Major Birth Defects Data from Population-based Birth Defects Surveillance Programs in the United States, 2010-2014

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, 2010 to 2014: A focus on gastrointestinal defects.”

Additional information and program contacts on population-based birth defects surveillance programs are available on page S128-S182.

The state-specific birth defects tables were prepared by the National Center on Birth Defects and Developmental Disabilities, Centers for Disease Control and Prevention and approved by the state programs in August 2017.

The 43 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 Information System; Kentucky Birth Surveillance Registry; Louisiana Birth Defects Monitoring Network; Maine CDC Birth Defects Program; Maryland Birth Defects Reporting and Information System; Massachusetts Birth Defects Monitoring Program; Michigan Birth Defects Registry; Minnesota Birth Defects Information System; Mississippi Birth Defects Surveillance Registry; Missouri Birth Defects Surveillance System; Nebraska Birth Defect Registry; Nevada Birth Outcomes Monitoring System; New Jersey Special Child Health Services Registry; New Mexico Birth Defects Prevention and Surveillance System; New York State Congenital Malformations Registry; North Carolina Birth Defects Monitoring Program; North Dakota Birth Defects Monitoring System; Oklahoma Birth Defects Registry; Oregon Birth Anomalies Surveillance System; Puerto Rico Birth Defects Surveillance and Prevention System; Rhode Island Birth Defects Program; South Carolina Birth Defects Program; Tennessee Birth Defects Surveillance System; Texas Birth Defects Epidemiology and Surveillance Branch; Utah Birth Defect Network; Vermont Birth Information Network; Virginia Congenital Anomalies and Reporting Education System; Washington State Birth Defects Surveillance System; West Virginia Birth Defects Surveillance System; Wisconsin Birth Defect Prevention and Surveillance System; and the U.S. Department of Defense Birth and Infant Health Registry.

Alaska

Birth Defects Counts and Prevalence 2010 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	<6	<6	0	0	<6	<6	
	.	.	***0.0***	***0.0***	.	.	
Anophthalmia/microphthalmia	0	0	0	<6	<6	<6	
	0.0	***0.0***	***0.0***	.	.	.	
Anotia/microtia	<6	<6	0	<6	<6	13	
	.	.	***0.0***	.	.	***3.8***	
Aortic valve stenosis	<6	0	0	<6	<6	8	
	.	***0.0***	***0.0***	.	.	***2.3***	
Atrial septal defect	263	22	0	56	191	541	
	146.0	***185.0***	***0.0***	***188.3***	***240.3***	***158.3***	
Atrioventricular septal defect (Endocardial cushion defect)	8	<6	0	<6	6	19	
	4.4	.	***0.0***	.	***7.6***	***5.6***	
Biliary atresia	0	0	0	<6	<6	<6	
	0.0	***0.0***	***0.0***	.	.	.	
Bladder exstrophy	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Choanal atresia	9	0	0	<6	<6	14	
	5.0	***0.0***	***0.0***	.	.	***4.1***	
Cleft lip alone	15	0	0	<6	<6	33	
	8.3	***0.0***	***0.0***	.	.	***9.7***	
Cleft lip with cleft palate	<6	0	0	<6	14	25	
	.	***0.0***	***0.0***	.	***17.6***	***7.3***	
Cleft palate alone	31	<6	0	6	32	70	
	17.2	.	***0.0***	***20.2***	***40.3***	***20.5***	
Cloacal exstrophy	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Clubfoot	72	10	0	14	28	124	
	40.0	***84.1***	***0.0***	***47.1***	***35.2***	***36.3***	
Coarctation of the aorta	9	0	0	<6	<6	14	
	5.0	***0.0***	***0.0***	.	.	***4.1***	
Common truncus (truncus arteriosus)	<6	<6	0	<6	<6	10	
	.	.	***0.0***	.	.	***2.9***	
Congenital cataract	10	0	0	<6	6	17	
	5.6	***0.0***	***0.0***	.	***7.6***	***5.0***	
Congenital posterior urethral valves	24	<6	0	6	<6	36	
	13.3	.	***0.0***	***20.2***	.	***10.5***	
Craniosynostosis	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Deletion 22q11.2	<6	0	0	0	0	<6	
	.	***0.0***	***0.0***	***0.0***	***0.0***	.	
Diaphragmatic hernia	6	0	0	0	8	14	
	3.3	***0.0***	***0.0***	***0.0***	***10.1***	***4.1***	
Double outlet right ventricle	<6	<6	0	0	<6	<6	
	.	.	***0.0***	***0.0***	.	.	
Ebstein anomaly	<6	0	0	<6	<6	8	
	.	***0.0***	***0.0***	.	.	***2.3***	
Encephalocele	<6	<6	0	<6	<6	8	
	.	.	***0.0***	.	.	***2.3***	
Esophageal atresia/tracheoesophageal fistula	0	<6	0	0	<6	<6	
	0.0	.	***0.0***	***0.0***	.	.	
Gastroschisis	10	<6	0	<6	11	25	
	5.6	.	***0.0***	.	***13.8***	***7.3***	
Holoprosencephaly	10	<6	0	<6	19	39	
	5.6	.	***0.0***	.	***23.9***	***11.4***	
Hypoplastic left heart syndrome	<6	0	0	0	<6	<6	
	.	***0.0***	***0.0***	***0.0***	.	.	
Hypospadias*	146	<6	0	15	37	207	
	159.0	.	***0.0***	***97.2***	***91.1***	***118.4***	
Interrupted aortic arch	11	<6	0	<6	<6	18	
	6.1	.	***0.0***	.	.	***5.3***	

Alaska

Birth Defects Counts and Prevalence 2010 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Limb deficiencies (reduction defects)	17	<6	0	<6	10	31	
	9.4	**.**	***0.0***	**.**	***12.6***	***9.1***	
Omphalocele	19	<6	0	<6	17	43	
	10.5	**.**	***0.0***	**.**	***21.4***	***12.6***	
Pulmonary valve atresia and stenosis	7	<6	0	<6	32	46	
	3.9	**.**	***0.0***	**.**	***40.3***	***13.5***	
Rectal and large intestinal atresia/stenosis	14	<6	0	<6	15	33	
	7.8	**.**	***0.0***	**.**	***18.9***	***9.7***	
Renal agenesis/hypoplasia	13	<6	0	<6	11	28	
	7.2	**.**	***0.0***	**.**	***13.8***	***8.2***	
Single ventricle	<6	0	0	0	<6	<6	
	.	***0.0***	***0.0***	***0.0***	**.**	**.**	
Small intestinal atresia/stenosis	9	0	0	<6	10	22	
	5.0	***0.0***	***0.0***	**.**	***12.6***	***6.4***	
Spina bifida without anencephalus	<6	<6	0	<6	<6	10	
	.	**.**	***0.0***	**.**	**.**	***2.9***	
Tetralogy of Fallot	7	<6	0	<6	7	18	
	3.9	**.**	***0.0***	**.**	***8.8***	***5.3***	
Total anomalous pulmonary venous connection	<6	0	0	0	<6	<6	
	.	***0.0***	***0.0***	***0.0***	**.**	**.**	
Transposition of the great arteries (TGA)	8	<6	0	<6	<6	13	
	4.4	**.**	***0.0***	**.**	**.**	***3.8***	
Tricuspid valve atresia and stenosis	0	0	0	0	<6	<6	
	0.0	***0.0***	***0.0***	***0.0***	**.**	**.**	
Trisomy 13	<6	0	0	<6	0	<6	
	.	***0.0***	***0.0***	**.**	***0.0***	**.**	
Trisomy 18	<6	0	0	<6	<6	8	
	.	***0.0***	***0.0***	**.**	**.**	***2.3***	
Trisomy 21 (Down syndrome)	38	<6	0	<6	15	63	
	21.1	**.**	***0.0***	**.**	***18.9***	***18.4***	
Turner syndrome†	<6	0	0	<6	<6	8	
	.	***0.0***	***0.0***	**.**	**.**	***4.8***	
Ventricular septal defect	154	<6	0	21	138	334	
	85.5	**.**	***0.0***	***70.6***	***173.7***	***97.7***	
Total live births§	**18015**	**1189**	**2134**	**2974**	**7947**	**34174**	
Male live births	**9185**	**632**	**1076**	**1543**	**4061**	**17477**	
Female live births	**8830**	**557**	**1058**	**1431**	**3886**	**16697**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity
§Total live births includes unknown gender

Alaska

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	❖ .	❖ .	25 ***7.3***	
Trisomy 13	❖ .	❖ .	❖ .	
Trisomy 18	❖ .	❖ .	8 ***2.3***	
Trisomy 21 (Down syndrome)	37 ***12.3***	26 ***63.0***	63 ***18.4***	
Total live births	**30027**	**4125**	**34174**	

**Total includes unknown maternal age

General comments

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

Arizona

Birth Defects Counts and Prevalence 2010 - 2013 (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	11	2	28	0	1	42	
	0.7	***1.2***	***2.1***	***0.0***	***0.5***	***1.2***	
Anophthalmia/microphthalmia	20	2	9	2	4	37	
	1.3	***1.2***	***0.7***	***1.5***	***1.8***	***1.1***	
Anotia/microtia	10	2	14	1	3	30	
	0.7	***1.2***	***1.0***	***0.8***	***1.4***	***0.9***	
Aortic valve stenosis	23	2	21	1	7	54	
	1.5	***1.2***	***1.6***	***0.8***	***3.2***	***1.6***	
Atrioventricular septal defect (Endocardial cushion defect)	39	8	36	2	6	92	1
	3.4	***6.3***	***3.6***	***2.0***	***3.7***	***3.6***	
Biliary atresia	4	1	5	3	3	17	
	0.3	***0.6***	***0.4***	***2.3***	***1.4***	***0.5***	
Bladder exstrophy	5	0	0	0	0	5	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Choanal atresia	10	3	14	1	0	29	
	0.7	***1.8***	***1.0***	***0.8***	***0.0***	***0.8***	
Cleft lip alone	58	2	37	5	16	118	
	3.8	***1.2***	***2.7***	***3.8***	***7.3***	***3.4***	
Cleft lip with cleft palate	83	7	94	7	26	222	
	5.4	***4.2***	***7.0***	***5.3***	***11.9***	***6.5***	
Cleft palate alone	93	5	66	8	16	190	
	6.1	***3.0***	***4.9***	***6.1***	***7.3***	***5.5***	
Coarctation of the aorta	55	8	55	2	12	132	
	3.6	***4.8***	***4.1***	***1.5***	***5.5***	***3.9***	
Common truncus (truncus arteriosus)	6	1	4	2	2	15	
	0.4	***0.6***	***0.3***	***1.5***	***0.9***	***0.4***	
Congenital cataract	9	2	8	1	2	23	
	0.6	***1.2***	***0.6***	***0.8***	***0.9***	***0.7***	
Diaphragmatic hernia	38	2	36	2	6	88	
	2.5	***1.2***	***2.7***	***1.5***	***2.8***	***2.6***	
Double outlet right ventricle	10	1	16	2	5	34	2
	1.3	***1.1***	***2.4***	***2.9***	***4.7***	***2.0***	
Ebstein anomaly	12	0	10	1	4	27	
	0.8	***0.0***	***0.7***	***0.8***	***1.8***	***0.8***	
Encephalocele	9	3	11	0	2	25	
	0.6	***1.8***	***0.8***	***0.0***	***0.9***	***0.7***	
Esophageal atresia/tracheoesophageal fistula	31	3	28	3	6	72	
	2.0	***1.8***	***2.1***	***2.3***	***2.8***	***2.1***	
Gastroschisis	74	11	89	4	27	210	
	4.8	***6.6***	***6.6***	***3.0***	***12.4***	***6.1***	
Holoprosencephaly	5	0	9	0	0	14	2
	0.7	***0.0***	***1.3***	***0.0***	***0.0***	***0.8***	
Hypoplastic left heart syndrome	30	8	30	3	8	79	
	2.0	***4.8***	***2.2***	***2.3***	***3.7***	***2.3***	
Interrupted aortic arch	1	1	3	1	2	8	2
	0.1	***1.1***	***0.4***	***1.5***	***1.9***	***0.5***	
Limb deficiencies (reduction defects)	40	9	34	3	10	96	
	2.6	***5.4***	***2.5***	***2.3***	***4.6***	***2.8***	
Omphalocele	37	2	18	2	2	61	
	2.4	***1.2***	***1.3***	***1.5***	***0.9***	***1.8***	
Pulmonary valve atresia and stenosis	87	9	78	6	18	200	
	5.7	***5.4***	***5.8***	***4.5***	***8.3***	***5.8***	
Pulmonary valve atresia	37	4	31	4	7	84	
	2.4	***2.4***	***2.3***	***3.0***	***3.2***	***2.5***	
Single ventricle	9	2	17	0	2	30	
	0.6	***1.2***	***1.3***	***0.0***	***0.9***	***0.9***	
Spina bifida without anencephalus	46	5	43	2	13	112	
	3.0	***3.0***	***3.2***	***1.5***	***6.0***	***3.3***	
Tetralogy of Fallot	54	3	49	8	14	131	
	3.5	***1.8***	***3.6***	***6.1***	***6.4***	***3.8***	

Arizona
Birth Defects Counts and Prevalence 2010 - 2013 (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	14 ***0.9***	2 ***1.2***	21 ***1.6***	1 ***0.8***	5 ***2.3***	44 ***1.3***	3
Transposition of the great arteries (TGA)	51 ***3.3***	8 ***4.8***	54 ***4.0***	2 ***1.5***	8 ***3.7***	123 ***3.6***	4
Dextro-transposition of great arteries (d-TGA)	31 ***2.0***	1 ***0.6***	34 ***2.5***	1 ***0.8***	3 ***1.4***	70 ***2.0***	4
Tricuspid valve atresia and stenosis	8 ***0.5***	1 ***0.6***	9 ***0.7***	2 ***1.5***	1 ***0.5***	21 ***0.6***	3
Tricuspid valve atresia	8 ***0.5***	1 ***0.6***	9 ***0.7***	2 ***1.5***	1 ***0.5***	21 ***0.6***	
Trisomy 13	11 ***0.7***	2 ***1.2***	13 ***1.0***	2 ***1.5***	2 ***0.9***	30 ***0.9***	
Trisomy 18	27 ***1.8***	3 ***1.8***	23 ***1.7***	4 ***3.0***	3 ***1.4***	60 ***1.8***	
Trisomy 21 (Down syndrome)	181 ***11.8***	17 ***10.2***	190 ***14.1***	16 ***12.1***	33 ***15.1***	444 ***13.0***	
Total live births	**152830**	**16717**	**134985**	**13194**	**21799**	**342614**	

*Hypospadias prevalence per 10,000 male live births
**Total includes unknown and other maternal race/ethnicity

Arizona

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2013 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	204	6	210	
	6.9	***1.3***	***6.1***	
Trisomy 13	20	10	30	
	0.7	***2.1***	***0.9***	
Trisomy 18	32	28	60	
	1.1	***6.0***	***1.8***	
Trisomy 21 (Down syndrome)	241	203	444	
	8.1	***43.3***	***13.0***	
Total live births	**295752**	**46862**	**342614**	

**Total includes unknown maternal age

Notes
1.Data for this condition begin mid-year 2011.
2.Data for this condition begin in 2012.
3.Data for this condition begin in 2010.
4.Data for this condition include double outlet right ventricle until 2011

General comments
-Data for 2013 are provisional.
-Data for conditions exclude possible cases.
-Stillborn cases are included in this report if there is a fetal death certificate, regardless of fetal weight or gestational age.

Arkansas

Birth Defects Counts and Prevalence 2010 - 2013 (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	5	6	2	1	41	
	2.6	***1.7***	***3.8***	***6.0***	***11.9***	***2.7***	
Anophthalmia/microphthalmia	22	6	2	1	0	32	
	2.2	***2.1***	***1.3***	***3.0***	***0.0***	***2.1***	
Anotia/microtia	16	2	12	0	0	32	
	1.6	***0.7***	***7.7***	***0.0***	***0.0***	***2.1***	
Aortic valve stenosis	42	3	13	0	1	63	
	4.1	***1.0***	***8.3***	***0.0***	***11.9***	***4.1***	
Atrial septal defect	356	104	59	16	1	568	
	34.9	***35.9***	***37.7***	***47.9***	***11.9***	***37.4***	
Atrioventricular septal defect (Endocardial cushion defect)	80	20	11	3	0	118	
	7.8	***6.9***	***7.0***	***9.0***	***0.0***	***7.8***	
Biliary atresia	8	1	2	1	0	14	
	0.8	***0.3***	***1.3***	***3.0***	***0.0***	***0.9***	
Bladder exstrophy	3	2	1	0	0	6	
	0.3	***0.7***	***0.6***	***0.0***	***0.0***	***0.4***	
Choanal atresia	4	1	0	1	0	6	
	0.4	***0.3***	***0.0***	***3.0***	***0.0***	***0.4***	
Cleft lip alone	41	5	5	1	1	58	
	4.0	***1.7***	***3.2***	***3.0***	***11.9***	***3.8***	
Cleft lip with cleft palate	84	12	12	2	0	116	
	8.2	***4.1***	***7.7***	***6.0***	***0.0***	***7.6***	
Cleft palate alone	74	16	10	1	0	106	
	7.2	***5.5***	***6.4***	***3.0***	***0.0***	***7.0***	
Cloacal exstrophy	1	1	0	0	0	2	
	0.1	***0.3***	***0.0***	***0.0***	***0.0***	***0.1***	
Clubfoot	194	32	23	3	2	265	
	19.0	***11.0***	***14.7***	***9.0***	***23.8***	***17.4***	
Coarctation of the aorta	81	15	11	1	0	117	
	7.9	***5.2***	***7.0***	***3.0***	***0.0***	***7.7***	
Common truncus (truncus arteriosus)	8	0	1	1	0	10	
	0.8	***0.0***	***0.6***	***3.0***	***0.0***	***0.7***	
Congenital cataract	34	9	4	3	0	55	
	3.3	***3.1***	***2.6***	***9.0***	***0.0***	***3.6***	
Congenital posterior urethral valves	14	10	1	0	0	27	
	1.4	***3.5***	***0.6***	***0.0***	***0.0***	***1.8***	
Craniosynostosis	81	9	12	0	0	107	
	7.9	***3.1***	***7.7***	***0.0***	***0.0***	***7.0***	
Deletion 22q11.2	9	1	2	0	0	14	
	0.9	***0.3***	***1.3***	***0.0***	***0.0***	***0.9***	
Diaphragmatic hernia	38	8	6	1	1	56	
	3.7	***2.8***	***3.8***	***3.0***	***11.9***	***3.7***	
Double outlet right ventricle	21	11	5	2	0	42	
	2.1	***3.8***	***3.2***	***6.0***	***0.0***	***2.8***	
Ebstein anomaly	12	0	3	0	0	16	
	1.2	***0.0***	***1.9***	***0.0***	***0.0***	***1.1***	
Encephalocele	5	8	0	1	0	16	
	0.5	***2.8***	***0.0***	***3.0***	***0.0***	***1.1***	
Esophageal atresia/tracheoesophageal fistula	27	5	1	1	0	34	
	2.6	***1.7***	***0.6***	***3.0***	***0.0***	***2.2***	
Gastroschisis	82	10	14	2	1	114	
	8.0	***3.5***	***9.0***	***6.0***	***11.9***	***7.5***	
Holoprosencephaly	22	5	0	0	1	29	
	2.2	***1.7***	***0.0***	***0.0***	***11.9***	***1.9***	
Hypoplastic left heart syndrome	28	6	2	2	0	42	
	2.7	***2.1***	***1.3***	***6.0***	***0.0***	***2.8***	
Hypospadias*	546	109	27	12	1	735	
	104.2	***73.7***	***33.9***	***70.9***	***22.5***	***94.4***	
Interrupted aortic arch	5	3	1	1	0	11	
	0.5	***1.0***	***0.6***	***3.0***	***0.0***	***0.7***	

Arkansas

Birth Defects Counts and Prevalence 2010 - 2013 (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)	49	21	8	1	2	83	
	4.8	***7.3***	***5.1***	***3.0***	***23.8***	***5.5***	
Omphalocele	28	7	5	0	0	41	
	2.7	***2.4***	***3.2***	***0.0***	***0.0***	***2.7***	
Pulmonary valve atresia and stenosis	156	43	19	6	0	233	
	15.3	***14.8***	***12.1***	***18.0***	***0.0***	***15.3***	
Pulmonary valve atresia	10	3	3	0	0	16	
	1.0	***1.0***	***1.9***	***0.0***	***0.0***	***1.1***	
Rectal and large intestinal atresia/stenosis	37	10	7	0	0	61	
	3.6	***3.5***	***4.5***	***0.0***	***0.0***	***4.0***	
Renal agenesis/hypoplasia	28	1	4	1	0	35	
	2.7	***0.3***	***2.6***	***3.0***	***0.0***	***2.3***	
Single ventricle	6	2	1	0	0	9	
	0.6	***0.7***	***0.6***	***0.0***	***0.0***	***0.6***	
Small intestinal atresia/stenosis	40	8	4	0	0	56	
	3.9	***2.8***	***2.6***	***0.0***	***0.0***	***3.7***	
Spina bifida without anencephalus	45	5	10	3	0	64	
	4.4	***1.7***	***6.4***	***9.0***	***0.0***	***4.2***	
Tetralogy of Fallot	42	17	4	0	1	68	
	4.1	***5.9***	***2.6***	***0.0***	***11.9***	***4.5***	
Total anomalous pulmonary venous connection	8	5	2	1	0	18	
	0.8	***1.7***	***1.3***	***3.0***	***0.0***	***1.2***	
Transposition of the great arteries (TGA)	41	6	4	3	0	58	
	4.0	***2.1***	***2.6***	***9.0***	***0.0***	***3.8***	
Dextro-transposition of great arteries (d-TGA)	30	3	4	2	0	43	
	2.9	***1.0***	***2.6***	***6.0***	***0.0***	***2.8***	
Tricuspid valve atresia and stenosis	6	2	1	1	0	10	
	0.6	***0.7***	***0.6***	***3.0***	***0.0***	***0.7***	
Tricuspid valve atresia	6	2	1	1	0	10	
	0.6	***0.7***	***0.6***	***3.0***	***0.0***	***0.7***	
Trisomy 13	10	6	1	0	0	17	
	1.0	***2.1***	***0.6***	***0.0***	***0.0***	***1.1***	
Trisomy 18	25	6	9	2	0	43	
	2.4	***2.1***	***5.8***	***6.0***	***0.0***	***2.8***	
Trisomy 21 (Down syndrome)	136	36	24	4	0	209	
	13.3	***12.4***	***15.3***	***12.0***	***0.0***	***13.7***	
Turner syndrome†	11	0	1	0	0	12	
	2.2	***0.0***	***1.3***	***0.0***	***0.0***	***1.6***	
Ventricular septal defect	619	120	121	23	2	930	
	60.6	***41.4***	***77.4***	***68.9***	***23.8***	***61.2***	
Total live births	**102078**	**28962**	**15640**	**3340**	**839**	**152017**	
Male live births	**52384**	**14782**	**7970**	**1693**	**445**	**77834**	
Female live births	**49694**	**14180**	**7670**	**1647**	**394**	**74183**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity

Arkansas

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2013 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	108	4	114	
	7.8	***3.1***	***7.5***	
Trisomy 13	13	4	17	
	0.9	***3.1***	***1.1***	
Trisomy 18	27	15	43	
	1.9	***11.5***	***2.8***	
Trisomy 21 (Down syndrome)	128	75	209	
	9.2	***57.6***	***13.7***	
Total live births	**138984**	**13021**	**152017**	

**Total includes unknown maternal age

General comments

-Stillbirths are defined as death prior to the complete expulsion or extraction from its mother of a product of human conception, irrespective of the duration of pregnancy and which is not an induced termination of pregnancy.

-Terminations are defined as fetal deaths fewer than 20 weeks unless the fetus has a defect.

California

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	<5	<5	41	<5	0	89	
	.	.	***2.1***	.	***0.0***	***2.8***	
Anophthalmia/microphthalmia	16	<5	25	5	<5	54	
	2.0	.	***1.3***	***1.9***	.	***1.7***	
Anotia/microtia	18	<5	101	13	0	136	
	2.2	.	***5.2***	***5.0***	***0.0***	***4.2***	
Aortic valve stenosis	26	5	46	<5	<5	80	
	3.2	***3.2***	***2.4***	.	.	***2.5***	
Atrial septal defect	94	21	263	37	0	418	1
	11.5	***13.5***	***13.5***	***14.3***	***0.0***	***12.9***	
Atrioventricular septal defect (Endocardial cushion defect)	45	13	100	16	<5	186	
	5.5	***8.3***	***5.1***	***6.2***	.	***5.7***	
Biliary atresia	<5	<5	7	5	0	16	
	.	.	***0.4***	***1.9***	***0.0***	***0.5***	
Bladder exstrophy	0	<5	<5	<5	0	<5	
	0.0	.	.	.	***0.0***	.	
Choanal atresia	6	<5	10	0	0	18	
	0.7	.	***0.5***	***0.0***	***0.0***	***0.6***	
Cleft lip alone	24	<5	48	10	<5	96	
	2.9	.	***2.5***	***3.9***	.	***3.0***	
Cleft lip with cleft palate	46	<5	147	15	<5	225	2
	5.6	.	***7.6***	***5.8***	.	***7.0***	
Cleft palate alone	41	5	90	13	0	155	2
	5.0	***3.2***	***4.6***	***5.0***	***0.0***	***4.8***	
Cloacal exstrophy	<5	0	0	0	0	<5	
	.	***0.0***	***0.0***	***0.0***	***0.0***	.	
Coarctation of the aorta	62	7	113	9	0	196	
	7.6	***4.5***	***5.8***	***3.5***	***0.0***	***6.1***	
Common truncus (truncus arteriosus)	<5	0	6	0	0	11	
	.	***0.0***	***0.3***	***0.0***	***0.0***	***0.3***	
Congenital cataract	19	<5	25	<5	0	52	
	2.3	.	***1.3***	.	***0.0***	***1.6***	
Congenital posterior urethral valves	6	<5	15	<5	<5	31	
	0.7	.	***0.8***	.	.	***1.0***	
Craniosynostosis	40	0	92	7	0	140	3
	4.9	***0.0***	***4.7***	***2.7***	***0.0***	***4.3***	
Deletion 22q11.2	24	<5	55	11	0	93	
	2.9	.	***2.8***	***4.2***	***0.0***	***2.9***	
Diaphragmatic hernia	25	<5	49	8	0	90	
	3.1	.	***2.5***	***3.1***	***0.0***	***2.8***	
Double outlet right ventricle	24	5	54	7	<5	93	
	2.9	***3.2***	***2.8***	***2.7***	.	***2.9***	
Ebstein anomaly	10	0	17	<5	0	31	
	1.2	***0.0***	***0.9***	.	***0.0***	***1.0***	
Encephalocele	<5	0	18	<5	<5	27	
	.	***0.0***	***0.9***	.	.	***0.8***	
Esophageal atresia/tracheoesophageal fistula	19	5	31	6	0	64	
	2.3	***3.2***	***1.6***	***2.3***	***0.0***	***2.0***	
Gastroschisis	43	7	119	15	<5	200	
	5.3	***4.5***	***6.1***	***5.8***	.	***6.2***	
Holoprosencephaly	9	0	29	0	0	47	
	1.1	***0.0***	***1.5***	***0.0***	***0.0***	***1.5***	
Hypoplastic left heart syndrome	22	5	52	6	0	93	
	2.7	***3.2***	***2.7***	***2.3***	***0.0***	***2.9***	
Hypospadias*	278	30	300	49	6	670	
	66.1	***38.0***	***30.3***	***36.9***	***59.8***	***40.6***	
Interrupted aortic arch	5	0	7	0	0	12	
	0.6	***0.0***	***0.4***	***0.0***	***0.0***	***0.4***	
Limb deficiencies (reduction defects)	28	<5	56	<5	<5	98	4
	3.4	.	***2.9***	.	.	***3.0***	

California

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Omphalocele	19	<5	26	<5	<5	66	
	2.3	***.***	***1.3***	***.***	***.***	***2.0***	
Pulmonary valve atresia	7	<5	38	11	<5	61	
	0.9	***.***	***2.0***	***4.2***	***.***	***1.9***	
Rectal and large intestinal atresia/stenosis	18	<5	47	7	0	76	5
	2.2	***.***	***2.4***	***2.7***	***0.0***	***2.3***	
Renal agenesis/hypoplasia	36	10	99	6	<5	160	
	4.4	***6.4***	***5.1***	***2.3***	***.***	***4.9***	
Single ventricle	6	<5	27	<5	0	40	
	0.7	***.***	***1.4***	***.***	***0.0***	***1.2***	
Small intestinal atresia/stenosis	27	9	88	11	<5	140	
	3.3	***5.8***	***4.5***	***4.2***	***.***	***4.3***	
Spina bifida without anencephalus	34	<5	86	<5	<5	136	
	4.2	***.***	***4.4***	***.***	***.***	***4.2***	
Tetralogy of Fallot	37	6	87	9	0	145	6
	4.5	***3.8***	***4.5***	***3.5***	***0.0***	***4.5***	
Total anomalous pulmonary venous connection	15	<5	50	<5	0	75	
	1.8	***.***	***2.6***	***.***	***0.0***	***2.3***	
Dextro-transposition of great arteries (d-TGA)	18	<5	34	6	0	63	
	2.2	***.***	***1.7***	***2.3***	***0.0***	***1.9***	
Tricuspid valve atresia	5	0	18	<5	0	25	
	0.6	***0.0***	***0.9***	***.***	***0.0***	***0.8***	
Trisomy 13	5	<5	20	<5	<5	47	
	0.6	***.***	***1.0***	***.***	***.***	***1.5***	
Trisomy 18	13	<5	43	5	0	108	
	1.6	***.***	***2.2***	***1.9***	***0.0***	***3.3***	
Trisomy 21 (Down syndrome)	103	22	325	27	0	507	
	12.6	***14.1***	***16.7***	***10.4***	***0.0***	***15.7***	
Turner syndrome†	<5	<5	15	<5	0	32	
	.	***.***	***1.6***	***.***	***0.0***	***2.0***	
Ventricular septal defect	52	13	173	19	<5	260	1
	6.3	***8.3***	***8.9***	***7.3***	***.***	***8.0***	
Total live births §	**81904**	**15599**	**194573**	**25939**	**2017**	**323512**	
Male live births	**42029**	**7885**	**98985**	**13281**	**1003**	**164983**	
Female live births	**39874**	**7714**	**95581**	**12658**	**1014**	**158521**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity
§Total live births includes unknown gender

California

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Trisomy 13	32	15	47	
	1.1	***3.8***	***1.5***	
Trisomy 18	59	49	108	
	2.1	***12.3***	***3.3***	
Trisomy 21 (Down syndrome)	235	272	507	
	8.3	***68.5***	***15.7***	
Total live births	**283750**	**39686**	**323512**	

**Total includes unknown maternal age

Notes

1.Data for this condition include only cases with congestive heart failure or cases confirmed by cath or surgery. If the defect is a component of another major heart malformation it is not counted separately.
2.Data for this condition exclude submucous cleft and and bifid uvula.
3.Data for this condition include only cases confirmed by imaging, surgery, or physician review.
4.Data for this condition exclude cases of limb reduction deformity of unspecified limb.
5.Data for this condition exclude anal stenosis.
6.Data for this condition include pentology of Fallot and pulmonary atresia with a ventricular septal defect. Data for this condition exclude trilogy of Fallot.

General comments

-<5 indicates cell size suppressed to protect confidentiality or to indicate case count <5.
-Stillbirths greater than or equal to 20 weeks are included for all defect types.
-Terminations are included for all gestational ages.

Colorado

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total**	Notes
Anencephalus	18	5	14	1	0	42	
	0.9	***3.5***	***1.5***	***0.9***	***0.0***	***1.3***	
Anophthalmia/microphthalmia	34	3	24	0	1	63	
	1.7	***2.1***	***2.6***	***0.0***	***4.8***	***1.9***	
Anotia/microtia	28	1	44	5	1	83	
	1.4	***0.7***	***4.8***	***4.3***	***4.8***	***2.5***	
Aortic valve stenosis	62	3	32	1	0	100	
	3.1	***2.1***	***3.5***	***0.9***	***0.0***	***3.1***	
Atrial septal defect	2492	251	1247	157	42	4252	
	123.5	***175.1***	***137.0***	***133.5***	***200.1***	***129.8***	
Atrioventricular septal defect (Endocardial cushion defect)	78	11	38	3	1	139	
	3.9	***7.7***	***4.2***	***2.6***	***4.8***	***4.2***	
Biliary atresia	28	1	13	0	1	45	
	1.4	***0.7***	***1.4***	***0.0***	***4.8***	***1.4***	
Bladder exstrophy	5	0	1	0	0	7	
	0.2	***0.0***	***0.1***	***0.0***	***0.0***	***0.2***	
Choanal atresia	42	4	17	1	0	65	
	2.1	***2.8***	***1.9***	***0.9***	***0.0***	***2.0***	
Cleft lip alone	78	7	45	3	0	137	
	3.9	***4.9***	***4.9***	***2.6***	***0.0***	***4.2***	
Cleft lip with cleft palate	148	9	87	7	3	264	
	7.3	***6.3***	***9.6***	***6.0***	***14.3***	***8.1***	
Cleft palate alone	182	7	72	13	3	286	
	9.0	***4.9***	***7.9***	***11.1***	***14.3***	***8.7***	
Cloacal exstrophy	126	12	74	11	1	229	
	6.2	***8.4***	***8.1***	***9.4***	***4.8***	***7.0***	
Clubfoot	383	16	169	17	5	614	
	19.0	***11.2***	***18.6***	***14.5***	***23.8***	***18.8***	
Coarctation of the aorta	192	16	86	4	0	306	
	9.5	***11.2***	***9.4***	***3.4***	***0.0***	***9.3***	
Common truncus (truncus arteriosus)	22	1	10	0	1	35	
	1.1	***0.7***	***1.1***	***0.0***	***4.8***	***1.1***	
Congenital cataract	46	1	23	3	1	76	
	2.3	***0.7***	***2.5***	***2.6***	***4.8***	***2.3***	
Congenital posterior urethral valves	44	4	15	2	0	79	
	2.2	***2.8***	***1.6***	***1.7***	***0.0***	***2.4***	
Deletion 22q11.2	26	5	14	0	0	47	
	1.3	***3.5***	***1.5***	***0.0***	***0.0***	***1.4***	
Diaphragmatic hernia	37	3	22	1	0	66	
	1.8	***2.1***	***2.4***	***0.9***	***0.0***	***2.0***	
Double outlet right ventricle	30	5	27	4	0	68	
	1.5	***3.5***	***3.0***	***3.4***	***0.0***	***2.1***	
Ebstein anomaly	29	0	7	2	0	38	
	1.4	***0.0***	***0.8***	***1.7***	***0.0***	***1.2***	
Encephalocele	16	3	13	1	0	35	
	0.8	***2.1***	***1.4***	***0.9***	***0.0***	***1.1***	
Esophageal atresia/tracheoesophageal fistula	95	2	42	5	1	148	
	4.7	***1.4***	***4.6***	***4.3***	***4.8***	***4.5***	
Gastroschisis	74	6	50	3	3	145	
	3.7	***4.2***	***5.5***	***2.6***	***14.3***	***4.4***	
Holoprosencephaly	13	3	14	0	0	33	
	0.6	***2.1***	***1.5***	***0.0***	***0.0***	***1.0***	
Hypoplastic left heart syndrome	53	2	31	0	0	89	
	2.6	***1.4***	***3.4***	***0.0***	***0.0***	***2.7***	
Hypospadias*	1391	105	344	48	17	1931	
	134.4	***143.2***	***73.9***	***80.7***	***155.4***	***115.1***	
Interrupted aortic arch	19	4	6	0	0	29	
	0.9	***2.8***	***0.7***	***0.0***	***0.0***	***0.9***	
Limb deficiencies (reduction defects)	88	5	48	1	0	156	
	4.4	***3.5***	***5.3***	***0.9***	***0.0***	***4.8***	

Colorado

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Omphalocele	39	1	20	2	1	76	
	1.9	***0.7***	***2.2***	***1.7***	***4.8***	***2.3***	
Pulmonary valve atresia and stenosis	133	15	61	7	2	223	
	6.6	***10.5***	***6.7***	***6.0***	***9.5***	***6.8***	
Pulmonary valve atresia	34	8	22	1	0	67	
	1.7	***5.6***	***2.4***	***0.9***	***0.0***	***2.0***	
Rectal and large intestinal atresia/stenosis	80	11	42	8	4	158	
	4.0	***7.7***	***4.6***	***6.8***	***19.1***	***4.8***	
Renal agenesis/hypoplasia	106	13	51	5	3	191	
	5.3	***9.1***	***5.6***	***4.3***	***14.3***	***5.8***	
Single ventricle	20	2	10	1	0	34	
	1.0	***1.4***	***1.1***	***0.9***	***0.0***	***1.0***	
Small intestinal atresia/stenosis	93	5	64	6	1	174	
	4.6	***3.5***	***7.0***	***5.1***	***4.8***	***5.3***	
Spina bifida without anencephalus	60	4	41	1	1	117	
	3.0	***2.8***	***4.5***	***0.9***	***4.8***	***3.6***	
Tetralogy of Fallot	56	3	35	2	1	98	
	2.8	***2.1***	***3.8***	***1.7***	***4.8***	***3.0***	
Total anomalous pulmonary venous connection	13	1	22	2	0	39	
	0.6	***0.7***	***2.4***	***1.7***	***0.0***	***1.2***	
Transposition of the great arteries (TGA)	55	3	22	5	0	85	
	2.7	***2.1***	***2.4***	***4.3***	***0.0***	***2.6***	
Dextro-transposition of great arteries (d-TGA)	44	3	19	5	0	71	
	2.2	***2.1***	***2.1***	***4.3***	***0.0***	***2.2***	
Tricuspid valve atresia and stenosis	27	7	12	0	0	47	
	1.3	***4.9***	***1.3***	***0.0***	***0.0***	***1.4***	
Tricuspid valve atresia	30	7	12	0	0	50	
	1.5	***4.9***	***1.3***	***0.0***	***0.0***	***1.5***	
Trisomy 13	21	4	20	2	0	88	
	1.0	***2.8***	***2.2***	***1.7***	***0.0***	***2.7***	
Trisomy 18	34	6	23	9	0	159	
	1.7	***4.2***	***2.5***	***7.7***	***0.0***	***4.9***	
Trisomy 21 (Down syndrome)	273	31	181	15	4	733	
	13.5	***21.6***	***19.9***	***12.8***	***19.1***	***22.4***	
Turner syndrome†	23	3	17	4	0	71	
	2.3	***4.3***	***3.8***	***6.9***	***0.0***	***4.4***	
Ventricular septal defect	1012	88	559	56	24	1774	
	50.1	***61.4***	***61.4***	***47.6***	***114.3***	***54.2***	
Total live births §	**201818**	**14332**	**91040**	**11756**	**2099**	**327457**	
Male live births	**103474**	**7331**	**46556**	**5947**	**1094**	**167737**	
Female live births	**98341**	**7000**	**44482**	**5808**	**1005**	**159713**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity
§Total live births includes unknown gender

Colorado

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	132	6	145	
	4.9	***1.1***	***4.4***	
Trisomy 13	29	13	88	
	1.1	***2.3***	***2.7***	
Trisomy 18	40	31	159	
	1.5	***5.5***	***4.9***	
Trisomy 21 (Down syndrome)	254	257	733	
	9.4	***45.3***	***22.4***	
Total live births	**270605**	**56784**	**327457**	

**Total includes unknown maternal age

Delaware

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	5	2	0	0	0	7	
	1.8	***1.4***	***0.0***	***0.0***	***0.0***	***1.3***	
Anophthalmia/microphthalmia	4	5	4	0	0	13	
	1.4	***3.5***	***5.8***	***0.0***	***0.0***	***2.5***	
Anotia/microtia	9	4	9	2	0	24	
	3.2	***2.8***	***13.1***	***7.7***	***0.0***	***4.6***	
Aortic valve stenosis	4	2	2	1	0	9	
	1.4	***1.4***	***2.9***	***3.9***	***0.0***	***1.7***	
Atrial septal defect	84	34	29	7	0	156	1
	29.6	***24.0***	***42.4***	***27.0***	***0.0***	***29.7***	
Atrioventricular septal defect (Endocardial cushion defect)	16	12	6	0	0	35	
	5.6	***8.5***	***8.8***	***0.0***	***0.0***	***6.7***	
Biliary atresia	2	2	0	0	0	4	
	0.7	***1.4***	***0.0***	***0.0***	***0.0***	***0.8***	
Bladder exstrophy	2	1	0	0	0	3	
	0.7	***0.7***	***0.0***	***0.0***	***0.0***	***0.6***	
Choanal atresia	2	4	2	0	0	8	
	0.7	***2.8***	***2.9***	***0.0***	***0.0***	***1.5***	
Cleft lip alone	9	2	3	1	0	15	
	3.2	***1.4***	***4.4***	***3.9***	***0.0***	***2.9***	
Cleft lip with cleft palate	18	6	6	1	0	33	
	6.3	***4.2***	***8.8***	***3.9***	***0.0***	***6.3***	
Cleft palate alone	20	8	5	0	0	33	2
	7.0	***5.7***	***7.3***	***0.0***	***0.0***	***6.3***	
Cloacal exstrophy	1	1	0	0	0	2	
	0.4	***0.7***	***0.0***	***0.0***	***0.0***	***0.4***	
Clubfoot	54	23	14	5	0	96	
	19.0	***16.3***	***20.4***	***19.3***	***0.0***	***18.3***	
Coarctation of the aorta	24	5	7	4	0	40	
	8.4	***3.5***	***10.2***	***15.5***	***0.0***	***7.6***	
Common truncus (truncus arteriosus)	0	0	1	0	0	1	
	0.0	***0.0***	***1.5***	***0.0***	***0.0***	***0.2***	
Congenital cataract	9	2	2	2	0	15	
	3.2	***1.4***	***2.9***	***7.7***	***0.0***	***2.9***	
Congenital posterior urethral valves	2	5	0	1	0	8	3
	0.7	***3.5***	***0.0***	***3.9***	***0.0***	***1.5***	
Craniosynostosis	22	3	2	0	0	28	
	7.7	***2.1***	***2.9***	***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	0	1	0	6	
	1.8	***0.0***	***0.0***	***3.9***	***0.0***	***1.1***	
Double outlet right ventricle	3	3	2	1	0	10	
	1.1	***2.1***	***2.9***	***3.9***	***0.0***	***1.9***	
Ebstein anomaly	2	0	0	0	0	2	
	0.9	***0.0***	***0.0***	***0.0***	***0.0***	***0.5***	
Encephalocele	2	2	2	0	0	6	
	0.7	***1.4***	***2.9***	***0.0***	***0.0***	***1.1***	
Esophageal atresia/tracheoesophageal fistula	3	1	1	0	0	5	
	1.1	***0.7***	***1.5***	***0.0***	***0.0***	***1.0***	
Gastroschisis	21	11	5	2	0	40	
	7.4	***7.8***	***7.3***	***7.7***	***0.0***	***7.6***	
Holoprosencephaly	1	3	2	0	0	6	
	0.4	***2.1***	***2.9***	***0.0***	***0.0***	***1.1***	
Hypoplastic left heart syndrome	12	5	4	0	1	22	
	4.2	***3.5***	***5.8***	***0.0***	***87.0***	***4.2***	
Hypospadias*	154	49	16	14	0	235	
	106.3	***67.8***	***45.9***	***104.1***	***0.0***	***87.6***	
Interrupted aortic arch	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	

Delaware

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Limb deficiencies (reduction defects)	20	14	6	3	0	44	
	7.0	***9.9***	***8.8***	***11.6***	***0.0***	***8.4***	
Omphalocele	4	6	2	0	0	12	
	1.4	***4.2***	***2.9***	***0.0***	***0.0***	***2.3***	
Pulmonary valve atresia and stenosis	37	28	11	0	1	78	
	13.0	***19.8***	***16.1***	***0.0***	***87.0***	***14.8***	
Pulmonary valve atresia	10	5	5	0	0	20	
	3.5	***3.5***	***7.3***	***0.0***	***0.0***	***3.8***	
Rectal and large intestinal atresia/stenosis	19	3	0	2	0	24	
	6.7	***2.1***	***0.0***	***7.7***	***0.0***	***4.6***	
Renal agenesis/hypoplasia	32	8	2	1	0	43	
	11.3	***5.7***	***2.9***	***3.9***	***0.0***	***8.2***	
Single ventricle	3	1	1	0	0	5	
	1.1	***0.7***	***1.5***	***0.0***	***0.0***	***1.0***	
Small intestinal atresia/stenosis	7	7	4	0	0	18	
	2.5	***4.9***	***5.8***	***0.0***	***0.0***	***3.4***	
Spina bifida without anencephalus	4	3	3	0	0	10	
	1.4	***2.1***	***4.4***	***0.0***	***0.0***	***1.9***	
Tetralogy of Fallot	13	7	2	2	0	24	
	4.6	***4.9***	***2.9***	***7.7***	***0.0***	***4.6***	
Total anomalous pulmonary venous connection	3	0	4	1	0	8	
	1.3	***0.0***	***7.3***	***4.8***	***0.0***	***1.9***	
Transposition of the great arteries (TGA)	11	2	3	1	0	17	
	3.9	***1.4***	***4.4***	***3.9***	***0.0***	***3.2***	
Dextro-transposition of great arteries (d-TGA)	3	0	2	1	0	6	
	1.1	***0.0***	***2.9***	***3.9***	***0.0***	***1.1***	
Tricuspid valve atresia and stenosis	6	4	1	1	0	12	
	2.1	***2.8***	***1.5***	***3.9***	***0.0***	***2.3***	
Tricuspid valve atresia	2	0	0	1	0	3	
	0.7	***0.0***	***0.0***	***3.9***	***0.0***	***0.6***	
Trisomy 13	3	3	2	1	0	9	
	1.1	***2.1***	***2.9***	***3.9***	***0.0***	***1.7***	
Trisomy 18	10	2	4	2	0	18	
	3.5	***1.4***	***5.8***	***7.7***	***0.0***	***3.4***	
Trisomy 21 (Down syndrome)	44	17	12	5	0	79	
	15.5	***12.0***	***17.5***	***19.3***	***0.0***	***15.0***	
Turner syndrome†	4	0	2	0	0	6	
	2.9	***0.0***	***6.0***	***0.0***	***0.0***	***2.3***	
Ventricular septal defect	252	83	71	20	0	432	4
	88.7	***58.7***	***103.7***	***77.3***	***0.0***	***82.2***	
Total live births	**28405**	**14151**	**6847**	**2588**	**115**	**52546**	
Male live births	**14494**	**7228**	**3488**	**1345**	**45**	**26821**	
Female live births	**13911**	**6923**	**3359**	**1243**	**70**	**25725**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity

Delaware

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	37	3	40	
	8.2	***4.1***	***7.6***	
Trisomy 13	7	2	9	
	1.6	***2.7***	***1.7***	
Trisomy 18	5	13	18	
	1.1	***17.6***	***3.4***	
Trisomy 21 (Down syndrome)	40	39	79	
	8.9	***52.8***	***15.0***	
Total live births	**45157**	**7389**	**52546**	

**Total includes unknown maternal age

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.
4.Data for this condition include probable cases only if the defect was found prenatally and the fetus died without a confirmatory autopsy.

General comments
-All heart defects require an echocardiogram report. Trivial or limited defects are excluded. State did not perform CCHD screening during the years 2010 -2013.
-Fetal deaths (including terminations) are included if the fetus weighed 350 grams or higher; in the absence of weight at least 20 weeks gestation or greater. Registry did not distinguish spontaneous terminations from elective terminations -stillbirths, miscarriages, and terminations were all reported together during the years 2010 - 2012.

