

# Birth Defects in Arkansas Annual Report Summary

## Among 2011-2015 Deliveries

The Arkansas Reproductive Health Monitoring System (ARHMS) is an active surveillance system for monitoring birth defects. Trained Health Information Specialists review and abstract medical records to ascertain birth defect cases. Cases diagnosed prenatally and among children up to two years old are included, and the birth defect registry covers births to residents in all 75 counties of Arkansas. Currently, ARHMS uses a modified ICD9-BPA coding system to label and categorize birth defect diagnosis. The ARHMS repository is current to the birth year of 2015. This report focuses on the results of the latest five years of data available (birth year of 2011-2015).

### Each Year in Arkansas 2011-2015

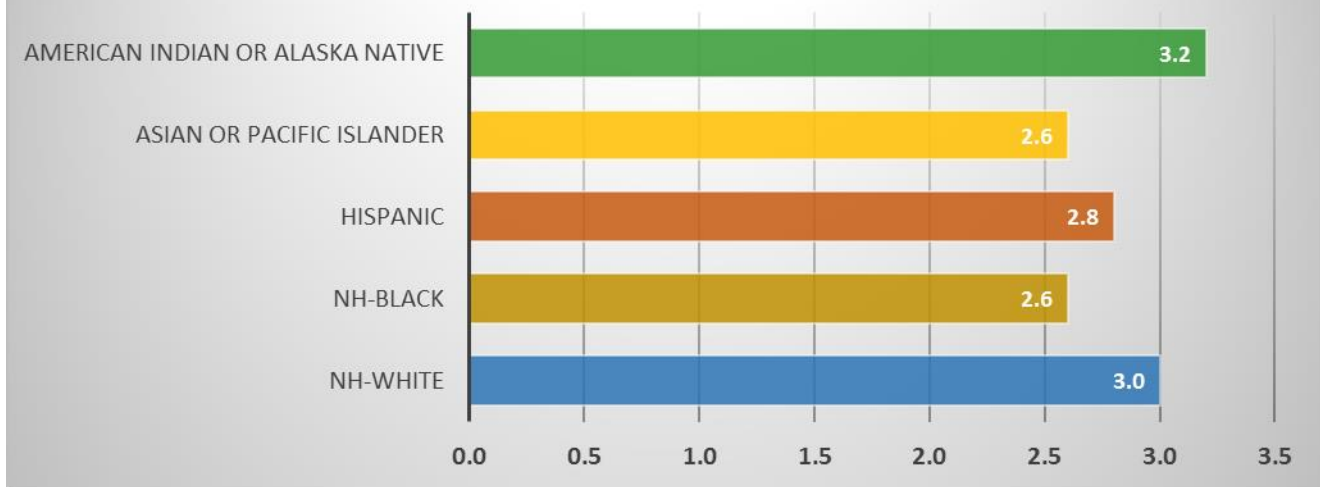
<p>More than <b>38,000</b> babies are born</p>	<p>About <b>1,120</b> babies born with birth defect(s)</p>	<p>About <b>1 in 5</b> infant death is due to birth defects</p>
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### Live Births, Births with Defects and Prevalence by Maternal Race 2011-2015

Year of Birth		NH-White	NH-Black	Hispanic	Asian or Pacific Islander	American Indian or Alaska Native	Other/Unknown	Total
<b>2011</b>	Live Birth	25990	7190	3952	749	212	305	38398
	Defect Case	876	204	128	26	8	2	1244
	Prevalence(%)	3.4	2.8	3.2	3.5	3.8		3.2
<b>2012</b>	Live Birth	25495	7245	3837	885	223	308	37993
	Defect Case	797	187	130	28	8	45	1195
	Prevalence(%)	3.1	2.6	3.4	3.2	3.6		3.1
<b>2013</b>	Live Birth	24823	7197	3819	1070	195	302	37406
	Defect Case	702	167	86	23	8	27	1013
	Prevalence(%)	2.8	2.3	2.3	2.1	4.1		2.7
<b>2014</b>	Live Birth	25828	7215	3800	1097	263	242	38445
	Defect Case	674	141	84	29	9	16	953
	Prevalence(%)	2.6	2.0	2.2	2.6	3.4		2.5
<b>2015</b>	Live Birth	25197	6794	3834	1194	339	248	37606
	Defect Case	781	213	108	25	7	26	1160
	Prevalence(%)	3.1	3.1	2.8	2.1	2.1		3.1

