
MICHIGAN DEPARTMENT OF COMMUNITY HEALTH

Division for Vital Records and Health Statistics

MICHIGAN BIRTH DEFECTS SURVEILLANCE REGISTRY

BIRTH DEFECTS IN MICHIGAN

All Cases Reported and Processed by March 15, 2012

*Michigan Department
of Community Health*



Rick Snyder, Governor
Olga Dazzo, Director

LANSING, MICHIGAN
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Birth Defects Prevalence and Mortality Tables

Division for Vital Records & Health Statistics Michigan Department of Community Health

The Michigan Birth Defects Registry was established as a statewide reporting system in 1992 to develop statistical data on birth defects; to conduct birth defect surveillance; to conduct studies of birth defect causes and prevention; and to insure the families of children with birth defects receive appropriate support services.

This statistical abstract provides a series of tables derived from the Michigan Birth Defects Registry, including birth defect prevalence data and birth defects-related mortality through 2010. Selected high points concerning these data are:

➤ Birth Defect Cases and Case Rates

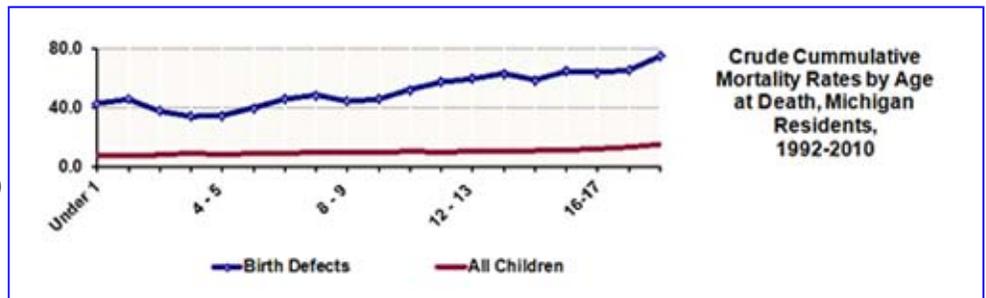
In the years 2009 and 2010, there were 7,544 and 7,307 cases of birth defects reported for children under one year of age, respectively. The rate for either year was about 650 cases per 10,000 resident live births. For the same children born during 2009, there were an additional 1,234 cases reported for children of two years of age. In other words, for infants born in 2009, there were 761.8 birth defects per 10,000 resident live births, a drop of 12.5% from 2008. Starting in 2000, significant efforts to improve reporting quality and completeness were initiated and the prevalence rate for two-year olds based upon reported cases was above 880 per 10,000 between 2000 - 2008. (See Table 1.)

➤ Infant Death Rates

The infant death rate for children born in 2009 with a reportable birth defect is 44.5 per 1,000. This compares to an infant death rate of 7.3 per 1,000 for all resident infants born in Michigan during 2009. The relative risk of infant mortality among children with a birth defect was 7 in 2009. Birth defect rates were higher in 2009 than the rates between 2005-2008, while infant mortality were 7.3 deaths per 1,000 live births, rates were stable, at 7.8 deaths per 1,000 live births between 2005-2008. (See Table 5-A.)

➤ Mortality Risk

A higher mortality risk can be expected for children with birth defects well beyond the first year of life. The cumulative mortality rate for resident children under 2 years of age born during 2009 was 7.5 per 1,000. Children born during 2009 with a birth defect had a cumulative mortality rate of 46.0 per



1,000 by the end of the second year of life. The mortality rate differential remains high throughout early childhood. For deaths under the age of 18 years, the experience of children born in 1992 indicates death rates of 74.6 per 1,000 for children with birth defects and 14.9 per 1,000 for children generally. The significantly higher mortality rate for children with birth defects underscores the seriousness of these conditions. (See Table 7-A.)

➤ Birth Defects By Diagnostic Code Groups

The most common diagnostic category reported in 2010, and for every year since 2000, involves anomalies of the heart and circulatory system. Conditions affecting the musculoskeletal system are the next most commonly reported and anomalies of the genital and urinary systems are third. (See Table 8.) With regard to mortality, the number of deaths was highest in 2010 for children with heart and circulatory anomalies, followed by deaths to children with respiratory anomalies, with central nervous system anomaly associated deaths third highest. Similarly, infant mortality rates are highest for the chromosomal anomalies, central nervous system anomalies and then respiratory anomalies, based upon mortality among the 2005-2010 birth cohorts. (See Table 20.)

Table 9 also describes detailed condition information.

Data Quality Considerations

Changes in the number of birth defect cases may reflect a change in birth defect reporting or identification, rather than a change in trend. In particular, during the late 1990s, certain reporting and diagnostic practices contributed to the number of cases identified. The changes by year are delineated below:

1998: Increases in frequency of endocrine and metabolic disorders since 1998 are due to coordination of case reporting with the Newborn Metabolic Screening Program.

1997: The increased number of cases diagnosed with hearing deficiency in evidence since 1997 is related directly to a rapid increase in screening of Michigan newborns for hearing loss by birthing hospitals.

1996: A change in ICD-9 CM coding added unique codes for hypospadias and epispadias in October of 1996. This is the cause of the discontinuity in the reported frequencies for these conditions as listed under the diagnostic grouping "H04 Hypospadias and Epispadias (752.61, 752.62)."

Completeness and Over-reporting

The completeness of the data presented in these tables is affected by three factors that relate to data accuracy and comparability. It is essential that these factors be considered in using the information particularly when comparing frequencies over time or between geographic areas. These factors are:

Inconsistent or Incomplete Reporting - There is evidence that some of the facilities required to provide these reports are not reporting all the cases that should be reported. This problem can be expected to affect the completeness of the data within the specific regions of the state where these facilities are located. Very low birth defects frequencies and significant shifts in the number of reported cases can be expected for counties where such problems exist. Work beginning in 1999 to identify and resolve problems of under-reporting resulted in actual case counts increasing due to more complete information.

Over Reporting - The ongoing review of reports received has identified that in certain hospitals a report that a child has a reportable condition will be submitted, but the diagnosis is later ruled out and the original report is not corrected accordingly. This can cause an over count of the number of cases. This problem can be expected to vary by facility which, in turn, can lead to geographic variations in case frequency counts for those areas where such facilities are located.

Resident Interstate Information Exchange is Lacking - There is presently no exchange of data with neighboring states relative to children born with birth defects. Such exchange does occur with vital records and cancer information. The effect of this lack of a resident information exchange is that birth defects cases are unreported whenever a Michigan child is diagnosed with or treated for a birth defect in a facility that is not within Michigan. This problem will cause an undercount of the actual number of cases and can be expected to significantly affect the completeness of reports for counties whose residents commonly travel outside Michigan for their health care. It is due to the lack of interstate resident information exchange that rates are calculated only for resident children who are also born in Michigan.

Table 1
Michigan Birth Defect Cases and Prevalence Rates
Michigan Resident Children
All Cases Reported and Processed by March 15, 2012
Live Births during 2000 through 2010

Birth Year	Resident Live Births Born in Michigan	Children Diagnosed within One Year	Prevalence Rate at One Year	Children Diagnosed within Two Years	Prevalence Rate at Two Years
All Years	2,261,892	180,704	798.9	204,801	905.4
2000	136,657	10,334	756.2	11,914	871.8
2001	133,866	10,767	804.3	12,500	933.8
2002	130,015	10,440	803.0	11,872	913.1
2003	132,062	10,251	776.2	11,581	876.9
2004	130,193	9,941	763.6	11,562	888.1
2005	128,031	11,165	872.1	12,639	987.2
2006	128,006	11,778	920.1	13,349	1,042.8
2007	125,639	9,917	789.3	11,466	912.6
2008	120,990	9,633	796.2	10,550	872.0
2009	115,220	7,544	654.7	8,778	761.8
2010	113,087	7,307	646.1	7,700	680.9

Notes: Frequencies include all children reported with a birth defect who were born in Michigan. **Rates** are per 10,000 Michigan resident live births. Birth defect statistics sometimes reflect trends related to data reporting or new testing. See Data Quality Considerations for further details. **Conditions** are reportable if identified within the first two years of a child's life. The prevalence frequencies and rates at one year and at two years serve to indicate the time from the birth of the child to the diagnosis of the condition.

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012

Last Updated on July 23, 2012

Table 2-A
Birth Defects Cases by Time to Diagnosis and Birth Year
Michigan Resident Cases, 1992 - 2010

Year	Time to Diagnosis		
	All Cases	Under 1 Year	Between 1 & 2 Years
All Cases	208,849	183,581	25,268
2000-2009	118,554	103,509	15,045
1992-1999	82,504	72,684	9,820
2010 ⁽¹⁾	7,791	7,388	403
2009 ⁽¹⁾	8,927	7,663	1,264
2008 ⁽¹⁾	10,790	9,841	949
2007	11,660	10,057	1,603
2006	13,545	11,926	1,619
2005	12,849	11,322	1,527
2004	11,788	10,107	1,681
2003	11,850	10,451	1,399
2002	12,165	10,650	1,515
2001	12,791	10,965	1,826
2000	12,189	10,527	1,662
1999	11,023	9,409	1,614
1998	10,050	8,562	1,488
1997	9,720	8,579	1,141
1996	9,606	8,547	1,059
1995	9,682	8,480	1,202
1994	10,703	9,684	1,019
1993	10,836	9,811	1,025
1992	10,884	9,612	1,272

Table 2-B
Average Birth Defects Cases by Time to Diagnosis and Birth Year
Michigan Resident Cases, 1992 - 2010

Year	Time to Diagnosis		
	All Cases	Under 1 Year	Between 1 & 2 Years
1992-2010	11,602.7	10,198.9	1,403.8
2000-2009 ⁽¹⁾	11,855.4	10,350.9	1,504.5
1992-1999	10,313.0	9,085.5	1,227.5

Notes:

Conditions are reportable if identified within the first two years of a child's life. The frequencies at one year and at two years serve to indicate the time from the birth of the child to the diagnosis of the condition.

Birth defect statistics sometimes reflect trends related to data reporting or new testing. See [Data Quality Considerations](#) for further details.

¹**Provisional.** In 2007, Michigan switched to an electronic birth certificate record. Cases detected in 2008-2009 may be subject to variation and under-detection due to this switch; cases reported for 2008-2009 are provisional. Cases tabulated for 2010 are provisional and are subject to change due to late reporting.

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Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012

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Table 3
Birth Defects Cases by Leading Diagnostic Groups and by Birth Year Interval
Michigan Resident Children 1997 through 2010
Three Year Moving Total Prevalence

Diagnostic Code Group	Birth Year Interval											
	1997 to 1999	1998 to 2000	1999 to 2001	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
Heart & Circulatory System	6,918	7,069	7,386	7,650	7,845	8,036	8,236	8,598	8,427	8,198	7,247	6,589
Congenital Anomalies	6,116	6,188	6,481	6,776	7,033	7,306	7,548	7,890	7,670	7,430	6,519	5,932
Other Conditions	1,514	1,621	1,551	1,429	1,331	1,232	1,178	1,242	1,318	1,358	1,237	1,155
Musculoskeletal System	5,132	5,595	6,212	6,679	6,708	6,419	6,384	6,712	7,020	6,397	5,227	4,468
Congenital Anomalies	5,122	5,588	6,203	6,671	6,697	6,410	6,377	6,708	7,014	6,391	5,222	4,465
Other Conditions	12	10	12	10	13	11	9	5	7	8	9	9
Genital & Urinary Systems	4,658	5,230	5,670	5,850	5,631	5,597	5,707	5,859	5,761	5,244	4,326	3,537
Congenital Anomalies	4,607	5,179	5,621	5,802	5,584	5,550	5,659	5,811	5,713	5,209	4,301	3,517
Other Conditions	146	151	149	148	143	150	144	138	113	95	81	76
Gastrointestinal System	4,410	4,529	4,760	4,788	4,612	4,319	4,236	4,335	4,283	4,132	3,531	3,031
Congenital Anomalies	2,120	2,225	2,334	2,370	2,262	2,132	2,035	2,178	2,175	2,163	1,874	1,616
Other Conditions	2,545	2,580	2,696	2,687	2,599	2,437	2,453	2,435	2,381	2,246	1,881	1,609
Eye	2,837	3,008	3,137	3,081	3,019	2,989	3,011	2,978	2,903	2,698	2,343	1,913
Congenital Anomalies	949	1,065	1,113	1,142	1,145	1,130	1,108	1,029	969	902	857	779
Other Conditions	2,033	2,110	2,203	2,131	2,080	2,054	2,083	2,103	2,083	1,939	1,617	1,246
Central Nervous System	2,021	2,122	2,272	2,289	2,287	2,287	2,295	2,332	2,243	2,149	1,905	1,651
Congenital Anomalies	1,254	1,338	1,466	1,527	1,537	1,567	1,585	1,642	1,588	1,523	1,356	1,191
Other Conditions	1,035	1,076	1,118	1,078	1,034	1,002	1,000	1,020	977	899	753	598
Maternal Exposures	977	1,015	1,071	1,045	878	746	771	865	813	820	771	859
Integument Anomalies	874	864	917	924	914	1,050	1,360	2,328	2,358	3,089	2,976	3,313
Respiratory System Anomalies	1,111	1,320	1,569	1,757	1,974	2,039	2,167	2,450	2,639	2,373	1,665	1,175
Other Reportable Conditions	4,148	4,815	5,772	6,412	6,492	6,085	6,002	5,757	5,428	4,884	4,383	4,232
One or More Reportable Conditions	25,265	27,221	29,554	30,792	30,412	29,695	30,479	32,333	32,251	30,701	26,563	24,047

Notes:
Frequencies include all children reported with a birth defect who were born in Michigan and whose mother was a resident of Michigan at the time of birth. This enables the calculation of birth defects prevalence rates. **Diagnoses** are coded using the 9th revision to the International Classification of Diseases - ICD 9 CM. Diagnostic Code Groupings used for congenital anomaly codes are as used by the Centers for Disease Control. (See Birth Defect Groups and ICD-9-CM Diagnosis Codes for the codes used to categorize birth defects.) **Conditions** are reportable if identified within the first two years of a child's life. The frequencies at one year and at two years serve to indicate the time from the birth of the child to the diagnosis of the condition. Birth defect statistics sometimes reflect trends related to data reporting or new testing. See Data Quality Considerations for further details.

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012

Last Updated on July 23, 2012

Table 4-A
Deaths Among Children with Birth Defects by Time to Death and Birth Year
Michigan Birth Defects Registry
All Cases Reported and Processed by March 15, 2012
Live Births during 1992 through 2010

Time to Death	Birth Year																			
	All Deaths	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010 ^(p)
All Ages	9,286	719	642	613	542	491	525	501	530	539	494	465	497	456	443	408	341	365	347	368
Under 1 Year	7,404	474	443	435	377	355	400	391	392	416	401	400	440	381	389	370	296	340	336	368
1 to 2 Years	564	50	45	38	33	31	31	28	42	37	38	21	29	40	22	19	29	20	11	---
2 to 3 Years	300	34	22	31	16	21	24	16	22	19	12	10	15	14	15	10	14	5	---	---
3 to 4 Years	175	23	17	9	13	10	13	9	19	14	8	8	4	9	10	7	2	---	---	---
4 to 5 Years	119	11	12	12	11	14	9	5	9	8	10	4	4	4	4	2	---	---	---	---
5 to 6 Years	110	14	5	4	9	11	7	8	10	16	7	6	2	8	3	---	---	---	---	---
6 to 7 Years	97	12	10	7	10	7	8	14	4	9	4	9	3	-	---	---	---	---	---	---
7 to 8 Years	82	7	11	9	14	4	9	6	7	4	5	6	-	---	---	---	---	---	---	---
8 to 9 Years	79	8	10	9	9	4	10	6	4	10	8	1	---	---	---	---	---	---	---	---
9 to 10 Years	63	8	6	9	10	7	3	4	9	6	1	---	---	---	---	---	---	---	---	---
10 to 11 Year	47	6	8	6	7	4	4	6	6	-	---	---	---	---	---	---	---	---	---	---
11 to 12 Year	51	7	9	4	8	9	4	4	6	---	---	---	---	---	---	---	---	---	---	---
12 to 13 Year	43	10	9	7	7	3	3	4	---	---	---	---	---	---	---	---	---	---	---	---
13 to 14 Year	36	5	6	9	6	10	-	---	---	---	---	---	---	---	---	---	---	---	---	---
14 to 15 Year	43	10	8	15	9	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---
15 to 16 year	22	6	6	7	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
16 to 17 year	22	13	7	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
17 to 18 year	26	18	8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
18 to 19 year	3	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Notes: Death frequencies are the total deaths by age interval among children born with a birth defect who were born in Michigan and whose mother was a resident at the time of the child's birth. Birth defect statistics sometimes reflect trends related to data reporting or new testing. See Data Quality Considerations for further details.

^(p) Number predicted from Michigan Death Certificate registry.
 Tripple dashes (---) indicate category not applicable.

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012
 Mortality data includes all linked deaths identified through death year 2010.

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Table 4-B
Deaths Among Children by Time to Death and Birth Year
Michigan Live Birth Registry
All Cases Reported and Processed by March 15, 2012
Live Births during 1992 through 2010

Time to Death	Birth Year																			
	All Deaths	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010 ^(P)
All Ages	25,093	2,169	1,848	1,650	1,511	1,444	1,435	1,369	1,333	1,384	1,314	1,240	1,272	1,167	1,154	1,042	1,126	968	850	817
Under 1 Year	20,482	1,495	1,291	1,203	1,109	1,078	1,104	1,108	1,079	1,160	1,091	1,069	1,118	1,015	1,029	946	1,033	912	825	817
1 to 2 Years	1,099	92	86	76	66	64	67	57	74	57	68	47	58	70	48	49	56	39	25	---
2 to 3 Years	665	77	51	55	49	53	60	32	37	29	32	30	34	28	28	23	30	17	---	---
3 to 4 Years	479	58	43	30	42	34	36	26	31	28	24	31	23	21	24	21	7	---	---	---
4 to 5 Years	319	31	30	31	25	26	28	19	21	22	26	13	15	14	15	3	---	---	---	---
5 to 6 Years	300	31	36	20	22	31	20	20	19	28	22	14	11	16	10	---	---	---	---	---
6 to 7 Years	240	30	15	23	24	25	25	27	10	16	15	17	10	3	---	---	---	---	---	---
7 to 8 Years	187	21	28	16	20	14	20	12	14	11	16	12	3	---	---	---	---	---	---	---
8 to 9 Years	177	19	29	20	14	12	22	14	11	16	13	7	---	---	---	---	---	---	---	---
9 to 10 Years	156	20	18	16	25	15	12	15	15	13	7	---	---	---	---	---	---	---	---	---
10 to 11 Year	140	15	22	23	17	14	18	15	12	4	---	---	---	---	---	---	---	---	---	---
11 to 12 Year	121	13	18	13	17	23	10	17	10	---	---	---	---	---	---	---	---	---	---	---
12 to 13 Year	127	25	22	21	19	22	11	7	---	---	---	---	---	---	---	---	---	---	---	---
13 to 14 Year	96	18	20	16	19	21	2	---	---	---	---	---	---	---	---	---	---	---	---	---
14 to 15 Year	120	22	28	30	28	12	---	---	---	---	---	---	---	---	---	---	---	---	---	---
15 to 16 year	111	34	30	32	15	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
16 to 17 year	128	59	44	25	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
17 to 18 year	108	71	37	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
18 to 19 year	38	38	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Notes: Death frequencies include deaths by age interval among all children who were born in Michigan and whose mother was a resident at the time of the child's birth. This enables the calculation of mortality rates among these children that are comparable with similar rates for children with birth defects. Tripple dashes (---) indicate category not applicable.

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health
 Reports Processed through March 15, 2012
 Mortality data includes all linked deaths identified through death year 2010.

Last Updated on July 23, 2012

Table 5-A
Mortality Rates Among at Risk Children with Birth Defects by Time to Death and Birth Year
Michigan Birth Defects Registry
All Cases Reported and Processed by March 15, 2012
Live Births during 1992 through 2010

Time to Death	Birth Year																			
	Mortality Rate	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010 ^(P)
All Ages	51.4	74.9	65.6	63.8	65.0	58.8	63.1	59.7	57.4	52.2	45.9	44.5	48.5	45.9	39.7	34.6	34.4	37.9	46.0	50.4
Under 1 Year	41.0	49.4	45.3	45.3	45.2	42.5	48.0	46.6	42.5	40.3	37.2	38.3	42.9	38.3	34.8	31.4	29.8	35.3	44.5	50.4
1 to 2 Years	3.1	5.2	4.6	4.0	4.0	3.7	3.7	3.3	4.6	3.6	3.5	2.0	2.8	4.0	2.0	1.6	2.9	2.1	1.5	---
2 to 3 Years	1.7	3.5	2.2	3.2	1.9	2.5	2.9	1.9	2.4	1.8	1.1	1.0	1.5	1.4	1.3	0.8	1.4	*	---	---
3 to 4 Years	1.0	2.4	1.7	0.9	1.6	1.2	1.6	1.1	2.1	1.4	0.7	0.8	*	0.9	0.9	0.6	*	---	---	---
4 to 5 Years	0.7	1.1	1.2	1.2	1.3	1.7	1.1	*	1.0	0.8	0.9	*	*	*	*	*	---	---	---	---
5 to 6 Years	0.6	1.5	*	*	1.1	1.3	0.8	1.0	1.1	1.5	0.7	0.6	*	0.8	*	---	---	---	---	---
6 to 7 Years	0.5	1.3	1.0	0.7	1.2	0.8	1.0	1.7	*	0.9	*	0.9	*	-	---	---	---	---	---	---
7 to 8 Years	0.5	0.7	1.1	0.9	1.7	*	1.1	0.7	0.8	*	*	0.6	-	---	---	---	---	---	---	---
8 to 9 Years	0.4	0.8	1.0	0.9	1.1	*	1.2	0.7	*	1.0	0.7	*	---	---	---	---	---	---	---	---
9 to 10 Years	0.3	0.8	0.6	0.9	1.2	0.8	*	*	1.0	0.6	*	---	---	---	---	---	---	---	---	---
10 to 11 Year	0.3	0.6	0.8	0.6	0.8	*	*	0.7	0.7	-	---	---	---	---	---	---	---	---	---	---
11 to 12 Year	0.3	0.7	0.9	*	1.0	1.1	*	*	0.7	---	---	---	---	---	---	---	---	---	---	---
12 to 13 Year	0.2	1.0	0.9	0.7	0.8	*	*	*	---	---	---	---	---	---	---	---	---	---	---	---
13 to 14 Year	0.2	*	0.6	0.9	0.7	1.2	-	---	---	---	---	---	---	---	---	---	---	---	---	---
14 to 15 Year	0.2	1.0	0.8	1.6	1.1	*	---	---	---	---	---	---	---	---	---	---	---	---	---	---
15 to 16 year	0.1	0.6	0.6	0.7	*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
16 to 17 year	0.1	1.4	0.7	*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
17 to 18 year	0.1	1.9	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
18 to 19 year	*	*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Notes: Rates are per 1,000 cases. Birth defect mortality rates divides all deaths of children reported with a birth defect and dying within the age interval, by the total number of births with reported birth defects and born by Michigan resident mothers in that birth year. Children who died were born in Michigan and their mother was a resident at time of birth. Birth defect statistics sometimes reflect trends related to data reporting or new testing. See Data Quality Considerations for further details.

