Major Birth Defects Data from Population-based Birth Defects Surveillance Programs in the United States, 2012-2016

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, 2012-2016: A focus on abdominal wall defects."

Additional information and program contacts on population-based birth defects surveillance programs are available on page S126-S180.

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 September 2019.

The 42 population-based birth defects programs contributing data include:
Alaska Birth Defects Registry; Arizona Birth Defects Monitoring Program; Arkansas Reproductive Health Monitoring System; California 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 Program; 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 Defect 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 Birth Defects Registry; North Carolina Birth Defects Monitoring Program; Ohio Connections for Children with Special Needs; Oklahoma Birth Defect 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; 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 2012 - 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	<6	<6	<6	0 ***0.0***	<6	<6	
Anophthalmia/microphthalmia	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	<6	<6	
Anotia/microtia	6 ***2.5***	<6	0 ***0.0***	<6	10 ***9.1***	19 ***4.2***	
Aortic valve stenosis	<6	0 ***0.0***	0 ***0.0***	<6	<6	12 ***2.6***	
Atrial septal defect	327 ***136.4***	33 ***207.7***	56 ***173.5***	70 ***162.1***	277 ***251.7***	796 ***175.2***	
Atrioventricular septal defect (Endocardial cushion defect)	7 ***2.9***	<6	0 ***0.0***	<6	6 ***5.5***	18 ***4.0***	
Biliary atresia	<6	0 ***0.0***	0 ***0.0***	0 ***0.0***	<6	<6	
Choanal atresia	7 ***2.9***	<6	0 ***0.0***	<6	<6	13 ***2.9***	
Cleft lip alone	20 ***8.3***	0 ***0.0***	8 ***24.8***	<6	20 ***18.2***	55 ***12.1***	
Cleft lip with cleft palate	22 ***9.2***	<6	7 ***21.7***	<6	24 ***21.8***	64 ***14.1***	
Cleft palate alone	35 ***14.6***	<6	6 ***18.6***	<6	45 ***40.9***	95 ***20.9***	
Clubfoot	80 ***33.4***	<6	15 ***46.5***	16 ***37.1***	36 ***32.7***	158 ***34.8***	
Coarctation of the aorta	7 ***2.9***	<6	<6	<6	<6	20 ***4.4***	
Common truncus (truncus arteriosus)	<6	<6	0 ***0.0***	<6	<6	10 ***2.2***	
Congenital cataract	10 ***4.2***	0 ***0.0***	0 ***0.0***	<6	11 ***10.0***	22 ***4.8***	
Congenital posterior urethral valves	14 ***11.4***	<6	<6	<6	6 ***10.6***	30 ***12.9***	1
Craniosynostosis	9 ***3.8***	<6	0 ***0.0***	<6	10 ***9.1***	24 ***5.3***	
Deletion 22q11.2	<6	0 ***0.0***	<6	0 ***0.0***	<6	8 ***1.8***	
Diaphragmatic hernia	6 ***2.5***	0 ***0.0***	<6	0 ***0.0***	12 ***10.9***	19 ***4.2***	
Double outlet right ventricle	<6	0 ***0.0***	0 ***0.0***	<6	<6	9 ***2.0***	
Ebstein anomaly	<6	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	<6	
Encephalocele	<6	<6	<6	<6	<6	7 ***1.5***	
Esophageal atresia/tracheoesophageal fistula	<6	0 ***0.0***	0 ***0.0***	0 ***0.0***	8 ***7.3***	13 ***2.9***	
Holoprosencephaly	22 ***9.2***	7 ***44.1***	<6	8 ***18.5***	30 ***27.3***	71 ***15.6***	
Hypoplastic left heart syndrome	<6	0 ***0.0***	<6	<6	<6	8 ***1.8***	
Hypospadias	156 ***127.5***	7 ***85.0***	22 ***133.4***	16 ***71.8***	54 ***95.4***	265 ***113.7***	1
Interrupted aortic arch	16 ***6.7***	<6	<6	<6	13 ***11.8***	36 ***7.9***	
Limb deficiencies (reduction defects)	22 ***9.2***	<6	<6	<6	15 ***13.6***	42 ***9.2***	
Pulmonary valve atresia and stenosis	19 ***7.9***	<6	<6	<6	27 ***24.5***	57 ***12.5***	
Rectal and large intestinal atresia/stenosis	11 ***4.6***	<6	<6	<6	16 ***14.5***	33 ***7.3***	

Alaska

Birth Defects Counts and Prevalence 2012 - 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	24 ***10.0***	<6	<6	<6	12 ***10.9***	45 ***9.9***	
Single ventricle	<6	0 ***0.0***	<6	<6	<6	11 ***2.4***	
Small intestinal atresia/stenosis	8 ***3.3***	<6	0 ***0.0***	<6	7 ***6.4***	21 ***4.6***	
Spina bifida without anencephalus	9 ***3.8***	<6	<6	<6	10 ***9.1***	22 ***4.8***	
Tetralogy of Fallot	11 ***4.6***	0 ***0.0***	<6	<6	6 ***5.5***	22 ***4.8***	
Total anomalous pulmonary venous connection	<6	0 ***0.0***	0 ***0.0***	<6	<6	<6	
Transposition of the great arteries (TGA)	<6	0 ***0.0***	<6	<6	<6	15 ***3.3***	
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***	0 ***0.0***	0 ***0.0***	<6	
Trisomy 18	<6	0 ***0.0***	0 ***0.0***	<6	<6	11 ***2.4***	
Trisomy 21 (Down syndrome)	28 ***11.7***	<6	<6	<6	14 ***12.7***	56 ***12.3***	
Turner syndrome	6 ***5.1***	0 ***0.0***	<6	<6	<6	11 ***5.0***	2
Ventricular septal defect	183 ***76.3***	9 ***56.6***	30 ***93.0***	28 ***64.9***	191 ***173.6***	457 ***100.6***	
Total live births	**23,978**	**1,589**	**3,227**	**4,317**	**11,003**	**45,434**	**3**
Male live births	**12,239**	**824**	**1,649**	**2,229**	**5,662**	**23,316**	
Female live births	**11,739**	**765**	**1,578**	**2,088**	**5,341**	**22,116**	

Alaska

Birth Defects Counts and Prevalence 2012 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Trisomy 13	<6	<6	<6	
Trisomy 18	8 ***2.0***	<6	11 ***2.4***	
Trisomy 21 (Down syndrome)	38 ***9.6***	28 ***48.6***	66 ***14.5***	
Total live births	**39,659**	**5,763**	**45,434**	**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. Data for total live births include unknown gender.

General comments

*Data for totals include unknown and/or other.

Arizona

Birth Defects Counts and Prevalence 2012 - 2016 (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	5	38	2	8	78	
	1.3	***2.4***	***2.2***	***1.2***	***3.3***	***1.8***	
Anophthalmia/microphthalmia	22	7	20	4	7	60	
	1.2	***3.3***	***1.1***	***2.5***	***2.9***	***1.4***	
Anotia/microtia	22	5	36	3	10	76	
	1.2	***2.4***	***2.0***	***1.9***	***4.1***	***1.8***	
Aortic valve stenosis	27	0	23	3	6	60	
	1.5	***0.0***	***1.3***	***1.9***	***2.5***	***1.4***	
Atrioventricular septal defect (Endocardial cushion defect)	87	12	86	4	17	207	
	4.7	***5.7***	***4.9***	***2.5***	***7.0***	***4.8***	
Biliary atresia	10	0	5	1	1	17	
	0.5	***0.0***	***0.3***	***0.6***	***0.4***	***0.4***	
Bladder exstrophy	3	0	2	0	0	5	
	0.2	***0.0***	***0.1***	***0.0***	***0.0***	***0.1***	
Choanal atresia	20	3	14	0	1	38	
	1.1	***1.4***	***0.8***	***0.0***	***0.4***	***0.9***	
Cleft lip alone	76	6	48	5	15	150	
	4.1	***2.9***	***2.7***	***3.1***	***6.1***	***3.5***	
Cleft lip with cleft palate	127	16	105	7	44	300	
	6.9	***7.6***	***6.0***	***4.3***	***18.0***	***7.0***	
Cleft palate alone	130	15	98	13	24	281	
	7.1	***7.1***	***5.6***	***8.1***	***9.8***	***6.6***	
Coarctation of the aorta	85	9	84	1	16	195	
	4.6	***4.3***	***4.8***	***0.6***	***6.5***	***4.5***	
Common truncus (truncus arteriosus)	14	1	8	3	0	26	
	0.8	***0.5***	***0.5***	***1.9***	***0.0***	***0.6***	
Congenital cataract	14	3	14	1	4	36	
	0.8	***1.4***	***0.8***	***0.6***	***1.6***	***0.8***	
Diaphragmatic hernia	53	4	52	6	9	124	
	2.9	***1.9***	***3.0***	***3.7***	***3.7***	***2.9***	
Double outlet right ventricle	39	6	58	5	14	122	
	2.1	***2.9***	***3.3***	***3.1***	***5.7***	***2.8***	
Ebstein anomaly	12	0	12	1	5	30	
	0.7	***0.0***	***0.7***	***0.6***	***2.0***	***0.7***	
Encephalocele	14	3	15	0	2	34	
	0.8	***1.4***	***0.9***	***0.0***	***0.8***	***0.8***	
Esophageal atresia/tracheoesophageal fistula	44	1	48	4	10	108	
	2.4	***0.5***	***2.7***	***2.5***	***4.1***	***2.5***	
Gastroschisis	104	15	124	7	36	287	
	5.7	***7.1***	***7.1***	***4.3***	***14.7***	***6.7***	
Holoprosencephaly	12	4	14	0	2	32	
	0.7	***1.9***	***0.8***	***0.0***	***0.8***	***0.7***	
Hypoplastic left heart syndrome	50	7	37	1	4	99	
	2.7	***3.3***	***2.1***	***0.6***	***1.6***	***2.3***	
Interrupted aortic arch	16	3	14	1	3	37	
	0.9	***1.4***	***0.8***	***0.6***	***1.2***	***0.9***	
Limb deficiencies (reduction defects)	55	14	65	3	10	147	
	3.0	***6.7***	***3.7***	***1.9***	***4.1***	***3.4***	
Omphalocele	49	9	44	4	1	108	
	2.7	***4.3***	***2.5***	***2.5***	***0.4***	***2.5***	
Pulmonary valve atresia and stenosis	61	2	46	5	9	123	
	3.3	***1.0***	***2.6***	***3.1***	***3.7***	***2.9***	
Pulmonary valve atresia	42	8	39	6	19	114	
	2.3	***3.8***	***2.2***	***3.7***	***7.8***	***2.7***	
Single ventricle	11	3	15	0	2	31	
	0.6	***1.4***	***0.9***	***0.0***	***0.8***	***0.7***	
Spina bifida without anencephalus	56	8	50	4	15	134	
	3.0	***3.8***	***2.8***	***2.5***	***6.1***	***3.1***	
Tetralogy of Fallot	76	9	50	8	22	166	
	4.1	***4.3***	***2.8***	***5.0***	***9.0***	***3.9***	

Arizona

Birth Defects Counts and Prevalence 2012 - 2016 (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	20 ***1.1***	2 ***1.0***	37 ***2.1***	4 ***2.5***	6 ***2.5***	69 ***1.6***	
Transposition of the great arteries (TGA)	60 ***3.3***	3 ***1.4***	49 ***2.8***	5 ***3.1***	4 ***1.6***	121 ***2.8***	
Dextro-transposition of great arteries (d-TGA)	46 ***2.5***	2 ***1.0***	35 ***2.0***	5 ***3.1***	2 ***0.8***	90 ***2.1***	
Tricuspid valve atresia and stenosis	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	2 ***0.8***	2 ***0.0***	
Tricuspid valve atresia	11 ***0.6***	2 ***1.0***	16 ***0.9***	3 ***1.9***	5 ***2.0***	37 ***0.9***	
Trisomy 13	22 ***1.2***	9 ***4.3***	20 ***1.1***	0 ***0.0***	3 ***1.2***	54 ***1.3***	
Trisomy 18	42 ***2.3***	5 ***2.4***	42 ***2.4***	4 ***2.5***	6 ***2.5***	101 ***2.4***	
Trisomy 21 (Down syndrome)	257 ***14.0***	35 ***16.6***	264 ***15.0***	29 ***18.0***	37 ***15.1***	624 ***14.6***	
Total live births	**183,894**	**21,025**	**175,823**	**16,124**	**24,429**	**428,584**	

Arizona

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	281	5	287	
	7.6	***0.8***	***6.7***	
Trisomy 13	35	19	54	
	1.0	***3.1***	***1.3***	
Trisomy 18	52	46	101	
	1.4	***7.5***	***2.4***	
Trisomy 21 (Down syndrome)	321	301	624	
	8.7	***49.2***	***14.6***	
Total live births	**367,432**	**61,124**	**428,584**	

General comments
*Data for totals include unknown and/or other.

Arkansas

Birth Defects Counts and Prevalence 2012 - 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	15	4	3	3	0	25	
	1.4	*1.4*	*2.0*	*7.0*	*0.0*	*1.6*	
Anophthalmia/microphthalmia	15	4	3	3	0	26	
	1.4	*1.4*	*2.0*	*7.0*	*0.0*	*1.7*	
Anotia/microtia	25	4	11	0	0	41	
	2.4	*1.4*	*7.2*	*0.0*	*0.0*	*2.7*	
Aortic valve stenosis	36	3	8	0	1	51	
	3.5	*1.1*	*5.2*	*0.0*	*7.5*	*3.3*	
Atrial septal defect	351	108	56	23	4	560	
	33.9	*39.1*	*36.6*	*53.8*	*30.2*	*36.6*	
Atrioventricular septal defect (Endocardial cushion defect)	76	19	10	4	0	111	
	7.3	*6.9*	*6.5*	*9.4*	*0.0*	*7.3*	
Biliary atresia	6	2	0	0	0	8	
	0.6	*0.7*	*0.0*	*0.0*	*0.0*	*0.5*	
Bladder exstrophy	1	1	0	0	0	2	
	0.1	*0.4*	*0.0*	*0.0*	*0.0*	*0.1*	
Choanal atresia	2	0	1	1	0	4	
	0.2	*0.0*	*0.7*	*2.3*	*0.0*	*0.3*	
Cleft lip alone	52	6	3	1	0	65	
	5.0	*2.2*	*2.0*	*2.3*	*0.0*	*4.2*	
Cleft lip with cleft palate	82	10	12	4	0	111	
	7.9	*3.6*	*7.8*	*9.4*	*0.0*	*7.3*	
Cleft palate alone	81	16	12	1	0	114	
	7.8	*5.8*	*7.8*	*2.3*	*0.0*	*7.4*	
Cloacal exstrophy	0	1	1	0	0	2	
	0.0	*0.4*	*0.7*	*0.0*	*0.0*	*0.1*	
Clubfoot	187	38	28	8	4	274	
	18.1	*13.7*	*18.3*	*18.7*	*30.2*	*17.9*	
Coarctation of the aorta	73	12	10	4	0	100	
	7.1	*4.3*	*6.5*	*9.4*	*0.0*	*6.5*	
Common truncus (truncus arteriosus)	5	1	0	1	0	7	
	0.5	*0.4*	*0.0*	*2.3*	*0.0*	*0.5*	
Congenital cataract	30	7	6	2	0	46	
	2.9	*2.5*	*3.9*	*4.7*	*0.0*	*3.0*	
Congenital posterior urethral valves	7	5	1	0	0	15	1
	1.3	*3.6*	*1.3*	*0.0*	*0.0*	*1.9*	
Craniosynostosis	76	12	6	1	2	100	
	7.3	*4.3*	*3.9*	*2.3*	*15.1*	*6.5*	
Deletion 22q11.2	6	1	1	0	0	8	
	0.6	*0.4*	*0.7*	*0.0*	*0.0*	*0.5*	
Diaphragmatic hernia	36	5	8	1	1	52	
	3.5	*1.8*	*5.2*	*2.3*	*7.5*	*3.4*	
Double outlet right ventricle	19	8	8	1	0	38	
	1.8	*2.9*	*5.2*	*2.3*	*0.0*	*2.5*	
Ebstein anomaly	12	0	1	0	0	14	
	1.2	*0.0*	*0.7*	*0.0*	*0.0*	*0.9*	
Encephalocele	7	6	1	1	0	17	
	0.7	*2.2*	*0.7*	*2.3*	*0.0*	*1.1*	
Esophageal atresia/tracheoesophageal fistula	21	3	2	1	0	27	
	2.0	*1.1*	*1.3*	*2.3*	*0.0*	*1.8*	
Gastroschisis	72	12	11	3	3	105	
	7.0	*4.3*	*7.2*	*7.0*	*22.6*	*6.9*	
Holoprosencephaly	14	3	0	2	0	20	
	1.4	*1.1*	*0.0*	*4.7*	*0.0*	*1.3*	
Hypoplastic left heart syndrome	33	8	2	4	0	49	
	3.2	*2.9*	*1.3*	*9.4*	*0.0*	*3.2*	
Hypospadias	501	121	26	10	1	681	1
	94.2	*86.3*	*33.4*	*46.0*	*14.4*	*86.9*	
Interrupted aortic arch	3	2	2	1	0	9	
	0.3	*0.7*	*1.3*	*2.3*	*0.0*	*0.6*	

Arkansas

Birth Defects Counts and Prevalence 2012 - 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	10	5	1	2	53	
	3.3	***3.6***	***3.3***	***2.3***	***15.1***	***3.5***	
Omphalocele	24	5	5	0	0	34	
	2.3	***1.8***	***3.3***	***0.0***	***0.0***	***2.2***	
Pulmonary valve atresia and stenosis	137	34	12	4	0	193	
	13.2	***12.3***	***7.8***	***9.4***	***0.0***	***12.6***	
Pulmonary valve atresia	10	3	0	0	0	13	
	1.0	***1.1***	***0.0***	***0.0***	***0.0***	***0.8***	
Rectal and large intestinal atresia/stenosis	36	16	7	1	0	65	
	3.5	***5.8***	***4.6***	***2.3***	***0.0***	***4.2***	
Renal agenesis/hypoplasia	25	3	5	1	2	36	
	2.4	***1.1***	***3.3***	***2.3***	***15.1***	***2.4***	
Single ventricle	6	2	1	0	0	9	
	0.6	***0.7***	***0.7***	***0.0***	***0.0***	***0.6***	
Small intestinal atresia/stenosis	45	8	6	0	0	63	
	4.3	***2.9***	***3.9***	***0.0***	***0.0***	***4.1***	
Spina bifida without anencephalus	34	7	9	1	0	53	
	3.3	***2.5***	***5.9***	***2.3***	***0.0***	***3.5***	
Tetralogy of Fallot	44	16	5	1	1	67	
	4.3	***5.8***	***3.3***	***2.3***	***7.5***	***4.4***	
Total anomalous pulmonary venous connection	14	9	3	1	0	29	
	1.4	***3.3***	***2.0***	***2.3***	***0.0***	***1.9***	
Transposition of the great arteries (TGA)	29	4	4	1	1	41	
	2.8	***1.4***	***2.6***	***2.3***	***7.5***	***2.7***	
Dextro-transposition of great arteries (d-TGA)	21	3	3	1	1	30	
	2.0	***1.1***	***2.0***	***2.3***	***7.5***	***2.0***	
Tricuspid valve atresia	3	1	1	0	0	5	
	0.3	***0.4***	***0.7***	***0.0***	***0.0***	***0.3***	
Trisomy 13	9	4	0	1	0	14	
	0.9	***1.4***	***0.0***	***2.3***	***0.0***	***0.9***	
Trisomy 18	18	2	5	2	0	28	
	1.7	***0.7***	***3.3***	***4.7***	***0.0***	***1.8***	
Trisomy 21 (Down syndrome)	116	33	36	5	0	192	
	11.2	***11.9***	***23.5***	***11.7***	***0.0***	***12.5***	
Turner syndrome	6	1	0	1	0	8	2
	1.2	***0.7***	***0.0***	***4.8***	***0.0***	***1.1***	
Ventricular septal defect	573	122	100	13	3	835	
	55.4	***44.1***	***65.3***	***30.4***	***22.6***	***54.6***	
Total live births	**103,452**	**27,648**	**15,305**	**4,272**	**1,326**	**153,032**	
Male live births	**53,197**	**14,024**	**7,778**	**2,173**	**696**	**78,390**	
Female live births	**50,255**	**13,624**	**7,527**	**2,099**	**630**	**74,642**	

Arkansas

Birth Defects Counts and Prevalence 2012 - 2015 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	104	0	105	
	7.5	***0.0***	***6.9***	
Trisomy 13	10	4	14	
	0.7	***2.8***	***0.9***	
Trisomy 18	21	6	28	
	1.5	***4.2***	***1.8***	
Trisomy 21 (Down syndrome)	114	77	192	
	8.2	***53.8***	***12.5***	
Total live births	**138,685**	**14,317**	**153,032**	

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

*Data for totals include unknown and/or other.

California

Birth Defects Counts and Prevalence 2012 - 2016 (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	<5	<5	26	<5	0	76	
			1.4		***0.0***	***2.4***	
Anophthalmia/microphthalmia	12	<5	29	7	<5	56	
	1.5		***1.5***	***2.7***		***1.8***	
Anotia/microtia	14	<5	97	13	0	128	
	1.8		***5.1***	***5.0***	***0.0***	***4.0***	
Aortic valve stenosis	29	<5	50	<5	0	83	
	3.7		***2.6***		***0.0***	***2.6***	
Atrial septal defect	95	14	252	34	0	400	
	12.0	***9.3***	***13.1***	***13.0***	***0.0***	***12.6***	
Atrioventricular septal defect (Endocardial cushion defect)	40	9	101	17	0	178	
	5.1	***6.0***	***5.3***	***6.5***	***0.0***	***5.6***	
Biliary atresia	<5	<5	7	<5	0	14	
			0.4		***0.0***	***0.4***	
Bladder exstrophy	0	0	<5	0	0	<5	
	0.0	***0.0***		***0.0***	***0.0***		
Choanal atresia	<5	<5	8	<5	0	15	
			0.4		***0.0***	***0.5***	
Cleft lip alone	25	5	57	10	<5	107	
	3.2	***3.3***	***3.0***	***3.8***		***3.4***	
Cleft lip with cleft palate	41	6	144	16	5	221	
	5.2	***4.0***	***7.5***	***6.1***	***26.5***	***7.0***	
Cleft palate alone	36	7	88	12	<5	150	
	4.6	***4.6***	***4.6***	***4.6***		***4.7***	
Cloacal exstrophy	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Coarctation of the aorta	57	5	114	7	0	189	
	7.2	***3.3***	***5.9***	***2.7***	***0.0***	***5.9***	
Common truncus (truncus arteriosus)	<5	0	8	<5	0	13	
		0.0	***0.4***		***0.0***	***0.4***	
Congenital cataract	16	5	31	<5	0	55	
	2.0	***3.3***	***1.6***		***0.0***	***1.7***	
Congenital posterior urethral valves	8	0	10	<5	<5	24	1
	2.0	***0.0***	***1.0***			***1.5***	
Craniosynostosis	38	0	88	7	0	135	
	4.8	***0.0***	***4.6***	***2.7***	***0.0***	***4.2***	
Deletion 22q11.2	8	<5	16	<5	0	30	
	1.0		***0.8***		***0.0***	***0.9***	
Diaphragmatic hernia	24	<5	49	<5	0	85	
	3.0		***2.6***		***0.0***	***2.7***	
Double outlet right ventricle	30	6	58	8	0	105	
	3.8	***4.0***	***3.0***	***3.1***	***0.0***	***3.3***	
Ebstein anomaly	10	0	24	<5	0	39	
	1.3	***0.0***	***1.3***		***0.0***	***1.2***	
Encephalocele	<5	0	16	0	<5	24	
		0.0	***0.8***	***0.0***		***0.8***	
Esophageal atresia/tracheoesophageal fistula	13	5	36	5	0	62	
	1.6	***3.3***	***1.9***	***1.9***	***0.0***	***2.0***	
Gastroschisis	42	9	109	14	<5	182	
	5.3	***6.0***	***5.7***	***5.3***		***5.7***	
Holoprosencephaly	10	<5	28	<5	0	47	
	1.3		***1.5***		***0.0***	***1.5***	
Hypoplastic left heart syndrome	21	<5	51	<5	0	91	
	2.7		***2.7***		***0.0***	***2.9***	
Hypospadias	254	35	299	50	6	655	1
	62.6	***45.2***	***30.6***	***36.8***	***64.0***	***40.3***	
Interrupted aortic arch	6	0	7	0	0	13	
	0.8	***0.0***	***0.4***	***0.0***	***0.0***	***0.4***	
Limb deficiencies (reduction defects)	25	7	58	6	<5	106	
	3.2	***4.6***	***3.0***	***2.3***		***3.3***	

California

Birth Defects Counts and Prevalence 2012 - 2016 (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	16	7	28	<5	<5	66	
	2.0	***4.6***	***1.5***			***2.1***	
Pulmonary valve atresia	9	<5	35	10	0	60	
	1.1		***1.8***	***3.8***	***0.0***	***1.9***	
Rectal and large intestinal atresia/stenosis	16	<5	50	5	<5	75	
	2.0		***2.6***	***1.9***		***2.4***	
Renal agenesis/hypoplasia	33	8	91	6	0	148	
	4.2	***5.3***	***4.7***	***2.3***	***0.0***	***4.7***	
Single ventricle	6	0	27	<5	0	39	
	0.8	***0.0***	***1.4***		***0.0***	***1.2***	
Small intestinal atresia/stenosis	33	5	73	9	0	121	
	4.2	***3.3***	***3.8***	***3.4***	***0.0***	***3.8***	
Spina bifida without anencephalus	31	<5	79	<5	<5	125	
	3.9		***4.1***			***3.9***	
Tetralogy of Fallot	35	8	86	13	0	148	
	4.4	***5.3***	***4.5***	***5.0***	***0.0***	***4.7***	
Total anomalous pulmonary venous connection	12	<5	45	<5	0	62	
	1.5		***2.3***		***0.0***	***2.0***	
Dextro-transposition of great arteries (d-TGA)	16	<5	31	6	0	58	
	2.0		***1.6***	***2.3***	***0.0***	***1.8***	
Tricuspid valve atresia	<5	<5	21	<5	0	28	
			1.1		***0.0***	***0.9***	
Trisomy 13	<5	6	23	<5	<5	46	
		4.0	***1.2***			***1.4***	
Trisomy 18	8	<5	40	<5	0	98	
	1.0		***2.1***		***0.0***	***3.1***	
Trisomy 21 (Down syndrome)	104	15	321	31	0	505	
	13.2	***9.9***	***16.7***	***11.8***	***0.0***	***15.9***	
Turner syndrome	<5	<5	18	<5	0	37	2
			1.9		***0.0***	***2.4***	
Ventricular septal defect	59	10	185	22	<5	279	
	7.5	***6.6***	***9.6***	***8.4***		***8.8***	
Total live births	**78,997**	**15,089**	**191,877**	**26,220**	**1,889**	**317,824**	**3**
Male live births	**40,577**	**7,736**	**97,797**	**13,579**	**938**	**162,583**	
Female live births	**38,419**	**7,353**	**94,072**	**12,641**	**951**	**155,232**	

California

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	180	<5	182	
	6.5		***5.7***	
Trisomy 13	35	11	46	
	1.3	***2.6***	***1.4***	
Trisomy 18	51	47	98	
	1.8	***11.3***	***3.1***	
Trisomy 21 (Down syndrome)	225	279	505	
	8.1	***67.0***	***15.9***	
Total live births	**276,103**	**41,641**	**317,824**	**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. Data for total live births include unknown gender.

General comments

*Data for totals include unknown and/or other.

Colorado

Birth Defects Counts and Prevalence 2012 - 2016 (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	3	7	0	0	34	
	0.4	***2.0***	***0.8***	***0.0***	***0.0***	***1.0***	
Anophthalmia/microphthalmia	28	1	14	2	1	66	
	1.4	***0.7***	***1.6***	***1.6***	***4.7***	***2.0***	
Anotia/microtia	19	1	39	4	0	96	
	0.9	***0.7***	***4.3***	***3.1***	***0.0***	***2.9***	
Aortic valve stenosis	52	3	25	1	0	96	
	2.6	***2.0***	***2.8***	***0.8***	***0.0***	***2.9***	
Atrial septal defect	1,954	187	990	112	31	4,384	
	96.3	***127.1***	***110.1***	***88.1***	***145.5***	***133.2***	
Atrioventricular septal defect (Endocardial cushion defect)	64	8	29	4	0	112	
	3.2	***5.4***	***3.2***	***3.1***	***0.0***	***3.4***	
Biliary atresia	24	0	9	0	1	65	
	1.2	***0.0***	***1.0***	***0.0***	***4.7***	***2.0***	
Bladder exstrophy	5	0	2	0	0	9	
	0.2	***0.0***	***0.2***	***0.0***	***0.0***	***0.3***	
Choanal atresia	31	1	12	1	0	62	
	1.5	***0.7***	***1.3***	***0.8***	***0.0***	***1.9***	
Cleft lip alone	80	10	40	3	1	143	
	3.9	***6.8***	***4.4***	***2.4***	***4.7***	***4.3***	
Cleft lip with cleft palate	140	7	74	6	2	251	
	6.9	***4.8***	***8.2***	***4.7***	***9.4***	***7.6***	
Cleft palate alone	171	9	78	21	4	303	
	8.4	***6.1***	***8.7***	***16.5***	***18.8***	***9.2***	
Clubfoot	296	13	131	14	5	642	
	14.6	***8.8***	***14.6***	***11.0***	***23.5***	***19.5***	
Coarctation of the aorta	187	11	72	4	0	282	
	9.2	***7.5***	***8.0***	***3.1***	***0.0***	***8.6***	
Common truncus (truncus arteriosus)	16	1	6	0	0	27	
	0.8	***0.7***	***0.7***	***0.0***	***0.0***	***0.8***	
Congenital cataract	41	0	17	3	0	83	
	2.0	***0.0***	***1.9***	***2.4***	***0.0***	***2.5***	
Congenital posterior urethral valves	25	3	6	2	0	69	1
	2.4	***4.0***	***1.3***	***3.1***	***0.0***	***4.1***	
Deletion 22q11.2	21	2	13	0	1	40	
	1.3	***1.7***	***1.8***	***0.0***	***5.9***	***1.5***	
Diaphragmatic hernia	52	6	23	2	0	84	
	2.6	***4.1***	***2.6***	***1.6***	***0.0***	***2.6***	
Double outlet right ventricle	29	6	23	3	0	67	
	1.4	***4.1***	***2.6***	***2.4***	***0.0***	***2.0***	
Ebstein anomaly	15	0	6	2	0	24	
	0.7	***0.0***	***0.7***	***1.6***	***0.0***	***0.7***	
Encephalocele	16	3	8	1	0	36	
	0.8	***2.0***	***0.9***	***0.8***	***0.0***	***1.1***	
Esophageal atresia/tracheoesophageal fistula	65	2	32	4	0	133	
	3.2	***1.4***	***3.6***	***3.1***	***0.0***	***4.0***	
Gastroschisis	76	4	39	3	6	144	
	3.7	***2.7***	***4.3***	***2.4***	***28.2***	***4.4***	
Holoprosencephaly	13	1	9	2	0	26	
	0.6	***0.7***	***1.0***	***1.6***	***0.0***	***0.8***	
Hypoplastic left heart syndrome	52	3	26	1	0	93	
	2.6	***2.0***	***2.9***	***0.8***	***0.0***	***2.8***	
Hypospadias	1,103	85	283	48	12	1,924	1
	106.3	***113.0***	***61.6***	***74.2***	***108.8***	***114.3***	
Interrupted aortic arch	51	10	29	2	0	96	
	2.5	***6.8***	***3.2***	***1.6***	***0.0***	***2.9***	
Limb deficiencies (reduction defects)	74	5	37	1	0	149	
	3.6	***3.4***	***4.1***	***0.8***	***0.0***	***4.5***	
Omphalocele	30	5	15	0	1	80	
	1.5	***3.4***	***1.7***	***0.0***	***4.7***	***2.4***	

Colorado

Birth Defects Counts and Prevalence 2012 - 2016 (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	136	16	69	3	3	237	
	6.7	***10.9***	***7.7***	***2.4***	***14.1***	***7.2***	
Pulmonary valve atresia	34	6	25	0	2	72	
	1.7	***4.1***	***2.8***	***0.0***	***9.4***	***2.2***	
Rectal and large intestinal atresia/stenosis	65	8	44	5	2	172	
	3.2	***5.4***	***4.9***	***3.9***	***9.4***	***5.2***	
Renal agenesis/hypoplasia	84	8	35	4	2	211	
	4.1	***5.4***	***3.9***	***3.1***	***9.4***	***6.4***	
Single ventricle	14	2	5	0	1	25	
	0.7	***1.4***	***0.6***	***0.0***	***4.7***	***0.8***	
Small intestinal atresia/stenosis	79	8	54	6	1	179	
	3.9	***5.4***	***6.0***	***4.7***	***4.7***	***5.4***	
Spina bifida without anencephalus	49	5	30	3	1	101	
	2.4	***3.4***	***3.3***	***2.4***	***4.7***	***3.1***	
Tetralogy of Fallot	59	4	38	1	3	109	
	2.9	***2.7***	***4.2***	***0.8***	***14.1***	***3.3***	
Total anomalous pulmonary venous connection	21	2	23	3	0	49	
	1.0	***1.4***	***2.6***	***2.4***	***0.0***	***1.5***	
Transposition of the great arteries (TGA)	51	6	17	5	0	81	
	2.5	***4.1***	***1.9***	***3.9***	***0.0***	***2.5***	
Dextro-transposition of great arteries (d-TGA)	43	6	14	5	0	70	
	2.1	***4.1***	***1.6***	***3.9***	***0.0***	***2.1***	
Tricuspid valve atresia and stenosis	25	4	11	0	0	44	
	1.2	***2.7***	***1.2***	***0.0***	***0.0***	***1.3***	
Tricuspid valve atresia	23	4	11	0	0	41	
	1.1	***2.7***	***1.2***	***0.0***	***0.0***	***1.2***	
Trisomy 13	11	2	8	1	0	84	
	0.5	***1.4***	***0.9***	***0.8***	***0.0***	***2.6***	
Trisomy 18	20	3	6	2	0	136	
	1.0	***2.0***	***0.7***	***1.6***	***0.0***	***4.1***	
Trisomy 21 (Down syndrome)	249	28	188	13	2	733	
	12.3	***19.0***	***20.9***	***10.2***	***9.4***	***22.3***	
Turner syndrome	22	4	7	1	1	87	2
	2.2	***5.6***	***1.6***	***1.6***	***9.7***	***5.4***	
Ventricular septal defect	847	71	469	40	16	1,806	
	41.7	***48.2***	***52.1***	***31.5***	***75.1***	***54.9***	
Total live births	**202,944**	**14,718**	**89,938**	**12,713**	**2,130**	**329,245**	**3**
Male live births	**103,792**	**7,523**	**45,918**	**6,466**	**1,103**	**168,285**	
Female live births	**99,148**	**7,194**	**44,017**	**6,247**	**1,027**	**160,952**	

Colorado

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	132	6	144	
	4.9	***1.0***	***4.4***	
Trisomy 13	26	15	84	
	1.0	***2.5***	***2.6***	
Trisomy 18	48	29	136	
	1.8	***4.8***	***4.1***	
Trisomy 21 (Down syndrome)	255	266	733	
	9.5	***44.4***	***22.3***	
Total live births	**269,205**	**59,915**	**329,245**	**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. Data for total live births include unknown gender.

General comments

*Data for totals include unknown and/or other.

Delaware

Birth Defects Counts and Prevalence 2012 - 2016 (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	1	0	0	0	4	
	1.1	***0.7***	***0.0***	***0.0***	***0.0***	***0.8***	
Anophthalmia/microphthalmia	1	5	0	0	0	6	
	0.4	***3.5***	***0.0***	***0.0***	***0.0***	***1.1***	
Anotia/microtia	8	4	7	2	0	21	
	2.9	***2.8***	***9.8***	***6.9***	***0.0***	***4.0***	
Aortic valve stenosis	7	0	4	1	0	12	
	2.5	***0.0***	***5.6***	***3.5***	***0.0***	***2.3***	
Atrial septal defect	84	43	32	8	0	170	1
	30.0	***30.5***	***45.0***	***27.7***	***0.0***	***32.3***	
Atrioventricular septal defect (Endocardial cushion defect)	18	11	10	0	0	40	
	6.4	***7.8***	***14.1***	***0.0***	***0.0***	***7.6***	
Biliary atresia	0	1	0	0	0	3	
	0.0	***0.7***	***0.0***	***0.0***	***0.0***	***0.6***	
Bladder exstrophy	2	1	0	0	0	3	
	0.7	***0.7***	***0.0***	***0.0***	***0.0***	***0.6***	
Choanal atresia	2	2	0	0	0	4	
	0.7	***1.4***	***0.0***	***0.0***	***0.0***	***0.8***	
Cleft lip alone	8	1	5	1	0	15	
	2.9	***0.7***	***7.0***	***3.5***	***0.0***	***2.8***	
Cleft lip with cleft palate	16	4	4	2	0	27	
	5.7	***2.8***	***5.6***	***6.9***	***0.0***	***5.1***	
Cleft palate alone	18	10	4	1	0	33	2
	6.4	***7.1***	***5.6***	***3.5***	***0.0***	***6.3***	
Cloacal exstrophy	0	1	0	0	0	1	
	0.0	***0.7***	***0.0***	***0.0***	***0.0***	***0.2***	
Clubfoot	43	16	8	3	0	73	
	15.3	***11.4***	***11.3***	***10.4***	***0.0***	***13.9***	
Coarctation of the aorta	16	7	4	4	0	31	
	5.7	***5.0***	***5.6***	***13.8***	***0.0***	***5.9***	
Common truncus (truncus arteriosus)	1	1	0	0	0	2	
	0.4	***0.7***	***0.0***	***0.0***	***0.0***	***0.4***	
Congenital cataract	6	2	1	2	0	11	
	2.1	***1.4***	***1.4***	***6.9***	***0.0***	***2.1***	
Congenital posterior urethral valves	4	6	0	1	0	11	3
	2.8	***8.5***	***0.0***	***6.5***	***0.0***	***4.1***	
Craniosynostosis	16	8	2	0	0	28	
	5.7	***5.7***	***2.8***	***0.0***	***0.0***	***5.3***	
Deletion 22q11.2	5	1	0	0	0	6	
	1.8	***0.7***	***0.0***	***0.0***	***0.0***	***1.1***	
Diaphragmatic hernia	5	0	1	1	0	7	
	1.8	***0.0***	***1.4***	***3.5***	***0.0***	***1.3***	
Double outlet right ventricle	2	3	1	1	0	8	
	0.7	***2.1***	***1.4***	***3.5***	***0.0***	***1.5***	
Ebstein anomaly	2	0	0	0	0	2	
	0.7	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	
Encephalocele	3	2	0	0	0	5	
	1.1	***1.4***	***0.0***	***0.0***	***0.0***	***0.9***	
Esophageal atresia/tracheoesophageal fistula	5	1	0	0	0	6	
	1.8	***0.7***	***0.0***	***0.0***	***0.0***	***1.1***	
Gastroschisis	15	10	4	2	0	32	
	5.4	***7.1***	***5.6***	***6.9***	***0.0***	***6.1***	
Holoprosencephaly	1	3	3	0	0	7	
	0.4	***2.1***	***4.2***	***0.0***	***0.0***	***1.3***	
Hypoplastic left heart syndrome	8	1	2	0	0	11	
	2.9	***0.7***	***2.8***	***0.0***	***0.0***	***2.1***	
Hypospadias	144	62	11	14	0	235	4
	100.7	***87.5***	***30.8***	***91.3***	***0.0***	***87.8***	
Interrupted aortic arch	0	0	1	0	0	1	
	0.0	***0.0***	***1.7***	***0.0***	***0.0***	***0.2***	

Delaware

Birth Defects Counts and Prevalence 2012 - 2016 (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)	21	12	4	3	0	40	
	7.5	***8.5***	***5.6***	***10.4***	***0.0***	***7.6***	
Omphalocele	4	7	3	0	0	14	
	1.4	***5.0***	***4.2***	***0.0***	***0.0***	***2.7***	
Pulmonary valve atresia and stenosis	40	34	8	1	0	85	
	14.3	***24.1***	***11.3***	***3.5***	***0.0***	***16.1***	
Pulmonary valve atresia	7	4	3	0	0	14	
	2.5	***2.8***	***4.2***	***0.0***	***0.0***	***2.7***	
Rectal and large intestinal atresia/stenosis	13	7	1	2	0	23	
	4.6	***5.0***	***1.4***	***6.9***	***0.0***	***4.4***	
Renal agenesis/hypoplasia	26	8	2	1	0	37	
	9.3	***5.7***	***2.8***	***3.5***	***0.0***	***7.0***	
Single ventricle	0	1	1	0	0	2	
	0.0	***0.7***	***1.4***	***0.0***	***0.0***	***0.4***	
Small intestinal atresia/stenosis	10	8	3	0	0	21	
	3.6	***5.7***	***4.2***	***0.0***	***0.0***	***4.0***	
Spina bifida without anencephalus	2	6	5	0	0	13	
	0.7	***4.3***	***7.0***	***0.0***	***0.0***	***2.5***	
Tetralogy of Fallot	11	7	1	0	0	19	
	3.9	***5.0***	***1.4***	***0.0***	***0.0***	***3.6***	
Total anomalous pulmonary venous connection	3	2	5	1	0	11	
	1.1	***1.4***	***7.0***	***3.5***	***0.0***	***2.1***	
Transposition of the great arteries (TGA)	12	2	3	1	0	18	
	4.3	***1.4***	***4.2***	***3.5***	***0.0***	***3.4***	
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	0	1	0	6	
	0.7	***2.1***	***0.0***	***3.5***	***0.0***	***1.1***	
Tricuspid valve atresia	2	1	0	1	0	4	
	0.7	***0.7***	***0.0***	***3.5***	***0.0***	***0.8***	
Trisomy 13	2	2	2	1	0	7	
	0.7	***1.4***	***2.8***	***3.5***	***0.0***	***1.3***	
Trisomy 18	5	1	6	2	0	14	
	1.8	***0.7***	***8.4***	***6.9***	***0.0***	***2.7***	
Trisomy 21 (Down syndrome)	40	18	17	4	0	80	
	14.3	***12.8***	***23.9***	***13.8***	***0.0***	***15.2***	
Turner syndrome	3	1	1	0	0	6	5
	2.2	***1.4***	***2.8***	***0.0***	***0.0***	***2.3***	
Ventricular septal defect	232	92	54	24	0	412	6
	82.8	***65.3***	***76.0***	***83.1***	***0.0***	***78.2***	
Total live births	**28,036**	**14,088**	**7,107**	**2,889**	**111**	**52,695**	
Male live births	**14,305**	**7,086**	**3,569**	**1,533**	**39**	**26,776**	
Female live births	**13,731**	**7,002**	**3,538**	**1,356**	**72**	**25,919**	

Delaware

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	32	0	32	
	7.1	***0.0***	***6.1***	
Trisomy 13	6	1	7	
	1.3	***1.3***	***1.3***	
Trisomy 18	1	13	14	
	0.2	***16.5***	***2.7***	
Trisomy 21 (Down syndrome)	37	43	80	
	8.3	***54.6***	***15.2***	
Total live births	**44,814**	**7,881**	**52,695**	

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

*Data for totals include unknown and/or other.
-Data for all heart defects require an echocardiogram report.