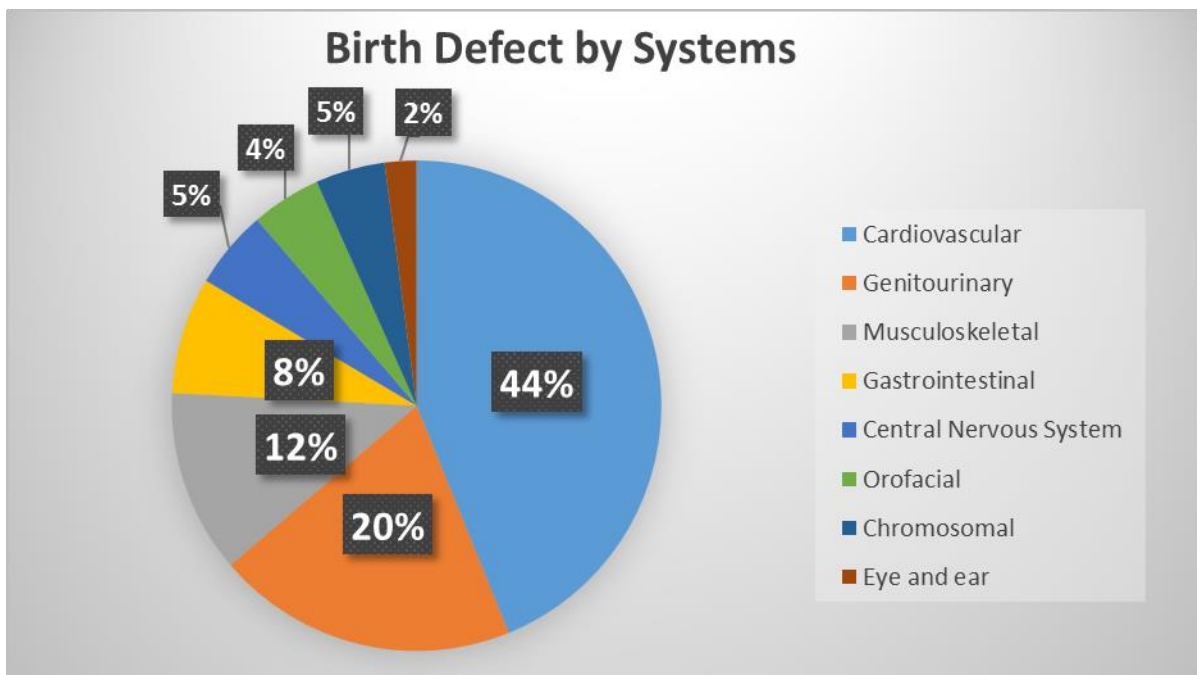
About 3% of births born with birth defects.

### Birth Defect Prevalence (%) by Maternal Race 2011-2015



The most common defects are congenital heart defects, genitourinary and musculoskeletal defects.