Florida

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	37	27	20	<5	0	85	
	0.8	***1.1***	***0.7***	***.***	***0.0***	***0.8***	
Anophthalmia/microphthalmia	47	27	39	<5	0	116	
	1.0	***1.1***	***1.3***	***.***	***0.0***	***1.1***	
Anotia/microtia	28	11	43	7	0	93	
	0.6	***0.5***	***1.5***	***2.2***	***0.0***	***0.9***	
Aortic valve stenosis	71	19	39	<5	<5	137	
	1.5	***0.8***	***1.3***	***.***	***.***	***1.3***	
Atrial septal defect	4963	3097	4044	285	22	12739	
	104.7	***130.5***	***136.5***	***90.1***	***168.3***	***119.4***	
Atrioventricular septal defect (Endocardial cushion defect)	210	117	86	14	<5	442	1
	4.4	***4.9***	***2.9***	***4.4***	***.***	***4.1***	
Biliary atresia	37	34	14	<5	0	91	
	0.8	***1.4***	***0.5***	***.***	***0.0***	***0.9***	
Bladder exstrophy	13	5	<5	0	0	21	
	0.3	***0.2***	***.***	***0.0***	***0.0***	***0.2***	
Choanal atresia	99	36	61	5	<5	207	
	2.1	***1.5***	***2.1***	***1.6***	***.***	***1.9***	
Cleft lip alone	140	37	53	<5	0	241	
	3.0	***1.6***	***1.8***	***.***	***0.0***	***2.3***	
Cleft lip with cleft palate	279	83	137	17	<5	531	
	5.9	***3.5***	***4.6***	***5.4***	***.***	***5.0***	
Cleft palate alone	288	82	139	26	<5	549	
	6.1	***3.5***	***4.7***	***8.2***	***.***	***5.1***	
Cloacal exstrophy	293	169	196	11	<5	692	
	6.2	***7.1***	***6.6***	***3.5***	***.***	***6.5***	
Clubfoot	749	255	361	35	<5	1438	
	15.8	***10.7***	***12.2***	***11.1***	***.***	***13.5***	
Coarctation of the aorta	398	150	170	18	<5	762	
	8.4	***6.3***	***5.7***	***5.7***	***.***	***7.1***	
Common truncus (truncus arteriosus)	37	16	18	<5	0	76	
	0.8	***0.7***	***0.6***	***.***	***0.0***	***0.7***	
Congenital cataract	82	25	32	<5	0	145	
	1.7	***1.1***	***1.1***	***.***	***0.0***	***1.4***	
Congenital posterior urethral valves	63	55	27	<5	0	149	
	1.3	***2.3***	***0.9***	***.***	***0.0***	***1.4***	
Deletion 22q11.2	20	5	7	0	0	32	
	0.4	***0.2***	***0.2***	***0.0***	***0.0***	***0.3***	
Diaphragmatic hernia	146	75	92	11	<5	334	
	3.1	***3.2***	***3.1***	***3.5***	***.***	***3.1***	
Double outlet right ventricle	111	54	66	10	<5	252	
	2.3	***2.3***	***2.2***	***3.2***	***.***	***2.4***	
Ebstein anomaly	38	13	14	<5	0	71	
	0.8	***0.5***	***0.5***	***.***	***0.0***	***0.7***	
Encephalocele	32	21	22	<5	0	78	
	0.7	***0.9***	***0.7***	***.***	***0.0***	***0.7***	
Esophageal atresia/tracheoesophageal fistula	124	52	68	9	<5	258	
	2.6	***2.2***	***2.3***	***2.8***	***.***	***2.4***	
Gastroschisis	284	63	131	11	<5	499	2
	6.0	***2.7***	***4.4***	***3.5***	***.***	***4.7***	
Holoprosencephaly	221	128	114	16	0	490	
	4.7	***5.4***	***3.8***	***5.1***	***0.0***	***4.6***	
Hypoplastic left heart syndrome	174	82	70	8	0	343	
	3.7	***3.5***	***2.4***	***2.5***	***0.0***	***3.2***	
Hypospadias*	2175	836	840	83	5	4032	
	89.3	***69.3***	***55.4***	***51.1***	***74.4***	***73.8***	
Interrupted aortic arch	18	13	19	<5	0	55	
	0.4	***0.5***	***0.6***	***.***	***0.0***	***0.5***	
Limb deficiencies (reduction defects)	186	90	104	13	<5	403	
	3.9	***3.8***	***3.5***	***4.1***	***.***	***3.8***	

Florida

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Omphalocele	116	83	40	<5	0	246	2
	2.4	***3.5***	***1.4***	***.***	***0.0***	***2.3***	
Pulmonary valve atresia and stenosis	410	300	275	21	0	1035	
	8.7	***12.6***	***9.3***	***6.6***	***0.0***	***9.7***	
Pulmonary valve atresia	66	41	41	<5	0	158	
	1.4	***1.7***	***1.4***	***.***	***0.0***	***1.5***	
Rectal and large intestinal atresia/stenosis	187	103	127	9	<5	443	
	3.9	***4.3***	***4.3***	***2.8***	***.***	***4.2***	
Renal agenesis/hypoplasia	274	140	153	10	<5	592	
	5.8	***5.9***	***5.2***	***3.2***	***.***	***5.5***	
Single ventricle	59	45	37	5	0	149	
	1.2	***1.9***	***1.2***	***1.6***	***0.0***	***1.4***	
Small intestinal atresia/stenosis	243	119	131	20	0	523	
	5.1	***5.0***	***4.4***	***6.3***	***0.0***	***4.9***	
Spina bifida without anencephalus	163	49	71	10	0	296	
	3.4	***2.1***	***2.4***	***3.2***	***0.0***	***2.8***	
Tetralogy of Fallot	247	120	121	16	<5	525	
	5.2	***5.1***	***4.1***	***5.1***	***.***	***4.9***	
Total anomalous pulmonary venous connection	37	29	27	<5	0	97	
	0.8	***1.2***	***0.9***	***.***	***0.0***	***0.9***	
Transposition of the great arteries (TGA)	151	38	53	<5	<5	254	
	3.2	***1.6***	***1.8***	***.***	***.***	***2.4***	
Dextro-transposition of great arteries (d-TGA)	127	30	46	<5	<5	214	
	2.7	***1.3***	***1.6***	***.***	***.***	***2.0***	
Tricuspid valve atresia and stenosis	43	37	22	<5	0	108	3
	0.9	***1.6***	***0.7***	***.***	***0.0***	***1.0***	
Trisomy 13	53	31	22	0	0	107	
	1.1	***1.3***	***0.7***	***0.0***	***0.0***	***1.0***	
Trisomy 18	84	71	55	7	0	226	
	1.8	***3.0***	***1.9***	***2.2***	***0.0***	***2.1***	
Trisomy 21 (Down syndrome)	640	295	405	54	<5	1443	
	13.5	***12.4***	***13.7***	***17.1***	***.***	***13.5***	
Turner syndrome†	39	13	25	<5	0	81	
	1.7	***1.1***	***1.7***	***.***	***0.0***	***1.6***	
Ventricular septal defect	3037	1354	2101	174	9	6863	4
	64.1	***57.0***	***70.9***	***55.0***	***68.9***	***64.3***	
Total live births §	**473964**	**237370**	**296196**	**31617**	**1307**	**1067186**	
Male live births	**243632**	**120660**	**151514**	**16253**	**672**	**546545**	
Female live births	**230329**	**116708**	**144680**	**15363**	**635**	**520631**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births. Excludes male phenotype.
**Total includes unknown and other maternal race/ethnicity
§Total live births includes unknown gender

Florida

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	486	13	499	2
	5.4	***0.8***	***4.7***	
Trisomy 13	67	40	107	
	0.7	***2.4***	***1.0***	
Trisomy 18	116	110	226	
	1.3	***6.7***	***2.1***	
Trisomy 21 (Down syndrome)	731	712	1443	
	8.1	***43.2***	***13.5***	
Total live births	**902227**	**164892**	**1067186**	

**Total includes unknown maternal age

Notes
1.Data for this condition include canal type atrioventricular septal defect.
2.Data for this condition may differ from previous reports due to ICD-9-CM coding system changes.
3.Data for this condition include congenital tricuspid stenosis.
4.Data for this condition include probable cases.

General comments
-Data for conditions only includes live births.

Georgia (Metropolitan Atlanta Congenital Defects Program)

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	17	17	13	1	0	60	
	3.0	***2.1***	***3.3***	***0.7***	***0.0***	***2.9***	
Anophthalmia/microphthalmia	13	10	6	2	0	33	
	2.3	***1.2***	***1.5***	***1.4***	***0.0***	***1.6***	
Anotia/microtia	9	8	16	5	0	39	
	1.6	***1.0***	***4.0***	***3.4***	***0.0***	***1.9***	
Aortic valve stenosis	12	4	10	0	0	28	
	2.1	***0.5***	***2.5***	***0.0***	***0.0***	***1.4***	
Atrial septal defect	75	148	48	18	0	329	
	13.2	***17.9***	***12.0***	***12.3***	***0.0***	***16.1***	
Atrioventricular septal defect (Endocardial cushion defect)	35	63	14	3	0	131	
	6.2	***7.6***	***3.5***	***2.0***	***0.0***	***6.4***	
Biliary atresia	3	1	2	0	1	10	
	0.5	***0.1***	***0.5***	***0.0***	***68.0***	***0.5***	
Bladder exstrophy	4	1	0	0	0	6	
	0.7	***0.1***	***0.0***	***0.0***	***0.0***	***0.3***	
Choanal atresia	2	9	3	0	0	14	
	0.4	***1.1***	***0.8***	***0.0***	***0.0***	***0.7***	
Cleft lip alone	20	17	12	7	0	61	
	3.5	***2.1***	***3.0***	***4.8***	***0.0***	***3.0***	
Cleft lip with cleft palate	30	32	20	10	0	110	
	5.3	***3.9***	***5.0***	***6.8***	***0.0***	***5.4***	
Cleft palate alone	25	33	15	11	0	96	
	4.4	***4.0***	***3.8***	***7.5***	***0.0***	***4.7***	
Cloacal exstrophy	1	1	0	1	0	3	
	0.2	***0.1***	***0.0***	***0.7***	***0.0***	***0.1***	
Clubfoot	69	123	53	14	1	288	
	12.2	***14.9***	***13.3***	***9.6***	***68.0***	***14.1***	
Coarctation of the aorta	40	44	25	5	0	124	
	7.1	***5.3***	***6.3***	***3.4***	***0.0***	***6.1***	
Common truncus (truncus arteriosus)	2	4	2	3	0	11	
	0.4	***0.5***	***0.5***	***2.0***	***0.0***	***0.5***	
Congenital cataract	9	17	8	3	0	38	
	1.6	***2.1***	***2.0***	***2.0***	***0.0***	***1.9***	
Congenital posterior urethral valves	5	17	10	2	0	41	
	0.9	***2.1***	***2.5***	***1.4***	***0.0***	***2.0***	
Craniosynostosis	23	20	8	2	1	68	
	4.1	***2.4***	***2.0***	***1.4***	***68.0***	***3.3***	
Deletion 22q11.2	4	10	2	1	0	20	
	0.7	***1.2***	***0.5***	***0.7***	***0.0***	***1.0***	
Diaphragmatic hernia	10	24	11	3	0	64	
	1.8	***2.9***	***2.8***	***2.0***	***0.0***	***3.1***	
Double outlet right ventricle	9	20	11	3	0	47	
	1.6	***2.4***	***2.8***	***2.0***	***0.0***	***2.3***	
Ebstein anomaly	0	5	2	2	0	9	
	0.0	***0.6***	***0.5***	***1.4***	***0.0***	***0.4***	
Encephalocele	2	6	4	4	0	21	
	0.4	***0.7***	***1.0***	***2.7***	***0.0***	***1.0***	
Esophageal atresia/tracheoesophageal fistula	19	25	4	0	0	52	
	3.3	***3.0***	***1.0***	***0.0***	***0.0***	***2.5***	
Gastroschisis	26	26	18	3	0	83	
	4.6	***3.1***	***4.5***	***2.0***	***0.0***	***4.1***	
Holoprosencephaly	14	18	7	5	0	51	
	2.5	***2.2***	***1.8***	***3.4***	***0.0***	***2.5***	
Hypoplastic left heart syndrome	21	20	7	6	0	59	
	3.7	***2.4***	***1.8***	***4.1***	***0.0***	***2.9***	
Hypospadias*	213	280	67	35	1	670	
	73.0	***66.7***	***33.0***	***47.3***	***133.3***	***64.5***	
Interrupted aortic arch	3	5	0	1	0	13	
	0.5	***0.6***	***0.0***	***0.7***	***0.0***	***0.6***	

Georgia (Metropolitan Atlanta Congenital Defects Program)

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Limb deficiencies (reduction defects)	16	40	15	2	0	83	
	2.8	***4.8***	***3.8***	***1.4***	***0.0***	***4.1***	
Omphalocele	16	35	9	4	1	79	
	2.8	***4.2***	***2.3***	***2.7***	***68.0***	***3.9***	
Pulmonary valve atresia and stenosis	45	57	29	9	0	160	
	7.9	***6.9***	***7.3***	***6.1***	***0.0***	***7.8***	
Pulmonary valve atresia	13	19	10	3	0	51	
	2.3	***2.3***	***2.5***	***2.0***	***0.0***	***2.5***	
Rectal and large intestinal atresia/stenosis	29	27	16	7	0	82	
	5.1	***3.3***	***4.0***	***4.8***	***0.0***	***4.0***	
Renal agenesis/hypoplasia	40	56	13	10	0	133	
	7.1	***6.8***	***3.3***	***6.8***	***0.0***	***6.5***	
Single ventricle	2	12	7	2	0	27	
	0.4	***1.4***	***1.8***	***1.4***	***0.0***	***1.3***	
Small intestinal atresia/stenosis	18	26	9	3	0	64	
	3.2	***3.1***	***2.3***	***2.0***	***0.0***	***3.1***	
Spina bifida without anencephalus	26	29	14	4	0	82	
	4.6	***3.5***	***3.5***	***2.7***	***0.0***	***4.0***	
Tetralogy of Fallot	36	37	6	6	0	95	
	6.3	***4.5***	***1.5***	***4.1***	***0.0***	***4.7***	
Total anomalous pulmonary venous connection	5	5	9	5	0	26	
	0.9	***0.6***	***2.3***	***3.4***	***0.0***	***1.3***	
Transposition of the great arteries (TGA)	22	22	10	1	0	64	
	3.9	***2.7***	***2.5***	***0.7***	***0.0***	***3.1***	
Dextro-transposition of great arteries (d-TGA)	21	16	5	1	0	52	
	3.7	***1.9***	***1.3***	***0.7***	***0.0***	***2.5***	
Tricuspid valve atresia and stenosis	8	14	6	4	0	34	
	1.4	***1.7***	***1.5***	***2.7***	***0.0***	***1.7***	
Tricuspid valve atresia	6	4	2	3	0	16	
	1.1	***0.5***	***0.5***	***2.0***	***0.0***	***0.8***	
Trisomy 13	13	19	7	2	0	49	
	2.3	***2.3***	***1.8***	***1.4***	***0.0***	***2.4***	
Trisomy 18	27	33	10	6	1	96	
	4.8	***4.0***	***2.5***	***4.1***	***68.0***	***4.7***	
Trisomy 21 (Down syndrome)	128	119	76	24	1	399	
	22.6	***14.4***	***19.1***	***16.4***	***68.0***	***19.6***	
Turner syndrome†	13	20	1	2	0	42	
	4.7	***4.9***	***0.5***	***2.8***	***0.0***	***4.2***	
Ventricular septal defect	347	357	237	66	0	1118	
	61.2	***43.1***	***59.4***	***45.0***	***0.0***	***54.8***	
Total live births	**56735**	**82809**	**39869**	**14651**	**147**	**204011**	
Male live births	**29187**	**41988**	**20278**	**7405**	**75**	**103930**	
Female live births	**27548**	**40821**	**19591**	**7246**	**72**	**100081**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity

Georgia (Metropolitan Atlanta Congenital Defects Program)

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	76	5	83	
	4.7	***1.1***	***4.1***	
Trisomy 13	30	19	49	
	1.9	***4.3***	***2.4***	
Trisomy 18	29	63	96	
	1.8	***14.4***	***4.7***	
Trisomy 21 (Down syndrome)	174	213	399	
	10.9	***48.6***	***19.6***	
Total live births	**160164**	**43831**	**204011**	

**Total includes unknown maternal age

General comments
-Cases for which the date of delivery was unknown are included in the year of their last known prenatal test.
-Elective terminations include all gestational ages.
-Live births include gestational ages greater than or equal to 20 weeks.
-Prior to 2012 data include 5 counties. Data for 2012-2014 include only 3 of the original 5 counties.
-Stillbirths include gestational ages greater than or equal to 20 weeks.

Hawaii

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

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	2	0	0	1	0	4	
	4.7	***0.0***	***0.0***	***0.7***	***0.0***	***2.1***	
Anotia/microtia	1	0	0	0	0	1	
	2.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.5***	
Atrial septal defect	7	0	4	18	0	35	
	16.3	***0.0***	***134.2***	***13.3***	***0.0***	***18.5***	
Atrioventricular septal defect (Endocardial cushion defect)	1	0	1	3	0	5	
	2.3	***0.0***	***33.6***	***2.2***	***0.0***	***2.6***	
Biliary atresia	1	0	0	2	0	3	
	2.3	***0.0***	***0.0***	***1.5***	***0.0***	***1.6***	
Bladder exstrophy	1	0	0	0	0	1	
	2.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.5***	
Choanal atresia	1	0	0	0	0	1	
	2.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.5***	
Cleft lip alone	3	0	2	8	0	14	
	7.0	***0.0***	***67.1***	***5.9***	***0.0***	***7.4***	
Cleft lip with cleft palate	1	0	0	7	0	9	
	2.3	***0.0***	***0.0***	***5.2***	***0.0***	***4.7***	
Cleft palate alone	2	0	0	4	0	7	
	4.7	***0.0***	***0.0***	***3.0***	***0.0***	***3.7***	
Coarctation of the aorta	1	0	0	3	0	4	
	2.3	***0.0***	***0.0***	***2.2***	***0.0***	***2.1***	
Ebstein anomaly	0	0	0	1	0	1	
	0.0	***0.0***	***0.0***	***0.7***	***0.0***	***0.5***	
Encephalocele	0	0	0	2	0	2	
	0.0	***0.0***	***0.0***	***1.5***	***0.0***	***1.1***	
Esophageal atresia/tracheoesophageal fistula	1	0	0	3	0	5	
	2.3	***0.0***	***0.0***	***2.2***	***0.0***	***2.6***	
Gastroschisis	2	0	0	9	0	12	
	4.7	***0.0***	***0.0***	***6.7***	***0.0***	***6.3***	
Hypoplastic left heart syndrome	0	0	0	2	0	3	
	0.0	***0.0***	***0.0***	***1.5***	***0.0***	***1.6***	
Hypospadias*	6	0	2	40	0	54	
	27.6	***0.0***	***123.5***	***57.8***	***0.0***	***56.0***	
Omphalocele	0	0	1	3	0	4	
	0.0	***0.0***	***33.6***	***2.2***	***0.0***	***2.1***	
Pulmonary valve atresia and stenosis	5	0	1	5	0	12	
	11.7	***0.0***	***33.6***	***3.7***	***0.0***	***6.3***	
Pulmonary valve atresia	0	0	0	2	0	2	
	0.0	***0.0***	***0.0***	***1.5***	***0.0***	***1.1***	
Rectal and large intestinal atresia/stenosis	3	0	0	8	0	12	
	7.0	***0.0***	***0.0***	***5.9***	***0.0***	***6.3***	
Renal agenesis/hypoplasia	1	0	0	6	0	8	
	2.3	***0.0***	***0.0***	***4.4***	***0.0***	***4.2***	
Spina bifida without anencephalus	0	0	0	1	0	1	
	0.0	***0.0***	***0.0***	***0.7***	***0.0***	***0.5***	
Tetralogy of Fallot	1	0	0	1	0	2	
	2.3	***0.0***	***0.0***	***0.7***	***0.0***	***1.1***	
Total anomalous pulmonary venous connection	0	0	0	2	0	2	
	0.0	***0.0***	***0.0***	***1.5***	***0.0***	***1.1***	
Transposition of the great arteries (TGA)	0	1	1	6	0	8	
	0.0	***20.0***	***33.6***	***4.4***	***0.0***	***4.2***	
Tricuspid valve atresia and stenosis	0	0	1	3	0	4	
	0.0	***0.0***	***33.6***	***2.2***	***0.0***	***2.1***	
Tricuspid valve atresia	0	0	1	3	0	4	
	0.0	***0.0***	***33.6***	***2.2***	***0.0***	***2.1***	
Trisomy 13	0	0	0	2	0	2	
	0.0	***0.0***	***0.0***	***1.5***	***0.0***	***1.1***	
Trisomy 18	3	0	1	6	0	15	
	7.0	***0.0***	***33.6***	***4.4***	***0.0***	***7.9***	

Hawaii

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

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Trisomy 21 (Down syndrome)	5	0	2	14	0	29	
	11.7	***0.0***	***67.1***	***10.3***	***0.0***	***15.3***	
Turner syndrome†	1	0	0	1	0	2	
	4.7	***0.0***	***0.0***	***1.5***	***0.0***	***2.2***	
Ventricular septal defect	8	0	4	29	0	50	
	18.7	***0.0***	***134.2***	***21.4***	***0.0***	***26.4***	
Total live births §	**4282**	**501**	**298**	**13532**	**237**	**18965**	
Male live births	**2172**	**251**	**162**	**6918**	**113**	**9645**	
Female live births	**2110**	**250**	**136**	**6614**	**124**	**9263**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity
§Total live births includes unknown gender

Hawaii

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 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	***3.0***	***1.1***	
Trisomy 18	8	7	15	
	5.2	***20.7***	***7.9***	
Trisomy 21 (Down syndrome)	13	16	29	
	8.4	***47.3***	***15.3***	
Total live births	**15497**	**3382**	**18965**	

**Total includes unknown maternal age

General comments

-Fetal deaths are defined as baby born dead (without heart rate or respiration) during or after 18th gestation week; includes babies that died during childbirth.

-Terminations limited to 20 weeks gestation and 350 gms.

Illinois

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	59	18	42	4	0	126	
	1.4	***1.3***	***2.4***	***0.8***	***0.0***	***1.6***	
Anophthalmia/microphthalmia	69	20	37	6	1	133	
	1.6	***1.5***	***2.1***	***1.2***	***6.3***	***1.7***	
Anotia/microtia	52	8	70	8	0	138	
	1.2	***0.6***	***4.0***	***1.6***	***0.0***	***1.7***	
Aortic valve stenosis	64	11	29	7	0	111	
	1.5	***0.8***	***1.7***	***1.4***	***0.0***	***1.4***	
Atrial septal defect	1148	406	513	147	7	2228	
	27.3	***29.8***	***29.4***	***30.0***	***44.4***	***27.8***	
Atrioventricular septal defect (Endocardial cushion defect)	201	75	81	14	0	373	1
	4.8	***5.5***	***4.6***	***2.9***	***0.0***	***4.7***	
Biliary atresia	7	6	5	4	0	22	
	0.2	***0.4***	***0.3***	***0.8***	***0.0***	***0.3***	
Bladder exstrophy	11	2	5	1	0	20	
	0.3	***0.1***	***0.3***	***0.2***	***0.0***	***0.2***	
Choanal atresia	53	16	20	4	0	93	
	1.3	***1.2***	***1.1***	***0.8***	***0.0***	***1.2***	
Cleft lip alone	136	37	39	15	2	230	
	3.2	***2.7***	***2.2***	***3.1***	***12.7***	***2.9***	
Cleft lip with cleft palate	215	48	131	27	1	422	
	5.1	***3.5***	***7.5***	***5.5***	***6.3***	***5.3***	
Cleft palate alone	242	59	88	26	1	417	
	5.8	***4.3***	***5.0***	***5.3***	***6.3***	***5.2***	
Cloacal exstrophy	10	3	4	1	0	18	
	0.2	***0.2***	***0.2***	***0.2***	***0.0***	***0.2***	
Clubfoot	347	116	163	27	1	657	
	8.3	***8.5***	***9.3***	***5.5***	***6.3***	***8.2***	
Coarctation of the aorta	170	42	80	14	1	307	
	4.0	***3.1***	***4.6***	***2.9***	***6.3***	***3.8***	
Common truncus (truncus arteriosus)	24	3	14	3	0	44	
	0.6	***0.2***	***0.8***	***0.6***	***0.0***	***0.5***	
Congenital cataract	38	26	12	4	0	80	
	0.9	***1.9***	***0.7***	***0.8***	***0.0***	***1.0***	
Congenital posterior urethral valves	29	16	9	1	0	55	
	0.7	***1.2***	***0.5***	***0.2***	***0.0***	***0.7***	
Craniosynostosis	74	13	32	6	0	125	
	1.8	***1.0***	***1.8***	***1.2***	***0.0***	***1.6***	
Deletion 22q11.2	30	14	12	5	0	62	
	0.7	***1.0***	***0.7***	***1.0***	***0.0***	***0.8***	
Diaphragmatic hernia	118	28	36	9	1	193	
	2.8	***2.1***	***2.1***	***1.8***	***6.3***	***2.4***	
Double outlet right ventricle	56	32	37	11	0	136	
	1.3	***2.3***	***2.1***	***2.2***	***0.0***	***1.7***	
Ebstein anomaly	25	4	16	3	0	48	
	0.6	***0.3***	***0.9***	***0.6***	***0.0***	***0.6***	
Encephalocele	20	14	20	2	0	57	
	0.5	***1.0***	***1.1***	***0.4***	***0.0***	***0.7***	
Esophageal atresia/tracheoesophageal fistula	116	24	42	7	0	189	
	2.8	***1.8***	***2.4***	***1.4***	***0.0***	***2.4***	
Gastroschisis	148	58	87	2	0	295	
	3.5	***4.3***	***5.0***	***0.4***	***0.0***	***3.7***	
Holoprosencephaly	31	12	30	1	2	79	
	0.7	***0.9***	***1.7***	***0.2***	***12.7***	***1.0***	
Hypoplastic left heart syndrome	74	31	30	7	1	144	
	1.8	***2.3***	***1.7***	***1.4***	***6.3***	***1.8***	
Hypospadias*	1475	366	257	123	6	2228	
	68.4	***52.8***	***28.9***	***48.8***	***73.5***	***54.4***	
Interrupted aortic arch	16	14	9	0	0	39	
	0.4	***1.0***	***0.5***	***0.0***	***0.0***	***0.5***	

Illinois

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Limb deficiencies (reduction defects)	159	69	66	17	0	312	
	3.8	***5.1***	***3.8***	***3.5***	***0.0***	***3.9***	
Omphalocele	77	32	27	6	1	144	
	1.8	***2.3***	***1.5***	***1.2***	***6.3***	***1.8***	
Pulmonary valve atresia and stenosis	135	67	79	20	0	303	
	3.2	***4.9***	***4.5***	***4.1***	***0.0***	***3.8***	
Pulmonary valve atresia	7	7	6	1	0	21	2
	0.2	***0.5***	***0.3***	***0.2***	***0.0***	***0.3***	
Rectal and large intestinal atresia/stenosis	151	52	62	12	2	279	
	3.6	***3.8***	***3.6***	***2.4***	***12.7***	***3.5***	
Renal agenesis/hypoplasia	257	85	108	30	0	485	
	6.1	***6.2***	***6.2***	***6.1***	***0.0***	***6.1***	
Single ventricle	16	8	4	3	0	31	
	0.4	***0.6***	***0.2***	***0.6***	***0.0***	***0.4***	
Small intestinal atresia/stenosis	90	28	55	11	1	186	
	2.1	***2.1***	***3.2***	***2.2***	***6.3***	***2.3***	
Spina bifida without anencephalus	138	38	65	10	0	251	
	3.3	***2.8***	***3.7***	***2.0***	***0.0***	***3.1***	
Tetralogy of Fallot	139	50	68	23	1	282	
	3.3	***3.7***	***3.9***	***4.7***	***6.3***	***3.5***	
Total anomalous pulmonary venous connection	30	9	26	3	0	68	
	0.7	***0.7***	***1.5***	***0.6***	***0.0***	***0.8***	
Transposition of the great arteries (TGA)	118	24	42	10	0	194	
	2.8	***1.8***	***2.4***	***2.0***	***0.0***	***2.4***	
Dextro-transposition of great arteries (d-TGA)	100	24	33	8	0	165	
	2.4	***1.8***	***1.9***	***1.6***	***0.0***	***2.1***	
Tricuspid valve atresia and stenosis	104	39	63	9	1	216	3
	2.5	***2.9***	***3.6***	***1.8***	***6.3***	***2.7***	
Tricuspid valve atresia	21	10	15	1	0	47	4
	0.5	***0.7***	***0.9***	***0.2***	***0.0***	***0.6***	
Trisomy 13	49	15	24	4	0	94	
	1.2	***1.1***	***1.4***	***0.8***	***0.0***	***1.2***	
Trisomy 18	98	26	54	8	1	195	
	2.3	***1.9***	***3.1***	***1.6***	***6.3***	***2.4***	
Trisomy 21 (Down syndrome)	549	129	352	48	3	1087	
	13.1	***9.5***	***20.2***	***9.8***	***19.0***	***13.6***	
Turner syndrome†	35	9	17	1	0	63	
	1.7	***1.3***	***2.0***	***0.4***	***0.0***	***1.6***	
Ventricular septal defect	1811	475	820	197	13	3319	5
	43.1	***34.8***	***47.0***	***40.2***	***82.4***	***41.4***	
Total live births §	**419842**	**136370**	**174403**	**49056**	**1577**	**800824**	
Male live births	**215611**	**69330**	**88810**	**25230**	**816**	**409878**	
Female live births	**204223**	**67031**	**85586**	**23826**	**761**	**390921**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births. Excludes male phenotype.
**Total includes unknown and other maternal race/ethnicity
§Total live births includes unknown gender

Illinois

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	273	13	295	
	4.1	***1.0***	***3.7***	
Trisomy 13	53	26	94	
	0.8	***2.0***	***1.2***	
Trisomy 18	88	52	195	
	1.3	***3.9***	***2.4***	
Trisomy 21 (Down syndrome)	493	566	1087	
	7.4	***42.8***	***13.6***	
Total live births	**668390**	**132360**	**800824**	

**Total includes unknown maternal age

Notes
1.Data for this condition include inlet ventricular septal defects including common atrioventricular canal type ventricular septal defect.
2.Data for this condition exclude cases with tetralogy of Fallot or cases with a ventricular septal defect.
3.Data for this condition include tricuspid stenosis or hypoplasia.
4.Data for this condition exclude tricuspid stenosis or hypoplasia.
5.Data for this condition exclude probable cases, and inlet ventricular septal defects including common atrioventricular canal type ventricular septal defects.

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

Indiana

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	3	0	0	0	0	3	
	0.1	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Anophthalmia/microphthalmia	16	1	1	0	0	19	
	0.5	***0.2***	***0.3***	***0.0***	***0.0***	***0.5***	
Anotia/microtia	19	0	8	1	0	29	
	0.6	***0.0***	***2.4***	***1.1***	***0.0***	***0.7***	
Aortic valve stenosis	33	0	3	0	0	37	
	1.0	***0.0***	***0.9***	***0.0***	***0.0***	***0.9***	
Atrial septal defect	807	147	83	18	0	1075	
	25.6	***31.3***	***24.8***	***20.2***	***0.0***	***25.8***	
Atrioventricular septal defect (Endocardial cushion defect)	87	11	3	3	0	108	
	2.8	***2.3***	***0.9***	***3.4***	***0.0***	***2.6***	
Biliary atresia	7	3	2	0	0	14	
	0.2	***0.6***	***0.6***	***0.0***	***0.0***	***0.3***	
Bladder exstrophy	6	1	1	0	1	9	
	0.2	***0.2***	***0.3***	***0.0***	***24.0***	***0.2***	
Choanal atresia	30	2	2	1	0	35	
	1.0	***0.4***	***0.6***	***1.1***	***0.0***	***0.8***	
Cleft lip alone	66	1	7	0	0	74	
	2.1	***0.2***	***2.1***	***0.0***	***0.0***	***1.8***	
Cleft lip with cleft palate	125	11	18	5	0	166	
	4.0	***2.3***	***5.4***	***5.6***	***0.0***	***4.0***	
Cleft palate alone	124	20	10	4	0	161	
	3.9	***4.3***	***3.0***	***4.5***	***0.0***	***3.9***	
Cloacal exstrophy	35	5	5	2	0	48	
	1.1	***1.1***	***1.5***	***2.2***	***0.0***	***1.2***	
Clubfoot	236	41	24	3	1	310	
	7.5	***8.7***	***7.2***	***3.4***	***24.0***	***7.4***	
Coarctation of the aorta	105	5	6	1	0	118	
	3.3	***1.1***	***1.8***	***1.1***	***0.0***	***2.8***	
Common truncus (truncus arteriosus)	9	0	1	0	0	10	
	0.3	***0.0***	***0.3***	***0.0***	***0.0***	***0.2***	
Congenital cataract	13	2	3	0	0	19	
	0.4	***0.4***	***0.9***	***0.0***	***0.0***	***0.5***	
Congenital posterior urethral valves	18	4	1	1	0	24	
	0.6	***0.9***	***0.3***	***1.1***	***0.0***	***0.6***	
Craniosynostosis	303	30	28	7	0	376	
	9.6	***6.4***	***8.4***	***7.8***	***0.0***	***9.0***	
Deletion 22q11.2	5	0	3	0	0	8	
	0.2	***0.0***	***0.9***	***0.0***	***0.0***	***0.2***	
Diaphragmatic hernia	59	6	4	2	0	72	
	1.9	***1.3***	***1.2***	***2.2***	***0.0***	***1.7***	
Double outlet right ventricle	31	3	1	0	0	37	
	1.0	***0.6***	***0.3***	***0.0***	***0.0***	***0.9***	
Ebstein anomaly	13	1	0	0	0	14	
	0.4	***0.2***	***0.0***	***0.0***	***0.0***	***0.3***	
Encephalocele	14	1	2	2	0	20	
	0.4	***0.2***	***0.6***	***2.2***	***0.0***	***0.5***	
Esophageal atresia/tracheoesophageal fistula	45	3	4	0	0	53	
	1.4	***0.6***	***1.2***	***0.0***	***0.0***	***1.3***	
Gastroschisis	93	5	10	1	0	113	
	3.0	***1.1***	***3.0***	***1.1***	***0.0***	***2.7***	
Holoprosencephaly	102	15	10	2	0	131	
	3.2	***3.2***	***3.0***	***2.2***	***0.0***	***3.1***	
Hypoplastic left heart syndrome	54	6	6	0	0	68	
	1.7	***1.3***	***1.8***	***0.0***	***0.0***	***1.6***	
Hypospadias*	772	72	35	8	0	904	
	47.7	***30.2***	***20.5***	***17.2***	***0.0***	***42.4***	
Interrupted aortic arch	8	1	1	0	0	11	
	0.3	***0.2***	***0.3***	***0.0***	***0.0***	***0.3***	

Indiana

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Limb deficiencies (reduction defects)	79	9	4	0	1	94	
	2.5	***1.9***	***1.2***	***0.0***	***24.0***	***2.3***	
Omphalocele	29	3	1	1	0	35	
	0.9	***0.6***	***0.3***	***1.1***	***0.0***	***0.8***	
Pulmonary valve atresia and stenosis	178	32	22	3	0	242	
	5.7	***6.8***	***6.6***	***3.4***	***0.0***	***5.8***	
Rectal and large intestinal atresia/stenosis	76	8	6	1	1	93	
	2.4	***1.7***	***1.8***	***1.1***	***24.0***	***2.2***	
Renal agenesis/hypoplasia	72	8	4	2	0	89	
	2.3	***1.7***	***1.2***	***2.2***	***0.0***	***2.1***	
Single ventricle	10	1	0	1	0	13	
	0.3	***0.2***	***0.0***	***1.1***	***0.0***	***0.3***	
Small intestinal atresia/stenosis	56	5	5	2	0	69	
	1.8	***1.1***	***1.5***	***2.2***	***0.0***	***1.7***	
Spina bifida without anencephalus	80	13	10	0	1	106	
	2.5	***2.8***	***3.0***	***0.0***	***24.0***	***2.5***	
Tetralogy of Fallot	60	13	5	2	1	83	
	1.9	***2.8***	***1.5***	***2.2***	***24.0***	***2.0***	
Total anomalous pulmonary venous connection	13	1	2	0	0	17	
	0.4	***0.2***	***0.6***	***0.0***	***0.0***	***0.4***	
Transposition of the great arteries (TGA)	47	3	3	0	0	54	
	1.5	***0.6***	***0.9***	***0.0***	***0.0***	***1.3***	
Tricuspid valve atresia and stenosis	16	4	0	1	0	22	
	0.5	***0.9***	***0.0***	***1.1***	***0.0***	***0.5***	
Trisomy 13	14	4	2	0	0	21	
	0.4	***0.9***	***0.6***	***0.0***	***0.0***	***0.5***	
Trisomy 18	20	6	6	1	0	34	
	0.6	***1.3***	***1.8***	***1.1***	***0.0***	***0.8***	
Trisomy 21 (Down syndrome)	282	37	27	6	0	362	
	9.0	***7.9***	***8.1***	***6.7***	***0.0***	***8.7***	
Turner syndrome†	13	3	1	0	0	17	
	0.8	***1.3***	***0.6***	***0.0***	***0.0***	***0.8***	
Ventricular septal defect	778	92	83	17	1	1000	
	24.7	***19.6***	***24.8***	***19.0***	***24.0***	***24.0***	
Total live births	**314710**	**46983**	**33481**	**8932**	**417**	**416149**	
Male live births	**161697**	**23878**	**17077**	**4662**	**204**	**213436**	
Female live births	**153013**	**23105**	**16404**	**4270**	**213**	**202713**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity

Indiana

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	109	4	113	
	2.9	***0.9***	***2.7***	
Trisomy 13	20	1	21	
	0.5	***0.2***	***0.5***	
Trisomy 18	17	17	34	
	0.5	***3.7***	***0.8***	
Trisomy 21 (Down syndrome)	224	138	362	
	6.1	***29.7***	***8.7***	
Total live births	**369548**	**46532**	**416149**	

**Total includes unknown maternal age

General comments
-Data for 2010-2014 are provisional.
-Data for conditions include probable and possible cases.

Iowa

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total**	Notes
Anencephalus	34	3	5	1	0	46	
	2.1	***3.3***	***3.6***	***1.7***	***0.0***	***2.4***	
Anophthalmia/microphthalmia	25	1	4	0	0	32	
	1.6	***1.1***	***2.9***	***0.0***	***0.0***	***1.6***	
Anotia/microtia	30	1	7	2	0	42	
	1.9	***1.1***	***5.1***	***3.3***	***0.0***	***2.2***	
Aortic valve stenosis	40	0	3	2	0	45	
	2.5	***0.0***	***2.2***	***3.3***	***0.0***	***2.3***	
Atrial septal defect	511	42	42	11	0	619	
	31.9	***45.7***	***30.4***	***18.3***	***0.0***	***31.9***	
Atrioventricular septal defect (Endocardial cushion defect)	94	13	9	2	0	122	
	5.9	***14.1***	***6.5***	***3.3***	***0.0***	***6.3***	
Biliary atresia	4	1	1	0	0	6	
	0.2	***1.1***	***0.7***	***0.0***	***0.0***	***0.3***	
Bladder exstrophy	5	0	0	0	0	5	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Choanal atresia	22	0	0	0	0	22	
	1.4	***0.0***	***0.0***	***0.0***	***0.0***	***1.1***	
Cleft lip alone	60	3	9	2	1	77	
	3.7	***3.3***	***6.5***	***3.3***	***11.0***	***4.0***	
Cleft lip with cleft palate	91	4	9	4	0	110	
	5.7	***4.4***	***6.5***	***6.6***	***0.0***	***5.7***	
Cleft palate alone	129	5	10	5	0	150	
	8.1	***5.4***	***7.2***	***8.3***	***0.0***	***7.7***	
Cloacal exstrophy	2	0	0	0	0	2	
	0.1	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Clubfoot	280	14	22	8	2	336	
	17.5	***15.2***	***15.9***	***13.3***	***22.1***	***17.3***	
Coarctation of the aorta	104	1	7	1	0	114	
	6.5	***1.1***	***5.1***	***1.7***	***0.0***	***5.9***	
Common truncus (truncus arteriosus)	7	0	1	0	0	8	
	0.4	***0.0***	***0.7***	***0.0***	***0.0***	***0.4***	
Congenital cataract	71	4	6	1	1	84	
	4.4	***4.4***	***4.3***	***1.7***	***11.0***	***4.3***	
Congenital posterior urethral valves	18	2	0	2	1	23	
	1.1	***2.2***	***0.0***	***3.3***	***11.0***	***1.2***	
Craniosynostosis	105	5	11	2	0	124	
	6.6	***5.4***	***8.0***	***3.3***	***0.0***	***6.4***	
Deletion 22q11.2	23	3	1	1	0	28	
	1.4	***3.3***	***0.7***	***1.7***	***0.0***	***1.4***	
Diaphragmatic hernia	49	3	3	4	0	61	
	3.1	***3.3***	***2.2***	***6.6***	***0.0***	***3.1***	
Double outlet right ventricle	26	6	8	1	0	43	
	1.6	***6.5***	***5.8***	***1.7***	***0.0***	***2.2***	
Ebstein anomaly	15	1	1	1	0	18	
	0.9	***1.1***	***0.7***	***1.7***	***0.0***	***0.9***	
Encephalocele	16	1	0	0	0	17	
	1.0	***1.1***	***0.0***	***0.0***	***0.0***	***0.9***	
Esophageal atresia/tracheoesophageal fistula	55	1	3	2	0	61	
	3.4	***1.1***	***2.2***	***3.3***	***0.0***	***3.1***	
Gastroschisis	94	7	14	1	1	119	
	5.9	***7.6***	***10.1***	***1.7***	***11.0***	***6.1***	
Holoprosencephaly	24	5	3	0	0	33	
	1.5	***5.4***	***2.2***	***0.0***	***0.0***	***1.7***	
Hypoplastic left heart syndrome	45	5	5	2	0	57	
	2.8	***5.4***	***3.6***	***3.3***	***0.0***	***2.9***	
Hypospadias*	571	23	20	13	0	634	
	69.6	***49.2***	***28.8***	***41.8***	***0.0***	***63.9***	
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 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Limb deficiencies (reduction defects)	96	3	14	5	0	119	1
	6.0	***3.3***	***10.1***	***8.3***	***0.0***	***6.1***	
Omphalocele	38	3	6	0	0	52	
	2.4	***3.3***	***4.3***	***0.0***	***0.0***	***2.7***	
Pulmonary valve atresia and stenosis	197	18	14	8	0	243	
	12.3	***19.6***	***10.1***	***13.3***	***0.0***	***12.5***	
Pulmonary valve atresia	13	2	0	0	0	17	
	0.8	***2.2***	***0.0***	***0.0***	***0.0***	***0.9***	
Rectal and large intestinal atresia/stenosis	61	5	9	1	0	77	
	3.8	***5.4***	***6.5***	***1.7***	***0.0***	***4.0***	
Renal agenesis/hypoplasia	86	4	9	2	0	102	
	5.4	***4.4***	***6.5***	***3.3***	***0.0***	***5.3***	
Single ventricle	7	2	1	0	0	10	
	0.4	***2.2***	***0.7***	***0.0***	***0.0***	***0.5***	
Small intestinal atresia/stenosis	54	4	3	1	0	64	
	3.4	***4.4***	***2.2***	***1.7***	***0.0***	***3.3***	
Spina bifida without anencephalus	58	3	11	0	0	74	
	3.6	***3.3***	***8.0***	***0.0***	***0.0***	***3.8***	
Tetralogy of Fallot	63	3	1	4	1	72	
	3.9	***3.3***	***0.7***	***6.6***	***11.0***	***3.7***	
Total anomalous pulmonary venous connection	12	1	3	1	0	18	
	0.7	***1.1***	***2.2***	***1.7***	***0.0***	***0.9***	
Transposition of the great arteries (TGA)	42	4	3	2	0	53	
	2.6	***4.4***	***2.2***	***3.3***	***0.0***	***2.7***	
Dextro-transposition of great arteries (d-TGA)	36	4	3	2	0	46	
	2.2	***4.4***	***2.2***	***3.3***	***0.0***	***2.4***	
Tricuspid valve atresia and stenosis	35	5	4	0	0	44	
	2.2	***5.4***	***2.9***	***0.0***	***0.0***	***2.3***	
Tricuspid valve atresia	4	1	1	0	0	6	
	0.2	***1.1***	***0.7***	***0.0***	***0.0***	***0.3***	
Trisomy 13	25	3	4	0	0	33	
	1.6	***3.3***	***2.9***	***0.0***	***0.0***	***1.7***	
Trisomy 18	46	3	6	5	0	64	
	2.9	***3.3***	***4.3***	***8.3***	***0.0***	***3.3***	
Trisomy 21 (Down syndrome)	214	15	20	4	0	265	
	13.4	***16.3***	***14.5***	***6.6***	***0.0***	***13.7***	
Turner syndrome†	42	2	5	0	0	51	
	5.4	***4.4***	***7.3***	***0.0***	***0.0***	***5.4***	
Ventricular septal defect	854	40	66	20	3	998	
	53.3	***43.5***	***47.7***	***33.2***	***33.1***	***51.4***	
Total live births §	**160229**	**9192**	**13822**	**6023**	**907**	**194087**	
Male live births	**82050**	**4676**	**6940**	**3107**	**461**	**99204**	
Female live births	**78178**	**4516**	**6882**	**2916**	**446**	**94882**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity
§Total live births includes unknown gender

Iowa

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	117	2	119	
	6.8	***0.9***	***6.1***	
Trisomy 13	22	11	33	
	1.3	***5.2***	***1.7***	
Trisomy 18	39	25	64	
	2.3	***11.8***	***3.3***	
Trisomy 21 (Down syndrome)	156	109	265	
	9.0	***51.3***	***13.7***	
Total live births	**172820**	**21260**	**194087**	

**Total includes unknown maternal age

Notes
1.Data for this condition exclude other specified and unspecified limb reductions.

