



Butler County Infant Vitality Annual Report 2020



Public Health
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Butler County
General Health District

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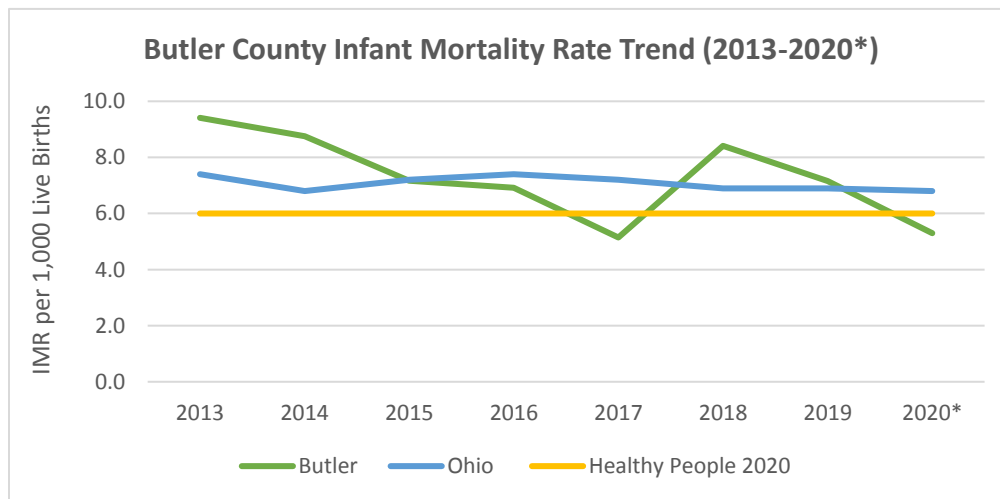
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INTRODUCTION

According to the Centers for Disease Control and Prevention (CDC), 20,921 infants died in the United States before their first birthday in 2019. The national infant mortality rate in 2019 was at 5.6 deaths per 1,000 live births. Infant mortality is the death of a live-born baby before his or her first birthday. The infant mortality rate (IMR) is calculated as the number of babies who died during the first year of life per 1,000 live births. Infant mortality is an important indicator of the overall health of a community.

INFANT MORTALITY IN BUTLER COUNTY

Overall, Butler County's infant mortality rate has been decreasing since 2012. The number of infants who died before their first birthday dropped from 32 in 2019 to 23 in 2020. Nine more families were able to celebrate their babies' first birthdays than in the previous year. The infant mortality rate in Butler County, across all races, decreased from 7.2 deaths per 1,000 live births in 2019 to 5.3 deaths per 1,000 live births in 2020. The Ohio infant mortality rate across all races was 6.9 per 1,000 live births in 2019. Healthy People 2020 is a federal plan that provides national objectives for improving the health of Americans. The goal of Healthy People 2020 was to reduce infant deaths to 6.0 per 1,000 live births. The goal of Healthy People 2030 is to reduce infant deaths to 5.0 deaths per 1,000 live births. The Healthy People initiatives set measurable objectives every decade to address pressing public health issues.



*Data Source: Ohio Department of Health, Bureau of Vital Statistics birth, mortality and fetal deaths. Preliminary 2020 data was updated Dec. 9, 2020 and is subject to change. Data for 2020 represent quarterly 12-month moving averages.

BUTLER COUNTY QUARTERLY INFANT MORTALITY TREND

One way to measure infant health in Butler County is to track the number of infant deaths per month. This type of public health surveillance provides and interprets data for quick intervention and programmatic shifts when there is an increase in infant deaths.

		2019			2020*		
		Infant Deaths	Live Births	IMR	Infant Deaths	Live Births	IMR
Quarter 1	January	1	381	6.7 per 1000 live births	4	365	5.7 per 1000 live births
	February	1	320		1	330	
	March	5	347		1	363	
Quarter 2	April	1	348	4.5 per 1000 live births	5	375	6.9 per 1000 live births
	May	1	372		0	395	
	June	3	403		3	389	
Quarter 3	July	3	415	10.2 per 1000 live births	1	366	5.3 per 1000 live births
	August	4	372		2	393	
	September	5	394		3	375	
Quarter 4	October	2	370	7.2 per 1000 live births	1	376	3.0 per 1000 live births
	November	1	346		1	291	
	December	5	402		1	336	
Total		32	4470		23	4336	

10.2

Highest Infant Mortality Rate in 2019 (Quarter 3)

6.9

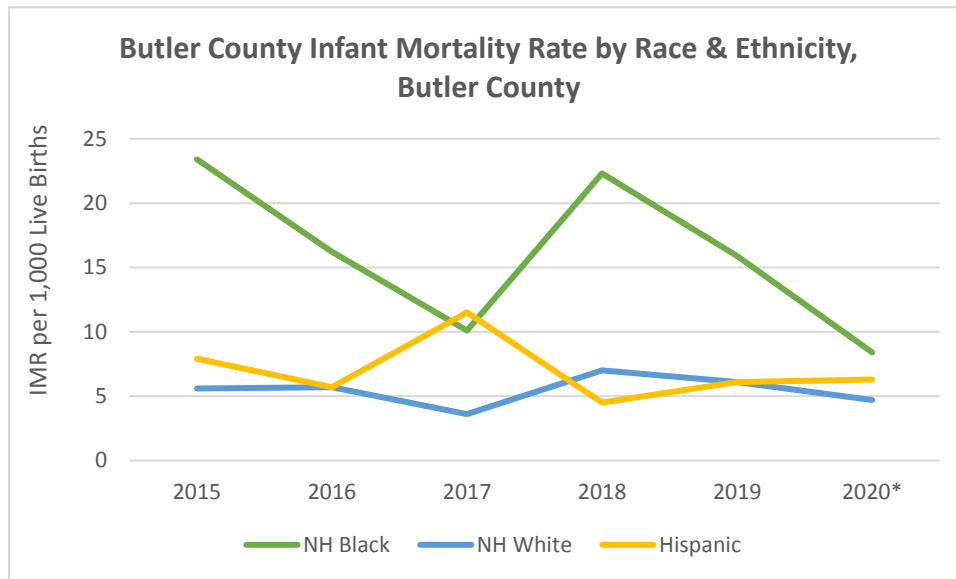
Highest Infant Mortality Rate in 2020* (Quarter 2)

Data Source: Resident Birth and Mortality Files from the Ohio Department of Health Bureau of Vital Statistics. *Data for 2020 is provisional; ODH finalizes data by fall of the subsequent year.

