Major Birth Defects Data from Population-based Birth Defects Surveillance Programs in the United States, 2008-2012

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, 2008-2012: Presentation of State-Specific Data and Descriptive Brief on Variability of Prevalence."

Additional information and program contacts on population-based birth defects surveillance programs are available on page S122-S176.

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 2015.

The 41 population-based birth defects programs contributing data include: 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; 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 Hampshire Birth Conditions Program; 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 Registry; Puerto Rico Birth Defects Surveillance and Prevention System; Rhode Island Birth Defects Surveillance Program; South Carolina Birth Defects Program; Tennessee Birth Defects Registry; Texas Birth Defects Epidemiology and Surveillance Branch; Utah Birth Defect Network; Vermont Birth Information Network; Virginia Congenital Anomalies and Reporting Education 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.

Arizona

Birth Defects Counts and Prevalence 2008 - 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	12	3	40	1	3	59	
	0.6	***1.5***	***2.2***	***0.6***	***1.0***	***1.3***	
Anophthalmia/microphthalmia	19	1	23	3	3	50	
	1.0	***0.5***	***1.3***	***1.9***	***1.0***	***1.1***	
Anotia/microtia	16	1	27	2	7	53	
	0.8	***0.5***	***1.5***	***1.2***	***2.4***	***1.2***	
Aortic valve stenosis	29	3	38	0	7	77	
	1.5	***1.5***	***2.1***	***0.0***	***2.4***	***1.7***	
Atrioventricular septal defect (Endocardial cushion defect)	19	5	15	0	3	42	1
	2.5	***6.1***	***2.3***	***0.0***	***2.7***	***2.5***	
Biliary atresia	4	2	7	2	2	18	
	0.2	***1.0***	***0.4***	***1.2***	***0.7***	***0.4***	
Bladder exstrophy	5	0	4	0	0	9	
	0.3	***0.0***	***0.2***	***0.0***	***0.0***	***0.2***	
Choanal atresia	20	4	17	1	0	45	
	1.0	***2.0***	***0.9***	***0.6***	***0.0***	***1.0***	
Cleft lip alone	79	2	48	4	19	152	
	4.1	***1.0***	***2.6***	***2.5***	***6.6***	***3.4***	
Cleft lip with cleft palate	112	10	139	10	37	316	
	5.8	***5.0***	***7.6***	***6.2***	***12.8***	***7.0***	
Cleft palate alone	104	8	103	14	21	255	
	5.4	***4.0***	***5.7***	***8.7***	***7.3***	***5.7***	
Coarctation of the aorta	92	11	79	4	17	203	
	4.7	***5.5***	***4.3***	***2.5***	***5.9***	***4.5***	
Common truncus (truncus arteriosus)	6	0	6	1	2	15	
	0.3	***0.0***	***0.3***	***0.6***	***0.7***	***0.3***	
Congenital cataract	9	1	14	1	1	28	
	0.5	***0.5***	***0.8***	***0.6***	***0.3***	***0.6***	
Diaphragmatic hernia	41	4	48	0	9	106	
	2.1	***2.0***	***2.6***	***0.0***	***3.1***	***2.4***	
Double outlet right ventricle	3	0	4	1	1	9	2
	0.8	***0.0***	***1.2***	***2.9***	***1.8***	***1.1***	
Ebstein anomaly	13	0	16	2	4	36	
	0.7	***0.0***	***0.9***	***1.2***	***1.4***	***0.8***	
Encephalocele	12	1	16	2	4	35	
	0.6	***0.5***	***0.9***	***1.2***	***1.4***	***0.8***	
Esophageal atresia/tracheoesophageal fistula	51	4	36	2	7	100	
	2.6	***2.0***	***2.0***	***1.2***	***2.4***	***2.2***	
Gastroschisis	86	14	122	3	26	264	
	4.4	***7.0***	***6.7***	***1.9***	***9.0***	***5.9***	
Holoprosencephaly	3	0	4	0	0	7	3
	0.8	***0.0***	***1.2***	***0.0***	***0.0***	***0.8***	
Hypoplastic left heart syndrome	52	8	39	3	11	113	
	2.7	***4.0***	***2.1***	***1.9***	***3.8***	***2.5***	
Interrupted aortic arch	2	0	1	0	0	3	3
	0.3	***0.0***	***0.1***	***0.0***	***0.0***	***0.2***	
Limb deficiencies (reduction defects)	46	13	54	3	12	131	
	2.4	***6.5***	***3.0***	***1.9***	***4.1***	***2.9***	
Omphalocele	46	3	33	6	2	90	
	2.4	***1.5***	***1.8***	***3.7***	***0.7***	***2.0***	
Pulmonary valve atresia and stenosis	90	9	97	7	16	223	
	4.6	***4.5***	***5.3***	***4.3***	***5.5***	***5.0***	
Pulmonary valve atresia	47	5	49	5	7	116	
	2.4	***2.5***	***2.7***	***3.1***	***2.4***	***2.6***	
Single ventricle	12	1	17	1	1	32	
	0.6	***0.5***	***0.9***	***0.6***	***0.3***	***0.7***	
Spina bifida without anencephalus	61	5	66	5	18	159	
	3.1	***2.5***	***3.6***	***3.1***	***6.2***	***3.5***	
Tetralogy of Fallot	82	6	77	6	18	195	
	4.2	***3.0***	***4.2***	***3.7***	***6.2***	***4.3***	

Arizona

Birth Defects Counts and Prevalence 2008 - 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**
Total anomalous pulmonary venous connection	13 ***1.1***	2 ***1.7***	16 ***1.6***	1 ***1.0***	4 ***2.4***	37 ***1.4***	4
Transposition of the great arteries (TGA)	80 ***4.1***	12 ***6.0***	91 ***5.0***	4 ***2.5***	13 ***4.5***	200 ***4.5***	2
Dextro-transposition of great arteries (d-TGA)	44 ***2.3***	4 ***2.0***	52 ***2.9***	3 ***1.9***	4 ***1.4***	107 ***2.4***	
Tricuspid valve atresia and stenosis	5 ***0.4***	1 ***0.8***	9 ***0.9***	1 ***1.0***	1 ***0.6***	17 ***0.7***	3
Trisomy 13	15 ***0.8***	5 ***2.5***	22 ***1.2***	6 ***3.7***	1 ***0.3***	49 ***1.1***	
Trisomy 18	40 ***2.1***	4 ***2.0***	30 ***1.6***	5 ***3.1***	5 ***1.7***	84 ***1.9***	
Trisomy 21 (Down syndrome)	237 ***12.2***	22 ***11.0***	261 ***14.3***	16 ***9.9***	40 ***13.8***	584 ***13.0***	
Total live births	**194384**	**20038**	**182089**	**16150**	**28955**	**449011**	

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

Arizona

Trisomy Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	253	11	264	
	6.5	***1.8***	***5.9***	
Trisomy 13	34	15	49	
	0.9	***2.4***	***1.1***	
Trisomy 18	51	32	84	
	1.3	***5.2***	***1.9***	
Trisomy 21 (Down syndrome)	316	268	584	
	8.2	***43.5***	***13.0***	
Total live births	**387379**	**61539**	**449011**	

**Total includes unknown maternal age

Notes
1.Data for this condition begins mid-year in 2011.
2.Includes double outlet right ventricle through 2011.
3.Data for this condition begins in 2012.
4.Data for this condition begins in 2010.

General comments
-Counts and rates presented may differ from in-state reports where Arizona Birth Defects Monitoring Program categorizes Whites as Hispanic or non-Hispanic, and other races (i.e., Black, Asian, and American Indian) retain the single race code regardless of Hispanic designation.
-Data for 2012 are provisional
-Excludes possible cases.
-Live births are included if they have an Arizona live birth certificate.
-Stillborns are included in this report if there is an Arizona fetal death certificate, regardless of fetal weight or gestational age.

Arkansas

Birth Defects Counts and Prevalence 2008 - 2011 (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	5	8	0	1	54	
	3.8	***1.7***	***4.9***	***0.0***	***12.2***	***3.5***	
Anophthalmia/microphthalmia	17	6	3	0	1	27	
	1.6	***2.0***	***1.8***	***0.0***	***12.2***	***1.7***	
Anotia/microtia	17	1	15	1	0	34	
	1.6	***0.3***	***9.1***	***3.7***	***0.0***	***2.2***	
Aortic valve stenosis	50	3	7	0	0	60	
	4.8	***1.0***	***4.3***	***0.0***	***0.0***	***3.8***	
Atrial septal defect	362	106	50	21	3	542	
	34.4	***35.4***	***30.5***	***78.7***	***36.6***	***34.7***	
Atrioventricular septal defect (Endocardial cushion defect)	82	20	10	4	0	116	
	7.8	***6.7***	***6.1***	***15.0***	***0.0***	***7.4***	
Biliary atresia	5	1	2	1	0	9	
	0.5	***0.3***	***1.2***	***3.7***	***0.0***	***0.6***	
Bladder exstrophy	2	1	1	0	0	4	
	0.2	***0.3***	***0.6***	***0.0***	***0.0***	***0.3***	
Choanal atresia	6	2	0	0	1	9	
	0.6	***0.7***	***0.0***	***0.0***	***12.2***	***0.6***	
Cleft lip alone	56	7	5	0	1	69	
	5.3	***2.3***	***3.0***	***0.0***	***12.2***	***4.4***	
Cleft lip with cleft palate	78	10	13	0	0	101	
	7.4	***3.3***	***7.9***	***0.0***	***0.0***	***6.5***	
Cleft palate alone	90	14	7	0	1	112	
	8.6	***4.7***	***4.3***	***0.0***	***12.2***	***7.2***	
Cloacal exstrophy	1	3	1	0	0	5	
	0.1	***1.0***	***0.6***	***0.0***	***0.0***	***0.3***	
Clubfoot	209	42	27	2	1	281	
	19.9	***14.0***	***16.5***	***7.5***	***12.2***	***18.0***	
Coarctation of the aorta	92	12	9	0	0	113	
	8.8	***4.0***	***5.5***	***0.0***	***0.0***	***7.2***	
Common truncus (truncus arteriosus)	8	1	3	0	0	12	
	0.8	***0.3***	***1.8***	***0.0***	***0.0***	***0.8***	
Congenital cataract	44	12	3	1	1	61	
	4.2	***4.0***	***1.8***	***3.7***	***12.2***	***3.9***	
Congenital posterior urethral valves	15	8	1	0	1	25	
	1.4	***2.7***	***0.6***	***0.0***	***12.2***	***1.6***	
Craniosynostosis	76	6	10	2	0	94	
	7.2	***2.0***	***6.1***	***7.5***	***0.0***	***6.0***	
Deletion 22q11.2	7	1	2	0	1	12	
	0.7	***0.3***	***1.2***	***0.0***	***12.2***	***0.8***	
Diaphragmatic hernia	38	9	4	0	0	51	
	3.6	***3.0***	***2.4***	***0.0***	***0.0***	***3.3***	
Double outlet right ventricle	27	11	2	1	0	41	
	2.6	***3.7***	***1.2***	***3.7***	***0.0***	***2.6***	
Ebstein anomaly	13	0	5	0	1	19	
	1.2	***0.0***	***3.0***	***0.0***	***12.2***	***1.2***	
Encephalocele	11	11	2	0	0	24	
	1.0	***3.7***	***1.2***	***0.0***	***0.0***	***1.5***	
Esophageal atresia/tracheoesophageal fistula	36	9	1	1	0	47	
	3.4	***3.0***	***0.6***	***3.7***	***0.0***	***3.0***	
Gastroschisis	89	17	9	2	1	118	
	8.5	***5.7***	***5.5***	***7.5***	***12.2***	***7.6***	
Holoprosencephaly	20	5	2	1	1	29	
	1.9	***1.7***	***1.2***	***3.7***	***12.2***	***1.9***	
Hypoplastic left heart syndrome	43	9	1	1	1	55	
	4.1	***3.0***	***0.6***	***3.7***	***12.2***	***3.5***	
Hypospadias*	519	118	20	10	5	672	
	96.0	***77.5***	***24.1***	***73.4***	***119.9***	***84.0***	
Interrupted aortic arch	4	2	0	1	0	8	
	0.4	***0.7***	***0.0***	***3.7***	***0.0***	***0.5***	

Arkansas

Birth Defects Counts and Prevalence 2008 - 2011 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Limb deficiencies (reduction defects)	71	25	8	3	1	108	
	6.8	***8.3***	***4.9***	***11.2***	***12.2***	***6.9***	
Omphalocele	27	13	5	0	0	45	
	2.6	***4.3***	***3.0***	***0.0***	***0.0***	***2.9***	
Pulmonary valve atresia and stenosis	165	51	21	9	2	248	
	15.7	***17.0***	***12.8***	***33.7***	***24.4***	***15.9***	
Pulmonary valve atresia	5	4	3	0	0	12	
	0.5	***1.3***	***1.8***	***0.0***	***0.0***	***0.8***	
Rectal and large intestinal atresia/stenosis	39	9	6	2	0	56	
	3.7	***3.0***	***3.7***	***7.5***	***0.0***	***3.6***	
Renal agenesis/hypoplasia	28	8	8	0	0	44	
	2.7	***2.7***	***4.9***	***0.0***	***0.0***	***2.8***	
Single ventricle	4	3	2	0	0	9	
	0.4	***1.0***	***1.2***	***0.0***	***0.0***	***0.6***	
Small intestinal atresia/stenosis	31	8	6	1	0	46	
	3.0	***2.7***	***3.7***	***3.7***	***0.0***	***2.9***	
Spina bifida without anencephalus	52	7	12	2	0	73	
	4.9	***2.3***	***7.3***	***7.5***	***0.0***	***4.7***	
Tetralogy of Fallot	49	14	5	2	1	71	
	4.7	***4.7***	***3.0***	***7.5***	***12.2***	***4.5***	
Total anomalous pulmonary venous connection	12	4	2	3	1	22	
	1.1	***1.3***	***1.2***	***11.2***	***12.2***	***1.4***	
Transposition of the great arteries (TGA)	53	9	2	3	0	67	
	5.0	***3.0***	***1.2***	***11.2***	***0.0***	***4.3***	
Dextro-transposition of great arteries (d-TGA)	46	8	1	3	0	58	
	4.4	***2.7***	***0.6***	***11.2***	***0.0***	***3.7***	
Tricuspid valve atresia	6	3	2	1	0	12	
	0.6	***1.0***	***1.2***	***3.7***	***0.0***	***0.8***	
Trisomy 13	9	4	2	0	0	15	
	0.9	***1.3***	***1.2***	***0.0***	***0.0***	***1.0***	
Trisomy 18	37	8	7	0	0	52	
	3.5	***2.7***	***4.3***	***0.0***	***0.0***	***3.3***	
Trisomy 21 (Down syndrome)	134	25	21	2	0	182	
	12.8	***8.3***	***12.8***	***7.5***	***0.0***	***11.7***	
Turner syndrome†	16	2	3	0	0	21	
	3.1	***1.4***	***3.7***	***0.0***	***0.0***	***2.8***	
Ventricular septal defect	703	126	134	30	1	995	
	66.9	***42.1***	***81.7***	***112.4***	***12.2***	***63.8***	
Total live births §	**105083**	**29958**	**16397**	**2669**	**820**	**156049**	
Male live births	**54088**	**15232**	**8313**	**1362**	**417**	**79963**	
Female live births	**50992**	**14724**	**8083**	**1307**	**403**	**76080**	

*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

Arkansas

Trisomy Counts and Prevalence by Maternal Age 2008 - 2011 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	115	3	118	
	8.0	***2.7***	***7.6***	
Trisomy 13	13	2	15	
	0.9	***1.8***	***1.0***	
Trisomy 18	26	26	52	
	1.8	***23.3***	***3.3***	
Trisomy 21 (Down syndrome)	110	72	182	
	7.7	***64.4***	***11.7***	
Total live births	**143703**	**11176**	**156049**	

**Total includes unknown maternal age

California

Birth Defects Counts and Prevalence 2008 - 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	8	<5	50	<5	0	93	
	0.9	***.***	***2.5***	***.***	***0.0***	***2.8***	
Anophthalmia/microphthalmia	8	<5	19	<5	0	32	
	0.9	***.***	***0.9***	***.***	***0.0***	***1.0***	
Anotia/microtia	9	<5	93	<5	0	117	
	1.1	***.***	***4.6***	***.***	***0.0***	***3.5***	
Aortic valve stenosis	15	<5	27	<5	<5	47	
	1.8	***.***	***1.3***	***.***	***.***	***1.4***	
Atrial septal defect	89	17	231	22	0	370	1
	10.5	***10.8***	***11.5***	***8.5***	***0.0***	***11.1***	
Atrioventricular septal defect (Endocardial cushion defect)	38	13	96	<5	<5	161	
	4.5	***8.2***	***4.8***	***.***	***.***	***4.8***	
Biliary atresia	6	<5	11	<5	0	22	
	0.7	***.***	***0.5***	***.***	***0.0***	***0.7***	
Bladder exstrophy	0	<5	<5	<5	0	<5	
	0.0	***.***	***.***	***.***	***0.0***	***.***	
Choanal atresia	<5	0	<5	0	0	6	
	.	***0.0***	***.***	***0.0***	***0.0***	***0.2***	
Cleft lip alone	31	<5	57	<5	0	109	
	3.6	***.***	***2.8***	***.***	***0.0***	***3.3***	
Cleft lip with cleft palate	41	<5	124	9	<5	188	
	4.8	***.***	***6.2***	***3.5***	***.***	***5.6***	
Cleft palate alone	28	<5	78	<5	<5	124	2
	3.3	***.***	***3.9***	***.***	***.***	***3.7***	
Cloacal exstrophy	<5	0	0	0	0	<5	
	.	***0.0***	***0.0***	***0.0***	***0.0***	***.***	
Coarctation of the aorta	44	9	93	<5	<5	162	
	5.2	***5.7***	***4.6***	***.***	***.***	***4.9***	
Common truncus (truncus arteriosus)	<5	0	<5	0	0	8	
	.	***0.0***	***.***	***0.0***	***0.0***	***0.2***	
Congenital cataract	12	0	18	<5	0	35	
	1.4	***0.0***	***0.9***	***.***	***0.0***	***1.1***	
Craniosynostosis	36	0	71	<5	0	112	
	4.2	***0.0***	***3.5***	***.***	***0.0***	***3.4***	
Diaphragmatic hernia	24	<5	45	7	0	84	
	2.8	***.***	***2.2***	***2.7***	***0.0***	***2.5***	
Double outlet right ventricle	15	<5	47	<5	<5	72	
	1.8	***.***	***2.3***	***.***	***.***	***2.2***	
Ebstein anomaly	7	0	10	<5	0	20	
	0.8	***0.0***	***0.5***	***.***	***0.0***	***0.6***	
Encephalocele	<5	0	19	<5	<5	28	
	.	***0.0***	***0.9***	***.***	***.***	***0.8***	
Esophageal atresia/tracheoesophageal fistula	20	0	30	<5	0	57	3
	2.4	***0.0***	***1.5***	***.***	***0.0***	***1.7***	
Gastroschisis	47	<5	106	10	<5	192	
	5.5	***.***	***5.3***	***3.9***	***.***	***5.8***	
Holoprosencephaly	7	<5	26	0	0	40	
	0.8	***.***	***1.3***	***0.0***	***0.0***	***1.2***	
Hypoplastic left heart syndrome	20	<5	30	<5	0	67	
	2.4	***.***	***1.5***	***.***	***0.0***	***2.0***	
Hypospadias*	75	9	81	<5	<5	182	4
	17.2	***11.3***	***8.0***	***.***	***.***	***10.7***	
Interrupted aortic arch	<5	0	<5	0	0	9	
	.	***0.0***	***.***	***0.0***	***0.0***	***0.3***	
Limb deficiencies (reduction defects)	25	<5	61	<5	<5	102	
	2.9	***.***	***3.0***	***.***	***.***	***3.1***	
Omphalocele	8	<5	21	<5	0	41	
	0.9	***.***	***1.0***	***.***	***0.0***	***1.2***	
Pulmonary valve atresia	7	<5	34	<5	<5	50	
	0.8	***.***	***1.7***	***.***	***.***	***1.5***	

California

Birth Defects Counts and Prevalence 2008 - 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**
Rectal and large intestinal atresia/stenosis	25	<5	68	9	<5	116	5
	2.9	**.**	***3.4***	***3.5***	**.**	***3.5***	
Renal agenesis/hypoplasia	6	0	19	<5	0	28	6
	0.7	***0.0***	***0.9***	**.**	***0.0***	***0.8***	
Single ventricle	5	<5	21	0	0	29	
	0.6	**.**	***1.0***	***0.0***	***0.0***	***0.9***	
Small intestinal atresia/stenosis	16	8	89	<5	<5	128	
	1.9	***5.1***	***4.4***	**.**	**.**	***3.8***	
Spina bifida without anencephalus	32	<5	81	<5	<5	134	
	3.8	**.**	***4.0***	**.**	**.**	***4.0***	
Tetralogy of Fallot	32	<5	69	<5	0	110	
	3.8	**.**	***3.4***	**.**	***0.0***	***3.3***	
Total anomalous pulmonary venous connection	11	<5	44	<5	<5	64	
	1.3	**.**	***2.2***	**.**	**.**	***1.9***	
Dextro-transposition of great arteries (d-TGA)	15	<5	35	<5	0	56	
	1.8	**.**	***1.7***	**.**	***0.0***	***1.7***	
Tricuspid valve atresia	<5	0	16	<5	0	23	
	.	***0.0***	***0.8***	**.**	***0.0***	***0.7***	
Trisomy 13	<5	<5	20	0	0	41	
	.	**.**	***1.0***	***0.0***	***0.0***	***1.2***	
Trisomy 18	21	<5	49	<5	0	117	
	2.5	**.**	***2.4***	**.**	***0.0***	***3.5***	
Trisomy 21 (Down syndrome)	86	25	311	17	0	475	
	10.1	***15.8***	***15.5***	***6.6***	***0.0***	***14.3***	
Total live births	**85024**	**15810**	**200494**	**25869**	**2095**	**333071**	
Male live births	**43693**	**7981**	**101773**	**13276**	**1067**	**169706**	

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

California

Trisomy Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Trisomy 13	22	9	41	
	0.7	***2.3***	***1.2***	
Trisomy 18	41	43	117	
	1.4	***11.2***	***3.5***	
Trisomy 21 (Down syndrome)	231	231	475	
	7.8	***59.9***	***14.3***	
Total live births	**294472**	**38534**	**333071**	

**Total includes unknown maternal age

Notes

1.Includes only cases confirmed to cath or surgery or diagnosed with congestive heart failure. Excludes cases where atrial septal defect is a component of another major heart malformation.
2.Excludes submucous cleft and bifid uvula.
3.Excludes tracheaesophageal fistula without esophageal atresia.
4.Includes only 2nd and 3rd degree.
5.Excludes anal stenosis.
6.Excludes unilateral renal agenesis/hypoplasia.

General comments

-<5 indicates cell size suppressed to protect confidentiality or to indicate case count <5.
-Excludes cases with single gene disorders.
-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 2008 - 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	23	4	21	1	1	50	
	1.1	***2.6***	***2.1***	***0.8***	***4.1***	***1.5***	
Anophthalmia/microphthalmia	29	2	26	0	1	59	
	1.4	***1.3***	***2.6***	***0.0***	***4.1***	***1.8***	
Anotia/microtia	37	5	51	2	1	96	
	1.8	***3.2***	***5.1***	***1.7***	***4.1***	***2.9***	
Aortic valve stenosis	78	2	30	1	0	113	
	3.9	***1.3***	***3.0***	***0.8***	***0.0***	***3.4***	
Atrial septal defect	2384	273	1250	159	28	4159	
	117.8	***175.7***	***126.0***	***131.6***	***115.9***	***124.1***	
Atrioventricular septal defect (Endocardial cushion defect)	83	12	34	4	2	136	1
	4.1	***7.7***	***3.4***	***3.3***	***8.3***	***4.1***	
Biliary atresia	21	1	11	0	0	33	
	1.0	***0.6***	***1.1***	***0.0***	***0.0***	***1.0***	
Bladder exstrophy	7	0	3	0	0	10	
	0.3	***0.0***	***0.3***	***0.0***	***0.0***	***0.3***	
Choanal atresia	43	4	24	1	1	76	
	2.1	***2.6***	***2.4***	***0.8***	***4.1***	***2.3***	
Cleft lip alone	88	2	52	4	1	150	
	4.3	***1.3***	***5.2***	***3.3***	***4.1***	***4.5***	
Cleft lip with cleft palate	148	5	99	6	3	265	
	7.3	***3.2***	***10.0***	***5.0***	***12.4***	***7.9***	
Cleft palate alone	161	10	87	5	1	264	
	8.0	***6.4***	***8.8***	***4.1***	***4.1***	***7.9***	
Cloacal exstrophy	140	9	71	10	1	232	
	6.9	***5.8***	***7.2***	***8.3***	***4.1***	***6.9***	
Clubfoot	375	14	178	14	7	595	
	18.5	***9.0***	***17.9***	***11.6***	***29.0***	***17.7***	
Coarctation of the aorta	204	18	82	6	0	313	
	10.1	***11.6***	***8.3***	***5.0***	***0.0***	***9.3***	
Common truncus (truncus arteriosus)	16	1	12	0	1	31	
	0.8	***0.6***	***1.2***	***0.0***	***4.1***	***0.9***	
Congenital cataract	38	2	23	2	1	67	
	1.9	***1.3***	***2.3***	***1.7***	***4.1***	***2.0***	
Congenital posterior urethral valves	38	9	22	1	0	73	
	1.9	***5.8***	***2.2***	***0.8***	***0.0***	***2.2***	
Deletion 22q11.2	26	5	18	0	0	50	
	1.3	***3.2***	***1.8***	***0.0***	***0.0***	***1.5***	
Diaphragmatic hernia	55	6	23	2	0	89	
	2.7	***3.9***	***2.3***	***1.7***	***0.0***	***2.7***	
Double outlet right ventricle	19	2	19	2	0	43	
	0.9	***1.3***	***1.9***	***1.7***	***0.0***	***1.3***	
Ebstein anomaly	26	0	7	2	0	36	
	1.3	***0.0***	***0.7***	***1.7***	***0.0***	***1.1***	
Encephalocele	13	4	12	2	0	31	
	0.6	***2.6***	***1.2***	***1.7***	***0.0***	***0.9***	
Esophageal atresia/tracheoesophageal fistula	92	4	39	4	1	141	
	4.5	***2.6***	***3.9***	***3.3***	***4.1***	***4.2***	
Gastroschisis	69	5	52	4	3	136	
	3.4	***3.2***	***5.2***	***3.3***	***12.4***	***4.1***	
Holoprosencephaly	10	1	15	0	0	28	
	0.5	***0.6***	***1.5***	***0.0***	***0.0***	***0.8***	
Hypoplastic left heart syndrome	56	2	26	0	0	86	
	2.8	***1.3***	***2.6***	***0.0***	***0.0***	***2.6***	
Hypospadias*	1456	108	390	52	16	2056	
	139.6	***136.1***	***76.6***	***86.0***	***130.5***	***119.3***	
Interrupted aortic arch	24	3	5	1	0	34	
	1.2	***1.9***	***0.5***	***0.8***	***0.0***	***1.0***	
Limb deficiencies (reduction defects)	81	4	47	2	2	139	
	4.0	***2.6***	***4.7***	***1.7***	***8.3***	***4.1***	

Colorado

Birth Defects Counts and Prevalence 2008 - 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**
Omphalocele	33	3	17	2	1	58	
	1.6	***1.9***	***1.7***	***1.7***	***4.1***	***1.7***	
Pulmonary valve atresia and stenosis	134	12	70	10	2	230	
	6.6	***7.7***	***7.1***	***8.3***	***8.3***	***6.9***	
Pulmonary valve atresia	37	8	21	2	0	70	
	1.8	***5.1***	***2.1***	***1.7***	***0.0***	***2.1***	
Rectal and large intestinal atresia/stenosis	93	11	57	9	3	175	
	4.6	***7.1***	***5.7***	***7.4***	***12.4***	***5.2***	
Renal agenesis/hypoplasia	96	14	50	5	1	171	
	4.7	***9.0***	***5.0***	***4.1***	***4.1***	***5.1***	
Single ventricle	22	2	10	0	1	35	
	1.1	***1.3***	***1.0***	***0.0***	***4.1***	***1.0***	
Small intestinal atresia/stenosis	94	6	66	5	3	180	
	4.6	***3.9***	***6.7***	***4.1***	***12.4***	***5.4***	
Spina bifida without anencephalus	60	1	53	1	1	116	
	3.0	***0.6***	***5.3***	***0.8***	***4.1***	***3.5***	
Tetralogy of Fallot	65	5	36	4	1	111	
	3.2	***3.2***	***3.6***	***3.3***	***4.1***	***3.3***	
Total anomalous pulmonary venous connection	12	1	17	0	0	30	
	0.6	***0.6***	***1.7***	***0.0***	***0.0***	***0.9***	
Transposition of the great arteries (TGA)	66	4	31	8	0	112	
	3.3	***2.6***	***3.1***	***6.6***	***0.0***	***3.3***	
Dextro-transposition of great arteries (d-TGA)	47	4	23	6	0	83	
	2.3	***2.6***	***2.3***	***5.0***	***0.0***	***2.5***	
Tricuspid valve atresia and stenosis	24	7	11	1	0	45	2
	1.2	***4.5***	***1.1***	***0.8***	***0.0***	***1.3***	
Trisomy 13	14	3	15	0	0	32	
	0.7	***1.9***	***1.5***	***0.0***	***0.0***	***1.0***	
Trisomy 18	39	4	30	7	0	81	
	1.9	***2.6***	***3.0***	***5.8***	***0.0***	***2.4***	
Trisomy 21 (Down syndrome)	277	31	163	17	3	497	
	13.7	***20.0***	***16.4***	***14.1***	***12.4***	***14.8***	
Turner syndrome†	21	3	22	4	0	50	
	2.1	***3.9***	***4.6***	***6.6***	***0.0***	***3.1***	
Ventricular septal defect	916	85	540	53	11	1626	
	45.3	***54.7***	***54.4***	***43.9***	***45.5***	***48.5***	
Total live births §	**202369**	**15537**	**99184**	**12085**	**2415**	**335217**	
Male live births	**104270**	**7933**	**50920**	**6047**	**1226**	**172284**	
Female live births	**98097**	**7602**	**48264**	**6037**	**1189**	**162927**	

*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

Colorado

Trisomy Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	133	3	136	
	4.7	***0.5***	***4.1***	
Trisomy 13	22	10	32	
	0.8	***1.8***	***1.0***	
Trisomy 18	44	37	81	
	1.6	***6.8***	***2.4***	
Trisomy 21 (Down syndrome)	241	256	497	
	8.6	***46.9***	***14.8***	
Total live births	**280615**	**54557**	**335217**	

**Total includes unknown maternal age

Notes
1.Includes inlet ventricular septal defect.
2.Includes hypoplasia.

General comments
-Data for conditions include live births and fetal deaths.
-Fetal Deaths are any events that are not live birth.

Delaware

Birth Defects Counts and Prevalence 2008 - 2011 (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	2	2	0	0	8	
	1.6	***1.6***	***3.1***	***0.0***	***0.0***	***1.7***	
Anophthalmia/microphthalmia	6	1	4	1	0	12	
	2.4	***0.8***	***6.3***	***4.7***	***0.0***	***2.6***	
Anotia/microtia	12	2	7	0	0	21	
	4.8	***1.6***	***11.0***	***0.0***	***0.0***	***4.6***	
Aortic valve stenosis	5	2	0	0	0	7	
	2.0	***1.6***	***0.0***	***0.0***	***0.0***	***1.5***	
Atrial septal defect	69	23	18	1	0	111	1
	27.8	***18.6***	***28.3***	***4.7***	***0.0***	***24.2***	
Atrioventricular septal defect (Endocardial cushion defect)	14	6	1	0	0	21	
	5.6	***4.9***	***1.6***	***0.0***	***0.0***	***4.6***	
Biliary atresia	2	2	0	0	0	4	
	0.8	***1.6***	***0.0***	***0.0***	***0.0***	***0.9***	
Choanal atresia	4	2	2	0	0	8	
	1.6	***1.6***	***3.1***	***0.0***	***0.0***	***1.7***	
Cleft lip alone	7	1	1	1	0	10	
	2.8	***0.8***	***1.6***	***4.7***	***0.0***	***2.2***	
Cleft lip with cleft palate	14	5	5	1	0	26	
	5.6	***4.0***	***7.9***	***4.7***	***0.0***	***5.7***	
Cleft palate alone	18	5	3	2	0	28	2
	7.2	***4.0***	***4.7***	***9.4***	***0.0***	***6.1***	
Cloacal exstrophy	1	0	0	0	0	1	
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Clubfoot	34	15	14	4	0	67	
	13.7	***12.1***	***22.0***	***18.9***	***0.0***	***14.6***	
Coarctation of the aorta	16	2	4	0	0	22	3
	6.4	***1.6***	***6.3***	***0.0***	***0.0***	***4.8***	
Common truncus (truncus arteriosus)	1	0	1	0	0	2	
	0.4	***0.0***	***1.6***	***0.0***	***0.0***	***0.4***	
Congenital cataract	8	2	3	1	0	14	
	3.2	***1.6***	***4.7***	***4.7***	***0.0***	***3.0***	
Congenital posterior urethral valves	2	4	0	0	0	6	4
	0.8	***3.2***	***0.0***	***0.0***	***0.0***	***1.3***	
Craniosynostosis	17	5	5	0	0	27	
	6.8	***4.0***	***7.9***	***0.0***	***0.0***	***5.9***	
Deletion 22q11.2	1	2	0	0	0	3	
	0.4	***1.6***	***0.0***	***0.0***	***0.0***	***0.7***	
Diaphragmatic hernia	6	0	2	1	0	9	
	2.4	***0.0***	***3.1***	***4.7***	***0.0***	***2.0***	
Double outlet right ventricle	3	1	3	0	0	7	
	1.2	***0.8***	***4.7***	***0.0***	***0.0***	***1.5***	
Ebstein anomaly	2	1	0	0	0	3	
	1.1	***1.1***	***0.0***	***0.0***	***0.0***	***0.9***	
Encephalocele	1	1	2	0	0	4	
	0.4	***0.8***	***3.1***	***0.0***	***0.0***	***0.9***	
Esophageal atresia/tracheoesophageal fistula	3	1	2	0	0	6	
	1.2	***0.8***	***3.1***	***0.0***	***0.0***	***1.3***	
Gastroschisis	21	10	4	0	0	35	
	8.4	***8.1***	***6.3***	***0.0***	***0.0***	***7.6***	
Holoprosencephaly	2	3	1	0	0	6	
	0.8	***2.4***	***1.6***	***0.0***	***0.0***	***1.3***	
Hypoplastic left heart syndrome	7	5	4	0	1	17	
	2.8	***4.0***	***6.3***	***0.0***	***120.5***	***3.7***	
Hypospadias*	122	51	13	9	1	197	
	95.9	***80.7***	***40.5***	***83.6***	***222.2***	***84.1***	
Limb deficiencies (reduction defects)	10	10	3	0	0	23	5
	4.0	***8.1***	***4.7***	***0.0***	***0.0***	***5.0***	
Omphalocele	4	4	1	0	0	9	
	1.6	***3.2***	***1.6***	***0.0***	***0.0***	***2.0***	

Delaware

Birth Defects Counts and Prevalence 2008 - 2011 (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	33	22	7	0	1	63	6
	13.3	***17.8***	***11.0***	***0.0***	***120.5***	***13.7***	
Pulmonary valve atresia	8	3	2	0	0	13	
	3.2	***2.4***	***3.1***	***0.0***	***0.0***	***2.8***	
Rectal and large intestinal atresia/stenosis	16	1	2	0	0	19	
	6.4	***0.8***	***3.1***	***0.0***	***0.0***	***4.1***	
Renal agenesis/hypoplasia	18	5	5	1	0	29	
	7.2	***4.0***	***7.9***	***4.7***	***0.0***	***6.3***	
Single ventricle	5	0	0	0	0	5	
	2.0	***0.0***	***0.0***	***0.0***	***0.0***	***1.1***	
Small intestinal atresia/stenosis	6	3	1	0	0	10	
	2.4	***2.4***	***1.6***	***0.0***	***0.0***	***2.2***	
Spina bifida without anencephalus	5	2	1	0	0	8	
	2.0	***1.6***	***1.6***	***0.0***	***0.0***	***1.7***	
Tetralogy of Fallot	9	2	1	3	0	15	7
	3.6	***1.6***	***1.6***	***14.2***	***0.0***	***3.3***	
Total anomalous pulmonary venous connection	4	1	0	0	0	5	
	2.1	***1.1***	***0.0***	***0.0***	***0.0***	***1.4***	
Transposition of the great arteries (TGA)	7	2	2	1	0	12	
	2.8	***1.6***	***3.1***	***4.7***	***0.0***	***2.6***	
Dextro-transposition of great arteries (d-TGA)	5	2	2	1	0	10	
	2.0	***1.6***	***3.1***	***4.7***	***0.0***	***2.2***	
Tricuspid valve atresia and stenosis	4	6	1	0	0	11	
	1.6	***4.9***	***1.6***	***0.0***	***0.0***	***2.4***	
Tricuspid valve atresia	0	1	0	0	0	1	
	0.0	***0.8***	***0.0***	***0.0***	***0.0***	***0.2***	
Trisomy 13	4	1	1	0	0	6	
	1.6	***0.8***	***1.6***	***0.0***	***0.0***	***1.3***	
Trisomy 18	7	3	4	0	0	14	
	2.8	***2.4***	***6.3***	***0.0***	***0.0***	***3.0***	
Trisomy 21 (Down syndrome)	37	11	3	5	0	56	
	14.9	***8.9***	***4.7***	***23.6***	***0.0***	***12.2***	
Turner syndrome†	7	0	1	0	0	8	
	5.8	***0.0***	***3.2***	***0.0***	***0.0***	***3.6***	
Ventricular septal defect	211	78	65	16	1	371	8
	84.9	***63.2***	***102.3***	***75.6***	***120.5***	***80.8***	
Total live births	**24858**	**12346**	**6351**	**2117**	**83**	**45903**	
Male live births	**12718**	**6322**	**3208**	**1077**	**45**	**23437**	
Female live births	**12140**	**6024**	**3143**	**1040**	**38**	**22466**	

*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 Counts and Prevalence by Maternal Age 2008 - 2011 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	34	1	35	
	8.5	***1.5***	***7.6***	
Trisomy 13	4	2	6	
	1.0	***3.1***	***1.3***	
Trisomy 18	7	7	14	
	1.8	***10.8***	***3.0***	
Trisomy 21 (Down syndrome)	29	27	56	
	7.3	***41.8***	***12.1***	
Total live births	**39817**	**6453**	**46270**	

**Total includes unknown maternal age

Notes
1.Excludes patent foramen ovales.
2.Includes Pierre Robin anomalies with cleft palate.
3.Includes interrupted aortic arch.
4.Includes only cases involving surgical intervention.
5.Includes complex hand anomalies, adactyly, and syndactyly.
6.Excludes peripheral, branch, trivial, or limited pulmonary valve atresia.
7.Includes ventricular septal defect with an overriding aorta.
8.Includes all sizes and types of ventricular septal defects and all resolved ventricular septal defects.

General comments
-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.