Florida

Birth Defects Counts and Prevalence 2012 - 2016 (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	23	25	<5	0	96	
	0.9	***1.0***	***0.8***		***0.0***	***0.9***	
Anophthalmia/microphthalmia	47	37	35	<5	0	124	
	1.0	***1.6***	***1.1***		***0.0***	***1.1***	
Anotia/microtia	40	19	48	<5	0	116	
	0.8	***0.8***	***1.6***		***0.0***	***1.1***	
Aortic valve stenosis	73	16	40	5	0	139	
	1.5	***0.7***	***1.3***	***1.5***	***0.0***	***1.3***	
Atrial septal defect	4,975	3,040	3,871	292	22	12,519	
	103.3	***127.9***	***126.0***	***90.1***	***176.8***	***114.9***	
Atrioventricular septal defect (Endocardial cushion defect)	172	127	78	11	<5	402	1
	3.6	***5.3***	***2.5***	***3.4***		***3.7***	
Biliary atresia	54	49	33	9	0	146	
	1.1	***2.1***	***1.1***	***2.8***	***0.0***	***1.3***	
Bladder exstrophy	16	<5	<5	0	0	23	
	0.3			***0.0***	***0.0***	***0.2***	
Choanal atresia	107	28	58	<5	0	203	
	2.2	***1.2***	***1.9***		***0.0***	***1.9***	
Cleft lip alone	157	35	57	<5	0	258	
	3.3	***1.5***	***1.9***		***0.0***	***2.4***	
Cleft lip with cleft palate	284	91	161	13	<5	566	
	5.9	***3.8***	***5.2***	***4.0***		***5.2***	
Cleft palate alone	289	79	148	29	<5	559	
	6.0	***3.3***	***4.8***	***9.0***		***5.1***	
Cloacal exstrophy	218	127	141	8	<5	508	
	4.5	***5.3***	***4.6***	***2.5***		***4.7***	
Clubfoot	822	299	438	30	<5	1,630	
	17.1	***12.6***	***14.3***	***9.3***		***15.0***	
Coarctation of the aorta	362	127	154	20	0	683	
	7.5	***5.3***	***5.0***	***6.2***	***0.0***	***6.3***	
Common truncus (truncus arteriosus)	32	16	21	<5	0	75	
	0.7	***0.7***	***0.7***		***0.0***	***0.7***	
Congenital cataract	62	24	36	0	0	126	
	1.3	***1.0***	***1.2***	***0.0***	***0.0***	***1.2***	
Congenital posterior urethral valves	46	44	22	<5	0	114	2
	1.9	***3.6***	***1.4***		***0.0***	***2.0***	
Craniosynostosis	99	25	53	<5	0	182	
	2.1	***1.1***	***1.7***		***0.0***	***1.7***	
Deletion 22q11.2	11	<5	6	0	0	23	
	0.2		***0.2***	***0.0***	***0.0***	***0.2***	
Diaphragmatic hernia	138	74	86	9	<5	316	
	2.9	***3.1***	***2.8***	***2.8***		***2.9***	
Double outlet right ventricle	110	55	53	7	<5	235	
	2.3	***2.3***	***1.7***	***2.2***		***2.2***	
Ebstein anomaly	41	12	15	<5	0	74	
	0.9	***0.5***	***0.5***		***0.0***	***0.7***	
Encephalocele	36	15	17	<5	0	70	
	0.7	***0.6***	***0.6***		***0.0***	***0.6***	
Esophageal atresia/tracheoesophageal fistula	108	55	74	10	<5	252	
	2.2	***2.3***	***2.4***	***3.1***		***2.3***	
Gastroschisis	256	54	115	11	<5	445	3
	5.3	***2.3***	***3.7***	***3.4***		***4.1***	
Holoprosencephaly	164	111	100	9	0	395	
	3.4	***4.7***	***3.3***	***2.8***	***0.0***	***3.6***	
Hypoplastic left heart syndrome	177	89	76	11	0	368	
	3.7	***3.7***	***2.5***	***3.4***	***0.0***	***3.4***	
Hypospadias	2,163	797	855	89	<5	4,000	2
	87.4	***66.1***	***54.3***	***53.5***		***71.7***	
Interrupted aortic arch	106	59	68	7	<5	251	
	2.2	***2.5***	***2.2***	***2.2***		***2.3***	

Florida

Birth Defects Counts and Prevalence 2012 - 2016 (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)	182	88	99	7	<5	382	
	3.8	***3.7***	***3.2***	***2.2***		***3.5***	
Omphalocele	98	79	35	<5	0	219	3
	2.0	***3.3***	***1.1***		***0.0***	***2.0***	
Pulmonary valve atresia and stenosis	399	289	294	18	0	1,030	
	8.3	***12.2***	***9.6***	***5.6***	***0.0***	***9.5***	
Pulmonary valve atresia	64	37	32	<5	0	142	
	1.3	***1.6***	***1.0***		***0.0***	***1.3***	
Rectal and large intestinal atresia/stenosis	194	93	114	15	<5	435	
	4.0	***3.9***	***3.7***	***4.6***		***4.0***	
Renal agenesis/hypoplasia	257	133	153	11	<5	569	
	5.3	***5.6***	***5.0***	***3.4***		***5.2***	
Single ventricle	63	40	38	<5	0	149	
	1.3	***1.7***	***1.2***		***0.0***	***1.4***	
Small intestinal atresia/stenosis	201	106	122	16	0	456	
	4.2	***4.5***	***4.0***	***4.9***	***0.0***	***4.2***	
Spina bifida without anencephalus	135	46	79	5	0	270	
	2.8	***1.9***	***2.6***	***1.5***	***0.0***	***2.5***	
Tetralogy of Fallot	259	114	121	12	<5	527	
	5.4	***4.8***	***3.9***	***3.7***		***4.8***	
Total anomalous pulmonary venous connection	35	16	23	<5	0	77	
	0.7	***0.7***	***0.7***		***0.0***	***0.7***	
Transposition of the great arteries (TGA)	145	44	62	6	<5	268	
	3.0	***1.9***	***2.0***	***1.9***		***2.5***	
Dextro-transposition of great arteries (d-TGA)	125	37	58	5	<5	236	
	2.6	***1.6***	***1.9***	***1.5***		***2.2***	
Tricuspid valve atresia and stenosis	44	33	17	<5	0	97	4
	0.9	***1.4***	***0.6***		***0.0***	***0.9***	
Trisomy 13	47	35	20	<5	0	106	
	1.0	***1.5***	***0.7***		***0.0***	***1.0***	
Trisomy 18	72	69	52	8	0	205	
	1.5	***2.9***	***1.7***	***2.5***	***0.0***	***1.9***	
Trisomy 21 (Down syndrome)	599	313	381	50	<5	1,384	
	12.4	***13.2***	***12.4***	***15.4***		***12.7***	
Turner syndrome	50	12	25	<5	0	93	5
	2.1	***1.0***	***1.7***		***0.0***	***1.7***	
Ventricular septal defect	2,937	1,365	2,097	152	10	6,748	6
	61.0	***57.4***	***68.2***	***46.9***	***80.4***	***61.9***	
Total live births	**481,547**	**237,648**	**307,337**	**32,401**	**1,244**	**1,089,749**	**7**
Male live births	**247,624**	**120,556**	**157,570**	**16,625**	**653**	**558,258**	
Female live births	**233,922**	**117,089**	**149,767**	**15,775**	**591**	**531,482**	

Florida

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	432	13	445	3
	4.7	***0.7***	***4.1***	
Trisomy 13	74	32	106	
	0.8	***1.8***	***1.0***	
Trisomy 18	106	99	205	
	1.2	***5.6***	***1.9***	
Trisomy 21 (Down syndrome)	680	704	1,384	
	7.5	***39.8***	***12.7***	
Total live births	**912,720**	**176,958**	**1,089,749**	**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. Data for total live births include unknown gender.

General comments

*Data for totals include unknown and/or other.

Georgia (Metropolitan Atlanta Congenital Defects Program)

Birth Defects Counts and Prevalence 2012 - 2016 (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	12	6	1	0	36	
	2.1	***1.6***	***1.8***	***0.7***	***0.0***	***2.0***	
Anophthalmia/microphthalmia	10	9	6	0	0	28	
	2.1	***1.2***	***1.8***	***0.0***	***0.0***	***1.6***	
Anotia/microtia	11	5	10	4	0	34	
	2.3	***0.7***	***3.0***	***2.7***	***0.0***	***1.9***	
Aortic valve stenosis	15	3	6	1	0	27	
	3.1	***0.4***	***1.8***	***0.7***	***0.0***	***1.5***	
Atrial septal defect	65	176	39	17	0	331	
	13.6	***23.7***	***11.7***	***11.5***	***0.0***	***18.7***	
Atrioventricular septal defect (Endocardial cushion defect)	23	49	10	4	0	99	
	4.8	***6.6***	***3.0***	***2.7***	***0.0***	***5.6***	
Biliary atresia	2	1	2	0	0	6	
	0.4	***0.1***	***0.6***	***0.0***	***0.0***	***0.3***	
Bladder exstrophy	2	1	0	0	0	3	
	0.4	***0.1***	***0.0***	***0.0***	***0.0***	***0.2***	
Choanal atresia	1	7	2	0	0	11	
	0.2	***0.9***	***0.6***	***0.0***	***0.0***	***0.6***	
Cleft lip alone	20	14	7	4	0	48	
	4.2	***1.9***	***2.1***	***2.7***	***0.0***	***2.7***	
Cleft lip with cleft palate	26	30	18	10	0	99	
	5.4	***4.0***	***5.4***	***6.7***	***0.0***	***5.6***	
Cleft palate alone	24	28	12	12	0	83	
	5.0	***3.8***	***3.6***	***8.1***	***0.0***	***4.7***	
Cloacal exstrophy	0	1	0	1	0	2	
	0.0	***0.1***	***0.0***	***0.7***	***0.0***	***0.1***	
Clubfoot	45	90	26	19	0	204	
	9.4	***12.1***	***7.8***	***12.8***	***0.0***	***11.5***	
Coarctation of the aorta	36	30	16	6	0	94	
	7.5	***4.0***	***4.8***	***4.0***	***0.0***	***5.3***	
Common truncus (truncus arteriosus)	1	4	1	1	0	8	
	0.2	***0.5***	***0.3***	***0.7***	***0.0***	***0.5***	
Congenital cataract	6	9	1	2	0	22	
	1.3	***1.2***	***0.3***	***1.3***	***0.0***	***1.2***	
Congenital posterior urethral valves	2	17	3	1	0	26	1
	0.8	***4.5***	***1.8***	***1.3***	***0.0***	***2.9***	
Craniosynostosis	20	14	8	5	0	55	
	4.2	***1.9***	***2.4***	***3.4***	***0.0***	***3.1***	
Deletion 22q11.2	4	8	5	1	0	20	
	0.8	***1.1***	***1.5***	***0.7***	***0.0***	***1.1***	
Diaphragmatic hernia	16	20	8	2	0	58	
	3.3	***2.7***	***2.4***	***1.3***	***0.0***	***3.3***	
Double outlet right ventricle	5	20	9	4	0	42	
	1.0	***2.7***	***2.7***	***2.7***	***0.0***	***2.4***	
Ebstein anomaly	0	5	2	2	0	9	
	0.0	***0.7***	***0.6***	***1.3***	***0.0***	***0.5***	
Encephalocele	0	4	2	2	0	11	
	0.0	***0.5***	***0.6***	***1.3***	***0.0***	***0.6***	
Esophageal atresia/tracheoesophageal fistula	13	17	2	0	0	34	
	2.7	***2.3***	***0.6***	***0.0***	***0.0***	***1.9***	
Gastroschisis	19	19	15	1	0	61	
	4.0	***2.6***	***4.5***	***0.7***	***0.0***	***3.4***	
Holoprosencephaly	8	12	1	2	0	30	
	1.7	***1.6***	***0.3***	***1.3***	***0.0***	***1.7***	
Hypoplastic left heart syndrome	15	17	6	0	0	42	
	3.1	***2.3***	***1.8***	***0.0***	***0.0***	***2.4***	
Hypospadias	171	184	44	33	1	519	1
	70.1	***49.2***	***26.1***	***43.6***	***178.6***	***57.8***	
Interrupted aortic arch	3	4	2	0	0	13	
	0.6	***0.5***	***0.6***	***0.0***	***0.0***	***0.7***	

Georgia (Metropolitan Atlanta Congenital Defects Program)

Birth Defects Counts and Prevalence 2012 - 2016 (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)	14	21	8	2	0	53	
	2.9	***2.8***	***2.4***	***1.3***	***0.0***	***3.0***	
Omphalocele	8	22	6	2	0	49	
	1.7	***3.0***	***1.8***	***1.3***	***0.0***	***2.8***	
Pulmonary valve atresia and stenosis	37	49	20	9	0	133	
	7.7	***6.6***	***6.0***	***6.1***	***0.0***	***7.5***	
Pulmonary valve atresia	10	20	4	4	0	38	
	2.1	***2.7***	***1.2***	***2.7***	***0.0***	***2.1***	
Rectal and large intestinal atresia/stenosis	20	26	15	3	0	65	
	4.2	***3.5***	***4.5***	***2.0***	***0.0***	***3.7***	
Renal agenesis/hypoplasia	22	36	7	6	0	83	
	4.6	***4.9***	***2.1***	***4.0***	***0.0***	***4.7***	
Single ventricle	2	2	1	1	0	7	
	0.4	***0.3***	***0.3***	***0.7***	***0.0***	***0.4***	
Small intestinal atresia/stenosis	13	19	6	1	0	44	
	2.7	***2.6***	***1.8***	***0.7***	***0.0***	***2.5***	
Spina bifida without anencephalus	17	13	8	3	0	51	
	3.5	***1.8***	***2.4***	***2.0***	***0.0***	***2.9***	
Tetralogy of Fallot	20	29	6	7	0	69	
	4.2	***3.9***	***1.8***	***4.7***	***0.0***	***3.9***	
Total anomalous pulmonary venous connection	6	7	4	4	0	23	
	1.3	***0.9***	***1.2***	***2.7***	***0.0***	***1.3***	
Transposition of the great arteries (TGA)	13	15	9	1	1	50	
	2.7	***2.0***	***2.7***	***0.7***	***87.7***	***2.8***	
Dextro-transposition of great arteries (d-TGA)	12	13	8	1	1	45	
	2.5	***1.8***	***2.4***	***0.7***	***87.7***	***2.5***	
Tricuspid valve atresia and stenosis	6	13	7	3	0	29	
	1.3	***1.8***	***2.1***	***2.0***	***0.0***	***1.6***	
Tricuspid valve atresia	5	5	3	3	0	16	
	1.0	***0.7***	***0.9***	***2.0***	***0.0***	***0.9***	
Trisomy 13	10	9	4	1	0	29	
	2.1	***1.2***	***1.2***	***0.7***	***0.0***	***1.6***	
Trisomy 18	8	17	5	3	0	44	
	1.7	***2.3***	***1.5***	***2.0***	***0.0***	***2.5***	
Trisomy 21 (Down syndrome)	56	80	61	13	0	238	
	11.7	***10.8***	***18.3***	***8.8***	***0.0***	***13.4***	
Turner syndrome	7	9	0	2	0	23	2
	3.0	***2.5***	***0.0***	***2.8***	***0.0***	***2.6***	
Ventricular septal defect	279	296	208	71	1	965	
	58.3	***39.9***	***62.5***	***47.9***	***87.7***	***54.5***	
Total live births	**47,889**	**74,110**	**33,258**	**14,821**	**114**	**177,217**	
Male live births	**24,389**	**37,396**	**16,848**	**7,575**	**56**	**89,860**	
Female live births	**23,500**	**36,714**	**16,410**	**7,246**	**58**	**87,356**	

Georgia (Metropolitan Atlanta Congenital Defects Program)

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	54	6	61	
	3.9	***1.6***	***3.4***	
Trisomy 13	17	12	29	
	1.2	***3.1***	***1.6***	
Trisomy 18	19	22	44	
	1.4	***5.7***	***2.5***	
Trisomy 21 (Down syndrome)	111	124	238	
	8.0	***32.3***	***13.4***	
Total live births	**138,850**	**38,345**	**177,217**	

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
*Data for 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.

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**	**Total***	**Notes**
Anencephalus	2	0	0	1	4	
	5.5	***0.0***	***0.0***	***0.9***	***2.1***	
Anotia/microtia	1	0	0	0	1	
	2.7	***0.0***	***0.0***	***0.0***	***0.5***	
Atrial septal defect	7	0	4	18	35	
	19.2	***0.0***	***13.4***	***15.4***	***18.4***	
Atrioventricular septal defect (Endocardial cushion defect)	1	0	1	3	5	
	2.7	***0.0***	***3.4***	***2.6***	***2.6***	
Biliary atresia	1	0	0	2	3	
	2.7	***0.0***	***0.0***	***1.7***	***1.6***	
Bladder exstrophy	1	0	0	0	1	
	2.7	***0.0***	***0.0***	***0.0***	***0.5***	
Choanal atresia	1	0	0	0	1	
	2.7	***0.0***	***0.0***	***0.0***	***0.5***	
Cleft lip alone	2	0	0	4	7	
	5.5	***0.0***	***0.0***	***3.4***	***3.7***	
Cleft lip with cleft palate	1	0	0	6	8	
	2.7	***0.0***	***0.0***	***5.1***	***4.2***	
Cleft palate alone	3	0	2	8	14	
	8.2	***0.0***	***6.7***	***6.8***	***7.4***	
Coarctation of the aorta	1	0	0	3	4	
	2.7	***0.0***	***0.0***	***2.6***	***2.1***	
Ebstein anomaly	0	0	0	1	1	
	0.0	***0.0***	***0.0***	***0.9***	***0.5***	
Encephalocele	0	0	0	2	2	
	0.0	***0.0***	***0.0***	***1.7***	***1.1***	
Esophageal atresia/tracheoesophageal fistula	1	0	0	3	5	
	2.7	***0.0***	***0.0***	***2.6***	***2.6***	
Gastroschisis	2	0	0	9	12	
	5.5	***0.0***	***0.0***	***7.7***	***6.3***	
Hypoplastic left heart syndrome	0	0	0	2	3	
	0.0	***0.0***	***0.0***	***1.7***	***1.6***	
Hypospadias	6	0	2	40	54	1
	32.7	***0.0***	***13.1***	***66.8***	***55.8***	
Omphalocele	0	0	1	3	4	
	0.0	***0.0***	***3.4***	***2.6***	***2.1***	
Pulmonary valve atresia and stenosis	5	0	1	5	12	
	13.7	***0.0***	***3.4***	***4.3***	***6.3***	
Pulmonary valve atresia	0	0	0	2	2	
	0.0	***0.0***	***0.0***	***1.7***	***1.1***	
Rectal and large intestinal atresia/stenosis	3	0	0	8	12	
	8.2	***0.0***	***0.0***	***6.8***	***6.3***	
Renal agenesis/hypoplasia	1	0	0	6	8	
	2.7	***0.0***	***0.0***	***5.1***	***4.2***	
Spina bifida without anencephalus	0	0	0	1	1	
	0.0	***0.0***	***0.0***	***0.9***	***0.5***	
Tetralogy of Fallot	1	0	0	1	2	
	2.7	***0.0***	***0.0***	***0.9***	***1.1***	
Total anomalous pulmonary venous connection	0	0	0	2	2	
	0.0	***0.0***	***0.0***	***1.7***	***1.1***	
Transposition of the great arteries (TGA)	0	1	1	6	8	
	0.0	***22.0***	***3.4***	***5.1***	***4.2***	
Tricuspid valve atresia and stenosis	0	0	1	3	4	
	0.0	***0.0***	***3.4***	***2.6***	***2.1***	
Tricuspid valve atresia	0	0	1	3	4	
	0.0	***0.0***	***3.4***	***2.6***	***2.1***	
Trisomy 13	0	0	0	2	2	
	0.0	***0.0***	***0.0***	***1.7***	***1.1***	
Trisomy 18	4	0	1	6	15	
	11.0	***0.0***	***3.4***	***5.1***	***7.9***	
Trisomy 21 (Down syndrome)	5	0	2	14	29	
	13.7	***0.0***	***6.7***	***12.0***	***15.3***	

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**	**Total***	**Notes**
Turner syndrome	1	0	0	1	2	2
	5.5	***0.0***	***0.0***	***1.8***	***2.2***	
Ventricular septal defect	8	0	4	29	50	
	21.9	***0.0***	***13.4***	***24.8***	***26.3***	
Total live births	**3,648**	**455**	**2,977**	**11,697**	**18,985**	
Male live births	**1,834**	**228**	**1,532**	**5,989**	**9,684**	
Female live births	**1,814**	**227**	**1,445**	**5,708**	**9,301**	

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	
	5.1	***20.6***	***7.9***	
Trisomy 21 (Down syndrome)	13	16	29	
	8.3	***47.0***	***15.3***	
Total live births	**15,582**	**3,403**	**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
*Data for totals include unknown and/or other.

Illinois

Birth Defects Counts and Prevalence 2012 - 2016 (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	46	18	39	9	0	113	
	1.1	***1.4***	***2.3***	***1.9***	***0.0***	***1.4***	
Anophthalmia/microphthalmia	97	33	49	7	2	188	
	2.3	***2.5***	***2.9***	***1.4***	***36.3***	***2.4***	
Anotia/microtia	65	14	76	9	0	164	
	1.5	***1.1***	***4.5***	***1.9***	***0.0***	***2.1***	
Aortic valve stenosis	81	25	33	8	0	147	
	1.9	***1.9***	***2.0***	***1.7***	***0.0***	***1.9***	
Atrial septal defect	1,298	461	581	188	8	2,542	
	30.8	***35.2***	***34.5***	***38.8***	***145.2***	***32.3***	
Atrioventricular septal defect (Endocardial cushion defect)	225	82	85	15	0	408	1
	5.3	***6.3***	***5.0***	***3.1***	***0.0***	***5.2***	
Biliary atresia	12	8	7	7	0	34	
	0.3	***0.6***	***0.4***	***1.4***	***0.0***	***0.4***	
Bladder exstrophy	10	0	5	2	0	17	
	0.2	***0.0***	***0.3***	***0.4***	***0.0***	***0.2***	
Choanal atresia	54	18	21	4	0	97	
	1.3	***1.4***	***1.2***	***0.8***	***0.0***	***1.2***	
Cleft lip alone	139	31	48	11	1	230	
	3.3	***2.4***	***2.8***	***2.3***	***18.1***	***2.9***	
Cleft lip with cleft palate	236	58	130	18	0	443	
	5.6	***4.4***	***7.7***	***3.7***	***0.0***	***5.6***	
Cleft palate alone	261	59	82	36	2	440	
	6.2	***4.5***	***4.9***	***7.4***	***36.3***	***5.6***	
Cloacal exstrophy	12	2	4	2	0	20	
	0.3	***0.2***	***0.2***	***0.4***	***0.0***	***0.3***	
Clubfoot	555	169	229	57	4	1,017	
	13.2	***12.9***	***13.6***	***11.8***	***72.6***	***12.9***	
Coarctation of the aorta	210	45	86	17	2	360	
	5.0	***3.4***	***5.1***	***3.5***	***36.3***	***4.6***	
Common truncus (truncus arteriosus)	26	5	8	2	0	41	
	0.6	***0.4***	***0.5***	***0.4***	***0.0***	***0.5***	
Congenital cataract	47	28	18	7	0	100	
	1.1	***2.1***	***1.1***	***1.4***	***0.0***	***1.3***	
Congenital posterior urethral valves	42	20	10	4	0	76	2
	1.9	***3.0***	***1.2***	***1.6***	***0.0***	***1.9***	
Craniosynostosis	182	32	85	11	0	310	
	4.3	***2.4***	***5.0***	***2.3***	***0.0***	***3.9***	
Deletion 22q11.2	44	20	13	5	0	82	
	1.0	***1.5***	***0.8***	***1.0***	***0.0***	***1.0***	
Diaphragmatic hernia	134	22	57	10	0	223	
	3.2	***1.7***	***3.4***	***2.1***	***0.0***	***2.8***	
Double outlet right ventricle	75	29	38	7	0	149	
	1.8	***2.2***	***2.3***	***1.4***	***0.0***	***1.9***	
Ebstein anomaly	23	7	21	3	0	54	
	0.5	***0.5***	***1.2***	***0.6***	***0.0***	***0.7***	
Encephalocele	27	12	18	4	0	62	
	0.6	***0.9***	***1.1***	***0.8***	***0.0***	***0.8***	
Esophageal atresia/tracheoesophageal fistula	128	26	39	11	1	205	
	3.0	***2.0***	***2.3***	***2.3***	***18.1***	***2.6***	
Gastroschisis	142	67	74	4	1	288	
	3.4	***5.1***	***4.4***	***0.8***	***18.1***	***3.7***	
Holoprosencephaly	34	21	31	2	1	89	
	0.8	***1.6***	***1.8***	***0.4***	***18.1***	***1.1***	
Hypoplastic left heart syndrome	89	40	34	9	1	173	
	2.1	***3.0***	***2.0***	***1.9***	***18.1***	***2.2***	
Hypospadias	1,559	413	268	132	14	2,386	2
	72.0	***62.0***	***31.3***	***53.2***	***493.0***	***59.3***	
Interrupted aortic arch	22	17	12	0	0	51	
	0.5	***1.3***	***0.7***	***0.0***	***0.0***	***0.6***	

Illinois

Birth Defects Counts and Prevalence 2012 - 2016 (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)	182	77	74	15	0	349	
	4.3	***5.9***	***4.4***	***3.1***	***0.0***	***4.4***	
Omphalocele	78	36	24	6	1	145	
	1.8	***2.7***	***1.4***	***1.2***	***18.1***	***1.8***	
Pulmonary valve atresia and stenosis	223	100	116	33	1	474	
	5.3	***7.6***	***6.9***	***6.8***	***18.1***	***6.0***	
Pulmonary valve atresia	16	9	12	2	0	39	3
	0.4	***0.7***	***0.7***	***0.4***	***0.0***	***0.5***	
Rectal and large intestinal atresia/stenosis	166	43	72	17	3	301	
	3.9	***3.3***	***4.3***	***3.5***	***54.4***	***3.8***	
Renal agenesis/hypoplasia	300	131	139	42	0	612	
	7.1	***10.0***	***8.3***	***8.7***	***0.0***	***7.8***	
Single ventricle	19	8	10	2	0	39	
	0.5	***0.6***	***0.6***	***0.4***	***0.0***	***0.5***	
Small intestinal atresia/stenosis	119	46	63	14	1	243	
	2.8	***3.5***	***3.7***	***2.9***	***18.1***	***3.1***	
Spina bifida without anencephalus	149	39	54	10	0	252	
	3.5	***3.0***	***3.2***	***2.1***	***0.0***	***3.2***	
Tetralogy of Fallot	170	64	62	24	2	323	
	4.0	***4.9***	***3.7***	***5.0***	***36.3***	***4.1***	
Total anomalous pulmonary venous connection	33	14	31	6	0	84	
	0.8	***1.1***	***1.8***	***1.2***	***0.0***	***1.1***	
Transposition of the great arteries (TGA)	132	27	44	10	0	214	
	3.1	***2.1***	***2.6***	***2.1***	***0.0***	***2.7***	
Dextro-transposition of great arteries (d-TGA)	110	23	33	7	0	173	
	2.6	***1.8***	***2.0***	***1.4***	***0.0***	***2.2***	
Tricuspid valve atresia and stenosis	34	21	24	5	0	84	4
	0.8	***1.6***	***1.4***	***1.0***	***0.0***	***1.1***	
Tricuspid valve atresia	16	8	15	2	0	41	5
	0.4	***0.6***	***0.9***	***0.4***	***0.0***	***0.5***	
Trisomy 13	45	14	24	3	0	86	
	1.1	***1.1***	***1.4***	***0.6***	***0.0***	***1.1***	
Trisomy 18	113	31	53	15	0	214	
	2.7	***2.4***	***3.1***	***3.1***	***0.0***	***2.7***	
Trisomy 21 (Down syndrome)	546	149	364	52	6	1,118	
	12.9	***11.4***	***21.6***	***10.7***	***108.9***	***14.2***	
Turner syndrome	35	10	18	2	0	65	6
	1.7	***1.5***	***2.2***	***0.8***	***0.0***	***1.7***	
Ventricular septal defect	1,990	554	940	239	13	3,737	7
	47.2	***42.2***	***55.8***	***49.4***	***235.9***	***47.5***	
Total live births	**421,754**	**131,148**	**168,475**	**48,405**	**551**	**787,160**	**8**
Male live births	**216,614**	**66,596**	**85,671**	**24,797**	**284**	**402,622**	
Female live births	**205,132**	**64,543**	**82,797**	**23,608**	**267**	**384,513**	

Illinois

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	275	13	288	
	4.2	***0.9***	***3.7***	
Trisomy 13	56	30	86	
	0.9	***2.2***	***1.1***	
Trisomy 18	122	90	214	
	1.9	***6.6***	***2.7***	
Trisomy 21 (Down syndrome)	512	605	1,118	
	7.9	***44.1***	***14.2***	
Total live births	**649,986**	**137,113**	**787,160**	**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. Data for total live births include unknown gender.

General comments

*Data for totals include unknown and/or other.
-More complete hospital discharge data was made available beginning in 2013 which allowed for the identification of cases diagnosed at a later date.

Indiana

Birth Defects Counts and Prevalence 2012 - 2016 (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	2	1	1	0	20	
	0.5	***0.4***	***0.4***	***1.0***	***0.0***	***0.5***	
Anophthalmia/microphthalmia	23	2	2	0	0	27	
	0.7	***0.4***	***0.7***	***0.0***	***0.0***	***0.7***	
Anotia/microtia	28	5	8	4	0	46	
	0.9	***1.1***	***2.8***	***3.9***	***0.0***	***1.1***	
Aortic valve stenosis	42	1	3	2	0	48	
	1.3	***0.2***	***1.1***	***2.0***	***0.0***	***1.2***	
Atrial septal defect	1,564	283	152	42	3	2,072	
	49.3	***59.6***	***53.6***	***41.0***	***74.1***	***49.9***	
Atrioventricular septal defect (Endocardial cushion defect)	104	19	8	2	0	136	
	3.3	***4.0***	***2.8***	***2.0***	***0.0***	***3.3***	
Biliary atresia	18	5	3	0	0	26	
	0.6	***1.1***	***1.1***	***0.0***	***0.0***	***0.6***	
Bladder exstrophy	6	1	1	0	0	8	
	0.2	***0.2***	***0.4***	***0.0***	***0.0***	***0.2***	
Choanal atresia	30	3	3	0	0	37	
	0.9	***0.6***	***1.1***	***0.0***	***0.0***	***0.9***	
Cleft lip alone	88	4	6	2	0	101	
	2.8	***0.8***	***2.1***	***2.0***	***0.0***	***2.4***	
Cleft lip with cleft palate	209	14	17	5	0	253	
	6.6	***2.9***	***6.0***	***4.9***	***0.0***	***6.1***	
Cleft palate alone	190	23	6	3	0	224	
	6.0	***4.8***	***2.1***	***2.9***	***0.0***	***5.4***	
Cloacal exstrophy	53	7	3	1	0	64	
	1.7	***1.5***	***1.1***	***1.0***	***0.0***	***1.5***	
Clubfoot	345	54	37	5	0	453	
	10.9	***11.4***	***13.0***	***4.9***	***0.0***	***10.9***	
Coarctation of the aorta	150	10	11	2	0	175	
	4.7	***2.1***	***3.9***	***2.0***	***0.0***	***4.2***	
Common truncus (truncus arteriosus)	10	2	0	1	0	13	
	0.3	***0.4***	***0.0***	***1.0***	***0.0***	***0.3***	
Congenital cataract	12	5	3	1	0	22	
	0.4	***1.1***	***1.1***	***1.0***	***0.0***	***0.5***	
Congenital posterior urethral valves	19	3	1	0	0	24	1
	1.2	***1.2***	***0.7***	***0.0***	***0.0***	***1.1***	
Craniosynostosis	410	50	30	9	1	509	
	12.9	***10.5***	***10.6***	***8.8***	***24.7***	***12.3***	
Deletion 22q11.2	7	1	2	0	0	10	
	0.2	***0.2***	***0.7***	***0.0***	***0.0***	***0.2***	
Diaphragmatic hernia	85	11	10	0	0	110	
	2.7	***2.3***	***3.5***	***0.0***	***0.0***	***2.6***	
Double outlet right ventricle	48	11	5	1	0	69	
	1.5	***2.3***	***1.8***	***1.0***	***0.0***	***1.7***	
Ebstein anomaly	12	2	1	0	0	16	
	0.4	***0.4***	***0.4***	***0.0***	***0.0***	***0.4***	
Encephalocele	22	1	4	0	0	28	
	0.7	***0.2***	***1.4***	***0.0***	***0.0***	***0.7***	
Esophageal atresia/tracheoesophageal fistula	52	4	7	0	0	63	
	1.6	***0.8***	***2.5***	***0.0***	***0.0***	***1.5***	
Gastroschisis	102	14	11	2	0	133	
	3.2	***2.9***	***3.9***	***2.0***	***0.0***	***3.2***	
Holoprosencephaly	73	7	10	1	0	96	
	2.3	***1.5***	***3.5***	***1.0***	***0.0***	***2.3***	
Hypoplastic left heart syndrome	70	8	7	0	0	85	
	2.2	***1.7***	***2.5***	***0.0***	***0.0***	***2.0***	
Hypospadias	1,079	139	40	27	1	1,304	1
	66.2	***57.6***	***27.7***	***50.6***	***52.6***	***61.1***	
Interrupted aortic arch	19	1	3	1	0	24	
	0.6	***0.2***	***1.1***	***1.0***	***0.0***	***0.6***	

Indiana

Birth Defects Counts and Prevalence 2012 - 2016 (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)	87	14	10	2	0	117	
	2.7	***2.9***	***3.5***	***2.0***	***0.0***	***2.8***	
Omphalocele	52	10	4	4	0	71	
	1.6	***2.1***	***1.4***	***3.9***	***0.0***	***1.7***	
Pulmonary valve atresia and stenosis	204	29	28	3	0	270	
	6.4	***6.1***	***9.9***	***2.9***	***0.0***	***6.5***	
Pulmonary valve atresia	28	6	7	1	0	42	
	0.9	***1.3***	***2.5***	***1.0***	***0.0***	***1.0***	
Rectal and large intestinal atresia/stenosis	127	18	12	3	0	161	
	4.0	***3.8***	***4.2***	***2.9***	***0.0***	***3.9***	
Renal agenesis/hypoplasia	135	21	9	5	0	174	
	4.3	***4.4***	***3.2***	***4.9***	***0.0***	***4.2***	
Single ventricle	13	6	3	0	0	23	
	0.4	***1.3***	***1.1***	***0.0***	***0.0***	***0.6***	
Small intestinal atresia/stenosis	94	20	3	6	0	123	
	3.0	***4.2***	***1.1***	***5.9***	***0.0***	***3.0***	
Spina bifida without anencephalus	94	5	11	2	0	114	
	3.0	***1.1***	***3.9***	***2.0***	***0.0***	***2.7***	
Tetralogy of Fallot	88	13	5	3	1	113	
	2.8	***2.7***	***1.8***	***2.9***	***24.7***	***2.7***	
Total anomalous pulmonary venous connection	27	3	3	0	0	33	
	0.9	***0.6***	***1.1***	***0.0***	***0.0***	***0.8***	
Transposition of the great arteries (TGA)	68	7	7	4	0	87	
	2.1	***1.5***	***2.5***	***3.9***	***0.0***	***2.1***	
Dextro-transposition of great arteries (d-TGA)	59	5	6	3	0	74	
	1.9	***1.1***	***2.1***	***2.9***	***0.0***	***1.8***	
Tricuspid valve atresia and stenosis	16	6	2	3	0	28	
	0.5	***1.3***	***0.7***	***2.9***	***0.0***	***0.7***	
Trisomy 13	21	4	1	0	0	27	
	0.7	***0.8***	***0.4***	***0.0***	***0.0***	***0.7***	
Trisomy 18	39	7	5	1	0	52	
	1.2	***1.5***	***1.8***	***1.0***	***0.0***	***1.3***	
Trisomy 21 (Down syndrome)	427	57	54	10	0	555	
	13.5	***12.0***	***19.0***	***9.8***	***0.0***	***13.4***	
Turner syndrome	31	1	0	0	0	33	2
	2.0	***0.4***	***0.0***	***0.0***	***0.0***	***1.6***	
Ventricular septal defect	1,144	159	148	35	1	1,519	
	36.1	***33.5***	***52.2***	***34.2***	***24.7***	***36.6***	
Total live births	**317,082**	**47,469**	**28,365**	**10,232**	**405**	**415,215**	
Male live births	**163,108**	**24,137**	**14,445**	**5,339**	**190**	**213,260**	
Female live births	**153,976**	**23,332**	**13,914**	**4,891**	**215**	**201,955**	

Indiana

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	131	2	133	
	3.6	***0.4***	***3.2***	
Trisomy 13	23	4	27	
	0.6	***0.8***	***0.7***	
Trisomy 18	29	23	52	
	0.8	***4.8***	***1.3***	
Trisomy 21 (Down syndrome)	338	217	555	
	9.2	***45.3***	***13.4***	
Total live births	**367,292**	**47,894**	**415,215**	