Symbols: (p) The number of deaths used to calculate this rate was estimated from the Michigan Death Certificate registry. • --- Category not applicable. • * Figure does not meet standards of reliability or precision. • 0.0 Quantity more than zero but less than 0.05.

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012. Mortality data includes all linked deaths identified through death year 2010.

Last Updated on July 23, 2012

Table 5-B
Mortality Rates Among at Risk Children by Time to Death and Birth Year
Michigan Live Birth Registry
All Cases Reported and Processed by March 15, 2012
Live Births during 1992 through 2010

Time to Death	Birth Year																			
	Mortality Rate	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010 ^(P)
All Ages	10.2	15.2	13.3	12.1	11.3	10.9	10.8	10.3	10.1	10.3	10.0	9.7	9.8	9.1	9.1	8.3	9.1	8.1	7.5	7.3
Under 1 Year	8.3	10.5	9.3	8.8	8.3	8.2	8.3	8.4	8.2	8.6	8.3	8.3	8.6	7.9	8.2	7.5	8.3	7.6	7.3	7.3
1 to 2 Years	0.4	0.6	0.6	0.6	0.5	0.5	0.5	0.4	0.6	0.4	0.5	0.4	0.4	0.5	0.4	0.4	0.5	0.3	0.2	---
2 to 3 Years	0.3	0.5	0.4	0.4	0.4	0.4	0.5	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.1	---	---
3 to 4 Years	0.2	0.4	0.3	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	---	---	---
4 to 5 Years	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	*	---	---	---	---
5 to 6 Years	0.1	0.2	0.3	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	---	---	---	---	---
6 to 7 Years	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	*	---	---	---	---	---	---
7 to 8 Years	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	*	---	---	---	---	---	---	---
8 to 9 Years	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	---	---	---	---	---	---	---	---
9 to 10 Years	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	---	---	---	---	---	---	---	---	---
10 to 11 Year	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	*	---	---	---	---	---	---	---	---	---	---
11 to 12 Year	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	---	---	---	---	---	---	---	---	---	---	---
12 to 13 Year	0.1	0.2	0.2	0.2	0.1	0.2	0.1	0.1	---	---	---	---	---	---	---	---	---	---	---	---
13 to 14 Year	0.0	0.1	0.1	0.1	0.1	0.2	*	---	---	---	---	---	---	---	---	---	---	---	---	---
14 to 15 Year	0.0	0.2	0.2	0.2	0.2	0.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---
15 to 16 year	0.0	0.2	0.2	0.2	0.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
16 to 17 year	0.1	0.4	0.3	0.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
17 to 18 year	0.0	0.5	0.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
18 to 19 year	0.0	0.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Notes: Rates are per 1,000 cases. **Mortality rates** divides all childhood deaths within the age interval by the total number of births born by Michigan resident mothers in that birth year. Children who died were born in Michigan and their mother was a resident at time of birth. Birth defect statistics sometimes reflect trends related to data reporting or new testing. See Data Quality Considerations for further details.

Symbols: (p) The number of deaths used to calculate this rate was estimated from the Michigan Death Certificate registry. • --- Category not applicable. • * Figure does not meet standards of reliability or precision. • 0.0 Quantity more than zero but less than 0.05.

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012. Mortality data includes all linked deaths identified through death year 2010.

Last Updated on July 23, 2012

Table 6-A
Cumulative Deaths Among Children with Birth Defects by Time to Death and Birth Year
Michigan Birth Defects Registry
All Cases Reported and Processed by March 15, 2012
Live Births during 1992 through 2010

Time to Death	Birth Year																			
	All Years	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010 ^(p)
All Ages	9,286	719	642	613	542	491	525	501	530	539	494	465	497	456	443	408	341	365	347	368
Under 1 Year	7,404	474	443	435	377	355	400	391	392	416	401	400	440	381	389	370	296	340	336	368
1 to 2 Years	7,968	524	488	473	410	386	431	419	434	453	439	421	469	421	411	389	325	360	347	---
2 to 3 Years	8,268	558	510	504	426	407	455	435	456	472	451	431	484	435	426	399	339	365	---	---
3 to 4 Years	8,443	581	527	513	439	417	468	444	475	486	459	439	488	444	436	406	341	---	---	---
4 to 5 Years	8,562	592	539	525	450	431	477	449	484	494	469	443	492	448	440	408	---	---	---	---
5 to 6 Years	8,672	606	544	529	459	442	484	457	494	510	476	449	494	456	443	---	---	---	---	---
6 to 7 Years	8,769	618	554	536	469	449	492	471	498	519	480	458	497	456	---	---	---	---	---	---
7 to 8 Years	8,851	625	565	545	483	453	501	477	505	523	485	464	497	---	---	---	---	---	---	---
8 to 9 Years	8,930	633	575	554	492	457	511	483	509	533	493	465	---	---	---	---	---	---	---	---
9 to 10 Years	8,993	641	581	563	502	464	514	487	518	539	494	---	---	---	---	---	---	---	---	---
10 to 11 Year	9,040	647	589	569	509	468	518	493	524	539	---	---	---	---	---	---	---	---	---	---
11 to 12 Year	9,091	654	598	573	517	477	522	497	530	---	---	---	---	---	---	---	---	---	---	---
12 to 13 Year	9,134	664	607	580	524	480	525	501	---	---	---	---	---	---	---	---	---	---	---	---
13 to 14 Year	9,170	669	613	589	530	490	525	---	---	---	---	---	---	---	---	---	---	---	---	---
14 to 15 Year	9,213	679	621	604	539	491	---	---	---	---	---	---	---	---	---	---	---	---	---	---
15 to 16 year	9,235	685	627	611	542	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
16 to 17 year	9,257	698	634	613	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
17 to 18 year	9,283	716	642	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
18 to 19 year	9,286	719	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Notes: Death frequencies are the total deaths by age interval among children born with a birth defect who were born in Michigan and whose mother was a resident at the time of the child's birth. Birth defect statistics sometimes reflect trends related to data reporting or new testing. See Data Quality Considerations for further details. Tripple dashes (---) indicate category not applicable.

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012
Mortality data includes all linked deaths identified through death year 2010.

Last Updated on July 23, 2012

Table 6-B
Cumulative Deaths Among Children by Time to Death and Birth Year
Michigan Live Birth Registry
All Cases Reported and Processed by March 15, 2012
Live Births during 1992 through 2010

Time to Death	Birth Year																			
	All Years	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010 ^(p)
All Ages	25,093	2,169	1,848	1,650	1,511	1,444	1,435	1,369	1,333	1,384	1,314	1,240	1,272	1,167	1,154	1,042	1,126	968	850	817
Under 1 Year	20,482	1,495	1,291	1,203	1,109	1,078	1,104	1,108	1,079	1,160	1,091	1,069	1,118	1,015	1,029	946	1,033	912	825	817
1 to 2 Years	21,581	1,587	1,377	1,279	1,175	1,142	1,171	1,165	1,153	1,217	1,159	1,116	1,176	1,085	1,077	995	1,089	951	850	---
2 to 3 Years	22,246	1,664	1,428	1,334	1,224	1,195	1,231	1,197	1,190	1,246	1,191	1,146	1,210	1,113	1,105	1,018	1,119	968	---	---
3 to 4 Years	22,725	1,722	1,471	1,364	1,266	1,229	1,267	1,223	1,221	1,274	1,215	1,177	1,233	1,134	1,129	1,039	1,126	---	---	---
4 to 5 Years	23,044	1,753	1,501	1,395	1,291	1,255	1,295	1,242	1,242	1,296	1,241	1,190	1,248	1,148	1,144	1,042	---	---	---	---
5 to 6 Years	23,344	1,784	1,537	1,415	1,313	1,286	1,315	1,262	1,261	1,324	1,263	1,204	1,259	1,164	1,154	---	---	---	---	---
6 to 7 Years	23,584	1,814	1,552	1,438	1,337	1,311	1,340	1,289	1,271	1,340	1,278	1,221	1,269	1,167	---	---	---	---	---	---
7 to 8 Years	23,771	1,835	1,580	1,454	1,357	1,325	1,360	1,301	1,285	1,351	1,294	1,233	1,272	---	---	---	---	---	---	---
8 to 9 Years	23,948	1,854	1,609	1,474	1,371	1,337	1,382	1,315	1,296	1,367	1,307	1,240	---	---	---	---	---	---	---	---
9 to 10 Years	24,104	1,874	1,627	1,490	1,396	1,352	1,394	1,330	1,311	1,380	1,314	---	---	---	---	---	---	---	---	---
10 to 11 Year	24,244	1,889	1,649	1,513	1,413	1,366	1,412	1,345	1,323	1,384	---	---	---	---	---	---	---	---	---	---
11 to 12 Year	24,365	1,902	1,667	1,526	1,430	1,389	1,422	1,362	1,333	---	---	---	---	---	---	---	---	---	---	---
12 to 13 Year	24,492	1,927	1,689	1,547	1,449	1,411	1,433	1,369	---	---	---	---	---	---	---	---	---	---	---	---
13 to 14 Year	24,588	1,945	1,709	1,563	1,468	1,432	1,435	---	---	---	---	---	---	---	---	---	---	---	---	---
14 to 15 Year	24,708	1,967	1,737	1,593	1,496	1,444	---	---	---	---	---	---	---	---	---	---	---	---	---	---
15 to 16 year	24,819	2,001	1,767	1,625	1,511	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
16 to 17 year	24,947	2,060	1,811	1,650	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
17 to 18 year	25,055	2,131	1,848	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
18 to 19 year	25,093	2,169	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Notes: Death frequencies include deaths by age interval among all children who were born in Michigan and whose mother was a resident at the time of the child's birth. This enables the calculation of mortality rates among these children that are comparable with similar rates for children with birth defects.

(p) Number predicted from Michigan Death Certificate registry. • Tripple dashes (---) indicate category not applicable.

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012
Mortality data includes all linked deaths identified through death year 2010.

Last Updated on July 23, 2012

Table 7-A
Cumulative Mortality Rates Among at Risk Children with
Birth Defects by Time to Death and Birth Year
Michigan Birth Defects Registry
All Cases Reported and Processed by March 15, 2012
Live Births during 1992 through 2010

Time to Death	Adjusted Cumulative Rate	Birth Year																		
		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010(p)
All Ages	58.3	74.9	65.6	63.8	65.0	58.8	63.1	59.7	57.4	52.2	45.9	44.5	48.5	45.9	39.7	34.6	34.4	37.9	46.0	50.4
Under 1 Year	41.0	49.4	45.3	45.3	45.2	42.5	48.0	46.6	42.5	40.3	37.2	38.3	42.9	38.3	34.8	31.4	29.8	35.3	44.5	50.4
1 to 2 Years	44.2	54.6	49.9	49.3	49.1	46.2	51.8	49.9	47.0	43.8	40.8	40.3	45.8	42.3	36.8	33.0	32.8	37.4	46.0	---
2 to 3 Years	46.0	58.1	52.1	52.5	51.1	48.7	54.6	51.8	49.4	45.7	41.9	41.3	47.2	43.8	38.2	33.9	34.2	37.9	---	---
3 to 4 Years	47.2	60.5	53.9	53.4	52.6	49.9	56.2	52.9	51.5	47.0	42.6	42.0	47.6	44.7	39.1	34.5	34.4	---	---	---
4 to 5 Years	48.0	61.7	55.1	54.7	53.9	51.6	57.3	53.5	52.5	47.8	43.6	42.4	48.0	45.1	39.4	34.6	---	---	---	---
5 to 6 Years	48.8	63.1	55.6	55.1	55.0	52.9	58.1	54.5	53.5	49.4	44.2	43.0	48.2	45.9	39.7	---	---	---	---	---
6 to 7 Years	49.6	64.4	56.6	55.8	56.2	53.8	59.1	56.1	54.0	50.2	44.6	43.9	48.5	45.9	---	---	---	---	---	---
7 to 8 Years	50.3	65.1	57.7	56.8	57.9	54.2	60.2	56.8	54.7	50.6	45.0	44.4	48.5	---	---	---	---	---	---	---
8 to 9 Years	51.1	65.9	58.8	57.7	59.0	54.7	61.4	57.5	55.2	51.6	45.8	44.5	---	---	---	---	---	---	---	---
9 to 10 Years	51.7	66.8	59.4	58.6	60.2	55.6	61.7	58.0	56.1	52.2	45.9	---	---	---	---	---	---	---	---	---
10 to 11 Year	52.3	67.4	60.2	59.3	61.0	56.0	62.2	58.7	56.8	52.2	---	---	---	---	---	---	---	---	---	---
11 to 12 Year	53.0	68.1	61.1	59.7	62.0	57.1	62.7	59.2	57.4	---	---	---	---	---	---	---	---	---	---	---
12 to 13 Year	53.7	69.2	62.0	60.4	62.8	57.5	63.1	59.7	---	---	---	---	---	---	---	---	---	---	---	---
13 to 14 Year	54.4	69.7	62.7	61.3	63.5	58.7	63.1	---	---	---	---	---	---	---	---	---	---	---	---	---
14 to 15 Year	55.3	70.7	63.5	62.9	64.6	58.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---
15 to 16 year	55.9	71.4	64.1	63.6	65.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
16 to 17 year	56.7	72.7	64.8	63.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
17 to 18 year	58.0	74.6	65.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
18 to 19 year	58.3	74.9	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Notes: Rates are per 1,000 Live Births. **Birth defect cumulative mortality rates** are calculated by dividing all deaths of children reported with a birth defect and dying within or before the age interval, by the total number of births with reported birth defects and born by Michigan resident mothers in that birth year. Children who died were born in Michigan and their mother was a resident at time of birth. Birth defect statistics sometimes reflect trends related to data reporting or new testing. See Data Quality Considerations for further details.

(p) The number of deaths used to calculate this rate was estimated from the Michigan Death Certificate registry. • Tripple dashes (---) indicate category not applicable.

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012

Mortality data includes all linked deaths identified through death year 2010.

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Table 7-B
Cumulative Mortality Rates Among at Risk Michigan Children by Time to Death and Birth Year
Michigan Live Birth Registry
All Cases Reported and Processed by March 15, 2012
Live Births during 1992 through 2010

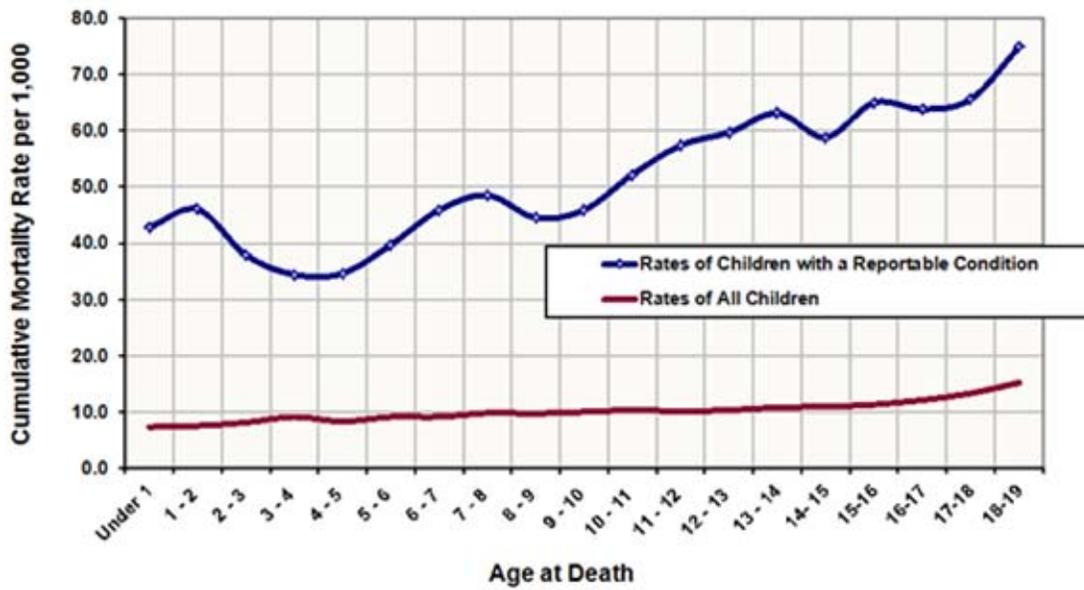
Time to Death	Adjusted Cumulative Rate	Birth Year																		
		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010(p)
All Ages	12.0	15.2	13.3	12.1	11.3	10.9	10.8	10.3	10.1	10.3	10.0	9.7	9.8	9.1	9.1	8.3	9.1	8.1	7.5	7.3
Under 1 Year	8.3	10.5	9.3	8.8	8.3	8.2	8.3	8.4	8.2	8.6	8.3	8.3	8.6	7.9	8.2	7.5	8.3	7.6	7.3	7.3
1 to 2 Years	8.8	11.1	9.9	9.4	8.8	8.6	8.8	8.8	8.7	9.0	8.8	8.7	9.1	8.5	8.5	7.9	8.8	8.0	7.5	---
2 to 3 Years	9.1	11.6	10.3	9.8	9.2	9.0	9.3	9.0	9.0	9.2	9.0	8.9	9.3	8.7	8.8	8.1	9.0	8.1	---	---
3 to 4 Years	9.3	12.1	10.6	10.0	9.5	9.3	9.6	9.2	9.2	9.5	9.2	9.2	9.5	8.8	8.9	8.2	9.1	---	---	---
4 to 5 Years	9.5	12.3	10.8	10.2	9.7	9.5	9.8	9.4	9.4	9.6	9.4	9.3	9.6	8.9	9.1	8.3	---	---	---	---
5 to 6 Years	9.7	12.5	11.0	10.3	9.8	9.7	9.9	9.5	9.5	9.8	9.6	9.4	9.7	9.1	9.1	---	---	---	---	---
6 to 7 Years	9.8	12.7	11.2	10.5	10.0	9.9	10.1	9.7	9.6	9.9	9.7	9.5	9.8	9.1	---	---	---	---	---	---
7 to 8 Years	9.9	12.8	11.4	10.6	10.2	10.0	10.3	9.8	9.7	10.0	9.8	9.6	9.8	---	---	---	---	---	---	---
8 to 9 Years	10.0	13.0	11.6	10.8	10.3	10.1	10.4	9.9	9.8	10.1	9.9	9.7	---	---	---	---	---	---	---	---
9 to 10 Years	10.2	13.1	11.7	10.9	10.5	10.2	10.5	10.1	9.9	10.2	10.0	---	---	---	---	---	---	---	---	---
10 to 11 Year	10.3	13.2	11.9	11.1	10.6	10.3	10.7	10.2	10.0	10.3	---	---	---	---	---	---	---	---	---	---
11 to 12 Year	10.4	13.3	12.0	11.2	10.7	10.5	10.7	10.3	10.1	---	---	---	---	---	---	---	---	---	---	---
12 to 13 Year	10.5	13.5	12.1	11.3	10.9	10.7	10.8	10.3	---	---	---	---	---	---	---	---	---	---	---	---
13 to 14 Year	10.6	13.6	12.3	11.4	11.0	10.8	10.8	---	---	---	---	---	---	---	---	---	---	---	---	---
14 to 15 Year	10.8	13.8	12.5	11.7	11.2	10.9	---	---	---	---	---	---	---	---	---	---	---	---	---	---
15 to 16 year	11.0	14.0	12.7	11.9	11.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
16 to 17 year	11.3	14.4	13.0	12.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
17 to 18 year	11.7	14.9	13.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
18 to 19 year	12.0	15.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Notes: Rates are per 1,000 Live Births. **Mortality rates** are calculated by dividing all childhood deaths within or before the age interval by the total number of births born by Michigan resident mothers in that birth year. Children who died were born in Michigan and their mother was a resident at time of birth. Birth defect statistics sometimes reflect trends related to data reporting or new testing. See Data Quality Considerations for further details.
(p) The number of deaths used to calculate this rate was estimated from the Michigan Death Certificate registry. • Triple dashes (---) indicate category not applicable.

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012
Mortality data includes all linked deaths identified through death year 2010.

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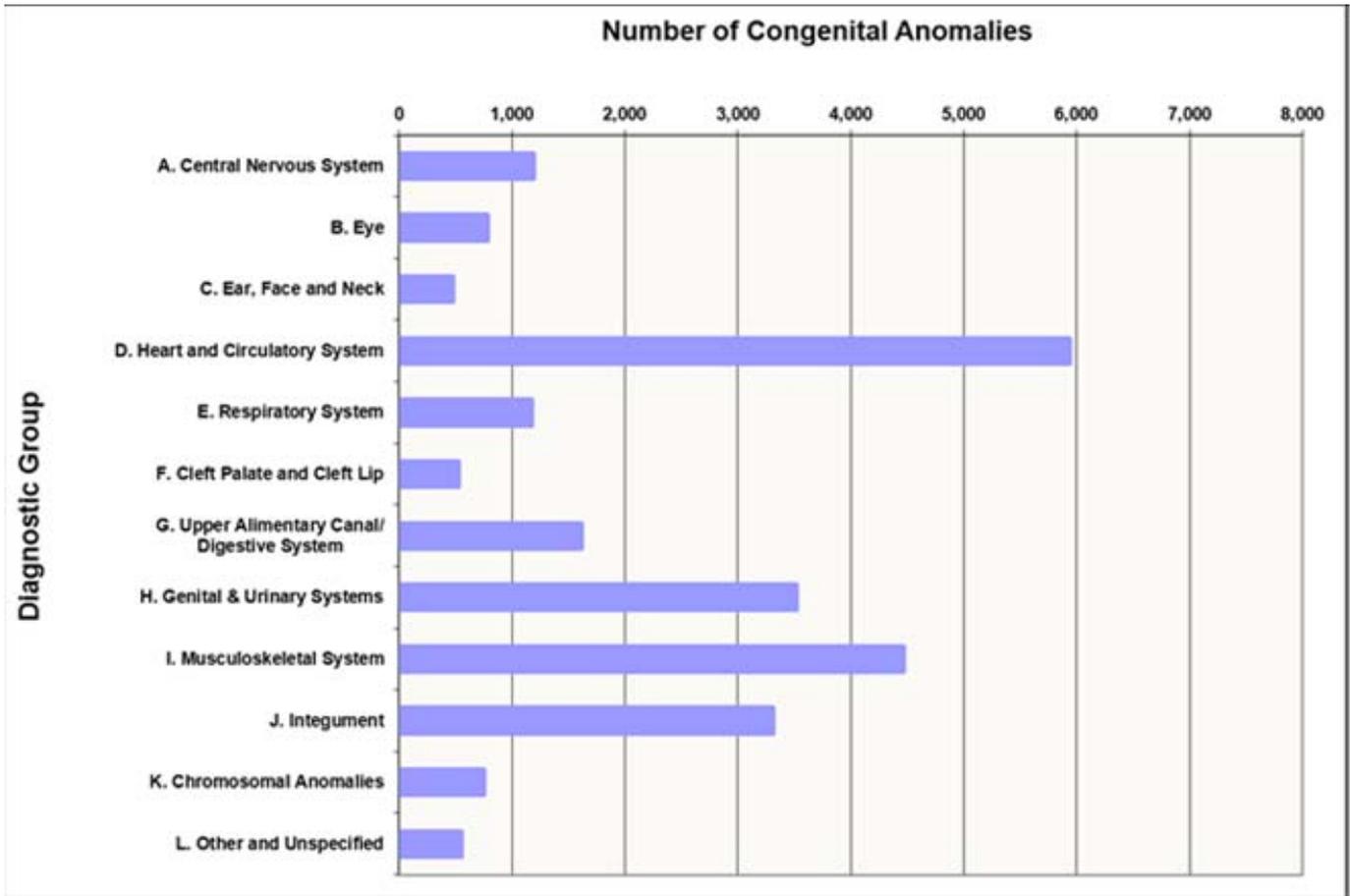
**Figure 1. Crude Cumulative Mortality Rates,
Michigan Children with a Reportable Condition versus All Children
Michigan Births between 1992 and 2010**



Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012
Mortality data includes all linked deaths identified through death year 2010.