### Birth Defect by Systems



**Prevalence of Birth Defects by Diagnosis and Year of Birth, Arkansas 2011-2015**

Defects by Diagnostic Category	2011	2012	2013	2014	2015	2011-15
	Cases	Cases	Cases	Cases	Cases	Cases
	Prev. (95% CI)	Prev. (95% CI)	Prev. (95% CI)	Prev. (95% CI)	Prev. (95% CI)	Prev. (95% CI)
<b>Central Nervous System</b>	83	95	42	56	93	406
	21.6 (17.2, 26.8)	25 (20.2, 30.6)	11.2 (8.1, 15.2)	14.6 (11, 18.9)	24.7 (20, 30.3)	21.4 (19.4, 23.6)
Anencephalus	12	16	3	5	3	37
	3.1 (1.6, 5.5)	4.2 (2.4, 6.8)	0.8 (0.2, 2.3)	1.3 (0.4, 3)	0.8 (0.2, 2.3)	1.9 (1.4, 2.7)
Spina bifida without anencephalus	21	17	14	13	12	76
	5.5 (3.4, 8.4)	4.5 (2.6, 7.2)	3.7 (2, 6.3)	3.4 (1.8, 5.8)	3.2 (1.6, 5.6)	4.0 (3.2, 5)
Hydrocephalus without Spina Bifida	27	30	15	21	19	110
	7.0 (4.6, 10.2)	7.9 (5.3, 11.3)	4.0 (2.2, 6.6)	5.5 (3.4, 8.3)	5.1 (3, 7.9)	5.8 (4.8, 7)
Encephalocele	2	8	2	3	6	24
	0.5 (0.1, 1.9)	2.1 (0.9, 4.1)	0.5 (0.1, 1.9)	0.8 (0.2, 2.3)	1.6 (0.6, 3.5)	1.3 (0.8, 1.9)
Microcephalus	11	15	7	12	43	119
	2.9 (1.4, 5.1)	3.9 (2.2, 6.5)	1.9 (0.8, 3.9)	3.1 (1.6, 5.5)	11.4 (8.3, 15.4)	6.3 (5.2, 7.5)
Holoprosencephaly	10	9	1	2	10	40
	2.6 (1.2, 4.8)	2.4 (1.1, 4.5)	0.3 (0, 1.5)	0.5 (0.1, 1.9)	2.7 (1.3, 4.9)	2.1 (1.5, 2.9)
<b>Eye</b>	37	22	22	13	21	123
	9.6 (6.8, 13.3)	5.8 (3.6, 8.8)	5.9 (3.7, 8.9)	3.4 (1.8, 5.8)	5.6 (3.5, 8.5)	6.5 (5.4, 7.7)
Anophthalmia/microphthalmia	13	9	7	3	8	45
	3.4 (1.8, 5.8)	2.4 (1.1, 4.5)	1.9 (0.8, 3.9)	0.8 (0.2, 2.3)	2.1 (0.9, 4.2)	2.4 (1.7, 3.2)
Congenital cataract	21	12	14	9	12	71
	5.5 (3.4, 8.4)	3.2 (1.6, 5.5)	3.7 (2, 6.3)	2.3 (1.1, 4.4)	3.2 (1.6, 5.6)	3.7 (2.9, 4.7)
Aniridia	3	1	1	1	1	7
	0.8 (0.2, 2.3)	0.3 (0, 1.5)	0.3 (0, 1.5)	0.3 (0, 1.4)	0.3 (0, 1.5)	0.4 (0.1, 0.8)
<b>Ear</b>						
Anotia/microtia	6	7	10	16	8	39
	1.6 (0.6, 3.4)	1.8 (0.7, 3.8)	2.7 (1.3, 4.9)	4.2 (2.4, 6.8)	2.1 (0.9, 4.2)	2.1 (1.5, 2.8)

Prev. =Prevalence per 10,000 live births, 95% CI=95% Confidence Interval, calculated using the exact method.