Florida

Birth Defects Counts and Prevalence 2008 - 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	40	20	22	0	0	83	
	0.8	***0.8***	***0.7***	***0.0***	***0.0***	***0.8***	
Anophthalmia/microphthalmia	46	23	35	<5	0	106	
	1.0	***1.0***	***1.2***	***.***	***0.0***	***1.0***	
Anotia/microtia	35	6	48	7	<5	100	
	0.7	***0.2***	***1.6***	***2.2***	***.***	***0.9***	
Aortic valve stenosis	82	16	35	5	<5	140	
	1.7	***0.7***	***1.2***	***1.6***	***.***	***1.3***	
Atrial septal defect	4822	3121	4064	274	20	12585	
	100.2	***129.2***	***134.0***	***86.6***	***117.5***	***116.0***	
Atrioventricular septal defect (Endocardial cushion defect)	225	129	114	16	0	496	1
	4.7	***5.3***	***3.8***	***5.1***	***0.0***	***4.6***	
Biliary atresia	41	33	21	<5	0	101	
	0.9	***1.4***	***0.7***	***.***	***0.0***	***0.9***	
Bladder exstrophy	11	7	5	0	0	23	
	0.2	***0.3***	***0.2***	***0.0***	***0.0***	***0.2***	
Choanal atresia	90	36	49	6	<5	184	
	1.9	***1.5***	***1.6***	***1.9***	***.***	***1.7***	
Cleft lip alone	143	40	50	6	0	247	
	3.0	***1.7***	***1.6***	***1.9***	***0.0***	***2.3***	
Cleft lip with cleft palate	292	75	149	21	<5	545	
	6.1	***3.1***	***4.9***	***6.6***	***.***	***5.0***	
Cleft palate alone	315	102	154	17	0	601	
	6.5	***4.2***	***5.1***	***5.4***	***0.0***	***5.5***	
Cloacal exstrophy	310	164	210	19	<5	729	
	6.4	***6.8***	***6.9***	***6.0***	***.***	***6.7***	
Clubfoot	764	263	381	38	<5	1480	
	15.9	***10.9***	***12.6***	***12.0***	***.***	***13.6***	
Coarctation of the aorta	387	143	190	18	<5	759	
	8.0	***5.9***	***6.3***	***5.7***	***.***	***7.0***	
Common truncus (truncus arteriosus)	40	16	19	<5	0	79	
	0.8	***0.7***	***0.6***	***.***	***0.0***	***0.7***	
Congenital cataract	85	38	28	<5	0	155	
	1.8	***1.6***	***0.9***	***.***	***0.0***	***1.4***	
Congenital posterior urethral valves	64	64	23	<5	0	158	
	1.3	***2.6***	***0.8***	***.***	***0.0***	***1.5***	
Deletion 22q11.2	24	8	10	<5	0	43	
	0.5	***0.3***	***0.3***	***.***	***0.0***	***0.4***	
Diaphragmatic hernia	162	84	84	10	<5	355	
	3.4	***3.5***	***2.8***	***3.2***	***.***	***3.3***	
Double outlet right ventricle	112	69	84	9	<5	285	
	2.3	***2.9***	***2.8***	***2.8***	***.***	***2.6***	
Ebstein anomaly	40	12	14	<5	<5	71	
	0.8	***0.5***	***0.5***	***.***	***.***	***0.7***	
Encephalocele	38	35	26	<5	0	102	
	0.8	***1.4***	***0.9***	***.***	***0.0***	***0.9***	
Esophageal atresia/tracheoesophageal fistula	123	53	67	5	<5	253	
	2.6	***2.2***	***2.2***	***1.6***	***.***	***2.3***	
Gastroschisis	309	77	137	7	<5	539	
	6.4	***3.2***	***4.5***	***2.2***	***.***	***5.0***	
Holoprosencephaly	199	136	125	17	0	486	
	4.1	***5.6***	***4.1***	***5.4***	***0.0***	***4.5***	
Hypoplastic left heart syndrome	167	93	73	7	0	345	
	3.5	***3.8***	***2.4***	***2.2***	***0.0***	***3.2***	
Hypospadias*	2239	898	864	93	<5	4202	
	90.6	***72.9***	***55.7***	***56.9***	***.***	***75.7***	
Interrupted aortic arch	29	12	27	<5	0	72	
	0.6	***0.5***	***0.9***	***.***	***0.0***	***0.7***	
Limb deficiencies (reduction defects)	201	97	107	12	0	422	
	4.2	***4.0***	***3.5***	***3.8***	***0.0***	***3.9***	

Florida

Birth Defects Counts and Prevalence 2008 - 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**
Omphalocele	76	57	29	<5	0	168	2
	1.6	***2.4***	***1.0***	***.***	***0.0***	***1.5***	
Pulmonary valve atresia and stenosis	423	327	316	26	0	1112	
	8.8	***13.5***	***10.4***	***8.2***	***0.0***	***10.3***	
Pulmonary valve atresia	72	48	53	5	0	183	
	1.5	***2.0***	***1.7***	***1.6***	***0.0***	***1.7***	
Rectal and large intestinal atresia/stenosis	198	126	135	10	<5	490	
	4.1	***5.2***	***4.5***	***3.2***	***.***	***4.5***	
Renal agenesis/hypoplasia	283	138	134	13	<5	581	
	5.9	***5.7***	***4.4***	***4.1***	***.***	***5.4***	
Single ventricle	51	46	40	6	0	148	
	1.1	***1.9***	***1.3***	***1.9***	***0.0***	***1.4***	
Small intestinal atresia/stenosis	266	145	148	21	0	589	
	5.5	***6.0***	***4.9***	***6.6***	***0.0***	***5.4***	
Spina bifida without anencephalus	153	61	82	8	0	307	
	3.2	***2.5***	***2.7***	***2.5***	***0.0***	***2.8***	
Tetralogy of Fallot	251	135	122	19	<5	549	
	5.2	***5.6***	***4.0***	***6.0***	***.***	***5.1***	
Total anomalous pulmonary venous connection	44	34	35	5	0	119	
	0.9	***1.4***	***1.2***	***1.6***	***0.0***	***1.1***	
Transposition of the great arteries (TGA)	170	48	70	<5	0	298	
	3.5	***2.0***	***2.3***	***.***	***0.0***	***2.7***	
Dextro-transposition of great arteries (d-TGA)	149	39	62	<5	0	258	
	3.1	***1.6***	***2.0***	***.***	***0.0***	***2.4***	
Tricuspid valve atresia and stenosis	49	42	23	<5	0	120	1
	1.0	***1.7***	***0.8***	***.***	***0.0***	***1.1***	
Trisomy 13	44	30	27	0	0	103	
	0.9	***1.2***	***0.9***	***0.0***	***0.0***	***0.9***	
Trisomy 18	80	64	66	8	0	225	
	1.7	***2.6***	***2.2***	***2.5***	***0.0***	***2.1***	
Trisomy 21 (Down syndrome)	656	314	429	48	<5	1488	
	13.6	***13.0***	***14.1***	***15.2***	***.***	***13.7***	
Turner syndrome†	32	13	23	0	0	69	
	1.4	***1.1***	***1.6***	***0.0***	***0.0***	***1.3***	
Ventricular septal defect	2979	1383	2157	183	7	6867	1
	61.9	***57.2***	***71.1***	***57.8***	***41.1***	***63.3***	
Total live births §	**481199**	**241644**	**303287**	**31641**	**1702**	**1084524**	
Male live births	**247053**	**123241**	**155005**	**16331**	**894**	**555414**	
Female live births	**234141**	**118398**	**148276**	**15310**	**808**	**529092**	

*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 Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	525	14	539	
	5.7	***0.9***	***5.0***	
Trisomy 13	67	36	103	
	0.7	***2.2***	***0.9***	
Trisomy 18	124	101	225	
	1.3	***6.2***	***2.1***	
Trisomy 21 (Down syndrome)	755	733	1488	
	8.2	***45.3***	***13.7***	
Total live births	**922766**	**161711**	**1084524**	

**Total includes unknown maternal age

Notes
1.Includes probable cases.
2.Data for this condition begins in 2010.

Georgia (Metropolitan Atlanta Congenital Defects Program)

Birth Defects Counts and Prevalence 2008 - 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	14	30	17	0	0	72	
	2.1	***3.2***	***3.2***	***0.0***	***0.0***	***3.0***	
Anophthalmia/microphthalmia	8	9	5	1	0	27	
	1.2	***1.0***	***0.9***	***0.6***	***0.0***	***1.1***	
Anotia/microtia	11	13	18	1	0	46	
	1.7	***1.4***	***3.4***	***0.6***	***0.0***	***1.9***	
Aortic valve stenosis	12	6	6	1	0	28	
	1.8	***0.6***	***1.1***	***0.6***	***0.0***	***1.2***	
Atrial septal defect	94	127	53	11	0	332	
	14.3	***13.5***	***10.0***	***7.1***	***0.0***	***13.9***	
Atrioventricular septal defect (Endocardial cushion defect)	42	76	25	2	1	166	
	6.4	***8.1***	***4.7***	***1.3***	***64.5***	***6.9***	
Biliary atresia	2	7	1	0	1	15	
	0.3	***0.7***	***0.2***	***0.0***	***64.5***	***0.6***	
Bladder exstrophy	3	2	0	0	0	6	
	0.5	***0.2***	***0.0***	***0.0***	***0.0***	***0.3***	
Choanal atresia	6	11	3	0	0	21	
	0.9	***1.2***	***0.6***	***0.0***	***0.0***	***0.9***	
Cleft lip alone	20	31	15	10	0	83	
	3.1	***3.3***	***2.8***	***6.5***	***0.0***	***3.5***	
Cleft lip with cleft palate	36	38	34	12	0	133	
	5.5	***4.1***	***6.4***	***7.8***	***0.0***	***5.6***	
Cleft palate alone	38	43	26	6	0	122	
	5.8	***4.6***	***4.9***	***3.9***	***0.0***	***5.1***	
Cloacal exstrophy	1	1	0	0	0	2	
	0.2	***0.1***	***0.0***	***0.0***	***0.0***	***0.1***	
Clubfoot	106	144	76	12	1	374	
	16.2	***15.4***	***14.3***	***7.8***	***64.5***	***15.6***	
Coarctation of the aorta	47	39	23	6	0	131	
	7.2	***4.2***	***4.3***	***3.9***	***0.0***	***5.5***	
Common truncus (truncus arteriosus)	6	9	2	2	0	20	
	0.9	***1.0***	***0.4***	***1.3***	***0.0***	***0.8***	
Congenital cataract	12	17	9	3	0	42	
	1.8	***1.8***	***1.7***	***1.9***	***0.0***	***1.8***	
Congenital posterior urethral valves	9	25	13	2	0	62	
	1.4	***2.7***	***2.4***	***1.3***	***0.0***	***2.6***	
Craniosynostosis	39	27	16	3	1	110	
	6.0	***2.9***	***3.0***	***1.9***	***64.5***	***4.6***	
Deletion 22q11.2	5	11	0	0	0	22	
	0.8	***1.2***	***0.0***	***0.0***	***0.0***	***0.9***	
Diaphragmatic hernia	17	28	24	2	0	87	
	2.6	***3.0***	***4.5***	***1.3***	***0.0***	***3.6***	
Double outlet right ventricle	13	26	9	2	0	54	
	2.0	***2.8***	***1.7***	***1.3***	***0.0***	***2.3***	
Ebstein anomaly	0	5	4	2	0	12	
	0.0	***0.5***	***0.8***	***1.3***	***0.0***	***0.5***	
Encephalocele	2	12	5	4	1	31	
	0.3	***1.3***	***0.9***	***2.6***	***64.5***	***1.3***	
Esophageal atresia/tracheoesophageal fistula	24	20	8	0	0	57	
	3.7	***2.1***	***1.5***	***0.0***	***0.0***	***2.4***	
Gastroschisis	30	37	24	3	0	102	
	4.6	***3.9***	***4.5***	***1.9***	***0.0***	***4.3***	
Holoprosencephaly	20	20	11	4	0	61	
	3.1	***2.1***	***2.1***	***2.6***	***0.0***	***2.5***	
Hypoplastic left heart syndrome	16	17	7	8	0	55	
	2.4	***1.8***	***1.3***	***5.2***	***0.0***	***2.3***	
Hypospadias*	291	328	74	25	2	788	
	86.5	***68.7***	***27.2***	***32.0***	***256.4***	***64.5***	
Interrupted aortic arch	4	5	0	0	0	12	
	0.6	***0.5***	***0.0***	***0.0***	***0.0***	***0.5***	

Georgia (Metropolitan Atlanta Congenital Defects Program)

Birth Defects Counts and Prevalence 2008 - 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)	24	50	23	3	0	112	
	3.7	***5.3***	***4.3***	***1.9***	***0.0***	***4.7***	
Omphalocele	20	34	10	3	1	83	
	3.1	***3.6***	***1.9***	***1.9***	***64.5***	***3.5***	
Pulmonary valve atresia and stenosis	46	71	29	7	1	177	
	7.0	***7.6***	***5.5***	***4.5***	***64.5***	***7.4***	
Pulmonary valve atresia	13	23	15	0	0	61	
	2.0	***2.5***	***2.8***	***0.0***	***0.0***	***2.5***	
Rectal and large intestinal atresia/stenosis	29	28	30	7	0	103	
	4.4	***3.0***	***5.6***	***4.5***	***0.0***	***4.3***	
Renal agenesis/hypoplasia	53	59	19	10	1	159	
	8.1	***6.3***	***3.6***	***6.5***	***64.5***	***6.6***	
Single ventricle	4	11	10	2	0	32	
	0.6	***1.2***	***1.9***	***1.3***	***0.0***	***1.3***	
Small intestinal atresia/stenosis	28	42	18	5	0	103	
	4.3	***4.5***	***3.4***	***3.2***	***0.0***	***4.3***	
Spina bifida without anencephalus	33	36	24	3	0	101	
	5.0	***3.8***	***4.5***	***1.9***	***0.0***	***4.2***	
Tetralogy of Fallot	44	44	9	6	0	117	
	6.7	***4.7***	***1.7***	***3.9***	***0.0***	***4.9***	
Total anomalous pulmonary venous connection	6	9	7	3	0	27	
	0.9	***1.0***	***1.3***	***1.9***	***0.0***	***1.1***	
Transposition of the great arteries (TGA)	26	24	15	1	0	73	
	4.0	***2.6***	***2.8***	***0.6***	***0.0***	***3.1***	
Dextro-transposition of great arteries (d-TGA)	24	17	9	1	0	57	
	3.7	***1.8***	***1.7***	***0.6***	***0.0***	***2.4***	
Tricuspid valve atresia and stenosis	11	15	9	3	0	46	
	1.7	***1.6***	***1.7***	***1.9***	***0.0***	***1.9***	
Tricuspid valve atresia	6	5	3	2	0	18	
	0.9	***0.5***	***0.6***	***1.3***	***0.0***	***0.8***	
Trisomy 13	15	25	5	1	0	55	
	2.3	***2.7***	***0.9***	***0.6***	***0.0***	***2.3***	
Trisomy 18	45	34	16	10	1	132	
	6.9	***3.6***	***3.0***	***6.5***	***64.5***	***5.5***	
Trisomy 21 (Down syndrome)	176	145	108	26	1	521	
	26.9	***15.5***	***20.3***	***16.9***	***64.5***	***21.8***	
Turner syndrome†	16	23	3	6	0	55	
	5.0	***5.0***	***1.2***	***7.9***	***0.0***	***4.7***	
Ventricular septal defect	423	395	271	47	6	1269	
	64.6	***42.1***	***51.0***	***30.5***	***387.1***	***53.0***	
Total live births §	**65526**	**93755**	**53168**	**15411**	**155**	**239329**	
Male live births	**33650**	**47753**	**27207**	**7818**	**78**	**122256**	
Female live births	**31876**	**45996**	**25961**	**7592**	**77**	**117064**	

*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

Georgia (Metropolitan Atlanta Congenital Defects Program)

Trisomy Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	93	6	102	
	4.9	***1.2***	***4.3***	
Trisomy 13	32	23	55	
	1.7	***4.6***	***2.3***	
Trisomy 18	42	88	132	
	2.2	***17.8***	***5.5***	
Trisomy 21 (Down syndrome)	236	264	521	
	12.4	***53.3***	***21.8***	
Total live births	**189755**	**49569**	**239329**	

**Total includes unknown maternal age

General comments

-Elective terminations include all gestational ages.
-Live births include gestational ages greater than or equal to 20 weeks.
-Prior to 2012 data includes 5 counties. Data for 2012 include 3 of the 5 counties.
-Stillbirths include gestational ages greater than or equal to 20 weeks.
-Unknown category includes cases of any gestational age with a prenatal diagnosis for which the outcome could not be documented in data sources and no birth or fetal death certificate was found. Most are probably elective terminations, but do not have the actual record to confirm. Cases for which the date of delivery was unknown are included in the year of their last known prenatal test.

Illinois

Birth Defects Counts and Prevalence 2008 - 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	48	18	43	4	0	115	
	1.1	***1.3***	***2.4***	***0.8***	***0.0***	***1.4***	
Anophthalmia/microphthalmia	52	14	29	6	0	101	
	1.2	***1.0***	***1.6***	***1.2***	***0.0***	***1.2***	
Anotia/microtia	50	10	64	13	0	137	
	1.1	***0.7***	***3.5***	***2.7***	***0.0***	***1.7***	
Aortic valve stenosis	60	10	27	3	0	101	
	1.3	***0.7***	***1.5***	***0.6***	***0.0***	***1.2***	
Atrial septal defect	1091	404	448	85	0	2048	
	24.4	***28.1***	***24.5***	***17.5***	***0.0***	***24.7***	
Atrioventricular septal defect (Endocardial cushion defect)	200	86	78	11	0	377	1
	4.5	***6.0***	***4.3***	***2.3***	***0.0***	***4.6***	
Biliary atresia	2	4	4	2	0	12	
	0.0	***0.3***	***0.2***	***0.4***	***0.0***	***0.1***	
Bladder exstrophy	13	3	4	0	0	21	
	0.3	***0.2***	***0.2***	***0.0***	***0.0***	***0.3***	
Choanal atresia	45	15	20	5	0	85	
	1.0	***1.0***	***1.1***	***1.0***	***0.0***	***1.0***	
Cleft lip alone	155	40	47	15	1	259	
	3.5	***2.8***	***2.6***	***3.1***	***7.1***	***3.1***	
Cleft lip with cleft palate	187	52	120	29	0	391	
	4.2	***3.6***	***6.6***	***6.0***	***0.0***	***4.7***	
Cleft palate alone	248	53	95	18	0	416	
	5.5	***3.7***	***5.2***	***3.7***	***0.0***	***5.0***	
Cloacal exstrophy	5	3	1	0	0	9	
	0.1	***0.3***	***0.1***	***0.0***	***0.0***	***0.1***	
Clubfoot	188	65	105	12	0	379	
	4.2	***4.5***	***5.8***	***2.5***	***0.0***	***4.6***	
Coarctation of the aorta	145	34	78	7	0	267	
	3.2	***2.4***	***4.3***	***1.4***	***0.0***	***3.2***	
Common truncus (truncus arteriosus)	24	7	14	1	0	47	
	0.5	***0.5***	***0.8***	***0.2***	***0.0***	***0.6***	
Congenital cataract	32	19	7	2	0	60	
	0.7	***1.3***	***0.4***	***0.4***	***0.0***	***0.7***	
Congenital posterior urethral valves	28	16	10	1	0	55	
	0.6	***1.1***	***0.5***	***0.2***	***0.0***	***0.7***	
Craniosynostosis	21	5	12	3	0	41	
	0.5	***0.3***	***0.7***	***0.6***	***0.0***	***0.5***	
Deletion 22q11.2	5	2	2	0	0	9	
	0.3	***0.4***	***0.3***	***0.0***	***0.0***	***0.3***	
Diaphragmatic hernia	118	33	36	10	0	200	
	2.6	***2.3***	***2.0***	***2.1***	***0.0***	***2.4***	
Double outlet right ventricle	52	25	36	10	0	125	
	1.2	***1.7***	***2.0***	***2.1***	***0.0***	***1.5***	
Ebstein anomaly	25	3	17	2	0	47	
	0.6	***0.2***	***0.9***	***0.4***	***0.0***	***0.6***	
Encephalocele	17	12	23	4	0	57	
	0.4	***0.8***	***1.3***	***0.8***	***0.0***	***0.7***	
Esophageal atresia/tracheoesophageal fistula	105	24	44	7	0	181	
	2.3	***1.7***	***2.4***	***1.4***	***0.0***	***2.2***	
Gastroschisis	150	55	104	4	0	314	
	3.3	***3.8***	***5.7***	***0.8***	***0.0***	***3.8***	
Holoprosencephaly	31	6	25	0	0	64	
	0.7	***0.4***	***1.4***	***0.0***	***0.0***	***0.8***	
Hypoplastic left heart syndrome	86	30	39	5	0	160	
	1.9	***2.1***	***2.1***	***1.0***	***0.0***	***1.9***	
Hypospadias*	1453	379	269	99	1	2213	
	63.2	***51.7***	***29.0***	***39.8***	***13.9***	***52.2***	
Interrupted aortic arch	10	8	5	1	0	24	
	0.2	***0.6***	***0.3***	***0.2***	***0.0***	***0.3***	

Illinois

Birth Defects Counts and Prevalence 2008 - 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)	161	75	73	13	0	325	
	3.6	***5.2***	***4.0***	***2.7***	***0.0***	***3.9***	
Omphalocele	83	30	37	5	0	156	
	1.9	***2.1***	***2.0***	***1.0***	***0.0***	***1.9***	
Pulmonary valve atresia and stenosis	123	54	62	6	0	247	
	2.7	***3.8***	***3.4***	***1.2***	***0.0***	***3.0***	
Pulmonary valve atresia	26	12	15	1	0	54	
	0.6	***0.8***	***0.8***	***0.2***	***0.0***	***0.7***	
Rectal and large intestinal atresia/stenosis	144	63	67	13	0	287	
	3.2	***4.4***	***3.7***	***2.7***	***0.0***	***3.5***	
Renal agenesis/hypoplasia	223	77	99	21	0	426	
	5.0	***5.4***	***5.4***	***4.3***	***0.0***	***5.1***	
Single ventricle	16	6	3	2	0	27	
	0.4	***0.4***	***0.2***	***0.4***	***0.0***	***0.3***	
Small intestinal atresia/stenosis	64	19	43	10	0	136	
	1.4	***1.3***	***2.4***	***2.1***	***0.0***	***1.6***	
Spina bifida without anencephalus	124	36	64	10	0	241	
	2.8	***2.5***	***3.5***	***2.1***	***0.0***	***2.9***	
Tetralogy of Fallot	128	49	66	15	0	261	
	2.9	***3.4***	***3.6***	***3.1***	***0.0***	***3.2***	
Total anomalous pulmonary venous connection	25	8	24	2	0	60	
	0.6	***0.6***	***1.3***	***0.4***	***0.0***	***0.7***	
Transposition of the great arteries (TGA)	111	26	48	10	0	198	
	2.5	***1.8***	***2.6***	***2.1***	***0.0***	***2.4***	
Dextro-transposition of great arteries (d-TGA)	93	25	37	10	0	166	
	2.1	***1.7***	***2.0***	***2.1***	***0.0***	***2.0***	
Tricuspid valve atresia and stenosis	86	30	38	8	0	163	2
	1.9	***2.1***	***2.1***	***1.6***	***0.0***	***2.0***	
Tricuspid valve atresia	77	24	29	7	0	138	3
	1.7	***1.7***	***1.6***	***1.4***	***0.0***	***1.7***	
Trisomy 13	51	24	24	3	0	106	
	1.1	***1.7***	***1.3***	***0.6***	***0.0***	***1.3***	
Trisomy 18	86	29	55	8	0	187	
	1.9	***2.0***	***3.0***	***1.6***	***0.0***	***2.3***	
Trisomy 21 (Down syndrome)	532	124	329	38	0	1032	
	11.9	***8.6***	***18.0***	***7.8***	***0.0***	***12.5***	
Turner syndrome†	41	6	18	1	0	66	
	1.9	***0.9***	***2.0***	***0.4***	***0.0***	***1.6***	
Ventricular septal defect	1808	465	844	148	1	3293	4
	40.4	***32.3***	***46.2***	***30.5***	***7.1***	***39.8***	
Total live births §	**447975**	**143749**	**182541**	**48602**	**1413**	**828361**	
Male live births	**229890**	**73250**	**92867**	**24852**	**719**	**423665**	
Female live births	**218075**	**70488**	**89662**	**23750**	**694**	**404663**	

*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 Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	286	10	314	
	4.1	***0.8***	***3.8***	
Trisomy 13	69	32	106	
	1.0	***2.4***	***1.3***	
Trisomy 18	83	80	187	
	1.2	***6.1***	***2.3***	
Trisomy 21 (Down syndrome)	434	560	1032	
	6.2	***42.6***	***12.5***	
Total live births	**696862**	**131412**	**828361**	

**Total includes unknown maternal age

Notes
1.Includes inlet ventricular septal defects (VSD) including common atrioventricular canal type VSD.
2.Includes cases with tricuspid stenosis or hypoplasia.
3.Excludes cases with tricuspid stenosis or hypoplasia.
4.Includes probable cases, and excludes inlet ventricular septal defects (VSD) and common atrioventricular canal type VSD..

General comments
-Data for 2012 birth (denominator) are provisional.
-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).
-National Center for Health Statistics (NCHS) bridged race data were not available. Multiple-race individuals are included in the other/unknown category.

Indiana

Birth Defects Counts and Prevalence 2008 - 2010 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	3	2	0	1	0	6	
	0.2	***0.6***	***0.0***	***1.5***	***0.0***	***0.2***	
Anophthalmia/microphthalmia	13	2	1	2	0	18	
	0.7	***0.6***	***0.5***	***3.0***	***0.0***	***0.7***	
Anotia/microtia	18	1	1	0	0	21	
	1.0	***0.3***	***0.5***	***0.0***	***0.0***	***0.8***	
Aortic valve stenosis	30	2	4	1	0	37	
	1.6	***0.6***	***1.9***	***1.5***	***0.0***	***1.5***	
Atrial septal defect	957	186	98	40	4	1319	
	51.3	***56.0***	***45.8***	***60.4***	***96.2***	***52.0***	
Atrioventricular septal defect (Endocardial cushion defect)	72	11	5	3	0	93	2
	3.9	***3.3***	***2.3***	***4.5***	***0.0***	***3.7***	
Biliary atresia	6	6	1	1	0	14	
	0.3	***1.8***	***0.5***	***1.5***	***0.0***	***0.6***	
Bladder exstrophy	8	1	1	0	0	11	
	0.4	***0.3***	***0.5***	***0.0***	***0.0***	***0.4***	
Choanal atresia	34	0	2	1	0	37	
	1.8	***0.0***	***0.9***	***1.5***	***0.0***	***1.5***	
Cleft palate alone	113	15	10	2	0	145	
	6.1	***4.5***	***4.7***	***3.0***	***0.0***	***5.7***	
Coarctation of the aorta	112	8	12	3	1	136	
	6.0	***2.4***	***5.6***	***4.5***	***24.0***	***5.4***	
Common truncus (truncus arteriosus)	12	1	1	0	0	14	
	0.6	***0.3***	***0.5***	***0.0***	***0.0***	***0.6***	
Congenital cataract	13	4	1	1	0	20	
	0.7	***1.2***	***0.5***	***1.5***	***0.0***	***0.8***	
Diaphragmatic hernia	54	12	11	2	0	81	
	2.9	***3.6***	***5.1***	***3.0***	***0.0***	***3.2***	
Ebstein anomaly	15	0	1	1	0	17	
	0.8	***0.0***	***0.5***	***1.5***	***0.0***	***0.7***	
Encephalocele	13	1	1	1	0	16	
	0.7	***0.3***	***0.5***	***1.5***	***0.0***	***0.6***	
Esophageal atresia/tracheoesophageal fistula	51	4	7	0	1	63	
	2.7	***1.2***	***3.3***	***0.0***	***24.0***	***2.5***	
Gastroschisis	94	17	14	2	0	132	
	5.0	***5.1***	***6.5***	***3.0***	***0.0***	***5.2***	
Hypoplastic left heart syndrome	34	7	5	2	1	50	
	1.8	***2.1***	***2.3***	***3.0***	***24.0***	***2.0***	
Hypospadias*	653	72	34	11	0	786	3
	68.3	***42.8***	***31.0***	***32.2***	***0.0***	***60.6***	
Omphalocele	13	5	1	1	0	20	
	0.7	***1.5***	***0.5***	***1.5***	***0.0***	***0.8***	
Pulmonary valve atresia and stenosis	130	28	15	4	1	183	
	7.0	***8.4***	***7.0***	***6.0***	***24.0***	***7.2***	
Rectal and large intestinal atresia/stenosis	80	10	14	2	1	108	
	4.3	***3.0***	***6.5***	***3.0***	***24.0***	***4.3***	
Renal agenesis/hypoplasia	68	7	9	2	0	88	
	3.6	***2.1***	***4.2***	***3.0***	***0.0***	***3.5***	
Spina bifida without anencephalus	83	8	8	1	0	103	
	4.4	***2.4***	***3.7***	***1.5***	***0.0***	***4.1***	
Tetralogy of Fallot	50	10	8	2	0	71	
	2.7	***3.0***	***3.7***	***3.0***	***0.0***	***2.8***	
Total anomalous pulmonary venous connection	17	2	3	0	0	23	
	0.9	***0.6***	***1.4***	***0.0***	***0.0***	***0.9***	
Transposition of the great arteries (TGA)	94	16	7	0	0	124	4
	5.0	***4.8***	***3.3***	***0.0***	***0.0***	***4.9***	
Tricuspid valve atresia and stenosis	13	3	1	0	0	17	5
	0.7	***0.9***	***0.5***	***0.0***	***0.0***	***0.7***	
Trisomy 13	8	2	2	0	0	12	
	0.4	***0.6***	***0.9***	***0.0***	***0.0***	***0.5***	

Indiana

Birth Defects Counts and Prevalence 2008 - 2010 (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 18	20	7	5	1	0	33	
	1.1	***2.1***	***2.3***	***1.5***	***0.0***	***1.3***	
Trisomy 21 (Down syndrome)	208	28	35	9	1	285	
	11.1	***8.4***	***16.4***	***13.6***	***24.0***	***11.2***	
Ventricular septal defect	759	92	91	27	1	990	6
	40.7	***27.7***	***42.6***	***40.8***	***24.0***	***39.1***	
Total live births	**186557**	**33219**	**21382**	**6622**	**416**	**253501**	
Male live births	**95658**	**16829**	**10952**	**3421**	**195**	**129753**	

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

Indiana

Trisomy Counts and Prevalence by Maternal Age 2008 - 2010 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Trisomy 13	9	3	12	
	0.4	***1.1***	***0.5***	
Trisomy 18	19	14	33	
	0.8	***5.1***	***1.3***	
Trisomy 21 (Down syndrome)	162	123	285	
	7.2	***44.7***	***11.2***	
Total live births	**225898**	**27542**	**253501**	

**Total includes unknown maternal age

Notes
1.Includes inlet ventricular septal defect.
2.Includes epispadias prior to July 2009.
3.Includes double outlet right ventricle.
4.Includes stenosis and hypoplasia, and Tricuspid valve insufficiency or regurgitation, congenital.
5.Includes inlet ventricular septal defect and probable cases..

General comments
-Data for conditions includes live births only.

Iowa

Birth Defects Counts and Prevalence 2008 - 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	43	4	9	1	0	59	
	2.6	***4.7***	***5.6***	***1.9***	***0.0***	***3.0***	
Anophthalmia/microphthalmia	25	1	5	2	1	34	
	1.5	***1.2***	***3.1***	***3.8***	***10.9***	***1.7***	
Anotia/microtia	28	0	10	0	0	40	
	1.7	***0.0***	***6.2***	***0.0***	***0.0***	***2.0***	
Aortic valve stenosis	52	1	3	2	1	59	
	3.2	***1.2***	***1.9***	***3.8***	***10.9***	***3.0***	
Atrial septal defect	473	42	57	14	4	592	
	29.1	***49.0***	***35.6***	***26.5***	***43.4***	***30.3***	
Atrioventricular septal defect (Endocardial cushion defect)	91	7	14	2	0	114	
	5.6	***8.2***	***8.7***	***3.8***	***0.0***	***5.8***	
Biliary atresia	6	1	1	0	0	8	
	0.4	***1.2***	***0.6***	***0.0***	***0.0***	***0.4***	
Bladder exstrophy	5	0	0	0	0	5	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Choanal atresia	30	0	0	0	0	30	1
	1.8	***0.0***	***0.0***	***0.0***	***0.0***	***1.5***	
Cleft lip alone	68	4	4	2	0	78	
	4.2	***4.7***	***2.5***	***3.8***	***0.0***	***4.0***	
Cleft lip with cleft palate	93	3	12	5	1	114	
	5.7	***3.5***	***7.5***	***9.5***	***10.9***	***5.8***	
Cleft palate alone	116	3	6	3	1	129	
	7.1	***3.5***	***3.7***	***5.7***	***10.9***	***6.6***	
Cloacal exstrophy	2	0	1	0	0	3	
	0.1	***0.0***	***0.6***	***0.0***	***0.0***	***0.2***	
Clubfoot	264	15	29	9	1	319	
	16.3	***17.5***	***18.1***	***17.1***	***10.9***	***16.3***	
Coarctation of the aorta	97	2	10	1	1	111	
	6.0	***2.3***	***6.2***	***1.9***	***10.9***	***5.7***	
Common truncus (truncus arteriosus)	6	0	0	1	0	7	
	0.4	***0.0***	***0.0***	***1.9***	***0.0***	***0.4***	
Congenital cataract	40	1	4	2	1	49	
	2.5	***1.2***	***2.5***	***3.8***	***10.9***	***2.5***	
Congenital posterior urethral valves	20	2	1	2	1	26	
	1.2	***2.3***	***0.6***	***3.8***	***10.9***	***1.3***	
Craniosynostosis	127	3	10	3	0	144	2
	7.8	***3.5***	***6.2***	***5.7***	***0.0***	***7.4***	
Deletion 22q11.2	15	1	0	0	0	16	
	0.9	***1.2***	***0.0***	***0.0***	***0.0***	***0.8***	
Diaphragmatic hernia	36	6	5	2	0	49	3
	2.2	***7.0***	***3.1***	***3.8***	***0.0***	***2.5***	
Double outlet right ventricle	28	5	4	0	0	39	4
	1.7	***5.8***	***2.5***	***0.0***	***0.0***	***2.0***	
Ebstein anomaly	11	1	0	1	0	13	
	0.7	***1.2***	***0.0***	***1.9***	***0.0***	***0.7***	
Encephalocele	14	1	1	0	0	17	
	0.9	***1.2***	***0.6***	***0.0***	***0.0***	***0.9***	
Esophageal atresia/tracheoesophageal fistula	48	0	2	0	0	50	
	3.0	***0.0***	***1.2***	***0.0***	***0.0***	***2.6***	
Gastroschisis	83	9	16	2	3	113	
	5.1	***10.5***	***10.0***	***3.8***	***32.6***	***5.8***	
Holoprosencephaly	24	2	4	0	0	30	
	1.5	***2.3***	***2.5***	***0.0***	***0.0***	***1.5***	
Hypoplastic left heart syndrome	36	3	6	2	0	47	
	2.2	***3.5***	***3.7***	***3.8***	***0.0***	***2.4***	
Hypospadias*	534	19	24	8	0	585	
	64.3	***43.0***	***30.0***	***29.2***	***0.0***	***58.6***	
Interrupted aortic arch	8	0	0	0	0	8	
	0.5	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	

Iowa

Birth Defects Counts and Prevalence 2008 - 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)	90	9	13	6	0	118	5
	5.5	***10.5***	***8.1***	***11.4***	***0.0***	***6.0***	
Omphalocele	43	3	3	1	0	53	
	2.6	***3.5***	***1.9***	***1.9***	***0.0***	***2.7***	
Pulmonary valve atresia and stenosis	190	15	15	7	0	229	
	11.7	***17.5***	***9.4***	***13.3***	***0.0***	***11.7***	
Pulmonary valve atresia	20	1	2	0	0	23	
	1.2	***1.2***	***1.2***	***0.0***	***0.0***	***1.2***	
Rectal and large intestinal atresia/stenosis	63	3	12	1	0	79	
	3.9	***3.5***	***7.5***	***1.9***	***0.0***	***4.0***	
Renal agenesis/hypoplasia	89	4	7	5	0	106	
	5.5	***4.7***	***4.4***	***9.5***	***0.0***	***5.4***	
Single ventricle	11	3	0	0	0	14	
	0.7	***3.5***	***0.0***	***0.0***	***0.0***	***0.7***	
Small intestinal atresia/stenosis	53	3	11	0	0	68	
	3.3	***3.5***	***6.9***	***0.0***	***0.0***	***3.5***	
Spina bifida without anencephalus	59	5	15	0	1	81	
	3.6	***5.8***	***9.4***	***0.0***	***10.9***	***4.1***	
Tetralogy of Fallot	60	4	4	2	1	72	
	3.7	***4.7***	***2.5***	***3.8***	***10.9***	***3.7***	
Total anomalous pulmonary venous connection	15	0	3	1	0	19	
	0.9	***0.0***	***1.9***	***1.9***	***0.0***	***1.0***	
Transposition of the great arteries (TGA)	46	2	8	2	0	59	6
	2.8	***2.3***	***5.0***	***3.8***	***0.0***	***3.0***	
Dextro-transposition of great arteries (d-TGA)	40	1	7	2	0	50	
	2.5	***1.2***	***4.4***	***3.8***	***0.0***	***2.6***	
Tricuspid valve atresia and stenosis	45	3	4	0	1	53	
	2.8	***3.5***	***2.5***	***0.0***	***10.9***	***2.7***	
Tricuspid valve atresia	7	1	2	0	0	10	
	0.4	***1.2***	***1.2***	***0.0***	***0.0***	***0.5***	
Trisomy 13	21	1	4	0	0	29	
	1.3	***1.2***	***2.5***	***0.0***	***0.0***	***1.5***	
Trisomy 18	54	6	6	2	0	69	
	3.3	***7.0***	***3.7***	***3.8***	***0.0***	***3.5***	
Trisomy 21 (Down syndrome)	179	12	34	7	0	235	
	11.0	***14.0***	***21.2***	***13.3***	***0.0***	***12.0***	
Turner syndrome†	42	2	4	0	0	49	
	5.3	***4.8***	***5.0***	***0.0***	***0.0***	***5.1***	
Ventricular septal defect	878	38	87	21	5	1029	
	54.1	***44.3***	***54.4***	***39.8***	***54.3***	***52.7***	
Total live births	**162428**	**8579**	**16002**	**5278**	**921**	**195283**	
Male live births	**83097**	**4415**	**8011**	**2739**	**481**	**99762**	
Female live births	**79331**	**4164**	**7991**	**2539**	**440**	**95521**	

*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

Iowa

Trisomy Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	111	2	113	
	6.4	***1.0***	***5.8***	
Trisomy 13	23	6	29	
	1.3	***2.9***	***1.5***	
Trisomy 18	44	25	69	
	2.5	***12.0***	***3.5***	
Trisomy 21 (Down syndrome)	125	110	235	
	7.2	***52.8***	***12.0***	
Total live births	**174458**	**20818**	**195283**	

**Total includes unknown maternal age

Notes
1.Excludes choanal stenosis.
2.Includes sagittal, metopic, coronal, and lambdoidal craniosynostosis, and craniosystosis, not otherwise specified (NOS). Excludes other types of craniosynostosis.
3.Excludes eventration of diaphragm.
4.State program uses modified BPA/CDC codes for this defect.
5.Excludes not otherwise specified (NOS) and unspecified limb reductions.
6.Excludes double outlet right ventricle.

General comments
-Stillbirths are defined as 20 weeks or greater gestational age and/or 350 grams or greater birth weight.
-Terminations include all gestational ages.
-Unspecified non-livebirths include spontaneous abortions.

