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General Health District

The Butler County
Partnership to Reduce
infant
Mortality
Reaching More First Birthdays



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OHIO INSTITUTE FOR EQUITY IN BIRTH OUTCOMES

Butler County Partnership to Reduce Infant Mortality (PRIM) Ohio Equity Institute Infant Mortality Quarterly Update Quarter 1 (October-December 2018)



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Contact Information

Do you want to get involved with Butler County’s Partnership to Reduce Infant Mortality?

Do you have questions about the OEI Quarterly Report?

We would love for you to join in our work!
Get in touch with by phone or visit our website!

Butler County General Health District
301 South Third Street
Hamilton, OH 45011

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513.887.5251

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http://health.bcohoio.us/our_services/maternal_infant_health.php



Introduction

The Ohio Equity Institute (OEI) began in 2013 and is a partnership between the Ohio Department of Health (ODH) and nine Ohio counties including Butler County. The nine counties in Ohio were selected because they account for a large part of all infant deaths in the State. This partnership exists to improve birth outcomes and reduce the racial disparities in infant deaths. The initiative is designed to strengthen the scientific focus and evidence base for realizing equity in birth outcomes in nine of Ohio's major metropolitan areas.

This report provides background information on birth outcomes and infant mortality in Butler County, current infant mortality interventions in Butler County, and current data trends in infant mortality in the county.

The local infant mortality coalition in Butler County is the Butler County Partnership to Reduce Infant Mortality (PRIM). PRIM was formed in 2014 and is coordinated by the PRIM Lead Team. The Butler County PRIM Lead Team initially chose to focus on CenteringPregnancy™ as an upstream intervention, and smoking cessation as a downstream intervention. Currently, PRIM's intervention projects include the previously discussed interventions as well as a breastfeeding support initiative, a safe sleep initiative, community engagement, and a partnership with the United Way to develop a 2-1-1 Babylink line for pregnancy and infant care needs. These interventions were chosen based on input from the community, data analysis of Butler County's most pressing needs, the community capacity, and a review of infant mortality literature.

Birth and death data notes: These data were provided by the Ohio Department of Health. ODH specifically disclaims responsibility for any analyses, interpretations, or conclusions. All analyses, interpretations, and conclusions were developed by Andrew Schwartz, the OEI PRIM Epidemiologist at the Butler County General Health District. The Ohio Department of Health disclaims responsibility for any findings within this report.

2018 Quarterly Infant Mortality Data

Quarterly infant mortality data and infant mortality rate (IMR) data for this report reflects the OEI grant year (October 1st 2018-September 30th 2019), not a calendar year.

		2017		IMR	2018		IMR
		Infant Deaths	Live Births		Infant Deaths	Live Births	
Quarter 2	January	2	352	5.0 per 1000	6	374	8.28 per 1000
	February	2	291	live births	2	330	live births
	March	1	357		1	382	
Quarter 3	April	4	365	4.52 per 1000	0	323	5.52 per 1000
	May	0	349	live births	4	388	live births
	June	1	393		2	374	
Quarter 4	July	2	409	6.46 per 1000	2	393	11.5 per 1000
	August	3	399	live births	6	449	live births
	September	3	431		6	373	
Quarter 1	October	2	391	4.48 per 1000	6	417	6.35 per 1000
	November	1	369	live births	0	341	live births
	December	2	355		1	344	

11.5

IMR for Quarter 4
(July-August 2018) of
2018

6.35

IMR for Quarter 1
(Oct-Sept 2018) of
2019



Infant Mortality Trends

The Infant Mortality Rate (IMR) is widely accepted as one of the most sensitive indicators of the health of a community. An infant death is the death of a baby before his or her first birthday. The Infant Mortality Rate is calculated as the number of infant deaths that occur for every 1,000 live births per year¹⁻².

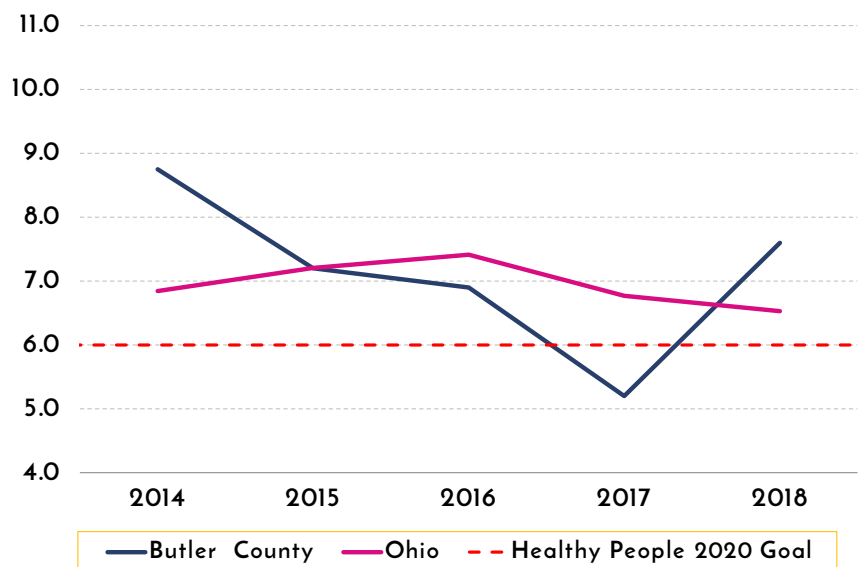
6.0

Healthy People 2020 Goal for
Infant Mortality Rate in the
United States

7.6

In 2018, Butler County's
overall IMR was higher than
the Healthy People 2020 Goal
for Infant Mortality