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Figure 2-A
Total Congenital Anomalies by Summary Diagnostic Code Group, 2008-2010,
Michigan Resident Children Born in Michigan
Cases Diagnosed within One Year from Birth



Notes:

Frequencies include all children reported with a birth defect who were born in Michigan and whose mother was a resident at the time of birth.

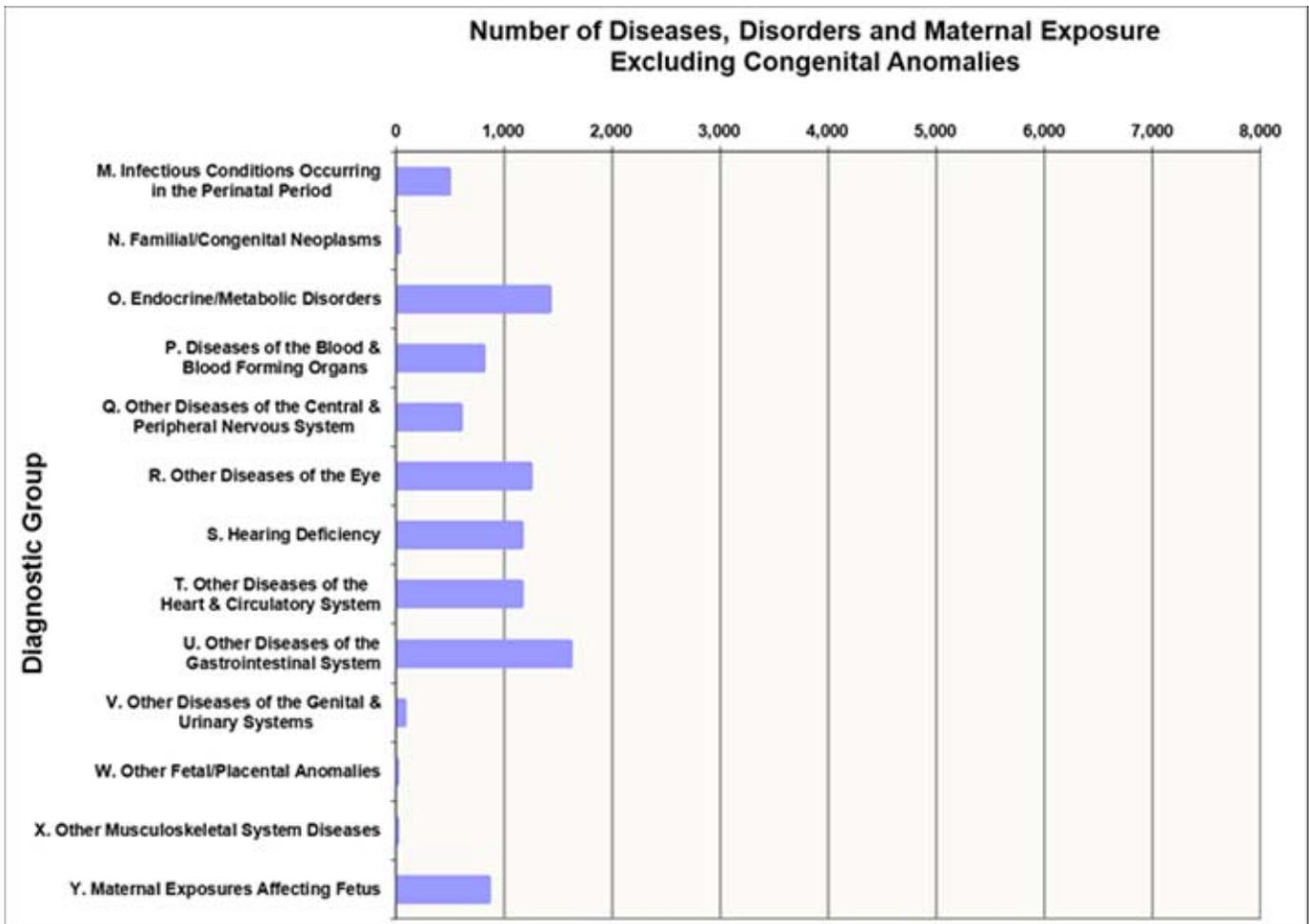
Conditions are reportable if identified within the first two years of a child's life. The prevalence frequencies in this table represent cases diagnosed within the first year of life.

Diagnoses are coded using the 9th revision to the International Classification of Diseases - ICD 9 CM. Diagnostic Code Groupings used for congenital anomaly codes are as used by the Centers for Disease Control. (See Birth Defect Groups and ICD-9-CM Diagnosis Codes for the codes used to categorize birth defects.)

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012

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Figure 2-B
Total Diseases, Disorders and Maternal Exposures by
Summary Diagnostic Code Group, 2008-2010,
Michigan Resident Children Born in Michigan
Cases Diagnosed within One Year from Birth



Notes:

Frequencies include all children reported with a birth defect who were born in Michigan and whose mother was a resident at the time of birth.

Conditions are reportable if identified within the first two years of a child's life. The prevalence frequencies in this table represent cases diagnosed within the first year of life.

Diagnoses are coded using the 9th revision to the International Classification of Diseases - ICD 9 CM. Diagnostic Code Groupings used for congenital anomaly codes are as used by the Centers for Disease Control. (See Birth Defect Groups and ICD-9-CM Diagnosis Codes for the codes used to categorize birth defects.)

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012

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Table 8
Birth Defects by Summary Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
A Congenital Anomalies of the Central Nervous System	5,354	491	517	519	501	547	2,779	537	558	493	472	391	328
B Congenital Anomalies of the Eye	3,634	378	378	386	381	363	1,748	364	302	303	297	257	225
C Congenital Anomalies of the Ear, Face and Neck	2,199	221	235	242	210	201	1,090	254	194	171	202	143	126
D Congenital Anomalies of the Heart and Circulatory System	25,311	2,124	2,279	2,373	2,381	2,552	13,602	2,615	2,723	2,332	2,375	1,812	1,745
E Congenital Anomalies of the Respiratory System	6,999	537	609	611	754	674	3,814	739	1,037	863	473	329	373
F Cleft Palate and Cleft Lip	2,177	200	227	203	217	190	1,140	200	223	196	181	195	145
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	7,518	774	821	775	666	691	3,791	678	809	688	666	520	430
H Congenital Anomalies of the Genital and Urinary Systems	18,718	2,051	1,887	1,864	1,833	1,853	9,230	1,973	1,985	1,755	1,469	1,077	971
I Congenital Anomalies of the Musculoskeletal System	22,262	2,106	2,267	2,298	2,132	1,980	11,479	2,265	2,463	2,286	1,642	1,294	1,529
J Congenital Anomalies of the Integument	7,337	306	310	308	296	446	5,671	618	1,264	476	1,349	1,151	813
K Chromosomal Anomalies	3,021	283	289	281	285	287	1,596	290	299	261	287	243	216
L Other and Unspecified Congenital Anomalies	5,333	624	756	644	706	631	1,972	596	463	364	213	158	178

Table 8
Birth Defects by Summary Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
(Continued)

Other Reportable Conditions

Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
M Infectious Conditions Occurring in the Perinatal Period	1,680	218	224	223	150	104	761	101	102	69	176	142	171
N Familial/Congenital Neoplasms	145	19	16	15	15	10	70	16	16	13	13	5	7
O Endocrine/Metabolic Disorders	5,323	531	506	510	449	411	2,916	509	542	444	550	402	469
P Diseases of the Blood & Blood Forming Organs	2,912	247	228	260	263	243	1,671	319	297	254	294	227	280
Q Other Diseases of the Central and Peripheral Nervous System	3,304	368	359	351	324	327	1,575	349	344	284	271	198	129
R Other Diseases of the Eye	6,812	724	705	702	673	679	3,329	731	693	659	587	371	288
S Hearing Deficiency	4,924	391	567	618	460	407	2,481	494	450	381	417	362	377
T Other Diseases of the Heart & Circulatory System	4,676	523	448	458	425	349	2,473	404	489	425	444	368	343
U Other Diseases of the Gastrointestinal System	8,276	900	949	838	812	787	3,990	854	794	733	719	429	461
V Other Diseases of the Genital and Urinary Systems	440	55	46	47	50	53	189	41	44	28	23	30	23
W Other Fetal/Placental Anomalies	121	-	-	2	2	2	115	110	2	1	1	-	1
X Other Musculoskeletal System Diseases	34	4	3	3	7	1	16	1	3	3	2	4	3
Y Maternal Exposures Affecting Fetus	3,180	382	380	283	215	248	1,672	308	309	196	315	260	284
One or More Reportable Diagnosis	106,580	10,103	10,484	10,205	9,723	9,767	56,298	10,989	11,577	9,685	9,439	7,439	7,169

Notes:

Frequencies include all children reported with a birth defect who were born in Michigan and whose mother was a resident at the time of birth. This enables the calculation of birth defect prevalence rates. Birth defect statistics sometimes reflect trends related to data reporting or new testing. See Data Quality Considerations for further details.

Columns do not add to total live births diagnosed with birth defects. Some cases include diagnosis with multiple birth defects, and each birth defect diagnosis was counted in each appropriate grouping.

Conditions are reportable if identified within the first two years of a child's life. The prevalence frequencies in this table represent cases diagnosed within the first year of life.

Diagnoses are coded using the 9th revision to the International Classification of Diseases - ICD 9 CM. Diagnostic Code Groupings used for congenital anomaly codes are as used by the Centers for Disease Control. (See Birth Defect Groups and ICD-9-CM Diagnosis Codes for the codes used to categorize birth defects.)

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012

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Table 9
Birth Defects by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
A Congenital Anomalies of the Central Nervous System	5,354	491	517	519	501	547	2,779	537	558	493	472	391	328
A01 Anencephalus	158	21	7	15	18	20	77	12	14	8	18	15	10
A02 Spina Bifida w/o Anencephaly	616	49	72	44	52	63	336	62	65	59	63	39	48
A03 Hydrocephalus w/o Spina Bifida	1,321	136	151	131	119	132	652	125	122	127	116	92	70
A04 Encephalocele	139	16	11	13	14	14	71	22	13	12	11	9	4
A05 Microcephalus	1,277	121	117	137	119	127	656	130	142	131	85	86	82
A99. All Other CNS Anomalies	2,839	227	255	266	280	299	1,512	297	302	256	273	217	167
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
B Congenital Anomalies of the Eye	3,634	378	378	386	381	363	1,748	364	302	303	297	257	225
B01 Anophthalmos/Microphthalmos	245	21	31	33	28	24	108	25	21	21	18	10	13
B02 Congenital Cataract	328	39	33	38	37	30	151	38	20	23	30	14	26
B03 Aniridia	38	4	3	2	5	6	18	5	2	4	3	-	4
B99. All Other Congenital Anomalies of the Eye	3,308	348	345	344	344	333	1,594	329	284	274	266	242	199
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
C Congenital Anomalies of the Ear, Face and Neck	2,199	221	235	242	210	201	1,090	254	194	171	202	143	126
C01 Anotia/Microtia	178	22	20	20	21	18	77	12	14	14	15	11	11
C99. All Other Congenital Anomalies of the Ear, Face and Neck	2,146	215	232	233	208	194	1,064	251	192	164	194	140	123

Table 9
Birth Defects by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
D Congenital Anomalies of the Heart and Circulatory System	25,311	2,124	2,279	2,373	2,381	2,552	13,602	2,615	2,723	2,332	2,375	1,812	1,745
D01 Common Truncus	181	11	21	13	25	15	96	17	18	15	22	7	17
D02 Transposition of Great Vessels	711	68	58	66	56	59	404	85	73	65	61	62	58
D03 Tetralogy of Fallot	736	74	68	69	80	55	390	67	73	60	78	46	66
D04 Ventricular Septal Defect	5,700	540	531	557	538	545	2,989	589	569	519	546	375	391
D05 Atrial Septal Defect	11,199	814	861	967	982	1,113	6,462	1,238	1,285	1,045	1,167	893	834
D06 Endocardial Cushion Defect	768	65	75	76	88	74	390	70	79	64	67	51	59
D07 Pulmonary Valve Atresia and Stenosis	1,536	142	163	132	169	128	802	176	165	143	133	82	103
D08 Tricuspid Valve Atresia and Stenosis	206	17	28	26	22	10	103	22	11	19	23	12	16
D09 Ebstein's Anomaly	201	35	46	37	18	10	55	12	11	6	12	6	8
D10 Aortic Valve Stenosis	330	42	27	31	34	35	161	34	30	31	27	21	18
D11 Hypoplastic Left Heart Syndrome	561	46	67	56	55	51	286	60	46	50	48	56	26
D12 Patent Ductus Arteriosus	7,523	559	651	659	753	746	4,155	822	871	679	773	502	508
D13 Coarctation of Aorta	858	82	68	87	87	77	457	78	95	87	85	53	59
D14 Pulmonary Artery Anomalies	2,858	252	294	296	277	246	1,493	301	305	248	252	203	184
D99. All Other Congenital Anomalies of the Heart and Circulatory System	10,687	894	927	1,026	1,047	1,205	5,588	1,034	1,199	1,004	944	730	677
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
E Congenital Anomalies of the Respiratory System	6,999	537	609	611	754	674	3,814	739	1,037	863	473	329	373
E01 Lung Agenesis/Hypoplasia	966	85	74	85	152	111	459	94	75	61	73	69	87
E02 Choanal Atresia	225	20	28	29	18	20	110	23	18	16	17	17	19
E99. All Other Congenital Anomalies of the Respiratory System	6,170	459	539	540	622	577	3,433	664	978	810	415	271	295
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
F Cleft Palate and Cleft Lip	2,177	200	227	203	217	190	1,140	200	223	196	181	195	145
F01 Cleft Palate	784	72	85	72	70	64	421	74	82	76	68	79	42
F02 Cleft Lip w and w/o Cleft Palate	1,393	128	142	131	147	126	719	126	141	120	113	116	103

Table 9
Birth Defects by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	7,518	774	821	775	666	691	3,791	678	809	688	666	520	430
G01 Esophageal Atresia/ Tracheoesophageal Fistula	399	34	46	44	46	46	183	43	35	37	28	13	27
G02 Rectal and Large Intestinal Atresia/Stenosis	660	74	60	65	60	64	337	61	75	53	54	42	52
G03 Pyloric Stenosis	2,372	253	306	260	207	202	1,144	195	234	198	231	165	121
G04 Hirshsprung's Disease (congenital megacolon)	422	43	50	42	41	41	205	35	37	34	35	23	41
G05 Biliary Atresia	150	16	15	10	16	18	75	12	12	11	15	13	12
G99. Other Cong. Anomalies of Upper Alimentary Canal / Digestive System	4,007	408	389	405	354	376	2,075	381	459	394	345	293	203
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
H Congenital Anomalies of the Genital and Urinary Systems	18,718	2,051	1,887	1,864	1,833	1,853	9,230	1,973	1,985	1,755	1,469	1,077	971
H01 Renal Agenesis/Hypoplasia	779	99	73	84	78	63	382	68	59	76	82	49	48
H02 Bladder Exstrophy	45	3	10	6	5	2	19	6	4	1	3	3	2
H03 Obstructive Genitourinary Defects	2,928	263	286	292	299	297	1,491	323	308	276	266	155	163
H04 Hypospadias & Epispadias	4,166	452	390	401	389	372	2,162	471	334	354	417	310	276
H99. All Other Congenital Anomalies of the Genital & Urinary Systems	15,462	1,704	1,591	1,552	1,546	1,588	7,481	1,636	1,731	1,497	1,105	798	714

Table 9
Birth Defects by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
I Congenital Anomalies of the Musculoskeletal System	22,262	2,106	2,267	2,298	2,132	1,980	11,479	2,265	2,463	2,286	1,642	1,294	1,529
I01 Upper Limb Reduction Deformities	354	42	34	37	36	26	179	25	27	33	38	27	29
I02 Lower Limb Reduction Deformities	271	23	29	25	25	27	142	31	30	21	19	24	17
I03 Gastroschisis/Omphalocele	784	63	74	52	72	77	446	81	94	82	66	59	64
I03a Omphalocele	---	---	---	---	---	---	---	---	---	---	---	---	7
I03b Gastroschisis	---	---	---	---	---	---	---	---	---	---	---	---	18
I03c Other and Unspecified Abdominal Wall Anomalies	753	63	74	52	72	77	415	81	94	82	66	53	39
I04 Congenital Hip Dislocation	1,699	198	215	206	170	148	762	118	162	99	140	136	107
I05 Diaphragmatic Hernia	449	39	43	33	48	46	240	37	52	41	38	38	34
I99. All Other Congenital Anomalies of the Musculoskeletal System	19,987	1,844	2,003	2,086	1,914	1,774	10,366	2,078	2,236	2,116	1,465	1,112	1,359
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
J Congenital Anomalies of the Integument	7,337	306	310	308	296	446	5,671	618	1,264	476	1,349	1,151	813
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
K Chromosomal Anomalies	3,021	283	289	281	285	287	1,596	290	299	261	287	243	216
K01 Trisomy 13	120	15	10	10	14	12	59	17	8	10	11	7	6
K02 Down Syndrome	1,724	146	173	174	144	175	912	174	183	142	154	120	139
K03 Trisomy 18	193	14	21	20	28	16	94	15	18	14	21	17	9
K99. All Other Chromosomal Anomalies	1,134	127	101	98	118	95	595	103	96	110	109	107	70
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
L Other and Unspecified Congenital Anomalies	5,333	624	756	644	706	631	1,972	596	463	364	213	158	178

**Table 9
Birth Defects by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
(Continued)**

Other Reportable Conditions

Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
M Infectious Conditions Occurring in the Perinatal Period	1,680	218	224	223	150	104	761	101	102	69	176	142	171
M01 Syphilis	207	24	33	19	32	5	94	14	13	5	28	25	9
M02 Other Infections	1,474	194	191	204	118	99	668	87	89	64	148	118	162
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
N Familial/Congenital Neoplasms	145	19	16	15	15	10	70	16	16	13	13	5	7
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
O Endocrine/Metabolic Disorders	5,323	531	506	510	449	411	2,916	509	542	444	550	402	469
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
P Diseases of the Blood & Blood Forming Organs	2,912	247	228	260	263	243	1,671	319	297	254	294	227	280
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
Q Other Diseases of the Central and Peripheral Nervous System	3,304	368	359	351	324	327	1,575	349	344	284	271	198	129
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
R Other Diseases of the Eye	6,812	724	705	702	673	679	3,329	731	693	659	587	371	288
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
S Hearing Deficiency	4,924	391	567	618	460	407	2,481	494	450	381	417	362	377
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
T Other Diseases of the Heart & Circulatory System	4,676	523	448	458	425	349	2,473	404	489	425	444	368	343

Table 9
Birth Defects by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
(Continued)

Other Reportable Conditions

Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
U Other Diseases of the Gastrointestinal System	8,276	900	949	838	812	787	3,990	854	794	733	719	429	461
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
V Other Diseases of the Genital and Urinary Systems	440	55	46	47	50	53	189	41	44	28	23	30	23
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
W Other Fetal/Placental Anomalies	121	-	-	2	2	2	115	110	2	1	1	-	1
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
X Other Musculoskeletal System Diseases	34	4	3	3	7	1	16	1	3	3	2	4	3
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
Y Maternal Exposures Affecting Fetus	3,180	382	380	283	215	248	1,672	308	309	196	315	260	284
Y01 Fetal Alcohol Syndrome	162	26	23	21	13	17	62	17	20	10	5	5	5
Y99. Other Maternal Exposures Affecting the Fetus	3,056	360	367	268	204	233	1,624	293	293	189	312	256	281
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
One or More Reportable Diagnosis	106,580	10,103	10,484	10,205	9,723	9,767	56,298	10,989	11,577	9,685	9,439	7,439	7,169

Notes:

Frequencies include all children reported with a birth defect who were born in Michigan and whose mother was a resident at the time of birth. This enables the calculation of birth defect prevalence rates. Birth defect statistics sometimes reflect trends related to data reporting or new testing. See Data Quality Considerations for further details.

