2016

Indiana Infant Mortality and Morbidity Annual Report

Indiana State Department of Health

This report was developed in collaboration with the Indiana Perinatal Quality Improvement Collaborative (IPQIC)

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Indiana Infant Mortality and Morbidity Initiatives

"The problem of infant mortality is one of the great social and economic problems of our day. A nation may waste its forest, its water power, its mines and to some degree even its land, but if it is to hold its own…its children must be conserved at any cost. On the physical, intellectual and moral strength of the children of today, the future depends."

-Julia Lathrop, MD, Director, Federal Children's Bureau, 1913

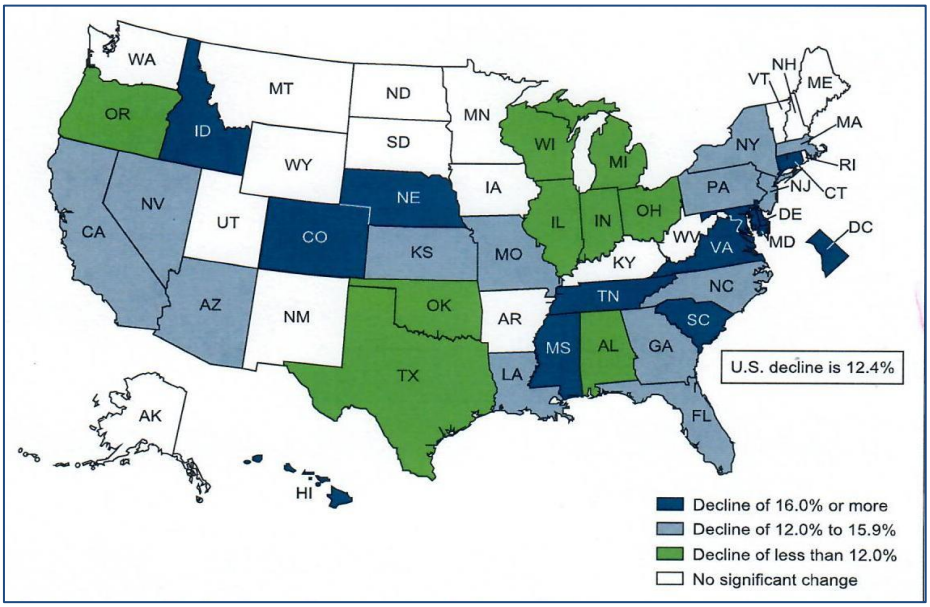
Introduction

The Centers for Disease Control and Prevention define infant mortality as the death of a baby before his or her first birthday. The *infant mortality rate* is an estimate of the number of infant deaths for every 1,000 live births. This rate is often used as an indicator to measure the health and well-being of a nation, because factors affecting the health of entire populations can also impact the mortality rate of infants.[1]

The following chart developed by the Centers for Disease Control and Prevention compares changes in infant mortality rates between 2005 and 2013.[2]

Percent change in infant mortality rate, by state: United States

2005-2007 to 2012-2014

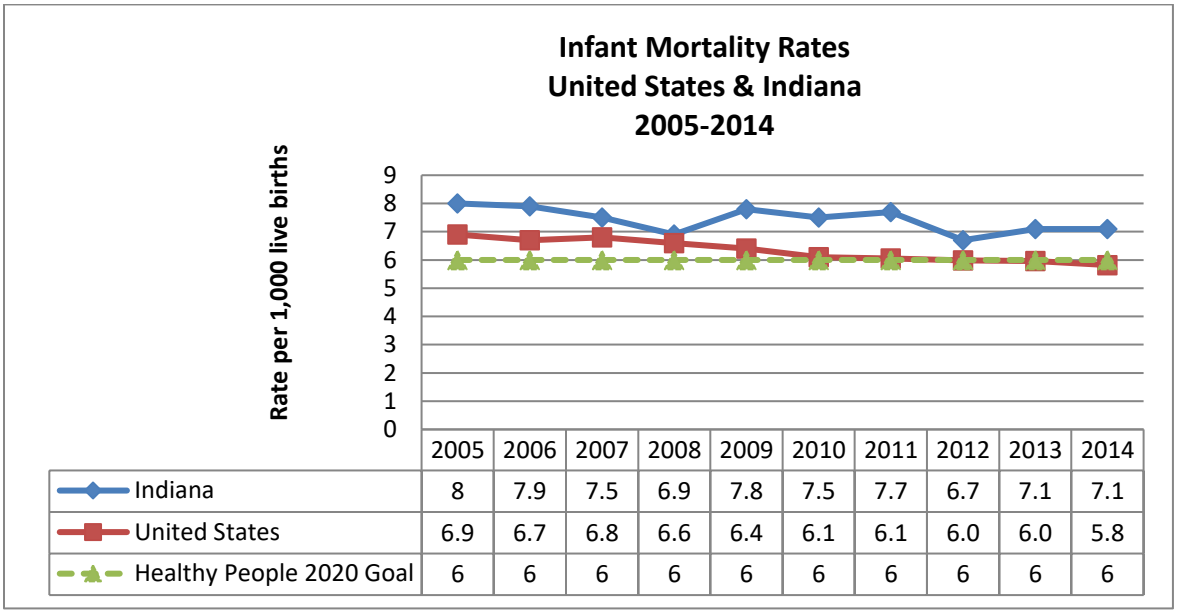


[1] https://www.cdc.gov/reproductivehealth/maternalinfanthealth/infantmortality.htm
[2] National Vital Statistics Reports, Vol. 64, No.9, August 6, 2015