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

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

Iowa

Birth Defects Counts and Prevalence 2012 - 2016 (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	23	3	5	1	0	36	
	1.4	***2.8***	***3.0***	***1.5***	***0.0***	***1.8***	
Anophthalmia/microphthalmia	15	4	4	2	0	25	
	0.9	***3.8***	***2.4***	***3.0***	***0.0***	***1.3***	
Anotia/microtia	34	1	7	3	0	46	
	2.1	***0.9***	***4.2***	***4.5***	***0.0***	***2.3***	
Aortic valve stenosis	38	0	1	1	0	41	
	2.4	***0.0***	***0.6***	***1.5***	***0.0***	***2.1***	
Atrial septal defect	468	43	40	16	1	577	
	29.5	***40.5***	***24.2***	***24.0***	***11.7***	***29.4***	
Atrioventricular septal defect (Endocardial cushion defect)	76	11	9	3	0	101	
	4.8	***10.4***	***5.4***	***4.5***	***0.0***	***5.2***	
Biliary atresia	4	0	0	1	0	5	
	0.3	***0.0***	***0.0***	***1.5***	***0.0***	***0.3***	
Bladder exstrophy	7	0	0	1	0	8	
	0.4	***0.0***	***0.0***	***1.5***	***0.0***	***0.4***	
Choanal atresia	13	1	1	0	0	15	1
	0.8	***0.9***	***0.6***	***0.0***	***0.0***	***0.8***	
Cleft lip alone	56	3	13	1	1	74	
	3.5	***2.8***	***7.9***	***1.5***	***11.7***	***3.8***	
Cleft lip with cleft palate	95	4	9	3	0	114	
	6.0	***3.8***	***5.4***	***4.5***	***0.0***	***5.8***	
Cleft palate alone	106	6	8	5	0	127	
	6.7	***5.6***	***4.8***	***7.5***	***0.0***	***6.5***	
Cloacal exstrophy	2	0	0	0	0	2	
	0.1	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Clubfoot	258	16	28	6	3	317	
	16.3	***15.1***	***16.9***	***9.0***	***35.0***	***16.2***	
Coarctation of the aorta	101	0	3	1	0	105	
	6.4	***0.0***	***1.8***	***1.5***	***0.0***	***5.4***	
Common truncus (truncus arteriosus)	11	1	3	0	0	15	
	0.7	***0.9***	***1.8***	***0.0***	***0.0***	***0.8***	
Congenital cataract	66	4	5	1	1	77	
	4.2	***3.8***	***3.0***	***1.5***	***11.7***	***3.9***	
Congenital posterior urethral valves	15	1	0	1	0	17	2
	1.8	***1.9***	***0.0***	***2.9***	***0.0***	***1.7***	
Craniosynostosis	86	3	10	4	1	106	
	5.4	***2.8***	***6.0***	***6.0***	***11.7***	***5.4***	
Deletion 22q11.2	26	3	2	1	1	33	
	1.6	***2.8***	***1.2***	***1.5***	***11.7***	***1.7***	
Diaphragmatic hernia	48	1	4	3	0	59	
	3.0	***0.9***	***2.4***	***4.5***	***0.0***	***3.0***	
Double outlet right ventricle	22	5	7	3	0	40	
	1.4	***4.7***	***4.2***	***4.5***	***0.0***	***2.0***	
Ebstein anomaly	15	1	3	1	0	20	
	0.9	***0.9***	***1.8***	***1.5***	***0.0***	***1.0***	
Encephalocele	21	0	1	0	0	23	
	1.3	***0.0***	***0.6***	***0.0***	***0.0***	***1.2***	
Esophageal atresia/tracheoesophageal fistula	43	2	3	2	0	50	
	2.7	***1.9***	***1.8***	***3.0***	***0.0***	***2.5***	
Gastroschisis	74	6	9	0	0	90	
	4.7	***5.6***	***5.4***	***0.0***	***0.0***	***4.6***	
Holoprosencephaly	18	3	1	0	0	24	
	1.1	***2.8***	***0.6***	***0.0***	***0.0***	***1.2***	
Hypoplastic left heart syndrome	35	4	4	2	0	46	
	2.2	***3.8***	***2.4***	***3.0***	***0.0***	***2.3***	
Hypospadias	529	30	28	15	0	607	2
	65.0	***56.3***	***33.7***	***43.0***	***0.0***	***60.5***	
Interrupted aortic arch	9	0	0	0	0	9	
	0.6	***0.0***	***0.0***	***0.0***	***0.0***	***0.5***	

Iowa

Birth Defects Counts and Prevalence 2012 - 2016 (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)	84	3	15	3	0	107	3
	5.3	***2.8***	***9.1***	***4.5***	***0.0***	***5.5***	
Omphalocele	37	4	4	2	1	52	
	2.3	***3.8***	***2.4***	***3.0***	***11.7***	***2.7***	
Pulmonary valve atresia and stenosis	175	20	11	7	0	214	
	11.0	***18.8***	***6.6***	***10.5***	***0.0***	***10.9***	
Pulmonary valve atresia	9	3	0	1	0	13	
	0.6	***2.8***	***0.0***	***1.5***	***0.0***	***0.7***	
Rectal and large intestinal atresia/stenosis	51	6	8	0	0	66	
	3.2	***5.6***	***4.8***	***0.0***	***0.0***	***3.4***	
Renal agenesis/hypoplasia	90	5	9	1	0	108	
	5.7	***4.7***	***5.4***	***1.5***	***0.0***	***5.5***	
Single ventricle	7	0	1	0	0	8	
	0.4	***0.0***	***0.6***	***0.0***	***0.0***	***0.4***	
Small intestinal atresia/stenosis	58	6	3	0	0	68	
	3.7	***5.6***	***1.8***	***0.0***	***0.0***	***3.5***	
Spina bifida without anencephalus	71	3	10	0	0	85	
	4.5	***2.8***	***6.0***	***0.0***	***0.0***	***4.3***	
Tetralogy of Fallot	54	3	2	4	1	64	
	3.4	***2.8***	***1.2***	***6.0***	***11.7***	***3.3***	
Total anomalous pulmonary venous connection	12	1	4	2	0	19	
	0.8	***0.9***	***2.4***	***3.0***	***0.0***	***1.0***	
Transposition of the great arteries (TGA)	43	4	3	1	0	52	
	2.7	***3.8***	***1.8***	***1.5***	***0.0***	***2.7***	
Dextro-transposition of great arteries (d-TGA)	38	4	3	1	0	47	
	2.4	***3.8***	***1.8***	***1.5***	***0.0***	***2.4***	
Tricuspid valve atresia and stenosis	26	4	5	1	0	36	
	1.6	***3.8***	***3.0***	***1.5***	***0.0***	***1.8***	
Tricuspid valve atresia	4	2	0	1	0	7	
	0.3	***1.9***	***0.0***	***1.5***	***0.0***	***0.4***	
Trisomy 13	22	5	2	0	0	31	
	1.4	***4.7***	***1.2***	***0.0***	***0.0***	***1.6***	
Trisomy 18	46	2	6	5	1	65	
	2.9	***1.9***	***3.6***	***7.5***	***11.7***	***3.3***	
Trisomy 21 (Down syndrome)	216	14	27	5	0	270	
	13.6	***13.2***	***16.3***	***7.5***	***0.0***	***13.8***	
Turner syndrome	31	1	5	1	0	39	4
	4.0	***1.9***	***6.1***	***3.2***	***0.0***	***4.1***	
Ventricular septal defect	813	50	74	26	3	978	
	51.2	***47.1***	***44.7***	***39.0***	***35.0***	***49.9***	
Total live births	**158,750**	**10,620**	**16,547**	**6,665**	**858**	**196,096**	**5**
Male live births	**81,389**	**5,330**	**8,299**	**3,491**	**454**	**100,310**	
Female live births	**77,360**	**5,290**	**8,248**	**3,174**	**404**	**95,786**	

Iowa

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	88	2	90	
	5.1	***0.9***	***4.6***	
Trisomy 13	20	11	31	
	1.2	***4.8***	***1.6***	
Trisomy 18	36	29	65	
	2.1	***12.5***	***3.3***	
Trisomy 21 (Down syndrome)	161	109	270	
	9.3	***47.1***	***13.8***	
Total live births	**172,954**	**23,135**	**196,096**	**5**

Notes

1. Data for this condition exclude choanal stenosis.
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 and unspecified limb reductions.
4. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
5. Data for total live births include unknown gender.

General comments

*Data for totals include unknown and/or other.
-Data for conditions exclude probable/possible cases.

Kansas

Birth Defects Counts and Prevalence 2012 - 2016 (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 ***2.3***	<5	14 ***4.6***	0 ***0.0***	0 ***0.0***	49 ***2.6***	
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 ***0.3***	
Aortic valve stenosis	7 ***0.5***	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	8 ***0.4***	
Atrial septal defect	259 ***19.4***	38 ***30.1***	86 ***28.1***	10 ***17.0***	<5	405 ***21.5***	
Atrioventricular septal defect (Endocardial cushion defect)	14 ***1.0***	0 ***0.0***	<5	0 ***0.0***	0 ***0.0***	18 ***1.0***	
Biliary atresia	<5	<5	<5	<5	0 ***0.0***	8 ***0.4***	
Bladder exstrophy	0 ***0.0***	0 ***0.0***	<5	0 ***0.0***	0 ***0.0***	<5	
Choanal atresia	<5	0 ***0.0***	<5	0 ***0.0***	0 ***0.0***	6 ***0.3***	
Cleft lip alone	35 ***2.6***	5 ***4.0***	7 ***2.3***	<5	<5	53 ***2.8***	
Cleft lip with cleft palate	20 ***1.5***	<5	11 ***3.6***	0 ***0.0***	<5	34 ***1.8***	
Cleft palate alone	63 ***4.7***	<5	21 ***6.9***	<5	0 ***0.0***	88 ***4.7***	
Cloacal exstrophy	13 ***1.0***	<5	<5	0 ***0.0***	0 ***0.0***	17 ***0.9***	
Clubfoot	92 ***6.9***	5 ***4.0***	24 ***7.8***	0 ***0.0***	<5	127 ***6.7***	
Coarctation of the aorta	18 ***1.3***	0 ***0.0***	<5	0 ***0.0***	0 ***0.0***	23 ***1.2***	
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	22 ***1.6***	<5	<5	<5	0 ***0.0***	28 ***1.5***	
Diaphragmatic hernia	25 ***1.9***	0 ***0.0***	14 ***4.6***	0 ***0.0***	0 ***0.0***	42 ***2.2***	
Double outlet right ventricle	5 ***0.4***	<5	<5	0 ***0.0***	0 ***0.0***	9 ***0.5***	
Ebstein anomaly	<5	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	<5	
Encephalocele	7 ***0.5***	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	7 ***0.4***	
Esophageal atresia/tracheoesophageal fistula	16 ***1.2***	<5	6 ***2.0***	0 ***0.0***	0 ***0.0***	24 ***1.3***	
Gastroschisis	53 ***4.0***	<5	15 ***4.9***	0 ***0.0***	<5	77 ***4.1***	
Holoprosencephaly	21 ***1.6***	<5	9 ***2.9***	<5	0 ***0.0***	34 ***1.8***	
Hypoplastic left heart syndrome	<5	<5	<5	0 ***0.0***	0 ***0.0***	7 ***0.4***	
Hypospadias	155 ***22.7***	24 ***37.2***	31 ***19.9***	5 ***16.9***	0 ***0.0***	220 ***22.9***	1
Interrupted aortic arch	<5	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	<5	
Limb deficiencies (reduction defects)	27 ***2.0***	7 ***5.6***	<5	<5	0 ***0.0***	40 ***2.1***	

Kansas

Birth Defects Counts and Prevalence 2012 - 2016 (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	15	<5	15	<5	0	37	
	1.1		***4.9***		***0.0***	***2.0***	
Pulmonary valve atresia and stenosis	29	5	9	0	0	44	
	2.2	***4.0***	***2.9***	***0.0***	***0.0***	***2.3***	
Rectal and large intestinal atresia/stenosis	16	<5	8	<5	0	26	
	1.2		***2.6***		***0.0***	***1.4***	
Renal agenesis/hypoplasia	16	0	7	0	0	23	
	1.2	***0.0***	***2.3***	***0.0***	***0.0***	***1.2***	
Single ventricle	0	0	<5	0	0	<5	
	0.0	***0.0***		***0.0***	***0.0***		
Small intestinal atresia/stenosis	21	<5	8	<5	0	33	
	1.6		***2.6***		***0.0***	***1.8***	
Spina bifida without anencephalus	29	<5	15	<5	0	49	
	2.2		***4.9***		***0.0***	***2.6***	
Tetralogy of Fallot	13	0	6	<5	0	21	
	1.0	***0.0***	***2.0***		***0.0***	***1.1***	
Total anomalous pulmonary venous connection	<5	0	<5	0	0	6	
		0.0		***0.0***	***0.0***	***0.3***	
Transposition of the great arteries (TGA)	<5	0	5	<5	0	8	
		0.0	***1.6***		***0.0***	***0.4***	
Tricuspid valve atresia and stenosis	<5	0	<5	0	0	<5	
		0.0		***0.0***	***0.0***		
Trisomy 13	6	0	<5	0	0	9	
	0.4	***0.0***		***0.0***	***0.0***	***0.5***	
Trisomy 18	13	<5	7	0	0	22	
	1.0		***2.3***	***0.0***	***0.0***	***1.2***	
Trisomy 21 (Down syndrome)	128	11	44	8	<5	198	
	9.6	***8.7***	***14.4***	***13.6***		***10.5***	
Turner syndrome	11	0	<5	0	0	14	2
	1.7	***0.0***		***0.0***	***0.0***	***1.5***	
Ventricular septal defect	145	11	74	6	<5	245	
	10.9	***8.7***	***24.2***	***10.2***		***13.0***	
Total live births	**133,583**	**12,612**	**30,624**	**5,893**	**895**	**188,392**	**3**
Male live births	**68,422**	**6,451**	**15,545**	**2,958**	**452**	**96,268**	
Female live births	**65,161**	**6,161**	**15,078**	**2,935**	**443**	**92,123**	

Kansas

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	73	<5	77	
	4.4		***4.1***	
Trisomy 13	<5	5	9	
		2.3	***0.5***	
Trisomy 18	13	9	22	
	0.8	***4.1***	***1.2***	
Trisomy 21 (Down syndrome)	116	80	198	
	7.0	***36.1***	***10.5***	
Total live births	**166,203**	**22,181**	**188,392**	**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. Data for total live births include unknown gender.

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

Kentucky

Birth Defects Counts and Prevalence 2012 - 2016 (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	41	2	2	0	0	48	
	1.8	***0.8***	***1.4***	***0.0***	***0.0***	***1.7***	
Anophthalmia/microphthalmia	17	3	1	0	0	23	
	0.7	***1.3***	***0.7***	***0.0***	***0.0***	***0.8***	
Anotia/microtia	11	0	5	1	0	17	
	0.5	***0.0***	***3.6***	***3.7***	***0.0***	***0.6***	
Aortic valve stenosis	29	1	1	0	0	35	
	1.3	***0.4***	***0.7***	***0.0***	***0.0***	***1.3***	
Atrial septal defect	6,130	1,104	362	140	9	8,199	
	269.5	***466.0***	***261.9***	***523.0***	***357.1***	***295.3***	
Atrioventricular septal defect (Endocardial cushion defect)	78	14	3	1	0	109	
	3.4	***5.9***	***2.2***	***3.7***	***0.0***	***3.9***	
Biliary atresia	7	1	0	0	0	11	
	0.3	***0.4***	***0.0***	***0.0***	***0.0***	***0.4***	
Bladder exstrophy	6	1	0	1	0	8	
	0.3	***0.4***	***0.0***	***3.7***	***0.0***	***0.3***	
Choanal atresia	24	1	0	0	0	25	
	1.1	***0.4***	***0.0***	***0.0***	***0.0***	***0.9***	
Cleft lip alone	98	4	0	4	0	109	
	4.3	***1.7***	***0.0***	***14.9***	***0.0***	***3.9***	
Cleft lip with cleft palate	159	6	6	3	0	180	
	7.0	***2.5***	***4.3***	***11.2***	***0.0***	***6.5***	
Cleft palate alone	159	9	9	1	0	187	
	7.0	***3.8***	***6.5***	***3.7***	***0.0***	***6.7***	
Cloacal exstrophy	2	0	0	0	0	2	
	0.5	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	
Clubfoot	424	35	27	9	4	516	
	18.6	***14.8***	***19.5***	***33.6***	***158.7***	***18.6***	
Coarctation of the aorta	155	14	8	1	0	188	
	6.8	***5.9***	***5.8***	***3.7***	***0.0***	***6.8***	
Common truncus (truncus arteriosus)	20	2	1	0	0	26	
	0.9	***0.8***	***0.7***	***0.0***	***0.0***	***0.9***	
Congenital cataract	26	5	0	0	0	33	
	1.1	***2.1***	***0.0***	***0.0***	***0.0***	***1.2***	
Congenital posterior urethral valves	16	1	1	1	0	19	1
	1.4	***0.8***	***1.4***	***7.3***	***0.0***	***1.3***	
Deletion 22q11.2	7	0	0	0	0	7	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Diaphragmatic hernia	61	7	6	2	0	81	
	2.7	***3.0***	***4.3***	***7.5***	***0.0***	***2.9***	
Double outlet right ventricle	51	8	0	1	0	66	
	2.2	***3.4***	***0.0***	***3.7***	***0.0***	***2.4***	
Ebstein anomaly	18	2	1	0	0	22	
	0.8	***0.8***	***0.7***	***0.0***	***0.0***	***0.8***	
Encephalocele	25	3	2	0	0	34	
	1.1	***1.3***	***1.4***	***0.0***	***0.0***	***1.2***	
Esophageal atresia/tracheoesophageal fistula	68	4	1	0	0	75	
	3.0	***1.7***	***0.7***	***0.0***	***0.0***	***2.7***	
Gastroschisis	114	9	7	3	0	138	
	5.0	***3.8***	***5.1***	***11.2***	***0.0***	***5.0***	
Holoprosencephaly	81	8	5	1	2	102	
	3.6	***3.4***	***3.6***	***3.7***	***79.4***	***3.7***	
Hypoplastic left heart syndrome	55	4	3	0	0	70	
	2.4	***1.7***	***2.2***	***0.0***	***0.0***	***2.5***	
Hypospadias	1,003	97	33	12	0	1,195	1
	85.7	***81.2***	***46.7***	***87.9***	***0.0***	***83.8***	
Interrupted aortic arch	20	2	0	0	0	27	
	0.9	***0.8***	***0.0***	***0.0***	***0.0***	***1.0***	
Limb deficiencies (reduction defects)	98	8	3	2	0	116	
	4.3	***3.4***	***2.2***	***7.5***	***0.0***	***4.2***	

Kentucky

Birth Defects Counts and Prevalence 2012 - 2016 (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	44	3	0	0	0	49	
	1.9	***1.3***	***0.0***	***0.0***	***0.0***	***1.8***	
Pulmonary valve atresia and stenosis	140	20	8	0	0	177	
	6.2	***8.4***	***5.8***	***0.0***	***0.0***	***6.4***	
Pulmonary valve atresia	23	3	0	0	0	28	
	1.0	***1.3***	***0.0***	***0.0***	***0.0***	***1.0***	
Rectal and large intestinal atresia/stenosis	118	11	10	3	0	149	
	5.2	***4.6***	***7.2***	***11.2***	***0.0***	***5.4***	
Renal agenesis/hypoplasia	111	9	9	3	1	142	
	4.9	***3.8***	***6.5***	***11.2***	***39.7***	***5.1***	
Single ventricle	8	2	0	0	0	12	
	0.4	***0.8***	***0.0***	***0.0***	***0.0***	***0.4***	
Small intestinal atresia/stenosis	82	11	6	5	0	115	
	3.6	***4.6***	***4.3***	***18.7***	***0.0***	***4.1***	
Spina bifida without anencephalus	60	2	6	2	0	78	
	2.6	***0.8***	***4.3***	***7.5***	***0.0***	***2.8***	
Tetralogy of Fallot	91	11	3	1	0	116	
	4.0	***4.6***	***2.2***	***3.7***	***0.0***	***4.2***	
Total anomalous pulmonary venous connection	20	3	3	0	0	31	
	0.9	***1.3***	***2.2***	***0.0***	***0.0***	***1.1***	
Transposition of the great arteries (TGA)	65	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	68	
	2.6	***1.7***	***0.7***	***0.0***	***0.0***	***2.4***	
Tricuspid valve atresia and stenosis	23	2	1	0	0	27	2
	1.0	***0.8***	***0.7***	***0.0***	***0.0***	***1.0***	
Trisomy 13	27	1	1	1	0	30	
	1.2	***0.4***	***0.7***	***3.7***	***0.0***	***1.1***	
Trisomy 18	49	13	5	1	0	71	
	2.2	***5.5***	***3.6***	***3.7***	***0.0***	***2.6***	
Trisomy 21 (Down syndrome)	299	29	31	8	0	406	
	13.1	***12.2***	***22.4***	***29.9***	***0.0***	***14.6***	
Turner syndrome	39	2	3	0	0	47	3
	3.5	***1.7***	***4.4***	***0.0***	***0.0***	***3.5***	
Ventricular septal defect	1,301	138	88	23	2	1,646	4
	57.2	***58.3***	***63.7***	***85.9***	***79.4***	***59.3***	
Total live births	**227,424**	**23,689**	**13,820**	**2,677**	**252**	**277,642**	**5**
Male live births	**117,059**	**11,953**	**7,060**	**1,365**	**120**	**142,601**	
Female live births	**110,349**	**11,735**	**6,759**	**1,312**	**132**	**135,023**	

Kentucky

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	135	1	138	
	5.6	***0.3***	***5.0***	
Trisomy 13	25	5	30	
	1.0	***1.7***	***1.1***	
Trisomy 18	37	34	71	
	1.5	***11.7***	***2.6***	
Trisomy 21 (Down syndrome)	243	139	406	
	10.0	***47.7***	***14.6***	
Total live births	**241,847**	**29,118**	**277,642**	**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. Data for total live births include unknown gender.

General comments
*Data for totals include unknown and/or other.

Louisiana

Birth Defects Counts and Prevalence 2012 - 2016 (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	11	<5	0	0	29	
	1.2	***1.2***		***0.0***	***0.0***	***1.2***	
Anophthalmia/microphthalmia	17	11	0	<5	<5	30	
	1.3	***1.2***	***0.0***			***1.2***	
Anotia/microtia	18	8	<5	0	<5	31	
	1.4	***0.9***		***0.0***		***1.2***	
Aortic valve stenosis	25	7	0	0	0	32	
	1.9	***0.8***	***0.0***	***0.0***	***0.0***	***1.3***	
Atrial septal defect	817	803	98	22	14	1,789	
	62.7	***86.7***	***60.6***	***52.0***	***106.7***	***71.9***	
Atrioventricular septal defect (Endocardial cushion defect)	73	70	10	<5	0	160	
	5.6	***7.6***	***6.2***		***0.0***	***6.4***	
Biliary atresia	8	9	<5	<5	<5	21	
	0.7	***1.1***				***0.9***	
Bladder exstrophy	<5	<5	0	0	0	<5	
			0.0	***0.0***	***0.0***		
Choanal atresia	17	10	<5	<5	0	30	
	1.3	***1.1***			***0.0***	***1.2***	
Cleft lip alone	50	12	<5	<5	<5	67	
	3.8	***1.3***				***2.7***	
Cleft lip with cleft palate	69	44	7	<5	0	122	
	5.3	***4.8***	***4.3***		***0.0***	***4.9***	
Cleft palate alone	109	46	15	<5	<5	177	
	8.4	***5.0***	***9.3***			***7.1***	
Clubfoot	97	65	15	0	<5	180	
	9.0	***8.6***	***10.7***	***0.0***		***8.7***	
Coarctation of the aorta	69	38	8	<5	<5	122	
	5.3	***4.1***	***4.9***			***4.9***	
Common truncus (truncus arteriosus)	<5	7	<5	0	0	12	
		1.1		***0.0***	***0.0***	***0.7***	
Congenital cataract	22	18	0	<5	<5	42	
	1.7	***1.9***	***0.0***			***1.7***	
Congenital posterior urethral valves	44	33	0	0	0	78	1
	6.6	***7.1***	***0.0***	***0.0***	***0.0***	***6.1***	
Craniosynostosis	100	50	<5	<5	<5	156	
	12.9	***9.3***				***10.6***	
Deletion 22q11.2	19	12	<5	0	0	33	
	1.5	***1.3***		***0.0***	***0.0***	***1.3***	
Diaphragmatic hernia	26	19	7	0	0	54	
	2.0	***2.1***	***4.3***	***0.0***	***0.0***	***2.2***	
Double outlet right ventricle	30	18	<5	0	0	52	
	2.3	***1.9***		***0.0***	***0.0***	***2.1***	
Ebstein anomaly	10	<5	<5	0	<5	16	
	0.9			***0.0***		***0.7***	
Encephalocele	13	7	0	0	0	21	
	1.0	***0.8***	***0.0***	***0.0***	***0.0***	***0.8***	
Esophageal atresia/tracheoesophageal fistula	23	19	5	<5	0	52	
	1.8	***2.1***	***3.1***		***0.0***	***2.1***	
Gastroschisis	41	32	11	<5	<5	87	
	3.1	***3.5***	***6.8***			***3.5***	
Holoprosencephaly	<5	12	<5	0	0	14	
		2.2		***0.0***	***0.0***	***0.9***	
Hypoplastic left heart syndrome	26	24	<5	0	0	52	
	2.0	***2.6***		***0.0***	***0.0***	***2.1***	
Hypospadias	557	288	30	7	<5	899	1
	83.2	***61.6***	***36.4***	***32.4***		***70.8***	
Interrupted aortic arch	6	7	0	0	0	13	
	0.5	***0.8***	***0.0***	***0.0***	***0.0***	***0.5***	
Limb deficiencies (reduction defects)	51	38	5	0	<5	99	
	3.9	***4.1***	***3.1***	***0.0***		***4.0***	

Louisiana

Birth Defects Counts and Prevalence 2012 - 2016 (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	23	28	0	0	<5	54	
	1.8	***3.0***	***0.0***	***0.0***		***2.2***	
Pulmonary valve atresia and stenosis	66	57	8	0	<5	134	
	5.1	***6.2***	***4.9***	***0.0***		***5.4***	
Pulmonary valve atresia	<5	<5	0	0	0	5	
			0.0	***0.0***	***0.0***	***0.4***	
Rectal and large intestinal atresia/stenosis	61	40	8	<5	0	112	
	4.7	***4.3***	***4.9***		***0.0***	***4.5***	
Renal agenesis/hypoplasia	56	34	<5	0	<5	96	
	4.3	***3.7***		***0.0***		***3.9***	
Single ventricle	<5	5	0	0	0	8	
		0.8	***0.0***	***0.0***	***0.0***	***0.5***	
Small intestinal atresia/stenosis	15	20	8	0	<5	44	
	1.9	***3.7***	***7.8***	***0.0***		***3.0***	
Spina bifida without anencephalus	45	28	<5	<5	<5	79	
	3.5	***3.0***				***3.2***	
Tetralogy of Fallot	55	50	11	<5	<5	123	
	4.2	***5.4***	***6.8***			***4.9***	
Total anomalous pulmonary venous connection	<5	<5	<5	0	0	9	
				0.0	***0.0***	***0.4***	
Transposition of the great arteries (TGA)	21	18	9	0	0	49	
	1.6	***1.9***	***5.6***	***0.0***	***0.0***	***2.0***	
Dextro-transposition of great arteries (d-TGA)	19	17	8	0	0	44	
	1.5	***1.8***	***4.9***	***0.0***	***0.0***	***1.8***	
Tricuspid valve atresia and stenosis	12	7	0	<5	0	21	
	1.0	***0.8***	***0.0***		***0.0***	***0.9***	
Tricuspid valve atresia	12	7	0	0	0	20	
	1.0	***0.8***	***0.0***	***0.0***	***0.0***	***0.9***	
Trisomy 13	8	7	<5	0	<5	17	
	0.7	***0.8***		***0.0***		***0.8***	
Trisomy 18	28	21	<5	0	0	53	
	2.1	***2.3***		***0.0***	***0.0***	***2.1***	
Trisomy 21 (Down syndrome)	165	88	33	7	<5	301	
	12.7	***9.5***	***20.4***	***16.5***		***12.1***	
Turner syndrome	6	7	<5	0	0	16	2
	0.9	***1.5***		***0.0***	***0.0***	***1.3***	
Ventricular septal defect	611	375	80	19	5	1,111	
	46.9	***40.5***	***49.5***	***44.9***	***38.1***	***44.7***	
Total live births	**130,249**	**92,590**	**16,164**	**4,234**	**1,312**	**248,758**	**3**
Male live births	**66,940**	**46,779**	**8,241**	**2,158**	**670**	**126,982**	
Female live births	**63,307**	**45,810**	**7,923**	**2,076**	**642**	**121,773**	

Louisiana

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	83	<5	87	
	3.7		***3.5***	
Trisomy 13	14	<5	17	
	0.7		***0.8***	
Trisomy 18	42	11	53	
	1.9	***4.4***	***2.1***	
Trisomy 21 (Down syndrome)	193	108	301	
	8.6	***43.5***	***12.1***	
Total live births	**223,948**	**24,810**	**248,758**	**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. Data for total live births include unknown gender.

General comments

*Data for totals include unknown and/or other.
-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 final and include only live births to Louisiana residents that occurred in 50/52 birth hospitals and covered 97% of total births.
-Data for conditions from 2016 are provisional and include only live births to Louisiana residents that occurred in 24/50 birth hospitals and covered 37% of total births.
-Data for conditions include probable cases.

Maine

Birth Defects Counts and Prevalence 2012 - 2016 (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	13	1	0	0	0	14	1
	2.2	***4.6***	***0.0***	***0.0***	***0.0***	***2.2***	
Anophthalmia/microphthalmia	2	0	0	0	0	2	2
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	
Anotia/microtia	12	0	0	0	0	13	
	2.1	***0.0***	***0.0***	***0.0***	***0.0***	***2.0***	
Aortic valve stenosis	4	0	0	0	0	4	2
	0.9	***0.0***	***0.0***	***0.0***	***0.0***	***0.8***	
Atrial septal defect	124	6	6	1	2	144	2
	26.6	***33.5***	***69.7***	***11.4***	***36.9***	***28.4***	
Atrioventricular septal defect (Endocardial cushion defect)	13	1	0	0	1	16	2
	2.8	***5.6***	***0.0***	***0.0***	***18.5***	***3.2***	
Biliary atresia	0	0	0	0	0	0	2
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Bladder exstrophy	2	0	0	0	0	2	2
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	
Choanal atresia	7	0	0	0	0	7	
	1.2	***0.0***	***0.0***	***0.0***	***0.0***	***1.1***	
Cleft lip alone	20	0	0	0	0	21	
	3.4	***0.0***	***0.0***	***0.0***	***0.0***	***3.3***	
Cleft lip with cleft palate	37	0	0	0	1	39	
	6.3	***0.0***	***0.0***	***0.0***	***14.9***	***6.1***	
Cleft palate alone	35	1	2	1	1	41	
	6.0	***4.6***	***18.7***	***9.0***	***14.9***	***6.4***	
Coarctation of the aorta	28	1	0	0	0	30	
	4.8	***4.6***	***0.0***	***0.0***	***0.0***	***4.7***	
Common truncus (truncus arteriosus)	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Congenital cataract	2	1	0	0	0	3	2
	0.4	***5.6***	***0.0***	***0.0***	***0.0***	***0.6***	
Diaphragmatic hernia	2	0	0	0	0	2	2
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	
Ebstein anomaly	1	0	0	0	0	1	2
	0.2	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
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
	2.8	***0.0***	***0.0***	***0.0***	***0.0***	***2.8***	
Gastroschisis	23	0	2	0	1	27	
	3.9	***0.0***	***18.7***	***0.0***	***14.9***	***4.2***	
Hypoplastic left heart syndrome	17	1	0	0	0	20	
	2.9	***4.6***	***0.0***	***0.0***	***0.0***	***3.1***	
Hypospadias	197	6	2	2	1	219	3
	65.5	***52.9***	***35.1***	***34.1***	***28.3***	***66.8***	
Limb deficiencies (reduction defects)	19	0	0	0	0	19	
	3.3	***0.0***	***0.0***	***0.0***	***0.0***	***3.0***	
Omphalocele	8	0	0	0	0	8	
	1.4	***0.0***	***0.0***	***0.0***	***0.0***	***1.3***	
Pulmonary valve atresia and stenosis	35	3	0	1	0	40	
	6.0	***13.7***	***0.0***	***9.0***	***0.0***	***6.3***	
Pulmonary valve atresia	7	2	0	0	0	9	
	1.2	***9.1***	***0.0***	***0.0***	***0.0***	***1.4***	
Rectal and large intestinal atresia/stenosis	22	1	0	1	0	25	2
	4.7	***5.6***	***0.0***	***11.4***	***0.0***	***4.9***	
Renal agenesis/hypoplasia	31	1	1	0	0	33	2
	6.6	***5.6***	***11.6***	***0.0***	***0.0***	***6.5***	
Spina bifida without anencephalus	16	0	0	0	0	16	
	2.7	***0.0***	***0.0***	***0.0***	***0.0***	***2.5***	
Tetralogy of Fallot	32	0	1	0	0	34	
	5.5	***0.0***	***9.4***	***0.0***	***0.0***	***5.3***	

Maine

Birth Defects Counts and Prevalence 2012 - 2016 (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)	15 ***2.6***	1 ***4.6***	1 ***9.4***	1 ***9.0***	0 ***0.0***	18 ***2.8***	
Tricuspid valve atresia and stenosis	2 ***0.3***	1 ***4.6***	0 ***0.0***	0 ***0.0***	0 ***0.0***	3 ***0.5***	
Tricuspid valve atresia	2 ***0.4***	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	2 ***0.4***	
Trisomy 13	2 ***0.4***	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	2 ***0.4***	2
Trisomy 18	7 ***1.5***	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	7 ***1.4***	2
Trisomy 21 (Down syndrome)	60 ***10.3***	5 ***22.9***	0 ***0.0***	2 ***18.0***	2 ***29.9***	73 ***11.5***	
Ventricular septal defect	91 ***19.5***	4 ***22.4***	4 ***46.5***	0 ***0.0***	0 ***0.0***	103 ***20.3***	2
Total live births	**58,448**	**2,188**	**1,069**	**1,113**	**669**	**63,584**	
Male live births	**30,076**	**1,134**	**569**	**586**	**353**	**32,768**	

Maine

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	27	0	27	
	5.0	***0.0***	***4.2***	
Trisomy 13	2	0	2	2
	0.5	***0.0***	***0.4***	
Trisomy 18	4	3	7	2
	0.9	***4.0***	***1.4***	
Trisomy 21 (Down syndrome)	41	29	73	
	7.5	***31.5***	***11.5***	
Total live births	**54,392**	**9,192**	**63,584**	

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

General comments
*Data for totals include unknown and/or other.

Maryland

Birth Defects Counts and Prevalence 2012 - 2016 (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	6	7	0	0	36	
	0.7	***0.5***	***1.3***	***0.0***	***0.0***	***1.0***	
Anophthalmia/microphthalmia	1	4	1	0	0	12	
	0.1	***0.4***	***0.2***	***0.0***	***0.0***	***0.4***	
Anotia/microtia	7	0	2	0	0	13	
	0.4	***0.0***	***0.4***	***0.0***	***0.0***	***0.4***	
Aortic valve stenosis	2	0	0	0	0	5	
	0.1	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Atrial septal defect	30	33	8	1	0	110	
	1.8	***2.8***	***1.4***	***0.4***	***0.0***	***3.0***	
Atrioventricular septal defect (Endocardial cushion defect)	9	6	0	0	0	31	
	0.6	***0.5***	***0.0***	***0.0***	***0.0***	***0.8***	
Biliary atresia	1	0	0	0	0	1	
	0.1	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Bladder exstrophy	3	1	0	0	0	7	
	0.2	***0.1***	***0.0***	***0.0***	***0.0***	***0.2***	
Choanal atresia	8	4	0	1	0	15	
	0.6	***0.4***	***0.0***	***0.5***	***0.0***	***0.5***	
Cleft lip alone	28	8	8	1	0	69	
	1.7	***0.7***	***1.4***	***0.4***	***0.0***	***1.9***	
Cleft lip with cleft palate	49	15	11	2	0	107	
	3.8	***1.6***	***2.4***	***0.9***	***0.0***	***3.7***	
Cleft palate alone	48	24	13	4	0	128	
	2.9	***2.0***	***2.4***	***1.5***	***0.0***	***3.5***	
Cloacal exstrophy	4	5	1	0	0	12	
	0.3	***0.5***	***0.2***	***0.0***	***0.0***	***0.4***	
Clubfoot	31	31	16	3	0	128	
	1.9	***2.6***	***2.9***	***1.1***	***0.0***	***3.5***	
Coarctation of the aorta	16	9	1	5	0	48	
	1.2	***1.0***	***0.2***	***2.3***	***0.0***	***1.6***	
Common truncus (truncus arteriosus)	3	1	0	1	0	9	
	0.2	***0.1***	***0.0***	***0.4***	***0.0***	***0.2***	
Congenital cataract	1	3	1	0	0	8	
	0.1	***0.3***	***0.2***	***0.0***	***0.0***	***0.3***	
Congenital posterior urethral valves	2	1	0	0	0	5	1
	0.2	***0.2***	***0.0***	***0.0***	***0.0***	***0.3***	
Craniosynostosis	0	0	0	0	0	4	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Deletion 22q11.2	2	2	0	0	0	4	
	0.2	***0.2***	***0.0***	***0.0***	***0.0***	***0.1***	
Diaphragmatic hernia	17	14	1	2	0	56	
	1.0	***1.2***	***0.2***	***0.7***	***0.0***	***1.5***	
Double outlet right ventricle	12	15	3	3	0	49	
	0.7	***1.3***	***0.5***	***1.1***	***0.0***	***1.3***	
Ebstein anomaly	2	2	1	0	0	7	
	0.2	***0.2***	***0.2***	***0.0***	***0.0***	***0.2***	
Encephalocele	4	5	1	1	0	15	
	0.2	***0.4***	***0.2***	***0.4***	***0.0***	***0.4***	
Esophageal atresia/tracheoesophageal fistula	26	13	2	2	0	59	
	1.6	***1.1***	***0.4***	***0.7***	***0.0***	***1.6***	
Gastroschisis	29	17	2	1	0	67	
	1.8	***1.4***	***0.4***	***0.4***	***0.0***	***1.8***	
Holoprosencephaly	6	9	5	1	0	27	
	0.4	***0.8***	***0.9***	***0.4***	***0.0***	***0.7***	
Hypoplastic left heart syndrome	8	8	0	1	0	35	
	0.6	***0.8***	***0.0***	***0.5***	***0.0***	***1.2***	
Hypospadias	247	158	71	25	0	736	1
	29.6	***26.3***	***25.2***	***18.1***	***0.0***	***39.5***	
Interrupted aortic arch	6	5	0	1	0	22	
	0.5	***0.5***	***0.0***	***0.5***	***0.0***	***0.8***	

Maryland

Birth Defects Counts and Prevalence 2012 - 2016 (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)	25	29	10	2	1	89	
	1.5	***2.5***	***1.8***	***0.7***	***14.5***	***2.4***	
Omphalocele	7	10	0	0	1	31	
	0.4	***0.8***	***0.0***	***0.0***	***14.5***	***0.8***	
Pulmonary valve atresia and stenosis	7	9	1	2	0	34	
	0.5	***1.0***	***0.2***	***0.9***	***0.0***	***1.2***	
Pulmonary valve atresia	4	4	0	1	0	13	
	0.3	***0.4***	***0.0***	***0.5***	***0.0***	***0.4***	
Rectal and large intestinal atresia/stenosis	18	16	6	3	0	53	
	1.1	***1.4***	***1.1***	***1.1***	***0.0***	***1.5***	
Renal agenesis/hypoplasia	11	12	7	4	0	53	
	0.7	***1.0***	***1.3***	***1.5***	***0.0***	***1.5***	
Single ventricle	2	3	0	1	0	7	
	0.1	***0.3***	***0.0***	***0.4***	***0.0***	***0.2***	
Small intestinal atresia/stenosis	8	15	1	0	0	37	
	0.5	***1.3***	***0.2***	***0.0***	***0.0***	***1.0***	
Spina bifida without anencephalus	28	16	14	2	0	74	
	1.7	***1.4***	***2.5***	***0.7***	***0.0***	***2.0***	
Tetralogy of Fallot	40	14	2	5	1	84	
	2.5	***1.2***	***0.4***	***1.9***	***14.5***	***2.3***	
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)	6	2	0	0	0	14	
	0.5	***0.2***	***0.0***	***0.0***	***0.0***	***0.5***	
Dextro-transposition of great arteries (d-TGA)	5	2	0	0	0	12	
	0.3	***0.2***	***0.0***	***0.0***	***0.0***	***0.3***	
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	2	6	4	0	0	29	
	0.1	***0.5***	***0.7***	***0.0***	***0.0***	***0.8***	
Trisomy 18	9	16	9	0	0	68	
	0.6	***1.4***	***1.6***	***0.0***	***0.0***	***1.9***	
Trisomy 21 (Down syndrome)	97	82	55	12	0	359	
	6.0	***6.9***	***10.0***	***4.5***	***0.0***	***9.8***	
Turner syndrome	4	6	1	0	0	15	2
	0.5	***1.0***	***0.4***	***0.0***	***0.0***	***0.8***	
Ventricular septal defect	59	72	10	6	0	222	
	3.6	***6.1***	***1.8***	***2.2***	***0.0***	***6.1***	
Total live births	**162,865**	**118,086**	**55,263**	**26,869**	**690**	**364,762**	**3**
Male live births	**83,532**	**60,087**	**28,132**	**13,806**	**338**	**186,420**	
Female live births	**79,331**	**57,997**	**27,130**	**13,063**	**352**	**178,337**	

Maryland

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	39	4	67	
	1.3	***0.6***	***1.8***	
Trisomy 13	10	10	29	
	0.3	***1.4***	***0.8***	
Trisomy 18	27	28	68	
	0.9	***3.9***	***1.9***	
Trisomy 21 (Down syndrome)	151	149	359	
	5.2	***20.7***	***9.8***	
Total live births	**292,685**	**72,017**	**364,762**	**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. Data for total live births include unknown gender.

