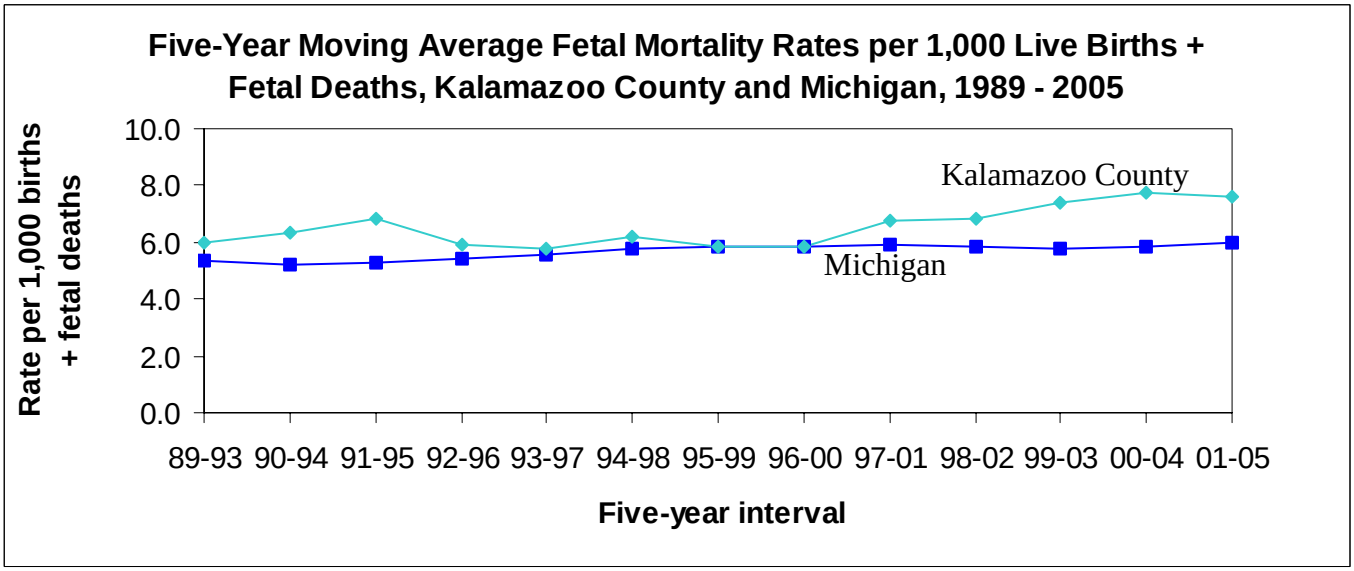
9.5 Fetal and Infant Deaths

9.5.1 Fetal Deaths

Between 2001 and 2005, there were 24 fetal deaths on average per year in Kalamazoo County. Fetal mortality rates are calculated by dividing the number of fetal deaths in a time period by the sum of the total number of live births and the number of fetal deaths. Since the early 1990s, the fetal mortality rate in Kalamazoo County has remained stable, and has been similar to the rate in Michigan. However, in recent years Kalamazoo County has had a higher fetal mortality rate than Michigan; between 2001 and 2005 the rate in Kalamazoo was 7.6 vs. 6.0 per 1,000 live births plus fetal deaths in Michigan.

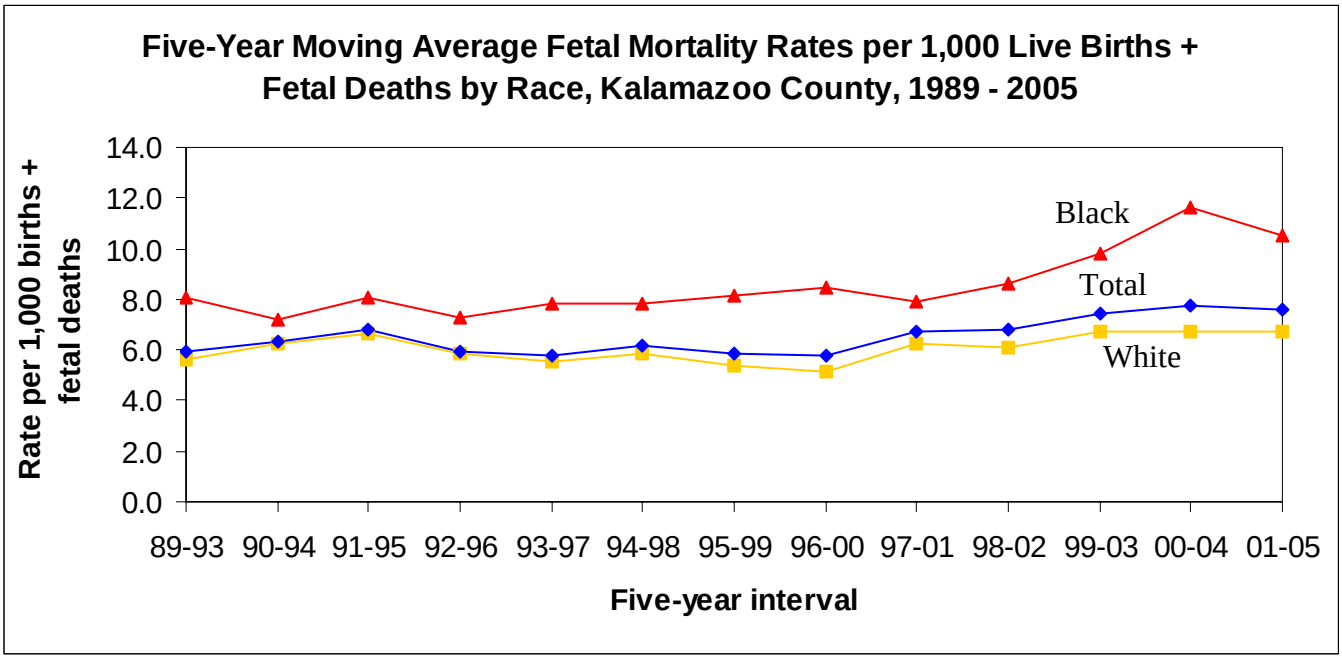
Healthy People 2010 Goal

Reduce the fetal mortality rate to **4.1 per 1,000 live births plus fetal deaths**.



Source: Michigan Department of Community Health, Division for Vital Records and Health Data Development, Resident Fetal Death File and Live Birth File.

Over time the fetal mortality rate among black pregnant women has been higher than the fetal mortality rate among white pregnant women in Kalamazoo County.



Source: Michigan Department of Community Health, Division for Vital Records and Health Data Development, Resident Fetal Death File and Live Birth File.