Defects by Diagnostic Category	2011	2012	2013	2014	2015	2011-15
	Cases Prev. (95% CI)	Cases Prev. (95% CI)	Cases Prev. (95% CI)	Cases Prev. (95% CI)	Cases Prev. (95% CI)	Cases Prev. (95% CI)
<b>Cardiovascular</b>	791 206 (192, 220.7)	704 185.3 (172, 199.4)	574 153.5 (141.2, 166.4)	596 155 (142.9, 167.9)	685 182.2 (168.9, 196.2)	3439 181.1 (175.2, 187.2)
Common truncus (truncus arteriosus)	4 1 (0.3, 2.7)	4 1.1 (0.3, 2.7)	0 -	3 0.8 (0.2, 2.3)	0 -	8 0.4 (0.2, 0.8)
Transposition of the great arteries (TGA)	19 4.9 (3, 7.7)	14 3.7 (2, 6.2)	12 3.2 (1.7, 5.6)	6 1.6 (0.6, 3.4)	10 2.7 (1.3, 4.9)	65 3.4 (2.6, 4.4)
Tetralogy of Fallot	18 4.7 (2.8, 7.4)	19 5 (3, 7.8)	18 4.8 (2.9, 7.6)	11 2.9 (1.4, 5.1)	19 5.1 (3, 7.9)	93 4.9 (4, 6)
Ventricular septal defect	266 69.3 (61.2, 78.1)	240 63.2 (55.5, 71.7)	200 53.5 (46.3, 61.4)	194 50.5 (43.6, 58.1)	249 66.2 (58.3, 74.9)	1204 63.4 (59.9, 67.1)
Atrial septal defect	168 43.8 (37.4, 50.9)	154 40.5 (34.4, 47.4)	108 28.9 (23.7, 34.8)	147 38.2 (32.3, 44.9)	185 49.2 (42.4, 56.8)	800 42.1 (39.3, 45.2)
Atrioventricular septal defect (Endocardial cushion defect)	34 8.9 (6.1, 12.4)	31 8.2 (5.5, 11.6)	27 7.2 (4.8, 10.5)	24 6.2 (4, 9.3)	33 8.8 (6, 12.3)	158 8.3 (7.1, 9.7)
Pulmonary valve atresia and stenosis	72 18.8 (14.7, 23.6)	64 16.8 (13, 21.5)	50 13.4 (9.9, 17.6)	53 13.8 (10.3, 18)	36 9.6 (6.7, 13.3)	258 13.6 (12, 15.4)
Tricuspid valve atresia and stenosis	6 1.6 (0.6, 3.4)	1 0.3 (0, 1.5)	2 0.5 (0.1, 1.9)	2 0.5 (0.1, 1.9)	0 -	9 0.5 (0.2, 0.9)
Ebstein anomaly	4 1 (0.3, 2.7)	3 0.8 (0.2, 2.3)	4 1.1 (0.3, 2.7)	5 1.3 (0.4, 3)	2 0.5 (0.1, 1.9)	15 0.8 (0.4, 1.3)
Aortic valve stenosis	12 3.1 (1.6, 5.5)	16 4.2 (2.4, 6.8)	12 3.2 (1.7, 5.6)	10 2.6 (1.2, 4.8)	13 3.5 (1.8, 5.9)	66 3.5 (2.7, 4.4)
Hypoplastic left heart syndrome	11 2.9 (1.4, 5.1)	8 2.1 (0.9, 4.1)	13 3.5 (1.9, 5.9)	15 3.9 (2.2, 6.4)	14 3.7 (2, 6.2)	60 3.2 (2.4, 4.1)
Patent ductus arteriosus	132 34.4 (28.8, 40.8)	98 25.8 (20.9, 31.4)	79 21.1 (16.7, 26.3)	82 21.3 (17, 26.5)	84 22.3 (17.8, 27.6)	477 25.1 (22.9, 27.5)
Coarctation of the aorta	28 7.3 (4.8, 10.5)	28 7.4 (4.9, 10.6)	29 7.8 (5.2, 11.1)	21 5.5 (3.4, 8.3)	22 5.9 (3.7, 8.9)	129 6.8 (5.7, 8.1)