General comments

*Data for totals include unknown and/or other.

Massachusetts

Birth Defects Counts and Prevalence 2012 - 2016 (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	14	6	0	85	
	2.1	***2.0***	***2.2***	***1.9***	***0.0***	***2.4***	
Anophthalmia/microphthalmia	25	6	11	2	0	46	
	1.1	***1.7***	***1.7***	***0.6***	***0.0***	***1.3***	
Anotia/microtia	53	8	25	6	0	95	
	2.4	***2.3***	***3.9***	***1.9***	***0.0***	***2.6***	
Aortic valve stenosis	40	3	4	3	0	50	
	1.8	***0.9***	***0.6***	***0.9***	***0.0***	***1.4***	
Atrial septal defect	574	105	171	74	1	947	
	26.2	***30.0***	***26.7***	***22.9***	***8.1***	***26.4***	
Atrioventricular septal defect (Endocardial cushion defect)	113	38	48	11	0	219	
	5.1	***10.8***	***7.5***	***3.4***	***0.0***	***6.1***	
Biliary atresia	8	1	4	6	0	19	
	0.4	***0.3***	***0.6***	***1.9***	***0.0***	***0.5***	
Bladder exstrophy	8	1	2	0	0	11	
	0.4	***0.3***	***0.3***	***0.0***	***0.0***	***0.3***	
Choanal atresia	19	2	4	1	0	26	
	0.9	***0.6***	***0.6***	***0.3***	***0.0***	***0.7***	
Cleft lip alone	80	9	13	17	1	123	
	3.6	***2.6***	***2.0***	***5.3***	***8.1***	***3.4***	
Cleft lip with cleft palate	105	10	36	19	0	172	
	4.8	***2.9***	***5.6***	***5.9***	***0.0***	***4.8***	
Cleft palate alone	130	20	35	22	2	215	1
	5.9	***5.7***	***5.5***	***6.8***	***16.3***	***6.0***	
Cloacal exstrophy	5	0	4	0	0	9	
	0.2	***0.0***	***0.6***	***0.0***	***0.0***	***0.3***	
Clubfoot	368	47	94	28	3	561	2
	16.8	***13.4***	***14.7***	***8.7***	***24.4***	***15.6***	
Coarctation of the aorta	112	16	30	13	1	173	
	5.1	***4.6***	***4.7***	***4.0***	***8.1***	***4.8***	
Common truncus (truncus arteriosus)	13	3	3	1	0	21	
	0.6	***0.9***	***0.5***	***0.3***	***0.0***	***0.6***	
Congenital cataract	66	11	23	2	0	103	
	3.0	***3.1***	***3.6***	***0.6***	***0.0***	***2.9***	
Congenital posterior urethral valves	23	12	10	5	0	53	3
	2.0	***6.7***	***3.1***	***3.0***	***0.0***	***2.9***	
Craniosynostosis	151	6	31	10	1	204	
	6.9	***1.7***	***4.8***	***3.1***	***8.1***	***5.7***	
Deletion 22q11.2	30	8	12	5	0	56	
	1.4	***2.3***	***1.9***	***1.5***	***0.0***	***1.6***	
Diaphragmatic hernia	74	11	23	6	1	117	
	3.4	***3.1***	***3.6***	***1.9***	***8.1***	***3.3***	
Double outlet right ventricle	37	7	18	7	0	71	
	1.7	***2.0***	***2.8***	***2.2***	***0.0***	***2.0***	
Ebstein anomaly	15	0	3	0	0	20	
	0.7	***0.0***	***0.5***	***0.0***	***0.0***	***0.6***	
Encephalocele	14	7	9	5	0	39	
	0.6	***2.0***	***1.4***	***1.5***	***0.0***	***1.1***	
Esophageal atresia/tracheoesophageal fistula	67	8	16	1	0	92	
	3.1	***2.3***	***2.5***	***0.3***	***0.0***	***2.6***	
Gastroschisis	66	11	27	6	1	115	
	3.0	***3.1***	***4.2***	***1.9***	***8.1***	***3.2***	
Holoprosencephaly	30	8	17	5	0	64	
	1.4	***2.3***	***2.7***	***1.5***	***0.0***	***1.8***	
Hypoplastic left heart syndrome	56	12	18	6	0	98	
	2.6	***3.4***	***2.8***	***1.9***	***0.0***	***2.7***	
Hypospadias	688	89	153	55	5	1,008	4
	61.2	***49.9***	***46.7***	***33.3***	***81.4***	***54.9***	
Interrupted aortic arch	6	3	1	0	0	10	
	0.3	***0.9***	***0.2***	***0.0***	***0.0***	***0.3***	

Massachusetts

Birth Defects Counts and Prevalence 2012 - 2016 (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)	119	21	29	9	0	183	
	5.4	***6.0***	***4.5***	***2.8***	***0.0***	***5.1***	
Omphalocele	93	5	34	13	0	155	
	4.2	***1.4***	***5.3***	***4.0***	***0.0***	***4.3***	
Pulmonary valve atresia and stenosis	200	57	65	22	1	350	5
	9.1	***16.3***	***10.1***	***6.8***	***8.1***	***9.8***	
Pulmonary valve atresia	22	9	5	4	0	41	5
	1.0	***2.6***	***0.8***	***1.2***	***0.0***	***1.1***	
Rectal and large intestinal atresia/stenosis	90	11	30	10	0	147	
	4.1	***3.1***	***4.7***	***3.1***	***0.0***	***4.1***	
Renal agenesis/hypoplasia	135	24	21	14	1	204	6
	6.2	***6.9***	***3.3***	***4.3***	***8.1***	***5.7***	
Single ventricle	13	1	6	2	0	24	
	0.6	***0.3***	***0.9***	***0.6***	***0.0***	***0.7***	
Small intestinal atresia/stenosis	56	9	22	8	0	97	
	2.6	***2.6***	***3.4***	***2.5***	***0.0***	***2.7***	
Spina bifida without anencephalus	103	9	33	7	0	161	
	4.7	***2.6***	***5.1***	***2.2***	***0.0***	***4.5***	
Tetralogy of Fallot	111	15	29	17	1	177	
	5.1	***4.3***	***4.5***	***5.3***	***8.1***	***4.9***	
Total anomalous pulmonary venous connection	10	3	3	10	0	27	
	0.5	***0.9***	***0.5***	***3.1***	***0.0***	***0.8***	
Transposition of the great arteries (TGA)	67	6	17	11	0	106	
	3.1	***1.7***	***2.7***	***3.4***	***0.0***	***3.0***	
Dextro-transposition of great arteries (d-TGA)	58	6	14	10	0	92	
	2.6	***1.7***	***2.2***	***3.1***	***0.0***	***2.6***	
Tricuspid valve atresia and stenosis	28	3	4	0	0	35	
	1.3	***0.9***	***0.6***	***0.0***	***0.0***	***1.0***	
Tricuspid valve atresia	18	3	3	0	0	24	
	0.8	***0.9***	***0.5***	***0.0***	***0.0***	***0.7***	
Trisomy 13	81	9	12	8	0	127	
	3.7	***2.6***	***1.9***	***2.5***	***0.0***	***3.5***	
Trisomy 18	148	27	42	26	0	267	
	6.7	***7.7***	***6.6***	***8.0***	***0.0***	***7.4***	
Trisomy 21 (Down syndrome)	574	82	142	53	1	918	
	26.2	***23.4***	***22.2***	***16.4***	***8.1***	***25.6***	
Turner syndrome	115	17	19	17	0	191	7
	10.8	***9.9***	***6.1***	***10.8***	***0.0***	***10.9***	
Ventricular septal defect	569	92	197	79	4	953	8
	25.9	***26.3***	***30.7***	***24.5***	***32.6***	***26.6***	
Total live births	**219,447**	**35,029**	**64,105**	**32,307**	**1,228**	**358,924**	**9**
Male live births	**112,478**	**17,820**	**32,784**	**16,540**	**614**	**183,714**	
Female live births	**106,966**	**17,207**	**31,321**	**15,767**	**614**	**175,205**	

Massachusetts

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	109	6	115	
	4.0	***0.7***	***3.2***	
Trisomy 13	52	75	127	
	1.9	***8.9***	***3.5***	
Trisomy 18	90	177	267	
	3.3	***20.9***	***7.4***	
Trisomy 21 (Down syndrome)	331	587	918	
	12.1	***69.5***	***25.6***	
Total live births	**274,430**	**84,489**	**358,924**	**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 include cases of pulmonary valve atresia with a ventricular septal defect that were reviewed and determined not to be a variant of Tetralogy of fallot.
6. Data for this condition exclude isolated unilateral renal agenesis/hypoplasia prior to 2014.
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. Data for total live births include unknown gender.

General comments

*Data for totals include unknown and/or other.
-Data for conditions exclude possible/probable cases.

Michigan

Birth Defects Counts and Prevalence 2012 - 2016 (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	41	5	6	1	0	60	
	1.0	***0.5***	***1.6***	***0.5***	***0.0***	***1.1***	
Anophthalmia/microphthalmia	104	31	9	4	0	174	
	2.6	***2.9***	***2.3***	***2.0***	***0.0***	***3.1***	
Anotia/microtia	51	7	19	2	0	91	
	1.3	***0.7***	***4.9***	***1.0***	***0.0***	***1.6***	
Aortic valve stenosis	92	17	8	3	1	129	
	2.3	***1.6***	***2.1***	***1.5***	***3.3***	***2.3***	
Atrial septal defect	4,411	1,979	477	205	43	7,538	
	112.1	***185.5***	***123.9***	***102.4***	***141.5***	***132.8***	
Atrioventricular septal defect (Endocardial cushion defect)	196	56	16	11	2	304	1
	5.0	***5.3***	***4.2***	***5.5***	***6.6***	***5.4***	
Biliary atresia	31	23	4	2	1	74	
	0.8	***2.2***	***1.0***	***1.0***	***3.3***	***1.3***	
Bladder exstrophy	10	1	1	0	0	15	
	0.3	***0.1***	***0.3***	***0.0***	***0.0***	***0.3***	
Choanal atresia	54	28	7	1	1	103	
	1.4	***2.6***	***1.8***	***0.5***	***3.3***	***1.8***	
Cleft lip alone	99	14	6	4	1	137	
	2.5	***1.3***	***1.6***	***2.0***	***3.3***	***2.4***	
Cleft lip with cleft palate	302	54	30	18	1	487	
	7.7	***5.1***	***7.8***	***9.0***	***3.3***	***8.6***	
Cleft palate alone	311	57	29	19	3	475	
	7.9	***5.3***	***7.5***	***9.5***	***9.9***	***8.4***	
Cloacal exstrophy	152	53	19	8	0	248	
	4.8	***6.2***	***6.2***	***5.2***	***0.0***	***5.5***	
Clubfoot	532	202	58	16	5	920	
	13.5	***18.9***	***15.1***	***8.0***	***16.5***	***16.2***	
Coarctation of the aorta	294	79	29	9	3	448	
	7.5	***7.4***	***7.5***	***4.5***	***9.9***	***7.9***	
Common truncus (truncus arteriosus)	258	84	27	11	1	439	
	6.6	***7.9***	***7.0***	***5.5***	***3.3***	***7.7***	
Congenital cataract	69	26	5	5	0	112	
	1.8	***2.4***	***1.3***	***2.5***	***0.0***	***2.0***	
Congenital posterior urethral valves	41	26	5	3	0	78	2
	2.0	***4.8***	***2.6***	***2.9***	***0.0***	***2.7***	
Craniosynostosis	319	59	34	14	2	455	
	8.1	***5.5***	***8.8***	***7.0***	***6.6***	***8.0***	
Deletion 22q11.2	22	3	2	1	0	29	
	0.6	***0.3***	***0.5***	***0.5***	***0.0***	***0.5***	
Diaphragmatic hernia	130	32	17	6	0	209	
	3.3	***3.0***	***4.4***	***3.0***	***0.0***	***3.7***	
Double outlet right ventricle	92	33	13	6	0	155	
	2.3	***3.1***	***3.4***	***3.0***	***0.0***	***2.7***	
Ebstein anomaly	32	9	1	0	0	45	
	0.8	***0.8***	***0.3***	***0.0***	***0.0***	***0.8***	
Encephalocele	46	17	11	2	0	86	
	1.2	***1.6***	***2.9***	***1.0***	***0.0***	***1.5***	
Esophageal atresia/tracheoesophageal fistula	95	20	5	3	0	136	
	2.4	***1.9***	***1.3***	***1.5***	***0.0***	***2.4***	
Gastroschisis	169	37	20	2	2	260	
	4.3	***3.5***	***5.2***	***1.0***	***6.6***	***4.6***	
Holoprosencephaly	168	91	23	9	1	327	
	4.3	***8.5***	***6.0***	***4.5***	***3.3***	***5.8***	
Hypoplastic left heart syndrome	154	52	19	6	0	252	
	3.9	***4.9***	***4.9***	***3.0***	***0.0***	***4.4***	
Hypospadias	1,512	358	79	52	9	2,143	2
	74.8	***66.2***	***40.4***	***50.5***	***59.6***	***73.8***	
Interrupted aortic arch	132	37	13	4	1	210	
	3.4	***3.5***	***3.4***	***2.0***	***3.3***	***3.7***	

Michigan

Birth Defects Counts and Prevalence 2012 - 2016 (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)	161	51	15	5	0	252	
	4.1	***4.8***	***3.9***	***2.5***	***0.0***	***4.4***	
Omphalocele	54	18	7	3	0	92	
	1.4	***1.7***	***1.8***	***1.5***	***0.0***	***1.6***	
Pulmonary valve atresia and stenosis	323	166	40	12	5	596	
	8.2	***15.6***	***10.4***	***6.0***	***16.5***	***10.5***	
Pulmonary valve atresia	34	16	7	3	0	72	
	0.9	***1.5***	***1.8***	***1.5***	***0.0***	***1.3***	
Rectal and large intestinal atresia/stenosis	174	47	21	12	0	279	
	4.4	***4.4***	***5.5***	***6.0***	***0.0***	***4.9***	
Renal agenesis/hypoplasia	249	85	18	9	4	388	
	6.3	***8.0***	***4.7***	***4.5***	***13.2***	***6.8***	
Single ventricle	73	39	14	5	1	143	
	1.9	***3.7***	***3.6***	***2.5***	***3.3***	***2.5***	
Small intestinal atresia/stenosis	151	57	17	3	0	255	
	3.8	***5.3***	***4.4***	***1.5***	***0.0***	***4.5***	
Spina bifida without anencephalus	166	33	20	4	0	270	
	4.2	***3.1***	***5.2***	***2.0***	***0.0***	***4.8***	
Tetralogy of Fallot	193	66	22	10	1	331	
	4.9	***6.2***	***5.7***	***5.0***	***3.3***	***5.8***	
Total anomalous pulmonary venous connection	52	16	7	2	0	82	
	1.3	***1.5***	***1.8***	***1.0***	***0.0***	***1.4***	
Transposition of the great arteries (TGA)	165	40	19	8	0	259	
	4.2	***3.8***	***4.9***	***4.0***	***0.0***	***4.6***	
Dextro-transposition of great arteries (d-TGA)	153	39	17	8	0	241	
	3.9	***3.7***	***4.4***	***4.0***	***0.0***	***4.2***	
Tricuspid valve atresia and stenosis	44	14	5	1	0	69	
	1.1	***1.3***	***1.3***	***0.5***	***0.0***	***1.2***	
Trisomy 13	18	12	3	2	0	40	
	0.5	***1.1***	***0.8***	***1.0***	***0.0***	***0.7***	
Trisomy 18	42	13	7	1	0	79	
	1.1	***1.2***	***1.8***	***0.5***	***0.0***	***1.4***	
Trisomy 21 (Down syndrome)	489	132	58	22	2	784	
	12.4	***12.4***	***15.1***	***11.0***	***6.6***	***13.8***	
Turner syndrome	36	10	2	0	1	54	3
	1.9	***1.9***	***1.1***	***0.0***	***6.5***	***1.9***	
Ventricular septal defect	1,749	531	212	78	12	2,775	4
	44.4	***49.8***	***55.0***	***39.0***	***39.5***	***48.9***	
Total live births	**393,542**	**106,663**	**38,512**	**20,025**	**3,038**	**567,485**	**5**
Male live births	**202,006**	**54,107**	**19,576**	**10,287**	**1,511**	**290,415**	
Female live births	**191,529**	**52,548**	**18,934**	**9,738**	**1,527**	**277,052**	

Michigan

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	250	4	260	
	5.1	***0.5***	***4.6***	
Trisomy 13	30	9	40	
	0.6	***1.2***	***0.7***	
Trisomy 18	36	42	79	
	0.7	***5.5***	***1.4***	
Trisomy 21 (Down syndrome)	424	309	784	
	8.6	***40.5***	***13.8***	
Total live births	**491,087**	**76,371**	**567,485**	**5**

Notes
1. Data for this condition includes common atrioventricular canal type.
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 includes probable cases.
5. Data for total live births include unknown gender.

General comments
*Data for totals include unknown and/or other.
-Data for conditions from 2016 are provisional.

Minnesota

Birth Defects Counts and Prevalence 2012 - 2016 (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	1	5	6	0	12	
	0.0	***0.4***	***4.7***	***3.3***	***0.0***	***1.0***	
Anophthalmia/microphthalmia	8	8	1	2	0	19	
	1.2	***3.1***	***0.9***	***1.1***	***0.0***	***1.6***	
Anotia/microtia	12	5	15	12	2	47	
	1.9	***2.0***	***14.1***	***6.5***	***15.5***	***3.9***	
Aortic valve stenosis	22	4	0	1	0	27	
	3.4	***1.6***	***0.0***	***0.5***	***0.0***	***2.2***	
Atrial septal defect	129	56	27	38	5	256	
	20.0	***21.9***	***25.4***	***20.7***	***38.8***	***21.1***	
Atrioventricular septal defect (Endocardial cushion defect)	42	12	7	7	0	68	1
	6.5	***4.7***	***6.6***	***3.8***	***0.0***	***5.6***	
Biliary atresia	4	3	0	4	0	11	
	0.6	***1.2***	***0.0***	***2.2***	***0.0***	***0.9***	
Bladder exstrophy	2	2	0	0	0	4	
	0.3	***0.8***	***0.0***	***0.0***	***0.0***	***0.3***	
Choanal atresia	7	4	3	0	0	14	
	1.1	***1.6***	***2.8***	***0.0***	***0.0***	***1.2***	
Cleft lip alone	22	12	2	3	0	39	
	3.4	***4.7***	***1.9***	***1.6***	***0.0***	***3.2***	
Cleft lip with cleft palate	35	14	7	13	1	70	
	5.4	***5.5***	***6.6***	***7.1***	***7.8***	***5.8***	
Cleft palate alone	42	10	5	10	2	70	
	6.5	***3.9***	***4.7***	***5.4***	***15.5***	***5.8***	
Coarctation of the aorta	43	15	3	3	1	66	
	6.7	***5.9***	***2.8***	***1.6***	***7.8***	***5.4***	
Common truncus (truncus arteriosus)	5	2	2	2	0	11	
	0.8	***0.8***	***1.9***	***1.1***	***0.0***	***0.9***	
Congenital cataract	14	14	1	4	1	35	
	2.2	***5.5***	***0.9***	***2.2***	***7.8***	***2.9***	
Congenital posterior urethral valves	10	7	0	2	0	19	2
	3.0	***5.3***	***0.0***	***2.2***	***0.0***	***3.1***	
Diaphragmatic hernia	9	5	2	5	0	21	
	1.4	***2.0***	***1.9***	***2.7***	***0.0***	***1.7***	
Double outlet right ventricle	8	13	3	3	0	27	
	1.2	***5.1***	***2.8***	***1.6***	***0.0***	***2.2***	
Ebstein anomaly	4	2	0	0	0	6	
	0.6	***0.8***	***0.0***	***0.0***	***0.0***	***0.5***	
Encephalocele	6	3	1	2	1	14	
	0.9	***1.2***	***0.9***	***1.1***	***7.8***	***1.2***	
Esophageal atresia/tracheoesophageal fistula	23	4	3	6	0	36	
	3.6	***1.6***	***2.8***	***3.3***	***0.0***	***3.0***	
Gastroschisis	10	6	4	8	0	28	
	1.6	***2.3***	***3.8***	***4.4***	***0.0***	***2.3***	
Hypoplastic left heart syndrome	14	6	1	0	0	21	
	2.2	***2.3***	***0.9***	***0.0***	***0.0***	***1.7***	
Hypospadias	263	115	19	28	4	432	2
	80.1	***87.8***	***35.2***	***30.1***	***63.9***	***69.9***	
Limb deficiencies (reduction defects)	22	7	3	8	1	42	
	3.4	***2.7***	***2.8***	***4.4***	***7.8***	***3.5***	
Omphalocele	12	6	2	4	1	25	
	1.9	***2.3***	***1.9***	***2.2***	***7.8***	***2.1***	
Pulmonary valve atresia and stenosis	70	39	17	17	3	147	
	10.9	***15.3***	***16.0***	***9.3***	***23.3***	***12.1***	
Pulmonary valve atresia	4	3	0	3	0	10	
	0.6	***1.2***	***0.0***	***1.6***	***0.0***	***0.8***	
Rectal and large intestinal atresia/stenosis	22	11	6	5	0	44	
	3.4	***4.3***	***5.6***	***2.7***	***0.0***	***3.6***	
Renal agenesis/hypoplasia	34	15	4	8	0	63	
	5.3	***5.9***	***3.8***	***4.4***	***0.0***	***5.2***	

Minnesota

Birth Defects Counts and Prevalence 2012 - 2016 (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	1	2	0	2	0	5	
	0.2	***0.8***	***0.0***	***1.1***	***0.0***	***0.4***	
Spina bifida without anencephalus	17	11	1	4	0	34	
	2.6	***4.3***	***0.9***	***2.2***	***0.0***	***2.8***	
Tetralogy of Fallot	20	5	2	2	1	31	
	3.1	***2.0***	***1.9***	***1.1***	***7.8***	***2.6***	
Total anomalous pulmonary venous connection	9	1	3	8	0	21	3
	1.7	***0.5***	***3.6***	***5.4***	***0.0***	***2.2***	
Transposition of the great arteries (TGA)	12	8	2	2	0	24	
	1.9	***3.1***	***1.9***	***1.1***	***0.0***	***2.0***	
Tricuspid valve atresia	2	5	1	3	0	11	
	0.3	***2.0***	***0.9***	***1.6***	***0.0***	***0.9***	
Trisomy 13	4	5	0	1	1	11	
	0.6	***2.0***	***0.0***	***0.5***	***7.8***	***0.9***	
Trisomy 18	8	11	1	5	0	25	
	1.2	***4.3***	***0.9***	***2.7***	***0.0***	***2.1***	
Trisomy 21 (Down syndrome)	108	52	24	25	1	210	
	16.7	***20.4***	***22.6***	***13.6***	***7.8***	***17.3***	
Ventricular septal defect	463	150	75	100	19	815	4
	71.8	***58.7***	***70.6***	***54.5***	***147.3***	***67.1***	
Total live births	**64,492**	**25,544**	**10,629**	**18,353**	**1,290**	**121,372**	**5**
Male live births	**32,849**	**13,100**	**5,403**	**9,293**	**626**	**61,823**	

Minnesota

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	28	0	28	
	2.9	***0.0***	***2.3***	
Trisomy 13	5	6	11	
	0.5	***2.6***	***0.9***	
Trisomy 18	15	10	25	
	1.5	***4.3***	***2.1***	
Trisomy 21 (Down syndrome)	120	90	210	
	12.2	***38.5***	***17.3***	
Total live births	**98,017**	**23,354**	**121,372**	**5**

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 begin in 2013.
4. Data for this condition include inlet ventricular septal defect.
5. Data for total live births include unknown gender.

General comments

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

Mississippi

Birth Defects Counts and Prevalence 2012 - 2016 (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	5	1	0	0	15	
	0.9	***0.6***	***1.3***	***0.0***	***0.0***	***0.8***	
Anophthalmia/microphthalmia	8	22	1	0	1	32	
	0.8	***2.7***	***1.3***	***0.0***	***8.9***	***1.7***	
Anotia/microtia	11	6	2	0	3	22	
	1.1	***0.7***	***2.6***	***0.0***	***26.7***	***1.1***	
Aortic valve stenosis	29	14	0	1	2	46	
	2.9	***1.7***	***0.0***	***4.0***	***17.8***	***2.4***	
Atrial septal defect	2,221	2,658	201	34	83	5,217	
	224.6	***323.4***	***264.5***	***137.0***	***739.1***	***271.2***	
Atrioventricular septal defect (Endocardial cushion defect)	61	56	5	1	0	123	
	6.2	***6.8***	***6.6***	***4.0***	***0.0***	***6.4***	
Biliary atresia	10	17	0	0	0	27	
	1.0	***2.1***	***0.0***	***0.0***	***0.0***	***1.4***	
Bladder exstrophy	1	1	0	0	0	2	
	0.1	***0.1***	***0.0***	***0.0***	***0.0***	***0.1***	
Choanal atresia	15	12	0	0	1	28	
	1.5	***1.5***	***0.0***	***0.0***	***8.9***	***1.5***	
Cleft lip alone	24	6	2	0	0	32	
	2.4	***0.7***	***2.6***	***0.0***	***0.0***	***1.7***	
Cleft lip with cleft palate	74	51	11	2	1	139	
	7.5	***6.2***	***14.5***	***8.1***	***8.9***	***7.2***	
Cleft palate alone	79	31	2	1	1	114	
	8.0	***3.8***	***2.6***	***4.0***	***8.9***	***5.9***	
Cloacal exstrophy	36	34	4	0	0	74	
	3.6	***4.1***	***5.3***	***0.0***	***0.0***	***3.8***	
Clubfoot	204	121	10	2	4	342	
	20.6	***14.7***	***13.2***	***8.1***	***35.6***	***17.8***	
Coarctation of the aorta	95	71	8	4	0	178	
	9.6	***8.6***	***10.5***	***16.1***	***0.0***	***9.3***	
Common truncus (truncus arteriosus)	17	10	1	0	1	29	
	1.7	***1.2***	***1.3***	***0.0***	***8.9***	***1.5***	
Congenital cataract	16	16	0	0	1	34	
	1.6	***1.9***	***0.0***	***0.0***	***8.9***	***1.8***	
Congenital posterior urethral valves	15	21	1	0	0	37	1
	3.0	***5.1***	***2.6***	***0.0***	***0.0***	***3.8***	
Craniosynostosis	72	36	6	0	0	115	
	7.3	***4.4***	***7.9***	***0.0***	***0.0***	***6.0***	
Deletion 22q11.2	11	15	0	0	0	26	
	1.1	***1.8***	***0.0***	***0.0***	***0.0***	***1.4***	
Diaphragmatic hernia	32	18	4	0	0	54	
	3.2	***2.2***	***5.3***	***0.0***	***0.0***	***2.8***	
Double outlet right ventricle	30	38	3	0	0	71	
	3.0	***4.6***	***3.9***	***0.0***	***0.0***	***3.7***	
Ebstein anomaly	12	5	0	0	0	18	
	1.2	***0.6***	***0.0***	***0.0***	***0.0***	***0.9***	
Encephalocele	10	9	0	0	2	21	
	1.0	***1.1***	***0.0***	***0.0***	***17.8***	***1.1***	
Esophageal atresia/tracheoesophageal fistula	20	21	1	0	0	42	
	2.0	***2.6***	***1.3***	***0.0***	***0.0***	***2.2***	
Gastroschisis	24	22	3	0	1	51	
	2.4	***2.7***	***3.9***	***0.0***	***8.9***	***2.7***	
Holoprosencephaly	44	40	8	2	2	96	
	4.4	***4.9***	***10.5***	***8.1***	***17.8***	***5.0***	
Hypoplastic left heart syndrome	48	36	0	1	0	85	
	4.9	***4.4***	***0.0***	***4.0***	***0.0***	***4.4***	
Hypospadias	349	312	10	1	2	676	1
	69.1	***75.4***	***26.0***	***7.7***	***36.6***	***69.3***	
Interrupted aortic arch	33	37	4	1	1	76	
	3.3	***4.5***	***5.3***	***4.0***	***8.9***	***4.0***	

Mississippi

Birth Defects Counts and Prevalence 2012 - 2016 (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)	33	47	2	0	3	85	
	3.3	***5.7***	***2.6***	***0.0***	***26.7***	***4.4***	
Omphalocele	21	29	0	0	0	50	
	2.1	***3.5***	***0.0***	***0.0***	***0.0***	***2.6***	
Pulmonary valve atresia and stenosis	126	140	6	3	1	277	
	12.7	***17.0***	***7.9***	***12.1***	***8.9***	***14.4***	
Pulmonary valve atresia	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Rectal and large intestinal atresia/stenosis	46	28	2	0	0	76	
	4.7	***3.4***	***2.6***	***0.0***	***0.0***	***4.0***	
Renal agenesis/hypoplasia	69	43	4	0	2	121	
	7.0	***5.2***	***5.3***	***0.0***	***17.8***	***6.3***	
Single ventricle	32	44	2	1	1	80	
	3.2	***5.4***	***2.6***	***4.0***	***8.9***	***4.2***	
Small intestinal atresia/stenosis	23	31	1	0	0	55	
	2.3	***3.8***	***1.3***	***0.0***	***0.0***	***2.9***	
Spina bifida without anencephalus	54	31	3	0	1	89	
	5.5	***3.8***	***3.9***	***0.0***	***8.9***	***4.6***	
Tetralogy of Fallot	47	63	6	0	0	116	
	4.8	***7.7***	***7.9***	***0.0***	***0.0***	***6.0***	
Total anomalous pulmonary venous connection	14	17	1	0	0	32	
	1.4	***2.1***	***1.3***	***0.0***	***0.0***	***1.7***	
Transposition of the great arteries (TGA)	37	22	5	0	0	64	
	3.7	***2.7***	***6.6***	***0.0***	***0.0***	***3.3***	
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	12	21	1	0	0	34	
	1.2	***2.6***	***1.3***	***0.0***	***0.0***	***1.8***	
Tricuspid valve atresia	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Trisomy 13	3	6	0	0	0	9	
	0.3	***0.7***	***0.0***	***0.0***	***0.0***	***0.5***	
Trisomy 18	13	14	0	0	0	27	
	1.3	***1.7***	***0.0***	***0.0***	***0.0***	***1.4***	
Trisomy 21 (Down syndrome)	136	98	21	2	4	261	
	13.8	***11.9***	***27.6***	***8.1***	***35.6***	***13.6***	
Turner syndrome	15	4	1	0	0	20	2
	3.1	***1.0***	***2.7***	***0.0***	***0.0***	***2.1***	
Ventricular septal defect	722	619	66	10	30	1,455	3
	73.0	***75.3***	***86.8***	***40.3***	***267.1***	***75.6***	
Total live births	**98,899**	**82,193**	**7,600**	**2,482**	**1,123**	**192,361**	
Male live births	**50,538**	**41,354**	**3,845**	**1,291**	**546**	**97,602**	
Female live births	**48,361**	**40,839**	**3,755**	**1,191**	**577**	**94,759**	

Mississippi

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	48	3	51	
	2.7	***1.8***	***2.7***	
Trisomy 13	8	1	9	
	0.5	***0.6***	***0.5***	
Trisomy 18	21	6	27	
	1.2	***3.6***	***1.4***	
Trisomy 21 (Down syndrome)	164	97	261	
	9.3	***57.6***	***13.6***	
Total live births	**175,507**	**16,854**	**192,361**	

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

*Data for totals include unknown and/or other.

Missouri

Birth Defects Counts and Prevalence 2012 - 2016 (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	64	16	8	1	0	93	
	2.3	***3.0***	***4.0***	***1.5***	***0.0***	***2.5***	
Anophthalmia/microphthalmia	38	3	4	1	0	47	
	1.4	***0.6***	***2.0***	***1.5***	***0.0***	***1.3***	
Anotia/microtia	27	4	8	1	0	41	
	1.0	***0.8***	***4.0***	***1.5***	***0.0***	***1.1***	
Aortic valve stenosis	34	1	3	1	2	42	
	1.2	***0.2***	***1.5***	***1.5***	***5.9***	***1.1***	
Atrial septal defect	3,298	872	247	81	29	4,709	
	118.0	***164.0***	***122.9***	***119.8***	***85.4***	***125.4***	
Atrioventricular septal defect (Endocardial cushion defect)	122	27	10	2	0	165	
	4.4	***5.1***	***5.0***	***3.0***	***0.0***	***4.4***	
Biliary atresia	30	16	3	1	2	53	
	1.1	***3.0***	***1.5***	***1.5***	***5.9***	***1.4***	
Bladder exstrophy	6	1	0	1	0	8	
	0.2	***0.2***	***0.0***	***1.5***	***0.0***	***0.2***	
Choanal atresia	65	10	3	3	0	83	
	2.3	***1.9***	***1.5***	***4.4***	***0.0***	***2.2***	
Cleft lip alone	273	29	15	2	5	334	
	9.8	***5.5***	***7.5***	***3.0***	***14.7***	***8.9***	
Cleft lip with cleft palate	202	27	15	1	2	255	
	7.2	***5.1***	***7.5***	***1.5***	***5.9***	***6.8***	
Cleft palate alone	248	32	19	4	1	309	
	8.9	***6.0***	***9.5***	***5.9***	***2.9***	***8.2***	
Cloacal exstrophy	108	27	10	4	0	154	
	3.9	***5.1***	***5.0***	***5.9***	***0.0***	***4.1***	
Clubfoot	614	112	34	10	7	804	
	22.0	***21.1***	***16.9***	***14.8***	***20.6***	***21.4***	
Coarctation of the aorta	147	17	18	2	1	185	
	5.3	***3.2***	***9.0***	***3.0***	***2.9***	***4.9***	
Common truncus (truncus arteriosus)	11	2	1	0	0	15	
	0.4	***0.4***	***0.5***	***0.0***	***0.0***	***0.4***	
Congenital cataract	64	17	2	0	0	86	
	2.3	***3.2***	***1.0***	***0.0***	***0.0***	***2.3***	
Congenital posterior urethral valves	36	9	0	2	1	49	1
	2.5	***3.3***	***0.0***	***5.6***	***5.8***	***2.5***	
Craniosynostosis	97	9	1	1	0	109	
	8.7	***4.3***	***1.2***	***3.7***	***0.0***	***7.3***	
Deletion 22q11.2	18	1	1	0	0	20	
	0.6	***0.2***	***0.5***	***0.0***	***0.0***	***0.5***	
Diaphragmatic hernia	106	24	6	5	3	148	
	3.8	***4.5***	***3.0***	***7.4***	***8.8***	***3.9***	
Double outlet right ventricle	68	12	5	3	1	90	
	2.4	***2.3***	***2.5***	***4.4***	***2.9***	***2.4***	
Ebstein anomaly	26	1	2	0	0	30	
	0.9	***0.2***	***1.0***	***0.0***	***0.0***	***0.8***	
Encephalocele	22	10	2	0	0	34	
	0.8	***1.9***	***1.0***	***0.0***	***0.0***	***0.9***	
Esophageal atresia/tracheoesophageal fistula	69	8	6	0	3	88	
	2.5	***1.5***	***3.0***	***0.0***	***8.8***	***2.3***	
Gastroschisis	160	26	18	2	0	213	
	5.7	***4.9***	***9.0***	***3.0***	***0.0***	***5.7***	
Holoprosencephaly	140	26	12	2	1	186	
	5.0	***4.9***	***6.0***	***3.0***	***2.9***	***5.0***	
Hypoplastic left heart syndrome	89	10	5	0	1	106	
	3.2	***1.9***	***2.5***	***0.0***	***2.9***	***2.8***	
Hypospadias	1,496	287	52	28	22	1,954	1
	104.5	***106.4***	***50.8***	***79.0***	***127.5***	***101.6***	
Interrupted aortic arch	33	5	3	0	1	43	
	1.2	***0.9***	***1.5***	***0.0***	***2.9***	***1.1***	

Missouri

Birth Defects Counts and Prevalence 2012 - 2016 (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)	127	27	7	6	1	174	
	4.5	***5.1***	***3.5***	***8.9***	***2.9***	***4.6***	
Omphalocele	53	18	1	0	0	74	
	1.9	***3.4***	***0.5***	***0.0***	***0.0***	***2.0***	
Pulmonary valve atresia and stenosis	197	43	13	4	0	268	
	7.0	***8.1***	***6.5***	***5.9***	***0.0***	***7.1***	
Pulmonary valve atresia	40	4	3	0	0	49	
	1.4	***0.8***	***1.5***	***0.0***	***0.0***	***1.3***	
Rectal and large intestinal atresia/stenosis	110	25	12	6	1	161	
	3.9	***4.7***	***6.0***	***8.9***	***2.9***	***4.3***	
Renal agenesis/hypoplasia	161	31	16	3	2	220	
	5.8	***5.8***	***8.0***	***4.4***	***5.9***	***5.9***	
Single ventricle	30	6	4	1	0	42	
	1.1	***1.1***	***2.0***	***1.5***	***0.0***	***1.1***	
Small intestinal atresia/stenosis	105	27	10	2	1	149	
	3.8	***5.1***	***5.0***	***3.0***	***2.9***	***4.0***	
Spina bifida without anencephalus	134	23	6	3	0	172	
	4.8	***4.3***	***3.0***	***4.4***	***0.0***	***4.6***	
Tetralogy of Fallot	134	18	6	3	1	166	
	4.8	***3.4***	***3.0***	***4.4***	***2.9***	***4.4***	
Total anomalous pulmonary venous connection	25	3	2	0	0	30	
	0.9	***0.6***	***1.0***	***0.0***	***0.0***	***0.8***	
Transposition of the great arteries (TGA)	82	8	6	2	1	101	
	2.9	***1.5***	***3.0***	***3.0***	***2.9***	***2.7***	
Dextro-transposition of great arteries (d-TGA)	69	7	4	1	1	83	
	2.5	***1.3***	***2.0***	***1.5***	***2.9***	***2.2***	
Tricuspid valve atresia and stenosis	24	2	4	2	0	34	
	0.9	***0.4***	***2.0***	***3.0***	***0.0***	***0.9***	
Tricuspid valve atresia	24	2	4	2	0	34	
	0.9	***0.4***	***2.0***	***3.0***	***0.0***	***0.9***	
Trisomy 13	31	5	0	0	0	36	
	1.1	***0.9***	***0.0***	***0.0***	***0.0***	***1.0***	
Trisomy 18	61	9	8	1	0	80	
	2.2	***1.7***	***4.0***	***1.5***	***0.0***	***2.1***	
Trisomy 21 (Down syndrome)	404	81	42	9	3	556	
	14.5	***15.2***	***20.9***	***13.3***	***8.8***	***14.8***	
Turner syndrome	37	6	3	0	1	50	2
	2.7	***2.3***	***3.0***	***0.0***	***6.0***	***2.7***	
Ventricular septal defect	1,258	234	102	26	12	1,679	3
	45.0	***44.0***	***50.8***	***38.5***	***35.3***	***44.7***	
Total live births	**279,543**	**53,169**	**20,094**	**6,759**	**3,397**	**375,454**	**4**
Male live births	**143,219**	**26,978**	**10,245**	**3,546**	**1,725**	**192,232**	
Female live births	**136,317**	**26,188**	**9,848**	**3,213**	**1,672**	**183,211**	

Missouri

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	206	7	213	
	6.2	***1.6***	***5.7***	
Trisomy 13	25	11	36	
	0.8	***2.5***	***1.0***	
Trisomy 18	50	30	80	
	1.5	***6.8***	***2.1***	
Trisomy 21 (Down syndrome)	320	236	556	
	9.7	***53.8***	***14.8***	
Total live births	**331,518**	**43,850**	**375,454**	**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 exclude probable cases.
4. Data for total live births include unknown gender.