Fetal Mortality Rates by Race, Kalamazoo County and Michigan 2001 – 2005

Area	Total			White			Black		
	Average number of deaths per year	Rate per 1,000 Live Births + Fetal Deaths	+/- 95% CI	Average number of deaths per year	Rate per 1,000 Live Births + Fetal Deaths	+/- 95% CI	Average number of deaths per year	Rate per 1,000 Live Births + Fetal Deaths	+/- 95% CI
Kalamazoo County	24	7.6	1.4	17	6.8	1.4	6	10.5	3.9
Michigan	782	6.0	0.2	493	4.8	0.2	234	10.3	0.6

FETAL DEATH – Death prior to the complete expulsion or extraction from its mother of a product of conception, having passed through at least the 20th week of gestation or weighing at least 400 grams; the fetus shows no signs of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles. (Note: This does not include induced terminations.)

FETAL DEATH RATE – Number of resident fetal deaths divided by total resident live births plus resident fetal deaths x 1,000.

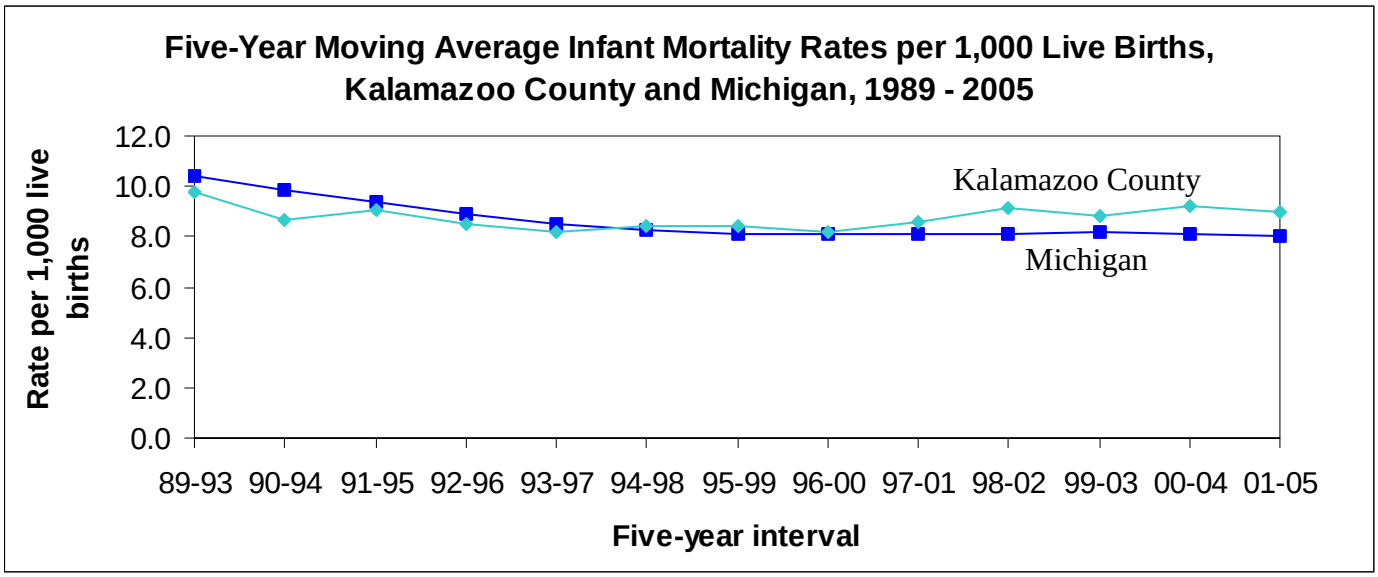
Source: Michigan Department of Community Health, Division for Vital Records and Health Data Development, Resident Fetal Death File and Live Birth File.

9.5.2 Infant Deaths (Total, Neonatal and Post-Neonatal)

Among Michigan counties for which an infant mortality rate was available for the time period 2001 to 2005, Kalamazoo County had the 16th worst rate (out of 67 counties; rates were not calculated for 16 counties due to small numbers).

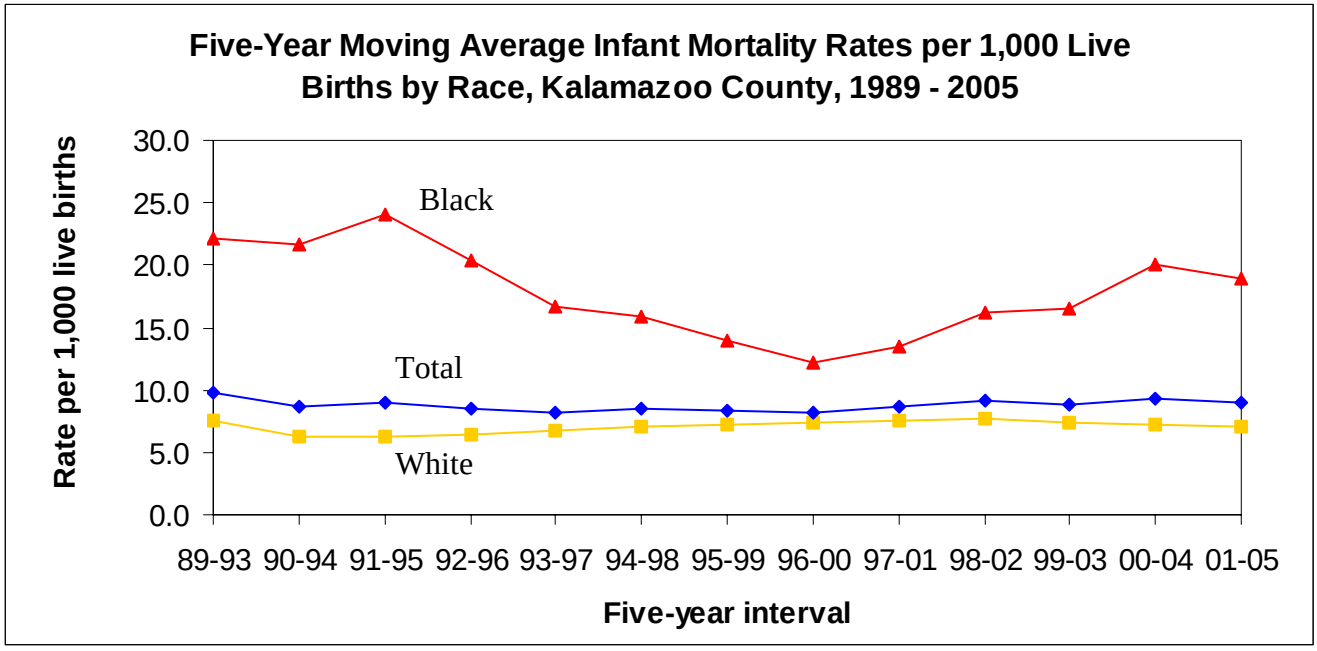
Healthy People 2010 Goal
Reduce the infant mortality rate to **4.5 per 1,000 live births**.