BUTLER COUNTY INFANT MORTALITY RATE BY RACE AND ETHNICITY

The infant mortality rate for non-Hispanic (NH) Black infants in 2020 was 8.4 per 1,000 births compared to 4.7 per 1,000 births for NH White and 6.3 per 1,000 births for Hispanic infants.

Although the infant mortality rate for NH Black infants decreased in 2020, Black infants were more than 1.7 times more likely to die than white infants and 1.3 times more likely than Hispanic infants.



Data Source: Resident Birth and Mortality Files from the Ohio Department of Health Bureau of Vital Statistics. *Data for 2020 is provisional; ODH finalizes data by fall of the subsequent year.

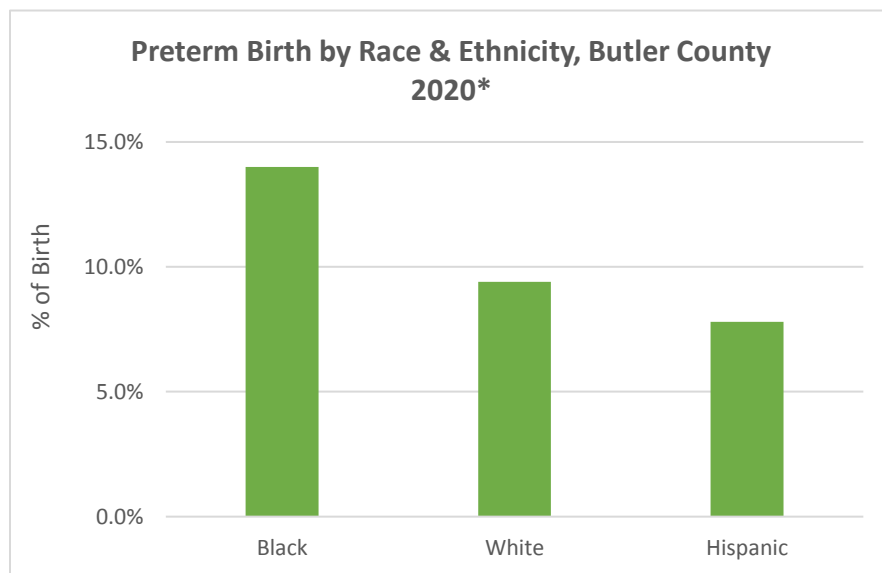
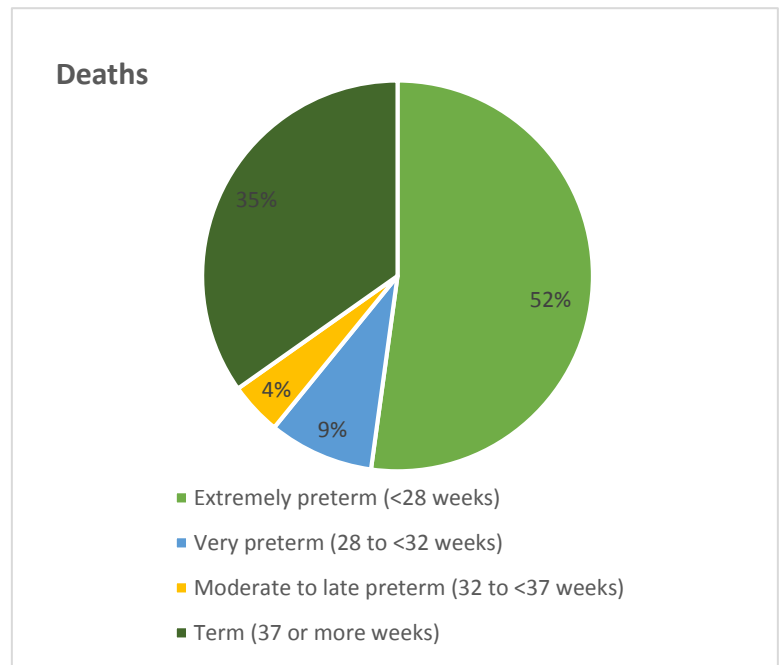
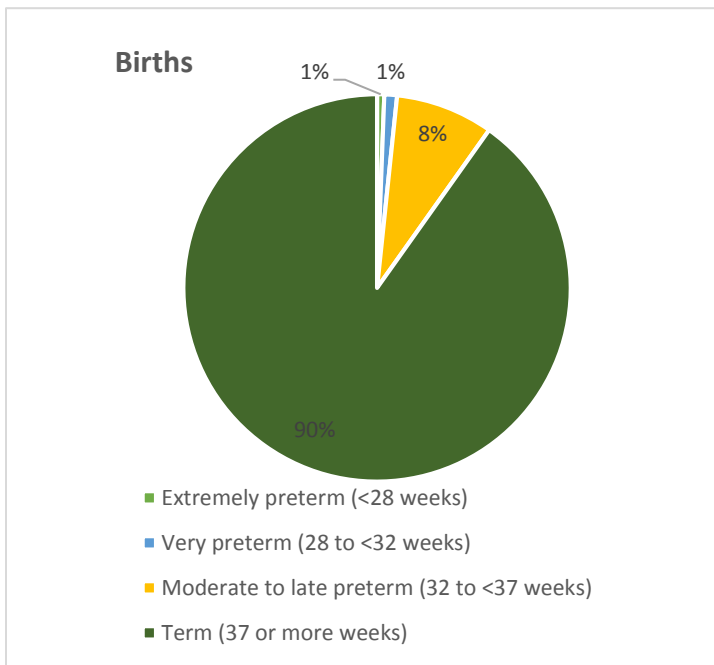
BUTLER COUNTY INFANT MORTALITY BY DURATION OF GESTATION AND BIRTHWEIGHT