Kansas

Birth Defects Counts and Prevalence 2008 - 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	34	<5	13	<5	0	50	
	2.4	***.***	***4.0***	***.***	***0.0***	***2.5***	
Anotia/microtia	<5	0	5	0	0	7	
	.	***0.0***	***1.6***	***0.0***	***0.0***	***0.4***	
Aortic valve stenosis	<5	0	<5	0	0	<5	
	.	***0.0***	***.***	***0.0***	***0.0***	***.***	
Atrial septal defect	136	36	82	5	<5	346	
	9.7	***26.4***	***25.5***	***8.7***	***.***	***17.6***	
Atrioventricular septal defect (Endocardial cushion defect)	15	<5	<5	0	0	22	
	1.1	***.***	***.***	***0.0***	***0.0***	***1.1***	
Biliary atresia	<5	0	<5	<5	0	<5	
	.	***0.0***	***.***	***.***	***0.0***	***.***	
Choanal atresia	6	0	<5	0	0	11	
	0.4	***0.0***	***.***	***0.0***	***0.0***	***0.6***	
Cleft lip alone	9	<5	<5	<5	0	18	
	0.6	***.***	***.***	***.***	***0.0***	***0.9***	
Cleft lip with cleft palate	30	<5	12	0	0	53	
	2.1	***.***	***3.7***	***0.0***	***0.0***	***2.7***	
Cleft palate alone	54	<5	26	<5	<5	95	
	3.9	***.***	***8.1***	***.***	***.***	***4.8***	
Cloacal exstrophy	19	<5	<5	<5	0	30	
	1.4	***.***	***.***	***.***	***0.0***	***1.5***	
Clubfoot	105	7	26	<5	0	160	
	7.5	***5.1***	***8.1***	***.***	***0.0***	***8.1***	
Coarctation of the aorta	9	0	5	0	0	19	
	0.6	***0.0***	***1.6***	***0.0***	***0.0***	***1.0***	
Common truncus (truncus arteriosus)	<5	0	0	0	0	<5	
	.	***0.0***	***0.0***	***0.0***	***0.0***	***.***	
Congenital cataract	<5	0	<5	0	0	<5	
	.	***0.0***	***.***	***0.0***	***0.0***	***.***	
Congenital posterior urethral valves	7	0	<5	0	0	8	
	0.5	***0.0***	***.***	***0.0***	***0.0***	***0.4***	
Diaphragmatic hernia	18	<5	10	<5	0	34	
	1.3	***.***	***3.1***	***.***	***0.0***	***1.7***	
Double outlet right ventricle	5	<5	5	0	0	14	
	0.4	***.***	***1.6***	***0.0***	***0.0***	***0.7***	
Encephalocele	<5	0	<5	0	0	6	
	.	***0.0***	***.***	***0.0***	***0.0***	***0.3***	
Esophageal atresia/tracheoesophageal fistula	10	0	<5	0	0	15	
	0.7	***0.0***	***.***	***0.0***	***0.0***	***0.8***	
Gastroschisis	73	<5	11	0	0	95	
	5.2	***.***	***3.4***	***0.0***	***0.0***	***4.8***	
Holoprosencephaly	26	<5	14	<5	0	49	
	1.9	***.***	***4.4***	***.***	***0.0***	***2.5***	
Hypoplastic left heart syndrome	8	0	5	<5	0	20	
	0.6	***0.0***	***1.6***	***.***	***0.0***	***1.0***	
Hypospadias*	171	17	25	<5	<5	249	
	23.9	***24.6***	***15.2***	***.***	***.***	***24.7***	
Interrupted aortic arch	0	<5	<5	0	0	<5	
	0.0	***.***	***.***	***0.0***	***0.0***	***.***	
Limb deficiencies (reduction defects)	41	6	16	<5	0	73	
	2.9	***4.4***	***5.0***	***.***	***0.0***	***3.7***	
Omphalocele	25	<5	8	<5	0	46	
	1.8	***.***	***2.5***	***.***	***0.0***	***2.3***	
Pulmonary valve atresia and stenosis	24	5	9	0	0	47	
	1.7	***3.7***	***2.8***	***0.0***	***0.0***	***2.4***	
Rectal and large intestinal atresia/stenosis	13	<5	12	<5	0	35	
	0.9	***.***	***3.7***	***.***	***0.0***	***1.8***	
Renal agenesis/hypoplasia	18	<5	7	0	0	32	
	1.3	***.***	***2.2***	***0.0***	***0.0***	***1.6***	

Kansas

Birth Defects Counts and Prevalence 2008 - 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**
Small intestinal atresia/stenosis	19	0	<5	<5	0	27	
	1.4	***0.0***	**.**	**.**	***0.0***	***1.4***	
Spina bifida without anencephalus	33	<5	15	<5	0	59	
	2.4	**.**	***4.7***	**.**	***0.0***	***3.0***	
Tetralogy of Fallot	13	0	<5	0	0	22	
	0.9	***0.0***	**.**	***0.0***	***0.0***	***1.1***	
Total anomalous pulmonary venous connection	<5	0	<5	0	0	6	
	.	***0.0***	**.**	***0.0***	***0.0***	***0.3***	
Transposition of the great arteries (TGA)	13	<5	<5	<5	0	20	
	0.9	**.**	**.**	**.**	***0.0***	***1.0***	
Tricuspid valve atresia and stenosis	<5	<5	<5	0	0	5	
	.	**.**	**.**	***0.0***	***0.0***	***0.3***	
Trisomy 13	5	<5	<5	<5	0	14	
	0.4	**.**	**.**	**.**	***0.0***	***0.7***	
Trisomy 18	19	<5	9	0	0	30	
	1.4	**.**	***2.8***	***0.0***	***0.0***	***1.5***	
Trisomy 21 (Down syndrome)	129	10	55	8	<5	226	
	9.2	***7.3***	***17.1***	***14.0***	**.**	***11.5***	
Turner syndrome†	6	<5	<5	0	0	8	
	0.9	**.**	**.**	***0.0***	***0.0***	***0.8***	
Ventricular septal defect	139	9	84	8	<5	299	
	9.9	***6.6***	***26.1***	***14.0***	**.**	***15.2***	
Total live births §	**140051**	**13648**	**32154**	**5721**	**1040**	**196772**	
Male live births	**71695**	**6919**	**16408**	**2972**	**506**	**100637**	
Female live births	**68356**	**6728**	**15746**	**2749**	**534**	**96134**	

*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 Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	90	<5	95	
	5.1	***.***	***4.8***	
Trisomy 13	9	<5	14	
	0.5	***.***	***0.7***	
Trisomy 18	19	11	30	
	1.1	***5.3***	***1.5***	
Trisomy 21 (Down syndrome)	131	92	226	
	7.4	***44.4***	***11.5***	
Total live births	**176063**	**20699**	**196772**	

**Total includes unknown maternal age

General comments

-Data for conditions include live births and fetal deaths/stillbirths.
-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, resulting in other than a live birth, as defined in this section, and which is not an induced termination of pregnancy.

Kentucky

Birth Defects Counts and Prevalence 2008 - 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	30	2	1	0	0	40	
	1.3	***0.8***	***0.7***	***0.0***	***0.0***	***1.5***	
Anophthalmia/microphthalmia	8	0	0	0	0	10	
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	
Anotia/microtia	4	1	1	0	0	9	
	0.2	***0.4***	***0.7***	***0.0***	***0.0***	***0.3***	
Aortic valve stenosis	18	3	1	0	0	26	
	0.8	***1.2***	***0.7***	***0.0***	***0.0***	***0.9***	
Atrial septal defect	3744	788	184	41	3	5667	
	165.3	***320.4***	***131.8***	***155.7***	***104.2***	***206.9***	
Atrioventricular septal defect (Endocardial cushion defect)	36	8	0	0	0	53	
	1.6	***3.3***	***0.0***	***0.0***	***0.0***	***1.9***	
Biliary atresia	7	0	1	0	0	8	
	0.3	***0.0***	***0.7***	***0.0***	***0.0***	***0.3***	
Bladder exstrophy	3	0	0	0	0	6	
	0.1	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Choanal atresia	21	0	0	0	0	24	
	0.9	***0.0***	***0.0***	***0.0***	***0.0***	***0.9***	
Cleft lip alone	34	6	3	1	0	56	
	1.5	***2.4***	***2.1***	***3.8***	***0.0***	***2.0***	
Cleft lip with cleft palate	118	10	5	0	0	164	
	5.2	***4.1***	***3.6***	***0.0***	***0.0***	***6.0***	
Cleft palate alone	92	7	2	2	0	135	
	4.1	***2.8***	***1.4***	***7.6***	***0.0***	***4.9***	
Cloacal exstrophy	44	7	1	2	0	58	
	1.9	***2.8***	***0.7***	***7.6***	***0.0***	***2.1***	
Clubfoot	162	17	10	0	0	205	
	7.2	***6.9***	***7.2***	***0.0***	***0.0***	***7.5***	
Coarctation of the aorta	87	7	1	0	0	111	
	3.8	***2.8***	***0.7***	***0.0***	***0.0***	***4.1***	
Common truncus (truncus arteriosus)	6	0	0	0	0	8	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Congenital cataract	15	3	1	0	0	20	
	0.7	***1.2***	***0.7***	***0.0***	***0.0***	***0.7***	
Congenital posterior urethral valves	13	0	0	0	0	19	
	0.6	***0.0***	***0.0***	***0.0***	***0.0***	***0.7***	
Deletion 22q11.2	3	1	0	0	0	4	
	0.1	***0.4***	***0.0***	***0.0***	***0.0***	***0.1***	
Diaphragmatic hernia	31	4	2	1	0	47	
	1.4	***1.6***	***1.4***	***3.8***	***0.0***	***1.7***	
Double outlet right ventricle	25	3	1	0	0	36	
	1.1	***1.2***	***0.7***	***0.0***	***0.0***	***1.3***	
Ebstein anomaly	12	0	0	0	0	13	
	0.5	***0.0***	***0.0***	***0.0***	***0.0***	***0.5***	
Encephalocele	14	2	0	0	0	21	
	0.6	***0.8***	***0.0***	***0.0***	***0.0***	***0.8***	
Esophageal atresia/tracheoesophageal fistula	38	1	2	0	0	49	
	1.7	***0.4***	***1.4***	***0.0***	***0.0***	***1.8***	
Gastroschisis	77	8	6	0	0	111	
	3.4	***3.3***	***4.3***	***0.0***	***0.0***	***4.1***	
Holoprosencephaly	46	7	2	2	0	61	
	2.0	***2.8***	***1.4***	***7.6***	***0.0***	***2.2***	
Hypoplastic left heart syndrome	43	3	2	0	0	64	
	1.9	***1.2***	***1.4***	***0.0***	***0.0***	***2.3***	
Hypospadias*	818	79	20	2	0	1077	
	70.3	***63.5***	***28.1***	***14.7***	***0.0***	***76.7***	
Interrupted aortic arch	2	1	0	0	0	5	
	0.1	***0.4***	***0.0***	***0.0***	***0.0***	***0.2***	
Limb deficiencies (reduction defects)	49	4	3	0	1	77	
	2.2	***1.6***	***2.1***	***0.0***	***34.7***	***2.8***	

Kentucky

Birth Defects Counts and Prevalence 2008 - 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**
Omphalocele	22	8	1	0	0	45	
	1.0	***3.3***	***0.7***	***0.0***	***0.0***	***1.6***	
Pulmonary valve atresia and stenosis	103	10	8	0	0	151	
	4.5	***4.1***	***5.7***	***0.0***	***0.0***	***5.5***	
Pulmonary valve atresia	13	1	0	0	0	18	
	0.6	***0.4***	***0.0***	***0.0***	***0.0***	***0.7***	
Rectal and large intestinal atresia/stenosis	64	6	4	1	0	85	
	2.8	***2.4***	***2.9***	***3.8***	***0.0***	***3.1***	
Renal agenesis/hypoplasia	76	7	4	4	0	110	
	3.4	***2.8***	***2.9***	***15.2***	***0.0***	***4.0***	
Single ventricle	6	0	0	0	0	6	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Small intestinal atresia/stenosis	35	3	3	0	0	49	
	1.5	***1.2***	***2.1***	***0.0***	***0.0***	***1.8***	
Spina bifida without anencephalus	80	7	7	0	0	113	
	3.5	***2.8***	***5.0***	***0.0***	***0.0***	***4.1***	
Tetralogy of Fallot	60	10	1	0	0	90	
	2.6	***4.1***	***0.7***	***0.0***	***0.0***	***3.3***	
Total anomalous pulmonary venous connection	6	2	1	0	0	10	
	0.3	***0.8***	***0.7***	***0.0***	***0.0***	***0.4***	
Transposition of the great arteries (TGA)	30	1	0	0	0	39	
	1.3	***0.4***	***0.0***	***0.0***	***0.0***	***1.4***	
Dextro-transposition of great arteries (d-TGA)	23	1	0	0	0	29	
	1.0	***0.4***	***0.0***	***0.0***	***0.0***	***1.1***	
Tricuspid valve atresia and stenosis	18	2	2	0	0	26	1
	0.8	***0.8***	***1.4***	***0.0***	***0.0***	***0.9***	
Trisomy 13	6	1	0	0	0	8	
	0.3	***0.4***	***0.0***	***0.0***	***0.0***	***0.3***	
Trisomy 18	10	1	2	0	0	21	
	0.4	***0.4***	***1.4***	***0.0***	***0.0***	***0.8***	
Trisomy 21 (Down syndrome)	166	22	17	0	1	226	
	7.3	***8.9***	***12.2***	***0.0***	***34.7***	***8.2***	
Turner syndrome†	5	0	0	0	0	5	
	0.5	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	
Ventricular septal defect	594	65	38	10	1	827	2
	26.2	***26.4***	***27.2***	***38.0***	***34.7***	***30.2***	
Total live births	**226552**	**24598**	**13964**	**2634**	**288**	**273952**	
Male live births	**116286**	**12440**	**7123**	**1360**	**141**	**140445**	
Female live births	**110266**	**12158**	**6841**	**1274**	**147**	**133507**	

*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

Kentucky

Trisomy Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	88	4	111	
	3.6	***1.6***	***4.1***	
Trisomy 13	6	1	8	
	0.2	***0.4***	***0.3***	
Trisomy 18	10	5	21	
	0.4	***2.0***	***0.8***	
Trisomy 21 (Down syndrome)	123	84	226	
	5.0	***33.3***	***8.2***	
Total live births	**247037**	**25262**	**273952**	

**Total includes unknown maternal age

Notes
1.Includes stenosis and hypoplasia.
2.Excludes inlet ventricular septal defect and common atrioventricular canal type ventricular septal defect.

General comments
-Stillbirth (applies to all fetal death calculations): 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 2008 - 2011 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total**	Notes
Anencephalus	10	<5	0	<5	0	15	
	1.0	***.***	***0.0***	***.***	***0.0***	***0.8***	
Anophthalmia/microphthalmia	10	<5	0	0	0	14	
	1.0	***.***	***0.0***	***0.0***	***0.0***	***0.7***	
Anotia/microtia	<5	0	<5	0	0	7	
	.	***0.0***	***.***	***0.0***	***0.0***	***0.4***	
Aortic valve stenosis	6	8	0	0	0	14	
	0.6	***1.1***	***0.0***	***0.0***	***0.0***	***0.7***	
Atrial septal defect	441	346	47	15	7	857	
	44.5	***46.4***	***44.1***	***41.6***	***61.2***	***45.2***	
Atrioventricular septal defect (Endocardial cushion defect)	46	20	<5	5	0	75	
	4.6	***2.7***	***.***	***13.9***	***0.0***	***4.0***	
Biliary atresia	7	6	<5	<5	0	15	
	0.8	***0.9***	***.***	***.***	***0.0***	***0.9***	
Bladder exstrophy	5	<5	0	0	0	6	
	0.6	***.***	***0.0***	***0.0***	***0.0***	***0.4***	
Choanal atresia	17	5	0	0	0	22	
	1.7	***0.7***	***0.0***	***0.0***	***0.0***	***1.2***	
Cleft lip alone	32	8	<5	<5	0	45	
	3.2	***1.1***	***.***	***.***	***0.0***	***2.4***	
Cleft lip with cleft palate	42	31	6	0	<5	80	
	4.2	***4.2***	***5.6***	***0.0***	***.***	***4.2***	
Cleft palate alone	57	34	5	<5	0	97	
	5.8	***4.6***	***4.7***	***.***	***0.0***	***5.1***	
Coarctation of the aorta	44	19	<5	0	0	66	
	4.4	***2.6***	***.***	***0.0***	***0.0***	***3.5***	
Common truncus (truncus arteriosus)	10	<5	0	0	0	12	
	1.2	***.***	***0.0***	***0.0***	***0.0***	***0.7***	
Congenital cataract	6	8	<5	0	0	16	
	0.7	***1.2***	***.***	***0.0***	***0.0***	***1.0***	
Congenital posterior urethral valves	21	12	<5	<5	0	35	
	2.1	***1.6***	***.***	***.***	***0.0***	***1.8***	
Deletion 22q11.2	<5	<5	0	0	0	<5	
	.	***.***	***0.0***	***0.0***	***0.0***	***.***	
Diaphragmatic hernia	19	11	<5	0	0	34	
	1.9	***1.5***	***.***	***0.0***	***0.0***	***1.8***	
Ebstein anomaly	5	<5	<5	<5	0	9	
	0.6	***.***	***.***	***.***	***0.0***	***0.5***	
Encephalocele	6	6	0	0	0	12	
	0.7	***0.9***	***0.0***	***0.0***	***0.0***	***0.7***	
Esophageal atresia/tracheoesophageal fistula	7	8	<5	<5	0	19	
	0.7	***1.1***	***.***	***.***	***0.0***	***1.0***	
Gastroschisis	29	14	0	0	0	43	
	2.9	***1.9***	***0.0***	***0.0***	***0.0***	***2.3***	
Holoprosencephaly	<5	<5	<5	0	0	5	
	.	***.***	***.***	***0.0***	***0.0***	***0.6***	
Hypoplastic left heart syndrome	8	17	<5	0	<5	27	
	0.8	***2.3***	***.***	***0.0***	***.***	***1.4***	
Hypospadias*	392	180	16	6	<5	601	
	77.3	***47.5***	***29.6***	***32.0***	***.***	***62.1***	
Interrupted aortic arch	<5	<5	0	0	0	<5	
	.	***.***	***0.0***	***0.0***	***0.0***	***.***	
Limb deficiencies (reduction defects)	19	18	<5	0	0	38	
	1.9	***2.4***	***.***	***0.0***	***0.0***	***2.0***	
Omphalocele	12	19	<5	<5	0	34	
	1.2	***2.6***	***.***	***.***	***0.0***	***1.8***	
Pulmonary valve atresia and stenosis	34	39	<5	<5	<5	79	
	3.4	***5.2***	***.***	***.***	***.***	***4.2***	
Pulmonary valve atresia	5	5	0	<5	0	11	
	0.5	***0.7***	***0.0***	***.***	***0.0***	***0.6***	

Louisiana

Birth Defects Counts and Prevalence 2008 - 2011 (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	33	24	5	0	<5	63	
	3.3	***3.2***	***4.7***	***0.0***	**.**	***3.3***	
Renal agenesis/hypoplasia	35	23	<5	0	<5	63	
	3.5	***3.1***	**.**	***0.0***	**.**	***3.3***	
Spina bifida without anencephalus	24	13	<5	0	0	39	
	2.4	***1.7***	**.**	***0.0***	***0.0***	***2.1***	
Tetralogy of Fallot	27	29	0	<5	0	57	
	2.7	***3.9***	***0.0***	**.**	***0.0***	***3.0***	
Total anomalous pulmonary venous connection	0	<5	0	0	0	<5	
	0.0	**.**	***0.0***	***0.0***	***0.0***	**.**	
Transposition of the great arteries (TGA)	26	8	<5	<5	0	38	
	2.6	***1.1***	**.**	**.**	***0.0***	***2.0***	
Dextro-transposition of great arteries (d-TGA)	23	6	<5	<5	0	33	
	2.3	***0.8***	**.**	**.**	***0.0***	***1.7***	
Tricuspid valve atresia and stenosis	5	<5	<5	0	<5	8	
	0.6	**.**	**.**	***0.0***	**.**	***0.5***	
Tricuspid valve atresia	<5	<5	<5	0	<5	6	
	.	**.**	**.**	***0.0***	**.**	***0.4***	
Trisomy 13	6	<5	<5	0	0	11	
	0.6	**.**	**.**	***0.0***	***0.0***	***0.6***	
Trisomy 18	15	9	<5	<5	0	30	
	1.5	***1.2***	**.**	**.**	***0.0***	***1.6***	
Trisomy 21 (Down syndrome)	112	51	15	8	<5	188	
	11.3	***6.8***	***14.1***	***22.2***	**.**	***9.9***	
Turner syndrome†	10	<5	0	0	0	12	
	2.1	**.**	***0.0***	***0.0***	***0.0***	***1.3***	
Ventricular septal defect	423	245	50	8	5	733	
	42.7	***32.9***	***47.0***	***22.2***	***43.7***	***38.7***	
Total live births §	**98994**	**74494**	**10646**	**3602**	**1143**	**189634**	
Male live births	**50744**	**37856**	**5402**	**1874**	**568**	**96830**	
Female live births	**48249**	**36638**	**5244**	**1728**	**575**	**92803**	

*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 Counts and Prevalence by Maternal Age 2008 - 2011 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	42	<5	43	
	2.4	***.***	***2.3***	
Trisomy 13	8	<5	11	
	0.5	***.***	***0.6***	
Trisomy 18	18	12	30	
	1.0	***7.0***	***1.6***	
Trisomy 21 (Down syndrome)	109	79	188	
	6.3	***46.2***	***9.9***	
Total live births	**172524**	**17108**	**189634**	

**Total includes unknown maternal age

General comments
-Data for 2008 include 9 regions.
-Data for 2009 include 8 of 9 regions (Regions 1, 2, 3, 4, 5, 7, 8, and 9).
-Data for 2010 include 5 of 9 regions (Regions 1, 2, 5, 7, and 9).
-Data for 2011 include 3 of 9 regions (Regions 2, 7, and 9).
-Includes probable cases.

Maine

Birth Defects Counts and Prevalence 2008 - 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	8	1	0	0	0	13	1
	1.4	***5.3***	***0.0***	***0.0***	***0.0***	***2.0***	
Anotia/microtia	0	0	0	0	0	1	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Choanal atresia	3	0	0	0	0	3	2
	0.9	***0.0***	***0.0***	***0.0***	***0.0***	***0.8***	
Cleft lip alone	19	0	0	0	0	19	
	3.2	***0.0***	***0.0***	***0.0***	***0.0***	***3.0***	
Cleft lip with cleft palate	19	1	0	1	1	23	
	3.2	***5.3***	***0.0***	***9.3***	***17.2***	***3.6***	
Cleft palate alone	39	0	1	0	2	43	
	6.6	***0.0***	***9.9***	***0.0***	***34.3***	***6.7***	
Coarctation of the aorta	31	0	0	0	0	31	
	5.2	***0.0***	***0.0***	***0.0***	***0.0***	***4.9***	
Common truncus (truncus arteriosus)	5	0	0	0	0	5	
	0.8	***0.0***	***0.0***	***0.0***	***0.0***	***0.8***	
Double outlet right ventricle	6	0	0	0	0	6	3
	1.7	***0.0***	***0.0***	***0.0***	***0.0***	***1.5***	
Encephalocele	2	0	0	1	0	3	
	0.3	***0.0***	***0.0***	***9.3***	***0.0***	***0.5***	
Gastroschisis	42	0	0	2	0	44	
	7.1	***0.0***	***0.0***	***18.5***	***0.0***	***6.9***	
Hypoplastic left heart syndrome	18	1	1	0	0	23	
	3.0	***5.3***	***9.9***	***0.0***	***0.0***	***3.6***	
Hypospadias*	187	8	3	3	2	204	
	61.7	***79.6***	***57.9***	***54.2***	***65.6***	***62.2***	
Interrupted aortic arch	6	1	0	0	0	7	3
	1.7	***9.0***	***0.0***	***0.0***	***0.0***	***1.8***	
Limb deficiencies (reduction defects)	14	0	0	0	1	18	
	2.4	***0.0***	***0.0***	***0.0***	***17.2***	***2.8***	
Omphalocele	11	0	0	0	0	11	
	1.9	***0.0***	***0.0***	***0.0***	***0.0***	***1.7***	
Pulmonary valve atresia and stenosis	18	0	0	0	0	18	4
	3.0	***0.0***	***0.0***	***0.0***	***0.0***	***2.8***	
Pulmonary valve atresia	5	0	0	0	0	5	
	0.8	***0.0***	***0.0***	***0.0***	***0.0***	***0.8***	
Single ventricle	1	0	0	0	0	1	3
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Spina bifida without anencephalus	22	0	0	0	0	23	1
	3.7	***0.0***	***0.0***	***0.0***	***0.0***	***3.6***	
Tetralogy of Fallot	25	0	0	0	0	25	5
	4.2	***0.0***	***0.0***	***0.0***	***0.0***	***3.9***	
Transposition of the great arteries (TGA)	20	0	0	1	0	22	
	3.4	***0.0***	***0.0***	***9.3***	***0.0***	***3.4***	
Tricuspid valve atresia	6	0	0	0	0	6	
	1.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.9***	
Trisomy 21 (Down syndrome)	76	2	3	1	0	86	1
	12.9	***10.5***	***29.7***	***9.3***	***0.0***	***13.5***	
Total live births	**59121**	**1899**	**1010**	**1079**	**583**	**63897**	
Male live births	**30284**	**1005**	**518**	**553**	**305**	**32786**	

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

Maine

Trisomy Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	44	0	44	
	8.0	***0.0***	***6.9***	
Trisomy 13	1	0	1	
	0.2	***0.0***	***0.2***	
Trisomy 21 (Down syndrome)	51	35	86	1
	9.2	***40.9***	***13.5***	
Total live births	**55333**	**8564**	**63897**	

**Total includes unknown maternal age

Notes
1.Includes live births and fetal deaths 20 weeks and greater.
2.Data begins in 2010.
3.Data ends in 2010.
4.Data for atresia begins in 2003; Data for stenosis begins in 2010.
5.Includes pulmonary atresia with septal defect.

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

Maryland

Birth Defects Counts and Prevalence 2008 - 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	38	10	5	1	0	59	
	2.2	***0.8***	***1.0***	***0.4***	***0.0***	***1.6***	
Anophthalmia/microphthalmia	1	4	1	0	0	6	
	0.1	***0.3***	***0.2***	***0.0***	***0.0***	***0.2***	
Anotia/microtia	5	4	6	1	0	16	
	0.3	***0.3***	***1.2***	***0.4***	***0.0***	***0.4***	
Aortic valve stenosis	2	0	0	0	0	2	
	0.1	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Atrial septal defect	16	12	5	0	0	33	
	0.9	***1.0***	***1.0***	***0.0***	***0.0***	***0.9***	
Atrioventricular septal defect (Endocardial cushion defect)	12	11	2	0	0	26	
	0.7	***0.9***	***0.4***	***0.0***	***0.0***	***0.7***	
Biliary atresia	0	1	0	0	0	1	
	0.0	***0.1***	***0.0***	***0.0***	***0.0***	***0.0***	
Bladder exstrophy	4	1	1	0	0	6	
	0.2	***0.1***	***0.2***	***0.0***	***0.0***	***0.2***	
Choanal atresia	3	1	2	0	0	7	
	0.2	***0.1***	***0.4***	***0.0***	***0.0***	***0.2***	
Cleft lip alone	60	18	7	7	0	96	
	3.5	***1.5***	***1.3***	***2.7***	***0.0***	***2.6***	
Cleft lip with cleft palate	90	32	27	6	0	157	
	5.3	***2.6***	***5.2***	***2.3***	***0.0***	***4.2***	
Cleft palate alone	76	25	14	5	0	125	
	4.5	***2.0***	***2.7***	***1.9***	***0.0***	***3.4***	
Cloacal exstrophy	2	1	0	0	0	3	
	0.1	***0.1***	***0.0***	***0.0***	***0.0***	***0.1***	
Clubfoot	132	69	24	7	1	242	
	7.8	***5.6***	***4.6***	***2.7***	***13.2***	***6.5***	
Coarctation of the aorta	13	4	1	1	0	19	
	0.8	***0.3***	***0.2***	***0.4***	***0.0***	***0.5***	
Common truncus (truncus arteriosus)	2	1	0	0	0	3	
	0.1	***0.1***	***0.0***	***0.0***	***0.0***	***0.1***	
Congenital cataract	2	1	0	0	0	3	
	0.1	***0.1***	***0.0***	***0.0***	***0.0***	***0.1***	
Congenital posterior urethral valves	5	3	0	1	0	9	
	0.3	***0.2***	***0.0***	***0.4***	***0.0***	***0.2***	
Craniosynostosis	11	5	3	0	0	19	
	0.6	***0.4***	***0.6***	***0.0***	***0.0***	***0.5***	
Deletion 22q11.2	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Diaphragmatic hernia	10	12	3	1	0	26	
	0.6	***1.0***	***0.6***	***0.4***	***0.0***	***0.7***	
Double outlet right ventricle	5	6	1	1	0	13	
	0.3	***0.5***	***0.2***	***0.4***	***0.0***	***0.3***	
Ebstein anomaly	6	0	0	0	0	7	
	0.4	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Encephalocele	7	7	1	1	0	16	
	0.4	***0.6***	***0.2***	***0.4***	***0.0***	***0.4***	
Esophageal atresia/tracheoesophageal fistula	28	19	6	2	0	58	
	1.7	***1.5***	***1.2***	***0.8***	***0.0***	***1.6***	
Gastroschisis	6	2	1	1	0	12	1
	0.6	***0.3***	***0.3***	***0.6***	***0.0***	***0.5***	
Holoprosencephaly	19	15	9	2	0	45	
	1.1	***1.2***	***1.7***	***0.8***	***0.0***	***1.2***	
Hypoplastic left heart syndrome	13	4	0	3	0	20	
	0.8	***0.3***	***0.0***	***1.2***	***0.0***	***0.5***	
Hypospadias*	395	267	53	39	0	783	
	45.6	***42.8***	***19.9***	***28.9***	***0.0***	***41.3***	
Interrupted aortic arch	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	

Maryland

Birth Defects Counts and Prevalence 2008 - 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)	41	41	18	3	0	108	
	2.4	***3.3***	***3.5***	***1.2***	***0.0***	***2.9***	
Omphalocele	1	2	0	0	0	5	
	0.1	***0.2***	***0.0***	***0.0***	***0.0***	***0.1***	
Pulmonary valve atresia and stenosis	1	2	0	0	0	4	
	0.1	***0.2***	***0.0***	***0.0***	***0.0***	***0.1***	
Pulmonary valve atresia	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Rectal and large intestinal atresia/stenosis	21	24	6	6	0	58	
	1.2	***2.0***	***1.2***	***2.3***	***0.0***	***1.6***	
Renal agenesis/hypoplasia	35	26	2	2	0	69	
	2.1	***2.1***	***0.4***	***0.8***	***0.0***	***1.9***	
Single ventricle	1	2	0	0	0	3	
	0.1	***0.2***	***0.0***	***0.0***	***0.0***	***0.1***	
Small intestinal atresia/stenosis	16	7	1	2	0	28	
	0.9	***0.6***	***0.2***	***0.8***	***0.0***	***0.8***	
Spina bifida without anencephalus	56	23	9	3	0	93	
	3.3	***1.9***	***1.7***	***1.2***	***0.0***	***2.5***	
Tetralogy of Fallot	25	5	2	3	0	37	
	1.5	***0.4***	***0.4***	***1.2***	***0.0***	***1.0***	
Total anomalous pulmonary venous connection	1	0	0	0	0	2	
	0.1	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Dextro-transposition of great arteries (d-TGA)	13	6	1	3	0	23	
	0.8	***0.5***	***0.2***	***1.2***	***0.0***	***0.6***	
Tricuspid valve atresia and stenosis	1	1	1	0	0	3	
	0.1	***0.1***	***0.2***	***0.0***	***0.0***	***0.1***	
Tricuspid valve atresia	1	0	1	0	0	2	
	0.1	***0.0***	***0.2***	***0.0***	***0.0***	***0.1***	
Trisomy 13	15	7	1	1	0	24	
	0.9	***0.6***	***0.2***	***0.4***	***0.0***	***0.6***	
Trisomy 18	30	11	12	4	0	61	
	1.8	***0.9***	***2.3***	***1.5***	***0.0***	***1.6***	
Trisomy 21 (Down syndrome)	170	99	49	17	1	359	
	10.0	***8.0***	***9.4***	***6.5***	***13.2***	***9.6***	
Turner syndrome†	6	3	2	2	0	14	
	0.7	***0.5***	***0.8***	***1.6***	***0.0***	***0.8***	
Ventricular septal defect	30	21	5	4	0	60	2
	1.8	***1.7***	***1.0***	***1.5***	***0.0***	***1.6***	
Total live births	**169642**	**123063**	**51978**	**26064**	**759**	**372125**	
Male live births	**86657**	**62348**	**26568**	**13499**	**379**	**189794**	
Female live births	**82985**	**60715**	**25410**	**12565**	**380**	**182331**	

*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

Maryland

Trisomy Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	8	2	12	1
	0.3	***0.3***	***0.3***	
Trisomy 13	9	15	24	
	0.3	***2.2***	***0.6***	
Trisomy 18	34	26	61	
	1.1	***3.8***	***1.6***	
Trisomy 21 (Down syndrome)	174	180	359	
	5.7	***26.4***	***9.6***	
Total live births	**303979**	**68146**	**372125**	

**Total includes unknown maternal age

Notes
1.Data for this condition begins in 2010.
2.Includes probable cases.

General comments
-Fetal deaths are greater than 20 weeks gestational age.
-Infants may be counted more than once, as our database up until May 2013 counts diagnoses, not individuals.
-Terminations are 20 weeks gestational age or less.

Massachusetts

Birth Defects Counts and Prevalence 2008 - 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	26	4	10	3	0	50	
	1.1	***1.2***	***1.7***	***1.0***	***0.0***	***1.3***	
Anophthalmia/microphthalmia	29	5	15	3	0	52	
	1.2	***1.5***	***2.6***	***1.0***	***0.0***	***1.4***	
Anotia/microtia	43	4	16	11	0	75	
	1.8	***1.2***	***2.7***	***3.6***	***0.0***	***2.0***	
Aortic valve stenosis	35	4	6	2	0	47	
	1.5	***1.2***	***1.0***	***0.7***	***0.0***	***1.3***	
Atrial septal defect	519	102	136	61	1	829	
	21.5	***29.8***	***23.3***	***20.2***	***10.1***	***22.4***	
Atrioventricular septal defect (Endocardial cushion defect)	132	28	37	11	0	214	
	5.5	***8.2***	***6.3***	***3.6***	***0.0***	***5.8***	
Biliary atresia	12	3	6	7	0	28	
	0.5	***0.9***	***1.0***	***2.3***	***0.0***	***0.8***	
Bladder exstrophy	7	0	1	0	0	8	
	0.3	***0.0***	***0.2***	***0.0***	***0.0***	***0.2***	
Choanal atresia	21	1	5	0	0	28	
	0.9	***0.3***	***0.9***	***0.0***	***0.0***	***0.8***	
Cleft lip alone	79	11	13	13	0	118	
	3.3	***3.2***	***2.2***	***4.3***	***0.0***	***3.2***	
Cleft lip with cleft palate	120	9	37	11	0	183	
	5.0	***2.6***	***6.3***	***3.6***	***0.0***	***4.9***	
Cleft palate alone	145	20	31	13	0	213	1
	6.0	***5.8***	***5.3***	***4.3***	***0.0***	***5.8***	
Cloacal exstrophy	8	1	2	0	0	11	
	0.3	***0.3***	***0.3***	***0.0***	***0.0***	***0.3***	
Clubfoot	337	39	77	25	3	495	
	14.0	***11.4***	***13.2***	***8.3***	***30.3***	***13.4***	
Coarctation of the aorta	116	16	28	5	0	166	
	4.8	***4.7***	***4.8***	***1.7***	***0.0***	***4.5***	
Common truncus (truncus arteriosus)	7	1	2	1	1	13	
	0.3	***0.3***	***0.3***	***0.3***	***10.1***	***0.4***	
Congenital cataract	50	10	25	3	0	89	
	2.1	***2.9***	***4.3***	***1.0***	***0.0***	***2.4***	
Congenital posterior urethral valves	16	12	12	5	0	47	
	0.7	***3.5***	***2.1***	***1.7***	***0.0***	***1.3***	
Craniosynostosis	140	6	22	7	1	179	
	5.8	***1.8***	***3.8***	***2.3***	***10.1***	***4.8***	
Deletion 22q11.2	26	4	7	6	0	44	
	1.1	***1.2***	***1.2***	***2.0***	***0.0***	***1.2***	
Diaphragmatic hernia	61	8	15	6	1	95	2
	2.5	***2.3***	***2.6***	***2.0***	***10.1***	***2.6***	
Double outlet right ventricle	29	3	6	5	0	44	2
	1.2	***0.9***	***1.0***	***1.7***	***0.0***	***1.2***	
Ebstein anomaly	9	1	5	0	0	15	
	0.4	***0.3***	***0.9***	***0.0***	***0.0***	***0.4***	
Encephalocele	12	1	8	0	0	24	
	0.5	***0.3***	***1.4***	***0.0***	***0.0***	***0.6***	
Esophageal atresia/tracheoesophageal fistula	75	7	17	1	0	100	
	3.1	***2.0***	***2.9***	***0.3***	***0.0***	***2.7***	
Gastroschisis	68	14	30	8	0	124	
	2.8	***4.1***	***5.1***	***2.6***	***0.0***	***3.3***	
Holoprosencephaly	19	4	14	2	0	42	
	0.8	***1.2***	***2.4***	***0.7***	***0.0***	***1.1***	
Hypoplastic left heart syndrome	38	7	11	2	0	60	
	1.6	***2.0***	***1.9***	***0.7***	***0.0***	***1.6***	
Hypospadias*	345	53	40	26	1	473	3
	28.0	***30.1***	***13.3***	***16.6***	***19.6***	***24.9***	
Interrupted aortic arch	10	2	2	0	0	14	
	0.4	***0.6***	***0.3***	***0.0***	***0.0***	***0.4***	

Massachusetts

Birth Defects Counts and Prevalence 2008 - 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)	106	12	26	8	0	155	
	4.4	***3.5***	***4.5***	***2.6***	***0.0***	***4.2***	
Omphalocele	49	8	18	2	0	79	
	2.0	***2.3***	***3.1***	***0.7***	***0.0***	***2.1***	
Pulmonary valve atresia and stenosis	180	53	43	15	1	297	
	7.5	***15.5***	***7.4***	***5.0***	***10.1***	***8.0***	
Pulmonary valve atresia	14	2	3	1	0	21	
	0.6	***0.6***	***0.5***	***0.3***	***0.0***	***0.6***	
Rectal and large intestinal atresia/stenosis	87	10	17	10	0	129	
	3.6	***2.9***	***2.9***	***3.3***	***0.0***	***3.5***	
Renal agenesis/hypoplasia	12	3	3	1	0	21	4
	0.5	***0.9***	***0.5***	***0.3***	***0.0***	***0.6***	
Single ventricle	9	2	0	2	0	13	
	0.4	***0.6***	***0.0***	***0.7***	***0.0***	***0.4***	
Small intestinal atresia/stenosis	63	7	18	10	0	100	
	2.6	***2.0***	***3.1***	***3.3***	***0.0***	***2.7***	
Spina bifida without anencephalus	69	8	18	4	0	106	
	2.9	***2.3***	***3.1***	***1.3***	***0.0***	***2.9***	
Tetralogy of Fallot	91	18	30	11	0	155	
	3.8	***5.3***	***5.1***	***3.6***	***0.0***	***4.2***	
Total anomalous pulmonary venous connection	13	2	9	9	0	33	
	0.5	***0.6***	***1.5***	***3.0***	***0.0***	***0.9***	
Transposition of the great arteries (TGA)	72	10	16	8	0	108	
	3.0	***2.9***	***2.7***	***2.6***	***0.0***	***2.9***	
Dextro-transposition of great arteries (d-TGA)	60	9	16	8	0	95	
	2.5	***2.6***	***2.7***	***2.6***	***0.0***	***2.6***	
Tricuspid valve atresia and stenosis	18	4	4	1	0	28	
	0.7	***1.2***	***0.7***	***0.3***	***0.0***	***0.8***	
Tricuspid valve atresia	13	2	3	1	0	20	
	0.5	***0.6***	***0.5***	***0.3***	***0.0***	***0.5***	
Trisomy 13	33	4	6	3	0	50	
	1.4	***1.2***	***1.0***	***1.0***	***0.0***	***1.3***	
Trisomy 18	77	13	24	11	0	139	
	3.2	***3.8***	***4.1***	***3.6***	***0.0***	***3.8***	
Trisomy 21 (Down syndrome)	406	62	110	40	0	650	
	16.8	***18.1***	***18.9***	***13.2***	***0.0***	***17.5***	
Turner syndrome†	47	2	11	1	1	73	
	4.0	***1.2***	***3.9***	***0.7***	***20.7***	***4.0***	
Ventricular septal defect	501	79	145	72	1	810	5
	20.8	***23.0***	***24.9***	***23.8***	***10.1***	***21.9***	
Total live births §	**241005**	**34283**	**58341**	**30268**	**991**	**370425**	
Male live births	**123278**	**17601**	**30005**	**15653**	**509**	**189879**	
Female live births	**117723**	**16680**	**28334**	**14615**	**482**	**180537**	

*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 Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	118	5	124	
	4.1	***0.6***	***3.3***	
Trisomy 13	21	29	50	
	0.7	***3.5***	***1.3***	
Trisomy 18	52	83	139	
	1.8	***9.9***	***3.8***	
Trisomy 21 (Down syndrome)	266	383	650	
	9.3	***45.9***	***17.5***	
Total live births	**286926**	**83482**	**370425**	

**Total includes unknown maternal age

Notes
1.Excludes isolated submucous cleft palate.
2.State program uses additional modified BPA/CDC codes for this defect.
3.Excludes 1st degree and not otherwise specified (NOS).
4.Excludes isolated unilateral renal agenesis/hypoplasia.
5.Excludes isolated muscular Ventricular Septal Defects (VSDs).