Between 2001 and 2005, an average of 28 infants died in Kalamazoo County per year, for an average infant mortality rate of 9.0 deaths per 1,000 live births. In Michigan in this same time period the average annual infant mortality rate was 8.0 deaths per 1,000 live births. Since 1989, the infant mortality rate in Kalamazoo County has been similar to the rate in Michigan and has statistically not changed over time. The rate in Michigan, however, has decreased since the early 1990's.



Source: Michigan Department of Community Health, Division for Vital Records and Health Data Development, Resident Death File and Live Birth File.

Black infants have been at higher risk of dying than white infants in Kalamazoo County over time. The disparity has decreased since the early 1990s; however, in the years 2001 through 2005, black infants were still 2.7 times more likely to die than white infants (7.0 white infant deaths vs. 19.0 black infant deaths per 1,000 live births).



Source: Michigan Department of Community Health, Division for Vital Records and Health Data Development, Resident Death File and Live Birth File.

Infant Mortality Rates per 1,000 Live Births by Race and Hispanic Ethnicity, Kalamazoo County 1989 – 2005

5-Year interval	Total			White			Black			Hispanic		
	Average number deaths per year	Rate per 1,000 births	+/- 95 % CI	Average number deaths per year	Rate per 1,000 births	+/- 95 % CI	Average number deaths per year	Rate per 1,000 births	+/- 95 % CI	Average number deaths per year	Rate per 1,000 births	+/- 95 % CI
1989 – 1993	33.0	9.8	1.5	20.8	7.5	1.4	12.0	22.2	5.6	0.6	6.4	7.2
1990 – 1994	28.8	8.7	1.4	17.2	6.3	1.3	11.4	21.6	5.6	0.4	4.1	5.6
1991 – 1995	29.0	9.0	1.5	16.4	6.2	1.3	12.4	24.1	5.9	0.8	8.1	7.9
1992 – 1996	26.8	8.5	1.4	16.6	6.4	1.4	10.0	20.3	5.6	1.0	10.0	8.8
1993 – 1997	25.6	8.2	1.4	17.2	6.7	1.4	8.0	16.6	5.1	1.2	11.6	9.2
1994 – 1998	26.4	8.5	1.4	18.0	7.0	1.4	7.6	15.8	5.0	1.2	10.8	8.6
1995 – 1999	26.2	8.4	1.4	18.6	7.3	1.5	6.8	13.9	4.7	1.4	12.1	8.9
1996 – 2000	25.8	8.2	1.4	19.0	7.4	1.5	6.0	12.2	4.3	1.4	11.2	8.2
1997 – 2001	27.2	8.6	1.4	19.6	7.6	1.5	6.8	13.5	4.5	1.4	10.7	7.9
1998 – 2002	28.8	9.2	1.5	19.8	7.7	1.5	8.2	16.2	4.9	1.4	10.1	7.4
1999 – 2003	27.8	8.9	1.5	18.8	7.4	1.5	8.4	16.6	5.0	1.4	9.6	7.1
2000 – 2004	29.0	9.2	1.5	18.4	7.3	1.5	10.2	20.0	5.4	1.2	7.7	6.1
2001 – 2005	28.0	9.0	1.5	17.6	7.0	1.5	10.0	19.0	5.2	1.6	9.5	6.6

Source: Michigan Department of Community Health, Division for Vital Records and Health Data Development, Resident Death File and Live Birth File.

Infant Mortality Rates per 1,000 Live Births by Race and Hispanic Ethnicity, Michigan 1989 – 2005

5-Year interval	Total			White			Black			Hispanic		
	Average number deaths per year	Rate per 1,000 births	+/- 95 % CI	Average number deaths per year	Rate per 1,000 births	+/- 95 % CI	Average number deaths per year	Rate per 1,000 births	+/- 95 % CI	Average number deaths per year	Rate per 1,000 births	+/- 95 % CI
1989 – 1993	1,523.2	10.4	0.2	996.6	8.8	0.2	840.6	27.8	0.8	38.0	8.8	1.3
1990 – 1994	1,431.0	9.9	0.2	801.6	7.2	0.2	610.6	20.6	0.7	39.2	9.0	1.3
1991 – 1995	1,325.4	9.4	0.2	746.6	6.8	0.2	559.2	19.8	0.7	39.4	8.9	1.2
1992 – 1996	1,229.0	8.9	0.2	700.6	6.5	0.2	506.8	18.9	0.7	37.2	8.1	1.2
1993 – 1997	1,154.0	8.5	0.2	672.4	6.3	0.2	460.6	17.9	0.7	38.6	8.0	1.1
1994 – 1998	1,108.4	8.2	0.2	650.4	6.2	0.2	435.6	17.5	0.7	42.2	8.2	1.1
1995 – 1999	1,085.8	8.1	0.2	639.6	6.1	0.2	422.2	17.4	0.7	43.8	8.0	1.1
1996 – 2000	1,086.2	8.1	0.2	636.0	6.0	0.2	423.2	17.6	0.7	45.8	7.7	1.0
1997 – 2001	1,085.0	8.1	0.2	637.6	6.1	0.2	418.6	17.5	0.7	48.6	7.6	1.0
1998 – 2002	1,078.8	8.1	0.2	631.8	6.1	0.2	415.6	17.6	0.8	51.4	7.6	0.9
1999 – 2003	1,083.0	8.2	0.2	635.8	6.1	0.2	412.8	17.8	0.8	56.2	8.0	0.9
2000 – 2004	1,065.6	8.1	0.2	618.0	6.0	0.2	404.8	17.6	0.8	61.4	8.3	0.9
2001 – 2005	1,045.8	8.0	0.2	600.4	5.9	0.2	397.4	17.6	0.8	70.6	9.2	1.0

Source: Michigan Department of Community Health, Division for Vital Records and Health Data Development, Resident Death File and Live Birth File.