Infant Mortality Rate by Year in Butler
County and Ohio, 2014-2018

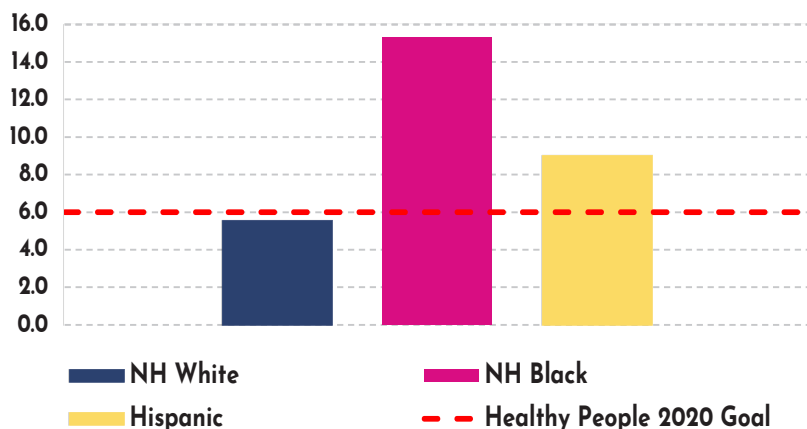


Overall, Butler County's IMR has been decreasing since 2012. In 2018, the IMR was higher than the Healthy People 2020 goal of 6.0 deaths per 1000 live births. The figure above shows the yearly Infant Mortality Rate in Butler County and Ohio from 2014-2018 and the Healthy People 2020 Goal.

Infant Mortality Rate by Race

Although infant mortality has decreased as a whole in Butler County, there still remains a significant difference in birth outcomes by race and ethnicity. Despite efforts to improve health, the non-Hispanic black IMR is approximately three times higher than the non-Hispanic white IMR.

Butler County Infant Mortality Rate by Race, 2014-2018



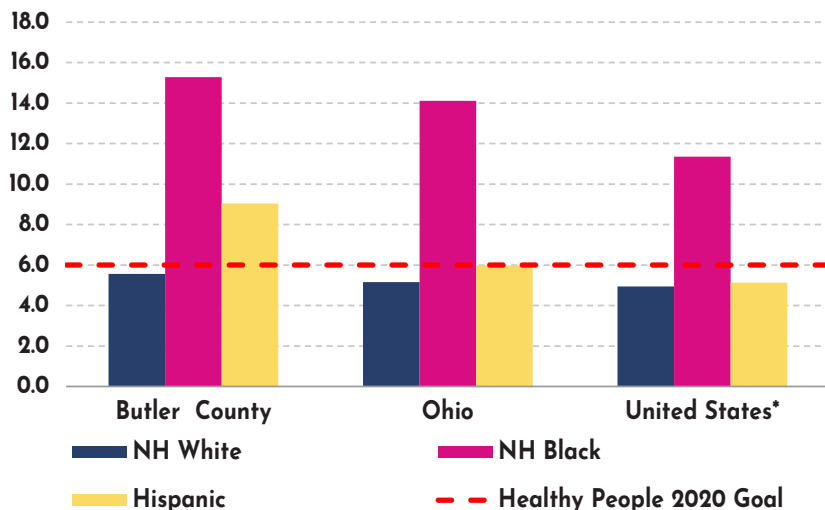
5.6

2014-2018
non-Hispanic **White**
IMR in Butler County

15.3

2014-2018
non-Hispanic **Black**
IMR in Butler County

Butler County, Ohio, US Infant Mortality Rate by Race, 2014-2018



14.1

2014-2018
non-Hispanic **Black**
IMR in **Ohio**

11.4

2012-2015
non-Hispanic **Black**
IMR in the **United States***

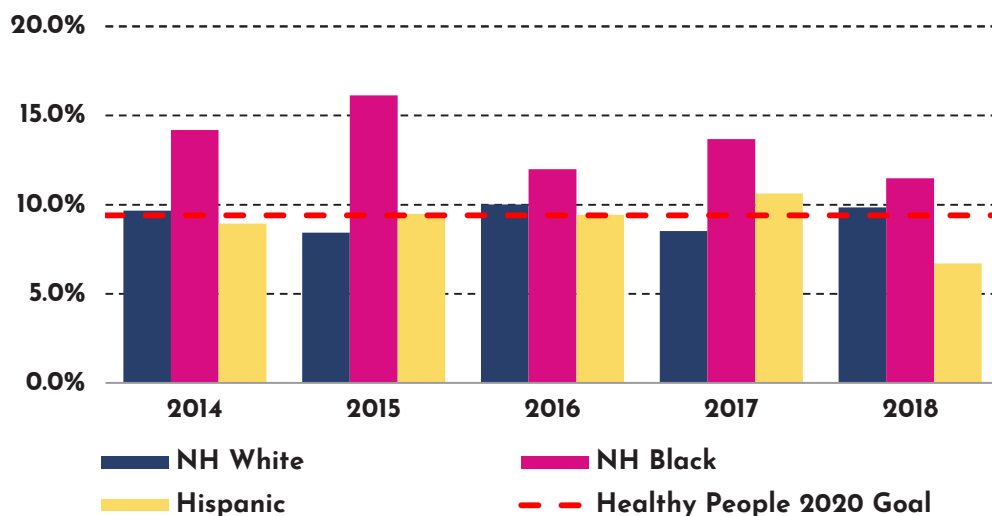
State and Nationwide data show very similar trends in Infant Mortality. In the United States, Non-Hispanic Whites and Hispanics are below the Healthy People 2020 goal of 6.0 infant deaths per 1000 live births. However, in Ohio and Butler County the infant mortality rate for Non-Hispanic Black and Hispanic babies is higher than the Healthy People 2020 Goal.