General comments
-Excludes probable and possible cases.
-For live births, race/ethnicity from vital records; new birth certificate in 2011--multiple categories allowed.
-For stillbirths without vital records 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 spontaneous losses <20 weeks and <350 grams.

Michigan

Birth Defects Counts and Prevalence 2008 - 2011 (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	55	13	7	3	1	81	
	1.7	***1.5***	***2.0***	***1.8***	***5.0***	***1.7***	
Anophthalmia/microphthalmia	46	10	3	2	0	61	
	1.4	***1.2***	***0.9***	***1.2***	***0.0***	***1.3***	
Anotia/microtia	38	11	6	4	0	59	
	1.2	***1.3***	***1.8***	***2.4***	***0.0***	***1.3***	
Aortic valve stenosis	68	11	8	3	0	92	
	2.1	***1.3***	***2.3***	***1.8***	***0.0***	***2.0***	
Atrial septal defect	2622	1024	239	153	19	4076	
	80.4	***118.0***	***69.7***	***93.2***	***95.8***	***87.2***	
Atrioventricular septal defect (Endocardial cushion defect)	182	37	15	9	0	244	
	5.6	***4.3***	***4.4***	***5.5***	***0.0***	***5.2***	
Biliary atresia	31	15	7	4	0	57	
	1.0	***1.7***	***2.0***	***2.4***	***0.0***	***1.2***	
Bladder exstrophy	8	0	0	0	1	9	
	0.2	***0.0***	***0.0***	***0.0***	***5.0***	***0.2***	
Choanal atresia	53	12	2	5	0	72	
	1.6	***1.4***	***0.6***	***3.0***	***0.0***	***1.5***	
Cleft lip alone	184	15	12	7	0	232	
	5.6	***1.7***	***3.5***	***4.3***	***0.0***	***5.0***	
Cleft lip with cleft palate	154	31	16	6	1	235	
	4.7	***3.6***	***4.7***	***3.7***	***5.0***	***5.0***	
Cleft palate alone	205	26	25	12	2	285	
	6.3	***3.0***	***7.3***	***7.3***	***10.1***	***6.1***	
Cloacal exstrophy	160	50	8	5	0	223	
	4.9	***5.8***	***2.3***	***3.0***	***0.0***	***4.8***	
Clubfoot	456	112	22	33	3	627	
	14.0	***12.9***	***6.4***	***20.1***	***15.1***	***13.4***	
Coarctation of the aorta	791	345	96	47	7	1289	
	24.3	***39.8***	***28.0***	***28.6***	***35.3***	***27.6***	
Common truncus (truncus arteriosus)	44	15	2	5	1	67	
	1.3	***1.7***	***0.6***	***3.0***	***5.0***	***1.4***	
Congenital cataract	75	14	4	3	0	96	
	2.3	***1.6***	***1.2***	***1.8***	***0.0***	***2.1***	
Congenital posterior urethral valves	49	17	1	1	0	68	
	1.5	***2.0***	***0.3***	***0.6***	***0.0***	***1.5***	
Deletion 22q11.2	14	5	2	1	0	22	
	0.4	***0.6***	***0.6***	***0.6***	***0.0***	***0.5***	
Diaphragmatic hernia	427	52	22	19	3	526	
	13.1	***6.0***	***6.4***	***11.6***	***15.1***	***11.2***	
Double outlet right ventricle	78	24	4	8	0	114	
	2.4	***2.8***	***1.2***	***4.9***	***0.0***	***2.4***	
Ebstein anomaly	25	7	2	2	0	36	
	0.8	***0.8***	***0.6***	***1.2***	***0.0***	***0.8***	
Encephalocele	23	8	2	0	0	33	
	0.7	***0.9***	***0.6***	***0.0***	***0.0***	***0.7***	
Esophageal atresia/tracheoesophageal fistula	78	8	4	4	0	94	
	2.4	***0.9***	***1.2***	***2.4***	***0.0***	***2.0***	
Gastroschisis	25	11	1	0	0	37	
	0.8	***1.3***	***0.3***	***0.0***	***0.0***	***0.8***	
Holoprosencephaly	177	64	15	6	1	264	
	5.4	***7.4***	***4.4***	***3.7***	***5.0***	***5.6***	
Hypoplastic left heart syndrome	129	43	9	3	1	185	
	4.0	***5.0***	***2.6***	***1.8***	***5.0***	***4.0***	
Hypospadias*	1103	222	57	52	6	1462	
	66.0	***50.1***	***32.5***	***61.3***	***57.9***	***61.0***	
Interrupted aortic arch	30	5	3	3	0	41	
	0.9	***0.6***	***0.9***	***1.8***	***0.0***	***0.9***	
Limb deficiencies (reduction defects)	131	39	14	10	2	198	
	4.0	***4.5***	***4.1***	***6.1***	***10.1***	***4.2***	

Michigan

Birth Defects Counts and Prevalence 2008 - 2011 (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	72	25	4	1	0	106	
	2.2	***2.9***	***1.2***	***0.6***	***0.0***	***2.3***	
Pulmonary valve atresia and stenosis	274	116	21	21	0	435	
	8.4	***13.4***	***6.1***	***12.8***	***0.0***	***9.3***	
Pulmonary valve atresia	68	31	4	6	0	110	
	2.1	***3.6***	***1.2***	***3.7***	***0.0***	***2.4***	
Rectal and large intestinal atresia/stenosis	145	40	13	9	2	210	
	4.4	***4.6***	***3.8***	***5.5***	***10.1***	***4.5***	
Renal agenesis/hypoplasia	160	47	14	9	2	233	
	4.9	***5.4***	***4.1***	***5.5***	***10.1***	***5.0***	
Single ventricle	44	21	5	3	0	74	
	1.3	***2.4***	***1.5***	***1.8***	***0.0***	***1.6***	
Small intestinal atresia/stenosis	122	40	13	4	0	180	
	3.7	***4.6***	***3.8***	***2.4***	***0.0***	***3.8***	
Spina bifida without anencephalus	163	18	12	9	0	205	
	5.0	***2.1***	***3.5***	***5.5***	***0.0***	***4.4***	
Tetralogy of Fallot	185	62	11	12	1	273	
	5.7	***7.1***	***3.2***	***7.3***	***5.0***	***5.8***	
Total anomalous pulmonary venous connection	17	7	4	2	1	31	
	0.5	***0.8***	***1.2***	***1.2***	***5.0***	***0.7***	
Transposition of the great arteries (TGA)	168	45	8	17	2	241	
	5.2	***5.2***	***2.3***	***10.4***	***10.1***	***5.2***	
Dextro-transposition of great arteries (d-TGA)	115	30	6	10	2	164	
	3.5	***3.5***	***1.8***	***6.1***	***10.1***	***3.5***	
Tricuspid valve atresia and stenosis	44	13	6	3	0	66	
	1.3	***1.5***	***1.8***	***1.8***	***0.0***	***1.4***	
Trisomy 13	20	10	2	2	0	34	
	0.6	***1.2***	***0.6***	***1.2***	***0.0***	***0.7***	
Trisomy 18	79	24	6	3	0	116	
	2.4	***2.8***	***1.8***	***1.8***	***0.0***	***2.5***	
Trisomy 21 (Down syndrome)	435	106	35	29	0	619	
	13.3	***12.2***	***10.2***	***17.7***	***0.0***	***13.2***	
Ventricular septal defect	1259	319	111	87	8	1792	1
	38.6	***36.8***	***32.4***	***53.0***	***40.3***	***38.3***	
Total live births	**326002**	**86774**	**34266**	**16412**	**1984**	**467637**	
Male live births	**167178**	**44302**	**17534**	**8486**	**1037**	**239677**	

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

Michigan

Trisomy Counts and Prevalence by Maternal Age 2008 - 2011 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Trisomy 13	26	8	34	
	0.6	***1.3***	***0.7***	
Trisomy 18	64	52	116	
	1.6	***8.6***	***2.5***	
Trisomy 21 (Down syndrome)	354	265	619	
	8.7	***43.7***	***13.2***	
Total live births	**407021**	**60584**	**467637**	

**Total includes unknown maternal age

Notes
1.Includes probable cases.

General comments
-Fetal deaths are included for gestational age greater than 20 weeks or birth weight over 400 grams.

Minnesota

Birth Defects Counts and Prevalence 2008 - 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	3	4	6	0	16	
	0.3	***1.3***	***3.2***	***3.7***	***0.0***	***1.4***	
Anophthalmia/microphthalmia	2	4	2	1	0	11	
	0.3	***1.7***	***1.6***	***0.6***	***0.0***	***0.9***	
Anotia/microtia	8	4	4	3	1	21	
	1.3	***1.7***	***3.2***	***1.8***	***7.2***	***1.8***	
Aortic valve stenosis	11	4	1	1	0	17	
	1.7	***1.7***	***0.8***	***0.6***	***0.0***	***1.4***	
Atrial septal defect	90	46	18	26	3	189	
	14.3	***20.1***	***14.4***	***16.0***	***21.5***	***16.0***	
Atrioventricular septal defect (Endocardial cushion defect)	30	17	7	9	1	67	
	4.8	***7.4***	***5.6***	***5.5***	***7.2***	***5.7***	
Biliary atresia	5	2	1	1	0	10	
	0.8	***0.9***	***0.8***	***0.6***	***0.0***	***0.8***	
Bladder exstrophy	2	0	0	0	0	2	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Choanal atresia	7	3	3	0	0	14	
	1.1	***1.3***	***2.4***	***0.0***	***0.0***	***1.2***	
Cleft lip alone	14	4	4	7	0	33	
	2.2	***1.7***	***3.2***	***4.3***	***0.0***	***2.8***	
Cleft lip with cleft palate	38	11	8	9	4	73	
	6.0	***4.8***	***6.4***	***5.5***	***28.7***	***6.2***	
Cleft palate alone	47	7	6	4	0	68	
	7.4	***3.1***	***4.8***	***2.5***	***0.0***	***5.7***	
Coarctation of the aorta	32	11	6	5	1	60	
	5.1	***4.8***	***4.8***	***3.1***	***7.2***	***5.1***	
Common truncus (truncus arteriosus)	2	0	0	0	0	3	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Congenital cataract	8	1	0	0	0	9	
	1.3	***0.4***	***0.0***	***0.0***	***0.0***	***0.8***	
Congenital posterior urethral valves	4	6	0	2	0	13	
	0.6	***2.6***	***0.0***	***1.2***	***0.0***	***1.1***	
Diaphragmatic hernia	23	4	6	5	0	38	
	3.6	***1.7***	***4.8***	***3.1***	***0.0***	***3.2***	
Double outlet right ventricle	10	2	5	1	1	20	
	1.6	***0.9***	***4.0***	***0.6***	***7.2***	***1.7***	
Ebstein anomaly	2	3	1	1	0	7	
	0.3	***1.3***	***0.8***	***0.6***	***0.0***	***0.6***	
Encephalocele	4	0	1	2	1	8	
	0.6	***0.0***	***0.8***	***1.2***	***7.2***	***0.7***	
Esophageal atresia/tracheoesophageal fistula	17	5	3	4	0	30	
	2.7	***2.2***	***2.4***	***2.5***	***0.0***	***2.5***	
Gastroschisis	19	4	6	10	1	41	
	3.0	***1.7***	***4.8***	***6.1***	***7.2***	***3.5***	
Hypoplastic left heart syndrome	13	6	4	1	0	25	
	2.1	***2.6***	***3.2***	***0.6***	***0.0***	***2.1***	
Hypospadias*	209	77	18	13	3	351	
	64.5	***66.4***	***28.5***	***15.5***	***42.5***	***58.0***	
Limb deficiencies (reduction defects)	18	10	2	5	1	38	1
	2.9	***4.4***	***1.6***	***3.1***	***7.2***	***3.2***	
Omphalocele	12	4	2	1	0	20	
	1.9	***1.7***	***1.6***	***0.6***	***0.0***	***1.7***	
Pulmonary valve atresia and stenosis	46	17	14	14	5	101	
	7.3	***7.4***	***11.2***	***8.6***	***35.8***	***8.5***	
Pulmonary valve atresia	6	3	0	3	1	13	
	1.0	***1.3***	***0.0***	***1.8***	***7.2***	***1.1***	
Rectal and large intestinal atresia/stenosis	25	7	4	9	0	46	
	4.0	***3.1***	***3.2***	***5.5***	***0.0***	***3.9***	
Renal agenesis/hypoplasia	27	10	6	5	0	51	
	4.3	***4.4***	***4.8***	***3.1***	***0.0***	***4.3***	

Minnesota

Birth Defects Counts and Prevalence 2008 - 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**
Single ventricle	3	2	0	1	0	7	
	0.5	***0.9***	***0.0***	***0.6***	***0.0***	***0.6***	
Spina bifida without anencephalus	17	4	5	2	1	32	
	2.7	***1.7***	***4.0***	***1.2***	***7.2***	***2.7***	
Tetralogy of Fallot	25	6	2	6	0	43	2
	4.0	***2.6***	***1.6***	***3.7***	***0.0***	***3.6***	
Transposition of the great arteries (TGA)	18	6	5	4	1	35	
	2.9	***2.6***	***4.0***	***2.5***	***7.2***	***3.0***	
Dextro-transposition of great arteries (d-TGA)	18	5	5	3	1	33	
	2.9	***2.2***	***4.0***	***1.8***	***7.2***	***2.8***	
Tricuspid valve atresia	5	4	1	1	0	11	
	0.8	***1.7***	***0.8***	***0.6***	***0.0***	***0.9***	
Trisomy 13	2	5	3	0	0	11	
	0.3	***2.2***	***2.4***	***0.0***	***0.0***	***0.9***	
Trisomy 18	9	11	1	5	0	27	
	1.4	***4.8***	***0.8***	***3.1***	***0.0***	***2.3***	
Trisomy 21 (Down syndrome)	107	42	25	17	4	201	
	16.9	***18.3***	***20.0***	***10.4***	***28.7***	***17.0***	
Ventricular septal defect	258	106	61	49	11	511	
	40.9	***46.3***	***48.9***	***30.1***	***78.8***	***43.2***	
Total live births	**63146**	**22906**	**12480**	**16277**	**1396**	**118333**	
Male live births	**32391**	**11596**	**6321**	**8399**	**706**	**60487**	

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

Minnesota

Trisomy Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	41	0	41	
	4.2	***0.0***	***3.5***	
Trisomy 13	6	5	11	
	0.6	***2.4***	***0.9***	
Trisomy 18	13	14	27	
	1.3	***6.7***	***2.3***	
Trisomy 21 (Down syndrome)	97	104	201	
	10.0	***49.9***	***17.0***	
Total live births	**97480**	**20848**	**118333**	

**Total includes unknown maternal age

Notes
1.Excludes not otherwise specified (NOS) and unspecified reductions.
2.Excludes pulmonary artery atresia with septal defect.

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

Mississippi

Birth Defects Counts and Prevalence 2008 - 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	6	0	0	0	8	
	0.2	***0.7***	***0.0***	***0.0***	***0.0***	***0.4***	
Anophthalmia/microphthalmia	5	7	0	0	0	13	
	0.5	***0.8***	***0.0***	***0.0***	***0.0***	***0.6***	
Anotia/microtia	15	17	2	1	1	39	
	1.4	***1.9***	***2.9***	***4.1***	***7.0***	***1.9***	
Aortic valve stenosis	17	5	1	0	0	24	
	1.6	***0.6***	***1.4***	***0.0***	***0.0***	***1.2***	
Atrial septal defect	1188	1363	41	18	54	2836	
	113.0	***151.3***	***59.4***	***74.5***	***378.7***	***137.6***	
Atrioventricular septal defect (Endocardial cushion defect)	52	52	4	3	0	115	
	4.9	***5.8***	***5.8***	***12.4***	***0.0***	***5.6***	
Biliary atresia	5	10	1	0	0	17	
	0.5	***1.1***	***1.4***	***0.0***	***0.0***	***0.8***	
Bladder exstrophy	2	1	0	0	0	5	
	0.2	***0.1***	***0.0***	***0.0***	***0.0***	***0.2***	
Choanal atresia	3	0	0	0	0	3	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Cleft lip alone	30	13	2	0	1	48	
	2.9	***1.4***	***2.9***	***0.0***	***7.0***	***2.3***	
Cleft lip with cleft palate	61	47	2	5	1	124	
	5.8	***5.2***	***2.9***	***20.7***	***7.0***	***6.0***	
Cleft palate alone	37	24	3	5	0	69	
	3.5	***2.7***	***4.3***	***20.7***	***0.0***	***3.3***	
Cloacal exstrophy	4	7	1	0	0	12	
	0.4	***0.8***	***1.4***	***0.0***	***0.0***	***0.6***	
Clubfoot	5	0	1	0	0	6	
	0.5	***0.0***	***1.4***	***0.0***	***0.0***	***0.3***	
Coarctation of the aorta	39	28	2	0	0	70	
	3.7	***3.1***	***2.9***	***0.0***	***0.0***	***3.4***	
Common truncus (truncus arteriosus)	7	5	0	0	0	14	
	0.7	***0.6***	***0.0***	***0.0***	***0.0***	***0.7***	
Congenital cataract	1	7	0	0	0	9	
	0.1	***0.8***	***0.0***	***0.0***	***0.0***	***0.4***	
Congenital posterior urethral valves	13	23	1	0	0	43	
	1.2	***2.6***	***1.4***	***0.0***	***0.0***	***2.1***	
Deletion 22q11.2	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Diaphragmatic hernia	19	23	2	1	0	52	
	1.8	***2.6***	***2.9***	***4.1***	***0.0***	***2.5***	
Double outlet right ventricle	20	26	3	2	0	52	
	1.9	***2.9***	***4.3***	***8.3***	***0.0***	***2.5***	
Ebstein anomaly	7	6	0	0	0	13	
	0.7	***0.7***	***0.0***	***0.0***	***0.0***	***0.6***	
Encephalocele	4	4	1	0	1	10	
	0.4	***0.4***	***1.4***	***0.0***	***7.0***	***0.5***	
Esophageal atresia/tracheoesophageal fistula	29	18	2	0	2	52	
	2.8	***2.0***	***2.9***	***0.0***	***14.0***	***2.5***	
Holoprosencephaly	4	7	0	0	0	11	
	0.4	***0.8***	***0.0***	***0.0***	***0.0***	***0.5***	
Hypoplastic left heart syndrome	42	26	0	0	0	71	
	4.0	***2.9***	***0.0***	***0.0***	***0.0***	***3.4***	
Hypospadias*	321	392	8	4	1	778	
	59.4	***86.5***	***23.1***	***32.2***	***14.3***	***74.2***	
Interrupted aortic arch	1	1	0	0	0	2	
	0.1	***0.1***	***0.0***	***0.0***	***0.0***	***0.1***	
Limb deficiencies (reduction defects)	37	32	1	1	0	77	
	3.5	***3.6***	***1.4***	***4.1***	***0.0***	***3.7***	
Pulmonary valve atresia and stenosis	125	137	4	2	0	289	
	11.9	***15.2***	***5.8***	***8.3***	***0.0***	***14.0***	

Mississippi

Birth Defects Counts and Prevalence 2008 - 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**
Pulmonary valve atresia	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Rectal and large intestinal atresia/stenosis	28	34	3	2	1	72	
	2.7	***3.8***	***4.3***	***8.3***	***7.0***	***3.5***	
Renal agenesis/hypoplasia	18	17	0	1	1	37	
	1.7	***1.9***	***0.0***	***4.1***	***7.0***	***1.8***	
Single ventricle	1	3	1	0	0	5	
	0.1	***0.3***	***1.4***	***0.0***	***0.0***	***0.2***	
Small intestinal atresia/stenosis	7	11	0	0	0	18	
	0.7	***1.2***	***0.0***	***0.0***	***0.0***	***0.9***	
Spina bifida without anencephalus	29	24	1	1	0	60	
	2.8	***2.7***	***1.4***	***4.1***	***0.0***	***2.9***	
Tetralogy of Fallot	69	63	2	1	0	137	
	6.6	***7.0***	***2.9***	***4.1***	***0.0***	***6.6***	
Total anomalous pulmonary venous connection	3	1	1	1	0	6	
	0.3	***0.1***	***1.4***	***4.1***	***0.0***	***0.3***	
Transposition of the great arteries (TGA)	27	22	0	3	1	55	
	2.6	***2.4***	***0.0***	***12.4***	***7.0***	***2.7***	
Dextro-transposition of great arteries (d-TGA)	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Tricuspid valve atresia and stenosis	10	20	1	2	0	35	
	1.0	***2.2***	***1.4***	***8.3***	***0.0***	***1.7***	
Tricuspid valve atresia	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Trisomy 13	6	6	0	1	0	13	
	0.6	***0.7***	***0.0***	***4.1***	***0.0***	***0.6***	
Trisomy 18	18	10	2	0	1	32	
	1.7	***1.1***	***2.9***	***0.0***	***7.0***	***1.6***	
Trisomy 21 (Down syndrome)	97	82	7	1	2	201	
	9.2	***9.1***	***10.1***	***4.1***	***14.0***	***9.8***	
Turner syndrome†	1	0	1	0	0	2	
	0.2	***0.0***	***2.9***	***0.0***	***0.0***	***0.2***	
Ventricular septal defect	572	506	36	6	12	1198	1
	54.4	***56.2***	***52.2***	***24.8***	***84.2***	***58.1***	
Total live births	**105095**	**90112**	**6900**	**2416**	**1426**	**206140**	
Male live births	**53996**	**45297**	**3470**	**1243**	**699**	**104805**	
Female live births	**51099**	**44815**	**3430**	**1173**	**727**	**101335**	

*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 Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Trisomy 13	12	1	13	
	0.6	***0.6***	***0.6***	
Trisomy 18	22	10	32	
	1.2	***6.3***	***1.6***	
Trisomy 21 (Down syndrome)	134	67	201	
	7.0	***42.3***	***9.8***	
Total live births	**190274**	**15848**	**206140**	

**Total includes unknown maternal age

Notes
1.Excludes probable cases.

Missouri

Birth Defects Counts and Prevalence 2008 - 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	39	6	8	1	0	55	
	1.3	***1.1***	***3.8***	***1.1***	***0.0***	***1.4***	
Anophthalmia/microphthalmia	29	4	2	0	0	35	
	1.0	***0.7***	***0.9***	***0.0***	***0.0***	***0.9***	
Anotia/microtia	13	5	4	2	0	24	
	0.4	***0.9***	***1.9***	***2.1***	***0.0***	***0.6***	
Aortic valve stenosis	61	1	4	0	0	66	
	2.1	***0.2***	***1.9***	***0.0***	***0.0***	***1.7***	
Atrial septal defect	3719	1035	241	82	26	5207	
	127.4	***181.7***	***113.1***	***87.1***	***211.6***	***134.2***	
Atrioventricular septal defect (Endocardial cushion defect)	132	27	6	2	0	171	
	4.5	***4.7***	***2.8***	***2.1***	***0.0***	***4.4***	
Biliary atresia	31	8	1	1	0	41	
	1.1	***1.4***	***0.5***	***1.1***	***0.0***	***1.1***	
Bladder exstrophy	15	2	0	0	0	17	
	0.5	***0.4***	***0.0***	***0.0***	***0.0***	***0.4***	
Choanal atresia	59	13	4	1	1	79	
	2.0	***2.3***	***1.9***	***1.1***	***8.1***	***2.0***	
Cleft lip alone	186	19	12	8	3	233	
	6.4	***3.3***	***5.6***	***8.5***	***24.4***	***6.0***	
Cleft lip with cleft palate	206	34	13	6	1	272	
	7.1	***6.0***	***6.1***	***6.4***	***8.1***	***7.0***	
Cleft palate alone	216	22	14	6	0	259	
	7.4	***3.9***	***6.6***	***6.4***	***0.0***	***6.7***	
Cloacal exstrophy	203	69	11	8	1	296	
	7.0	***12.1***	***5.2***	***8.5***	***8.1***	***7.6***	
Clubfoot	547	97	35	20	3	715	
	18.7	***17.0***	***16.4***	***21.3***	***24.4***	***18.4***	
Coarctation of the aorta	195	21	10	3	0	232	
	6.7	***3.7***	***4.7***	***3.2***	***0.0***	***6.0***	
Common truncus (truncus arteriosus)	15	5	4	0	0	25	
	0.5	***0.9***	***1.9***	***0.0***	***0.0***	***0.6***	
Congenital cataract	77	15	5	3	2	104	
	2.6	***2.6***	***2.3***	***3.2***	***16.3***	***2.7***	
Congenital posterior urethral valves	46	16	4	0	0	69	
	1.6	***2.8***	***1.9***	***0.0***	***0.0***	***1.8***	
Deletion 22q11.2	23	2	0	1	0	26	
	0.8	***0.4***	***0.0***	***1.1***	***0.0***	***0.7***	
Diaphragmatic hernia	119	37	5	2	0	164	
	4.1	***6.5***	***2.3***	***2.1***	***0.0***	***4.2***	
Double outlet right ventricle	69	16	6	2	0	96	
	2.4	***2.8***	***2.8***	***2.1***	***0.0***	***2.5***	
Ebstein anomaly	28	1	3	2	0	36	
	1.0	***0.2***	***1.4***	***2.1***	***0.0***	***0.9***	
Encephalocele	31	11	2	1	0	48	
	1.1	***1.9***	***0.9***	***1.1***	***0.0***	***1.2***	
Esophageal atresia/tracheoesophageal fistula	103	14	1	0	0	123	
	3.5	***2.5***	***0.5***	***0.0***	***0.0***	***3.2***	
Gastroschisis	161	39	14	4	2	223	
	5.5	***6.8***	***6.6***	***4.3***	***16.3***	***5.7***	
Holoprosencephaly	150	34	8	1	1	200	
	5.1	***6.0***	***3.8***	***1.1***	***8.1***	***5.2***	
Hypoplastic left heart syndrome	99	18	3	0	0	122	
	3.4	***3.2***	***1.4***	***0.0***	***0.0***	***3.1***	
Hypospadias*	1475	299	61	37	6	1899	
	98.4	***102.5***	***56.2***	***75.3***	***95.5***	***95.3***	
Interrupted aortic arch	15	3	4	0	0	22	
	0.5	***0.5***	***1.9***	***0.0***	***0.0***	***0.6***	
Limb deficiencies (reduction defects)	135	25	10	2	0	176	
	4.6	***4.4***	***4.7***	***2.1***	***0.0***	***4.5***	

Missouri

Birth Defects Counts and Prevalence 2008 - 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**
Omphalocele	85	19	9	0	0	116	
	2.9	***3.3***	***4.2***	***0.0***	***0.0***	***3.0***	
Pulmonary valve atresia and stenosis	319	81	21	8	2	435	
	10.9	***14.2***	***9.9***	***8.5***	***16.3***	***11.2***	
Pulmonary valve atresia	46	18	1	2	0	67	
	1.6	***3.2***	***0.5***	***2.1***	***0.0***	***1.7***	
Rectal and large intestinal atresia/stenosis	145	26	8	5	1	188	
	5.0	***4.6***	***3.8***	***5.3***	***8.1***	***4.8***	
Renal agenesis/hypoplasia	142	44	5	4	0	197	
	4.9	***7.7***	***2.3***	***4.3***	***0.0***	***5.1***	
Single ventricle	28	7	1	0	0	38	
	1.0	***1.2***	***0.5***	***0.0***	***0.0***	***1.0***	
Small intestinal atresia/stenosis	111	30	11	1	1	158	
	3.8	***5.3***	***5.2***	***1.1***	***8.1***	***4.1***	
Spina bifida without anencephalus	94	8	12	1	0	118	
	3.2	***1.4***	***5.6***	***1.1***	***0.0***	***3.0***	
Tetralogy of Fallot	128	33	10	4	1	176	
	4.4	***5.8***	***4.7***	***4.3***	***8.1***	***4.5***	
Total anomalous pulmonary venous connection	19	3	2	1	0	27	
	0.7	***0.5***	***0.9***	***1.1***	***0.0***	***0.7***	
Transposition of the great arteries (TGA)	122	13	7	3	1	148	
	4.2	***2.3***	***3.3***	***3.2***	***8.1***	***3.8***	
Dextro-transposition of great arteries (d-TGA)	110	10	5	2	1	130	
	3.8	***1.8***	***2.3***	***2.1***	***8.1***	***3.4***	
Tricuspid valve atresia and stenosis	45	12	1	1	0	59	
	1.5	***2.1***	***0.5***	***1.1***	***0.0***	***1.5***	
Trisomy 13	18	6	3	0	0	27	
	0.6	***1.1***	***1.4***	***0.0***	***0.0***	***0.7***	
Trisomy 18	43	14	5	0	0	63	
	1.5	***2.5***	***2.3***	***0.0***	***0.0***	***1.6***	
Trisomy 21 (Down syndrome)	382	63	41	12	3	510	
	13.1	***11.1***	***19.2***	***12.8***	***24.4***	***13.1***	
Turner syndrome†	27	1	0	0	0	29	
	1.9	***0.4***	***0.0***	***0.0***	***0.0***	***1.5***	
Ventricular septal defect	1338	277	99	35	4	1785	
	45.8	***48.6***	***46.5***	***37.2***	***32.5***	***46.0***	
Total live births §	**291880**	**56967**	**21303**	**9411**	**1229**	**387980**	
Male live births	**149961**	**29180**	**10848**	**4912**	**628**	**199276**	
Female live births	**141916**	**27786**	**10454**	**4499**	**601**	**188699**	

*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

Missouri

Trisomy Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	217	6	223	
	6.3	***1.5***	***5.7***	
Trisomy 13	17	10	27	
	0.5	***2.4***	***0.7***	
Trisomy 18	39	24	63	
	1.1	***5.8***	***1.6***	
Trisomy 21 (Down syndrome)	290	220	510	
	8.4	***53.5***	***13.1***	
Total live births	**346839**	**41084**	**387980**	

**Total includes unknown maternal age

General comments
-Data for 2012 are provisional.

Nebraska

Birth Defects Counts and Prevalence 2008 - 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	16	1	9	0	0	26	
	1.6	***1.2***	***4.5***	***0.0***	***0.0***	***2.0***	
Anophthalmia/microphthalmia	14	1	0	1	1	20	
	1.4	***1.2***	***0.0***	***3.0***	***5.1***	***1.5***	
Anotia/microtia	13	0	16	1	0	30	
	1.3	***0.0***	***8.1***	***3.0***	***0.0***	***2.3***	
Aortic valve stenosis	33	1	2	0	0	37	
	3.4	***1.2***	***1.0***	***0.0***	***0.0***	***2.8***	
Atrial septal defect	227	15	39	8	3	298	
	23.4	***17.3***	***19.7***	***23.7***	***15.3***	***22.7***	
Atrioventricular septal defect (Endocardial cushion defect)	19	1	3	2	0	27	
	2.0	***1.2***	***1.5***	***5.9***	***0.0***	***2.1***	
Biliary atresia	6	2	2	0	0	10	
	0.6	***2.3***	***1.0***	***0.0***	***0.0***	***0.8***	
Bladder exstrophy	5	0	0	0	0	5	
	0.5	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	
Choanal atresia	16	2	2	0	0	20	
	1.6	***2.3***	***1.0***	***0.0***	***0.0***	***1.5***	
Cleft lip alone	38	2	8	3	3	55	
	3.9	***2.3***	***4.0***	***8.9***	***15.3***	***4.2***	
Cleft lip with cleft palate	68	3	16	4	4	98	
	7.0	***3.5***	***8.1***	***11.8***	***20.4***	***7.5***	
Cleft palate alone	54	4	11	3	0	78	
	5.6	***4.6***	***5.6***	***8.9***	***0.0***	***5.9***	
Cloacal exstrophy	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Clubfoot	148	14	28	3	2	199	
	15.2	***16.1***	***14.1***	***8.9***	***10.2***	***15.1***	
Coarctation of the aorta	84	0	10	2	0	99	
	8.6	***0.0***	***5.0***	***5.9***	***0.0***	***7.5***	
Common truncus (truncus arteriosus)	5	1	1	0	0	8	
	0.5	***1.2***	***0.5***	***0.0***	***0.0***	***0.6***	
Congenital cataract	29	0	4	3	0	37	
	3.0	***0.0***	***2.0***	***8.9***	***0.0***	***2.8***	
Congenital posterior urethral valves	26	2	3	0	0	32	
	2.7	***2.3***	***1.5***	***0.0***	***0.0***	***2.4***	
Craniosynostosis	25	0	6	0	0	32	
	2.6	***0.0***	***3.0***	***0.0***	***0.0***	***2.4***	
Deletion 22q11.2	6	1	0	0	0	8	
	0.6	***1.2***	***0.0***	***0.0***	***0.0***	***0.6***	
Diaphragmatic hernia	17	1	5	1	1	25	
	1.7	***1.2***	***2.5***	***3.0***	***5.1***	***1.9***	
Double outlet right ventricle	19	2	3	1	0	25	
	2.0	***2.3***	***1.5***	***3.0***	***0.0***	***1.9***	
Ebstein anomaly	9	0	2	0	0	11	
	0.9	***0.0***	***1.0***	***0.0***	***0.0***	***0.8***	
Encephalocele	6	0	2	1	0	10	
	0.6	***0.0***	***1.0***	***3.0***	***0.0***	***0.8***	
Esophageal atresia/tracheoesophageal fistula	17	1	5	0	0	23	
	1.7	***1.2***	***2.5***	***0.0***	***0.0***	***1.7***	
Gastroschisis	51	3	9	1	4	69	
	5.2	***3.5***	***4.5***	***3.0***	***20.4***	***5.2***	
Holoprosencephaly	7	1	3	1	0	12	
	0.7	***1.2***	***1.5***	***3.0***	***0.0***	***0.9***	
Hypoplastic left heart syndrome	42	5	6	0	0	55	
	4.3	***5.8***	***3.0***	***0.0***	***0.0***	***4.2***	
Hypospadias*	432	32	41	4	2	530	
	87.0	***72.3***	***40.4***	***23.2***	***19.3***	***78.9***	
Interrupted aortic arch	9	0	2	0	0	11	
	0.9	***0.0***	***1.0***	***0.0***	***0.0***	***0.8***	

Nebraska

Birth Defects Counts and Prevalence 2008 - 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)	59	6	12	1	1	81	
	6.1	***6.9***	***6.1***	***3.0***	***5.1***	***6.2***	
Omphalocele	27	3	2	1	0	34	
	2.8	***3.5***	***1.0***	***3.0***	***0.0***	***2.6***	
Pulmonary valve atresia and stenosis	81	6	7	1	0	96	
	8.3	***6.9***	***3.5***	***3.0***	***0.0***	***7.3***	
Pulmonary valve atresia	15	1	4	0	0	20	
	1.5	***1.2***	***2.0***	***0.0***	***0.0***	***1.5***	
Rectal and large intestinal atresia/stenosis	41	5	9	4	0	62	
	4.2	***5.8***	***4.5***	***11.8***	***0.0***	***4.7***	
Renal agenesis/hypoplasia	57	6	15	1	1	82	
	5.9	***6.9***	***7.6***	***3.0***	***5.1***	***6.2***	
Single ventricle	19	3	1	0	0	24	
	2.0	***3.5***	***0.5***	***0.0***	***0.0***	***1.8***	
Small intestinal atresia/stenosis	21	4	6	3	0	34	
	2.2	***4.6***	***3.0***	***8.9***	***0.0***	***2.6***	
Spina bifida without anencephalus	54	4	9	1	0	69	
	5.6	***4.6***	***4.5***	***3.0***	***0.0***	***5.2***	
Tetralogy of Fallot	30	1	4	1	1	37	
	3.1	***1.2***	***2.0***	***3.0***	***5.1***	***2.8***	
Total anomalous pulmonary venous connection	8	1	6	0	0	15	
	0.8	***1.2***	***3.0***	***0.0***	***0.0***	***1.1***	
Transposition of the great arteries (TGA)	58	3	5	0	0	70	
	6.0	***3.5***	***2.5***	***0.0***	***0.0***	***5.3***	
Dextro-transposition of great arteries (d-TGA)	46	3	4	0	0	57	
	4.7	***3.5***	***2.0***	***0.0***	***0.0***	***4.3***	
Tricuspid valve atresia and stenosis	10	3	1	0	0	16	
	1.0	***3.5***	***0.5***	***0.0***	***0.0***	***1.2***	
Trisomy 13	13	2	4	0	0	20	
	1.3	***2.3***	***2.0***	***0.0***	***0.0***	***1.5***	
Trisomy 18	40	7	6	1	0	55	
	4.1	***8.1***	***3.0***	***3.0***	***0.0***	***4.2***	
Trisomy 21 (Down syndrome)	183	9	36	5	2	240	
	18.8	***10.4***	***18.2***	***14.8***	***10.2***	***18.3***	
Turner syndrome†	16	0	4	0	0	20	
	3.4	***0.0***	***4.1***	***0.0***	***0.0***	***3.1***	
Ventricular septal defect	445	20	104	8	6	605	
	45.8	***23.0***	***52.5***	***23.7***	***30.6***	***46.0***	
Total live births §	**97158**	**8681**	**19810**	**3376**	**1962**	**131500**	
Male live births	**49634**	**4427**	**10139**	**1723**	**1035**	**67203**	
Female live births	**47524**	**4254**	**9670**	**1653**	**927**	**64296**	

*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

Nebraska

Trisomy Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	67	2	69	
	5.8	***1.3***	***5.2***	
Trisomy 13	17	3	20	
	1.5	***2.0***	***1.5***	
Trisomy 18	33	22	55	
	2.8	***14.5***	***4.2***	
Trisomy 21 (Down syndrome)	146	94	240	
	12.6	***61.8***	***18.3***	
Total live births	**116294**	**15202**	**131500**	

**Total includes unknown maternal age

General comments
-Excludes probable cases.

