
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 October 29, 2010

*Michigan Department
of Community Health*



Rick Snyder, Governor
Olga Dazzo, Director

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Table Of Contents

Overview

Introduction		1
Data Quality Considerations		2
Table 1	Michigan Birth Defect Cases and Prevalence Rates Michigan Resident Children Born in Michigan Live Births during 2000-2008	3
Table 2	Birth Defects Cases by Time to Diagnosis and Birth Year Michigan Resident Cases, 1992-2008	4
Table 3	Birth Defects Cases by Leading Diagnostic Groups and by Birth Year Interval Michigan Resident Children 1997-2008 Three Year Moving Total Prevalence	5

Childhood mortality Rates and Numbers

Table 4-A	Deaths Among Children with Birth Defects by Time to Death and Birth Year, Michigan Birth Defects Registry, 1992-2008	6
Table 4-B	Deaths Among Children by Time to Death and Birth Year, Michigan Live Birth Registry, 1992-2008	7
Table 5-A	Mortality Rates Among Children with Birth Defects by Time to Death and Birth Year Michigan Birth Defects Registry Live Births during 1992-2008	8
Table 5-B	Mortality Rates Among Children with Birth Defects by Time to Death and Birth Year Michigan Live Birth Registry Live Births during 1992-2008	9
Table 6-A	Cumulative Deaths Among Children with Birth Defects by Time to Death and Birth Year Michigan Birth Defects Registry Live Births during 1992-2008	10
Table 6-B	Cumulative Deaths Among Children with Birth Defects by Time to Death and Birth Year Michigan Live Birth Registry Live Births during 1992-2008	11
Table 7-A	Cumulative Death Rates Among Children with Birth Defects by Time to Death and Birth Year Michigan Birth Defects Registry Live Births during 1992-2008	12
Table 7-B	Cumulative Death Rates Among Children with Birth Defects by Time to Death and Birth Year Michigan Live Birth Registry Live Births during 1992-2008	13
Figure 1	Cumulative Mortality Rates for Michigan Children with Reportable Conditions versus Deaths of All Children, 1992-2008	14

Birth Defects by Diagnostic Code Group and Birth Year

Figure 2	Total Birth Defects by Summary Diagnostic Code Group, 2006-2008 , Michigan Resident Children Born in Michigan Cases Diagnosed within One Year from Birth	15
Figure 3	Three-year Birth Defect Mortality Rates by Summary Diagnostic Code Group, 2006-2008 , Michigan Resident Children Born in Michigan Cases Diagnosed within One Year from Birth	15
Table 8	Birth Defects by Summary Diagnostic Code Group and Birth Year Michigan Resident Children Born in Michigan, 2000-2008	17
Table 9	Birth Defects by Detailed Diagnostic Code Group and Birth Year Michigan Resident Children Born in Michigan, 2000-2008	19
Table 10	Prevalence Rates by Summary Diagnostic Code Group and Birth Year, Michigan Resident Children Born in Michigan, 2000-2008	25

Table of Contents (Continued)

Table 11	Birth Defect Prevalence Rates by Detailed Diagnostic Code Group and Birth Year, Michigan Resident Children Born in Michigan During 2000-2008	27
Infant Mortality by Diagnostic Code Group and Birth Year		
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 2000-2008	33
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 2000-2008	35
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 2000-2008, Cases Diagnosed within One Year from Birth Three-year Infant Mortality Totals	41
Table 15	Infant Deaths of Michigan Children with Reported Birth Defects by Detailed Diagnostic Group and by Birth Year Cases Diagnosed within One Year from Birth Michigan Resident Children Born in Michigan During 2000-2008 Three-Year Mortality Totals	43
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 2000-2008, Cases Diagnosed within One Year from Birth Moving Three-year Mortality Rates ...	51
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 2000-2008, Cases Diagnosed within One Year from Birth Moving Three-year Mortality Rates	53
Table 18	Infant Deaths of Michigan Children with Reported Birth Defects by Summary Diagnostic Group and by Birth Year Cases Diagnosed within One Year from Birth Michigan Resident Children Born in Michigan During 1992-2008 Six-year Mortality Totals	59
Table 19	Infant Deaths of Michigan Children with Reported Birth Defects by Detailed Diagnostic Group and by Birth Year Cases Diagnosed within One Year from Birth Michigan Resident Children Born in Michigan During 1994-2008 Six-Year Mortality Totals	61
Table 20	Mortality Rates of Michigan Children with Reported Birth Defects by Summary Diagnostic Group and by Birth Year Cases Diagnosed within One Year from Birth Michigan Resident Children Born in Michigan During 1994-2008 Moving Six-year Mortality Rates	67
Table 21	Mortality Rates of Michigan Children with Reported Birth Defects by Detailed Diagnostic Group and by Birth Year Cases Diagnosed within One Year from Birth Michigan Resident Children Born in Michigan During 1994-2008 Moving Six-year Mortality Rates	69
Appendix A	Birth Defect Groups and ICD-9-CM Diagnosis Codes	75

Birth Defects Prevalence and Mortality Tables

Vital Records and Health Data Development Section 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 2008. Selected high points concerning these data are:

Birth Defect Cases and Case Rates

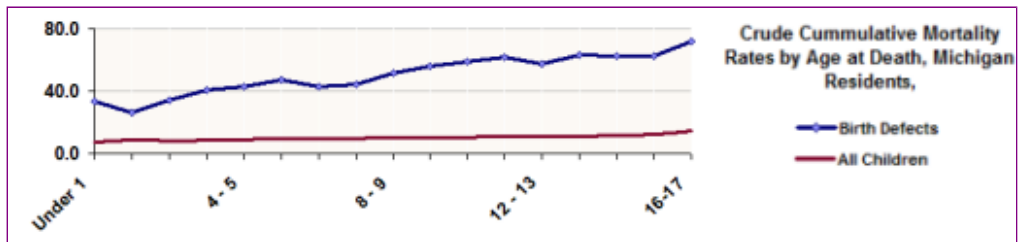
In the years 2007 and 2008, there were 9,570 and 9,202 cases of birth defects reported for children under one year of age, respectively. The rate for either year was about 770 cases per 10,000 resident live births. For the same children born during 2007, there were an additional 1,507 cases reported for children of two years of age. This translates into a prevalence rate of 896.3 cases per 10,000 resident live births. 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 has been above 800 per 10,000 for the past five years. (See Table 1.)

Infant Death Rates

The infant death rate for children born in 2008 with a reportable birth defect is 35.1 per 1,000. This compares to an infant death rate of 7.4 per 1,000 for all resident infants born in Michigan during 2008. The relative risk of infant mortality among children with a birth defect was 7 in 2008. Birth defect rates were higher in 2008 than in 2007, while infant mortality rates were lower; specifically 31.2 for children with birth defects and 8.8 for all children in 2007. (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 2007 was 8.8 per 1,000. Children



born during 2007 with a birth defect had a cumulative mortality rate of 31.2 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 17 years, the experience of children born in 1992 indicates death rates of 72.2 per 1,000 for children with birth defects and 14.4 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 2008 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 2008 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 2006-2008 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 Born in Michigan
All Cases Reported and Processed by October 29, 2010
Live Births during 2000 through 2008

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	2,227,464	158,754	712.7	179,991	808.1
2000	134,691	9,855	731.7	11,351	842.7
2001	131,834	10,163	770.9	11,753	891.5
2002	128,062	9,781	763.8	11,133	869.3
2003	129,449	9,858	761.5	11,103	857.7
2004	128,247	9,481	739.3	11,013	858.7
2005	126,231	10,514	832.9	11,928	944.9
2006	126,051	11,268	893.9	12,777	1,013.6
2007	123,584	9,570	774.4	11,077	896.3
2008	119,396	9,202	770.7	9,781	819.2

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. **Rates** are per 10,000 Michigan born 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 October 29, 2010

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Table 2
Birth Defects Cases by Time to Diagnosis and Birth Year
Michigan Resident Cases, 1992 - 2008

Time to Diagnosis	All Cases	Under 1 Year	Between 1 & 2 Years
All Cases	159,024	139,881	19,143
1992	10,358	9,150	1,208
1993	10,272	9,337	935
1994	10,071	9,143	928
1995	9,070	7,986	1,084
1996	9,032	8,078	954
1997	9,203	8,155	1,048
1998	9,607	8,244	1,363
1999	10,439	8,950	1,489
2000	11,346	9,851	1,495
2001	11,742	10,152	1,590
2002	11,129	9,777	1,352
2003	11,102	9,857	1,245
2004	11,013	9,481	1,532
2005	11,915	10,501	1,414
2006	12,725	11,219	1,506
2007	11,077	9,570	1,507
2008	9,780 ¹	9,201	---

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.

--- Data not available.

¹Provisional.

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through October 29, 2010

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Table 3
Birth Defects Cases by Leading Diagnostic Groups and by Birth Year Interval
Michigan Resident Children 1997 through 2008
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
Heart & Circulatory System	6,698	6,769	6,947	7,130	7,351	7,590	7,742	7,995	7,848	7,711
Congenital Anomalies	5,904	5,901	6,071	6,292	6,573	6,885	7,070	7,313	7,125	6,978
Other Conditions	1,501	1,604	1,516	1,384	1,289	1,203	1,157	1,199	1,263	1,293
Musculoskeletal System	5,089	5,527	6,107	6,554	6,593	6,305	6,253	6,545	6,841	6,184
Congenital Anomalies	5,080	5,521	6,099	6,547	6,582	6,296	6,246	6,542	6,836	6,179
Other Conditions	12	8	10	8	13	11	9	3	5	5
Genital & Urinary Systems	4,474	5,022	5,412	5,551	5,316	5,251	5,304	5,474	5,439	5,009
Congenital Anomalies	4,423	4,973	5,366	5,505	5,270	5,205	5,260	5,429	5,394	4,975
Other Conditions	148	151	148	146	142	146	139	133	110	89
Gastrointestinal System	4,321	4,394	4,561	4,563	4,404	4,130	4,029	4,079	4,018	3,773
Congenital Anomalies	2,071	2,142	2,209	2,218	2,126	2,008	1,921	2,043	2,031	1,911
Other Conditions	2,499	2,522	2,614	2,606	2,521	2,367	2,352	2,306	2,252	2,105
Eye	2,821	2,966	3,080	3,016	2,973	2,947	2,960	2,890	2,801	2,540
Congenital Anomalies	943	1,057	1,105	1,133	1,132	1,114	1,082	996	939	855
Other Conditions	2,023	2,076	2,152	2,073	2,044	2,027	2,055	2,043	2,006	1,809
Central Nervous System	2,010	2,094	2,236	2,254	2,254	2,245	2,234	2,242	2,128	1,940
Congenital Anomalies	1,246	1,321	1,446	1,509	1,521	1,547	1,555	1,599	1,528	1,424
Other Conditions	1,033	1,065	1,100	1,058	1,015	978	964	964	900	747
Maternal Exposures	954	969	995	955	796	672	665	720	641	674
Integument Anomalies	853	841	876	873	866	1,005	1,304	2,219	2,244	2,987
Respiratory System Anomalies	1,084	1,293	1,522	1,701	1,912	1,989	2,120	2,383	2,572	2,284
Other Reportable Conditions	4,059	4,664	5,455	5,903	6,005	5,705	5,773	5,502	5,206	4,622
One or More Reportable Conditions	24,677	26,323	28,193	29,047	28,772	28,196	28,985	30,645	30,678	29,397

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 October 29, 2010

Last Updated on January 26, 2011

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 October 29, 2010
Live Births during 1992 through 2008

Time to Death	Birth Year																	
	All Deaths	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
All Ages	7,933	661	587	575	507	462	504	483	503	510	454	433	465	420	389	358	299	323
Under 1 Year	6,279	444	406	410	357	340	384	382	378	394	371	379	414	356	341	329	271	323
1 to 2 Years	519	49	44	35	33	30	31	27	41	37	38	21	26	39	22	18	28	---
2 to 3 Years	270	30	21	30	14	21	23	16	22	19	12	8	15	13	15	11	---	---
3 to 4 Years	162	23	16	9	13	9	12	9	19	14	8	7	4	8	11	---	---	---
4 to 5 Years	109	10	12	12	11	13	9	5	9	7	9	4	4	4	---	---	---	---
5 to 6 Years	98	14	5	4	8	11	7	8	10	16	7	6	2	---	---	---	---	---
6 to 7 Years	94	12	10	7	10	7	8	14	4	10	4	8	---	---	---	---	---	---
7 to 8 Years	76	7	11	9	14	4	9	6	7	4	5	---	---	---	---	---	---	---
8 to 9 Years	69	8	10	9	9	4	9	7	4	9	---	---	---	---	---	---	---	---
9 to 10 Years	56	8	6	9	10	7	4	3	9	---	---	---	---	---	---	---	---	---
10 to 11 Year	40	5	8	6	7	4	4	6	---	---	---	---	---	---	---	---	---	---
11 to 12 year	41	7	9	4	8	9	4	---	---	---	---	---	---	---	---	---	---	---
12 to 13 year	36	10	9	7	7	3	---	---	---	---	---	---	---	---	---	---	---	---
13 to 14 year	26	5	6	9	6	---	---	---	---	---	---	---	---	---	---	---	---	---
14 to 15 year	33	10	8	15	---	---	---	---	---	---	---	---	---	---	---	---	---	---
15 to 16 year	12	6	6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
16 to 17 year	13	13	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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 October 29, 2010
Mortality data includes all linked deaths identified through death year 2008.

Last Updated on January 26, 2011

Table 4-B
Deaths Among Children by Time to Death and Birth Year
Michigan Live Birth Registry
All Cases Reported and Processed by October 29, 2010
Live Births during 1992 through 2008

Time to Death	Birth Year																	
	All Deaths	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
All Ages	22,782	2,058	1,764	1,592	1,468	1,410	1,423	1,344	1,311	1,365	1,294	1,218	1,258	1,150	1,133	1,018	1,088	888
Under 1 Year	18,798	1,495	1,290	1,203	1,109	1,078	1,104	1,106	1,078	1,158	1,091	1,066	1,117	1,014	1,032	943	1,026	888
1 to 2 Years	1,044	92	86	75	66	64	67	57	74	57	68	47	59	71	49	50	62	---
2 to 3 Years	619	75	51	55	49	53	60	32	37	29	32	30	34	29	28	25	---	---
3 to 4 Years	450	58	43	30	42	34	36	26	31	28	24	30	23	21	24	---	---	---
4 to 5 Years	300	31	30	31	25	25	28	19	21	21	26	13	15	15	---	---	---	---
5 to 6 Years	274	31	36	20	22	31	20	20	19	28	22	15	10	---	---	---	---	---
6 to 7 Years	229	30	15	23	24	25	25	28	10	17	15	17	---	---	---	---	---	---
7 to 8 Years	173	21	28	16	20	14	20	12	15	11	16	---	---	---	---	---	---	---
8 to 9 Years	158	19	29	20	14	12	22	15	11	16	---	---	---	---	---	---	---	---
9 to 10 Years	137	20	18	16	25	15	13	15	15	---	---	---	---	---	---	---	---	---
10 to 11 Year	123	15	22	23	17	14	18	14	---	---	---	---	---	---	---	---	---	---
11 to 12 year	94	13	18	13	17	23	10	---	---	---	---	---	---	---	---	---	---	---
12 to 13 year	109	25	22	21	19	22	---	---	---	---	---	---	---	---	---	---	---	---
13 to 14 year	73	18	20	16	19	---	---	---	---	---	---	---	---	---	---	---	---	---
14 to 15 year	80	22	28	30	---	---	---	---	---	---	---	---	---	---	---	---	---	---
15 to 16 year	62	34	28	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
16 to 17 year	59	59	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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 October 29, 2010
Mortality data includes all linked deaths identified through death year 2008.

Last Updated on January 26, 2011

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 October 29, 2010
Live Births during 1992 through 2008

Time to Death	Birth Year																	
	Mortality Rate	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
All Ages	50.0	72.2	62.8	62.9	63.4	57.2	61.8	58.6	56.2	51.8	44.7	44.3	47.2	44.3	37.0	31.8	31.2	35.1
Under 1 Year	39.6	48.5	43.5	44.8	44.7	42.1	47.1	46.3	42.2	40.0	36.5	38.7	42.0	37.5	32.4	29.2	28.3	35.1
1 to 2 Years	3.3	5.4	4.7	3.8	4.1	3.7	3.8	3.3	4.6	3.8	3.7	2.1	2.6	4.1	2.1	1.6	2.9	---
2 to 3 Years	1.7	3.3	2.2	3.3	1.8	2.6	2.8	1.9	2.5	1.9	1.2	0.8	1.5	1.4	1.4	1.0	---	---
3 to 4 Years	1.0	2.5	1.7	1.0	1.6	1.1	1.5	1.1	2.1	1.4	0.8	0.7	*	0.8	1.0	---	---	---
4 to 5 Years	0.7	1.1	1.3	1.3	1.4	1.6	1.1	*	1.0	0.7	0.9	*	*	*	---	---	---	---
5 to 6 Years	0.6	1.5	*	*	1.0	1.4	0.9	1.0	1.1	1.6	0.7	0.6	*	---	---	---	---	---
6 to 7 Years	0.6	1.3	1.1	0.8	1.3	0.9	1.0	1.7	*	1.0	*	0.8	---	---	---	---	---	---
7 to 8 Years	0.5	0.8	1.2	1.0	1.8	*	1.1	0.7	0.8	*	*	---	---	---	---	---	---	---
8 to 9 Years	0.4	0.9	1.1	1.0	1.1	*	1.1	0.8	*	0.9	---	---	---	---	---	---	---	---
9 to 10 Years	0.4	0.9	0.6	1.0	1.3	0.9	*	*	1.0	---	---	---	---	---	---	---	---	---
10 to 11 Year	0.3	*	0.9	0.7	0.9	*	*	0.7	---	---	---	---	---	---	---	---	---	---
11 to 12 year	0.3	0.8	1.0	*	1.0	1.1	*	---	---	---	---	---	---	---	---	---	---	---
12 to 13 year	0.2	1.1	1.0	0.8	0.9	*	---	---	---	---	---	---	---	---	---	---	---	---
13 to 14 year	0.2	*	0.6	1.0	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---
14 to 15 year	0.2	1.1	0.9	1.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---
15 to 16 year	0.1	0.7	0.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
16 to 17 year	0.1	1.4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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: --- 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 October 29, 2010
Mortality data includes all linked deaths identified through death year 2008.