Preterm Birth

Preterm birth is defined as the birth of an infant before 37 completed gestational weeks. Preterm Birth is one of the greatest contributors to infant death and disability. The last few weeks of pregnancy are when the baby goes through some of the most important growth³⁻⁴. The figure below shows the preterm birth rate in Butler County by race from 2014-2018. Preterm Birth rates have remained relatively steady overall from 2014-2018 in Butler County. There is a disparity in Black preterm birth rates, which are consistently higher than other races, and from 2014-2018 showed an upward trend. In 2018, the preterm birth rate for non-Hispanic white babies in Butler County (9.8%) was slightly higher than the Healthy People 2020 goal (9.4%). The preterm birth rate for non-Hispanic Black babies (11.5%) was also higher than the Healthy People 2020 Goal (9.4%).

Butler County Preterm Birth Rate by Race, 2014-2018



13.5%

2014-2018 non-Hispanic
Black Preterm
Birth Rate in Butler
County

9.3%

2014-2018 non-Hispanic
White Preterm
Birth Rate in Butler
County

9.0%

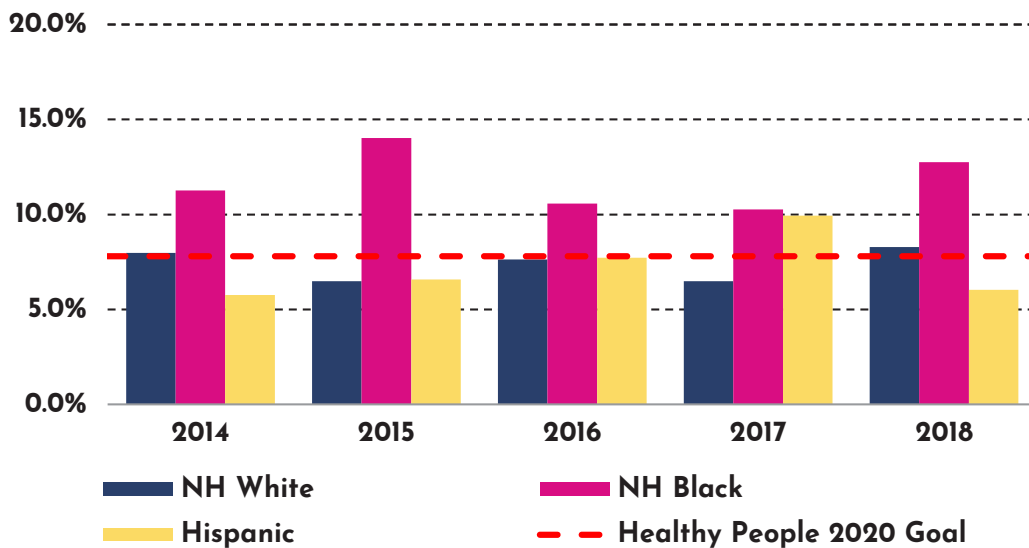
2014-2018
Hispanic Preterm
Birth Rate in Butler
County

Source: 2014-2018 Ohio Department of Health, Ohio Public Health Information Secure Data Warehouse
Data for 2018 is provisional; ODH finalizes data by fall of the subsequent year.

Low Birth Weight

Low birth weight is defined as an infant weighing less than 2,500 grams (approximately 5.5 pounds) at birth. Low birth weight is a risk factor for infant mortality and morbidity⁵. The figure below shows the low birth weight birth rate in Butler County by race from 2014 to 2018. In 2018, the low birth weight birth rate for non-Hispanic white babies in Butler County (8.3%) was higher than the Healthy People 2020 Goal (7.8%). The low birth weight birth rate for non-Hispanic black (12.8%) babies in Butler County was also higher than the Healthy People 2020 Goal (7.8%).