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

Kansas

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	35	<5	11	0	0	51	
	2.6	***.***	***3.6***	***0.0***	***0.0***	***2.7***	
Anophthalmia/microphthalmia	<5	0	0	0	0	<5	
	.	***0.0***	***0.0***	***0.0***	***0.0***	***.***	
Anotia/microtia	<5	0	<5	<5	0	<5	
	.	***0.0***	***.***	***.***	***0.0***	***.***	
Aortic valve stenosis	5	0	0	0	0	5	
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Atrial septal defect	105	29	52	<5	<5	225	
	7.7	***22.2***	***16.9***	***.***	***.***	***11.7***	
Atrioventricular septal defect (Endocardial cushion defect)	16	0	<5	0	0	19	
	1.2	***0.0***	***.***	***0.0***	***0.0***	***1.0***	
Biliary atresia	0	0	<5	<5	0	<5	
	0.0	***0.0***	***.***	***.***	***0.0***	***.***	
Choanal atresia	<5	0	5	0	0	9	
	.	***0.0***	***1.6***	***0.0***	***0.0***	***0.5***	
Cleft lip alone	11	<5	<5	<5	0	16	
	0.8	***.***	***.***	***.***	***0.0***	***0.8***	
Cleft lip with cleft palate	27	<5	11	0	0	43	
	2.0	***.***	***3.6***	***0.0***	***0.0***	***2.2***	
Cleft palate alone	57	<5	17	<5	0	80	
	4.2	***.***	***5.5***	***.***	***0.0***	***4.2***	
Cloacal exstrophy	19	<5	<5	0	0	24	
	1.4	***.***	***.***	***0.0***	***0.0***	***1.3***	
Clubfoot	91	5	24	<5	0	132	
	6.7	***3.8***	***7.8***	***.***	***0.0***	***6.9***	
Coarctation of the aorta	14	0	<5	0	0	22	
	1.0	***0.0***	***.***	***0.0***	***0.0***	***1.1***	
Common truncus (truncus arteriosus)	6	0	0	0	0	6	
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Congenital cataract	<5	0	<5	0	0	<5	
	.	***0.0***	***.***	***0.0***	***0.0***	***.***	
Congenital posterior urethral valves	<5	0	0	0	0	<5	
	.	***0.0***	***0.0***	***0.0***	***0.0***	***.***	
Craniosynostosis	<5	0	0	0	0	<5	
	.	***0.0***	***0.0***	***0.0***	***0.0***	***.***	
Diaphragmatic hernia	27	0	16	0	0	47	
	2.0	***0.0***	***5.2***	***0.0***	***0.0***	***2.5***	
Double outlet right ventricle	<5	<5	<5	0	0	7	
	.	***.***	***.***	***0.0***	***0.0***	***0.4***	
Ebstein anomaly	<5	0	0	0	0	<5	
	.	***0.0***	***0.0***	***0.0***	***0.0***	***.***	
Encephalocele	<5	0	<5	0	0	6	
	.	***0.0***	***.***	***0.0***	***0.0***	***0.3***	
Esophageal atresia/tracheoesophageal fistula	9	<5	6	0	0	17	
	0.7	***.***	***1.9***	***0.0***	***0.0***	***0.9***	
Gastroschisis	68	<5	19	0	0	100	
	5.0	***.***	***6.2***	***0.0***	***0.0***	***5.2***	
Holoprosencephaly	28	<5	9	<5	0	46	
	2.0	***.***	***2.9***	***.***	***0.0***	***2.4***	
Hypoplastic left heart syndrome	5	<5	<5	<5	0	13	
	0.4	***.***	***.***	***.***	***0.0***	***0.7***	
Hypospadias*	158	21	27	<5	0	221	
	22.6	***31.7***	***17.2***	***.***	***0.0***	***22.6***	
Interrupted aortic arch	0	0	<5	0	0	<5	
	0.0	***0.0***	***.***	***0.0***	***0.0***	***.***	
Limb deficiencies (reduction defects)	30	9	11	<5	0	53	
	2.2	***6.9***	***3.6***	***.***	***0.0***	***2.8***	
Omphalocele	23	<5	16	<5	0	45	
	1.7	***.***	***5.2***	***.***	***0.0***	***2.3***	

Kansas

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Pulmonary valve atresia and stenosis	29	5	10	0	0	49	
	2.1	***3.8***	***3.2***	***0.0***	***0.0***	***2.6***	
Rectal and large intestinal atresia/stenosis	15	<5	11	<5	0	30	
	1.1	***.***	***3.6***	***.***	***0.0***	***1.6***	
Renal agenesis/hypoplasia	16	<5	5	0	0	25	
	1.2	***.***	***1.6***	***0.0***	***0.0***	***1.3***	
Single ventricle	0	0	<5	0	0	<5	
	0.0	***0.0***	***.***	***0.0***	***0.0***	***.***	
Small intestinal atresia/stenosis	24	0	7	<5	0	34	
	1.8	***0.0***	***2.3***	***.***	***0.0***	***1.8***	
Spina bifida without anencephalus	37	<5	14	<5	0	59	
	2.7	***.***	***4.5***	***.***	***0.0***	***3.1***	
Tetralogy of Fallot	13	0	5	<5	0	21	
	1.0	***0.0***	***1.6***	***.***	***0.0***	***1.1***	
Total anomalous pulmonary venous connection	<5	0	<5	0	0	7	
	.	***0.0***	***.***	***0.0***	***0.0***	***0.4***	
Transposition of the great arteries (TGA)	8	<5	5	<5	0	16	
	0.6	***.***	***1.6***	***.***	***0.0***	***0.8***	
Tricuspid valve atresia and stenosis	<5	0	<5	0	0	5	
	.	***0.0***	***.***	***0.0***	***0.0***	***0.3***	
Trisomy 13	7	<5	<5	0	0	13	
	0.5	***.***	***.***	***0.0***	***0.0***	***0.7***	
Trisomy 18	18	0	11	0	0	31	
	1.3	***0.0***	***3.6***	***0.0***	***0.0***	***1.6***	
Trisomy 21 (Down syndrome)	125	9	46	11	<5	204	
	9.1	***6.9***	***14.9***	***19.3***	***.***	***10.6***	
Turner syndrome†	5	0	<5	0	0	7	
	0.7	***0.0***	***.***	***0.0***	***0.0***	***0.7***	
Ventricular septal defect	163	12	81	8	<5	298	
	11.9	***9.2***	***26.3***	***14.0***	***.***	***15.6***	
Total live births §	**136677**	**13049**	**30806**	**5703**	**966**	**191616**	
Male live births	**70002**	**6619**	**15702**	**2896**	**466**	**97951**	
Female live births	**66675**	**6430**	**15103**	**2807**	**500**	**93664**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births. Excludes male phenotype.
**Total includes unknown and other maternal race/ethnicity
§Total live births includes unknown gender

Kansas

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	96	<5	100	
	5.6	***.***	***5.2***	
Trisomy 13	8	5	13	
	0.5	***2.4***	***0.7***	
Trisomy 18	17	14	31	
	1.0	***6.6***	***1.6***	
Trisomy 21 (Down syndrome)	117	87	204	
	6.9	***41.1***	***10.6***	
Total live births	**170415**	**21193**	**191616**	

**Total includes unknown maternal age

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

Kentucky

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total**	Notes
Anencephalus	38	1	0	0	0	41	
	1.7	***0.4***	***0.0***	***0.0***	***0.0***	***1.5***	
Anophthalmia/microphthalmia	15	4	1	0	0	21	
	0.7	***1.7***	***0.7***	***0.0***	***0.0***	***0.8***	
Anotia/microtia	5	0	2	0	0	7	
	0.2	***0.0***	***1.5***	***0.0***	***0.0***	***0.3***	
Aortic valve stenosis	38	1	3	0	0	45	
	1.7	***0.4***	***2.2***	***0.0***	***0.0***	***1.6***	
Atrial septal defect	6077	1075	250	100	7	8185	
	264.4	***453.4***	***184.5***	***405.4***	***240.5***	***293.4***	
Atrioventricular septal defect (Endocardial cushion defect)	70	12	3	1	0	102	
	3.0	***5.1***	***2.2***	***4.1***	***0.0***	***3.7***	
Biliary atresia	7	1	0	0	0	9	
	0.3	***0.4***	***0.0***	***0.0***	***0.0***	***0.3***	
Bladder exstrophy	7	1	0	0	0	10	
	0.3	***0.4***	***0.0***	***0.0***	***0.0***	***0.4***	
Choanal atresia	29	0	0	0	0	31	
	1.3	***0.0***	***0.0***	***0.0***	***0.0***	***1.1***	
Cleft lip alone	87	6	3	2	0	104	
	3.8	***2.5***	***2.2***	***8.1***	***0.0***	***3.7***	
Cleft lip with cleft palate	151	8	6	2	0	178	
	6.6	***3.4***	***4.4***	***8.1***	***0.0***	***6.4***	
Cleft palate alone	162	8	4	4	0	194	
	7.0	***3.4***	***3.0***	***16.2***	***0.0***	***7.0***	
Clubfoot	383	27	18	4	0	462	
	16.7	***11.4***	***13.3***	***16.2***	***0.0***	***16.6***	
Coarctation of the aorta	169	18	6	0	0	209	
	7.4	***7.6***	***4.4***	***0.0***	***0.0***	***7.5***	
Common truncus (truncus arteriosus)	17	3	0	0	0	23	
	0.7	***1.3***	***0.0***	***0.0***	***0.0***	***0.8***	
Congenital cataract	22	2	0	1	0	28	
	1.0	***0.8***	***0.0***	***4.1***	***0.0***	***1.0***	
Congenital posterior urethral valves	22	4	0	1	0	28	
	1.0	***1.7***	***0.0***	***4.1***	***0.0***	***1.0***	
Deletion 22q11.2	2	0	0	0	0	2	
	0.1	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Diaphragmatic hernia	67	6	2	3	0	87	
	2.9	***2.5***	***1.5***	***12.2***	***0.0***	***3.1***	
Double outlet right ventricle	66	12	2	1	0	88	
	2.9	***5.1***	***1.5***	***4.1***	***0.0***	***3.2***	
Ebstein anomaly	21	2	0	0	0	26	
	0.9	***0.8***	***0.0***	***0.0***	***0.0***	***0.9***	
Encephalocele	29	4	1	0	0	37	
	1.3	***1.7***	***0.7***	***0.0***	***0.0***	***1.3***	
Esophageal atresia/tracheoesophageal fistula	65	5	1	0	0	78	
	2.8	***2.1***	***0.7***	***0.0***	***0.0***	***2.8***	
Gastroschisis	115	8	7	1	0	137	
	5.0	***3.4***	***5.2***	***4.1***	***0.0***	***4.9***	
Holoprosencephaly	105	9	5	1	0	132	
	4.6	***3.8***	***3.7***	***4.1***	***0.0***	***4.7***	
Hypoplastic left heart syndrome	78	6	3	0	0	97	
	3.4	***2.5***	***2.2***	***0.0***	***0.0***	***3.5***	
Hypospadias*	1103	99	22	10	0	1291	2
	93.2	***82.8***	***31.6***	***79.1***	***0.0***	***90.0***	
Interrupted aortic arch	8	2	0	0	0	11	
	0.3	***0.8***	***0.0***	***0.0***	***0.0***	***0.4***	
Limb deficiencies (reduction defects)	82	7	1	0	0	107	
	3.6	***3.0***	***0.7***	***0.0***	***0.0***	***3.8***	
Omphalocele	39	2	2	0	0	43	
	1.7	***0.8***	***1.5***	***0.0***	***0.0***	***1.5***	

Kentucky
Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Pulmonary valve atresia and stenosis	175	22	7	2	0	222	
	7.6	***9.3***	***5.2***	***8.1***	***0.0***	***8.0***	
Pulmonary valve atresia	29	2	3	1	0	38	
	1.3	***0.8***	***2.2***	***4.1***	***0.0***	***1.4***	
Rectal and large intestinal atresia/stenosis	107	8	7	3	0	137	
	4.7	***3.4***	***5.2***	***12.2***	***0.0***	***4.9***	
Renal agenesis/hypoplasia	123	13	5	3	1	154	
	5.4	***5.5***	***3.7***	***12.2***	***34.4***	***5.5***	
Single ventricle	11	2	2	0	0	21	
	0.5	***0.8***	***1.5***	***0.0***	***0.0***	***0.8***	
Small intestinal atresia/stenosis	83	11	1	3	0	108	
	3.6	***4.6***	***0.7***	***12.2***	***0.0***	***3.9***	
Spina bifida without anencephalus	64	3	2	4	0	82	
	2.8	***1.3***	***1.5***	***16.2***	***0.0***	***2.9***	
Tetralogy of Fallot	95	13	2	2	0	116	
	4.1	***5.5***	***1.5***	***8.1***	***0.0***	***4.2***	
Total anomalous pulmonary venous connection	15	2	3	0	0	27	
	0.7	***0.8***	***2.2***	***0.0***	***0.0***	***1.0***	
Transposition of the great arteries (TGA)	68	8	3	0	0	83	
	3.0	***3.4***	***2.2***	***0.0***	***0.0***	***3.0***	
Dextro-transposition of great arteries (d-TGA)	56	6	2	0	0	68	
	2.4	***2.5***	***1.5***	***0.0***	***0.0***	***2.4***	
Tricuspid valve atresia and stenosis	26	2	0	0	0	30	1
	1.1	***0.8***	***0.0***	***0.0***	***0.0***	***1.1***	
Trisomy 13	20	2	0	1	0	23	
	0.9	***0.8***	***0.0***	***4.1***	***0.0***	***0.8***	
Trisomy 18	39	5	1	2	0	49	
	1.7	***2.1***	***0.7***	***8.1***	***0.0***	***1.8***	
Trisomy 21 (Down syndrome)	261	28	19	6	1	364	
	11.4	***11.8***	***14.0***	***24.3***	***34.4***	***13.0***	
Turner syndrome†	32	2	1	0	0	37	
	2.9	***1.7***	***1.5***	***0.0***	***0.0***	***2.7***	
Ventricular septal defect	1320	151	64	17	1	1675	3
	57.4	***63.7***	***47.2***	***68.9***	***34.4***	***60.0***	
Total live births §	**229850**	**23709**	**13553**	**2467**	**291**	**279005**	
Male live births	**118390**	**11961**	**6960**	**1264**	**135**	**143432**	
Female live births	**111443**	**11747**	**6592**	**1203**	**156**	**135554**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity
§Total live births includes unknown gender

Kentucky

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	127	4	137	
	5.1	***1.4***	***4.9***	
Trisomy 13	20	3	23	
	0.8	***1.1***	***0.8***	
Trisomy 18	28	19	49	
	1.1	***6.8***	***1.8***	
Trisomy 21 (Down syndrome)	194	122	364	
	7.8	***44.0***	***13.0***	
Total live births	**247251**	**27750**	**279005**	

**Total includes unknown maternal age

Notes
1.Data for this condition include cases with stenosis and hypoplasia.
2.Data for this condition was not abstracted during the birth years 2011-2014.
3.Data for this condition exclude inlet ventricular septal defect and common atrioventricular canal type ventricular sepatal defect.

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

Louisiana

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total**	Notes
Anencephalus	14	<5	<5	<5	0	20	
	1.3	***.***	***.***	***.***	***0.0***	***1.0***	
Anophthalmia/microphthalmia	11	8	0	0	<5	20	
	1.0	***1.1***	***0.0***	***0.0***	***.***	***1.0***	
Anotia/microtia	<5	<5	<5	0	<5	10	
	.	***.***	***.***	***0.0***	***.***	***0.5***	
Aortic valve stenosis	15	5	<5	0	0	21	
	1.4	***0.7***	***.***	***0.0***	***0.0***	***1.1***	
Atrial septal defect	539	434	64	11	7	1075	
	50.9	***59.9***	***53.8***	***34.4***	***53.2***	***54.5***	
Atrioventricular septal defect (Endocardial cushion defect)	51	35	9	<5	0	100	
	4.8	***4.8***	***7.6***	***.***	***0.0***	***5.1***	
Biliary atresia	<5	7	<5	<5	0	12	
	.	***1.0***	***.***	***.***	***0.0***	***0.6***	
Bladder exstrophy	<5	<5	0	0	0	<5	
	.	***.***	***0.0***	***0.0***	***0.0***	***.***	
Choanal atresia	16	<5	<5	0	0	21	
	1.5	***.***	***.***	***0.0***	***0.0***	***1.1***	
Cleft lip alone	43	12	<5	<5	0	59	
	4.1	***1.7***	***.***	***.***	***0.0***	***3.0***	
Cleft lip with cleft palate	43	32	8	<5	0	85	
	4.1	***4.4***	***6.7***	***.***	***0.0***	***4.3***	
Cleft palate alone	68	24	5	<5	<5	100	
	6.4	***3.3***	***4.2***	***.***	***.***	***5.1***	
Clubfoot	7	10	<5	0	<5	22	
	0.7	***1.4***	***.***	***0.0***	***.***	***1.1***	
Coarctation of the aorta	56	29	6	<5	<5	97	
	5.3	***4.0***	***5.0***	***.***	***.***	***4.9***	
Common truncus (truncus arteriosus)	6	6	<5	0	0	14	
	0.6	***0.8***	***.***	***0.0***	***0.0***	***0.7***	
Congenital cataract	<5	10	0	0	0	14	
	.	***1.4***	***0.0***	***0.0***	***0.0***	***0.7***	
Congenital posterior urethral valves	27	20	<5	<5	0	51	
	2.5	***2.8***	***.***	***.***	***0.0***	***2.6***	
Craniosynostosis	<5	0	0	0	0	<5	
	.	***0.0***	***0.0***	***0.0***	***0.0***	***.***	
Deletion 22q11.2	6	6	<5	0	0	14	
	0.6	***0.8***	***.***	***0.0***	***0.0***	***0.7***	
Diaphragmatic hernia	18	13	<5	0	0	33	
	1.7	***1.8***	***.***	***0.0***	***0.0***	***1.7***	
Double outlet right ventricle	13	10	<5	0	0	29	
	1.2	***1.4***	***.***	***0.0***	***0.0***	***1.5***	
Ebstein anomaly	<5	<5	<5	<5	0	7	
	.	***.***	***.***	***.***	***0.0***	***0.4***	
Encephalocele	6	6	0	0	0	14	
	0.6	***0.8***	***0.0***	***0.0***	***0.0***	***0.7***	
Esophageal atresia/tracheoesophageal fistula	18	17	<5	0	0	39	
	1.7	***2.3***	***.***	***0.0***	***0.0***	***2.0***	
Gastroschisis	20	14	<5	0	0	37	
	1.9	***1.9***	***.***	***0.0***	***0.0***	***1.9***	
Holoprosencephaly	<5	0	0	0	0	<5	
	.	***0.0***	***0.0***	***0.0***	***0.0***	***.***	
Hypoplastic left heart syndrome	15	14	<5	0	0	30	
	1.4	***1.9***	***.***	***0.0***	***0.0***	***1.5***	
Hypospadias*	475	206	27	9	<5	729	
	87.2	***56.0***	***44.5***	***54.4***	***.***	***72.2***	
Interrupted aortic arch	<5	<5	0	0	0	<5	
	.	***.***	***0.0***	***0.0***	***0.0***	***.***	
Limb deficiencies (reduction defects)	32	27	<5	0	<5	66	
	3.0	***3.7***	***.***	***0.0***	***.***	***3.3***	

Louisiana

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Omphalocele	13	20	0	<5	0	34	
	1.2	***2.8***	***0.0***	***.***	***0.0***	***1.7***	
Pulmonary valve atresia and stenosis	42	41	7	0	0	90	
	4.0	***5.7***	***5.9***	***0.0***	***0.0***	***4.6***	
Pulmonary valve atresia	<5	<5	<5	0	0	8	
	.	***.***	***.***	***0.0***	***0.0***	***0.4***	
Rectal and large intestinal atresia/stenosis	34	20	6	0	<5	62	
	3.2	***2.8***	***5.0***	***0.0***	***.***	***3.1***	
Renal agenesis/hypoplasia	46	22	<5	0	<5	70	
	4.3	***3.0***	***.***	***0.0***	***.***	***3.5***	
Single ventricle	<5	<5	0	0	0	<5	
	.	***.***	***0.0***	***0.0***	***0.0***	***.***	
Small intestinal atresia/stenosis	<5	0	0	0	0	<5	
	.	***0.0***	***0.0***	***0.0***	***0.0***	***.***	
Spina bifida without anencephalus	35	11	<5	0	<5	50	
	3.3	***1.5***	***.***	***0.0***	***.***	***2.5***	
Tetralogy of Fallot	30	38	6	0	<5	79	
	2.8	***5.2***	***5.0***	***0.0***	***.***	***4.0***	
Total anomalous pulmonary venous connection	<5	<5	<5	0	0	<5	
	.	***.***	***.***	***0.0***	***0.0***	***.***	
Transposition of the great arteries (TGA)	28	12	7	0	0	47	
	2.6	***1.7***	***5.9***	***0.0***	***0.0***	***2.4***	
Dextro-transposition of great arteries (d-TGA)	20	11	5	0	0	36	
	1.9	***1.5***	***4.2***	***0.0***	***0.0***	***1.8***	
Tricuspid valve atresia and stenosis	11	6	<5	<5	0	20	
	1.0	***0.8***	***.***	***.***	***0.0***	***1.0***	
Tricuspid valve atresia	9	6	<5	0	0	16	
	0.8	***0.8***	***.***	***0.0***	***0.0***	***0.8***	
Trisomy 13	5	6	<5	0	<5	15	
	0.5	***0.8***	***.***	***0.0***	***.***	***0.8***	
Trisomy 18	24	13	<5	<5	0	41	
	2.3	***1.8***	***.***	***.***	***0.0***	***2.1***	
Trisomy 21 (Down syndrome)	130	61	27	<5	0	226	
	12.3	***8.4***	***22.7***	***.***	***0.0***	***11.5***	
Turner syndrome†	7	<5	<5	0	0	13	
	1.4	***.***	***.***	***0.0***	***0.0***	***1.4***	
Ventricular septal defect	439	248	60	10	5	772	
	41.4	***34.2***	***50.4***	***31.3***	***38.0***	***39.1***	
Total live births §	**105965**	**72457**	**11906**	**3199**	**1317**	**197228**	
Male live births	**54487**	**36804**	**6071**	**1655**	**695**	**100942**	
Female live births	**51476**	**35652**	**5835**	**1544**	**622**	**96283**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births. Excludes male phenotype.
**Total includes unknown and other maternal race/ethnicity
§Total live births includes unknown gender

Louisiana

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	37	0	37	
	2.1	***0.0***	***1.9***	
Trisomy 13	11	<5	15	
	0.6	**.**	***0.8***	
Trisomy 18	32	9	41	
	1.8	***5.2***	***2.1***	
Trisomy 21 (Down syndrome)	143	83	226	
	8.0	***47.7***	***11.5***	
Total live births	**179821**	**17407**	**197228**	

**Total includes unknown maternal age

General comments

-2010 birth defects data are final and include only live births to Louisiana residents that occurred in 45/56 birth hospitals and covered 72 % of total births.
-2011 birth defects data are final and include only live births to Louisiana residents that occurred in 42/55 birth hospitals and covered 67 % of total births.
-2012 birth defects data are final and include only live births to Louisiana residents that occurred in 36/51 birth hospitals and covered 60 % of total births.
-2013 birth defects data are provisional and include only live births to Louisiana residents that occurred in 40/52 birth hospitals and covered 76 % of total births.
-2014 birth defects data are provisional and include live births to Louisiana residents that occurred in 24/50 birth hospitals and covered 38 % of total births.
-Data for conditions include live births only.
-Data for conditions include probable cases.
-Only live births with birth weight >= 350 grams or a gestational age >= 20 weeks are included in surveillance.

Maine

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	13	2	0	0	0	19	1
	2.2	***9.7***	***0.0***	***0.0***	***0.0***	***3.0***	
Anophthalmia/microphthalmia	1	0	0	0	0	1	2
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	
Anotia/microtia	4	0	0	0	0	5	
	0.7	***0.0***	***0.0***	***0.0***	***0.0***	***0.8***	
Aortic valve stenosis	2	0	0	0	0	2	2
	0.9	***0.0***	***0.0***	***0.0***	***0.0***	***0.8***	
Atrial septal defect	64	2	4	1	1	74	2
	27.3	***22.6***	***107.5***	***20.5***	***37.3***	***29.0***	
Atrioventricular septal defect (Endocardial cushion defect)	8	0	0	0	0	8	2
	3.4	***0.0***	***0.0***	***0.0***	***0.0***	***3.1***	
Biliary atresia	0	0	0	0	0	0	2
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Bladder exstrophy	0	0	0	0	0	0	2
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Choanal atresia	5	0	0	0	0	5	3
	1.1	***0.0***	***0.0***	***0.0***	***0.0***	***1.0***	
Cleft lip alone	15	0	0	0	0	15	
	2.5	***0.0***	***0.0***	***0.0***	***0.0***	***2.3***	
Cleft lip with cleft palate	31	1	0	0	0	33	
	5.3	***4.9***	***0.0***	***0.0***	***0.0***	***5.2***	
Cleft palate alone	36	1	0	1	2	42	
	6.1	***4.9***	***0.0***	***8.7***	***32.5***	***6.6***	
Coarctation of the aorta	32	0	0	0	0	33	
	5.4	***0.0***	***0.0***	***0.0***	***0.0***	***5.2***	
Common truncus (truncus arteriosus)	2	0	0	0	0	2	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Congenital cataract	0	0	0	0	0	0	2
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Diaphragmatic hernia	2	0	0	0	0	2	2
	0.9	***0.0***	***0.0***	***0.0***	***0.0***	***0.8***	
Double outlet right ventricle	1	0	0	0	0	1	4
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	
Ebstein anomaly	1	0	0	0	0	1	2
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	
Encephalocele	5	0	0	1	0	6	
	0.8	***0.0***	***0.0***	***8.7***	***0.0***	***0.9***	
Esophageal atresia/tracheoesophageal fistula	10	0	0	0	0	10	2
	4.3	***0.0***	***0.0***	***0.0***	***0.0***	***3.9***	
Gastroschisis	32	0	2	1	1	37	
	5.4	***0.0***	***20.0***	***8.7***	***16.2***	***5.8***	
Hypoplastic left heart syndrome	17	2	1	0	0	24	
	2.9	***9.7***	***10.0***	***0.0***	***0.0***	***3.8***	
Hypospadias*	199	7	2	3	3	224	
	65.7	***63.9***	***38.6***	***50.0***	***97.1***	***68.1***	
Interrupted aortic arch	1	0	0	0	0	1	4
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	
Limb deficiencies (reduction defects)	15	0	0	0	0	17	
	2.5	***0.0***	***0.0***	***0.0***	***0.0***	***2.7***	
Omphalocele	10	0	0	0	0	10	
	1.7	***0.0***	***0.0***	***0.0***	***0.0***	***1.6***	
Pulmonary valve atresia and stenosis	32	2	0	1	0	35	5
	5.4	***9.7***	***0.0***	***8.7***	***0.0***	***5.5***	
Pulmonary valve atresia	7	0	0	1	0	8	
	1.2	***0.0***	***0.0***	***8.7***	***0.0***	***1.3***	
Rectal and large intestinal atresia/stenosis	11	0	0	1	0	13	2
	4.7	***0.0***	***0.0***	***20.5***	***0.0***	***5.1***	
Renal agenesis/hypoplasia	17	1	0	0	0	18	2
	7.3	***11.3***	***0.0***	***0.0***	***0.0***	***7.1***	

Maine

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Single ventricle	0	0	0	0	0	0	4
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Spina bifida without anencephalus	20	0	0	0	0	21	
	3.4	***0.0***	***0.0***	***0.0***	***0.0***	***3.3***	
Tetralogy of Fallot	28	0	1	0	0	30	
	4.7	***0.0***	***10.0***	***0.0***	***0.0***	***4.7***	
Transposition of the great arteries (TGA)	17	1	1	1	0	20	
	2.9	***4.9***	***10.0***	***8.7***	***0.0***	***3.1***	
Tricuspid valve atresia	5	0	0	0	0	5	
	0.8	***0.0***	***0.0***	***0.0***	***0.0***	***0.8***	
Trisomy 13	2	0	0	0	0	2	2
	0.9	***0.0***	***0.0***	***0.0***	***0.0***	***0.8***	
Trisomy 18	6	0	0	0	0	6	2
	2.6	***0.0***	***0.0***	***0.0***	***0.0***	***2.4***	
Trisomy 21 (Down syndrome)	68	4	2	2	0	82	
	11.5	***19.4***	***20.0***	***17.5***	***0.0***	***12.8***	
Ventricular septal defect	47	1	3	0	0	54	2
	20.1	***11.3***	***80.6***	***0.0***	***0.0***	***21.2***	
Total live births	**58983**	**2057**	**998**	**1145**	**616**	**63946**	
Male live births	**30295**	**1096**	**518**	**600**	**309**	**32894**	

*Hypospadias prevalence per 10,000 male live births
**Total includes unknown and other maternal race/ethnicity

Maine

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	37	0	37	
	6.7	***0.0***	***5.8***	
Trisomy 13	2	0	2	2
	0.9	***0.0***	***0.8***	
Trisomy 18	4	2	6	2
	1.8	***5.4***	***2.4***	
Trisomy 21 (Down syndrome)	50	29	82	
	9.1	***32.9***	***12.8***	
Total live births	**55132**	**8814**	**63946**	

**Total includes unknown maternal age

Notes
1.Data for this condition include probable cases.
2.Data for this condition begin in 2013.
3.Data for this condition begin in 2011.
4.Data for this condition end in 2011.
5.Data for this condition include atresia only through 2010; data including stenosis beginning in 2011.

General comments
-Fetal deaths are defined as those that occur at any gestational age.

Maryland

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	19	7	9	0	0	42	
	1.1	***0.6***	***1.7***	***0.0***	***0.0***	***1.2***	
Anophthalmia/microphthalmia	0	3	2	0	0	8	
	0.0	***0.3***	***0.4***	***0.0***	***0.0***	***0.2***	
Anotia/microtia	7	2	3	1	0	15	
	0.4	***0.2***	***0.6***	***0.4***	***0.0***	***0.4***	
Aortic valve stenosis	2	0	0	0	0	3	
	0.1	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Atrial septal defect	16	7	5	0	0	35	
	1.0	***0.6***	***1.0***	***0.0***	***0.0***	***1.0***	
Atrioventricular septal defect (Endocardial cushion defect)	8	4	0	0	0	16	
	0.5	***0.3***	***0.0***	***0.0***	***0.0***	***0.4***	
Biliary atresia	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Bladder exstrophy	2	2	1	0	0	7	
	0.1	***0.2***	***0.2***	***0.0***	***0.0***	***0.2***	
Choanal atresia	5	1	0	1	0	7	
	0.3	***0.1***	***0.0***	***0.4***	***0.0***	***0.2***	
Cleft lip alone	43	7	7	4	0	72	
	2.6	***0.6***	***1.3***	***1.5***	***0.0***	***2.0***	
Cleft lip with cleft palate	97	33	24	5	0	168	
	5.9	***2.8***	***4.6***	***1.9***	***0.0***	***4.6***	
Cleft palate alone	64	24	15	7	0	124	
	3.9	***2.0***	***2.9***	***2.6***	***0.0***	***3.4***	
Cloacal exstrophy	4	4	1	0	0	11	
	0.2	***0.3***	***0.2***	***0.0***	***0.0***	***0.3***	
Clubfoot	77	45	22	5	0	163	
	4.7	***3.8***	***4.2***	***1.9***	***0.0***	***4.5***	
Coarctation of the aorta	5	6	2	3	0	19	
	0.3	***0.5***	***0.4***	***1.1***	***0.0***	***0.5***	
Common truncus (truncus arteriosus)	2	0	0	0	0	3	
	0.1	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Congenital cataract	0	2	1	0	0	3	
	0.0	***0.2***	***0.2***	***0.0***	***0.0***	***0.1***	
Congenital posterior urethral valves	0	2	0	0	0	2	
	0.0	***0.2***	***0.0***	***0.0***	***0.0***	***0.1***	
Craniosynostosis	3	2	1	0	0	6	
	0.2	***0.2***	***0.2***	***0.0***	***0.0***	***0.2***	
Deletion 22q11.2	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Diaphragmatic hernia	13	11	3	1	0	36	
	0.8	***0.9***	***0.6***	***0.4***	***0.0***	***1.0***	
Double outlet right ventricle	11	5	1	2	0	22	
	0.7	***0.4***	***0.2***	***0.8***	***0.0***	***0.6***	
Ebstein anomaly	3	2	1	0	0	8	
	0.2	***0.2***	***0.2***	***0.0***	***0.0***	***0.2***	
Encephalocele	5	8	1	2	0	18	
	0.3	***0.7***	***0.2***	***0.8***	***0.0***	***0.5***	
Esophageal atresia/tracheoesophageal fistula	19	9	3	3	0	40	
	1.1	***0.8***	***0.6***	***1.1***	***0.0***	***1.1***	
Gastroschisis	4	1	1	1	0	9	
	0.4	***0.1***	***0.3***	***0.6***	***0.0***	***0.4***	
Holoprosencephaly	9	9	6	1	0	26	
	0.5	***0.8***	***1.1***	***0.4***	***0.0***	***0.7***	
Hypoplastic left heart syndrome	9	4	1	2	0	25	
	0.5	***0.3***	***0.2***	***0.8***	***0.0***	***0.7***	
Hypospadias*	344	209	76	28	0	744	
	40.6	***34.4***	***28.6***	***20.1***	***0.0***	***39.9***	
Interrupted aortic arch	1	1	0	0	0	4	
	0.1	***0.1***	***0.0***	***0.0***	***0.0***	***0.1***	

Maryland

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Limb deficiencies (reduction defects)	39	49	20	4	1	125	
	2.4	***4.1***	***3.8***	***1.5***	***13.7***	***3.4***	
Omphalocele	1	2	0	0	0	5	
	0.1	***0.3***	***0.0***	***0.0***	***0.0***	***0.2***	
Pulmonary valve atresia and stenosis	5	6	1	0	0	20	
	0.3	***0.5***	***0.2***	***0.0***	***0.0***	***0.5***	
Pulmonary valve atresia	3	3	0	0	0	8	
	0.2	***0.3***	***0.0***	***0.0***	***0.0***	***0.2***	
Rectal and large intestinal atresia/stenosis	21	15	9	5	0	58	
	1.3	***1.3***	***1.7***	***1.9***	***0.0***	***1.6***	
Renal agenesis/hypoplasia	16	15	4	3	0	45	
	1.0	***1.3***	***0.8***	***1.1***	***0.0***	***1.2***	
Single ventricle	1	2	0	0	0	4	
	0.1	***0.2***	***0.0***	***0.0***	***0.0***	***0.1***	
Small intestinal atresia/stenosis	9	12	1	0	0	29	
	0.5	***1.0***	***0.2***	***0.0***	***0.0***	***0.8***	
Spina bifida without anencephalus	42	20	13	2	0	81	
	2.5	***1.7***	***2.5***	***0.8***	***0.0***	***2.2***	
Tetralogy of Fallot	38	14	1	5	0	67	
	2.3	***1.2***	***0.2***	***1.9***	***0.0***	***1.8***	
Total anomalous pulmonary venous connection	1	0	1	0	0	5	
	0.1	***0.0***	***0.2***	***0.0***	***0.0***	***0.1***	
Transposition of the great arteries (TGA)	9	2	1	1	0	13	
	0.5	***0.2***	***0.2***	***0.4***	***0.0***	***0.4***	
Dextro-transposition of great arteries (d-TGA)	7	2	1	1	0	11	
	0.4	***0.2***	***0.2***	***0.4***	***0.0***	***0.3***	
Tricuspid valve atresia and stenosis	2	4	1	0	0	13	
	0.1	***0.3***	***0.2***	***0.0***	***0.0***	***0.4***	
Tricuspid valve atresia	2	3	1	0	0	12	
	0.1	***0.3***	***0.2***	***0.0***	***0.0***	***0.3***	
Trisomy 13	8	5	3	0	0	22	
	0.5	***0.4***	***0.6***	***0.0***	***0.0***	***0.6***	
Trisomy 18	14	11	7	1	0	42	
	0.8	***0.9***	***1.3***	***0.4***	***0.0***	***1.2***	
Trisomy 21 (Down syndrome)	132	98	69	12	0	365	
	8.0	***8.2***	***13.2***	***4.5***	***0.0***	***10.0***	
Turner syndrome†	4	6	2	1	0	16	
	0.5	***1.0***	***0.8***	***0.8***	***0.0***	***0.9***	
Ventricular septal defect	40	40	7	2	0	111	1
	2.4	***3.4***	***1.3***	***0.8***	***0.0***	***3.0***	
Total live births §	**165530**	**119378**	**52230**	**26510**	**728**	**364980**	
Male live births	**84820**	**60745**	**26555**	**13904**	**52**	**186492**	
Female live births	**80708**	**58632**	**25675**	**12989**	**70**	**178485**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity
§Total live births includes unknown gender

Maryland

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Trisomy 13	8	11	22	
	0.3	***1.6***	***0.6***	
Trisomy 18	24	16	42	
	0.8	***2.3***	***1.2***	
Trisomy 21 (Down syndrome)	171	164	365	
	5.8	***23.9***	***10.0***	
Total live births	**296334**	**68617**	**364980**	

**Total includes unknown maternal age

Notes
1.Data for this condition include probable cases.

General comments
-Fetal deaths defined as gestational age greater than 20 weeks.
-Terminations defined as gestational age 20 weeks or less.

Massachusetts

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total**	Notes
Anencephalus	38	5	13	3	0	69	
	1.7	***1.4***	***2.1***	***1.0***	***0.0***	***1.9***	
Anophthalmia/microphthalmia	29	4	12	3	0	49	
	1.3	***1.2***	***2.0***	***1.0***	***0.0***	***1.4***	
Anotia/microtia	47	6	23	9	0	87	
	2.1	***1.7***	***3.7***	***2.9***	***0.0***	***2.4***	
Aortic valve stenosis	36	2	5	2	0	45	
	1.6	***0.6***	***0.8***	***0.6***	***0.0***	***1.2***	
Atrial septal defect	521	94	135	63	1	825	
	22.8	***27.0***	***22.0***	***20.3***	***8.9***	***22.8***	
Atrioventricular septal defect (Endocardial cushion defect)	124	35	48	13	0	226	
	5.4	***10.1***	***7.8***	***4.2***	***0.0***	***6.2***	
Biliary atresia	8	2	7	5	0	22	
	0.4	***0.6***	***1.1***	***1.6***	***0.0***	***0.6***	
Bladder exstrophy	8	1	1	0	0	10	
	0.4	***0.3***	***0.2***	***0.0***	***0.0***	***0.3***	
Choanal atresia	22	1	5	1	0	29	
	1.0	***0.3***	***0.8***	***0.3***	***0.0***	***0.8***	
Cleft lip alone	92	9	14	17	0	134	
	4.0	***2.6***	***2.3***	***5.5***	***0.0***	***3.7***	
Cleft lip with cleft palate	123	10	34	13	0	184	
	5.4	***2.9***	***5.5***	***4.2***	***0.0***	***5.1***	
Cleft palate alone	138	21	36	20	1	218	1
	6.0	***6.0***	***5.9***	***6.4***	***8.9***	***6.0***	
Cloacal exstrophy	9	1	3	0	0	13	
	0.4	***0.3***	***0.5***	***0.0***	***0.0***	***0.4***	
Clubfoot	344	40	77	29	4	511	2
	15.1	***11.5***	***12.5***	***9.3***	***35.6***	***14.1***	
Coarctation of the aorta	117	21	24	8	0	170	
	5.1	***6.0***	***3.9***	***2.6***	***0.0***	***4.7***	
Common truncus (truncus arteriosus)	10	3	3	1	0	18	
	0.4	***0.9***	***0.5***	***0.3***	***0.0***	***0.5***	
Congenital cataract	60	10	24	3	0	97	
	2.6	***2.9***	***3.9***	***1.0***	***0.0***	***2.7***	
Congenital posterior urethral valves	17	11	6	7	0	45	
	0.7	***3.2***	***1.0***	***2.3***	***0.0***	***1.2***	
Craniosynostosis	154	8	25	8	1	202	
	6.7	***2.3***	***4.1***	***2.6***	***8.9***	***5.6***	
Deletion 22q11.2	27	5	12	7	0	52	
	1.2	***1.4***	***2.0***	***2.3***	***0.0***	***1.4***	
Diaphragmatic hernia	74	7	18	9	0	109	
	3.2	***2.0***	***2.9***	***2.9***	***0.0***	***3.0***	
Double outlet right ventricle	38	6	11	6	0	62	
	1.7	***1.7***	***1.8***	***1.9***	***0.0***	***1.7***	
Ebstein anomaly	13	0	4	0	0	18	
	0.6	***0.0***	***0.7***	***0.0***	***0.0***	***0.5***	
Encephalocele	17	6	12	5	0	44	
	0.7	***1.7***	***2.0***	***1.6***	***0.0***	***1.2***	
Esophageal atresia/tracheoesophageal fistula	79	8	15	2	0	104	
	3.5	***2.3***	***2.4***	***0.6***	***0.0***	***2.9***	
Gastroschisis	75	11	29	8	1	130	
	3.3	***3.2***	***4.7***	***2.6***	***8.9***	***3.6***	
Holoprosencephaly	31	4	14	3	0	55	
	1.4	***1.2***	***2.3***	***1.0***	***0.0***	***1.5***	
Hypoplastic left heart syndrome	44	9	15	6	0	79	
	1.9	***2.6***	***2.4***	***1.9***	***0.0***	***2.2***	
Hypospadias*	530	69	95	34	2	741	3
	45.4	***38.7***	***30.3***	***21.3***	***35.7***	***40.0***	
Interrupted aortic arch	9	2	2	0	0	13	
	0.4	***0.6***	***0.3***	***0.0***	***0.0***	***0.4***	

Massachusetts

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Limb deficiencies (reduction defects)	136	17	25	9	0	192	
	6.0	***4.9***	***4.1***	***2.9***	***0.0***	***5.3***	
Omphalocele	73	5	25	6	0	115	
	3.2	***1.4***	***4.1***	***1.9***	***0.0***	***3.2***	
Pulmonary valve atresia and stenosis	185	55	46	20	1	312	
	8.1	***15.8***	***7.5***	***6.4***	***8.9***	***8.6***	
Pulmonary valve atresia	12	3	2	3	0	20	
	0.5	***0.9***	***0.3***	***1.0***	***0.0***	***0.6***	
Rectal and large intestinal atresia/stenosis	93	12	25	9	0	145	
	4.1	***3.5***	***4.1***	***2.9***	***0.0***	***4.0***	
Renal agenesis/hypoplasia	76	9	11	7	0	107	4
	3.3	***2.6***	***1.8***	***2.3***	***0.0***	***3.0***	
Single ventricle	9	2	1	3	0	15	
	0.4	***0.6***	***0.2***	***1.0***	***0.0***	***0.4***	
Small intestinal atresia/stenosis	59	8	21	8	0	98	
	2.6	***2.3***	***3.4***	***2.6***	***0.0***	***2.7***	
Spina bifida without anencephalus	99	9	25	4	0	143	
	4.3	***2.6***	***4.1***	***1.3***	***0.0***	***3.9***	
Tetralogy of Fallot	116	15	28	15	1	178	5
	5.1	***4.3***	***4.6***	***4.8***	***8.9***	***4.9***	
Total anomalous pulmonary venous connection	15	3	9	9	0	36	
	0.7	***0.9***	***1.5***	***2.9***	***0.0***	***1.0***	
Transposition of the great arteries (TGA)	72	10	19	8	0	111	
	3.2	***2.9***	***3.1***	***2.6***	***0.0***	***3.1***	
Dextro-transposition of great arteries (d-TGA)	60	10	16	8	0	96	
	2.6	***2.9***	***2.6***	***2.6***	***0.0***	***2.7***	
Tricuspid valve atresia and stenosis	21	4	4	1	0	30	
	0.9	***1.2***	***0.7***	***0.3***	***0.0***	***0.8***	
Tricuspid valve atresia	12	2	3	1	0	18	
	0.5	***0.6***	***0.5***	***0.3***	***0.0***	***0.5***	
Trisomy 13	66	3	9	6	0	95	
	2.9	***0.9***	***1.5***	***1.9***	***0.0***	***2.6***	
Trisomy 18	121	22	37	22	0	223	
	5.3	***6.3***	***6.0***	***7.1***	***0.0***	***6.2***	
Trisomy 21 (Down syndrome)	520	70	128	52	0	823	
	22.8	***20.1***	***20.8***	***16.8***	***0.0***	***22.7***	
Turner syndrome†	85	6	11	6	1	133	
	7.6	***3.5***	***3.7***	***4.0***	***17.7***	***7.5***	
Ventricular septal defect	529	78	158	71	4	847	6
	23.2	***22.4***	***25.7***	***22.9***	***35.6***	***23.4***	
Total live births §	**228183**	**34777**	**61445**	**31027**	**1125**	**362130**	
Male live births	**116821**	**17842**	**31384**	**15936**	**561**	**185376**	
Female live births	**111360**	**16933**	**30059**	**15091**	**564**	**176747**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births. Excludes male phenotype.
**Total includes unknown and other maternal race/ethnicity
§Total live births includes unknown gender

Massachusetts

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	122	7	130	
	4.4	***0.8***	***3.6***	
Trisomy 13	39	56	95	
	1.4	***6.8***	***2.6***	
Trisomy 18	79	144	223	
	2.8	***17.5***	***6.2***	
Trisomy 21 (Down syndrome)	316	507	823	
	11.3	***61.6***	***22.7***	
Total live births	**279751**	**82367**	**362130**	

**Total includes unknown maternal age

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 exclude 1st degree and not otherwise specified prior to 2014.
4.Data for this condition exclude isolated unilateral renal agenesis/hypoplasia prior to 2014.
5.Data for this condition include pulmonary atresia with ventricular septal defect.
6.Data for this condition exclude isolated muscular ventricular septal defect prior to 2014.

General comments
-Coding system is modified CDC/BPA, but with different modified BPA codes for congenital cataract, diaphragmatic hernia, and double outlet right ventricle.
-Data for conditions exclude possible/probable cases.
-For live births, race/ethnicity from vital records; new birth certificate in 2011--multiple categories allowed.
-For stillbirths without vital record info and for unspecified non-livebirths, race/ethnicity from medical record.
-Pregnancy outcomes include live births, stillbirths, and starting in 2011, unspecified non-live births.
-Stillbirths defined as fetal deaths >= 20 weeks or >=350 grams.
-Unspecified non-live births include elective terminations and early losses <20 weeks or <350 grams.