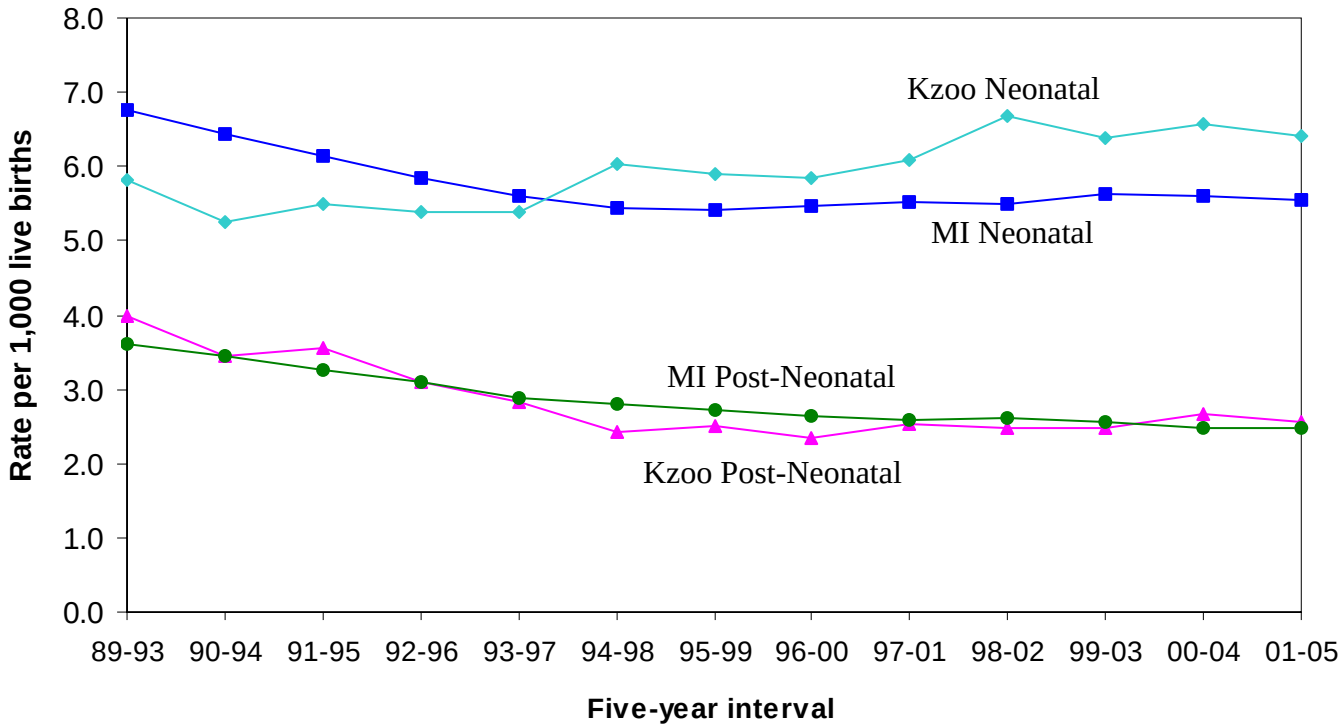
Deaths at less than one month of age are considered neonatal infant deaths; deaths between one month of age and less than one year are considered post-neonatal infant deaths. The post-neonatal death rate in Kalamazoo County has mirrored the decline in rates in Michigan; however, the neonatal death rate in Kalamazoo County has remained unchanged over time while the neonatal death rates in Michigan have declined.

Healthy People 2010 Goal

Reduce the neonatal mortality rate to **2.9 per 1,000 live births**.

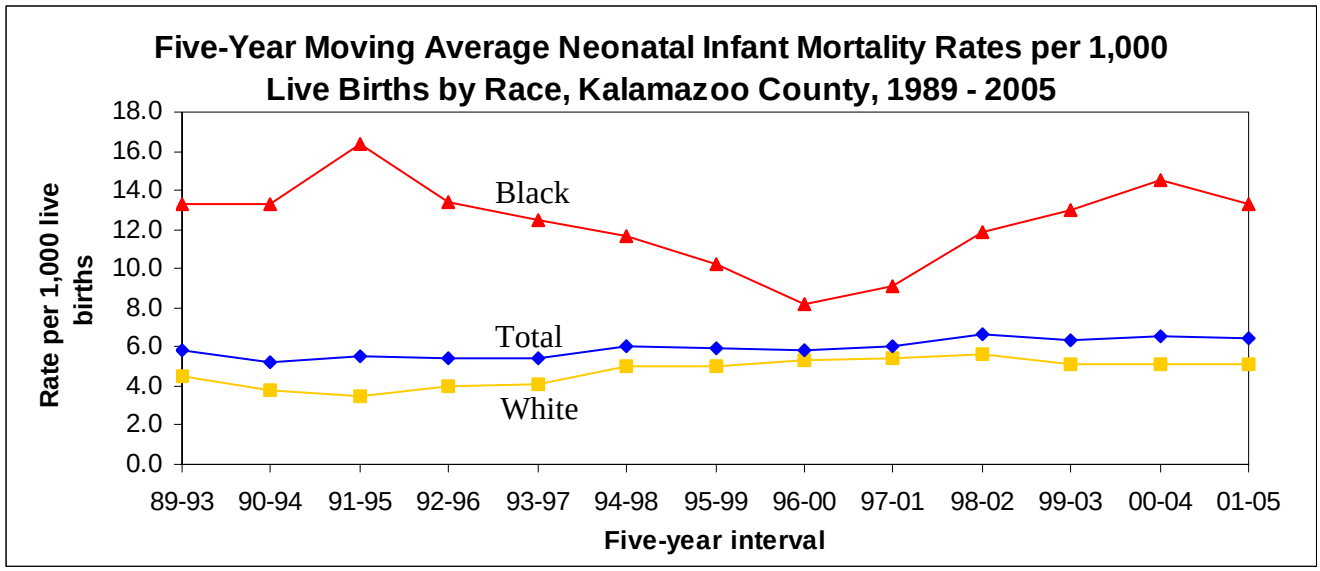
Reduce the post-neonatal mortality rate to **1.2 per 1,000 live births**.

Five-Year Moving Average Neonatal and Post-Neonatal Infant Mortality Rates per 1,000 Live Births, Kalamazoo County and Michigan, 1989 - 2005



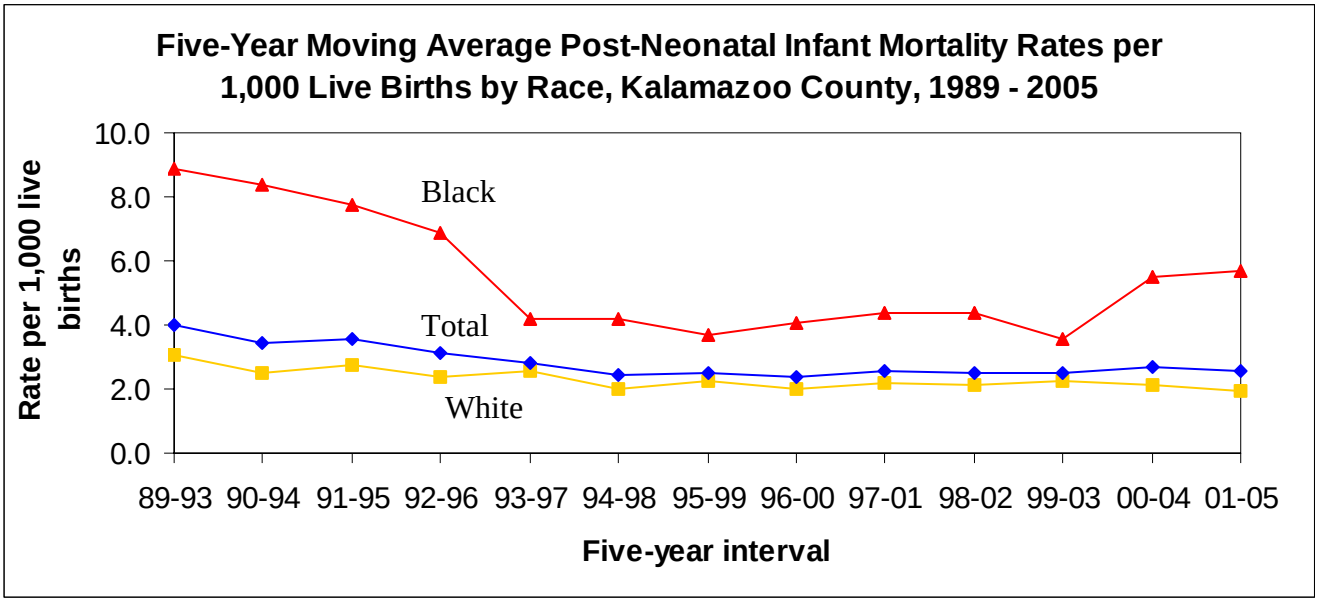
Source: Michigan Department of Community Health, Division for Vital Records and Health Data Development, Resident Death File and Live Birth File.