Butler County Low Birth Weight Birth Rate by Race, 2014-2018



11.8%

2014-2018 non-Hispanic
Black Low Birth Weight
Birth Rate in Butler
County

7.4%

2014-2018 non-Hispanic
White Low Birth Weight
Birth Rate in
Butler County

7.2%

2014-2018
Hispanic Low Birth
Weight
Birth Rate in Butler County

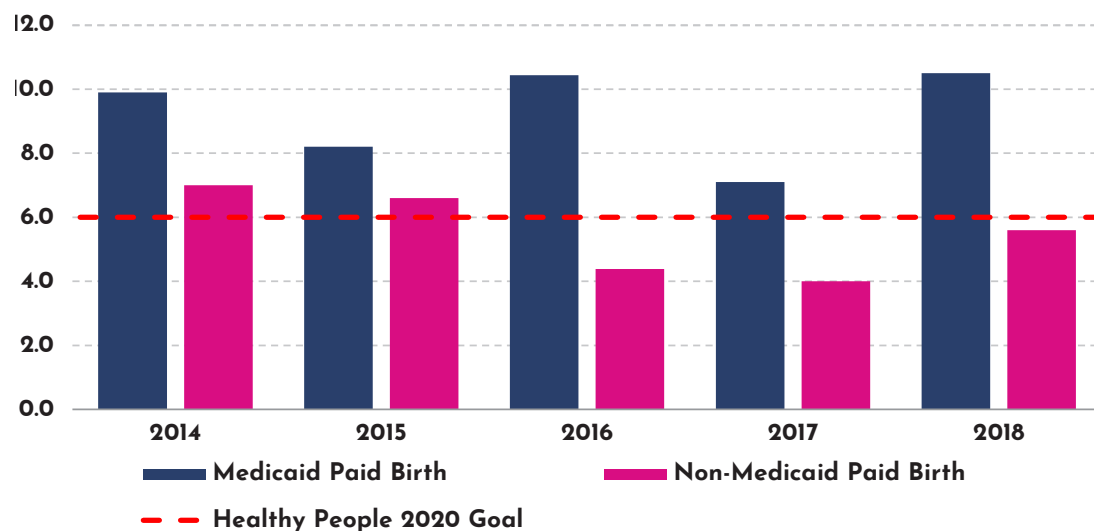


Infant Mortality Rate by Medicaid Status

Income status is one of the most important indicators of infant vitality in Butler County and in the United States.

Since income status is not directly measured by birth or death certificate data, income data must be imputed from other indicators. One way to measure income is by looking at Medicaid status. Medicaid status in this report is defined as Medicaid being the primary source of payment for a birth in Butler County. Medicaid enrollment is income-dependent and only provided to those below the federal poverty level.

Butler County Infant Mortality Rate by Medicaid Status, 2014-2018



9.2

2014-2018 IMR for
Medicaid Paid Births in
Butler County

5.5

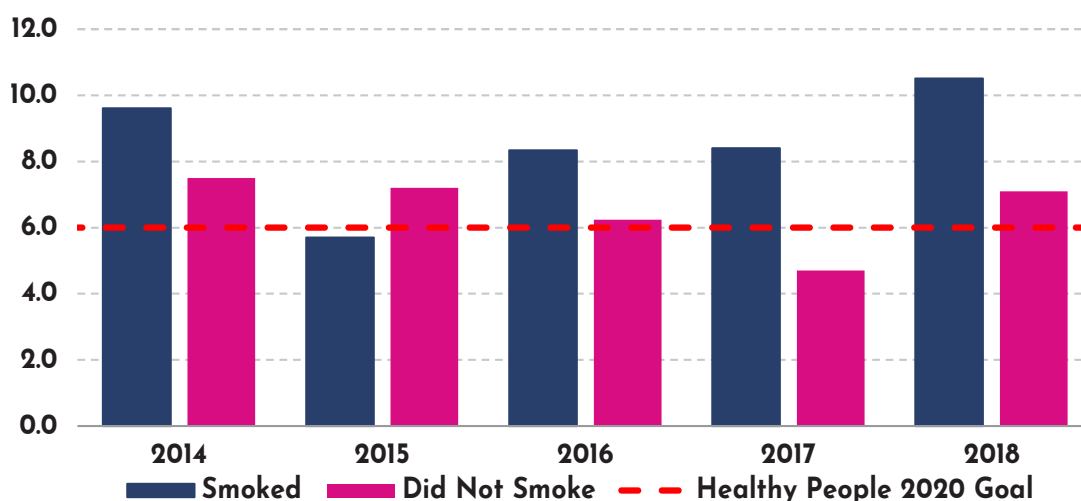
2014-2018 IMR for
non-Medicaid Paid
Births in Butler County



Infant Mortality Rate by Smoking Status

In 2018, infants with mothers who smoked had a much higher rate of infant mortality (10.5 per 1000) than non-smoking mothers (5.6 per 1000) in Butler County. Smoking during pregnancy is defined as smoking 1 or more cigarettes during any of the three trimesters of pregnancy.