Preterm birth is one of the leading causes of infant death in the United States. Preterm birth is when a baby is born before 37 weeks of pregnancy. Babies who survive a preterm birth remain vulnerable to a host of health complications.

In 2020, 10% of all infants born were born preterm in Butler County, while 65% of Butler County infants who died were born preterm. By race, Black infants were 1.4 times more likely than white infants to be born less than 37 weeks gestation. A premature birth is more likely to happen when a mother has pre-existing health conditions such as diabetes, experience a previous premature birth, use illicit drugs or smoke cigarettes during her pregnancy. Stressful life events, such as the death of a loved one or domestic violence also attribute to premature birth. For non-Hispanic Black women, the emotional effect of experiences of racism may contribute to the risk of preterm birth (Bower et al., 2018). Racism is an

important public health problem with a measurable impact on preterm birth and should be addressed to eliminate racial inequities in birth outcomes.

Proportion of Infant Births and Deaths by Gestational Age, Butler County (2020*)



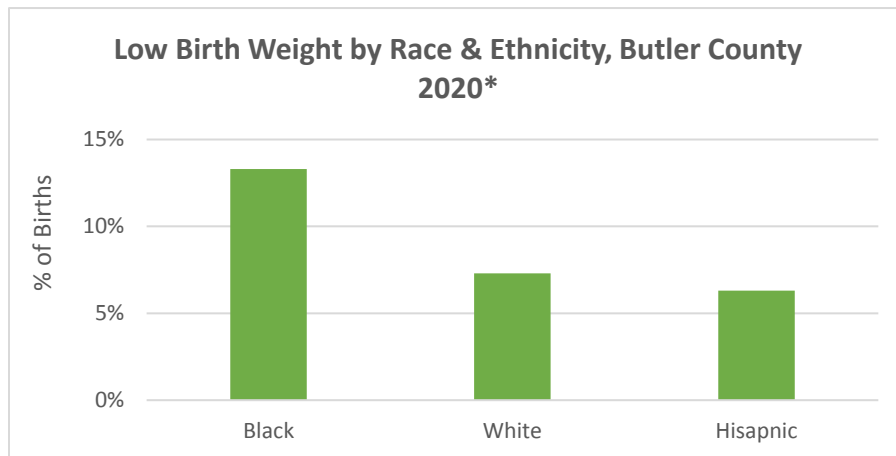
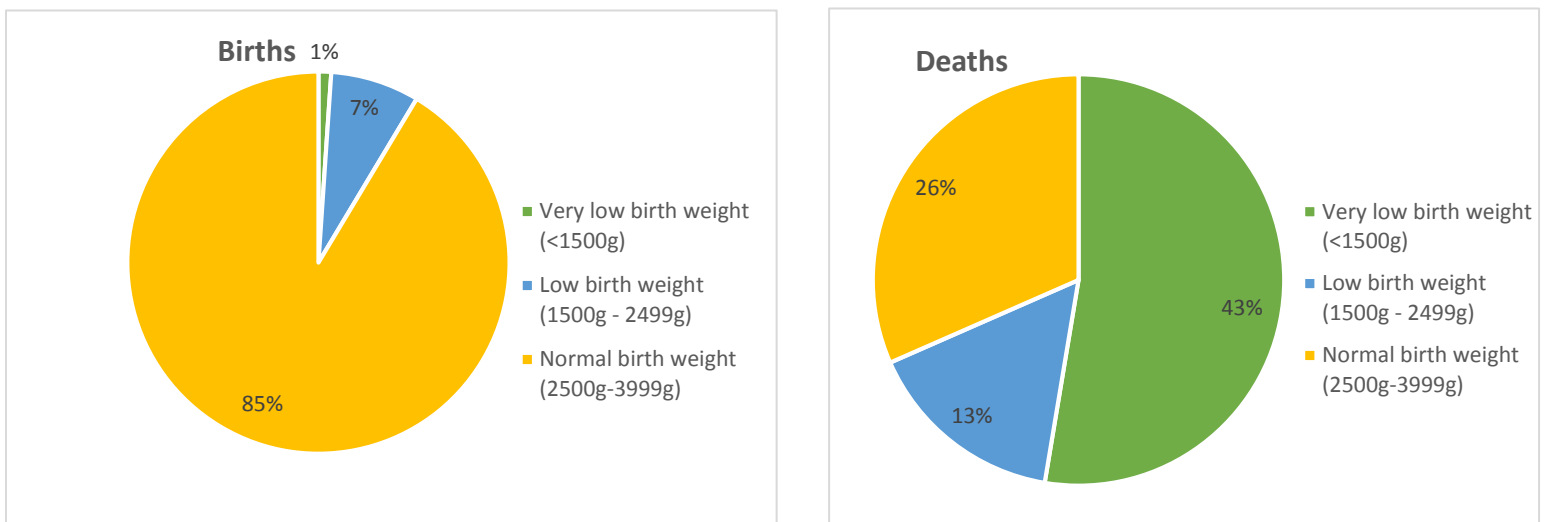
Data Source: Resident Birth and Mortality Files from the Ohio Department of Health Bureau of Vital Statistics. *Data for 2020 is provisional; ODH finalizes data by fall of the subsequent year.