Columns do not add to summary group totals, nor column totals, due to cases with multiple diagnosed conditions that cross diagnostic groupings

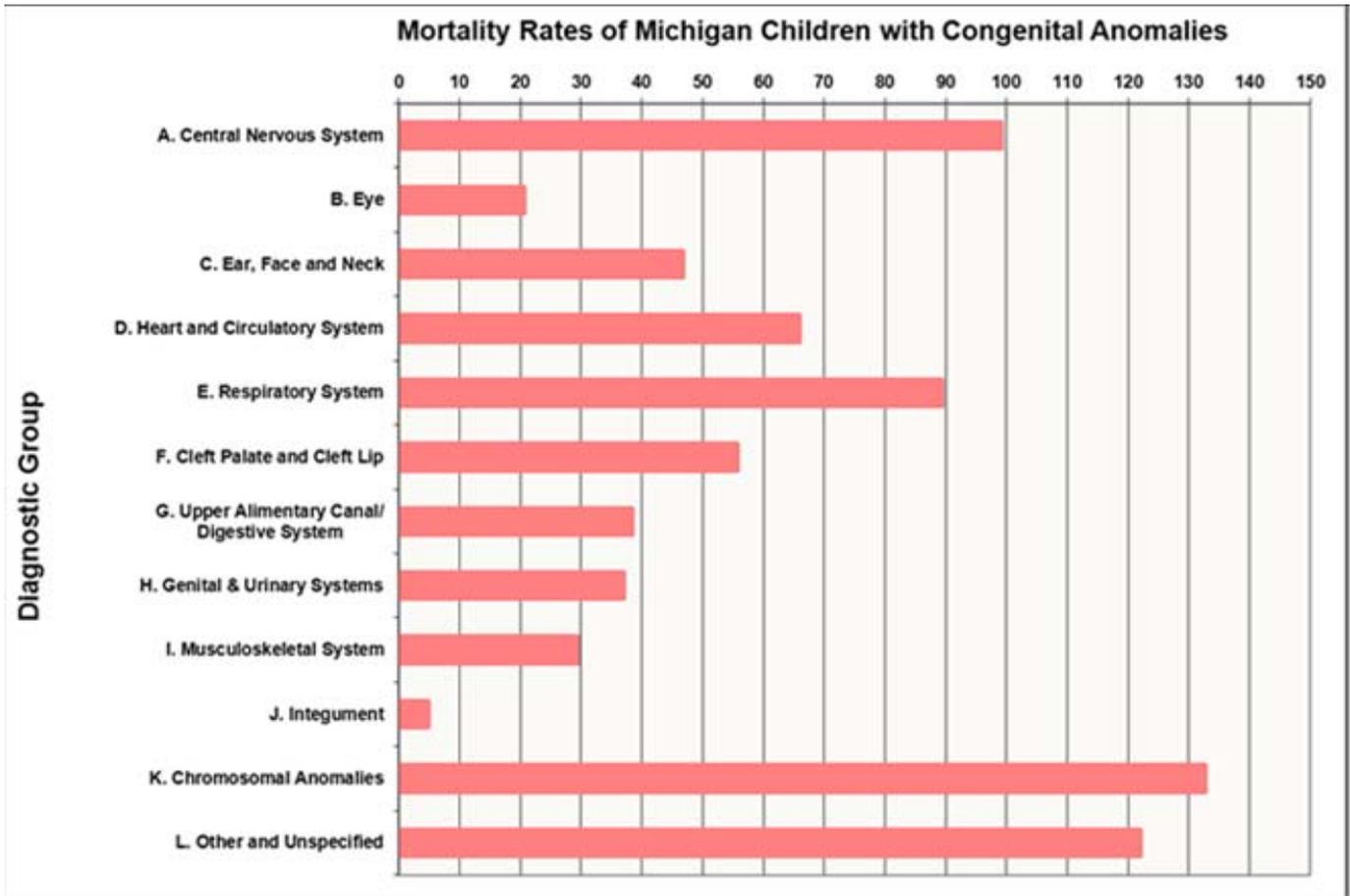
Conditions are reportable if identified within the first two years of a child's life. The prevalence frequencies in this table represent cases diagnosed within the first year of life.

Diagnoses are coded using the 9th revision to the International Classification of Diseases - ICD 9 CM. Diagnostic Code Groupings used for congenital anomaly codes are as used by the Centers for Disease Control. (See Birth Defect Groups and ICD-9-CM Diagnosis Codes for the codes used to categorize birth defects.)

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012

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Figure 2-A
Total Congenital Anomalies by Summary Diagnostic Code Group, 2008-2010,
Michigan Resident Children Born in Michigan
Cases Diagnosed within One Year from Birth



Notes:

Frequencies include all children reported with a birth defect who were born in Michigan and whose mother was a resident at the time of birth.

Conditions are reportable if identified within the first two years of a child's life. The prevalence frequencies in this table represent cases diagnosed within the first year of life.

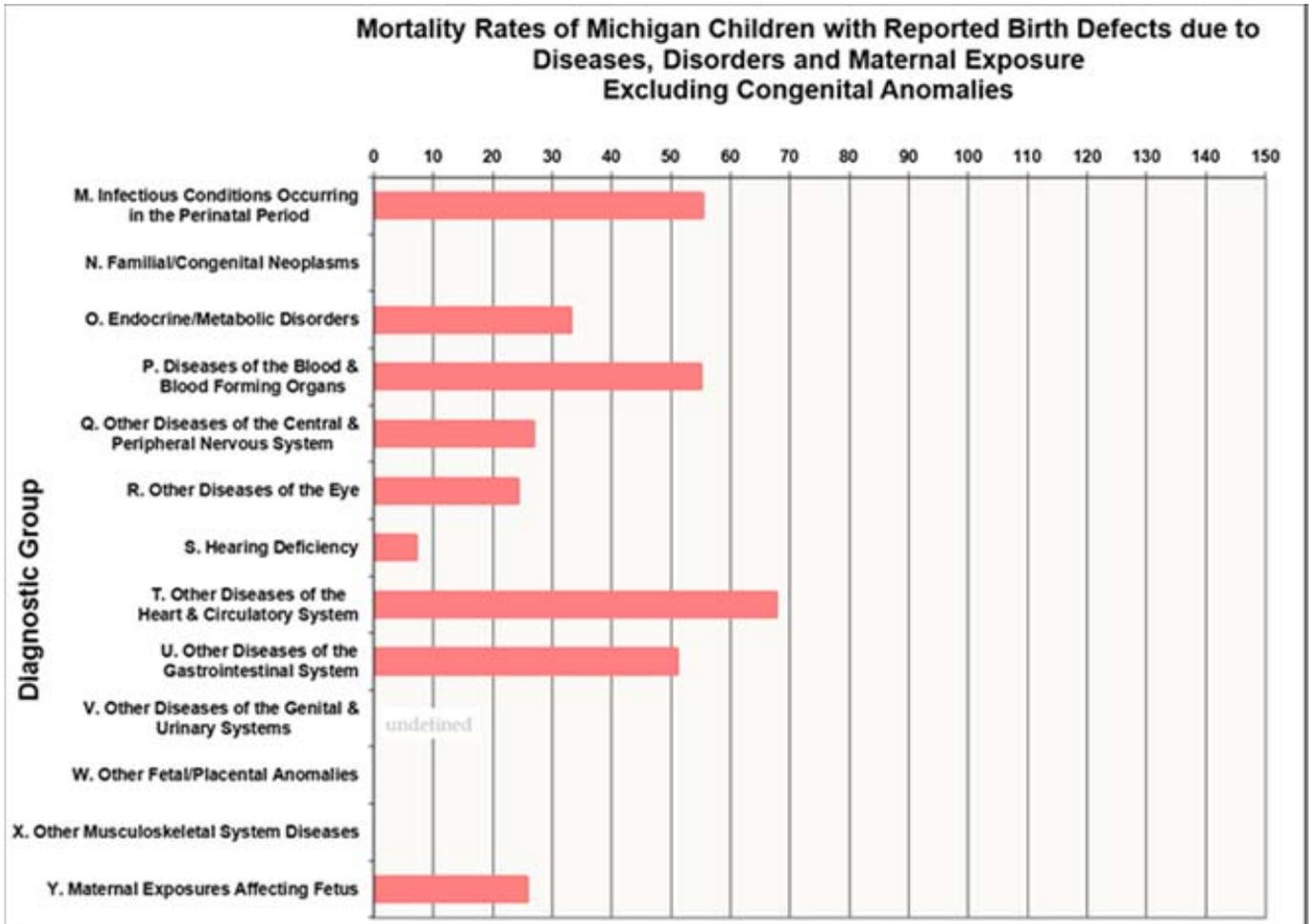
Diagnoses are coded using the 9th revision to the International Classification of Diseases - ICD 9 CM. Diagnostic Code Groupings used for congenital anomaly codes are as used by the Centers for Disease Control. (See Birth Defect Groups and ICD-9-CM Diagnosis Codes for the codes used to categorize birth defects.)

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012

Mortality data includes all linked deaths identified through death year 2010.

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Figure 2-B
Total Diseases, Disorders and Maternal Exposures by
Summary Diagnostic Code Group, 2008-2010,
Michigan Resident Children Born in Michigan
Cases Diagnosed within One Year from Birth



Notes:

Rates are Per 1,000 Michigan Born Resident Live Births. Rates represent the infant mortality rate for children with a diagnosed birth defect. The rates include all deaths within the first year of life to children reported with a birth defect who were born in Michigan and whose mother was a resident at the time of birth. Birth defect statistics sometimes reflect trends related to data reporting or new testing. See Data Quality Considerations for further details.

*Not calculated. Rates are not calculated when the birth defect resulted in fewer than six deaths.

Conditions are reportable if identified within the first two years of a child's life. The mortality data in this table represent cases diagnosed within the first year of life.

Diagnoses are coded using the 9th revision to the International Classification of Diseases - ICD 9 CM. Diagnostic Code Groupings used for congenital anomaly codes are as used by the Centers for Disease Control. (See Birth Defect Groups and ICD-9-CM Diagnosis Codes for the codes used to categorize birth defects.)

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012
Mortality data includes all linked deaths identified through death year 2010.

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Table 10
Birth Defect Prevalence Rates by Summary Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
A Congenital Anomalies of the Central Nervous System	39.0	36.4	39.2	40.5	38.7	42.6	38.6	42.5	44.2	39.8	39.5	34.4	29.4
B Congenital Anomalies of the Eye	26.5	28.1	28.7	30.1	29.4	28.3	24.3	28.8	23.9	24.5	24.9	22.6	20.2
C Congenital Anomalies of the Ear, Face and Neck	16.0	16.4	17.8	18.9	16.2	15.7	15.1	20.1	15.4	13.8	16.9	12.6	11.3
D Congenital Anomalies of the Heart and Circulatory System	184.3	157.7	172.9	185.3	183.9	198.9	188.7	207.1	215.8	188.4	199.0	159.6	156.4
E Congenital Anomalies of the Respiratory System	51.0	39.9	46.2	47.7	58.2	52.5	52.9	58.5	82.2	69.7	39.6	29.0	33.4
F Cleft Palate and Cleft Lip	15.9	14.8	17.2	15.8	16.8	14.8	15.8	15.8	17.7	15.8	15.2	17.2	13.0
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	54.8	57.5	62.3	60.5	51.4	53.9	52.6	53.7	64.1	55.6	55.8	45.8	38.6
H Congenital Anomalies of the Genital and Urinary Systems	136.3	152.2	143.1	145.5	141.6	144.5	128.1	156.3	157.3	141.8	123.1	94.8	87.1
I Congenital Anomalies of the Musculoskeletal System	162.1	156.3	171.9	179.4	164.7	154.4	159.3	179.4	195.2	184.7	137.6	113.9	137.1
J Congenital Anomalies of the Integument	53.4	22.7	23.5	24.0	22.9	34.8	78.7	49.0	100.2	38.5	113.0	101.3	72.9
K Chromosomal Anomalies	22.0	21.0	21.9	21.9	22.0	22.4	22.1	23.0	23.7	21.1	24.0	21.4	19.4
L Other and Unspecified Congenital Anomalies	38.8	46.3	57.3	50.3	54.5	49.2	27.4	47.2	36.7	29.4	17.8	13.9	16.0

Table 10
Birth Defect Prevalence Rates by Summary Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
(Continued)

Other Reportable Conditions

Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
M Infectious Conditions Occurring in the Perinatal Period	12.2	16.2	17.0	17.4	11.6	8.1	10.6	8.0	8.1	5.6	14.7	12.5	15.3
N Familial/Congenital Neoplasms	1.1	1.4	1.2	1.2	1.2	0.8	1.0	1.3	1.3	1.1	1.1	*	0.6
O Endocrine/Metabolic Disorders	38.8	39.4	38.4	39.8	34.7	32.0	40.5	40.3	42.9	35.9	46.1	35.4	42.0
P Diseases of the Blood & Blood Forming Organs	21.2	18.3	17.3	20.3	20.3	18.9	23.2	25.3	23.5	20.5	24.6	20.0	25.1
Q Other Diseases of the Central and Peripheral Nervous System	24.1	27.3	27.2	27.4	25.0	25.5	21.9	27.6	27.3	22.9	22.7	17.4	11.6
R Other Diseases of the Eye	49.6	53.7	53.5	54.8	52.0	52.9	46.2	57.9	54.9	53.2	49.2	32.7	25.8
S Hearing Deficiency	35.9	29.0	43.0	48.2	35.5	31.7	34.4	39.1	35.7	30.8	34.9	31.9	33.8
T Other Diseases of the Heart & Circulatory System	34.1	38.8	34.0	35.8	32.8	27.2	34.3	32.0	38.7	34.3	37.2	32.4	30.8
U Other Diseases of the Gastrointestinal System	60.3	66.8	72.0	65.4	62.7	61.4	55.4	67.6	62.9	59.2	60.2	37.8	41.3
V Other Diseases of the Genital and Urinary Systems	3.2	4.1	3.5	3.7	3.9	4.1	2.6	3.2	3.5	2.3	1.9	2.6	2.1
W Other Fetal/Placental Anomalies	0.9	-	-	*	*	*	1.6	8.7	*	*	*	-	*
X Other Musculoskeletal System Diseases	0.2	*	*	*	0.5	*	0.2	*	*	*	*	*	*
Y Maternal Exposures Affecting Fetus	23.2	28.4	28.8	22.1	16.6	19.3	23.2	24.4	24.5	15.8	26.4	22.9	25.5
One or More Reportable Diagnosis	776.2	750.0	795.2	796.7	750.9	761.4	781.2	870.4	917.4	782.6	790.8	655.0	642.7

Notes:

Rates Are Per 10,000 Michigan Born Resident Live Births. Rates include all children reported with a birth defect who were born in Michigan and whose mother was a resident at the time of birth. This enables the calculation of birth defects prevalence rates. Birth defect statistics sometimes reflect trends related to data reporting or new testing. See Data Quality Considerations for further details.

Symbols: * : Figure does not meet standards of reliability or precision. • -: A dash represents quantity zero. • 0.0: Quantity more than zero but less than 0.05.

Conditions are reportable if identified within the first two years of a child's life. The prevalence frequencies used to calculate the rates in this table represent cases diagnosed within the first year of life.

Diagnoses are coded using the 9th revision to the International Classification of Diseases - ICD 9 CM. Diagnostic Code Groupings used for congenital anomaly codes are as used by the Centers for Disease Control. (See Birth Defect Groups and ICD-9-CM Diagnosis Codes for the codes used to categorize birth defects.)

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012

Last Updated on July 23, 2012

Table 11
Birth Defect Prevalence Rates by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
A Congenital Anomalies of the Central Nervous System	39.0	36.4	39.2	40.5	38.7	42.6	38.6	42.5	44.2	39.8	39.5	34.4	29.4
A01 Anencephalus	1.2	1.6	0.5	1.2	1.4	1.6	1.1	1.0	1.1	0.6	1.5	1.3	0.9
A02 Spina Bifida w/o Anencephaly	4.5	3.6	5.5	3.4	4.0	4.9	4.7	4.9	5.2	4.8	5.3	3.4	4.3
A03 Hydrocephalus w/o Spina Bifida	9.6	10.1	11.5	10.2	9.2	10.3	9.0	9.9	9.7	10.3	9.7	8.1	6.3
A04 Encephalocele	1.0	1.2	0.8	1.0	1.1	1.1	1.0	1.7	1.0	1.0	0.9	0.8	*
A05 Microcephalus	9.3	9.0	8.9	10.7	9.2	9.9	9.1	10.3	11.3	10.6	7.1	7.6	7.4
A99. All Other CNS Anomalies	20.7	16.9	19.3	20.8	21.6	23.3	21.0	23.5	23.9	20.7	22.9	19.1	15.0
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
B Congenital Anomalies of the Eye	26.5	28.1	28.7	30.1	29.4	28.3	24.3	28.8	23.9	24.5	24.9	22.6	20.2
B01 Anophthalmos/Microphthalmos	1.8	1.6	2.4	2.6	2.2	1.9	1.5	2.0	1.7	1.7	1.5	0.9	1.2
B02 Congenital Cataract	2.4	2.9	2.5	3.0	2.9	2.3	2.1	3.0	1.6	1.9	2.5	1.2	2.3
B03 Aniridia	0.3	*	*	*	*	0.5	0.2	*	*	*	*	-	*
B99. All Other Congenital Anomalies of the Eye	24.1	25.8	26.2	26.9	26.6	26.0	22.1	26.1	22.5	22.1	22.3	21.3	17.8
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
C Congenital Anomalies of the Ear, Face and Neck	16.0	16.4	17.8	18.9	16.2	15.7	15.1	20.1	15.4	13.8	16.9	12.6	11.3
C01 Anotia/Microtia	1.3	1.6	1.5	1.6	1.6	1.4	1.1	1.0	1.1	1.1	1.3	1.0	1.0
C99. All Other Congenital Anomalies of the Ear, Face and Neck	15.6	16.0	17.6	18.2	16.1	15.1	14.8	19.9	15.2	13.3	16.3	12.3	11.0

Table 11
Birth Defect Prevalence Rates by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
D Congenital Anomalies of the Heart and Circulatory System	184.3	157.7	172.9	185.3	183.9	198.9	188.7	207.1	215.8	188.4	199.0	159.6	156.4
D01 Common Truncus	1.3	0.8	1.6	1.0	1.9	1.2	1.3	1.3	1.4	1.2	1.8	0.6	1.5
D02 Transposition of Great Vessels	5.2	5.0	4.4	5.2	4.3	4.6	5.6	6.7	5.8	5.3	5.1	5.5	5.2
D03 Tetralogy of Fallot	5.4	5.5	5.2	5.4	6.2	4.3	5.4	5.3	5.8	4.8	6.5	4.1	5.9
D04 Ventricular Septal Defect	41.5	40.1	40.3	43.5	41.6	42.5	41.5	46.7	45.1	41.9	45.7	33.0	35.1
D05 Atrial Septal Defect	81.6	60.4	65.3	75.5	75.8	86.8	89.7	98.1	101.8	84.4	97.8	78.6	74.8
D06 Endocardial Cushion Defect	5.6	4.8	5.7	5.9	6.8	5.8	5.4	5.5	6.3	5.2	5.6	4.5	5.3
D07 Pulmonary Valve Atresia and Stenosis	11.2	10.5	12.4	10.3	13.1	10.0	11.1	13.9	13.1	11.6	11.1	7.2	9.2
D08 Tricuspid Valve Atresia and Stenosis	1.5	1.3	2.1	2.0	1.7	0.8	1.4	1.7	0.9	1.5	1.9	1.1	1.4
D09 Ebstein's Anomaly	1.5	2.6	3.5	2.9	1.4	0.8	0.8	1.0	0.9	0.5	1.0	0.5	0.7
D10 Aortic Valve Stenosis	2.4	3.1	2.0	2.4	2.6	2.7	2.2	2.7	2.4	2.5	2.3	1.8	1.6
D11 Hypoplastic Left Heart Syndrome	4.1	3.4	5.1	4.4	4.2	4.0	4.0	4.8	3.6	4.0	4.0	4.9	2.3
D12 Patent Ductus Arteriosus	54.8	41.5	49.4	51.4	58.2	58.2	57.7	65.1	69.0	54.9	64.8	44.2	45.5
D13 Coarctation of Aorta	6.2	6.1	5.2	6.8	6.7	6.0	6.3	6.2	7.5	7.0	7.1	4.7	5.3
D14 Pulmonary Artery Anomalies	20.8	18.7	22.3	23.1	21.4	19.2	20.7	23.8	24.2	20.0	21.1	17.9	16.5
D99. All Other Congenital Anomalies of the Heart and Circulatory System	77.8	66.4	70.3	80.1	80.9	93.9	77.5	81.9	95.0	81.1	79.1	64.3	60.7
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
E Congenital Anomalies of the Respiratory System	51.0	39.9	46.2	47.7	58.2	52.5	52.9	58.5	82.2	69.7	39.6	29.0	33.4
E01 Lung Agenesis/Hypoplasia	7.0	6.3	5.6	6.6	11.7	8.7	6.4	7.4	5.9	4.9	6.1	6.1	7.8
E02 Choanal Atresia	1.6	1.5	2.1	2.3	1.4	1.6	1.5	1.8	1.4	1.3	1.4	1.5	1.7
E99. All Other Congenital Anomalies of the Respiratory System	44.9	34.1	40.9	42.2	48.0	45.0	47.6	52.6	77.5	65.5	34.8	23.9	26.4
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
F Cleft Palate and Cleft Lip	15.9	14.8	17.2	15.8	16.8	14.8	15.8	15.8	17.7	15.8	15.2	17.2	13.0
F01 Cleft Palate	5.7	5.3	6.4	5.6	5.4	5.0	5.8	5.9	6.5	6.1	5.7	7.0	3.8
F02 Cleft Lip w and w/o Cleft Palate	10.1	9.5	10.8	10.2	11.4	9.8	10.0	10.0	11.2	9.7	9.5	10.2	9.2

Table 11
Birth Defect Prevalence Rates by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	54.8	57.5	62.3	60.5	51.4	53.9	52.6	53.7	64.1	55.6	55.8	45.8	38.6
G01 Esophageal Atresia/ Tracheoesophageal Fistula	2.9	2.5	3.5	3.4	3.6	3.6	2.5	3.4	2.8	3.0	2.3	1.1	2.4
G02 Rectal and Large Intestinal Atresia/Stenosis	4.8	5.5	4.6	5.1	4.6	5.0	4.7	4.8	5.9	4.3	4.5	3.7	4.7
G03 Pyloric Stenosis	17.3	18.8	23.2	20.3	16.0	15.7	15.9	15.4	18.5	16.0	19.4	14.5	10.8
G04 Hirshsprung's Disease (congenital megacolon)	3.1	3.2	3.8	3.3	3.2	3.2	2.8	2.8	2.9	2.7	2.9	2.0	3.7
G05 Biliary Atresia	1.1	1.2	1.1	0.8	1.2	1.4	1.0	1.0	1.0	0.9	1.3	1.1	1.1
G99. Other Cong. Anomalies of Upper Alimentary Canal / Digestive System	29.2	30.3	29.5	31.6	27.3	29.3	28.8	30.2	36.4	31.8	28.9	25.8	18.2
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
H Congenital Anomalies of the Genital and Urinary Systems	136.3	152.2	143.1	145.5	141.6	144.5	128.1	156.3	157.3	141.8	123.1	94.8	87.1
H01 Renal Agenesis/Hypoplasia	5.7	7.3	5.5	6.6	6.0	4.9	5.3	5.4	4.7	6.1	6.9	4.3	4.3
H02 Bladder Exstrophy	0.3	*	0.8	0.5	*	*	0.3	0.5	*	*	*	*	*
H03 Obstructive Genitourinary Defects	21.3	19.5	21.7	22.8	23.1	23.2	20.7	25.6	24.4	22.3	22.3	13.6	14.6
H04 Hypospadias & Epispadias	30.3	33.6	29.6	31.3	30.0	29.0	30.0	37.3	26.5	28.6	34.9	27.3	24.7
H99. All Other Congenital Anomalies of the Genital & Urinary Systems	112.6	126.5	120.7	121.2	119.4	123.8	103.8	129.6	137.2	121.0	92.6	70.3	64.0