The disparity between black and white neonatal infant mortality rates declined after the early 1990s, but then increased again after the late 1990's. Between 1991 and 1995 black infants were 4.7 times more likely to die in the neonatal period than white infants; between 1996 and 2000 the disparity had decreased to a level where black infants were 1.5 times more likely to die than white infants. However, between 2000 and 2004 the disparity had increased again between black neonatal and white neonatal infant mortality rates. In the five year period between 2001 and 2005, black infants were 2.6 times more likely to die during the neonatal period than white infants.



Source: Michigan Department of Community Health, Division for Vital Records and Health Data Development, Resident Death File and Live Birth File.

Post-neonatal infant death rates among black infants in Kalamazoo County declined after the early 1990s, and the disparity among black and white infants was reduced for several years. However, in recent years the post-neonatal infant mortality rate among black babies has begun to climb again. Between 1989 and 1993, black infants were 3.0 times as likely to die in the post-neonatal period as white infants; from the mid- to late 1990's this disparity had decreased somewhat and black infants were 1.6 times more likely to die in the post-neonatal period between 1999 and 2003. However, the most recent statistics (for the time period 2001 through 2005) show that the disparity has increased again. Between 2001 and 2005, black babies were three times more likely to die in the post-neonatal period than white babies.



Source: Michigan Department of Community Health, Division for Vital Records and Health Data Development, Resident Death File and Live Birth File.

All Infant Mortality, Neonatal Infant Mortality, and Post-Neonatal Infant Mortality by Race and Hispanic Ethnicity, Kalamazoo County and Michigan 2001 – 2005

Area	Age Period of Death	Total			White			Black			Hispanic		
		Average number deaths per year	Rate per 1,000 Live Births	+/- 95% CI	Average number deaths per year	Rate per 1,000 Live Births	+/- 95% CI	Average number deaths per year	Rate per 1,000 Live Births	+/- 95% CI	Average number deaths per year	Rate per 1,000 Live Births	+/- 95% CI
Kalamazoo County	All Infant Deaths	28.0	9.0	1.5	17.6	7.0	1.5	10.0	19.0	5.2	1.6	9.5	6.6
	Neonatal Deaths	*20*	*6.4*	*1.3*	*12.8*	*5.1*	*1.3*	*7*	*13.3*	*4.4*	*1.6*	*9.5*	*6.6*
	Post-Neonatal Deaths	*8*	*2.6*	*0.8*	*4.8*	*1.9*	*0.8*	*3*	*5.7*	*2.9*	*0*	*0.0*	*0.0*
Michigan	All Infant Deaths	1,045.8	8.0	0.2	600.4	5.9	0.2	397.4	17.6	0.8	70.6	9.2	1.0
	Neonatal Deaths	*722.6*	*5.6*	*0.2*	*417.6*	*4.1*	*0.2*	*269.8*	*11.9*	*0.6*	*48.2*	*6.3*	*0.8*
	Post-Neonatal Deaths	*323.2*	*2.5*	*0.1*	*182.8*	*1.8*	*0.1*	*127.6*	*5.6*	*0.4*	*22.4*	*2.9*	*0.5*

INFANT DEATH – Deaths occurring to individuals less than 1 year of age.
NEONATAL DEATH – Deaths occurring to individuals less than 28 days of age.
POSTNEONATAL DEATH – Deaths occurring to individuals 28–364 days of age.
Source: Michigan Department of Community Health, Division for Vital Records and Health Data Development, Resident Death File and Live Birth File.

9.5.3 Causes of Infant Death

Infant cause-of-death statistics in Kalamazoo County are derived from two data sources: Fetal and Infant Mortality Review (FIMR) findings and the Michigan Resident Mortality File. Fetal and Infant Mortality Review data are obtained from local case reviews conducted on infant deaths under one year of age. Michigan Resident Mortality File data are compiled from death certificates that are submitted to the State Registrar; this is considered the official count for the state.

The number of deaths due to particular causes may differ between the two data sources. This is because the Michigan Resident Mortality File is not revised to include final determinations of causes of infant death that are made after the dataset has been finalized and released. Data from FIMR, however, can be amended if the official cause of death changes. A limitation of FIMR data is that currently only 15 local areas in Michigan have FIMR teams, so all infant deaths in the state are not represented in the Michigan statistics. Therefore, analyses of data from both the Michigan Resident Mortality File and FIMR provide valuable information for infant mortality prevention efforts, and statistics from both sources are presented in this report.

Most infant deaths in Kalamazoo County and in Michigan between 2001 and 2005 were a result of conditions originating in the perinatal period (around the time of birth, either before or shortly after). The perinatal conditions that caused the most deaths in both Kalamazoo County and in Michigan were disorders related to short gestation and low birth weight. After conditions originating in the perinatal period, congenital anomalies caused the next most infant deaths in the county and in Michigan. The third leading cause of infant death was accidents, which was followed by sudden infant death syndrome (SIDS). Among deaths caused by accidents, suffocation or strangulation in bed was the most common accident.

Percentage of Infant Deaths Due to Leading Causes, Michigan Resident Mortality File, Kalamazoo County and Michigan 2001 – 2005

Leading Causes of Infant Deaths	Kalamazoo County		Michigan	
	Number of deaths	Percent of deaths	Number of deaths	Percent of deaths
Conditions Originating in the Perinatal Period	81	57.9%	2,936	56.1%
Congenital Anomalies	25	17.9%	941	18.0%
Accidents	11	7.9%	331	6.3%
Sudden Infant Death Syndrome	8	5.7%	328	6.3%
Infectious and Parasitic Diseases	<3	0.7%	68	1.3%
Meningitis	<3	0.7%	10	0.2%
Homicide	<3	0.7%	50	1.0%
Pneumonia and Influenza	0	0.0%	48	0.9%
All other Causes	12	8.6%	517	9.9%
Total Deaths	140	100.0%	5,229	100.0%

*Confidence interval exceeds possible limits.
Source: Michigan Department of Community Health, Division for Vital Records and Health Data Development, Resident Death File and Live Birth File.