Last Updated on January 26, 2011

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 October 29, 2010
Live Births during 1992 through 2008

Time to Death	Birth Year																	
	Mortality Rate	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
All Ages	10.2	14.4	12.7	11.7	11.0	10.7	10.8	10.2	9.9	10.1	9.8	9.5	9.7	9.0	9.0	8.1	8.8	7.4
Under 1 Year	8.4	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	7.4
1 to 2 Years	0.5	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.6	0.4	0.5	0.4	0.5	0.6	0.4	0.4	0.5	---
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	---	---
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	---	---	---
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	---	---	---	---
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	---	---	---	---	---
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	---	---	---	---	---	---
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	---	---	---	---	---	---	---
8 to 9 Years	0.1	0.1	0.2	0.1	0.1	0.1	0.2	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	---	---	---	---	---	---	---	---	---
10 to 11 Year	0.1	0.1	0.2	0.2	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	---	---	---	---	---	---	---	---	---	---	---
12 to 13 year	0.0	0.2	0.2	0.2	0.1	0.2	---	---	---	---	---	---	---	---	---	---	---	---
13 to 14 year	0.0	0.1	0.1	0.1	0.1	---	---	---	---	---	---	---	---	---	---	---	---	---
14 to 15 year	0.0	0.2	0.2	0.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---
15 to 16 year	0.0	0.2	0.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
16 to 17 year	0.0	0.4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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: --- 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 October 29, 2010
Mortality data includes all linked deaths identified through death year 2008.

Last Updated on January 26, 2011

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 October 29, 2010
Live Births during 1992 through 2008

Time to Death	Birth Year																	
	All Years	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
All Ages	7,933	661	587	575	507	462	504	483	503	510	454	433	465	420	389	358	299	323
Under 1 Year	6,279	444	406	410	357	340	384	382	378	394	371	379	414	356	341	329	271	323
1 to 2 Years	6,798	493	450	445	390	370	415	409	419	431	409	400	440	395	363	347	299	---
2 to 3 Years	7,068	523	471	475	404	391	438	425	441	450	421	408	455	408	378	358	---	---
3 to 4 Years	7,230	546	487	484	417	400	450	434	460	464	429	415	459	416	389	---	---	---
4 to 5 Years	7,339	556	499	496	428	413	459	439	469	471	438	419	463	420	---	---	---	---
5 to 6 Years	7,437	570	504	500	436	424	466	447	479	487	445	425	465	---	---	---	---	---
6 to 7 Years	7,531	582	514	507	446	431	474	461	483	497	449	433	---	---	---	---	---	---
7 to 8 Years	7,607	589	525	516	460	435	483	467	490	501	454	---	---	---	---	---	---	---
8 to 9 Years	7,676	597	535	525	469	439	492	474	494	510	---	---	---	---	---	---	---	---
9 to 10 Years	7,732	605	541	534	479	446	496	477	503	---	---	---	---	---	---	---	---	---
10 to 11 Year	7,772	610	549	540	486	450	500	483	---	---	---	---	---	---	---	---	---	---
11 to 12 year	7,813	617	558	544	494	459	504	---	---	---	---	---	---	---	---	---	---	---
12 to 13 year	7,849	627	567	551	501	462	---	---	---	---	---	---	---	---	---	---	---	---
13 to 14 year	7,875	632	573	560	507	---	---	---	---	---	---	---	---	---	---	---	---	---
14 to 15 year	7,908	642	581	575	---	---	---	---	---	---	---	---	---	---	---	---	---	---
15 to 16 year	7,920	648	587	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
16 to 17 year	7,933	661	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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 October 29, 2010
 Mortality data includes all linked deaths identified through death year 2008.

Last Updated on January 26, 2011

Table 6-B
Cumulative Deaths Among Children by Time to Death and Birth Year
Michigan Live Birth Registry
All Cases Reported and Processed by October 29, 2010
Live Births during 1992 through 2008

Time to Death	Birth Year																	
	All Years	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
All Ages	22,782	2,058	1,764	1,592	1,468	1,410	1,423	1,344	1,311	1,365	1,294	1,218	1,258	1,150	1,133	1,018	1,088	888
Under 1 Year	18,798	1,495	1,290	1,203	1,109	1,078	1,104	1,106	1,078	1,158	1,091	1,066	1,117	1,014	1,032	943	1,026	888
1 to 2 Years	19,842	1,587	1,376	1,278	1,175	1,142	1,171	1,163	1,152	1,215	1,159	1,113	1,176	1,085	1,081	993	1,088	---
2 to 3 Years	20,461	1,662	1,427	1,333	1,224	1,195	1,231	1,195	1,189	1,244	1,191	1,143	1,210	1,114	1,109	1,018	---	---
3 to 4 Years	20,911	1,720	1,470	1,363	1,266	1,229	1,267	1,221	1,220	1,272	1,215	1,173	1,233	1,135	1,133	---	---	---
4 to 5 Years	21,211	1,751	1,500	1,394	1,291	1,254	1,295	1,240	1,241	1,293	1,241	1,186	1,248	1,150	---	---	---	---
5 to 6 Years	21,485	1,782	1,536	1,414	1,313	1,285	1,315	1,260	1,260	1,321	1,263	1,201	1,258	---	---	---	---	---
6 to 7 Years	21,714	1,812	1,551	1,437	1,337	1,310	1,340	1,288	1,270	1,338	1,278	1,218	---	---	---	---	---	---
7 to 8 Years	21,887	1,833	1,579	1,453	1,357	1,324	1,360	1,300	1,285	1,349	1,294	---	---	---	---	---	---	---
8 to 9 Years	22,045	1,852	1,608	1,473	1,371	1,336	1,382	1,315	1,296	1,365	---	---	---	---	---	---	---	---
9 to 10 Years	22,182	1,872	1,626	1,489	1,396	1,351	1,395	1,330	1,311	---	---	---	---	---	---	---	---	---
10 to 11 Year	22,305	1,887	1,648	1,512	1,413	1,365	1,413	1,344	---	---	---	---	---	---	---	---	---	---
11 to 12 year	22,399	1,900	1,666	1,525	1,430	1,388	1,423	---	---	---	---	---	---	---	---	---	---	---
12 to 13 year	22,508	1,925	1,688	1,546	1,449	1,410	---	---	---	---	---	---	---	---	---	---	---	---
13 to 14 year	22,581	1,943	1,708	1,562	1,468	---	---	---	---	---	---	---	---	---	---	---	---	---
14 to 15 year	22,661	1,965	1,736	1,592	---	---	---	---	---	---	---	---	---	---	---	---	---	---
15 to 16 year	22,723	1,999	1,764	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
16 to 17 year	22,782	2,058	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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 October 29, 2010
 Mortality data includes all linked deaths identified through death year 2008.

Last Updated on January 26, 2011

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 October 29, 2010
Live Births during 1992 through 2008

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
All Ages	57.8	72.2	62.8	62.9	63.4	57.2	61.8	58.6	56.2	51.8	44.7	44.3	47.2	44.3	37.0	31.8	31.2	35.1
Under 1 Year	39.6	48.5	43.5	44.8	44.7	42.1	47.1	46.3	42.2	40.0	36.5	38.7	42.0	37.5	32.4	29.2	28.3	35.1
1 to 2 Years	43.0	53.9	48.2	48.6	48.8	45.8	50.9	49.6	46.8	43.7	40.2	40.9	44.6	41.7	34.5	30.8	31.2	---
2 to 3 Years	45.0	57.2	50.4	51.9	50.5	48.4	53.7	51.6	49.3	45.7	41.4	41.7	46.2	43.0	36.0	31.8	---	---
3 to 4 Years	46.2	59.7	52.1	52.9	52.2	49.5	55.2	52.6	51.4	47.1	42.2	42.4	46.6	43.9	37.0	---	---	---
4 to 5 Years	47.1	60.8	53.4	54.2	53.5	51.1	56.3	53.3	52.4	47.8	43.1	42.8	47.0	44.3	---	---	---	---
5 to 6 Years	48.0	62.3	54.0	54.7	54.5	52.5	57.1	54.2	53.5	49.4	43.8	43.5	47.2	---	---	---	---	---
6 to 7 Years	49.0	63.6	55.0	55.4	55.8	53.3	58.1	55.9	54.0	50.4	44.2	44.3	---	---	---	---	---	---
7 to 8 Years	49.8	64.4	56.2	56.4	57.6	53.8	59.2	56.6	54.7	50.8	44.7	---	---	---	---	---	---	---
8 to 9 Years	50.7	65.2	57.3	57.4	58.7	54.3	60.3	57.5	55.2	51.8	---	---	---	---	---	---	---	---
9 to 10 Years	51.5	66.1	57.9	58.4	59.9	55.2	60.8	57.9	56.2	---	---	---	---	---	---	---	---	---
10 to 11 Year	52.2	66.7	58.8	59.0	60.8	55.7	61.3	58.6	---	---	---	---	---	---	---	---	---	---
11 to 12 year	53.0	67.4	59.7	59.5	61.8	56.8	61.8	---	---	---	---	---	---	---	---	---	---	---
12 to 13 year	53.8	68.5	60.7	60.2	62.7	57.2	---	---	---	---	---	---	---	---	---	---	---	---
13 to 14 year	54.5	69.1	61.3	61.2	63.4	---	---	---	---	---	---	---	---	---	---	---	---	---
14 to 15 year	55.7	70.2	62.2	62.9	---	---	---	---	---	---	---	---	---	---	---	---	---	---
15 to 16 year	56.4	70.8	62.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
16 to 17 year	57.8	72.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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.
 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 October 29, 2010
 Mortality data includes all linked deaths identified through death year 2008.

Last Updated on January 26, 2011

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 October 29, 2010
Live Births during 1992 through 2008

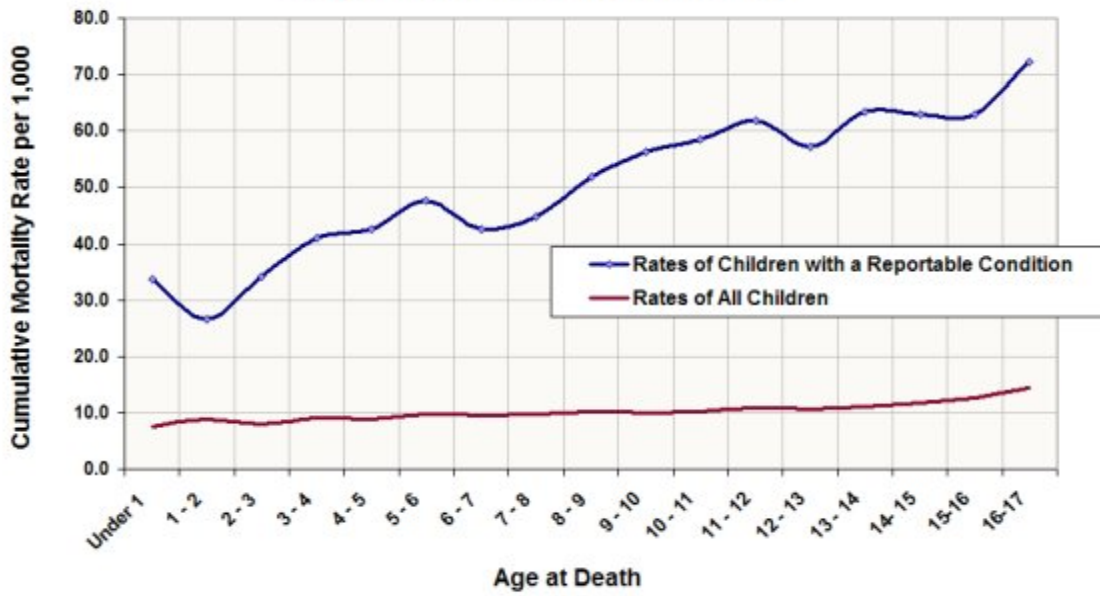
Time to Death	Adjusted Cumulative Rate	Birth Year																
		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
All Ages	11.7	14.4	12.7	11.7	11.0	10.7	10.8	10.2	9.9	10.1	9.8	9.5	9.7	9.0	9.0	8.1	8.8	7.4
Under 1 Year	8.4	10.5	9.3	8.8	8.3	8.2	8.3	8.4	8.2	8.6	8.3	8.3	8.6	7.9	8.2	7.5	8.3	7.4
1 to 2 Years	8.9	11.1	9.9	9.4	8.8	8.7	8.8	8.8	8.7	9.0	8.8	8.7	9.1	8.5	8.6	7.9	8.8	---
2 to 3 Years	9.2	11.7	10.3	9.8	9.2	9.1	9.3	9.0	9.0	9.2	9.0	8.9	9.3	8.7	8.8	8.1	---	---
3 to 4 Years	9.5	12.1	10.6	10.0	9.5	9.3	9.6	9.2	9.2	9.4	9.2	9.2	9.5	8.9	9.0	---	---	---
4 to 5 Years	9.7	12.3	10.8	10.2	9.7	9.5	9.8	9.4	9.4	9.6	9.4	9.3	9.6	9.0	---	---	---	---
5 to 6 Years	9.8	12.5	11.1	10.4	9.9	9.7	9.9	9.5	9.5	9.8	9.6	9.4	9.7	---	---	---	---	---
6 to 7 Years	10.0	12.7	11.2	10.5	10.0	9.9	10.1	9.7	9.6	9.9	9.7	9.5	---	---	---	---	---	---
7 to 8 Years	10.1	12.9	11.4	10.6	10.2	10.0	10.3	9.8	9.7	10.0	9.8	---	---	---	---	---	---	---
8 to 9 Years	10.2	13.0	11.6	10.8	10.3	10.1	10.4	9.9	9.8	10.1	---	---	---	---	---	---	---	---
9 to 10 Years	10.4	13.1	11.7	10.9	10.5	10.2	10.5	10.1	9.9	---	---	---	---	---	---	---	---	---
10 to 11 Year	10.5	13.2	11.9	11.1	10.6	10.3	10.7	10.2	---	---	---	---	---	---	---	---	---	---
11 to 12 year	10.6	13.3	12.0	11.2	10.7	10.5	10.8	---	---	---	---	---	---	---	---	---	---	---
12 to 13 year	10.8	13.5	12.2	11.3	10.9	10.7	---	---	---	---	---	---	---	---	---	---	---	---
13 to 14 year	10.9	13.6	12.3	11.4	11.0	---	---	---	---	---	---	---	---	---	---	---	---	---
14 to 15 year	11.1	13.8	12.5	11.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---
15 to 16 year	11.3	14.0	12.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
16 to 17 year	11.7	14.4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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. 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 October 29, 2010
Mortality data includes all linked deaths identified through death year 2008.

