

Butler County Partnership To Reduce Infant Mortality (PRIM)

Progress and Status Update

May, 2015

Picture it, Butler County Ohio, population 371,272; a new mother welcomes her new baby to the world, with hopes, dreams and aspirations for her new child. She is then faced with the crippling news that her new baby didn't survive, and all her hopes, dreams and aspirations crumble to the ground. This is a reality that mothers across Ohio and Butler County face every day.

Ohio is currently the worst state in the U.S. for black infant mortality, and 5th from the bottom for white infant mortality. Butler County is among the ten worst urban areas in Ohio for infant deaths. Wouldn't it be amazing if in a community like Butler County, with large urban areas of Middletown, Hamilton, and Fairfield, all babies could celebrate their first birthdays?

Butler County believes that every child should not only celebrate their first birthday, but also celebrate many more, and lead healthy, successful lives. This is why, in 2013, Butler County became part of a statewide initiative to advance equity in birth outcomes for mothers across Ohio, and in our own county. From this initiative the Butler County Partnership to Reduce Infant Mortality (PRIM) was formed. PRIM is a countywide team made up of 150+ partners charged with selecting, implementing, and evaluating two data-informed birth outcome equity projects, designed to reduce infant mortality.

The Big Picture and our own county data: How do we stack up?

An infant mortality rate is the number of deaths among children less than one year of age per 1,000 live births. (U.S. Department of Health and Human Services. (2014). From 2007-2012, Butler County's overall infant mortality rate was 7.1 per 1,000 live births; compared to Ohio at 7.7 and the United States at 6.3 (Boeshart (2015). The Healthy People 2020 Goal is to have an infant mortality rate of 6.0 per 1,000 live births.

If we were to look at this alone, we might be lead to think that Butler County does not have a significant infant mortality issue; however, this would be incorrect. When the infant mortality rate is broken out by race and SES, a different story emerges, a story that highlights the health disparities in Butler County around infant mortality (Figure 1).

* Throughout this report rates and percentages are used to describe the disparity and populations at risk. These use a common population (denominator) to calculate the percentages and rates-- Butler County births. The population at risk (numerator) will vary from section to section based upon the population of interest (e.g., Low SES, and mothers who smoked while pregnant). Some data are provisional as data from recent years have not been finalized by the Ohio Department of Health but are thought to be true and correct.

Health Disparities

Healthy People 2020 states: "when a health outcome is seen in a greater or lesser extent between populations, there is a disparity" (U.S. Department of Health and Human Services. (2014). Disparities in the infant mortality rate, in Butler County, and also in Ohio, are demonstrated when data are broken out by race and ethnicity. As can be seen in Figure 1, the disparity between races is evident. The infant mortality for non-Hispanic black babies in Butler County (13.3) is two times higher than that of non-Hispanic white babies. (6.5).

The infant mortality rate for Hispanic babies in Butler County (10.1) is 1.5 times higher than that of their non-Hispanic white counterparts (Boeshart (2015)). Figure 1 shows how Butler County’s infant mortality rates mirror that of the State of Ohio’s, which has one of the highest overall infant mortality rates and the highest black infant mortality rate in the country (NVSR (2011)).

In order to address these disparities and the overall infant mortality rate in Butler County, we have to first understand those factors that play a role in the health of an individual. The root causes of infant mortality are complex and multifactorial. Jobs, housing, educational attainment, age, race/ethnicity, and SES all play a role in the ability an individual has to achieve good health (U.S. Department of Health and Human Services. (2014)).