General comments

*Data for totals include unknown and/or other.

Nebraska

Birth Defects Counts and Prevalence 2012 - 2016 (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	15	1	1	0	0	24	
	1.6	***1.1***	***0.5***	***0.0***	***0.0***	***1.8***	
Anophthalmia/microphthalmia	12	1	0	0	0	14	
	1.3	***1.1***	***0.0***	***0.0***	***0.0***	***1.1***	
Anotia/microtia	21	1	6	1	0	41	
	2.2	***1.1***	***2.9***	***2.3***	***0.0***	***3.1***	
Aortic valve stenosis	10	0	1	0	0	12	
	1.0	***0.0***	***0.5***	***0.0***	***0.0***	***0.9***	
Atrial septal defect	123	8	12	8	2	172	
	12.8	***8.8***	***5.9***	***18.4***	***10.2***	***13.0***	
Atrioventricular septal defect (Endocardial cushion defect)	28	1	1	1	0	40	
	2.9	***1.1***	***0.5***	***2.3***	***0.0***	***3.0***	
Biliary atresia	5	0	1	0	0	7	
	0.5	***0.0***	***0.5***	***0.0***	***0.0***	***0.5***	
Bladder exstrophy	5	0	0	0	0	5	
	0.5	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	
Choanal atresia	20	0	0	1	0	27	
	2.1	***0.0***	***0.0***	***2.3***	***0.0***	***2.0***	
Cleft lip alone	46	3	4	2	3	65	
	4.8	***3.3***	***2.0***	***4.6***	***15.3***	***4.9***	
Cleft lip with cleft palate	59	3	2	6	2	83	
	6.2	***3.3***	***1.0***	***13.8***	***10.2***	***6.3***	
Cleft palate alone	62	2	4	2	2	80	
	6.5	***2.2***	***2.0***	***4.6***	***10.2***	***6.1***	
Cloacal exstrophy	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Clubfoot	171	8	9	4	4	219	
	17.8	***8.8***	***4.4***	***9.2***	***20.3***	***16.6***	
Coarctation of the aorta	77	2	6	1	0	100	
	8.0	***2.2***	***2.9***	***2.3***	***0.0***	***7.6***	
Common truncus (truncus arteriosus)	15	2	2	0	0	22	
	1.6	***2.2***	***1.0***	***0.0***	***0.0***	***1.7***	
Congenital cataract	26	0	3	2	0	33	
	2.7	***0.0***	***1.5***	***4.6***	***0.0***	***2.5***	
Congenital posterior urethral valves	2	1	0	0	0	3	1
	0.4	***2.2***	***0.0***	***0.0***	***0.0***	***0.4***	
Craniosynostosis	50	0	0	2	0	59	
	5.2	***0.0***	***0.0***	***4.6***	***0.0***	***4.5***	
Deletion 22q11.2	4	0	0	0	0	5	
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	
Diaphragmatic hernia	19	3	2	0	1	32	
	2.0	***3.3***	***1.0***	***0.0***	***5.1***	***2.4***	
Double outlet right ventricle	19	2	1	0	2	30	
	2.0	***2.2***	***0.5***	***0.0***	***10.2***	***2.3***	
Ebstein anomaly	6	0	0	0	2	10	
	0.6	***0.0***	***0.0***	***0.0***	***10.2***	***0.8***	
Encephalocele	12	1	0	0	1	17	
	1.3	***1.1***	***0.0***	***0.0***	***5.1***	***1.3***	
Esophageal atresia/tracheoesophageal fistula	34	2	1	0	0	42	
	3.5	***2.2***	***0.5***	***0.0***	***0.0***	***3.2***	
Gastroschisis	44	5	9	1	1	67	
	4.6	***5.5***	***4.4***	***2.3***	***5.1***	***5.1***	
Holoprosencephaly	2	1	0	1	1	7	
	0.2	***1.1***	***0.0***	***2.3***	***5.1***	***0.5***	
Hypoplastic left heart syndrome	30	3	0	0	2	41	
	3.1	***3.3***	***0.0***	***0.0***	***10.2***	***3.1***	
Hypospadias	405	35	21	5	0	516	1
	81.8	***77.4***	***20.2***	***22.8***	***0.0***	***76.1***	
Interrupted aortic arch	11	1	0	0	0	14	
	1.1	***1.1***	***0.0***	***0.0***	***0.0***	***1.1***	

Nebraska

Birth Defects Counts and Prevalence 2012 - 2016 (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)	62	4	3	1	0	77	
	6.5	***4.4***	***1.5***	***2.3***	***0.0***	***5.8***	
Omphalocele	30	5	4	0	1	42	
	3.1	***5.5***	***2.0***	***0.0***	***5.1***	***3.2***	
Pulmonary valve atresia and stenosis	63	3	2	1	2	82	
	6.6	***3.3***	***1.0***	***2.3***	***10.2***	***6.2***	
Pulmonary valve atresia	13	3	0	0	2	22	
	1.4	***3.3***	***0.0***	***0.0***	***10.2***	***1.7***	
Rectal and large intestinal atresia/stenosis	36	3	5	2	3	54	
	3.8	***3.3***	***2.5***	***4.6***	***15.3***	***4.1***	
Renal agenesis/hypoplasia	72	5	4	3	2	98	
	7.5	***5.5***	***2.0***	***6.9***	***10.2***	***7.4***	
Single ventricle	24	4	0	0	1	31	
	2.5	***4.4***	***0.0***	***0.0***	***5.1***	***2.3***	
Small intestinal atresia/stenosis	29	2	2	0	0	37	
	3.0	***2.2***	***1.0***	***0.0***	***0.0***	***2.8***	
Spina bifida without anencephalus	45	0	5	0	1	63	
	4.7	***0.0***	***2.5***	***0.0***	***5.1***	***4.8***	
Tetralogy of Fallot	33	4	0	4	0	46	
	3.4	***4.4***	***0.0***	***9.2***	***0.0***	***3.5***	
Total anomalous pulmonary venous connection	7	3	1	0	0	14	
	0.7	***3.3***	***0.5***	***0.0***	***0.0***	***1.1***	
Transposition of the great arteries (TGA)	36	4	0	0	0	49	
	3.8	***4.4***	***0.0***	***0.0***	***0.0***	***3.7***	
Dextro-transposition of great arteries (d-TGA)	35	4	0	0	0	48	
	3.7	***4.4***	***0.0***	***0.0***	***0.0***	***3.6***	
Tricuspid valve atresia and stenosis	14	2	0	0	0	19	
	1.5	***2.2***	***0.0***	***0.0***	***0.0***	***1.4***	
Tricuspid valve atresia	14	2	0	0	0	19	
	1.5	***2.2***	***0.0***	***0.0***	***0.0***	***1.4***	
Trisomy 13	5	4	1	0	1	14	
	0.5	***4.4***	***0.5***	***0.0***	***5.1***	***1.1***	
Trisomy 18	28	0	1	0	0	32	
	2.9	***0.0***	***0.5***	***0.0***	***0.0***	***2.4***	
Trisomy 21 (Down syndrome)	163	6	15	13	1	240	
	17.0	***6.6***	***7.4***	***29.8***	***5.1***	***18.2***	
Turner syndrome	9	0	0	0	0	10	2
	1.9	***0.0***	***0.0***	***0.0***	***0.0***	***1.6***	
Ventricular septal defect	486	30	34	12	5	674	
	50.7	***32.9***	***16.7***	***27.5***	***25.4***	***51.0***	
Total live births	**95,844**	**9,126**	**20,388**	**4,356**	**1,967**	**132,099**	**3**
Male live births	**49,495**	**4,520**	**10,402**	**2,189**	**971**	**67,789**	
Female live births	**46,348**	**4,606**	**9,984**	**2,167**	**996**	**64,307**	

Nebraska

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	63	4	67	
	5.5	***2.3***	***5.1***	
Trisomy 13	10	4	14	
	0.9	***2.3***	***1.1***	
Trisomy 18	20	12	32	
	1.7	***7.0***	***2.4***	
Trisomy 21 (Down syndrome)	126	114	240	
	11.0	***66.1***	***18.2***	
Total live births	**114,856**	**17,236**	**132,099**	**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. Data for total live births include unknown gender.

General comments
*Data for totals include unknown and/or other.

Nevada

Birth Defects Counts and Prevalence 2012 - 2016 (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	1	0	0	3	
	0.1	***0.0***	***0.2***	***0.0***	***0.0***	***0.2***	
Anophthalmia/microphthalmia	3	4	8	2	0	18	
	0.4	***1.9***	***1.2***	***1.3***	***0.0***	***1.0***	
Anotia/microtia	4	0	3	1	0	9	
	0.5	***0.0***	***0.5***	***0.7***	***0.0***	***0.5***	
Aortic valve stenosis	12	0	7	2	0	23	
	1.6	***0.0***	***1.1***	***1.3***	***0.0***	***1.3***	
Atrial septal defect	2,665	923	1,951	555	33	6,463	
	365.3	***444.1***	***304.2***	***367.9***	***190.2***	***367.6***	
Atrioventricular septal defect (Endocardial cushion defect)	16	8	14	0	0	39	1
	2.2	***3.8***	***2.2***	***0.0***	***0.0***	***2.2***	
Biliary atresia	12	9	9	7	0	38	
	1.6	***4.3***	***1.4***	***4.6***	***0.0***	***2.2***	
Bladder exstrophy	1	0	0	0	0	2	
	0.1	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Choanal atresia	7	1	5	1	0	15	
	1.0	***0.5***	***0.8***	***0.7***	***0.0***	***0.9***	
Cleft lip alone	26	4	4	5	0	39	
	3.6	***1.9***	***0.6***	***3.3***	***0.0***	***2.2***	
Cleft lip with cleft palate	50	17	39	4	2	120	
	6.9	***8.2***	***6.1***	***2.7***	***11.5***	***6.8***	
Cleft palate alone	29	4	28	8	2	74	
	4.0	***1.9***	***4.4***	***5.3***	***11.5***	***4.2***	
Cloacal exstrophy	17	6	9	3	0	37	
	2.3	***2.9***	***1.4***	***2.0***	***0.0***	***2.1***	
Clubfoot	111	30	90	8	0	254	
	15.2	***14.4***	***14.0***	***5.3***	***0.0***	***14.4***	
Coarctation of the aorta	40	5	25	3	0	78	
	5.5	***2.4***	***3.9***	***2.0***	***0.0***	***4.4***	
Common truncus (truncus arteriosus)	4	1	4	0	0	9	
	0.5	***0.5***	***0.6***	***0.0***	***0.0***	***0.5***	
Congenital cataract	6	3	6	0	0	16	
	0.8	***1.4***	***0.9***	***0.0***	***0.0***	***0.9***	
Congenital posterior urethral valves	6	0	0	0	0	6	2
	1.6	***0.0***	***0.0***	***0.0***	***0.0***	***0.7***	
Craniosynostosis	52	11	23	5	0	100	
	7.1	***5.3***	***3.6***	***3.3***	***0.0***	***5.7***	
Deletion 22q11.2	0	0	0	0	0	1	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Diaphragmatic hernia	7	5	8	4	1	27	
	1.0	***2.4***	***1.2***	***2.7***	***5.8***	***1.5***	
Double outlet right ventricle	7	4	8	1	0	21	
	1.0	***1.9***	***1.2***	***0.7***	***0.0***	***1.2***	
Ebstein anomaly	1	0	2	0	0	4	
	0.1	***0.0***	***0.3***	***0.0***	***0.0***	***0.2***	
Encephalocele	4	0	0	1	1	6	
	0.5	***0.0***	***0.0***	***0.7***	***5.8***	***0.3***	
Esophageal atresia/tracheoesophageal fistula	12	4	10	0	0	28	
	1.6	***1.9***	***1.6***	***0.0***	***0.0***	***1.6***	
Gastroschisis	22	10	20	3	0	57	
	3.0	***4.8***	***3.1***	***2.0***	***0.0***	***3.2***	
Holoprosencephaly	28	7	12	5	0	52	
	3.8	***3.4***	***1.9***	***3.3***	***0.0***	***3.0***	
Hypoplastic left heart syndrome	11	3	10	2	0	26	
	1.5	***1.4***	***1.6***	***1.3***	***0.0***	***1.5***	
Hypospadias	210	39	83	29	0	374	2
	56.1	***36.9***	***25.3***	***37.1***	***0.0***	***41.5***	
Interrupted aortic arch	17	8	13	5	0	44	
	2.3	***3.8***	***2.0***	***3.3***	***0.0***	***2.5***	

Nevada

Birth Defects Counts and Prevalence 2012 - 2016 (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)	16	2	12	1	0	33	
	2.2	***1.0***	***1.9***	***0.7***	***0.0***	***1.9***	
Omphalocele	11	2	9	3	0	26	
	1.5	***1.0***	***1.4***	***2.0***	***0.0***	***1.5***	
Pulmonary valve atresia and stenosis	60	23	41	5	0	138	
	8.2	***11.1***	***6.4***	***3.3***	***0.0***	***7.8***	
Pulmonary valve atresia	1	0	0	0	0	1	
	0.1	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Rectal and large intestinal atresia/stenosis	29	3	21	2	0	55	
	4.0	***1.4***	***3.3***	***1.3***	***0.0***	***3.1***	
Renal agenesis/hypoplasia	20	9	20	5	2	58	
	2.7	***4.3***	***3.1***	***3.3***	***11.5***	***3.3***	
Single ventricle	1	0	4	1	0	6	
	0.1	***0.0***	***0.6***	***0.7***	***0.0***	***0.3***	
Small intestinal atresia/stenosis	24	7	15	3	0	49	
	3.3	***3.4***	***2.3***	***2.0***	***0.0***	***2.8***	
Spina bifida without anencephalus	10	2	10	0	0	25	
	1.4	***1.0***	***1.6***	***0.0***	***0.0***	***1.4***	
Tetralogy of Fallot	15	2	18	2	0	38	
	2.1	***1.0***	***2.8***	***1.3***	***0.0***	***2.2***	
Total anomalous pulmonary venous connection	4	0	2	0	0	7	
	0.5	***0.0***	***0.3***	***0.0***	***0.0***	***0.4***	
Transposition of the great arteries (TGA)	14	4	14	3	0	35	
	1.9	***1.9***	***2.2***	***2.0***	***0.0***	***2.0***	
Dextro-transposition of great arteries (d-TGA)	6	3	5	2	0	16	
	0.8	***1.4***	***0.8***	***1.3***	***0.0***	***0.9***	
Tricuspid valve atresia and stenosis	3	0	4	2	0	10	3
	0.4	***0.0***	***0.6***	***1.3***	***0.0***	***0.6***	
Tricuspid valve atresia	2	0	1	0	0	3	
	0.3	***0.0***	***0.2***	***0.0***	***0.0***	***0.2***	
Trisomy 13	5	5	5	1	0	16	
	0.7	***2.4***	***0.8***	***0.7***	***0.0***	***0.9***	
Trisomy 18	7	5	11	0	0	25	
	1.0	***2.4***	***1.7***	***0.0***	***0.0***	***1.4***	
Trisomy 21 (Down syndrome)	66	18	103	8	4	206	
	9.0	***8.7***	***16.1***	***5.3***	***23.1***	***11.7***	
Turner syndrome	6	4	8	1	0	20	4
	1.7	***3.9***	***2.6***	***1.4***	***0.0***	***2.3***	
Ventricular septal defect	412	108	395	82	6	1,054	5
	56.5	***52.0***	***61.6***	***54.4***	***34.6***	***60.0***	
Total live births	**72,948**	**20,785**	**64,129**	**15,087**	**1,735**	**175,805**	**6**
Male live births	**37,401**	**10,568**	**32,770**	**7,826**	**917**	**90,053**	
Female live births	**35,447**	**10,216**	**31,311**	**7,261**	**817**	**85,599**	

Nevada

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	54	1	57	
	3.7	***0.4***	***3.2***	
Trisomy 13	7	6	16	
	0.5	***2.2***	***0.9***	
Trisomy 18	12	12	25	
	0.8	***4.3***	***1.4***	
Trisomy 21 (Down syndrome)	92	88	206	
	6.2	***31.6***	***11.7***	
Total live births	**147,927**	**27,835**	**175,805**	**6**

Notes

1. Data for this condition exclude inlet ventricular septal defect (VSD), including common atrioventricular (AV) canal type VSD.
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 tricuspid stenosis and hypoplasia.
4. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
5. Data for this condition excludes probable and possible cases. Data for this condition include inlet ventricular septal defect (VSD), including common atrioventricular (AV) canal type VSD.
6. Data for total live births include unknown gender.

General comments

*Data for totals include unknown and/or other.
-Data for conditions in 2012-2013 are a combination of active and passive data collection. 2014 and subsequent data are passive data collection.

New Jersey

Birth Defects Counts and Prevalence 2012 - 2016 (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	7	0	0	17	
	0.3	***0.3***	***0.5***	***0.0***	***0.0***	***0.3***	
Anophthalmia/microphthalmia	15	6	8	2	0	32	
	0.6	***0.8***	***0.6***	***0.3***	***0.0***	***0.6***	
Anotia/microtia	36	3	64	16	0	120	
	1.6	***0.4***	***4.6***	***2.7***	***0.0***	***2.3***	
Aortic valve stenosis	22	4	14	2	0	43	
	0.9	***0.5***	***1.0***	***0.3***	***0.0***	***0.8***	
Atrial septal defect	651	580	649	176	1	2,083	
	28.0	***77.7***	***47.2***	***30.1***	***21.6***	***40.6***	
Atrioventricular septal defect (Endocardial cushion defect)	51	30	36	3	0	121	
	2.2	***4.0***	***2.6***	***0.5***	***0.0***	***2.4***	
Biliary atresia	8	1	7	3	0	19	
	0.3	***0.1***	***0.5***	***0.5***	***0.0***	***0.4***	
Bladder exstrophy	2	0	2	2	0	6	
	0.1	***0.0***	***0.2***	***0.4***	***0.0***	***0.1***	
Choanal atresia	32	4	14	1	0	53	
	1.4	***0.5***	***1.0***	***0.2***	***0.0***	***1.0***	
Cleft lip alone	57	17	35	10	0	119	
	2.5	***2.3***	***2.5***	***1.7***	***0.0***	***2.3***	
Cleft lip with cleft palate	91	26	82	17	0	220	
	3.9	***3.5***	***6.0***	***2.9***	***0.0***	***4.3***	
Cleft palate alone	126	26	76	31	0	263	
	5.4	***3.5***	***5.5***	***5.3***	***0.0***	***5.1***	
Cloacal exstrophy	40	12	32	13	0	101	
	1.7	***1.6***	***2.3***	***2.2***	***0.0***	***2.0***	
Clubfoot	248	104	173	52	1	588	
	10.7	***13.9***	***12.6***	***8.9***	***21.6***	***11.4***	
Coarctation of the aorta	82	19	57	11	0	178	
	3.5	***2.5***	***4.1***	***1.9***	***0.0***	***3.5***	
Common truncus (truncus arteriosus)	8	5	7	0	0	22	
	0.3	***0.7***	***0.5***	***0.0***	***0.0***	***0.4***	
Congenital cataract	21	17	36	10	0	90	
	0.9	***2.3***	***2.6***	***1.7***	***0.0***	***1.8***	
Congenital posterior urethral valves	28	20	17	10	0	77	1
	2.4	***5.3***	***2.4***	***3.3***	***0.0***	***2.9***	
Craniosynostosis	94	18	78	23	0	216	
	4.0	***2.4***	***5.7***	***3.9***	***0.0***	***4.2***	
Deletion 22q11.2	4	1	3	0	0	8	
	0.2	***0.1***	***0.2***	***0.0***	***0.0***	***0.2***	
Diaphragmatic hernia	36	6	45	10	0	99	
	1.6	***0.8***	***3.3***	***1.7***	***0.0***	***1.9***	
Double outlet right ventricle	12	17	14	2	0	47	
	0.5	***2.3***	***1.0***	***0.3***	***0.0***	***0.9***	
Ebstein anomaly	9	2	7	2	0	20	
	0.4	***0.3***	***0.5***	***0.3***	***0.0***	***0.4***	
Encephalocele	0	5	5	0	0	10	
	0.0	***0.8***	***0.5***	***0.0***	***0.0***	***0.2***	
Esophageal atresia/tracheoesophageal fistula	56	13	26	5	0	105	
	2.4	***1.7***	***1.9***	***0.9***	***0.0***	***2.0***	
Gastroschisis	34	14	42	1	1	93	
	1.5	***1.9***	***3.1***	***0.2***	***21.6***	***1.8***	
Holoprosencephaly	84	49	62	16	0	212	
	3.6	***6.6***	***4.5***	***2.7***	***0.0***	***4.1***	
Hypoplastic left heart syndrome	24	16	15	1	0	56	
	1.0	***2.1***	***1.1***	***0.2***	***0.0***	***1.1***	
Hypospadias	1,161	247	384	192	1	2,017	1
	97.7	***65.3***	***55.0***	***63.7***	***44.4***	***77.0***	
Interrupted aortic arch	10	8	7	1	0	26	
	0.4	***1.1***	***0.5***	***0.2***	***0.0***	***0.5***	

New Jersey

Birth Defects Counts and Prevalence 2012 - 2016 (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)	80	34	61	9	0	188	
	3.4	***4.6***	***4.4***	***1.5***	***0.0***	***3.7***	
Omphalocele	16	23	13	6	0	59	
	0.7	***3.1***	***0.9***	***1.0***	***0.0***	***1.1***	
Pulmonary valve atresia and stenosis	147	96	152	27	1	443	
	6.3	***12.9***	***11.0***	***4.6***	***21.6***	***8.6***	
Pulmonary valve atresia	17	12	20	2	0	59	
	0.7	***1.6***	***1.5***	***0.3***	***0.0***	***1.1***	
Rectal and large intestinal atresia/stenosis	52	18	60	17	0	154	
	2.2	***2.4***	***4.4***	***2.9***	***0.0***	***3.0***	
Renal agenesis/hypoplasia	141	32	66	27	0	270	
	6.1	***4.3***	***4.8***	***4.6***	***0.0***	***5.3***	
Single ventricle	2	4	3	5	0	14	
	0.1	***0.5***	***0.2***	***0.9***	***0.0***	***0.3***	
Small intestinal atresia/stenosis	62	24	65	8	0	164	
	2.7	***3.2***	***4.7***	***1.4***	***0.0***	***3.2***	
Spina bifida without anencephalus	26	14	40	6	0	89	
	1.1	***1.9***	***2.9***	***1.0***	***0.0***	***1.7***	
Tetralogy of Fallot	74	25	51	10	0	169	
	3.2	***3.3***	***3.7***	***1.7***	***0.0***	***3.3***	
Total anomalous pulmonary venous connection	13	9	24	10	0	56	
	0.6	***1.2***	***1.7***	***1.7***	***0.0***	***1.1***	
Transposition of the great arteries (TGA)	35	10	31	4	0	85	
	1.5	***1.3***	***2.3***	***0.7***	***0.0***	***1.7***	
Dextro-transposition of great arteries (d-TGA)	17	6	15	2	0	44	
	0.7	***0.8***	***1.1***	***0.3***	***0.0***	***0.9***	
Tricuspid valve atresia and stenosis	6	6	10	2	0	25	
	0.3	***0.8***	***0.7***	***0.3***	***0.0***	***0.5***	
Tricuspid valve atresia	6	6	10	2	0	25	
	0.3	***0.8***	***0.7***	***0.3***	***0.0***	***0.5***	
Trisomy 13	8	6	8	0	0	23	
	0.3	***0.8***	***0.6***	***0.0***	***0.0***	***0.4***	
Trisomy 18	15	15	16	3	0	49	
	0.6	***2.0***	***1.2***	***0.5***	***0.0***	***1.0***	
Trisomy 21 (Down syndrome)	214	84	231	27	0	574	
	9.2	***11.3***	***16.8***	***4.6***	***0.0***	***11.2***	
Turner syndrome	18	1	7	2	0	29	2
	1.6	***0.3***	***1.0***	***0.7***	***0.0***	***1.2***	
Ventricular septal defect	1,167	394	819	242	3	2,676	3
	50.3	***52.8***	***59.5***	***41.4***	***64.9***	***52.1***	
Total live births	**232,161**	**74,659**	**137,644**	**58,400**	**462**	**513,596**	**4**
Male live births	**118,814**	**37,813**	**69,760**	**30,137**	**225**	**262,074**	
Female live births	**113,346**	**36,840**	**67,882**	**28,263**	**237**	**251,513**	

New Jersey

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	88	5	93	
	2.2	***0.4***	***1.8***	
Trisomy 13	14	9	23	
	0.4	***0.8***	***0.4***	
Trisomy 18	20	28	49	
	0.5	***2.4***	***1.0***	
Trisomy 21 (Down syndrome)	242	314	574	
	6.1	***27.0***	***11.2***	
Total live births	**397,144**	**116,419**	**513,596**	**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. Data for total live births include unknown gender.

General comments

*Data for totals include unknown and/or other.

New Mexico

Birth Defects Counts and Prevalence 2012 - 2016 (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	5	0	13	1	5	24	
	2.4	***0.0***	***3.3***	***6.0***	***3.8***	***2.0***	
Cleft lip alone	21	1	43	2	24	92	
	6.2	***4.8***	***6.7***	***7.1***	***14.4***	***7.6***	
Cleft lip with cleft palate	18	2	43	1	21	86	
	5.3	***9.6***	***6.7***	***4.4***	***12.6***	***7.1***	
Cleft palate alone	28	4	33	1	11	78	
	8.2	***15.0***	***5.1***	***3.5***	***6.6***	***6.4***	
Common truncus (truncus arteriosus)	0	0	2	0	0	2	
	0.0	***0.0***	***0.3***	***0.0***	***0.0***	***0.2***	
Gastroschisis	13	1	42	0	13	69	
	3.8	***4.8***	***6.5***	***0.0***	***7.8***	***5.7***	
Hypoplastic left heart syndrome	2	1	5	1	3	12	
	0.7	***4.8***	***0.8***	***4.4***	***1.8***	***1.0***	
Hypospadias	107	6	101	5	13	232	1
	61.1	***44.3***	***30.8***	***42.8***	***15.4***	***37.4***	
Limb deficiencies (reduction defects)	19	0	37	1	12	70	
	5.6	***0.0***	***5.7***	***4.4***	***8.9***	***5.8***	
Renal agenesis/hypoplasia	5	3	17	0	8	33	
	1.5	***11.3***	***2.6***	***0.0***	***4.8***	***2.7***	
Spina bifida without anencephalus	17	2	27	0	10	57	
	5.0	***9.6***	***4.2***	***0.0***	***7.4***	***4.7***	
Tetralogy of Fallot	6	1	17	1	8	33	
	2.2	***4.8***	***2.6***	***4.4***	***6.0***	***2.7***	
Transposition of the great arteries (TGA)	7	0	10	0	5	22	
	2.1	***0.0***	***1.5***	***0.0***	***3.7***	***1.8***	
Trisomy 13	3	0	3	1	3	12	
	1.1	***0.0***	***0.6***	***4.4***	***2.2***	***1.0***	
Trisomy 18	4	0	5	2	4	22	
	1.5	***0.0***	***0.9***	***8.9***	***3.0***	***1.8***	
Trisomy 21 (Down syndrome)	35	2	85	3	18	156	
	10.3	***9.6***	***13.2***	***10.6***	***10.8***	***12.8***	
Total live births	**33,988**	**2,663**	**64,590**	**2,823**	**16,644**	**121,568**	
Male live births	**17,507**	**1,354**	**32,835**	**1,168**	**8,424**	**62,071**	

New Mexico

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	69	0	69	
	6.4	***0.0***	***5.7***	
Trisomy 13	7	3	12	
	0.8	***2.7***	***1.0***	
Trisomy 18	8	7	22	
	0.9	***6.3***	***1.8***	
Trisomy 21 (Down syndrome)	84	61	156	
	7.8	***43.3***	***12.8***	
Total live births	**107,467**	**14,101**	**121,568**	

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

General comments
*Data for totals include unknown and/or other.

New York

Birth Defects Counts and Prevalence 2012 - 2016 (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	7	15	4	0	57	
	0.4	***0.4***	***0.5***	***0.3***	***0.0***	***0.5***	
Anophthalmia/microphthalmia	54	26	50	11	0	142	
	0.9	***1.4***	***1.8***	***0.8***	***0.0***	***1.2***	
Anotia/microtia	69	24	75	33	1	204	
	1.2	***1.3***	***2.7***	***2.5***	***5.1***	***1.7***	
Aortic valve stenosis	84	19	28	10	1	145	
	1.4	***1.1***	***1.0***	***0.8***	***5.1***	***1.2***	
Atrial septal defect	3,464	2,122	2,557	927	7	9,233	
	59.0	***118.3***	***91.9***	***69.6***	***35.4***	***76.5***	
Atrioventricular septal defect (Endocardial cushion defect)	200	131	141	41	4	527	
	3.4	***7.3***	***5.1***	***3.1***	***20.2***	***4.4***	
Biliary atresia	69	44	61	26	0	206	
	1.2	***2.5***	***2.2***	***2.0***	***0.0***	***1.7***	
Bladder exstrophy	18	4	6	0	0	28	
	0.3	***0.2***	***0.2***	***0.0***	***0.0***	***0.2***	
Choanal atresia	123	26	55	12	0	226	
	2.1	***1.4***	***2.0***	***0.9***	***0.0***	***1.9***	
Cleft lip alone	203	27	58	36	2	330	
	3.5	***1.5***	***2.1***	***2.7***	***10.1***	***2.7***	
Cleft lip with cleft palate	276	47	140	57	3	532	
	4.7	***2.6***	***5.0***	***4.3***	***15.2***	***4.4***	
Cleft palate alone	392	65	154	94	0	722	
	6.7	***3.6***	***5.5***	***7.1***	***0.0***	***6.0***	
Cloacal exstrophy	4	3	1	0	0	8	
	0.1	***0.2***	***0.0***	***0.0***	***0.0***	***0.1***	
Clubfoot	1,028	292	479	175	2	2,013	
	17.5	***16.3***	***17.2***	***13.1***	***10.1***	***16.7***	
Coarctation of the aorta	350	104	200	51	2	721	
	6.0	***5.8***	***7.2***	***3.8***	***10.1***	***6.0***	
Common truncus (truncus arteriosus)	33	14	11	6	0	65	
	0.6	***0.8***	***0.4***	***0.5***	***0.0***	***0.5***	
Congenital cataract	111	51	78	15	0	262	
	1.9	***2.8***	***2.8***	***1.1***	***0.0***	***2.2***	
Congenital posterior urethral valves	58	32	26	19	0	136	1
	1.9	***3.5***	***1.8***	***2.8***	***0.0***	***2.2***	
Craniosynostosis	504	98	310	73	2	999	
	8.6	***5.5***	***11.1***	***5.5***	***10.1***	***8.3***	
Deletion 22q11.2	86	40	48	10	0	190	
	1.5	***2.2***	***1.7***	***0.8***	***0.0***	***1.6***	
Diaphragmatic hernia	152	46	63	35	0	305	
	2.6	***2.6***	***2.3***	***2.6***	***0.0***	***2.5***	
Double outlet right ventricle	124	46	79	36	1	294	
	2.1	***2.6***	***2.8***	***2.7***	***5.1***	***2.4***	
Ebstein anomaly	41	10	30	7	0	90	
	0.7	***0.6***	***1.1***	***0.5***	***0.0***	***0.7***	
Encephalocele	35	31	25	14	1	109	
	0.6	***1.7***	***0.9***	***1.1***	***5.1***	***0.9***	
Esophageal atresia/tracheoesophageal fistula	154	44	72	23	0	297	
	2.6	***2.5***	***2.6***	***1.7***	***0.0***	***2.5***	
Gastroschisis	152	44	96	7	0	311	
	2.6	***2.5***	***3.5***	***0.5***	***0.0***	***2.6***	
Holoprosencephaly	31	15	15	1	2	66	
	0.5	***0.8***	***0.5***	***0.1***	***10.1***	***0.5***	
Hypoplastic left heart syndrome	151	55	65	13	1	292	
	2.6	***3.1***	***2.3***	***1.0***	***5.1***	***2.4***	
Hypospadias	3,337	818	912	452	7	5,653	1
	110.7	***90.3***	***64.5***	***65.6***	***70.7***	***91.5***	
Interrupted aortic arch	46	11	29	5	0	91	
	0.8	***0.6***	***1.0***	***0.4***	***0.0***	***0.8***	

New York

Birth Defects Counts and Prevalence 2012 - 2016 (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)	154	65	92	17	0	340	
	2.6	***3.6***	***3.3***	***1.3***	***0.0***	***2.8***	
Omphalocele	92	39	29	9	0	173	
	1.6	***2.2***	***1.0***	***0.7***	***0.0***	***1.4***	
Pulmonary valve atresia and stenosis	427	203	269	95	1	1,021	
	7.3	***11.3***	***9.7***	***7.1***	***5.1***	***8.5***	
Pulmonary valve atresia	44	16	35	16	0	116	
	0.7	***0.9***	***1.3***	***1.2***	***0.0***	***1.0***	
Rectal and large intestinal atresia/stenosis	237	67	118	59	2	490	
	4.0	***3.7***	***4.2***	***4.4***	***10.1***	***4.1***	
Renal agenesis/hypoplasia	344	105	162	52	0	677	
	5.9	***5.9***	***5.8***	***3.9***	***0.0***	***5.6***	
Single ventricle	40	21	21	11	1	97	
	0.7	***1.2***	***0.8***	***0.8***	***5.1***	***0.8***	
Small intestinal atresia/stenosis	211	116	115	50	1	502	
	3.6	***6.5***	***4.1***	***3.8***	***5.1***	***4.2***	
Spina bifida without anencephalus	133	40	74	24	1	276	
	2.3	***2.2***	***2.7***	***1.8***	***5.1***	***2.3***	
Tetralogy of Fallot	298	109	148	93	1	656	
	5.1	***6.1***	***5.3***	***7.0***	***5.1***	***5.4***	
Total anomalous pulmonary venous connection	61	23	53	23	0	163	
	1.0	***1.3***	***1.9***	***1.7***	***0.0***	***1.4***	
Transposition of the great arteries (TGA)	156	20	51	18	0	249	
	2.7	***1.1***	***1.8***	***1.4***	***0.0***	***2.1***	
Dextro-transposition of great arteries (d-TGA)	152	20	46	16	0	238	
	2.6	***1.1***	***1.7***	***1.2***	***0.0***	***2.0***	
Tricuspid valve atresia and stenosis	84	39	51	21	2	202	
	1.4	***2.2***	***1.8***	***1.6***	***10.1***	***1.7***	
Tricuspid valve atresia	63	33	39	17	2	159	
	1.1	***1.8***	***1.4***	***1.3***	***10.1***	***1.3***	
Trisomy 13	23	18	20	5	0	67	
	0.4	***1.0***	***0.7***	***0.4***	***0.0***	***0.6***	
Trisomy 18	58	40	47	9	0	157	
	1.0	***2.2***	***1.7***	***0.7***	***0.0***	***1.3***	
Trisomy 21 (Down syndrome)	701	272	457	109	3	1,573	
	11.9	***15.2***	***16.4***	***8.2***	***15.2***	***13.0***	
Turner syndrome	49	26	23	10	0	110	2
	1.7	***2.9***	***1.7***	***1.6***	***0.0***	***1.9***	
Ventricular septal defect	2,932	917	1,597	570	8	6,125	
	50.0	***51.1***	***57.4***	***42.8***	***40.5***	***50.7***	
Total live births	**586,741**	**179,361**	**278,144**	**133,125**	**1,976**	**1,207,190**	**3**
Male live births	**301,389**	**90,613**	**141,432**	**68,911**	**990**	**617,761**	
Female live births	**285,348**	**88,746**	**136,710**	**64,212**	**986**	**589,419**	

New York

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	291	12	311	
	3.1	***0.5***	***2.6***	
Trisomy 13	33	32	67	
	0.3	***1.2***	***0.6***	
Trisomy 18	72	78	157	
	0.8	***3.0***	***1.3***	
Trisomy 21 (Down syndrome)	660	793	1,573	
	7.0	***30.1***	***13.0***	
Total live births	**943,871**	**263,248**	**1,207,190**	**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. Data for total live births include unknown gender.

General comments
*Data for totals include unknown and/or other.