Last Updated on January 26, 2011

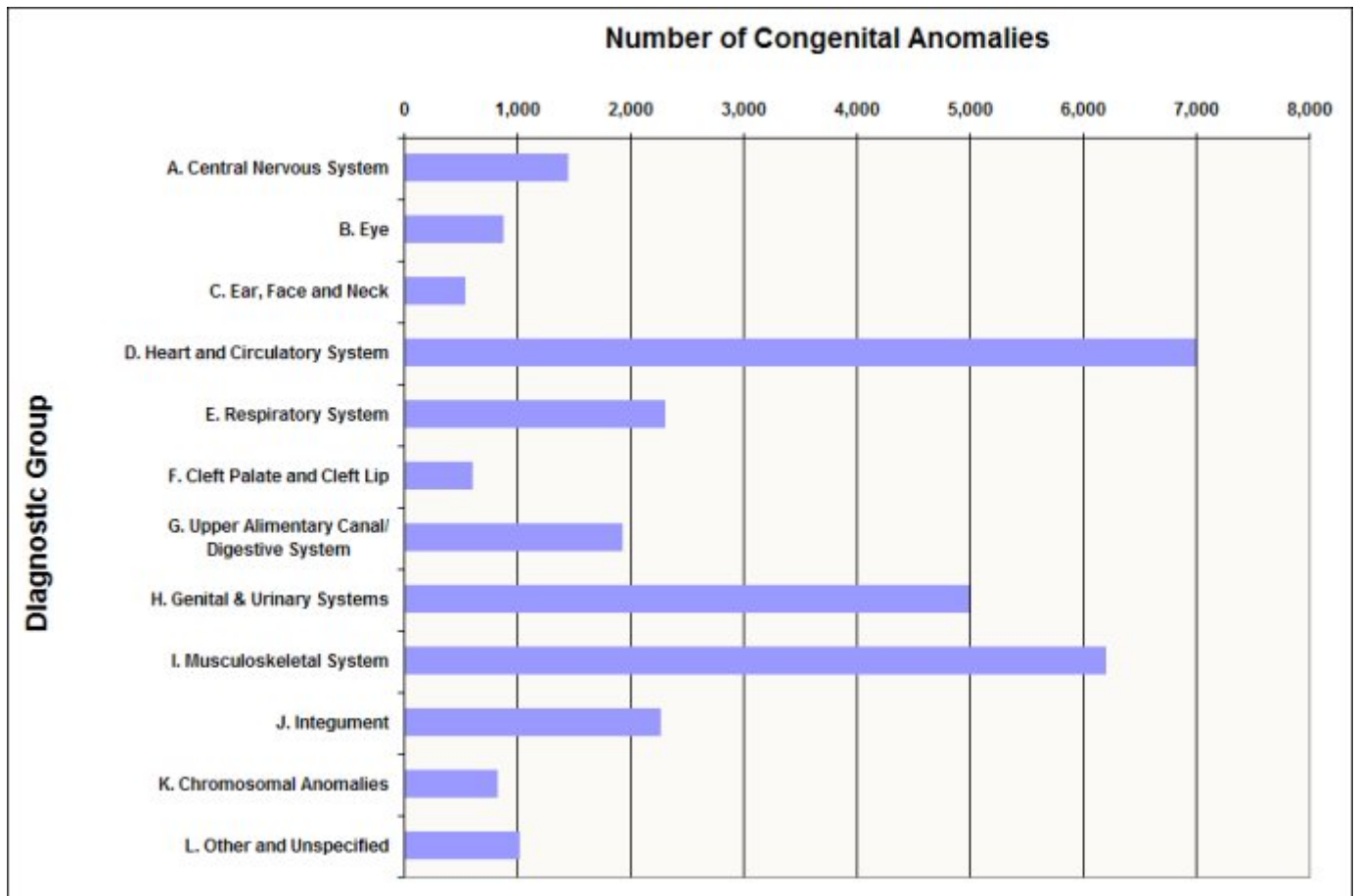
**Figure 1. Crude Cumulative Mortality Rates,
Michigan Children with a Reportable Condition versus All Children
Michigan Births between 1992 and 2008**



Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through October 29, 2010
Mortality data includes all linked deaths identified through death year 2008.

Last Updated on January 26, 2011

Figure 2-A
Total Congenital Anomalies by Summary Diagnostic Code Group, 2004-2006 ,
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.

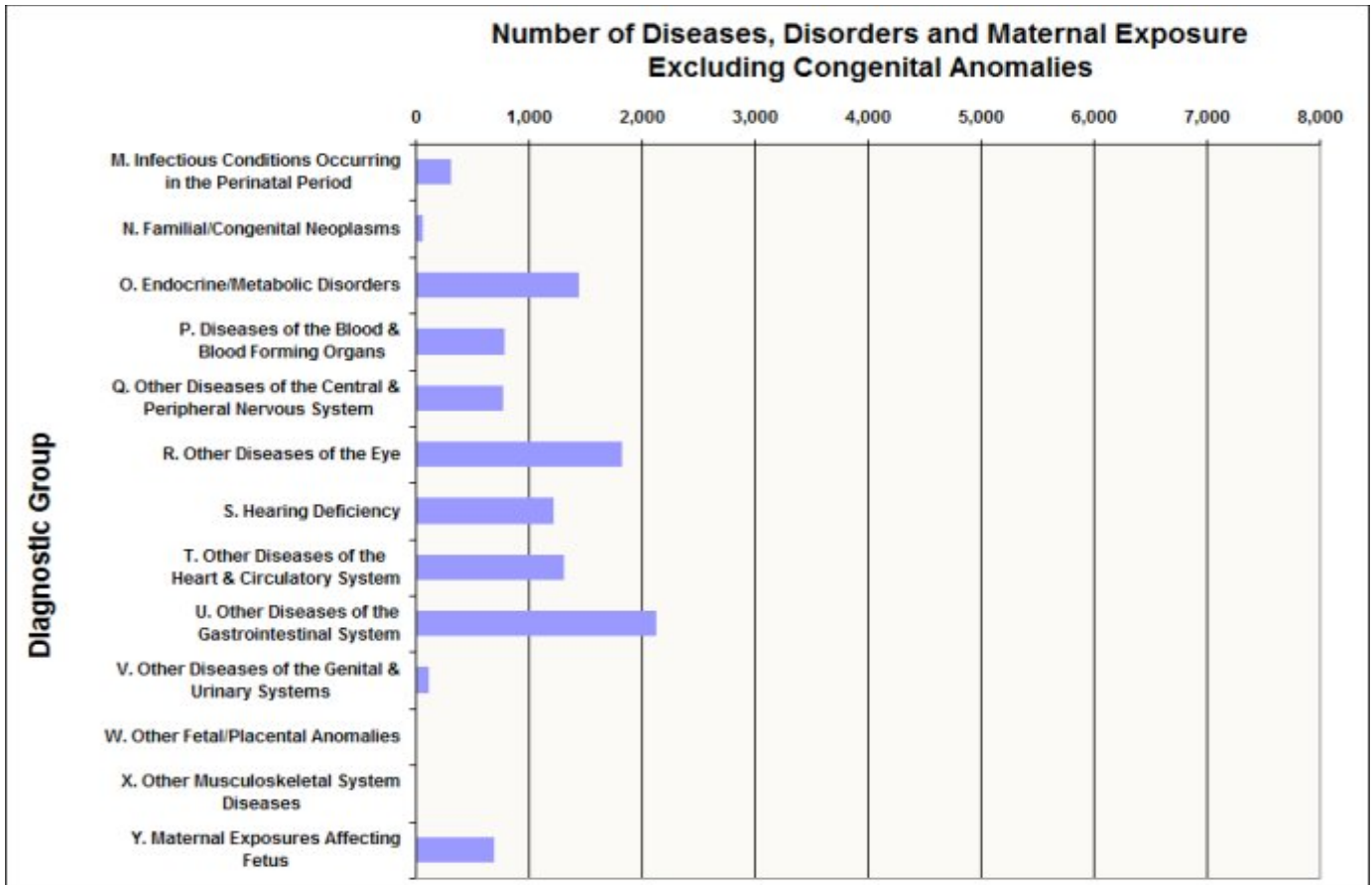
Conditions are reportable if identified within the first two years of a child's life. The prevalence frequencies in this table represent cases diagnosed within the first year of life.

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 October 29, 2010

Last Updated on January 26, 2011

Figure 2-B
Total Diseases, Disorders and Maternal Exposures by
Summary Diagnostic Code Group, 2003-2005,
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 October 29, 2010

Last Updated on January 26, 2011

Table 8
Birth Defects by Summary Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2008,
Cases Diagnosed within One Year from Birth

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
A Congenital Anomalies of the Central Nervous System	4,488	481	512	516	493	2,486	538	524	537	467	420
B Congenital Anomalies of the Eye	3,070	376	374	383	375	1,562	356	351	289	299	267
C Congenital Anomalies of the Ear, Face and Neck	1,837	214	221	225	210	967	194	249	177	162	185
D Congenital Anomalies of the Heart and Circulatory System	20,340	1,983	2,101	2,208	2,264	11,784	2,413	2,393	2,507	2,225	2,246
E Congenital Anomalies of the Respiratory System	6,105	527	582	592	738	3,666	659	723	1,001	848	435
F Cleft Palate and Cleft Lip	1,814	199	224	204	219	968	188	197	216	196	171
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	6,050	724	770	724	632	3,200	652	637	754	640	517
H Congenital Anomalies of the Genital and Urinary Systems	15,740	1,957	1,787	1,761	1,722	8,513	1,722	1,816	1,891	1,687	1,397
I Congenital Anomalies of the Musculoskeletal System	18,972	2,068	2,218	2,261	2,103	10,322	1,932	2,211	2,399	2,226	1,554
J Congenital Anomalies of the Integument	5,164	295	287	291	288	4,003	426	590	1,203	451	1,333
K Chromosomal Anomalies	2,474	278	282	271	281	1,362	278	282	285	255	262
L Other and Unspecified Congenital Anomalies	4,933	621	755	643	704	2,210	624	591	455	356	184

Table 8
Birth Defects by Summary Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2008,
Cases Diagnosed within One Year from Birth
(Continued)

Other Reportable Conditions

Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
M Infectious Conditions Occurring in the Perinatal Period	1,068	165	162	161	128	452	84	74	82	51	161
N Familial/Congenital Neoplasms	128	19	16	15	14	64	10	16	15	12	11
O Endocrine/Metabolic Disorders	4,096	481	461	464	425	2,265	385	462	515	431	472
P Diseases of the Blood & Blood Forming Organs	2,263	238	214	248	260	1,303	234	300	277	246	246
Q Other Diseases of the Central and Peripheral Nervous System	2,769	357	352	349	314	1,397	315	335	314	251	182
R Other Diseases of the Eye	5,937	702	685	686	673	3,191	668	714	661	631	517
S Hearing Deficiency	3,822	384	480	478	433	2,047	381	466	437	376	387
T Other Diseases of the Heart & Circulatory System	3,834	515	430	439	420	2,030	344	393	462	408	423
U Other Diseases of the Gastrointestinal System	7,063	874	911	821	789	3,668	757	806	743	703	659
V Other Diseases of the Genital and Urinary Systems	374	54	46	46	50	178	50	39	44	27	18
W Other Fetal/Placental Anomalies	117	-	-	2	2	113	2	109	2	-	-
X Other Musculoskeletal System Diseases	22	2	3	3	7	7	1	1	1	3	1
Y Maternal Exposures Affecting Fetus	2,294	352	348	255	193	1,146	224	248	248	145	281
One or More Reportable Diagnosis	87,429	9,622	9,880	9,545	9,347	49,035	9,304	10,334	11,007	9,337	9,053

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 October 29, 2010

Table 9
Birth Defects by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2008,
Cases Diagnosed within One Year from Birth

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
A Congenital Anomalies of the Central Nervous System	4,488	481	512	516	493	2,486	538	524	537	467	420
A01 Anencephalus	132	21	7	15	18	71	20	12	14	7	18
A02 Spina Bifida w/o Anencephaly	525	49	72	44	52	308	63	62	64	57	62
A03 Hydrocephalus w/o Spina Bifida	1,129	136	151	133	117	592	132	121	116	123	100
A04 Encephalocele	121	16	11	13	14	67	13	22	12	11	9
A05 Microcephalus	1,079	120	117	138	118	586	125	128	135	123	75
A99. All Other CNS Anomalies	2,355	219	251	263	276	1,346	291	290	292	241	232
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
B Congenital Anomalies of the Eye	3,070	376	374	383	375	1,562	356	351	289	299	267
B01 Anophthalmos/Microphthalmos	219	21	31	34	28	105	24	25	20	21	15
B02 Congenital Cataract	278	39	33	36	35	135	30	37	20	24	24
B03 Aniridia	33	4	3	2	5	19	6	5	2	4	2
B99. All Other Congenital Anomalies of the Eye	2,783	346	340	342	339	1,416	323	316	270	268	239
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
C Congenital Anomalies of the Ear, Face and Neck	1,837	214	221	225	210	967	194	249	177	162	185
C01 Anotia/Microtia	151	21	19	19	22	70	18	12	13	14	13
C99. All Other Congenital Anomalies of the Ear, Face and Neck	1,792	208	219	216	208	941	187	246	175	155	178

Table 9
Birth Defects by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2008,
Cases Diagnosed within One Year from Birth
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
D Congenital Anomalies of the Heart and Circulatory System	20,340	1,983	2,101	2,208	2,264	11,784	2,413	2,393	2,507	2,225	2,246
D01 Common Truncus	153	11	21	13	25	83	15	17	16	15	20
D02 Transposition of Great Vessels	577	68	56	66	56	331	59	85	67	63	57
D03 Tetralogy of Fallot	615	74	68	68	80	325	55	67	69	58	76
D04 Ventricular Septal Defect	4,726	512	497	525	530	2,662	526	566	546	500	524
D05 Atrial Septal Defect	8,972	761	797	895	956	5,563	1,067	1,159	1,223	998	1,116
D06 Endocardial Cushion Defect	639	64	74	74	87	340	73	69	74	63	61
D07 Pulmonary Valve Atresia and Stenosis	1,321	138	161	128	166	728	127	173	163	142	123
D08 Tricuspid Valve Atresia and Stenosis	171	17	28	26	22	78	10	22	11	19	16
D09 Ebstein's Anomaly	181	35	45	37	18	46	10	12	8	5	11
D10 Aortic Valve Stenosis	290	42	28	31	34	155	36	34	28	31	26
D11 Hypoplastic Left Heart Syndrome	462	46	64	55	55	242	50	59	43	48	42
D12 Patent Ductus Arteriosus	5,937	502	571	594	707	3,563	700	731	776	643	713
D13 Coarctation of Aorta	712	81	68	85	86	392	76	75	82	76	83
D14 Pulmonary Artery Anomalies	2,311	241	273	272	261	1,264	236	282	283	234	229
D99. All Other Congenital Anomalies of the Heart and Circulatory System	8,727	854	884	986	996	5,007	1,140	936	1,085	960	886
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
E Congenital Anomalies of the Respiratory System	6,105	527	582	592	738	3,666	659	723	1,001	848	435
E01 Lung Agenesis/Hypoplasia	788	82	73	84	152	397	108	93	68	56	72
E02 Choanal Atresia	185	19	27	29	18	92	19	23	18	15	17
E99. All Other Congenital Anomalies of the Respiratory System	5,435	453	514	522	606	3,340	565	649	949	800	377
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
F Cleft Palate and Cleft Lip	1,814	199	224	204	219	968	188	197	216	196	171
F01 Cleft Palate	655	71	83	72	71	358	62	71	81	76	68
F02 Cleft Lip w and w/o Cleft Palate	1,159	128	141	132	148	610	126	126	135	120	103

Table 9
Birth Defects by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2008,
Cases Diagnosed within One Year from Birth
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	6,050	724	770	724	632	3,200	652	637	754	640	517
G01 Esophageal Atresia/ Tracheoesophageal Fistula	345	33	46	42	45	179	44	42	32	36	25
G02 Rectal and Large Intestinal Atresia/Stenosis	552	72	60	64	60	296	62	60	70	52	52
G03 Pyloric Stenosis	1,879	220	275	231	190	963	185	175	211	184	208
G04 Hirshsprung's Disease (congenital megacolon)	331	37	44	42	38	170	41	34	34	33	28
G05 Biliary Atresia	123	16	15	10	15	67	18	12	12	11	14
G99. Other Cong. Anomalies of Upper Alimentary Canal / Digestive System	3,237	400	374	385	341	1,737	358	360	436	361	222
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
H Congenital Anomalies of the Genital and Urinary Systems	15,740	1,957	1,787	1,761	1,722	8,513	1,722	1,816	1,891	1,687	1,397
H01 Renal Agenesis/Hypoplasia	659	96	69	82	77	335	62	67	54	75	77
H02 Bladder Exstrophy	39	3	10	6	5	15	2	6	4	1	2
H03 Obstructive Genitourinary Defects	2,507	257	275	283	287	1,405	290	314	289	263	249
H04 Hypospadias & Epispadias	3,509	443	384	393	384	1,905	361	451	329	352	412
H99. All Other Congenital Anomalies of the Genital & Urinary Systems	13,085	1,621	1,499	1,458	1,438	7,069	1,468	1,492	1,640	1,431	1,038
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
I Congenital Anomalies of the Musculoskeletal System	18,972	2,068	2,218	2,261	2,103	10,322	1,932	2,211	2,399	2,226	1,554
I01 Upper Limb Reduction Deformities	291	42	32	37	36	144	25	25	26	32	36
I02 Lower Limb Reduction Deformities	220	22	27	25	24	122	27	29	27	21	18
I03 Gastroschisis/Omphalocele	582	56	68	48	60	350	61	67	82	79	61
I04 Congenital Hip Dislocation	1,443	197	213	204	170	659	145	118	163	99	134
I05 Diaphragmatic Hernia	368	39	42	33	49	205	47	37	50	38	33
I99. All Other Congenital Anomalies of the Musculoskeletal System	17,152	1,816	1,964	2,056	1,897	9,419	1,748	2,039	2,185	2,062	1,385

Table 9
Birth Defects by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2008,
Cases Diagnosed within One Year from Birth
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
J Congenital Anomalies of the Integument	5,164	295	287	291	288	4,003	426	590	1,203	451	1,333
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
K Chromosomal Anomalies	2,474	278	282	271	281	1,362	278	282	285	255	262
K01 Trisomy 13	102	15	9	9	14	55	11	16	8	10	10
K02 Down Syndrome	1,429	142	172	168	141	806	172	170	172	142	150
K03 Trisomy 18	160	14	19	20	27	80	15	15	18	14	18
K99. All Other Chromosomal Anomalies	917	126	98	96	118	479	90	100	93	104	92
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
L Other and Unspecified Congenital Anomalies	4,933	621	755	643	704	2,210	624	591	455	356	184