Defects by Diagnostic Category	2011	2012	2013	2014	2015	2011-15
	Cases Prev. (95% CI)	Cases Prev. (95% CI)	Cases Prev. (95% CI)	Cases Prev. (95% CI)	Cases Prev. (95% CI)	Cases Prev. (95% CI)
Total anomalous pulmonary venous connection	2 0.5 (0.1, 1.9)	6 1.6 (0.6, 3.4)	3 0.8 (0.2, 2.3)	13 3.4 (1.8, 5.8)	7 1.9 (0.7, 3.8)	25 1.3 (0.9, 1.9)
Single ventricle	1 0.3 (0, 1.5)	3 0.8 (0.2, 2.3)	2 0.5 (0.1, 1.9)	3 0.8 (0.2, 2.3)	1 0.3 (0, 1.5)	8 0.4 (0.2, 0.8)
Interrupted aortic arch	2 0.5 (0.1, 1.9)	8 2.1 (0.9, 4.1)	0 -	0 -	1 0.3 (0, 1.5)	12 0.6 (0.3, 1.1)
Double outlet right ventricle	12 3.1 (1.6, 5.5)	7 1.8 (0.7, 3.8)	15 4 (2.2, 6.6)	7 1.8 (0.7, 3.8)	9 2.4 (1.1, 4.5)	52 2.7 (2, 3.6)
<b>Orofacial</b>	79 20.6 (16.3, 25.6)	74 19.5 (15.3, 24.4)	73 19.5 (15.3, 24.5)	86 22.4 (17.9, 27.6)	66 17.6 (13.6, 22.3)	358 18.9 (17, 20.9)
Cleft palate alone	29 7.6 (5.1, 10.8)	24 6.3 (4, 9.4)	30 8 (5.4, 11.4)	35 9.1 (6.3, 12.7)	26 6.9 (4.5, 10.1)	135 7.1 (6, 8.4)
Cleft lip alone	16 4.2 (2.4, 6.8)	15 3.9 (2.2, 6.5)	14 3.7 (2, 6.3)	22 5.7 (3.6, 8.7)	16 4.3 (2.4, 6.9)	77 4.1 (3.2, 5.1)
Cleft lip with cleft palate	32 8.3 (5.7, 11.8)	35 9.2 (6.4, 12.8)	27 7.2 (4.8, 10.5)	28 7.3 (4.8, 10.5)	23 6.1 (3.9, 9.2)	140 7.4 (6.2, 8.7)
Choanal atresia	2 0.5 (0.1, 1.9)	0 -	2 0.5 (0.1, 1.9)	1 0.3 (0, 1.4)	1 0.3 (0, 1.5)	6 0.3 (0.1, 0.7)
<b>Gastrointestinal</b>	125 32.6 (27.1, 38.8)	121 31.8 (26.4, 38)	107 28.6 (23.4, 34.6)	85 22.1 (17.7, 27.3)	125 33.2 (27.7, 39.6)	603 31.8 (29.3, 34.4)
Esophageal atresia / tracheoesophageal fistula	4 1 (0.3, 2.7)	8 2.1 (0.9, 4.1)	7 1.9 (0.8, 3.9)	5 1.3 (0.4, 3)	7 1.9 (0.7, 3.8)	33 1.7 (1.2, 2.4)
Rectal and large intestinal atresia/stenosis	11 2.9 (1.4, 5.1)	22 5.8 (3.6, 8.8)	20 5.3 (3.3, 8.3)	14 3.6 (2, 6.1)	10 2.7 (1.3, 4.9)	73 3.8 (3, 4.8)
Pyloric stenosis	80 20.8 (16.5, 25.9)	58 15.3 (11.6, 19.7)	52 13.9 (10.4, 18.2)	47 12.2 (9, 16.3)	80 21.3 (16.9, 26.5)	350 18.4 (16.6, 20.5)