North Carolina

Birth Defects Counts and Prevalence 2012 - 2016 (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	73	30	25	4	1	155	
	2.2	***2.1***	***2.8***	***1.6***	***1.2***	***2.6***	
Anophthalmia/microphthalmia	59	14	18	4	1	98	
	1.8	***1.0***	***2.0***	***1.6***	***1.2***	***1.6***	
Anotia/microtia	42	11	36	5	2	96	
	1.3	***0.8***	***4.0***	***2.1***	***2.5***	***1.6***	
Aortic valve stenosis	96	26	17	2	3	145	
	2.9	***1.8***	***1.9***	***0.8***	***3.7***	***2.4***	
Atrial septal defect	1,673	833	414	94	51	3,071	
	50.0	***58.1***	***46.2***	***38.7***	***63.2***	***51.1***	
Atrioventricular septal defect (Endocardial cushion defect)	187	93	42	9	4	340	
	5.6	***6.5***	***4.7***	***3.7***	***5.0***	***5.7***	
Biliary atresia	14	17	5	1	0	37	
	0.4	***1.2***	***0.6***	***0.4***	***0.0***	***0.6***	
Bladder exstrophy	9	3	1	0	0	14	
	0.3	***0.2***	***0.1***	***0.0***	***0.0***	***0.2***	
Choanal atresia	44	14	7	1	0	66	
	1.3	***1.0***	***0.8***	***0.4***	***0.0***	***1.1***	
Cleft lip alone	129	48	27	5	3	218	
	3.9	***3.3***	***3.0***	***2.1***	***3.7***	***3.6***	
Cleft lip with cleft palate	178	42	64	11	6	307	
	5.3	***2.9***	***7.1***	***4.5***	***7.4***	***5.1***	
Cleft palate alone	230	50	32	10	5	327	
	6.9	***3.5***	***3.6***	***4.1***	***6.2***	***5.4***	
Cloacal exstrophy	12	8	1	0	0	21	
	0.4	***0.6***	***0.1***	***0.0***	***0.0***	***0.3***	
Clubfoot	648	273	147	21	20	1,124	
	19.4	***19.0***	***16.4***	***8.6***	***24.8***	***18.7***	
Coarctation of the aorta	173	55	30	9	3	271	
	5.2	***3.8***	***3.3***	***3.7***	***3.7***	***4.5***	
Common truncus (truncus arteriosus)	20	6	5	3	1	35	
	0.6	***0.4***	***0.6***	***1.2***	***1.2***	***0.6***	
Congenital cataract	33	18	9	4	0	64	
	1.0	***1.3***	***1.0***	***1.6***	***0.0***	***1.1***	
Congenital posterior urethral valves	71	25	13	2	3	117	1
	4.1	***3.4***	***2.9***	***1.6***	***7.3***	***3.8***	
Craniosynostosis	227	44	47	8	6	333	
	6.8	***3.1***	***5.2***	***3.3***	***7.4***	***5.5***	
Diaphragmatic hernia	89	48	28	6	3	177	
	2.7	***3.3***	***3.1***	***2.5***	***3.7***	***2.9***	
Double outlet right ventricle	48	24	12	3	1	89	
	1.4	***1.7***	***1.3***	***1.2***	***1.2***	***1.5***	
Ebstein anomaly	19	7	2	0	2	30	
	0.6	***0.5***	***0.2***	***0.0***	***2.5***	***0.5***	
Encephalocele	22	16	10	0	1	59	
	0.7	***1.1***	***1.1***	***0.0***	***1.2***	***1.0***	
Esophageal atresia/tracheoesophageal fistula	104	28	13	5	0	151	
	3.1	***2.0***	***1.4***	***2.1***	***0.0***	***2.5***	
Gastroschisis	158	47	39	5	5	258	
	4.7	***3.3***	***4.3***	***2.1***	***6.2***	***4.3***	
Holoprosencephaly	38	26	22	1	0	89	
	1.1	***1.8***	***2.5***	***0.4***	***0.0***	***1.5***	
Hypoplastic left heart syndrome	84	38	18	5	1	146	
	2.5	***2.7***	***2.0***	***2.1***	***1.2***	***2.4***	
Hypospadias	1,242	431	112	48	35	1,868	1
	72.2	***59.4***	***24.7***	***38.5***	***84.8***	***60.8***	
Interrupted aortic arch	27	13	4	4	1	51	
	0.8	***0.9***	***0.4***	***1.6***	***1.2***	***0.8***	
Limb deficiencies (reduction defects)	132	72	40	3	2	256	
	3.9	***5.0***	***4.5***	***1.2***	***2.5***	***4.3***	

North Carolina

Birth Defects Counts and Prevalence 2012 - 2016 (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	76	57	16	3	1	166	
	2.3	***4.0***	***1.8***	***1.2***	***1.2***	***2.8***	
Pulmonary valve atresia and stenosis	300	153	70	16	12	554	
	9.0	***10.7***	***7.8***	***6.6***	***14.9***	***9.2***	
Pulmonary valve atresia	55	34	13	3	1	107	
	1.6	***2.4***	***1.4***	***1.2***	***1.2***	***1.8***	
Rectal and large intestinal atresia/stenosis	144	58	35	12	5	254	
	4.3	***4.0***	***3.9***	***4.9***	***6.2***	***4.2***	
Renal agenesis/hypoplasia	186	81	43	7	5	329	
	5.6	***5.7***	***4.8***	***2.9***	***6.2***	***5.5***	
Single ventricle	18	11	7	2	0	39	
	0.5	***0.8***	***0.8***	***0.8***	***0.0***	***0.6***	
Small intestinal atresia/stenosis	83	34	36	7	6	166	
	2.5	***2.4***	***4.0***	***2.9***	***7.4***	***2.8***	
Spina bifida without anencephalus	133	44	34	5	1	224	
	4.0	***3.1***	***3.8***	***2.1***	***1.2***	***3.7***	
Tetralogy of Fallot	155	81	37	9	2	286	
	4.6	***5.7***	***4.1***	***3.7***	***2.5***	***4.8***	
Total anomalous pulmonary venous connection	26	13	19	5	1	65	
	0.8	***0.9***	***2.1***	***2.1***	***1.2***	***1.1***	
Transposition of the great arteries (TGA)	100	42	15	2	2	164	
	3.0	***2.9***	***1.7***	***0.8***	***2.5***	***2.7***	
Dextro-transposition of great arteries (d-TGA)	70	27	8	2	2	112	
	2.1	***1.9***	***0.9***	***0.8***	***2.5***	***1.9***	
Tricuspid valve atresia and stenosis	76	48	19	5	5	155	
	2.3	***3.3***	***2.1***	***2.1***	***6.2***	***2.6***	
Tricuspid valve atresia	66	42	18	5	5	138	
	2.0	***2.9***	***2.0***	***2.1***	***6.2***	***2.3***	
Trisomy 13	27	31	25	4	1	96	
	0.8	***2.2***	***2.8***	***1.6***	***1.2***	***1.6***	
Trisomy 18	99	41	36	8	3	205	
	3.0	***2.9***	***4.0***	***3.3***	***3.7***	***3.4***	
Trisomy 21 (Down syndrome)	407	142	164	29	9	784	
	12.2	***9.9***	***18.3***	***11.9***	***11.2***	***13.0***	
Turner syndrome	38	8	8	1	2	69	2
	2.3	***1.1***	***1.8***	***0.8***	***5.1***	***2.3***	
Ventricular septal defect	1,587	587	496	109	25	2,814	
	47.5	***40.9***	***55.3***	***44.8***	***31.0***	***46.8***	
Total live births	**334,410**	**143,352**	**89,674**	**24,311**	**8,068**	**601,289**	**3**
Male live births	**172,028**	**72,575**	**45,377**	**12,470**	**4,129**	**307,341**	
Female live births	**162,381**	**70,769**	**44,294**	**11,841**	**3,939**	**293,936**	

North Carolina

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	251	7	258	
	4.9	***0.8***	***4.3***	
Trisomy 13	60	35	96	
	1.2	***4.1***	***1.6***	
Trisomy 18	114	89	205	
	2.2	***10.3***	***3.4***	
Trisomy 21 (Down syndrome)	376	402	784	
	7.3	***46.6***	***13.0***	
Total live births	**515,087**	**86,185**	**601,289**	**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. Data for total live births include unknown gender.

General comments

*Data for totals include unknown and/or other.

Ohio

Birth Defects Counts and Prevalence 2012 - 2016 (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	58	6	8	0	0	74	
	1.1	***0.5***	***2.3***	***0.0***	***0.0***	***1.1***	
Anophthalmia/microphthalmia	180	46	9	6	1	245	
	3.5	***3.9***	***2.6***	***2.9***	***8.6***	***3.5***	
Anotia/microtia	70	10	11	6	0	98	
	1.3	***0.8***	***3.2***	***2.9***	***0.0***	***1.4***	
Aortic valve stenosis	156	21	11	1	3	193	
	3.0	***1.8***	***3.2***	***0.5***	***25.8***	***2.8***	
Atrial septal defect	6,714	2,076	439	196	25	9,536	1
	161.0	***220.6***	***162.0***	***123.6***	***266.8***	***170.5***	
Atrioventricular septal defect (Endocardial cushion defect)	239	50	16	2	0	309	1
	5.7	***5.3***	***5.9***	***1.3***	***0.0***	***5.5***	
Biliary atresia	77	39	7	3	0	126	
	1.5	***3.3***	***2.0***	***1.5***	***0.0***	***1.8***	
Choanal atresia	143	33	4	4	0	185	
	2.8	***2.8***	***1.2***	***2.0***	***0.0***	***2.7***	
Cleft lip alone	185	16	6	5	2	216	
	3.6	***1.4***	***1.7***	***2.4***	***17.2***	***3.1***	
Cleft lip with cleft palate	376	56	27	10	1	471	
	7.2	***4.8***	***7.8***	***4.9***	***8.6***	***6.7***	
Cleft palate alone	597	74	31	21	2	731	
	11.5	***6.3***	***9.0***	***10.3***	***17.2***	***10.5***	
Clubfoot	170	44	10	7	0	232	2
	16.7	***18.5***	***13.4***	***15.1***	***0.0***	***16.7***	
Coarctation of the aorta	512	101	27	10	2	656	
	9.9	***8.6***	***7.8***	***4.9***	***17.2***	***9.4***	
Common truncus (truncus arteriosus)	48	18	2	5	0	74	
	0.9	***1.5***	***0.6***	***2.4***	***0.0***	***1.1***	
Congenital cataract	150	45	16	5	0	216	
	2.9	***3.8***	***4.6***	***2.4***	***0.0***	***3.1***	
Deletion 22q11.2	77	12	6	4	0	99	
	1.5	***1.0***	***1.7***	***2.0***	***0.0***	***1.4***	
Diaphragmatic hernia	289	76	19	9	2	397	
	5.6	***6.4***	***5.5***	***4.4***	***17.2***	***5.7***	
Double outlet right ventricle	120	39	9	5	0	175	1
	2.9	***4.1***	***3.3***	***3.2***	***0.0***	***3.1***	
Encephalocele	77	23	5	0	0	105	
	1.5	***2.0***	***1.4***	***0.0***	***0.0***	***1.5***	
Esophageal atresia/tracheoesophageal fistula	188	32	6	7	0	235	
	3.6	***2.7***	***1.7***	***3.4***	***0.0***	***3.4***	
Gastroschisis	284	55	18	1	1	366	
	5.5	***4.7***	***5.2***	***0.5***	***8.6***	***5.2***	
Holoprosencephaly	13	2	1	0	0	16	2
	1.3	***0.8***	***1.3***	***0.0***	***0.0***	***1.2***	
Hypoplastic left heart syndrome	225	51	19	6	3	307	
	4.3	***4.3***	***5.5***	***2.9***	***25.8***	***4.4***	
Omphalocele	119	113	6	1	1	242	
	2.3	***9.6***	***1.7***	***0.5***	***8.6***	***3.5***	
Pulmonary valve atresia and stenosis	573	179	40	17	3	822	1
	13.7	***19.0***	***14.8***	***10.7***	***32.0***	***14.7***	
Pulmonary valve atresia	138	31	9	3	1	187	
	2.7	***2.6***	***2.6***	***1.5***	***8.6***	***2.7***	
Rectal and large intestinal atresia/stenosis	301	52	25	17	1	399	
	5.8	***4.4***	***7.2***	***8.3***	***8.6***	***5.7***	
Renal agenesis/hypoplasia	488	95	21	14	0	625	
	9.4	***8.1***	***6.1***	***6.8***	***0.0***	***9.0***	
Spina bifida without anencephalus	299	46	17	4	1	367	
	5.8	***3.9***	***4.9***	***2.0***	***8.6***	***5.3***	
Tetralogy of Fallot	264	71	17	7	0	363	
	5.1	***6.0***	***4.9***	***3.4***	***0.0***	***5.2***	

Ohio

Birth Defects Counts and Prevalence 2012 - 2016 (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	51 ***1.0***	6 ***0.5***	6 ***1.7***	1 ***0.5***	0 ***0.0***	65 ***0.9***	
Transposition of the great arteries (TGA)	237 ***4.6***	48 ***4.1***	16 ***4.6***	6 ***2.9***	1 ***8.6***	312 ***4.5***	
Dextro-transposition of great arteries (d-TGA)	211 ***4.1***	44 ***3.7***	15 ***4.3***	5 ***2.4***	1 ***8.6***	280 ***4.0***	
Tricuspid valve atresia and stenosis	88 ***1.7***	23 ***2.0***	4 ***1.2***	1 ***0.5***	1 ***8.6***	118 ***1.7***	
Trisomy 13	35 ***0.7***	11 ***0.9***	5 ***1.4***	2 ***1.0***	0 ***0.0***	55 ***0.8***	
Trisomy 18	85 ***1.6***	19 ***1.6***	5 ***1.4***	4 ***2.0***	2 ***17.2***	116 ***1.7***	
Trisomy 21 (Down syndrome)	767 ***14.8***	158 ***13.4***	49 ***14.2***	24 ***11.7***	2 ***17.2***	1,009 ***14.5***	
Turner syndrome	65 ***2.6***	8 ***1.4***	7 ***4.1***	2 ***2.0***	0 ***0.0***	82 ***2.4***	3
Ventricular septal defect	2,631 ***63.1***	600 ***63.8***	197 ***72.7***	100 ***63.1***	6 ***64.0***	3,562 ***63.7***	1
Total live births	**518,624**	**117,859**	**34,567**	**20,475**	**1,163**	**698,050**	**4**
Female live births	**252,778**	**57,990**	**17,079**	**10,131**	**556**	**341,136**	

Ohio

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	358	8	366	
	5.9	***0.9***	***5.2***	
Trisomy 13	41	14	55	
	0.7	***1.6***	***0.8***	
Trisomy 18	74	42	116	
	1.2	***4.7***	***1.7***	
Trisomy 21 (Down syndrome)	600	409	1,009	
	9.9	***45.9***	***14.5***	
Total live births	**608,791**	**89,177**	**698,050**	**4**

Notes
1. Data for this condition end in 2015.
2. Data for this condition begin in 2016.
3. Data for this condition include female and unknown gender cases only. Prevalance is calculated per 10,000 female live births.
4. Data for total live births include unknown gender.

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

Oklahoma

Birth Defects Counts and Prevalence 2012 - 2016 (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	27	3	11	4	1	47	
	1.6	***1.2***	***2.9***	***4.9***	***0.4***	***1.8***	
Anophthalmia/microphthalmia	28	1	3	2	3	40	
	1.7	***0.4***	***0.8***	***2.5***	***1.1***	***1.5***	
Anotia/microtia	20	2	12	0	4	40	
	1.2	***0.8***	***3.1***	***0.0***	***1.4***	***1.5***	
Aortic valve stenosis	46	0	5	2	5	62	
	2.8	***0.0***	***1.3***	***2.5***	***1.8***	***2.3***	
Atrial septal defect	761	104	153	32	114	1,216	
	46.0	***41.8***	***40.0***	***39.5***	***40.3***	***45.9***	
Atrioventricular septal defect (Endocardial cushion defect)	81	13	23	3	8	133	
	4.9	***5.2***	***6.0***	***3.7***	***2.8***	***5.0***	
Biliary atresia	8	7	4	0	3	22	
	0.5	***2.8***	***1.0***	***0.0***	***1.1***	***0.8***	
Bladder exstrophy	3	0	1	0	1	5	
	0.2	***0.0***	***0.3***	***0.0***	***0.4***	***0.2***	
Choanal atresia	33	6	4	0	5	49	
	2.0	***2.4***	***1.0***	***0.0***	***1.8***	***1.8***	
Cleft lip alone	77	6	12	1	19	122	
	4.7	***2.4***	***3.1***	***1.2***	***6.7***	***4.6***	
Cleft lip with cleft palate	122	10	35	6	20	198	
	7.4	***4.0***	***9.2***	***7.4***	***7.1***	***7.5***	
Cleft palate alone	122	4	26	8	18	192	
	7.4	***1.6***	***6.8***	***9.9***	***6.4***	***7.2***	
Clubfoot	284	26	71	14	41	456	
	17.2	***10.5***	***18.6***	***17.3***	***14.5***	***17.2***	
Coarctation of the aorta	93	8	13	2	21	145	
	5.6	***3.2***	***3.4***	***2.5***	***7.4***	***5.5***	
Common truncus (truncus arteriosus)	7	3	2	0	1	14	
	0.4	***1.2***	***0.5***	***0.0***	***0.4***	***0.5***	
Congenital cataract	24	2	1	2	1	35	
	1.4	***0.8***	***0.3***	***2.5***	***0.4***	***1.3***	
Congenital posterior urethral valves	15	4	0	0	2	26	1
	1.8	***3.2***	***0.0***	***0.0***	***1.4***	***1.9***	
Craniosynostosis	63	7	13	2	12	133	
	3.8	***2.8***	***3.4***	***2.5***	***4.2***	***5.0***	
Deletion 22q11.2	8	2	3	0	1	14	
	0.5	***0.8***	***0.8***	***0.0***	***0.4***	***0.5***	
Diaphragmatic hernia	48	4	17	2	9	81	
	2.9	***1.6***	***4.4***	***2.5***	***3.2***	***3.1***	
Double outlet right ventricle	31	5	7	2	8	58	
	1.9	***2.0***	***1.8***	***2.5***	***2.8***	***2.2***	
Ebstein anomaly	12	0	4	0	1	19	
	0.7	***0.0***	***1.0***	***0.0***	***0.4***	***0.7***	
Encephalocele	13	4	6	0	5	28	
	0.8	***1.6***	***1.6***	***0.0***	***1.8***	***1.1***	
Esophageal atresia/tracheoesophageal fistula	45	2	7	2	4	62	
	2.7	***0.8***	***1.8***	***2.5***	***1.4***	***2.3***	
Gastroschisis	76	10	13	0	9	112	
	4.6	***4.0***	***3.4***	***0.0***	***3.2***	***4.2***	
Holoprosencephaly	17	5	6	1	4	34	
	1.0	***2.0***	***1.6***	***1.2***	***1.4***	***1.3***	
Hypoplastic left heart syndrome	50	3	10	2	4	74	
	3.0	***1.2***	***2.6***	***2.5***	***1.4***	***2.8***	
Hypospadias	295	38	19	7	46	428	1
	34.7	***30.0***	***9.7***	***17.2***	***31.9***	***31.5***	
Interrupted aortic arch	24	4	3	1	2	34	
	1.4	***1.6***	***0.8***	***1.2***	***0.7***	***1.3***	
Limb deficiencies (reduction defects)	75	10	21	2	11	124	
	4.5	***4.0***	***5.5***	***2.5***	***3.9***	***4.7***	

Oklahoma

Birth Defects Counts and Prevalence 2012 - 2016 (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	35	8	6	1	6	61	
	2.1	***3.2***	***1.6***	***1.2***	***2.1***	***2.3***	
Pulmonary valve atresia and stenosis	124	12	25	6	13	189	
	7.5	***4.8***	***6.5***	***7.4***	***4.6***	***7.1***	
Pulmonary valve atresia	19	3	8	1	4	37	
	1.1	***1.2***	***2.1***	***1.2***	***1.4***	***1.4***	
Rectal and large intestinal atresia/stenosis	82	9	22	7	12	138	
	5.0	***3.6***	***5.8***	***8.6***	***4.2***	***5.2***	
Renal agenesis/hypoplasia	100	15	20	2	14	164	
	6.0	***6.0***	***5.2***	***2.5***	***4.9***	***6.2***	
Single ventricle	11	1	3	0	0	17	
	0.7	***0.4***	***0.8***	***0.0***	***0.0***	***0.6***	
Small intestinal atresia/stenosis	59	3	9	1	5	84	
	3.6	***1.2***	***2.4***	***1.2***	***1.8***	***3.2***	
Spina bifida without anencephalus	65	2	16	2	9	99	
	3.9	***0.8***	***4.2***	***2.5***	***3.2***	***3.7***	
Tetralogy of Fallot	72	5	11	6	10	109	
	4.3	***2.0***	***2.9***	***7.4***	***3.5***	***4.1***	
Total anomalous pulmonary venous connection	17	6	7	0	4	34	
	1.0	***2.4***	***1.8***	***0.0***	***1.4***	***1.3***	
Transposition of the great arteries (TGA)	59	8	10	2	11	93	
	3.6	***3.2***	***2.6***	***2.5***	***3.9***	***3.5***	
Dextro-transposition of great arteries (d-TGA)	53	8	9	2	8	82	
	3.2	***3.2***	***2.4***	***2.5***	***2.8***	***3.1***	
Tricuspid valve atresia and stenosis	29	5	6	3	4	51	
	1.8	***2.0***	***1.6***	***3.7***	***1.4***	***1.9***	
Tricuspid valve atresia	19	3	5	1	4	36	
	1.1	***1.2***	***1.3***	***1.2***	***1.4***	***1.4***	
Trisomy 13	10	2	2	1	1	17	
	0.6	***0.8***	***0.5***	***1.2***	***0.4***	***0.6***	
Trisomy 18	41	10	10	2	3	69	
	2.5	***4.0***	***2.6***	***2.5***	***1.1***	***2.6***	
Trisomy 21 (Down syndrome)	165	21	60	8	26	295	
	10.0	***8.4***	***15.7***	***9.9***	***9.2***	***11.1***	
Turner syndrome	17	3	4	0	5	32	2
	2.1	***2.5***	***2.1***	***0.0***	***3.6***	***2.5***	
Ventricular septal defect	974	101	218	41	117	1,528	
	58.8	***40.6***	***57.0***	***50.6***	***41.3***	***57.6***	
Total live births	**165,541**	**24,866**	**38,229**	**8,108**	**28,311**	**265,116**	
Male live births	**85,118**	**12,650**	**19,602**	**4,061**	**14,439**	**135,902**	
Female live births	**80,419**	**12,215**	**18,626**	**4,046**	**13,872**	**129,207**	

Oklahoma

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	108	4	112	
	4.5	***1.6***	***4.2***	
Trisomy 13	13	4	17	
	0.5	***1.6***	***0.6***	
Trisomy 18	45	24	69	
	1.9	***9.4***	***2.6***	
Trisomy 21 (Down syndrome)	179	113	295	
	7.5	***44.4***	***11.1***	
Total live births	**239,516**	**25,474**	**265,116**	

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
*Data for totals include unknown and/or other.

Oregon

Birth Defects Counts and Prevalence 2012 - 2016 (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	1	6	0	0	14	
	0.5	***2.1***	***1.4***	***0.0***	***0.0***	***0.6***	
Anophthalmia/microphthalmia	19	1	10	0	0	31	
	1.2	***2.1***	***2.4***	***0.0***	***0.0***	***1.4***	
Anotia/microtia	45	0	39	7	3	97	1
	2.9	***0.0***	***9.3***	***5.5***	***12.6***	***4.3***	
Aortic valve stenosis	84	3	25	4	1	121	
	5.5	***6.3***	***6.0***	***3.2***	***4.2***	***5.4***	
Atrial septal defect	2,586	134	964	170	75	4,118	
	168.1	***282.9***	***230.4***	***133.9***	***315.9***	***183.7***	
Atrioventricular septal defect (Endocardial cushion defect)	153	4	53	13	4	239	
	9.9	***8.4***	***12.7***	***10.2***	***16.8***	***10.7***	
Biliary atresia	15	1	4	3	1	26	
	1.0	***2.1***	***1.0***	***2.4***	***4.2***	***1.2***	
Bladder exstrophy	3	0	4	1	0	8	
	0.2	***0.0***	***1.0***	***0.8***	***0.0***	***0.4***	
Choanal atresia	41	1	12	2	1	58	
	2.7	***2.1***	***2.9***	***1.6***	***4.2***	***2.6***	
Cleft lip alone	46	1	14	6	1	73	
	3.0	***2.1***	***3.3***	***4.7***	***4.2***	***3.3***	
Cleft lip with cleft palate	127	1	44	12	2	194	
	8.3	***2.1***	***10.5***	***9.5***	***8.4***	***8.7***	
Cleft palate alone	173	4	47	10	5	249	
	11.2	***8.4***	***11.2***	***7.9***	***21.1***	***11.1***	
Cloacal exstrophy	99	2	34	4	1	145	
	6.4	***4.2***	***8.1***	***3.2***	***4.2***	***6.5***	
Clubfoot	413	14	100	25	4	579	
	26.8	***29.6***	***23.9***	***19.7***	***16.8***	***25.8***	
Coarctation of the aorta	73	1	31	4	1	117	
	4.7	***2.1***	***7.4***	***3.2***	***4.2***	***5.2***	
Congenital cataract	83	4	14	4	1	112	
	5.4	***8.4***	***3.3***	***3.2***	***4.2***	***5.0***	
Congenital posterior urethral valves	39	3	8	1	0	56	2
	4.9	***12.4***	***3.7***	***1.5***	***0.0***	***4.9***	
Deletion 22q11.2	18	0	5	0	2	27	
	1.2	***0.0***	***1.2***	***0.0***	***8.4***	***1.2***	
Diaphragmatic hernia	77	5	29	6	1	123	
	5.0	***10.6***	***6.9***	***4.7***	***4.2***	***5.5***	
Double outlet right ventricle	42	1	16	4	2	69	
	2.7	***2.1***	***3.8***	***3.2***	***8.4***	***3.1***	
Ebstein anomaly	12	1	4	3	0	20	
	0.8	***2.1***	***1.0***	***2.4***	***0.0***	***0.9***	
Encephalocele	16	1	6	1	1	27	
	1.0	***2.1***	***1.4***	***0.8***	***4.2***	***1.2***	
Esophageal atresia/tracheoesophageal fistula	51	0	16	4	1	74	
	3.3	***0.0***	***3.8***	***3.2***	***4.2***	***3.3***	
Gastroschisis	77	2	21	3	2	115	
	5.0	***4.2***	***5.0***	***2.4***	***8.4***	***5.1***	
Holoprosencephaly	90	6	34	9	1	149	
	5.9	***12.7***	***8.1***	***7.1***	***4.2***	***6.6***	
Hypoplastic left heart syndrome	72	1	24	3	1	109	
	4.7	***2.1***	***5.7***	***2.4***	***4.2***	***4.9***	
Hypospadias	724	40	104	48	11	970	2
	91.9	***165.3***	***48.6***	***74.3***	***87.8***	***84.5***	
Interrupted aortic arch	89	2	25	2	2	125	
	5.8	***4.2***	***6.0***	***1.6***	***8.4***	***5.6***	
Limb deficiencies (reduction defects)	118	2	31	3	3	165	
	7.7	***4.2***	***7.4***	***2.4***	***12.6***	***7.4***	
Omphalocele	50	7	16	7	1	86	
	3.3	***14.8***	***3.8***	***5.5***	***4.2***	***3.8***	

Oregon

Birth Defects Counts and Prevalence 2012 - 2016 (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	266	14	102	15	8	421	
	17.3	***29.6***	***24.4***	***11.8***	***33.7***	***18.8***	
Pulmonary valve atresia	37	0	10	2	2	52	
	2.4	***0.0***	***2.4***	***1.6***	***8.4***	***2.3***	
Rectal and large intestinal atresia/stenosis	99	2	37	5	4	155	
	6.4	***4.2***	***8.8***	***3.9***	***16.8***	***6.9***	
Renal agenesis/hypoplasia	164	5	64	8	6	260	
	10.7	***10.6***	***15.3***	***6.3***	***25.3***	***11.6***	
Single ventricle	43	1	10	4	2	63	
	2.8	***2.1***	***2.4***	***3.2***	***8.4***	***2.8***	
Small intestinal atresia/stenosis	76	3	33	4	2	124	
	4.9	***6.3***	***7.9***	***3.2***	***8.4***	***5.5***	
Spina bifida without anencephalus	112	1	30	3	6	160	
	7.3	***2.1***	***7.2***	***2.4***	***25.3***	***7.1***	
Tetralogy of Fallot	100	4	52	3	4	174	
	6.5	***8.4***	***12.4***	***2.4***	***16.8***	***7.8***	
Total anomalous pulmonary venous connection	18	0	10	1	0	33	
	1.2	***0.0***	***2.4***	***0.8***	***0.0***	***1.5***	
Transposition of the great arteries (TGA)	79	1	21	6	2	117	
	5.1	***2.1***	***5.0***	***4.7***	***8.4***	***5.2***	
Dextro-transposition of great arteries (d-TGA)	71	1	19	5	0	103	
	4.6	***2.1***	***4.5***	***3.9***	***0.0***	***4.6***	
Tricuspid valve atresia and stenosis	25	0	9	1	2	39	
	1.6	***0.0***	***2.2***	***0.8***	***8.4***	***1.7***	
Trisomy 13	14	1	5	0	0	20	
	0.9	***2.1***	***1.2***	***0.0***	***0.0***	***0.9***	
Trisomy 18	15	0	13	2	0	30	
	1.0	***0.0***	***3.1***	***1.6***	***0.0***	***1.3***	
Trisomy 21 (Down syndrome)	254	8	114	15	4	409	
	16.5	***16.9***	***27.2***	***11.8***	***16.8***	***18.2***	
Turner syndrome	17	2	4	1	1	26	3
	2.3	***8.6***	***2.0***	***1.6***	***8.9***	***2.4***	
Ventricular septal defect	1,036	35	439	66	27	1,671	4
	67.3	***73.9***	***104.9***	***52.0***	***113.7***	***74.5***	
Total live births	**153,841**	**4,736**	**41,837**	**12,698**	**2,374**	**224,189**	**5**
Male live births	**78,809**	**2,420**	**21,391**	**6,459**	**1,253**	**114,853**	
Female live births	**75,030**	**2,316**	**20,446**	**6,239**	**1,121**	**109,334**	

Oregon

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	110	5	115	
	5.9	***1.3***	***5.1***	
Trisomy 13	13	7	20	
	0.7	***1.8***	***0.9***	
Trisomy 18	17	13	30	
	0.9	***3.4***	***1.3***	
Trisomy 21 (Down syndrome)	234	175	409	
	12.6	***45.3***	***18.2***	
Total live births	**185,570**	**38,608**	**224,189**	**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. Data for total live births include unknown gender.

General comments

*Data for totals include unknown and/or other.

Puerto Rico

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity		
Defect	**Hispanic**	**Total***	**Notes**
Anencephalus	59 ***3.5***	59 ***3.5***	
Anophthalmia/microphthalmia	32 ***1.9***	32 ***1.9***	
Anotia/microtia	54 ***3.2***	54 ***3.2***	
Aortic valve stenosis	16 ***0.9***	16 ***0.9***	
Atrial septal defect	466 ***27.5***	466 ***27.5***	
Atrioventricular septal defect (Endocardial cushion defect)	91 ***5.4***	91 ***5.4***	1
Bladder exstrophy	3 ***0.3***	3 ***0.3***	
Cleft lip alone	52 ***3.1***	52 ***3.1***	
Cleft lip with cleft palate	108 ***6.4***	108 ***6.4***	
Cleft palate alone	112 ***6.6***	112 ***6.6***	
Clubfoot	367 ***21.6***	367 ***21.6***	
Coarctation of the aorta	43 ***2.5***	43 ***2.5***	
Common truncus (truncus arteriosus)	6 ***0.4***	6 ***0.4***	
Congenital cataract	0 ***0.0***	0 ***0.0***	
Craniosynostosis	5 ***1.8***	5 ***1.8***	
Deletion 22q11.2	1 ***0.1***	1 ***0.1***	
Diaphragmatic hernia	12 ***4.2***	12 ***4.2***	
Double outlet right ventricle	36 ***2.1***	36 ***2.1***	
Ebstein anomaly	16 ***0.9***	16 ***0.9***	
Encephalocele	20 ***1.2***	20 ***1.2***	
Gastroschisis	79 ***4.7***	79 ***4.7***	
Holoprosencephaly	6 ***0.9***	6 ***0.9***	
Hypoplastic left heart syndrome	39 ***2.3***	39 ***2.3***	
Hypospadias	472 ***53.9***	472 ***53.9***	2
Interrupted aortic arch	6 ***0.6***	6 ***0.6***	
Limb deficiencies (reduction defects)	111 ***6.5***	111 ***6.5***	
Omphalocele	43 ***2.5***	43 ***2.5***	
Pulmonary valve atresia and stenosis	168 ***9.9***	168 ***9.9***	
Pulmonary valve atresia	23 ***1.4***	23 ***1.4***	
Single ventricle	4 ***0.4***	4 ***0.4***	
Spina bifida without anencephalus	79 ***4.7***	79 ***4.7***	
Tetralogy of Fallot	60 ***3.5***	60 ***3.5***	

Puerto Rico

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity		
Defect	**Hispanic**	**Total***	**Notes**
Total anomalous pulmonary venous connection	21 ***1.2***	21 ***1.2***	
Transposition of the great arteries (TGA)	55 ***3.2***	55 ***3.2***	
Dextro-transposition of great arteries (d-TGA)	15 ***0.9***	15 ***0.9***	
Tricuspid valve atresia and stenosis	16 ***0.9***	16 ***0.9***	
Tricuspid valve atresia	16 ***0.9***	16 ***0.9***	
Trisomy 13	13 ***0.8***	13 ***0.8***	
Trisomy 18	43 ***2.5***	43 ***2.5***	
Trisomy 21 (Down syndrome)	187 ***11.0***	187 ***11.0***	
Turner syndrome	1 ***0.2***	1 ***0.2***	3
Ventricular septal defect	464 ***27.4***	464 ***27.4***	4
Total live births	**169,611**	**169,611**	
Male live births	**87,544**	**87,544**	
Female live births	**45,601**	**45,601**	

Puerto Rico

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	78	1	79	
	5.1	***0.6***	***4.7***	
Trisomy 13	9	4	13	
	0.6	***2.4***	***0.8***	
Trisomy 18	30	13	43	
	2.0	***7.9***	***2.5***	
Trisomy 21 (Down syndrome)	96	91	187	
	6.3	***55.3***	***11.0***	
Total live births	**153,123**	**16,452**	**169,611**	

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

*Data for totals include unknown and/or other.

Rhode Island

Birth Defects Counts and Prevalence 2012 - 2016 (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	0	0	0	10	
	2.5	***4.9***	***0.0***	***0.0***	***0.0***	***1.8***	
Anophthalmia/microphthalmia	2	3	3	0	0	10	
	0.6	***7.3***	***2.4***	***0.0***	***0.0***	***1.8***	
Anotia/microtia	0	0	3	0	0	3	
	0.0	***0.0***	***2.4***	***0.0***	***0.0***	***0.6***	
Aortic valve stenosis	2	0	2	0	0	5	
	0.6	***0.0***	***1.6***	***0.0***	***0.0***	***0.9***	
Atrial septal defect	62	12	30	1	2	119	
	19.7	***29.2***	***23.5***	***3.8***	***62.3***	***22.0***	
Atrioventricular septal defect (Endocardial cushion defect)	6	1	3	0	0	11	
	1.9	***2.4***	***2.4***	***0.0***	***0.0***	***2.0***	
Biliary atresia	1	0	0	0	0	1	
	0.3	***0.0***	***0.0***	***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	3	0	0	7	
	0.6	***2.4***	***2.4***	***0.0***	***0.0***	***1.3***	
Cleft lip alone	14	0	8	0	0	23	
	4.4	***0.0***	***6.3***	***0.0***	***0.0***	***4.3***	
Cleft lip with cleft palate	20	0	10	1	1	33	
	6.3	***0.0***	***7.8***	***3.8***	***31.2***	***6.1***	
Cleft palate alone	18	1	5	1	0	26	
	5.7	***2.4***	***3.9***	***3.8***	***0.0***	***4.8***	
Cloacal exstrophy	0	0	1	0	0	1	
	0.0	***0.0***	***0.8***	***0.0***	***0.0***	***0.2***	
Clubfoot	49	4	22	3	1	84	
	15.5	***9.7***	***17.3***	***11.5***	***31.2***	***15.5***	
Coarctation of the aorta	10	0	5	0	0	19	
	3.2	***0.0***	***3.9***	***0.0***	***0.0***	***3.5***	
Common truncus (truncus arteriosus)	1	0	0	0	0	1	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Congenital cataract	4	1	3	1	0	9	
	1.3	***2.4***	***2.4***	***3.8***	***0.0***	***1.7***	
Congenital posterior urethral valves	4	1	1	0	0	7	1
	2.5	***4.8***	***1.5***	***0.0***	***0.0***	***2.5***	
Craniosynostosis	12	1	1	1	0	15	
	3.8	***2.4***	***0.8***	***3.8***	***0.0***	***2.8***	
Deletion 22q11.2	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Diaphragmatic hernia	6	0	4	1	0	12	
	1.9	***0.0***	***3.1***	***3.8***	***0.0***	***2.2***	
Double outlet right ventricle	2	0	1	0	0	4	
	0.6	***0.0***	***0.8***	***0.0***	***0.0***	***0.7***	
Ebstein anomaly	2	2	0	0	0	5	
	0.6	***4.9***	***0.0***	***0.0***	***0.0***	***0.9***	
Encephalocele	1	0	3	0	0	5	
	0.3	***0.0***	***2.4***	***0.0***	***0.0***	***0.9***	
Esophageal atresia/tracheoesophageal fistula	8	0	2	0	0	10	
	2.5	***0.0***	***1.6***	***0.0***	***0.0***	***1.8***	
Gastroschisis	15	1	16	1	0	33	
	4.8	***2.4***	***12.6***	***3.8***	***0.0***	***6.1***	
Holoprosencephaly	1	0	1	0	0	3	
	0.3	***0.0***	***0.8***	***0.0***	***0.0***	***0.6***	
Hypoplastic left heart syndrome	1	0	5	0	0	8	
	0.3	***0.0***	***3.9***	***0.0***	***0.0***	***1.5***	
Hypospadias	163	18	35	5	3	237	1
	101.2	***87.1***	***54.0***	***36.8***	***187.5***	***85.9***	
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 2012 - 2016 (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)	9	4	6	0	0	19	
	2.9	***9.7***	***4.7***	***0.0***	***0.0***	***3.5***	
Omphalocele	4	1	4	1	0	12	
	1.3	***2.4***	***3.1***	***3.8***	***0.0***	***2.2***	
Pulmonary valve atresia and stenosis	17	1	4	4	0	30	
	5.4	***2.4***	***3.1***	***15.4***	***0.0***	***5.5***	
Pulmonary valve atresia	2	1	0	3	0	8	
	0.6	***2.4***	***0.0***	***11.5***	***0.0***	***1.5***	
Rectal and large intestinal atresia/stenosis	7	1	8	1	0	19	
	2.2	***2.4***	***6.3***	***3.8***	***0.0***	***3.5***	
Renal agenesis/hypoplasia	11	4	5	0	0	20	
	3.5	***9.7***	***3.9***	***0.0***	***0.0***	***3.7***	
Single ventricle	2	0	0	1	0	4	
	0.6	***0.0***	***0.0***	***3.8***	***0.0***	***0.7***	
Small intestinal atresia/stenosis	11	5	5	2	0	23	
	3.5	***12.2***	***3.9***	***7.7***	***0.0***	***4.3***	
Spina bifida without anencephalus	7	2	9	2	0	22	
	2.2	***4.9***	***7.1***	***7.7***	***0.0***	***4.1***	
Tetralogy of Fallot	7	2	4	0	0	15	
	2.2	***4.9***	***3.1***	***0.0***	***0.0***	***2.8***	
Total anomalous pulmonary venous connection	3	0	0	0	0	4	
	1.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.7***	
Transposition of the great arteries (TGA)	3	0	0	0	0	10	
	1.0	***0.0***	***0.0***	***0.0***	***0.0***	***1.8***	
Dextro-transposition of great arteries (d-TGA)	2	0	0	0	0	2	
	0.6	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	
Tricuspid valve atresia and stenosis	2	0	0	1	0	3	
	0.6	***0.0***	***0.0***	***3.8***	***0.0***	***0.6***	
Tricuspid valve atresia	2	0	0	1	0	3	
	0.6	***0.0***	***0.0***	***3.8***	***0.0***	***0.6***	
Trisomy 13	6	2	2	0	0	10	
	1.9	***4.9***	***1.6***	***0.0***	***0.0***	***1.8***	
Trisomy 18	6	2	3	0	0	11	
	1.9	***4.9***	***2.4***	***0.0***	***0.0***	***2.0***	
Trisomy 21 (Down syndrome)	40	9	22	0	1	80	
	12.7	***21.9***	***17.3***	***0.0***	***31.2***	***14.8***	
Turner syndrome	3	1	0	0	0	5	2
	1.9	***4.9***	***0.0***	***0.0***	***0.0***	***1.9***	
Ventricular septal defect	151	24	39	11	0	232	3
	47.9	***58.5***	***30.6***	***42.2***	***0.0***	***42.9***	
Total live births	**31,516**	**4,103**	**12,749**	**2,605**	**321**	**54,082**	**4**
Male live births	**16,099**	**2,067**	**6,486**	**1,359**	**160**	**27,587**	
Female live births	**15,417**	**2,035**	**6,263**	**1,251**	**160**	**26,492**	

Rhode Island

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	33	0	33	
	7.4	***0.0***	***6.1***	
Trisomy 13	3	7	10	
	0.7	***7.2***	***1.8***	
Trisomy 18	4	7	11	
	0.9	***7.2***	***2.0***	
Trisomy 21 (Down syndrome)	30	48	80	
	6.8	***49.3***	***14.8***	
Total live births	**44,340**	**9,739**	**54,082**	**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 include probable cases.
4. Data for total live births include unknown gender.

General comments

*Data for totals include unknown and/or other.