Michigan
Birth Defects Counts and Prevalence 2010 - 2013 (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	39	3	3	1	0	47	
	1.2	***0.4***	***0.9***	***0.7***	***0.0***	***1.0***	
Anophthalmia/microphthalmia	35	13	3	0	0	51	
	1.1	***1.5***	***0.9***	***0.0***	***0.0***	***1.1***	
Anotia/microtia	25	10	14	4	0	71	
	0.8	***1.2***	***4.4***	***2.9***	***0.0***	***1.6***	
Aortic valve stenosis	71	10	5	4	0	94	
	2.3	***1.2***	***1.6***	***2.9***	***0.0***	***2.1***	
Atrial septal defect	2577	1275	253	126	26	4331	
	82.5	***151.8***	***78.6***	***91.6***	***140.9***	***95.1***	
Atrioventricular septal defect (Endocardial cushion defect)	168	40	18	7	0	236	
	5.4	***4.8***	***5.6***	***5.1***	***0.0***	***5.2***	
Biliary atresia	33	14	8	1	0	58	
	1.1	***1.7***	***2.5***	***0.7***	***0.0***	***1.3***	
Bladder exstrophy	8	0	0	0	0	8	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Choanal atresia	54	26	3	3	1	90	
	1.7	***3.1***	***0.9***	***2.2***	***5.4***	***2.0***	
Cleft lip alone	133	22	11	5	0	175	
	4.3	***2.6***	***3.4***	***3.6***	***0.0***	***3.8***	
Cleft lip with cleft palate	170	29	18	10	2	236	
	5.4	***3.5***	***5.6***	***7.3***	***10.8***	***5.2***	
Cleft palate alone	146	32	17	5	0	206	
	4.7	***3.8***	***5.3***	***3.6***	***0.0***	***4.5***	
Cloacal exstrophy	133	48	22	4	2	211	
	4.3	***5.7***	***6.8***	***2.9***	***10.8***	***4.6***	
Clubfoot	380	127	28	19	4	566	
	12.2	***15.1***	***8.7***	***13.8***	***21.7***	***12.4***	
Coarctation of the aorta	652	386	72	30	3	1169	
	20.9	***46.0***	***22.4***	***21.8***	***16.3***	***25.7***	
Common truncus (truncus arteriosus)	44	19	0	3	1	67	
	1.4	***2.3***	***0.0***	***2.2***	***5.4***	***1.5***	
Congenital cataract	59	15	5	4	0	85	
	1.9	***1.8***	***1.6***	***2.9***	***0.0***	***1.9***	
Congenital posterior urethral valves	36	16	0	2	0	54	
	1.2	***1.9***	***0.0***	***1.5***	***0.0***	***1.2***	
Deletion 22q11.2	12	4	1	1	0	18	
	0.4	***0.5***	***0.3***	***0.7***	***0.0***	***0.4***	
Diaphragmatic hernia	84	24	15	8	1	136	
	2.7	***2.9***	***4.7***	***5.8***	***5.4***	***3.0***	
Double outlet right ventricle	74	21	11	7	0	113	
	2.4	***2.5***	***3.4***	***5.1***	***0.0***	***2.5***	
Ebstein anomaly	29	7	2	0	0	38	
	0.9	***0.8***	***0.6***	***0.0***	***0.0***	***0.8***	
Encephalocele	26	7	2	1	0	37	
	0.8	***0.8***	***0.6***	***0.7***	***0.0***	***0.8***	
Esophageal atresia/tracheoesophageal fistula	79	10	5	4	0	100	
	2.5	***1.2***	***1.6***	***2.9***	***0.0***	***2.2***	
Gastroschisis	140	43	11	2	0	201	
	4.5	***5.1***	***3.4***	***1.5***	***0.0***	***4.4***	
Holoprosencephaly	166	77	16	9	1	281	
	5.3	***9.2***	***5.0***	***6.5***	***5.4***	***6.2***	
Hypoplastic left heart syndrome	117	46	13	5	1	186	
	3.7	***5.5***	***4.0***	***3.6***	***5.4***	***4.1***	
Hypospadias*	1023	224	63	43	6	1394	
	63.9	***52.4***	***38.3***	***60.5***	***62.5***	***59.8***	
Interrupted aortic arch	27	9	2	3	0	41	
	0.9	***1.1***	***0.6***	***2.2***	***0.0***	***0.9***	
Limb deficiencies (reduction defects)	110	50	10	5	1	178	
	3.5	***6.0***	***3.1***	***3.6***	***5.4***	***3.9***	

Michigan

Birth Defects Counts and Prevalence 2010 - 2013 (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	56	21	4	1	0	83	
	1.8	***2.5***	***1.2***	***0.7***	***0.0***	***1.8***	
Pulmonary valve atresia and stenosis	258	120	29	13	2	433	
	8.3	***14.3***	***9.0***	***9.5***	***10.8***	***9.5***	
Pulmonary valve atresia	69	35	10	3	0	122	
	2.2	***4.2***	***3.1***	***2.2***	***0.0***	***2.7***	
Rectal and large intestinal atresia/stenosis	141	51	13	6	1	215	
	4.5	***6.1***	***4.0***	***4.4***	***5.4***	***4.7***	
Renal agenesis/hypoplasia	153	49	17	8	2	233	
	4.9	***5.8***	***5.3***	***5.8***	***10.8***	***5.1***	
Single ventricle	39	25	11	2	0	80	
	1.2	***3.0***	***3.4***	***1.5***	***0.0***	***1.8***	
Small intestinal atresia/stenosis	121	45	11	2	0	184	
	3.9	***5.4***	***3.4***	***1.5***	***0.0***	***4.0***	
Spina bifida without anencephalus	115	28	10	7	0	164	
	3.7	***3.3***	***3.1***	***5.1***	***0.0***	***3.6***	
Tetralogy of Fallot	167	54	20	10	1	254	
	5.3	***6.4***	***6.2***	***7.3***	***5.4***	***5.6***	
Total anomalous pulmonary venous connection	41	11	7	0	0	61	
	1.3	***1.3***	***2.2***	***0.0***	***0.0***	***1.3***	
Transposition of the great arteries (TGA)	154	43	17	13	0	229	
	4.9	***5.1***	***5.3***	***9.5***	***0.0***	***5.0***	
Dextro-transposition of great arteries (d-TGA)	89	32	12	5	0	140	
	2.8	***3.8***	***3.7***	***3.6***	***0.0***	***3.1***	
Tricuspid valve atresia and stenosis	41	11	6	1	0	61	
	1.3	***1.3***	***1.9***	***0.7***	***0.0***	***1.3***	
Trisomy 13	13	11	2	2	0	29	
	0.4	***1.3***	***0.6***	***1.5***	***0.0***	***0.6***	
Trisomy 18	32	13	8	2	0	58	
	1.0	***1.5***	***2.5***	***1.5***	***0.0***	***1.3***	
Trisomy 21 (Down syndrome)	405	104	31	21	0	577	
	13.0	***12.4***	***9.6***	***15.3***	***0.0***	***12.7***	
Turner syndrome†	24	2	3	0	0	30	
	1.6	***0.5***	***1.9***	***0.0***	***0.0***	***1.4***	
Ventricular septal defect	1153	367	137	74	10	1771	1
	36.9	***43.7***	***42.6***	***53.8***	***54.2***	***38.9***	
Total live births §	**312285**	**83996**	**32183**	**13750**	**1845**	**455364**	
Male live births	**160104**	**42762**	**16464**	**7110**	**960**	**233246**	
Female live births	**152177**	**41230**	**15718**	**6639**	**885**	**222106**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity
§Total live births includes unknown gender

Michigan

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2013 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	199	2	201	
	5.0	***0.3***	***4.4***	
Trisomy 13	19	10	29	
	0.5	***1.7***	***0.6***	
Trisomy 18	30	27	58	
	0.8	***4.6***	***1.3***	
Trisomy 21 (Down syndrome)	332	245	577	
	8.4	***41.7***	***12.7***	
Total live births	**396618**	**58698**	**455364**	

**Total includes unknown maternal age

Notes
1.Data for this condition include probable cases.

General comments
-Data for conditions include live births only.

Minnesota

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	0	2	5	5	0	12	
	0.0	***0.8***	***4.5***	***2.9***	***0.0***	***1.0***	
Anophthalmia/microphthalmia	5	4	2	1	0	12	
	0.8	***1.7***	***1.8***	***0.6***	***0.0***	***1.0***	
Anotia/microtia	9	4	12	8	2	36	
	1.4	***1.7***	***10.8***	***4.6***	***15.1***	***3.0***	
Aortic valve stenosis	16	3	0	1	0	20	
	2.5	***1.2***	***0.0***	***0.6***	***0.0***	***1.7***	
Atrial septal defect	119	54	23	34	4	237	
	18.7	***22.5***	***20.8***	***19.5***	***30.1***	***19.9***	
Atrioventricular septal defect (Endocardial cushion defect)	40	15	9	7	1	74	1
	6.3	***6.2***	***8.1***	***4.0***	***7.5***	***6.2***	
Biliary atresia	5	3	1	2	0	11	
	0.8	***1.2***	***0.9***	***1.1***	***0.0***	***0.9***	
Bladder exstrophy	2	1	0	0	0	3	
	0.3	***0.4***	***0.0***	***0.0***	***0.0***	***0.3***	
Choanal atresia	10	5	2	0	0	17	
	1.6	***2.1***	***1.8***	***0.0***	***0.0***	***1.4***	
Cleft lip alone	20	6	1	8	0	36	
	3.1	***2.5***	***0.9***	***4.6***	***0.0***	***3.0***	
Cleft lip with cleft palate	38	14	5	11	2	72	
	6.0	***5.8***	***4.5***	***6.3***	***15.1***	***6.0***	
Cleft palate alone	46	11	3	7	0	67	
	7.2	***4.6***	***2.7***	***4.0***	***0.0***	***5.6***	
Coarctation of the aorta	40	8	5	3	1	60	
	6.3	***3.3***	***4.5***	***1.7***	***7.5***	***5.0***	
Common truncus (truncus arteriosus)	4	1	1	1	0	8	
	0.6	***0.4***	***0.9***	***0.6***	***0.0***	***0.7***	
Congenital cataract	12	7	0	2	0	21	
	1.9	***2.9***	***0.0***	***1.1***	***0.0***	***1.8***	
Congenital posterior urethral valves	9	8	0	2	0	19	
	1.4	***3.3***	***0.0***	***1.1***	***0.0***	***1.6***	
Diaphragmatic hernia	17	6	4	5	0	32	
	2.7	***2.5***	***3.6***	***2.9***	***0.0***	***2.7***	
Double outlet right ventricle	9	9	5	1	1	25	
	1.4	***3.7***	***4.5***	***0.6***	***7.5***	***2.1***	
Ebstein anomaly	4	3	0	1	0	8	
	0.6	***1.2***	***0.0***	***0.6***	***0.0***	***0.7***	
Encephalocele	5	3	1	3	1	13	
	0.8	***1.2***	***0.9***	***1.7***	***7.5***	***1.1***	
Esophageal atresia/tracheoesophageal fistula	14	6	2	6	0	28	
	2.2	***2.5***	***1.8***	***3.4***	***0.0***	***2.4***	
Gastroschisis	13	4	6	9	0	32	
	2.0	***1.7***	***5.4***	***5.2***	***0.0***	***2.7***	
Hypoplastic left heart syndrome	13	4	3	1	0	21	
	2.0	***1.7***	***2.7***	***0.6***	***0.0***	***1.8***	
Hypospadias*	269	100	19	20	3	418	
	82.5	***81.1***	***34.4***	***22.5***	***45.7***	***68.8***	
Limb deficiencies (reduction defects)	23	6	1	7	1	39	2
	3.6	***2.5***	***0.9***	***4.0***	***7.5***	***3.3***	
Omphalocele	13	5	1	4	0	23	
	2.0	***2.1***	***0.9***	***2.3***	***0.0***	***1.9***	
Pulmonary valve atresia and stenosis	61	34	14	21	5	135	
	9.6	***14.1***	***12.6***	***12.1***	***37.7***	***11.3***	
Pulmonary valve atresia	4	4	0	3	1	12	
	0.6	***1.7***	***0.0***	***1.7***	***7.5***	***1.0***	
Rectal and large intestinal atresia/stenosis	26	13	1	9	0	49	
	4.1	***5.4***	***0.9***	***5.2***	***0.0***	***4.1***	
Renal agenesis/hypoplasia	33	14	4	8	0	60	
	5.2	***5.8***	***3.6***	***4.6***	***0.0***	***5.0***	

Minnesota

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Single ventricle	2	1	0	2	0	5	
	0.3	***0.4***	***0.0***	***1.1***	***0.0***	***0.4***	
Spina bifida without anencephalus	17	6	3	2	0	30	
	2.7	***2.5***	***2.7***	***1.1***	***0.0***	***2.5***	
Tetralogy of Fallot	21	2	3	4	1	32	3
	3.3	***0.8***	***2.7***	***2.3***	***7.5***	***2.7***	
Total anomalous pulmonary venous connection	5	1	1	4	0	11	4
	0.8	***0.4***	***0.9***	***2.3***	***0.0***	***0.9***	
Transposition of the great arteries (TGA)	14	5	4	2	1	26	
	2.2	***2.1***	***3.6***	***1.1***	***7.5***	***2.2***	
Tricuspid valve atresia	2	5	1	1	0	9	
	0.3	***2.1***	***0.9***	***0.6***	***0.0***	***0.8***	
Trisomy 13	4	8	2	1	0	15	
	0.6	***3.3***	***1.8***	***0.6***	***0.0***	***1.3***	
Trisomy 18	9	9	0	7	0	25	
	1.4	***3.7***	***0.0***	***4.0***	***0.0***	***2.1***	
Trisomy 21 (Down syndrome)	121	49	29	23	2	225	
	19.0	***20.4***	***26.2***	***13.2***	***15.1***	***18.9***	
Ventricular septal defect	384	149	76	77	15	710	5
	60.2	***62.0***	***68.6***	***44.2***	***113.0***	***59.6***	
Total live births	**63794**	**24041**	**11079**	**17409**	**1328**	**119075**	
Male live births	**32595**	**12328**	**5525**	**8883**	**657**	**60737**	

*Hypospadias prevalence per 10,000 male live births
**Total includes unknown and other maternal race/ethnicity

Minnesota

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	32	0	32	
	3.3	***0.0***	***2.7***	
Trisomy 13	7	8	15	
	0.7	***3.7***	***1.3***	
Trisomy 18	13	12	25	
	1.3	***5.6***	***2.1***	
Trisomy 21 (Down syndrome)	128	97	225	
	13.1	***45.2***	***18.9***	
Total live births	**97612**	**21461**	**119075**	

**Total includes unknown maternal age

Notes
1.Data for this condition exclude inlet ventricular septal defect.
2.Data for this condition exclude other specified reduction defect of lower limb, transverse reduction defect of lower limb not otherwise specified, unspecified reduction defect of lower limb, and reduction defects of unspecified limb.
3.Data for this condition exclude pulmonary artery atresia with septal defect.
4.Data for this condition begin in 2013.
5.Data for this condition include inlet ventricular septal defect.

General comments
-Data are for Hennepin and Ramsey Counties only.
-Data for conditions excludes probable and possible cases.

Mississippi

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	1	2	0	0	0	3	
	0.1	***0.2***	***0.0***	***0.0***	***0.0***	***0.2***	
Anophthalmia/microphthalmia	4	3	0	0	0	7	
	0.4	***0.4***	***0.0***	***0.0***	***0.0***	***0.4***	
Anotia/microtia	9	9	1	1	2	23	
	0.9	***1.1***	***1.5***	***4.2***	***16.4***	***1.2***	
Aortic valve stenosis	15	2	0	0	0	18	
	1.5	***0.2***	***0.0***	***0.0***	***0.0***	***0.9***	
Atrial septal defect	1211	1408	35	18	57	2855	
	120.5	***166.9***	***51.1***	***76.2***	***466.1***	***145.8***	
Atrioventricular septal defect (Endocardial cushion defect)	40	39	1	2	0	92	
	4.0	***4.6***	***1.5***	***8.5***	***0.0***	***4.7***	
Biliary atresia	4	7	0	0	0	13	
	0.4	***0.8***	***0.0***	***0.0***	***0.0***	***0.7***	
Bladder exstrophy	3	0	0	0	0	4	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Choanal atresia	4	2	0	0	0	7	
	0.4	***0.2***	***0.0***	***0.0***	***0.0***	***0.4***	
Cleft lip alone	26	10	1	1	0	38	
	2.6	***1.2***	***1.5***	***4.2***	***0.0***	***1.9***	
Cleft lip with cleft palate	47	33	1	2	1	89	
	4.7	***3.9***	***1.5***	***8.5***	***8.2***	***4.5***	
Cleft palate alone	26	14	1	1	0	45	
	2.6	***1.7***	***1.5***	***4.2***	***0.0***	***2.3***	
Cloacal exstrophy	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Clubfoot	2	0	1	0	0	3	
	0.2	***0.0***	***1.5***	***0.0***	***0.0***	***0.2***	
Coarctation of the aorta	29	27	0	0	0	57	
	2.9	***3.2***	***0.0***	***0.0***	***0.0***	***2.9***	
Common truncus (truncus arteriosus)	10	4	1	0	0	15	
	1.0	***0.5***	***1.5***	***0.0***	***0.0***	***0.8***	
Congenital cataract	2	5	0	0	0	7	
	0.2	***0.6***	***0.0***	***0.0***	***0.0***	***0.4***	
Congenital posterior urethral valves	14	20	0	0	0	35	
	1.4	***2.4***	***0.0***	***0.0***	***0.0***	***1.8***	
Deletion 22q11.2	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Diaphragmatic hernia	16	15	0	1	0	37	
	1.6	***1.8***	***0.0***	***4.2***	***0.0***	***1.9***	
Double outlet right ventricle	17	19	2	1	0	40	
	1.7	***2.3***	***2.9***	***4.2***	***0.0***	***2.0***	
Ebstein anomaly	7	5	0	0	0	12	
	0.7	***0.6***	***0.0***	***0.0***	***0.0***	***0.6***	
Encephalocele	2	2	0	0	1	5	
	0.2	***0.2***	***0.0***	***0.0***	***8.2***	***0.3***	
Esophageal atresia/tracheoesophageal fistula	25	11	2	0	0	39	
	2.5	***1.3***	***2.9***	***0.0***	***0.0***	***2.0***	
Holoprosencephaly	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Hypoplastic left heart syndrome	37	17	0	0	0	57	
	3.7	***2.0***	***0.0***	***0.0***	***0.0***	***2.9***	
Hypospadias*	308	304	8	3	1	640	
	59.8	***72.0***	***23.4***	***24.4***	***16.8***	***64.5***	
Interrupted aortic arch	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Limb deficiencies (reduction defects)	25	32	0	0	1	59	
	2.5	***3.8***	***0.0***	***0.0***	***8.2***	***3.0***	
Pulmonary valve atresia and stenosis	108	109	1	2	1	233	
	10.7	***12.9***	***1.5***	***8.5***	***8.2***	***11.9***	

Mississippi
Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Rectal and large intestinal atresia/stenosis	29	21	1	2	0	55	
	2.9	***2.5***	***1.5***	***8.5***	***0.0***	***2.8***	
Renal agenesis/hypoplasia	6	10	1	1	1	19	
	0.6	***1.2***	***1.5***	***4.2***	***8.2***	***1.0***	
Single ventricle	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Small intestinal atresia/stenosis	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Spina bifida without anencephalus	24	20	1	1	0	48	
	2.4	***2.4***	***1.5***	***4.2***	***0.0***	***2.5***	
Tetralogy of Fallot	44	54	0	0	0	102	
	4.4	***6.4***	***0.0***	***0.0***	***0.0***	***5.2***	
Total anomalous pulmonary venous connection	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Transposition of the great arteries (TGA)	19	13	1	2	0	35	
	1.9	***1.5***	***1.5***	***8.5***	***0.0***	***1.8***	
Tricuspid valve atresia and stenosis	4	12	0	2	0	18	
	0.4	***1.4***	***0.0***	***8.5***	***0.0***	***0.9***	
Trisomy 13	1	5	0	0	0	7	
	0.1	***0.6***	***0.0***	***0.0***	***0.0***	***0.4***	
Trisomy 18	15	7	1	0	1	24	
	1.5	***0.8***	***1.5***	***0.0***	***8.2***	***1.2***	
Trisomy 21 (Down syndrome)	72	60	3	1	3	149	
	7.2	***7.1***	***4.4***	***4.2***	***24.5***	***7.6***	
Turner syndrome†	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Ventricular septal defect	499	471	26	11	13	1068	1
	49.7	***55.8***	***38.0***	***46.6***	***106.3***	***54.6***	
Total live births	**100471**	**84357**	**6846**	**2362**	**1223**	**195773**	
Male live births	**51520**	**42239**	**3415**	**1230**	**594**	**99272**	
Female live births	**48951**	**42118**	**3431**	**1132**	**629**	**96501**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity

Mississippi

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Trisomy 13	6	1	7	
	0.3	***0.6***	***0.4***	
Trisomy 18	14	10	24	
	0.8	***6.4***	***1.2***	
Trisomy 21 (Down syndrome)	82	67	149	
	4.6	***42.7***	***7.6***	
Total live births	**180067**	**15692**	**195773**	

**Total includes unknown maternal age

Notes
1.Data for conditions exclude probable cases.

Missouri

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	35	5	6	1	0	48	
	1.2	***0.9***	***2.9***	***1.1***	***0.0***	***1.3***	
Anophthalmia/microphthalmia	29	3	3	1	0	36	
	1.0	***0.6***	***1.5***	***1.1***	***0.0***	***1.0***	
Anotia/microtia	12	3	7	3	0	25	
	0.4	***0.6***	***3.4***	***3.3***	***0.0***	***0.7***	
Aortic valve stenosis	41	1	2	0	0	44	
	1.4	***0.2***	***1.0***	***0.0***	***0.0***	***1.2***	
Atrial septal defect	3724	1016	255	100	13	5278	
	131.6	***187.7***	***125.2***	***108.9***	***161.1***	***139.4***	
Atrioventricular septal defect (Endocardial cushion defect)	121	31	7	3	0	166	
	4.3	***5.7***	***3.4***	***3.3***	***0.0***	***4.4***	
Biliary atresia	19	8	4	0	0	32	
	0.7	***1.5***	***2.0***	***0.0***	***0.0***	***0.8***	
Bladder exstrophy	14	1	0	0	0	15	
	0.5	***0.2***	***0.0***	***0.0***	***0.0***	***0.4***	
Choanal atresia	59	13	2	1	0	76	
	2.1	***2.4***	***1.0***	***1.1***	***0.0***	***2.0***	
Cleft lip alone	177	21	11	4	2	223	
	6.3	***3.9***	***5.4***	***4.4***	***24.8***	***5.9***	
Cleft lip with cleft palate	200	31	14	4	2	265	
	7.1	***5.7***	***6.9***	***4.4***	***24.8***	***7.0***	
Cleft palate alone	178	19	12	4	0	215	
	6.3	***3.5***	***5.9***	***4.4***	***0.0***	***5.7***	
Cloacal exstrophy	198	61	14	7	0	290	
	7.0	***11.3***	***6.9***	***7.6***	***0.0***	***7.7***	
Clubfoot	499	81	27	15	1	644	
	17.6	***15.0***	***13.3***	***16.3***	***12.4***	***17.0***	
Coarctation of the aorta	181	25	15	5	0	230	
	6.4	***4.6***	***7.4***	***5.4***	***0.0***	***6.1***	
Common truncus (truncus arteriosus)	16	2	3	0	0	22	
	0.6	***0.4***	***1.5***	***0.0***	***0.0***	***0.6***	
Congenital cataract	45	12	1	2	1	63	
	1.6	***2.2***	***0.5***	***2.2***	***12.4***	***1.7***	
Congenital posterior urethral valves	41	15	3	1	0	63	
	1.4	***2.8***	***1.5***	***1.1***	***0.0***	***1.7***	
Deletion 22q11.2	19	1	1	1	0	22	
	0.7	***0.2***	***0.5***	***1.1***	***0.0***	***0.6***	
Diaphragmatic hernia	119	29	6	3	0	158	
	4.2	***5.4***	***2.9***	***3.3***	***0.0***	***4.2***	
Double outlet right ventricle	62	23	4	3	0	94	
	2.2	***4.2***	***2.0***	***3.3***	***0.0***	***2.5***	
Ebstein anomaly	23	1	3	0	0	30	
	0.8	***0.2***	***1.5***	***0.0***	***0.0***	***0.8***	
Encephalocele	24	10	4	0	0	39	
	0.8	***1.8***	***2.0***	***0.0***	***0.0***	***1.0***	
Esophageal atresia/tracheoesophageal fistula	98	10	2	2	1	118	
	3.5	***1.8***	***1.0***	***2.2***	***12.4***	***3.1***	
Gastroschisis	157	31	16	2	0	211	
	5.5	***5.7***	***7.9***	***2.2***	***0.0***	***5.6***	
Holoprosencephaly	158	36	18	3	1	224	
	5.6	***6.7***	***8.8***	***3.3***	***12.4***	***5.9***	
Hypoplastic left heart syndrome	85	16	3	0	0	104	
	3.0	***3.0***	***1.5***	***0.0***	***0.0***	***2.7***	
Hypospadias*	1311	270	47	37	6	1713	
	90.2	***98.0***	***45.3***	***77.4***	***145.3***	***88.2***	
Interrupted aortic arch	13	4	4	0	0	22	
	0.5	***0.7***	***2.0***	***0.0***	***0.0***	***0.6***	
Limb deficiencies (reduction defects)	122	24	11	3	0	166	
	4.3	***4.4***	***5.4***	***3.3***	***0.0***	***4.4***	

Missouri

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Omphalocele	70	18	5	1	0	98	
	2.5	***3.3***	***2.5***	***1.1***	***0.0***	***2.6***	
Pulmonary valve atresia and stenosis	266	65	19	4	1	364	
	9.4	***12.0***	***9.3***	***4.4***	***12.4***	***9.6***	
Pulmonary valve atresia	37	7	1	0	0	46	
	1.3	***1.3***	***0.5***	***0.0***	***0.0***	***1.2***	
Rectal and large intestinal atresia/stenosis	142	22	9	5	1	184	
	5.0	***4.1***	***4.4***	***5.4***	***12.4***	***4.9***	
Renal agenesis/hypoplasia	127	35	8	7	0	180	
	4.5	***6.5***	***3.9***	***7.6***	***0.0***	***4.8***	
Single ventricle	28	8	1	1	0	39	
	1.0	***1.5***	***0.5***	***1.1***	***0.0***	***1.0***	
Small intestinal atresia/stenosis	108	29	8	3	0	155	
	3.8	***5.4***	***3.9***	***3.3***	***0.0***	***4.1***	
Spina bifida without anencephalus	77	7	5	0	0	92	
	2.7	***1.3***	***2.5***	***0.0***	***0.0***	***2.4***	
Tetralogy of Fallot	129	25	14	4	1	176	
	4.6	***4.6***	***6.9***	***4.4***	***12.4***	***4.6***	
Total anomalous pulmonary venous connection	21	6	2	0	0	31	
	0.7	***1.1***	***1.0***	***0.0***	***0.0***	***0.8***	
Transposition of the great arteries (TGA)	113	13	7	3	0	140	
	4.0	***2.4***	***3.4***	***3.3***	***0.0***	***3.7***	
Dextro-transposition of great arteries (d-TGA)	103	9	4	2	0	121	
	3.6	***1.7***	***2.0***	***2.2***	***0.0***	***3.2***	
Tricuspid valve atresia and stenosis	32	8	2	0	0	42	
	1.1	***1.5***	***1.0***	***0.0***	***0.0***	***1.1***	
Tricuspid valve atresia	32	8	2	0	0	42	
	1.1	***1.5***	***1.0***	***0.0***	***0.0***	***1.1***	
Trisomy 13	24	5	2	0	0	31	
	0.8	***0.9***	***1.0***	***0.0***	***0.0***	***0.8***	
Trisomy 18	40	12	6	0	0	58	
	1.4	***2.2***	***2.9***	***0.0***	***0.0***	***1.5***	
Trisomy 21 (Down syndrome)	348	76	39	10	2	491	
	12.3	***14.0***	***19.2***	***10.9***	***24.8***	***13.0***	
Turner syndrome†	23	3	0	0	0	27	
	1.7	***1.1***	***0.0***	***0.0***	***0.0***	***1.5***	
Ventricular septal defect	1354	306	112	38	2	1857	1
	47.8	***56.5***	***55.0***	***41.4***	***24.8***	***49.1***	
Total live births §	**283038**	**54130**	**20365**	**9179**	**807**	**378535**	
Male live births	**145286**	**27554**	**10367**	**4782**	**413**	**194110**	
Female live births	**137748**	**26573**	**9997**	**4397**	**394**	**184417**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity
§Total live births includes unknown gender

Missouri

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	204	7	211	
	6.1	***1.7***	***5.6***	
Trisomy 13	19	12	31	
	0.6	***2.9***	***0.8***	
Trisomy 18	36	22	58	
	1.1	***5.3***	***1.5***	
Trisomy 21 (Down syndrome)	286	205	491	
	8.5	***49.4***	***13.0***	
Total live births	**336997**	**41471**	**378535**	

**Total includes unknown maternal age

Notes
1.Data for this condition exclude probable cases

General comments
-Fetal deaths are defined as more than 20 weeks of gestation or greater than 350 grams.

Nebraska

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total**	Notes
Anencephalus	13	0	2	0	0	24	
	1.4	***0.0***	***1.0***	***0.0***	***0.0***	***1.8***	
Anophthalmia/microphthalmia	12	1	0	1	1	17	
	1.2	***1.1***	***0.0***	***2.7***	***5.2***	***1.3***	
Anotia/microtia	19	0	3	1	0	34	
	2.0	***0.0***	***1.6***	***2.7***	***0.0***	***2.6***	
Aortic valve stenosis	22	0	1	0	0	26	
	2.3	***0.0***	***0.5***	***0.0***	***0.0***	***2.0***	
Atrial septal defect	126	3	6	3	1	153	
	13.1	***3.4***	***3.1***	***8.0***	***5.2***	***11.7***	
Atrioventricular septal defect (Endocardial cushion defect)	24	0	0	2	0	32	
	2.5	***0.0***	***0.0***	***5.3***	***0.0***	***2.5***	
Biliary atresia	4	1	0	0	0	5	
	0.4	***1.1***	***0.0***	***0.0***	***0.0***	***0.4***	
Bladder exstrophy	7	1	0	0	0	8	
	0.7	***1.1***	***0.0***	***0.0***	***0.0***	***0.6***	
Choanal atresia	20	1	0	0	0	25	
	2.1	***1.1***	***0.0***	***0.0***	***0.0***	***1.9***	
Cleft lip alone	39	2	5	5	3	60	
	4.1	***2.3***	***2.6***	***13.3***	***15.6***	***4.6***	
Cleft lip with cleft palate	57	3	2	8	4	89	
	5.9	***3.4***	***1.0***	***21.3***	***20.8***	***6.8***	
Cleft palate alone	54	3	2	2	1	71	
	5.6	***3.4***	***1.0***	***5.3***	***5.2***	***5.4***	
Cloacal exstrophy	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Clubfoot	171	13	11	2	4	226	
	17.8	***14.8***	***5.7***	***5.3***	***20.8***	***17.3***	
Coarctation of the aorta	81	1	4	2	0	103	
	8.4	***1.1***	***2.1***	***5.3***	***0.0***	***7.9***	
Common truncus (truncus arteriosus)	16	1	0	0	0	20	
	1.7	***1.1***	***0.0***	***0.0***	***0.0***	***1.5***	
Congenital cataract	19	0	2	3	0	27	
	2.0	***0.0***	***1.0***	***8.0***	***0.0***	***2.1***	
Congenital posterior urethral valves	1	0	0	0	0	1	
	0.1	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Craniosynostosis	14	0	0	0	0	16	
	1.5	***0.0***	***0.0***	***0.0***	***0.0***	***1.2***	
Deletion 22q11.2	1	0	0	0	0	2	
	0.1	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Diaphragmatic hernia	14	4	2	1	2	27	
	1.5	***4.6***	***1.0***	***2.7***	***10.4***	***2.1***	
Double outlet right ventricle	13	2	2	1	2	23	
	1.4	***2.3***	***1.0***	***2.7***	***10.4***	***1.8***	
Ebstein anomaly	5	0	0	0	1	8	
	0.5	***0.0***	***0.0***	***0.0***	***5.2***	***0.6***	
Encephalocele	11	1	0	1	1	15	
	1.1	***1.1***	***0.0***	***2.7***	***5.2***	***1.1***	
Esophageal atresia/tracheoesophageal fistula	34	2	3	0	0	41	
	3.5	***2.3***	***1.6***	***0.0***	***0.0***	***3.1***	
Gastroschisis	50	6	8	2	3	77	
	5.2	***6.8***	***4.1***	***5.3***	***15.6***	***5.9***	
Holoprosencephaly	3	1	0	1	1	9	
	0.3	***1.1***	***0.0***	***2.7***	***5.2***	***0.7***	
Hypoplastic left heart syndrome	35	5	0	0	2	46	
	3.6	***5.7***	***0.0***	***0.0***	***10.4***	***3.5***	
Hypospadias*	427	36	18	3	0	533	
	86.3	***82.0***	***18.3***	***15.8***	***0.0***	***79.7***	
Interrupted aortic arch	9	0	1	0	0	11	
	0.9	***0.0***	***0.5***	***0.0***	***0.0***	***0.8***	

Nebraska
Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Limb deficiencies (reduction defects)	57	5	3	2	0	73	
	5.9	***5.7***	***1.6***	***5.3***	***0.0***	***5.6***	
Omphalocele	28	4	2	1	0	38	
	2.9	***4.6***	***1.0***	***2.7***	***0.0***	***2.9***	
Pulmonary valve atresia and stenosis	74	5	2	1	2	93	
	7.7	***5.7***	***1.0***	***2.7***	***10.4***	***7.1***	
Pulmonary valve atresia	18	3	1	0	2	29	
	1.9	***3.4***	***0.5***	***0.0***	***10.4***	***2.2***	
Rectal and large intestinal atresia/stenosis	44	5	4	2	1	63	
	4.6	***5.7***	***2.1***	***5.3***	***5.2***	***4.8***	
Renal agenesis/hypoplasia	74	5	1	2	1	98	
	7.7	***5.7***	***0.5***	***5.3***	***5.2***	***7.5***	
Single ventricle	26	3	0	0	1	31	
	2.7	***3.4***	***0.0***	***0.0***	***5.2***	***2.4***	
Small intestinal atresia/stenosis	22	4	3	1	0	32	
	2.3	***4.6***	***1.6***	***2.7***	***0.0***	***2.5***	
Spina bifida without anencephalus	48	2	5	0	1	68	
	5.0	***2.3***	***2.6***	***0.0***	***5.2***	***5.2***	
Tetralogy of Fallot	29	2	1	3	0	37	
	3.0	***2.3***	***0.5***	***8.0***	***0.0***	***2.8***	
Total anomalous pulmonary venous connection	11	3	1	0	0	21	
	1.1	***3.4***	***0.5***	***0.0***	***0.0***	***1.6***	
Transposition of the great arteries (TGA)	44	3	0	0	0	55	
	4.6	***3.4***	***0.0***	***0.0***	***0.0***	***4.2***	
Dextro-transposition of great arteries (d-TGA)	44	3	0	0	0	55	
	4.6	***3.4***	***0.0***	***0.0***	***0.0***	***4.2***	
Tricuspid valve atresia and stenosis	14	4	0	0	0	21	
	1.5	***4.6***	***0.0***	***0.0***	***0.0***	***1.6***	
Trisomy 13	9	3	2	0	0	17	
	0.9	***3.4***	***1.0***	***0.0***	***0.0***	***1.3***	
Trisomy 18	35	3	2	2	0	46	
	3.6	***3.4***	***1.0***	***5.3***	***0.0***	***3.5***	
Trisomy 21 (Down syndrome)	179	5	13	6	1	238	
	18.6	***5.7***	***6.7***	***16.0***	***5.2***	***18.2***	
Turner syndrome†	15	1	0	0	0	19	
	3.2	***2.3***	***0.0***	***0.0***	***0.0***	***3.0***	
Ventricular septal defect	454	22	32	13	3	623	
	47.2	***25.0***	***16.6***	***34.6***	***15.6***	***47.8***	
Total live births	**96153**	**8791**	**19312**	**3756**	**1920**	**130462**	
Male live births	**49482**	**4391**	**9847**	**1899**	**970**	**66852**	
Female live births	**46671**	**4400**	**9465**	**1857**	**950**	**63610**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity

Nebraska

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	74	3	77	
	6.4	***1.9***	***5.9***	
Trisomy 13	11	6	17	
	1.0	***3.8***	***1.3***	
Trisomy 18	26	20	46	
	2.3	***12.7***	***3.5***	
Trisomy 21 (Down syndrome)	136	102	238	
	11.9	***65.0***	***18.2***	
Total live births	**114766**	**15690**	**130462**	

**Total includes unknown maternal age

Nevada

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	2	1	2	0	0	6	
	0.3	***0.5***	***0.3***	***0.0***	***0.0***	***0.3***	
Anophthalmia/microphthalmia	5	4	10	2	0	23	
	0.7	***2.1***	***1.6***	***1.4***	***0.0***	***1.3***	
Anotia/microtia	4	0	3	1	0	9	
	0.5	***0.0***	***0.5***	***0.7***	***0.0***	***0.5***	
Aortic valve stenosis	13	0	8	0	0	23	
	1.8	***0.0***	***1.3***	***0.0***	***0.0***	***1.3***	
Atrioventricular septal defect (Endocardial cushion defect)	15	7	9	1	0	33	
	2.0	***3.8***	***1.4***	***0.7***	***0.0***	***1.9***	
Biliary atresia	6	0	2	1	0	10	
	0.8	***0.0***	***0.3***	***0.7***	***0.0***	***0.6***	
Bladder exstrophy	3	0	1	0	0	5	
	0.4	***0.0***	***0.2***	***0.0***	***0.0***	***0.3***	
Choanal atresia	8	1	6	1	0	17	
	1.1	***0.5***	***0.9***	***0.7***	***0.0***	***1.0***	
Cleft lip alone	23	4	9	7	0	43	
	3.1	***2.1***	***1.4***	***4.9***	***0.0***	***2.4***	
Cleft lip with cleft palate	43	15	48	2	0	112	
	5.8	***8.0***	***7.5***	***1.4***	***0.0***	***6.4***	
Cleft palate alone	38	6	23	3	1	74	
	5.1	***3.2***	***3.6***	***2.1***	***5.9***	***4.2***	
Cloacal exstrophy	22	6	13	3	0	49	
	3.0	***3.2***	***2.0***	***2.1***	***0.0***	***2.8***	
Clubfoot	99	19	71	9	1	210	
	13.4	***10.2***	***11.1***	***6.3***	***5.9***	***12.0***	
Coarctation of the aorta	44	8	42	6	0	106	
	6.0	***4.3***	***6.6***	***4.2***	***0.0***	***6.0***	
Common truncus (truncus arteriosus)	1	2	5	0	0	8	
	0.1	***1.1***	***0.8***	***0.0***	***0.0***	***0.5***	
Congenital cataract	5	3	5	1	0	14	
	0.8	***2.0***	***1.0***	***0.9***	***0.0***	***1.0***	
Congenital posterior urethral valves	5	0	2	0	0	7	
	0.7	***0.0***	***0.3***	***0.0***	***0.0***	***0.4***	
Craniosynostosis	64	12	33	4	0	124	
	8.7	***6.4***	***5.2***	***2.8***	***0.0***	***7.1***	
Deletion 22q11.2	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Diaphragmatic hernia	8	5	17	4	0	35	
	1.1	***2.7***	***2.7***	***2.8***	***0.0***	***2.0***	
Double outlet right ventricle	7	1	8	0	0	18	
	0.9	***0.5***	***1.3***	***0.0***	***0.0***	***1.0***	
Ebstein anomaly	4	0	3	0	0	7	
	0.9	***0.0***	***0.8***	***0.0***	***0.0***	***0.7***	
Encephalocele	7	1	1	2	0	12	
	0.9	***0.5***	***0.2***	***1.4***	***0.0***	***0.7***	
Esophageal atresia/tracheoesophageal fistula	15	2	13	1	0	32	
	2.0	***1.1***	***2.0***	***0.7***	***0.0***	***1.8***	
Holoprosencephaly	37	12	18	10	0	78	
	5.0	***6.4***	***2.8***	***7.0***	***0.0***	***4.4***	
Hypoplastic left heart syndrome	13	4	11	1	0	32	
	1.8	***2.1***	***1.7***	***0.7***	***0.0***	***1.8***	
Hypospadias*	181	34	78	22	0	331	
	47.6	***35.8***	***23.9***	***29.6***	***0.0***	***36.7***	
Interrupted aortic arch	3	1	5	2	0	11	
	0.4	***0.5***	***0.8***	***1.4***	***0.0***	***0.6***	
Limb deficiencies (reduction defects)	25	7	14	2	0	48	
	3.4	***3.8***	***2.2***	***1.4***	***0.0***	***2.7***	
Pulmonary valve atresia and stenosis	70	30	47	4	3	161	
	9.5	***16.1***	***7.4***	***2.8***	***17.8***	***9.2***	

Nevada
Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Pulmonary valve atresia	8	2	8	0	0	18	
	1.1	***1.1***	***1.3***	***0.0***	***0.0***	***1.0***	
Rectal and large intestinal atresia/stenosis	27	1	24	4	0	58	
	3.7	***0.5***	***3.8***	***2.8***	***0.0***	***3.3***	
Renal agenesis/hypoplasia	25	5	22	4	3	61	
	3.4	***2.7***	***3.5***	***2.8***	***17.8***	***3.5***	
Single ventricle	2	3	2	0	0	7	
	0.3	***1.6***	***0.3***	***0.0***	***0.0***	***0.4***	
Small intestinal atresia/stenosis	25	7	20	3	1	56	
	3.4	***3.8***	***3.1***	***2.1***	***5.9***	***3.2***	
Spina bifida without anencephalus	14	8	9	3	0	37	
	1.9	***4.3***	***1.4***	***2.1***	***0.0***	***2.1***	
Tetralogy of Fallot	20	2	21	5	2	51	
	2.7	***1.1***	***3.3***	***3.5***	***11.8***	***2.9***	
Total anomalous pulmonary venous connection	5	0	2	1	0	10	
	0.7	***0.0***	***0.3***	***0.7***	***0.0***	***0.6***	
Transposition of the great arteries (TGA)	7	4	6	1	0	19	
	0.9	***2.1***	***0.9***	***0.7***	***0.0***	***1.1***	
Dextro-transposition of great arteries (d-TGA)	5	3	4	0	0	13	
	0.7	***1.6***	***0.6***	***0.0***	***0.0***	***0.7***	
Tricuspid valve atresia and stenosis	2	3	4	1	0	11	
	0.3	***1.6***	***0.6***	***0.7***	***0.0***	***0.6***	
Trisomy 13	6	1	7	1	0	15	
	0.8	***0.5***	***1.1***	***0.7***	***0.0***	***0.9***	
Trisomy 18	6	2	8	0	0	19	
	0.8	***1.1***	***1.3***	***0.0***	***0.0***	***1.1***	
Trisomy 21 (Down syndrome)	73	17	104	11	2	214	
	9.9	***9.1***	***16.3***	***7.7***	***11.8***	***12.2***	
Turner syndrome†	2	2	5	1	0	10	
	0.6	***2.2***	***1.6***	***1.5***	***0.0***	***1.2***	
Ventricular septal defect	367	78	317	51	7	860	1
	49.7	***41.8***	***49.8***	***35.8***	***41.5***	***49.0***	
Total live births	**73890**	**18666**	**63688**	**14260**	**1688**	**175642**	
Male live births	**37990**	**9499**	**32571**	**7423**	**894**	**90157**	
Female live births	**35900**	**9167**	**31117**	**6837**	**794**	**85485**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity

Nevada

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Trisomy 13	8	5	15	
	0.5	***1.9***	***0.9***	
Trisomy 18	10	5	19	
	0.7	***1.9***	***1.1***	
Trisomy 21 (Down syndrome)	99	83	214	
	6.7	***31.2***	***12.2***	
Total live births	**148848**	**26566**	**175642**	

**Total includes unknown maternal age

Notes
1.Cases are excluded if less than 2500 grams birth weight or less than 36 weeks gestation.

General comments
-Data for 2014 are provisional.
-Data for conditions exclude probable/possible diagnoses.
-Data for conditions include live births and resident births only.

New Jersey
Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total**	Notes
Anencephalus	4	0	4	1	0	9	
	0.2	***0.0***	***0.3***	***0.2***	***0.0***	***0.2***	
Anophthalmia/microphthalmia	14	6	10	3	1	37	
	0.6	***0.8***	***0.7***	***0.5***	***17.7***	***0.7***	
Anotia/microtia	42	7	70	11	0	130	
	1.8	***0.9***	***5.1***	***1.9***	***0.0***	***2.5***	
Aortic valve stenosis	18	4	11	1	0	35	
	0.8	***0.5***	***0.8***	***0.2***	***0.0***	***0.7***	
Atrial septal defect	532	495	528	142	4	1753	
	22.4	***64.2***	***38.3***	***24.4***	***70.9***	***33.6***	
Atrioventricular septal defect (Endocardial cushion defect)	54	32	39	2	0	130	
	2.3	***4.1***	***2.8***	***0.3***	***0.0***	***2.5***	
Biliary atresia	8	3	13	2	0	27	
	0.3	***0.4***	***0.9***	***0.3***	***0.0***	***0.5***	
Bladder exstrophy	3	1	3	1	0	9	
	0.1	***0.1***	***0.2***	***0.2***	***0.0***	***0.2***	
Choanal atresia	26	8	14	1	0	49	
	1.1	***1.0***	***1.0***	***0.2***	***0.0***	***0.9***	
Cleft lip alone	79	16	59	16	0	177	
	3.3	***2.1***	***4.3***	***2.8***	***0.0***	***3.4***	
Cleft lip with cleft palate	70	17	56	12	1	160	
	2.9	***2.2***	***4.1***	***2.1***	***17.7***	***3.1***	
Cleft palate alone	157	25	84	42	0	316	
	6.6	***3.2***	***6.1***	***7.2***	***0.0***	***6.1***	
Cloacal exstrophy	48	15	38	11	0	117	
	2.0	***1.9***	***2.8***	***1.9***	***0.0***	***2.2***	
Clubfoot	230	96	155	48	1	546	
	9.7	***12.4***	***11.3***	***8.3***	***17.7***	***10.5***	
Coarctation of the aorta	86	20	50	12	1	179	
	3.6	***2.6***	***3.6***	***2.1***	***17.7***	***3.4***	
Common truncus (truncus arteriosus)	6	4	6	1	0	19	
	0.3	***0.5***	***0.4***	***0.2***	***0.0***	***0.4***	
Congenital cataract	28	20	38	11	1	101	
	1.2	***2.6***	***2.8***	***1.9***	***17.7***	***1.9***	
Congenital posterior urethral valves	21	14	16	6	0	60	
	0.9	***1.8***	***1.2***	***1.0***	***0.0***	***1.2***	
Deletion 22q11.2	4	1	2	0	0	7	
	0.2	***0.1***	***0.1***	***0.0***	***0.0***	***0.1***	
Diaphragmatic hernia	34	4	35	7	0	84	
	1.4	***0.5***	***2.5***	***1.2***	***0.0***	***1.6***	
Double outlet right ventricle	12	19	14	4	0	53	
	0.5	***2.5***	***1.0***	***0.7***	***0.0***	***1.0***	
Ebstein anomaly	13	3	7	3	1	28	
	0.5	***0.4***	***0.5***	***0.5***	***17.7***	***0.5***	
Encephalocele	6	3	4	2	0	16	
	0.3	***0.4***	***0.3***	***0.3***	***0.0***	***0.3***	
Esophageal atresia/tracheoesophageal fistula	53	17	29	11	0	119	
	2.2	***2.2***	***2.1***	***1.9***	***0.0***	***2.3***	
Gastroschisis	39	19	35	1	1	100	
	1.6	***2.5***	***2.5***	***0.2***	***17.7***	***1.9***	
Holoprosencephaly	83	42	81	9	0	228	
	3.5	***5.4***	***5.9***	***1.5***	***0.0***	***4.4***	
Hypoplastic left heart syndrome	24	15	19	0	0	62	
	1.0	***1.9***	***1.4***	***0.0***	***0.0***	***1.2***	
Hypospadias*	1128	246	378	167	2	1993	
	92.6	***62.8***	***54.1***	***55.7***	***68.5***	***74.9***	
Interrupted aortic arch	10	8	9	1	0	28	
	0.4	***1.0***	***0.7***	***0.2***	***0.0***	***0.5***	
Limb deficiencies (reduction defects)	92	44	70	11	0	228	
	3.9	***5.7***	***5.1***	***1.9***	***0.0***	***4.4***	

New Jersey
Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Omphalocele	18	16	14	5	0	54	
	0.8	***2.1***	***1.0***	***0.9***	***0.0***	***1.0***	
Pulmonary valve atresia and stenosis	154	88	140	27	1	433	
	6.5	***11.4***	***10.2***	***4.6***	***17.7***	***8.3***	
Pulmonary valve atresia	13	11	14	2	0	46	
	0.5	***1.4***	***1.0***	***0.3***	***0.0***	***0.9***	
Rectal and large intestinal atresia/stenosis	54	28	50	15	0	163	
	2.3	***3.6***	***3.6***	***2.6***	***0.0***	***3.1***	
Renal agenesis/hypoplasia	135	27	71	25	0	265	
	5.7	***3.5***	***5.2***	***4.3***	***0.0***	***5.1***	
Single ventricle	4	3	3	3	0	13	
	0.2	***0.4***	***0.2***	***0.5***	***0.0***	***0.2***	
Small intestinal atresia/stenosis	61	29	56	8	0	158	
	2.6	***3.8***	***4.1***	***1.4***	***0.0***	***3.0***	
Spina bifida without anencephalus	36	23	48	8	0	121	
	1.5	***3.0***	***3.5***	***1.4***	***0.0***	***2.3***	
Tetralogy of Fallot	65	32	47	17	0	176	
	2.7	***4.1***	***3.4***	***2.9***	***0.0***	***3.4***	
Total anomalous pulmonary venous connection	9	7	16	3	0	37	
	0.4	***0.9***	***1.2***	***0.5***	***0.0***	***0.7***	
Transposition of the great arteries (TGA)	41	15	23	6	0	91	
	1.7	***1.9***	***1.7***	***1.0***	***0.0***	***1.7***	
Dextro-transposition of great arteries (d-TGA)	23	9	12	4	0	51	
	1.0	***1.2***	***0.9***	***0.7***	***0.0***	***1.0***	
Tricuspid valve atresia and stenosis	145	125	182	26	0	484	
	6.1	***16.2***	***13.2***	***4.5***	***0.0***	***9.3***	
Trisomy 13	6	6	7	0	0	21	
	0.3	***0.8***	***0.5***	***0.0***	***0.0***	***0.4***	
Trisomy 18	18	18	10	2	0	48	
	0.8	***2.3***	***0.7***	***0.3***	***0.0***	***0.9***	
Trisomy 21 (Down syndrome)	243	92	230	34	2	622	
	10.2	***11.9***	***16.7***	***5.8***	***35.5***	***11.9***	
Turner syndrome†	9	1	5	1	0	18	
	0.8	***0.3***	***0.7***	***0.4***	***0.0***	***0.7***	
Ventricular septal defect	1244	413	821	242	3	2813	1
	52.3	***53.6***	***59.6***	***41.6***	***53.2***	***54.0***	
Total live births §	**237827**	**77121**	**137769**	**58156**	**564**	**520962**	
Male live births	**121842**	**39179**	**69883**	**29980**	**292**	**266081**	
Female live births	**115984**	**37939**	**67884**	**28176**	**272**	**254875**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births. Excludes male phenotype.
**Total includes unknown and other maternal race/ethnicity
§Total live births includes unknown gender

New Jersey

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	93	5	100	
	2.3	***0.4***	***1.9***	
Trisomy 13	14	7	21	
	0.3	***0.6***	***0.4***	
Trisomy 18	23	24	48	
	0.6	***2.1***	***0.9***	
Trisomy 21 (Down syndrome)	263	332	622	
	6.5	***29.3***	***11.9***	
Total live births	**407508**	**113375**	**520962**	

**Total includes unknown maternal age

Notes
1.Data for this condition only include confirmed cases.