Table 11
Birth Defect Prevalence Rates by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
I Congenital Anomalies of the Musculoskeletal System	162.1	156.3	171.9	179.4	164.7	154.4	159.3	179.4	195.2	184.7	137.6	113.9	137.1
I01 Upper Limb Reduction Deformities	2.6	3.1	2.6	2.9	2.8	2.0	2.5	2.0	2.1	2.7	3.2	2.4	2.6
I02 Lower Limb Reduction Deformities	2.0	1.7	2.2	2.0	1.9	2.1	2.0	2.5	2.4	1.7	1.6	2.1	1.5
I03 Gastroschisis/Omphalocele	5.7	4.7	5.6	4.1	5.6	6.0	6.2	6.4	7.4	6.6	5.5	5.2	5.7
I03a Omphalocele	---	---	---	---	---	---	---	---	---	---	---	---	0.6
I03b Gastroschisis	---	---	---	---	---	---	---	---	---	---	---	---	1.6
I03c Other and Unspecified Abdominal Wall Anomalies	5.5	4.7	5.6	4.1	5.6	6.0	5.8	6.4	7.4	6.6	5.5	4.7	3.5
I04 Congenital Hip Dislocation	12.4	14.7	16.3	16.1	13.1	11.5	10.6	9.3	12.8	8.0	11.7	12.0	9.6
I05 Diaphragmatic Hernia	3.3	2.9	3.3	2.6	3.7	3.6	3.3	2.9	4.1	3.3	3.2	3.3	3.0
I99. All Other Congenital Anomalies of the Musculoskeletal System	145.6	136.9	151.9	162.9	147.8	138.3	143.8	164.6	177.2	171.0	122.7	97.9	121.8
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
J Congenital Anomalies of the Integument	53.4	22.7	23.5	24.0	22.9	34.8	78.7	49.0	100.2	38.5	113.0	101.3	72.9
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
K Chromosomal Anomalies	22.0	21.0	21.9	21.9	22.0	22.4	22.1	23.0	23.7	21.1	24.0	21.4	19.4
K01 Trisomy 13	0.9	1.1	0.8	0.8	1.1	0.9	0.8	1.3	0.6	0.8	0.9	0.6	0.5
K02 Down Syndrome	12.6	10.8	13.1	13.6	11.1	13.6	12.7	13.8	14.5	11.5	12.9	10.6	12.5
K03 Trisomy 18	1.4	1.0	1.6	1.6	2.2	1.2	1.3	1.2	1.4	1.1	1.8	1.5	0.8
K99. All Other Chromosomal Anomalies	8.3	9.4	7.7	7.7	9.1	7.4	8.3	8.2	7.6	8.9	9.1	9.4	6.3
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
L Other and Unspecified Congenital Anomalies	38.8	46.3	57.3	50.3	54.5	49.2	27.4	47.2	36.7	29.4	17.8	13.9	16.0

Table 11
Birth Defect Prevalence Rates by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
(Continued)

Other Reportable Conditions

Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
M Infectious Conditions Occurring in the Perinatal Period	12.2	16.2	17.0	17.4	11.6	8.1	10.6	8.0	8.1	5.6	14.7	12.5	15.3
M01 Syphilis	1.5	1.8	2.5	1.5	2.5	*	1.3	1.1	1.0	*	2.3	2.2	0.8
M02 Other Infections	10.7	14.4	14.5	15.9	9.1	7.7	9.3	6.9	7.1	5.2	12.4	10.4	14.5
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
N Familial/Congenital Neoplasms	1.1	1.4	1.2	1.2	1.2	0.8	1.0	1.3	1.3	1.1	1.1	*	0.6
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
O Endocrine/Metabolic Disorders	38.8	39.4	38.4	39.8	34.7	32.0	40.5	40.3	42.9	35.9	46.1	35.4	42.0
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
P Diseases of the Blood & Blood Forming Organs	21.2	18.3	17.3	20.3	20.3	18.9	23.2	25.3	23.5	20.5	24.6	20.0	25.1
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
Q Other Diseases of the Central and Peripheral Nervous System	24.1	27.3	27.2	27.4	25.0	25.5	21.9	27.6	27.3	22.9	22.7	17.4	11.6
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
R Other Diseases of the Eye	49.6	53.7	53.5	54.8	52.0	52.9	46.2	57.9	54.9	53.2	49.2	32.7	25.8
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
S Hearing Deficiency	35.9	29.0	43.0	48.2	35.5	31.7	34.4	39.1	35.7	30.8	34.9	31.9	33.8
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
T Other Diseases of the Heart & Circulatory System	34.1	38.8	34.0	35.8	32.8	27.2	34.3	32.0	38.7	34.3	37.2	32.4	30.8

Table 11
Birth Defect Prevalence Rates by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
(Continued)

Other Reportable Conditions

Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
U Other Diseases of the Gastrointestinal System	60.3	66.8	72.0	65.4	62.7	61.4	55.4	67.6	62.9	59.2	60.2	37.8	41.3
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
V Other Diseases of the Genital and Urinary Systems	3.2	4.1	3.5	3.7	3.9	4.1	2.6	3.2	3.5	2.3	1.9	2.6	2.1
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
W Other Fetal/Placental Anomalies	0.9	-	-	*	*	*	1.6	8.7	*	*	*	-	*
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
X Other Musculoskeletal System Diseases	0.2	*	*	*	0.5	*	0.2	*	*	*	*	*	*
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
Y Maternal Exposures Affecting Fetus	23.2	28.4	28.8	22.1	16.6	19.3	23.2	24.4	24.5	15.8	26.4	22.9	25.5
Y01 Fetal Alcohol Syndrome	1.2	1.9	1.7	1.6	1.0	1.3	0.9	1.3	1.6	0.8	*	*	*
Y99. Other Maternal Exposures Affecting the Fetus	22.3	26.7	27.8	20.9	15.8	18.2	22.5	23.2	23.2	15.3	26.1	22.5	25.2
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
One or More Reportable Diagnosis	776.2	750.0	795.2	796.7	750.9	761.4	781.2	870.4	917.4	782.6	790.8	655.0	642.7

Notes:

Rates are per 10,000 Michigan Born Resident Live Births. Rates include all children reported with a birth defect who were born in Michigan and whose mother was a resident at the time of birth. This enables the calculation of birth defects prevalence rates. Birth defect statistics sometimes reflect trends related to data reporting or new testing. See Data Quality Considerations for further details.

*: A rate is not calculated when there are fewer than 6 events, because the width of the confidence interval would negate any usefulness for comparative purposes.

Conditions are reportable if identified within the first two years of a child's life. The prevalence frequencies used to calculate the rates in this table represent cases diagnosed within the first year of life.

Diagnoses are coded using the 9th revision to the International Classification of Diseases - ICD 9 CM. Diagnostic Code Groupings used for congenital anomaly codes are as used by the Centers for Disease Control. (See Birth Defect Groups and ICD-9-CM Diagnosis Codes for the codes used to categorize birth defects.)

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012

Last Updated on July 23, 2012

Table 12
Infant Deaths of Michigan Children with Reported Birth Defects
by Summary Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
A Congenital Anomalies of the Central Nervous System	609	44	62	60	73	72	298	66	63	51	53	38	27
B Congenital Anomalies of the Eye	90	6	11	15	8	13	37	8	7	6	8	3	5
C Congenital Anomalies of the Ear, Face and Neck	90	7	10	8	9	11	45	14	2	7	11	5	6
D Congenital Anomalies of the Heart and Circulatory System	1,761	167	183	177	210	163	861	174	158	138	177	144	70
E Congenital Anomalies of the Respiratory System	687	81	58	77	88	75	308	75	69	59	46	32	27
F Cleft Palate and Cleft Lip	139	7	11	16	19	19	67	12	14	12	12	13	4
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	324	26	35	33	36	43	151	33	28	28	31	18	13
H Congenital Anomalies of the Genital and Urinary Systems	595	50	53	69	77	61	285	58	44	53	63	46	21
I Congenital Anomalies of the Musculoskeletal System	668	67	65	60	80	74	322	74	62	55	56	39	36
J Congenital Anomalies of the Integument	65	6	9	6	4	5	35	7	8	4	5	6	5
K Chromosomal Anomalies	472	58	45	43	63	46	217	57	31	30	47	37	15
L Other and Unspecified Congenital Anomalies	528	61	60	58	76	74	199	44	47	41	30	24	13

Table 12
Infant Deaths of Michigan Children with Reported Birth Defects
by Summary Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
(Continued)

Other Reportable Conditions

Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
M Infectious Conditions Occurring in the Perinatal Period	136	22	26	21	15	5	47	8	8	4	7	14	6
N Familial/Congenital Neoplasms	3	1	1	-	-	-	1	-	-	1	-	-	-
O Endocrine/Metabolic Disorders	229	25	29	27	29	21	98	14	26	11	20	17	10
P Diseases of the Blood & Blood Forming Organs	169	20	14	13	15	9	98	22	21	11	18	14	12
Q Other Diseases of the Central and Peripheral Nervous System	107	12	10	11	11	9	54	13	11	14	6	8	2
R Other Diseases of the Eye	204	19	27	20	25	23	90	21	19	20	21	7	2
S Hearing Deficiency	55	3	5	7	12	6	22	5	4	5	4	3	1
T Other Diseases of the Heart & Circulatory System	377	55	30	35	34	31	192	31	47	36	28	37	13
U Other Diseases of the Gastrointestinal System	323	27	32	39	40	27	158	31	27	18	36	30	16
V Other Diseases of the Genital and Urinary Systems	5	-	-	1	1	1	2	1	-	-	1	-	-
W Other Fetal/Placental Anomalies	7	-	-	-	-	-	7	7	-	-	-	-	-
X Other Musculoskeletal System Diseases	-	-	-	-	-	-	-	-	-	-	-	-	-
Y Maternal Exposures Affecting Fetus	95	14	11	8	11	6	45	6	14	3	13	8	1
One or More Reportable Diagnosis	3,912	416	400	400	438	382	1,876	390	371	297	336	334	148

Notes:

Frequencies include all deaths within the first year of life to children reported with a birth defect who were born in Michigan and whose mother was a resident at the time of birth. This enables the calculation of birth defect mortality rates. Birth defect statistics sometimes reflect trends related to data reporting or new testing. See Data Quality Considerations for further details. Columns do not add to total infant deaths born with birth defects. Some cases include diagnosis with multiple birth defects, and each birth defect diagnosis was counted in each appropriate grouping.

Diagnoses are coded using the 9th revision to the International Classification of Diseases - ICD 9 CM. Diagnostic Code Groupings used for congenital anomaly codes are as used by the Centers for Disease Control. (See Birth Defect Groups and ICD-9-CM Diagnosis Codes for the codes used to categorize birth defects.)

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012

Mortality data includes all linked deaths identified through death year 2010.

Last Updated on July 23, 2012

Table 13
Infant Deaths of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
A Congenital Anomalies of the Central Nervous System	609	44	62	60	73	72	298	66	63	51	53	38	27
A01 Anencephalus	139	20	7	15	14	18	65	11	12	7	15	12	8
A02 Spina Bifida w/o Anencephaly	35	2	7	1	4	5	16	5	3	3	2	2	1
A03 Hydrocephalus w/o Spina Bifida	178	8	24	16	19	21	90	24	19	13	13	12	9
A04 Encephalocele	25	2	2	1	4	3	13	6	3	1	2	1	-
A05 Microcephalus	92	4	5	16	13	9	45	9	11	11	6	6	2
A99. All Other CNS Anomalies	267	15	30	24	39	30	129	30	27	31	19	10	12
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
B Congenital Anomalies of the Eye	90	6	11	15	8	13	37	8	7	6	8	3	5
B01 Anophthalmos/Microphthalmos	28	2	5	5	-	4	12	3	1	4	3	-	1
B02 Congenital Cataract	12	-	2	2	2	-	6	2	1	1	2	-	-
B03 Aniridia	1	-	-	-	-	-	1	1	-	-	-	-	-
B99. All Other Congenital Anomalies of the Eye	63	4	7	8	6	11	27	5	7	3	5	3	4
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
C Congenital Anomalies of the Ear, Face and Neck	90	7	10	8	9	11	45	14	2	7	11	5	6
C01 Anotia/Microtia	10	1	1	-	2	1	5	-	-	1	2	-	2
C99. All Other Congenital Anomalies of the Ear, Face and Neck	86	6	10	8	9	10	43	14	2	7	10	5	5

Table 13
Infant Deaths of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
D Congenital Anomalies of the Heart and Circulatory System	1,761	167	183	177	210	163	861	174	158	138	177	144	70
D01 Common Truncus	26	2	4	1	3	2	14	2	2	3	6	-	1
D02 Transposition of Great Vessels	97	10	4	11	9	9	54	9	12	12	7	8	6
D03 Tetralogy of Fallot	71	13	6	4	8	8	32	5	5	5	11	4	2
D04 Ventricular Septal Defect	340	40	30	34	40	40	156	27	28	25	46	17	13
D05 Atrial Septal Defect	615	47	55	53	77	53	330	63	54	61	82	46	24
D06 Endocardial Cushion Defect	100	11	10	5	12	10	52	13	7	10	9	9	4
D07 Pulmonary Valve Atresia and Stenosis	96	12	12	7	12	6	47	10	10	6	16	3	2
D08 Tricuspid Valve Atresia and Stenosis	23	6	2	3	2	-	10	1	2	1	5	1	-
D09 Ebstein's Anomaly	33	8	5	7	-	1	12	1	3	2	1	3	2
D10 Aortic Valve Stenosis	26	2	5	-	1	2	16	4	4	2	4	2	-
D11 Hypoplastic Left Heart Syndrome	185	19	23	18	17	10	98	16	19	14	17	27	5
D12 Patent Ductus Arteriosus	686	59	53	49	92	64	369	78	69	62	91	41	28
D13 Coarctation of Aorta	100	9	5	9	10	11	56	12	17	13	7	6	1
D14 Pulmonary Artery Anomalies	151	20	19	10	20	9	73	14	7	15	18	16	3
D99. All Other Congenital Anomalies of the Heart and Circulatory System	1,037	90	107	113	117	102	508	99	91	74	104	93	47
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
E Congenital Anomalies of the Respiratory System	687	81	58	77	88	75	308	75	69	59	46	32	27
E01 Lung Agenesis/Hypoplasia	397	56	37	42	58	41	163	49	29	26	23	15	21
E02 Choanal Atresia	12	1	2	1	-	-	8	1	1	1	2	1	2
E99. All Other Congenital Anomalies of the Respiratory System	314	28	21	39	36	37	153	30	41	34	25	17	6
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
F Cleft Palate and Cleft Lip	139	7	11	16	19	19	67	12	14	12	12	13	4
F01 Cleft Palate	51	3	4	8	7	6	23	2	3	4	5	8	1
F02 Cleft Lip w and w/o Cleft Palate	88	4	7	8	12	13	44	10	11	8	7	5	3

Table 13
Infant Deaths of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	324	26	35	33	36	43	151	33	28	28	31	18	13
G01 Esophageal Atresia/ Tracheoesophageal Fistula	48	3	6	4	7	8	20	5	2	6	4	2	1
G02 Rectal and Large Intestinal Atresia/Stenosis	47	2	4	3	5	10	23	7	4	4	4	2	2
G03 Pyloric Stenosis	17	5	3	1	3	1	4	1	1	-	-	1	1
G04 Hirshsprung's Disease (congenital megacolon)	9	1	4	1	1	-	2	-	2	-	-	-	-
G05 Biliary Atresia	12	1	1	2	-	1	7	1	1	1	1	3	-
G99. Other Cong. Anomalies of Upper Alimentary Canal / Digestive System	234	17	22	26	25	32	112	24	20	19	26	11	12
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
H Congenital Anomalies of the Genital and Urinary Systems	595	50	53	69	77	61	285	58	44	53	63	46	21
H01 Renal Agenesis/Hypoplasia	158	17	10	20	21	13	77	12	9	17	18	14	7
H02 Bladder Exstrophy	4	-	-	-	-	-	4	2	-	-	-	1	1
H03 Obstructive Genitourinary Defects	110	9	3	12	17	12	57	12	10	8	15	11	1
H04 Hypospadias & Epispadias	67	4	10	8	5	11	29	7	2	8	7	3	2
H99. All Other Congenital Anomalies of the Genital & Urinary Systems	443	34	40	52	57	48	212	46	36	41	45	29	15

Table 13
Infant Deaths of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
I Congenital Anomalies of the Musculoskeletal System	668	67	65	60	80	74	322	74	62	55	56	39	36
I01 Upper Limb Reduction Deformities	21	2	2	1	3	4	9	2	3	1	3	-	-
I02 Lower Limb Reduction Deformities	12	-	1	2	-	3	6	2	2	-	-	2	-
I03 Gastroschisis/Omphalocele	83	5	8	5	12	6	47	12	8	8	6	7	6
I03a Omphalocele	---	---	---	---	---	---	---	---	---	---	---	---	2
I03b Gastroschisis	---	---	---	---	---	---	---	---	---	---	---	---	-
I03c Other and Unspecified Abdominal Wall Anomalies	81	5	8	5	12	6	45	12	8	8	6	7	4
I04 Congenital Hip Dislocation	11	2	2	1	-	1	5	2	-	1	-	-	2
I05 Diaphragmatic Hernia	117	12	10	11	19	10	55	10	9	9	11	10	6
I99. All Other Congenital Anomalies of the Musculoskeletal System	491	49	46	48	51	63	234	54	46	41	41	26	26
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
J Congenital Anomalies of the Integument	65	6	9	6	4	5	35	7	8	4	5	6	5
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
K Chromosomal Anomalies	472	58	45	43	63	46	217	57	31	30	47	37	15
K01 Trisomy 13	88	13	7	7	11	10	40	13	4	5	9	6	3
K02 Down Syndrome	134	15	18	14	17	14	56	15	6	10	15	7	3
K03 Trisomy 18	130	11	16	11	19	10	63	11	13	7	15	13	4
K99. All Other Chromosomal Anomalies	158	24	9	15	27	13	70	24	9	10	9	12	6
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
L Other and Unspecified Congenital Anomalies	528	61	60	58	76	74	199	44	47	41	30	24	13

Table 13
Infant Deaths of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
(Continued)

Other Reportable Conditions

Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
M Infectious Conditions Occurring in the Perinatal Period	136	22	26	21	15	5	47	8	8	4	7	14	6
M01 Syphilis	5	-	-	1	1	-	3	1	-	-	1	1	-
M02 Other Infections	131	22	26	20	14	5	44	7	8	4	6	13	6
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
N Familial/Congenital Neoplasms	3	1	1	-	-	-	1	-	-	1	-	-	-
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
O Endocrine/Metabolic Disorders	229	25	29	27	29	21	98	14	26	11	20	17	10
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
P Diseases of the Blood & Blood Forming Organs	169	20	14	13	15	9	98	22	21	11	18	14	12
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
Q Other Diseases of the Central and Peripheral Nervous System	107	12	10	11	11	9	54	13	11	14	6	8	2
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
R Other Diseases of the Eye	204	19	27	20	25	23	90	21	19	20	21	7	2
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
S Hearing Deficiency	55	3	5	7	12	6	22	5	4	5	4	3	1
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
T Other Diseases of the Heart & Circulatory System	377	55	30	35	34	31	192	31	47	36	28	37	13

Table 13
Infant Deaths of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
(Continued)

Other Reportable Conditions

Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
U Other Diseases of the Gastrointestinal System	323	27	32	39	40	27	158	31	27	18	36	30	16
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
V Other Diseases of the Genital and Urinary Systems	5	-	-	1	1	1	2	1	-	-	1	-	-
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
W Other Fetal/Placental Anomalies	7	-	-	-	-	-	7	7	-	-	-	-	-
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
X Other Musculoskeletal System Diseases	-	-	-	-	-	-	-	-	-	-	-	-	-
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
Y Maternal Exposures Affecting Fetus	95	14	11	8	11	6	45	6	14	3	13	8	1
Y01 Fetal Alcohol Syndrome	3	-	-	1	1	1	-	-	-	-	-	-	-
Y99. Other Maternal Exposures Affecting the Fetus	92	14	11	7	10	5	45	6	14	3	13	8	1
Diagnostic Grouping	2000 to 2010	2000	2001	2002	2003	2004	2005 to 2010	2005	2006	2007	2008	2009	2010
One or More Reportable Diagnosis	3,912	416	400	400	438	382	1,876	390	371	297	336	334	148

Notes:

Frequencies include all deaths within the first year of life to children reported with a birth defect who were born in Michigan and whose mother was a resident at the time of birth. This enables the calculation of birth defect mortality rates. Birth defect statistics sometimes reflect trends related to data reporting or new testing. See Data Quality Considerations for further details. Columns do not add to total infant deaths born with birth defects. Some cases include diagnosis with multiple birth defects, and each birth defect diagnosis was counted in each appropriate grouping.

Diagnoses are coded using the 9th revision to the International Classification of Diseases - ICD 9 CM. Diagnostic Code Groupings used for congenital anomaly codes are as used by the Centers for Disease Control. (See Birth Defect Groups and ICD-9-CM Diagnosis Codes for the codes used to categorize birth defects.)

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012
Mortality data includes all linked deaths identified through death year 2010.