Table 9
Birth Defects by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2008,
Cases Diagnosed within One Year from Birth
(Continued)

Other Reportable Conditions

Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
M Infectious Conditions Occurring in the Perinatal Period	1,068	165	162	161	128	452	84	74	82	51	161
M01 Syphilis	157	19	29	15	32	62	5	13	11	5	28
M02 Other Infections	911	146	133	146	96	390	79	61	71	46	133
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
N Familial/Congenital Neoplasms	128	19	16	15	14	64	10	16	15	12	11
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
O Endocrine/Metabolic Disorders	4,096	481	461	464	425	2,265	385	462	515	431	472
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
P Diseases of the Blood & Blood Forming Organs	2,263	238	214	248	260	1,303	234	300	277	246	246
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
Q Other Diseases of the Central and Peripheral Nervous System	2,769	357	352	349	314	1,397	315	335	314	251	182
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
R Other Diseases of the Eye	5,937	702	685	686	673	3,191	668	714	661	631	517
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
S Hearing Deficiency	3,822	384	480	478	433	2,047	381	466	437	376	387
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
T Other Diseases of the Heart & Circulatory System	3,834	515	430	439	420	2,030	344	393	462	408	423

Table 9
Birth Defects by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2008,
Cases Diagnosed within One Year from Birth
(Continued)

Other Reportable Conditions

Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
U Other Diseases of the Gastrointestinal System	7,063	874	911	821	789	3,668	757	806	743	703	659
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
V Other Diseases of the Genital and Urinary Systems	374	54	46	46	50	178	50	39	44	27	18
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
W Other Fetal/Placental Anomalies	117	-	-	2	2	113	2	109	2	-	-
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
X Other Musculoskeletal System Diseases	22	2	3	3	7	7	1	1	1	3	1
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
Y Maternal Exposures Affecting Fetus	2,294	352	348	255	193	1,146	224	248	248	145	281
Y01 Fetal Alcohol Syndrome	151	25	22	18	13	73	16	17	20	10	10
Y99. Other Maternal Exposures Affecting the Fetus	2,175	331	335	241	182	1,086	210	233	232	138	273
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
One or More Reportable Diagnosis	87,429	9,622	9,880	9,545	9,347	49,035	9,304	10,334	11,007	9,337	9,053

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 October 29, 2010

Last Updated on January 26, 2011

Table 10
Birth Defect Prevalence Rates by Summary Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2008,
Cases Diagnosed within One Year from Birth

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
A Congenital Anomalies of the Central Nervous System	39.1	35.7	38.8	40.3	38.1	39.9	42.0	41.5	42.6	37.8	35.2
B Congenital Anomalies of the Eye	26.8	27.9	28.4	29.9	29.0	25.1	27.8	27.8	22.9	24.2	22.4
C Congenital Anomalies of the Ear, Face and Neck	16.0	15.9	16.8	17.6	16.2	15.5	15.1	19.7	14.0	13.1	15.5
D Congenital Anomalies of the Heart and Circulatory System	177.2	147.2	159.4	172.4	174.9	189.0	188.2	189.6	198.9	180.0	188.1
E Congenital Anomalies of the Respiratory System	53.2	39.1	44.1	46.2	57.0	58.8	51.4	57.3	79.4	68.6	36.4
F Cleft Palate and Cleft Lip	15.8	14.8	17.0	15.9	16.9	15.5	14.7	15.6	17.1	15.9	14.3
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	52.7	53.8	58.4	56.5	48.8	51.3	50.8	50.5	59.8	51.8	43.3
H Congenital Anomalies of the Genital and Urinary Systems	137.2	145.3	135.5	137.5	133.0	136.5	134.3	143.9	150.0	136.5	117.0
I Congenital Anomalies of the Musculoskeletal System	165.3	153.5	168.2	176.6	162.5	165.5	150.6	175.2	190.3	180.1	130.2
J Congenital Anomalies of the Integument	45.0	21.9	21.8	22.7	22.2	64.2	33.2	46.7	95.4	36.5	111.6
K Chromosomal Anomalies	21.6	20.6	21.4	21.2	21.7	21.8	21.7	22.3	22.6	20.6	21.9
L Other and Unspecified Congenital Anomalies	43.0	46.1	57.3	50.2	54.4	35.4	48.7	46.8	36.1	28.8	15.4

Table 10
Birth Defect Prevalence Rates by Summary Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2008,
Cases Diagnosed within One Year from Birth
(Continued)

Other Reportable Conditions

Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
M Infectious Conditions Occurring in the Perinatal Period	9.3	12.3	12.3	12.6	9.9	7.2	6.5	5.9	6.5	4.1	13.5
N Familial/Congenital Neoplasms	1.1	1.4	1.2	1.2	1.1	1.0	0.8	1.3	1.2	1.0	0.9
O Endocrine/Metabolic Disorders	35.7	35.7	35.0	36.2	32.8	36.3	30.0	36.6	40.9	34.9	39.5
P Diseases of the Blood & Blood Forming Organs	19.7	17.7	16.2	19.4	20.1	20.9	18.2	23.8	22.0	19.9	20.6
Q Other Diseases of the Central and Peripheral Nervous System	24.1	26.5	26.7	27.3	24.3	22.4	24.6	26.5	24.9	20.3	15.2
R Other Diseases of the Eye	51.7	52.1	52.0	53.6	52.0	51.2	52.1	56.6	52.4	51.1	43.3
S Hearing Deficiency	33.3	28.5	36.4	37.3	33.4	32.8	29.7	36.9	34.7	30.4	32.4
T Other Diseases of the Heart & Circulatory System	33.4	38.2	32.6	34.3	32.4	32.6	26.8	31.1	36.7	33.0	35.4
U Other Diseases of the Gastrointestinal System	61.5	64.9	69.1	64.1	61.0	58.8	59.0	63.9	58.9	56.9	55.2
V Other Diseases of the Genital and Urinary Systems	3.3	4.0	3.5	3.6	3.9	2.9	3.9	3.1	3.5	2.2	1.5
W Other Fetal/Placental Anomalies	1.0	-	-	*	*	1.8	*	8.6	*	-	-
X Other Musculoskeletal System Diseases	0.2	*	*	*	0.5	0.1	*	*	*	*	*
Y Maternal Exposures Affecting Fetus	20.0	26.1	26.4	19.9	14.9	18.4	17.5	19.6	19.7	11.7	23.5
One or More Reportable Diagnosis	761.9	714.4	749.4	745.3	722.1	786.4	725.5	818.7	873.2	755.5	758.2

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 October 29, 2010

Table 11
Birth Defect Prevalence Rates by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2008,
Cases Diagnosed within One Year from Birth

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
A Congenital Anomalies of the Central Nervous System	39.1	35.7	38.8	40.3	38.1	39.9	42.0	41.5	42.6	37.8	35.2
A01 Anencephalus	1.2	1.6	0.5	1.2	1.4	1.1	1.6	1.0	1.1	0.6	1.5
A02 Spina Bifida w/o Anencephaly	4.6	3.6	5.5	3.4	4.0	4.9	4.9	4.9	5.1	4.6	5.2
A03 Hydrocephalus w/o Spina Bifida	9.8	10.1	11.5	10.4	9.0	9.5	10.3	9.6	9.2	10.0	8.4
A04 Encephalocele	1.1	1.2	0.8	1.0	1.1	1.1	1.0	1.7	1.0	0.9	0.8
A05 Microcephalus	9.4	8.9	8.9	10.8	9.1	9.4	9.7	10.1	10.7	10.0	6.3
A99. All Other CNS Anomalies	20.5	16.3	19.0	20.5	21.3	21.6	22.7	23.0	23.2	19.5	19.4
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
B Congenital Anomalies of the Eye	26.8	27.9	28.4	29.9	29.0	25.1	27.8	27.8	22.9	24.2	22.4
B01 Anophthalmos/Microphthalmos	1.9	1.6	2.4	2.7	2.2	1.7	1.9	2.0	1.6	1.7	1.3
B02 Congenital Cataract	2.4	2.9	2.5	2.8	2.7	2.2	2.3	2.9	1.6	1.9	2.0
B03 Aniridia	0.3	*	*	*	*	0.3	0.5	*	*	*	*
B99. All Other Congenital Anomalies of the Eye	24.3	25.7	25.8	26.7	26.2	22.7	25.2	25.0	21.4	21.7	20.0
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
C Congenital Anomalies of the Ear, Face and Neck	16.0	15.9	16.8	17.6	16.2	15.5	15.1	19.7	14.0	13.1	15.5
C01 Anotia/Microtia	1.3	1.6	1.4	1.5	1.7	1.1	1.4	1.0	1.0	1.1	1.1
C99. All Other Congenital Anomalies of the Ear, Face and Neck	15.6	15.4	16.6	16.9	16.1	15.1	14.6	19.5	13.9	12.5	14.9

Table 11
Birth Defect Prevalence Rates by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2008,
Cases Diagnosed within One Year from Birth
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
D Congenital Anomalies of the Heart and Circulatory System	177.2	147.2	159.4	172.4	174.9	189.0	188.2	189.6	198.9	180.0	188.1
D01 Common Truncus	1.3	0.8	1.6	1.0	1.9	1.3	1.2	1.3	1.3	1.2	1.7
D02 Transposition of Great Vessels	5.0	5.0	4.2	5.2	4.3	5.3	4.6	6.7	5.3	5.1	4.8
D03 Tetralogy of Fallot	5.4	5.5	5.2	5.3	6.2	5.2	4.3	5.3	5.5	4.7	6.4
D04 Ventricular Septal Defect	41.2	38.0	37.7	41.0	40.9	42.7	41.0	44.8	43.3	40.5	43.9
D05 Atrial Septal Defect	78.2	56.5	60.5	69.9	73.9	89.2	83.2	91.8	97.0	80.8	93.5
D06 Endocardial Cushion Defect	5.6	4.8	5.6	5.8	6.7	5.5	5.7	5.5	5.9	5.1	5.1
D07 Pulmonary Valve Atresia and Stenosis	11.5	10.2	12.2	10.0	12.8	11.7	9.9	13.7	12.9	11.5	10.3
D08 Tricuspid Valve Atresia and Stenosis	1.5	1.3	2.1	2.0	1.7	1.3	0.8	1.7	0.9	1.5	1.3
D09 Ebstein's Anomaly	1.6	2.6	3.4	2.9	1.4	0.7	0.8	1.0	0.6	*	0.9
D10 Aortic Valve Stenosis	2.5	3.1	2.1	2.4	2.6	2.5	2.8	2.7	2.2	2.5	2.2
D11 Hypoplastic Left Heart Syndrome	4.0	3.4	4.9	4.3	4.2	3.9	3.9	4.7	3.4	3.9	3.5
D12 Patent Ductus Arteriosus	51.7	37.3	43.3	46.4	54.6	57.1	54.6	57.9	61.6	52.0	59.7
D13 Coarctation of Aorta	6.2	6.0	5.2	6.6	6.6	6.3	5.9	5.9	6.5	6.1	7.0
D14 Pulmonary Artery Anomalies	20.1	17.9	20.7	21.2	20.2	20.3	18.4	22.3	22.5	18.9	19.2
D99. All Other Congenital Anomalies of the Heart and Circulatory System	76.0	63.4	67.1	77.0	76.9	80.3	88.9	74.1	86.1	77.7	74.2
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
E Congenital Anomalies of the Respiratory System	53.2	39.1	44.1	46.2	57.0	58.8	51.4	57.3	79.4	68.6	36.4
E01 Lung Agenesis/Hypoplasia	6.9	6.1	5.5	6.6	11.7	6.4	8.4	7.4	5.4	4.5	6.0
E02 Choanal Atresia	1.6	1.4	2.0	2.3	1.4	1.5	1.5	1.8	1.4	1.2	1.4
E99. All Other Congenital Anomalies of the Respiratory System	47.4	33.6	39.0	40.8	46.8	53.6	44.1	51.4	75.3	64.7	31.6
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
F Cleft Palate and Cleft Lip	15.8	14.8	17.0	15.9	16.9	15.5	14.7	15.6	17.1	15.9	14.3
F01 Cleft Palate	5.7	5.3	6.3	5.6	5.5	5.7	4.8	5.6	6.4	6.1	5.7
F02 Cleft Lip w and w/o Cleft Palate	10.1	9.5	10.7	10.3	11.4	9.8	9.8	10.0	10.7	9.7	8.6

Table 11
Birth Defect Prevalence Rates by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2008,
Cases Diagnosed within One Year from Birth
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	52.7	53.8	58.4	56.5	48.8	51.3	50.8	50.5	59.8	51.8	43.3
G01 Esophageal Atresia/ Tracheoesophageal Fistula	3.0	2.5	3.5	3.3	3.5	2.9	3.4	3.3	2.5	2.9	2.1
G02 Rectal and Large Intestinal Atresia/Stenosis	4.8	5.3	4.6	5.0	4.6	4.7	4.8	4.8	5.6	4.2	4.4
G03 Pyloric Stenosis	16.4	16.3	20.9	18.0	14.7	15.4	14.4	13.9	16.7	14.9	17.4
G04 Hirshsprung's Disease (congenital megacolon)	2.9	2.7	3.3	3.3	2.9	2.7	3.2	2.7	2.7	2.7	2.3
G05 Biliary Atresia	1.1	1.2	1.1	0.8	1.2	1.1	1.4	1.0	1.0	0.9	1.2
G99. Other Cong. Anomalies of Upper Alimentary Canal / Digestive System	28.2	29.7	28.4	30.1	26.3	27.9	27.9	28.5	34.6	29.2	18.6
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
H Congenital Anomalies of the Genital and Urinary Systems	137.2	145.3	135.5	137.5	133.0	136.5	134.3	143.9	150.0	136.5	117.0
H01 Renal Agenesis/Hypoplasia	5.7	7.1	5.2	6.4	5.9	5.4	4.8	5.3	4.3	6.1	6.4
H02 Bladder Exstrophy	0.3	*	0.8	0.5	*	0.2	*	0.5	*	*	*
H03 Obstructive Genitourinary Defects	21.8	19.1	20.9	22.1	22.2	22.5	22.6	24.9	22.9	21.3	20.9
H04 Hypospadias & Epispadias	30.6	32.9	29.1	30.7	29.7	30.6	28.1	35.7	26.1	28.5	34.5
H99. All Other Congenital Anomalies of the Genital & Urinary Systems	114.0	120.3	113.7	113.9	111.1	113.4	114.5	118.2	130.1	115.8	86.9
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
I Congenital Anomalies of the Musculoskeletal System	165.3	153.5	168.2	176.6	162.5	165.5	150.6	175.2	190.3	180.1	130.2
I01 Upper Limb Reduction Deformities	2.5	3.1	2.4	2.9	2.8	2.3	1.9	2.0	2.1	2.6	3.0
I02 Lower Limb Reduction Deformities	1.9	1.6	2.0	2.0	1.9	2.0	2.1	2.3	2.1	1.7	1.5
I03 Gastroschisis/Omphalocele	5.1	4.2	5.2	3.7	4.6	5.6	4.8	5.3	6.5	6.4	5.1
I04 Congenital Hip Dislocation	12.6	14.6	16.2	15.9	13.1	10.6	11.3	9.3	12.9	8.0	11.2
I05 Diaphragmatic Hernia	3.2	2.9	3.2	2.6	3.8	3.3	3.7	2.9	4.0	3.1	2.8
I99. All Other Congenital Anomalies of the Musculoskeletal System	149.5	134.8	149.0	160.5	146.5	151.1	136.3	161.5	173.3	166.9	116.0

Table 11
Birth Defect Prevalence Rates by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2008,
Cases Diagnosed within One Year from Birth
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
J Congenital Anomalies of the Integument	45.0	21.9	21.8	22.7	22.2	64.2	33.2	46.7	95.4	36.5	111.6
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
K Chromosomal Anomalies	21.6	20.6	21.4	21.2	21.7	21.8	21.7	22.3	22.6	20.6	21.9
K01 Trisomy 13	0.9	1.1	0.7	0.7	1.1	0.9	0.9	1.3	0.6	0.8	0.8
K02 Down Syndrome	12.5	10.5	13.0	13.1	10.9	12.9	13.4	13.5	13.6	11.5	12.6
K03 Trisomy 18	1.4	1.0	1.4	1.6	2.1	1.3	1.2	1.2	1.4	1.1	1.5
K99. All Other Chromosomal Anomalies	8.0	9.4	7.4	7.5	9.1	7.7	7.0	7.9	7.4	8.4	7.7
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
L Other and Unspecified Congenital Anomalies	43.0	46.1	57.3	50.2	54.4	35.4	48.7	46.8	36.1	28.8	15.4

Table 11
Birth Defect Prevalence Rates by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2008,
Cases Diagnosed within One Year from Birth
(Continued)