Defects by Diagnostic Category	2011	2012	2013	2014	2015	2011-15
	Cases Prev. (95% CI)	Cases Prev. (95% CI)	Cases Prev. (95% CI)	Cases Prev. (95% CI)	Cases Prev. (95% CI)	Cases Prev. (95% CI)
Hirschsprung's disease	12 3.1 (1.6, 5.5)	8 2.1 (0.9, 4.1)	7 1.9 (0.8, 3.9)	6 1.6 (0.6, 3.4)	12 3.2 (1.6, 5.6)	51 2.7 (2, 3.5)
Biliary atresia	5 1.3 (0.4, 3)	4 1.1 (0.3, 2.7)	4 1.1 (0.3, 2.7)	0 -	0 -	13 0.7 (0.4, 1.2)
Small intestinal atresia/stenosis	13 3.4 (1.8, 5.8)	21 5.5 (3.4, 8.4)	17 4.5 (2.6, 7.3)	13 3.4 (1.8, 5.8)	16 4.3 (2.4, 6.9)	83 4.4 (3.5, 5.4)
<b>Genitourinary</b>	326 84.9 (76, 94.6)	322 84.8 (75.8, 94.5)	281 75.1 (66.6, 84.4)	269 70 (61.9, 78.8)	316 84 (75.1, 93.8)	1561 82.2 (78.2, 86.4)
Renal agenesis/hypoplasia	7 1.8 (0.7, 3.8)	9 2.4 (1.1, 4.5)	10 2.7 (1.3, 4.9)	8 2.1 (0.9, 4.1)	11 2.9 (1.5, 5.2)	48 2.5 (1.9, 3.4)
Bladder exstrophy	2 0.5 (0.1, 1.9)	1 0.3 (0, 1.5)	1 0.3 (0, 1.5)	0 -	0 -	4 0.2 (0.1, 0.5)
Obstructive genitourinary defect	93 24.2 (19.6, 29.7)	88 23.2 (18.6, 28.5)	64 17.1 (13.2, 21.8)	77 20 (15.8, 25)	112 29.8 (24.5, 35.8)	469 24.7 (22.5, 27)
Hypospadias <sup>a</sup>	189 96.3 (83.1, 110.9)	193 99.1 (85.6, 114)	185 96.5 (83.2, 111.4)	165 83.7 (71.4, 97.4)	169 85.1 (72.8, 98.9)	905 92.5 (86.6, 98.7)
Epispadias	5 1.3 (0.4, 3)	5 1.3 (0.4, 3.1)	2 0.5 (0.1, 1.9)	4 1 (0.3, 2.7)	2 0.5 (0.1, 1.9)	16 0.8 (0.5, 1.4)
Congenital posterior urethral valves	9 2.3 (1.1, 4.4)	5 1.3 (0.4, 3.1)	6 1.6 (0.6, 3.5)	2 0.5 (0.1, 1.9)	4 1.1 (0.3, 2.7)	28 1.5 (1, 2.1)
Cloacal exstrophy	1 0.3 (0, 1.5)	0 -	1 0.3 (0, 1.5)	1 0.3 (0, 1.4)	1 0.3 (0, 1.5)	4 0.2 (0.1, 0.5)
Indeterminate sex	12 3.1 (1.6, 5.5)	4 1.1 (0.3, 2.7)	6 1.6 (0.6, 3.5)	7 1.8 (0.7, 3.8)	6 1.6 (0.6, 3.5)	34 1.8 (1.2, 2.5)
Cystic kidney	8 2.1 (0.9, 4.1)	17 4.5 (2.6, 7.2)	6 1.6 (0.6, 3.5)	5 1.3 (0.4, 3)	11 2.9 (1.5, 5.2)	53 2.8 (2.1, 3.7)