Last Updated on July 23, 2012

Table 14
Infant Deaths of Michigan Children with Reported Birth Defects
by Summary Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
Three-year Infant Mortality Totals

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
A Congenital Anomalies of the Central Nervous System	166	195	205	211	201	180	167	142	118
B Congenital Anomalies of the Eye	32	34	36	29	28	21	21	17	16
C Congenital Anomalies of the Ear, Face and Neck	25	27	28	34	27	23	20	23	22
D Congenital Anomalies of the Heart and Circulatory System	527	570	550	547	495	470	473	459	391
E Congenital Anomalies of the Respiratory System	216	223	240	238	219	203	174	137	105
F Cleft Palate and Cleft Lip	34	46	54	50	45	38	38	37	29
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	94	104	112	112	104	89	87	77	62
H Congenital Anomalies of the Genital and Urinary Systems	172	199	207	196	163	155	160	162	130
I Congenital Anomalies of the Musculoskeletal System	192	205	214	228	210	191	173	150	131
J Congenital Anomalies of the Integument	21	19	15	16	20	19	17	15	16
K Chromosomal Anomalies	146	151	152	166	134	118	108	114	99
L Other and Unspecified Congenital Anomalies	179	194	208	194	165	132	118	95	67

Table 14
Infant Deaths of Michigan Children with Reported Birth Defects
by Summary Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
Three-year Infant Mortality Totals
(Continued)

Other Reportable Conditions

Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
M Infectious Conditions Occurring in the Perinatal Period	69	62	41	28	21	20	19	25	27
N Familial/Congenital Neoplasms	2	1	-	-	-	1	1	1	-
O Endocrine/Metabolic Disorders	81	85	77	64	61	51	57	48	47
P Diseases of the Blood & Blood Forming Organs	47	42	37	46	52	54	50	43	44
Q Other Diseases of the Central and Peripheral Nervous System	33	32	31	33	33	38	31	28	16
R Other Diseases of the Eye	66	72	68	69	63	60	60	48	30
S Hearing Deficiency	15	24	25	23	15	14	13	12	8
T Other Diseases of the Heart & Circulatory System	120	99	100	96	109	114	111	101	78
U Other Diseases of the Gastrointestinal System	98	111	106	98	85	76	81	84	82
V Other Diseases of the Genital and Urinary Systems	1	2	3	3	2	1	1	1	1
W Other Fetal/Placental Anomalies	-	-	-	7	7	7	-	-	-
X Other Musculoskeletal System Diseases	-	-	-	-	-	-	-	-	-
Y Maternal Exposures Affecting Fetus	33	30	25	23	26	23	30	24	22
One or More Reportable Diagnosis	1,216	1,238	1,220	1,210	1,143	1,058	1,004	967	818

Notes:

Frequencies include all children reported with a birth defect who were born in Michigan and whose mother was a resident at the time of birth. This enables the calculation of birth defects mortality rates. Birth defect statistics sometimes reflect trends related to data reporting or new testing. See Data Quality Considerations for further details. Columns do not add to diagnostic group totals nor column totals due to cases with multiple diagnosed conditions that cross diagnostic groupings.

Conditions are reportable if identified within the first two years of a child's life. The mortality data in this table represent cases diagnosed within the first year of life.

Diagnoses are coded using the 9th revision to the International Classification of Diseases - ICD 9 CM. Diagnostic Code Groupings used for congenital anomaly codes are as used by the Centers for Disease Control. (See Birth Defect Groups and ICD-9-CM Diagnosis Codes for the codes used to categorize birth defects.)

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012

Table 15
Infant Deaths of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
Three-year Infant Mortality Totals

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
A Congenital Anomalies of the Central Nervous System	166	195	205	211	201	180	167	142	118
A01 Anencephalus	42	36	47	43	41	30	34	34	35
A02 Spina Bifida w/o Anencephaly	10	12	10	14	13	11	8	7	5
A03 Hydrocephalus w/o Spina Bifida	48	59	56	64	64	56	45	38	34
A04 Encephalocele	5	7	8	13	12	10	6	4	3
A05 Microcephalus	25	34	38	31	29	31	28	23	14
A99. All Other CNS Anomalies	69	93	93	99	87	88	77	60	41
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
B Congenital Anomalies of the Eye	32	34	36	29	28	21	21	17	16
B01 Anophthalmos/Microphthalmos	12	10	9	7	8	8	8	7	4
B02 Congenital Cataract	4	6	4	4	3	4	4	3	2
B03 Aniridia	-	-	-	1	1	1	-	-	-
B99. All Other Congenital Anomalies of the Eye	19	21	25	22	23	15	15	11	12
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
C Congenital Anomalies of the Ear, Face and Neck	25	27	28	34	27	23	20	23	22
C01 Anotia/Microtia	2	3	3	3	1	1	3	3	4
C99. All Other Congenital Anomalies of the Ear, Face and Neck	24	27	27	33	26	23	19	22	20

Table 15
Infant Deaths of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
Three-year Infant Mortality Totals
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
D Congenital Anomalies of the Heart and Circulatory System	527	570	550	547	495	470	473	459	391
D01 Common Truncus	7	8	6	7	6	7	11	9	7
D02 Transposition of Great Vessels	25	24	29	27	30	33	31	27	21
D03 Tetralogy of Fallot	23	18	20	21	18	15	21	20	17
D04 Ventricular Septal Defect	104	104	114	107	95	80	99	88	76
D05 Atrial Septal Defect	155	185	183	193	170	178	197	189	152
D06 Endocardial Cushion Defect	26	27	27	35	30	30	26	28	22
D07 Pulmonary Valve Atresia and Stenosis	31	31	25	28	26	26	32	25	21
D08 Tricuspid Valve Atresia and Stenosis	11	7	5	3	3	4	8	7	6
D09 Ebstein's Anomaly	20	12	8	2	5	6	6	6	6
D10 Aortic Valve Stenosis	7	6	3	7	10	10	10	8	6
D11 Hypoplastic Left Heart Syndrome	60	58	45	43	45	49	50	58	49
D12 Patent Ductus Arteriosus	161	194	205	234	211	209	222	194	160
D13 Coarctation of Aorta	23	24	30	33	40	42	37	26	14
D14 Pulmonary Artery Anomalies	49	49	39	43	30	36	40	49	37
D99. All Other Congenital Anomalies of the Heart and Circulatory System	310	337	332	318	292	264	269	271	244
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
E Congenital Anomalies of the Respiratory System	216	223	240	238	219	203	174	137	105
E01 Lung Agenesis/Hypoplasia	135	137	141	148	119	104	78	64	59
E02 Choanal Atresia	4	3	1	1	2	3	4	4	5
E99. All Other Congenital Anomalies of the Respiratory System	88	96	112	103	108	105	100	76	48
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
F Cleft Palate and Cleft Lip	34	46	54	50	45	38	38	37	29
F01 Cleft Palate	15	19	21	15	11	9	12	17	14
F02 Cleft Lip w and w/o Cleft Palate	19	27	33	35	34	29	26	20	15

Table 15
Infant Deaths of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
Three-year Infant Mortality Totals
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	94	104	112	112	104	89	87	77	62
G01 Esophageal Atresia/ Tracheoesophageal Fistula	13	17	19	20	15	13	12	12	7
G02 Rectal and Large Intestinal Atresia/Stenosis	9	12	18	22	21	15	12	10	8
G03 Pyloric Stenosis	9	7	5	5	3	2	1	1	2
G04 Hirshsprung's Disease (congenital megacolon)	6	6	2	1	2	2	2	-	-
G05 Biliary Atresia	4	3	3	2	3	3	3	5	4
G99. Other Cong. Anomalies of Upper Alimentary Canal / Digestive System	65	73	83	81	76	63	65	56	49
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
H Congenital Anomalies of the Genital and Urinary Systems	172	199	207	196	163	155	160	162	130
H01 Renal Agenesis/Hypoplasia	47	51	54	46	34	38	44	49	39
H02 Bladder Exstrophy	-	-	-	2	2	2	-	1	2
H03 Obstructive Genitourinary Defects	24	32	41	41	34	30	33	34	27
H04 Hypospadias & Epispadias	22	23	24	23	20	17	17	18	12
H99. All Other Congenital Anomalies of the Genital & Urinary Systems	126	149	157	151	130	123	122	115	89

Table 15
Infant Deaths of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
Three-year Infant Mortality Totals
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
I Congenital Anomalies of the Musculoskeletal System	192	205	214	228	210	191	173	150	131
I01 Upper Limb Reduction Deformities	5	6	8	9	9	6	7	4	3
I02 Lower Limb Reduction Deformities	3	3	5	5	7	4	2	2	2
I03 Gastroschisis/Omphalocele	18	25	23	30	26	28	22	21	19
I03a Omphalocele	---	---	---	---	---	---	---	---	---
I03b Gastroschisis	---	---	---	---	---	---	---	---	---
I03c Other and Unspecified Abdominal Wall Anomalies	18	25	23	30	26	28	22	21	17
I04 Congenital Hip Dislocation	5	3	2	3	3	3	1	1	2
I05 Diaphragmatic Hernia	33	40	40	39	29	28	29	30	27
I99. All Other Congenital Anomalies of the Musculoskeletal System	143	145	162	168	163	141	128	108	93
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
J Congenital Anomalies of the Integument	21	19	15	16	20	19	17	15	16
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
K Chromosomal Anomalies	146	151	152	166	134	118	108	114	99
K01 Trisomy 13	27	25	28	34	27	22	18	20	18
K02 Down Syndrome	47	49	45	46	35	31	31	32	25
K03 Trisomy 18	38	46	40	40	34	31	35	35	32
K99. All Other Chromosomal Anomalies	48	51	55	64	46	43	28	31	27
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
L Other and Unspecified Congenital Anomalies	179	194	208	194	165	132	118	95	67

Table 15
Infant Deaths of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
Three-year Infant Mortality Totals
(Continued)

Other Reportable Conditions

Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
M Infectious Conditions Occurring in the Perinatal Period	69	62	41	28	21	20	19	25	27
M01 Syphilis	1	2	2	2	1	1	1	2	2
M02 Other Infections	68	60	39	26	20	19	18	23	25
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
N Familial/Congenital Neoplasms	2	1	-	-	-	1	1	1	-
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
O Endocrine/Metabolic Disorders	81	85	77	64	61	51	57	48	47
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
P Diseases of the Blood & Blood Forming Organs	47	42	37	46	52	54	50	43	44
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
Q Other Diseases of the Central and Peripheral Nervous System	33	32	31	33	33	38	31	28	16
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
R Other Diseases of the Eye	66	72	68	69	63	60	60	48	30
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
S Hearing Deficiency	15	24	25	23	15	14	13	12	8
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
T Other Diseases of the Heart & Circulatory System	120	99	100	96	109	114	111	101	78

Table 15
Infant Deaths of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
Three-year Infant Mortality Totals
(Continued)

Other Reportable Conditions

Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
U Other Diseases of the Gastrointestinal System	98	111	106	98	85	76	81	84	82
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
V Other Diseases of the Genital and Urinary Systems	1	2	3	3	2	1	1	1	1
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
W Other Fetal/Placental Anomalies	-	-	-	7	7	7	-	-	-
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
X Other Musculoskeletal System Diseases	-	-	-	-	-	-	-	-	-
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
Y Maternal Exposures Affecting Fetus	33	30	25	23	26	23	30	24	22
Y01 Fetal Alcohol Syndrome	1	2	3	2	1	-	-	-	-
Y99. Other Maternal Exposures Affecting the Fetus	32	28	22	21	25	23	30	24	22
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
One or More Reportable Diagnosis	1,216	1,238	1,220	1,210	1,143	1,058	1,004	967	818

Notes:

Frequencies include all children reported with a birth defect who were born in Michigan and whose mother was a resident at the time of birth. This enables the calculation of birth defects prevalence rates. Birth defect statistics sometimes reflect trends related to data reporting or new testing. See Data Quality Considerations for further details.

Columns do not add to diagnostic group totals nor column totals due to cases with multiple diagnosed conditions that cross diagnostic groupings.

Conditions are reportable if identified within the first two years of a child's life. The prevalence frequencies in this table represent cases diagnosed within the first year of life.

Diagnoses are coded using the 9th revision to the International Classification of Diseases - ICD 9 CM. Diagnostic Code Groupings used for congenital anomaly codes are as used by the Centers for Disease Control. (See Birth Defect Groups and ICD-9-CM Diagnosis Codes for the codes used to categorize birth defects.)

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012

Last Updated on July 23, 2012

Table 16
Mortality Rates of Michigan Children with Reported Birth Defects
by Summary Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
Moving Three-year Mortality Rates

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
A Congenital Anomalies of the Central Nervous System	108.7	126.9	130.8	133.1	122.4	113.4	109.7	104.7	99.1
B Congenital Anomalies of the Eye	28.0	29.7	31.9	26.2	27.2	21.7	23.3	19.8	20.5
C Congenital Anomalies of the Ear, Face and Neck	35.8	39.3	42.9	51.1	41.6	37.2	35.3	44.6	46.7
D Congenital Anomalies of the Heart and Circulatory System	77.8	81.0	75.3	72.5	62.7	61.3	63.7	70.4	65.9
E Congenital Anomalies of the Respiratory System	122.9	113.0	117.7	109.8	89.4	76.9	73.3	82.3	89.4
F Cleft Palate and Cleft Lip	54.0	71.1	88.5	82.4	73.4	61.4	63.3	64.7	55.7
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	39.7	46.0	52.5	55.0	47.8	40.9	40.2	41.1	38.4
H Congenital Anomalies of the Genital and Urinary Systems	29.6	35.6	37.3	34.6	28.1	27.1	30.7	37.7	37.0
I Congenital Anomalies of the Musculoskeletal System	28.8	30.6	33.4	35.8	31.3	27.2	27.1	28.7	29.3
J Congenital Anomalies of the Integument	22.7	20.8	14.3	11.8	8.6	8.1	5.5	5.0	4.8
K Chromosomal Anomalies	171.2	176.6	178.2	192.6	153.0	138.8	127.5	144.1	132.7
L Other and Unspecified Congenital Anomalies	88.4	92.1	105.0	100.4	97.6	92.8	113.5	129.3	122.0

Table 16
Mortality Rates of Michigan Children with Reported Birth Defects
by Summary Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
Moving Three-year Mortality Rates
(Continued)

Other Reportable Conditions

Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
M Infectious Conditions Occurring in the Perinatal Period	103.8	103.9	86.0	78.9	68.4	73.5	54.8	64.6	55.2
N Familial/Congenital Neoplasms	*	*	-	-	-	*	*	*	-
O Endocrine/Metabolic Disorders	52.4	58.0	56.2	46.7	41.7	34.1	37.1	34.4	33.1
P Diseases of the Blood & Blood Forming Organs	63.9	55.9	48.3	55.8	60.5	62.1	59.2	55.5	54.9
Q Other Diseases of the Central and Peripheral Nervous System	30.6	30.9	30.9	33.0	32.4	38.9	34.5	37.2	26.8
R Other Diseases of the Eye	31.0	34.6	33.1	33.1	30.0	28.8	30.9	29.7	24.1
S Hearing Deficiency	9.5	14.6	16.8	16.9	11.1	10.6	10.4	10.3	6.9
T Other Diseases of the Heart & Circulatory System	84.0	74.4	81.2	81.5	87.8	86.5	81.7	81.6	67.5
U Other Diseases of the Gastrointestinal System	36.5	42.7	43.5	40.0	34.9	31.9	36.1	44.7	51.0
V Other Diseases of the Genital and Urinary Systems	*	*	*	*	*	*	*	*	*
W Other Fetal/Placental Anomalies	-	-	-	61.4	61.4	61.9	-	-	-
X Other Musculoskeletal System Diseases	-	-	-	-	-	-	-	-	-
Y Maternal Exposures Affecting Fetus	31.6	34.2	33.5	29.8	30.1	28.3	36.6	31.1	25.6
One or More Reportable Diagnosis	39.5	40.7	41.1	39.7	35.4	32.8	32.7	36.4	34.0

Notes:

Rates are Per 1,000 Michigan Born Resident Live Births. Rates represent the infant mortality rate for children with a diagnosed birth defect. The rates include all deaths within the first year of life to children reported with a birth defect who were born in Michigan and whose mother was a resident at the time of birth. Birth defect statistics sometimes reflect trends related to data reporting or new testing. See Data Quality Considerations for further details.

*: Figure does not meet standards of reliability or precision.

Conditions are reportable if identified within the first two years of a child's life. The mortality data in this table represent cases diagnosed within the first year of life.

Diagnoses are coded using the 9th revision to the International Classification of Diseases - ICD 9 CM. Diagnostic Code Groupings used for congenital anomaly codes are as used by the Centers for Disease Control. (See Birth Defect Groups and ICD-9-CM Diagnosis Codes for the codes used to categorize birth defects.)

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012

Table 17
Mortality Rates of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
Moving Three-year Mortality Rates

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
A Congenital Anomalies of the Central Nervous System	108.7	126.9	130.8	133.1	122.4	113.4	109.7	104.7	99.1
A01 Anencephalus	976.7	900.0	886.8	860.0	891.3	882.4	850.0	829.3	814.0
A02 Spina Bifida w/o Anencephaly	60.6	71.4	62.9	79.1	68.4	59.1	42.8	43.5	*
A03 Hydrocephalus w/o Spina Bifida	114.8	147.1	146.6	170.2	168.9	149.7	123.3	113.4	122.3
A04 Encephalocele	*	184.2	195.1	260.0	244.9	212.8	166.7	*	*
A05 Microcephalus	66.7	91.2	99.2	82.4	72.7	76.9	78.2	76.2	55.3
A99. All Other CNS Anomalies	92.2	116.1	110.1	113.0	96.9	102.9	92.7	80.4	62.4
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
B Congenital Anomalies of the Eye	28.0	29.7	31.9	26.2	27.2	21.7	23.3	19.8	20.5
B01 Anophthalmos/Microphthalmos	141.2	108.7	105.9	90.9	114.3	119.4	133.3	142.9	*
B02 Congenital Cataract	*	55.6	*	*	*	*	*	*	*
B03 Aniridia	-	-	-	*	*	*	-	-	-
B99. All Other Congenital Anomalies of the Eye	18.3	20.3	24.5	21.9	24.3	16.9	18.2	14.1	17.0
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
C Congenital Anomalies of the Ear, Face and Neck	35.8	39.3	42.9	51.1	41.6	37.2	35.3	44.6	46.7
C01 Anotia/Microtia	*	*	*	*	*	*	*	*	*
C99. All Other Congenital Anomalies of the Ear, Face and Neck	35.3	40.1	42.5	50.5	40.8	37.9	34.5	44.2	43.8

Table 17
Mortality Rates of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
Moving Three-year Mortality Rates
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
D Congenital Anomalies of the Heart and Circulatory System	77.8	81.0	75.3	72.5	62.7	61.3	63.7	70.4	65.9
D01 Common Truncus	155.6	135.6	113.2	122.8	120.0	140.0	200.0	204.5	152.2
D02 Transposition of Great Vessels	130.2	133.3	160.2	135.0	138.2	148.0	155.8	143.6	116.0
D03 Tetralogy of Fallot	109.0	82.9	98.0	104.0	92.3	75.0	99.5	108.7	89.5
D04 Ventricular Septal Defect	63.9	64.0	69.5	64.0	55.8	47.7	60.6	61.1	57.9
D05 Atrial Septal Defect	58.7	65.8	59.8	57.9	46.8	49.9	56.3	60.9	52.5
D06 Endocardial Cushion Defect	120.4	113.0	113.4	150.9	134.5	140.8	123.8	153.8	124.3
D07 Pulmonary Valve Atresia and Stenosis	70.9	66.8	58.3	59.2	55.4	53.7	72.6	69.8	66.0
D08 Tricuspid Valve Atresia and Stenosis	154.9	92.1	*	*	*	*	150.9	129.6	117.6
D09 Ebstein's Anomaly	169.5	118.8	123.1	*	*	206.9	206.9	250.0	230.8
D10 Aortic Valve Stenosis	70.0	65.2	*	68.0	101.0	105.3	113.6	101.3	90.9
D11 Hypoplastic Left Heart Syndrome	355.0	325.8	277.8	259.0	286.6	314.1	347.2	376.6	376.9
D12 Patent Ductus Arteriosus	86.1	94.0	95.0	100.8	86.5	88.1	95.6	99.3	89.7
D13 Coarctation of Aorta	97.0	99.2	119.5	136.4	160.0	161.5	138.6	115.6	71.1
D14 Pulmonary Artery Anomalies	58.2	56.5	47.6	52.2	35.2	42.2	49.7	69.7	57.9
D99. All Other Congenital Anomalies of the Heart and Circulatory System	108.9	112.3	101.3	96.8	84.9	81.6	85.5	101.2	103.8
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
E Congenital Anomalies of the Respiratory System	122.9	113.0	117.7	109.8	89.4	76.9	73.3	82.3	89.4
E01 Lung Agenesis/Hypoplasia	553.3	440.5	405.2	414.6	425.0	452.2	373.2	315.3	257.6
E02 Choanal Atresia	*	*	*	*	*	*	*	*	*
E99. All Other Congenital Anomalies of the Respiratory System	57.2	56.4	64.4	55.3	48.7	42.8	45.4	50.8	48.9
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
F Cleft Palate and Cleft Lip	54.0	71.1	88.5	82.4	73.4	61.4	63.3	64.7	55.7
F01 Cleft Palate	65.5	83.7	101.9	72.1	50.0	38.8	53.1	76.2	74.1
F02 Cleft Lip w and w/o Cleft Palate	47.4	64.3	81.7	87.7	86.5	74.9	69.5	57.3	45.2

Table 17
Mortality Rates of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
Moving Three-year Mortality Rates
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	39.7	46.0	52.5	55.0	47.8	40.9	40.2	41.1	38.4
G01 Esophageal Atresia/ Tracheoesophageal Fistula	104.8	125.0	139.7	148.1	121.0	113.0	120.0	153.8	102.9
G02 Rectal and Large Intestinal Atresia/Stenosis	45.2	64.9	95.2	118.9	105.0	79.4	65.9	67.1	54.1
G03 Pyloric Stenosis	11.0	9.1	*	*	*	*	*	*	*
G04 Hirshsprung's Disease (congenital megacolon)	44.4	45.1	*	*	*	*	*	-	-
G05 Biliary Atresia	*	*	*	*	*	*	*	*	*
G99. Other Cong. Anomalies of Upper Alimentary Canal / Digestive System	54.1	63.6	73.1	72.9	62.5	51.1	54.3	54.3	58.3
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
H Congenital Anomalies of the Genital and Urinary Systems	29.6	35.6	37.3	34.6	28.1	27.1	30.7	37.7	37.0
H01 Renal Agenesis/Hypoplasia	183.6	217.0	240.0	220.1	178.9	187.2	202.8	236.7	217.9
H02 Bladder Exstrophy	-	-	-	*	*	*	-	*	*
H03 Obstructive Genitourinary Defects	28.5	36.5	46.2	44.6	36.6	33.1	38.8	48.8	46.2
H04 Hypospadias & Epispadias	17.7	19.5	20.7	18.7	17.0	14.7	15.4	16.7	12.0
H99. All Other Congenital Anomalies of the Genital & Urinary Systems	26.0	31.8	33.5	31.7	26.2	25.3	28.2	33.8	34.0