LOW BIRTH WEIGHT IN BUTLER COUNTY

Low birth weight is when a baby is born weighing less than 5 pounds, 8 ounces (2,500 grams). The average birth weight for babies is 7.5 lbs. according to the World Health Organization (WHO). Infants born at a low birthweight are at increased risk of infant mortality and health complications.

In 2020, a total of 8% of infants were born at a low birth weight in Butler County, while 56% of Butler County infants who died were born at a low birthweight. By race, Black infants were 1.8 times more likely to have a low birth weight than white infants were.

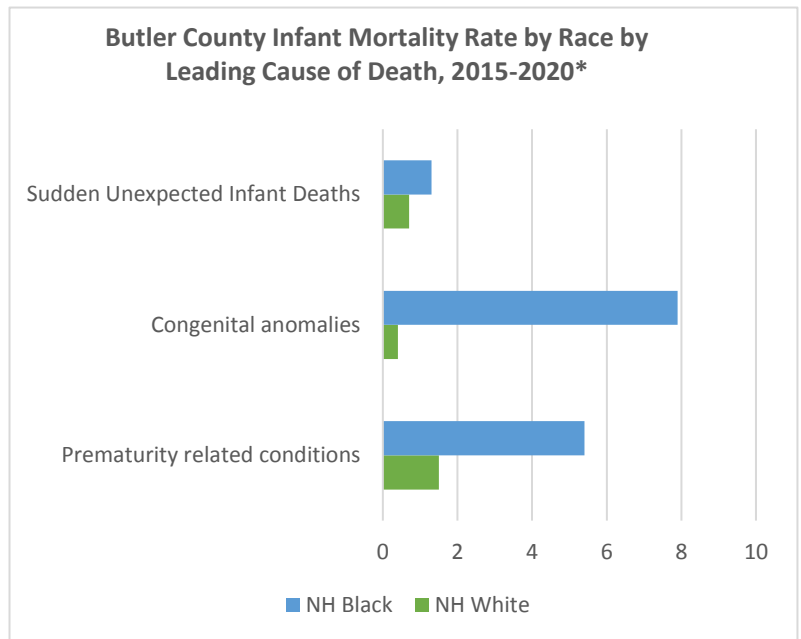
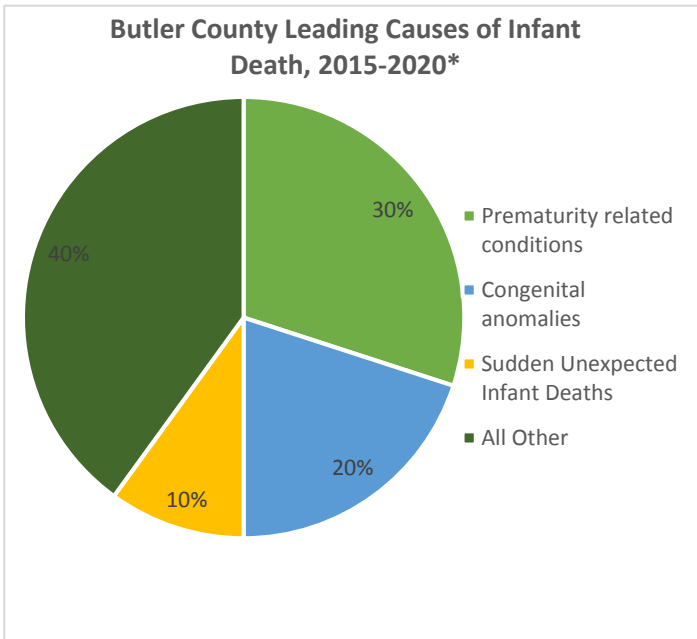
Proportion of Infant Births and Deaths by Birth Weight, Butler County 2020*



Data Source: Resident Birth and Mortality Files from the Ohio Department of Health Bureau of Vital Statistics. *Data for 2020 is provisional; ODH finalizes data by fall of the subsequent year.

LEADING CAUSES OF INFANT DEATH IN BUTLER COUNTY

The top three causes of infant deaths in Butler County for the period 2015-2020 were prematurity related conditions, congenital abnormalities or birth defects, and Sudden Unexpected Infant Deaths (SUID). SUID includes Sudden Infant Death Syndrome (SIDS) and other sleep-related infant deaths due to an unknown cause, as well as accidental suffocation and strangulation in sleeping environment (CDC, 2019). By race, the biggest disparities are seen with congenital anomalies and prematurity related conditions. Black infants were about 19.7 times more likely to die from congenital anomalies and 3.6 times more likely to die of prematurity-related conditions than white infants. Studies have shown that maternal stress prior and during pregnancy can increase the risk of birth defects.

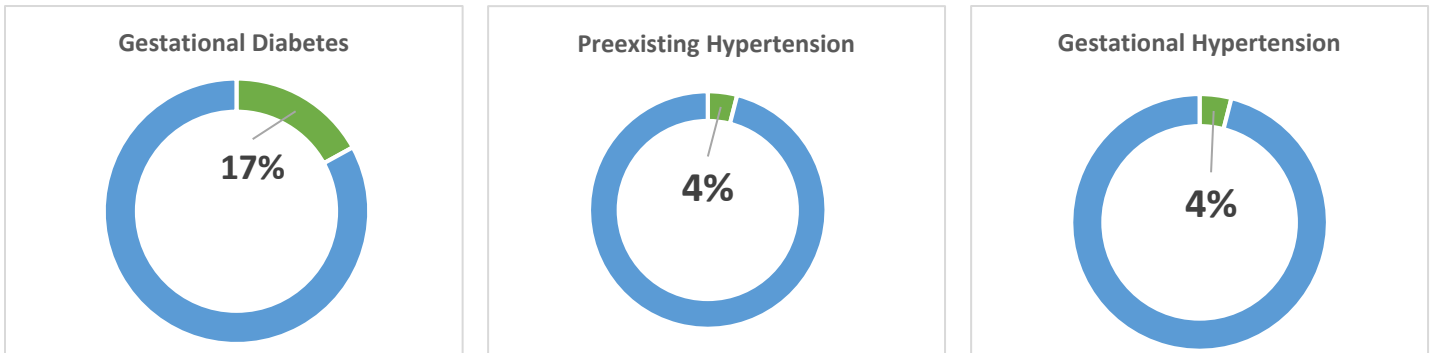


Data Source: Resident Birth and Mortality Files from the Ohio Department of Health Bureau of Vital Statistics. *Data for 2020 is provisional; ODH finalizes data by fall of the subsequent year.