General comments
-Data for 2014 are provisional.
-Data for conditions include live births only.

New Mexico

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	7	0	17	1	4	33	
	2.0	***0.0***	***2.5***	***3.7***	***2.4***	***2.6***	
Cleft lip alone	13	0	41	0	21	77	
	3.7	***0.0***	***6.0***	***0.0***	***12.7***	***6.1***	
Cleft lip with cleft palate	17	1	44	0	16	80	
	4.8	***4.2***	***6.4***	***0.0***	***9.7***	***6.3***	
Cleft palate alone	34	2	31	0	13	81	
	9.6	***8.4***	***4.5***	***0.0***	***7.8***	***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	12	2	51	1	13	81	
	3.4	***8.4***	***7.4***	***3.7***	***7.8***	***6.4***	
Hypoplastic left heart syndrome	4	1	7	1	2	16	
	1.4	***5.1***	***1.3***	***4.5***	***1.5***	***1.6***	
Hypospadias*	124	9	122	6	13	278	
	68.0	***75.1***	***35.0***	***43.1***	***15.6***	***42.9***	
Limb deficiencies (reduction defects)	17	0	42	1	10	71	
	6.0	***0.0***	***7.7***	***4.5***	***7.5***	***7.0***	
Renal agenesis/hypoplasia	2	0	13	0	3	18	
	0.6	***0.0***	***1.9***	***0.0***	***1.8***	***1.4***	
Spina bifida without anencephalus	24	2	41	0	11	79	
	6.8	***8.4***	***6.0***	***0.0***	***6.6***	***6.2***	
Tetralogy of Fallot	7	1	21	4	7	40	1
	2.0	***4.2***	***3.1***	***14.7***	***4.2***	***3.1***	
Transposition of the great arteries (TGA)	5	1	7	0	5	18	1
	1.4	***4.2***	***1.0***	***0.0***	***3.0***	***1.4***	
Trisomy 13	4	1	9	1	3	25	
	1.1	***4.2***	***1.3***	***3.7***	***1.8***	***2.0***	
Trisomy 18	7	1	11	3	3	41	
	2.0	***4.2***	***1.6***	***11.0***	***1.8***	***3.2***	
Trisomy 21 (Down syndrome)	45	4	102	1	20	191	
	12.7	***16.8***	***14.8***	***3.7***	***12.1***	***15.0***	
Total live births	**35393**	**2387**	**68833**	**2721**	**16578**	**127191**	
Male live births	**18244**	**1199**	**34874**	**1393**	**8360**	**64746**	

*Hypospadias prevalence per 10,000 male live births
**Total includes unknown and other maternal race/ethnicity

New Mexico

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	80	0	81	
	7.1	***0.0***	***6.4***	
Trisomy 13	14	5	25	
	1.2	***3.6***	***2.0***	
Trisomy 18	17	8	41	
	1.5	***5.7***	***3.2***	
Trisomy 21 (Down syndrome)	112	67	191	
	9.9	***47.8***	***15.0***	
Total live births	**113171**	**14020**	**127191**	

**Total includes unknown maternal age

Notes
1.Medical records are reviewed to confirm this diagnosis for Environmental Public Health Tracking; NBDPN codes may identify diagnoses that have not been confirmed by medical record.

General comments
-Unspecified non-livebirths are defined as terminations plus spontaneous abortions (not separated)

New York
Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	17	5	12	3	0	41	
	0.3	***0.3***	***0.4***	***0.2***	***0.0***	***0.3***	
Anophthalmia/microphthalmia	46	26	34	11	0	129	
	0.8	***1.4***	***1.2***	***0.9***	***0.0***	***1.1***	
Anotia/microtia	60	17	73	32	1	198	
	1.0	***0.9***	***2.6***	***2.5***	***4.9***	***1.7***	
Aortic valve stenosis	111	16	34	15	0	196	
	1.9	***0.9***	***1.2***	***1.2***	***0.0***	***1.6***	
Atrial septal defect	2561	1701	1937	847	3	7687	
	44.3	***92.2***	***68.4***	***67.1***	***14.6***	***64.3***	
Atrioventricular septal defect (Endocardial cushion defect)	213	111	123	48	2	594	
	3.7	***6.0***	***4.3***	***3.8***	***9.7***	***5.0***	
Biliary atresia	52	27	25	25	1	150	
	0.9	***1.5***	***0.9***	***2.0***	***4.9***	***1.3***	
Bladder exstrophy	15	1	4	1	0	23	
	0.3	***0.1***	***0.1***	***0.1***	***0.0***	***0.2***	
Choanal atresia	120	26	41	14	0	225	
	2.1	***1.4***	***1.4***	***1.1***	***0.0***	***1.9***	
Cleft lip alone	172	31	42	30	1	323	
	3.0	***1.7***	***1.5***	***2.4***	***4.9***	***2.7***	
Cleft lip with cleft palate	298	57	128	68	4	634	
	5.2	***3.1***	***4.5***	***5.4***	***19.5***	***5.3***	
Cleft palate alone	404	77	122	99	1	797	
	7.0	***4.2***	***4.3***	***7.8***	***4.9***	***6.7***	
Cloacal exstrophy	3	5	1	2	0	13	
	0.1	***0.3***	***0.0***	***0.2***	***0.0***	***0.1***	
Clubfoot	949	251	363	189	2	1904	
	16.4	***13.6***	***12.8***	***15.0***	***9.7***	***15.9***	
Coarctation of the aorta	314	70	135	64	2	671	
	5.4	***3.8***	***4.8***	***5.1***	***9.7***	***5.6***	
Common truncus (truncus arteriosus)	39	10	11	10	0	76	
	0.7	***0.5***	***0.4***	***0.8***	***0.0***	***0.6***	
Congenital cataract	89	37	53	24	0	241	
	1.5	***2.0***	***1.9***	***1.9***	***0.0***	***2.0***	
Congenital posterior urethral valves	63	35	22	17	0	146	
	1.1	***1.9***	***0.8***	***1.3***	***0.0***	***1.2***	
Craniosynostosis	401	60	138	45	1	755	
	6.9	***3.3***	***4.9***	***3.6***	***4.9***	***6.3***	
Deletion 22q11.2	15	6	5	2	0	31	
	0.3	***0.3***	***0.2***	***0.2***	***0.0***	***0.3***	
Diaphragmatic hernia	143	44	54	35	0	313	
	2.5	***2.4***	***1.9***	***2.8***	***0.0***	***2.6***	
Double outlet right ventricle	81	42	57	36	0	244	
	1.4	***2.3***	***2.0***	***2.9***	***0.0***	***2.0***	
Ebstein anomaly	31	11	29	6	0	85	
	0.5	***0.6***	***1.0***	***0.5***	***0.0***	***0.7***	
Encephalocele	34	15	16	11	0	88	
	0.6	***0.8***	***0.6***	***0.9***	***0.0***	***0.7***	
Esophageal atresia/tracheoesophageal fistula	130	35	58	27	0	280	
	2.2	***1.9***	***2.0***	***2.1***	***0.0***	***2.3***	
Gastroschisis	150	35	57	13	0	275	
	2.6	***1.9***	***2.0***	***1.0***	***0.0***	***2.3***	
Holoprosencephaly	35	14	17	1	0	77	
	0.6	***0.8***	***0.6***	***0.1***	***0.0***	***0.6***	
Hypoplastic left heart syndrome	134	49	58	18	0	287	
	2.3	***2.7***	***2.0***	***1.4***	***0.0***	***2.4***	
Hypospadias*	2902	716	682	374	8	5187	
	97.7	***76.6***	***47.5***	***57.3***	***77.9***	***84.9***	
Interrupted aortic arch	48	16	34	14	0	128	
	0.8	***0.9***	***1.2***	***1.1***	***0.0***	***1.1***	

New York
Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Limb deficiencies (reduction defects)	168	58	76	23	0	348	
	2.9	***3.1***	***2.7***	***1.8***	***0.0***	***2.9***	
Omphalocele	94	19	25	8	0	152	
	1.6	***1.0***	***0.9***	***0.6***	***0.0***	***1.3***	
Pulmonary valve atresia and stenosis	430	188	218	113	1	1071	
	7.4	***10.2***	***7.7***	***9.0***	***4.9***	***9.0***	
Pulmonary valve atresia	50	16	20	21	0	120	
	0.9	***0.9***	***0.7***	***1.7***	***0.0***	***1.0***	
Rectal and large intestinal atresia/stenosis	207	64	108	72	2	493	
	3.6	***3.5***	***3.8***	***5.7***	***9.7***	***4.1***	
Renal agenesis/hypoplasia	317	68	129	56	1	634	
	5.5	***3.7***	***4.6***	***4.4***	***4.9***	***5.3***	
Single ventricle	32	12	18	13	0	84	
	0.6	***0.7***	***0.6***	***1.0***	***0.0***	***0.7***	
Small intestinal atresia/stenosis	226	109	93	62	1	535	
	3.9	***5.9***	***3.3***	***4.9***	***4.9***	***4.5***	
Spina bifida without anencephalus	145	35	68	21	2	304	
	2.5	***1.9***	***2.4***	***1.7***	***9.7***	***2.5***	
Tetralogy of Fallot	288	103	139	123	1	728	
	5.0	***5.6***	***4.9***	***9.7***	***4.9***	***6.1***	
Total anomalous pulmonary venous connection	51	26	39	26	0	165	
	0.9	***1.4***	***1.4***	***2.1***	***0.0***	***1.4***	
Transposition of the great arteries (TGA)	178	25	57	42	0	350	
	3.1	***1.4***	***2.0***	***3.3***	***0.0***	***2.9***	
Dextro-transposition of great arteries (d-TGA)	173	25	57	40	0	343	
	3.0	***1.4***	***2.0***	***3.2***	***0.0***	***2.9***	
Tricuspid valve atresia and stenosis	70	31	28	29	0	183	
	1.2	***1.7***	***1.0***	***2.3***	***0.0***	***1.5***	
Tricuspid valve atresia	51	18	15	19	0	117	
	0.9	***1.0***	***0.5***	***1.5***	***0.0***	***1.0***	
Trisomy 13	20	17	11	9	0	68	
	0.3	***0.9***	***0.4***	***0.7***	***0.0***	***0.6***	
Trisomy 18	57	31	37	13	0	156	
	1.0	***1.7***	***1.3***	***1.0***	***0.0***	***1.3***	
Trisomy 21 (Down syndrome)	698	262	363	144	2	1693	
	12.1	***14.2***	***12.8***	***11.4***	***9.7***	***14.2***	
Turner syndrome†	47	14	12	7	0	86	
	1.7	***1.5***	***0.9***	***1.1***	***0.0***	***1.5***	
Ventricular septal defect	2779	846	1265	685	7	6070	
	48.1	***45.9***	***44.7***	***54.3***	***34.1***	***50.8***	
Total live births §	**577893**	**184412**	**283013**	**126187**	**2055**	**1195148**	
Male live births	**296986**	**93432**	**143445**	**65259**	**1027**	**611116**	
Female live births	**280899**	**90980**	**139567**	**60928**	**1028**	**584021**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity
§Total live births includes unknown gender

New York

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	249	9	275	
	2.6	***0.4***	***2.3***	
Trisomy 13	31	28	68	
	0.3	***1.1***	***0.6***	
Trisomy 18	73	65	156	
	0.8	***2.7***	***1.3***	
Trisomy 21 (Down syndrome)	727	768	1693	
	7.7	***31.3***	***14.2***	
Total live births	**949803**	**245263**	**1195148**	

**Total includes unknown maternal age

General comments
-Data for 2013 and 2014 are provisional.

North Carolina

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total**	Notes
Anencephalus	86	31	30	3	2	172	
	2.6	***2.2***	***3.3***	***1.3***	***2.4***	***2.9***	
Anophthalmia/microphthalmia	56	19	13	4	1	95	
	1.7	***1.3***	***1.4***	***1.8***	***1.2***	***1.6***	
Anotia/microtia	40	9	41	4	3	97	
	1.2	***0.6***	***4.5***	***1.8***	***3.6***	***1.6***	
Aortic valve stenosis	86	24	15	4	1	131	
	2.6	***1.7***	***1.7***	***1.8***	***1.2***	***2.2***	
Atrial septal defect	1842	907	478	95	61	3389	
	54.7	***63.2***	***53.0***	***42.7***	***74.2***	***56.3***	
Atrioventricular septal defect (Endocardial cushion defect)	212	104	53	8	9	394	
	6.3	***7.2***	***5.9***	***3.6***	***10.9***	***6.5***	
Biliary atresia	14	9	3	1	0	27	
	0.4	***0.6***	***0.3***	***0.4***	***0.0***	***0.4***	
Bladder exstrophy	8	5	2	0	0	15	
	0.2	***0.3***	***0.2***	***0.0***	***0.0***	***0.2***	
Choanal atresia	48	15	15	4	0	82	
	1.4	***1.0***	***1.7***	***1.8***	***0.0***	***1.4***	
Cleft lip alone	137	45	21	6	4	218	
	4.1	***3.1***	***2.3***	***2.7***	***4.9***	***3.6***	
Cleft lip with cleft palate	197	53	61	11	7	333	
	5.9	***3.7***	***6.8***	***4.9***	***8.5***	***5.5***	
Cleft palate alone	250	47	28	8	5	340	
	7.4	***3.3***	***3.1***	***3.6***	***6.1***	***5.6***	
Cloacal exstrophy	11	7	3	0	0	21	
	0.3	***0.5***	***0.3***	***0.0***	***0.0***	***0.3***	
Clubfoot	690	261	156	24	14	1160	
	20.5	***18.2***	***17.3***	***10.8***	***17.0***	***19.3***	
Coarctation of the aorta	174	50	37	11	2	274	
	5.2	***3.5***	***4.1***	***4.9***	***2.4***	***4.5***	
Common truncus (truncus arteriosus)	21	6	8	4	0	40	
	0.6	***0.4***	***0.9***	***1.8***	***0.0***	***0.7***	
Congenital cataract	27	20	10	3	0	60	
	0.8	***1.4***	***1.1***	***1.3***	***0.0***	***1.0***	
Congenital posterior urethral valves	81	38	13	2	5	140	
	2.4	***2.6***	***1.4***	***0.9***	***6.1***	***2.3***	
Craniosynostosis	259	46	51	8	5	370	
	7.7	***3.2***	***5.7***	***3.6***	***6.1***	***6.1***	
Diaphragmatic hernia	100	41	30	5	2	182	
	3.0	***2.9***	***3.3***	***2.2***	***2.4***	***3.0***	
Double outlet right ventricle	60	24	11	1	2	99	
	1.8	***1.7***	***1.2***	***0.4***	***2.4***	***1.6***	
Ebstein anomaly	29	10	4	2	2	47	
	0.9	***0.7***	***0.4***	***0.9***	***2.4***	***0.8***	
Encephalocele	25	21	10	0	1	64	
	0.7	***1.5***	***1.1***	***0.0***	***1.2***	***1.1***	
Esophageal atresia/tracheoesophageal fistula	102	31	16	4	0	154	
	3.0	***2.2***	***1.8***	***1.8***	***0.0***	***2.6***	
Gastroschisis	180	52	30	3	8	275	
	5.3	***3.6***	***3.3***	***1.3***	***9.7***	***4.6***	
Holoprosencephaly	41	25	21	1	1	92	
	1.2	***1.7***	***2.3***	***0.4***	***1.2***	***1.5***	
Hypoplastic left heart syndrome	84	40	25	4	1	155	
	2.5	***2.8***	***2.8***	***1.8***	***1.2***	***2.6***	
Hypospadias*	1189	392	108	52	27	1770	
	68.8	***53.9***	***23.6***	***45.7***	***64.3***	***57.6***	
Interrupted aortic arch	23	16	6	3	0	49	
	0.7	***1.1***	***0.7***	***1.3***	***0.0***	***0.8***	
Limb deficiencies (reduction defects)	154	73	36	5	6	280	
	4.6	***5.1***	***4.0***	***2.2***	***7.3***	***4.6***	

North Carolina

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Omphalocele	73	60	19	3	2	168	
	2.2	***4.2***	***2.1***	***1.3***	***2.4***	***2.8***	
Pulmonary valve atresia and stenosis	265	142	70	16	11	508	
	7.9	***9.9***	***7.8***	***7.2***	***13.4***	***8.4***	
Pulmonary valve atresia	59	34	11	6	2	113	
	1.8	***2.4***	***1.2***	***2.7***	***2.4***	***1.9***	
Rectal and large intestinal atresia/stenosis	148	56	46	9	4	264	
	4.4	***3.9***	***5.1***	***4.0***	***4.9***	***4.4***	
Renal agenesis/hypoplasia	217	76	46	2	5	351	
	6.4	***5.3***	***5.1***	***0.9***	***6.1***	***5.8***	
Single ventricle	26	13	13	1	0	54	
	0.8	***0.9***	***1.4***	***0.4***	***0.0***	***0.9***	
Small intestinal atresia/stenosis	96	36	39	10	4	185	
	2.9	***2.5***	***4.3***	***4.5***	***4.9***	***3.1***	
Spina bifida without anencephalus	135	38	40	4	3	227	
	4.0	***2.6***	***4.4***	***1.8***	***3.6***	***3.8***	
Tetralogy of Fallot	159	77	36	14	5	291	
	4.7	***5.4***	***4.0***	***6.3***	***6.1***	***4.8***	
Total anomalous pulmonary venous connection	29	15	16	4	1	65	
	0.9	***1.0***	***1.8***	***1.8***	***1.2***	***1.1***	
Transposition of the great arteries (TGA)	106	42	19	5	5	179	
	3.1	***2.9***	***2.1***	***2.2***	***6.1***	***3.0***	
Dextro-transposition of great arteries (d-TGA)	73	23	10	5	5	118	
	2.2	***1.6***	***1.1***	***2.2***	***6.1***	***2.0***	
Tricuspid valve atresia and stenosis	77	51	24	5	7	165	
	2.3	***3.6***	***2.7***	***2.2***	***8.5***	***2.7***	
Tricuspid valve atresia	66	44	22	5	7	145	
	2.0	***3.1***	***2.4***	***2.2***	***8.5***	***2.4***	
Trisomy 13	32	34	21	3	1	97	
	1.0	***2.4***	***2.3***	***1.3***	***1.2***	***1.6***	
Trisomy 18	107	50	36	5	2	212	
	3.2	***3.5***	***4.0***	***2.2***	***2.4***	***3.5***	
Trisomy 21 (Down syndrome)	447	134	150	24	15	800	
	13.3	***9.3***	***16.6***	***10.8***	***18.2***	***13.3***	
Turner syndrome†	43	8	10	0	1	69	
	2.6	***1.1***	***2.3***	***0.0***	***2.5***	***2.3***	
Ventricular septal defect	1536	586	496	88	29	2746	
	45.6	***40.8***	***55.0***	***39.5***	***35.3***	***45.6***	
Total live births §	**336619**	**143596**	**90181**	**22259**	**8223**	**602403**	
Male live births	**172695**	**72697**	**45735**	**11378**	**4201**	**307496**	
Female live births	**163922**	**70894**	**44443**	**10881**	**4022**	**294897**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity
§Total live births includes unknown gender

North Carolina

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	267	8	275	
	5.1	***1.0***	***4.6***	
Trisomy 13	60	37	97	
	1.2	***4.5***	***1.6***	
Trisomy 18	122	90	212	
	2.3	***11.0***	***3.5***	
Trisomy 21 (Down syndrome)	405	393	800	
	7.8	***48.0***	***13.3***	
Total live births	**520443**	**81929**	**602403**	

**Total includes unknown maternal age

General comments
-Fetal deaths are defined as deaths at 20 or more weeks gestation.
-Terminations are defined as termination of pregnancy before 20 weeks gestation and do not include intra-uterine fetal death before 20 weeks.

North Dakota

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	18	0	2	0	5	33	
	4.5	***0.0***	***17.7***	***0.0***	***10.4***	***6.6***	
Anophthalmia/microphthalmia	2	0	1	0	0	3	
	0.5	***0.0***	***8.8***	***0.0***	***0.0***	***0.6***	
Anotia/microtia	6	0	0	0	1	7	
	1.5	***0.0***	***0.0***	***0.0***	***2.1***	***1.4***	
Aortic valve stenosis	3	0	1	0	1	5	
	0.7	***0.0***	***8.8***	***0.0***	***2.1***	***1.0***	
Atrial septal defect	450	35	13	11	121	642	
	111.8	***269.2***	***114.7***	***125.3***	***250.8***	***127.5***	
Atrioventricular septal defect (Endocardial cushion defect)	21	2	2	1	3	29	
	5.2	***15.4***	***17.7***	***11.4***	***6.2***	***5.8***	
Biliary atresia	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Bladder exstrophy	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Choanal atresia	2	0	0	0	0	2	
	0.5	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	
Cleft lip alone	47	0	1	2	12	64	
	11.7	***0.0***	***8.8***	***22.8***	***24.9***	***12.7***	
Cleft lip with cleft palate	27	0	0	3	15	45	
	6.7	***0.0***	***0.0***	***34.2***	***31.1***	***8.9***	
Cleft palate alone	71	0	1	3	15	90	
	17.6	***0.0***	***8.8***	***34.2***	***31.1***	***17.9***	
Cloacal exstrophy	1	0	0	0	0	1	1
	0.2	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Coarctation of the aorta	18	2	1	0	2	23	
	4.5	***15.4***	***8.8***	***0.0***	***4.1***	***4.6***	
Common truncus (truncus arteriosus)	6	0	0	0	1	7	
	1.5	***0.0***	***0.0***	***0.0***	***2.1***	***1.4***	
Congenital cataract	2	0	0	0	0	2	
	0.5	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	
Diaphragmatic hernia	14	0	0	0	0	17	
	3.5	***0.0***	***0.0***	***0.0***	***0.0***	***3.4***	
Double outlet right ventricle	4	0	1	0	0	5	
	1.0	***0.0***	***8.8***	***0.0***	***0.0***	***1.0***	
Ebstein anomaly	5	0	0	0	0	5	
	1.2	***0.0***	***0.0***	***0.0***	***0.0***	***1.0***	
Encephalocele	1	0	0	0	1	3	
	0.2	***0.0***	***0.0***	***0.0***	***2.1***	***0.6***	
Esophageal atresia/tracheoesophageal fistula	6	2	0	0	0	8	
	1.5	***15.4***	***0.0***	***0.0***	***0.0***	***1.6***	
Gastroschisis	11	0	0	0	8	19	
	2.7	***0.0***	***0.0***	***0.0***	***16.6***	***3.8***	
Holoprosencephaly	2	0	0	0	2	5	1
	0.5	***0.0***	***0.0***	***0.0***	***4.1***	***1.0***	
Hypoplastic left heart syndrome	9	0	1	0	2	14	
	2.2	***0.0***	***8.8***	***0.0***	***4.1***	***2.8***	
Hypospadias*	64	5	1	1	7	79	
	31.3	***74.0***	***16.7***	***22.0***	***28.8***	***30.9***	
Interrupted aortic arch	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Limb deficiencies (reduction defects)	3	0	0	0	1	4	
	0.7	***0.0***	***0.0***	***0.0***	***2.1***	***0.8***	
Omphalocele	5	0	0	0	1	6	
	1.2	***0.0***	***0.0***	***0.0***	***2.1***	***1.2***	
Pulmonary valve atresia and stenosis	77	7	3	1	14	108	
	19.1	***53.8***	***26.5***	***11.4***	***29.0***	***21.5***	
Pulmonary valve atresia	69	7	3	1	13	97	
	17.2	***53.8***	***26.5***	***11.4***	***26.9***	***19.3***	

North Dakota
Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Rectal and large intestinal atresia/stenosis	5	0	0	0	0	6	
	1.2	***0.0***	***0.0***	***0.0***	***0.0***	***1.2***	
Renal agenesis/hypoplasia	5	1	1	0	2	9	
	1.2	***7.7***	***8.8***	***0.0***	***4.1***	***1.8***	
Single ventricle	1	0	0	0	1	2	
	0.2	***0.0***	***0.0***	***0.0***	***2.1***	***0.4***	
Small intestinal atresia/stenosis	2	0	0	0	0	2	
	0.5	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	
Spina bifida without anencephalus	20	0	2	0	2	28	
	5.0	***0.0***	***17.7***	***0.0***	***4.1***	***5.6***	
Tetralogy of Fallot	10	1	1	0	3	15	
	2.5	***7.7***	***8.8***	***0.0***	***6.2***	***3.0***	
Total anomalous pulmonary venous connection	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Transposition of the great arteries (TGA)	12	0	1	0	0	13	
	3.0	***0.0***	***8.8***	***0.0***	***0.0***	***2.6***	
Dextro-transposition of great arteries (d-TGA)	8	0	0	0	2	11	
	2.0	***0.0***	***0.0***	***0.0***	***4.1***	***2.2***	
Tricuspid valve atresia and stenosis	4	0	0	0	1	6	
	1.0	***0.0***	***0.0***	***0.0***	***2.1***	***1.2***	
Tricuspid valve atresia	4	0	0	0	1	6	
	1.0	***0.0***	***0.0***	***0.0***	***2.1***	***1.2***	
Trisomy 13	2	0	0	0	0	2	
	0.5	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	
Trisomy 18	6	0	0	0	2	8	
	1.5	***0.0***	***0.0***	***0.0***	***4.1***	***1.6***	
Trisomy 21 (Down syndrome)	42	0	2	3	6	56	
	10.4	***0.0***	***17.7***	***34.2***	***12.4***	***11.1***	
Turner syndrome†	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Ventricular septal defect	168	8	12	5	37	233	
	41.8	***61.5***	***105.9***	***56.9***	***76.7***	***46.3***	
Total live births	**40233**	**1300**	**1133**	**878**	**4825**	**50334**	
Male live births	**20466**	**676**	**598**	**454**	**2434**	**25607**	
Female live births	**19767**	**624**	**535**	**424**	**2391**	**24727**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity

North Dakota

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	15	0	19	
	3.3	***0.0***	***3.8***	
Trisomy 13	2	0	2	
	0.4	***0.0***	***0.4***	
Trisomy 18	6	1	8	
	1.3	***2.0***	***1.6***	
Trisomy 21 (Down syndrome)	36	20	56	
	7.9	***40.1***	***11.1***	
Total live births	**45341**	**4993**	**50334**	

**Total includes unknown maternal age

Notes
1.Data for this condition begin in 2013.

General comments
-Data for this condition exclude inlet ventricular septal defect and common atrioventricular canal type ventricular septal defect.
-Fetal death reporting not required before 20 weeks gestation. State does not differentiate between fetal deaths and terminations.

Oklahoma

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	33	2	8	0	5	49	
	2.0	***0.8***	***2.1***	***0.0***	***1.7***	***1.9***	
Anophthalmia/microphthalmia	21	0	3	2	4	32	
	1.3	***0.0***	***0.8***	***2.7***	***1.4***	***1.2***	
Anotia/microtia	28	1	12	3	4	48	
	1.7	***0.4***	***3.1***	***4.1***	***1.4***	***1.8***	
Aortic valve stenosis	57	2	14	0	5	78	
	3.4	***0.8***	***3.6***	***0.0***	***1.7***	***2.9***	
Atrial septal defect	979	138	174	27	156	1495	
	59.0	***56.7***	***45.2***	***36.6***	***54.6***	***56.5***	
Atrioventricular septal defect (Endocardial cushion defect)	86	19	19	3	11	139	
	5.2	***7.8***	***4.9***	***4.1***	***3.8***	***5.2***	
Biliary atresia	9	2	2	0	3	16	
	0.5	***0.8***	***0.5***	***0.0***	***1.0***	***0.6***	
Bladder exstrophy	3	1	0	0	1	5	
	0.2	***0.4***	***0.0***	***0.0***	***0.3***	***0.2***	
Choanal atresia	30	4	5	0	2	42	
	1.8	***1.6***	***1.3***	***0.0***	***0.7***	***1.6***	
Cleft lip alone	78	7	13	1	13	114	
	4.7	***2.9***	***3.4***	***1.4***	***4.5***	***4.3***	
Cleft lip with cleft palate	133	9	26	3	22	196	
	8.0	***3.7***	***6.8***	***4.1***	***7.7***	***7.4***	
Cleft palate alone	131	12	27	11	20	209	
	7.9	***4.9***	***7.0***	***14.9***	***7.0***	***7.9***	
Clubfoot	295	22	64	6	55	453	
	17.8	***9.0***	***16.6***	***8.1***	***19.2***	***17.1***	
Coarctation of the aorta	99	7	20	1	20	149	
	6.0	***2.9***	***5.2***	***1.4***	***7.0***	***5.6***	
Common truncus (truncus arteriosus)	6	5	1	0	2	17	
	0.4	***2.1***	***0.3***	***0.0***	***0.7***	***0.6***	
Congenital cataract	20	3	4	1	1	31	
	1.2	***1.2***	***1.0***	***1.4***	***0.3***	***1.2***	
Congenital posterior urethral valves	16	4	0	0	2	23	
	1.0	***1.6***	***0.0***	***0.0***	***0.7***	***0.9***	
Craniosynostosis	43	4	8	2	8	75	
	2.6	***1.6***	***2.1***	***2.7***	***2.8***	***2.8***	
Deletion 22q11.2	13	2	2	0	3	20	
	0.8	***0.8***	***0.5***	***0.0***	***1.0***	***0.8***	
Diaphragmatic hernia	51	6	22	2	12	96	
	3.1	***2.5***	***5.7***	***2.7***	***4.2***	***3.6***	
Double outlet right ventricle	31	8	3	2	6	51	
	1.9	***3.3***	***0.8***	***2.7***	***2.1***	***1.9***	
Ebstein anomaly	13	0	6	1	0	21	
	0.8	***0.0***	***1.6***	***1.4***	***0.0***	***0.8***	
Encephalocele	11	6	4	0	6	27	
	0.7	***2.5***	***1.0***	***0.0***	***2.1***	***1.0***	
Esophageal atresia/tracheoesophageal fistula	43	1	9	2	5	61	
	2.6	***0.4***	***2.3***	***2.7***	***1.7***	***2.3***	
Gastroschisis	90	8	17	2	14	132	
	5.4	***3.3***	***4.4***	***2.7***	***4.9***	***5.0***	
Holoprosencephaly	16	4	5	1	4	30	
	1.0	***1.6***	***1.3***	***1.4***	***1.4***	***1.1***	
Hypoplastic left heart syndrome	50	0	13	2	5	71	
	3.0	***0.0***	***3.4***	***2.7***	***1.7***	***2.7***	
Hypospadias*	345	46	19	7	42	465	
	40.5	***37.1***	***9.7***	***18.8***	***29.0***	***34.3***	
Interrupted aortic arch	19	3	2	1	3	28	
	1.1	***1.2***	***0.5***	***1.4***	***1.0***	***1.1***	
Limb deficiencies (reduction defects)	80	13	15	1	10	119	
	4.8	***5.3***	***3.9***	***1.4***	***3.5***	***4.5***	

Oklahoma

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Omphalocele	35	11	10	0	6	62	
	2.1	***4.5***	***2.6***	***0.0***	***2.1***	***2.3***	
Pulmonary valve atresia and stenosis	145	19	24	5	12	209	
	8.7	***7.8***	***6.2***	***6.8***	***4.2***	***7.9***	
Pulmonary valve atresia	17	3	4	2	4	31	
	1.0	***1.2***	***1.0***	***2.7***	***1.4***	***1.2***	
Rectal and large intestinal atresia/stenosis	91	11	24	8	12	149	
	5.5	***4.5***	***6.2***	***10.8***	***4.2***	***5.6***	
Renal agenesis/hypoplasia	100	11	16	1	14	145	
	6.0	***4.5***	***4.2***	***1.4***	***4.9***	***5.5***	
Single ventricle	6	0	3	0	0	11	
	0.4	***0.0***	***0.8***	***0.0***	***0.0***	***0.4***	
Small intestinal atresia/stenosis	69	7	9	0	6	93	
	4.2	***2.9***	***2.3***	***0.0***	***2.1***	***3.5***	
Spina bifida without anencephalus	55	4	16	1	12	91	
	3.3	***1.6***	***4.2***	***1.4***	***4.2***	***3.4***	
Tetralogy of Fallot	86	6	10	6	9	118	
	5.2	***2.5***	***2.6***	***8.1***	***3.1***	***4.5***	
Total anomalous pulmonary venous connection	18	3	5	1	4	31	
	1.1	***1.2***	***1.3***	***1.4***	***1.4***	***1.2***	
Transposition of the great arteries (TGA)	59	10	14	2	9	99	
	3.6	***4.1***	***3.6***	***2.7***	***3.1***	***3.7***	
Dextro-transposition of great arteries (d-TGA)	55	10	12	2	8	90	
	3.3	***4.1***	***3.1***	***2.7***	***2.8***	***3.4***	
Tricuspid valve atresia and stenosis	22	4	6	1	2	36	
	1.3	***1.6***	***1.6***	***1.4***	***0.7***	***1.4***	
Tricuspid valve atresia	13	2	4	0	1	21	
	0.8	***0.8***	***1.0***	***0.0***	***0.3***	***0.8***	
Trisomy 13	11	4	4	1	1	22	
	0.7	***1.6***	***1.0***	***1.4***	***0.3***	***0.8***	
Trisomy 18	37	10	10	2	6	65	
	2.2	***4.1***	***2.6***	***2.7***	***2.1***	***2.5***	
Trisomy 21 (Down syndrome)	198	26	76	11	28	347	
	11.9	***10.7***	***19.7***	***14.9***	***9.8***	***13.1***	
Turner syndrome†	20	1	5	0	3	32	
	2.5	***0.8***	***2.7***	***0.0***	***2.1***	***2.5***	
Ventricular septal defect	1009	115	216	35	119	1522	
	60.8	***47.3***	***56.1***	***47.4***	***41.6***	***57.5***	
Total live births §	**165919**	**24336**	**38511**	**7387**	**28588**	**264834**	
Male live births	**85200**	**12387**	**19678**	**3728**	**14507**	**135550**	
Female live births	**80716**	**11949**	**18832**	**3658**	**14081**	**129279**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity
§Total live births includes unknown gender

Oklahoma

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	129	3	132	
	5.4	***1.3***	***5.0***	
Trisomy 13	17	5	22	
	0.7	***2.1***	***0.8***	
Trisomy 18	39	26	65	
	1.6	***11.0***	***2.5***	
Trisomy 21 (Down syndrome)	206	135	347	
	8.5	***57.0***	***13.1***	
Total live births	**241047**	**23670**	**264834**	

**Total includes unknown maternal age

General comments

-Fetal deaths are defined as baby born dead (without a heart rate), at or after 20th gestational week. Includes babies that died during labor.
-Terminations are defined as fetus terminated by parental choice prior to 37 weeks. When labor is induced to deliver a fetus who is dead prior to the onset of labor it is not considered an elective termination.

Oregon

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	13	2	9	0	0	25	
	0.8	***4.3***	***2.1***	***0.0***	***0.0***	***1.1***	
Anophthalmia/microphthalmia	15	0	9	1	0	25	
	1.0	***0.0***	***2.1***	***0.8***	***0.0***	***1.1***	
Anotia/microtia	23	0	40	4	1	70	
	1.5	***0.0***	***9.2***	***3.3***	***3.9***	***3.1***	
Aortic valve stenosis	91	2	26	3	1	125	
	5.9	***4.3***	***6.0***	***2.4***	***3.9***	***5.5***	
Atrial septal defect	2441	126	920	138	87	3902	
	157.8	***269.9***	***212.7***	***112.1***	***336.8***	***173.0***	
Atrioventricular septal defect (Endocardial cushion defect)	167	6	59	13	6	261	
	10.8	***12.9***	***13.6***	***10.6***	***23.2***	***11.6***	
Biliary atresia	12	2	5	1	0	22	
	0.8	***4.3***	***1.2***	***0.8***	***0.0***	***1.0***	
Bladder exstrophy	1	0	2	1	0	4	
	0.1	***0.0***	***0.5***	***0.8***	***0.0***	***0.2***	
Choanal atresia	46	2	11	4	1	66	
	3.0	***4.3***	***2.5***	***3.3***	***3.9***	***2.9***	
Cleft lip alone	11	0	7	2	1	23	
	0.7	***0.0***	***1.6***	***1.6***	***3.9***	***1.0***	
Cleft lip with cleft palate	168	6	48	14	3	250	
	10.9	***12.9***	***11.1***	***11.4***	***11.6***	***11.1***	
Cleft palate alone	119	2	28	6	3	165	
	7.7	***4.3***	***6.5***	***4.9***	***11.6***	***7.3***	
Cloacal exstrophy	126	1	44	7	1	188	
	8.1	***2.1***	***10.2***	***5.7***	***3.9***	***8.3***	
Clubfoot	385	9	103	17	3	530	
	24.9	***19.3***	***23.8***	***13.8***	***11.6***	***23.5***	
Coarctation of the aorta	44	1	19	3	2	73	
	2.8	***2.1***	***4.4***	***2.4***	***7.7***	***3.2***	
Common truncus (truncus arteriosus)	23	2	9	0	1	35	
	1.5	***4.3***	***2.1***	***0.0***	***3.9***	***1.6***	
Congenital cataract	75	5	27	2	1	115	
	4.8	***10.7***	***6.2***	***1.6***	***3.9***	***5.1***	
Congenital posterior urethral valves	74	3	18	1	1	102	
	4.8	***6.4***	***4.2***	***0.8***	***3.9***	***4.5***	
Deletion 22q11.2	24	1	3	0	2	32	
	1.6	***2.1***	***0.7***	***0.0***	***7.7***	***1.4***	
Diaphragmatic hernia	74	6	28	6	2	122	
	4.8	***12.9***	***6.5***	***4.9***	***7.7***	***5.4***	
Double outlet right ventricle	57	2	16	4	1	84	
	3.7	***4.3***	***3.7***	***3.3***	***3.9***	***3.7***	
Ebstein anomaly	16	0	4	1	2	24	
	1.0	***0.0***	***0.9***	***0.8***	***7.7***	***1.1***	
Encephalocele	14	2	8	2	1	28	
	0.9	***4.3***	***1.8***	***1.6***	***3.9***	***1.2***	
Esophageal atresia/tracheoesophageal fistula	41	0	24	3	1	72	
	2.7	***0.0***	***5.5***	***2.4***	***3.9***	***3.2***	
Gastroschisis	73	2	27	5	1	117	2
	4.7	***4.3***	***6.2***	***4.1***	***3.9***	***5.2***	
Holoprosencephaly	114	9	45	12	1	195	
	7.4	***19.3***	***10.4***	***9.8***	***3.9***	***8.6***	
Hypoplastic left heart syndrome	68	3	26	2	1	103	
	4.4	***6.4***	***6.0***	***1.6***	***3.9***	***4.6***	
Hypospadias*	767	37	122	36	11	1013	
	96.6	***157.2***	***55.5***	***57.4***	***82.9***	***87.7***	
Interrupted aortic arch	55	2	16	1	1	78	
	3.6	***4.3***	***3.7***	***0.8***	***3.9***	***3.5***	
Limb deficiencies (reduction defects)	135	3	44	5	2	198	
	8.7	***6.4***	***10.2***	***4.1***	***7.7***	***8.8***	

Oregon

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Omphalocele	27	2	10	5	0	47	
	1.7	***4.3***	***2.3***	***4.1***	***0.0***	***2.1***	
Pulmonary valve atresia and stenosis	261	12	108	17	10	432	
	16.9	***25.7***	***25.0***	***13.8***	***38.7***	***19.1***	
Pulmonary valve atresia	38	0	11	3	1	55	
	2.5	***0.0***	***2.5***	***2.4***	***3.9***	***2.4***	
Rectal and large intestinal atresia/stenosis	90	2	36	3	3	145	
	5.8	***4.3***	***8.3***	***2.4***	***11.6***	***6.4***	
Renal agenesis/hypoplasia	164	5	63	6	6	254	
	10.6	***10.7***	***14.6***	***4.9***	***23.2***	***11.3***	
Single ventricle	51	2	15	3	2	74	
	3.3	***4.3***	***3.5***	***2.4***	***7.7***	***3.3***	
Small intestinal atresia/stenosis	64	1	34	5	1	110	
	4.1	***2.1***	***7.9***	***4.1***	***3.9***	***4.9***	
Spina bifida without anencephalus	128	4	46	6	4	197	
	8.3	***8.6***	***10.6***	***4.9***	***15.5***	***8.7***	
Tetralogy of Fallot	104	3	32	6	2	155	
	6.7	***6.4***	***7.4***	***4.9***	***7.7***	***6.9***	
Total anomalous pulmonary venous connection	23	2	9	1	0	38	
	1.5	***4.3***	***2.1***	***0.8***	***0.0***	***1.7***	
Transposition of the great arteries (TGA)	77	1	20	7	4	116	
	5.0	***2.1***	***4.6***	***5.7***	***15.5***	***5.1***	
Dextro-transposition of great arteries (d-TGA)	66	1	20	5	2	100	
	4.3	***2.1***	***4.6***	***4.1***	***7.7***	***4.4***	
Tricuspid valve atresia and stenosis	26	1	13	2	2	46	
	1.7	***2.1***	***3.0***	***1.6***	***7.7***	***2.0***	
Trisomy 13	12	2	5	1	0	20	
	0.8	***4.3***	***1.2***	***0.8***	***0.0***	***0.9***	
Trisomy 18	15	1	11	3	0	30	
	1.0	***2.1***	***2.5***	***2.4***	***0.0***	***1.3***	
Trisomy 21 (Down syndrome)	266	11	110	17	7	426	
	17.2	***23.6***	***25.4***	***13.8***	***27.1***	***18.9***	
Turner syndrome†	15	1	7	2	1	27	
	2.0	***4.3***	***3.3***	***3.3***	***8.0***	***2.5***	
Ventricular septal defect	992	32	445	59	28	1620	4
	64.1	***68.5***	***102.9***	***47.9***	***108.4***	***71.8***	
Total live births §	**154652**	**4669**	**43245**	**12305**	**2583**	**225611**	
Male live births	**79390**	**2354**	**21968**	**6268**	**1327**	**115524**	
Female live births	**75261**	**2315**	**21277**	**6037**	**1256**	**110086**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity
§Total live births includes unknown gender

Oregon

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	112	5	117	2
	5.9	***1.4***	***5.2***	
Trisomy 13	13	7	20	
	0.7	***1.9***	***0.9***	
Trisomy 18	18	12	30	
	1.0	***3.3***	***1.3***	
Trisomy 21 (Down syndrome)	244	182	426	
	12.9	***50.3***	***18.9***	
Total live births	**189414**	**36188**	**225611**	

**Total includes unknown maternal age

Notes
1.Craniosynostosis is not reported as it does not have specific ICD9-CM code. Usage of 756.0 would likely over identify cases.
2.Used ICD-9CM 756.73 and ICD-10CM Q793 only.
3.ICD-9CM coding from data sources do not include this level of specificity
4.We used ICD-9CM 745.4, which includes probable cases (BPA code 745.498).

General comments
-2014 birth count does not include Oregon resident's live births born out of Oregon
-2014 births include 1 live birth of unknown baby's sex

Puerto Rico

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity		
Defect	**Hispanic**	**Total****	**Notes**
Anencephalus	80 ***4.1***	80 ***4.1***	
Anophthalmia/microphthalmia	31 ***1.6***	31 ***1.6***	
Anotia/microtia	50 ***2.6***	50 ***2.6***	
Aortic valve stenosis	30 ***1.6***	30 ***1.6***	
Atrial septal defect	520 ***26.9***	520 ***26.9***	
Atrioventricular septal defect (Endocardial cushion defect)	94 ***4.9***	94 ***4.9***	1
Bladder exstrophy	5 ***0.3***	5 ***0.3***	
Cleft lip alone	61 ***3.2***	61 ***3.2***	
Cleft lip with cleft palate	120 ***6.2***	120 ***6.2***	
Cleft palate alone	126 ***6.5***	126 ***6.5***	
Clubfoot	373 ***19.3***	373 ***19.3***	
Coarctation of the aorta	57 ***2.9***	57 ***2.9***	
Common truncus (truncus arteriosus)	11 ***0.6***	11 ***0.6***	
Deletion 22q11.2	1 ***0.1***	1 ***0.1***	
Double outlet right ventricle	41 ***2.1***	41 ***2.1***	
Ebstein anomaly	18 ***0.9***	18 ***0.9***	
Encephalocele	22 ***1.1***	22 ***1.1***	
Gastroschisis	92 ***4.8***	92 ***4.8***	
Hypoplastic left heart syndrome	41 ***2.1***	41 ***2.1***	
Hypospadias*	459 ***46.1***	459 ***46.1***	
Interrupted aortic arch	3 ***0.2***	3 ***0.2***	
Limb deficiencies (reduction defects)	124 ***6.4***	124 ***6.4***	
Omphalocele	45 ***2.3***	45 ***2.3***	
Pulmonary valve atresia and stenosis	177 ***9.2***	177 ***9.2***	
Pulmonary valve atresia	25 ***1.3***	25 ***1.3***	
Single ventricle	3 ***0.2***	3 ***0.2***	
Spina bifida without anencephalus	94 ***4.9***	94 ***4.9***	
Tetralogy of Fallot	83 ***4.3***	83 ***4.3***	
Total anomalous pulmonary venous connection	18 ***0.9***	18 ***0.9***	
Transposition of the great arteries (TGA)	55 ***2.8***	55 ***2.8***	
Tricuspid valve atresia and stenosis	19 ***1.0***	19 ***1.0***	
Tricuspid valve atresia	19 ***1.0***	19 ***1.0***	

Puerto Rico

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity		
Defect	**Hispanic**	**Total****	**Notes**
Trisomy 13	28 ***1.4***	28 ***1.4***	
Trisomy 18	73 ***3.8***	73 ***3.8***	
Trisomy 21 (Down syndrome)	251 ***13.0***	251 ***13.0***	
Turner syndrome†	1 ***0.1***	1 ***0.1***	
Ventricular septal defect	529 ***27.4***	529 ***27.4***	2
Total live births §	**193374**	**193374**	
Male live births	**99514**	**99514**	
Female live births	**93859**	**93859**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity
§Total live births includes unknown gender

Puerto Rico

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	91	0	92	
	5.2	***0.0***	***4.8***	
Trisomy 13	21	7	28	
	1.2	***4.1***	***1.4***	
Trisomy 18	45	28	73	
	2.6	***16.4***	***3.8***	
Trisomy 21 (Down syndrome)	145	105	251	
	8.2	***61.4***	***13.0***	
Total live births	**176208**	**17105**	**193374**	

**Total includes unknown maternal age

Notes
1.Data for this condition only include atrioventricular canal.
2.Data for this condition exclude probable diagnosis and exclude inlet/posterior type ventricular septal defect only in the presence of atrioventricular canal.