Other Reportable Conditions

Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
M Infectious Conditions Occurring in the Perinatal Period	9.3	12.3	12.3	12.6	9.9	7.2	6.5	5.9	6.5	4.1	13.5
M01 Syphilis	1.4	1.4	2.2	1.2	2.5	1.0	*	1.0	0.9	*	2.3
M02 Other Infections	7.9	10.8	10.1	11.4	7.4	6.3	6.2	4.8	5.6	3.7	11.1
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
N Familial/Congenital Neoplasms	1.1	1.4	1.2	1.2	1.1	1.0	0.8	1.3	1.2	1.0	0.9
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
O Endocrine/Metabolic Disorders	35.7	35.7	35.0	36.2	32.8	36.3	30.0	36.6	40.9	34.9	39.5
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
P Diseases of the Blood & Blood Forming Organs	19.7	17.7	16.2	19.4	20.1	20.9	18.2	23.8	22.0	19.9	20.6
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
Q Other Diseases of the Central and Peripheral Nervous System	24.1	26.5	26.7	27.3	24.3	22.4	24.6	26.5	24.9	20.3	15.2
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
R Other Diseases of the Eye	51.7	52.1	52.0	53.6	52.0	51.2	52.1	56.6	52.4	51.1	43.3
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
S Hearing Deficiency	33.3	28.5	36.4	37.3	33.4	32.8	29.7	36.9	34.7	30.4	32.4
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
T Other Diseases of the Heart & Circulatory System	33.4	38.2	32.6	34.3	32.4	32.6	26.8	31.1	36.7	33.0	35.4

Table 11
Birth Defect Prevalence Rates by Detailed Diagnostic Code Group and Birth Year,
Michigan Resident Children Born in Michigan During 2000-2008,
Cases Diagnosed within One Year from Birth
(Continued)

Other Reportable Conditions

Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
U Other Diseases of the Gastrointestinal System	61.5	64.9	69.1	64.1	61.0	58.8	59.0	63.9	58.9	56.9	55.2
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
V Other Diseases of the Genital and Urinary Systems	3.3	4.0	3.5	3.6	3.9	2.9	3.9	3.1	3.5	2.2	1.5
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
W Other Fetal/Placental Anomalies	1.0	-	-	*	*	1.8	*	8.6	*	-	-
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
X Other Musculoskeletal System Diseases	0.2	*	*	*	0.5	0.1	*	*	*	*	*
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
Y Maternal Exposures Affecting Fetus	20.0	26.1	26.4	19.9	14.9	18.4	17.5	19.6	19.7	11.7	23.5
Y01 Fetal Alcohol Syndrome	1.3	1.9	1.7	1.4	1.0	1.2	1.2	1.3	1.6	0.8	0.8
Y99. Other Maternal Exposures Affecting the Fetus	19.0	24.6	25.4	18.8	14.1	17.4	16.4	18.5	18.4	11.2	22.9
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
One or More Reportable Diagnosis	761.9	714.4	749.4	745.3	722.1	786.4	725.5	818.7	873.2	755.5	758.2

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 October 29, 2010

Last Updated on January 26, 2011

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 2000-2008,
Cases Diagnosed within One Year from Birth

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
A Congenital Anomalies of the Central Nervous System	529	44	60	60	71	294	71	64	60	49	50
B Congenital Anomalies of the Eye	81	6	11	14	7	43	13	8	7	7	8
C Congenital Anomalies of the Ear, Face and Neck	77	7	10	8	9	43	11	14	2	7	9
D Congenital Anomalies of the Heart and Circulatory System	1,379	155	164	169	188	703	149	140	131	125	158
E Congenital Anomalies of the Respiratory System	596	77	56	75	86	302	72	72	62	56	40
F Cleft Palate and Cleft Lip	121	7	11	16	19	68	19	12	14	12	11
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	267	24	33	32	34	144	40	30	27	22	25
H Congenital Anomalies of the Genital and Urinary Systems	502	49	50	67	73	263	59	54	41	49	60
I Congenital Anomalies of the Musculoskeletal System	560	64	62	59	76	299	71	66	56	52	54
J Congenital Anomalies of the Integument	48	6	7	5	4	26	5	5	8	3	5
K Chromosomal Anomalies	405	57	42	42	62	202	45	56	29	30	42
L Other and Unspecified Congenital Anomalies	477	61	60	58	75	223	73	43	47	38	22

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 2000-2008,
Cases Diagnosed within One Year from Birth
(Continued)

Other Reportable Conditions

Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
M Infectious Conditions Occurring in the Perinatal Period	84	17	19	15	12	21	4	3	6	2	6
N Familial/Congenital Neoplasms	3	1	1	-	-	1	-	-	-	1	-
O Endocrine/Metabolic Disorders	184	23	26	24	29	82	19	12	21	11	19
P Diseases of the Blood & Blood Forming Organs	125	20	12	13	14	66	8	18	17	9	14
Q Other Diseases of the Central and Peripheral Nervous System	92	11	9	10	11	51	9	11	11	14	6
R Other Diseases of the Eye	181	15	22	20	24	100	21	18	18	19	24
S Hearing Deficiency	48	3	5	7	11	22	6	5	4	5	2
T Other Diseases of the Heart & Circulatory System	309	54	29	31	34	161	31	27	43	35	25
U Other Diseases of the Gastrointestinal System	256	25	31	39	37	124	24	27	24	17	32
V Other Diseases of the Genital and Urinary Systems	5	-	-	1	1	3	1	1	-	-	1
W Other Fetal/Placental Anomalies	7	-	-	-	-	7	-	7	-	-	-
X Other Musculoskeletal System Diseases	-	-	-	-	-	-	-	-	-	-	-
Y Maternal Exposures Affecting Fetus	74	11	9	8	8	38	5	6	14	1	12
One or More Reportable Diagnosis	3,176	394	370	379	412	1,621	357	342	330	273	319

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 October 29, 2010
Mortality data includes all linked deaths identified through death year 2008.

Last Updated on January 26, 2011

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 2000-2008,
Cases Diagnosed within One Year from Birth

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
A Congenital Anomalies of the Central Nervous System	529	44	60	60	71	294	71	64	60	49	50
A01 Anencephalus	119	20	7	15	14	63	18	11	12	7	15
A02 Spina Bifida w/o Anencephaly	32	2	7	1	4	18	5	5	3	3	2
A03 Hydrocephalus w/o Spina Bifida	148	8	24	17	17	82	20	23	17	12	10
A04 Encephalocele	23	2	2	1	4	14	3	6	3	1	1
A05 Microcephalus	84	4	5	16	13	46	9	9	11	11	6
A99. All Other CNS Anomalies	239	15	28	24	39	133	30	29	25	30	19
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
B Congenital Anomalies of the Eye	81	6	11	14	7	43	13	8	7	7	8
B01 Anophthalmos/Microphthalmos	27	2	5	5	-	15	4	3	1	4	3
B02 Congenital Cataract	12	-	2	2	1	7	-	2	1	2	2
B03 Aniridia	1	-	-	-	-	1	-	1	-	-	-
B99. All Other Congenital Anomalies of the Eye	55	4	7	7	6	31	11	5	7	3	5
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
C Congenital Anomalies of the Ear, Face and Neck	77	7	10	8	9	43	11	14	2	7	9
C01 Anotia/Microtia	8	1	1	-	2	4	1	-	-	1	2
C99. All Other Congenital Anomalies of the Ear, Face and Neck	74	6	10	8	9	41	10	14	2	7	8

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 2000-2008,
Cases Diagnosed within One Year from Birth
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
D Congenital Anomalies of the Heart and Circulatory System	1,379	155	164	169	188	703	149	140	131	125	158
D01 Common Truncus	23	2	4	1	3	13	2	2	2	3	4
D02 Transposition of Great Vessels	81	10	4	11	9	47	9	9	11	11	7
D03 Tetralogy of Fallot	59	13	6	4	7	29	7	5	3	4	10
D04 Ventricular Septal Defect	294	38	28	33	39	156	40	26	26	24	40
D05 Atrial Septal Defect	501	44	49	51	74	283	49	55	52	56	71
D06 Endocardial Cushion Defect	78	10	9	5	11	43	10	12	5	10	6
D07 Pulmonary Valve Atresia and Stenosis	89	12	12	7	12	46	6	10	9	6	15
D08 Tricuspid Valve Atresia and Stenosis	20	6	2	3	2	7	-	1	2	1	3
D09 Ebstein's Anomaly	26	8	4	7	-	7	1	1	2	2	1
D10 Aortic Valve Stenosis	24	2	5	-	1	16	3	4	4	2	3
D11 Hypoplastic Left Heart Syndrome	140	19	21	17	17	66	9	15	17	13	12
D12 Patent Ductus Arteriosus	514	48	38	43	76	309	57	58	57	56	81
D13 Coarctation of Aorta	83	8	5	9	10	51	11	11	13	9	7
D14 Pulmonary Artery Anomalies	128	20	18	10	19	61	9	14	7	15	16
D99. All Other Congenital Anomalies of the Heart and Circulatory System	816	88	102	110	109	407	97	78	72	66	94
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
E Congenital Anomalies of the Respiratory System	596	77	56	75	86	302	72	72	62	56	40
E01 Lung Agenesis/Hypoplasia	336	52	36	42	57	149	38	46	23	22	20
E02 Choanal Atresia	9	1	2	1	-	5	-	1	1	1	2
E99. All Other Congenital Anomalies of the Respiratory System	284	28	20	37	35	164	37	30	40	35	22
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
F Cleft Palate and Cleft Lip	121	7	11	16	19	68	19	12	14	12	11
F01 Cleft Palate	42	3	4	8	7	20	6	2	3	4	5
F02 Cleft Lip w and w/o Cleft Palate	79	4	7	8	12	48	13	10	11	8	6

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 2000-2008,
Cases Diagnosed within One Year from Birth
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	267	24	33	32	34	144	40	30	27	22	25
G01 Esophageal Atresia/ Tracheoesophageal Fistula	42	3	6	4	7	22	7	4	2	5	4
G02 Rectal and Large Intestinal Atresia/Stenosis	39	1	4	3	5	26	10	6	4	3	3
G03 Pyloric Stenosis	15	5	3	1	3	3	1	1	1	-	-
G04 Hirshsprung's Disease (congenital megacolon)	7	-	4	1	-	2	-	-	2	-	-
G05 Biliary Atresia	9	1	1	2	-	5	1	1	1	1	1
G99. Other Cong. Anomalies of Upper Alimentary Canal / Digestive System	193	17	20	25	24	107	30	22	19	15	21
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
H Congenital Anomalies of the Genital and Urinary Systems	502	49	50	67	73	263	59	54	41	49	60
H01 Renal Agenesis/Hypoplasia	133	17	9	20	21	66	13	12	8	16	17
H02 Bladder Exstrophy	2	-	-	-	-	2	-	2	-	-	-
H03 Obstructive Genitourinary Defects	89	8	3	13	16	49	11	11	9	6	12
H04 Hypospadias & Epispadias	62	4	10	8	4	36	12	7	2	8	7
H99. All Other Congenital Anomalies of the Genital & Urinary Systems	377	33	38	50	54	202	46	42	34	38	42
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
I Congenital Anomalies of the Musculoskeletal System	560	64	62	59	76	299	71	66	56	52	54
I01 Upper Limb Reduction Deformities	21	2	2	1	3	13	4	2	3	1	3
I02 Lower Limb Reduction Deformities	9	-	1	1	-	7	3	2	2	-	-
I03 Gastroschisis/Omphalocele	65	4	8	5	9	39	6	11	7	8	7
I04 Congenital Hip Dislocation	8	2	2	-	-	4	1	2	-	1	-
I05 Diaphragmatic Hernia	96	12	10	12	19	43	10	10	7	7	9
I99. All Other Congenital Anomalies of the Musculoskeletal System	416	47	43	47	50	229	60	47	42	40	40

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 2000-2008,
Cases Diagnosed within One Year from Birth
(Continued)

Congenital Anomalies (740 - 759)

Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
J Congenital Anomalies of the Integument	48	6	7	5	4	26	5	5	8	3	5
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
K Chromosomal Anomalies	405	57	42	42	62	202	45	56	29	30	42
K01 Trisomy 13	76	13	6	7	11	39	10	12	4	5	8
K02 Down Syndrome	121	14	18	14	17	58	14	15	5	10	14
K03 Trisomy 18	107	11	14	11	18	53	9	11	13	7	13
K99. All Other Chromosomal Anomalies	137	24	9	14	27	63	13	24	8	10	8
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
L Other and Unspecified Congenital Anomalies	477	61	60	58	75	223	73	43	47	38	22

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 2000-2008,
Cases Diagnosed within One Year from Birth
(Continued)

Other Reportable Conditions

Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
M Infectious Conditions Occurring in the Perinatal Period	84	17	19	15	12	21	4	3	6	2	6
M01 Syphilis	4	-	-	1	1	2	-	1	-	-	1
M02 Other Infections	80	17	19	14	11	19	4	2	6	2	5
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
N Familial/Congenital Neoplasms	3	1	1	-	-	1	-	-	-	1	-
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
O Endocrine/Metabolic Disorders	184	23	26	24	29	82	19	12	21	11	19
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
P Diseases of the Blood & Blood Forming Organs	125	20	12	13	14	66	8	18	17	9	14
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
Q Other Diseases of the Central and Peripheral Nervous System	92	11	9	10	11	51	9	11	11	14	6
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
R Other Diseases of the Eye	181	15	22	20	24	100	21	18	18	19	24
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
S Hearing Deficiency	48	3	5	7	11	22	6	5	4	5	2
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
T Other Diseases of the Heart & Circulatory System	309	54	29	31	34	161	31	27	43	35	25

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 2000-2008,
Cases Diagnosed within One Year from Birth
(Continued)

Other Reportable Conditions

Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
U Other Diseases of the Gastrointestinal System	256	25	31	39	37	124	24	27	24	17	32
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
V Other Diseases of the Genital and Urinary Systems	5	-	-	1	1	3	1	1	-	-	1
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
W Other Fetal/Placental Anomalies	7	-	-	-	-	7	-	7	-	-	-
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
X Other Musculoskeletal System Diseases	-	-	-	-	-	-	-	-	-	-	-
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
Y Maternal Exposures Affecting Fetus	74	11	9	8	8	38	5	6	14	1	12
Y01 Fetal Alcohol Syndrome	3	-	-	1	1	1	1	-	-	-	-
Y99. Other Maternal Exposures Affecting the Fetus	71	11	9	7	7	37	4	6	14	1	12
Diagnostic Grouping	2000 to 2008	2000	2001	2002	2003	2004 to 2008	2004	2005	2006	2007	2008
One or More Reportable Diagnosis	3,176	394	370	379	412	1,621	357	342	330	273	319

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 October 29, 2010
Mortality data includes all linked deaths identified through death year 2008.

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 2000-2008,
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
A Congenital Anomalies of the Central Nervous System	164	191	202	206	195	173	159
B Congenital Anomalies of the Eye	31	32	34	28	28	22	22
C Congenital Anomalies of the Ear, Face and Neck	25	27	28	34	27	23	18
D Congenital Anomalies of the Heart and Circulatory System	488	521	506	477	420	396	414
E Congenital Anomalies of the Respiratory System	208	217	233	230	206	190	158
F Cleft Palate and Cleft Lip	34	46	54	50	45	38	37
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	89	99	106	104	97	79	74
H Congenital Anomalies of the Genital and Urinary Systems	166	190	199	186	154	144	150
I Congenital Anomalies of the Musculoskeletal System	185	197	206	213	193	174	162
J Congenital Anomalies of the Integument	18	16	14	14	18	16	16
K Chromosomal Anomalies	141	146	149	163	130	115	101
L Other and Unspecified Congenital Anomalies	179	193	206	191	163	128	107

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 2000-2008,
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
M Infectious Conditions Occurring in the Perinatal Period	51	46	31	19	13	11	14
N Familial/Congenital Neoplasms	2	1	-	-	-	1	1
O Endocrine/Metabolic Disorders	73	79	72	60	52	44	51
P Diseases of the Blood & Blood Forming Organs	45	39	35	40	43	44	40
Q Other Diseases of the Central and Peripheral Nervous System	30	30	30	31	31	36	31
R Other Diseases of the Eye	57	66	65	63	57	55	61
S Hearing Deficiency	15	23	24	22	15	14	11
T Other Diseases of the Heart & Circulatory System	114	94	96	92	101	105	103
U Other Diseases of the Gastrointestinal System	95	107	100	88	75	68	73
V Other Diseases of the Genital and Urinary Systems	1	2	3	3	2	1	1
W Other Fetal/Placental Anomalies	-	-	-	7	7	7	-
X Other Musculoskeletal System Diseases	-	-	-	-	-	-	-
Y Maternal Exposures Affecting Fetus	28	25	21	19	25	21	27
One or More Reportable Diagnosis	1,143	1,161	1,148	1,111	1,029	945	922

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 October 29, 2010

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 2000-2008,
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
A Congenital Anomalies of the Central Nervous System	164	191	202	206	195	173	159
A01 Anencephalus	42	36	47	43	41	30	34
A02 Spina Bifida w/o Anencephaly	10	12	10	14	13	11	8
A03 Hydrocephalus w/o Spina Bifida	49	58	54	60	60	52	39
A04 Encephalocele	5	7	8	13	12	10	5
A05 Microcephalus	25	34	38	31	29	31	28
A99. All Other CNS Anomalies	67	91	93	98	84	84	74
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
B Congenital Anomalies of the Eye	31	32	34	28	28	22	22
B01 Anophthalmos/Microphthalmos	12	10	9	7	8	8	8
B02 Congenital Cataract	4	5	3	3	3	5	5
B03 Aniridia	-	-	-	1	1	1	-
B99. All Other Congenital Anomalies of the Eye	18	20	24	22	23	15	15
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
C Congenital Anomalies of the Ear, Face and Neck	25	27	28	34	27	23	18
C01 Anotia/Microtia	2	3	3	3	1	1	3
C99. All Other Congenital Anomalies of the Ear, Face and Neck	24	27	27	33	26	23	17