Table 17
Mortality Rates of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
Moving Three-year Mortality Rates
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
I Congenital Anomalies of the Musculoskeletal System	28.8	30.6	33.4	35.8	31.3	27.2	27.1	28.7	29.3
I01 Upper Limb Reduction Deformities	*	56.1	80.8	103.4	115.4	70.6	71.4	*	*
I02 Lower Limb Reduction Deformities	*	*	*	*	79.5	*	*	*	*
I03 Gastroschisis/Omphalocele	95.2	126.3	114.4	130.4	103.2	108.9	90.9	101.4	100.5
I03a Omphalocele	---	---	---	---	---	---	---	---	---
I03b Gastroschisis	---	---	---	---	---	---	---	---	---
I03c Other and Unspecified Abdominal Wall Anomalies	95.2	126.3	114.4	130.4	103.2	108.9	90.9	104.5	107.6
I04 Congenital Hip Dislocation	*	*	*	*	*	*	*	*	*
I05 Diaphragmatic Hernia	287.0	322.6	315.0	297.7	214.8	215.4	221.4	256.4	245.5
I99. All Other Congenital Anomalies of the Musculoskeletal System	24.1	24.2	28.1	29.1	26.8	21.9	22.0	23.0	23.6
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
J Congenital Anomalies of the Integument	22.7	20.8	14.3	11.8	8.6	8.1	5.5	5.0	4.8
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
K Chromosomal Anomalies	171.2	176.6	178.2	192.6	153.0	138.8	127.5	144.1	132.7
K01 Trisomy 13	771.4	735.3	777.8	790.7	729.7	628.6	620.7	714.3	750.0
K02 Down Syndrome	95.3	99.8	91.3	93.3	65.8	62.1	64.7	76.9	60.5
K03 Trisomy 18	690.9	666.7	625.0	678.0	693.9	659.6	660.4	673.1	680.9
K99. All Other Chromosomal Anomalies	147.2	160.9	176.8	202.5	156.5	139.2	88.9	95.1	94.4
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
L Other and Unspecified Congenital Anomalies	88.4	92.1	105.0	100.4	97.6	92.8	113.5	129.3	122.0

Table 17
Mortality Rates of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
Moving Three-year Mortality Rates
(Continued)

Other Reportable Conditions

Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
M Infectious Conditions Occurring in the Perinatal Period	103.8	103.9	86.0	78.9	68.4	73.5	54.8	64.6	55.2
M01 Syphilis	*	*	*	*	*	*	*	*	*
M02 Other Infections	115.4	117.0	92.6	85.5	72.7	79.2	59.8	69.7	58.4
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
N Familial/Congenital Neoplasms	*	*	-	-	-	*	*	*	-
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
O Endocrine/Metabolic Disorders	52.4	58.0	56.2	46.7	41.7	34.1	37.1	34.4	33.1
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
P Diseases of the Blood & Blood Forming Organs	63.9	55.9	48.3	55.8	60.5	62.1	59.2	55.5	54.9
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
Q Other Diseases of the Central and Peripheral Nervous System	30.6	30.9	30.9	33.0	32.4	38.9	34.5	37.2	26.8
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
R Other Diseases of the Eye	31.0	34.6	33.1	33.1	30.0	28.8	30.9	29.7	24.1
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
S Hearing Deficiency	9.5	14.6	16.8	16.9	11.1	10.6	10.4	10.3	6.9
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
T Other Diseases of the Heart & Circulatory System	84.0	74.4	81.2	81.5	87.8	86.5	81.7	81.6	67.5

Table 17
Mortality Rates of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2010,
Cases Diagnosed within One Year from Birth
Moving Three-year Mortality Rates
(Continued)

Other Reportable Conditions

Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
U Other Diseases of the Gastrointestinal System	36.5	42.7	43.5	40.0	34.9	31.9	36.1	44.7	51.0
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
V Other Diseases of the Genital and Urinary Systems	*	*	*	*	*	*	*	*	*
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
W Other Fetal/Placental Anomalies	-	-	-	61.4	61.4	61.9	-	-	-
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
X Other Musculoskeletal System Diseases	-	-	-	-	-	-	-	-	-
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
Y Maternal Exposures Affecting Fetus	31.6	34.2	33.5	29.8	30.1	28.3	36.6	31.1	25.6
Y01 Fetal Alcohol Syndrome	*	*	*	*	*	-	-	-	-
Y99. Other Maternal Exposures Affecting the Fetus	32.2	33.4	31.2	28.8	30.5	29.7	37.8	31.7	25.9
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010
One or More Reportable Diagnosis	39.5	40.7	41.1	39.7	35.4	32.8	32.7	36.4	34.0

Notes:

Rates are per 1,000 Michigan Born Resident Live Births. Rates represent the infant mortality rate for children with a diagnosed birth defect. The rates include all deaths within the first year of life to children reported with a birth defect who were born in Michigan and whose mother was a resident at the time of birth. Birth defect statistics sometimes reflect trends related to data reporting or new testing. See Data Quality Considerations for further details. **Conditions** are reportable if identified within the first two years of a child's life. The prevalence frequencies in this table represent cases diagnosed within the first year of life.

* : Figure does not meet standards of reliability or precision.

Diagnoses are coded using the 9th revision to the International Classification of Diseases - ICD 9 CM. Diagnostic Code Groupings used for congenital anomaly codes are as used by the Centers for Disease Control. (See Birth Defect Groups and ICD-9-CM Diagnosis Codes for the codes used to categorize birth defects.)

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012

Last Updated on July 23, 2012

Table 18
Infant Deaths of Michigan Children with Reported Birth Defects
by Summary Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 1994-2010,
Cases Diagnosed within One Year from Birth
Six-year Infant Mortality Totals

Congenital Anomalies (740 - 759)

Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
A Congenital Anomalies of the Central Nervous System	326	307	324	342	355	372	377	396	385	378	343	298
B Congenital Anomalies of the Eye	48	44	44	54	55	60	61	62	57	50	45	37
C Congenital Anomalies of the Ear, Face and Neck	51	48	53	56	50	50	59	54	51	54	50	45
D Congenital Anomalies of the Heart and Circulatory System	1,028	1,017	1,037	1,051	1,077	1,067	1,074	1,065	1,020	1,020	954	861
E Congenital Anomalies of the Respiratory System	414	420	416	436	469	467	454	442	443	412	356	308
F Cleft Palate and Cleft Lip	72	63	62	67	75	83	84	91	92	88	82	67
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	180	179	184	189	196	200	206	208	201	199	181	151
H Congenital Anomalies of the Genital and Urinary Systems	306	310	312	331	357	366	368	362	362	356	325	285
I Congenital Anomalies of the Musculoskeletal System	380	376	375	368	385	409	420	415	405	401	360	322
J Congenital Anomalies of the Integument	28	29	31	31	32	35	37	39	34	33	35	35
K Chromosomal Anomalies	251	271	284	282	306	310	312	285	270	274	248	217
L Other and Unspecified Congenital Anomalies	265	286	314	327	360	382	373	359	340	312	260	199

Table 18
Infant Deaths of Michigan Children with Reported Birth Defects
by Summary Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 1994-2010,
Cases Diagnosed within One Year from Birth
Six-year Infant Mortality Totals
(Continued)

Other Reportable Conditions

Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
M Infectious Conditions Occurring in the Perinatal Period	59	69	88	101	105	101	97	83	61	47	46	47
N Familial/Congenital Neoplasms	8	6	6	3	2	2	2	1	1	1	1	1
O Endocrine/Metabolic Disorders	131	130	141	143	146	150	145	146	128	121	109	98
P Diseases of the Blood & Blood Forming Organs	114	115	111	107	105	96	93	94	91	96	95	98
Q Other Diseases of the Central and Peripheral Nervous System	83	78	77	78	74	64	66	65	69	64	61	54
R Other Diseases of the Eye	96	101	111	117	127	129	135	135	128	129	111	90
S Hearing Deficiency	8	10	12	19	30	34	38	39	39	36	27	22
T Other Diseases of the Heart & Circulatory System	243	238	233	237	239	235	216	208	214	207	210	192
U Other Diseases of the Gastrointestinal System	215	202	203	212	210	200	196	196	182	179	169	158
V Other Diseases of the Genital and Urinary Systems	4	2	2	2	3	4	4	4	4	4	3	2
W Other Fetal/Placental Anomalies	-	-	-	-	-	-	7	7	7	7	7	7
X Other Musculoskeletal System Diseases	-	-	-	-	-	-	-	-	-	-	-	-
Y Maternal Exposures Affecting Fetus	69	59	64	60	63	62	56	56	48	53	50	45
One or More Reportable Diagnosis	2,346	2,327	2,354	2,399	2,437	2,427	2,426	2,381	2,278	2,214	2,110	1,876

Notes:

Frequencies include all children reported with a birth defect who were born in Michigan and whose mother was a resident at the time of birth. This enables the calculation of birth defects mortality rates. Birth defect statistics sometimes reflect trends related to data reporting or new testing. See Data Quality Considerations for further details. Columns do not add to diagnostic group totals nor column totals due to cases with multiple diagnosed conditions that cross diagnostic groupings.

Conditions are reportable if identified within the first two years of a child's life. The mortality data in this table represent cases diagnosed within the first year of life.

Diagnoses are coded using the 9th revision to the International Classification of Diseases - ICD 9 CM. Diagnostic Code Groupings used for congenital anomaly codes are as used by the Centers for Disease Control. (See Birth Defect Groups and ICD-9-CM Diagnosis Codes for the codes used to categorize birth defects.)

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012

Table 19
Infant Deaths of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 1994-2010,
Cases Diagnosed within One Year from Birth
Six-year Infant Mortality Totals

Congenital Anomalies (740 - 759)

Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
A Congenital Anomalies of the Central Nervous System	326	307	324	342	355	372	377	396	385	378	343	298
A01 Anencephalus	66	72	66	76	80	86	85	77	77	77	75	65
A02 Spina Bifida w/o Anencephaly	33	29	31	29	26	25	24	25	21	22	20	16
A03 Hydrocephalus w/o Spina Bifida	93	87	97	98	105	107	112	123	112	109	102	90
A04 Encephalocele	20	16	16	14	16	14	18	19	18	19	16	13
A05 Microcephalus	48	40	40	51	53	58	56	63	69	59	52	45
A99. All Other CNS Anomalies	122	112	125	135	145	159	168	180	181	176	147	129
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
B Congenital Anomalies of the Eye	48	44	44	54	55	60	61	62	57	50	45	37
B01 Anophthalmos/Microphthalmos	12	12	14	18	18	18	19	18	17	15	15	12
B02 Congenital Cataract	5	4	5	5	7	7	8	9	8	8	6	6
B03 Aniridia	-	-	-	-	-	-	1	1	1	1	1	1
B99. All Other Congenital Anomalies of the Eye	33	30	30	34	33	40	41	44	40	37	34	27
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
C Congenital Anomalies of the Ear, Face and Neck	51	48	53	56	50	50	59	54	51	54	50	45
C01 Anotia/Microtia	1	2	3	3	5	5	5	4	4	6	4	5
C99. All Other Congenital Anomalies of the Ear, Face and Neck	50	46	51	54	48	48	57	53	50	52	48	43

Table 19
Infant Deaths of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 1994-2010,
Cases Diagnosed within One Year from Birth
Six-year Infant Mortality Totals
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
D Congenital Anomalies of the Heart and Circulatory System	1,028	1,017	1,037	1,051	1,077	1,067	1,074	1,065	1,020	1,020	954	861
D01 Common Truncus	18	15	18	17	14	14	14	14	13	18	15	14
D02 Transposition of Great Vessels	64	64	62	63	57	55	52	54	62	58	57	54
D03 Tetralogy of Fallot	57	57	53	50	52	49	44	36	35	42	38	32
D04 Ventricular Septal Defect	207	211	211	212	215	223	211	199	194	206	183	156
D05 Atrial Septal Defect	270	273	294	306	321	327	348	355	361	390	359	330
D06 Endocardial Cushion Defect	67	62	62	56	54	58	61	57	57	61	58	52
D07 Pulmonary Valve Atresia and Stenosis	62	65	73	73	72	64	59	57	51	60	51	47
D08 Tricuspid Valve Atresia and Stenosis	18	20	19	19	16	14	14	10	9	11	10	10
D09 Ebstein's Anomaly	5	13	18	25	25	25	22	17	14	8	11	12
D10 Aortic Valve Stenosis	24	23	26	25	19	14	14	16	13	17	18	16
D11 Hypoplastic Left Heart Syndrome	132	132	137	136	125	112	103	103	94	93	103	98
D12 Patent Ductus Arteriosus	367	349	341	336	351	369	395	405	414	456	405	369
D13 Coarctation of Aorta	63	62	56	61	58	60	56	64	72	70	66	56
D14 Pulmonary Artery Anomalies	87	90	102	96	100	95	92	79	75	83	79	73
D99. All Other Congenital Anomalies of the Heart and Circulatory System	616	600	614	621	630	630	628	629	596	587	563	508
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
E Congenital Anomalies of the Respiratory System	414	420	416	436	469	467	454	442	443	412	356	308
E01 Lung Agenesis/Hypoplasia	298	309	303	297	319	299	283	256	245	226	183	163
E02 Choanal Atresia	9	9	11	12	7	5	5	5	4	5	6	8
E99. All Other Congenital Anomalies of the Respiratory System	121	118	120	149	164	185	191	204	217	203	184	153
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
F Cleft Palate and Cleft Lip	72	63	62	67	75	83	84	91	92	88	82	67
F01 Cleft Palate	30	26	24	27	32	32	30	30	30	27	28	23
F02 Cleft Lip w and w/o Cleft Palate	42	37	38	40	43	51	54	61	62	61	54	44

Table 19
Infant Deaths of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 1994-2010,
Cases Diagnosed within One Year from Birth
Six-year Infant Mortality Totals
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	180	179	184	189	196	200	206	208	201	199	181	151
G01 Esophageal Atresia/ Tracheoesophageal Fistula	27	27	28	28	29	33	33	32	32	32	27	20
G02 Rectal and Large Intestinal Atresia/Stenosis	39	35	30	28	28	30	31	33	33	34	31	23
G03 Pyloric Stenosis	5	9	12	12	14	14	14	10	7	6	4	4
G04 Hirshsprung's Disease (congenital megacolon)	8	5	8	8	9	8	7	8	4	3	2	2
G05 Biliary Atresia	8	8	8	6	6	6	6	6	6	5	8	7
G99. Other Cong. Anomalies of Upper Alimentary Canal / Digestive System	118	117	124	131	135	139	146	149	146	146	132	112
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
H Congenital Anomalies of the Genital and Urinary Systems	306	310	312	331	357	366	368	362	362	356	325	285
H01 Renal Agenesis/Hypoplasia	96	95	89	91	101	97	93	85	92	90	83	77
H02 Bladder Exstrophy	3	3	3	2	2	1	2	2	2	2	3	4
H03 Obstructive Genitourinary Defects	45	51	45	49	57	61	65	66	71	74	68	57
H04 Hypospadias & Epispadias	8	12	21	29	30	38	45	43	41	40	38	29
H99. All Other Congenital Anomalies of the Genital & Urinary Systems	236	233	236	251	268	278	277	279	280	273	245	212

Table 19
Infant Deaths of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 1994-2010,
Cases Diagnosed within One Year from Birth
Six-year Infant Mortality Totals
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
I Congenital Anomalies of the Musculoskeletal System	380	376	375	368	385	409	420	415	405	401	360	322
I01 Upper Limb Reduction Deformities	15	12	12	9	9	13	14	15	14	16	13	9
I02 Lower Limb Reduction Deformities	15	10	11	11	6	8	8	10	9	7	9	6
I03 Gastroschisis/Omphalocele	56	52	51	46	48	44	48	51	51	52	47	47
I03a Omphalocele	---	---	---	---	---	---	---	---	---	---	---	---
I03b Gastroschisis	---	---	---	---	---	---	---	---	---	---	---	---
I03c Other and Unspecified Abdominal Wall Anomalies	56	52	51	46	48	44	48	51	51	52	47	45
I04 Congenital Hip Dislocation	13	11	12	12	8	8	8	6	5	4	4	5
I05 Diaphragmatic Hernia	74	75	69	65	70	73	72	69	68	68	59	55
I99. All Other Congenital Anomalies of the Musculoskeletal System	256	256	259	258	270	300	311	308	303	296	271	234
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
J Congenital Anomalies of the Integument	28	29	31	31	32	35	37	39	34	33	35	35
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
K Chromosomal Anomalies	251	271	284	282	306	310	312	285	270	274	248	217
K01 Trisomy 13	51	57	56	55	56	59	61	52	50	52	47	40
K02 Down Syndrome	71	72	82	82	90	93	93	84	76	77	67	56
K03 Trisomy 18	83	82	83	80	88	87	78	80	71	75	69	63
K99. All Other Chromosomal Anomalies	59	77	85	88	105	103	112	97	98	92	77	70
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
L Other and Unspecified Congenital Anomalies	265	286	314	327	360	382	373	359	340	312	260	199

Table 19
Infant Deaths of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 1994-2010,
Cases Diagnosed within One Year from Birth
Six-year Infant Mortality Totals
(Continued)

Other Reportable Conditions

Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
M Infectious Conditions Occurring in the Perinatal Period	59	69	88	101	105	101	97	83	61	47	46	47
M01 Syphilis	6	4	3	4	2	2	3	3	3	3	3	3
M02 Other Infections	53	65	85	97	103	99	94	80	58	44	43	44
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
N Familial/Congenital Neoplasms	8	6	6	3	2	2	2	1	1	1	1	1
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
O Endocrine/Metabolic Disorders	131	130	141	143	146	150	145	146	128	121	109	98
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
P Diseases of the Blood & Blood Forming Organs	114	115	111	107	105	96	93	94	91	96	95	98
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
Q Other Diseases of the Central and Peripheral Nervous System	83	78	77	78	74	64	66	65	69	64	61	54
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
R Other Diseases of the Eye	96	101	111	117	127	129	135	135	128	129	111	90
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
S Hearing Deficiency	8	10	12	19	30	34	38	39	39	36	27	22
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
T Other Diseases of the Heart & Circulatory System	243	238	233	237	239	235	216	208	214	207	210	192

Table 19
Infant Deaths of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 1994-2010,
Cases Diagnosed within One Year from Birth
Six-year Infant Mortality Totals
(Continued)

Other Reportable Conditions

Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
U Other Diseases of the Gastrointestinal System	215	202	203	212	210	200	196	196	182	179	169	158
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
V Other Diseases of the Genital and Urinary Systems	4	2	2	2	3	4	4	4	4	4	3	2
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
W Other Fetal/Placental Anomalies	-	-	-	-	-	-	7	7	7	7	7	7
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
X Other Musculoskeletal System Diseases	-	-	-	-	-	-	-	-	-	-	-	-
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
Y Maternal Exposures Affecting Fetus	69	59	64	60	63	62	56	56	48	53	50	45
Y01 Fetal Alcohol Syndrome	10	7	6	4	4	5	3	3	3	2	1	-
Y99. Other Maternal Exposures Affecting the Fetus	60	53	59	57	60	58	53	53	45	51	49	45
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
One or More Reportable Diagnosis	2,346	2,327	2,354	2,399	2,437	2,427	2,426	2,381	2,278	2,214	2,110	1,876

Notes:

Frequencies include all children reported with a birth defect who were born in Michigan and whose mother was a resident at the time of birth. This enables the calculation of birth defects prevalence rates. Birth defect statistics sometimes reflect trends related to data reporting or new testing. See Data Quality Considerations for further details. Columns do not add to diagnostic group totals nor column totals due to cases with multiple diagnosed conditions that cross diagnostic groupings.

Conditions are reportable if identified within the first two years of a child's life. The prevalence frequencies in this table represent cases diagnosed within the first year of life.

Diagnoses are coded using the 9th revision to the International Classification of Diseases - ICD 9 CM. Diagnostic Code Groupings used for congenital anomaly codes are as used by the Centers for Disease Control. (See Birth Defect Groups and ICD-9-CM Diagnosis Codes for the codes used to categorize birth defects.)

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012

Last Updated on July 23, 2012

Table 20
Mortality Rates of Michigan Children with Reported Birth Defects
by Summary Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 1994-2010,
Cases Diagnosed within One Year from Birth
Moving Six-year Mortality Rates

Congenital Anomalies (740 - 759)

Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
A Congenital Anomalies of the Central Nervous System	135.0	122.8	124.2	123.0	123.5	122.7	121.1	124.6	122.0	121.6	114.4	107.2
B Congenital Anomalies of the Eye	28.3	24.1	22.7	25.8	24.9	26.7	27.1	28.5	27.2	24.9	23.9	21.2
C Congenital Anomalies of the Ear, Face and Neck	42.1	41.0	44.6	44.3	39.5	38.8	43.3	40.4	40.1	43.8	42.9	41.3
D Congenital Anomalies of the Heart and Circulatory System	83.4	83.2	82.3	81.5	81.5	77.4	75.0	71.4	68.1	68.1	66.2	63.3
E Congenital Anomalies of the Respiratory System	193.0	186.1	162.5	152.0	142.4	129.4	115.7	99.9	94.7	90.7	86.5	80.8
F Cleft Palate and Cleft Lip	56.5	49.3	47.7	51.4	58.2	65.4	67.9	72.2	74.9	72.9	69.2	58.8
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	43.6	42.3	41.7	42.1	43.7	44.8	46.8	46.8	46.7	47.4	44.7	39.8
H Congenital Anomalies of the Genital and Urinary Systems	34.6	33.0	31.6	31.8	33.2	32.8	32.1	31.8	32.1	32.8	32.1	30.9
I Congenital Anomalies of the Musculoskeletal System	37.0	36.0	33.8	31.2	31.3	32.4	32.2	31.0	30.2	31.4	30.2	28.1
J Congenital Anomalies of the Integument	14.1	15.6	17.0	17.2	18.0	17.8	16.2	12.0	10.0	7.4	6.6	6.2
K Chromosomal Anomalies	164.3	175.5	177.6	174.6	184.1	180.4	181.9	164.6	158.5	160.3	148.8	136.0
L Other and Unspecified Congenital Anomalies	148.8	134.7	118.0	106.3	103.7	101.2	94.3	94.6	99.9	104.9	107.2	100.9

Table 20
Mortality Rates of Michigan Children with Reported Birth Defects
by Summary Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 1994-2010,
Cases Diagnosed within One Year from Birth
Moving Six-year Mortality Rates
(Continued)

Other Reportable Conditions

Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
M Infectious Conditions Occurring in the Perinatal Period	71.5	80.0	92.1	93.3	95.5	94.4	95.1	91.8	81.4	67.0	66.3	61.8
N Familial/Congenital Neoplasms	96.4	68.2	66.7	*	*	*	*	*	*	*	*	*
O Endocrine/Metabolic Disorders	62.8	56.5	56.1	53.3	51.8	52.1	49.7	49.9	44.7	41.7	38.1	33.6
P Diseases of the Blood & Blood Forming Organs	90.0	89.6	86.7	79.6	73.8	65.2	59.6	58.4	55.6	57.5	58.1	58.6
Q Other Diseases of the Central and Peripheral Nervous System	41.3	38.2	36.9	36.9	35.1	30.2	31.8	31.6	34.9	33.7	34.4	34.3
R Other Diseases of the Eye	24.6	25.1	26.9	28.1	30.3	30.3	32.0	32.3	30.9	32.1	29.8	27.0
S Hearing Deficiency	8.6	8.5	7.4	8.9	12.3	12.7	12.9	13.0	13.9	13.8	10.8	8.9
T Other Diseases of the Heart & Circulatory System	80.0	82.6	81.0	80.5	81.0	84.4	82.9	80.8	83.9	81.6	84.7	77.6
U Other Diseases of the Gastrointestinal System	41.2	38.8	38.4	40.5	40.5	39.0	38.1	38.9	37.8	38.1	39.2	39.6
V Other Diseases of the Genital and Urinary Systems	*	*	*	*	*	*	*	*	*	*	*	*
W Other Fetal/Placental Anomalies	-	-	-	-	-	-	60.3	59.3	58.8	59.3	60.3	60.9
X Other Musculoskeletal System Diseases	-	-	-	-	-	-	-	-	-	-	-	-
Y Maternal Exposures Affecting Fetus	29.1	27.0	30.0	29.7	33.3	34.1	30.8	32.1	30.8	33.3	30.6	26.9
One or More Reportable Diagnosis	46.1	45.1	43.6	42.8	42.3	41.0	39.6	37.9	36.8	36.2	35.8	33.3

Notes:

Rates are Per 1,000 Michigan Born Resident Live Births. Rates represent the infant mortality rate for children with a diagnosed birth defect. The rates include all deaths within the first year of life to children reported with a birth defect who were born in Michigan and whose mother was a resident at the time of birth. Birth defect statistics sometimes reflect trends related to data reporting or new testing. See Data Quality Considerations for further details.