Infant Mortality Rates Due to Leading Causes of Death, Michigan Resident Mortality File, Kalamazoo County and Michigan 2001 – 2005

Leading Causes of Infant Deaths	Kalamazoo County			Michigan		
	Number of deaths	Rate per 1,000 live births	+/- 95% CI	Number of deaths	Rate per 1,000 live births	+/- 95% CI
Conditions Originating in the Perinatal Period	81	5.2	1.1	2,936	4.5	0.2
Congenital Anomalies	25	1.6	0.6	941	1.4	0.1
Accidents	11	0.7	0.4	331	0.5	0.1
Sudden Infant Death Syndrome	8	0.5	0.4	328	0.5	0.1
Infectious and Parasitic Diseases	<3	0.1	0.1	68	0.1	0.0
Meningitis	<3	0.1	0.1	10	0.0	0.0
Homicide	<3	0.1	0.1	50	0.1	0.0
Pneumonia and Influenza	0	0.0	0.0	48	0.1	0.0
All other Causes	12	0.8	0.4	517	0.8	0.1
Total Deaths	140	9.0	1.5	2,936	8.0	0.2

*Confidence interval exceeds possible limits.
Source: Michigan Department of Community Health, Division for Vital Records and Health Data Development, Resident Death File and Live Birth File.

Healthy People 2010 Goal

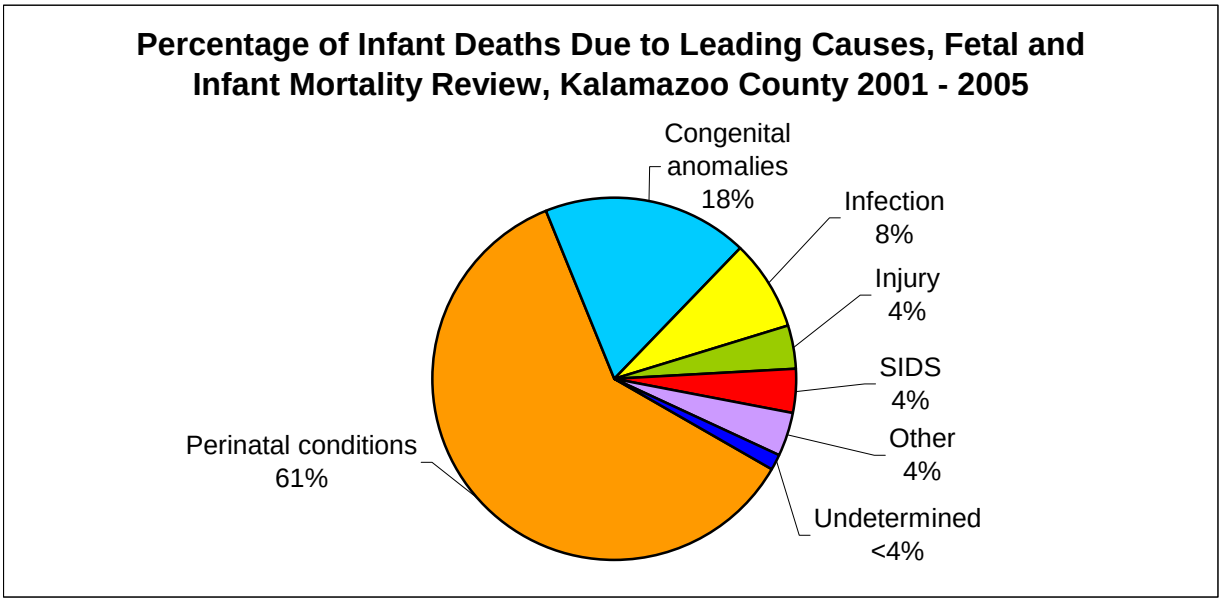
Reduce the infant mortality rate due to birth defects to **1.1 per 1,000 live births**.

Reduce the infant mortality rate due to sudden infant death syndrome (SIDS) to **0.25 per 1,000 live births**.

Percentage of Infant Deaths Due to Leading Causes of Death, Fetal and Infant Mortality Review, Kalamazoo County and Michigan 2001 – 2005

Leading Causes of Infant Deaths	Kalamazoo County			Michigan (FIMR team areas only)		
	Number of deaths	Percent of deaths	+/- 95% CI	Number of deaths	Percent of deaths	+/- 95% CI
Conditions Originating in the Perinatal Period	46	60.5%	11.0	481	51.5%	3.2
Congenital Anomalies	14	18.4%	8.7	147	15.7%	2.3
Infection	6	7.9%	6.1	42	4.5%	1.3
Injury	3	3.9%	*	83	8.9%	1.8
Sudden Infant Death Syndrome	3	3.9%	*	51	5.5%	1.5
Other	3	3.9%	*	37	4.0%	1.3
Undetermined	<3	**	**	29	3.1%	1.1
Missing Cause	0	0.0%	0.0	64	6.9%	1.6
Total Deaths	76	100%		934	100%	

*Confidence interval exceeds possible limits.
**Percentage masked due to small numbers
Source: Michigan Fetal and Infant Mortality Review Database



Source: Michigan Fetal and Infant Mortality Review Database

Number of Infant Deaths Within Cause Categories, Fetal and Infant Mortality Review, Kalamazoo County and Michigan 2001 – 2005

Category	Specific Cause	Kalamazoo County	Michigan (FIMR team areas only)
Perinatal conditions	Extreme prematurity (<28 wks)	42	371
	Hypoxia	<3	<6
	Prematurity (28-37 wks)	<3	90
	Respiratory disease	<3	<6
	Complications of pregnancy/labor/delivery	0	6
	Birth trauma	0	<6
	Other	0	7
Congenital anomalies	Chromosomal	5	21
	Nervous system	3	23
	Genitourinary	<3	13
	Respiratory	<3	9
	Cardiovascular	0	28
	Musculoskeletal	0	8
	Gastrointestinal	0	<6
	Other	4	33
	Not listed	0	10
Infection	Septicemia	4	8
	Respiratory	<3	22
	Nervous system	0	<6
	Gastrointestinal	0	<6
	Other	<3	8
Injury	Suffocation/strangulation	3	68
	Shaken baby, abusive head	0	<6
	Poisoning	0	<6
	Fire or burn	0	<6
	Drowning	0	<6
	Motor vehicle	0	<6
	Fall	0	<6
	Firearm/weapon	0	<6
	Other	0	<6
	Not listed	0	<6