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 2000-2008,
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
D Congenital Anomalies of the Heart and Circulatory System	488	521	506	477	420	396	414
D01 Common Truncus	7	8	6	7	6	7	9
D02 Transposition of Great Vessels	25	24	29	27	29	31	29
D03 Tetralogy of Fallot	23	17	18	19	15	12	17
D04 Ventricular Septal Defect	99	100	112	105	92	76	90
D05 Atrial Septal Defect	144	174	174	178	156	163	179
D06 Endocardial Cushion Defect	24	25	26	33	27	27	21
D07 Pulmonary Valve Atresia and Stenosis	31	31	25	28	25	25	30
D08 Tricuspid Valve Atresia and Stenosis	11	7	5	3	3	4	6
D09 Ebstein's Anomaly	19	11	8	2	4	5	5
D10 Aortic Valve Stenosis	7	6	4	8	11	10	9
D11 Hypoplastic Left Heart Syndrome	57	55	43	41	41	45	42
D12 Patent Ductus Arteriosus	129	157	176	191	172	171	194
D13 Coarctation of Aorta	22	24	30	32	35	33	29
D14 Pulmonary Artery Anomalies	48	47	38	42	30	36	38
D99. All Other Congenital Anomalies of the Heart and Circulatory System	300	321	316	284	247	216	232
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
E Congenital Anomalies of the Respiratory System	208	217	233	230	206	190	158
E01 Lung Agenesis/Hypoplasia	130	135	137	141	107	91	65
E02 Choanal Atresia	4	3	1	1	2	3	4
E99. All Other Congenital Anomalies of the Respiratory System	85	92	109	102	107	105	97
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
F Cleft Palate and Cleft Lip	34	46	54	50	45	38	37
F01 Cleft Palate	15	19	21	15	11	9	12
F02 Cleft Lip w and w/o Cleft Palate	19	27	33	35	34	29	25

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 2000-2008,
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
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	89	99	106	104	97	79	74
G01 Esophageal Atresia/ Tracheoesophageal Fistula	13	17	18	18	13	11	11
G02 Rectal and Large Intestinal Atresia/Stenosis	8	12	18	21	20	13	10
G03 Pyloric Stenosis	9	7	5	5	3	2	1
G04 Hirshsprung's Disease (congenital megacolon)	5	5	1	-	2	2	2
G05 Biliary Atresia	4	3	3	2	3	3	3
G99. Other Cong. Anomalies of Upper Alimentary Canal / Digestive System	62	69	79	76	71	56	55
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
H Congenital Anomalies of the Genital and Urinary Systems	166	190	199	186	154	144	150
H01 Renal Agenesis/Hypoplasia	46	50	54	46	33	36	41
H02 Bladder Exstrophy	-	-	-	2	2	2	-
H03 Obstructive Genitourinary Defects	24	32	40	38	31	26	27
H04 Hypospadias & Epispadias	22	22	24	23	21	17	17
H99. All Other Congenital Anomalies of the Genital & Urinary Systems	121	142	150	142	122	114	114
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
I Congenital Anomalies of the Musculoskeletal System	185	197	206	213	193	174	162
I01 Upper Limb Reduction Deformities	5	6	8	9	9	6	7
I02 Lower Limb Reduction Deformities	2	2	4	5	7	4	2
I03 Gastroschisis/Omphalocele	17	22	20	26	24	26	22
I04 Congenital Hip Dislocation	4	2	1	3	3	3	1
I05 Diaphragmatic Hernia	34	41	41	39	27	24	23
I99. All Other Congenital Anomalies of the Musculoskeletal System	137	140	157	157	149	129	122

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 2000-2008,
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
J Congenital Anomalies of the Integument	18	16	14	14	18	16	16
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
K Chromosomal Anomalies	141	146	149	163	130	115	101
K01 Trisomy 13	26	24	28	33	26	21	17
K02 Down Syndrome	46	49	45	46	34	30	29
K03 Trisomy 18	36	43	38	38	33	31	33
K99. All Other Chromosomal Anomalies	47	50	54	64	45	42	26
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
L Other and Unspecified Congenital Anomalies	179	193	206	191	163	128	107

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 2000-2008,
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
M Infectious Conditions Occurring in the Perinatal Period	51	46	31	19	13	11	14
M01 Syphilis	1	2	2	2	1	1	1
M02 Other Infections	50	44	29	17	12	10	13
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
N Familial/Congenital Neoplasms	2	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
O Endocrine/Metabolic Disorders	73	79	72	60	52	44	51
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
P Diseases of the Blood & Blood Forming Organs	45	39	35	40	43	44	40
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
Q Other Diseases of the Central and Peripheral Nervous System	30	30	30	31	31	36	31
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
R Other Diseases of the Eye	57	66	65	63	57	55	61
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
S Hearing Deficiency	15	23	24	22	15	14	11
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
T Other Diseases of the Heart & Circulatory System	114	94	96	92	101	105	103

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 2000-2008,
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
U Other Diseases of the Gastrointestinal System	95	107	100	88	75	68	73
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
V Other Diseases of the Genital and Urinary Systems	1	2	3	3	2	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
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
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
Y Maternal Exposures Affecting Fetus	28	25	21	19	25	21	27
Y01 Fetal Alcohol Syndrome	1	2	3	2	1	-	-
Y99. Other Maternal Exposures Affecting the Fetus	27	23	18	17	24	21	27
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
One or More Reportable Diagnosis	1,143	1,161	1,148	1,111	1,029	945	922

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.

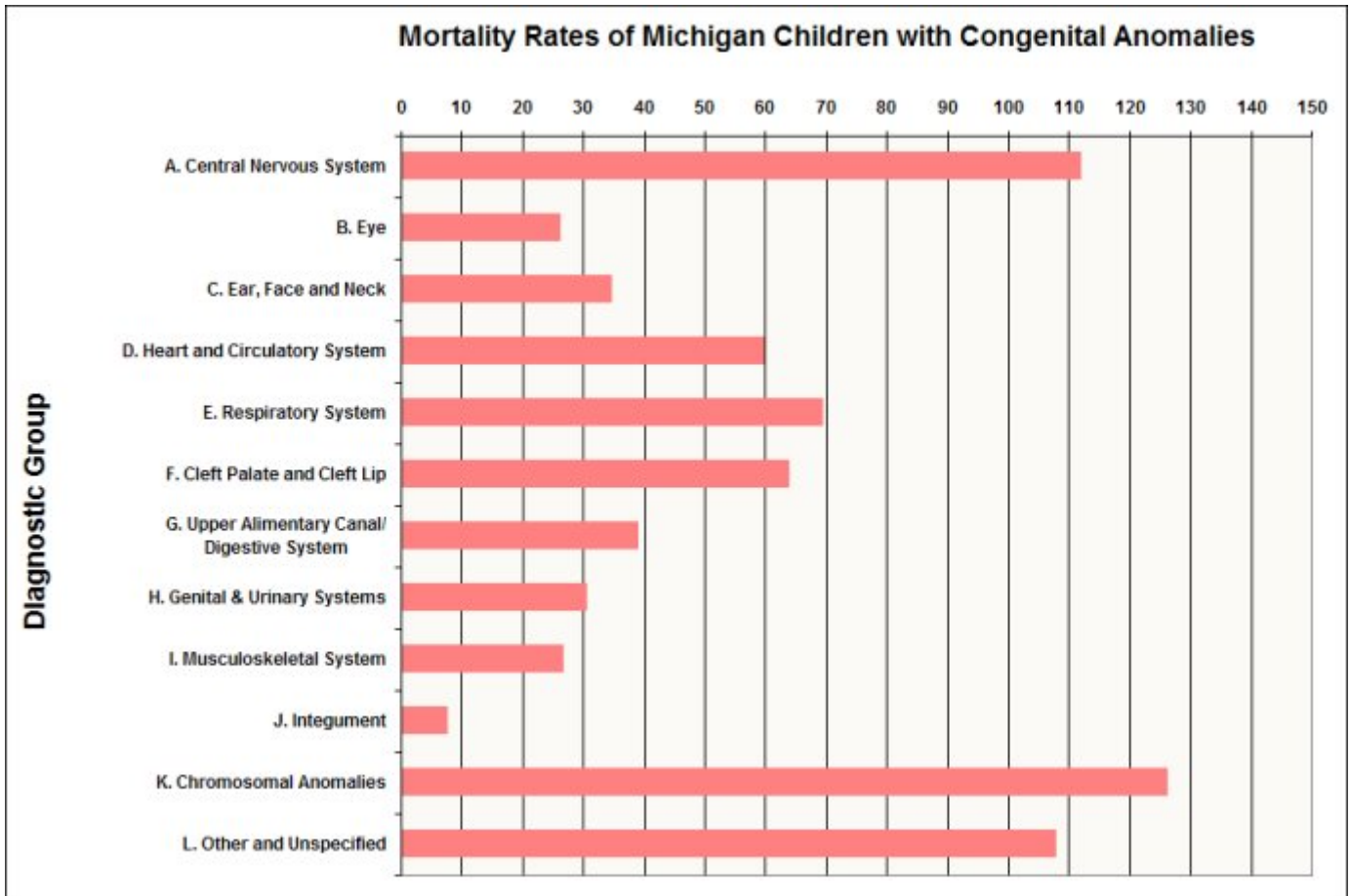
Conditions are reportable if identified within the first two years of a child's life. The prevalence frequencies in this table represent cases diagnosed within the first year of life.

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 October 29, 2010

Last Updated on January 26, 2011

Figure 2-A
Total Congenital Anomalies by Summary Diagnostic Code Group, 2004-2006 ,
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.

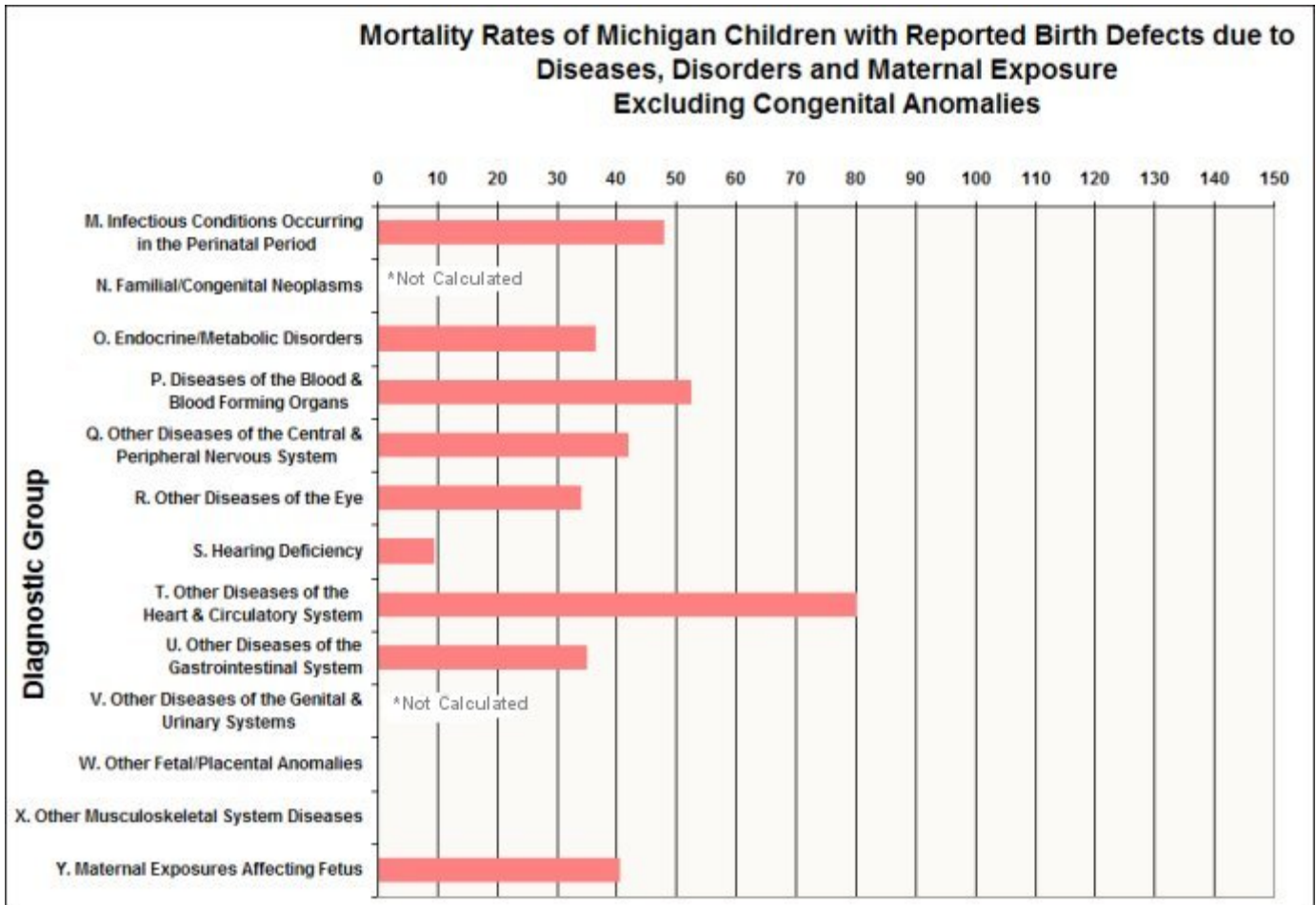
Diagnoses are coded using the 9th revision to the International Classification of Diseases - ICD 9 CM. Diagnostic Code Groupings used for congenital anomaly codes are as used by the Centers for Disease Control. (See Birth Defect Groups and ICD-9-CM Diagnosis Codes for the codes used to categorize birth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

Source: Michigan Birth Defects Registry, Division for Vital Records & Health Statistics, Michigan Department of Community Health Reports Processed through October 29, 2010

Mortality data includes all linked deaths identified through death year 2008.

Last Updated on January 26, 2011

Figure 2-B
Total Diseases, Disorders and Maternal Exposures by
Summary Diagnostic Code Group, 2003-2005,
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 October 29, 2010
Mortality data includes all linked deaths identified through death year 2008.

Last Updated on January 26, 2011

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 2000-2008,
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
A Congenital Anomalies of the Central Nervous System	108.7	125.6	130.6	132.5	122.0	113.2	111.7
B Congenital Anomalies of the Eye	27.4	28.3	30.5	25.9	28.1	23.4	25.7
C Congenital Anomalies of the Ear, Face and Neck	37.9	41.2	44.5	52.1	43.5	39.1	34.4
D Congenital Anomalies of the Heart and Circulatory System	77.6	79.3	73.5	67.5	57.4	55.6	59.3
E Congenital Anomalies of the Respiratory System	122.3	113.5	117.1	108.5	86.4	73.9	69.2
F Cleft Palate and Cleft Lip	54.2	71.1	88.4	82.8	74.9	62.4	63.5
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	40.1	46.6	52.8	54.1	47.5	38.9	38.7
H Congenital Anomalies of the Genital and Urinary Systems	30.2	36.1	38.2	35.4	28.4	26.7	30.2
I Congenital Anomalies of the Musculoskeletal System	28.3	29.9	32.7	34.1	29.5	25.5	26.2
J Congenital Anomalies of the Integument	20.6	18.5	13.9	10.7	8.1	7.1	5.4
K Chromosomal Anomalies	169.7	175.1	179.5	193.8	153.8	139.9	125.9
L Other and Unspecified Congenital Anomalies	88.7	91.8	104.5	99.5	97.6	91.3	107.5

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 2000-2008,
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
M Infectious Conditions Occurring in the Perinatal Period	104.5	102.0	83.1	66.4	54.2	53.1	47.6
N Familial/Congenital Neoplasms	*	*	-	-	-	*	*
O Endocrine/Metabolic Disorders	51.9	58.5	56.5	47.2	38.2	31.3	36.0
P Diseases of the Blood & Blood Forming Organs	64.3	54.0	47.2	50.4	53.0	53.5	52.0
Q Other Diseases of the Central and Peripheral Nervous System	28.4	29.6	30.7	32.2	32.2	40.0	41.5
R Other Diseases of the Eye	27.5	32.3	32.1	30.7	27.9	27.4	33.7
S Hearing Deficiency	11.2	16.5	18.6	17.2	11.7	10.9	9.2
T Other Diseases of the Heart & Circulatory System	82.4	72.9	79.8	79.5	84.2	83.1	79.7
U Other Diseases of the Gastrointestinal System	36.5	42.4	42.2	37.4	32.5	30.2	34.7
V Other Diseases of the Genital and Urinary Systems	*	*	*	*	*	*	*
W Other Fetal/Placental Anomalies	-	-	-	61.9	61.9	63.1	-
X Other Musculoskeletal System Diseases	-	-	-	-	-	-	-
Y Maternal Exposures Affecting Fetus	29.3	31.4	31.3	28.6	34.7	32.8	40.1
One or More Reportable Diagnosis	39.4	40.4	40.7	38.3	33.6	30.8	31.4