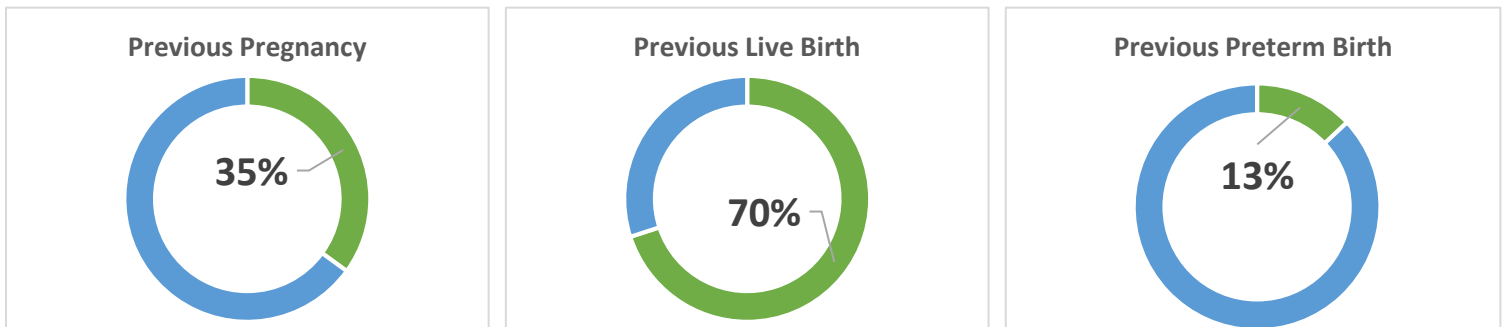
MATERNAL PHYSICAL HEALTH ASSOCIATED WITH INFANT DEATH IN BUTLER COUNTY

Pregnancy-related complications are closely linked to infant deaths. According to the CDC, some women have health problems before pregnancy, while others experience health problems that arise during pregnancy that could lead to complications.

Among Butler County infants who died in 2020, 17% had mothers with gestational diabetes, 4% had mothers with preexisting hypertension and 4% had mothers with gestational hypertension.



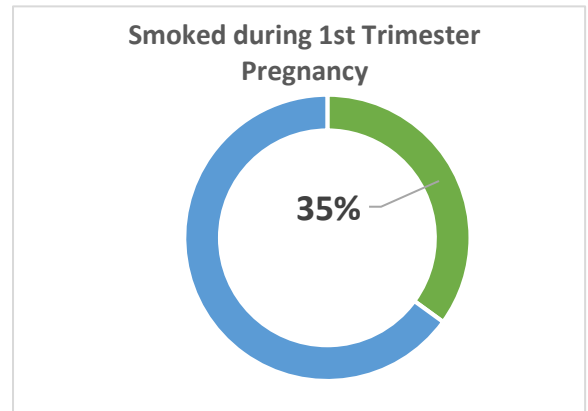
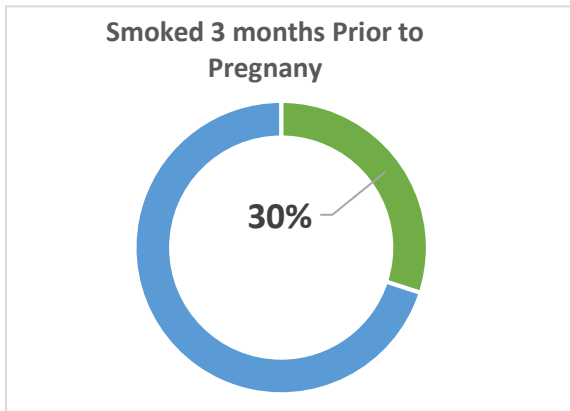
Among Butler County infants who died in 2020, 35% were born to mothers who had a previous pregnancy, 70% were born to mothers with a previous live birth, and 13% were born to mothers with a previous preterm birth.



Data Source: Resident Birth and Mortality Files from the Ohio Department of Health Bureau of Vital Statistics. *Data for 2020 is provisional; ODH finalizes data by fall of the subsequent year.