South Carolina

Birth Defects Counts and Prevalence 2012 - 2016 (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	44	11	10	<5	0	70	
	2.6	***1.2***	***4.3***		***0.0***	***2.4***	
Anophthalmia/microphthalmia	21	16	0	0	0	37	
	1.3	***1.8***	***0.0***	***0.0***	***0.0***	***1.3***	
Anotia/microtia	23	11	10	<5	<5	48	
	1.4	***1.2***	***4.3***			***1.7***	
Aortic valve stenosis	19	8	<5	<5	0	31	
	1.1	***0.9***			***0.0***	***1.1***	
Atrial septal defect	134	86	29	10	<5	263	1
	8.0	***9.6***	***12.4***	***18.6***		***9.2***	
Atrioventricular septal defect (Endocardial cushion defect)	85	46	10	<5	0	145	
	5.1	***5.2***	***4.3***		***0.0***	***5.1***	
Biliary atresia	9	10	<5	0	0	22	
	0.5	***1.1***		***0.0***	***0.0***	***0.8***	
Bladder exstrophy	5	<5	0	0	0	6	
	0.3		***0.0***	***0.0***	***0.0***	***0.2***	
Choanal atresia	18	13	0	0	0	31	
	1.1	***1.5***	***0.0***	***0.0***	***0.0***	***1.1***	
Cleft lip alone	54	16	10	<5	0	82	
	3.2	***1.8***	***4.3***		***0.0***	***2.9***	
Cleft lip with cleft palate	106	37	20	6	<5	170	
	6.3	***4.2***	***8.5***	***11.1***		***5.9***	
Cleft palate alone	94	39	7	<5	0	143	
	5.6	***4.4***	***3.0***		***0.0***	***5.0***	
Coarctation of the aorta	87	40	11	<5	<5	145	
	5.2	***4.5***	***4.7***			***5.1***	
Common truncus (truncus arteriosus)	15	5	<5	<5	<5	26	
	0.9	***0.6***				***0.9***	
Congenital cataract	12	11	<5	0	<5	28	
	0.7	***1.2***		***0.0***		***1.0***	
Congenital posterior urethral valves	19	12	<5	<5	0	35	2
	2.2	***2.7***			***0.0***	***2.4***	
Craniosynostosis	16	6	<5	<5	0	27	
	1.0	***0.7***			***0.0***	***0.9***	
Deletion 22q11.2	<5	6	<5	0	0	10	
		0.7		***0.0***	***0.0***	***0.3***	
Diaphragmatic hernia	51	29	5	<5	0	90	
	3.1	***3.3***	***2.1***		***0.0***	***3.1***	
Double outlet right ventricle	9	9	<5	0	<5	23	
	0.5	***1.0***		***0.0***		***0.8***	
Ebstein anomaly	9	5	<5	0	0	16	
	0.5	***0.6***		***0.0***	***0.0***	***0.6***	
Encephalocele	24	9	5	<5	0	39	
	1.4	***1.0***	***2.1***		***0.0***	***1.4***	
Esophageal atresia/tracheoesophageal fistula	41	22	6	<5	<5	72	
	2.5	***2.5***	***2.6***			***2.5***	
Gastroschisis	80	31	8	<5	0	123	
	4.8	***3.5***	***3.4***		***0.0***	***4.3***	
Holoprosencephaly	90	53	17	0	0	161	
	5.4	***5.9***	***7.3***	***0.0***	***0.0***	***5.6***	
Hypoplastic left heart syndrome	62	33	7	<5	<5	108	
	3.7	***3.7***	***3.0***			***3.8***	
Hypospadias	32	13	<5	<5	0	49	3
	3.7	***2.9***			***0.0***	***3.3***	
Interrupted aortic arch	15	13	0	<5	0	29	
	0.9	***1.5***	***0.0***		***0.0***	***1.0***	
Limb deficiencies (reduction defects)	81	38	16	7	0	143	4
	4.8	***4.3***	***6.8***	***13.0***	***0.0***	***5.0***	
Omphalocele	37	35	7	<5	0	81	
	2.2	***3.9***	***3.0***		***0.0***	***2.8***	

South Carolina

Birth Defects Counts and Prevalence 2012 - 2016 (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	127	107	21	6	<5	263	
	7.6	***12.0***	***9.0***	***11.1***		***9.2***	
Pulmonary valve atresia	13	11	5	<5	<5	31	
	0.8	***1.2***	***2.1***			***1.1***	
Rectal and large intestinal atresia/stenosis	56	40	<5	0	0	102	
	3.4	***4.5***		***0.0***	***0.0***	***3.6***	
Renal agenesis/hypoplasia	89	41	11	<5	<5	146	
	5.3	***4.6***	***4.7***			***5.1***	
Single ventricle	8	5	<5	<5	0	16	
	0.5	***0.6***			***0.0***	***0.6***	
Small intestinal atresia/stenosis	17	9	<5	0	0	28	
	1.0	***1.0***		***0.0***	***0.0***	***1.0***	
Spina bifida without anencephalus	62	31	13	<5	<5	110	
	3.7	***3.5***	***5.5***			***3.8***	
Tetralogy of Fallot	79	52	12	5	<5	150	
	4.7	***5.8***	***5.1***	***9.3***		***5.2***	
Total anomalous pulmonary venous connection	15	12	5	<5	0	34	5
	0.9	***1.3***	***2.1***		***0.0***	***1.2***	
Transposition of the great arteries (TGA)	72	48	10	<5	<5	133	
	4.3	***5.4***	***4.3***			***4.6***	
Tricuspid valve atresia and stenosis	18	9	<5	<5	<5	30	
	1.1	***1.0***				***1.0***	
Trisomy 13	23	19	<5	<5	0	47	
	1.4	***2.1***			***0.0***	***1.6***	
Trisomy 18	54	25	13	<5	0	97	
	3.2	***2.8***	***5.5***		***0.0***	***3.4***	
Trisomy 21 (Down syndrome)	208	78	52	12	0	354	
	12.5	***8.8***	***22.2***	***22.3***	***0.0***	***12.3***	
Ventricular septal defect	649	337	125	29	<5	1,148	
	38.8	***37.8***	***53.3***	***53.8***		***40.0***	
Total live births	**167,065**	**89,134**	**23,442**	**5,386**	**885**	**286,946**	
Male live births	**85,652**	**45,215**	**11,862**	**2,801**	**443**	**146,501**	

South Carolina

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	121	<5	123	
	4.8		***4.3***	
Trisomy 13	33	14	47	
	1.3	***3.9***	***1.6***	
Trisomy 18	45	52	97	
	1.8	***14.6***	***3.4***	
Trisomy 21 (Down syndrome)	179	175	354	
	7.1	***49.3***	***12.3***	
Total live births	**251,407**	**35,532**	**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

*Data for totals include unknown and/or other.
-Data for conditions exclude probable and possible cases.

Tennessee

Birth Defects Counts and Prevalence 2012 - 2016 (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	10	13	0	0	69	
	1.6	***1.2***	***3.6***	***0.0***	***0.0***	***1.7***	
Anophthalmia/microphthalmia	38	12	5	1	0	56	
	1.4	***1.4***	***1.4***	***1.1***	***0.0***	***1.4***	
Anotia/microtia	35	4	15	1	0	55	
	1.3	***0.5***	***4.2***	***1.1***	***0.0***	***1.4***	
Aortic valve stenosis	42	9	7	2	0	63	
	1.5	***1.1***	***2.0***	***2.1***	***0.0***	***1.6***	
Atrial septal defect	4,278	1,975	491	108	7	6,896	
	157.3	***238.1***	***137.5***	***114.1***	***123.0***	***170.7***	
Atrioventricular septal defect (Endocardial cushion defect)	161	53	20	3	1	239	
	5.9	***6.4***	***5.6***	***3.2***	***17.6***	***5.9***	
Biliary atresia	62	27	7	2	0	100	
	2.3	***3.3***	***2.0***	***2.1***	***0.0***	***2.5***	
Bladder exstrophy	3	4	2	0	0	9	
	0.1	***0.5***	***0.6***	***0.0***	***0.0***	***0.2***	
Choanal atresia	61	10	8	1	0	80	
	2.2	***1.2***	***2.2***	***1.1***	***0.0***	***2.0***	
Cleft lip alone	142	22	13	3	1	181	
	5.2	***2.7***	***3.6***	***3.2***	***17.6***	***4.5***	
Cleft lip with cleft palate	196	30	30	5	0	261	
	7.2	***3.6***	***8.4***	***5.3***	***0.0***	***6.5***	
Cleft palate alone	248	38	30	3	1	320	
	9.1	***4.6***	***8.4***	***3.2***	***17.6***	***7.9***	
Cloacal exstrophy	149	108	20	4	2	284	
	5.5	***13.0***	***5.6***	***4.2***	***35.1***	***7.0***	
Clubfoot	552	146	63	8	0	773	
	20.3	***17.6***	***17.6***	***8.5***	***0.0***	***19.1***	
Coarctation of the aorta	242	65	32	6	1	351	
	8.9	***7.8***	***9.0***	***6.3***	***17.6***	***8.7***	
Common truncus (truncus arteriosus)	25	8	6	1	0	40	
	0.9	***1.0***	***1.7***	***1.1***	***0.0***	***1.0***	
Congenital cataract	71	21	10	1	0	103	
	2.6	***2.5***	***2.8***	***1.1***	***0.0***	***2.6***	
Congenital posterior urethral valves	32	24	3	2	0	61	1
	2.3	***5.7***	***1.7***	***4.1***	***0.0***	***2.9***	
Craniosynostosis	150	19	18	2	0	191	
	13.8	***5.8***	***12.1***	***5.1***	***0.0***	***11.8***	
Deletion 22q11.2	7	2	1	0	0	10	
	0.3	***0.2***	***0.3***	***0.0***	***0.0***	***0.2***	
Diaphragmatic hernia	110	35	12	4	0	161	
	4.0	***4.2***	***3.4***	***4.2***	***0.0***	***4.0***	
Double outlet right ventricle	77	36	13	4	0	130	
	2.8	***4.3***	***3.6***	***4.2***	***0.0***	***3.2***	
Ebstein anomaly	46	10	10	3	0	69	
	1.7	***1.2***	***2.8***	***3.2***	***0.0***	***1.7***	
Encephalocele	34	16	2	0	0	52	
	1.3	***1.9***	***0.6***	***0.0***	***0.0***	***1.3***	
Esophageal atresia/tracheoesophageal fistula	96	25	13	1	0	136	
	3.5	***3.0***	***3.6***	***1.1***	***0.0***	***3.4***	
Gastroschisis	158	26	18	1	0	212	
	5.8	***3.1***	***5.0***	***1.1***	***0.0***	***5.2***	
Holoprosencephaly	152	45	20	6	1	224	
	5.6	***5.4***	***5.6***	***6.3***	***17.6***	***5.5***	
Hypoplastic left heart syndrome	98	34	13	0	1	149	
	3.6	***4.1***	***3.6***	***0.0***	***17.6***	***3.7***	
Hypospadias	1,616	415	101	38	2	2,184	1
	115.5	***99.0***	***55.8***	***77.6***	***69.9***	***105.6***	
Interrupted aortic arch	58	18	9	2	0	88	
	2.1	***2.2***	***2.5***	***2.1***	***0.0***	***2.2***	

Tennessee

Birth Defects Counts and Prevalence 2012 - 2016 (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)	106	37	15	3	0	161	
	3.9	***4.5***	***4.2***	***3.2***	***0.0***	***4.0***	
Omphalocele	58	28	7	3	0	98	
	2.1	***3.4***	***2.0***	***3.2***	***0.0***	***2.4***	
Pulmonary valve atresia and stenosis	290	94	38	5	0	428	
	10.7	***11.3***	***10.6***	***5.3***	***0.0***	***10.6***	
Pulmonary valve atresia	38	13	4	0	0	55	
	1.4	***1.6***	***1.1***	***0.0***	***0.0***	***1.4***	
Rectal and large intestinal atresia/stenosis	141	48	18	2	0	209	
	5.2	***5.8***	***5.0***	***2.1***	***0.0***	***5.2***	
Renal agenesis/hypoplasia	186	56	12	5	0	261	
	6.8	***6.8***	***3.4***	***5.3***	***0.0***	***6.5***	
Single ventricle	38	12	5	1	0	57	
	1.4	***1.4***	***1.4***	***1.1***	***0.0***	***1.4***	
Small intestinal atresia/stenosis	132	48	21	4	1	208	
	4.9	***5.8***	***5.9***	***4.2***	***17.6***	***5.1***	
Spina bifida without anencephalus	135	37	21	2	0	198	
	5.0	***4.5***	***5.9***	***2.1***	***0.0***	***4.9***	
Tetralogy of Fallot	174	56	16	4	0	250	
	6.4	***6.8***	***4.5***	***4.2***	***0.0***	***6.2***	
Total anomalous pulmonary venous connection	34	5	9	3	0	51	
	1.3	***0.6***	***2.5***	***3.2***	***0.0***	***1.3***	
Transposition of the great arteries (TGA)	135	47	20	4	0	207	
	5.0	***5.7***	***5.6***	***4.2***	***0.0***	***5.1***	
Dextro-transposition of great arteries (d-TGA)	80	21	11	1	0	114	
	2.9	***2.5***	***3.1***	***1.1***	***0.0***	***2.8***	
Tricuspid valve atresia and stenosis	34	12	6	0	0	52	
	1.3	***1.4***	***1.7***	***0.0***	***0.0***	***1.3***	
Tricuspid valve atresia	34	12	6	0	0	52	
	1.3	***1.4***	***1.7***	***0.0***	***0.0***	***1.3***	
Trisomy 13	25	11	2	2	0	40	
	0.9	***1.3***	***0.6***	***2.1***	***0.0***	***1.0***	
Trisomy 18	39	24	8	0	0	72	
	1.4	***2.9***	***2.2***	***0.0***	***0.0***	***1.8***	
Trisomy 21 (Down syndrome)	398	100	81	9	2	597	
	14.6	***12.1***	***22.7***	***9.5***	***35.1***	***14.8***	
Turner syndrome	22	8	2	2	0	36	2
	1.7	***1.9***	***1.1***	***4.4***	***0.0***	***1.8***	
Ventricular septal defect	1,377	429	191	40	4	2,050	
	50.6	***51.7***	***53.5***	***42.3***	***70.3***	***50.8***	
Total live births	**271,960**	**82,936**	**35,697**	**9,465**	**569**	**403,894**	**3**
Male live births	**139,943**	**41,906**	**18,091**	**4,898**	**286**	**206,781**	
Female live births	**132,014**	**41,030**	**17,604**	**4,567**	**283**	**197,106**	

Tennessee

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	204	5	212	
	5.7	***1.1***	***5.2***	
Trisomy 13	34	6	40	
	1.0	***1.3***	***1.0***	
Trisomy 18	52	20	72	
	1.5	***4.3***	***1.8***	
Trisomy 21 (Down syndrome)	342	249	597	
	9.6	***53.8***	***14.8***	
Total live births	**357,530**	**46,309**	**403,894**	**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. Data for total live births include unknown gender.

General comments

*Data for totals include unknown and/or other.

Texas

Birth Defects Counts and Prevalence 2012 - 2016 (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	120	32	265	16	4	457	
	1.8	***1.4***	***2.8***	***1.6***	***10.9***	***2.3***	
Anophthalmia/microphthalmia	162	48	281	21	0	523	
	2.4	***2.1***	***3.0***	***2.2***	***0.0***	***2.7***	
Anotia/microtia	157	39	509	20	1	733	
	2.3	***1.7***	***5.4***	***2.1***	***2.7***	***3.7***	
Aortic valve stenosis	174	22	240	11	2	454	
	2.6	***1.0***	***2.6***	***1.1***	***5.5***	***2.3***	
Atrial septal defect	5,370	2,065	8,759	632	25	17,095	
	80.0	***90.5***	***93.5***	***65.0***	***68.4***	***86.7***	
Atrioventricular septal defect (Endocardial cushion defect)	302	122	412	30	1	880	
	4.5	***5.3***	***4.4***	***3.1***	***2.7***	***4.5***	
Biliary atresia	32	20	60	11	1	128	
	0.5	***0.9***	***0.6***	***1.1***	***2.7***	***0.6***	
Bladder exstrophy	18	5	7	1	0	31	
	0.3	***0.2***	***0.1***	***0.1***	***0.0***	***0.2***	
Choanal atresia	99	34	114	4	0	255	1
	1.5	***1.5***	***1.2***	***0.4***	***0.0***	***1.3***	
Cleft lip alone	289	52	260	34	0	644	
	4.3	***2.3***	***2.8***	***3.5***	***0.0***	***3.3***	
Cleft lip with cleft palate	469	103	763	52	9	1,417	
	7.0	***4.5***	***8.1***	***5.3***	***24.6***	***7.2***	
Cleft palate alone	404	100	514	61	1	1,106	
	6.0	***4.4***	***5.5***	***6.3***	***2.7***	***5.6***	
Cloacal exstrophy	1	0	6	0	0	7	
	0.0	***0.0***	***0.1***	***0.0***	***0.0***	***0.0***	
Clubfoot	1,223	391	1,629	115	6	3,428	
	18.2	***17.1***	***17.4***	***11.8***	***16.4***	***17.4***	
Coarctation of the aorta	427	91	492	32	0	1,056	
	6.4	***4.0***	***5.2***	***3.3***	***0.0***	***5.4***	
Common truncus (truncus arteriosus)	35	15	79	4	0	133	
	0.5	***0.7***	***0.8***	***0.4***	***0.0***	***0.7***	
Congenital cataract	133	48	170	13	0	366	
	2.0	***2.1***	***1.8***	***1.3***	***0.0***	***1.9***	
Craniosynostosis	526	73	581	25	1	1,221	
	7.8	***3.2***	***6.2***	***2.6***	***2.7***	***6.2***	
Deletion 22q11.2	58	20	88	7	2	179	
	0.9	***0.9***	***0.9***	***0.7***	***5.5***	***0.9***	
Diaphragmatic hernia	187	50	254	20	0	516	
	2.8	***2.2***	***2.7***	***2.1***	***0.0***	***2.6***	
Double outlet right ventricle	115	45	201	19	0	383	
	1.7	***2.0***	***2.1***	***2.0***	***0.0***	***1.9***	
Ebstein anomaly	38	9	83	5	0	136	
	0.6	***0.4***	***0.9***	***0.5***	***0.0***	***0.7***	
Encephalocele	54	39	82	6	0	186	
	0.8	***1.7***	***0.9***	***0.6***	***0.0***	***0.9***	
Esophageal atresia/tracheoesophageal fistula	174	56	204	17	0	457	
	2.6	***2.5***	***2.2***	***1.7***	***0.0***	***2.3***	
Gastroschisis	347	82	605	16	3	1,074	
	5.2	***3.6***	***6.5***	***1.6***	***8.2***	***5.4***	
Holoprosencephaly	47	20	117	5	1	191	
	0.7	***0.9***	***1.2***	***0.5***	***2.7***	***1.0***	
Hypoplastic left heart syndrome	194	41	222	10	0	473	
	2.9	***1.8***	***2.4***	***1.0***	***0.0***	***2.4***	
Hypospadias	3,143	995	2,238	353	15	6,878	2
	91.4	***85.7***	***46.8***	***70.1***	***81.1***	***68.3***	
Interrupted aortic arch	38	23	77	4	0	145	
	0.6	***1.0***	***0.8***	***0.4***	***0.0***	***0.7***	
Limb deficiencies (reduction defects)	375	131	495	31	4	1,065	
	5.6	***5.7***	***5.3***	***3.2***	***10.9***	***5.4***	

Texas

Birth Defects Counts and Prevalence 2012 - 2016 (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	147	56	200	11	0	423	
	2.2	***2.5***	***2.1***	***1.1***	***0.0***	***2.1***	
Pulmonary valve atresia and stenosis	603	252	1,085	69	3	2,047	
	9.0	***11.0***	***11.6***	***7.1***	***8.2***	***10.4***	
Pulmonary valve atresia	64	23	116	10	0	214	3
	1.0	***1.0***	***1.2***	***1.0***	***0.0***	***1.1***	
Rectal and large intestinal atresia/stenosis	322	96	532	38	2	1,013	
	4.8	***4.2***	***5.7***	***3.9***	***5.5***	***5.1***	
Renal agenesis/hypoplasia	429	151	623	61	1	1,292	
	6.4	***6.6***	***6.6***	***6.3***	***2.7***	***6.6***	
Single ventricle	46	14	87	6	0	153	
	0.7	***0.6***	***0.9***	***0.6***	***0.0***	***0.8***	
Small intestinal atresia/stenosis	200	79	337	21	3	650	
	3.0	***3.5***	***3.6***	***2.2***	***8.2***	***3.3***	
Spina bifida without anencephalus	226	63	414	14	1	735	
	3.4	***2.8***	***4.4***	***1.4***	***2.7***	***3.7***	
Tetralogy of Fallot	327	123	475	51	3	1,001	4
	4.9	***5.4***	***5.1***	***5.2***	***8.2***	***5.1***	
Total anomalous pulmonary venous connection	75	22	193	27	1	320	
	1.1	***1.0***	***2.1***	***2.8***	***2.7***	***1.6***	
Transposition of the great arteries (TGA)	265	50	355	23	0	703	
	3.9	***2.2***	***3.8***	***2.4***	***0.0***	***3.6***	
Dextro-transposition of great arteries (d-TGA)	231	44	310	20	0	614	
	3.4	***1.9***	***3.3***	***2.1***	***0.0***	***3.1***	
Tricuspid valve atresia and stenosis	121	42	190	19	2	379	
	1.8	***1.8***	***2.0***	***2.0***	***5.5***	***1.9***	
Tricuspid valve atresia	76	24	94	11	2	210	
	1.1	***1.1***	***1.0***	***1.1***	***5.5***	***1.1***	
Trisomy 13	79	28	104	9	0	230	
	1.2	***1.2***	***1.1***	***0.9***	***0.0***	***1.2***	
Trisomy 18	160	53	250	25	1	503	
	2.4	***2.3***	***2.7***	***2.6***	***2.7***	***2.6***	
Trisomy 21 (Down syndrome)	807	232	1,543	103	3	2,738	
	12.0	***10.2***	***16.5***	***10.6***	***8.2***	***13.9***	
Turner syndrome	83	15	117	11	0	234	5
	2.5	***1.3***	***2.6***	***2.3***	***0.0***	***2.4***	
Ventricular septal defect	4,046	1,222	7,061	505	25	13,042	6
	60.3	***53.6***	***75.3***	***51.9***	***68.4***	***66.2***	
Total live births	**671,067**	**228,063**	**937,199**	**97,285**	**3,656**	**1,970,918**	**7**
Male live births	**343,794**	**116,060**	**478,458**	**50,343**	**1,850**	**1,007,668**	
Female live births	**327,269**	**112,000**	**458,735**	**46,942**	**1,806**	**963,237**	

Texas

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	1,049	25	1,074	
	6.2	***0.9***	***5.4***	
Trisomy 13	153	77	230	
	0.9	***2.8***	***1.2***	
Trisomy 18	251	252	503	
	1.5	***9.3***	***2.6***	
Trisomy 21 (Down syndrome)	1,397	1,341	2,738	
	8.2	***49.6***	***13.9***	
Total live births	**1,700,245**	**270,568**	**1,970,918**	**7**

Notes

1. Data for this condition may include stenosis.
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 pulmonary valve atresia with co-occurring ventricular septal defect or tetralogy of Fallot.
4. Data for this condition include any pulmonary valve atresia with co-occurring ventricular septal defect.
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.
7. Data for total live births include unknown gender.

General comments

*Data for totals include unknown and/or other.

-Data for conditions exclude probable and possible cases.

-We have identified and rectified some methodological issues affecting primarily one Texas region. This results in an increased number of cases starting with delivery year 2016.

Utah

Birth Defects Counts and Prevalence 2012 - 2016 (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	32	1	11	1	0	47	
	1.6	***3.3***	***2.9***	***1.0***	***0.0***	***1.8***	
Anophthalmia/microphthalmia	32	1	5	0	0	40	
	1.6	***3.3***	***1.3***	***0.0***	***0.0***	***1.6***	
Anotia/microtia	52	0	19	9	1	82	
	2.6	***0.0***	***4.9***	***9.3***	***3.8***	***3.2***	
Aortic valve stenosis	77	1	13	3	0	95	
	3.9	***3.3***	***3.4***	***3.1***	***0.0***	***3.7***	
Atrial septal defect	664	9	155	37	11	898	1
	33.7	***30.1***	***40.2***	***38.1***	***41.7***	***35.2***	
Atrioventricular septal defect (Endocardial cushion defect)	129	3	19	7	0	165	
	6.5	***10.0***	***4.9***	***7.2***	***0.0***	***6.5***	
Biliary atresia	16	1	2	1	1	21	
	0.8	***3.3***	***0.5***	***1.0***	***3.8***	***0.8***	
Bladder exstrophy	5	0	0	1	0	6	
	0.3	***0.0***	***0.0***	***1.0***	***0.0***	***0.2***	
Choanal atresia	34	0	5	0	1	41	
	1.7	***0.0***	***1.3***	***0.0***	***3.8***	***1.6***	
Cleft lip alone	102	1	16	6	0	130	
	5.2	***3.3***	***4.2***	***6.2***	***0.0***	***5.1***	
Cleft lip with cleft palate	153	2	27	2	2	189	
	7.8	***6.7***	***7.0***	***2.1***	***7.6***	***7.4***	
Cleft palate alone	153	2	27	3	2	196	
	7.8	***6.7***	***7.0***	***3.1***	***7.6***	***7.7***	
Cloacal exstrophy	3	0	0	0	0	3	
	0.2	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Clubfoot	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Coarctation of the aorta	187	3	37	4	3	239	
	9.5	***10.0***	***9.6***	***4.1***	***11.4***	***9.4***	
Common truncus (truncus arteriosus)	17	0	5	0	0	24	
	0.9	***0.0***	***1.3***	***0.0***	***0.0***	***0.9***	
Congenital cataract	58	0	15	2	0	77	
	2.9	***0.0***	***3.9***	***2.1***	***0.0***	***3.0***	
Congenital posterior urethral valves	28	0	4	0	0	34	2
	2.8	***0.0***	***2.0***	***0.0***	***0.0***	***2.6***	
Craniosynostosis	226	0	44	2	4	282	
	11.5	***0.0***	***11.4***	***2.1***	***15.2***	***11.1***	
Deletion 22q11.2	27	1	6	2	0	38	
	1.4	***3.3***	***1.6***	***2.1***	***0.0***	***1.5***	
Diaphragmatic hernia	81	3	16	4	1	106	
	4.1	***10.0***	***4.2***	***4.1***	***3.8***	***4.2***	
Double outlet right ventricle	43	1	6	4	1	56	
	2.2	***3.3***	***1.6***	***4.1***	***3.8***	***2.2***	
Ebstein anomaly	22	0	9	0	0	32	
	1.1	***0.0***	***2.3***	***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	60	1	11	2	2	79	
	3.0	***3.3***	***2.9***	***2.1***	***7.6***	***3.1***	
Gastroschisis	81	1	22	2	2	112	
	4.1	***3.3***	***5.7***	***2.1***	***7.6***	***4.4***	
Holoprosencephaly	33	1	9	0	1	44	
	1.7	***3.3***	***2.3***	***0.0***	***3.8***	***1.7***	
Hypoplastic left heart syndrome	66	2	13	3	1	90	
	3.3	***6.7***	***3.4***	***3.1***	***3.8***	***3.5***	
Hypospadias	826	12	65	26	5	955	2
	81.5	***76.4***	***33.0***	***52.4***	***37.9***	***73.0***	
Interrupted aortic arch	14	1	3	1	1	21	
	0.7	***3.3***	***0.8***	***1.0***	***3.8***	***0.8***	

Utah

Birth Defects Counts and Prevalence 2012 - 2016 (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)	113	2	25	3	1	153	
	5.7	***6.7***	***6.5***	***3.1***	***3.8***	***6.0***	
Omphalocele	55	1	16	2	2	78	
	2.8	***3.3***	***4.2***	***2.1***	***7.6***	***3.1***	
Pulmonary valve atresia and stenosis	261	6	54	10	2	339	
	13.2	***20.1***	***14.0***	***10.3***	***7.6***	***13.3***	
Pulmonary valve atresia	18	0	6	2	0	26	
	0.9	***0.0***	***1.6***	***2.1***	***0.0***	***1.0***	
Rectal and large intestinal atresia/stenosis	89	2	16	3	2	114	
	4.5	***6.7***	***4.2***	***3.1***	***7.6***	***4.5***	
Renal agenesis/hypoplasia	87	2	15	4	3	117	
	4.4	***6.7***	***3.9***	***4.1***	***11.4***	***4.6***	
Single ventricle	7	0	3	0	0	10	
	0.4	***0.0***	***0.8***	***0.0***	***0.0***	***0.4***	
Small intestinal atresia/stenosis	65	2	16	3	1	88	
	3.3	***6.7***	***4.2***	***3.1***	***3.8***	***3.5***	
Spina bifida without anencephalus	83	1	17	1	1	109	
	4.2	***3.3***	***4.4***	***1.0***	***3.8***	***4.3***	
Tetralogy of Fallot	67	1	11	4	1	88	
	3.4	***3.3***	***2.9***	***4.1***	***3.8***	***3.5***	
Total anomalous pulmonary venous connection	21	0	12	2	0	37	
	1.1	***0.0***	***3.1***	***2.1***	***0.0***	***1.5***	
Transposition of the great arteries (TGA)	93	3	17	5	2	123	
	4.7	***10.0***	***4.4***	***5.1***	***7.6***	***4.8***	
Dextro-transposition of great arteries (d-TGA)	53	1	9	3	1	70	
	2.7	***3.3***	***2.3***	***3.1***	***3.8***	***2.7***	
Tricuspid valve atresia and stenosis	23	0	5	0	0	28	
	1.2	***0.0***	***1.3***	***0.0***	***0.0***	***1.1***	
Tricuspid valve atresia	14	0	2	0	0	16	
	0.7	***0.0***	***0.5***	***0.0***	***0.0***	***0.6***	
Trisomy 13	30	1	5	2	0	42	
	1.5	***3.3***	***1.3***	***2.1***	***0.0***	***1.6***	
Trisomy 18	71	4	13	3	0	97	
	3.6	***13.4***	***3.4***	***3.1***	***0.0***	***3.8***	
Trisomy 21 (Down syndrome)	318	7	76	19	8	438	
	16.1	***23.4***	***19.7***	***19.6***	***30.3***	***17.2***	
Turner syndrome	43	0	14	0	0	58	3
	4.5	***0.0***	***7.4***	***0.0***	***0.0***	***4.7***	
Ventricular septal defect	505	10	113	26	9	677	
	25.6	***33.5***	***29.3***	***26.8***	***34.1***	***26.6***	
Total live births	**197,156**	**2,989**	**38,542**	**9,714**	**2,638**	**254,778**	**4**
Male live births	**101,396**	**1,571**	**19,705**	**4,964**	**1,321**	**130,868**	
Female live births	**95,759**	**1,418**	**18,836**	**4,750**	**1,317**	**123,907**	

Utah

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	105	7	112	
	4.7	***2.1***	***4.4***	
Trisomy 13	26	16	42	
	1.2	***4.8***	***1.6***	
Trisomy 18	58	39	97	
	2.6	***11.6***	***3.8***	
Trisomy 21 (Down syndrome)	218	220	438	
	9.9	***65.6***	***17.2***	
Total live births	**221,231**	**33,527**	**254,778**	**4**

Notes

1. Data for this condition excluded isolated secundum atrial septal defects 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 total live births include unknown gender.

General comments

*Data for totals include unknown and/or other.

Vermont

Birth Defects Counts and Prevalence 2012 - 2016 (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	2	
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.7***	
Anotia/microtia	4	0	1	1	0	6	
	1.5	***0.0***	***18.5***	***13.9***	***0.0***	***2.0***	
Aortic valve stenosis	11	0	1	0	0	12	
	4.0	***0.0***	***18.5***	***0.0***	***0.0***	***4.0***	
Atrial septal defect	266	5	6	6	1	287	
	97.2	***109.4***	***110.7***	***83.4***	***178.6***	***96.4***	
Atrioventricular septal defect (Endocardial cushion defect)	13	0	0	1	0	15	
	4.8	***0.0***	***0.0***	***13.9***	***0.0***	***5.0***	
Bladder exstrophy	1	0	0	0	0	1	
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Cleft lip alone	13	0	0	0	0	14	
	4.8	***0.0***	***0.0***	***0.0***	***0.0***	***4.7***	
Cleft lip with cleft palate	11	0	0	0	0	11	
	4.0	***0.0***	***0.0***	***0.0***	***0.0***	***3.7***	
Cleft palate alone	18	0	1	2	0	21	
	6.6	***0.0***	***18.5***	***27.8***	***0.0***	***7.1***	
Coarctation of the aorta	13	0	0	0	0	13	
	4.8	***0.0***	***0.0***	***0.0***	***0.0***	***4.4***	
Common truncus (truncus arteriosus)	2	0	0	0	0	2	
	0.7	***0.0***	***0.0***	***0.0***	***0.0***	***0.7***	
Diaphragmatic hernia	14	0	0	0	0	16	
	5.1	***0.0***	***0.0***	***0.0***	***0.0***	***5.4***	
Double outlet right ventricle	3	0	0	1	0	5	
	1.1	***0.0***	***0.0***	***13.9***	***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	9	0	2	1	0	12	
	3.3	***0.0***	***36.9***	***13.9***	***0.0***	***4.0***	
Gastroschisis	16	0	0	0	0	16	
	5.8	***0.0***	***0.0***	***0.0***	***0.0***	***5.4***	
Hypoplastic left heart syndrome	7	1	0	0	0	8	
	2.6	***21.9***	***0.0***	***0.0***	***0.0***	***2.7***	
Hypospadias	106	3	3	0	0	117	1
	74.8	***122.4***	***105.3***	***0.0***	***0.0***	***75.7***	
Limb deficiencies (reduction defects)	12	0	0	0	0	15	
	4.4	***0.0***	***0.0***	***0.0***	***0.0***	***5.0***	
Omphalocele	4	0	0	0	0	4	
	1.5	***0.0***	***0.0***	***0.0***	***0.0***	***1.3***	
Pulmonary valve atresia and stenosis	45	2	1	1	0	50	
	16.5	***43.8***	***18.5***	***13.9***	***0.0***	***16.8***	
Pulmonary valve atresia	5	2	0	0	0	8	
	1.8	***43.8***	***0.0***	***0.0***	***0.0***	***2.7***	
Rectal and large intestinal atresia/stenosis	14	1	0	0	0	15	
	5.1	***21.9***	***0.0***	***0.0***	***0.0***	***5.0***	
Renal agenesis/hypoplasia	11	0	0	1	0	12	
	4.0	***0.0***	***0.0***	***13.9***	***0.0***	***4.0***	
Small intestinal atresia/stenosis	8	0	0	0	0	8	
	2.9	***0.0***	***0.0***	***0.0***	***0.0***	***2.7***	
Spina bifida without anencephalus	6	0	0	0	0	7	
	2.2	***0.0***	***0.0***	***0.0***	***0.0***	***2.4***	
Tetralogy of Fallot	8	1	0	0	0	10	
	2.9	***21.9***	***0.0***	***0.0***	***0.0***	***3.4***	
Transposition of the great arteries (TGA)	10	0	0	1	0	12	
	3.7	***0.0***	***0.0***	***13.9***	***0.0***	***4.0***	
Dextro-transposition of great arteries (d-TGA)	6	0	0	1	0	8	
	2.2	***0.0***	***0.0***	***13.9***	***0.0***	***2.7***	

Vermont

Birth Defects Counts and Prevalence 2012 - 2016 (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	1	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Trisomy 18	5	0	0	0	0	5	
	1.8	***0.0***	***0.0***	***0.0***	***0.0***	***1.7***	
Trisomy 21 (Down syndrome)	25	1	1	0	0	27	
	9.1	***21.9***	***18.5***	***0.0***	***0.0***	***9.1***	
Ventricular septal defect	163	5	0	8	0	182	
	59.6	***109.4***	***0.0***	***111.3***	***0.0***	***61.1***	
Total live births	**27,354**	**457**	**542**	**719**	**56**	**29,770**	
Male live births	**14,174**	**245**	**285**	**384**	**31**	**15,465**	

Vermont

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	15	1	16	
	6.1	***1.9***	***5.4***	
Trisomy 13	0	1	1	
	0.0	***1.9***	***0.3***	
Trisomy 18	2	3	5	
	0.8	***5.8***	***1.7***	
Trisomy 21 (Down syndrome)	18	9	27	
	7.3	***17.3***	***9.1***	
Total live births	**24,579**	**5,190**	**29,770**	

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

General comments
*Data for totals include unknown and/or other.

Washington

Birth Defects Counts and Prevalence 2012 - 2016 (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	44	3	21	4	1	85	
	1.6	***1.6***	***2.6***	***0.9***	***1.5***	***1.9***	
Cleft palate alone	175	8	49	29	10	300	
	6.5	***4.2***	***6.1***	***6.2***	***15.3***	***6.8***	
Gastroschisis	117	8	40	11	7	204	
	4.3	***4.2***	***5.0***	***2.4***	***10.7***	***4.6***	
Hypospadias	876	70	110	103	14	1,277	1
	63.0	***71.5***	***27.0***	***42.8***	***41.7***	***56.1***	
Limb deficiencies (reduction defects)	90	13	25	9	1	155	
	3.3	***6.8***	***3.1***	***1.9***	***1.5***	***3.5***	
Omphalocele	61	2	16	9	1	94	
	2.3	***1.0***	***2.0***	***1.9***	***1.5***	***2.1***	
Spina bifida without anencephalus	100	7	21	5	2	148	
	3.7	***3.6***	***2.6***	***1.1***	***3.1***	***3.3***	
Trisomy 21 (Down syndrome)	326	39	139	58	7	649	
	12.0	***20.3***	***17.4***	***12.4***	***10.7***	***14.6***	
Total live births	**270,553**	**19,185**	**79,784**	**46,777**	**6,553**	**443,348**	
Male live births	**139,090**	**9,786**	**40,732**	**24,055**	**3,355**	**227,603**	

Washington

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	180	6	204	
	4.9	***0.8***	***4.6***	
Trisomy 21 (Down syndrome)	278	297	649	
	7.6	***38.6***	***14.6***	
Total live births	**366,413**	**76,862**	**443,348**	

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

General comments
*Data for totals include unknown and/or other.