Butler County Infant Mortality Rate by Smoking Status, 2014-2018



8.5

2014-2018 IMR for mothers who **smoked** in Butler County

6.5

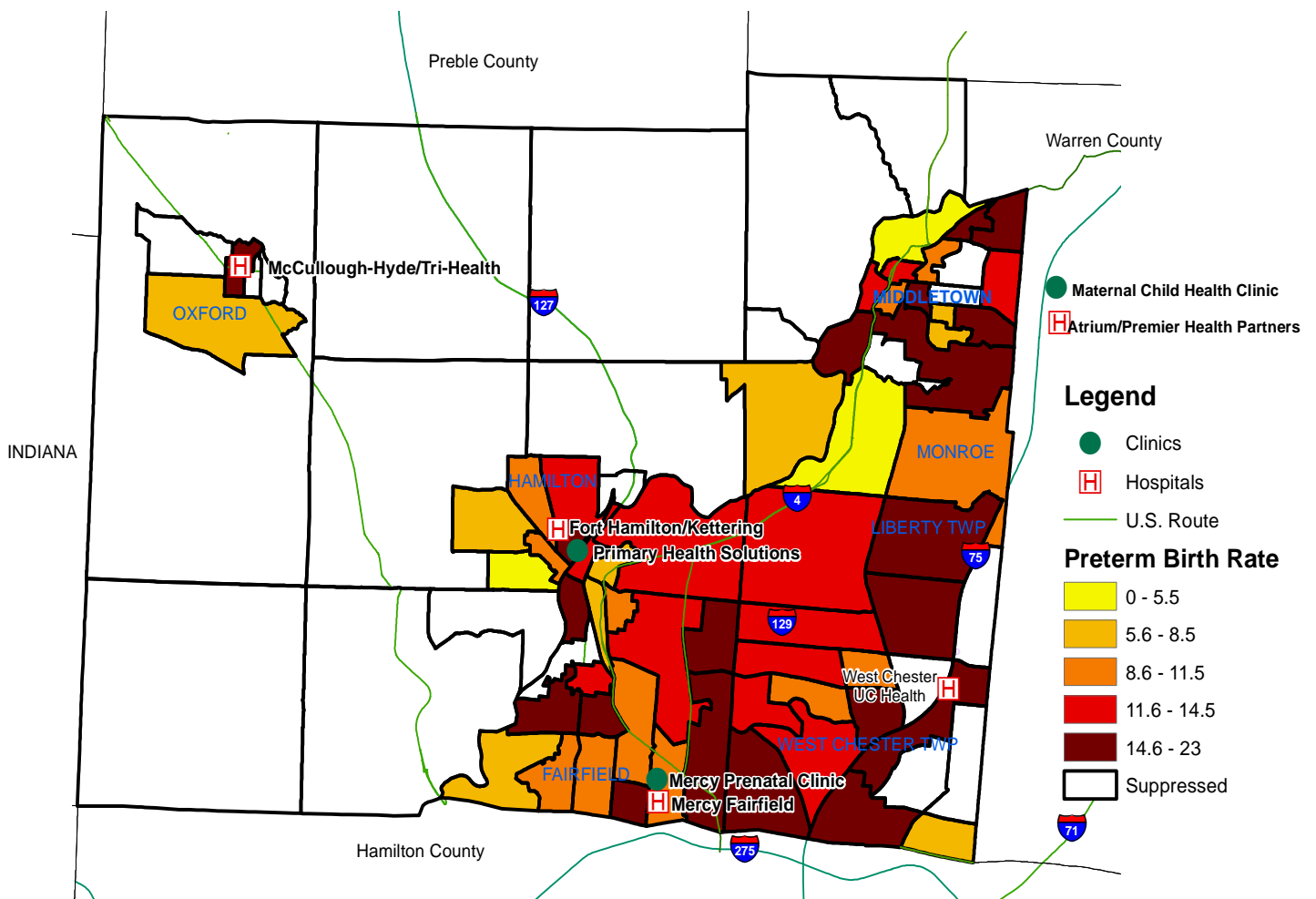
2014-2018 IMR for mothers who **did not smoke** in Butler County



Place Matters

As is the case around the United States and around the world, Butler County has disparate health outcomes in different parts of the county. The following maps show the non-Hispanic black preterm birth rate and low birth weight birth rate by census tract for Butler County. The maps also include the location of hospitals and maternal and child health clinics. These maps were used to identify hot spot locations for low birth weight and prematurity.