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 October 29, 2010

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 2000-2008,
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
A Congenital Anomalies of the Central Nervous System	108.7	125.6	130.6	132.5	122.0	113.2	111.7
A01 Anencephalus	976.7	900.0	886.8	860.0	891.3	909.1	871.8
A02 Spina Bifida w/o Anencephaly	60.6	71.4	62.9	79.1	68.8	60.1	43.7
A03 Hydrocephalus w/o Spina Bifida	116.7	144.6	141.4	162.2	162.6	144.4	115.0
A04 Encephalocele	*	184.2	200.0	265.3	255.3	222.2	*
A05 Microcephalus	66.7	91.2	99.7	83.6	74.7	80.3	84.1
A99. All Other CNS Anomalies	91.4	115.2	112.0	114.4	96.2	102.1	96.7
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
B Congenital Anomalies of the Eye	27.4	28.3	30.5	25.9	28.1	23.4	25.7
B01 Anophthalmos/Microphthalmos	139.5	107.5	104.7	90.9	115.9	121.2	142.9
B02 Congenital Cataract	*	*	*	*	*	*	*
B03 Aniridia	-	-	-	*	*	*	-
B99. All Other Congenital Anomalies of the Eye	17.5	19.6	23.9	22.5	25.3	17.6	19.3
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
C Congenital Anomalies of the Ear, Face and Neck	37.9	41.2	44.5	52.1	43.5	39.1	34.4
C01 Anotia/Microtia	*	*	*	*	*	*	*
C99. All Other Congenital Anomalies of the Ear, Face and Neck	37.3	42.0	44.2	51.5	42.8	39.9	33.5

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 2000-2008,
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
D Congenital Anomalies of the Heart and Circulatory System	77.6	79.3	73.5	67.5	57.4	55.6	59.3
D01 Common Truncus	155.6	135.6	113.2	122.8	125.0	145.8	176.5
D02 Transposition of Great Vessels	131.6	134.8	160.2	135.0	137.4	144.2	155.1
D03 Tetralogy of Fallot	109.5	78.7	88.7	94.1	78.5	61.9	83.7
D04 Ventricular Septal Defect	64.5	64.4	70.8	64.7	56.2	47.1	57.3
D05 Atrial Septal Defect	58.7	65.7	59.6	55.9	45.2	48.2	53.6
D06 Endocardial Cushion Defect	113.2	106.4	111.1	144.1	125.0	131.1	106.1
D07 Pulmonary Valve Atresia and Stenosis	72.6	68.1	59.4	60.1	54.0	52.3	70.1
D08 Tricuspid Valve Atresia and Stenosis	154.9	92.1	*	*	*	*	130.4
D09 Ebstein's Anomaly	162.4	110.0	123.1	*	*	*	*
D10 Aortic Valve Stenosis	69.3	64.5	*	76.9	112.2	107.5	105.9
D11 Hypoplastic Left Heart Syndrome	345.5	316.1	268.8	250.0	269.7	300.0	315.8
D12 Patent Ductus Arteriosus	77.4	83.9	88.0	89.3	77.9	79.5	91.0
D13 Coarctation of Aorta	94.0	100.4	121.5	135.0	150.2	141.6	120.3
D14 Pulmonary Artery Anomalies	61.1	58.3	49.4	53.9	37.5	45.1	50.9
D99. All Other Congenital Anomalies of the Heart and Circulatory System	110.1	112.0	101.2	92.4	78.1	72.5	79.2
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
E Congenital Anomalies of the Respiratory System	122.3	113.5	117.1	108.5	86.4	73.9	69.2
E01 Lung Agenesis/Hypoplasia	543.9	436.9	398.3	399.4	397.8	419.4	331.6
E02 Choanal Atresia	*	*	*	*	*	*	*
E99. All Other Congenital Anomalies of the Respiratory System	57.1	56.0	64.4	56.0	49.5	43.8	45.6
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
F Cleft Palate and Cleft Lip	54.2	71.1	88.4	82.8	74.9	62.4	63.5
F01 Cleft Palate	66.4	84.1	102.4	73.5	51.4	39.5	53.3
F02 Cleft Lip w and w/o Cleft Palate	47.4	64.1	81.3	87.5	87.9	76.1	69.8

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 2000-2008,
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
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	40.1	46.6	52.8	54.1	47.5	38.9	38.7
G01 Esophageal Atresia/ Tracheoesophageal Fistula	107.4	127.8	137.4	137.4	110.2	100.0	118.3
G02 Rectal and Large Intestinal Atresia/Stenosis	40.8	65.2	96.8	115.4	104.2	71.4	57.5
G03 Pyloric Stenosis	12.4	10.1	*	*	*	*	*
G04 Hirshsprung's Disease (congenital megacolon)	*	*	*	-	*	*	*
G05 Biliary Atresia	*	*	*	*	*	*	*
G99. Other Cong. Anomalies of Upper Alimentary Canal / Digestive System	53.5	62.7	72.9	71.8	61.5	48.4	54.0
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
H Congenital Anomalies of the Genital and Urinary Systems	30.2	36.1	38.2	35.4	28.4	26.7	30.2
H01 Renal Agenesis/Hypoplasia	186.2	219.3	244.3	223.3	180.3	183.7	199.0
H02 Bladder Exstrophy	-	-	-	*	*	*	-
H03 Obstructive Genitourinary Defects	29.4	37.9	46.5	42.6	34.7	30.0	33.7
H04 Hypospadias & Epispadias	18.0	18.9	21.1	19.2	18.4	15.0	15.6
H99. All Other Congenital Anomalies of the Genital & Urinary Systems	26.4	32.3	34.4	32.3	26.5	25.0	27.7
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
I Congenital Anomalies of the Musculoskeletal System	28.3	29.9	32.7	34.1	29.5	25.5	26.2
I01 Upper Limb Reduction Deformities	*	57.1	81.6	104.7	118.4	72.3	74.5
I02 Lower Limb Reduction Deformities	*	*	*	*	84.3	*	*
I03 Gastroschisis/Omphalocele	98.8	125.0	118.3	138.3	114.3	114.0	99.1
I04 Congenital Hip Dislocation	*	*	*	*	*	*	*
I05 Diaphragmatic Hernia	298.2	330.6	317.8	293.2	201.5	192.0	190.1
I99. All Other Congenital Anomalies of the Musculoskeletal System	23.5	23.7	27.5	27.6	24.9	20.5	21.7

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 2000-2008,
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
J Congenital Anomalies of the Integument	20.6	18.5	13.9	10.7	8.1	7.1	5.4
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
K Chromosomal Anomalies	169.7	175.1	179.5	193.8	153.8	139.9	125.9
K01 Trisomy 13	787.9	750.0	823.5	804.9	742.9	617.6	607.1
K02 Down Syndrome	95.4	101.9	93.6	95.2	66.1	62.0	62.5
K03 Trisomy 18	679.2	651.5	612.9	666.7	687.5	659.6	660.0
K99. All Other Chromosomal Anomalies	146.9	160.3	177.6	207.8	159.0	141.4	90.0
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
L Other and Unspecified Congenital Anomalies	88.7	91.8	104.5	99.5	97.6	91.3	107.5

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 2000-2008,
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
M Infectious Conditions Occurring in the Perinatal Period	104.5	102.0	83.1	66.4	54.2	53.1	47.6
M01 Syphilis	*	*	*	*	*	*	*
M02 Other Infections	117.6	117.3	90.3	72.0	56.9	56.2	52.0
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
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
O Endocrine/Metabolic Disorders	51.9	58.5	56.5	47.2	38.2	31.3	36.0
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
P Diseases of the Blood & Blood Forming Organs	64.3	54.0	47.2	50.4	53.0	53.5	52.0
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
Q Other Diseases of the Central and Peripheral Nervous System	28.4	29.6	30.7	32.2	32.2	40.0	41.5
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
R Other Diseases of the Eye	27.5	32.3	32.1	30.7	27.9	27.4	33.7
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
S Hearing Deficiency	11.2	16.5	18.6	17.2	11.7	10.9	9.2
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
T Other Diseases of the Heart & Circulatory System	82.4	72.9	79.8	79.5	84.2	83.1	79.7

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 2000-2008,
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
U Other Diseases of the Gastrointestinal System	36.5	42.4	42.2	37.4	32.5	30.2	34.7
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
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
W Other Fetal/Placental Anomalies	-	-	-	61.9	61.9	63.1	-
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
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
Y Maternal Exposures Affecting Fetus	29.3	31.4	31.3	28.6	34.7	32.8	40.1
Y01 Fetal Alcohol Syndrome	*	*	*	*	*	-	-
Y99. Other Maternal Exposures Affecting the Fetus	29.8	30.3	28.4	27.2	35.6	34.8	42.0
Diagnostic Grouping	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006	2005 to 2007	2006 to 2008
One or More Reportable Diagnosis	39.4	40.4	40.7	38.3	33.6	30.8	31.4

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 October 29, 2010

Last Updated on January 26, 2011

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 1994-2008,
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
A Congenital Anomalies of the Central Nervous System	325	306	322	340	352	367	370	386	375	365
B Congenital Anomalies of the Eye	50	45	45	54	53	58	59	60	56	50
C Congenital Anomalies of the Ear, Face and Neck	52	48	52	55	50	50	59	54	51	52
D Congenital Anomalies of the Heart and Circulatory System	980	970	976	989	1,005	986	965	941	902	891
E Congenital Anomalies of the Respiratory System	401	408	403	422	457	453	438	423	423	388
F Cleft Palate and Cleft Lip	73	65	61	66	74	83	84	91	92	87
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	173	172	172	178	187	190	193	196	185	178
H Congenital Anomalies of the Genital and Urinary Systems	304	308	306	323	347	355	352	344	343	336
I Congenital Anomalies of the Musculoskeletal System	377	370	366	359	373	394	398	390	380	375
J Congenital Anomalies of the Integument	27	28	28	28	29	32	32	34	30	30
K Chromosomal Anomalies	246	267	277	275	299	302	304	276	264	264
L Other and Unspecified Congenital Anomalies	266	284	312	326	358	380	370	356	334	298

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 1994-2008,
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
M Infectious Conditions Occurring in the Perinatal Period	49	57	70	78	79	76	70	59	42	33
N Familial/Congenital Neoplasms	8	6	6	3	2	2	2	1	1	1
O Endocrine/Metabolic Disorders	132	128	135	134	137	139	133	131	116	111
P Diseases of the Blood & Blood Forming Organs	110	112	105	101	99	89	85	82	79	80
Q Other Diseases of the Central and Peripheral Nervous System	80	76	75	75	72	61	61	61	66	62
R Other Diseases of the Eye	95	96	101	107	116	116	120	123	120	124
S Hearing Deficiency	9	11	12	19	29	33	37	38	38	33
T Other Diseases of the Heart & Circulatory System	241	236	230	230	232	228	206	195	201	195
U Other Diseases of the Gastrointestinal System	209	193	193	206	204	191	183	182	168	161
V Other Diseases of the Genital and Urinary Systems	4	2	2	2	3	4	4	4	4	4
W Other Fetal/Placental Anomalies	-	-	-	-	-	-	7	7	7	7
X Other Musculoskeletal System Diseases	-	-	-	-	-	-	-	-	-	-
Y Maternal Exposures Affecting Fetus	67	53	56	52	54	52	47	50	42	46
One or More Reportable Diagnosis	2,249	2,233	2,249	2,288	2,316	2,289	2,254	2,190	2,093	2,033

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 October 29, 2010

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 1994-2008,
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
A Congenital Anomalies of the Central Nervous System	325	306	322	340	352	367	370	386	375	365
A01 Anencephalus	65	71	65	75	80	86	85	77	77	77
A02 Spina Bifida w/o Anencephaly	32	28	31	29	26	25	24	25	21	22
A03 Hydrocephalus w/o Spina Bifida	94	89	97	99	104	105	109	118	106	99
A04 Encephalocele	20	16	16	14	16	14	18	19	18	18
A05 Microcephalus	48	40	40	51	53	58	56	63	69	59
A99. All Other CNS Anomalies	123	112	125	135	145	158	165	175	177	172
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
B Congenital Anomalies of the Eye	50	45	45	54	53	58	59	60	56	50
B01 Anophthalmos/Microphthalmos	12	12	14	18	18	18	19	18	17	15
B02 Congenital Cataract	5	4	5	5	6	6	7	8	8	8
B03 Aniridia	-	-	-	-	-	-	1	1	1	1
B99. All Other Congenital Anomalies of the Eye	35	31	31	34	32	39	40	43	39	37
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
C Congenital Anomalies of the Ear, Face and Neck	52	48	52	55	50	50	59	54	51	52
C01 Anotia/Microtia	1	2	3	3	5	5	5	4	4	6
C99. All Other Congenital Anomalies of the Ear, Face and Neck	51	46	50	53	48	48	57	53	50	50

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 1994-2008,
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
D Congenital Anomalies of the Heart and Circulatory System	980	970	976	989	1,005	986	965	941	902	891
D01 Common Truncus	18	15	18	17	14	14	14	14	13	16
D02 Transposition of Great Vessels	63	63	62	63	57	55	52	53	60	56
D03 Tetralogy of Fallot	59	57	53	50	51	47	42	32	30	36
D04 Ventricular Septal Defect	210	212	207	206	208	216	204	192	188	195
D05 Atrial Septal Defect	268	267	281	290	302	307	322	330	337	357
D06 Endocardial Cushion Defect	66	60	60	54	51	55	57	52	53	54
D07 Pulmonary Valve Atresia and Stenosis	64	66	73	73	72	64	59	56	50	58
D08 Tricuspid Valve Atresia and Stenosis	18	20	19	19	16	14	14	10	9	9
D09 Ebstein's Anomaly	5	13	17	24	24	24	21	15	13	7
D10 Aortic Valve Stenosis	24	23	26	25	19	15	15	17	14	17
D11 Hypoplastic Left Heart Syndrome	126	127	132	131	121	107	98	96	88	83
D12 Patent Ductus Arteriosus	326	308	290	286	296	310	320	329	347	385
D13 Coarctation of Aorta	62	61	55	58	56	58	54	59	63	61
D14 Pulmonary Artery Anomalies	87	90	100	94	97	92	90	77	74	80
D99. All Other Congenital Anomalies of the Heart and Circulatory System	605	591	600	605	608	603	584	568	532	516
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
E Congenital Anomalies of the Respiratory System	401	408	403	422	457	453	438	423	423	388
E01 Lung Agenesis/Hypoplasia	297	305	295	290	312	290	271	242	228	206
E02 Choanal Atresia	9	9	11	12	7	5	5	5	4	5
E99. All Other Congenital Anomalies of the Respiratory System	108	109	114	141	159	180	187	199	214	199
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
F Cleft Palate and Cleft Lip	73	65	61	66	74	83	84	91	92	87
F01 Cleft Palate	31	27	23	26	31	32	30	30	30	27
F02 Cleft Lip w and w/o Cleft Palate	42	38	38	40	43	51	54	61	62	60

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 1994-2008,
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
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	173	172	172	178	187	190	193	196	185	178
G01 Esophageal Atresia/ Tracheoesophageal Fistula	28	28	28	28	29	32	31	30	29	29
G02 Rectal and Large Intestinal Atresia/Stenosis	39	35	28	26	27	29	29	32	31	31
G03 Pyloric Stenosis	5	9	12	12	14	14	14	10	7	6
G04 Hirshsprung's Disease (congenital megacolon)	8	4	7	7	7	6	5	7	3	2
G05 Biliary Atresia	7	7	7	6	6	6	6	6	6	5
G99. Other Cong. Anomalies of Upper Alimentary Canal / Digestive System	113	113	116	123	129	133	138	140	135	131
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
H Congenital Anomalies of the Genital and Urinary Systems	304	308	306	323	347	355	352	344	343	336
H01 Renal Agenesis/Hypoplasia	98	98	89	90	100	96	92	83	90	87
H02 Bladder Exstrophy	3	3	3	2	2	1	2	2	2	2
H03 Obstructive Genitourinary Defects	43	48	43	49	56	59	62	63	66	65
H04 Hypospadias & Epispadias	7	11	20	28	29	38	45	43	41	40
H99. All Other Congenital Anomalies of the Genital & Urinary Systems	235	232	232	245	260	269	263	264	264	256
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
I Congenital Anomalies of the Musculoskeletal System	377	370	366	359	373	394	398	390	380	375
I01 Upper Limb Reduction Deformities	16	13	12	9	9	13	14	15	14	16
I02 Lower Limb Reduction Deformities	15	10	11	10	5	7	7	9	8	7
I03 Gastroschisis/Omphalocele	55	52	50	45	44	40	43	46	46	48
I04 Congenital Hip Dislocation	11	9	11	10	7	7	7	5	4	4
I05 Diaphragmatic Hernia	73	73	67	66	71	74	73	68	65	62
I99. All Other Congenital Anomalies of the Musculoskeletal System	257	254	253	251	262	289	294	289	286	279