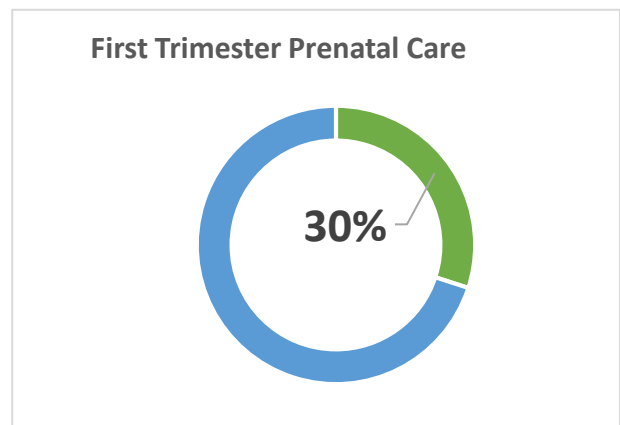
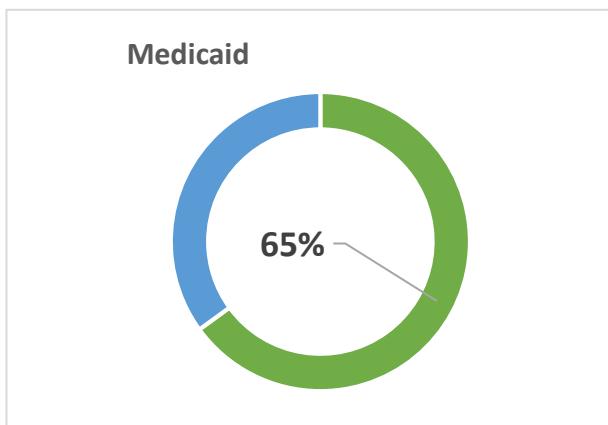
MATERNAL SMOKING IN BUTLER COUNTY

Among infants who died in 2020, 30% were born to mothers who reported smoking three months prior to pregnancy, while 35% of infants who died were born to mothers who reported smoking during the first trimester of pregnancy. Smoking during pregnancy can cause preterm, low birth weight and certain birth defects according to the CDC.



ACCESS TO CARE/ INSURANCE COVERAGE IN BUTLER COUNTY

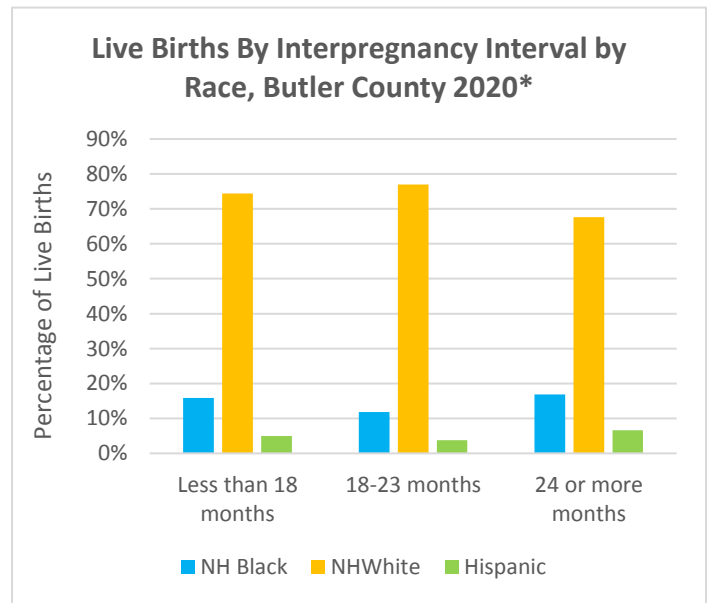
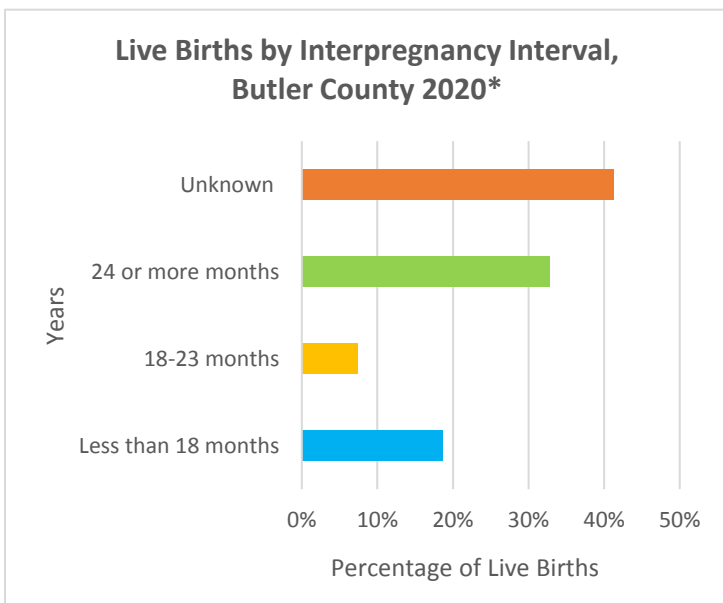
Overall, 70% of Butler County infants who died in 2020 were born to mothers who did not receive prenatal care in their first trimester. Studies have shown early prenatal care improves birth outcomes. Access to transportation and lack of health insurance coverage are some of the barriers to health care access. About two-thirds (65%) of infants who died had mothers who reported Medicaid as their primary insurance coverage. Mothers with Medicaid as their primary insurance coverage may experience lack of prenatal care, limited or no access to care, necessarily that increase the risk of poor health outcomes.



BIRTH SPACING IN BUTLER COUNTY

Birth spacing also known as interpregnancy interval refers to the time from one child’s birth until the next pregnancy. Pregnancies that start less than 18 months after birth are associated with adverse birth outcomes, including preterm birth, neonatal morbidity, and low birthweight according to March of Dimes. The American College of Obstetricians and Gynecologists (ACOG) recommends that women be advised to avoid interpregnancy intervals shorter than six months and counseled about the risks and benefits of repeat pregnancy sooner than 18 months.

In Butler County, 19% of all mothers who gave birth in 2020 had a short interpregnancy interval of less than 18 months. Thirty-three percent of mothers had an interpregnancy interval of 24 months or more. By race, 16% of Black mothers had an interpregnancy interval less than 18 months compared to 74% White mothers. African Africans make up 9% of Butler County’s overall population compared to 84% White.