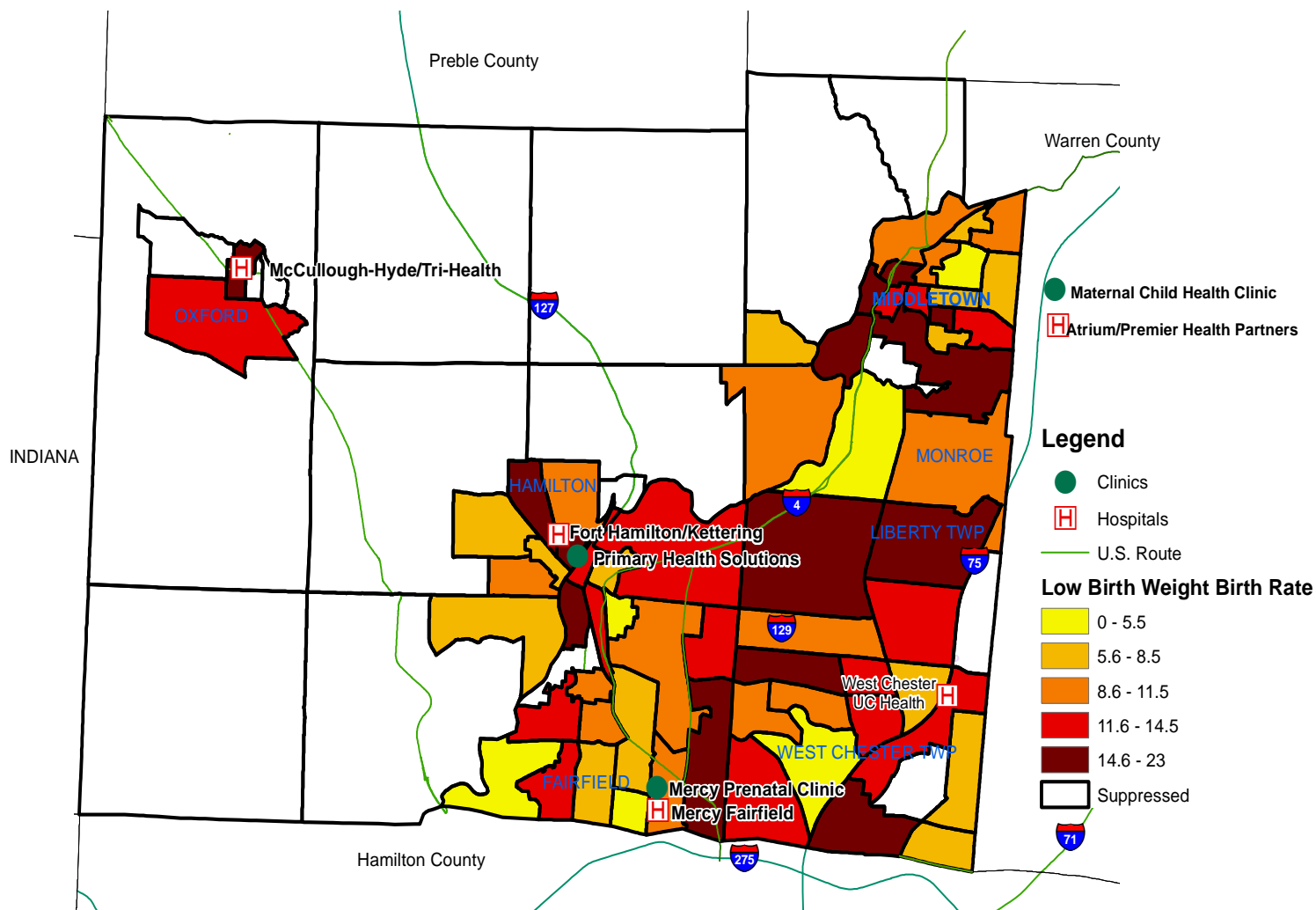
Non-Hispanic Black Preterm Birth Rate by Census Tract, Butler County, 2007-2018



Areas where data are suppressed are due to small number of total births and preterm births to non-Hispanic Black residents
Source: Ohio Department of Health (ODH), Ohio Public Information Warehouse, 2007-2018 Birth Data Set



Non-Hispanic Black Low Birth Weight Birth Rate by Census Tract, Butler County, 2007-2018



Areas where data are suppressed are due to small number of total births and low birth weight births to non-Hispanic Black residents
Source: Ohio Department of Health (ODH), Ohio Public Information Warehouse, 2007-2018 Birth Data Set



Other Risk Factors for Poor Birth Outcomes

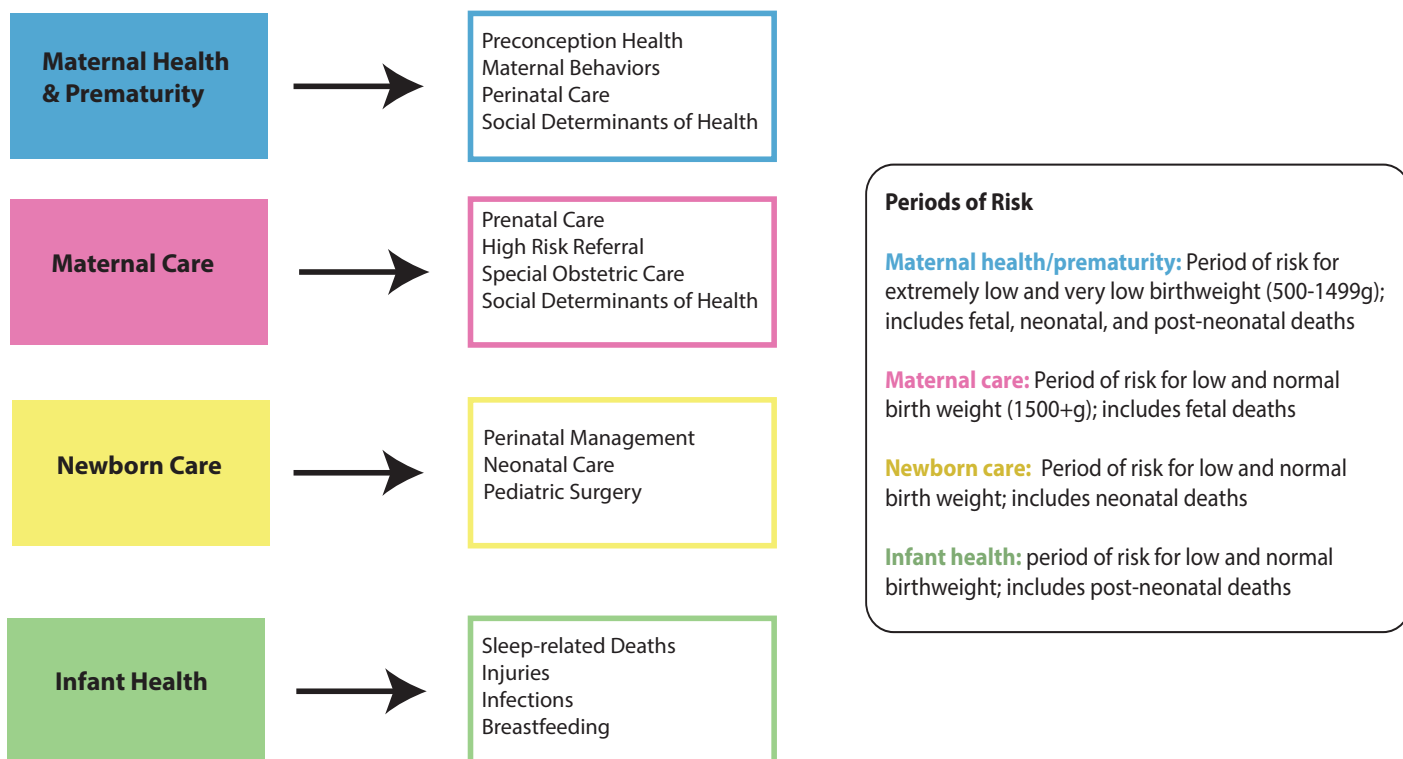
Previous data analyses have shown Marital Status, Smoking, and Obesity as important infant health risk factors in Butler County. The table below compares percentage of poor birth outcomes between these and other risk factors. A poor birth outcome is defined as a preterm birth (before 37 completed weeks of gestation), a low birth weight birth (weighing less than 2500 grams) or a small for gestational age birth (birth weight below the 10th percentile for babies of the same gestational age).