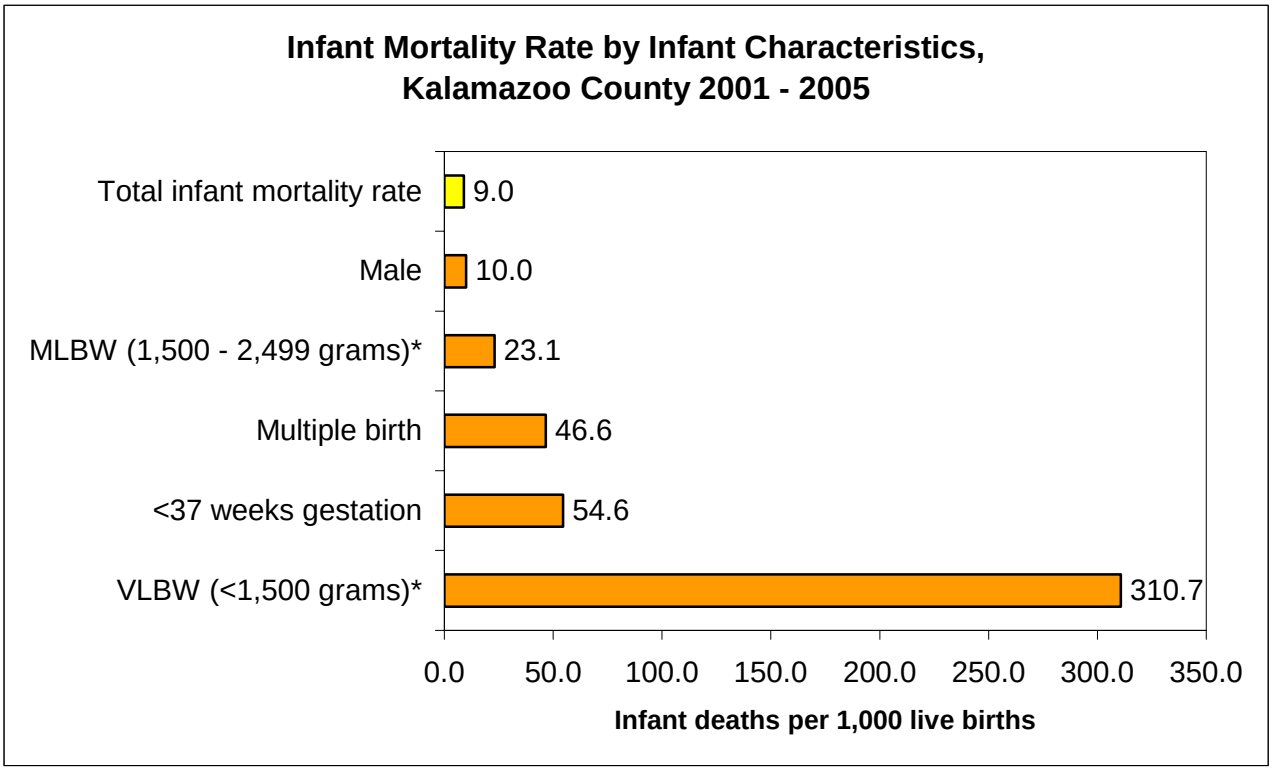
Source: Michigan Fetal and Infant Mortality Review Database

9.5.4 Maternal and Infant Characteristics (Infant Deaths)

Between 2001 and 2005, the total infant mortality rate in Kalamazoo County was 9.0 deaths per 1,000 live births. Infants with specific characteristics were at greater risk of dying than infants without these characteristics.

Of all infant characteristics that increased risk for dying before the age of one year, having very low birthweight increased risk the most. Infants born weighing less than 1,500 grams were 155 times more likely to die than infants born weighing 2,500 grams or more. Infants with moderately low birthweight (between 1,500 and 2,499 grams) were also at increased risk of dying; these infants were 12 times more likely to die than infants weighing 2,500 grams or more.

Infants born at less than 37 weeks gestation and infants born as part of a set of multiples were also at increased risk of dying. Premature babies were 23 times more likely to die than babies born at 37 or more weeks of gestation, and babies born in sets of multiples were at six times greater risk of dying than single births.



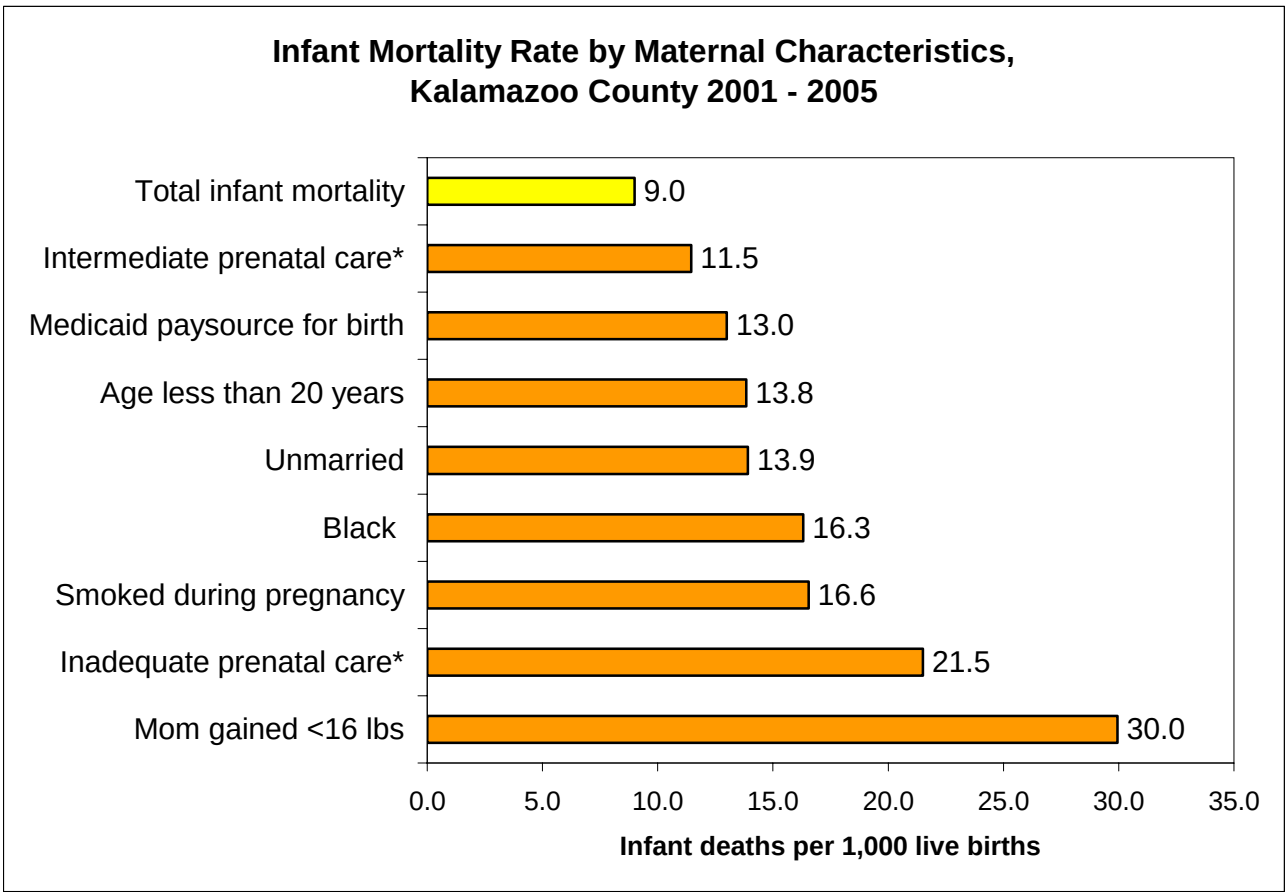
*Very Low Birthweight (VLBW) and Moderately Low Birthweight (MLBW)
Source: Michigan Department of Community Health, Division for Vital Records and Health Data Development, Matched Infant Death and Birth File.