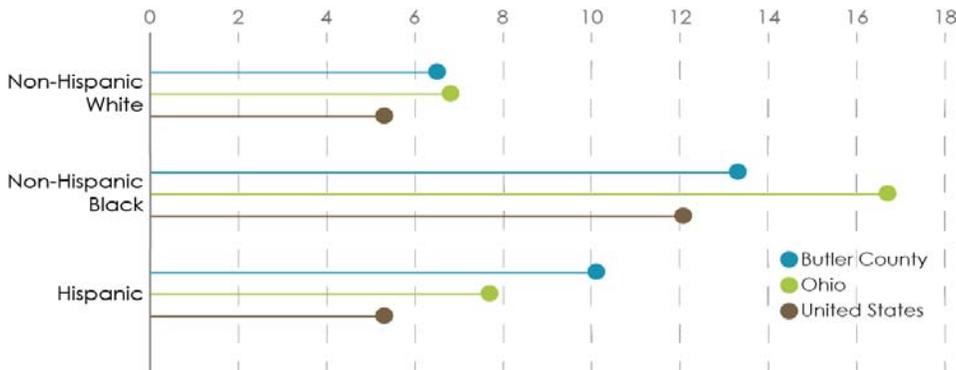


Figure 1. Infant Mortality Rate by Race/Ethnicity, 2007-2012

Socio-economic Status

Achieving and maintaining good health may be difficult for those individuals with low socioeconomic status (SES). SES is one of the most powerful risk factors for the poor health outcomes a mother may experience (Princeton University and the Brookings Institute. (2013)). Mothers with low SES face high social and community demands while having fewer resources including money, lack of access to medical care, and lack of social support (U.S. Department of Labor (2014)). From 2006-2012, 16.9 percent of all births in Butler County were to mothers with low SES (SES) (Figure 2) (Boeshart (2015)). Those mothers who have low SES in Butler County have an infant mortality rate that is three times higher than that of mothers with a high SES (Figure 3). The SES of a mother is determined through the use of a proxy indicator: educational attainment and /or Medicaid status. Higher educational attainment is often associated with an increase in the amount of income a person has (U.S. Department of Labor (2014)).

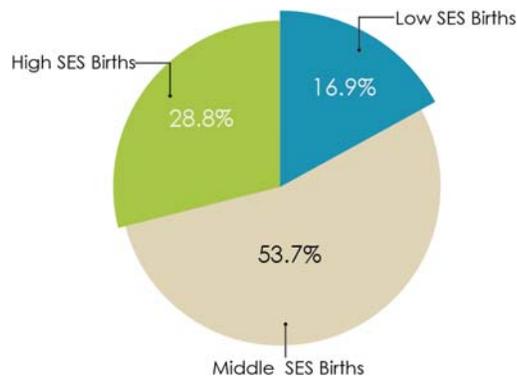


Figure 2. Percent of Births by SES Level, 2006-2012

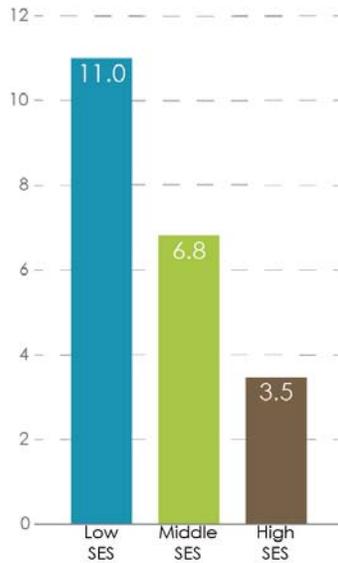


Figure 3. Infant Mortality Rate by SES, 2007-2012

A mother with low SES may lack the resources to access early and adequate prenatal care. Thirty-four percent of low SES mothers in Butler County received early prenatal care (prenatal care within the first 3 months of pregnancy). The percent of Butler County mothers with high SES, who received early prenatal care (66.2 percent), is nearly 2 times that of low socioeconomic mothers (Boeshart (2015) (Figure 4). Early entry into prenatal care is important to help ensure that mom and baby are as healthy as possible, and can allow for early detection and intervention for any health problems that may arise.