<sup>a</sup> Hypospadias prevalence per 10,000 male live births

Defects by Diagnostic Category	2011	2012	2013	2014	2015	2011-15
	Cases	Cases	Cases	Cases	Cases	Cases
	Prev. (95% CI)	Prev. (95% CI)	Prev. (95% CI)	Prev. (95% CI)	Prev. (95% CI)	Prev. (95% CI)
<b>Musculoskeletal</b>	208	195	156	160	195	949
	54.2 (47.1, 62)	51.3 (44.4, 59)	41.7 (35.4, 48.8)	41.6 (35.4, 48.6)	51.9 (44.8, 59.6)	50 (46.9, 53.3)
Gastroschisis	34	36	22	25	22	136
	8.9 (6.1, 12.4)	9.5 (6.6, 13.1)	5.9 (3.7, 8.9)	6.5 (4.2, 9.6)	5.9 (3.7, 8.9)	7.2 (6, 8.5)
Omphalocele	15	8	11	6	10	54
	3.9 (2.2, 6.4)	2.1 (0.9, 4.1)	2.9 (1.5, 5.3)	1.6 (0.6, 3.4)	2.7 (1.3, 4.9)	2.8 (2.1, 3.7)
Congenital hip dislocation	12	5	1	5	8	34
	3.1 (1.6, 5.5)	1.3 (0.4, 3.1)	0.3 (0, 1.5)	1.3 (0.4, 3)	2.1 (0.9, 4.2)	1.8 (1.2, 2.5)
Diaphragmatic hernia	14	15	14	10	13	69
	3.6 (2, 6.1)	3.9 (2.2, 6.5)	3.7 (2, 6.3)	2.6 (1.2, 4.8)	3.5 (1.8, 5.9)	3.6 (2.8, 4.6)
Limb deficiencies (reduction defects)	24	17	14	15	9	73
	6.3 (4, 9.3)	4.5 (2.6, 7.2)	3.7 (2, 6.3)	3.9 (2.2, 6.4)	2.4 (1.1, 4.5)	3.8 (3, 4.8)
Craniosynostosis	24	25	28	16	33	143
	6.3 (4, 9.3)	6.6 (4.3, 9.7)	7.5 (5, 10.8)	4.2 (2.4, 6.8)	8.8 (6, 12.3)	7.5 (6.3, 8.9)
Clubfoot	70	73	54	69	83	363
	18.2 (14.2, 23)	19.2 (15.1, 24.2)	14.4 (10.8, 18.8)	17.9 (14, 22.7)	22.1 (17.6, 27.4)	19.1 (17.2, 21.2)
Polydactyly	13	16	12	13	17	75
	3.4 (1.8, 5.8)	4.2 (2.4, 6.8)	3.2 (1.7, 5.6)	3.4 (1.8, 5.8)	4.5 (2.6, 7.2)	4 (3.1, 5)
Prune Belly	2	0	0	1	0	2
	0.5 (0.1, 1.9)	-	-	0.3 (0, 1.4)	-	0.1 (0, 0.4)
<b>Chromosomal</b>	72	74	65	50	73	357
	18.8 (14.7, 23.6)	19.5 (15.3, 24.4)	17.4 (13.4, 22.1)	13 (9.7, 17.1)	19.4 (15.2, 24.4)	18.8 (16.9, 20.9)
Trisomy 13	5	3	4	3	6	24
	1.3 (0.4, 3)	0.8 (0.2, 2.3)	1.1 (0.3, 2.7)	0.8 (0.2, 2.3)	1.6 (0.6, 3.5)	1.3 (0.8, 1.9)
Trisomy 21 (Down syndrome)	45	55	54	40	52	258
	11.7 (8.5, 15.7)	14.5 (10.9, 18.8)	14.4 (10.8, 18.8)	10.4 (7.4, 14.2)	13.8 (10.3, 18.1)	13.6 (12, 15.4)
Trisomy 18	12	11	5	7	5	38
	3.1 (1.6, 5.5)	2.9 (1.4, 5.2)	1.3 (0.4, 3.1)	1.8 (0.7, 3.8)	1.3 (0.4, 3.1)	2 (1.4, 2.7)

Defects by Diagnostic Category	2011	2012	2013	2014	2015	2011-15
	Cases Prev. (95% CI)	Cases Prev. (95% CI)	Cases Prev. (95% CI)	Cases Prev. (95% CI)	Cases Prev. (95% CI)	Cases Prev. (95% CI)
Turner syndrome <sup>b</sup>	6 3.2 (1.2, 7)	1 0.5 (0, 3)	0 -	0 -	8 4.2 (1.8, 8.4)	23 2.5 (1.6, 3.7)
Deletion 22q11.2	4 1 (0.3, 2.7)	4 1.1 (0.3, 2.7)	2 0.5 (0.1, 1.9)	0 -	2 0.5 (0.1, 1.9)	14 0.7 (0.4, 1.2)
<b>Other</b>						
Affected by maternal alcohol use	3 0.8 (0.2, 2.3)	2 0.5 (0.1, 1.9)	0 -	0 -	2 0.5 (0.1, 1.9)	9 0.5 (0.2, 0.9)
Amniotic bands	6 1.6 (0.6, 3.4)	10 2.6 (1.3, 4.8)	4 1.1 (0.3, 2.7)	4 1 (0.3, 2.7)	6 1.6 (0.6, 3.5)	32 1.7 (1.2, 2.4)
Achondroplastic dwarfism	1 0.3 (0, 1.5)	3 0.8 (0.2, 2.3)	1 0.3 (0, 1.5)	2 0.5 (0.1, 1.9)	3 0.8 (0.2, 2.3)	11 0.6 (0.3, 1)
Lung agenesis or aplasia	2 0.5 (0.1, 1.9)	1 0.3 (0, 1.5)	0 -	0 -	1 0.3 (0, 1.5)	5 0.3 (0.1, 0.6)

<sup>b</sup> Turner syndrome prevalence per 10,000 female live births