*: Figure does not meet standards of reliability or precision.

Conditions are reportable if identified within the first two years of a child's life. The mortality data in this table represent cases diagnosed within the first year of life.

Diagnoses are coded using the 9th revision to the International Classification of Diseases - ICD 9 CM. Diagnostic Code Groupings used for congenital anomaly codes are as used by the Centers for Disease Control. (See Birth Defect Groups and ICD-9-CM Diagnosis Codes for the codes used to categorize birth defects.)

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012

Table 21
Mortality Rates of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 1994-2010,
Cases Diagnosed within One Year from Birth
Moving Six-year Mortality Rates

Congenital Anomalies (740 - 759)

Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
A Congenital Anomalies of the Central Nervous System	135.0	122.8	124.2	123.0	123.5	122.7	121.1	124.6	122.0	121.6	114.4	107.2
A01 Anencephalus	956.5	960.0	956.5	962.0	941.2	924.7	914.0	895.3	885.1	855.6	862.1	844.2
A02 Spina Bifida w/o Anencephaly	98.5	88.4	93.4	90.1	81.3	75.1	70.2	69.8	60.9	60.4	57.0	47.6
A03 Hydrocephalus w/o Spina Bifida	126.2	116.9	125.5	123.0	133.8	132.3	141.1	157.7	148.1	147.1	142.9	138.0
A04 Encephalocele	266.7	219.2	238.8	209.0	225.4	179.5	200.0	218.4	204.5	220.9	197.5	183.1
A05 Microcephalus	93.8	73.4	69.9	80.6	78.5	80.0	74.6	81.6	87.8	80.4	74.2	68.6
A99. All Other CNS Anomalies	108.8	96.1	101.0	99.3	101.0	103.0	103.4	105.9	106.5	103.1	89.4	85.3
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
B Congenital Anomalies of the Eye	28.3	24.1	22.7	25.8	24.9	26.7	27.1	28.5	27.2	24.9	23.9	21.2
B01 Anophthalmos/Microphthalmos	89.6	89.6	99.3	114.6	109.8	113.9	117.3	111.1	111.8	109.5	126.1	111.1
B02 Congenital Cataract	*	*	*	*	33.7	33.2	37.2	45.9	43.0	44.9	38.7	39.7
B03 Aniridia	-	-	-	-	-	-	*	*	*	*	*	*
B99. All Other Congenital Anomalies of the Eye	22.3	18.6	17.3	18.2	16.6	19.7	20.1	22.2	21.0	20.2	19.7	16.9
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
C Congenital Anomalies of the Ear, Face and Neck	42.1	41.0	44.6	44.3	39.5	38.8	43.3	40.4	40.1	43.8	42.9	41.3
C01 Anotia/Microtia	*	*	*	*	*	*	*	*	*	63.8	*	*
C99. All Other Congenital Anomalies of the Ear, Face and Neck	42.4	40.5	44.2	44.1	39.0	38.3	42.8	40.5	40.3	43.2	42.3	40.4

Table 21
Mortality Rates of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
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Moving Six-year Mortality Rates
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
D Congenital Anomalies of the Heart and Circulatory System	83.4	83.2	82.3	81.5	81.5	77.4	75.0	71.4	68.1	68.1	66.2	63.3
D01 Common Truncus	180.0	163.0	173.1	163.5	132.1	140.0	137.3	128.4	126.2	160.7	159.6	145.8
D02 Transposition of Great Vessels	173.4	173.9	166.2	164.5	153.6	152.4	132.7	136.0	153.5	145.4	140.7	133.7
D03 Tetralogy of Fallot	128.1	130.4	120.7	114.7	117.6	116.4	106.5	87.4	86.6	101.7	100.3	82.1
D04 Ventricular Septal Defect	64.8	66.9	66.0	65.3	65.8	68.7	63.9	59.8	58.5	62.3	58.2	52.2
D05 Atrial Septal Defect	64.6	62.8	64.4	63.4	62.9	59.4	58.2	55.1	54.4	57.1	53.3	51.1
D06 Endocardial Cushion Defect	170.1	159.0	152.0	134.6	124.1	130.0	136.2	123.4	126.4	138.0	143.2	133.3
D07 Pulmonary Valve Atresia and Stenosis	69.0	74.5	79.3	80.7	77.9	70.9	64.8	61.1	55.9	65.6	61.7	58.6
D08 Tricuspid Valve Atresia and Stenosis	181.8	204.1	168.1	153.2	128.0	116.7	112.0	84.0	81.8	102.8	103.1	97.1
D09 Ebstein's Anomaly	*	134.0	130.4	149.7	147.1	148.8	139.2	126.9	148.9	115.9	193.0	218.2
D10 Aortic Valve Stenosis	135.6	121.7	136.8	125.0	91.3	66.0	69.0	83.8	66.7	89.0	101.1	99.4
D11 Hypoplastic Left Heart Syndrome	463.2	458.3	447.7	427.7	391.8	344.6	307.5	307.5	295.6	300.0	331.2	342.7
D12 Patent Ductus Arteriosus	95.3	96.1	93.6	93.2	93.6	93.1	94.3	90.0	91.4	98.2	92.2	88.8
D13 Coarctation of Aorta	145.8	135.4	121.5	128.2	117.2	122.4	116.9	130.1	140.9	137.5	138.9	122.5
D14 Pulmonary Artery Anomalies	68.1	68.5	71.1	62.4	62.8	58.7	55.2	46.0	44.8	51.0	50.8	48.9
D99. All Other Congenital Anomalies of the Heart and Circulatory System	111.1	109.7	109.7	109.8	110.6	105.0	102.4	97.7	91.5	91.2	92.1	90.9
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
E Congenital Anomalies of the Respiratory System	193.0	186.1	162.5	152.0	142.4	129.4	115.7	99.9	94.7	90.7	86.5	80.8
E01 Lung Agenesis/Hypoplasia	675.7	670.3	635.2	600.0	550.0	497.5	470.9	433.2	423.9	399.3	378.9	355.1
E02 Choanal Atresia	78.9	75.0	83.3	85.1	50.4	*	*	*	*	*	54.1	72.7
E99. All Other Congenital Anomalies of the Respiratory System	69.6	64.4	56.6	61.5	59.1	60.2	56.2	52.0	51.8	49.9	49.5	44.6
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
F Cleft Palate and Cleft Lip	56.5	49.3	47.7	51.4	58.2	65.4	67.9	72.2	74.9	72.9	69.2	58.8
F01 Cleft Palate	62.4	55.2	50.7	57.3	69.0	71.3	68.6	67.1	68.5	62.2	63.2	54.6
F02 Cleft Lip w and w/o Cleft Palate	53.0	45.8	45.9	48.1	52.1	62.2	67.5	75.0	78.4	78.9	72.8	61.2

Table 21
Mortality Rates of Michigan Children with Reported Birth Defects
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Michigan Resident Children Born in Michigan During 1994-2010,
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Moving Six-year Mortality Rates
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	43.6	42.3	41.7	42.1	43.7	44.8	46.8	46.8	46.7	47.4	44.7	39.8
G01 Esophageal Atresia/ Tracheoesophageal Fistula	98.2	102.3	107.7	108.1	113.3	126.0	127.4	123.1	127.5	136.2	133.7	109.3
G02 Rectal and Large Intestinal Atresia/Stenosis	106.8	90.9	78.3	73.3	71.8	77.7	80.7	85.7	87.3	92.6	88.8	68.2
G03 Pyloric Stenosis	*	6.1	7.6	7.5	9.0	9.4	9.8	7.1	5.4	4.7	*	*
G04 Hirshsprung's Disease (congenital megacolon)	32.7	*	29.5	30.0	33.3	30.3	27.8	32.5	*	*	*	*
G05 Biliary Atresia	73.4	72.7	76.9	65.9	65.2	65.2	69.0	72.3	75.9	*	98.8	93.3
G99. Other Cong. Anomalies of Upper Alimentary Canal / Digestive System	59.8	56.7	58.2	59.8	60.4	61.0	63.1	63.0	61.6	63.2	58.7	54.0
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
H Congenital Anomalies of the Genital and Urinary Systems	34.6	33.0	31.6	31.8	33.2	32.8	32.1	31.8	32.1	32.8	32.1	30.9
H01 Renal Agenesis/Hypoplasia	221.2	206.5	190.2	191.2	208.7	204.2	200.0	200.0	215.0	211.3	209.1	201.6
H02 Bladder Exstrophy	*	*	*	*	*	*	*	*	*	*	*	*
H03 Obstructive Genitourinary Defects	34.6	37.4	31.5	32.7	36.3	36.6	36.9	36.6	39.6	41.8	41.8	38.2
H04 Hypospadias & Epispadias	5.9	6.7	9.9	12.3	12.6	15.8	18.2	18.2	17.7	17.1	16.8	13.4
H99. All Other Congenital Anomalies of the Genital & Urinary Systems	30.7	29.4	28.8	29.5	30.2	29.8	28.8	28.9	29.3	30.0	29.3	28.3

Table 21
Mortality Rates of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 1994-2010,
Cases Diagnosed within One Year from Birth
Moving Six-year Mortality Rates
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
I Congenital Anomalies of the Musculoskeletal System	37.0	36.0	33.8	31.2	31.3	32.4	32.2	31.0	30.2	31.4	30.2	28.1
I01 Upper Limb Reduction Deformities	71.4	55.8	56.1	41.3	41.5	62.2	70.0	81.1	76.1	86.5	73.9	50.3
I02 Lower Limb Reduction Deformities	111.1	76.3	82.1	80.9	41.4	52.6	50.0	59.9	56.6	45.8	59.2	42.3
I03 Gastroschisis/Omphalocele	134.3	133.3	129.8	124.7	124.4	110.3	114.6	113.3	111.4	110.2	102.4	105.4
I03a Omphalocele	---	---	---	---	---	---	---	---	---	---	---	---
I03b Gastroschisis	---	---	---	---	---	---	---	---	---	---	---	---
I03c Other and Unspecified Abdominal Wall Anomalies	134.3	133.3	129.8	124.7	124.4	110.3	114.6	113.3	111.4	110.2	103.8	108.4
I04 Congenital Hip Dislocation	11.8	10.1	10.8	10.6	7.1	7.2	7.6	5.9	*	*	*	*
I05 Diaphragmatic Hernia	308.3	312.5	285.1	279.0	288.1	288.5	292.7	266.4	264.6	259.5	234.1	229.2
I99. All Other Congenital Anomalies of the Musculoskeletal System	29.3	28.6	27.0	24.9	24.9	26.8	26.6	25.5	24.8	25.6	25.1	22.6
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
J Congenital Anomalies of the Integument	14.1	15.6	17.0	17.2	18.0	17.8	16.2	12.0	10.0	7.4	6.6	6.2
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
K Chromosomal Anomalies	164.3	175.5	177.6	174.6	184.1	180.4	181.9	164.6	158.5	160.3	148.8	136.0
K01 Trisomy 13	662.3	721.5	727.3	743.2	767.1	797.3	782.1	732.4	704.2	722.2	723.1	678.0
K02 Down Syndrome	82.8	85.0	92.2	88.7	97.0	96.3	94.3	82.1	76.6	79.2	70.7	61.4
K03 Trisomy 18	830.0	811.9	790.5	733.9	704.0	696.0	684.2	678.0	639.6	669.6	683.2	670.2
K99. All Other Chromosomal Anomalies	106.9	131.2	140.0	146.4	164.3	157.3	174.5	158.8	158.1	145.8	124.2	117.6
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
L Other and Unspecified Congenital Anomalies	148.8	134.7	118.0	106.3	103.7	101.2	94.3	94.6	99.9	104.9	107.2	100.9

Table 21
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(Continued)

Other Reportable Conditions

Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
M Infectious Conditions Occurring in the Perinatal Period	71.5	80.0	92.1	93.3	95.5	94.4	95.1	91.8	81.4	67.0	66.3	61.8
M01 Syphilis	22.8	*	*	*	*	*	*	*	*	*	*	*
M02 Other Infections	94.3	99.5	111.7	108.0	111.0	105.1	105.3	101.5	87.7	72.7	71.1	65.9
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
N Familial/Congenital Neoplasms	96.4	68.2	66.7	*	*	*	*	*	*	*	*	*
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
O Endocrine/Metabolic Disorders	62.8	56.5	56.1	53.3	51.8	52.1	49.7	49.9	44.7	41.7	38.1	33.6
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
P Diseases of the Blood & Blood Forming Organs	90.0	89.6	86.7	79.6	73.8	65.2	59.6	58.4	55.6	57.5	58.1	58.6
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
Q Other Diseases of the Central and Peripheral Nervous System	41.3	38.2	36.9	36.9	35.1	30.2	31.8	31.6	34.9	33.7	34.4	34.3
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
R Other Diseases of the Eye	24.6	25.1	26.9	28.1	30.3	30.3	32.0	32.3	30.9	32.1	29.8	27.0
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
S Hearing Deficiency	8.6	8.5	7.4	8.9	12.3	12.7	12.9	13.0	13.9	13.8	10.8	8.9
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
T Other Diseases of the Heart & Circulatory System	80.0	82.6	81.0	80.5	81.0	84.4	82.9	80.8	83.9	81.6	84.7	77.6

Table 21
Mortality Rates of Michigan Children with Reported Birth Defects
by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 1994-2010,
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(Continued)

Other Reportable Conditions

Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
U Other Diseases of the Gastrointestinal System	41.2	38.8	38.4	40.5	40.5	39.0	38.1	38.9	37.8	38.1	39.2	39.6
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
V Other Diseases of the Genital and Urinary Systems	*	*	*	*	*	*	*	*	*	*	*	*
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
W Other Fetal/Placental Anomalies	-	-	-	-	-	-	60.3	59.3	58.8	59.3	60.3	60.9
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
X Other Musculoskeletal System Diseases	-	-	-	-	-	-	-	-	-	-	-	-
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
Y Maternal Exposures Affecting Fetus	29.1	27.0	30.0	29.7	33.3	34.1	30.8	32.1	30.8	33.3	30.6	26.9
Y01 Fetal Alcohol Syndrome	54.1	40.7	39.0	*	*	*	*	*	*	*	*	-
Y99. Other Maternal Exposures Affecting the Fetus	26.8	25.8	29.2	29.7	33.4	33.8	30.7	32.0	30.4	33.5	31.1	27.7
Diagnostic Grouping	1994 to 1999	1995 to 2000	1996 to 2001	1997 to 2002	1998 to 2003	1999 to 2004	2000 to 2005	2001 to 2006	2002 to 2007	2003 to 2008	2004 to 2009	2005 to 2010
One or More Reportable Diagnosis	46.1	45.1	43.6	42.8	42.3	41.0	39.6	37.9	36.8	36.2	35.8	33.3

Notes:

Rates are per 1,000 Michigan Born Resident Live Births. Rates represent the infant mortality rate for children with a diagnosed birth defect. The rates include all deaths within the first year of life to children reported with a birth defect who were born in Michigan and whose mother was a resident at the time of birth. Birth defect statistics sometimes reflect trends related to data reporting or new testing. See Data Quality Considerations for further details.

Conditions are reportable if identified within the first two years of a child's life. The prevalence frequencies in this table represent cases diagnosed within the first year of life.

* : Figure does not meet standards of reliability or precision.

Diagnoses are coded using the 9th revision to the International Classification of Diseases - ICD 9 CM. Diagnostic Code Groupings used for congenital anomaly codes are as used by the Centers for Disease Control. (See Birth Defect Groups and ICD-9-CM Diagnosis Codes for the codes used to categorize birth defects.)

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through March 15, 2012

Last Updated on July 23, 2012

Appendix A

The Michigan Birth Defects registry uses the 9th revision to the International Classification of Diseases (ICD-9-CM) to code diagnosis. Diagnostic Code Groupings used for congenital anomaly codes were established by the [Centers for Disease Control](#).

Birth Defect Groups and ICD-9-CM Diagnosis Codes

Congenital Anomalies (740 - 759)

Diagnostic Grouping and Description	ICD-9-CM Code
A. Congenital Anomalies of the Central Nervous System	740-742
A01. Anencephalus	740.0,740.1
A02. Spina Bifida w/o Anencephaly	741.0, 741.9, w/o 740.0 or 740.1
A03. Hydrocephalus w/o Spina Bifida	742.3 w/o 741.0 or 741.9
A04. Encephalocele	742.0
A05. Microcephalus	742.1
B. Congenital Anomalies of the Eye	743
B01. Anophthalmos/Microphthalmos	743.00-743.06, 743.10-743.12
B02. Congenital Cataract	743.30 - 743.34
B03. Aniridia	743.45
C. Congenital Anomalies of the Ear, Face and Neck	744
C01. Anotia/Microtia	744.01,744.23
D. Congenital Anomalies of the Heart and Circulatory System	745-746
D01. Common Truncus	745.0
D02. Transposition of Great Vessels	745.10, 745.11, 745.12, 745.19
D03. Tetralogy of Fallot	745.2
D04. Ventricular Septal Defect	745.4
D05. Atrial Septal Defect	745.5
D06. Endocardial Cushion Defect	745.60, 745.61, 745.69
D07. Pulmonary Valve Atresia and Stenosis	746.01, 746.02
D08. Tricuspid Valve Atresia and Stenosis	746.1
D09. Ebstein's Anomaly	746.2
D10. Aortic Valve Stenosis	746.3
D11. Hypoplastic Left Heart Syndrome	746.7
D12. Patent Ductus Arteriosus	747.0
D13. Coarctation of Aorta	747.10
D14. Pulmonary Artery Anomalies	747.3
E. Congenital Anomalies of the Respiratory System	747 - 748
E01. Lung Agenesis/Hypoplasia	748.5
E02. Choanal Atresia	748.0

Birth Defect Groups and ICD-9-CM Diagnosis Codes (Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping and Description	ICD-9-CM Code
F. Cleft Palate and Cleft Lip	749
F01. Cleft Palate	749.00 - 749.04 w/o Cleft Lip 749.1 or 749.2
F02. Cleft Lip w and w/o Cleft Palate	749.1, 749.2
G. Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	750-751
G01. Esophageal Atresia/ Tracheoesophageal Fistula	750.3
G02. Rectal and Large Intestinal Atresia/Stenosis	751.2
G03. Pyloric Stenosis	750.5
G04. Hirshsprung's Disease (congenital megacolon)	751.3
G05. Biliary Atresia	751.61
H. Congenital Anomalies of the Genital and Urinary Systems	752 - 753
H01. Renal Agenesis/Hypoplasia	753.0
H02. Bladder Exstrophy	753.5
H03. Obstructive Genitourinary Defects	753.20-753.29, 753.6
H04. Hypospadias & Epispadias	752.61, 752.62
I. Congenital Anomalies of the Musculoskeletal System	754 - 756
I01. Upper Limb Reduction Deformities	755.20 - 755.29
I02. Lower Limb Reduction Deformities	755.30 - 755.39
I03. Gastroschisis/Omphalocele	756.7
I03(a) Omphalocele	756.72
I03(b) Gastroschisis	756.73
I03(c) Other and Unspecified Abdominal Wall Anomalies	756.79
I04. Congenital Hip Dislocation	754.30, 754.31, 754.35
I05. Diaphragmatic Hernia	756.6
J. Congenital Anomalies of the Integument	757
K. Chromosomal Anomalies	758
K01. Trisomy 13	758.1
K02. Down Syndrome	758.0
K03. Trisomy 18	758.2
L. Other and Unspecified Congenital Anomalies	759

**Birth Defect Groups and ICD-9-CM Diagnosis Codes
(Continued)**

Other Reportable Conditions

Diagnostic Grouping and Description	ICD-9-CM Code
M. Infectious Conditions Occurring in the Perinatal Period	090.0 - 090.9, 771.0 - 771.2
M01. Syphilis	090.0-090.9
M02. Other Infections	771.0 - 771.2
N. Familial/Congenital Neoplasms	237.70 - 237.73, 237.79
O. Endocrine/Metabolic Disorders	243, 252.1, 253.2, 253.8, 255.2, 255.8, 257.8, 259.4, 270.0 - 273.9, 275.3, 275.09, 277.0 - 277.9, 279.11, 279.2
P. Diseases of the Blood & Blood Forming Organs	282.0 - 282.9, 284.0, 286.0 - 286.9, 287.3
Q. Other Diseases of the Central and Peripheral Nervous System	330.1, 331.7, 331.89, 331.9, 334.1, 334.2, 335.0, 337.9, 343.0 - 343.9, 345.6, 348.0, 352.6, 356.0 - 356.9, 358.0 - 359.9
R. Other Diseases of the Eye	362.60 - 362.66, 363.20, 369.00 - 369.9, 377.16, 378.0 - 378.9, 379.50 - 379.59
S. Hearing Deficiency	389.00-389.08, 389.10-389.14, 389.18, 389.2, 389.8, 389.9, 744.00- 744.05, 744.09
T. Other Diseases of the Heart & Circulatory System	425.0 - 425.4, 426.0, 426.10 - 427.42, 427.81 - 427.9, 434.0 - 434.9, 453.0
U. Other Diseases of the Gastrointestinal System	520.0 - 520.9, 524.00 - 524.19, 537.1, 550.00 - 550.93, 553.00 - 553.9, 560.2, 560.9, 565.1, 569.2, 569.81
V. Other Diseases of the Genital and Urinary Systems	593.3, 593.5, 593.82, 596.1, 596.2, 598.9, 599.1, 599.6, 619.0 - 619.9
W. Other Fetal/Placental Anomalies	653.7, 658.8
X. Other Musculoskeletal System Diseases	733.3
Y. Maternal Exposures Affecting Fetus	760
Y01. Fetal Alcohol Syndrome	760.71