Nevada

Birth Defects Counts and Prevalence 2008 - 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	1	2	0	0	5	
	0.3	***0.6***	***0.3***	***0.0***	***0.0***	***0.3***	
Anophthalmia/microphthalmia	6	6	10	1	0	23	
	0.8	***3.3***	***1.5***	***0.7***	***0.0***	***1.3***	
Anotia/microtia	4	0	4	1	0	9	
	0.7	***0.0***	***0.8***	***0.9***	***0.0***	***0.6***	
Aortic valve stenosis	14	2	7	1	0	25	
	1.8	***1.1***	***1.0***	***0.8***	***0.0***	***1.4***	
Atrial septal defect	925	321	814	192	15	2338	
	151.7	***222.8***	***150.4***	***165.0***	***99.1***	***161.3***	
Atrioventricular septal defect (Endocardial cushion defect)	16	6	12	2	0	38	
	2.1	***3.3***	***1.8***	***1.4***	***0.0***	***2.1***	
Biliary atresia	5	1	3	1	0	11	
	0.7	***0.6***	***0.4***	***0.7***	***0.0***	***0.6***	
Bladder exstrophy	4	0	2	0	0	6	
	0.5	***0.0***	***0.3***	***0.0***	***0.0***	***0.3***	
Choanal atresia	9	2	5	0	0	17	
	1.2	***1.1***	***0.7***	***0.0***	***0.0***	***0.9***	
Cleft lip alone	24	3	14	4	0	45	
	3.1	***1.7***	***2.0***	***2.7***	***0.0***	***2.5***	
Cleft lip with cleft palate	35	16	65	3	2	123	
	4.6	***8.9***	***9.5***	***2.1***	***10.3***	***6.7***	
Cleft palate alone	35	6	30	3	1	76	
	4.6	***3.3***	***4.4***	***2.1***	***5.2***	***4.2***	
Cloacal exstrophy	19	5	11	4	0	43	
	2.5	***2.8***	***1.6***	***2.7***	***0.0***	***2.4***	
Clubfoot	93	17	67	13	1	199	
	12.1	***9.5***	***9.8***	***8.9***	***5.2***	***10.9***	
Coarctation of the aorta	49	7	53	5	0	119	
	6.4	***3.9***	***7.7***	***3.4***	***0.0***	***6.5***	
Common truncus (truncus arteriosus)	1	1	7	1	0	10	
	0.1	***0.6***	***1.0***	***0.7***	***0.0***	***0.5***	
Congenital cataract	4	4	7	1	0	16	
	0.5	***2.2***	***1.0***	***0.7***	***0.0***	***0.9***	
Congenital posterior urethral valves	4	1	3	1	0	9	
	0.5	***0.6***	***0.4***	***0.7***	***0.0***	***0.5***	
Craniosynostosis	66	7	38	4	0	122	
	8.6	***3.9***	***5.6***	***2.7***	***0.0***	***6.7***	
Deletion 22q11.2	2	0	0	0	0	2	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Diaphragmatic hernia	19	6	20	2	0	48	
	2.5	***3.3***	***2.9***	***1.4***	***0.0***	***2.6***	
Double outlet right ventricle	10	3	16	1	0	32	
	1.3	***1.7***	***2.3***	***0.7***	***0.0***	***1.8***	
Ebstein anomaly	8	0	6	0	0	14	
	1.0	***0.0***	***0.9***	***0.0***	***0.0***	***0.8***	
Encephalocele	6	3	2	2	0	14	
	0.8	***1.7***	***0.3***	***1.4***	***0.0***	***0.8***	
Esophageal atresia/tracheoesophageal fistula	19	4	14	2	0	40	
	2.5	***2.2***	***2.0***	***1.4***	***0.0***	***2.2***	
Holoprosencephaly	34	16	30	10	0	91	
	4.4	***8.9***	***4.4***	***6.8***	***0.0***	***5.0***	
Hypoplastic left heart syndrome	14	4	17	1	0	40	
	1.8	***2.2***	***2.5***	***0.7***	***0.0***	***2.2***	
Hypospadias*	172	35	87	17	1	331	
	43.6	***38.2***	***24.9***	***22.2***	***10.4***	***35.4***	
Interrupted aortic arch	9	2	7	1	0	19	
	1.2	***1.1***	***1.0***	***0.7***	***0.0***	***1.0***	
Limb deficiencies (reduction defects)	34	7	19	2	1	64	
	4.4	***3.9***	***2.8***	***1.4***	***5.2***	***3.5***	

Nevada

Birth Defects Counts and Prevalence 2008 - 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**
Pulmonary valve atresia and stenosis	79	31	65	7	3	193	
	10.3	***17.3***	***9.5***	***4.8***	***15.5***	***10.6***	
Pulmonary valve atresia	8	0	11	1	0	22	
	1.0	***0.0***	***1.6***	***0.7***	***0.0***	***1.2***	
Rectal and large intestinal atresia/stenosis	29	2	21	5	0	59	
	3.8	***1.1***	***3.1***	***3.4***	***0.0***	***3.2***	
Renal agenesis/hypoplasia	37	6	26	7	1	81	
	4.8	***3.3***	***3.8***	***4.8***	***5.2***	***4.4***	
Single ventricle	4	3	6	0	0	14	
	0.5	***1.7***	***0.9***	***0.0***	***0.0***	***0.8***	
Small intestinal atresia/stenosis	31	6	29	4	2	74	
	4.0	***3.3***	***4.2***	***2.7***	***10.3***	***4.1***	
Spina bifida without anencephalus	14	8	13	3	0	41	
	1.8	***4.5***	***1.9***	***2.1***	***0.0***	***2.2***	
Tetralogy of Fallot	29	7	28	5	2	72	
	3.8	***3.9***	***4.1***	***3.4***	***10.3***	***3.9***	
Total anomalous pulmonary venous connection	7	0	4	1	0	13	
	0.9	***0.0***	***0.6***	***0.7***	***0.0***	***0.7***	
Transposition of the great arteries (TGA)	8	6	14	1	0	30	
	1.0	***3.3***	***2.0***	***0.7***	***0.0***	***1.6***	
Dextro-transposition of great arteries (d-TGA)	6	5	7	0	0	19	
	0.8	***2.8***	***1.0***	***0.0***	***0.0***	***1.0***	
Tricuspid valve atresia and stenosis	4	2	6	2	1	16	
	0.6	***1.4***	***1.1***	***1.7***	***6.3***	***1.1***	
Tricuspid valve atresia	1	0	1	1	0	3	
	0.7	***0.0***	***0.8***	***3.4***	***0.0***	***0.9***	
Trisomy 13	7	1	7	0	0	15	
	0.9	***0.6***	***1.0***	***0.0***	***0.0***	***0.8***	
Trisomy 18	6	1	12	0	0	23	
	0.8	***0.6***	***1.8***	***0.0***	***0.0***	***1.3***	
Trisomy 21 (Down syndrome)	82	20	107	15	2	236	
	10.7	***11.1***	***15.6***	***10.3***	***10.3***	***12.9***	
Turner syndrome†	4	1	4	0	0	9	
	1.1	***1.1***	***1.2***	***0.0***	***0.0***	***1.0***	
Ventricular septal defect	377	71	356	53	7	910	1
	49.1	***39.5***	***52.0***	***36.2***	***36.1***	***49.9***	
Total live births	**76814**	**17953**	**68439**	**14622**	**1938**	**182439**	
Male live births	**39489**	**9169**	**34937**	**7657**	**966**	**93605**	
Female live births	**37325**	**8784**	**33502**	**6965**	**972**	**88834**	

*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 Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Trisomy 13	9	5	15	
	0.6	***1.9***	***0.8***	
Trisomy 18	14	4	23	
	0.9	***1.5***	***1.3***	
Trisomy 21 (Down syndrome)	110	90	236	
	7.0	***34.4***	***12.9***	
Total live births	**156235**	**26132**	**182439**	

**Total includes unknown maternal age

Notes
1.Excludes cases <2500 grams birth weight or < 36 weeks gestation. Includes inlet ventricular septal defect.

General comments
-Data for conditions include live births only.

New Hampshire

Birth Defects Counts and Prevalence 2008 - 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	4	0	1	0	0	5	
	0.7	***0.0***	***13.6***	***0.0***	***0.0***	***0.8***	
Anophthalmia/microphthalmia	2	0	0	0	0	2	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Anotia/microtia	6	0	0	1	0	8	
	1.0	***0.0***	***0.0***	***4.2***	***0.0***	***1.2***	
Aortic valve stenosis	4	1	0	0	0	6	
	0.7	***8.2***	***0.0***	***0.0***	***0.0***	***0.9***	
Atrial septal defect	60	2	0	3	1	71	
	10.2	***16.4***	***0.0***	***12.6***	***43.5***	***10.8***	
Atrioventricular septal defect (Endocardial cushion defect)	10	1	0	1	0	15	
	1.7	***8.2***	***0.0***	***4.2***	***0.0***	***2.3***	
Biliary atresia	1	0	0	0	0	1	
	0.2	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Bladder exstrophy	0	0	1	0	0	1	
	0.0	***0.0***	***13.6***	***0.0***	***0.0***	***0.2***	
Choanal atresia	3	0	0	0	0	3	
	0.5	***0.0***	***0.0***	***0.0***	***0.0***	***0.5***	
Cleft lip with cleft palate	44	0	2	5	1	54	
	7.5	***0.0***	***27.2***	***21.0***	***43.5***	***8.2***	
Cleft palate alone	24	0	1	2	1	30	
	4.1	***0.0***	***13.6***	***8.4***	***43.5***	***4.6***	
Coarctation of the aorta	18	0	1	0	0	22	
	3.1	***0.0***	***13.6***	***0.0***	***0.0***	***3.3***	
Common truncus (truncus arteriosus)	3	0	0	0	0	3	
	0.5	***0.0***	***0.0***	***0.0***	***0.0***	***0.5***	
Congenital cataract	8	0	0	0	0	9	
	1.4	***0.0***	***0.0***	***0.0***	***0.0***	***1.4***	
Congenital posterior urethral valves	0	1	0	0	0	1	
	0.0	***10.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Diaphragmatic hernia	9	1	0	3	0	13	
	1.5	***8.2***	***0.0***	***12.6***	***0.0***	***2.0***	
Ebstein anomaly	1	0	0	0	0	1	
	0.2	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Encephalocele	3	0	0	0	0	5	
	0.5	***0.0***	***0.0***	***0.0***	***0.0***	***0.8***	
Esophageal atresia/tracheoesophageal fistula	11	0	0	0	0	11	
	1.9	***0.0***	***0.0***	***0.0***	***0.0***	***1.7***	
Gastroschisis	12	1	1	0	0	14	
	2.0	***8.2***	***13.6***	***0.0***	***0.0***	***2.1***	
Hypoplastic left heart syndrome	3	0	0	0	0	4	
	0.5	***0.0***	***0.0***	***0.0***	***0.0***	***0.6***	
Hypospadias*	213	3	5	5	0	233	
	70.6	***46.6***	***136.6***	***41.1***	***0.0***	***69.7***	
Limb deficiencies (reduction defects)	16	0	0	0	0	16	
	2.7	***0.0***	***0.0***	***0.0***	***0.0***	***2.4***	
Omphalocele	11	1	0	0	0	12	
	1.9	***8.2***	***0.0***	***0.0***	***0.0***	***1.8***	
Pulmonary valve atresia and stenosis	32	2	0	0	0	35	
	5.4	***16.4***	***0.0***	***0.0***	***0.0***	***5.3***	
Pulmonary valve atresia	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Rectal and large intestinal atresia/stenosis	19	0	0	0	0	20	
	3.2	***0.0***	***0.0***	***0.0***	***0.0***	***3.0***	
Renal agenesis/hypoplasia	27	1	4	1	0	37	
	4.6	***8.2***	***54.5***	***4.2***	***0.0***	***5.6***	
Spina bifida without anencephalus	9	0	2	0	0	14	
	1.5	***0.0***	***27.2***	***0.0***	***0.0***	***2.1***	
Tetralogy of Fallot	13	1	4	0	0	23	
	2.2	***8.2***	***54.5***	***0.0***	***0.0***	***3.5***	

New Hampshire

Birth Defects Counts and Prevalence 2008 - 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**
Total anomalous pulmonary venous connection	3 ***0.5***	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	3 ***0.5***	
Transposition of the great arteries (TGA)	19 ***3.2***	2 ***16.4***	2 ***27.2***	0 ***0.0***	0 ***0.0***	26 ***4.0***	
Tricuspid valve atresia and stenosis	2 ***0.3***	0 ***0.0***	1 ***13.6***	0 ***0.0***	0 ***0.0***	3 ***0.5***	
Tricuspid valve atresia	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	0 ***0.0***	
Trisomy 13	2 ***0.3***	1 ***8.2***	0 ***0.0***	0 ***0.0***	0 ***0.0***	3 ***0.5***	
Trisomy 18	7 ***1.2***	1 ***8.2***	0 ***0.0***	0 ***0.0***	0 ***0.0***	13 ***2.0***	
Trisomy 21 (Down syndrome)	47 ***8.0***	2 ***16.4***	1 ***13.6***	3 ***12.6***	1 ***43.5***	61 ***9.3***	
Ventricular septal defect	83 ***14.1***	3 ***24.7***	6 ***81.7***	2 ***8.4***	1 ***43.5***	106 ***16.1***	1
Total live births	**58921**	**1216**	**734**	**2380**	**230**	**65699**	
Male live births	**30160**	**644**	**366**	**1216**	**107**	**33429**	

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

New Hampshire

Trisomy Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	13	0	14	
	2.4	***0.0***	***2.1***	
Trisomy 13	1	2	3	
	0.2	***1.8***	***0.5***	
Trisomy 18	6	7	13	
	1.1	***6.5***	***2.0***	
Trisomy 21 (Down syndrome)	36	25	61	
	6.6	***23.0***	***9.3***	
Total live births	**54696**	**10851**	**65699**	

**Total includes unknown maternal age

Notes
1.Excludes probable cases.

General comments
-Fetal deaths are stillborn with a gestational age greater than or equal to 20 weeks.
-No gestational age cut off for terminations.

New Jersey

Birth Defects Counts and Prevalence 2008 - 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	0	5	1	0	12	
	0.2	***0.0***	***0.4***	***0.2***	***0.0***	***0.2***	
Anophthalmia/microphthalmia	18	7	14	3	1	48	
	0.7	***0.9***	***1.0***	***0.5***	***17.8***	***0.9***	
Anotia/microtia	39	9	59	13	0	122	
	1.6	***1.1***	***4.2***	***2.4***	***0.0***	***2.3***	
Aortic valve stenosis	25	5	13	1	0	50	
	1.0	***0.6***	***0.9***	***0.2***	***0.0***	***0.9***	
Atrial septal defect	511	395	446	107	7	1554	1
	21.2	***49.4***	***32.0***	***19.4***	***124.3***	***29.0***	
Atrioventricular septal defect (Endocardial cushion defect)	63	27	30	4	0	139	
	2.6	***3.4***	***2.2***	***0.7***	***0.0***	***2.6***	
Biliary atresia	10	6	15	2	0	34	
	0.4	***0.8***	***1.1***	***0.4***	***0.0***	***0.6***	
Bladder exstrophy	3	1	3	0	0	8	
	0.1	***0.1***	***0.2***	***0.0***	***0.0***	***0.1***	
Choanal atresia	30	16	19	1	0	69	
	1.2	***2.0***	***1.4***	***0.2***	***0.0***	***1.3***	
Cleft lip alone	82	11	48	13	0	166	
	3.4	***1.4***	***3.4***	***2.4***	***0.0***	***3.1***	
Cleft lip with cleft palate	89	25	67	19	1	207	
	3.7	***3.1***	***4.8***	***3.4***	***17.8***	***3.9***	
Cleft palate alone	135	26	76	44	0	291	
	5.6	***3.3***	***5.5***	***8.0***	***0.0***	***5.4***	
Cloacal exstrophy	51	18	39	12	0	127	
	2.1	***2.3***	***2.8***	***2.2***	***0.0***	***2.4***	
Clubfoot	256	107	157	47	0	586	
	10.6	***13.4***	***11.3***	***8.5***	***0.0***	***10.9***	
Coarctation of the aorta	90	16	49	14	1	183	
	3.7	***2.0***	***3.5***	***2.5***	***17.8***	***3.4***	
Common truncus (truncus arteriosus)	6	4	8	2	0	23	
	0.2	***0.5***	***0.6***	***0.4***	***0.0***	***0.4***	
Congenital cataract	28	13	36	5	1	87	
	1.2	***1.6***	***2.6***	***0.9***	***17.8***	***1.6***	
Congenital posterior urethral valves	23	13	9	4	0	50	
	1.0	***1.6***	***0.6***	***0.7***	***0.0***	***0.9***	
Deletion 22q11.2	4	1	1	0	0	6	
	0.2	***0.1***	***0.1***	***0.0***	***0.0***	***0.1***	
Diaphragmatic hernia	34	5	29	7	0	77	
	1.4	***0.6***	***2.1***	***1.3***	***0.0***	***1.4***	
Double outlet right ventricle	11	13	16	7	0	53	
	0.5	***1.6***	***1.1***	***1.3***	***0.0***	***1.0***	
Ebstein anomaly	17	3	11	1	1	33	
	0.7	***0.4***	***0.8***	***0.2***	***17.8***	***0.6***	
Encephalocele	14	4	6	2	0	29	
	0.6	***0.5***	***0.4***	***0.4***	***0.0***	***0.5***	
Esophageal atresia/tracheoesophageal fistula	62	13	31	10	0	126	
	2.6	***1.6***	***2.2***	***1.8***	***0.0***	***2.4***	
Gastroschisis	46	20	41	4	1	118	
	1.9	***2.5***	***2.9***	***0.7***	***17.8***	***2.2***	
Holoprosencephaly	94	46	90	9	0	249	
	3.9	***5.8***	***6.5***	***1.6***	***0.0***	***4.6***	
Hypoplastic left heart syndrome	26	16	19	3	0	70	
	1.1	***2.0***	***1.4***	***0.5***	***0.0***	***1.3***	
Hypospadias*	1178	274	368	145	4	2039	
	95.5	***67.1***	***52.0***	***51.1***	***132.9***	***74.3***	
Interrupted aortic arch	5	7	6	1	0	20	
	0.2	***0.9***	***0.4***	***0.2***	***0.0***	***0.4***	
Limb deficiencies (reduction defects)	110	52	69	19	0	266	
	4.6	***6.5***	***5.0***	***3.4***	***0.0***	***5.0***	

New Jersey
Birth Defects Counts and Prevalence 2008 - 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**
Omphalocele	21	18	11	4	0	56	
	0.9	***2.3***	***0.8***	***0.7***	***0.0***	***1.0***	
Pulmonary valve atresia and stenosis	184	93	121	32	0	452	
	7.7	***11.6***	***8.7***	***5.8***	***0.0***	***8.4***	
Pulmonary valve atresia	15	6	15	2	0	44	
	0.6	***0.8***	***1.1***	***0.4***	***0.0***	***0.8***	
Rectal and large intestinal atresia/stenosis	70	26	45	18	1	171	
	2.9	***3.3***	***3.2***	***3.3***	***17.8***	***3.2***	
Renal agenesis/hypoplasia	140	32	71	20	1	277	
	5.8	***4.0***	***5.1***	***3.6***	***17.8***	***5.2***	
Single ventricle	7	4	2	2	0	16	
	0.3	***0.5***	***0.1***	***0.4***	***0.0***	***0.3***	
Small intestinal atresia/stenosis	67	30	45	8	0	153	
	2.8	***3.8***	***3.2***	***1.4***	***0.0***	***2.9***	
Spina bifida without anencephalus	45	20	46	7	0	126	
	1.9	***2.5***	***3.3***	***1.3***	***0.0***	***2.4***	
Tetralogy of Fallot	62	41	46	16	0	189	
	2.6	***5.1***	***3.3***	***2.9***	***0.0***	***3.5***	
Total anomalous pulmonary venous connection	9	8	17	2	0	37	
	0.4	***1.0***	***1.2***	***0.4***	***0.0***	***0.7***	
Transposition of the great arteries (TGA)	36	19	21	9	0	92	
	1.5	***2.4***	***1.5***	***1.6***	***0.0***	***1.7***	
Dextro-transposition of great arteries (d-TGA)	29	14	11	7	0	65	
	1.2	***1.8***	***0.8***	***1.3***	***0.0***	***1.2***	
Tricuspid valve atresia and stenosis	194	99	168	19	0	486	2
	8.1	***12.4***	***12.1***	***3.4***	***0.0***	***9.1***	
Trisomy 13	5	7	9	1	0	23	
	0.2	***0.9***	***0.6***	***0.2***	***0.0***	***0.4***	
Trisomy 18	22	15	14	4	0	55	
	0.9	***1.9***	***1.0***	***0.7***	***0.0***	***1.0***	
Trisomy 21 (Down syndrome)	261	87	201	30	2	608	
	10.9	***10.9***	***14.4***	***5.4***	***35.5***	***11.3***	
Turner syndrome†	12	2	6	1	0	22	
	1.0	***0.5***	***0.9***	***0.4***	***0.0***	***0.8***	
Ventricular septal defect	1365	460	878	248	3	3063	3
	56.8	***57.5***	***63.0***	***44.9***	***53.3***	***57.1***	
Total live births §	**240480**	**79933**	**139385**	**55179**	**563**	**536066**	
Male live births	**123384**	**40812**	**70805**	**28382**	**301**	**274316**	
Female live births	**117096**	**39119**	**68578**	**26796**	**262**	**261744**	

*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 Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	109	5	118	
	2.6	***0.4***	***2.2***	
Trisomy 13	16	7	23	
	0.4	***0.6***	***0.4***	
Trisomy 18	27	27	55	
	0.6	***2.4***	***1.0***	
Trisomy 21 (Down syndrome)	256	323	608	
	6.1	***28.3***	***11.3***	
Total live births	**421463**	**113935**	**536066**	

**Total includes unknown maternal age

Notes
1.Exlcudes patent foramen ovale (PFO).
2.Includes tricuspid valve regurgitation/insufficiency.
3.Excludes probable and possible cases.

General comments
-Data for 2012 birth (denominator) are provisional.
-Data for conditions include live births only.

New Mexico

Birth Defects Counts and Prevalence 2008 - 2011 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	**White, Non-Hispanic**	**Black, Non-Hispanic**	**Hispanic**	**Asian or Pacific Islander, Non-Hispanic**	**American Indian or Alaska Native, Non-Hispanic**	**Total****	**Notes**
Anencephalus	8	0	11	0	2	23	
	2.7	***0.0***	***1.8***	***0.0***	***1.4***	***2.1***	
Cleft lip alone	8	0	16	0	5	30	
	2.7	***0.0***	***2.7***	***0.0***	***3.6***	***2.8***	
Cleft lip with cleft palate	17	0	37	0	11	66	
	5.7	***0.0***	***6.2***	***0.0***	***8.0***	***6.1***	
Cleft palate alone	20	2	36	2	11	71	
	6.7	***10.8***	***6.0***	***9.8***	***8.0***	***6.5***	
Gastroschisis	12	5	42	2	10	72	
	4.0	***27.0***	***7.0***	***9.8***	***7.2***	***6.6***	
Hypoplastic left heart syndrome	4	0	8	0	4	16	
	1.3	***0.0***	***1.3***	***0.0***	***2.9***	***1.5***	
Hypospadias*	96	9	84	3	11	207	
	62.3	***96.9***	***27.7***	***29.4***	***15.8***	***37.5***	
Limb deficiencies (reduction defects)	15	2	24	1	0	43	
	5.0	***10.8***	***4.0***	***4.9***	***0.0***	***4.0***	
Renal agenesis/hypoplasia	2	1	13	0	3	19	
	0.7	***5.4***	***2.2***	***0.0***	***2.2***	***1.7***	
Spina bifida without anencephalus	17	2	34	0	9	62	
	5.7	***10.8***	***5.7***	***0.0***	***6.5***	***5.7***	
Tetralogy of Fallot	2	1	17	3	4	27	
	0.7	***5.4***	***2.8***	***14.7***	***2.9***	***2.5***	
Transposition of the great arteries (TGA)	1	2	7	0	4	14	
	0.3	***10.8***	***1.2***	***0.0***	***2.9***	***1.3***	
Trisomy 13	4	2	7	1	1	22	
	1.3	***10.8***	***1.2***	***4.9***	***0.7***	***2.0***	
Trisomy 18	4	3	7	1	1	34	
	1.3	***16.2***	***1.2***	***4.9***	***0.7***	***3.1***	
Trisomy 21 (Down syndrome)	30	2	64	1	16	115	
	10.0	***10.8***	***10.7***	***4.9***	***11.6***	***10.6***	
Total live births	**30016**	**1852**	**60000**	**2038**	**13808**	**108702**	
Male live births	**15412**	**929**	**30353**	**1022**	**6979**	**55192**	

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

New Mexico

Trisomy Counts and Prevalence by Maternal Age 2008 - 2011 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Trisomy 13	8	7	22	
	0.8	***6.1***	***2.0***	
Trisomy 18	10	6	34	
	1.0	***5.3***	***3.1***	
Trisomy 21 (Down syndrome)	71	42	115	
	7.3	***36.8***	***10.6***	
Total live births	**97302**	**11400**	**108702**	

**Total includes unknown maternal age

General comments
-Unspecified non-livebirths include terminations plus spontaneous abortions.

New York

Birth Defects Counts and Prevalence 2008 - 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	14	5	12	3	0	35	
	0.2	***0.3***	***0.5***	***0.2***	***0.0***	***0.3***	
Anophthalmia/microphthalmia	49	23	39	14	0	126	
	0.8	***1.2***	***1.5***	***0.9***	***0.0***	***1.0***	
Anotia/microtia	57	19	63	25	2	170	
	1.0	***1.0***	***2.5***	***1.7***	***8.8***	***1.4***	
Aortic valve stenosis	125	15	46	16	0	205	
	2.1	***0.8***	***1.8***	***1.1***	***0.0***	***1.7***	
Atrial septal defect	2179	1657	1570	763	8	6308	
	37.3	***86.4***	***61.8***	***51.6***	***35.2***	***52.2***	
Atrioventricular septal defect (Endocardial cushion defect)	246	133	124	53	3	574	
	4.2	***6.9***	***4.9***	***3.6***	***13.2***	***4.7***	
Biliary atresia	51	41	27	19	1	141	
	0.9	***2.1***	***1.1***	***1.3***	***4.4***	***1.2***	
Bladder exstrophy	14	1	4	1	0	20	
	0.2	***0.1***	***0.2***	***0.1***	***0.0***	***0.2***	
Choanal atresia	136	35	47	11	0	230	
	2.3	***1.8***	***1.8***	***0.7***	***0.0***	***1.9***	
Cleft lip alone	161	26	44	24	1	263	
	2.8	***1.4***	***1.7***	***1.6***	***4.4***	***2.2***	
Cleft lip with cleft palate	287	62	140	64	5	570	
	4.9	***3.2***	***5.5***	***4.3***	***22.0***	***4.7***	
Cleft palate alone	352	84	127	87	1	668	
	6.0	***4.4***	***5.0***	***5.9***	***4.4***	***5.5***	
Cloacal exstrophy	93	24	40	25	0	188	
	1.6	***1.3***	***1.6***	***1.7***	***0.0***	***1.6***	
Clubfoot	916	294	378	165	4	1792	
	15.7	***15.3***	***14.9***	***11.1***	***17.6***	***14.8***	
Coarctation of the aorta	333	90	145	65	1	650	
	5.7	***4.7***	***5.7***	***4.4***	***4.4***	***5.4***	
Common truncus (truncus arteriosus)	32	12	13	8	0	66	
	0.5	***0.6***	***0.5***	***0.5***	***0.0***	***0.5***	
Congenital cataract	117	45	68	27	0	262	
	2.0	***2.3***	***2.7***	***1.8***	***0.0***	***2.2***	
Congenital posterior urethral valves	51	51	24	13	0	141	
	0.9	***2.7***	***0.9***	***0.9***	***0.0***	***1.2***	
Craniosynostosis	387	55	153	38	2	646	
	6.6	***2.9***	***6.0***	***2.6***	***8.8***	***5.3***	
Deletion 22q11.2	25	5	5	2	0	39	
	0.4	***0.3***	***0.2***	***0.1***	***0.0***	***0.3***	
Diaphragmatic hernia	148	45	58	31	1	291	
	2.5	***2.3***	***2.3***	***2.1***	***4.4***	***2.4***	
Double outlet right ventricle	90	50	61	40	0	249	
	1.5	***2.6***	***2.4***	***2.7***	***0.0***	***2.1***	
Ebstein anomaly	30	13	25	9	0	80	
	0.5	***0.7***	***1.0***	***0.6***	***0.0***	***0.7***	
Encephalocele	41	20	19	14	0	98	
	0.7	***1.0***	***0.7***	***0.9***	***0.0***	***0.8***	
Esophageal atresia/tracheoesophageal fistula	147	36	55	24	0	271	
	2.5	***1.9***	***2.2***	***1.6***	***0.0***	***2.2***	
Gastroschisis	157	45	77	14	2	305	
	2.7	***2.3***	***3.0***	***0.9***	***8.8***	***2.5***	
Holoprosencephaly	35	12	16	2	0	67	
	0.6	***0.6***	***0.6***	***0.1***	***0.0***	***0.6***	
Hypoplastic left heart syndrome	152	50	66	26	1	301	
	2.6	***2.6***	***2.6***	***1.8***	***4.4***	***2.5***	
Hypospadias*	2911	722	720	338	5	4791	
	96.9	***74.0***	***55.6***	***44.2***	***43.6***	***77.3***	
Interrupted aortic arch	51	15	23	8	0	99	
	0.9	***0.8***	***0.9***	***0.5***	***0.0***	***0.8***	

New York

Birth Defects Counts and Prevalence 2008 - 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)	178	71	82	19	0	361	
	3.0	***3.7***	***3.2***	***1.3***	***0.0***	***3.0***	
Omphalocele	78	22	28	10	2	144	
	1.3	***1.1***	***1.1***	***0.7***	***8.8***	***1.2***	
Pulmonary valve atresia and stenosis	450	215	232	114	1	1038	
	7.7	***11.2***	***9.1***	***7.7***	***4.4***	***8.6***	
Pulmonary valve atresia	57	21	26	20	0	129	
	1.0	***1.1***	***1.0***	***1.4***	***0.0***	***1.1***	
Rectal and large intestinal atresia/stenosis	229	65	113	56	1	475	
	3.9	***3.4***	***4.4***	***3.8***	***4.4***	***3.9***	
Renal agenesis/hypoplasia	320	80	131	48	2	600	
	5.5	***4.2***	***5.2***	***3.2***	***8.8***	***5.0***	
Single ventricle	51	18	26	17	0	112	
	0.9	***0.9***	***1.0***	***1.1***	***0.0***	***0.9***	
Small intestinal atresia/stenosis	244	109	115	54	1	534	
	4.2	***5.7***	***4.5***	***3.6***	***4.4***	***4.4***	
Spina bifida without anencephalus	144	39	68	22	0	277	
	2.5	***2.0***	***2.7***	***1.5***	***0.0***	***2.3***	
Tetralogy of Fallot	283	106	110	95	1	613	
	4.8	***5.5***	***4.3***	***6.4***	***4.4***	***5.1***	
Total anomalous pulmonary venous connection	53	29	47	21	0	153	
	0.9	***1.5***	***1.8***	***1.4***	***0.0***	***1.3***	
Transposition of the great arteries (TGA)	159	28	57	41	0	294	
	2.7	***1.5***	***2.2***	***2.8***	***0.0***	***2.4***	
Dextro-transposition of great arteries (d-TGA)	154	28	57	38	0	286	
	2.6	***1.5***	***2.2***	***2.6***	***0.0***	***2.4***	
Tricuspid valve atresia and stenosis	69	36	37	24	0	173	
	1.2	***1.9***	***1.5***	***1.6***	***0.0***	***1.4***	
Tricuspid valve atresia	40	14	15	16	0	87	
	0.7	***0.7***	***0.6***	***1.1***	***0.0***	***0.7***	
Trisomy 13	32	20	19	6	0	79	
	0.5	***1.0***	***0.7***	***0.4***	***0.0***	***0.7***	
Trisomy 18	56	40	43	10	0	152	
	1.0	***2.1***	***1.7***	***0.7***	***0.0***	***1.3***	
Trisomy 21 (Down syndrome)	696	262	361	133	3	1484	
	11.9	***13.7***	***14.2***	***9.0***	***13.2***	***12.3***	
Ventricular septal defect	2813	834	1214	633	11	5630	
	48.1	***43.5***	***47.8***	***42.8***	***48.4***	***46.6***	
Total live births	**584726**	**191852**	**254071**	**147987**	**2271**	**1209301**	
Male live births	**300532**	**97568**	**129538**	**76445**	**1146**	**619684**	

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

New York

Trisomy Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	296	9	305	
	3.1	***0.4***	***2.5***	
Trisomy 13	50	29	79	
	0.5	***1.2***	***0.7***	
Trisomy 18	73	79	152	
	0.8	***3.3***	***1.3***	
Trisomy 21 (Down syndrome)	716	768	1484	
	7.4	***32.0***	***12.3***	
Total live births	**968953**	**240197**	**1209301**	

**Total includes unknown maternal age

North Carolina

Birth Defects Counts and Prevalence 2008 - 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	86	27	39	4	4	180	
	2.5	***1.8***	***4.0***	***1.9***	***4.7***	***2.9***	
Anophthalmia/microphthalmia	53	29	16	4	1	103	
	1.5	***2.0***	***1.7***	***1.9***	***1.2***	***1.7***	
Anotia/microtia	43	13	41	5	7	110	
	1.2	***0.9***	***4.2***	***2.4***	***8.2***	***1.8***	
Aortic valve stenosis	94	28	18	2	0	142	
	2.7	***1.9***	***1.9***	***1.0***	***0.0***	***2.3***	
Atrial septal defect	1752	943	496	78	65	3346	
	50.7	***64.1***	***51.3***	***37.3***	***76.1***	***54.0***	
Atrioventricular septal defect (Endocardial cushion defect)	234	94	61	11	9	415	
	6.8	***6.4***	***6.3***	***5.3***	***10.5***	***6.7***	
Biliary atresia	21	14	7	1	1	44	
	0.6	***1.0***	***0.7***	***0.5***	***1.2***	***0.7***	
Bladder exstrophy	10	7	3	0	0	20	
	0.3	***0.5***	***0.3***	***0.0***	***0.0***	***0.3***	
Choanal atresia	49	19	18	3	1	90	
	1.4	***1.3***	***1.9***	***1.4***	***1.2***	***1.5***	
Cleft lip alone	124	44	25	4	6	206	
	3.6	***3.0***	***2.6***	***1.9***	***7.0***	***3.3***	
Cleft lip with cleft palate	214	51	55	14	9	344	
	6.2	***3.5***	***5.7***	***6.7***	***10.5***	***5.5***	
Cleft palate alone	263	50	37	15	6	373	
	7.6	***3.4***	***3.8***	***7.2***	***7.0***	***6.0***	
Cloacal exstrophy	13	6	6	0	0	25	
	0.4	***0.4***	***0.6***	***0.0***	***0.0***	***0.4***	
Clubfoot	715	271	188	29	14	1227	
	20.7	***18.4***	***19.4***	***13.9***	***16.4***	***19.8***	
Coarctation of the aorta	185	59	40	9	1	295	
	5.4	***4.0***	***4.1***	***4.3***	***1.2***	***4.8***	
Common truncus (truncus arteriosus)	22	10	9	2	0	44	
	0.6	***0.7***	***0.9***	***1.0***	***0.0***	***0.7***	
Congenital cataract	28	26	8	3	1	66	
	0.8	***1.8***	***0.8***	***1.4***	***1.2***	***1.1***	
Congenital posterior urethral valves	97	58	15	3	4	178	
	2.8	***3.9***	***1.6***	***1.4***	***4.7***	***2.9***	
Craniosynostosis	280	54	41	5	4	385	
	8.1	***3.7***	***4.2***	***2.4***	***4.7***	***6.2***	
Diaphragmatic hernia	105	27	30	6	2	173	
	3.0	***1.8***	***3.1***	***2.9***	***2.3***	***2.8***	
Double outlet right ventricle	61	24	15	0	3	104	
	1.8	***1.6***	***1.6***	***0.0***	***3.5***	***1.7***	
Ebstein anomaly	24	11	7	2	1	45	
	0.7	***0.7***	***0.7***	***1.0***	***1.2***	***0.7***	
Encephalocele	30	22	13	2	1	73	
	0.9	***1.5***	***1.3***	***1.0***	***1.2***	***1.2***	
Esophageal atresia/tracheoesophageal fistula	92	30	18	2	2	144	
	2.7	***2.0***	***1.9***	***1.0***	***2.3***	***2.3***	
Gastroschisis	177	57	39	4	9	288	
	5.1	***3.9***	***4.0***	***1.9***	***10.5***	***4.6***	
Holoprosencephaly	36	19	17	2	3	80	
	1.0	***1.3***	***1.8***	***1.0***	***3.5***	***1.3***	
Hypoplastic left heart syndrome	81	37	23	5	0	148	
	2.3	***2.5***	***2.4***	***2.4***	***0.0***	***2.4***	
Hypospadias*	1170	390	128	59	34	1784	
	65.0	***51.5***	***25.0***	***54.9***	***77.9***	***55.3***	
Interrupted aortic arch	21	12	9	3	1	46	
	0.6	***0.8***	***0.9***	***1.4***	***1.2***	***0.7***	
Limb deficiencies (reduction defects)	169	86	47	7	8	322	
	4.9	***5.8***	***4.9***	***3.3***	***9.4***	***5.2***	

North Carolina

Birth Defects Counts and Prevalence 2008 - 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**
Omphalocele	72	43	23	6	2	150	
	2.1	***2.9***	***2.4***	***2.9***	***2.3***	***2.4***	
Pulmonary valve atresia and stenosis	256	133	68	13	11	484	
	7.4	***9.0***	***7.0***	***6.2***	***12.9***	***7.8***	
Pulmonary valve atresia	50	36	8	6	2	103	
	1.4	***2.4***	***0.8***	***2.9***	***2.3***	***1.7***	
Rectal and large intestinal atresia/stenosis	138	52	57	6	6	261	
	4.0	***3.5***	***5.9***	***2.9***	***7.0***	***4.2***	
Renal agenesis/hypoplasia	230	87	56	7	6	391	
	6.7	***5.9***	***5.8***	***3.3***	***7.0***	***6.3***	
Single ventricle	25	13	15	1	0	54	
	0.7	***0.9***	***1.6***	***0.5***	***0.0***	***0.9***	
Small intestinal atresia/stenosis	105	43	38	8	2	196	
	3.0	***2.9***	***3.9***	***3.8***	***2.3***	***3.2***	
Spina bifida without anencephalus	151	43	42	5	3	250	
	4.4	***2.9***	***4.3***	***2.4***	***3.5***	***4.0***	
Tetralogy of Fallot	140	77	33	12	7	271	
	4.1	***5.2***	***3.4***	***5.7***	***8.2***	***4.4***	
Total anomalous pulmonary venous connection	33	11	21	3	2	70	
	1.0	***0.7***	***2.2***	***1.4***	***2.3***	***1.1***	
Transposition of the great arteries (TGA)	114	45	24	8	4	197	
	3.3	***3.1***	***2.5***	***3.8***	***4.7***	***3.2***	
Dextro-transposition of great arteries (d-TGA)	83	25	13	7	4	133	
	2.4	***1.7***	***1.3***	***3.3***	***4.7***	***2.1***	
Tricuspid valve atresia and stenosis	67	45	25	2	7	147	
	1.9	***3.1***	***2.6***	***1.0***	***8.2***	***2.4***	
Tricuspid valve atresia	53	39	22	2	6	123	
	1.5	***2.7***	***2.3***	***1.0***	***7.0***	***2.0***	
Trisomy 13	37	30	15	1	1	87	
	1.1	***2.0***	***1.6***	***0.5***	***1.2***	***1.4***	
Trisomy 18	104	43	39	5	1	200	
	3.0	***2.9***	***4.0***	***2.4***	***1.2***	***3.2***	
Trisomy 21 (Down syndrome)	450	123	145	25	17	779	
	13.0	***8.4***	***15.0***	***11.9***	***19.9***	***12.6***	
Turner syndrome†	53	5	11	0	0	73	
	3.2	***0.7***	***2.3***	***0.0***	***0.0***	***2.4***	
Ventricular septal defect	1503	604	523	68	39	2748	
	43.5	***41.1***	***54.1***	***32.5***	***45.6***	***44.3***	
Total live births §	**345340**	**147135**	**96674**	**20924**	**8546**	**620015**	
Male live births	**180039**	**75718**	**51276**	**10756**	**4364**	**322771**	
Female live births	**167970**	**72512**	**47411**	**10072**	**4229**	**302877**	

*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 Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	279	8	288	
	5.2	***1.0***	***4.6***	
Trisomy 13	59	28	87	
	1.1	***3.5***	***1.4***	
Trisomy 18	114	84	200	
	2.1	***10.4***	***3.2***	
Trisomy 21 (Down syndrome)	413	363	779	
	7.7	***44.8***	***12.6***	
Total live births	**538951**	**81032**	**620015**	

**Total includes unknown maternal age

General comments

-Fetal deaths are those greater than 20 weeks gestational age.

-There is no gestational age cut-off for terminations. Termination of pregnancy typically performed before 20 weeks gestational age.