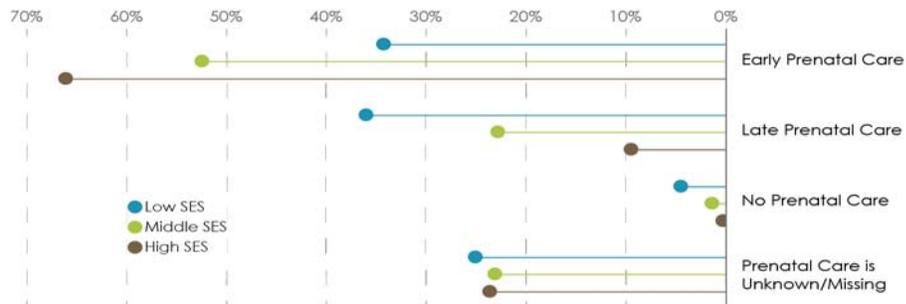


Figure 4. Prenatal Care Access by SES, 2006-2012

Social Isolation, Unmarried Mothers

Social support by an involved partner is a positive predictor of healthy birth outcomes. Mothers with low SES may lack not only the resources for early prenatal care, but may also lack social support and suffer from social isolation. To determine social isolation the proxy of marital status was used. Mothers who were reported to be unmarried are mothers who are more likely to suffer from social isolation. The majority of mothers with low SES (78.0 percent) were single mothers. Only 5.3 percent of mothers with a high SES were single mothers (Boeshart (2015) (Figure 5).

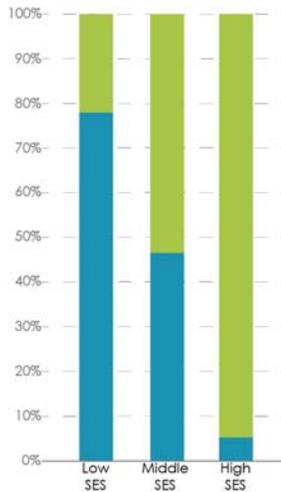


Figure 5. Marital Status by SES, 2006-2012

Smoking

While it is generally known that smoking causes cancer and heart disease, it is not as well known that smoking can be extremely harmful to a developing baby. When a mother smokes during pregnancy she is at risk for additional health problems, including SIDS/SUID preterm birth, certain birth defects, and infant death (Centers for Disease Control and Prevention (2014)). From 2006-2012, 19.2 percent of Butler County mothers whose smoking status was known reported smoking at anytime during their pregnancy. Sixty-five percent of mothers who smoked during pregnancy in Butler County were mothers who have a middle SES. Less than three percent of mothers who smoked during pregnancy were mothers with a high SES (Figure 6). Butler County mothers who reported smoking had an infant mortality rate of 8.2; which is almost 1.5 times higher than that of mothers who did not smoke during pregnancy (5.9) (Boeshart (2015) (Figure 7).

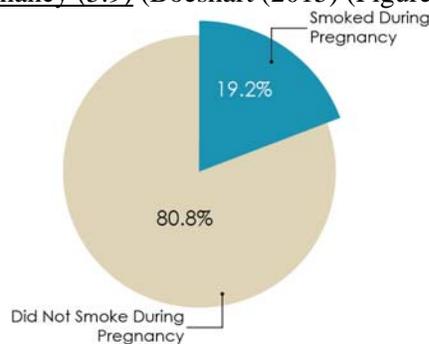


Figure 6. Percent of Mothers who Reported Smoking During Pregnancy, 2006-2012

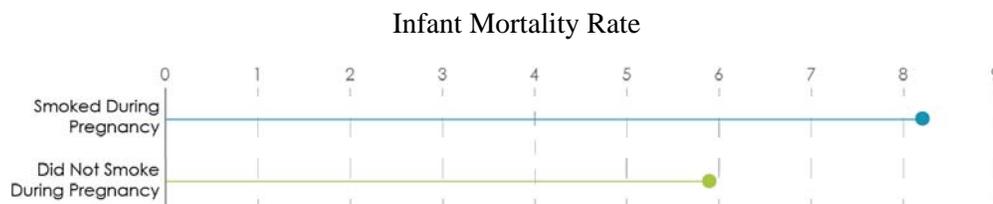


Figure 7. Infant Mortality Rate by Smoking Status, 2007-2012

Often people smoke when they feel stressed, even though they are aware that smoking is harmful to their health, it becomes a coping mechanism to relieve the stress they feel in their daily lives (U.S. Department of Health and Human Services (2014). In Butler County, approximately 70 percent of women who reported smoking during pregnancy were single mothers. Single mothers are more likely to report higher levels of stress, and depression (Cairney, J., Boyle, M., Offord, D.R., & Racine, Y. (2003). To cope with these stressors in their life, mothers may turn to smoking to relieve the stress they feel. The majority of mothers who smoked during pregnancy (67.9 percent) were mothers who had Medicaid. Mothers who had other forms of insurance (i.e. private, self-pay) accounted for less than 27.9 percent of births to mothers who smoked in Butler County (Boeshart (2015). Medicaid is an alternative way to measure low SES.