General comments
-Fetal deaths include spontaneous abortions and stillbirths.
-There is no gestational age cut off for terminations

Rhode Island

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total**	Notes
Anencephalus	9	2	2	0	0	13	
	2.7	***4.2***	***1.7***	***0.0***	***0.0***	***2.4***	
Anophthalmia/microphthalmia	2	1	1	0	0	5	
	0.6	***2.1***	***0.8***	***0.0***	***0.0***	***0.9***	
Anotia/microtia	1	1	2	0	0	4	
	0.3	***2.1***	***1.7***	***0.0***	***0.0***	***0.7***	
Aortic valve stenosis	6	0	2	0	0	8	
	1.8	***0.0***	***1.7***	***0.0***	***0.0***	***1.5***	
Atrial septal defect	81	15	23	1	2	131	
	24.2	***31.5***	***19.3***	***3.9***	***45.1***	***24.4***	
Atrioventricular septal defect (Endocardial cushion defect)	7	0	1	0	0	8	
	2.1	***0.0***	***0.8***	***0.0***	***0.0***	***1.5***	
Biliary atresia	1	0	1	0	0	3	
	0.3	***0.0***	***0.8***	***0.0***	***0.0***	***0.6***	
Bladder exstrophy	1	1	0	0	0	2	
	0.3	***2.1***	***0.0***	***0.0***	***0.0***	***0.4***	
Choanal atresia	2	1	0	0	0	3	
	0.6	***2.1***	***0.0***	***0.0***	***0.0***	***0.6***	
Cleft lip alone	13	0	5	0	0	19	
	3.9	***0.0***	***4.2***	***0.0***	***0.0***	***3.5***	
Cleft lip with cleft palate	14	0	8	1	1	26	
	4.2	***0.0***	***6.7***	***3.9***	***22.6***	***4.8***	
Cleft palate alone	19	1	2	2	0	25	
	5.7	***2.1***	***1.7***	***7.8***	***0.0***	***4.7***	
Cloacal exstrophy	0	0	0	0	0	1	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Clubfoot	46	7	20	4	0	80	
	13.7	***14.7***	***16.8***	***15.6***	***0.0***	***14.9***	
Coarctation of the aorta	9	2	3	0	0	15	
	2.7	***4.2***	***2.5***	***0.0***	***0.0***	***2.8***	
Common truncus (truncus arteriosus)	2	1	0	0	0	3	
	0.6	***2.1***	***0.0***	***0.0***	***0.0***	***0.6***	
Congenital cataract	2	1	2	0	0	5	
	0.6	***2.1***	***1.7***	***0.0***	***0.0***	***0.9***	
Congenital posterior urethral valves	3	1	1	0	0	5	
	0.9	***2.1***	***0.8***	***0.0***	***0.0***	***0.9***	
Craniosynostosis	23	1	5	3	0	33	
	6.9	***2.1***	***4.2***	***11.7***	***0.0***	***6.2***	
Deletion 22q11.2	1	0	0	0	0	1	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Diaphragmatic hernia	9	1	3	0	0	13	
	2.7	***2.1***	***2.5***	***0.0***	***0.0***	***2.4***	
Double outlet right ventricle	2	2	1	2	0	7	
	0.6	***4.2***	***0.8***	***7.8***	***0.0***	***1.3***	
Ebstein anomaly	3	2	1	0	0	6	
	0.9	***4.2***	***0.8***	***0.0***	***0.0***	***1.1***	
Encephalocele	3	0	2	0	0	6	
	0.9	***0.0***	***1.7***	***0.0***	***0.0***	***1.1***	
Esophageal atresia/tracheoesophageal fistula	5	0	1	0	1	7	
	1.5	***0.0***	***0.8***	***0.0***	***22.6***	***1.3***	
Gastroschisis	10	1	11	0	0	23	
	3.0	***2.1***	***9.2***	***0.0***	***0.0***	***4.3***	
Holoprosencephaly	2	1	1	0	0	4	
	0.6	***2.1***	***0.8***	***0.0***	***0.0***	***0.7***	
Hypoplastic left heart syndrome	5	3	5	1	0	14	
	1.5	***6.3***	***4.2***	***3.9***	***0.0***	***2.6***	
Hypospadias*	179	18	32	5	1	242	
	104.6	***73.6***	***52.5***	***36.9***	***45.9***	***88.1***	
Interrupted aortic arch	0	0	0	0	0	1	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	

Rhode Island
Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Limb deficiencies (reduction defects)	10	2	3	0	0	15	
	3.0	***4.2***	***2.5***	***0.0***	***0.0***	***2.8***	
Omphalocele	7	1	4	1	1	14	
	2.1	***2.1***	***3.4***	***3.9***	***22.6***	***2.6***	
Pulmonary valve atresia and stenosis	15	2	8	5	0	32	
	4.5	***4.2***	***6.7***	***19.4***	***0.0***	***6.0***	
Pulmonary valve atresia	1	1	1	3	0	6	
	0.3	***2.1***	***0.8***	***11.7***	***0.0***	***1.1***	
Rectal and large intestinal atresia/stenosis	10	1	7	0	0	19	
	3.0	***2.1***	***5.9***	***0.0***	***0.0***	***3.5***	
Renal agenesis/hypoplasia	9	4	6	0	0	19	
	2.7	***8.4***	***5.0***	***0.0***	***0.0***	***3.5***	
Single ventricle	1	0	0	0	0	2	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	
Small intestinal atresia/stenosis	11	5	5	3	0	24	
	3.3	***10.5***	***4.2***	***11.7***	***0.0***	***4.5***	
Spina bifida without anencephalus	12	2	6	1	0	25	
	3.6	***4.2***	***5.0***	***3.9***	***0.0***	***4.7***	
Tetralogy of Fallot	6	3	2	1	0	12	
	1.8	***6.3***	***1.7***	***3.9***	***0.0***	***2.2***	
Total anomalous pulmonary venous connection	3	0	0	0	0	4	
	0.9	***0.0***	***0.0***	***0.0***	***0.0***	***0.7***	
Transposition of the great arteries (TGA)	5	0	1	1	0	10	
	1.5	***0.0***	***0.8***	***3.9***	***0.0***	***1.9***	
Dextro-transposition of great arteries (d-TGA)	3	2	0	2	0	7	
	0.9	***4.2***	***0.0***	***7.8***	***0.0***	***1.3***	
Tricuspid valve atresia and stenosis	1	0	1	1	0	3	
	0.3	***0.0***	***0.8***	***3.9***	***0.0***	***0.6***	
Tricuspid valve atresia	1	0	1	1	0	3	
	0.3	***0.0***	***0.8***	***3.9***	***0.0***	***0.6***	
Trisomy 13	6	2	3	0	0	11	
	1.8	***4.2***	***2.5***	***0.0***	***0.0***	***2.1***	
Trisomy 18	10	3	4	0	0	18	
	3.0	***6.3***	***3.4***	***0.0***	***0.0***	***3.4***	
Trisomy 21 (Down syndrome)	49	7	17	0	1	81	
	14.6	***14.7***	***14.3***	***0.0***	***22.6***	***15.1***	
Turner syndrome†	2	0	1	1	0	4	
	1.2	***0.0***	***1.7***	***8.2***	***0.0***	***1.5***	
Ventricular septal defect	152	28	37	8	0	233	1
	45.4	***58.8***	***31.0***	***31.1***	***0.0***	***43.4***	
Total live births §	**33498**	**4761**	**11923**	**2571**	**443**	**53640**	
Male live births	**17120**	**2444**	**6095**	**1355**	**218**	**27462**	
Female live births	**16378**	**2316**	**5828**	**1216**	**224**	**26176**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity
§Total live births includes unknown gender

Rhode Island

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	23	0	23	
	5.2	***0.0***	***4.3***	
Trisomy 13	6	5	11	
	1.3	***5.5***	***2.1***	
Trisomy 18	7	11	18	
	1.6	***12.1***	***3.4***	
Trisomy 21 (Down syndrome)	35	43	81	
	7.9	***47.2***	***15.1***	
Total live births	**44526**	**9109**	**53640**	

**Total includes unknown maternal age

Notes
1.Data for this condition include probable cases.

General comments
-Stillbirths are defined as fetal deaths that begin at 20 weeks of gestation
-Terminations are defined as induced fetal deaths that begin at 20 weeks of gestation

South Carolina

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total**	Notes
Anencephalus	40	10	8	<5	0	70	
	2.4	***1.1***	***3.4***	***.***	***0.0***	***2.4***	
Anophthalmia/microphthalmia	14	9	<5	0	0	24	
	0.8	***1.0***	***.***	***0.0***	***0.0***	***0.8***	
Anotia/microtia	13	10	<5	<5	0	29	
	0.8	***1.1***	***.***	***.***	***0.0***	***1.0***	
Aortic valve stenosis	15	7	<5	<5	0	27	
	0.9	***0.8***	***.***	***.***	***0.0***	***0.9***	
Atrial septal defect	102	63	20	6	0	197	1
	6.2	***6.9***	***8.5***	***11.5***	***0.0***	***6.9***	
Atrioventricular septal defect (Endocardial cushion defect)	89	34	15	<5	0	147	
	5.4	***3.7***	***6.4***	***.***	***0.0***	***5.1***	
Biliary atresia	7	12	<5	0	0	22	
	0.4	***1.3***	***.***	***0.0***	***0.0***	***0.8***	
Bladder exstrophy	<5	0	0	0	0	<5	
	.	***0.0***	***0.0***	***0.0***	***0.0***	***.***	
Choanal atresia	23	10	0	0	0	35	
	1.4	***1.1***	***0.0***	***0.0***	***0.0***	***1.2***	
Cleft lip alone	32	17	8	<5	0	64	
	2.4	***2.3***	***4.3***	***.***	***0.0***	***2.8***	
Cleft lip with cleft palate	110	36	17	7	0	174	
	6.6	***3.9***	***7.3***	***13.4***	***0.0***	***6.1***	
Cleft palate alone	100	28	8	<5	0	144	
	6.0	***3.1***	***3.4***	***.***	***0.0***	***5.0***	
Coarctation of the aorta	84	33	9	<5	<5	132	
	6.3	***4.5***	***4.8***	***.***	***.***	***5.7***	
Common truncus (truncus arteriosus)	10	5	<5	0	0	18	
	0.6	***0.5***	***.***	***0.0***	***0.0***	***0.6***	
Congenital cataract	9	7	<5	0	<5	20	
	0.5	***0.8***	***.***	***0.0***	***.***	***0.7***	
Congenital posterior urethral valves	18	10	0	0	0	34	
	1.1	***1.1***	***0.0***	***0.0***	***0.0***	***1.2***	
Diaphragmatic hernia	41	27	8	0	0	83	
	2.5	***3.0***	***3.4***	***0.0***	***0.0***	***2.9***	
Double outlet right ventricle	40	31	<5	<5	0	81	
	2.4	***3.4***	***.***	***.***	***0.0***	***2.8***	
Ebstein anomaly	10	<5	<5	0	0	17	
	0.6	***.***	***.***	***0.0***	***0.0***	***0.6***	
Encephalocele	18	9	5	<5	0	38	
	1.1	***1.0***	***2.1***	***.***	***0.0***	***1.3***	
Esophageal atresia/tracheoesophageal fistula	40	12	<5	<5	0	57	
	2.4	***1.3***	***.***	***.***	***0.0***	***2.0***	
Gastroschisis	90	30	11	0	0	141	
	5.4	***3.3***	***4.7***	***0.0***	***0.0***	***4.9***	
Holoprosencephaly	109	68	28	<5	0	224	
	6.6	***7.5***	***11.9***	***.***	***0.0***	***7.8***	
Hypoplastic left heart syndrome	65	39	5	<5	0	116	
	3.9	***4.3***	***2.1***	***.***	***0.0***	***4.0***	
Hypospadias*	114	64	7	<5	0	192	1
	13.4	***13.8***	***5.8***	***.***	***0.0***	***13.1***	
Interrupted aortic arch	<5	<5	0	<5	0	8	
	.	***.***	***0.0***	***.***	***0.0***	***0.7***	
Limb deficiencies (reduction defects)	99	61	13	<5	0	200	2
	6.0	***6.7***	***5.5***	***.***	***0.0***	***7.0***	
Omphalocele	39	23	5	0	<5	79	
	2.4	***2.5***	***2.1***	***0.0***	***.***	***2.8***	
Pulmonary valve atresia and stenosis	146	117	24	<5	<5	299	
	8.8	***12.8***	***10.2***	***.***	***.***	***10.4***	
Pulmonary valve atresia	39	29	6	0	0	77	
	2.4	***3.2***	***2.6***	***0.0***	***0.0***	***2.7***	

South Carolina

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Rectal and large intestinal atresia/stenosis	66	39	<5	<5	0	114	
	4.0	***4.3***	***.***	***.***	***0.0***	***4.0***	
Renal agenesis/hypoplasia	85	40	9	<5	0	150	
	5.1	***4.4***	***3.8***	***.***	***0.0***	***5.2***	
Single ventricle	<5	0	<5	0	0	<5	
	.	***0.0***	***.***	***0.0***	***0.0***	***.***	
Spina bifida without anencephalus	53	24	8	<5	0	102	
	3.2	***2.6***	***3.4***	***.***	***0.0***	***3.6***	
Tetralogy of Fallot	90	55	10	<5	0	160	
	5.4	***6.0***	***4.3***	***.***	***0.0***	***5.6***	
Total anomalous pulmonary venous connection	9	7	<5	<5	0	23	3
	0.7	***1.0***	***.***	***.***	***0.0***	***1.0***	
Transposition of the great arteries (TGA)	46	27	6	<5	0	84	
	2.8	***3.0***	***2.6***	***.***	***0.0***	***2.9***	
Dextro-transposition of great arteries (d-TGA)	41	25	6	0	0	76	
	2.5	***2.7***	***2.6***	***0.0***	***0.0***	***2.6***	
Tricuspid valve atresia and stenosis	19	11	<5	<5	0	35	
	1.1	***1.2***	***.***	***.***	***0.0***	***1.2***	
Trisomy 13	11	10	5	<5	0	33	
	0.7	***1.1***	***2.1***	***.***	***0.0***	***1.1***	
Trisomy 18	34	15	6	0	0	79	
	2.1	***1.6***	***2.6***	***0.0***	***0.0***	***2.8***	
Trisomy 21 (Down syndrome)	195	69	48	7	0	337	
	11.8	***7.6***	***20.5***	***13.4***	***0.0***	***11.7***	
Ventricular septal defect	634	306	124	23	0	1132	
	38.3	***33.5***	***52.9***	***44.1***	***0.0***	***39.4***	
Total live births	**165431**	**91256**	**23437**	**5220**	**1011**	**287137**	
Male live births	**84797**	**46245**	**11983**	**2736**	**510**	**146656**	

*Hypospadias prevalence per 10,000 male live births
**Total includes unknown and other maternal race/ethnicity

South Carolina

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	136	5	141	
	5.3	***1.5***	***4.9***	
Trisomy 13	22	11	33	
	0.9	***3.4***	***1.1***	
Trisomy 18	38	41	79	
	1.5	***12.5***	***2.8***	
Trisomy 21 (Down syndrome)	187	150	337	
	7.3	***45.9***	***11.7***	
Total live births	**254435**	**32691**	**287137**	

**Total includes unknown maternal age

Notes
1.Data for this condition are only collected when found with another reportable defect.
2.Data for this condition include congenital reduction deformities of unspecified limb beginning in 2014.
3.Data for this condition begin in 2012

General comments
-Abortions in South Carolina are not usually performed after 24 weeks gestation
-Data for conditions exclude probable and possible conditions.
-Fetal deaths are defined as those that occur in a hospital at greater than 20 weeks gestation or 350 grams or more.

Tennessee

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	41	6	9	1	0	57	
	1.5	***0.7***	***2.6***	***1.1***	***0.0***	***1.4***	
Anophthalmia/microphthalmia	33	15	6	0	0	54	
	1.2	***1.8***	***1.7***	***0.0***	***0.0***	***1.3***	
Anotia/microtia	25	5	9	1	0	40	
	0.9	***0.6***	***2.6***	***1.1***	***0.0***	***1.0***	
Aortic valve stenosis	51	11	7	0	0	71	
	1.9	***1.3***	***2.0***	***0.0***	***0.0***	***1.8***	
Atrial septal defect	3668	1774	425	69	3	5951	
	135.6	***213.6***	***121.6***	***78.1***	***49.8***	***148.6***	
Atrioventricular septal defect (Endocardial cushion defect)	140	48	17	6	1	213	1
	5.2	***5.8***	***4.9***	***6.8***	***16.6***	***5.3***	
Biliary atresia	26	13	2	0	0	42	
	1.0	***1.6***	***0.6***	***0.0***	***0.0***	***1.0***	
Bladder exstrophy	9	2	2	0	0	13	
	0.3	***0.2***	***0.6***	***0.0***	***0.0***	***0.3***	
Choanal atresia	62	12	8	1	0	83	
	2.3	***1.4***	***2.3***	***1.1***	***0.0***	***2.1***	
Cleft lip alone	146	23	19	3	0	192	
	5.4	***2.8***	***5.4***	***3.4***	***0.0***	***4.8***	
Cleft lip with cleft palate	202	36	27	6	0	271	
	7.5	***4.3***	***7.7***	***6.8***	***0.0***	***6.8***	
Cleft palate alone	259	42	23	3	0	327	
	9.6	***5.1***	***6.6***	***3.4***	***0.0***	***8.2***	
Cloacal exstrophy	208	157	29	6	1	403	
	7.7	***18.9***	***8.3***	***6.8***	***16.6***	***10.1***	
Clubfoot	511	103	68	6	1	695	
	18.9	***12.4***	***19.5***	***6.8***	***16.6***	***17.4***	
Coarctation of the aorta	225	53	28	3	1	313	
	8.3	***6.4***	***8.0***	***3.4***	***16.6***	***7.8***	
Common truncus (truncus arteriosus)	27	11	3	0	0	41	
	1.0	***1.3***	***0.9***	***0.0***	***0.0***	***1.0***	
Congenital cataract	59	19	8	2	0	88	
	2.2	***2.3***	***2.3***	***2.3***	***0.0***	***2.2***	
Congenital posterior urethral valves	43	13	3	1	0	60	
	1.6	***1.6***	***0.9***	***1.1***	***0.0***	***1.5***	
Deletion 22q11.2	6	2	1	0	0	9	
	0.2	***0.2***	***0.3***	***0.0***	***0.0***	***0.2***	
Diaphragmatic hernia	108	42	16	4	0	170	
	4.0	***5.1***	***4.6***	***4.5***	***0.0***	***4.2***	
Double outlet right ventricle	71	37	11	3	0	122	
	2.6	***4.5***	***3.1***	***3.4***	***0.0***	***3.0***	
Ebstein anomaly	50	13	5	5	0	73	
	1.8	***1.6***	***1.4***	***5.7***	***0.0***	***1.8***	
Encephalocele	30	17	5	0	0	52	
	1.1	***2.0***	***1.4***	***0.0***	***0.0***	***1.3***	
Esophageal atresia/tracheoesophageal fistula	91	19	16	0	0	126	
	3.4	***2.3***	***4.6***	***0.0***	***0.0***	***3.1***	
Gastroschisis	176	27	16	0	0	221	
	6.5	***3.3***	***4.6***	***0.0***	***0.0***	***5.5***	
Holoprosencephaly	203	56	24	3	1	287	
	7.5	***6.7***	***6.9***	***3.4***	***16.6***	***7.2***	
Hypoplastic left heart syndrome	99	35	16	1	1	154	
	3.7	***4.2***	***4.6***	***1.1***	***16.6***	***3.8***	
Hypospadias*	1590	423	80	27	3	2133	
	114.4	***100.4***	***44.9***	***59.2***	***101.4***	***104.0***	
Interrupted aortic arch	18	8	1	2	0	29	
	0.7	***1.0***	***0.3***	***2.3***	***0.0***	***0.7***	
Limb deficiencies (reduction defects)	115	34	13	3	0	165	
	4.3	***4.1***	***3.7***	***3.4***	***0.0***	***4.1***	

Tennessee
Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Omphalocele	62	29	4	0	0	95	
	2.3	***3.5***	***1.1***	***0.0***	***0.0***	***2.4***	
Pulmonary valve atresia and stenosis	243	77	32	5	0	357	
	9.0	***9.3***	***9.2***	***5.7***	***0.0***	***8.9***	
Pulmonary valve atresia	47	20	8	2	0	77	
	1.7	***2.4***	***2.3***	***2.3***	***0.0***	***1.9***	
Rectal and large intestinal atresia/stenosis	166	48	15	2	1	232	
	6.1	***5.8***	***4.3***	***2.3***	***16.6***	***5.8***	
Renal agenesis/hypoplasia	173	45	20	2	0	240	
	6.4	***5.4***	***5.7***	***2.3***	***0.0***	***6.0***	
Single ventricle	48	17	9	1	0	77	
	1.8	***2.0***	***2.6***	***1.1***	***0.0***	***1.9***	
Small intestinal atresia/stenosis	136	48	26	3	0	215	
	5.0	***5.8***	***7.4***	***3.4***	***0.0***	***5.4***	
Spina bifida without anencephalus	114	30	21	3	0	168	
	4.2	***3.6***	***6.0***	***3.4***	***0.0***	***4.2***	
Tetralogy of Fallot	152	57	13	3	0	225	
	5.6	***6.9***	***3.7***	***3.4***	***0.0***	***5.6***	
Total anomalous pulmonary venous connection	36	12	8	4	0	60	
	1.3	***1.4***	***2.3***	***4.5***	***0.0***	***1.5***	
Transposition of the great arteries (TGA)	134	47	23	3	0	209	
	5.0	***5.7***	***6.6***	***3.4***	***0.0***	***5.2***	
Dextro-transposition of great arteries (d-TGA)	71	19	10	1	0	102	
	2.6	***2.3***	***2.9***	***1.1***	***0.0***	***2.5***	
Tricuspid valve atresia and stenosis	38	14	8	0	0	60	2
	1.4	***1.7***	***2.3***	***0.0***	***0.0***	***1.5***	
Trisomy 13	24	10	0	1	0	37	
	0.9	***1.2***	***0.0***	***1.1***	***0.0***	***0.9***	
Trisomy 18	42	18	7	1	0	69	
	1.6	***2.2***	***2.0***	***1.1***	***0.0***	***1.7***	
Trisomy 21 (Down syndrome)	387	104	75	10	2	579	
	14.3	***12.5***	***21.5***	***11.3***	***33.2***	***14.5***	
Turner syndrome†	14	6	3	1	0	25	
	1.1	***1.5***	***1.8***	***2.3***	***0.0***	***1.3***	
Ventricular septal defect	1346	434	190	34	5	2016	3
	49.8	***52.3***	***54.4***	***38.5***	***82.9***	***50.3***	
Total live births §	**270450**	**83041**	**34947**	**8838**	**603**	**400572**	
Male live births	**138981**	**42135**	**17808**	**4564**	**296**	**205152**	
Female live births	**131468**	**40906**	**17138**	**4274**	**307**	**195415**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births. Excludes male phenotype.
**Total includes unknown and other maternal race/ethnicity
§Total live births includes unknown gender

Tennessee

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	218	3	221	
	6.1	***0.7***	***5.5***	
Trisomy 13	31	6	37	
	0.9	***1.4***	***0.9***	
Trisomy 18	47	22	69	
	1.3	***5.1***	***1.7***	
Trisomy 21 (Down syndrome)	346	228	579	
	9.7	***52.7***	***14.5***	
Total live births	**357233**	**43246**	**400572**	

**Total includes unknown maternal age

Notes
1.Data for this condition include inlet ventricular septal defect.
2.Data for this condition include stenosis or hypoplasia.
3.Data for this condition include inlet ventricular septal defect and probable cases.

General comments
-Prior to 07/01/2010, fetal deaths are defined as 500 grams or more, or 22 weeks gestation or more; after 07/01/2010, fetal deaths are defined as 350 grams or more ,or 20 weeks gestation or more.

Texas

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	150	29	282	16	3	487	
	2.2	***1.3***	***3.0***	***1.8***	***8.4***	***2.5***	
Anophthalmia/microphthalmia	178	47	310	21	0	564	
	2.7	***2.1***	***3.3***	***2.4***	***0.0***	***2.9***	
Anotia/microtia	148	30	477	21	2	681	
	2.2	***1.4***	***5.1***	***2.4***	***5.6***	***3.5***	
Aortic valve stenosis	183	30	263	16	2	495	
	2.7	***1.4***	***2.8***	***1.8***	***5.6***	***2.6***	
Atrial septal defect	5235	1936	8042	590	23	15992	
	78.4	***87.7***	***86.6***	***67.5***	***64.1***	***82.8***	
Atrioventricular septal defect (Endocardial cushion defect)	321	108	385	29	1	850	
	4.8	***4.9***	***4.1***	***3.3***	***2.8***	***4.4***	
Biliary atresia	37	12	61	11	1	124	
	0.6	***0.5***	***0.7***	***1.3***	***2.8***	***0.6***	
Bladder exstrophy	20	5	10	2	0	37	
	0.3	***0.2***	***0.1***	***0.2***	***0.0***	***0.2***	
Choanal atresia	111	32	112	6	0	265	
	1.7	***1.4***	***1.2***	***0.7***	***0.0***	***1.4***	
Cleft lip alone	272	54	270	24	1	627	
	4.1	***2.4***	***2.9***	***2.7***	***2.8***	***3.2***	
Cleft lip with cleft palate	462	100	792	60	9	1435	
	6.9	***4.5***	***8.5***	***6.9***	***25.1***	***7.4***	
Cleft palate alone	407	96	538	61	4	1122	
	6.1	***4.3***	***5.8***	***7.0***	***11.2***	***5.8***	
Cloacal exstrophy	4	0	7	0	0	11	
	0.1	***0.0***	***0.1***	***0.0***	***0.0***	***0.1***	
Clubfoot	1177	369	1592	93	8	3274	
	17.6	***16.7***	***17.1***	***10.6***	***22.3***	***16.9***	
Coarctation of the aorta	395	109	526	40	3	1083	
	5.9	***4.9***	***5.7***	***4.6***	***8.4***	***5.6***	
Common truncus (truncus arteriosus)	51	17	90	3	0	163	
	0.8	***0.8***	***1.0***	***0.3***	***0.0***	***0.8***	
Congenital cataract	127	39	185	10	0	362	
	1.9	***1.8***	***2.0***	***1.1***	***0.0***	***1.9***	
Congenital posterior urethral valves	67	36	60	18	0	182	
	1.0	***1.6***	***0.6***	***2.1***	***0.0***	***0.9***	
Craniosynostosis	521	70	594	25	3	1224	
	7.8	***3.2***	***6.4***	***2.9***	***8.4***	***6.3***	
Deletion 22q11.2	50	23	85	5	2	166	
	0.7	***1.0***	***0.9***	***0.6***	***5.6***	***0.9***	
Diaphragmatic hernia	197	51	277	19	0	546	
	2.9	***2.3***	***3.0***	***2.2***	***0.0***	***2.8***	
Double outlet right ventricle	50	26	104	11	0	192	
	0.7	***1.2***	***1.1***	***1.3***	***0.0***	***1.0***	
Ebstein anomaly	51	9	86	3	0	150	
	0.8	***0.4***	***0.9***	***0.3***	***0.0***	***0.8***	
Encephalocele	52	30	101	11	0	197	
	0.8	***1.4***	***1.1***	***1.3***	***0.0***	***1.0***	
Esophageal atresia/tracheoesophageal fistula	177	55	193	13	1	442	
	2.6	***2.5***	***2.1***	***1.5***	***2.8***	***2.3***	
Gastroschisis	363	87	653	24	1	1138	
	5.4	***3.9***	***7.0***	***2.7***	***2.8***	***5.9***	
Holoprosencephaly	52	20	111	5	0	190	
	0.8	***0.9***	***1.2***	***0.6***	***0.0***	***1.0***	
Hypoplastic left heart syndrome	178	54	212	10	0	458	
	2.7	***2.4***	***2.3***	***1.1***	***0.0***	***2.4***	
Hypospadias*	3043	872	2159	315	11	6486	
	88.9	***77.6***	***45.5***	***69.6***	***59.7***	***65.7***	
Interrupted aortic arch	38	19	55	5	0	118	
	0.6	***0.9***	***0.6***	***0.6***	***0.0***	***0.6***	

Texas

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Limb deficiencies (reduction defects)	371	142	560	26	3	1115	
	5.6	***6.4***	***6.0***	***3.0***	***8.4***	***5.8***	
Omphalocele	157	52	176	14	0	402	
	2.3	***2.4***	***1.9***	***1.6***	***0.0***	***2.1***	
Pulmonary valve atresia and stenosis	640	245	1159	61	4	2134	
	9.6	***11.1***	***12.5***	***7.0***	***11.2***	***11.0***	
Pulmonary valve atresia	63	23	106	10	0	205	1
	0.9	***1.0***	***1.1***	***1.1***	***0.0***	***1.1***	
Rectal and large intestinal atresia/stenosis	324	106	540	35	3	1024	
	4.8	***4.8***	***5.8***	***4.0***	***8.4***	***5.3***	
Renal agenesis/hypoplasia	430	166	615	60	3	1294	
	6.4	***7.5***	***6.6***	***6.9***	***8.4***	***6.7***	
Single ventricle	49	17	85	7	0	158	
	0.7	***0.8***	***0.9***	***0.8***	***0.0***	***0.8***	
Small intestinal atresia/stenosis	214	86	335	16	1	658	
	3.2	***3.9***	***3.6***	***1.8***	***2.8***	***3.4***	
Spina bifida without anencephalus	244	63	432	13	1	766	
	3.7	***2.9***	***4.7***	***1.5***	***2.8***	***4.0***	
Tetralogy of Fallot	316	121	435	42	3	930	
	4.7	***5.5***	***4.7***	***4.8***	***8.4***	***4.8***	
Total anomalous pulmonary venous connection	67	22	195	23	1	310	
	1.0	***1.0***	***2.1***	***2.6***	***2.8***	***1.6***	
Transposition of the great arteries (TGA)	315	74	443	28	1	870	
	4.7	***3.4***	***4.8***	***3.2***	***2.8***	***4.5***	
Dextro-transposition of great arteries (d-TGA)	283	66	401	24	1	783	
	4.2	***3.0***	***4.3***	***2.7***	***2.8***	***4.1***	
Tricuspid valve atresia and stenosis	134	50	194	17	1	398	
	2.0	***2.3***	***2.1***	***1.9***	***2.8***	***2.1***	
Tricuspid valve atresia	61	23	67	9	0	161	
	0.9	***1.0***	***0.7***	***1.0***	***0.0***	***0.8***	
Trisomy 13	84	32	109	14	0	243	
	1.3	***1.4***	***1.2***	***1.6***	***0.0***	***1.3***	
Trisomy 18	176	53	258	30	0	526	
	2.6	***2.4***	***2.8***	***3.4***	***0.0***	***2.7***	
Trisomy 21 (Down syndrome)	857	226	1583	93	4	2795	
	12.8	***10.2***	***17.0***	***10.6***	***11.2***	***14.5***	
Turner syndrome†	98	20	116	10	0	245	
	3.0	***1.8***	***2.5***	***2.4***	***0.0***	***2.6***	
Ventricular septal defect	3889	1195	7019	476	27	12727	2
	58.2	***54.1***	***75.6***	***54.5***	***75.3***	***65.9***	
Total live births	**668109**	**220833**	**928937**	**87366**	**3586**	**1932050**	
Male live births	**342343**	**112399**	**474032**	**45285**	**1842**	**987806**	
Female live births	**325766**	**108434**	**454905**	**42081**	**1744**	**944244**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity

Texas

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	1116	22	1138	
	6.6	***0.9***	***5.9***	
Trisomy 13	168	75	243	
	1.0	***3.0***	***1.3***	
Trisomy 18	270	255	526	
	1.6	***10.2***	***2.7***	
Trisomy 21 (Down syndrome)	1457	1337	2795	
	8.7	***53.3***	***14.5***	
Total live births	**1681283**	**250681**	**1932050**	

**Total includes unknown maternal age

Notes
1.Data for this condition exclude co-occuring ventricular septal defect/ tetralogy of Fallot.
2.Data for this condition include inlet ventricular septal defect.

General comments
-Data for all conditions exclude possible/probable cases.
-Fetal deaths are defined as spontaneous death of a conception product prior to the complete expulsion/extraction from its mother, regardless of gestational length. The labor onset may be natural/induced, but not as a result of an intended procedure.

Utah

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	39	1	15	1	1	58	
	1.9	***3.6***	***3.9***	***1.1***	***3.6***	***2.3***	
Anophthalmia/microphthalmia	25	2	10	1	0	39	
	1.2	***7.2***	***2.6***	***1.1***	***0.0***	***1.5***	
Anotia/microtia	61	1	29	11	2	104	
	3.0	***3.6***	***7.5***	***12.0***	***7.2***	***4.0***	
Aortic valve stenosis	66	0	15	1	1	83	
	3.3	***0.0***	***3.9***	***1.1***	***3.6***	***3.2***	
Atrial septal defect	810	10	176	38	8	1059	1
	40.4	***36.2***	***45.6***	***41.5***	***28.9***	***41.2***	
Atrioventricular septal defect (Endocardial cushion defect)	158	4	23	8	1	200	
	7.9	***14.5***	***6.0***	***8.7***	***3.6***	***7.8***	
Biliary atresia	17	1	2	1	0	21	
	0.8	***3.6***	***0.5***	***1.1***	***0.0***	***0.8***	
Bladder exstrophy	4	0	0	1	0	5	
	0.2	***0.0***	***0.0***	***1.1***	***0.0***	***0.2***	
Choanal atresia	36	0	8	0	0	44	
	1.8	***0.0***	***2.1***	***0.0***	***0.0***	***1.7***	
Cleft lip alone	119	2	16	6	0	145	
	5.9	***7.2***	***4.1***	***6.6***	***0.0***	***5.6***	
Cleft lip with cleft palate	153	3	29	0	3	190	
	7.6	***10.9***	***7.5***	***0.0***	***10.8***	***7.4***	
Cleft palate alone	135	2	23	3	2	171	
	6.7	***7.2***	***6.0***	***3.3***	***7.2***	***6.7***	
Cloacal exstrophy	6	0	0	1	0	7	
	0.3	***0.0***	***0.0***	***1.1***	***0.0***	***0.3***	
Coarctation of the aorta	203	4	36	3	3	253	
	10.1	***14.5***	***9.3***	***3.3***	***10.8***	***9.9***	
Common truncus (truncus arteriosus)	16	1	3	0	0	21	
	0.8	***3.6***	***0.8***	***0.0***	***0.0***	***0.8***	
Congenital cataract	50	0	15	3	1	70	
	2.5	***0.0***	***3.9***	***3.3***	***3.6***	***2.7***	
Congenital posterior urethral valves	39	0	4	2	0	46	
	1.9	***0.0***	***1.0***	***2.2***	***0.0***	***1.8***	
Craniosynostosis	227	2	51	2	6	292	
	11.3	***7.2***	***13.2***	***2.2***	***21.7***	***11.4***	
Deletion 22q11.2	27	1	4	3	2	39	
	1.3	***3.6***	***1.0***	***3.3***	***7.2***	***1.5***	
Diaphragmatic hernia	37	1	6	1	1	46	
	1.8	***3.6***	***1.6***	***1.1***	***3.6***	***1.8***	
Double outlet right ventricle	43	1	4	0	1	50	
	2.1	***3.6***	***1.0***	***0.0***	***3.6***	***1.9***	
Ebstein anomaly	25	0	8	0	0	35	
	1.2	***0.0***	***2.1***	***0.0***	***0.0***	***1.4***	
Encephalocele	22	0	3	0	0	26	
	1.1	***0.0***	***0.8***	***0.0***	***0.0***	***1.0***	
Esophageal atresia/tracheoesophageal fistula	56	1	10	2	1	72	
	2.8	***3.6***	***2.6***	***2.2***	***3.6***	***2.8***	
Gastroschisis	83	0	18	0	2	108	
	4.1	***0.0***	***4.7***	***0.0***	***7.2***	***4.2***	
Holoprosencephaly	27	2	10	0	0	39	
	1.3	***7.2***	***2.6***	***0.0***	***0.0***	***1.5***	
Hypoplastic left heart syndrome	62	2	8	4	1	78	
	3.1	***7.2***	***2.1***	***4.4***	***3.6***	***3.0***	
Hypospadias*	696	8	46	17	1	783	2
	67.3	***55.1***	***23.4***	***36.0***	***7.1***	***59.3***	
Interrupted aortic arch	10	1	4	1	0	17	
	0.5	***3.6***	***1.0***	***1.1***	***0.0***	***0.7***	
Limb deficiencies (reduction defects)	132	3	28	2	0	169	
	6.6	***10.9***	***7.2***	***2.2***	***0.0***	***6.6***	

Utah

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Omphalocele	62	1	16	2	2	84	
	3.1	***3.6***	***4.1***	***2.2***	***7.2***	***3.3***	
Pulmonary valve atresia and stenosis	292	5	57	12	3	377	
	14.5	***18.1***	***14.8***	***13.1***	***10.8***	***14.7***	
Pulmonary valve atresia	14	0	4	2	0	20	
	0.7	***0.0***	***1.0***	***2.2***	***0.0***	***0.8***	
Rectal and large intestinal atresia/stenosis	76	2	8	8	0	96	
	3.8	***7.2***	***2.1***	***8.7***	***0.0***	***3.7***	
Renal agenesis/hypoplasia	84	1	12	6	3	109	
	4.2	***3.6***	***3.1***	***6.6***	***10.8***	***4.2***	
Single ventricle	12	0	3	0	0	15	
	0.6	***0.0***	***0.8***	***0.0***	***0.0***	***0.6***	
Small intestinal atresia/stenosis	59	2	18	5	0	85	
	2.9	***7.2***	***4.7***	***5.5***	***0.0***	***3.3***	
Spina bifida without anencephalus	80	1	11	2	1	100	
	4.0	***3.6***	***2.8***	***2.2***	***3.6***	***3.9***	
Tetralogy of Fallot	70	1	12	3	1	90	
	3.5	***3.6***	***3.1***	***3.3***	***3.6***	***3.5***	
Total anomalous pulmonary venous connection	24	0	12	1	1	38	
	1.2	***0.0***	***3.1***	***1.1***	***3.6***	***1.5***	
Transposition of the great arteries (TGA)	101	3	18	2	1	128	
	5.0	***10.9***	***4.7***	***2.2***	***3.6***	***5.0***	
Dextro-transposition of great arteries (d-TGA)	46	1	10	2	0	62	
	2.3	***3.6***	***2.6***	***2.2***	***0.0***	***2.4***	
Tricuspid valve atresia	23	1	6	0	0	30	
	1.1	***3.6***	***1.6***	***0.0***	***0.0***	***1.2***	
Trisomy 13	25	1	8	2	0	38	
	1.2	***3.6***	***2.1***	***2.2***	***0.0***	***1.5***	
Trisomy 18	77	3	13	1	1	101	
	3.8	***10.9***	***3.4***	***1.1***	***3.6***	***3.9***	
Trisomy 21 (Down syndrome)	307	4	78	18	2	417	
	15.3	***14.5***	***20.2***	***19.7***	***7.2***	***16.2***	
Turner syndrome†	48	0	12	0	0	61	
	4.9	***0.0***	***6.3***	***0.0***	***0.0***	***4.9***	
Ventricular septal defect	504	6	122	16	5	659	
	25.1	***21.7***	***31.6***	***17.5***	***18.1***	***25.7***	
Total live births §	**200700**	**2763**	**38628**	**9147**	**2767**	**256824**	
Male live births	**103401**	**1453**	**19698**	**4720**	**1402**	**132113**	
Female live births	**97298**	**1310**	**18930**	**4427**	**1365**	**124710**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births. Excludes male phenotype.
**Total includes unknown and other maternal race/ethnicity
§Total live births includes unknown gender

Utah

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	106	2	108	
	4.7	***0.7***	***4.2***	
Trisomy 13	24	14	38	
	1.1	***4.6***	***1.5***	
Trisomy 18	67	34	101	
	3.0	***11.2***	***3.9***	
Trisomy 21 (Down syndrome)	219	198	417	
	9.7	***65.4***	***16.2***	
Total live births	**226543**	**30262**	**256824**	

**Total includes unknown maternal age

Notes
1.Data for this condition exclude isolated secundum atrial septal defect beginning in 2014.
2.Data for this condition exclude isolated first degree hypospadias beginning in 2014.

General comments
-Stillbirths are based on >=20 weeks gestation.
-Terminations include any weeks' gestation.

Vermont

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Anotia/microtia	4	0	0	1	0	5	
	1.4	***0.0***	***0.0***	***15.2***	***0.0***	***1.6***	
Aortic valve stenosis	18	0	1	0	0	19	
	6.4	***0.0***	***24.5***	***0.0***	***0.0***	***6.2***	
Atrial septal defect	266	4	6	7	2	288	
	94.0	***94.3***	***147.1***	***106.2***	***465.1***	***94.7***	
Atrioventricular septal defect (Endocardial cushion defect)	19	0	0	0	0	19	
	6.7	***0.0***	***0.0***	***0.0***	***0.0***	***6.2***	
Bladder exstrophy	1	0	0	1	0	2	
	0.4	***0.0***	***0.0***	***15.2***	***0.0***	***0.7***	
Cleft lip alone	14	0	0	0	0	15	
	4.9	***0.0***	***0.0***	***0.0***	***0.0***	***4.9***	
Cleft lip with cleft palate	14	0	0	0	0	14	
	4.9	***0.0***	***0.0***	***0.0***	***0.0***	***4.6***	
Cleft palate alone	24	0	1	0	0	25	
	8.5	***0.0***	***24.5***	***0.0***	***0.0***	***8.2***	
Coarctation of the aorta	22	0	0	0	0	22	
	7.8	***0.0***	***0.0***	***0.0***	***0.0***	***7.2***	
Common truncus (truncus arteriosus)	1	0	1	0	0	2	
	0.4	***0.0***	***24.5***	***0.0***	***0.0***	***0.7***	
Diaphragmatic hernia	12	0	0	0	0	12	
	4.2	***0.0***	***0.0***	***0.0***	***0.0***	***3.9***	
Double outlet right ventricle	5	0	0	0	0	5	
	1.8	***0.0***	***0.0***	***0.0***	***0.0***	***1.6***	
Ebstein anomaly	2	0	0	0	0	2	
	0.7	***0.0***	***0.0***	***0.0***	***0.0***	***0.7***	
Encephalocele	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Esophageal atresia/tracheoesophageal fistula	5	0	0	1	0	6	
	1.8	***0.0***	***0.0***	***15.2***	***0.0***	***2.0***	
Gastroschisis	13	0	0	0	0	14	
	4.6	***0.0***	***0.0***	***0.0***	***0.0***	***4.6***	
Hypoplastic left heart syndrome	10	0	0	0	0	10	
	3.5	***0.0***	***0.0***	***0.0***	***0.0***	***3.3***	
Hypospadias*	116	3	1	0	0	121	
	78.8	***140.2***	***46.5***	***0.0***	***0.0***	***76.4***	
Limb deficiencies (reduction defects)	14	0	0	0	0	16	
	4.9	***0.0***	***0.0***	***0.0***	***0.0***	***5.3***	
Omphalocele	3	1	0	0	0	4	
	1.1	***23.6***	***0.0***	***0.0***	***0.0***	***1.3***	
Pulmonary valve atresia and stenosis	50	2	1	1	0	55	
	17.7	***47.2***	***24.5***	***15.2***	***0.0***	***18.1***	
Pulmonary valve atresia	3	2	0	0	0	5	
	1.1	***47.2***	***0.0***	***0.0***	***0.0***	***1.6***	
Rectal and large intestinal atresia/stenosis	16	0	0	0	0	16	
	5.7	***0.0***	***0.0***	***0.0***	***0.0***	***5.3***	
Renal agenesis/hypoplasia	18	0	0	1	0	19	
	6.4	***0.0***	***0.0***	***15.2***	***0.0***	***6.2***	
Small intestinal atresia/stenosis	7	0	0	1	0	8	1
	2.5	***0.0***	***0.0***	***15.2***	***0.0***	***2.6***	
Spina bifida without anencephalus	6	0	0	0	0	6	
	2.1	***0.0***	***0.0***	***0.0***	***0.0***	***2.0***	
Tetralogy of Fallot	11	2	0	1	0	14	
	3.9	***47.2***	***0.0***	***15.2***	***0.0***	***4.6***	
Transposition of the great arteries (TGA)	11	0	0	1	0	12	
	3.9	***0.0***	***0.0***	***15.2***	***0.0***	***3.9***	
Dextro-transposition of great arteries (d-TGA)	8	0	0	1	0	9	
	2.8	***0.0***	***0.0***	***15.2***	***0.0***	***3.0***	

Vermont

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Tricuspid valve atresia and stenosis	3	0	0	0	0	3	
	1.1	***0.0***	***0.0***	***0.0***	***0.0***	***1.0***	
Trisomy 13	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Trisomy 18	6	0	0	0	0	6	
	2.1	***0.0***	***0.0***	***0.0***	***0.0***	***2.0***	
Trisomy 21 (Down syndrome)	31	0	0	1	0	32	
	11.0	***0.0***	***0.0***	***15.2***	***0.0***	***10.5***	
Ventricular septal defect	196	6	3	6	0	216	2
	69.3	***141.5***	***73.5***	***91.0***	***0.0***	***71.0***	
Total live births	**28294**	**424**	**408**	**659**	**43**	**30412**	
Male live births	**14717**	**214**	**215**	**349**	**23**	**15832**	

*Hypospadias prevalence per 10,000 male live births
**Total includes unknown and other maternal race/ethnicity

Vermont

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	14	0	14	
	5.5	***0.0***	***4.6***	
Trisomy 13	0	0	0	
	0.0	***0.0***	***0.0***	
Trisomy 18	3	4	6	
	1.2	***3.2***	***2.0***	
Trisomy 21 (Down syndrome)	18	13	32	
	7.1	***10.3***	***10.5***	
Total live births	**25442**	**12663**	**30412**	

**Total includes unknown maternal age

Notes
1.Data for this condition include only small intestinal atresia.
2.Data for ths condition exclude probable cases.