Infant Mortality Rate by Infant Characteristics, Kalamazoo County and Michigan 2001 – 2005

Infant Characteristic	Kalamazoo County				Michigan			
	Live births	Deaths	Mortality rate per 1,000 live births	+/- 95% CI	Live births	Deaths	Mortality rate per 1,000 live births	+/- 95% CI
Sex of infant								
Male	8,102	81	10.0	2.2	333,955	2,928	8.8	0.3
Female	7,517	59	7.8	2.0	316,861	2,288	7.2	0.3
Birthweight								
VLBW* (<1,500 grams)	280	87	310.7	54.2	10,848	3,158	291.1	8.5
MLBW* (1,500 - 2,499 grams)	1,039	24	23.1	9.1	42,579	655	15.4	1.2
not LBW (2,500+ grams)	14,297	28	2.0	0.7	597,235	2,117	3.5	0.2
Plurality								
Single birth	14,975	110	7.3	1.4	627,316	4,258	6.8	0.2
Multiple birth	644	30	46.6	16.3	23,527	966	41.1	2.5
Prematurity								
<37 weeks gestation	1,759	96	54.6	10.6	69,763	3,062	43.9	1.5
37+ weeks gestation	13,553	33	2.4	0.8	541,108	1,374	2.5	0.1
All infants	15,619	140	9.0	1.5	650,843	5,229	8.0	0.2

*Very Low Birthweight (VLBW) and Moderately Low Birthweight (MLBW)
Source: Michigan Department of Community Health, Division for Vital Records and Health Data Development, Matched Infant Death and Birth File.

Infants born to mothers with certain characteristics were also at increased risk of dying. Maternal characteristics that most increased infants' risk of dying were gaining fewer than 16 lbs during pregnancy; infants of mothers who did not gain at least 16 lbs were 5.0 times more likely to die than infants whose mothers gained 16 lbs or more. Inadequate prenatal care also increased an infant's risk of dying; infants whose mothers received inadequate prenatal care had 2.8 times the risk of dying compared to infants whose mothers received adequate prenatal care. In comparison with infants born to older mothers (30 to 39 years), babies born to mothers less than 20 years of age had 3.1 times greater risk of dying. Mortality risk was doubled for infants born to mothers who smoked, had low income (Medicaid was used as the payment source for the birth), were unmarried, or whose mom's were black[1].



*According to the Kessner Index of Prenatal Care. The Kessner Index is a classification of prenatal care based on the month of pregnancy in which prenatal care based on the month of pregnancy in which prenatal care began, the number of prenatal visits and the length of pregnancy (i.e. for shorter pregnancies, fewer prenatal visits constitute adequate care.)

Source: Michigan Department of Community Health, Division for Vital Records and Health Data Development, Matched Infant Death and Birth File.

[1] The official black infant mortality rate as reported in Section 9.5.2 differs from the rate reported in this section. Here the mother's race is used in infant mortality rate calculations; for standardized infant mortality rates by race, the infant's race as specified on the death certificate is used.

Infant Mortality Rate by Maternal Characteristics, Kalamazoo County and Michigan 2001 – 2005

Maternal Characteristic	Kalamazoo County				Michigan			
	Live births	Deaths	Mortality rate per 1,000 live births	+/- 95% CI	Live births	Deaths	Mortality rate per 1,000 live births	+/- 95% CI
Age of mother								
<20	1,517	21	13.8	5.9	62,929	763	12.1	0.9
20 – 29	8,386	91	10.9	2.2	341,486	2,718	8.0	0.3
30 - 39	5,384	24	4.5	1.8	231,470	1,569	6.8	0.3
40+	331	3	---	---	14,885	158	10.6	---
Marital status								
Married	9,866	60	6.1	1.5	422,708	2,451	5.8	0.2
Unmarried	5,753	80	13.9	3.0	228,135	2,766	12.1	0.4
Level of prenatal care*								
Adequate	12,181	93	7.6	1.5	505,929	3,310	6.5	0.2
Intermediate	2,620	30	11.5	4.1	93,354	943	10.1	0.6
Inadequate	744	16	21.5	10.4	49,046	911	18.6	1.2
Smoked during pregnancy								
No	12,946	93	7.2	1.5	547,420	3,982	7.3	0.2
Yes	2,658	44	16.6	4.9	94,231	1,074	11.4	0.7
Maternal weight gain								
16+ lbs	13,649	82	6.0	1.3	526,266	2,438	4.6	0.2
<16 lbs	1,803	54	30.0	7.9	79,012	1,907	24.1	1.1
Mother's race								
White	12,489	93	7.4	1.5	508,158	3,164	6.2	0.2
Black	2,635	43	16.3	4.8	112,971	1,876	16.6	0.7
Mother's ethnicity								
Not Hispanic	14,531	130	8.9	1.5	591,323	4,721	8.0	0.2
Hispanic	839	7	8.3	6.2	38,356	292	7.6	0.9
Medicaid paysource								
Yes	6,308	82	13.0	2.8	217,463	2,184	10.0	0.4
No	9,273	56	6.0	1.6	416,898	2,801	6.7	0.2
First-time mom								
Yes	6,226	51	8.2	2.2	251,952	1,969	7.8	0.3
No	9,388	88	9.4	1.9	396,915	3,198	8.1	0.3
All infants	15,619	140	9.0	1.5	650,843	5,229	8.0	0.2

*According to the Kessner Index of Prenatal Care. The Kessner Index is a classification of prenatal care based on the month of pregnancy in which prenatal care based on the month of pregnancy in which prenatal care began, the number of prenatal visits and the length of pregnancy (i.e. for shorter pregnancies, fewer prenatal visits constitute adequate care.)

Source: Michigan Department of Community Health, Division for Vital Records and Health Data Development, Matched Infant Death and Birth File.