% of Butler County Births with Poor Birth Outcomes 2014-2018	
Race	
Black	25.5%
White	16.7%
Medicaid Status	
Medicaid	21.6%
Private Insurance	15.3%
Uninsured	19.7%
Weight Status	
Obese (BMI ≥ 30)	17.4%
Normal Weight	18.4%
Smoking Status	
Smokers	27.1%
Non-Smokers	16.8%
Marriage Status	
Unmarried	21.4%
Married	15.7%
Prenatal Care	
Early (During 1 st Trimester)	16.2%
Late (2 nd or 3 rd Trimester)	19.4%
None	45.3%



Summary of PPOR Analysis

Perinatal Periods of Risk (PPOR) is a comprehensive approach to help communities use data to reduce infant mortality. PPOR provides a framework and steps that help a community analyze their own local vital records data and then move from data to action. The initial analysis, phase 1 of PPOR, divides fetal and infant deaths into four Perinatal Periods of Risk, based on both birth weight and age at death. Fetal deaths (24 weeks of gestation or more) are included in PPOR because they can provide a lot of information, and there are almost as many fetal deaths as infant deaths. The periods of risk are useful because causes of death tend to be similar within each period, making it easier to focus efforts on the periods of risk where a community has the most problems. A mortality rate is calculated for each period to compare with other populations in the jurisdiction, examine time trends, and compare to other cities or a reference group. In Butler County, a PPOR analysis of data from 2012-2016 showed most excess deaths (51%) occurred in the Maternal Health and Prematurity group, followed by the Maternal Care (28.6%) and Infant Health (16%) risk groups. Analyzing these risk groups allows us to plan and decide what kind of interventions may be most useful for the community based on where most excess deaths occur.





Butler County Infant Mortality Interventions Call 2-1-1 for Referrals to our Services!

- **2-1-1 Babylink (A United Way Collaboration)**
24-7 Hotline for referrals and resources related to pregnancy and infants
- **Centering Pregnancy**
Group pregnancy care with proven improved health results for moms and babies.
- **Smoking Cessation**
Individual counseling sessions to help moms and families stop smoking.
- **Breastfeeding Support (Butler County Breastfeeding Coalition/WIC)**
Leads support groups for breastfeeding moms and runs county breastfeeding events.
- **Safe Sleep**
Cribs for Kids Eligible families can obtain a free Cribette along with safe sleep education.
- **Community Engagement**
PRIM attends local events and facilitates local infant mortality teams.
- **Moms and Babies First (Black Infant Vitality home visiting program)**
Certified Community Health Workers make home visits in pregnancy and for infant's first year.
- **Help Me Grow Home Visiting**
Home visiting services from infant birth up to age three.
- **Families First**
Faith-based Home Visiting program for pregnant moms to achieve healthy birth outcomes.
- **Miami University Collaborative Research Teams**
PRIM teams with researchers from Miami University (OH) to develop innovative solutions to IM issues
- **NEST Mentoring**
Faith based mentoring for mothers, monthly support meetings with childcare and meal provided.
- **Celebrate Fatherhood**
Male mentoring, daddy boot camp, individual fatherhood classes on request.
- **Community Health Worker Capacity Building**
Community of Learners meetings for professional education and support.