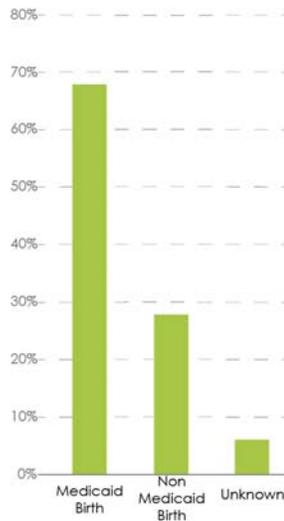


Figure 8. Percent of Mothers who Smoked During Pregnancy by Medicaid Status, 2006-2012

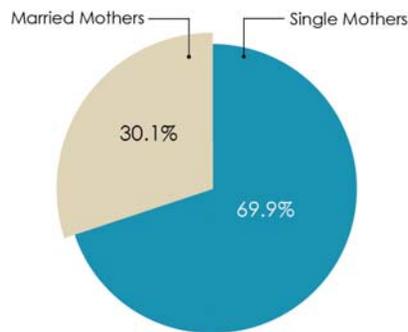


Figure 9. Percent of Mothers who Smoked During Pregnancy by Marital Status, 2006-2012.

No matter the SES, marital status, or smoking status of a mother, all babies in Butler County should be surviving to their first birthday, fourth birthday and 60th birthday. It is hoped that the infant mortality numbers in Butler County can be reduced by collaboration between the Butler County Partnership to Reduce Infant Mortality (PRIM), and community members working together to impact these problems.

Evidence Based Interventions

Based on our data analysis, our capacity, the skills of our Partnership team members, and with input from our community, we chose the following interventions: Upstream Intervention: Centering Pregnancy, and Downstream Intervention: Smoking Cessation. Additional area of intervention across Butler County include: Safe Sleep Ambassadors, Infant Vitality (Cribs for Kids), Breast Feeding Support, Fatherhood Involvement, and Teen Pregnancy Reduction.

Upstream Intervention: Centering Pregnancy

Centering Pregnancy, a group prenatal care model, is a trademarked, evidence based, prenatal program that incorporates healthcare assessment, education, and support while promoting greater patient engagement, personal empowerment, and community building. It has been shown to have a positive impact on birth outcomes for babies of mothers who follow the program. Our analysis of Butler County data identified many issues that Centering Pregnancy is designed to address: social isolation, stress of low SES, unmarried status, smoking, and countless other factors. According to the Centering Health Institute, “When a group of people come together for a common purpose of health and well-being to share information and learn together, a transformation happens at both the personal and collective level that brings about better understanding, greater engagement, and self-confidence. All of that translates into personal decisions and actions that are supported by the group and that lead to better health outcomes” (Centering (2014).

Patients receiving prenatal care through the Centering Pregnancy care model meet with their care provider, and 8-12 other group participants, for an extended period of time, usually 90-120 minutes, at regularly scheduled visits over the course of their care. In contrast, with traditional prenatal care a woman sees her provider privately, but for only 10-20 minutes at regularly scheduled visits over the course of her care. At the start of a typical Centering Pregnancy session, patients have a brief individual assessment with the care provider, enjoy refreshments, take part in self-care activities, and use self-assessment tools to begin thinking about key topics, and have informal conversation with the other participants. When the participants “circle up,” the group gathers in a circle and engages in a discussion facilitated by the care provider about a variety of predetermined health topics. Significant others are always encouraged to participate. This group model builds on the group's understanding and increases shared experiences.