North Dakota

Birth Defects Counts and Prevalence 2008 - 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	22	1	0	0	3	26	
	5.8	***10.1***	***0.0***	***0.0***	***6.2***	***5.6***	
Anophthalmia/microphthalmia	0	0	1	0	0	1	
	0.0	***0.0***	***6.3***	***0.0***	***0.0***	***0.2***	
Anotia/microtia	2	0	0	0	2	4	
	0.5	***0.0***	***0.0***	***0.0***	***4.2***	***0.9***	
Aortic valve stenosis	7	0	0	0	2	9	
	1.8	***0.0***	***0.0***	***0.0***	***4.2***	***1.9***	
Atrial septal defect	274	16	4	5	106	411	
	72.1	***161.6***	***25.3***	***67.1***	***220.8***	***88.1***	
Atrioventricular septal defect (Endocardial cushion defect)	13	0	0	1	2	17	
	3.4	***0.0***	***0.0***	***13.4***	***4.2***	***3.6***	
Biliary atresia	2	0	0	0	1	3	
	0.5	***0.0***	***0.0***	***0.0***	***2.1***	***0.6***	
Bladder exstrophy	1	0	0	0	0	1	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Choanal atresia	3	0	0	0	0	3	
	0.8	***0.0***	***0.0***	***0.0***	***0.0***	***0.6***	
Cleft lip alone	41	0	2	2	7	54	
	10.8	***0.0***	***12.7***	***26.8***	***14.6***	***11.6***	
Cleft lip with cleft palate	21	0	0	2	14	37	
	5.5	***0.0***	***0.0***	***26.8***	***29.2***	***7.9***	
Cleft palate alone	53	0	0	4	10	67	
	13.9	***0.0***	***0.0***	***53.7***	***20.8***	***14.4***	
Coarctation of the aorta	11	0	0	0	2	13	
	2.9	***0.0***	***0.0***	***0.0***	***4.2***	***2.8***	
Common truncus (truncus arteriosus)	4	0	0	0	0	4	
	1.1	***0.0***	***0.0***	***0.0***	***0.0***	***0.9***	
Congenital cataract	5	1	1	0	0	7	
	1.3	***10.1***	***6.3***	***0.0***	***0.0***	***1.5***	
Diaphragmatic hernia	11	0	0	0	1	12	
	2.9	***0.0***	***0.0***	***0.0***	***2.1***	***2.6***	
Double outlet right ventricle	5	0	0	0	0	6	
	1.3	***0.0***	***0.0***	***0.0***	***0.0***	***1.3***	
Ebstein anomaly	4	1	0	0	0	5	
	1.1	***10.1***	***0.0***	***0.0***	***0.0***	***1.1***	
Encephalocele	1	0	0	0	1	3	
	0.3	***0.0***	***0.0***	***0.0***	***2.1***	***0.6***	
Esophageal atresia/tracheoesophageal fistula	7	0	0	0	1	8	
	1.8	***0.0***	***0.0***	***0.0***	***2.1***	***1.7***	
Gastroschisis	13	0	0	1	13	27	
	3.4	***0.0***	***0.0***	***13.4***	***27.1***	***5.8***	
Hypoplastic left heart syndrome	10	0	0	0	0	12	
	2.6	***0.0***	***0.0***	***0.0***	***0.0***	***2.6***	
Hypospadias*	64	3	1	1	6	75	
	33.0	***56.3***	***12.3***	***26.0***	***24.5***	***31.4***	
Limb deficiencies (reduction defects)	5	0	0	0	3	8	
	1.3	***0.0***	***0.0***	***0.0***	***6.2***	***1.7***	
Omphalocele	7	0	0	0	1	8	
	1.8	***0.0***	***0.0***	***0.0***	***2.1***	***1.7***	
Pulmonary valve atresia and stenosis	47	2	2	1	15	71	
	12.4	***20.2***	***12.7***	***13.4***	***31.2***	***15.2***	
Pulmonary valve atresia	5	0	0	0	2	9	
	1.3	***0.0***	***0.0***	***0.0***	***4.2***	***1.9***	
Rectal and large intestinal atresia/stenosis	9	1	0	0	1	12	
	2.4	***10.1***	***0.0***	***0.0***	***2.1***	***2.6***	
Renal agenesis/hypoplasia	4	1	0	0	6	11	
	1.1	***10.1***	***0.0***	***0.0***	***12.5***	***2.4***	
Single ventricle	1	0	0	0	0	1	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	

North Dakota

Birth Defects Counts and Prevalence 2008 - 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**
Spina bifida without anencephalus	14	0	0	0	6	24	
	3.7	***0.0***	***0.0***	***0.0***	***12.5***	***5.1***	
Tetralogy of Fallot	17	0	0	0	7	25	
	4.5	***0.0***	***0.0***	***0.0***	***14.6***	***5.4***	
Total anomalous pulmonary venous connection	0	0	0	0	1	1	
	0.0	***0.0***	***0.0***	***0.0***	***2.1***	***0.2***	
Transposition of the great arteries (TGA)	13	0	0	0	2	16	
	3.4	***0.0***	***0.0***	***0.0***	***4.2***	***3.4***	
Dextro-transposition of great arteries (d-TGA)	7	0	0	0	2	10	
	1.8	***0.0***	***0.0***	***0.0***	***4.2***	***2.1***	
Tricuspid valve atresia and stenosis	2	0	0	0	1	4	
	0.5	***0.0***	***0.0***	***0.0***	***2.1***	***0.9***	
Trisomy 18	4	0	0	0	1	5	
	1.1	***0.0***	***0.0***	***0.0***	***2.1***	***1.1***	
Trisomy 21 (Down syndrome)	42	1	4	2	3	53	
	11.1	***10.1***	***25.3***	***26.8***	***6.2***	***11.4***	
Ventricular septal defect	129	3	5	3	44	188	1
	33.9	***30.3***	***31.6***	***40.3***	***91.6***	***40.3***	
Total live births	**38004**	**990**	**1581**	**745**	**4801**	**46676**	
Male live births	**19418**	**533**	**814**	**385**	**2446**	**23866**	

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

North Dakota

Trisomy Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	27	0	27	
	6.4	***0.0***	***5.8***	
Trisomy 18	5	0	5	
	1.2	***0.0***	***1.1***	
Trisomy 21 (Down syndrome)	30	22	53	
	7.1	***47.6***	***11.4***	
Total live births	**42057**	**4619**	**46676**	

**Total includes unknown maternal age

Notes
1.Excludes inlet ventricular septal defect and common atrioventricular canal type ventricular septal defect.

General comments
-North Dakota does not differentiate between fetal deaths and terminations. These are reported in the unspecified non-livebirth category.

Oklahoma

Birth Defects Counts and Prevalence 2008 - 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	37	4	7	0	7	55	
	2.2	*1.6*	*1.8*	*0.0*	*2.4*	*2.1*	
Anophthalmia/microphthalmia	23	0	6	0	7	36	
	1.4	*0.0*	*1.6*	*0.0*	*2.4*	*1.3*	
Anotia/microtia	30	2	13	4	4	53	
	1.8	*0.8*	*3.4*	*6.0*	*1.4*	*2.0*	
Aortic valve stenosis	59	4	12	0	5	80	
	3.5	*1.6*	*3.1*	*0.0*	*1.7*	*3.0*	
Atrial septal defect	1178	187	181	16	206	1785	
	70.0	*76.2*	*47.3*	*23.8*	*69.6*	*66.7*	
Atrioventricular septal defect (Endocardial cushion defect)	92	19	16	1	13	142	
	5.5	*7.7*	*4.2*	*1.5*	*4.4*	*5.3*	
Biliary atresia	12	2	3	0	4	21	
	0.7	*0.8*	*0.8*	*0.0*	*1.4*	*0.8*	
Bladder exstrophy	7	1	0	0	2	10	
	0.4	*0.4*	*0.0*	*0.0*	*0.7*	*0.4*	
Choanal atresia	24	3	4	0	3	34	
	1.4	*1.2*	*1.0*	*0.0*	*1.0*	*1.3*	
Cleft lip alone	78	8	11	2	10	110	
	4.6	*3.3*	*2.9*	*3.0*	*3.4*	*4.1*	
Cleft lip with cleft palate	139	11	25	3	29	211	
	8.3	*4.5*	*6.5*	*4.5*	*9.8*	*7.9*	
Cleft palate alone	142	16	22	5	25	215	
	8.4	*6.5*	*5.7*	*7.5*	*8.5*	*8.0*	
Clubfoot	327	27	63	5	53	486	
	19.4	*11.0*	*16.5*	*7.5*	*17.9*	*18.2*	
Coarctation of the aorta	96	13	19	1	16	145	
	5.7	*5.3*	*5.0*	*1.5*	*5.4*	*5.4*	
Common truncus (truncus arteriosus)	14	3	1	0	3	24	
	0.8	*1.2*	*0.3*	*0.0*	*1.0*	*0.9*	
Congenital cataract	28	5	3	1	3	41	
	1.7	*2.0*	*0.8*	*1.5*	*1.0*	*1.5*	
Congenital posterior urethral valves	20	5	1	0	1	30	
	1.2	*2.0*	*0.3*	*0.0*	*0.3*	*1.1*	
Craniosynostosis	58	5	7	2	10	84	
	3.4	*2.0*	*1.8*	*3.0*	*3.4*	*3.1*	
Deletion 22q11.2	14	2	1	0	6	23	
	0.8	*0.8*	*0.3*	*0.0*	*2.0*	*0.9*	
Diaphragmatic hernia	72	6	16	1	8	105	
	4.3	*2.4*	*4.2*	*1.5*	*2.7*	*3.9*	
Double outlet right ventricle	36	8	4	0	8	56	
	2.1	*3.3*	*1.0*	*0.0*	*2.7*	*2.1*	
Ebstein anomaly	14	0	5	1	2	23	
	0.8	*0.0*	*1.3*	*1.5*	*0.7*	*0.9*	
Encephalocele	15	6	1	1	4	27	
	0.9	*2.4*	*0.3*	*1.5*	*1.4*	*1.0*	
Esophageal atresia/tracheoesophageal fistula	43	4	10	1	8	66	
	2.6	*1.6*	*2.6*	*1.5*	*2.7*	*2.5*	
Gastroschisis	100	7	18	4	23	152	
	5.9	*2.9*	*4.7*	*6.0*	*7.8*	*5.7*	
Holoprosencephaly	21	3	6	0	5	35	
	1.2	*1.2*	*1.6*	*0.0*	*1.7*	*1.3*	
Hypoplastic left heart syndrome	40	2	8	1	7	59	
	2.4	*0.8*	*2.1*	*1.5*	*2.4*	*2.2*	
Hypospadias*	372	47	16	9	47	494	
	43.2	*37.7*	*8.2*	*26.5*	*31.3*	*36.2*	
Interrupted aortic arch	9	1	1	0	1	12	
	0.5	*0.4*	*0.3*	*0.0*	*0.3*	*0.4*	
Limb deficiencies (reduction defects)	77	10	12	1	16	118	
	4.6	*4.1*	*3.1*	*1.5*	*5.4*	*4.4*	

Oklahoma

Birth Defects Counts and Prevalence 2008 - 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**
Omphalocele	35	9	8	0	4	56	
	2.1	***3.7***	***2.1***	***0.0***	***1.4***	***2.1***	
Pulmonary valve atresia and stenosis	146	19	28	4	15	216	
	8.7	***7.7***	***7.3***	***6.0***	***5.1***	***8.1***	
Pulmonary valve atresia	19	3	5	2	3	33	
	1.1	***1.2***	***1.3***	***3.0***	***1.0***	***1.2***	
Rectal and large intestinal atresia/stenosis	100	15	25	4	13	160	
	5.9	***6.1***	***6.5***	***6.0***	***4.4***	***6.0***	
Renal agenesis/hypoplasia	99	7	18	0	14	141	
	5.9	***2.9***	***4.7***	***0.0***	***4.7***	***5.3***	
Single ventricle	12	1	3	0	3	21	
	0.7	***0.4***	***0.8***	***0.0***	***1.0***	***0.8***	
Small intestinal atresia/stenosis	72	12	13	0	9	108	
	4.3	***4.9***	***3.4***	***0.0***	***3.0***	***4.0***	
Spina bifida without anencephalus	59	8	13	0	11	93	
	3.5	***3.3***	***3.4***	***0.0***	***3.7***	***3.5***	
Tetralogy of Fallot	86	13	14	2	14	130	
	5.1	***5.3***	***3.7***	***3.0***	***4.7***	***4.9***	
Total anomalous pulmonary venous connection	22	2	6	1	9	40	
	1.3	***0.8***	***1.6***	***1.5***	***3.0***	***1.5***	
Transposition of the great arteries (TGA)	65	6	14	1	9	100	
	3.9	***2.4***	***3.7***	***1.5***	***3.0***	***3.7***	
Dextro-transposition of great arteries (d-TGA)	49	6	10	1	7	76	
	2.9	***2.4***	***2.6***	***1.5***	***2.4***	***2.8***	
Tricuspid valve atresia and stenosis	19	4	4	1	2	31	
	1.1	***1.6***	***1.0***	***1.5***	***0.7***	***1.2***	
Tricuspid valve atresia	13	3	2	0	1	20	
	0.8	***1.2***	***0.5***	***0.0***	***0.3***	***0.7***	
Trisomy 13	16	4	4	0	1	26	
	1.0	***1.6***	***1.0***	***0.0***	***0.3***	***1.0***	
Trisomy 18	34	8	4	2	9	57	
	2.0	***3.3***	***1.0***	***3.0***	***3.0***	***2.1***	
Trisomy 21 (Down syndrome)	207	28	69	6	24	342	
	12.3	***11.4***	***18.0***	***8.9***	***8.1***	***12.8***	
Turner syndrome†	24	1	4	0	0	29	
	2.9	***0.8***	***2.1***	***0.0***	***0.0***	***2.2***	
Ventricular septal defect	974	132	187	21	143	1482	
	57.9	***53.8***	***48.9***	***31.3***	***48.3***	***55.4***	
Total live births §	**168208**	**24529**	**38280**	**6710**	**29578**	**267491**	
Male live births	**86137**	**12452**	**19501**	**3395**	**15021**	**136601**	
Female live births	**82067**	**12076**	**18778**	**3315**	**14557**	**130884**	

*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 Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	149	3	152	
	6.1	***1.3***	***5.7***	
Trisomy 13	18	8	26	
	0.7	***3.5***	***1.0***	
Trisomy 18	36	21	57	
	1.5	***9.2***	***2.1***	
Trisomy 21 (Down syndrome)	196	141	342	
	8.0	***61.9***	***12.8***	
Total live births	**244624**	**22796**	**267491**	

**Total includes unknown maternal age

General comments

-Fetal deaths are babies born deceased at or after 20th gestational week. Includes babies that died during labor.

-Terminations include fetuses 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 2008 - 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	12	2	5	1	0	21	
	0.8	***4.2***	***1.1***	***0.9***	***0.0***	***0.9***	
Cleft lip with cleft palate	191	7	59	9	7	286	
	12.1	***14.7***	***12.7***	***8.5***	***24.5***	***12.3***	
Cleft palate alone	240	9	87	8	8	365	
	15.2	***18.9***	***18.7***	***7.5***	***28.0***	***15.7***	
Gastroschisis	68	3	31	4	0	117	
	4.3	***6.3***	***6.7***	***3.8***	***0.0***	***5.0***	
Hypoplastic left heart syndrome	62	4	31	2	0	101	
	3.9	***8.4***	***6.7***	***1.9***	***0.0***	***4.4***	
Hypospadias*	689	33	126	16	11	904	
	84.7	***138.3***	***53.3***	***29.2***	***75.2***	***75.9***	
Limb deficiencies (reduction defects)	95	3	37	3	3	150	
	6.0	***6.3***	***8.0***	***2.8***	***10.5***	***6.5***	
Spina bifida without anencephalus	118	5	46	4	4	181	
	7.5	***10.5***	***9.9***	***3.8***	***14.0***	***7.8***	
Tetralogy of Fallot	93	1	33	3	3	140	
	5.9	***2.1***	***7.1***	***2.8***	***10.5***	***6.0***	
Transposition of the great arteries (TGA)	91	2	32	2	4	140	
	5.8	***4.2***	***6.9***	***1.9***	***14.0***	***6.0***	
Trisomy 21 (Down syndrome)	219	7	119	20	9	382	
	13.9	***14.7***	***25.6***	***18.8***	***31.5***	***16.5***	
Total live births	**157936**	**4764**	**46537**	**10645**	**2853**	**232085**	
Male live births	**81298**	**2386**	**23658**	**5474**	**1463**	**119077**	

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

Oregon

Trisomy Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	113	4	117	
	5.7	***1.1***	***5.0***	
Trisomy 21 (Down syndrome)	201	181	382	
	10.2	***51.9***	***16.5***	
Total live births	**197205**	**34880**	**232085**	

**Total includes unknown maternal age

Puerto Rico

Birth Defects Counts and Prevalence 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity		
Defect	**Hispanic**	**Total****	**Notes**
Anencephalus	85 ***4.0***	85 ***4.0***	
Anophthalmia/microphthalmia	35 ***1.6***	35 ***1.6***	
Anotia/microtia	52 ***2.4***	52 ***2.4***	
Aortic valve stenosis	28 ***1.3***	28 ***1.3***	
Atrial septal defect	510 ***24.0***	510 ***24.0***	
Atrioventricular septal defect (Endocardial cushion defect)	119 ***5.6***	119 ***5.6***	1
Bladder exstrophy	3 ***0.1***	3 ***0.1***	
Cleft lip alone	72 ***3.4***	72 ***3.4***	
Cleft lip with cleft palate	132 ***6.2***	132 ***6.2***	
Cleft palate alone	143 ***6.7***	143 ***6.7***	
Clubfoot	388 ***18.2***	388 ***18.2***	
Coarctation of the aorta	71 ***3.3***	71 ***3.3***	
Common truncus (truncus arteriosus)	15 ***0.7***	15 ***0.7***	
Double outlet right ventricle	26 ***1.2***	26 ***1.2***	
Ebstein anomaly	17 ***0.8***	17 ***0.8***	
Encephalocele	21 ***1.0***	21 ***1.0***	
Gastroschisis	111 ***5.2***	111 ***5.2***	
Hypoplastic left heart syndrome	41 ***1.9***	41 ***1.9***	
Hypospadias*	414 ***37.8***	414 ***37.8***	
Limb deficiencies (reduction defects)	136 ***6.4***	136 ***6.4***	
Omphalocele	46 ***2.2***	46 ***2.2***	
Pulmonary valve atresia and stenosis	221 ***10.4***	221 ***10.4***	
Pulmonary valve atresia	19 ***0.9***	19 ***0.9***	
Spina bifida without anencephalus	105 ***4.9***	105 ***4.9***	
Tetralogy of Fallot	92 ***4.3***	92 ***4.3***	
Total anomalous pulmonary venous connection	14 ***0.7***	14 ***0.7***	
Transposition of the great arteries (TGA)	55 ***2.6***	55 ***2.6***	
Tricuspid valve atresia and stenosis	22 ***1.0***	22 ***1.0***	
Trisomy 13	33 ***1.6***	33 ***1.6***	
Trisomy 18	78 ***3.7***	78 ***3.7***	
Trisomy 21 (Down syndrome)	305 ***14.3***	305 ***14.3***	
Ventricular septal defect	547 ***25.7***	547 ***25.7***	2

Puerto Rico

Birth Defects Counts and Prevalence 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity		
Defect	**Hispanic**	**Total****	**Notes**
Total live births	**212875**	**212875**	
Male live births	**109483**	**109483**	
Female live births	**103346**	**103346**	

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

Puerto Rico

Trisomy Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	111	0	111	
	5.7	***0.0***	***5.2***	
Trisomy 13	22	11	33	
	1.1	***6.1***	***1.6***	
Trisomy 18	48	30	78	
	2.5	***16.7***	***3.7***	
Trisomy 21 (Down syndrome)	192	113	305	
	9.9	***62.8***	***14.3***	
Total live births	**194816**	**17989**	**212875**	

**Total includes unknown maternal age

Notes
1.Includes common atrioventricular canal type ventricular septal defect.
2.Excludes probable diagnosis and inlet/posterior type ventricular septal defect only in the presence of atrioventricular canal.

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

Rhode Island

Birth Defects Counts and Prevalence 2008 - 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	0	1	0	0	7	
	1.7	***0.0***	***0.9***	***0.0***	***0.0***	***1.3***	
Anophthalmia/microphthalmia	3	1	1	0	0	5	
	0.9	***2.2***	***0.9***	***0.0***	***0.0***	***0.9***	
Anotia/microtia	1	0	2	0	0	3	
	0.3	***0.0***	***1.8***	***0.0***	***0.0***	***0.5***	
Aortic valve stenosis	6	1	0	0	0	7	
	1.7	***2.2***	***0.0***	***0.0***	***0.0***	***1.3***	
Atrial septal defect	105	21	36	3	3	176	
	30.2	***47.2***	***32.6***	***18.4***	***76.9***	***32.1***	
Atrioventricular septal defect (Endocardial cushion defect)	8	0	1	0	0	9	
	2.3	***0.0***	***0.9***	***0.0***	***0.0***	***1.6***	
Biliary atresia	1	1	1	0	0	4	
	0.3	***2.2***	***0.9***	***0.0***	***0.0***	***0.7***	
Bladder exstrophy	0	0	0	0	0	1	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Choanal atresia	1	0	0	0	0	1	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Cleft lip alone	8	1	6	0	0	15	
	2.3	***2.2***	***5.4***	***0.0***	***0.0***	***2.7***	
Cleft lip with cleft palate	19	0	5	2	0	28	
	5.5	***0.0***	***4.5***	***12.2***	***0.0***	***5.1***	
Cleft palate alone	19	2	2	2	0	26	
	5.5	***4.5***	***1.8***	***12.2***	***0.0***	***4.7***	
Clubfoot	54	10	13	2	0	88	
	15.5	***22.5***	***11.8***	***12.2***	***0.0***	***16.1***	
Coarctation of the aorta	6	2	3	1	0	12	
	1.7	***4.5***	***2.7***	***6.1***	***0.0***	***2.2***	
Common truncus (truncus arteriosus)	1	1	0	0	0	2	
	0.3	***2.2***	***0.0***	***0.0***	***0.0***	***0.4***	
Congenital cataract	3	1	2	0	0	6	
	0.9	***2.2***	***1.8***	***0.0***	***0.0***	***1.1***	
Congenital posterior urethral valves	1	1	0	0	0	2	
	0.3	***2.2***	***0.0***	***0.0***	***0.0***	***0.4***	
Craniosynostosis	11	5	1	0	0	20	
	3.2	***11.2***	***0.9***	***0.0***	***0.0***	***3.6***	
Deletion 22q11.2	2	2	0	0	0	4	
	0.6	***4.5***	***0.0***	***0.0***	***0.0***	***0.7***	
Diaphragmatic hernia	7	1	3	0	0	12	
	2.0	***2.2***	***2.7***	***0.0***	***0.0***	***2.2***	
Double outlet right ventricle	3	0	1	0	0	6	
	0.9	***0.0***	***0.9***	***0.0***	***0.0***	***1.1***	
Ebstein anomaly	2	1	0	0	0	3	
	0.6	***2.2***	***0.0***	***0.0***	***0.0***	***0.5***	
Encephalocele	3	0	0	0	0	5	
	0.9	***0.0***	***0.0***	***0.0***	***0.0***	***0.9***	
Esophageal atresia/tracheoesophageal fistula	8	1	0	0	0	13	
	2.3	***2.2***	***0.0***	***0.0***	***0.0***	***2.4***	
Gastroschisis	11	3	10	0	0	24	
	3.2	***6.7***	***9.1***	***0.0***	***0.0***	***4.4***	
Holoprosencephaly	1	0	0	0	0	1	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Hypoplastic left heart syndrome	6	2	2	3	0	15	
	1.7	***4.5***	***1.8***	***18.4***	***0.0***	***2.7***	
Hypospadias*	158	20	39	3	0	227	
	87.6	***89.2***	***66.2***	***36.1***	***0.0***	***79.9***	
Interrupted aortic arch	1	1	0	0	0	2	
	0.3	***2.2***	***0.0***	***0.0***	***0.0***	***0.4***	
Limb deficiencies (reduction defects)	12	4	5	0	0	21	
	3.5	***9.0***	***4.5***	***0.0***	***0.0***	***3.8***	

Rhode Island

Birth Defects Counts and Prevalence 2008 - 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**
Omphalocele	9	2	5	0	0	16	
	2.6	***4.5***	***4.5***	***0.0***	***0.0***	***2.9***	
Pulmonary valve atresia and stenosis	15	3	7	2	1	31	
	4.3	***6.7***	***6.3***	***12.2***	***25.6***	***5.7***	
Pulmonary valve atresia	5	1	1	0	1	9	
	1.4	***2.2***	***0.9***	***0.0***	***25.6***	***1.6***	
Rectal and large intestinal atresia/stenosis	8	2	9	0	0	21	
	2.3	***4.5***	***8.1***	***0.0***	***0.0***	***3.8***	
Renal agenesis/hypoplasia	5	2	3	0	0	12	
	1.4	***4.5***	***2.7***	***0.0***	***0.0***	***2.2***	
Single ventricle	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Small intestinal atresia/stenosis	13	3	8	1	0	25	
	3.7	***6.7***	***7.2***	***6.1***	***0.0***	***4.6***	
Spina bifida without anencephalus	13	3	6	0	0	26	
	3.7	***6.7***	***5.4***	***0.0***	***0.0***	***4.7***	
Tetralogy of Fallot	10	2	3	0	0	18	
	2.9	***4.5***	***2.7***	***0.0***	***0.0***	***3.3***	
Total anomalous pulmonary venous connection	1	0	1	0	0	2	
	0.3	***0.0***	***0.9***	***0.0***	***0.0***	***0.4***	
Transposition of the great arteries (TGA)	5	0	5	0	0	14	
	1.4	***0.0***	***4.5***	***0.0***	***0.0***	***2.6***	
Dextro-transposition of great arteries (d-TGA)	1	0	4	0	0	8	
	0.3	***0.0***	***3.6***	***0.0***	***0.0***	***1.5***	
Tricuspid valve atresia and stenosis	0	0	1	0	1	2	1
	0.0	***0.0***	***0.9***	***0.0***	***25.6***	***0.4***	
Tricuspid valve atresia	0	0	1	0	1	2	
	0.0	***0.0***	***0.9***	***0.0***	***25.6***	***0.4***	
Trisomy 13	5	1	4	0	0	11	
	1.4	***2.2***	***3.6***	***0.0***	***0.0***	***2.0***	
Trisomy 18	11	1	3	0	0	18	
	3.2	***2.2***	***2.7***	***0.0***	***0.0***	***3.3***	
Trisomy 21 (Down syndrome)	52	9	15	2	1	93	
	15.0	***20.2***	***13.6***	***12.2***	***25.6***	***17.0***	
Turner syndrome†	2	1	0	1	0	4	
	1.2	***4.7***	***0.0***	***11.4***	***0.0***	***1.5***	
Ventricular septal defect	151	28	44	8	0	238	2
	43.5	***62.9***	***39.8***	***49.0***	***0.0***	***43.4***	
Total live births §	**34742**	**4448**	**11047**	**1634**	**390**	**54811**	
Male live births	**18032**	**2243**	**5889**	**830**	**200**	**28394**	
Female live births	**17097**	**2144**	**5744**	**876**	**182**	**27267**	

*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 Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	24	0	24	
	5.3	***0.0***	***4.4***	
Trisomy 13	6	4	11	
	1.3	***4.4***	***2.0***	
Trisomy 18	7	9	18	
	1.5	***9.8***	***3.3***	
Trisomy 21 (Down syndrome)	37	46	93	
	8.1	***50.0***	***17.0***	
Total live births	**45613**	**9193**	**54811**	

**Total includes unknown maternal age

Notes
1.Includes stenosis. Zero cases of stenosis reported during 2008-2012.
2.Includes probable cases.

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

South Carolina

Birth Defects Counts and Prevalence 2008 - 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	37	21	15	0	0	75	
	2.2	***2.2***	***5.7***	***0.0***	***0.0***	***2.5***	
Anophthalmia/microphthalmia	11	9	2	0	0	22	
	0.6	***0.9***	***0.8***	***0.0***	***0.0***	***0.7***	
Anotia/microtia	11	7	1	2	0	21	
	0.6	***0.7***	***0.4***	***3.8***	***0.0***	***0.7***	
Aortic valve stenosis	17	9	3	1	0	31	
	1.0	***0.9***	***1.1***	***1.9***	***0.0***	***1.0***	
Atrial septal defect	59	23	15	1	0	99	1
	16.8	***11.0***	***23.9***	***9.6***	***0.0***	***15.6***	
Atrioventricular septal defect (Endocardial cushion defect)	98	64	10	1	0	174	
	5.8	***6.6***	***3.8***	***1.9***	***0.0***	***5.8***	
Biliary atresia	9	11	0	0	0	20	
	0.5	***1.1***	***0.0***	***0.0***	***0.0***	***0.7***	
Bladder exstrophy	4	2	0	0	0	6	
	0.2	***0.2***	***0.0***	***0.0***	***0.0***	***0.2***	
Choanal atresia	21	8	3	0	0	34	
	1.2	***0.8***	***1.1***	***0.0***	***0.0***	***1.1***	
Cleft palate alone	88	42	16	4	0	152	
	5.2	***4.4***	***6.0***	***7.7***	***0.0***	***5.1***	
Coarctation of the aorta	118	39	9	3	0	170	
	7.0	***4.0***	***3.4***	***5.7***	***0.0***	***5.7***	
Common truncus (truncus arteriosus)	14	3	1	0	1	19	
	0.8	***0.3***	***0.4***	***0.0***	***7.6***	***0.6***	
Congenital cataract	15	8	4	0	0	27	
	0.9	***0.8***	***1.5***	***0.0***	***0.0***	***0.9***	
Diaphragmatic hernia	51	26	11	0	0	91	
	3.0	***2.7***	***4.2***	***0.0***	***0.0***	***3.0***	
Double outlet right ventricle	37	32	5	0	0	75	
	2.2	***3.3***	***1.9***	***0.0***	***0.0***	***2.5***	
Ebstein anomaly	11	5	3	1	0	20	
	0.6	***0.5***	***1.1***	***1.9***	***0.0***	***0.7***	
Encephalocele	16	12	5	2	0	35	
	0.9	***1.2***	***1.9***	***3.8***	***0.0***	***1.2***	
Esophageal atresia/tracheoesophageal fistula	30	11	3	0	0	45	
	1.8	***1.1***	***1.1***	***0.0***	***0.0***	***1.5***	
Gastroschisis	63	18	9	1	0	93	
	3.7	***1.9***	***3.4***	***1.9***	***0.0***	***3.1***	
Hypoplastic left heart syndrome	63	45	9	2	0	119	
	3.7	***4.7***	***3.4***	***3.8***	***0.0***	***4.0***	
Limb deficiencies (reduction defects)	107	61	16	6	1	192	
	6.3	***6.3***	***6.0***	***11.5***	***7.6***	***6.4***	
Omphalocele	32	19	2	0	1	56	
	1.9	***2.0***	***0.8***	***0.0***	***7.6***	***1.9***	
Pulmonary valve atresia and stenosis	130	92	20	4	1	251	
	7.7	***9.5***	***7.6***	***7.7***	***7.6***	***8.4***	
Rectal and large intestinal atresia/stenosis	74	35	3	4	1	118	
	4.4	***3.6***	***1.1***	***7.7***	***7.6***	***3.9***	
Renal agenesis/hypoplasia	93	52	14	3	0	162	
	5.5	***5.4***	***5.3***	***5.7***	***0.0***	***5.4***	
Spina bifida without anencephalus	64	20	5	4	0	97	
	3.8	***2.1***	***1.9***	***7.7***	***0.0***	***3.2***	
Tetralogy of Fallot	85	56	12	0	0	154	
	5.0	***5.8***	***4.5***	***0.0***	***0.0***	***5.1***	
Transposition of the great arteries (TGA)	52	26	6	1	1	88	
	3.1	***2.7***	***2.3***	***1.9***	***7.6***	***2.9***	
Tricuspid valve atresia and stenosis	17	15	2	1	0	36	
	1.0	***1.6***	***0.8***	***1.9***	***0.0***	***1.2***	
Trisomy 13	15	13	5	1	0	35	2
	0.9	***1.3***	***1.9***	***1.9***	***0.0***	***1.2***	

South Carolina

Birth Defects Counts and Prevalence 2008 - 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 18	44	20	7	0	0	71	2
	2.6	***2.1***	***2.6***	***0.0***	***0.0***	***2.4***	
Trisomy 21 (Down syndrome)	193	79	39	7	0	323	2
	11.4	***8.2***	***14.7***	***13.4***	***0.0***	***10.8***	
Ventricular septal defect	657	340	147	20	2	1179	3
	38.8	***35.2***	***55.5***	***38.3***	***15.3***	***39.4***	
Total live births	**169255**	**96460**	**26466**	**5222**	**1311**	**299413**	

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

South Carolina

Trisomy Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	89	4	93	
	3.3	***1.2***	***3.1***	
Trisomy 13	26	9	35	2
	1.0	***2.7***	***1.2***	
Trisomy 18	39	32	71	2
	1.5	***9.8***	***2.4***	
Trisomy 21 (Down syndrome)	174	149	323	2
	6.5	***45.5***	***10.8***	
Total live births	**266614**	**32782**	**299413**	

**Total includes unknown maternal age

Notes
1.Data for this condition ends in 2009.
2.Data for this condition begins in 2008.
3.Excludes probable and possible cases.

General comments
-Abortions in South Carolina are not usually performed after 24 weeks gestation.
-Fetal Deaths must occur in a hospital, be at least 20 weeks gestation or 350 grams or more.

Tennessee

Birth Defects Counts and Prevalence 2008 - 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	40	9	9	1	0	59	
	1.5	***1.1***	***2.5***	***1.2***	***0.0***	***1.5***	
Anophthalmia/microphthalmia	29	18	3	1	0	52	
	1.1	***2.1***	***0.8***	***1.2***	***0.0***	***1.3***	
Anotia/microtia	20	6	9	2	0	37	
	0.7	***0.7***	***2.5***	***2.4***	***0.0***	***0.9***	
Aortic valve stenosis	68	11	7	0	0	87	
	2.5	***1.3***	***1.9***	***0.0***	***0.0***	***2.1***	
Atrial septal defect	3395	1659	403	69	2	5544	
	124.4	***196.0***	***110.4***	***81.6***	***34.2***	***136.4***	
Atrioventricular septal defect (Endocardial cushion defect)	135	52	16	3	1	208	1
	4.9	***6.1***	***4.4***	***3.5***	***17.1***	***5.1***	
Biliary atresia	27	8	5	0	0	41	
	1.0	***0.9***	***1.4***	***0.0***	***0.0***	***1.0***	
Bladder exstrophy	14	2	1	0	0	17	
	0.5	***0.2***	***0.3***	***0.0***	***0.0***	***0.4***	
Choanal atresia	62	9	7	1	1	80	
	2.3	***1.1***	***1.9***	***1.2***	***17.1***	***2.0***	
Cleft palate alone	251	49	28	4	1	333	
	9.2	***5.8***	***7.7***	***4.7***	***17.1***	***8.2***	
Coarctation of the aorta	213	55	29	2	0	301	
	7.8	***6.5***	***7.9***	***2.4***	***0.0***	***7.4***	
Common truncus (truncus arteriosus)	28	9	2	1	0	40	
	1.0	***1.1***	***0.5***	***1.2***	***0.0***	***1.0***	
Congenital cataract	61	23	5	4	0	93	
	2.2	***2.7***	***1.4***	***4.7***	***0.0***	***2.3***	
Diaphragmatic hernia	114	38	18	1	0	171	
	4.2	***4.5***	***4.9***	***1.2***	***0.0***	***4.2***	
Ebstein anomaly	36	13	7	3	0	59	
	1.3	***1.5***	***1.9***	***3.5***	***0.0***	***1.5***	
Encephalocele	34	11	9	0	0	54	
	1.2	***1.3***	***2.5***	***0.0***	***0.0***	***1.3***	
Esophageal atresia/tracheoesophageal fistula	90	16	13	0	0	119	
	3.3	***1.9***	***3.6***	***0.0***	***0.0***	***2.9***	
Gastroschisis	190	26	22	1	0	242	
	7.0	***3.1***	***6.0***	***1.2***	***0.0***	***6.0***	
Hypoplastic left heart syndrome	108	35	16	1	1	162	
	4.0	***4.1***	***4.4***	***1.2***	***17.1***	***4.0***	
Hypospadias*	1642	465	70	28	3	2220	
	117.4	***107.7***	***37.6***	***64.7***	***104.5***	***106.7***	
Omphalocele	76	26	9	0	0	111	
	2.8	***3.1***	***2.5***	***0.0***	***0.0***	***2.7***	
Pulmonary valve atresia and stenosis	245	85	33	5	1	369	
	9.0	***10.0***	***9.0***	***5.9***	***17.1***	***9.1***	
Pulmonary valve atresia	47	23	7	2	0	79	
	1.7	***2.7***	***1.9***	***2.4***	***0.0***	***1.9***	
Rectal and large intestinal atresia/stenosis	180	51	22	1	1	257	
	6.6	***6.0***	***6.0***	***1.2***	***17.1***	***6.3***	
Renal agenesis/hypoplasia	154	53	19	4	0	230	
	5.6	***6.3***	***5.2***	***4.7***	***0.0***	***5.7***	
Spina bifida without anencephalus	117	24	20	4	0	165	
	4.3	***2.8***	***5.5***	***4.7***	***0.0***	***4.1***	
Tetralogy of Fallot	168	59	16	2	0	245	
	6.2	***7.0***	***4.4***	***2.4***	***0.0***	***6.0***	
Transposition of the great arteries (TGA)	132	51	21	5	0	211	
	4.8	***6.0***	***5.8***	***5.9***	***0.0***	***5.2***	
Dextro-transposition of great arteries (d-TGA)	76	20	10	4	0	110	
	2.8	***2.4***	***2.7***	***4.7***	***0.0***	***2.7***	
Tricuspid valve atresia and stenosis	42	10	3	0	0	55	2
	1.5	***1.2***	***0.8***	***0.0***	***0.0***	***1.4***	

Tennessee

Birth Defects Counts and Prevalence 2008 - 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 13	16	12	1	1	0	32	
	0.6	***1.4***	***0.3***	***1.2***	***0.0***	***0.8***	
Trisomy 18	47	14	9	1	0	72	
	1.7	***1.7***	***2.5***	***1.2***	***0.0***	***1.8***	
Trisomy 21 (Down syndrome)	394	122	63	11	1	594	
	14.4	***14.4***	***17.3***	***13.0***	***17.1***	***14.6***	
Ventricular septal defect	1370	429	201	32	3	2044	3
	50.2	***50.7***	***55.1***	***37.8***	***51.3***	***50.3***	
Total live births	**272917**	**84659**	**36504**	**8460**	**585**	**406598**	
Male live births	**139907**	**43182**	**18638**	**4326**	**287**	**208058**	

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

Tennessee

Trisomy Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	241	1	242	
	6.6	***0.2***	***6.0***	
Trisomy 13	24	8	32	
	0.7	***1.9***	***0.8***	
Trisomy 18	49	23	72	
	1.3	***5.4***	***1.8***	
Trisomy 21 (Down syndrome)	364	230	594	
	10.0	***54.2***	***14.6***	
Total live births	**364052**	**42406**	**406598**	

**Total includes unknown maternal age

Notes
1.Includes inlet ventricular septal defect.
2.Includes stenosis or hypoplasia.
3.Includes inlet ventricular septal defect (VSD) and probable VSD.

General comments
-Fetal deaths are defined as 500 grams or more, or 22 weeks gestation or more.

