICD-10-CM codes outside Q00-Q99, Validation of standardized electronic data performed by active case ascertainment and chart review of a random sample of births from military healthcare facilities
Conditions warranting chart review beyond the newborn period: Any infant with a codable defect
Coding: ICD-10-CM, The BIHR program assesses outcomes through the first year of life. Infants born on or after October 1, 2014 concluded their first year of life after the transition from ICD-9-CM to ICD-10-CM coding on October 1, 2015. For these infants, the Registry employed ICD-10-CM coding to assess outcomes for the final months of their assessment period.

Data Collected
Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Illnesses/conditions, Prenatal care, Prenatal diagnostic information, Pregnancy/delivery complications
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Illnesses/conditions

Data Collection Methods and Storage
Data collection: Electronic file/report submitted by other agencies (hospitals, etc.)
Database collection and storage: Access, SAS

Data Analysis
Data analysis software: SAS
Quality assurance: Validity checks, Re-abstraction of cases, Double-checking of assigned codes, Comparison/verification between multiple data sources, Clinical review
Data use and analysis: Routine statistical monitoring, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Observed vs. expected analyses, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Grant proposals, Prevention projects, Monitor birth defect outcomes following specific parental or gestational exposures of concern

System Integration
System links: DoD databases
System integration: DoD databases

Funding
Funding source: 100% Other federal funding (non-CDC grants)

Other
Web site:
http://www.med.navy.mil/sites/nhrc/research/mph/Pages/Reproductive-Health.aspx
Surveillance reports on file: DoD/Health Affairs policy memorandum; annual reports

Contacts
Ava Marie S. Conlin, DO, MPH
Deployment Health Research Department, Dept 164, Naval Health Research Center
140 Sylvester Road
San Diego, CA 92106-3521
Phone: **619-553-9255** ***Fax:*** **619-767-4806**
Email: **avamarie.s.conlin.ctr@mail.mil**

Gia R. Gumbs, MPH
DoD Birth and Infant Health Registry
140 Sylvester Road
San Diego, CA 92106-3521
Phone: 619-553-9255 *Fax:* 619-767-4806
Email: gia.r.gumbs.ctr@mail.mil