Virginia

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total**	Notes
Anencephalus	28	9	7	5	0	53	
	1.0	***0.8***	***1.1***	***1.4***	***0.0***	***1.0***	
Anophthalmia/microphthalmia	13	13	3	3	1	33	
	0.4	***1.2***	***0.5***	***0.8***	***12.1***	***0.6***	
Anotia/microtia	29	8	13	3	0	53	
	1.0	***0.7***	***2.0***	***0.8***	***0.0***	***1.0***	
Aortic valve stenosis	39	11	6	1	1	58	
	1.3	***1.0***	***0.9***	***0.3***	***12.1***	***1.1***	
Atrial septal defect	2575	1269	1010	453	7	5399	
	87.4	***117.9***	***156.9***	***124.5***	***84.6***	***105.2***	
Atrioventricular septal defect (Endocardial cushion defect)	99	48	19	4	0	173	
	3.4	***4.5***	***3.0***	***1.1***	***0.0***	***3.4***	
Biliary atresia	17	8	4	4	0	33	
	0.6	***0.7***	***0.6***	***1.1***	***0.0***	***0.6***	
Bladder exstrophy	4	1	1	1	0	7	
	0.1	***0.1***	***0.2***	***0.3***	***0.0***	***0.1***	
Choanal atresia	35	14	4	3	0	58	
	1.2	***1.3***	***0.6***	***0.8***	***0.0***	***1.1***	
Cleft lip alone	72	21	18	7	0	121	
	2.4	***2.0***	***2.8***	***1.9***	***0.0***	***2.4***	
Cleft lip with cleft palate	143	35	36	17	0	234	
	4.9	***3.3***	***5.6***	***4.7***	***0.0***	***4.6***	
Cleft palate alone	197	40	31	15	1	285	
	6.7	***3.7***	***4.8***	***4.1***	***12.1***	***5.6***	
Cloacal exstrophy	129	67	37	21	2	265	
	4.4	***6.2***	***5.7***	***5.8***	***24.2***	***5.2***	
Clubfoot	274	100	57	17	0	462	
	9.3	***9.3***	***8.9***	***4.7***	***0.0***	***9.0***	
Coarctation of the aorta	170	62	37	16	0	287	
	5.8	***5.8***	***5.7***	***4.4***	***0.0***	***5.6***	
Common truncus (truncus arteriosus)	19	11	3	0	0	33	
	0.6	***1.0***	***0.5***	***0.0***	***0.0***	***0.6***	
Congenital cataract	23	15	6	3	0	49	
	0.8	***1.4***	***0.9***	***0.8***	***0.0***	***1.0***	
Congenital posterior urethral valves	25	22	7	0	0	56	
	0.8	***2.0***	***1.1***	***0.0***	***0.0***	***1.1***	
Deletion 22q11.2	8	4	2	1	0	15	
	0.3	***0.4***	***0.3***	***0.3***	***0.0***	***0.3***	
Diaphragmatic hernia	64	29	19	2	0	116	
	2.2	***2.7***	***3.0***	***0.5***	***0.0***	***2.3***	
Double outlet right ventricle	45	25	13	11	0	95	
	1.5	***2.3***	***2.0***	***3.0***	***0.0***	***1.9***	
Ebstein anomaly	20	11	13	1	0	45	
	0.7	***1.0***	***2.0***	***0.3***	***0.0***	***0.9***	
Encephalocele	15	11	6	1	0	34	
	0.5	***1.0***	***0.9***	***0.3***	***0.0***	***0.7***	
Esophageal atresia/tracheoesophageal fistula	43	18	16	6	0	83	
	1.5	***1.7***	***2.5***	***1.6***	***0.0***	***1.6***	
Gastroschisis	101	31	33	7	1	178	
	3.4	***2.9***	***5.1***	***1.9***	***12.1***	***3.5***	
Holoprosencephaly	113	66	22	9	1	214	
	3.8	***6.1***	***3.4***	***2.5***	***12.1***	***4.2***	
Hypoplastic left heart syndrome	67	26	14	6	1	116	
	2.3	***2.4***	***2.2***	***1.6***	***12.1***	***2.3***	
Hypospadias*	918	311	108	77	2	1437	
	60.7	***56.9***	***32.8***	***41.1***	***46.6***	***54.7***	
Interrupted aortic arch	11	14	3	0	0	28	
	0.4	***1.3***	***0.5***	***0.0***	***0.0***	***0.5***	
Limb deficiencies (reduction defects)	92	28	9	8	0	141	
	3.1	***2.6***	***1.4***	***2.2***	***0.0***	***2.7***	

Virginia

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Omphalocele	40	18	6	7	0	71	
	1.4	***1.7***	***0.9***	***1.9***	***0.0***	***1.4***	
Pulmonary valve atresia and stenosis	186	110	57	30	0	389	
	6.3	***10.2***	***8.9***	***8.2***	***0.0***	***7.6***	
Pulmonary valve atresia	37	15	9	5	0	67	
	1.3	***1.4***	***1.4***	***1.4***	***0.0***	***1.3***	
Rectal and large intestinal atresia/stenosis	99	40	33	16	1	192	
	3.4	***3.7***	***5.1***	***4.4***	***12.1***	***3.7***	
Renal agenesis/hypoplasia	115	37	27	10	0	190	
	3.9	***3.4***	***4.2***	***2.7***	***0.0***	***3.7***	
Single ventricle	39	14	6	2	0	64	
	1.3	***1.3***	***0.9***	***0.5***	***0.0***	***1.2***	
Small intestinal atresia/stenosis	95	47	28	7	0	181	
	3.2	***4.4***	***4.3***	***1.9***	***0.0***	***3.5***	
Spina bifida without anencephalus	54	24	25	2	1	107	
	1.8	***2.2***	***3.9***	***0.5***	***12.1***	***2.1***	
Tetralogy of Fallot	127	69	18	19	1	237	
	4.3	***6.4***	***2.8***	***5.2***	***12.1***	***4.6***	
Total anomalous pulmonary venous connection	19	5	9	4	0	38	
	0.6	***0.5***	***1.4***	***1.1***	***0.0***	***0.7***	
Transposition of the great arteries (TGA)	58	22	12	11	0	105	
	2.0	***2.0***	***1.9***	***3.0***	***0.0***	***2.0***	
Dextro-transposition of great arteries (d-TGA)	49	17	10	9	0	86	
	1.7	***1.6***	***1.6***	***2.5***	***0.0***	***1.7***	
Tricuspid valve atresia and stenosis	27	13	8	5	0	54	
	0.9	***1.2***	***1.2***	***1.4***	***0.0***	***1.1***	
Trisomy 13	19	10	4	1	1	36	
	0.6	***0.9***	***0.6***	***0.3***	***12.1***	***0.7***	
Trisomy 18	23	20	11	4	0	58	
	0.8	***1.9***	***1.7***	***1.1***	***0.0***	***1.1***	
Trisomy 21 (Down syndrome)	318	130	119	31	0	605	
	10.8	***12.1***	***18.5***	***8.5***	***0.0***	***11.8***	
Turner syndrome†	20	6	4	2	0	32	
	1.4	***1.1***	***1.3***	***1.1***	***0.0***	***1.3***	
Ventricular septal defect	1190	463	346	156	2	2188	
	40.4	***43.0***	***53.7***	***42.9***	***24.2***	***42.6***	
Total live births §	**294496**	**107627**	**64385**	**36375**	**827**	**513043**	
Male live births	**151279**	**54704**	**32887**	**18720**	**429**	**262795**	
Female live births	**143209**	**52919**	**31495**	**17652**	**398**	**250229**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births. Excludes male phenotype.
**Total includes unknown and other maternal race/ethnicity
§Total live births includes unknown gender

Virginia

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	175	3	178	
	4.1	***0.3***	***3.5***	
Trisomy 13	19	17	36	
	0.4	***1.9***	***0.7***	
Trisomy 18	29	29	58	
	0.7	***3.3***	***1.1***	
Trisomy 21 (Down syndrome)	301	303	605	
	7.1	***34.7***	***11.8***	
Total live births	**425724**	**87292**	**513043**	

**Total includes unknown maternal age

Washington

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

Defect	Total**	Notes
Anencephalus	17 ***0.4***	
Cleft palate alone	281 ***6.4***	
Gastroschisis	124 ***2.8***	
Hypospadias*	1195 ***53.3***	
Limb deficiencies (reduction defects)	127 ***5.6***	
Omphalocele	47 ***1.1***	
Spina bifida without anencephalus	103 ***2.4***	
risom 21 Do n s n rome	571 ***13.1***	
Total live births	**437250**	
Male live births	**224343**	

*Hypospadias prevalence per 10,000 male live births
**Total includes unknown and other maternal race/ethnicity

General comments

-Data for conditions cannot be reported by maternal race/ethnicity.
-Data for conditions include age less than or equal to one year.

West Virginia

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	41	0	1	0	0	43	
	4.9	***0.0***	***8.2***	***0.0***	***0.0***	***4.7***	
Anophthalmia/microphthalmia	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Anotia/microtia	3	0	0	0	0	3	
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Aortic valve stenosis	13	0	0	0	0	15	
	1.5	***0.0***	***0.0***	***0.0***	***0.0***	***1.6***	
Atrial septal defect	1324	60	9	8	0	1449	
	157.5	***163.3***	***73.7***	***84.2***	***0.0***	***158.7***	
Atrioventricular septal defect (Endocardial cushion defect)	24	1	0	0	0	26	
	2.9	***2.7***	***0.0***	***0.0***	***0.0***	***2.8***	
Biliary atresia	9	1	0	0	0	10	
	1.1	***2.7***	***0.0***	***0.0***	***0.0***	***1.1***	
Bladder exstrophy	2	0	0	0	0	2	
	0.2	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Choanal atresia	11	1	0	0	0	14	
	1.3	***2.7***	***0.0***	***0.0***	***0.0***	***1.5***	
Cleft lip alone	5	0	0	0	0	5	
	0.6	***0.0***	***0.0***	***0.0***	***0.0***	***0.5***	
Cleft lip with cleft palate	43	0	0	0	0	44	
	5.1	***0.0***	***0.0***	***0.0***	***0.0***	***4.8***	
Cleft palate alone	66	0	0	0	0	67	
	7.8	***0.0***	***0.0***	***0.0***	***0.0***	***7.3***	
Cloacal exstrophy	30	3	0	1	0	36	
	3.6	***8.2***	***0.0***	***10.5***	***0.0***	***3.9***	
Clubfoot	146	4	0	0	0	153	
	17.4	***10.9***	***0.0***	***0.0***	***0.0***	***16.8***	
Coarctation of the aorta	41	1	0	0	0	44	
	4.9	***2.7***	***0.0***	***0.0***	***0.0***	***4.8***	
Common truncus (truncus arteriosus)	65	2	0	1	0	68	
	7.7	***5.4***	***0.0***	***10.5***	***0.0***	***7.4***	
Congenital cataract	4	0	0	1	0	5	
	0.5	***0.0***	***0.0***	***10.5***	***0.0***	***0.5***	
Congenital posterior urethral valves	5	0	0	0	0	5	
	0.6	***0.0***	***0.0***	***0.0***	***0.0***	***0.5***	
Craniosynostosis	41	1	0	0	1	43	
	24.9	***14.6***	***0.0***	***0.0***	***217.4***	***24.0***	
Deletion 22q11.2	2	0	0	0	0	2	
	0.2	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Diaphragmatic hernia	20	1	0	0	0	22	
	2.4	***2.7***	***0.0***	***0.0***	***0.0***	***2.4***	
Double outlet right ventricle	25	1	0	0	0	27	
	3.0	***2.7***	***0.0***	***0.0***	***0.0***	***3.0***	
Ebstein anomaly	12	0	0	0	0	12	
	1.4	***0.0***	***0.0***	***0.0***	***0.0***	***1.3***	
Encephalocele	3	0	0	0	0	3	
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Esophageal atresia/tracheoesophageal fistula	15	2	0	0	0	17	
	1.8	***5.4***	***0.0***	***0.0***	***0.0***	***1.9***	
Gastroschisis	6	0	0	0	0	6	1
	1.8	***0.0***	***0.0***	***0.0***	***0.0***	***1.7***	
Holoprosencephaly	45	0	0	0	0	49	
	5.4	***0.0***	***0.0***	***0.0***	***0.0***	***5.4***	
Hypoplastic left heart syndrome	16	0	0	0	0	19	
	1.9	***0.0***	***0.0***	***0.0***	***0.0***	***2.1***	
Hypospadias*	237	7	0	0	0	248	
	55.3	***37.3***	***0.0***	***0.0***	***0.0***	***53.3***	
Interrupted aortic arch	6	0	0	0	0	6	
	0.7	***0.0***	***0.0***	***0.0***	***0.0***	***0.7***	

West Virginia
Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Limb deficiencies (reduction defects)	15	1	0	0	0	17	
	1.8	***2.7***	***0.0***	***0.0***	***0.0***	***1.9***	
Omphalocele	6	0	0	0	0	6	1
	1.8	***0.0***	***0.0***	***0.0***	***0.0***	***1.7***	
Pulmonary valve atresia and stenosis	56	0	0	1	0	60	
	6.7	***0.0***	***0.0***	***10.5***	***0.0***	***6.6***	
Pulmonary valve atresia	11	0	0	0	0	11	
	1.3	***0.0***	***0.0***	***0.0***	***0.0***	***1.2***	
Rectal and large intestinal atresia/stenosis	37	1	1	0	0	39	
	4.4	***2.7***	***8.2***	***0.0***	***0.0***	***4.3***	
Renal agenesis/hypoplasia	37	0	0	0	0	39	
	4.4	***0.0***	***0.0***	***0.0***	***0.0***	***4.3***	
Single ventricle	7	0	0	0	0	9	
	0.8	***0.0***	***0.0***	***0.0***	***0.0***	***1.0***	
Small intestinal atresia/stenosis	30	0	0	0	0	30	
	3.6	***0.0***	***0.0***	***0.0***	***0.0***	***3.3***	
Spina bifida without anencephalus	23	0	0	1	0	24	
	2.7	***0.0***	***0.0***	***10.5***	***0.0***	***2.6***	
Tetralogy of Fallot	37	2	1	0	0	41	
	4.4	***5.4***	***8.2***	***0.0***	***0.0***	***4.5***	
Total anomalous pulmonary venous connection	8	0	0	1	0	9	
	1.0	***0.0***	***0.0***	***10.5***	***0.0***	***1.0***	
Transposition of the great arteries (TGA)	26	0	0	0	0	28	
	3.1	***0.0***	***0.0***	***0.0***	***0.0***	***3.1***	
Dextro-transposition of great arteries (d-TGA)	23	0	0	0	0	23	
	2.7	***0.0***	***0.0***	***0.0***	***0.0***	***2.5***	
Tricuspid valve atresia and stenosis	4	0	0	0	0	4	
	0.5	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	
Trisomy 13	3	0	0	0	0	3	
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Trisomy 18	14	3	0	0	0	17	
	1.7	***8.2***	***0.0***	***0.0***	***0.0***	***1.9***	
Trisomy 21 (Down syndrome)	58	3	1	0	0	70	
	6.9	***8.2***	***8.2***	***0.0***	***0.0***	***7.7***	
Turner syndrome†	1	0	0	0	0	2	
	0.2	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	
Ventricular septal defect	304	11	0	3	0	335	
	36.2	***29.9***	***0.0***	***31.6***	***0.0***	***36.7***	
Total live births	**84081**	**3675**	**1221**	**950**	**122**	**91332**	
Male live births	**42836**	**1875**	**665**	**476**	**60**	**46521**	
Female live births	**41245**	**1800**	**556**	**474**	**62**	**44811**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity

West Virginia

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	5	1	6	1
	1.5	***2.8***	***1.7***	
Trisomy 13	3	0	3	
	0.4	***0.0***	***0.3***	
Trisomy 18	11	6	17	
	1.3	***6.7***	***1.9***	
Trisomy 21 (Down syndrome)	44	19	70	
	5.3	***21.3***	***7.7***	
Total live births	**82304**	**8931**	**91332**	

**Total includes unknown maternal age

Notes
1.Data for this condition began in 2013.

General comments
-Data for conditions include probable cases.

Wisconsin

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total**	Notes
Anencephalus	22	4	3	3	2	34	
	1.0	***1.3***	***1.0***	***2.0***	***5.1***	***1.1***	
Anophthalmia/microphthalmia	8	1	1	0	0	10	
	0.3	***0.3***	***0.3***	***0.0***	***0.0***	***0.3***	
Anotia/microtia	14	2	6	1	1	25	
	0.6	***0.6***	***1.9***	***0.7***	***2.6***	***0.8***	
Aortic valve stenosis	19	3	1	1	2	26	
	0.8	***1.0***	***0.3***	***0.7***	***5.1***	***0.8***	
Atrial septal defect	1167	149	157	65	35	1600	
	51.0	***47.4***	***49.9***	***44.3***	***90.0***	***50.6***	
Atrioventricular septal defect (Endocardial cushion defect)	49	5	7	2	0	65	
	2.1	***1.6***	***2.2***	***1.4***	***0.0***	***2.1***	
Biliary atresia	1	0	0	0	0	1	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Bladder exstrophy	6	0	1	0	0	8	
	0.3	***0.0***	***0.3***	***0.0***	***0.0***	***0.3***	
Choanal atresia	20	0	4	1	1	27	
	0.9	***0.0***	***1.3***	***0.7***	***2.6***	***0.9***	
Cleft lip alone	76	5	6	5	0	92	
	3.3	***1.6***	***1.9***	***3.4***	***0.0***	***2.9***	
Cleft lip with cleft palate	44	8	10	2	0	64	
	1.9	***2.5***	***3.2***	***1.4***	***0.0***	***2.0***	
Cleft palate alone	113	10	11	12	5	157	
	4.9	***3.2***	***3.5***	***8.2***	***12.9***	***5.0***	
Cloacal exstrophy	83	11	14	6	0	115	
	3.6	***3.5***	***4.4***	***4.1***	***0.0***	***3.6***	
Clubfoot	379	43	37	10	4	484	
	16.6	***13.7***	***11.8***	***6.8***	***10.3***	***15.3***	
Coarctation of the aorta	76	7	7	3	1	95	
	3.3	***2.2***	***2.2***	***2.0***	***2.6***	***3.0***	
Common truncus (truncus arteriosus)	1	0	2	0	0	3	
	0.0	***0.0***	***0.6***	***0.0***	***0.0***	***0.1***	
Congenital cataract	15	1	6	0	1	24	
	0.7	***0.3***	***1.9***	***0.0***	***2.6***	***0.8***	
Congenital posterior urethral valves	16	3	1	2	2	24	
	0.7	***1.0***	***0.3***	***1.4***	***5.1***	***0.8***	
Craniosynostosis	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Deletion 22q11.2	4	0	0	0	0	4	
	0.2	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Diaphragmatic hernia	56	4	5	0	2	67	
	2.4	***1.3***	***1.6***	***0.0***	***5.1***	***2.1***	
Double outlet right ventricle	21	4	1	0	0	27	
	0.9	***1.3***	***0.3***	***0.0***	***0.0***	***0.9***	
Ebstein anomaly	14	0	0	0	0	15	
	0.6	***0.0***	***0.0***	***0.0***	***0.0***	***0.5***	
Encephalocele	10	3	2	2	0	19	
	0.4	***1.0***	***0.6***	***1.4***	***0.0***	***0.6***	
Esophageal atresia/tracheoesophageal fistula	50	6	4	3	0	65	
	2.2	***1.9***	***1.3***	***2.0***	***0.0***	***2.1***	
Holoprosencephaly	55	14	7	5	1	87	
	2.4	***4.5***	***2.2***	***3.4***	***2.6***	***2.8***	
Hypoplastic left heart syndrome	14	2	2	0	1	19	
	0.6	***0.6***	***0.6***	***0.0***	***2.6***	***0.6***	
Hypospadias*	888	101	64	29	7	1106	
	75.7	***63.3***	***39.8***	***38.1***	***34.2***	***68.3***	
Interrupted aortic arch	5	1	0	2	1	9	
	0.2	***0.3***	***0.0***	***1.4***	***2.6***	***0.3***	
Limb deficiencies (reduction defects)	73	6	7	5	1	93	
	3.2	***1.9***	***2.2***	***3.4***	***2.6***	***2.9***	

Wisconsin

Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Omphalocele	38	5	3	3	0	49	
	1.7	***1.6***	***1.0***	***2.0***	***0.0***	***1.6***	
Pulmonary valve atresia and stenosis	35	8	3	2	0	48	
	1.5	***2.5***	***1.0***	***1.4***	***0.0***	***1.5***	
Pulmonary valve atresia	3	0	0	1	0	4	
	0.1	***0.0***	***0.0***	***0.7***	***0.0***	***0.1***	
Rectal and large intestinal atresia/stenosis	68	6	8	9	2	97	
	3.0	***1.9***	***2.5***	***6.1***	***5.1***	***3.1***	
Renal agenesis/hypoplasia	128	9	8	5	0	152	
	5.6	***2.9***	***2.5***	***3.4***	***0.0***	***4.8***	
Single ventricle	2	0	0	0	1	3	
	0.1	***0.0***	***0.0***	***0.0***	***2.6***	***0.1***	
Small intestinal atresia/stenosis	64	12	11	5	3	95	
	2.8	***3.8***	***3.5***	***3.4***	***7.7***	***3.0***	
Spina bifida without anencephalus	56	9	12	3	1	81	
	2.4	***2.9***	***3.8***	***2.0***	***2.6***	***2.6***	
Tetralogy of Fallot	24	4	4	4	0	36	
	1.0	***1.3***	***1.3***	***2.7***	***0.0***	***1.1***	
Total anomalous pulmonary venous connection	1	1	0	0	0	2	
	0.0	***0.3***	***0.0***	***0.0***	***0.0***	***0.1***	
Transposition of the great arteries (TGA)	21	1	2	0	2	28	
	0.9	***0.3***	***0.6***	***0.0***	***5.1***	***0.9***	
Dextro-transposition of great arteries (d-TGA)	12	1	2	0	2	19	
	0.5	***0.3***	***0.6***	***0.0***	***5.1***	***0.6***	
Tricuspid valve atresia and stenosis	4	0	0	1	0	5	
	0.2	***0.0***	***0.0***	***0.7***	***0.0***	***0.2***	
Tricuspid valve atresia	4	0	0	1	0	5	
	0.2	***0.0***	***0.0***	***0.7***	***0.0***	***0.2***	
Trisomy 13	14	3	2	2	0	22	
	0.6	***1.0***	***0.6***	***1.4***	***0.0***	***0.7***	
Trisomy 18	60	5	8	5	0	81	
	2.6	***1.6***	***2.5***	***3.4***	***0.0***	***2.6***	
Trisomy 21 (Down syndrome)	260	23	46	21	2	354	
	11.4	***7.3***	***14.6***	***14.3***	***5.1***	***11.2***	
Turner syndrome†	9	1	1	0	0	11	
	0.8	***0.6***	***0.6***	***0.0***	***0.0***	***0.7***	
Ventricular septal defect	569	73	111	38	15	817	
	24.9	***23.2***	***35.3***	***25.9***	***38.6***	***25.8***	
Total live births	**228868**	**31425**	**31488**	**14670**	**3887**	**316115**	
Male live births	**117346**	**15966**	**16071**	**7615**	**2047**	**162048**	
Female live births	**111523**	**15459**	**15417**	**7054**	**1840**	**154067**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity

Wisconsin

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Trisomy 13	12	10	22	
	0.4	***2.4***	***0.7***	
Trisomy 18	46	35	81	
	1.7	***8.5***	***2.6***	
Trisomy 21 (Down syndrome)	179	175	354	
	6.5	***42.5***	***11.2***	
Total live births	**274922**	**41176**	**316115**	

**Total includes unknown maternal age

General comments
-Fetal deaths are limited to greater than or equal to 20 weeks gestation.

Department of Defense
Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total**	Notes
Anencephalus	27	2	3	0	1	33	
	0.7	***0.2***	***0.4***	***0.0***	***1.0***	***0.5***	
Anophthalmia/microphthalmia	58	19	15	8	3	104	
	1.4	***2.3***	***2.2***	***2.7***	***2.9***	***1.7***	
Anotia/microtia	89	9	26	15	2	141	
	2.2	***1.1***	***3.8***	***5.1***	***1.9***	***2.3***	
Aortic valve stenosis	137	22	14	4	4	185	
	3.3	***2.7***	***2.1***	***1.4***	***3.8***	***3.0***	
Atrial septal defect	4616	981	752	263	92	6846	1
	112.8	***120.4***	***110.3***	***89.0***	***88.2***	***111.7***	
Atrioventricular septal defect (Endocardial cushion defect)	246	49	30	12	2	345	2
	6.0	***6.0***	***4.4***	***4.1***	***1.9***	***5.6***	
Biliary atresia	36	15	11	2	2	67	
	0.9	***1.8***	***1.6***	***0.7***	***1.9***	***1.1***	
Bladder exstrophy	21	2	0	0	0	24	
	0.5	***0.2***	***0.0***	***0.0***	***0.0***	***0.4***	
Choanal atresia	104	19	21	4	3	155	
	2.5	***2.3***	***3.1***	***1.4***	***2.9***	***2.5***	
Cleft lip alone	301	31	33	27	8	404	
	7.4	***3.8***	***4.8***	***9.1***	***7.7***	***6.6***	
Cleft lip with cleft palate	332	38	46	28	12	466	
	8.1	***4.7***	***6.7***	***9.5***	***11.5***	***7.6***	
Cleft palate alone	493	68	73	35	11	692	
	12.1	***8.3***	***10.7***	***11.8***	***10.6***	***11.3***	
Cloacal exstrophy	340	78	51	18	6	506	
	8.3	***9.6***	***7.5***	***6.1***	***5.8***	***8.3***	
Clubfoot	900	168	135	51	15	1293	
	22.0	***20.6***	***19.8***	***17.3***	***14.4***	***21.1***	
Coarctation of the aorta	450	72	41	21	11	611	
	11.0	***8.8***	***6.0***	***7.1***	***10.6***	***10.0***	
Common truncus (truncus arteriosus)	105	15	12	7	1	143	
	2.6	***1.8***	***1.8***	***2.4***	***1.0***	***2.3***	
Congenital cataract	131	31	30	8	4	210	
	3.2	***3.8***	***4.4***	***2.7***	***3.8***	***3.4***	
Congenital posterior urethral valves	90	17	5	5	2	123	
	2.2	***2.1***	***0.7***	***1.7***	***1.9***	***2.0***	
Deletion 22q11.2	49	9	3	1	2	64	
	1.2	***1.1***	***0.4***	***0.3***	***1.9***	***1.0***	
Diaphragmatic hernia	172	43	31	13	7	271	
	4.2	***5.3***	***4.5***	***4.4***	***6.7***	***4.4***	
Double outlet right ventricle	136	31	18	9	1	199	
	3.3	***3.8***	***2.6***	***3.0***	***1.0***	***3.2***	
Ebstein anomaly	59	9	7	4	3	83	
	1.4	***1.1***	***1.0***	***1.4***	***2.9***	***1.4***	
Encephalocele	44	9	8	1	1	64	
	1.1	***1.1***	***1.2***	***0.3***	***1.0***	***1.0***	
Esophageal atresia/tracheoesophageal fistula	122	24	15	4	1	168	
	3.0	***2.9***	***2.2***	***1.4***	***1.0***	***2.7***	
Gastroschisis	251	30	53	14	5	360	
	6.1	***3.7***	***7.8***	***4.7***	***4.8***	***5.9***	
Holoprosencephaly	299	48	40	16	10	427	
	7.3	***5.9***	***5.9***	***5.4***	***9.6***	***7.0***	
Hypoplastic left heart syndrome	188	40	14	7	1	255	
	4.6	***4.9***	***2.1***	***2.4***	***1.0***	***4.2***	
Hypospadias*	2457	451	271	136	56	3439	
	116.4	***108.5***	***77.4***	***89.3***	***106.0***	***109.0***	
Interrupted aortic arch	61	9	4	4	2	81	
	1.5	***1.1***	***0.6***	***1.4***	***1.9***	***1.3***	
Limb deficiencies (reduction defects)	233	48	36	7	6	336	
	5.7	***5.9***	***5.3***	***2.4***	***5.8***	***5.5***	

Department of Defense
Birth Defects Counts and Prevalence 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Omphalocele	82	26	9	5	0	124	
	2.0	***3.2***	***1.3***	***1.7***	***0.0***	***2.0***	
Pulmonary valve atresia and stenosis	561	174	117	43	15	928	
	13.7	***21.4***	***17.2***	***14.5***	***14.4***	***15.1***	
Pulmonary valve atresia	40	17	8	5	0	71	
	1.0	***2.1***	***1.2***	***1.7***	***0.0***	***1.2***	
Rectal and large intestinal atresia/stenosis	262	41	36	26	7	379	
	6.4	***5.0***	***5.3***	***8.8***	***6.7***	***6.2***	
Renal agenesis/hypoplasia	277	58	42	18	4	405	
	6.8	***7.1***	***6.2***	***6.1***	***3.8***	***6.6***	
Single ventricle	125	27	15	6	0	177	
	3.1	***3.3***	***2.2***	***2.0***	***0.0***	***2.9***	
Small intestinal atresia/stenosis	219	58	33	16	4	335	
	5.4	***7.1***	***4.8***	***5.4***	***3.8***	***5.5***	
Spina bifida without anencephalus	204	26	30	8	8	281	
	5.0	***3.2***	***4.4***	***2.7***	***7.7***	***4.6***	
Tetralogy of Fallot	282	57	43	27	3	416	
	6.9	***7.0***	***6.3***	***9.1***	***2.9***	***6.8***	
Total anomalous pulmonary venous connection	55	13	14	5	2	91	
	1.3	***1.6***	***2.1***	***1.7***	***1.9***	***1.5***	
Transposition of the great arteries (TGA)	180	19	19	13	1	235	
	4.4	***2.3***	***2.8***	***4.4***	***1.0***	***3.8***	
Dextro-transposition of great arteries (d-TGA)	166	16	19	13	1	217	
	4.1	***2.0***	***2.8***	***4.4***	***1.0***	***3.5***	
Tricuspid valve atresia and stenosis	64	18	10	8	0	102	3
	1.6	***2.2***	***1.5***	***2.7***	***0.0***	***1.7***	
Trisomy 13	40	15	7	4	0	66	
	1.0	***1.8***	***1.0***	***1.4***	***0.0***	***1.1***	
Trisomy 18	69	22	10	0	1	106	
	1.7	***2.7***	***1.5***	***0.0***	***1.0***	***1.7***	
Trisomy 21 (Down syndrome)	588	103	84	29	12	835	
	14.4	***12.6***	***12.3***	***9.8***	***11.5***	***13.6***	
Turner syndrome†	53	8	8	3	2	75	
	2.7	***2.0***	***2.4***	***2.1***	***3.9***	***2.5***	
Ventricular septal defect	2944	520	459	165	63	4230	4
	72.0	***63.8***	***67.3***	***55.8***	***60.4***	***69.0***	
Total live births	**409098**	**81473**	**68205**	**29560**	**10425**	**612905**	
Male live births	**211133**	**41562**	**35033**	**15223**	**5282**	**315540**	
Female live births	**197965**	**39911**	**33172**	**14337**	**5143**	**297365**	

*Hypospadias prevalence per 10,000 male live births
†Turner syndrome prevalence per 10,000 female live births
**Total includes unknown and other maternal race/ethnicity

Department of Defense

Trisomy and Gastroschisis Counts and Prevalence by Maternal Age 2010 - 2014 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	332	5	360	
	6.2	***0.9***	***5.9***	
Trisomy 13	39	25	66	
	0.7	***4.3***	***1.1***	
Trisomy 18	65	37	106	
	1.2	***6.4***	***1.7***	
Trisomy 21 (Down syndrome)	506	295	835	
	9.5	***51.2***	***13.6***	
Total live births	**533370**	**57628**	**612905**	

**Total includes unknown maternal age

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 cases with tricuspid stenosis or hypoplasia.
4.Data for this condition include inlet ventricular septal defect and probable ventricular septal defect.

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

STATE BIRTH DEFECTS SURVEILLANCE

PROGRAM DIRECTORY

Updated August 2017

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

Program status: No surveillance program

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

Alaska

Alaska Birth Defects Registry (ABDR)

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

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

Surveillance Methods
Case ascertainment: Passive case-finding with 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), MIMR (FIMR), 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-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: SAS, Access, 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://dhss.alaska.gov/dph/wcfh/Pages/mchepi/abdr/ABDR.aspx
Surveillance reports on file:
Http://dhss.alaska.gov/dph/wcfh/Pages/mchepi/mchdatabook/default.aspx
Additional information on file:
Http://dhss.alaska.gov/dph/wcfh/Documents/mchepi/abdr/Prevalence_Estimates/DataCollectionMethods_v1.pdfhttp://dhss.alaska.gov/dph/wcfh/Documents/mchepi/abdr/Prevalence_Estimates/SurveillanceNotes_v1.pdf

Contacts
Alaska Birth Defects Registry
Alaska Department of Health and Social Services
MCH-Epidemiology
Anchorage, AK 99503
Phone: **907-269-3400**
Email: **hssbirthdefreg@alaska.gov**
Secure Email: akdhss.dph_abdr@alaskahic.com

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, Early Childhood Prevention Programs
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, Any chart with a selected list of ICD-9-CM codes outside 740-759, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), Any birth certificate with a birth defect box checked, All stillborn infants, All neonatal deaths, All prenatal diagnosed or suspected cases
Conditions warranting chart review beyond the newborn period: Any infant with a codable defect
Coding: CDC coding system based on BPA

Data Collected

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

Data Collection Methods and Storage

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

Data Analysis

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

System Integration

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

Funding

Funding source: 5% General state funds, 6% MCH funds, 22% CDC grant, 1% Private Foundation, 66% 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: Fact Sheets; Resources
Other comments: To contact the ABDMP email abdmp@azdhs.gov

Contacts

Timothy J. Flood, M.D.
Arizona Department of Health Services
150 North 18th Avenue, Suite 550
Phoenix, AZ 85007
Phone: **602-542-7331** ***Fax:*** **602-364-0082**
Email: **floodt@azdhs.gov**

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

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: University
Population covered annually: 40,000
Statewide: Yes
Current legislation or rule: Acts 1985, No. 214
Legislation year enacted: 1985

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

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

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

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

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

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

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

Funding
Funding source: 100% General state funds

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

Contacts
Wendy Nembhard, PhD, MPH
ARHMS, Section of Birth Defect Research, AR Children's Research Institute
13 Children's Way, Slot 512-40
Little Rock, AR 72202
Phone: **501-364-5000** ***Fax:*** **501-364-5107**
Email: **WNNembhard@uams.edu**

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

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)
Population covered annually: 70,000
Statewide: No, CBDMP currently monitors a sampling of California births that are demographically similar to the state as a whole and whose birth defects rates and trends have been reflective of those throughout California. Furthermore, CBDMP has statutory authority to conduct active surveillance anywhere in the state when warranted by environmental incidents or concerns.
Current legislation or rule: California Health and Safety Code, Division 102, Part 2, Chapter 1, Sections 103825-103855, effective 1982, recodified 1996
Legislation year enacted: 1982

Case Definition

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

Surveillance Methods

Case ascertainment: Active Case Finding
Delivery hospitals: Disease index or discharge index, Discharge summaries, Obstetrics logs (i.e., labor & delivery), Regular nursery logs, ICU/NICU logs or charts, Pediatric logs, Postmortem/pathology logs, Surgery logs, Cardiac catheterization laboratories, Specialty outpatient clinics
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries, ICU/NICU logs or charts, Pediatric logs, Postmortem/pathology logs, Surgery logs, Laboratory logs, Cardiac catheterization laboratories
Other specialty facilities: 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, Any chart with a selected list of ICD-9-CM codes outside 740-759, 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 neonatal deaths, All elective abortions, All prenatal diagnosed or suspected cases
Conditions warranting chart review beyond the newborn period: Facial dysmorphism or abnormal facies, Failure to thrive, GI condition (e.g. intestinal blockage), GU condition (e.g. recurrent infections), Cardiovascular condition, All infant deaths (excluding prematurity), Ocular conditions, Any infant with a codable defect
Coding: CDC BPA codes but modified for use in California

Data Collected

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

Data Collection Methods and Storage

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

Data Analysis

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

System Integration

System links: Link case finding data to final birth file

Funding

Funding source: 100% CBDMP Special Fund

Other

Web site: www.cdph.ca.gov/programs/CBDMP
Surveillance reports on file: Birth defect fact sheets and California regional birth defect data available on the website.
Additional information on file: Please send inquiries to mchinet@cdph.ca.gov

Contacts

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

Valorie Eckert, MPH
California Birth Defects Monitoring Program/Genetic Disease Screening ProgramCalifornia Department of Public Health
1615 Capitol Avenue
Sacramento, CA 95814
Phone: 916-341-3474 *Fax:* 916-341-6499
Email: Valorie.Eckert@cdph.ca.gov

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

Metropolitan Atlanta Congenital Defects Program (MACDP)

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

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

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

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

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

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

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

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

Funding
Funding source: 100% Intramural CDC funding

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

Contacts
Janet D. Cragan, MD, MPH
Centers for Disease Control and Prevention
1600 Clifton Rd., MS E-86
Atlanta, GA 30333
Phone: **404-498-3807** ***Fax:*** **770-488-3266**
Email: **JCragan@cdc.gov**

Colorado

Colorado Responds to Children with Special Needs Section (CRCSN)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Community Nursing Services, Early Childhood Prevention Programs, Legislators
Program status: Currently collecting data
Start year: 1988
Earliest year of available data: 1989
Organizational location: Department of Health (Vital Statistics, Center for Health and Environmental Data (CHED))
Population covered annually: 67,430(2016)
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: Active Case Finding, 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, Postmortem/pathology logs, Specialty outpatient clinics
Pediatric & tertiary care hospitals: Disease index or discharge index, Postmortem/pathology logs, Specialty outpatient clinics
Third party payers: Medicaid databases
Other specialty facilities: Cytogenetic laboratories, Genetic counseling/clinical genetic facilities
Other sources: Physician reports

Case Ascertainment

Conditions warranting chart review in newborn period: All stillborn infants, Selected chart reviews for prenatal to age 3: for statistical trends monitoring (23 conditions-catagories); fetal alcohol syndrome (to age 10), active case ascertainment data sources
Coding: ICD-9-CM, Extended code utilized to describe syndromes, further detail of a condition and to specify status.

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.), 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

Data Analysis

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

System Integration

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

Funding

Funding source: 26% General state funds, 30% Service fees, 43% CDC grant

Other

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

Contacts

Margaret Frances Ruttenber, MSPH
Colorado Respond to Children with Special Need Section
4300 Cherry Creek Drive, South
Denver, Colorado 80246-1530
Phone: **303-692-2636** ***Fax:*** **303-691-7821**
Email: **margaret.ruttenber@state.co.us**

Carol Stanton, MBA
Colorado Respond to Children with Special Need Section
4300 Cherry Creek Drive, South
Denver, Colorado 80246-1530
Phone: 303-692-2621 *Fax:* 303-691-7821
Email: carol.stanton@state.co.us

Connecticut

Connecticut Birth Defects Registry (CT BDR)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services, Reporting for MCH Block Grant
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Early Childhood Prevention Programs, Legislators
Program status: Currently collecting data
Start year: 2002
Earliest year of available data: 2000
Organizational location: Department of Health (Maternal and Child Health)
Population covered annually: 37,000
Statewide: Yes
Current legislation or rule: Sec. 19a-53. (Formerly Sec. 19-21). Reports of physical defects of children. Statues were revised - Section 19a-53 of the general statutes is repealed and will be replaced (Effective October 1, 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. ICD10 codes include the entire Q series as well as some recommended by CDC in the provided crosswalk. Also Zika associated birth defects including those in ICD10 H series are included.
Pregnancy outcome: Livebirths (All gestational ages and birth weights, PDA = to 2500 gms birth weight)
Age: Up to one year after delivery for birth defects, but reported up to age 5
Residence: All in-state births are reported but reporting is done on in-state births to state residents

Surveillance Methods

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

Case Ascertainment

Conditions warranting chart review in newborn period: Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease)
Coding: ICD-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.)
Database collection and storage: Access, Mainframe, Web based database just moved to sequel server

Data Analysis

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

System Integration

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

Funding

Funding source: 80% General state funds, 20% CDC grant

Other

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

Contacts

Karin C Davis, BS Public Health
Connecticut Department of Public Health
410 Capitol Avenue, MS #11MAT
Hartford, CT 06134
Phone: **(860) 509-7499** ***Fax:*** **(860) 509-7720**
Email: **karin.davis@ct.gov**

Marcie Cavacas
Connecticut Department of Public Health
410 Capitol Avenue, MS #11 MAT
Hartford, CT 06134
Phone: (860) 509-7775 *Fax:* (860) 509-7720
Email: marcia.cavacas@ct.gov

Delaware

Delaware Birth Defects Registry (DBDR)

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

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

Surveillance Methods
Case ascertainment: Combination of active and passive case ascertainment, Population based
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, Developmental Disabilities Surveillance, Cancer registry, AIDS/HIV registry
Delivery hospitals: Disease index or discharge index, Discharge summaries, Postmortem/pathology logs, Specialty outpatient clinics, High risk pregnancy logs
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries, Postmortem/pathology logs, Specialty outpatient clinics
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, Any chart with a selected list of ICD-9-CM codes outside 740-759, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), All stillborn infants, All prenatal diagnosed or suspected cases
Conditions warranting chart review beyond the newborn period: Facial dysmorphism or abnormal facies, GI condition (e.g. intestinal blockage), 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

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 submitted by other agencies (hospitals, 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
Data use and analysis: Routine statistical monitoring, Baseline rates, Rates by demographic and other variables, Time trends, Capture-recapture analyses, Epidemiologic studies (using only program data), Education/public awareness

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

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

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

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

District of Columbia

Program status: No surveillance program

Surveillance Methods

Other state based registries: Newborn hearing screening program, Newborn metabolic screening program

Contacts

Piia Hanson, MSPH
Department of Health, Community Health Administration
899 North Capitol Street, NE 3rd Floor
Washington, DC 20002
Phone: **202-442-9405**
E-mail: **piia.hanson@dc.gov**

Sandra A Battiste, MPH
Department of Health, Community Health Administration
899 North Capitol Street, NE 3rd Floor
Washington, DC 20002
Phone: 2024785820 *Fax:* 2026710854
E-mail: sandra.battiste@dc.gov

Florida

Florida Birth Defects Registry (FBDR)

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

Case Definition

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

Surveillance Methods

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

Case Ascertainment

Conditions warranting chart review in newborn period: Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease)
Coding: ICD-9-CM, 4Quarter 2015 also utilizes 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, Access, SQL, dBASE
Quality assurance: Validity checks, Re-abstraction of cases, Comparison/verification between multiple data sources, Timeliness
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Time-space cluster analyses, Capture-recapture analyses, Observed vs. expected analyses, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Grant proposals, Education/public awareness, Prevention projects

System Integration

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

Funding

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

Other

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

Contacts

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

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

Georgia

Georgia Birth Defects Registry (GBDR)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Early Childhood Prevention Programs, Legislators
Program status: Program has not started collecting data
Start year: 2017 (estimate going live by the last quarter of 2017)
Earliest year of available data: N/A (estimate 2018)
Organizational location: Department of Health (Epidemiology/Environment)
Population covered annually: 129,940 in 2016.
Statewide: Yes
Current legislation or rule: Birth defects are reportable under State Laws Official Code of Georgia Annotated (OCGA) 31-12-2 and 31-1-3.2 which mandate the reporting of notifiable diseases and newborn hearing screening, and Chapters 290-5-3-.02 and 290-5-24 of the Rules of Department of Human Resources, which regulate the reporting of notifiable diseases and metabolic disorders.
Legislation year enacted: Updated in 2003.

Case Definition

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

Surveillance Methods

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

Case Ascertainment

Conditions warranting chart review in newborn period: Zika-associated birth defects
Coding: 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, Pregnancy/delivery complications, Family history
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage

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

Data Analysis

Data analysis software: SAS, Microsoft Excel 2013.
Quality assurance: Validity checks, Double-checking of assigned codes, Comparison/verification between multiple data sources, Timeliness. As a part of Zika birth defect surveillance, we confirm all electronic birth certificates and passive line list cases through medical record abstraction. We will automate the quality assurance processes once the web-based birth defects registry 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 integration: We are in the process of building a registry for our web-based reporting platform. This registry will have the capacity to identify and link cases from flagged electronic birth certificates, hospital line lists with reported birth defect cases, cases directly called in and manually entered into the registry, and those submitted by MACDP. Subsequently, we aim to match children identified with intervention referral services.

Funding

Funding source: 100% CDC grant

Other

Web site: https://dph.georgia.gov/birth-defects
Additional information on file: In Georgia, active surveillance is performed by the Metropolitan Atlanta Congenital Defects Program (MACDP) and is presently the data source for the NBDPN Annual Report. MACDP performs medical record abstraction for all birth defect cases born to mothers who reside within DeKalb, Fulton, or Gwinnett counties at the time of delivery. This catchment area constitutes roughly 50% of all live births in Georgia.The Georgia Department of Public Health (DPH) is working toward statewide reporting in 2018. We are constructing a web-based statewide birth defects registry that will capture and link MACDP cases, in addition to those reported directly to DPH, flagged on electronic birth certificates, or submitted through regular hospital reporting.
Other comments: A procedure manual for the Georgia Birth Defects Registry will be available upon completion of the development of the registry. Providers interested in reporting a birth defect should contact Jerusha Barton (jerusha.barton@dph.ga.gov) for information on how to do so.

Contacts

Jerusha Elana Barton, MPH
Epidemiology Section, Georgia Department of Public Health
2 Peachtree St., NW, Suite 14-133
Atlanta, GA 30303
Phone: **404-463-0782** ***Fax:*** **404-657-7517**
Email: **jerusha.barton@dph.ga.gov**

J. Michael Bryan, PhD, MPH
Epidemiology Section, Georgia Department of Public Health
2 Peachtree St., NW, Suite 14-293
Atlanta, GA 30303
Phone: 404-657-2578 *Fax:* 404-657-7517
Email: michael.bryan@dph.ga.gov

Hawaii

Hawaii Birth Defects Program (HBDP)

Purpose: Surveillance
Partner: Hospitals, 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. (Less than 20 weeks gestation, 20 weeks gestation and greater), Elective terminations (All gestational ages)
Age: Up to one year after delivery
Residence: All in-state births

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

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

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

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

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

Funding
Funding source: 100% State of Hawaii Birth Defects Special Fund

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

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

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

Idaho

Program status: No surveillance program

Contacts

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

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

Illinois

Adverse Pregnancy Outcomes Reporting System (APORS)

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

Case Definition

Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (20 weeks gestation and greater, or the family chose to hold a funeral)
Age: 2 years
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
Delivery hospitals: Discharge summaries, Reporting from all hospital nurseries
Pediatric & tertiary care hospitals: Discharge summaries, Reporting from all hospital nurseries

Case Ascertainment

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

Data Collection Methods and Storage

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

Data Analysis

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

System Integration

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

Funding

Funding source: 52% General state funds, 42% CDC grant, 6% Other federal funding (non-CDC grants)

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 1989-2009
Additional information on file: QC reports, fact sheets

Contacts

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

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

Indiana

Indiana Birth Defects & Problems Registry (IBDPR)

Purpose: Surveillance, Per statute research and referrals should be completed, but we are currently updating our processes
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: 89,000
Statewide: Yes
Current legislation or rule: IC 16-38-4-7Rule 410 IAC 21-3
Legislation year enacted: 2001

Case Definition
Outcomes covered: ICD-9-CM Codes 740-759.9, Fetal Alcohol Spectrum Disorder (760.71), Pervasive Developmental Disorders (299.0-299.99), fetal deaths, metabolic disorders & hearing loss from newborn screening, selected neoplasms, 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 this if mom had a past stillbirth or spontaneous abortion, not for the current child. For spontaneous abortions we quantify it as less than 20 weeks gestation and for stillbirth we quantify it as 20 weeks gestation or greater.)
Age: Up to 5 years (FAS); capture all ages but only review ages 0-8 years with Autism Spectrum Disorders; up to 3 years for all other birth defects
Residence: In- and out-of-state (as reported to IBDPR) births to state residents

Surveillance Methods
Case ascertainment: Passive case-finding with case confirmation, Passive case-finding without case confirmation, case confirmation for hospital discharge data; w/o case confirmation for physician reporting
Vital records: Birth certificates, Death certificates, Matched birth/death file
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
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, Any chart with a selected list of ICD-9-CM codes outside 740-759, 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

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

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: SQL
Quality assurance: Data/hospital audits
Data use and analysis: Data is currently unusable. going forward we would like to do basic surveillance, referrals, and programmatic initiatives

System Integration
System integration: The database is linked with birth, death, newborn hearing screening, and newborn metabolic and pulse oximetry screening data.