West Virginia

Birth Defects Counts and Prevalence 2012 - 2016 (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	20	0	0	0	0	20	
	2.4	***0.0***	***0.0***	***0.0***	***0.0***	***2.2***	
Anophthalmia/microphthalmia	3	0	0	0	0	3	
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Anotia/microtia	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Aortic valve stenosis	9	0	0	0	0	9	
	1.1	***0.0***	***0.0***	***0.0***	***0.0***	***1.0***	
Atrial septal defect	1,130	53	5	3	1	1,216	
	136.9	***156.6***	***35.2***	***34.9***	***83.3***	***136.4***	
Atrioventricular septal defect (Endocardial cushion defect)	16	1	0	0	0	17	
	1.9	***3.0***	***0.0***	***0.0***	***0.0***	***1.9***	
Biliary atresia	11	1	0	0	0	12	
	1.3	***3.0***	***0.0***	***0.0***	***0.0***	***1.3***	
Bladder exstrophy	1	0	0	0	0	1	
	0.1	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Choanal atresia	12	0	0	0	0	12	
	1.5	***0.0***	***0.0***	***0.0***	***0.0***	***1.3***	
Cleft lip alone	8	0	0	0	0	8	
	1.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.9***	
Cleft lip with cleft palate	34	0	0	0	0	34	
	4.1	***0.0***	***0.0***	***0.0***	***0.0***	***3.8***	
Cleft palate alone	64	0	0	0	0	64	
	7.8	***0.0***	***0.0***	***0.0***	***0.0***	***7.2***	
Cloacal exstrophy	17	2	0	1	0	21	
	2.1	***5.9***	***0.0***	***11.6***	***0.0***	***2.4***	
Clubfoot	115	5	0	0	0	120	
	13.9	***14.8***	***0.0***	***0.0***	***0.0***	***13.5***	
Coarctation of the aorta	38	1	0	0	0	40	
	4.6	***3.0***	***0.0***	***0.0***	***0.0***	***4.5***	
Common truncus (truncus arteriosus)	38	1	0	1	0	40	
	4.6	***3.0***	***0.0***	***11.6***	***0.0***	***4.5***	
Congenital cataract	6	1	0	0	0	7	
	0.7	***3.0***	***0.0***	***0.0***	***0.0***	***0.8***	
Congenital posterior urethral valves	5	0	0	1	0	6	1
	1.2	***0.0***	***0.0***	***20.9***	***0.0***	***1.3***	
Craniosynostosis	146	4	0	0	0	151	
	17.7	***11.8***	***0.0***	***0.0***	***0.0***	***16.9***	
Deletion 22q11.2	1	0	0	0	0	1	
	0.1	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Diaphragmatic hernia	17	0	0	0	0	17	
	2.1	***0.0***	***0.0***	***0.0***	***0.0***	***1.9***	
Double outlet right ventricle	13	0	0	0	0	14	
	1.6	***0.0***	***0.0***	***0.0***	***0.0***	***1.6***	
Ebstein anomaly	11	0	0	0	0	11	
	1.3	***0.0***	***0.0***	***0.0***	***0.0***	***1.2***	
Encephalocele	5	0	0	0	0	5	
	0.6	***0.0***	***0.0***	***0.0***	***0.0***	***0.6***	
Esophageal atresia/tracheoesophageal fistula	13	0	0	0	0	14	
	1.6	***0.0***	***0.0***	***0.0***	***0.0***	***1.6***	
Gastroschisis	22	2	0	0	0	24	
	2.7	***5.9***	***0.0***	***0.0***	***0.0***	***2.7***	
Holoprosencephaly	30	0	0	0	0	31	
	3.6	***0.0***	***0.0***	***0.0***	***0.0***	***3.5***	
Hypoplastic left heart syndrome	15	0	0	1	0	16	
	1.8	***0.0***	***0.0***	***11.6***	***0.0***	***1.8***	
Hypospadias	203	5	1	0	0	210	1
	48.3	***29.3***	***13.1***	***0.0***	***0.0***	***46.3***	
Interrupted aortic arch	7	0	0	0	0	7	
	0.8	***0.0***	***0.0***	***0.0***	***0.0***	***0.8***	

West Virginia

Birth Defects Counts and Prevalence 2012 - 2016 (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)	19	1	0	0	0	21	
	2.3	***3.0***	***0.0***	***0.0***	***0.0***	***2.4***	
Omphalocele	11	0	0	0	0	11	
	1.3	***0.0***	***0.0***	***0.0***	***0.0***	***1.2***	
Pulmonary valve atresia and stenosis	48	2	0	0	0	50	
	5.8	***5.9***	***0.0***	***0.0***	***0.0***	***5.6***	
Pulmonary valve atresia	14	1	0	0	0	15	
	1.7	***3.0***	***0.0***	***0.0***	***0.0***	***1.7***	
Rectal and large intestinal atresia/stenosis	21	1	1	0	0	23	
	2.5	***3.0***	***7.0***	***0.0***	***0.0***	***2.6***	
Renal agenesis/hypoplasia	23	1	0	0	0	25	
	2.8	***3.0***	***0.0***	***0.0***	***0.0***	***2.8***	
Single ventricle	14	0	0	0	0	14	
	1.7	***0.0***	***0.0***	***0.0***	***0.0***	***1.6***	
Small intestinal atresia/stenosis	34	0	0	0	0	34	
	4.1	***0.0***	***0.0***	***0.0***	***0.0***	***3.8***	
Spina bifida without anencephalus	13	0	0	1	0	14	
	1.6	***0.0***	***0.0***	***11.6***	***0.0***	***1.6***	
Tetralogy of Fallot	38	1	1	0	0	40	
	4.6	***3.0***	***7.0***	***0.0***	***0.0***	***4.5***	
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)	26	0	0	0	0	26	
	3.1	***0.0***	***0.0***	***0.0***	***0.0***	***2.9***	
Dextro-transposition of great arteries (d-TGA)	23	0	0	0	0	23	
	2.8	***0.0***	***0.0***	***0.0***	***0.0***	***2.6***	
Tricuspid valve atresia and stenosis	5	0	0	0	0	5	
	0.6	***0.0***	***0.0***	***0.0***	***0.0***	***0.6***	
Tricuspid valve atresia	5	0	0	0	0	5	
	0.6	***0.0***	***0.0***	***0.0***	***0.0***	***0.6***	
Trisomy 13	3	0	0	0	0	3	
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Trisomy 18	14	0	0	0	0	15	
	1.7	***0.0***	***0.0***	***0.0***	***0.0***	***1.7***	
Trisomy 21 (Down syndrome)	49	2	1	0	0	55	
	5.9	***5.9***	***7.0***	***0.0***	***0.0***	***6.2***	
Turner syndrome	2	0	0	0	0	2	2
	0.5	***0.0***	***0.0***	***0.0***	***0.0***	***0.5***	
Ventricular septal defect	292	12	0	2	0	314	
	35.4	***35.5***	***0.0***	***23.3***	***0.0***	***35.2***	
Total live births	**82,541**	**3,385**	**1,420**	**859**	**120**	**89,124**	
Male live births	**41,989**	**1,705**	**764**	**479**	**63**	**45,373**	
Female live births	**40,552**	**1,680**	**656**	**380**	**57**	**43,751**	

West Virginia

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	22	2	24	
	2.7	***2.3***	***2.7***	
Trisomy 13	2	1	3	
	0.2	***1.1***	***0.3***	
Trisomy 18	8	7	15	
	1.0	***7.9***	***1.7***	
Trisomy 21 (Down syndrome)	35	20	55	
	4.4	***22.5***	***6.2***	
Total live births	**80,154**	**8,885**	**89,124**	

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

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

Wisconsin

Birth Defects Counts and Prevalence 2012 - 2016 (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	27	4	2	2	1	36	
	1.2	*1.3*	*0.6*	*1.3*	*2.8*	*1.1*	
Anophthalmia/microphthalmia	8	1	1	0	0	11	
	0.4	*0.3*	*0.3*	*0.0*	*0.0*	*0.3*	
Anotia/microtia	14	1	7	2	3	28	
	0.6	*0.3*	*2.2*	*1.3*	*8.5*	*0.9*	
Aortic valve stenosis	15	2	1	1	2	21	
	0.7	*0.6*	*0.3*	*0.7*	*5.7*	*0.7*	
Atrial septal defect	1,199	167	160	70	28	1,660	
	52.9	*52.7*	*50.4*	*46.9*	*79.4*	*52.4*	
Atrioventricular septal defect (Endocardial cushion defect)	38	9	6	6	0	61	
	1.7	*2.8*	*1.9*	*4.0*	*0.0*	*1.9*	
Biliary atresia	7	5	2	0	0	14	
	0.3	*1.6*	*0.6*	*0.0*	*0.0*	*0.4*	
Bladder exstrophy	6	0	1	0	0	7	
	0.3	*0.0*	*0.3*	*0.0*	*0.0*	*0.2*	
Choanal atresia	22	6	5	0	1	35	
	1.0	*1.9*	*1.6*	*0.0*	*2.8*	*1.1*	
Cleft lip alone	75	5	8	6	3	98	
	3.3	*1.6*	*2.5*	*4.0*	*8.5*	*3.1*	
Cleft lip with cleft palate	64	10	13	1	0	93	
	2.8	*3.2*	*4.1*	*0.7*	*0.0*	*2.9*	
Cleft palate alone	115	9	13	11	3	158	
	5.1	*2.8*	*4.1*	*7.4*	*8.5*	*5.0*	
Cloacal exstrophy	69	9	9	2	1	92	
	3.0	*2.8*	*2.8*	*1.3*	*2.8*	*2.9*	
Clubfoot	398	57	44	11	4	527	
	17.5	*18.0*	*13.9*	*7.4*	*11.3*	*16.6*	
Coarctation of the aorta	78	13	10	4	3	109	
	3.4	*4.1*	*3.1*	*2.7*	*8.5*	*3.4*	
Common truncus (truncus arteriosus)	7	1	0	0	1	9	
	0.3	*0.3*	*0.0*	*0.0*	*2.8*	*0.3*	
Congenital cataract	12	2	4	0	1	19	
	0.5	*0.6*	*1.3*	*0.0*	*2.8*	*0.6*	
Congenital posterior urethral valves	18	5	1	2	0	26	1
	1.6	*3.1*	*0.6*	*2.6*	*0.0*	*1.6*	
Craniosynostosis	13	0	1	2	0	16	
	0.6	*0.0*	*0.3*	*1.3*	*0.0*	*0.5*	
Deletion 22q11.2	4	0	0	1	0	5	
	0.2	*0.0*	*0.0*	*0.7*	*0.0*	*0.2*	
Diaphragmatic hernia	63	7	4	2	2	78	
	2.8	*2.2*	*1.3*	*1.3*	*5.7*	*2.5*	
Double outlet right ventricle	26	5	2	0	0	35	
	1.1	*1.6*	*0.6*	*0.0*	*0.0*	*1.1*	
Ebstein anomaly	13	0	0	0	0	14	
	0.6	*0.0*	*0.0*	*0.0*	*0.0*	*0.4*	
Encephalocele	9	3	3	2	0	19	
	0.4	*0.9*	*0.9*	*1.3*	*0.0*	*0.6*	
Esophageal atresia/tracheoesophageal fistula	52	7	4	3	0	68	
	2.3	*2.2*	*1.3*	*2.0*	*0.0*	*2.1*	
Gastroschisis	86	10	15	4	3	124	
	3.8	*3.2*	*4.7*	*2.7*	*8.5*	*3.9*	
Holoprosencephaly	49	10	7	6	1	76	
	2.2	*3.2*	*2.2*	*4.0*	*2.8*	*2.4*	
Hypoplastic left heart syndrome	33	5	4	2	3	47	
	1.5	*1.6*	*1.3*	*1.3*	*8.5*	*1.5*	
Hypospadias	894	88	66	28	7	1,111	1
	77.0	*54.2*	*40.8*	*36.2*	*38.8*	*68.5*	
Interrupted aortic arch	20	5	2	1	1	30	
	0.9	*1.6*	*0.6*	*0.7*	*2.8*	*0.9*	

Wisconsin

Birth Defects Counts and Prevalence 2012 - 2016 (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)	66	8	11	6	2	96	
	2.9	***2.5***	***3.5***	***4.0***	***5.7***	***3.0***	
Omphalocele	38	7	2	2	0	49	
	1.7	***2.2***	***0.6***	***1.3***	***0.0***	***1.5***	
Pulmonary valve atresia and stenosis	95	13	14	3	5	134	
	4.2	***4.1***	***4.4***	***2.0***	***14.2***	***4.2***	
Pulmonary valve atresia	8	0	1	0	0	9	
	0.4	***0.0***	***0.3***	***0.0***	***0.0***	***0.3***	
Rectal and large intestinal atresia/stenosis	73	9	8	11	2	105	
	3.2	***2.8***	***2.5***	***7.4***	***5.7***	***3.3***	
Renal agenesis/hypoplasia	127	19	7	6	0	164	
	5.6	***6.0***	***2.2***	***4.0***	***0.0***	***5.2***	
Single ventricle	2	1	2	0	1	6	
	0.1	***0.3***	***0.6***	***0.0***	***2.8***	***0.2***	
Small intestinal atresia/stenosis	63	7	7	3	1	82	
	2.8	***2.2***	***2.2***	***2.0***	***2.8***	***2.6***	
Spina bifida without anencephalus	57	8	11	3	0	80	
	2.5	***2.5***	***3.5***	***2.0***	***0.0***	***2.5***	
Tetralogy of Fallot	61	10	8	2	0	84	
	2.7	***3.2***	***2.5***	***1.3***	***0.0***	***2.7***	
Total anomalous pulmonary venous connection	9	0	3	1	3	17	
	0.4	***0.0***	***0.9***	***0.7***	***8.5***	***0.5***	
Transposition of the great arteries (TGA)	54	8	5	3	0	73	
	2.4	***2.5***	***1.6***	***2.0***	***0.0***	***2.3***	
Dextro-transposition of great arteries (d-TGA)	30	4	4	2	0	42	
	1.3	***1.3***	***1.3***	***1.3***	***0.0***	***1.3***	
Tricuspid valve atresia and stenosis	15	2	2	0	0	19	
	0.7	***0.6***	***0.6***	***0.0***	***0.0***	***0.6***	
Tricuspid valve atresia	15	2	2	0	0	19	
	0.7	***0.6***	***0.6***	***0.0***	***0.0***	***0.6***	
Trisomy 13	16	3	4	2	0	26	
	0.7	***0.9***	***1.3***	***1.3***	***0.0***	***0.8***	
Trisomy 18	68	10	12	5	0	97	
	3.0	***3.2***	***3.8***	***3.4***	***0.0***	***3.1***	
Trisomy 21 (Down syndrome)	244	29	43	17	4	340	
	10.8	***9.2***	***13.5***	***11.4***	***11.3***	***10.7***	
Turner syndrome	18	3	6	2	0	29	2
	1.6	***1.9***	***3.8***	***2.8***	***0.0***	***1.9***	
Ventricular septal defect	613	85	130	40	12	897	
	27.0	***26.8***	***40.9***	***26.8***	***34.0***	***28.3***	
Total live births	**226,832**	**31,667**	**31,751**	**14,919**	**3,525**	**316,613**	
Male live births	**116,118**	**16,225**	**16,162**	**7,737**	**1,805**	**162,163**	
Female live births	**110,715**	**15,442**	**15,589**	**7,181**	**1,720**	**154,450**	

Wisconsin

Birth Defects Counts and Prevalence 2012 - 2016 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	123	1	124	
	4.5	***0.2***	***3.9***	
Trisomy 13	14	12	26	
	0.5	***2.7***	***0.8***	
Trisomy 18	37	29	97	
	1.4	***6.6***	***3.1***	
Trisomy 21 (Down syndrome)	176	164	340	
	6.5	***37.3***	***10.7***	
Total live births	**272,639**	**43,973**	**316,613**	

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

*Data for totals include unknown and/or other.

Department of Defense

Birth Defects Counts and Prevalence 2012 - 20 (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	2	4	2	2	35	
	0.6	***0.3***	***0.6***	***0.7***	***2.1***	***0.6***	
Anophthalmia/microphthalmia	53	16	10	4	2	86	
	1.4	***2.0***	***1.4***	***1.4***	***2.1***	***1.5***	
Anotia/microtia	97	12	31	11	4	158	
	2.5	***1.5***	***4.3***	***3.8***	***4.1***	***2.7***	
Aortic valve stenosis	131	19	14	2	3	171	
	3.4	***2.4***	***2.0***	***0.7***	***3.1***	***2.9***	
Atrial septal defect	4,790	1,075	898	293	91	7,313	1
	124.0	***135.7***	***125.9***	***101.4***	***93.7***	***123.8***	
Atrioventricular septal defect (Endocardial cushion defect)	225	54	34	18	4	344	2
	5.8	***6.8***	***4.8***	***6.2***	***4.1***	***5.8***	
Biliary atresia	55	26	11	6	1	102	
	1.4	***3.3***	***1.5***	***2.1***	***1.0***	***1.7***	
Bladder exstrophy	20	4	0	0	0	24	
	0.5	***0.5***	***0.0***	***0.0***	***0.0***	***0.4***	
Choanal atresia	102	19	20	7	4	154	
	2.6	***2.4***	***2.8***	***2.4***	***4.1***	***2.6***	
Cleft lip alone	252	28	27	22	6	342	
	6.5	***3.5***	***3.8***	***7.6***	***6.2***	***5.8***	
Cleft lip with cleft palate	294	34	47	32	10	425	
	7.6	***4.3***	***6.6***	***11.1***	***10.3***	***7.2***	
Cleft palate alone	458	56	80	31	13	654	
	11.9	***7.1***	***11.2***	***10.7***	***13.4***	***11.1***	
Cloacal exstrophy	246	54	43	14	4	370	
	6.4	***6.8***	***6.0***	***4.8***	***4.1***	***6.3***	
Clubfoot	884	168	130	45	17	1,271	
	22.9	***21.2***	***18.2***	***15.6***	***17.5***	***21.5***	
Coarctation of the aorta	449	79	53	18	12	622	
	11.6	***10.0***	***7.4***	***6.2***	***12.4***	***10.5***	
Common truncus (truncus arteriosus)	76	7	9	3	3	102	
	2.0	***0.9***	***1.3***	***1.0***	***3.1***	***1.7***	
Congenital cataract	127	39	26	7	3	211	
	3.3	***4.9***	***3.6***	***2.4***	***3.1***	***3.6***	
Congenital posterior urethral valves	79	17	7	6	2	116	3
	4.0	***4.2***	***1.9***	***4.0***	***4.0***	***3.8***	
Craniosynostosis	319	51	36	13	4	434	4
	35.4	***25.9***	***21.4***	***17.8***	***17.6***	***31.0***	
Deletion 22q11.2	58	7	8	2	2	77	
	1.5	***0.9***	***1.1***	***0.7***	***2.1***	***1.3***	
Diaphragmatic hernia	166	48	41	15	6	283	
	4.3	***6.1***	***5.7***	***5.2***	***6.2***	***4.8***	
Double outlet right ventricle	128	34	13	6	2	186	
	3.3	***4.3***	***1.8***	***2.1***	***2.1***	***3.1***	
Ebstein anomaly	70	9	8	5	3	98	
	1.8	***1.1***	***1.1***	***1.7***	***3.1***	***1.7***	
Encephalocele	48	6	9	2	2	68	
	1.2	***0.8***	***1.3***	***0.7***	***2.1***	***1.2***	
Esophageal atresia/tracheoesophageal fistula	111	19	15	6	1	156	
	2.9	***2.4***	***2.1***	***2.1***	***1.0***	***2.6***	
Gastroschisis	199	42	57	13	8	326	
	5.2	***5.3***	***8.0***	***4.5***	***8.2***	***5.5***	
Holoprosencephaly	212	39	25	10	8	306	
	5.5	***4.9***	***3.5***	***3.5***	***8.2***	***5.2***	
Hypoplastic left heart syndrome	176	33	12	9	3	237	
	4.6	***4.2***	***1.7***	***3.1***	***3.1***	***4.0***	
Hypospadias	2,378	473	312	129	60	3,432	3
	119.3	***116.9***	***85.1***	***86.1***	***121.0***	***112.8***	
Interrupted aortic arch	175	37	27	9	5	257	
	4.5	***4.7***	***3.8***	***3.1***	***5.1***	***4.4***	

Department of Defense

Birth Defects Counts and Prevalence 2012 - 20 (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)	208	43	40	10	4	312	
	5.4	***5.4***	***5.6***	***3.5***	***4.1***	***5.3***	
Omphalocele	79	27	8	3	0	122	
	2.0	***3.4***	***1.1***	***1.0***	***0.0***	***2.1***	
Pulmonary valve atresia and stenosis	514	157	108	37	16	850	
	13.3	***19.8***	***15.1***	***12.8***	***16.5***	***14.4***	
Pulmonary valve atresia	34	9	9	4	0	58	
	0.9	***1.1***	***1.3***	***1.4***	***0.0***	***1.0***	
Rectal and large intestinal atresia/stenosis	217	40	46	20	4	335	
	5.6	***5.0***	***6.5***	***6.9***	***4.1***	***5.7***	
Renal agenesis/hypoplasia	268	58	43	22	4	398	
	6.9	***7.3***	***6.0***	***7.6***	***4.1***	***6.7***	
Single ventricle	117	22	15	7	1	166	
	3.0	***2.8***	***2.1***	***2.4***	***1.0***	***2.8***	
Small intestinal atresia/stenosis	196	47	25	15	4	291	
	5.1	***5.9***	***3.5***	***5.2***	***4.1***	***4.9***	
Spina bifida without anencephalus	189	24	31	6	4	260	
	4.9	***3.0***	***4.3***	***2.1***	***4.1***	***4.4***	
Tetralogy of Fallot	260	53	42	23	6	391	
	6.7	***6.7***	***5.9***	***8.0***	***6.2***	***6.6***	
Total anomalous pulmonary venous connection	48	7	11	3	2	74	
	1.2	***0.9***	***1.5***	***1.0***	***2.1***	***1.3***	
Transposition of the great arteries (TGA)	155	26	18	9	4	217	
	4.0	***3.3***	***2.5***	***3.1***	***4.1***	***3.7***	
Dextro-transposition of great arteries (d-TGA)	143	24	18	9	4	203	
	3.7	***3.0***	***2.5***	***3.1***	***4.1***	***3.4***	
Tricuspid valve atresia and stenosis	61	14	11	3	1	93	5
	1.6	***1.8***	***1.5***	***1.0***	***1.0***	***1.6***	
Trisomy 13	36	14	4	3	0	58	
	0.9	***1.8***	***0.6***	***1.0***	***0.0***	***1.0***	
Trisomy 18	76	23	5	3	1	112	
	2.0	***2.9***	***0.7***	***1.0***	***1.0***	***1.9***	
Trisomy 21 (Down syndrome)	571	109	85	35	12	827	
	14.8	***13.8***	***11.9***	***12.1***	***12.4***	***14.0***	
Turner syndrome	45	10	12	7	1	77	6
	2.4	***2.6***	***3.5***	***5.0***	***2.1***	***2.7***	
Ventricular septal defect	2,842	505	469	166	60	4,143	7
	73.6	***63.7***	***65.8***	***57.5***	***61.8***	***70.1***	
Total live births	**386,262**	**79,242**	**71,314**	**28,885**	**9,712**	**590,715**	
Male live births	**199,271**	**40,472**	**36,683**	**14,988**	**4,958**	**304,289**	
Female live births	**186,991**	**38,770**	**34,631**	**13,897**	**4,754**	**286,426**	

Department of Defense

Birth Defects Counts and Prevalence 2012 - 20 (Prevalence per 10,000 Live Births)

	Maternal Age (Years)			
Defect	**Less than 35**	**35+**	**Total***	**Notes**
Gastroschisis	291	5	326	
	5.7	***0.8***	***5.5***	
Trisomy 13	37	19	58	
	0.7	***3.1***	***1.0***	
Trisomy 18	65	40	112	
	1.3	***6.5***	***1.9***	
Trisomy 21 (Down syndrome)	484	304	827	
	9.5	***49.7***	***14.0***	
Total live births	**509,138**	**61,190**	**590,715**	

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 only those cases captured through ICD-10-CM codes and is restricted to infants whose first year of life occured in fiscal year 2016 or later.
5. Data for this condition include cases with 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 include inlet ventricular septal defect and probable ventricular septal defect.

General comments

*Data for totals include unknown and/or other.
-Data for all conditions exclude infants that appear as multiples of same gender.
-Minimum criteria for a case: One diagnosis from institutional records, or 2 diagnoses from professional encounter records from different dates.
-Race/ethnicity for the Department of Defense Birth and Infant Health Research (BIHR) program is based on the military parent through whom the infant receives military health care benefits. This may be the infant's mother or father. The BIHR program does not account for multiple races.

STATE BIRTH DEFECTS SURVEILLANCE

PROGRAM DIRECTORY

Updated September 2019

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
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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 third 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.
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 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://dhss.alaska.gov/dph/wcfh/Documents/mchepi/abdr/Data%20Analysis%20Methods_v2.1.pdf2)
http://dhss.alaska.gov/dph/wcfh/Documents/mchepi/abdr/Data%20Collection%20Methods_v2.1.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 prenatally 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, Epidemiological 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

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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: 39,000
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. (20 weeks gestation and greater), 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 prenatally 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, MS SQL Server

Data Analysis

Data analysis software: SAS, Access
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, Epidemiological 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:
https://www.archildrens.org/research/research-programs-and-centers/arkansas-reproductive-health-monitoring-system/arhms
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

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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/ California Department of Public Health)
Population covered annually: 70,000
Statewide: No, CBDMP currently monitors a ten-county subset 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 prenatally 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-modified BPA codes, further 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, 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, Epidemiological 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 to other state registries/databases, Link case finding data to final birth file, link registry to final vital records birth, fetal death, death and birth cohort files

Funding
Funding source: 100% Other (Fee-based Special Funds)

Other
Web site:
https://www.cdph.ca.gov/Programs/CFH/DGDS/Pages/cbdmp/default.aspx
Surveillance reports on file: California-specific birth defect data available: select defect-specific data sheets, annual surveillance report, and county-level estimates
Additional information on file: Please send inquiries to gdspcbdmp@cdph.ca.gov

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Centers for Disease Control and Prevention

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

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 prenatally 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, Epidemiological 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: https://www.cdc.gov/ncbddd/birthdefects/macdp.html
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.

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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: 63,455(2018)
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-9-CM/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) ; Mapmarker, Tableau
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, Epidemiological 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

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Connecticut

Connecticut Birth Defects Registry (CT BDR)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services, Reporting for Maternal and Child Health 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 grams 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 United States Zika Birth Defects Surveillance System (USZBDS) are currently rapid ascertainment (within 12 hours of being entered) and referred to the Connecticut Department of Health (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; Children and Youth with Special Health Care Needs (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-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, 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.), Electronic scanning of printed records
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, Epidemiological 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 electronically imports into the Maven Newborn Screening System (NSS). This database also links with the Childhood Lead Program, the Children and Youth with Special Health Care Needs program, and development is currently ongoing to include Family Wellness Healthy Start.

Funding

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

Other

Web site:
https://portal.ct.gov/DPH/Family-Health/Birth-Defects-Registry/Connecticut-Birth-Defects-Registry
Surveillance reports on file: NBDPN annual reports, state profiles

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Delaware

Delaware Birth Defects Registry (DBDR)

Purpose: Surveillance
Partner: Local Health Departments, Hospitals, 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: 11,000
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 fetal/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
Other state based registries: Programs for children with special needs, Newborn hearing screening program, Cancer registry, AIDS/HIV registry, Newborn blood spot 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, High risk pregnancy logs
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: 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 prenatally 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, Epidemiological studies (using only program data)

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 2007-2012 Delaware Birth Defects Registryhttps://dhss.delaware.gov/dhss/dph/chca/dphbdr1.html

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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-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: 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

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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: 225,018 in 2016
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, Florida has one Centers for Disease Control and Prevention (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-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, 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, Epidemiological 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.

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Georgia

Georgia Birth Defects Registry (GBDR)

Purpose: Surveillance, Research, Referral to Services
Partner: Local Health Departments, Hospitals, Early Childhood Prevention Programs
Program status: Currently collecting data
Start year: 2018
Earliest year of available data: 2016-2017 for Zika-associated birth defects
Organizational location: Department of Health (Epidemiology/Environment)
Population covered annually: 129,158 live births in 2017.
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 mandates the reporting of notifiable diseases and newborn hearing screening.
Legislation year enacted: Updated in 2003.

Case Definition
Outcomes covered: NBDPN core, recommended, and extended 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)
Age: Up to six years of age, per Georgia law.
Residence: In- and out-of-state births to state residents.

Surveillance Methods
Case ascertainment: Active Case Finding, Passive case-finding with case confirmation, Passive case-finding without case confirmation, MACDP performs active case-finding and shares these data for inclusion into the Birth Defects Registry; 2016-2017 Zika-associated birth defects (ZABDs) have been confirmed; all other reported cases with a date of birth from January 1, 2018 and onward will be confirmed.
Vital records: Birth certificates, Death certificates, Fetal death certificates
Other state based registries: Programs for children with special needs, Newborn hearing screening program, Newborn metabolic screening program, Zika Active Monitoring System, hospital line lists (Georgia Birth Defects Reporting and Information System (GBDRIS)), Early Hearing Detection and Intervention (EHDI) for hearing loss, early intervention services central intake (Children 1st, C1st). Program for CWSN refers to Children's Medical Services (CMS).
Delivery hospitals: Hospital line lists (GBDRIS)
Pediatric & tertiary care hospitals: Early intervention services central intake (Children 1st [C1st]).
Other sources: Georgia Health Information Network (state HIE), Metropolitan Atlanta Congenital Defects Program (MACDP).

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), ZABDs born during 2016-2017; 2018 and onward, all NBDPN conditions with <500 cases reported in a 12 month period (i.e., hypospadias, ASD, and VSD are not confirmed at this time).
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, Illnesses/conditions, Prenatal care, Pregnancy/delivery complications, Family history

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 reported directly by fax or submitted through an online case report form; case data may be identified through flags and free text on vital records and Newborn Screening records (NBS-CCHD and EHDI) or ascertained through passive reporting of line lists from select birthing hospitals (GBDRIS, CMS, MACDP) to our web-based SSH File Transfer Protocol (SFTP)
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 defect surveillance, all direct reports, electronic birth certificates, and passive line list cases were confirmed through medical record review and abstraction, and submitted to CDC-Zika Birth Defects Surveillance. Case confirmation will be employed for all NBDPN-reportable defects with a date of January 1, 2018 and onward. Records are reviewed for validity of reported defects. Quality assurance processes for validity and completeness will be automated once the web-based Birth Defects Registry (BDR) is active.
Data use and analysis: Public health program evaluation, Monitoring outbreaks and cluster investigations, Identification of potential cases for other epidemiologic studies, Service delivery, Referral, Grant proposals

System Integration
System links: The BDR is linked to several internal surveillance and screening systems: Zika Active Monitoring System (lab and clinical data), which includes the Zika Pregnancy Registry (CDC initiative); Newborn Screening for critical congenital heart disease (CCHD) and Early Hearing Detection and Intervention for hearing loss; daily vital records feeds of electronic birth, death, and fetal death certificates; and C1st referrals from providers.
System integration: We are nearing completion of our web-based reporting platform. In addition to the aforementioned internal and/or daily feeds, the BDR receives and matches cases from MACDP, GBDRIS, and CMS at regular intervals (e.g., monthly or quarterly basis). This registry will have the capacity to identify and link cases from flagged vital records and internal screening sources, hospital line lists with reported birth defect cases, cases directly called in and manually entered into the online case report form, and those submitted regularly by external entities (e.g., MACDP).

Funding
Funding source: 32% MCH funds, 68% 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 the DeKalb, Fulton, and Gwinnett 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 2019. We have constructed a web-based statewide BDR 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 is available on our website and contains the list of reportable conditions, a codebook for line list reporting, and media for reporting cases to the BDR. Providers interested in reporting birth defects should contact the Birth Defects Registry staff (birthdefects@dph.ga.gov) for more information.

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Hawaii

Hawaii Birth Defects Program (HBDP)

Purpose: Surveillance
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
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
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: Rates by demographic and other variables, Epidemiological 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/

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Idaho

Program status: No surveillance program

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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: 150,000
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.
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 hospital nurseries
Pediatric & tertiary care hospitals: Discharge summaries, Reporting from 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 prenatally diagnosed or suspected cases, Infants with selected defects noted on a death certificate (up to 2 years of age); any report to the program of a selected defect.
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 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, Epidemiological studies (using only program data), Needs assessment, Service delivery, Referral, Grant proposals

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: 46% General state funds, 54% 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

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Indiana

Indiana Birth Defects & Problems Registry (IBDPR)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
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: 83,000
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: 0-3 for core, recommended, and extended conditions; up to 5 years for FAS; all individuals with Autism Spectrum Disorders
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-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

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, Excel
Quality assurance: Data/hospital audits
Data use and analysis: Routine statistical monitoring, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations

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% General state funds, 20% Service fees, 60% Genetic screening revenues

Other
Web site: www.birthdefects.in.gov
Surveillance reports on file: Progress Report to the Indiana Legislature

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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: 39,219 average live births per year (2012-2016)
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 prenatally 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, Epidemiological 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/

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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: 36,464
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 ofVital Statistics. Live births and stillbirths (fetal deaths) information areused 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-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.), 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 andstillbirth (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: 50% General state funds, 50% MCH funds

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

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Kentucky

Kentucky Birth Surveillance Registry (KBSR)

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, 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: 1992

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-10 codes:• All congenital anomalies codes - Q00-Q99• Metabolic/storage disorders - D80-D82, E70-E72, E74-E83, E88, and all subcategories.• Teratogens (noxious influences) - P04.0-P04.9. • Zika Virus Disease - A92.5And any additional condition deemed necessary for public health surveillance.
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, Regular nursery logs, 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 prenatally diagnosed or suspected cases
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, 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, Epidemiological 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; 10-Year Report

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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 specified by NBDPN in core, recommended, and expanded lists including an additional list of interest to LBDMN.
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, Added Fetal Deaths for 2016 births)
Age: Up to third birthday
Residence: In and out of state births to state residents at the time of birth

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
Other state based registries: Newborn hearing screening program
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;
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, Epidemiological 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 to environmental databases, 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;

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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 (Maternal and Child Health)
Population covered annually: 12,300
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 prenatally diagnosed or suspected cases
Conditions warranting chart review beyond the newborn period: Cardiovascular condition, 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.), 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, Epidemiological 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

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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-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, 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

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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: 71,000
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 chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), All stillborn infants, All prenatally diagnosed or suspected cases, Any birth certificate with a major birth defect box checked
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

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

Data Analysis

Data analysis software: SAS, Access, 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, Identification of potential cases for other epidemiologic studies, Grant proposals, Education/public awareness, Epidemiological studies (using program data)

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

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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-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 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, Epidemiological 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

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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: Yes
Current legislation or rule: MS 144.2215-2219
Legislation year enacted: 2004

Case Definition
Outcomes covered: Pregnancy outcome: 1) Live birth; 2) Fetal death at => 2o wks in 2019 birth cohort 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), Fetal deaths - stillbirths, spontaneous abortions, etc. (20 weeks gestation and greater)
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, Fetal birth certificate
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, All stillborn infants, Any chart with an ICD10 Q00-Q99 or an ICD 10(P, Z, O) indicating stillbirths; All deaths prior to age 2 with a birth defect indicated as cause of death on death certificates, starting with 2009 births; Fetal death reports shared by Vital Records
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 for large volume reporting facilities/systems
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, Monitoring outbreaks and cluster investigations, Time trends, Observed vs. expected analyses, Epidemiological studies (using only program data), 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:
https://www.health.state.mn.us/people/childrenyouth/birthdefects/index.html

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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-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.), 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: SAS, R
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, Epidemiological studies (using only program data), Referral, Education/public awareness

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

Funding
Funding source: 100% Genetic screening revenues

Other
Web site: www.HealthyMS.com

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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 summaries
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 selected 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
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 submitted by other agencies (hospitals, etc.)
Database collection and storage: SAS

Data Analysis
Data analysis software: SAS
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, Time trends, Grant proposals, 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

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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.

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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: 26,000
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-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.), 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/Pages/Vital-Records-Birth-Defects.aspx
Surveillance reports on file:
Http://dhhs.ne.gov/Pages/Vital-Statistics.aspx

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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-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.), 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, Epidemiological 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/

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New Hampshire

New Hampshire 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 for years 2016-2017. Going forward, all birth defects recommended by the NBDPN/CDC .
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (All gestational ages)
Age: Birth to age 2
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, Any birth certificate with a birth defect box checked, All stillborn infants
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.), 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: 70% MCH funds

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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; American Academy of Pediatrics New Jersey Chapter; all three (3) New Jersey Maternal and Child Health 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 - Amended: 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, severe hyperbillirubinemia >25 mg/dL, and failed pulse oximetry are mandated 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 mandated.
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 New Jersey residents born in or out of state

Surveillance Methods

Case ascertainment: Passive case-finding with case confirmation; staff reach out to reporters to verify rule out diagnoses, pending diagnoses, and other questionable diagnoses
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-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.), 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: 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, Time trends, Epidemiological 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. 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/

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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: Since 2016, Q00-Q99 ICD-10 codes. Before that, 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. (All gestational ages), 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, Service delivery, Referral

Funding

Funding source: 100% CDC grant

Other

Web site:
https://nmtracking.org/epht-view/health/reproductive/BirthDefects.html

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New York

New York State Birth Defects Registry (NYS BDR)

Purpose: Surveillance, Research
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. (All gestational ages)
Age: As of 5/25/16: 10 years for heart defects, muscular dystrophy, genetic conditions, FAS; 2 years for all other defects
Residence: All children born in or residing in New York

Surveillance Methods
Case ascertainment: Combination of active and passive case ascertainment; population-based
Vital records: Birth certificates
Other state based registries: New York State (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
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

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
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.), 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 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, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Epidemiological studies (using only program data), Identification of potential cases for other epidemiologic studies, Grant proposals

Funding
Funding source: 11% General state funds, 11% MCH funds, 10% CDC grant, 68% Other (State Superfund, Other)

Other
Web site: http://www.health.ny.gov/birthdefects
Surveillance reports on file: Reports for 1983 - 2008 births are available. Work on a new report covering birth years 2009-2015 is under way.
Additional information on file: Counts of selected birth defects are provided on the NYS Environmental Public Health Tracking portal (Birth years 2000-2012) and Health Data New York (birth years 1992-2011). These data repositories will be updated through birth year 2015 soon.

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North Carolina

North Carolina 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-131.16
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: North Carolina 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 prenatally 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, Epidemiological 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: https://schs.dph.ncdhhs.gov/units/bdmp/

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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 (Office of the State Epidemiologist.)
Population covered annually: 10,630-This data is for CY 2018.
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 (All gestational ages and birth weights), 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: Contracted clinics conducted by Special Health Services.
Other sources: Physician Reports from contracted clinics conducted by Special Health Services.

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-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, 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, Time trends, Epidemiological studies (using only program data), Needs assessment, Education/public awareness, The NDBDMS has stopped surveillance since 2015. This due to lack of Medicaid paid claims data. Medicaid claims data was the major source of birth defects information.

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

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

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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, (Ohio Department of Health) 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-9-CM/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:
https://odh.ohio.gov/wps/portal/gov/odh/know-our-programs/birth-defects/birth-defects
Surveillance reports on file: 2011-2015 NBDPN Report2012 Annual Report
Additional information on file: OCCSN data system user guide for 1) reporting hospitals; 2) case confirmers

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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: 52,500
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; Stillbirth certificates
Other state based registries: Newborn hearing screening program, 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 prenatally 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
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, Observed vs. expected analyses, Referral, Education/public awareness, Prevention projects

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

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

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Oregon

Oregon Birth Anomalies Surveillance System (BASS)

Purpose: Surveillance
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, 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-9-CM/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/FileMakerPro

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, Time trends, Grant proposals, Education/public awareness

System Integration
System links: Oregon Environmental Public Health Tracking System

Funding
Funding source: 49% MCH funds, 51% CDC grant

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

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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 (2016) and 116,489 (2017)
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 codes for Zika-related 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, 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

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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 prenatally 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-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
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: 67.2% MCH funds, 32.7% CDC grant

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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: Rhode Island 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, Rhode Island 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 prenatally 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-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

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, Epidemiological 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: 2018 Rhode Island Birth Defects Data Book

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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)/genetic institution
Program status: Currently collecting data
Start year: GGC began monitoring in 1992; transitioned to South Carolina Department of Health and Environmental Control (SC DHEC) and expanded in 2006
Earliest year of available data: Full data available beginning in 2006
Organizational location: Department of Health (Bureau of Health Improvement and Equity)
Population covered annually: 58,135
Statewide: Yes
Current legislation or rule: Title 44-44-10, SC Birth Defects Act
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; program is expanding this age range
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
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 prenatally diagnosed or suspected cases, , 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-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.), 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. The program is trying to hire a geneticist for more assistance.
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

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South Dakota

Program status: No surveillance program

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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: 80,324
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-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: 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, Epidemiological 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 2010-2015

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Texas

Texas Birth Defects Epidemiology and Surveillance Branch (TBDES)

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, 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: 398,449 in 2016 (provisional)
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, Epidemiological 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: 23% General state funds, 70% MCH funds, 7% CDC grant

Other
Web site: https://www.dshs.texas.gov/birthdefects/
Surveillance reports on file: See website for publication and surveillance reports

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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: 50,486 for 2016
Statewide: Yes
Current legislation or rule: Birth Defect Rule (R398-5)
Legislation year enacted: 1999

Case Definition
Outcomes covered: Major structural and genetic defects identified by CDC and NBDPN.
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, Specialty outpatient clinics, Champions report live births delivered at their respective hospitals
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries, Cardiac catheterization laboratories, Specialty outpatient clinics
Other specialty facilities: Prenatal diagnostic facilities (ultrasound, etc.), Cytogenetic laboratories, 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 prenatally 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, 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.), 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, Epidemiological studies (using only program data), Identification of potential cases for other epidemiologic studies, Needs assessment, 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: 7% General state funds, 66% MCH funds, 27% 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.

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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-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, 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, Time trends, 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

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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-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.), 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, Epidemiological 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: 75% MCH funds, 25% CDC grant

Other
Web site: http://www.vdh.virginia.gov/livewell/programs/vacares/

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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-9-CM/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

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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-9-CM/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, Epidemiological 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

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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. The statute was updated September 2017 and was enacted on July 1, 2018. The original legislation required parent permission to submit identifiers to the registry. The 2017 updated removed that requirement and parents now opt out if they don't want identifiers included in the registry.Department of Health Services rules, Chapter DHS 116 Wisconsin Birth Defect Prevention and Surveillance System. Enacted April 2003.
Legislation year enacted: 2000 and update enacted in 2018

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-9-CM/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 (revenue from birth certificate fees)

Other
Web site: https://www.dhs.wisconsin.gov/cyshcn/birthdefects/index.htm
Surveillance reports on file: Posted on the website

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Wyoming

Program status: Interested in developing a surveillance program

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Department of Defense

United States Department of Defense (DoD) Birth and Infant Health Research Program (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. Infants in the 2016 birth cohort may have incomplete data through the first year of life.
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 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 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-9-CM/ICD-10-CM, The BIHR program assesses outcomes through the first year of life; however, infants in the 2016 birth cohort may have incomplete data 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 BIHR program 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, 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: 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, Epidemiological 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

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