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 1994-2008,
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
J Congenital Anomalies of the Integument	27	28	28	28	29	32	32	34	30	30
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
K Chromosomal Anomalies	246	267	277	275	299	302	304	276	264	264
K01 Trisomy 13	50	56	54	53	54	57	59	50	49	50
K02 Down Syndrome	68	69	80	80	89	92	92	83	75	75
K03 Trisomy 18	83	82	80	78	85	83	74	76	69	71
K99. All Other Chromosomal Anomalies	58	77	85	87	104	102	111	95	96	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
L Other and Unspecified Congenital Anomalies	266	284	312	326	358	380	370	356	334	298

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 1994-2008,
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
M Infectious Conditions Occurring in the Perinatal Period	49	57	70	78	79	76	70	59	42	33
M01 Syphilis	6	4	3	4	2	2	3	3	3	3
M02 Other Infections	43	53	67	74	77	74	67	56	39	30
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
N Familial/Congenital Neoplasms	8	6	6	3	2	2	2	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
O Endocrine/Metabolic Disorders	132	128	135	134	137	139	133	131	116	111
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
P Diseases of the Blood & Blood Forming Organs	110	112	105	101	99	89	85	82	79	80
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
Q Other Diseases of the Central and Peripheral Nervous System	80	76	75	75	72	61	61	61	66	62
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
R Other Diseases of the Eye	95	96	101	107	116	116	120	123	120	124
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
S Hearing Deficiency	9	11	12	19	29	33	37	38	38	33
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
T Other Diseases of the Heart & Circulatory System	241	236	230	230	232	228	206	195	201	195

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 1994-2008,
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
U Other Diseases of the Gastrointestinal System	209	193	193	206	204	191	183	182	168	161
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
V Other Diseases of the Genital and Urinary Systems	4	2	2	2	3	4	4	4	4	4
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
W Other Fetal/Placental Anomalies	-	-	-	-	-	-	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
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
Y Maternal Exposures Affecting Fetus	67	53	56	52	54	52	47	50	42	46
Y01 Fetal Alcohol Syndrome	10	7	6	4	4	5	3	3	3	2
Y99. Other Maternal Exposures Affecting the Fetus	58	47	51	49	51	48	44	47	39	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
One or More Reportable Diagnosis	2,249	2,233	2,249	2,288	2,316	2,289	2,254	2,190	2,093	2,033

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 October 29, 2010

Last Updated on January 26, 2011

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 1994-2008,
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
A Congenital Anomalies of the Central Nervous System	135.1	123.4	124.6	123.4	123.9	122.6	120.8	123.7	122.0	122.5
B Congenital Anomalies of the Eye	29.6	24.8	23.4	26.0	24.2	26.1	26.6	28.2	27.3	25.8
C Congenital Anomalies of the Ear, Face and Neck	43.3	41.5	44.9	45.2	40.9	40.3	44.9	42.3	41.9	44.2
D Congenital Anomalies of the Heart and Circulatory System	82.2	82.6	81.3	81.1	80.6	76.1	72.2	67.8	64.4	63.4
E Congenital Anomalies of the Respiratory System	192.6	185.5	161.9	151.5	142.6	129.0	114.6	98.5	92.7	88.1
F Cleft Palate and Cleft Lip	57.3	50.9	47.2	50.9	57.5	65.6	68.2	72.9	75.4	73.3
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	42.9	41.9	40.6	41.5	43.8	45.1	46.6	47.0	45.8	46.5
H Congenital Anomalies of the Genital and Urinary Systems	38.7	35.6	32.8	32.5	33.9	33.6	32.7	32.2	32.4	32.8
I Congenital Anomalies of the Musculoskeletal System	37.1	35.8	33.5	30.9	30.8	31.8	31.1	29.7	28.9	30.2
J Congenital Anomalies of the Integument	14.0	15.5	15.9	16.2	17.0	17.0	14.7	11.0	9.2	7.0
K Chromosomal Anomalies	163.7	176.1	176.3	173.9	183.5	180.0	181.8	164.4	159.8	160.7
L Other and Unspecified Congenital Anomalies	148.9	134.0	117.5	106.2	103.4	101.1	94.0	94.4	99.0	102.3

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 1994-2008,
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
M Infectious Conditions Occurring in the Perinatal Period	63.6	74.7	87.3	90.0	90.6	91.5	90.4	85.4	72.4	56.9
N Familial/Congenital Neoplasms	98.8	69.8	68.2	*	*	*	*	*	*	*
O Endocrine/Metabolic Disorders	64.2	57.7	56.4	53.3	52.2	52.1	49.7	48.3	43.3	41.3
P Diseases of the Blood & Blood Forming Organs	88.4	89.2	84.7	78.2	72.4	63.2	56.9	53.5	50.5	51.2
Q Other Diseases of the Central and Peripheral Nervous System	39.7	37.3	36.3	35.9	34.6	29.4	30.2	30.8	35.1	36.2
R Other Diseases of the Eye	24.3	24.0	24.8	26.1	28.2	27.8	29.1	30.1	29.8	32.1
S Hearing Deficiency	9.7	9.5	7.9	10.1	13.3	13.8	14.1	14.2	14.8	13.3
T Other Diseases of the Heart & Circulatory System	79.8	82.6	81.2	79.7	80.2	83.9	81.1	78.4	81.5	79.6
U Other Diseases of the Gastrointestinal System	40.4	37.6	37.4	40.4	40.5	38.3	36.9	37.7	36.4	36.1
V Other Diseases of the Genital and Urinary Systems	*	*	*	*	*	*	*	*	*	*
W Other Fetal/Placental Anomalies	-	-	-	-	-	-	60.9	59.8	59.8	60.9
X Other Musculoskeletal System Diseases	-	-	-	-	-	-	-	-	-	-
Y Maternal Exposures Affecting Fetus	28.9	25.1	27.4	27.2	30.6	31.2	29.0	33.0	32.0	34.4
One or More Reportable Diagnosis	45.7	44.7	43.2	42.6	42.0	40.6	38.8	36.9	35.6	34.8

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 October 29, 2010

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 1994-2008,
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
A Congenital Anomalies of the Central Nervous System	135.1	123.4	124.6	123.4	123.9	122.6	120.8	123.7	122.0	122.5
A01 Anencephalus	955.9	959.5	955.9	961.5	941.2	924.7	914.0	895.3	895.3	865.2
A02 Spina Bifida w/o Anencephaly	95.8	85.6	93.1	89.8	81.0	75.1	70.2	70.0	61.4	61.1
A03 Hydrocephalus w/o Spina Bifida	127.4	119.5	125.6	124.1	132.7	129.8	138.0	153.2	142.9	139.6
A04 Encephalocele	266.7	219.2	238.8	209.0	225.4	181.8	202.2	223.5	211.8	222.2
A05 Microcephalus	93.6	73.7	70.4	80.8	78.9	80.6	75.1	82.8	90.0	83.8
A99. All Other CNS Anomalies	110.1	97.2	102.1	100.6	102.5	104.2	103.8	105.2	107.1	106.0
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
B Congenital Anomalies of the Eye	29.6	24.8	23.4	26.0	24.2	26.1	26.6	28.2	27.3	25.8
B01 Anophthalmos/Microphthalmos	89.6	89.6	99.3	113.9	109.1	113.2	116.6	111.1	111.8	112.8
B02 Congenital Cataract	*	*	*	*	29.4	29.0	33.3	41.9	44.0	47.1
B03 Aniridia	-	-	-	-	-	-	*	*	*	*
B99. All Other Congenital Anomalies of the Eye	23.8	19.3	18.0	18.3	16.3	19.4	19.9	22.3	21.0	21.1
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
C Congenital Anomalies of the Ear, Face and Neck	43.3	41.5	44.9	45.2	40.9	40.3	44.9	42.3	41.9	44.2
C01 Anotia/Microtia	*	*	*	*	*	*	*	*	*	65.2
C99. All Other Congenital Anomalies of the Ear, Face and Neck	43.5	41.0	44.3	44.9	40.4	39.8	44.4	42.4	42.1	43.5

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 1994-2008,
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
D Congenital Anomalies of the Heart and Circulatory System	82.2	82.6	81.3	81.1	80.6	76.1	72.2	67.8	64.4	63.4
D01 Common Truncus	178.2	161.3	171.4	161.9	132.1	140.0	137.3	130.8	128.7	148.1
D02 Transposition of Great Vessels	173.1	173.6	168.0	166.2	154.5	153.2	133.3	136.2	151.5	144.7
D03 Tetralogy of Fallot	132.0	130.4	120.7	114.7	115.6	111.9	101.9	78.6	75.6	88.9
D04 Ventricular Septal Defect	66.0	68.0	66.3	65.6	65.9	69.3	64.6	60.2	58.9	61.1
D05 Atrial Septal Defect	65.0	63.1	63.8	63.2	62.2	58.8	57.1	54.1	53.5	54.8
D06 Endocardial Cushion Defect	167.5	154.6	147.8	131.1	118.6	125.0	129.3	115.3	120.5	126.5
D07 Pulmonary Valve Atresia and Stenosis	71.3	76.1	80.1	81.9	79.3	72.2	66.1	61.0	55.6	64.9
D08 Tricuspid Valve Atresia and Stenosis	181.8	204.1	168.1	153.2	128.0	116.7	112.0	84.0	81.8	90.0
D09 Ebstein's Anomaly	*	134.0	124.1	144.6	142.0	143.7	133.8	115.4	144.4	109.4
D10 Aortic Valve Stenosis	135.6	121.7	136.1	124.4	90.9	70.1	73.2	89.0	72.2	89.9
D11 Hypoplastic Left Heart Syndrome	453.2	448.8	440.0	419.9	385.4	335.4	297.9	294.5	283.9	279.5
D12 Patent Ductus Arteriosus	91.7	92.2	87.4	87.5	86.6	85.6	84.1	80.7	83.6	90.2
D13 Coarctation of Aorta	145.9	134.7	120.6	124.2	115.0	120.6	114.6	125.0	131.3	127.6
D14 Pulmonary Artery Anomalies	70.1	70.9	73.1	64.7	64.9	60.6	57.5	47.9	47.2	52.5
D99. All Other Congenital Anomalies of the Heart and Circulatory System	112.0	111.3	110.9	111.0	111.4	105.3	100.8	94.2	87.2	86.0
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
E Congenital Anomalies of the Respiratory System	192.6	185.5	161.9	151.5	142.6	129.0	114.6	98.5	92.7	88.1
E01 Lung Agenesis/Hypoplasia	679.6	670.3	631.7	597.9	545.5	490.7	457.8	418.7	406.4	375.2
E02 Choanal Atresia	79.6	76.3	84.6	86.3	51.1	*	*	*	*	*
E99. All Other Congenital Anomalies of the Respiratory System	64.4	61.2	55.4	60.0	58.9	60.2	56.5	52.3	52.3	50.4
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
F Cleft Palate and Cleft Lip	57.3	50.9	47.2	50.9	57.5	65.6	68.2	72.9	75.4	73.3
F01 Cleft Palate	64.3	57.4	49.4	56.0	67.4	72.1	69.8	68.2	69.3	62.9
F02 Cleft Lip w and w/o Cleft Palate	53.1	47.0	46.0	48.1	52.1	62.1	67.4	75.5	78.8	79.2

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 1994-2008,
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
G Congenital Anomalies of the Upper Alimentary Canal/ Digestive System	42.9	41.9	40.6	41.5	43.8	45.1	46.6	47.0	45.8	46.5
G01 Esophageal Atresia/ Tracheoesophageal Fistula	102.2	107.3	109.4	110.2	116.0	125.5	123.0	119.5	120.3	129.5
G02 Rectal and Large Intestinal Atresia/Stenosis	106.8	91.1	73.9	68.8	69.8	76.1	76.7	85.1	84.2	87.1
G03 Pyloric Stenosis	*	6.3	8.0	8.0	9.8	10.3	11.0	7.9	6.0	5.2
G04 Hirshsprung's Disease (congenital megacolon)	32.9	*	27.1	27.5	27.5	24.1	*	30.0	*	*
G05 Biliary Atresia	66.7	66.0	68.6	66.7	66.7	66.7	69.8	73.2	76.9	*
G99. Other Cong. Anomalies of Upper Alimentary Canal / Digestive System	59.4	56.4	56.4	58.1	59.7	60.6	62.2	62.1	60.2	63.0
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
H Congenital Anomalies of the Genital and Urinary Systems	38.7	35.6	32.8	32.5	33.9	33.6	32.7	32.2	32.4	32.8
H01 Renal Agenesis/Hypoplasia	225.3	214.4	193.9	194.0	211.9	207.8	203.1	201.9	215.8	211.2
H02 Bladder Exstrophy	*	*	*	*	*	*	*	*	*	*
H03 Obstructive Genitourinary Defects	33.8	36.0	31.0	33.8	36.8	36.6	36.3	36.2	38.2	38.4
H04 Hypospadias & Epispadias	5.3	6.2	9.6	12.1	12.3	16.1	18.6	18.7	18.1	17.5
H99. All Other Congenital Anomalies of the Genital & Urinary Systems	35.0	32.1	30.3	30.3	30.9	30.6	29.3	29.3	29.6	30.1
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
I Congenital Anomalies of the Musculoskeletal System	37.1	35.8	33.5	30.9	30.8	31.8	31.1	29.7	28.9	30.2
I01 Upper Limb Reduction Deformities	76.6	60.7	57.4	42.3	42.3	63.1	71.1	82.9	77.3	88.9
I02 Lower Limb Reduction Deformities	111.9	77.5	84.6	75.8	*	47.3	45.5	56.6	52.3	47.9
I03 Gastroschisis/Omphalocele	138.9	142.1	137.0	131.2	126.1	114.9	119.4	119.2	115.9	117.1
I04 Congenital Hip Dislocation	10.0	8.3	10.0	8.9	6.3	6.4	6.7	*	*	*
I05 Diaphragmatic Hernia	306.7	305.4	280.3	284.5	291.0	290.2	295.5	263.6	255.9	244.1
I99. All Other Congenital Anomalies of the Musculoskeletal System	29.6	28.6	26.6	24.6	24.5	26.1	25.5	24.3	23.9	24.7

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 1994-2008,
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
J Congenital Anomalies of the Integument	14.0	15.5	15.9	16.2	17.0	17.0	14.7	11.0	9.2	7.0
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
K Chromosomal Anomalies	163.7	176.1	176.3	173.9	183.5	180.0	181.8	164.4	159.8	160.7
K01 Trisomy 13	657.9	717.9	720.0	746.5	771.4	814.3	797.3	746.3	720.6	724.6
K02 Down Syndrome	81.4	83.7	92.0	88.7	98.1	97.4	95.3	83.4	77.7	79.2
K03 Trisomy 18	821.8	811.9	784.3	729.0	696.7	686.0	672.7	666.7	633.0	663.6
K99. All Other Chromosomal Anomalies	105.3	132.1	141.0	146.2	164.0	158.4	176.8	159.7	159.7	150.8
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
L Other and Unspecified Congenital Anomalies	148.9	134.0	117.5	106.2	103.4	101.1	94.0	94.4	99.0	102.3

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 1994-2008,
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
M Infectious Conditions Occurring in the Perinatal Period	63.6	74.7	87.3	90.0	90.6	91.5	90.4	85.4	72.4	56.9
M01 Syphilis	22.8	*	*	*	*	*	*	*	*	*
M02 Other Infections	84.8	94.8	108.6	106.2	107.7	103.4	101.4	95.6	78.2	61.7
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
N Familial/Congenital Neoplasms	98.8	69.8	68.2	*	*	*	*	*	*	*
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
O Endocrine/Metabolic Disorders	64.2	57.7	56.4	53.3	52.2	52.1	49.7	48.3	43.3	41.3
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
P Diseases of the Blood & Blood Forming Organs	88.4	89.2	84.7	78.2	72.4	63.2	56.9	53.5	50.5	51.2
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
Q Other Diseases of the Central and Peripheral Nervous System	39.7	37.3	36.3	35.9	34.6	29.4	30.2	30.8	35.1	36.2
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
R Other Diseases of the Eye	24.3	24.0	24.8	26.1	28.2	27.8	29.1	30.1	29.8	32.1
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
S Hearing Deficiency	9.7	9.5	7.9	10.1	13.3	13.8	14.1	14.2	14.8	13.3
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
T Other Diseases of the Heart & Circulatory System	79.8	82.6	81.2	79.7	80.2	83.9	81.1	78.4	81.5	79.6

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 1994-2008,
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
U Other Diseases of the Gastrointestinal System	40.4	37.6	37.4	40.4	40.5	38.3	36.9	37.7	36.4	36.1
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
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
W Other Fetal/Placental Anomalies	-	-	-	-	-	-	60.9	59.8	59.8	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
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
Y Maternal Exposures Affecting Fetus	28.9	25.1	27.4	27.2	30.6	31.2	29.0	33.0	32.0	34.4
Y01 Fetal Alcohol Syndrome	53.5	40.2	39.2	*	*	*	*	*	*	*
Y99. Other Maternal Exposures Affecting the Fetus	26.6	23.7	26.4	27.1	30.6	30.6	28.7	32.8	31.6	34.7
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
One or More Reportable Diagnosis	45.7	44.7	43.2	42.6	42.0	40.6	38.8	36.9	35.6	34.8

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 October 29, 2010

Last Updated on January 26, 2011

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
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