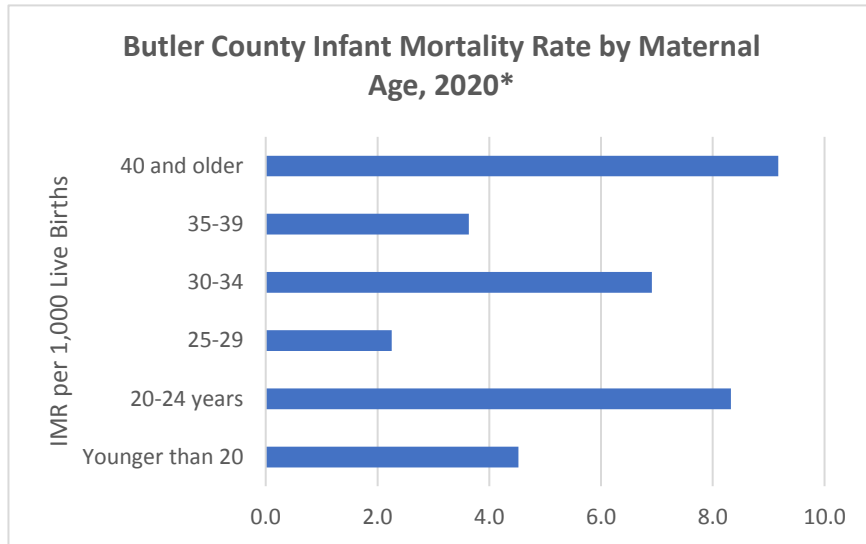


Data Source: Resident Birth and Mortality Files from the Ohio Department of Health Bureau of Vital Statistics. *Data for 2020 is provisional; ODH finalizes data by fall of the subsequent year.

MATERNAL AGE IN BUTLER COUNTY

Infants of mothers aged 25 to 29 years had the lowest infant mortality rate (2.3 IMR). The infant mortality rate was highest among infants with mothers aged 40 years and older (9.2 IMR) followed by infants with mothers aged between 20 to 24 years (8.3 IMR). An advanced maternal age has been associated with a

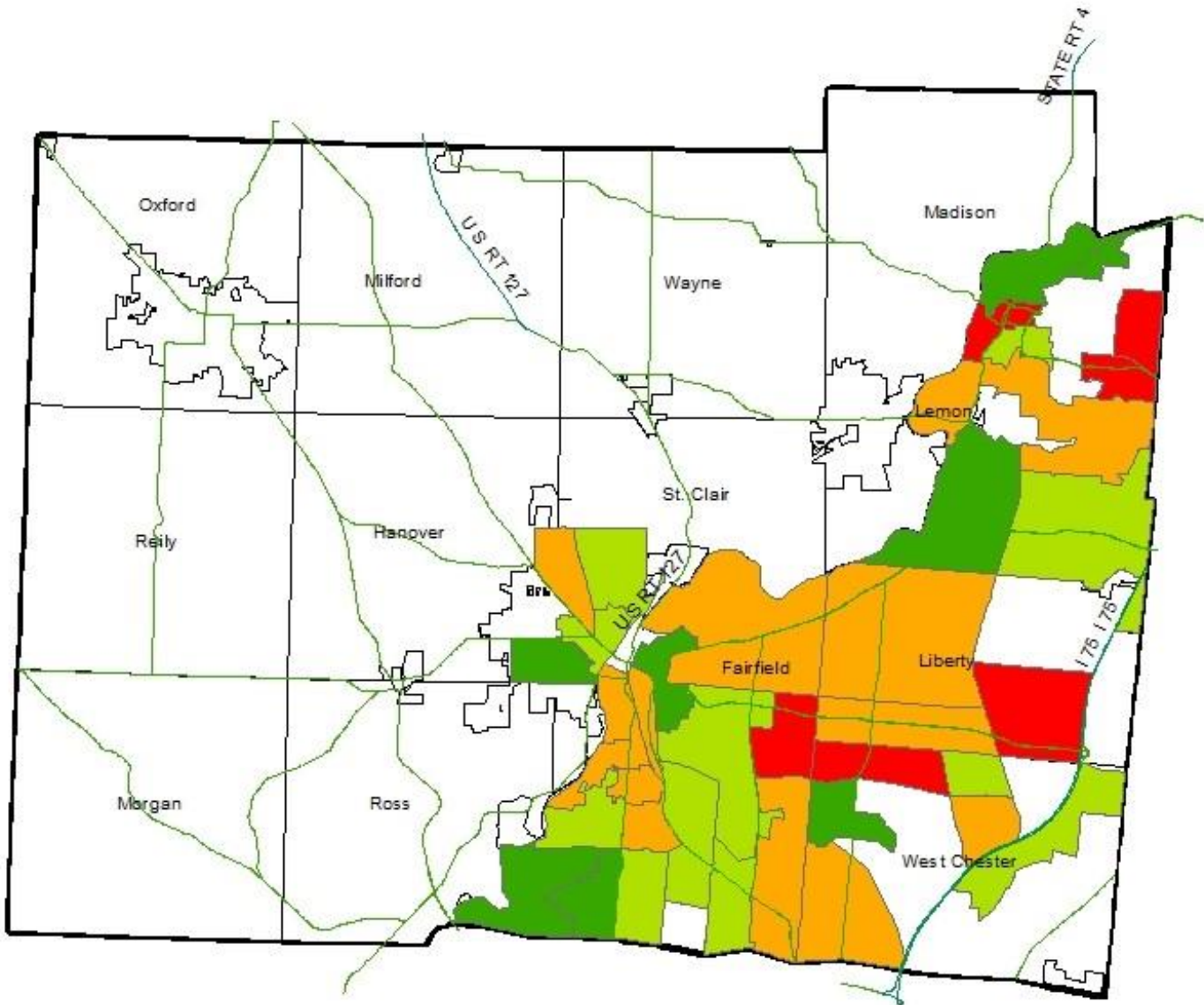
higher risk of pregnancy complications such as gestational diabetes and preeclampsia according to March of Dimes (2020).