Texas

Birth Defects Counts and Prevalence 2008 - 2011 (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	132	31	269	3	0	446	
	2.4	***1.7***	***3.5***	***0.5***	***0.0***	***2.8***	
Anophthalmia/microphthalmia	161	45	277	13	1	502	
	3.0	***2.5***	***3.6***	***2.1***	***3.5***	***3.2***	
Anotia/microtia	119	26	411	22	1	584	
	2.2	***1.5***	***5.3***	***3.5***	***3.5***	***3.7***	
Aortic valve stenosis	147	29	228	11	0	418	
	2.7	***1.6***	***2.9***	***1.7***	***0.0***	***2.7***	
Atrial septal defect	3869	1419	5985	379	17	11764	
	71.7	***79.3***	***77.2***	***60.1***	***58.7***	***74.9***	
Atrioventricular septal defect (Endocardial cushion defect)	279	85	330	19	1	716	
	5.2	***4.7***	***4.3***	***3.0***	***3.5***	***4.6***	
Biliary atresia	31	10	61	12	1	115	
	0.6	***0.6***	***0.8***	***1.9***	***3.5***	***0.7***	
Bladder exstrophy	15	4	7	2	0	28	
	0.3	***0.2***	***0.1***	***0.3***	***0.0***	***0.2***	
Choanal atresia	98	20	85	7	0	213	
	1.8	***1.1***	***1.1***	***1.1***	***0.0***	***1.4***	
Cleft lip alone	202	48	238	21	1	516	
	3.7	***2.7***	***3.1***	***3.3***	***3.5***	***3.3***	
Cleft lip with cleft palate	391	72	639	48	4	1162	
	7.2	***4.0***	***8.2***	***7.6***	***13.8***	***7.4***	
Cleft palate alone	371	95	488	46	3	1012	
	6.9	***5.3***	***6.3***	***7.3***	***10.4***	***6.4***	
Cloacal exstrophy	3	0	5	0	0	8	
	0.1	***0.0***	***0.1***	***0.0***	***0.0***	***0.1***	
Clubfoot	898	307	1280	53	7	2561	
	16.6	***17.2***	***16.5***	***8.4***	***24.2***	***16.3***	
Coarctation of the aorta	290	74	435	29	3	839	
	5.4	***4.1***	***5.6***	***4.6***	***10.4***	***5.3***	
Common truncus (truncus arteriosus)	42	15	71	4	0	133	
	0.8	***0.8***	***0.9***	***0.6***	***0.0***	***0.8***	
Congenital cataract	111	41	156	5	0	315	
	2.1	***2.3***	***2.0***	***0.8***	***0.0***	***2.0***	
Congenital posterior urethral valves	54	31	45	12	1	148	
	1.0	***1.7***	***0.6***	***1.9***	***3.5***	***0.9***	
Craniosynostosis	387	51	438	24	1	912	
	7.2	***2.8***	***5.6***	***3.8***	***3.5***	***5.8***	
Deletion 22q11.2	37	15	70	5	0	127	
	0.7	***0.8***	***0.9***	***0.8***	***0.0***	***0.8***	
Diaphragmatic hernia	146	39	247	12	1	446	
	2.7	***2.2***	***3.2***	***1.9***	***3.5***	***2.8***	
Ebstein anomaly	45	6	58	4	0	113	
	0.8	***0.3***	***0.7***	***0.6***	***0.0***	***0.7***	
Encephalocele	38	22	94	7	0	166	
	0.7	***1.2***	***1.2***	***1.1***	***0.0***	***1.1***	
Esophageal atresia/tracheoesophageal fistula	141	29	151	11	1	337	
	2.6	***1.6***	***1.9***	***1.7***	***3.5***	***2.1***	
Gastroschisis	329	80	531	19	1	965	
	6.1	***4.5***	***6.8***	***3.0***	***3.5***	***6.1***	
Holoprosencephaly	38	16	80	4	0	140	
	0.7	***0.9***	***1.0***	***0.6***	***0.0***	***0.9***	
Hypoplastic left heart syndrome	129	54	160	8	1	355	
	2.4	***3.0***	***2.1***	***1.3***	***3.5***	***2.3***	
Hypospadias*	2450	622	1712	173	8	4991	
	88.5	***68.4***	***43.3***	***53.2***	***53.4***	***62.2***	
Interrupted aortic arch	43	9	43	3	0	99	
	0.8	***0.5***	***0.6***	***0.5***	***0.0***	***0.6***	
Limb deficiencies (reduction defects)	321	124	484	18	4	962	
	5.9	***6.9***	***6.2***	***2.9***	***13.8***	***6.1***	

Texas

Birth Defects Counts and Prevalence 2008 - 2011 (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	120	36	144	13	0	318	
	2.2	***2.0***	***1.9***	***2.1***	***0.0***	***2.0***	
Pulmonary valve atresia and stenosis	524	204	996	36	4	1778	
	9.7	***11.4***	***12.8***	***5.7***	***13.8***	***11.3***	
Pulmonary valve atresia	60	20	91	5	0	179	1
	1.1	***1.1***	***1.2***	***0.8***	***0.0***	***1.1***	
Rectal and large intestinal atresia/stenosis	270	81	460	29	2	856	
	5.0	***4.5***	***5.9***	***4.6***	***6.9***	***5.5***	
Renal agenesis/hypoplasia	337	129	511	36	3	1027	
	6.2	***7.2***	***6.6***	***5.7***	***10.4***	***6.5***	
Single ventricle	43	13	82	4	0	143	
	0.8	***0.7***	***1.1***	***0.6***	***0.0***	***0.9***	
Small intestinal atresia/stenosis	200	66	278	19	0	564	
	3.7	***3.7***	***3.6***	***3.0***	***0.0***	***3.6***	
Spina bifida without anencephalus	202	49	359	7	1	624	
	3.7	***2.7***	***4.6***	***1.1***	***3.5***	***4.0***	
Tetralogy of Fallot	269	92	342	32	2	748	2
	5.0	***5.1***	***4.4***	***5.1***	***6.9***	***4.8***	
Total anomalous pulmonary venous connection	71	18	176	11	0	282	
	1.3	***1.0***	***2.3***	***1.7***	***0.0***	***1.8***	
Dextro-transposition of great arteries (d-TGA)	183	38	249	18	0	490	
	3.4	***2.1***	***3.2***	***2.9***	***0.0***	***3.1***	
Tricuspid valve atresia and stenosis	106	45	155	13	0	321	
	2.0	***2.5***	***2.0***	***2.1***	***0.0***	***2.0***	
Tricuspid valve atresia	44	17	57	4	0	123	
	0.8	***0.9***	***0.7***	***0.6***	***0.0***	***0.8***	
Trisomy 13	72	20	94	10	0	200	
	1.3	***1.1***	***1.2***	***1.6***	***0.0***	***1.3***	
Trisomy 18	144	51	221	21	0	447	
	2.7	***2.8***	***2.9***	***3.3***	***0.0***	***2.8***	
Trisomy 21 (Down syndrome)	706	189	1250	68	2	2240	
	13.1	***10.6***	***16.1***	***10.8***	***6.9***	***14.3***	
Turner syndrome†	88	12	116	6	0	227	
	3.3	***1.4***	***3.1***	***2.0***	***0.0***	***3.0***	
Ventricular septal defect	3179	915	5990	335	21	10512	3
	58.9	***51.1***	***77.3***	***53.1***	***72.5***	***67.0***	
Total live births	**539852**	**178948**	**775297**	**63076**	**2895**	**1569861**	
Male live births	**276959**	**90972**	**395042**	**32526**	**1499**	**802053**	
Female live births	**262893**	**87976**	**380255**	**30550**	**1396**	**767808**	

*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

Texas

Trisomy Counts and Prevalence by Maternal Age 2008 - 2011 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	951	14	965	
	6.9	***0.7***	***6.1***	
Trisomy 13	145	55	200	
	1.1	***2.9***	***1.3***	
Trisomy 18	243	204	447	
	1.8	***10.7***	***2.8***	
Trisomy 21 (Down syndrome)	1213	1027	2240	
	8.8	***53.7***	***14.3***	
Total live births	**1378466**	**191310**	**1569861**	

**Total includes unknown maternal age

Notes
1.Excludes those with co-occurring Ventricular septal defect/tetralogy of Fallot.
2.Includes pulmonary valve atresia with co-occurring ventricular septal defects.
3.Includes inlet ventricular septal defect.

General comments
-Data for conditions include live births, stillbirths and terminations.
-Excludes probable and possible cases.
-Texas stillborn definition: spontaneous death of a conception product prior to the complete expulsion/extraction from its mother, regardless of gestational length. The labor onset may be natural/induced, the key is that the fetal death was spontaneous and not a result of an intended procedure.

Utah

Birth Defects Counts and Prevalence 2008 - 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	49	1	11	2	1	65	
	2.4	*3.7*	*2.6*	*2.3*	*3.3*	*2.5*	
Anophthalmia/microphthalmia	8	1	4	0	0	13	
	0.4	*3.7*	*1.0*	*0.0*	*0.0*	*0.5*	
Anotia/microtia	66	2	32	5	1	106	
	3.2	*7.5*	*7.7*	*5.8*	*3.3*	*4.0*	
Aortic valve stenosis	81	0	17	4	1	103	
	3.9	*0.0*	*4.1*	*4.6*	*3.3*	*3.9*	
Atrial septal defect	866	10	193	48	13	1133	
	42.1	*37.5*	*46.4*	*55.4*	*43.4*	*42.9*	
Atrioventricular septal defect (Endocardial cushion defect)	153	3	23	11	1	191	
	7.4	*11.2*	*5.5*	*12.7*	*3.3*	*7.2*	
Biliary atresia	12	0	2	1	0	15	
	0.6	*0.0*	*0.5*	*1.2*	*0.0*	*0.6*	
Bladder exstrophy	5	0	0	2	0	7	
	0.2	*0.0*	*0.0*	*2.3*	*0.0*	*0.3*	
Choanal atresia	40	0	5	0	0	45	
	1.9	*0.0*	*1.2*	*0.0*	*0.0*	*1.7*	
Cleft lip alone	122	2	14	4	1	145	
	5.9	*7.5*	*3.4*	*4.6*	*3.3*	*5.5*	
Cleft lip with cleft palate	191	2	36	1	3	235	
	9.3	*7.5*	*8.7*	*1.2*	*10.0*	*8.9*	
Cleft palate alone	116	1	14	10	3	145	
	5.6	*3.7*	*3.4*	*11.5*	*10.0*	*5.5*	
Cloacal exstrophy	7	1	0	1	0	9	
	0.3	*3.7*	*0.0*	*1.2*	*0.0*	*0.3*	
Coarctation of the aorta	220	2	35	5	5	268	
	10.7	*7.5*	*8.4*	*5.8*	*16.7*	*10.1*	
Common truncus (truncus arteriosus)	18	1	2	1	0	22	
	0.9	*3.7*	*0.5*	*1.2*	*0.0*	*0.8*	
Congenital cataract	58	1	9	3	1	72	
	2.8	*3.7*	*2.2*	*3.5*	*3.3*	*2.7*	
Congenital posterior urethral valves	40	0	6	2	0	49	
	1.9	*0.0*	*1.4*	*2.3*	*0.0*	*1.9*	
Craniosynostosis	250	3	43	5	5	307	
	12.2	*11.2*	*10.3*	*5.8*	*16.7*	*11.6*	
Deletion 22q11.2	18	1	2	5	3	29	
	0.9	*3.7*	*0.5*	*5.8*	*10.0*	*1.1*	
Diaphragmatic hernia	31	0	6	1	4	42	
	1.5	*0.0*	*1.4*	*1.2*	*13.4*	*1.6*	
Double outlet right ventricle	40	0	9	3	1	53	
	1.9	*0.0*	*2.2*	*3.5*	*3.3*	*2.0*	
Ebstein anomaly	29	0	3	1	0	34	
	1.4	*0.0*	*0.7*	*1.2*	*0.0*	*1.3*	
Encephalocele	17	0	4	0	0	22	
	0.8	*0.0*	*1.0*	*0.0*	*0.0*	*0.8*	
Esophageal atresia/tracheoesophageal fistula	40	0	14	3	2	60	
	1.9	*0.0*	*3.4*	*3.5*	*6.7*	*2.3*	
Gastroschisis	84	2	21	7	1	116	
	4.1	*7.5*	*5.1*	*8.1*	*3.3*	*4.4*	
Holoprosencephaly	35	2	8	0	0	45	
	1.7	*7.5*	*1.9*	*0.0*	*0.0*	*1.7*	
Hypoplastic left heart syndrome	72	1	10	4	1	88	
	3.5	*3.7*	*2.4*	*4.6*	*3.3*	*3.3*	
Hypospadias*	812	12	46	21	5	900	
	76.8	*86.5*	*21.8*	*46.0*	*33.0*	*66.4*	
Interrupted aortic arch	6	1	1	1	1	10	
	0.3	*3.7*	*0.2*	*1.2*	*3.3*	*0.4*	
Limb deficiencies (reduction defects)	122	2	27	4	1	158	
	5.9	*7.5*	*6.5*	*4.6*	*3.3*	*6.0*	

Utah

Birth Defects Counts and Prevalence 2008 - 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**
Omphalocele	70	1	18	2	3	95	
	3.4	***3.7***	***4.3***	***2.3***	***10.0***	***3.6***	
Pulmonary valve atresia and stenosis	329	5	56	19	6	418	
	16.0	***18.7***	***13.5***	***21.9***	***20.0***	***15.8***	
Pulmonary valve atresia	19	0	3	3	0	26	
	0.9	***0.0***	***0.7***	***3.5***	***0.0***	***1.0***	
Rectal and large intestinal atresia/stenosis	76	1	12	8	0	98	
	3.7	***3.7***	***2.9***	***9.2***	***0.0***	***3.7***	
Renal agenesis/hypoplasia	67	0	15	6	3	92	
	3.3	***0.0***	***3.6***	***6.9***	***10.0***	***3.5***	
Single ventricle	10	0	2	0	0	12	
	0.5	***0.0***	***0.5***	***0.0***	***0.0***	***0.5***	
Small intestinal atresia/stenosis	31	0	3	3	0	37	
	1.5	***0.0***	***0.7***	***3.5***	***0.0***	***1.4***	
Spina bifida without anencephalus	70	2	12	3	2	89	
	3.4	***7.5***	***2.9***	***3.5***	***6.7***	***3.4***	
Tetralogy of Fallot	57	1	15	7	2	83	
	2.8	***3.7***	***3.6***	***8.1***	***6.7***	***3.1***	
Total anomalous pulmonary venous connection	23	0	9	1	1	34	
	1.1	***0.0***	***2.2***	***1.2***	***3.3***	***1.3***	
Transposition of the great arteries (TGA)	101	0	18	4	1	125	
	4.9	***0.0***	***4.3***	***4.6***	***3.3***	***4.7***	
Dextro-transposition of great arteries (d-TGA)	45	0	7	2	0	54	
	2.2	***0.0***	***1.7***	***2.3***	***0.0***	***2.0***	
Tricuspid valve atresia	27	1	7	1	0	36	
	1.3	***3.7***	***1.7***	***1.2***	***0.0***	***1.4***	
Trisomy 13	30	0	13	3	0	46	
	1.5	***0.0***	***3.1***	***3.5***	***0.0***	***1.7***	
Trisomy 18	75	1	16	1	2	98	
	3.6	***3.7***	***3.8***	***1.2***	***6.7***	***3.7***	
Trisomy 21 (Down syndrome)	295	5	76	20	5	410	
	14.3	***18.7***	***18.3***	***23.1***	***16.7***	***15.5***	
Turner syndrome†	41	0	9	0	2	53	
	4.1	***0.0***	***4.4***	***0.0***	***13.5***	***4.1***	
Ventricular septal defect	506	9	133	18	7	675	
	24.6	***33.7***	***32.0***	***20.8***	***23.4***	***25.5***	
Total live births §	**205636**	**2668**	**41575**	**8660**	**2994**	**264200**	
Male live births	**105708**	**1388**	**21074**	**4563**	**1514**	**135625**	
Female live births	**99927**	**1280**	**20501**	**4097**	**1480**	**128574**	

*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 Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	113	3	116	
	4.8	***1.1***	***4.4***	
Trisomy 13	28	18	46	
	1.2	***6.5***	***1.7***	
Trisomy 18	61	37	98	
	2.6	***13.4***	***3.7***	
Trisomy 21 (Down syndrome)	213	197	410	
	9.0	***71.1***	***15.5***	
Total live births	**236491**	**27694**	**264200**	

**Total includes unknown maternal age

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

Vermont

Birth Defects Counts and Prevalence 2008 - 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	0	0	2	
	0.7	***0.0***	***0.0***	***0.0***	***0.0***	***0.7***	
Anotia/microtia	2	0	0	0	0	2	
	0.7	***0.0***	***0.0***	***0.0***	***0.0***	***0.7***	
Aortic valve stenosis	17	0	0	0	0	17	
	5.9	***0.0***	***0.0***	***0.0***	***0.0***	***5.5***	
Atrial septal defect	191	4	5	3	1	208	
	66.3	***106.7***	***127.2***	***51.3***	***243.9***	***67.6***	
Atrioventricular septal defect (Endocardial cushion defect)	18	0	0	0	0	19	
	6.2	***0.0***	***0.0***	***0.0***	***0.0***	***6.2***	
Bladder exstrophy	2	0	0	1	0	3	
	0.9	***0.0***	***0.0***	***20.6***	***0.0***	***1.2***	
Cleft lip alone	20	0	0	0	0	20	
	6.9	***0.0***	***0.0***	***0.0***	***0.0***	***6.5***	
Cleft lip with cleft palate	12	0	0	0	0	13	
	4.2	***0.0***	***0.0***	***0.0***	***0.0***	***4.2***	
Cleft palate alone	25	0	0	0	0	25	
	8.7	***0.0***	***0.0***	***0.0***	***0.0***	***8.1***	
Coarctation of the aorta	21	0	0	0	0	21	
	7.3	***0.0***	***0.0***	***0.0***	***0.0***	***6.8***	
Common truncus (truncus arteriosus)	1	0	1	0	0	2	
	0.3	***0.0***	***25.4***	***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	4	0	0	0	0	4	
	1.4	***0.0***	***0.0***	***0.0***	***0.0***	***1.3***	
Ebstein anomaly	1	0	0	0	0	1	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Encephalocele	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Esophageal atresia/tracheoesophageal fistula	9	0	0	1	0	10	
	3.1	***0.0***	***0.0***	***17.1***	***0.0***	***3.3***	
Gastroschisis	8	0	0	0	0	10	
	2.8	***0.0***	***0.0***	***0.0***	***0.0***	***3.3***	
Hypoplastic left heart syndrome	9	0	0	0	0	9	
	3.1	***0.0***	***0.0***	***0.0***	***0.0***	***2.9***	
Hypospadias*	115	2	0	1	0	120	
	76.9	***107.0***	***0.0***	***31.6***	***0.0***	***75.2***	
Omphalocele	2	1	0	0	0	3	
	0.7	***26.7***	***0.0***	***0.0***	***0.0***	***1.0***	
Pulmonary valve atresia and stenosis	46	0	1	0	0	48	
	16.0	***0.0***	***25.4***	***0.0***	***0.0***	***15.6***	
Pulmonary valve atresia	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Rectal and large intestinal atresia/stenosis	15	0	0	0	0	15	
	5.2	***0.0***	***0.0***	***0.0***	***0.0***	***4.9***	
Renal agenesis/hypoplasia	18	0	0	0	0	18	
	6.2	***0.0***	***0.0***	***0.0***	***0.0***	***5.9***	
Small intestinal atresia/stenosis	13	0	0	1	0	14	1
	4.5	***0.0***	***0.0***	***17.1***	***0.0***	***4.6***	
Spina bifida without anencephalus	8	0	0	0	0	8	
	2.8	***0.0***	***0.0***	***0.0***	***0.0***	***2.6***	
Tetralogy of Fallot	13	1	0	1	0	15	
	4.5	***26.7***	***0.0***	***17.1***	***0.0***	***4.9***	
Transposition of the great arteries (TGA)	8	0	0	0	0	8	
	2.8	***0.0***	***0.0***	***0.0***	***0.0***	***2.6***	
Dextro-transposition of great arteries (d-TGA)	7	0	0	0	0	7	
	2.4	***0.0***	***0.0***	***0.0***	***0.0***	***2.3***	
Tricuspid valve atresia and stenosis	3	0	0	0	0	3	
	1.0	***0.0***	***0.0***	***0.0***	***0.0***	***1.0***	

Vermont

Birth Defects Counts and Prevalence 2008 - 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**
Tricuspid valve atresia	0	0	0	0	0	0	
	0.0	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	
Trisomy 13	1	0	0	0	0	1	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Trisomy 18	5	0	0	0	0	5	
	1.7	***0.0***	***0.0***	***0.0***	***0.0***	***1.6***	
Trisomy 21 (Down syndrome)	41	0	0	1	0	43	
	14.2	***0.0***	***0.0***	***17.1***	***0.0***	***14.0***	
Ventricular septal defect	183	4	3	4	0	196	2
	63.5	***106.7***	***76.3***	***68.4***	***0.0***	***63.7***	
Total live births	**28808**	**375**	**393**	**585**	**41**	**30760**	
Male live births	**14955**	**187**	**191**	**316**	**22**	**15955**	

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

Vermont

Trisomy Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	10	0	10	
	3.9	***0.0***	***3.3***	
Trisomy 13	1	0	1	
	0.4	***0.0***	***0.3***	
Trisomy 18	2	3	5	
	0.8	***6.2***	***1.6***	
Trisomy 21 (Down syndrome)	21	22	43	
	8.1	***45.1***	***14.0***	
Total live births	**25882**	**4875**	**30760**	

**Total includes unknown maternal age

Notes
1.Excludes stenosis.
2.Excludes probable cases.

General comments
-Data for conditions includes live births only.

Virginia

Birth Defects Counts and Prevalence 2008 - 2011 (Prevalence per 10,000 Live Births)

	Maternal Race/Ethnicity						
Defect	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian or Pacific Islander, Non-Hispanic	American Indian or Alaska Native, Non-Hispanic	Total**	Notes
Anencephalus	23	9	9	5	0	48	1
	1.0	***1.0***	***1.7***	***1.7***	***0.0***	***1.2***	
Anophthalmia/microphthalmia	11	10	3	2	1	27	
	0.5	***1.1***	***0.6***	***0.7***	***16.7***	***0.6***	
Anotia/microtia	17	12	11	1	0	41	
	0.7	***1.3***	***2.1***	***0.3***	***0.0***	***1.0***	
Aortic valve stenosis	44	9	5	2	0	60	
	1.8	***1.0***	***0.9***	***0.7***	***0.0***	***1.4***	
Atrial septal defect	2342	1129	897	460	5	4876	
	97.6	***125.7***	***169.6***	***155.2***	***83.6***	***116.9***	
Atrioventricular septal defect (Endocardial cushion defect)	75	44	15	5	0	140	
	3.1	***4.9***	***2.8***	***1.7***	***0.0***	***3.4***	
Biliary atresia	16	6	1	0	0	23	
	0.7	***0.7***	***0.2***	***0.0***	***0.0***	***0.6***	
Bladder exstrophy	5	0	0	0	0	5	
	0.2	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Choanal atresia	29	11	6	1	0	47	
	1.2	***1.2***	***1.1***	***0.3***	***0.0***	***1.1***	
Cleft lip alone	73	17	16	3	0	110	
	3.0	***1.9***	***3.0***	***1.0***	***0.0***	***2.6***	
Cleft lip with cleft palate	114	31	43	13	0	202	
	4.8	***3.5***	***8.1***	***4.4***	***0.0***	***4.8***	
Cleft palate alone	173	31	23	16	0	243	
	7.2	***3.5***	***4.3***	***5.4***	***0.0***	***5.8***	
Cloacal exstrophy	143	67	28	12	1	252	
	6.0	***7.5***	***5.3***	***4.0***	***16.7***	***6.0***	
Clubfoot	237	76	53	18	0	390	
	9.9	***8.5***	***10.0***	***6.1***	***0.0***	***9.4***	
Coarctation of the aorta	126	45	19	14	0	204	
	5.3	***5.0***	***3.6***	***4.7***	***0.0***	***4.9***	
Common truncus (truncus arteriosus)	16	12	3	1	0	32	
	0.7	***1.3***	***0.6***	***0.3***	***0.0***	***0.8***	
Congenital cataract	18	14	5	3	0	40	
	0.8	***1.6***	***0.9***	***1.0***	***0.0***	***1.0***	
Congenital posterior urethral valves	28	20	8	5	0	62	
	1.2	***2.2***	***1.5***	***1.7***	***0.0***	***1.5***	
Diaphragmatic hernia	59	28	20	1	0	108	
	2.5	***3.1***	***3.8***	***0.3***	***0.0***	***2.6***	
Double outlet right ventricle	42	24	10	8	0	84	
	1.8	***2.7***	***1.9***	***2.7***	***0.0***	***2.0***	
Ebstein anomaly	16	10	12	4	0	42	
	0.7	***1.1***	***2.3***	***1.3***	***0.0***	***1.0***	
Encephalocele	12	6	6	1	0	26	
	0.5	***0.7***	***1.1***	***0.3***	***0.0***	***0.6***	
Esophageal atresia/tracheoesophageal fistula	59	25	10	3	0	97	
	2.5	***2.8***	***1.9***	***1.0***	***0.0***	***2.3***	
Gastroschisis	53	21	16	3	0	93	2
	4.4	***4.8***	***6.4***	***2.0***	***0.0***	***4.5***	
Holoprosencephaly	87	45	16	8	0	157	
	3.6	***5.0***	***3.0***	***2.7***	***0.0***	***3.8***	
Hypoplastic left heart syndrome	53	22	12	5	0	92	
	2.2	***2.4***	***2.3***	***1.7***	***0.0***	***2.2***	
Hypospadias*	815	243	74	74	1	1214	
	66.1	***53.5***	***27.5***	***48.6***	***33.7***	***56.9***	
Interrupted aortic arch	9	11	3	0	0	23	
	0.4	***1.2***	***0.6***	***0.0***	***0.0***	***0.6***	
Limb deficiencies (reduction defects)	66	29	10	5	0	110	
	2.8	***3.2***	***1.9***	***1.7***	***0.0***	***2.6***	
Omphalocele	14	7	2	3	0	26	2
	1.2	***1.6***	***0.8***	***2.0***	***0.0***	***1.3***	

Virginia

Birth Defects Counts and Prevalence 2008 - 2011 (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	224	126	81	47	0	481	
	9.3	***14.0***	***15.3***	***15.9***	***0.0***	***11.5***	
Pulmonary valve atresia	24	12	5	6	0	47	
	1.0	***1.3***	***0.9***	***2.0***	***0.0***	***1.1***	
Rectal and large intestinal atresia/stenosis	94	33	29	8	1	167	
	3.9	***3.7***	***5.5***	***2.7***	***16.7***	***4.0***	
Renal agenesis/hypoplasia	82	38	18	5	0	145	
	3.4	***4.2***	***3.4***	***1.7***	***0.0***	***3.5***	
Single ventricle	32	14	3	1	0	50	
	1.3	***1.6***	***0.6***	***0.3***	***0.0***	***1.2***	
Small intestinal atresia/stenosis	84	40	21	11	0	159	
	3.5	***4.5***	***4.0***	***3.7***	***0.0***	***3.8***	
Spina bifida without anencephalus	54	25	27	5	1	112	
	2.3	***2.8***	***5.1***	***1.7***	***16.7***	***2.7***	
Tetralogy of Fallot	99	55	23	16	1	196	
	4.1	***6.1***	***4.3***	***5.4***	***16.7***	***4.7***	
Total anomalous pulmonary venous connection	24	3	6	6	0	39	
	1.0	***0.3***	***1.1***	***2.0***	***0.0***	***0.9***	
Transposition of the great arteries (TGA)	57	24	11	8	0	101	
	2.4	***2.7***	***2.1***	***2.7***	***0.0***	***2.4***	
Dextro-transposition of great arteries (d-TGA)	41	19	9	6	0	76	
	1.7	***2.1***	***1.7***	***2.0***	***0.0***	***1.8***	
Tricuspid valve atresia and stenosis	20	11	7	4	0	42	
	0.8	***1.2***	***1.3***	***1.3***	***0.0***	***1.0***	
Trisomy 13	12	7	7	1	1	28	
	0.5	***0.8***	***1.3***	***0.3***	***16.7***	***0.7***	
Trisomy 18	27	14	15	3	0	59	
	1.1	***1.6***	***2.8***	***1.0***	***0.0***	***1.4***	
Trisomy 21 (Down syndrome)	277	127	100	26	0	534	
	11.5	***14.1***	***18.9***	***8.8***	***0.0***	***12.8***	
Turner syndrome†	17	4	8	2	0	31	
	1.5	***0.9***	***3.1***	***1.4***	***0.0***	***1.5***	
Ventricular septal defect	1116	382	350	150	3	2015	3
	46.5	***42.5***	***66.2***	***50.6***	***50.2***	***48.3***	
Total live births §	**239916**	**89828**	**52876**	**29633**	**598**	**417016**	
Male live births	**123250**	**45456**	**26955**	**15212**	**297**	**213294**	
Female live births	**116660**	**44371**	**25921**	**14420**	**301**	**203714**	

*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 Counts and Prevalence by Maternal Age 2008 - 2011 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Gastroschisis	92	1	93	2
	5.4	***0.3***	***4.5***	
Trisomy 13	14	14	28	
	0.4	***2.0***	***0.7***	
Trisomy 18	24	35	59	
	0.7	***5.1***	***1.4***	
Trisomy 21 (Down syndrome)	293	240	534	
	8.4	***35.1***	***12.8***	
Total live births	**348087**	**68461**	**417016**	

**Total includes unknown maternal age

Notes
1.Includes probable cases.
2.Data for this condition begins in 2010.
3.Includes inlet ventricular septal defect and probable cases.

West Virginia

Birth Defects Counts and Prevalence 2008 - 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	43	0	1	0	0	45	
	4.4	***0.0***	***8.0***	***0.0***	***0.0***	***4.3***	
Anophthalmia/microphthalmia	1	0	0	0	0	1	
	0.1	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Anotia/microtia	3	0	0	0	0	3	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Aortic valve stenosis	14	0	0	0	0	16	
	1.4	***0.0***	***0.0***	***0.0***	***0.0***	***1.5***	
Atrial septal defect	1504	72	7	11	0	1669	
	153.6	***193.1***	***56.0***	***118.7***	***0.0***	***159.4***	
Atrioventricular septal defect (Endocardial cushion defect)	28	2	0	0	0	31	
	2.9	***5.4***	***0.0***	***0.0***	***0.0***	***3.0***	
Biliary atresia	4	1	0	0	0	6	
	0.4	***2.7***	***0.0***	***0.0***	***0.0***	***0.6***	
Bladder exstrophy	1	0	0	0	0	1	
	0.1	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	
Choanal atresia	11	1	0	0	0	14	
	1.1	***2.7***	***0.0***	***0.0***	***0.0***	***1.3***	
Cleft lip alone	3	0	0	0	0	3	
	0.3	***0.0***	***0.0***	***0.0***	***0.0***	***0.3***	
Cleft lip with cleft palate	54	2	0	0	0	58	
	5.5	***5.4***	***0.0***	***0.0***	***0.0***	***5.5***	
Cleft palate alone	65	1	0	1	0	68	
	6.6	***2.7***	***0.0***	***10.8***	***0.0***	***6.5***	
Cloacal exstrophy	30	2	0	1	0	36	
	3.1	***5.4***	***0.0***	***10.8***	***0.0***	***3.4***	
Clubfoot	160	5	2	0	0	173	
	16.3	***13.4***	***16.0***	***0.0***	***0.0***	***16.5***	
Coarctation of the aorta	39	0	0	0	0	41	
	4.0	***0.0***	***0.0***	***0.0***	***0.0***	***3.9***	
Common truncus (truncus arteriosus)	77	3	0	0	0	80	
	7.9	***8.0***	***0.0***	***0.0***	***0.0***	***7.6***	
Congenital cataract	6	0	0	1	0	7	
	0.6	***0.0***	***0.0***	***10.8***	***0.0***	***0.7***	
Congenital posterior urethral valves	4	1	0	0	0	5	
	0.4	***2.7***	***0.0***	***0.0***	***0.0***	***0.5***	
Deletion 22q11.2	2	0	0	0	0	2	
	0.2	***0.0***	***0.0***	***0.0***	***0.0***	***0.2***	
Diaphragmatic hernia	24	1	0	0	0	27	
	2.5	***2.7***	***0.0***	***0.0***	***0.0***	***2.6***	
Double outlet right ventricle	23	1	0	0	0	25	
	2.3	***2.7***	***0.0***	***0.0***	***0.0***	***2.4***	
Ebstein anomaly	15	0	0	0	0	16	
	1.5	***0.0***	***0.0***	***0.0***	***0.0***	***1.5***	
Encephalocele	6	0	0	0	0	6	
	0.6	***0.0***	***0.0***	***0.0***	***0.0***	***0.6***	
Esophageal atresia/tracheoesophageal fistula	19	1	0	0	0	23	
	1.9	***2.7***	***0.0***	***0.0***	***0.0***	***2.2***	
Holoprosencephaly	43	1	0	0	0	49	
	4.4	***2.7***	***0.0***	***0.0***	***0.0***	***4.7***	
Hypoplastic left heart syndrome	19	2	0	0	0	24	
	1.9	***5.4***	***0.0***	***0.0***	***0.0***	***2.3***	
Hypospadias*	244	6	0	0	0	259	
	54.2	***32.1***	***0.0***	***0.0***	***0.0***	***53.2***	
Interrupted aortic arch	7	1	0	0	0	8	
	0.7	***2.7***	***0.0***	***0.0***	***0.0***	***0.8***	
Limb deficiencies (reduction defects)	20	1	0	0	0	22	
	2.0	***2.7***	***0.0***	***0.0***	***0.0***	***2.1***	
Pulmonary valve atresia and stenosis	66	0	0	1	0	72	
	6.7	***0.0***	***0.0***	***10.8***	***0.0***	***6.9***	

West Virginia

Birth Defects Counts and Prevalence 2008 - 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**
Pulmonary valve atresia	13	0	0	0	0	13	
	1.3	***0.0***	***0.0***	***0.0***	***0.0***	***1.2***	
Rectal and large intestinal atresia/stenosis	43	0	1	0	0	45	
	4.4	***0.0***	***8.0***	***0.0***	***0.0***	***4.3***	
Renal agenesis/hypoplasia	43	1	0	0	0	47	
	4.4	***2.7***	***0.0***	***0.0***	***0.0***	***4.5***	
Single ventricle	5	0	0	0	0	7	
	0.5	***0.0***	***0.0***	***0.0***	***0.0***	***0.7***	
Small intestinal atresia/stenosis	29	0	0	0	0	31	
	3.0	***0.0***	***0.0***	***0.0***	***0.0***	***3.0***	
Spina bifida without anencephalus	30	0	0	0	0	31	
	3.1	***0.0***	***0.0***	***0.0***	***0.0***	***3.0***	
Tetralogy of Fallot	44	3	1	0	0	53	
	4.5	***8.0***	***8.0***	***0.0***	***0.0***	***5.1***	
Total anomalous pulmonary venous connection	3	0	0	1	0	4	
	0.3	***0.0***	***0.0***	***10.8***	***0.0***	***0.4***	
Transposition of the great arteries (TGA)	25	0	0	0	0	27	
	2.6	***0.0***	***0.0***	***0.0***	***0.0***	***2.6***	
Dextro-transposition of great arteries (d-TGA)	21	0	0	0	0	21	
	2.1	***0.0***	***0.0***	***0.0***	***0.0***	***2.0***	
Tricuspid valve atresia and stenosis	7	0	0	0	0	7	
	0.7	***0.0***	***0.0***	***0.0***	***0.0***	***0.7***	
Trisomy 13	5	1	0	0	0	7	
	0.5	***2.7***	***0.0***	***0.0***	***0.0***	***0.7***	
Trisomy 18	12	1	0	0	0	13	
	1.2	***2.7***	***0.0***	***0.0***	***0.0***	***1.2***	
Trisomy 21 (Down syndrome)	72	3	1	1	0	87	
	7.4	***8.0***	***8.0***	***10.8***	***0.0***	***8.3***	
Turner syndrome†	2	0	0	0	0	5	
	0.5	***0.0***	***0.0***	***0.0***	***0.0***	***1.1***	
Ventricular septal defect	340	10	0	3	0	382	
	34.7	***26.8***	***0.0***	***32.4***	***0.0***	***36.5***	
Total live births §	**97891**	**3728**	**1250**	**927**	**119**	**104731**	
Male live births	**45026**	**1867**	**581**	**462**	**62**	**48689**	
Female live births	**41850**	**1890**	**546**	**448**	**64**	**45456**	

*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

West Virginia

Trisomy Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Trisomy 13	6	0	7	
	0.6	***0.0***	***0.7***	
Trisomy 18	9	4	13	
	0.9	***4.5***	***1.2***	
Trisomy 21 (Down syndrome)	42	19	87	
	4.4	***21.4***	***8.3***	
Total live births	**95491**	**8876**	**104731**	

**Total includes unknown maternal age

Wisconsin

Birth Defects Counts and Prevalence 2008 - 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	33	4	5	4	2	48	
	1.4	*1.2*	*1.5*	*2.7*	*4.3*	*1.5*	
Anophthalmia/microphthalmia	11	1	1	0	0	13	
	0.5	*0.3*	*0.3*	*0.0*	*0.0*	*0.4*	
Anotia/microtia	15	2	9	1	1	29	
	0.6	*0.6*	*2.8*	*0.7*	*2.1*	*0.9*	
Aortic valve stenosis	15	3	0	0	1	19	
	0.6	*0.9*	*0.0*	*0.0*	*2.1*	*0.6*	
Atrial septal defect	1103	137	161	53	43	1511	
	46.4	*41.5*	*49.3*	*36.4*	*92.3*	*46.4*	
Atrioventricular septal defect (Endocardial cushion defect)	40	2	6	1	0	51	
	1.7	*0.6*	*1.8*	*0.7*	*0.0*	*1.6*	
Biliary atresia	2	0	0	0	0	2	
	0.1	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	
Bladder exstrophy	5	0	0	0	0	6	
	0.2	*0.0*	*0.0*	*0.0*	*0.0*	*0.2*	
Choanal atresia	31	1	4	2	0	39	
	1.3	*0.3*	*1.2*	*1.4*	*0.0*	*1.2*	
Cleft lip alone	74	6	7	3	0	90	
	3.1	*1.8*	*2.1*	*2.1*	*0.0*	*2.8*	
Cleft lip with cleft palate	51	9	8	3	0	71	
	2.1	*2.7*	*2.5*	*2.1*	*0.0*	*2.2*	
Cleft palate alone	148	8	14	11	3	185	
	6.2	*2.4*	*4.3*	*7.5*	*6.4*	*5.7*	
Cloacal exstrophy	86	14	11	8	0	120	
	3.6	*4.2*	*3.4*	*5.5*	*0.0*	*3.7*	
Clubfoot	382	34	37	11	4	473	
	16.1	*10.3*	*11.3*	*7.5*	*8.6*	*14.5*	
Coarctation of the aorta	67	7	10	0	1	86	
	2.8	*2.1*	*3.1*	*0.0*	*2.1*	*2.6*	
Common truncus (truncus arteriosus)	9	1	3	0	0	13	
	0.4	*0.3*	*0.9*	*0.0*	*0.0*	*0.4*	
Congenital cataract	18	2	6	0	0	27	
	0.8	*0.6*	*1.8*	*0.0*	*0.0*	*0.8*	
Congenital posterior urethral valves	14	3	1	3	2	23	
	0.6	*0.9*	*0.3*	*2.1*	*4.3*	*0.7*	
Deletion 22q11.2	2	0	0	0	0	2	
	0.1	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	
Diaphragmatic hernia	45	4	7	1	1	58	
	1.9	*1.2*	*2.1*	*0.7*	*2.1*	*1.8*	
Double outlet right ventricle	20	4	6	0	0	31	
	0.8	*1.2*	*1.8*	*0.0*	*0.0*	*1.0*	
Ebstein anomaly	11	0	2	1	1	15	
	0.5	*0.0*	*0.6*	*0.7*	*2.1*	*0.5*	
Encephalocele	8	0	2	0	0	11	
	0.3	*0.0*	*0.6*	*0.0*	*0.0*	*0.3*	
Esophageal atresia/tracheoesophageal fistula	41	6	4	2	0	55	
	1.7	*1.8*	*1.2*	*1.4*	*0.0*	*1.7*	
Holoprosencephaly	50	6	6	3	0	69	
	2.1	*1.8*	*1.8*	*2.1*	*0.0*	*2.1*	
Hypoplastic left heart syndrome	32	9	3	0	1	45	
	1.3	*2.7*	*0.9*	*0.0*	*2.1*	*1.4*	
Hypospadias*	929	128	65	19	9	1158	
	76.1	*77.0*	*39.2*	*25.3*	*37.6*	*69.5*	
Interrupted aortic arch	9	1	0	2	0	12	
	0.4	*0.3*	*0.0*	*1.4*	*0.0*	*0.4*	
Limb deficiencies (reduction defects)	80	8	12	3	2	105	
	3.4	*2.4*	*3.7*	*2.1*	*4.3*	*3.2*	
Omphalocele	20	1	1	1	0	23	
	1.4	*0.5*	*0.5*	*1.1*	*0.0*	*1.2*	

Wisconsin

Birth Defects Counts and Prevalence 2008 - 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**
Pulmonary valve atresia and stenosis	56	13	10	4	4	87	
	2.4	***3.9***	***3.1***	***2.7***	***8.6***	***2.7***	
Pulmonary valve atresia	4	0	1	2	0	7	
	0.2	***0.0***	***0.3***	***1.4***	***0.0***	***0.2***	
Rectal and large intestinal atresia/stenosis	69	4	9	4	0	90	
	2.9	***1.2***	***2.8***	***2.7***	***0.0***	***2.8***	
Renal agenesis/hypoplasia	113	9	10	4	0	137	
	4.8	***2.7***	***3.1***	***2.7***	***0.0***	***4.2***	
Single ventricle	1	0	0	0	1	2	
	0.0	***0.0***	***0.0***	***0.0***	***2.1***	***0.1***	
Small intestinal atresia/stenosis	69	13	12	4	6	104	
	2.9	***3.9***	***3.7***	***2.7***	***12.9***	***3.2***	
Spina bifida without anencephalus	61	9	10	3	1	86	
	2.6	***2.7***	***3.1***	***2.1***	***2.1***	***2.6***	
Tetralogy of Fallot	47	12	9	5	1	74	
	2.0	***3.6***	***2.8***	***3.4***	***2.1***	***2.3***	
Total anomalous pulmonary venous connection	3	1	1	0	0	5	
	0.1	***0.3***	***0.3***	***0.0***	***0.0***	***0.2***	
Transposition of the great arteries (TGA)	42	3	9	0	2	58	
	1.8	***0.9***	***2.8***	***0.0***	***4.3***	***1.8***	
Dextro-transposition of great arteries (d-TGA)	25	2	3	0	2	34	
	1.1	***0.6***	***0.9***	***0.0***	***4.3***	***1.0***	
Tricuspid valve atresia and stenosis	11	0	2	2	0	15	
	0.5	***0.0***	***0.6***	***1.4***	***0.0***	***0.5***	
Trisomy 13	20	1	2	2	0	26	
	0.8	***0.3***	***0.6***	***1.4***	***0.0***	***0.8***	
Trisomy 18	57	4	6	4	0	74	
	2.4	***1.2***	***1.8***	***2.7***	***0.0***	***2.3***	
Trisomy 21 (Down syndrome)	260	22	54	30	5	372	
	10.9	***6.7***	***16.5***	***20.6***	***10.7***	***11.4***	
Turner syndrome†	11	3	1	0	0	15	
	1.0	***1.8***	***0.6***	***0.0***	***0.0***	***0.9***	
Ventricular septal defect	584	66	115	36	14	819	
	24.6	***20.0***	***35.2***	***24.7***	***30.0***	***25.2***	
Total live births	**237794**	**33025**	**32639**	**14577**	**4659**	**325567**	
Male live births	**122032**	**16630**	**16592**	**7518**	**2391**	**166621**	
Female live births	**115762**	**16395**	**16047**	**7059**	**2268**	**158946**	

*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 Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Trisomy 13	13	13	26	
	0.5	***3.2***	***0.8***	
Trisomy 18	46	28	74	
	1.6	***6.8***	***2.3***	
Trisomy 21 (Down syndrome)	196	176	372	
	6.9	***42.7***	***11.4***	
Total live births	**284337**	**41230**	**325567**	

**Total includes unknown maternal age

General comments
-Fetal deaths include 20 weeks and greater gestational age.