Through participation in Centering Pregnancy women are educated, empowered, and become invested in their healthcare leading to improved maternal and infant outcomes. In a retrospective cohort study by Picklesimer, Billings, Hale, Blackhurst, and Covington-Kolb (2012) it was concluded that among low risk women, especially among black women, participation in group care improved the rate of preterm births (<37wks) when compared to traditional care. Furthermore, the authors indicated that racial disparities in preterm births for black women, relative to white and Hispanic women, were reduced for women in group care. Similarly, an integrative literature review of 26 articles by Anette Manant and Joan Dodgson (2011) supported significant results for prenatal care attendance rates, adequate prenatal care, and breastfeeding rates.

How we will make this Impact

- The Butler County Partnership to Reduce Infant Mortality (PRIM) will assist in the implementation of at least 1-3 new Centering Pregnancy programs in the County. Centering previously did not exist in Butler County. As of January, 2015, one practice has signed to implement Centering
- Lunch and Learn sessions will be conducted with practices and clinics expressing interest in launching a Centering Pregnancy program. Topics covered will include the state of infant mortality in our state and county, options for implementing Centering Pregnancy, requirements for implementation, pros and cons, costs, and cost sharing possibilities.

- Referrals will be made to the Ohio representative for Centering Pregnancy for further information, and ongoing discussions with PRIM staff will be provided as needed. Barriers will be identified and addressed.

How we will measure Success

- Enroll 120-150 participants per year in each Centering Pregnancy practice
- 80% of participants will be Medicaid recipients, or low SES
- Reduce the number of preterm birth and low weight babies to Healthy People 2020 goals
- Reduce racial inequalities in the area of preterm birth and low weight babies to achieve parity between black and white participants
 - Increase social support among participants evidenced by the Prenatal Psychosocial Profile
 - Increase knowledge in topic areas (e.g. prenatal dietary requirements, childcare education, infant/child safety) among women who participate in group sessions measured by pretest/post-test knowledge assessments
 - Improve satisfaction with prenatal care measured by a satisfaction survey
 - Increase self-efficacy of mothers as measured by the General Self Efficacy (GSE) scale (evidenced by decreased anxiety and doubt regarding birth, caring for infant or self and increased readiness for delivery)
 - Breastfeeding – initiated by 82% of participants
 - Improve maternal health: controlled hypertension, gestational diabetes, adequate weight gain in 90% of participants
 - 98% of participants attend a postpartum visit
 - 98% of participants initiate effective contraceptive use in postpartum period
 - 90% of participants achieve appropriate birth spacing (>12 mos.)
 - Reduce the racial/ethnic disparities related to infant mortality
 - Reduce the rate infant mortality by 10%
 - Reduce the rate of low birth weight babies by 10%
 - Reduce rate of prematurity by 10%

Downstream Intervention: Smoking Cessation

A countywide smoking cessation intervention was chosen as our downstream project in order to reduce the harmful effects of smoking on pregnant women and their babies and, ultimately, reduce infant deaths. Smoking is the leading preventable cause of disease and premature death in Ohio (ODH, 2006). Research shows that smoking during pregnancy may lead to SIDS/SUID premature labor, miscarriages, stillbirths, low birth weight (LBW) babies, and birth defects such as cleft lip/palate and heart anomalies (Preventing Tobacco Use During Pregnancy, 2014; Tobacco Use and Pregnancy, 2014).

The infant mortality rates (IMR) for women who were smokers and non-smokers during pregnancy from 2008-2012 was 11.09 and 5.53, respectively (Maternal & Infant Health Assessment Chart book, 2014). In Butler County, the smoking rate for pregnant women is 19.2% as compared to 1.8% among the Ohio reference group (ODH, 2006-2012). Secondhand and third hand smoke is known to cause medical problems such as respiratory diseases and asthma. Smoking is also a risk factor for Sudden Infant Death Syndrome (SIDS) (Tobacco Use and Pregnancy, 2014; Maternal & Infant Health Assessment Chart book, 2014). Among Butler County's low SES population, 38.1% are smokers as compared to 4.7% among the Ohio reference group (CityMatch, 2013).