Funding
Funding source: 100% General state funds

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

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

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

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: 38,817 average live births per year (2010-2014)
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, Any chart with a selected list of ICD-9-CM codes outside 740-759, Any chart with a CDC/BPA code, Any chart with selected procedure codes, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), Any birth certificate with a birth defect box checked, All stillborn infants, All neonatal deaths, All elective abortions, All infants in NICU or special care nursery, All prenatal diagnosed or suspected cases
Conditions warranting chart review beyond the newborn period: Facial dysmorphism or abnormal facies, Failure to thrive, Developmental delay, CNS condition (e.g. seizure), GI condition (e.g. intestinal blockage), GU condition (e.g. recurrent infections), Cardiovascular condition, All infant deaths (excluding prematurity), Ocular conditions, Auditory/hearing conditions, Any infant with a codable defect
Coding: CDC coding system based on BPA, ICD-9-CM

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

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

Funding
Funding source: 100% General state funds

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

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

Kansas

Kansas Birth Defects Information System (BDIS)

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: 39,126
Statewide: Yes
Current legislation or rule: K.S.A. 65-1,241 through 65-1,246
Legislation year enacted: 2004

Case Definition

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

Surveillance Methods

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

Case Ascertainment

Coding: ICD-9-CM

Data Collected

Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Infant complications, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity, 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 three data sources: live birth certificates, stillbirth (fetal death) certificates, 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 BDIS. Any additional reports of congenital anomalies from physicians, hospitals and freestanding birthing centers are entered manually into BDIS.
Database collection and storage: Access, SQL Server

Data Analysis

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

System Integration

System links: Link to other state registries/databases
System integration: Our program has a link with vital statistics records. BDIS uses the same data system (WebBFH) and shares information with Children and Youth with Special Health Care Needs and Newborn metabolic screening program.

Funding

Funding source: 100% MCH funds

Other

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

Contacts

Annie Gile, BS, CHES
Kansas Department of Health and Environment
1000 SW Jackson, Suite 220
Topeka, Kansas 66612-1274
Phone: **785-296-6314** ***Fax:*** **785-296-6553**
Email: **Annie.Gile@ks.gov**

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

Kentucky

Kentucky Birth Surveillance Registry (KBSR)

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

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

Surveillance Methods
Case ascertainment: Passive case-finding with case confirmation
Vital records: Birth certificates, Death certificates, Matched birth/death file, Fetal birth certificate
Other state based registries: Newborn CCHD Screening
Delivery hospitals: Discharge summaries, ICU/NICU logs or charts, Pediatric logs, Postmortem/pathology 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
Third party payers: Medicaid databases
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, Any chart with a selected list of ICD-9-CM codes outside 740-759, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), Any birth certificate with a birth defect box checked, All prenatal 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, Epidemiologic studies (using only program data), Service delivery, Referral, Grant proposals, Education/public awareness, Prevention projects

System Integration
System links: Link to other state registries/databases, Link case finding data to final birth file, Link to environmental databases
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: http://chfs.ky.gov/dph/mch/ecd/kbsr.htm
Surveillance reports on file: Birth Defect Specific Fact Sheets; Contact of Partners

Contacts
Monica L Clouse, MPH
Kentucky Department for Public Health
275 E Main St, HS2WA
Frankfort, KY 40601
Phone: **502-564-4830**
Email: **monica.clouse@ky.gov**

Emily E Ferrell, MPH
Kentucky Department for Public Health
275 E. Main St, HS2WC
Frankfort, KY 40601
Phone: 502-564-3756
Email: emily.ferrell@ky.gov

Louisiana

Louisiana Birth Defects Monitoring Network (LBDMN)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs, Legislators
Program status: Currently collecting data
Start year: 2005
Earliest year of available data: 2005
Organizational location: Department of Health (DHH/OPH/CPH/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. DHH Rule: LAC 48:V. Chapters 161 and 163
Legislation year enacted: 2001

Case Definition

Outcomes covered: Major structural birth defects and selected genetic conditions
Pregnancy outcome: Livebirths (greater than or equal to 20 weeks gestation or greater than or equal to 350 grams)
Age: Up to three years old
Residence: In- and out of state births to state residents

Surveillance Methods

Case ascertainment: Active Case Finding, Combination of active and passive case ascertainment, population based.
Vital records: Birth certificates, Death certificates, Matched birth/death file
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

Case Ascertainment

Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759, Any chart with a selected list of ICD-9-CM codes outside 740-759
Conditions warranting chart review beyond the newborn period: Any infant with a codable defect
Coding: CDC coding system based on BPA, ICD-9-CM

Data Collected

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

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, InfoPath/SharePoint stored in SQL

Data Analysis

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

System Integration

System links: Link case finding data to final birth file
System integration: Integration with Louisiana Electronic Event Registration System (LEERS) birth and death records will be completed in 2014.

Funding

Funding source: 24% General state funds, 47% MCH funds, 25% CDC grant, 4% Inter Agency Transfer

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; and Age and Racial Disparities.
Additional information on file: Advisory Board Documentation http://wwwprd.doa.louisiana.gov/boardsandcommissions/viewBoard.cfm?board=192

Contacts

Dionka C Pierce, MPH
DHH/OPH/CSHS/LBDMN
1450 Poydras St., Ste 1950
New Orleans, LA 70112
Phone: **504-568-5629** ***Fax:*** **504-568-7529**
Email: **Dionka.Pierce@la.gov**

Julie A Johnston, BS
DHH/OPH/ LBDMN
7173-A Florida Blvd.
Baton Rouge, LA 70806
Phone: 225-925-7222 *Fax:* 225-925-7245
Email: Julie.Johnston@la.gov

Maine

Maine CDC Birth Defects Program (MBDP)

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

Case Definition
Outcomes covered: Selected major birth defects: NTD, clefts, gastroschisis, omphalocele, trisomy 21, reduction deformities of upper and lower limb, hypospadias and major heart defects
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (Less than 20 weeks gestation, 20 weeks gestation and greater, Prenatally diagnosed at any gestation), Elective terminations (Prenatally diagnosed at any gestation)
Age: Through age one
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, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), Any birth certificate with a birth defect box checked, All stillborn infants, All infants in NICU or special care nursery, All prenatal diagnosed or suspected cases, ICD-10 codes
Conditions warranting chart review beyond the newborn period: Cardiovascular condition, Any infant with a codable defect
Coding: ICD-9-CM, ICD-10 codes

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

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

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

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

Funding
Funding source: 100% MCH funds

Other
Web site:
http://www.maine.gov/dhhs/boh/cshn/birth_defects/index.html

Contacts
Patricia Williams
Department of Health & Human Services
11 State House Station, 286 Water St.-7th floor
Augusta, ME 04333
Phone: **207-287-4802** ***Fax:*** **207-287-5355**
Email: **Patricia.Williams@maine.gov**

Diane Haberman, MSW, LCSW
Department of Health & Human Services
11 State House Station, 286 Water St. 7th floor
Augusta, ME 04333
Phone: 207-287-8424 *Fax:* 207-287-5355
Email: Diane.Haberman@maine.gov

Maryland

Maryland Birth Defects Reporting and Information System (BDRIS)

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

Case Definition

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

Surveillance Methods

Case ascertainment: Passive case-finding with case confirmation
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: All fetal death certificates
Coding: ICD-9-CM

Data Collected

Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, 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, Access
Quality assurance: Validity checks, Double-checking of assigned codes, Comparison/verification between multiple data sources
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Identification of potential cases for other epidemiologic studies, Service delivery, Referral, Grant proposals, Education/public awareness

System Integration

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

Funding

Funding source: 100% General state funds

Other

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

Contacts

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

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

Massachusetts

Massachusetts Birth Defects Monitoring Program (MBDMP)

Purpose: Surveillance, Research, Public health program evaluation, assist community health assessments
Partner: Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Maternal and Child Health Programs, State Lab
Program status: Currently collecting data
Start year: 1997
Earliest year of available data: 1999
Organizational location: Department of Public Health (Bureau of Family Health and Nutrition)
Population covered annually: 73,000
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, Regular nursery logs, ICU/NICU logs or charts, 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

Case Ascertainment

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

Data Collected

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

Data Collection Methods and Storage

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

Data Analysis

Data analysis software: SAS, 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, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Observed vs. expected analyses, Epidemiologic studies (using program data), Identification of potential cases for other epidemiologic studies, Grant proposals, Education/public awareness

System Integration

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

Funding

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

Other

Web site: www.mass.gov/dph/birthdefects
Surveillance reports on file: Annual or bi-annual reports, 1999 through 2012

Contacts

Mahsa M. Yazdy, PhD, MPH
Massachusetts Department of Public Health, Bureau of Family Health and Nutrition
250 Washington Street, 5th floor
Boston, MA 02108
Phone: **617-624-6045** ***Fax:*** **617-624-5574**
Email: **mahsa.yazdy@state.ma.us**

Cathleen A. Higgins, BA
Massachusetts Department of Public Health, Bureau of Family Health and Nutrition
250 Washington Street, 5th floor
Boston, MA 02108
Phone: 617-624-5510 *Fax:* 617-624-5574
Email: cathleen.higgins@state.ma.us

Michigan

Michigan Birth Defects Registry (MBDR)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services, Prevalence and mortality statistics
Partner: Local Health Departments, Hospitals, 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, Any chart with a selected list of ICD-9-CM codes outside 740-759, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), 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, 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, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Needs assessment, Service delivery, Referral, Grant proposals, Education/public awareness

System Integration

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

Other

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

Contacts

Glenn Edward Copeland, MBA
Michigan Birth Defects Registry
333 S. Grand Ave.
Lansing, MI 48933
Phone: **517-335-8677** ***Fax:*** **517-335-8711**
Email: **copelandg@michigan.gov**

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

Minnesota

Minnesota Birth Defects Information System (BDIS)

Purpose: Surveillance, Research, Referral to Services, Targeted prevention to higher risk populations.
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs
Program status: Currently collecting data
Start year: 2005
Earliest year of available data: 2006
Organizational location: Department of Health (Maternal and Child Health)
Population covered annually: 70,000
Statewide: No, Currently covering about 95% of live births in MN. Statewide surveillance is expected to be completed by the end of 2017. Coverage is complete for smaller regions of the state. Prevalence estimates from 2006-2010 are available for the two largest counties in Minnesota, Hennepin and Ramsey counties, which account for just over 40% of MN births. For 2011 births, coverage expanded to complete in the 7-county metro area.
Current legislation or rule: MS 144.2215-2219
Legislation year enacted: 2004

Case Definition

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

Surveillance Methods

Case ascertainment: Active Case Finding
Vital records: Birth certificates, Death certificates, Matched birth/death file
Other state based registries: Newborn hearing screening program, Newborn metabolic screening program, Newborn CCHD screening
Delivery hospitals: Disease index or discharge index, Discharge summaries, 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, Any birth certificate with a birth defect box checked, Any chart with an ICD10 Q00-Q99; All deaths prior to age 2 with a birth defect indicated as cause of death on death certificates, starting with 2009 births
Coding: CDC coding system based on BPA

Data Collected

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

Data Collection Methods and Storage

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

Data Analysis

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

System Integration

System links: Link to other state registries/databases, Link case finding data to final birth file
System integration: The Birth Defects Information System (BDIS) is integrated with Newborn Hearing program and Heritable Conditions. The databases share a model on the same platform, but they are managed separately. (This platform, Maven by Consilience Software, is also used by many infectious disease surveillance systems in MN and access is limited by disease/user role.) Additional integration with the Newborn CCHD Screening program takes place in 2017 as universal newborn CCHD screening is implemented.

Funding

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

Other

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

Contacts

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

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

Mississippi

Mississippi Birth Defects Surveillance Registry

Purpose: Surveillance
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, Fetal deaths - stillbirths, spontaneous abortions, etc. (20 weeks gestation and greater)
Age: Birth to 21 years
Residence: In and out of state births to state residents

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

Case Ascertainment
Conditions warranting chart review in newborn period: Zika related birth defects
Coding: ICD 10

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

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

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

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

Funding
Funding source: 100% Genetic screening revenues

Other
Web site: www.HealthyMS.com

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

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

Missouri

Missouri Birth Defects 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, plus genetic, metabolic, and other disorders
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (20 weeks gestation and greater, 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: 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: Missouri does not have resources to conduct confirmatory chart review for cases.
Coding: ICD-9-CM, ICD-10-CM

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

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

Data Analysis
Data analysis software: SAS
Quality assurance: Validity 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, Education/public awareness

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

Funding
Funding source: 100% MCH funds

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

Contacts
Loise Wambuguh, PhD
MO Dept of Health, Bureau of Vital Statistics
PO Box 570, 920 Wildwood Drive
Jefferson City, MO 65102
Phone: **573-751-6343** ***Fax:*** **573-526-4102**
Email: **loise.wambuguh@health.mo.gov**

Elizabeth McCarthy, MA
Missouri Dept of Health, Bureau of Vital Statistics
PO Box 570, 920 Wildwood Drive
Jefferson City, MO 65102
Phone: 573-7516078 *Fax:* 573-526-4102
Email: elizabeth.mccarthy@health.mo.gov

Montana

Montana Birth Outcomes Monitoring System (MBOMS)

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

Case Definition

Outcomes covered: Major structural birth defects, chromosomal anomalies specified in the CDC 45 reportables for births occurring in calendar years 2000 through 2004. Registry suspended beginning with calendar year 2005 births due to loss of CDC funding.

Comments: MBOMS became inactive in 2005

Contacts

Denise Higgins, BS
Montana Dept. of Public Health and Human Services PO Box 202951
Helena, MT 59620
Phone: **406-444-4743** ***Fax:*** **406-444-2790**
E-mail: **dehiggins@mt.gov**

Nebraska

Nebraska Birth Defect Registry

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

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

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

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759, Any birth certificate with a birth defect box checked
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.), Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Gravidity/parity
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

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

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

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

Funding
Funding source: 100% MCH funds

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

Contacts
Michelle Hood
NE Department of Health & Human Services
301 Centennial Mall South
Lincoln, NE 68509
Phone: **402-471-0147** ***Fax:*** **402-742-1139**
Email: **Michelle.Hood@nebraska.gov**

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

Nevada

Nevada Birth Outcomes Monitoring System (NBOMS)

Purpose: Surveillance, Research
Partner: Hospitals, Early Childhood Prevention Programs, Legislators, Nevada Bureau of Child, Family, & Community Wellness, Nevada Division of Public and Behavioral Health.
Program status: Currently collecting data
Start year: 2000
Earliest year of available data: 2005
Organizational location: Department of Health (Maternal and Child Health), Nevada Division of Public and Behavioral Health, Office of Public Health Informatics and Epidemiology (OPHIE).
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 (20 weeks of gestation and greater with all birth weights), 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, Any chart with a selected list of ICD-9-CM codes outside 740-759, 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

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

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

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

System Integration
System links: Link to other state registries/databases
System integration: No

Funding
Funding source: 70% MCH funds, 30% CDC grant. The epidemiologist/biostatistician is based in the Office of Public Health Informatics and Epidemiology (OPHIE).

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

Contacts
Ingrid Mburia, Ph.D., MPH
Nevada Birth Outcomes Monitoring System, Office of Public Health Informatics and Epidemiology (OPHIE), Division of Public and Behavioral Health, Department of Health and Human Services
4126 Technology Way, Suite 200
Carson City, NV 89706
Phone: **775-461-6600**
Email: **imburia@health.nv.gov**

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

New Hampshire

New Hampshire Zika Birth Conditions Program

Purpose: Surveillance, Referral to Services, Referral to Prevention/Intervention Services
Program status: Program has not started collecting data
Organizational location: Department of Health and Human Services, Maternal and Child Health Services
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: Will be determined prior to program's initiation.

Surveillance Methods
Case ascertainment: Will be determined prior to program's initiation.

Funding
Funding source: 100% CDC grant

Contacts
Suzann Beauregard
Maternal and Child Health Section, Division of Public Health Services, New Hampshire Department of Health and Human Services
29 Hazen Drive
Concord, NH 03301
Phone: **603-271-4521**
Email: **Suzann.Beauregard@dhhs.nh.gov**

Paulette Valliere
Maternal and Child Health Section, Division of Public Health Services, New Hampshire Department of Health and Human Services
29 Hazen Drive
Concord, NH 03301
Phone: 603-271-4587
Email: Paulette.Valliere@dhhs.nh.gov

New Jersey

Special Child Health Services Registry (SCHS Registry)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Community Nursing Services, Early Childhood Prevention Programs, Legislators, Neurodevelopmental Centers; Federally Qualified Health Care Centers; State Parent Advocacy Network; AAP NJ Chapter; all three (3) NJ MCH Consortia
Program status: Currently collecting data
Start year: 1928
Earliest year of available data: 1985
Organizational location: Department of Health (Special Child Health and Early Intervention Services)
Population covered annually: 105,000
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, and severe hyperbillirubinemia, are required to be reported; all special needs and any condition which places a child at risk (prematurity, asthma, developmental delay) are also reported, but not required.
Pregnancy outcome: Livebirths (All gestational ages and birth weights)
Age: Mandated reporting of birth defects diagnosed through age 5, voluntary reporting of birth defects diagnosed > age 6 and all children diagnosed with Special Needs conditions who are 22 years or younger. Autism mandated up to 22 years.
Residence: All NJ residents, in and out of state

Surveillance Methods

Case ascertainment: combination of active & passive, Population-based, with annual audits
Vital records: Birth certificates, Death certificates, Matched birth/death file
Other state based registries: Programs for children with special needs, Newborn hearing screening program, Newborn metabolic screening program, Autism Registry
Delivery hospitals: Disease index or discharge index, Discharge summaries, Obstetrics logs (i.e., labor & delivery), Regular nursery logs, ICU/NICU logs or charts, Pediatric logs, Postmortem/pathology logs, Specialty outpatient clinics, Quality assurance visit consisting of chart review of 3 month period
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries, ICU/NICU logs or charts, Pediatric logs, Postmortem/pathology logs, Laboratory logs, Specialty outpatient clinics, quality assurance visit consisting of chart review of 3 month period
Third party payers: Universal billing database is used for quality assurance activities
Other specialty facilities: Cytogenetic laboratories, Genetic counseling/clinical genetic facilities
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, Any chart with a selected list of ICD-9-CM codes outside 740-759, All neonatal deaths, All death certificates for < 3 years of age
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, Auditory/hearing conditions, Any infant with a codable defect
Coding: ICD-9-CM

Data Collected

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

Data Collection Methods and Storage

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

Data Analysis

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

System Integration

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

Funding

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

Other

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

Contacts

Mary M. Knapp, MSN, RN
New Jersey Department of Health, Special Child Health and Early Intervention Services, Early Identification & Monitoring Program
PO Box 364
Trenton, NJ 08625
Phone: **609-292-5676** ***Fax:*** **609-292-8235**
Email: **Mary.Knapp@doh.nj.gov**

New Mexico

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

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

Case Definition

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

Surveillance Methods

Case ascertainment: Passive case-finding with case confirmation for selected defects
Vital records: Birth certificates, Death certificates, Fetal birth certificate
Delivery hospitals: Birthing hospital reports
Pediatric & tertiary care hospitals: specialty outpatient clinics, including neurosurgery, plastic surgery, pediatric surgical specialists, prenatal diagnostic providers
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 partial & bilateral
Conditions warranting chart review beyond the newborn period: Cardiovascular condition
Coding: CDC coding system based on BPA, ICD-9-CM, ICD-10-CM for deaths

Data Collected

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

Data Collection Methods and Storage

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

Data Analysis

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

Funding

Funding source: 100% CDC grant

Other

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

Contacts

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

Abubakar S Ropri, MPH
New Mexico Department of Health, Epidemiology and Response Division
1190 St. Francis Drive, Suite N1305
Santa Fe, NM 87505
Phone: 505-476-3584 *Fax:* 505-827-0013
Email: abubakar.ropri@state.nm.us

New York

New York State Congenital Malformations Registry (CMR)

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

Case Definition

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

Surveillance Methods

Case ascertainment: Combination of active and passive case ascertainment; population-based
Other state based registries: NYS Dept. of Health statewide hospital discharge database
Delivery hospitals: Disease index or discharge index, Discharge summaries, Obstetrics logs (i.e., labor & delivery), Regular nursery logs, ICU/NICU logs or charts, Pediatric logs, Postmortem/pathology logs, Surgery logs, Cardiac catheterization laboratories, Specialty outpatient clinics, In regions where active surveillance is conducted.
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, in regions where active surveillance is conducted.
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, Any chart with a selected list of ICD-9-CM codes outside 740-759, All stillborn infants, All prenatal diagnosed or suspected cases
Conditions warranting chart review beyond the newborn period: Any infant with a codable defect
Coding: CDC coding system based on BPA, ICD-9-CM prior to 1992; both ICD-9-CM and ICD-10-CM from September 2015; Only ICD-10-CM from 2016

Data Collected

Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, Birth defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)
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, JAVA
Quality assurance: Validity checks, Comparison/verification between multiple data sources, Data/hospital audits, Timeliness
Data use and analysis: Routine statistical monitoring, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Observed vs. expected analyses, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Grant proposals, Education/public awareness

System Integration

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

Funding

Funding source: 30% General state funds, 7% MCH funds, 1% Genetic screening revenues, 3% CDC grant, 59% State Superfund, Other

Other

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

Contacts

Deborah J. Fox, MPH
New York State Department of Health
Empire State Plaza, Corning Tower, Room 1203
Albany, NY 12237
Phone: **518-402-7990** ***Fax:*** **518-402-7959**
Email: **deb.fox@health.ny.gov**

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

North Carolina

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
Legislation year enacted: 1995

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

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

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

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

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

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

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

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

Contacts
Robert E. Meyer, PhD, MPH
State Center for Health Statistics
222 N. Dawson St.
Raleigh, NC 27603
Phone: **919-733-4728** ***Fax:*** **919-733-8485**
Email: **robert.meyer@dhhs.nc.gov**

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

North Dakota

North Dakota Birth Defects Monitoring System (NDBDMS)

Purpose: Surveillance
Partner: Advocacy Groups, Universities, The North Dakota Department of Human Services
Program status: Currently collecting data
Start year: 2002
Earliest year of available data: 1994
Organizational location: Department of Health (Maternal and Child Health, Vital Statistics, Division of Children's Special Health Services)
Population covered annually: 13, 027-This data is for CY 2016.
Statewide: Yes
Current legislation or rule: North Dakota Century Code:1. 23-41-04. Birth report of child with special health care needs made to department.Within three days after the birth in this state of a child born with a visible congenital deformity, the licensed maternity hospital or home in which the child was born, or the legally qualified physician or other person in attendance at the birth of the child outside of a maternity hospital, shall furnish the department a report concerning the child with the information required by the department.2. 23-41-05. Birth report of child with special health care needs - Use - Confidential.The information contained in the report furnished to the department under section 23-39-04 concerning a child with a visible congenital deformity may be used by the department for the care and treatment of the child pursuant to this chapter. The report is confidential and is solely for the use of the department in the performance of its duties. The report is not open to public inspection nor considered a public record.
Legislation year enacted: 1941

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

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

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

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

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

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

System Integration
System integration: No.

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

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

Contacts
Devaiah Muthappa Muccatira, MS
Division of Children's Special Health Services, North Dakota Department of Health
600 East Boulevard Avenue, Dept.301
Bismarck, North Dakota 58505-200
Phone: **701-328-4963** ***Fax:*** **701-328-1645**
Email: **dmuccatira@nd.gov**

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

Ohio

Ohio Connections for Children with Special Needs (OCCSN)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs, Ohio Collaborative to Prevent Infant Mortality, ODH Office of Health Preparedness
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: 139.000
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 (2010).
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, Passive case-finding without 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 chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), Any birth certificate with a birth defect box checked, 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.)

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. External system data methods and storage: ODBC connection with SAS. SAS import of other data sets and merge export of cohort line lists to MS Excel for follow-up.

Data Analysis
Data analysis software: SPSS, SAS, 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, Observed vs. expected analyses, Referral, Grant proposals, Education/public awareness, Prevention projects

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

Funding
Funding source: 100% MCH funds

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

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

Norma Ryan, PhD
Ohio Department of Health
246 N. High Street
Columbus, OH 43215
Phone: 614-752-9523 *Fax:* 614-564-2504
Email: Norma.Ryan@odh.ohio.gov

Oklahoma

Oklahoma Birth Defect Registry (OBDR)

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

Case Definition

Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (All gestational ages), Elective terminations (All gestational ages)
Age: 24 months after delivery
Residence: Oklahoma

Surveillance Methods

Case ascertainment: Active Case Finding
Vital records: Birth certificates, Death certificates, Medical Examiner's autopsy reports
Other state based registries: Newborn 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, Any chart with a selected list of ICD-9-CM codes outside 740-759, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), All stillborn infants, All neonatal deaths, All elective abortions, All prenatal diagnosed or suspected cases
Conditions warranting chart review beyond the newborn period: Any infant with a codable defect
Coding: CDC coding system based on BPA

Data Collected

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

Data Collection Methods and Storage

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

Data Analysis

Data analysis software: SAS, Access, ArcGIS
Quality assurance: Validity checks, Re-abstraction of cases, Double-checking of assigned codes, Comparison/verification between multiple data sources, Timeliness
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Needs assessment, Service delivery, Referral, Education/public awareness, Prevention projects

System Integration

System links: Link case finding data to final birth file

Funding

Funding source: 64% MCH funds, 36% CDC grant

Other

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

Contacts

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

Lindsay Denson, MS, RDMS
Oklahoma State Department of Health
1000 N.E. 10th St Room 709
Oklahoma City, OK 73117
Phone: 405-271-6617 *Fax:* 405-271-4892
Email: LindsayXD@health.ok.gov

Oregon

Oregon Birth Anomalies Surveillance System (BASS)

Purpose: Surveillance
Partner: Local Health Departments, Hospitals, Advocacy Groups, Universities
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, Link birth certificate to full hospital discharge dataset, Medicaid claims dataset, and death certificates
Vital records: Birth certificates, Death certificates
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: We used ICD-9-CM for cases identified between January, 2008 and September, 2015 and ICD-10-CM for cases identified since October, 2015. We used ICD-10 for death certificate case identification

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: 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

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

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

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

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

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

Pennsylvania

Pennsylvania Birth Defects Surveillance Program (PA-BDSP)

Purpose: Surveillance of Zika-related birth defects only
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs
Program status: Program has not started 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: 118,000
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 16 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: Any birth certificate with a birth defect box checked, Infants with low birth weight or low gestation (Anencephaly and Spina Bifida), ICD-10 CM code for Zika-related birth defects
Coding: ICD-10 CM

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

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, Timeliness
Data use and analysis: Baseline rates, CDC cooperative agreement

System Integration
System links: Link case finding data to final birth file
System integration: No, not integrated at this time

Funding
Funding source: 100% CDC grant

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

Puerto Rico

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

Purpose: Surveillance, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Advocacy Groups, Universities, Community Nursing Services, Early Childhood Prevention Programs
Program status: Currently collecting data
Start year: 1995
Earliest year of available data: 1995
Organizational location: Department of Health (Services for Children with Special Medical Needs Division)
Population covered annually: 30,000
Statewide: Yes
Current legislation or rule: Law #351
Legislation year enacted: September 16, 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, gastrochisis, omphalocele, craneosinostosis, Trisomy 13, 18 and 21, Truner's syndrome, 22q11.2 deletion syndrome, Albinism, Jarcho-Levin syndrome, Prader Willi syndrome, major congenital heart defects, ambiguous genitalia, Hypospadias , and bladder extrophy.
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: Discharge summaries, Obstetrics logs (i.e., labor & delivery), Regular nursery logs, ICU/NICU logs or charts, Pediatric logs, Postmortem/pathology logs, Specialty outpatient clinics
Pediatric & tertiary care hospitals: Discharge summaries, ICU/NICU logs or charts, Pediatric logs, Postmortem/pathology 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, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), Any birth certificate with a birth defect box checked, All prenatal diagnosed or suspected cases
Conditions warranting chart review beyond the newborn period: Facial dysmorphism or abnormal facies, Cardiovascular condition
Coding: ICD-9-CM

Data Collected

Infant/fetus: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.), Birth measurements (weight, gestation, Apgars, etc.), Tests and procedures, 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
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
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: 68% MCH funds, 32% CDC grant

Other

Web site:
http://www.salud.gov.pr/Programas/CampanaAcidoFolico/Pages/default.aspx
Surveillance reports on file: Puerto Rico Birth Defects Annual Report 2012 and 2010

Contacts

Alma M Martinez, MPH
Puerto Rico Department of Health
PO Box 70184
San Juan, PR 00936
Phone: **(787)765-2929 xt.4571**
Email: **almmartinez@salud.gov.pr**

Rhode Island

Rhode Island Birth Defects Program

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

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

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

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759, Any chart with a selected list of ICD-9-CM codes outside 740-759, All stillborn infants, All elective abortions, All infants in NICU or special care nursery, All prenatal diagnosed or suspected cases, Chart reviews are conducted for infants born at the regional perinatal center and the 5 other maternity hospitals who were identified with an ICD-9-CM code 740-759 and 760.71, 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, Epidemiologic studies (using only program data), Needs assessment, Service delivery, Referral, Grant proposals, Education/public awareness, Prevention projects

System Integration
System links: Link to other state registries/databases
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: 2014 Rhode Island Birth Defects Data Book

Contacts
Samara Viner-Brown, MS
Rhode Island Department of Health
3 Capitol Hl
Providence, RI 02908
Phone: **(401)222-5122**
Email: **samara.vinerbrown@health.ri.gov**

William Arias, MPH
Rhode Island Department of Health
3 Capitol Hl
Providence, RI 02908
Phone: (401)222-7930
Email: william.arias@health.ri.gov

South Carolina

South Carolina Birth Defects Program (SCBDP)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs, Greenwood Genetics Center (GGC)
Program status: Currently collecting data
Start year: GGC began monitoring in 1995; transitioned to SC DHEC and expanded in 2006
Earliest year of available data: Full data available beginning in 2006
Organizational location: Department of Health (Maternal and Child Health)
Population covered annually: 58,135
Statewide: Yes
Current legislation or rule: A281, R308, H4115
Legislation year enacted: 2004

Case Definition

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

Surveillance Methods

Case ascertainment: Active Case Finding
Vital records: Birth certificates, 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
Delivery hospitals: Disease index or discharge index, Discharge summaries, Postmortem/pathology logs
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries
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, Any chart with a selected list of ICD-9-CM codes outside 740-759, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), Any birth certificate with a birth defect box checked, All prenatal diagnosed or suspected cases, ICD-10
Conditions warranting chart review beyond the newborn period: Any infant with a codable defect
Coding: ICD-9-CM, ICD-10

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

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

Data Analysis

Data analysis software: SAS, Access, Arc-GIS
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, Time-space cluster analyses, 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: 70% General state funds, 10% MCH funds, 20% CDC grant

Other

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

Contacts

Vinita Oberoi Leedom, MPH, CIC
SC Department of Health and Environmental Control
2100 Bull Street
Columbia, SC 29201
Phone: **803-898-0771** ***Fax:*** **803-898-2065**
Email: **leedomvo@dhec.sc.gov**

Mary Leland Smiley, MS
SC Department of Health and Environmental Control
2100 Bull Street
Columbia, SC 29201
Phone: 803-898-1287 *Fax:* 803-898-2065
Email: smileyml@dhec.sc.gov

South Dakota

Program status: No surveillance program

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

Tennessee

Tennessee Birth Defects Surveillance System (TNBDSS)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Universities, Early Childhood Prevention Programs, Legislators
Program status: Currently collecting data
Start year: 2017
Earliest year of available data: 1999
Organizational location: Department of Health (Maternal and Child Health, Division of Family, Health, and Wellness)
Population covered annually: 85,000
Statewide: Yes
Current legislation or rule: TCA 68-5-506
Legislation year enacted: 2000

Case Definition

Outcomes covered: 45 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 one year after delivery
Residence: In and out of state births to state residents

Surveillance Methods

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, 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, 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, Surgery logs, Laboratory logs, Cardiac catheterization laboratories, Specialty outpatient clinics
Other sources: Midwifery Facilities

Case Ascertainment

Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759, Any chart with selected procedure codes, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), All stillborn infants, ICD-9-CM code 760.71
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: Access, SQL and SAS

Data Analysis

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

System Integration

System links: Link case finding data to final birth file

Other

Web site: www.tn.gov/health

Contacts

Tori Armand Ponson, MPH
Tennessee Department of Health
710 James Robertson Parkway, 8th Floor
Nashville, TN 37243
Phone: **615-532-8494** ***Fax:*** **615-532-7189**
Email: **Tori.Ponson@tn.gov**

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, 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: 399,482 in 2014
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
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, Any chart with a selected list of ICD-9-CM codes outside 740-759, 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 GA), All stillborn infants, Fetal death certificates with a congenital anomaly indicated.
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, 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, Observed vs. expected analyses, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Referral, Grant proposals, Education/public awareness, Prevention projects

System Integration

System links: Link to other state registries/databases, Link to environmental databases

Funding

Funding source: 54% General state funds, 33% MCH funds, 13% CDC grant

Other

Web site: www.dshs.state.tx.us/birthdefects/
Surveillance reports on file: See website for publication and surveillance reports

Contacts

Mark A Canfield, PhD
Birth Defects Epidemiology and Surveillance Branch
P.O. Box 149347, Mail Code 1964
Austin, TX 78714-9347
Phone: **512-776-7232** ***Fax:*** **512-776-7330**
Email: **Mark.Canfield@dshs.texas.gov**

Adrienne T Hoyt, MS, MPH, MALA, MALS
Birth Defects Epidemiology and Surveillance Branch
P.O. Box 149347, Mail Code 1964
Austin, TX 78714-9347
Phone: 512-776-6381 *Fax:* 512-776-7330
Email: adrienne.hoyt@dshs.texas.gov

Utah

Utah Birth Defect Network (UBDN)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services, Education
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs
Program status: Currently collecting data
Start year: 1994
Earliest year of available data: 1994
Organizational location: Department of Health (CSHCN)
Population covered annually: 55,000
Statewide: Yes
Current legislation or rule: Birth Defect Rule (R398-5)
Legislation year enacted: 1999

Case Definition

Outcomes covered: Major structural malformations; newborn metabolic conditions; stillbirths
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: Maternal residence in Utah at time of delivery

Surveillance Methods

Case ascertainment: Combination of active and passive case ascertainment; population-based
Vital records: Birth certificates, Death certificates, Fetal birth certificate
Other state based registries: Newborn hearing screening program, Newborn metabolic screening program, CCHD screening program, Autism Registry
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, Specialty outpatient clinics, Champions report live births delivered at their respective hospitals
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries, ICU/NICU logs or charts, Postmortem/pathology logs, Surgery logs, Cardiac catheterization laboratories, Specialty outpatient clinics
Other specialty facilities: Prenatal diagnostic facilities (ultrasound, etc.), Cytogenetic laboratories, Genetic counseling/clinical genetic facilities
Other sources: Midwifery Facilities, Physician reports, Lay midwives

Case Ascertainment

Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759, Any chart with a selected list of ICD-9-CM codes outside 740-759, Any chart with a CDC/BPA code, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), Any birth certificate with a birth defect box checked, All stillborn infants, All neonatal deaths, All infants in NICU or special care nursery, All prenatal diagnosed or suspected cases, All fetal death certificates, NICU reports, infant deaths are reviewed
Conditions warranting chart review beyond the newborn period: Facial dysmorphism or abnormal facies, Failure to thrive, Cardiovascular condition, All infant deaths (excluding prematurity), Childhood deaths between 1 and 6, Any infant with a codable defect
Coding: CDC coding system based on BPA

Data Collected

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

Data Collection Methods and Storage

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

Data Analysis

Data analysis software: SAS, Access
Quality assurance: Validity checks, Double-checking of assigned codes, Comparison/verification between multiple data sources, Clinical review, Timeliness, Logical checks, duplicate check in tracking and surveillance module, case record form checked for completeness, timeliness through system, manual review of subset of surveillance module case data compared to case record form
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Time trends, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Referral, Grant proposals, Education/public awareness, Prevention projects, Oral Facial Cleft Case-Control Study, UT Center for Birth Defects Research and Prevention, International Clearinghouse for Birth Defects, Local studies

System Integration

System links: Link to other state registries/databases, Link to environmental databases
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: 100% MCH funds

Other

Web site: http://www.health.utah.gov/birthdefect
Surveillance reports on file: Http://ibis.health.utah.gov
Additional information on file: Scientific Collaboration Protocol
Other comments: IBIS indicators for specific birth defects are online.

Contacts

Amy E Nance, MPH
Utah Birth Defect Network
44 N Mario Capecchi Drive, PO Box 144699
Salt Lake City, UT 84114
Phone: **801-883-4661** ***Fax:*** **801-323-1578**
Email: **aenance@utah.gov**

Vermont

Birth Information Network (BIN)

Purpose: Surveillance, Referral to Services
Partner: Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs, Hospital Association
Program status: Currently collecting data
Start year: 2006
Earliest year of available data: 2006
Organizational location: Department of Health (Division of Health Surveillance / Statistics)
Population covered annually: 6200
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 chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), Any birth certificate with a birth defect box checked, 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, 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, Observed vs. expected analyses, 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: 2.5% General state funds, 97.5% CDC grant

Other

Web site:
http://www.healthvermont.gov/health-statistics-vital-records/registries/birth-information-network
Surveillance reports on file:
Http://www.healthvermont.gov/sites/default/files/documents/2016/12/BIN_data_report_2006_2012.pdf

Contacts

Brennan Martin, MPH
Vermont Department of Health
P.O. Box 70, 108 Cherry Street
Burlington, VT 05402
Phone: **802-863-7611** ***Fax:*** **802-865-7701**
Email: **brennan.martin@vermont.gov**

Peggy Brozicevic, B.A.
Vermont Department of Health
P.O. Box 70, 108 Cherry Street
Burlington, VT 05402
Phone: 802-863-7298 *Fax:* 802-865-7701
Email: peggy.brozicevic@vermont.gov

Virginia

Virginia Congenital Anomalies and Reporting Education System (VaCARES)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals
Program status: Currently collecting data
Start year: 1985
Earliest year of available data: 2004
Organizational location: Department of Health (Office of Family Health Services, Division of Child and Family Health)
Population covered annually: 101,000
Statewide: Yes
Current legislation or rule: Code of Virginia, § 32.1-69.1
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 as of October 1, 2015

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
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: Oracle, Web-based reporting system is linked to electronic birth certificate and populates Oracle data tables

Data Analysis
Data analysis software: SAS
Quality assurance: Validity checks
Data use and analysis: Public health program evaluation, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, 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.

Funding
Funding source: 97% MCH funds, 3% Genetic screening revenues

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

Contacts
Jennifer Olsen Macdonald, MPH, BSN, RN
Virginia Department of Health
109 Governor Street
Richmond, VA 23219
Phone: **(804) 864-7729**
Email: **jennifer.macdonald@vdh.virginia.gov**

Colin Benusa, MPH
Virginia Department of Health
109 Governor Street
Richmond, VA 23219
Phone: 804-864-7767
Email: colin.benusa@vdh.virginia.gov

Washington

Washington State Birth Defects Surveillance System (BDSS)

Purpose: Surveillance
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Universities
Program status: Currently collecting data
Start year: 1986 (active), 1991 (passive)
Earliest year of available data: 1987
Organizational location: Department of Health (Office of Family & Community Health Improvement)
Population covered annually: 90,000
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, Matched birth/death file, 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

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, Comparison/verification between multiple data sources, Timeliness
Data use and analysis: Routine statistical monitoring, Baseline rates, Monitoring outbreaks and cluster investigations, Time trends, Observed vs. expected analyses, Education/public awareness

System Integration

System links: Link case finding data to final birth file

Funding

Funding source: 70% General state funds, 30% MCH funds

Contacts

Kevin Beck, MA
Washington Dept. of Health
PO Box 47835
Olympia, WA 98504-7835
Phone: **360-236-3492** ***Fax:*** **360-236-2323**
Email: **kevin.beck@doh.wa.gov**

Teresa Vollan, MPH
Washington Dept. of Health
PO Box 47835
Olympia, WA 98504-7835
Phone: 360-236-3581 *Fax:* 360-236-2323
Email: teresa.vollan@doh.wa.gov

West Virginia

West Virginia Birth Defects Surveillance System

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Hospitals, Universities, Early Childhood Prevention Programs
Program status: Currently collecting data
Start year: 1989
Earliest year of available data: 1989
Organizational location: Department of Health (Maternal and Child Health)
Population covered annually: 21,000
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, Any chart with a selected list of ICD-9-CM codes outside 740-759, Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), Any birth certificate with a birth defect box checked, Infants with low birth weight or low gestation (<2500 grams or <37 weeks), All stillborn infants, All neonatal deaths, All elective abortions, 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, transitioning to ICD-10

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, Prenatal care, Prenatal diagnostic information, 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 submitted by other agencies (hospitals, etc.), Electronic file/report submitted by other agencies (hospitals, etc.)
Database collection and storage: Access

Data Analysis
Data analysis software: Access
Quality assurance: Comparison/verification between multiple data sources, Timeliness
Data use and analysis: Routine statistical monitoring, Baseline rates, Rates by demographic and other variables, Time trends, Epidemiologic studies (using only program data), Needs assessment, Service delivery, Referral, Grant proposals, Education/public awareness, Prevention projects

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

Funding
Funding source: 100% MCH funds

Other
Web site: http://wvdhhr.org/omcfh

Contacts
Kathy Cummons, MSW
Research, Evaluation and Planning Division
350 Capitol St. Room 427
Charleston, WV 25301
Phone: **304-558-5388** ***Fax:*** **304-558-3510**
Email: **kathy.g.cummons@wv.gov**

Melissa A. Baker, MA
Office of Maternal, Child and Family Health
350 Capitol St. Room 427
Charleston, WV 25301
Phone: 304-356-4438 *Fax:* 304-558-3510
Email: melissa.a.baker@wv.gov

Wisconsin

Wisconsin Birth Defect Prevention and Surveillance System (WBDPSS)

Purpose: Surveillance, Research, Referral to Services
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs, Legislators
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 67,000
Statewide: Yes
Current legislation or rule: State statute 253.12 Birth defect prevention and surveillance system. Enacted December 2000.Department of Health Services rules, Chapter DHS 116 Wisconsin Birth Defect Prevention and Surveillance System. Enacted April 2003.
Legislation year enacted: 2000

Case Definition

Outcomes covered: A list of 87 specific birth defects are collected. The list may be viewed on our website at https://www.dhs.wisconsin.gov/cyshcn/birthdefects/index.htm. It is an appendix to the reporting form DPH 40054. The list was developed by the Scientific Committee of the Council on Birth Defect Prevention and Surveillance and is included as an appendix in the rules.
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (20 weeks gestation and greater)
Age: Up to 2 years after delivery
Residence: All children born in and/or receiving services in the state

Surveillance Methods

Case ascertainment: Passive case-finding without case confirmation, Work with reporters who report batches from EMRs to assure reporting quality
Vital records: Matched birth/death file, compare registry reports to vital records periodically for selected birth defects

Case Ascertainment

Coding: ICD-9-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.), 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 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% birth certificate fees

Other

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

Contacts

Elizabeth Oftedahl, MPH
Wisconsin Department of Health Services, Division of Public Health
1 W Wilson St
Madison, WI 53703
Phone: **608-261-9304** ***Fax:*** **608-267-3824**
Email: **Elizabeth.Oftedahl@dhs.wisconsin.gov**

Peggy Helm-Quest, MSEd, MHA-PH
Wisconsin Department of Health Services, Division of Public Health
1 W Wilson St
Madison, WI 53703
Phone: 608-267-2945 *Fax:* 608-267-3824
Email: Peggy.HelmQuest@dhs.wisconsin.gov

Wyoming

Program status: Interested in developing a surveillance program

Contacts
Amy Spieker, MPH
Wyoming Department of Health
6101 Yellowstone Rd, Ste 420
Cheyenne, WY 82002
Phone: **307-777-5769** ***Fax:*** **307-777-8687**
Email: **amy.spieker@wyo.gov**

Ashley Busacker, PhD
CDC/WDH
6101 Yellowstone Rd, Ste 510
Cheyenne, WY 82002
Phone: 307-777-6936
Email: ashley.busacker@wyo.gov

Department of Defense

United States Department of Defense (DoD) Birth and Infant Health Registry

Purpose: Surveillance, Research
Partner: Hospitals, Universities, Other DoD Programs
Program status: Currently collecting data
Start year: 1998
Earliest year of available data: 1998
Organizational location: Deployment Health Research Department, Naval Health Research Center
Population covered annually: Approximately 100,000 per year
Statewide: No, National/Worldwide; includes all DoD beneficiaries
Current legislation or rule: Assistant Secretary of Defense, Health Affairs Policy Memorandum
Legislation year enacted: 1998

Case Definition
Outcomes covered: Outcomes include those birth defects listed in the case definition of the National Birth Defects Prevention Network. For a birth defect to be represented, the diagnosis must appear at least once in an inpatient record, or at least twice on two separate dates for outpatient encounters. Same sex multiples are excluded from analysis.
Pregnancy outcome: Livebirths (All gestational ages and birth weights)
Age: Birth up to one year after delivery
Residence: Worldwide; any birth to a US military beneficiary

Surveillance Methods
Case ascertainment: Active Case Finding, Passive case-finding with case confirmation, Passive case-finding without case confirmation, Electronic diagnostic codes from all inpatient and outpatient healthcare encounters of US military beneficiaries at both civilian and military care facilities.
Delivery hospitals: Disease index or discharge index, Discharge summaries, Specialty outpatient clinics, All inpatient and outpatient encounters at both civilian and military care facilities are captured in standardized DoD data
Pediatric & tertiary care hospitals: Disease index or discharge index, Discharge summaries, Specialty outpatient clinics, All inpatient and outpatient encounters at both civilian and military care facilities are captured in standardized DoD data
Third party payers: All inpatient and outpatient encounters at both civilian and military care facilities are captured in standardized DoD data
Other sources: Validation of standardized electronic data performed by active case ascertainment and chart review of a random sample of births from military facilities

Case Ascertainment
Conditions warranting chart review in newborn period: Any chart with an ICD-9-CM code 740-759, Any chart with a selected list of ICD-9-CM codes outside 740-759, Validation of standardized electronic data performed by active case ascertainment and chart review of a random sample of births from military healthcare facilities
Conditions warranting chart review beyond the newborn period: Any infant with a codable defect
Coding: ICD-9-CM, The DoD Birth and Infant Health Registry (Registry) assesses outcomes through the first year of life. Infants born on or after October 1, 2014 concluded their first year of life after the transition from ICD-9-CM to ICD-10-CM coding on October 1, 2015. For these infants, the Registry employed ICD-10-CM coding to assess outcomes for the final months of their assessment period.

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

Data Collection Methods and Storage
Data collection: Electronic file/report submitted by other agencies (hospitals, etc.)
Database collection and storage: Access, SAS

Data Analysis
Data analysis software: SAS
Quality assurance: Validity checks, Re-abstraction of cases, Double-checking of assigned codes, Comparison/verification between multiple data sources, Clinical review
Data use and analysis: Routine statistical monitoring, Baseline rates, Rates by demographic and other variables, Monitoring outbreaks and cluster investigations, Time trends, Observed vs. expected analyses, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Grant proposals, Prevention projects, Monitor birth defect outcomes following specific parental or gestational exposures of concern

System Integration
System integration: DoD databases

Funding
Funding source: 100% Other federal funding (non-CDC grants)

Other
Web site:
http://www.med.navy.mil/sites/nhrc/Pages/Research-and-Development-Focus-Areas.aspx?Category=MILITARY-RANDDFOCUS
Surveillance reports on file: DoD/Health Affairs policy memorandum; annual reports

Contacts
Ava Marie S. Conlin, DO, MPH
Deployment Health Research Department, Dept 164, Naval Health Research Center
140 Sylvester Road
San Diego, CA 92106-3521
Phone: **619-553-9255** ***Fax:*** **619-767-4806**
Email: **avamarie.s.conlin.ctr@mail.mil**

Gia R. Gumbs, MPH
DoD Birth and Infant Health Registry
140 Sylvester Road
San Diego, CA 92106-3521
Phone: 619-553-9255 *Fax:* 619-767-4806
Email: gia.r.gumbs.ctr@mail.mil