Department of Defense

Birth Defects Counts and Prevalence 2008 - 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	22	5	2	1	1	31	
	0.5	***0.6***	***0.3***	***0.4***	***0.9***	***0.5***	
Anophthalmia/microphthalmia	58	21	12	9	2	103	
	1.4	***2.6***	***1.8***	***3.2***	***1.9***	***1.7***	
Anotia/microtia	80	12	25	14	4	135	
	2.0	***1.5***	***3.7***	***4.9***	***3.8***	***2.2***	
Aortic valve stenosis	153	21	13	5	6	202	
	3.8	***2.6***	***1.9***	***1.8***	***5.7***	***3.4***	
Atrial septal defect	3967	837	667	215	85	5894	1
	98.7	***103.2***	***99.4***	***75.5***	***80.1***	***97.9***	
Atrioventricular septal defect (Endocardial cushion defect)	250	58	34	13	2	362	2
	6.2	***7.2***	***5.1***	***4.6***	***1.9***	***6.0***	
Biliary atresia	38	10	10	3	1	63	
	0.9	***1.2***	***1.5***	***1.1***	***0.9***	***1.0***	
Bladder exstrophy	22	1	0	0	0	24	
	0.5	***0.1***	***0.0***	***0.0***	***0.0***	***0.4***	
Choanal atresia	103	24	18	4	2	156	
	2.6	***3.0***	***2.7***	***1.4***	***1.9***	***2.6***	
Cleft lip alone	310	29	30	26	7	405	
	7.7	***3.6***	***4.5***	***9.1***	***6.6***	***6.7***	
Cleft lip with cleft palate	346	39	46	26	8	472	
	8.6	***4.8***	***6.9***	***9.1***	***7.5***	***7.8***	
Cleft palate alone	483	69	67	35	8	671	
	12.0	***8.5***	***10.0***	***12.3***	***7.5***	***11.1***	
Cloacal exstrophy	326	63	46	15	9	473	
	8.1	***7.8***	***6.9***	***5.3***	***8.5***	***7.9***	
Clubfoot	895	159	132	46	24	1280	
	22.3	***19.6***	***19.7***	***16.2***	***22.6***	***21.3***	
Coarctation of the aorta	393	73	39	17	13	549	
	9.8	***9.0***	***5.8***	***6.0***	***12.2***	***9.1***	
Common truncus (truncus arteriosus)	98	15	9	6	2	132	
	2.4	***1.8***	***1.3***	***2.1***	***1.9***	***2.2***	
Congenital cataract	122	31	34	8	1	198	
	3.0	***3.8***	***5.1***	***2.8***	***0.9***	***3.3***	
Congenital posterior urethral valves	78	13	10	6	4	112	
	1.9	***1.6***	***1.5***	***2.1***	***3.8***	***1.9***	
Deletion 22q11.2	38	8	6	1	2	55	
	0.9	***1.0***	***0.9***	***0.4***	***1.9***	***0.9***	
Diaphragmatic hernia	167	29	29	10	5	242	
	4.2	***3.6***	***4.3***	***3.5***	***4.7***	***4.0***	
Double outlet right ventricle	126	29	24	11	3	197	
	3.1	***3.6***	***3.6***	***3.9***	***2.8***	***3.3***	
Ebstein anomaly	55	6	8	2	2	75	
	1.4	***0.7***	***1.2***	***0.7***	***1.9***	***1.2***	
Encephalocele	37	12	10	2	2	64	
	0.9	***1.5***	***1.5***	***0.7***	***1.9***	***1.1***	
Esophageal atresia/tracheoesophageal fistula	120	25	17	5	1	169	
	3.0	***3.1***	***2.5***	***1.8***	***0.9***	***2.8***	
Holoprosencephaly	277	41	41	11	7	385	
	6.9	***5.1***	***6.1***	***3.9***	***6.6***	***6.4***	
Hypoplastic left heart syndrome	184	37	22	10	6	268	
	4.6	***4.6***	***3.3***	***3.5***	***5.7***	***4.5***	
Hypospadias*	2299	391	272	141	59	3225	
	110.8	***94.7***	***79.5***	***95.7***	***108.7***	***104.1***	
Interrupted aortic arch	49	8	1	4	1	66	
	1.2	***1.0***	***0.1***	***1.4***	***0.9***	***1.1***	
Limb deficiencies (reduction defects)	228	52	40	7	6	337	
	5.7	***6.4***	***6.0***	***2.5***	***5.7***	***5.6***	
Pulmonary valve atresia and stenosis	722	196	132	40	17	1130	
	18.0	***24.2***	***19.7***	***14.1***	***16.0***	***18.8***	

Department of Defense

Birth Defects Counts and Prevalence 2008 - 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**
Pulmonary valve atresia	114	25	19	9	1	171	
	2.8	***3.1***	***2.8***	***3.2***	***0.9***	***2.8***	
Rectal and large intestinal atresia/stenosis	258	38	31	23	4	360	
	6.4	***4.7***	***4.6***	***8.1***	***3.8***	***6.0***	
Renal agenesis/hypoplasia	246	48	44	19	5	369	
	6.1	***5.9***	***6.6***	***6.7***	***4.7***	***6.1***	
Single ventricle	110	28	13	5	5	166	
	2.7	***3.5***	***1.9***	***1.8***	***4.7***	***2.8***	
Small intestinal atresia/stenosis	230	61	33	15	5	351	
	5.7	***7.5***	***4.9***	***5.3***	***4.7***	***5.8***	
Spina bifida without anencephalus	196	31	27	8	13	280	
	4.9	***3.8***	***4.0***	***2.8***	***12.2***	***4.6***	
Tetralogy of Fallot	247	53	41	27	4	380	
	6.1	***6.5***	***6.1***	***9.5***	***3.8***	***6.3***	
Total anomalous pulmonary venous connection	55	17	12	4	0	90	
	1.4	***2.1***	***1.8***	***1.4***	***0.0***	***1.5***	
Transposition of the great arteries (TGA)	154	19	17	12	3	211	
	3.8	***2.3***	***2.5***	***4.2***	***2.8***	***3.5***	
Dextro-transposition of great arteries (d-TGA)	143	18	17	12	2	197	
	3.6	***2.2***	***2.5***	***4.2***	***1.9***	***3.3***	
Tricuspid valve atresia and stenosis	68	17	6	7	0	101	3
	1.7	***2.1***	***0.9***	***2.5***	***0.0***	***1.7***	
Trisomy 13	37	19	10	2	0	69	
	0.9	***2.3***	***1.5***	***0.7***	***0.0***	***1.1***	
Trisomy 18	68	12	16	3	0	101	
	1.7	***1.5***	***2.4***	***1.1***	***0.0***	***1.7***	
Trisomy 21 (Down syndrome)	583	106	92	33	11	842	
	14.5	***13.1***	***13.7***	***11.6***	***10.4***	***14.0***	
Turner syndrome†	54	6	6	2	2	71	
	2.8	***1.5***	***1.8***	***1.5***	***3.9***	***2.4***	
Ventricular septal defect	2989	521	465	173	66	4293	4
	74.4	***64.2***	***69.3***	***60.8***	***62.2***	***71.3***	
Total live births	**401917**	**81103**	**67117**	**28466**	**10618**	**602151**	
Male live births	**207406**	**41276**	**34209**	**14735**	**5428**	**309730**	
Female live births	**194511**	**39827**	**32908**	**13731**	**5190**	**292421**	

*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 Counts and Prevalence by Maternal Age 2008 - 2012 (Prevalence per 10,000 Live Births)

	Maternal Age (years)			
Defect	**Less than 35**	**35+**	**Total****	**Notes**
Trisomy 13	45	22	69	
	0.9	***4.1***	***1.1***	
Trisomy 18	58	38	101	
	1.1	***7.0***	***1.7***	
Trisomy 21 (Down syndrome)	506	308	842	
	9.6	***56.9***	***14.0***	
Total live births	**526242**	**54141**	**602151**	

**Total includes unknown maternal age

Notes
1.Includes patent foramen ovale (PFO).
2.Includes inlet ventricular septal defect.
3.Includes hypoplasia.
4.Includes inlet ventricular septal defect and probable ventricular septal defect.

General comments
-Criteria for a case: one diagnosis from institutional records, or two diagnoses from professional encounter records.
-Data for conditions includes 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 infants' mother or father.

STATE BIRTH DEFECTS SURVEILLANCE PROGRAM DIRECTORY

Updated August 2015

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

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Alaska

Alaska Birth Defects Registry (ABDR)

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

Case Definition
Outcomes covered: 237.7-237.72 243 255.2 270.0-270.9 271.0-271.1 277.0-277.9 279.0-279.9 282.0-282.9 284 331.3-331.9 334.0-334.9 335.0-335.9 343.0-343.9 359.0-359.9 362.74 389.0-389.9 740.0-740.2 741.0-741.9 742.0-742.9 743.0-743.9 744.0-744.9 745.0-745.9 746.0-746.9 747.0-747.9 748.0-748.9 749.0-749.25 750.0-750.9 751.0-751.9 752.0-752.9 753.0-753.9 754.0-754.89 755.0-755.9 756.0-756.9 757.0-757.9 758.0-758.9 759.0-759.9 760.0-760.9 760.71
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
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-9 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-9 code.
Third party payers: Medicaid databases, Indian health services
Other specialty facilities: Genetic counseling/clinic genetic facilities
Other sources: Physician reports

Case Ascertainment
Conditions warranting chart review in the newborn period: Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease), Anencephaly (ANC) - 740.0 only Spina Bifida Aperta (SBA)- 741-741.93 Encephalocele (ENC) - 742.0 only Cleft Lip (CL) - 749.1-749.14 Cleft Palate (CP) - 749.0-749.04 Cleft Palate and Lip (CPL) 749.20-749.25 Hirschsprung's disease (HSP) - 751.3 Hypospadias (HYP) - 752.61 Epispadias (EPI) - 752.62 Obstructive Genitourinary Defect (OGU) - 753.2-753.6 Spina Bifida Occulta (SBO) 756.17 Omphalocele (OMP) - 756.70, 756.72 Gastroschisis (GAS) - 756.710, 756.73, 756.79 Trisomy 21 (Down syndrome DWN) 758.0 Trisomy 13 (Patau Syndrome PAT) - 758.1 Trisomy 18 (Edwards syndrome EDW) - 758.2 Fetal Alcohol Syndrome (FAS) - 760.71
Coding: ICD-9-CM, ICD10 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, Transitioning to SQL

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/default.aspx
Surveillance reports on file:
Http://dhss.alaska.gov/dph/wcfh/Pages/mchepi/mchdatabook/default.aspx

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Arizona

Arizona Birth Defects Monitoring Program (ABDMP)

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: 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)
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
Other specialty facilities: Prenatal diagnostic facilities (ultrasound, etc.), Genetic counseling/clinical genetic facilities
Other sources: Midwifery Facilities

Case Ascertainment

Conditions warranting chart review in the 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, 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, Link case finding data to final birth file

Funding

Funding source: 16% General state funds, 17% MCH funds, 67% CDC grant

Other

Web site: http://azdhs.gov/phs/phstats/bdr/index.htm
Surveillance reports on file: Annual Reports
Additional information on file: Fact Sheets; Resources

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Arkansas

Arkansas Reproductive Health Monitoring System (ARHMS)

Purpose: Surveillance, Research
Partner: Local Health Departments, Hospitals, Advocacy Groups, Universities, Legislators
Program status: Currently collecting data
Start Year: 1980
Earliest year of available data: 1980
Organizational location: 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 the 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
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

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California

California Birth Defects Monitoring Program (CBDMP)

Purpose: Surveillance, Research
Partner: Local Health Departments, Hospitals, Universities
Program status: Currently collecting data
Start Year: 1983
Earliest year of available data: 1983
Organizational location: Department of Health (Maternal and Child 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 the 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), 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, Hospital discharge. CBDMP links case finding data to final vital statistics fetal death files

Funding

Funding source: 100% CBDMP Special Fund
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

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Colorado

Colorado Responds to Children with Special Needs Section (CRCSN)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Community Nursing Services, Early Childhood Prevention Programs, Legislators
Program status: Currently collecting data
Start Year: 1988
Earliest year of available data: 1989
Organizational location: Department of Health (Vital Statistics, Center for Health and Environmental Data (CHED))
Population covered annually: '66,676 (2014)
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 the 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

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Connecticut

Connecticut Birth Defects Registry (CT BDR)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services, Reporting for MCH Block Grant
Partner: Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Early Childhood Prevention Programs
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. Sec. 19a-54. (Formerly Sec. 19-21a). Registration of physically handicapped children. Sec. 19a-56a birth defects data. (Formerly Sec. 10a-132b). Birth defects surveillance program.

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
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: In 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, 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

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, 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 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, Oracle, 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, 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

Funding

Funding source: 100% General state funds

Other

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

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Delaware

Delaware Birth Defects Registry (DBDR)

Purpose: Surveillance
Partner: Local Health Departments, Hospitals, 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 5 years
Residence: In-state and out-of-state birth to state resident, and in-state birth to state non-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 the 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, 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.)

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, Natus Medical, Inc.

Data Analysis

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, Link to Newborn Bloodspot and Hearing Screening.
System integration: Initial check into Newborn Bloodspot Screening records with a link which pulls info to Birth Defects Registry from Newborn Bloodspot Screening case management system.

Funding

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

Other

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

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District of Columbia

District Of Columbia Birth Defects Surveillance And Prevention Program (DC BDSPP)

Purpose: Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Hospitals
Program status: Interested in developing a surveillance program

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

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Florida

Florida Birth Defects Registry (FBDR)

Purpose: Surveillance, Research, Educate health care professionals, women of childbearing age and general public about birth defects.
Partner: Local Health Departments, Hospitals, Advocacy Groups, Universities, 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: 211,228 in 2012
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 two CDC funded cooperative agreements 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 the newborn period: Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease)
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, 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, Maternal linked file.
System integration: The department has created a maternally linked file beginning with 1998. The birth defects data has been included in this linked file. Birth defects data are displayed on the department's Environmental Public Health Tracking Program site.

Funding
Funding source: 75% General state funds, 23% CDC grant, 2% Private Foundation
Web site: www.fbdr.org
Surveillance reports on file: Publications, procedure manauals, electronic case ascertaintment dababase and educational materials

***Comments*:** CDC/NCBDDD Cooperative Agreement for enhanced surveillance of selected birth defects, referral for services and prevention activities.

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Georgia

Georgia Birth Defects Reporting And Information System (GBDRIS)

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: 2003
Earliest year of available data: 2007
Organizational location: Department of Health (Maternal and Child Health)
Population covered annually: 128,511
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: Major birth defects, genetic diseases, FAS and CP
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 18 years of age
Residence: In and out of state births to state residents

Surveillance Methods
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
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 the 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)
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.)

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: SAS, Access
Quality assurance: Validity checks, Double-checking of assigned codes, Comparison/verification between multiple data sources
Data use and analysis: Public health program evaluation, Service delivery

System integration
System integration: We are working to integrate it with our child health data system that contains birth, genetics and intervention referrals.

Funding
Funding source: 100% MCH funds

Other
Additional information on file: In Georgia, please note that other surveillance is performed by MACDP and that is where the numbers for your report come from.

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Georgia

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: 35,000
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 the 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, National Death Index; Death and Fetal Death Records; Laboratory Records

Funding
Funding source: 100% Intramural CDC funding
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

Comments: The 40th Anniversary Surveillance Report was published: Correa A, Cragan JD, Kucik JE, et al. Reporting birth defects surveillance data 1968-2003. Birth Defects Research Part A. 2007;79(2):65-186.

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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 426 Hawaii 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), 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 the 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 def
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
Web site: http://health.hawaii.gov/genetics/programs/hbdhome/

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Idaho

Program status: No surveillance program

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Illinois

Adverse Pregnancy Outcomes Reporting System (APORS)

Purpose: Surveillance, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Community Nursing Services, Early Childhood Prevention Programs, Genetic Clinics, Drug-testing laboratories, Illinois Department of Human Services, Illinois Department of Health and Family Services, Illinois Department of Children and Family Services, Illinois Newborn Metabolic Screening Program
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
Delivery Hospitals: Discharge summaries, Reporting from all hospital nurseries
Pediatric & tertiary care hospitals: Reporting from all hospital nurseries
Other specialty facilities: Genetic counseling/clinic genetic facilities

Case Ascertainment

Conditions warranting chart review in the newborn period: 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, 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.), 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), Needs assessment, Service delivery, Referral, 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 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: 66% General state funds, 29% CDC grant, 5% Other federal funding (non-CDC grants)
Web site: http://www.idph.state.il.us/about/epi/apors.htm
Surveillance reports on file: Birth Defects and Other Adverse Pregnancy Outcomes in Illinois 2005-2009 Trends in the Prevalence of Birth Defects in Illinois and Chicago 1989-2009
Additional information on file: QC reports, fact sheets

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Indiana

Indiana Birth Defects & Problems Registry (IBDPR)

Purpose: Surveillance, Research, Referral to Services
Partner: Hospitals, Advocacy Groups, Universities, Early Childhood Prevention Programs, Legislators
Program status: Currently collecting data
Start Year: 2002
Organizational location: Department of Health (Epidemiology/Environment, Maternal and Child Health, State Health Data Center)
Population covered annually: 85,000
Statewide: Yes
Current legislation or rule: IC 16-38-4-7 Rule 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 Disorder (299.0), 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)
Age: Up to 5 years (FAS); all individuals with Autism Spectrum Disorders; up to 3 years for all other birth defects
Residence: In- and out-of-state (as reported to IBDPR) births to state residents

Surveillance Methods

Case ascertainment: Passive case-finding with case confirmation, 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: Disease index or discharge index, Chart audits of 45 targeted birth defects
Pediatric & tertiary care hospitals: Disease index or discharge index, Chart audits of 45 targeted birth defects
Other specialty facilities: Genetic counseling/clinic genetic facilities
Other sources: Physician reports

Case Ascertainment

Conditions warranting chart review in the 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: ICD-9-CM, and 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.), Electronic file/report submitted by other agencies (hospitals, etc.), ISDH Chart Auditors submit hospital chart audit information electronically through use of a laptop and a web-based portal to the Indiana State Department of Health Repository, which stores and integrates the data.
Database collection and storage: Oracle

Data Analysis

Data analysis software: SAS, Oracle and ArcView 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, Baseline rates, Rates by demographic and other variables, Needs assessment

System integration

System links: Link to other state registries/databases, Link case finding data to final birth file
System integration: The database is linked with birth, death, newborn hearing screening, and newborn metabolic and pulse oximetry screening data.

Funding

Funding source: 30% MCH funds, 5% Genetic screening revenues, 65% IBDPR fund obtained through birth certificate search

Other

Web site: www.birthdefects.in.gov
Surveillance reports on file: "Progress on the Implementation of IC 16-38-4-7 (Birth Problems Registry) as amended in First Regular Session 112th General Assembly (2001) Reporting Period: July 2013-June 2014" http://www.in.gov/isdh/files/ibdpr_progress_report_july2013_june2014.pdf

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Iowa

Iowa Registry for Congenital and Inherited Disorders (IRCID)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services, Prevention education programs
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Legislators
Program status: Currently collecting data
Start Year: 1983
Earliest year of available data: 1983
Organizational location: University
Population covered annually: 39,057 average live births per year (2008-2012)
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, 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 the 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 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

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, 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: 69% General state funds, 31% CDC grant

Other

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

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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: 38,805
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

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Kentucky

Kentucky Birth Surveillance Registry (KBSR)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, 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. (All gestational ages)
Age: Up to 5 years of age
Residence: In and out of state births to state residents

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

Case Ascertainment
Conditions warranting chart review in the 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
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, 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

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 case finding data to final birth file

System integration: Birth records from vitals statistics are linked with all cases in the KBSR database.
Web site: http://chfs.ky.gov/dph/mch/ecd/kbsr.htm
Surveillance reports on file: Birth Defect Specific Fact Sheets; Contact of Partners

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Louisiana

LA 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 the 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, Link case finding data to final death file
System integration: Integration with Louisiana Electronic Event Registration System (LEERS) birth and death records will be completed in 2015.

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

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Maine

Maine CDC Birth Defects Program (MBDP)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services, Education
Partner: Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Community Nursing Services, Early Childhood Prevention Programs, March of Dimes, New England Birth Defects Consortium
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
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 the 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
Conditions warranting chart review beyond the newborn period: 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.), 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

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Maryland

Maryland Birth Defects Reporting and Information System (BDRIS)

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

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

Surveillance Methods
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
Other sources: Midwifery Facilities

Case Ascertainment
Conditions warranting chart review in the 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

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, 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, Service delivery, Referral, Grant proposals, Education/public awareness

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

Funding
Funding source: 100% General state funds

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

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Massachusetts

Massachusetts Birth Defects Monitoring Program (MBDMP)

Purpose: Surveillance, Research, Public health program evaluation, assist community health assessments
Partner: Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs
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), Elective terminations (Other pregnancy losses includes elective terminations at any gestational age and 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 birth 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 the 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 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 case finding data to open and closed birth file, as well as open and closed fetal file.
System integration: Link birth defects data to Pregnancy to Early Life Longitudinal (PELL) data system.

Funding

Funding source: 25% General state funds, 75% MCH funds
Web site: www.mass.gov/dph/birthdefects
Surveillance reports on file: Annual or bi-annual reports, 1999 through 2010

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Michigan

Michigan Birth Defects Registry (MBDR)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services, Prevalence and mortality statistics
Partner: Local Health Departments, Hospitals, Advocacy Groups, Universities, Early Childhood Prevention Programs, Legislators
Program status: Currently collecting data
Start Year: 1992
Earliest year of available data: 1992
Organizational location: Department of Health (Vital Statistics)
Population covered annually: 112,000
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

Case Ascertainment

Conditions warranting chart review in the 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 death
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
Father: Identification information (name, address, date-of-birth, etc.), Demographic information (race/ethnicity, sex, etc.)

Data Collection Methods and Storage

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

Data Analysis

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

System integration

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

Funding

Funding source: 10% CDC grant
Web site: http://www.michigan.gov/mdch/0,1607,7-132-2944_4670---,00.html
Additional information on file:
Http://www.michigan.gov/mdch/0,1607,7-132-2945_5221-16665--,00.html

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Minnesota

Minnesota Birth Defects Information System (BDIS)

Purpose: Surveillance, Research, Referral to Services, Targeted prevention to higher risk populations.
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs
Program status: Currently collecting data
Start Year: 2005
Earliest year of available data: 2006
Organizational location: Department of Health (Maternal and Child Health)
Population covered annually: 70,000
Statewide: No, Currently covering about 85% of live births in MN. Statewide surveillance is expected to be completed by the end of 2016. 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
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
Third party payers: In 2016, Medicaid databases will become available.
Other sources: Statewide de-identified hospital discharge dataset

Case Ascertainment

Conditions warranting chart review in the newborn period: Any chart with an ICD-9-CM code 740-759, Any birth certificate with a birth defect box checked, 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 two health systems and five facilities as of June 2015
Database collection and storage: Web-based department-wide integrated disease surveillance database. Maven platform by Consilience Software.

Data Analysis

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

System integration

System links: Link to other state registries/databases, Link case finding data to final birth file, Sharing of confirmed cases with key contacts at local public health agencies for service referral. LPH staff can log on to our the birth defects database to view relevan
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

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

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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: 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
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
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.)

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, Newborn Screening Program Newborn screening program database and Early Hearing program database

Funding
Funding source: 100% Genetic screening revenues

Other
Web site: www.HealthyMS.com

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Missouri

Missouri Birth Defects Surveillance System

Purpose: Surveillance, Research
Partner: Environmental Agencies/Organizations, Legislators, Missouri Critical Congenital Heart Defect testing program
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 the 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
Web site: http://health.mo.gov/data/birthdefectsregistry/index.php
Surveillance reports on file: MO Birth Defects Report 1996-2000

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Montana

Montana Birth Outcomes Monitoring System (MBOMS)

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

Case Definition

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

Pregnancy outcome: All gestational ages)

***Comments*:** MBOMS became inactive in 2005

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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 the 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

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Nevada

Nevada Birth Outcomes Monitoring System (NBOMS)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Hospitals, Early Childhood Prevention Programs, Legislators, Bureau of Child, Family, & Community Wellness
Program status: Currently collecting data
Start Year: 2000
Earliest year of available data: 2005
Organizational location: Department of Health (Maternal and Child Health), State Health Division, Office of Health Statistics and Surveillance, Bureau of Health Statistics, Planning, Epidemiology and Response
Population covered annually: 35,000
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: Combination of active & passive, Population-based, Hospital-based
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 the 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
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, Birth registry data is manually linked to birth defect data, but the actual databases are not linked.
System integration: No

Funding
Funding source: 100% MCH Block Grant, (Office of Public Health Informatics and Epidemiology (OPHIE) provides the statistician for data workup

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

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New Hampshire

New Hampshire Birth Conditions Program (NHBCP)

Purpose: Surveillance, Research, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs
Program status: Currently collecting data
Start Year: 2003
Earliest year of available data: 2003
Organizational location: Department of Health (Geisel School of Medicine at Dartmouth, Bureau of Special Medical Services, Bureau of Nutrition and Health Promotion, Department of Environmental Services Bureau of Environmental Health), University
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: All major birth defects and genetic diseases recommended by the CDC/NBDPN
Pregnancy outcome: Livebirths (All gestational ages and birth weights), Fetal deaths - stillbirths, spontaneous abortions, etc. (All gestational ages), Elective terminations (All gestational ages)
Age: Currently collecting birth to age 2
Residence: All New Hampshire residents, those born in-state as well as out of state

Surveillance Methods

Case ascertainment: Active Case Finding, population based
Vital Records: Birth certificates, Fetal death certificates, ADD Autopsy
Other state based registries: Programs for children with special needs, Newborn hearing screening program
Delivery Hospitals: Discharge summaries, Postmortem/pathology logs
Pediatric & tertiary care hospitals: Discharge summaries, Postmortem/pathology logs, Specialty outpatient clinics

Case Ascertainment

Conditions warranting chart review in the 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), All stillborn infants, Elective terminations that have confirmed birth conditions by autopsy or confirmed by clinical assessment
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.), 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: 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, AURIS, a web-based reporting system currently utilized by the NH DHHS Newborn Hearing Screening Program, has added a module to the currently operating system to meet the birth defects tracking requirements.

Data Analysis

Data analysis software: SPSS, Excel
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, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Observed vs. expected analyses, Epidemiologic studies (using only program data), Service delivery, Grant proposals, Education/public awareness, Prevention projects

System integration

System links: Link to other state registries/databases
System integration: Integrated into the NH DHHS Newborn Hearing Screening Program registry, a state-wide universal hearing program for all NH infants. This system also receives weekly uploads from the State's Vital Records system that is then linked with the birth conditions

Funding

Funding source: 100% CDC grant
Web site: www.nhbcp.org
Surveillance reports on file: State and county data reports

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New Jersey

Special Child Health Services Registry (SCHS Registry)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Community Nursing Services, Early Childhood Prevention Programs, Legislators, Neurodevelopmental Centers; Federally Qualified Health Care Centers; State Parent Advocacy Network
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 - Ammended: 1990, 1991, 1992, 2005, Readopted: 2010, Rule Amendments Adopted: 2009; Readopted: 2010
Legislation year enacted: 1983

Case Definition

Outcomes covered: All birth defects (structural, genetic, and biochemical), all Autism Spectrum Disorders, and severe hyperbillirubinemia, 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 the 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/hearin
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; SQL

Data Analysis

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

System integration

System links: Link to other state registries/databases, Link case finding data to final birth file, link to hearing screening registry
System integration: Autism Registry is fully integrated. Newborns having failed Pulse Oximetry Screening are integrated with Registry. Newborn hearing screening registry provides direct report to the SCHS Registry. Metabolic screening program provides direct report to SCH

Funding

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

Other

Web site: http://www.state.nj.us/health/fhs/sch/schr.shtml

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New Mexico

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

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

Case Definition
Outcomes covered: 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), Elective terminations (All gestational ages)
Age: Birth through age 4
Residence: Births to New Mexico residents occurring in New Mexico.

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

Case Ascertainment
Conditions warranting chart review in the 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 12.1

Data Analysis
Data analysis software: Stata version 12.1
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
Web site:
https://nmtracking.org/en/health_effects/birthdefects/about_birthdefects/

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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: 250,000
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: Any 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)
Age: 2 years
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, up to age 2

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
Other sources: Physician reports

Case Ascertainment

Conditions warranting chart review in the 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
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 August 2014 onward

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, Sybase

Data Analysis

Data analysis software: SAS, Access, JAVA
Quality assurance: Validity checks, Double-checking of assigned codes, Comparison/verification between multiple data sources, Data/hospital audits, Timeliness
Data use and analysis: Routine statistical monitoring, 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: 13.6% General state funds, 10.2% MCH funds, 3.4% Genetic screening revenues, 50.2% CDC grant, 13.3% Other federal funding (non-CDC grants), 10% State Superfund

Other

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

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North Carolina

N.C. Birth Defects Monitoring Program (NCBDMP)

Purpose: Surveillance, Research, Referral to Services
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs
Program status: Currently collecting data
Start Year: 1987
Earliest year of available data: 1989
Organizational location: Department of Health (State Center for Health Statistics)
Population covered annually 120,000
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
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 the 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, Capture-recapture analyses, 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 case finding data to final birth file, Link to environmental databases, Early Intervention Program

Funding

Funding source: 90% General state funds, 10% MCH funds

Other

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

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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: 12,840
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: 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 specialty facilities: Genetic counseling/clinic genetic facilities
Other sources: Physician reports

Case Ascertainment
Conditions warranting chart review in the 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 2001-2005 North Dakota Birth Defects Monitoring System Summary Report 1995-1999

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Ohio

Ohio Connections for Children with Special Needs (OCCSN)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs, State Child Fatality Review Program; Ohio Collaborative to Prevent Infant Mortality
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: 140,000
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 recommended by NBDPN and Ohio stakeholders
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, Passive case-finding with case confirmation for certain disorders
Vital Records: Birth certificates, Death certificates, Matched birth/death file
Other state based registries: Programs for children with special needs, Genetics data system
Delivery Hospitals: Hospital medical records and billing records
Pediatric & tertiary care hospitals: Discharge summaries, Laboratory logs, Hospital medical records and billing records
Other sources: Genetics Clinic Data within some hospitals

Case Ascertainment

Conditions warranting chart review in the newborn period: Any birth certificate with a birth defect box checked, ICD-9 and ICD-10 (death certificates) or named congenital anomaly
Coding: ICD-9-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 TXT 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, FRIL
Quality assurance: Validity checks, Comparison/verification between multiple data sources, Clinical review, Timeliness
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Observed vs. expected analyses, Referral, Grant proposals, Education/public awareness, Prevention projects

System integration

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

Funding

Funding source: 100% CDC grant

Other

Web site:
http://www.odh.ohio.gov/odhprograms/cmh/bdefects/birthdefects1.aspx
Surveillance reports on file: 2012 Annual Report

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Oklahoma

Oklahoma Birth Defect Registry (OBDR)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services, Data used to educate public in the Oklahoma initiative to reduce Infant Mortality
Partner: Local Health Departments, Hospitals, Advocacy Groups, Universities, Community Nursing Services, Early Childhood Prevention Programs, Legislators
Program status: Currently collecting data
Start Year: 1992
Organizational location: Department of Health (Screening and Special Services)
Population covered annually: 52,000
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: 3 years after delivery
Residence: Oklahoma

Surveillance Methods

Case ascertainment: Active Case Finding
Vital Records: Birth certificates, Medical Examiner's autopsy reports
Other state based registries: Newborn hearing screening program, Newborn metabolic screening program
Delivery Hospitals: Discharge summaries, Obstetrics logs (i.e., labor & delivery), Specialty outpatient clinics
Pediatric & tertiary care hospitals: 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 the newborn period: Any chart with an ICD-9-CM code 740-759, Any chart with a CDC/BPA code, 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
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

Data Analysis

Data analysis software: SPSS, 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, 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:
http://www.ok.gov/health/Child_and_Family_Health/Screening,_and_Special_Services/Oklahoma_Birth_Defects_Registry_/
Surveillance reports on file: Yes

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Oregon

Oregon Birth Anomalies Registry (BAR)

Purpose: Surveillance
Partner: 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: EPHT-12 and NBDPN 12 core anomalies for surveillance
Pregnancy outcome: Livebirths (All gestational ages and birth weights)
Age: 5 years
Residence: In-state birth to state resident

Surveillance Methods
Case ascertainment: Link birth certificate to full hospital discharge dataset and to Medicaid claims
Vital Records: Birth certificates
Third party payers: Medicaid databases
Other sources: Full hospital discharge database

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 defect diagnostic information
Mother: Identification information (name, address, date-of-birth, etc.)

Data Collection Methods and Storage
Data Collection: Case data entirely from linkage of existing records.
Database collection and storage: Access, SQL server, SPSS

Data Analysis
Data analysis software: SPSS, Access
Quality assurance: Validity checks, Comparison/verification between multiple data sources
Data use and analysis: Routine statistical monitoring, Baseline rates, Education/public awareness

System integration
System links: Aggregate data shared with Oregon EPHT for their web-based data portal

Funding
Funding source: 100% MCH funds

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

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Pennsylvania

Pennsylvania Birth Defects Surveillance Database (BDSS)

Program status: No surveillance program

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Puerto Rico

Puerto Rico Birth Defects Surveillance and Prevention System (PRBDSS)

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: 38,000
Statewide: Yes
Current legislation or rule: Law #351
Legislation year enacted: 16-Sep-04

Case Definition
Outcomes covered: Selected birth defects covered: Neural Tube defects, cleft lip and/or cleft palate, anotia, microtia, anophthalmia, microphthalmia, limb defects, talipes equinovarus, gastrochisis, omphalocele, Trisomy 13, 18 and 21, Truner's syndrome, 22q11.2 deletion syndrome, Albinism, Jarcho-Levin 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 the 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, 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

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

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Rhode Island

Rhode Island Birth Defects Surveillance 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: 10,500
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 to 4 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, Fetal birth certificate
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 9 programs including: Newborn Developmental Risk 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 the 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 prenatal diagnosed or suspected cases, Chart reviews are conducted for infants born at the regional perinatal center and the 6 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, Collecting ICD-10-CM codes beginning on January 2015

Data Collected

Infant/fetus: Identification information (name, address, date-of-birth, 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.)
Database collection and storage: Access, Oracle

Data Analysis

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

System integration

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

Funding

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

Other

Web site: www.health.ri.gov/programs/birthdefects
Surveillance reports on file: 2014 Rhode Island Birth Defects Data Book

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South Carolina

South Carolina Birth Defects Program (SCBDP)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs, Greenwood Genetics Center (GGC)
Program status: Currently collecting data
Organizational location: Department of Health (Maternal and Child Health)
Population covered annually: 57,100
Statewide: Yes
Current legislation or rule: A281, R308, H4115
Legislation year enacted: 2004

Case Definition
Outcomes covered: Central nervous systemdefects, 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 the 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

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: 100% General state funds

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

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South Dakota

Program status: No surveillance program

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Tennessee

Tennessee Birth Defects Registry (TBDR)

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: 2000
Earliest year of available data: 1999
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 gra
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 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 the 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

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, Re-abstraction of cases, 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 to other state registries/databases, Link case finding data to final birth file

Funding

Funding source: 100% General state funds

Other

Web site: http://hit.state.tn.us/Reports.aspx
Surveillance reports on file: Tennessee Birth Defects Registry 2007-2011

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Texas

Texas Birth Defects Epidemiology and Surveillance Branch (TBDES)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: 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: 377,274 in 2011
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 the 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
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, link registry to vital records for demographic data, special projects linking to other files (Texas Health Data for geocodes, Newborn Screening data).

Funding

Funding source: 48% General state funds, 52% MCH funds

Other

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

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Utah

Utah Birth Defect Network (UBDN)

Purpose: Surveillance, Research, Referral to 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 the 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, timelin
Data use and analysis: Routine statistical monitoring, Public health program evaluation, Baseline rates, Rates by demographic and other variables, Time trends, Epidemiologic studies (using only program data), Identification of potential cases for other epidemiologic studies, Referral, Grant proposals, Education/public awareness, Prevention projects, Oral Facial Cleft Case-Control Study, UT Center for Birth Defects Research and Prevention, International Clearinghouse for Birth Defects, Local studies

System integration

System links: Link to other state registries/databases, Link to environmental databases, Link to Utah genealogic population database, Link to vital records
System integration: The database is linked with birth, death, and pulse oximetry screening data. Newbons havig 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

***Comments*:** IBIS indicators for specific birth defects are online.

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Vermont

Birth Information Network (BIN)

Purpose: Surveillance, Referral to Services
Partner: Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs, Hospital Association
Program status: Currently collecting data
Start Year: 2006
Earliest year of available data: 2006
Organizational location: Department of Health (Division of Health Surveillance / Statistics)
Population covered annually: 6,200
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 the 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 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

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: 5% General state funds, 95% CDC grant

Other

Web site: http://healthvermont.gov/tracking/health_birthdefects.aspx

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Virginia

Virginia Congenital Anomalies and Reporting Education System (VaCARES)

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Local Health Departments
Program status: Currently collecting data
Start Year: 1985
Earliest year of available data: 2004
Organizational location: Department of Health (Family Health Services)
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
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 the newborn period: Any chart with selected defects or medical conditions (i.e. abnormal facies, congenital heart disease)
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, 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
Web site:
http://www.vdh.virginia.gov/ofhs/childandfamily/childhealth/gns/vacares.htm

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Washington

Washington State Birth Defects Surveillance System (BDSS)

Purpose: Surveillance
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Universities
Program status: Currently collecting data
Earliest year of available data: 1987
Organizational location: Department of Health (Office of Healthy Communities)
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
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
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
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, CSHCN program participant file

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

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West Virginia

West Virginia Birth Defects Surveillance System

Purpose: Surveillance, Research, Referral to Services, Referral to Prevention/Intervention Services
Partner: Hospitals, Universities, Early Childhood Prevention Programs
Program status: Currently collecting data
Start Year: 1989
Earliest year of available data: 1989
Organizational location: Department of Health (Maternal and Child Health)
Population covered annually: 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
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 the 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 prematur
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.), 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

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Wisconsin

Wisconsin Birth Defect Prevention and Surveillance System (WBDPSS)

Purpose: Surveillance, Research, Referral to Services
Partner: Local Health Departments, Hospitals, Environmental Agencies/Organizations, Advocacy Groups, Universities, Early Childhood Prevention Programs
Program status: Currently collecting data
Start Year: 2004
Earliest year of available data: 2005
Organizational location: Department of Health (Maternal and Child Health, Department of Health Services, Division of Public Health)
Population covered annually: average 70,000
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: 70% Service fees, 30% Other federal funding (non-CDC grants)
Web site: https://www.dhs.wisconsin.gov/cyshcn/birthdefects/index.htm
Surveillance reports on file: Posted on the website

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Wyoming

Program status: Interested in developing a surveillance program

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Department of Defense

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

Data Collected

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

Data Collection Methods and Storage

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

Data Analysis

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

System integration

System links: DoD databases
System integration: DoD databases

Funding

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

Other

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

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