As a result, we have decided to provide smoking cessation interventions utilizing the evidenced-based 5 A's of Smoking Cessation framework from the US Public Health Service 2008 clinical practice guidelines to target low-income pregnant, postpartum, and breastfeeding women. The 5 A's of Smoking Cessation model

utilizes the Stages of Change Theory and Motivational Interviewing to help health professionals provide a tobacco cessation counseling (Brief Interventions & 5 A's, 2012). Providing self-help resources during these brief (<10 minute) interventions increases cessation rates by 30-70% as compared to simply providing advice to quit with no other intervention or referral (The Ohio Partners for Smoke Free Families, 2014). The 5 A's model works best for clients who are light to moderate (<20 cigarettes a day) smokers (The Ohio Partners for Smoke Free Families, 2014). The CDC states that "Pregnancy-specific counseling (e.g., counseling based on the 5A's model) increases smoking cessation in pregnant women" (Preventing Tobacco Use During Pregnancy, 2014).

The 5 A's intervention is being conducted by health professionals at the Butler County Women, Infants and Children (WIC) program, and the High Hopes program (a part of the Ohio Infant Mortality Reduction Initiative). In addition to this intervention, a Tobacco Treatment Specialist is also leading the Baby & Me Tobacco Free, Not on Tobacco (NOT), and Tobacco Treatment Specialist programs to reduce the rate of smoking among pregnant women, women of childbearing age, postpartum/breastfeeding women, and teenagers.

How We Will Make this Impact

This Smoking Cessation intervention aims to improve Butler County infant mortality rates through evidenced-based smoking cessation education and programs targeting low SES women who smoke, and their children who are exposed to secondhand and third hand smoke. As a result of our intervention activities, we plan to achieve the following goals:

- 100% of Butler County WIC and High Hopes participants will receive a brief intervention using the evidenced-based 5 As of Smoking Cessation program
- Individuals who are ready to quit will be referred to the Butler County Tobacco Treatment Specialist for smoking cessation services
 - The Tobacco Treatment Specialist will provide smoking cessation education and support using evidenced-based tobacco cessation programs which include Not On Tobacco (NOT), Baby and Me Tobacco Free, and Tobacco Treatment Specialist (individual counseling) Programs
 - Information about calling the Ohio Quitline will be given to participants who express a desire to quit smoking and will be made visible in the WIC waiting area, and given to all High Hopes clients.

How We Will Measure Success

By implementing and evaluating our Smoking Cessation intervention, we expect the following to happen:

- 50 WIC clients will receive tobacco cessation services between December 1, 2014 and June 1, 2015
- 500 WIC/High Hopes clients (pregnant/postpartum/breastfeeding women and women of childbearing age) will receive a brief intervention using the 5 A's framework
- A 10% improvement in the percentage of newborns born weighing > 2,500 grams (LBW) among WIC women who quit smoking before or during pregnancy
- A 30% increase in smoking cessation for WIC participants who stopped smoking during pregnancy from December 1, 2014 to June 1, 2015 as compared to clients from October 2013-October 2014
- 200 WIC participants will sign pledges to make their homes and cars smoke-free and, thus, reduce the exposure of secondhand smoke to family members
 - Increase the rate of WIC participants who report that they have stopped smoking within the last year by 30%
 - Reduce the racial/ethnic disparities related to infant mortality
 - Reduce the rate infant mortality by 10%
 - Reduce the rate of low birth weight babies by 10%
 - Reduce rate of prematurity by 10%

Additional Community-Based Interventions

Safe Sleep Ambassadors – First Responders (police, fire, EMS) in Butler County have agreed to be Ambassadors for Safe Sleep when visiting homes in their jurisdictions. They are provided with brochures, posters, and information about appropriate sleeping environments for infants, and agree to ask if a child under the age of one resides there. If so, they ask to see the sleeping area and provide information as needed. Referrals are also made to our Infant Vitality Program (Cribs for Kids), see below.

Infant Vitality (Cribs for Kids) – Pack N Plays from Cribs for Kids are given to any income eligible family with a child < one year old without a safe place for baby to sleep. One-on-one Safe Sleep education is given to each family and follow up phone calls are made at 1 and 3 months to ensure that the Pack N Play continues to be used appropriately.