PRIORITY MAP

Butler County has disparate health outcomes in different parts of the county. The following map shows the non-Hispanic Black preterm and low birthweight birth rate by census tract for Butler County for the period 2015-2020. The census tracts with the highest preterm and low birthweight births were tracts 39017013600, 39017011123, 39017014000, 39017011126, 39017011002 and 39017010909. The city breakdown of the census tracts is as follows: Middletown (39017013600, 39017014000 and 39017013100), Fairfield (39017011002, 39017010909), West Chester (39017011123, 39017011126) and Hamilton (39017000300).

Non-Hispanic Black Preterm and Low Birthweight Birth Rate by Census Tract, Butler County, 2015- 2020



Legend
Preterm & Low Birth Weight Rate (%)

- 3 - 8
- 9 - 13
- 14 - 18
- 19 - 28

Data Source: Resident Birth and Mortality Files from the Ohio Department of Health Bureau of Vital Statistics. *Data for 2020 is provisional; ODH finalizes data by fall of the subsequent year.

CONCLUSION

The overall Butler County infant mortality rate has been decreasing since 2012. However, racial disparities continue, as Black infants were more than 1.7 times more likely to die before their first birthday than white infants and 1.3 times more likely than Hispanic infants. Black infants were also 1.4 times more likely than white infants to be born less than 37 weeks gestation and 1.8 times more likely to have a low birth weight than white infants.

The Healthy People initiative is a national health guide set to improve the health of the public. Each decade, Healthy People sets new objectives; Healthy People 2030 is the fifth edition of Healthy People. The goal of Healthy People 2030 is to reduce infant deaths to 5.0 deaths per 1,000 live births. The infant mortality rate for Butler County in 2020 was 5.3 deaths per 1,000 live births, which is slightly higher than the Healthy People 2030 goal.

The leading causes of infant deaths in Butler County for the period 2013-2020 were prematurity related conditions, congenital abnormalities, and Sudden Unexpected Infant Deaths (SUID). Black infants were 19.7 times more likely to die from congenital anomalies and 3.6 times more likely to die of prematurity-related conditions compared to white infants.

Racial disparities exist in maternal health care and infant mortality and can be attributed to inequity in the social determinants of health. To address the root cause of the Black infant mortality rate, we should put emphasis on policies that support mothers, especially black mothers. Addressing the social determinants of health, conditions in which people are born, grow, live, work, and age is important to understanding how these factors contribute to infant mortality rates. To improve the health and wellness of mothers and infants, social determinants of health must be impacted through policy and practice changes that will create an equitable community where all babies can reach their fullest health potential.

DATA TABLES

The tables below are the analysis for this report. The data source is from the resident birth and mortality files from the Ohio Department of Health Bureau of Vital Statistics. 2020* data is provisional; ODH finalizes data by fall of the subsequent year.

Table 1. Butler County Infant Mortality Rate by Race, 2015-2020*

Race	Year	Infant Deaths	Live Births	Infant Mortality Rate
NH Black	2015	11	471	23.4
	2016	8	493	16.2
	2017	5	497	10.1
	2018	12	537	22.3
	2019	9	566	15.9
	2020*	5	594	8.4
NH White	2015	20	3562	5.6
	2016	18	3356	5.7
	2017	12	3316	3.6
	2018	23	3302	7.0
	2019	19	3136	6.1
	2020*	14	2987	4.7
Hispanic	2015	3	380	7.9
	2016	3	415	5.7
	2017	5	434	11.5
	2018	2	449	4.5
	2019	3	491	6.1
	2020*	3	473	6.3
Butler County (Total)	2015	33	4604	7.2
	2016	31	4478	6.9
	2017	23	4471	5.1
	2018	38	4516	8.4
	2019	32	4470	7.2
	2020*	23	4336	5.3

Table 2. Proportion of Infant Births and Deaths by Gestational Age, Butler County (2020*)

Birth by Gestational Age, (2020*)	%
Extremely preterm (<28 weeks)	1%
Very preterm (28 to <32 weeks)	1%
Moderate to late preterm (32 to <37 weeks)	8%
Term (37 or more weeks)	90%

Deaths by Gestational Age, 2020*	%
Extremely preterm (<28 weeks)	52%
Very preterm (28 to <32 weeks)	9%
Moderate to late preterm (32 to <37 weeks)	4%
Term (37 or more weeks)	35%

Preterm Births by Race, 2020*	%
NH Black	14%
NH White	9%
Hispanic	8%

Table 3. Proportion of Infant Births by Birth Weight, Butler County (2020*)

Births by Low Birthweight, 2020*	%
Very low birth weight (<1500g)	1%
Low birth weight (1500g - 2499g)	7%
Normal birth weight (2500g-3999g)	85%

Deaths by Low Birthweight, 2020*	%
Very low birth weight (<1500g)	43%
Low birth weight (1500g - 2499g)	13%
Normal birth weight (2500g-3999g)	26%

Low Birthweight by Race, 2020*	%
NH Black	13%
NH White	7%
Hispanic	6%

Table 4. Leading Causes of Infant Deaths, Butler County (2015-2020*)

Causes	%
Prematurity and related conditions	30%
Congenital anomalies	20%
Sudden Unexpected Infant Deaths	10%
Other	40%

Table 5. Leading Causes of Infant Deaths by Race, Butler County (2015-2020*)

Prematurity related conditions	Deaths	Live	IMR
NH White	29	19676	1.5
NH Black	17	3158	5.4

Congenital anomalies	Deaths	Live	IMR
NH White	7	19676	0.4
NH Black	25	3158	7.9

Sudden Unexpected Infant Deaths	Deaths	Live	IMR
NH White	13	19676	0.7
NH Black	4	3158	1.3

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