References

1. Reidpath, D.D., & Allotey, P. (2003). Infant Mortality Rate as an Indicator of Population Health. *Journal of Epidemiology & Community Health*, 57(5), 344-346. doi:10.1136/jech.57.5.344
2. Centers for Disease Control and Prevention. Infant Mortality. (2016, September 28). Retrieved from <http://www.cdc.gov/reproductivehealth/maternalinfanthealth/infantmortality.htm>
3. Centers for Disease Control and Prevention. Preterm Birth. (2015, December 4). Retrieved from <http://www.cdc.gov/reproductivehealth/maternalinfanthealth/PretermBirth.htm>
4. Oken, E., Kleinman, K.P., Richard-Edwards, J., & Gillman, M.W. (2003, July 8). A Nearly Continuous Measure of Birth Weight for Gestational Age using a United States National Reference. Retrieved from <http://bmcpediatr.biomedcentral.com/articles/10.1186/1471-2431-3-6>
5. Centers for Disease Control and Prevention. Tobacco Use and Pregnancy. (2016, July 20). Retrieved from <http://www.cdc.gov/reproductivehealth/maternalinfanthealth/TobaccoUsePregnancy/index.htm>
6. Oken, E., Kleinman, K.P., Richard-Edwards, J., & Gillman, M.W. (2007). Maternal Smoking During Pregnancy and Child Overweight: Systematic Review and Meta-Analysis. *International Journal of Obesity*, 32(2), 201-210. doi:10.1038/sj/ijo.0803760
7. Cordeiro, Christina N. "Tobacco Use in Pregnancy." *Postgraduate Obstetrics and Gynecology* 35.5 (2015): 1-7. 10.1097/O1.PGO.0000461293.66975.7f. Web.
8. Picklesimer, A.H., Billings, D., Hale, N., Blackhursts, D., & Covington-Kolb, S., (2012). The Effect of CenteringPregnancy Group Prenatal Care on Preterm Birth in a Low-Income Population. *American Journal of Obstetrics and Gynecology*, 206(5), 415-e1.
9. Massey, Z., Rising, S.S., & Ickovics, J. (2006). CenteringPregnancy Group Prenatal Care: Promoting Relationship-Centered Care. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, 35(2), 286-294

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Data Tables

Table 1. Butler County Infant Mortality Rate by Race, 2013-2018

		Infant Deaths	Total Births	Infant Mortality Rate
non-Hispanic White	2013	34	3,464	9.8
	2014	30	3,474	8.6
	2015	20	3,562	5.6
	2016	15	3,355	4.5
	2017	11	3,295	3.3
	2018	19	3,259	5.8
non-Hispanic Black	2013	5	491	10.2
	2014	3	444	6.8
	2015	10	471	21.2
	2016	8	492	16.3
	2017	6	497	12.1
	2018	11	549	20.0
Hispanic	2013	2	318	6.3
	2014	4	347	11.5
	2015	3	380	7.9
	2016	5	414	12.1
	2017	4	433	9.2
	2018	2	448	4.5
Butler County (Total)	2013	43	4,463	9.6
	2014	39	4,457	8.8
	2015	33	4,604	7.2
	2016	31	4,475	6.9
	2017	23	4,461	5.2
	2018	34	4,495	7.6

Table 2. Butler County Infant Mortality Ratio

	non-Hispanic Black IMR	non-Hispanic White IMR	Infant Mortality Ratio
2013	10.2	9.8	1.0
2014	6.8	8.6	0.8
2015	21.2	5.6	3.8
2016	16.3	4.5	3.6
2017	12.1	3.3	3.7
2018	20.0	5.8	3.4

Table 3. Butler County Preterm Birth Rate by Race, 2013-2017

		Preterm Births	Total Births	Preterm Birth Rate
non-Hispanic White	2013	322	3,464	9.3%
	2014	336	3,474	9.7%
	2015	300	3,562	8.4%
	2016	336	3,355	10.0%
	2017	281	3,295	8.5%
	2018	321	3,259	9.8%
non-Hispanic Black	2013	68	491	13.8%
	2014	63	444	14.2%
	2015	75	471	15.9%
	2016	59	492	12.0%
	2017	68	497	13.7%
	2018	63	549	11.5%
Hispanic	2013	21	318	6.6%
	2014	31	347	8.9%
	2015	36	380	9.5%
	2016	39	414	9.4%
	2017	46	433	10.6%
	2018	30	448	6.7%
Butler County (Total)	2013	424	4,463	9.5%
	2014	454	4,457	10.2%
	2015	429	4,604	9.3%
	2016	451	4,475	10.1%
	2017	422	4,461	9.5%
	2018	433	4,495	9.6%

Table 4. Butler County Low Birthweight Birth Rate by Race, 2013-2018

		LBW Births	Total Births	LBW Birth Rate
non-Hispanic White	2013	289	3,464	8.3%
	2014	276	3,474	7.9%
	2015	231	3,562	6.5%
	2016	256	3,355	7.6%
	2017	214	3,295	6.5%
	2018	270	3,259	8.3%
non-Hispanic Black	2013	67	491	13.6%
	2014	50	444	11.3%
	2015	65	471	13.8%
	2016	52	492	10.6%
	2017	51	497	10.3%
	2018	70	549	12.8%
Hispanic	2013	17	318	5.3%
	2014	20	347	5.8%
	2015	25	380	6.6%
	2016	32	414	7.7%
	2017	43	433	9.9%
	2018	27	448	6.0%
Butler County (Total)	2013	387	4,463	8.7%
	2014	364	4,457	8.2%
	2015	340	4,604	7.4%
	2016	355	4,475	7.9%
	2017	337	4,461	7.6%
	2018	381	4,495	8.5%

Source: 2013-2018 Ohio Department of Health, Ohio Public Health Information Secure Data Warehouse



PRIM is a Community Initiative of the
Butler County General Health District
301 South Third Street
Hamilton, OH 45011



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