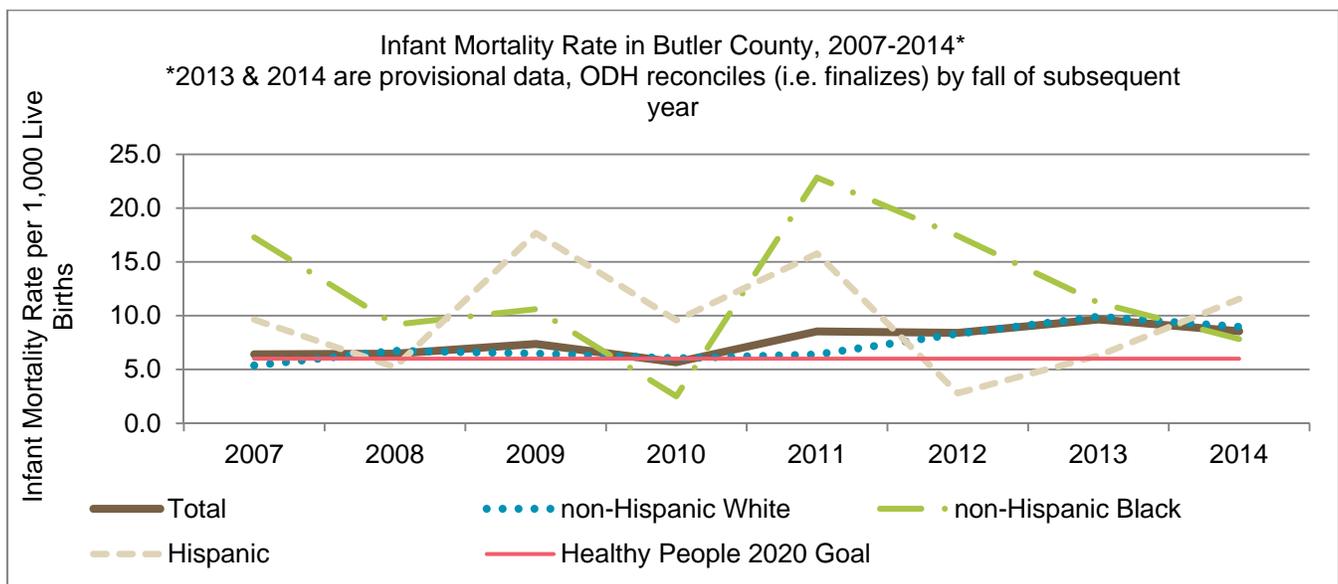
Breast Feeding Support – A team of lactation consultants from across the county is developing plans for support in the few days immediately following hospital discharge when most breast feeding plans fall through. This will be a community rapid response teams to assist moms in continuing to breast feed.

Fatherhood Involvement – a committee is beginning to look at efforts to encourage, and equip fathers to be involved with their children from pregnancy onward. This involves reaching out to fathers who have not previously played a role in their children’s lives, or who experience barriers to doing this effectively.

Teen Pregnancy Reduction – several agencies serving teens have come together to learn about each other’s efforts and to join in developing a county-wide effort to address and prevent teen pregnancy.

Our Infant Mortality Rates Since the Inception of PRIM

While we know that we cannot look at one or two years in isolation, and that 5 year averages give a more accurate picture of infant mortality rates, we are excited the report that since the inception of PRIM, our overall infant mortality rate has declined! The Hispanic rate is up, but all other rates declined between 2013-2014 (Boeshart, 2015).



Next Steps

Long-term sustainability of these programs is critical. In order to truly make an impact on infant mortality, new strategies and additional partnerships need to be developed that will allow these and other programs to run for many years into the future. Currently new teams are forming around such areas as Safe Sleep for Babies, Teen Pregnancy Reduction, and Fatherhood Involvement as well as Academic-Community Collaboration. Working with government and the private sector to improve jobs, housing, and education is also on the horizon for the Butler County Partnership to Reduce Infant Mortality (PRIM).

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