For the last four years, infant mortality and morbidity[3] has been a priority of the Indiana State Department of Health (ISDH). For each of those years, a report has been developed to address the activities of the Indiana Perinatal Quality Improvement Collaborative (IPQIC). While this report will continue to provide an update on IPQIC activities, the report will also provide information on the many other robust initiatives employed by ISDH to address infant mortality and morbidity.

Setting the Stage

In order to fully understand the importance of the work that is occurring through the efforts of the dedicated volunteers involved in the IPQIC and the ISDH staff, it is important to have a complete understanding of the current status of infant mortality in the United States and Indiana.

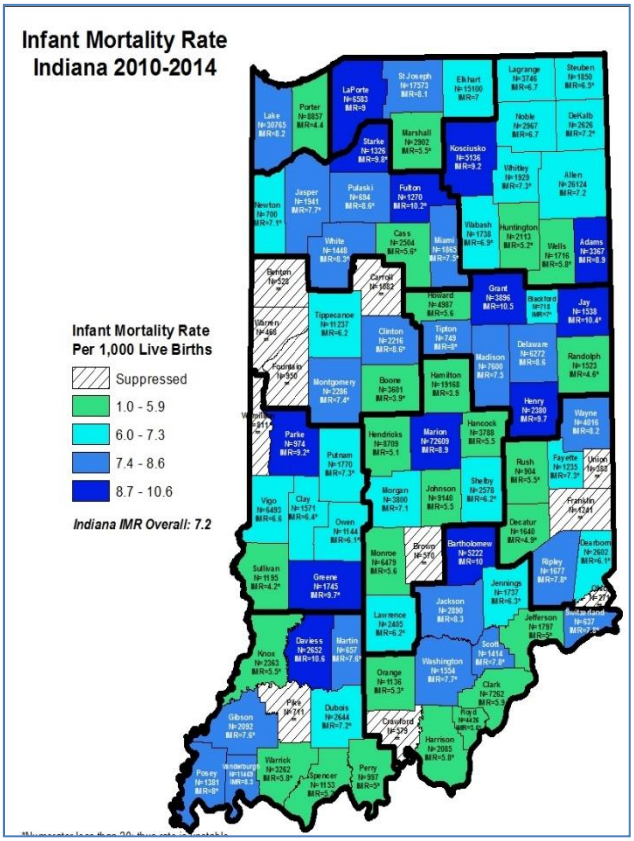


	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Indiana	8	7.9	7.5	6.9	7.8	7.5	7.7	6.7	7.1	7.1
United States	6.9	6.7	6.8	6.6	6.4	6.1	6.1	6.0	6.0	5.8
Healthy People 2020 Goal	6	6	6	6	6	6	6	6	6	6

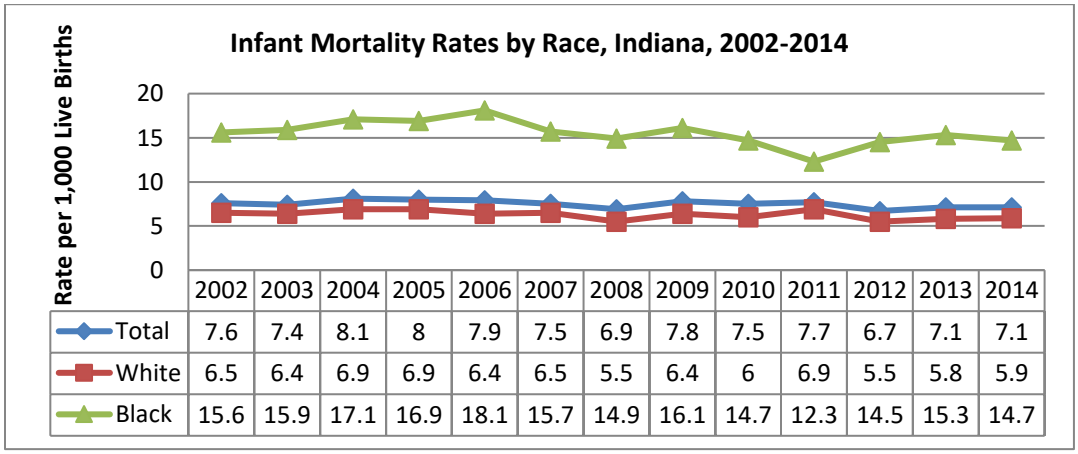
Source: Indiana State Department of Health, Maternal & Child Health Epidemiology Division [Feb. 23, 2016]
United States Original Source: Centers for Disease Control and Prevention National Center for Health Statistics
Indiana Original Source: Indiana State Department of Health, PHPC, ERC, Data Analysis Team

[3] Morbidity refers to the state of being diseased or unhealthy within a population. http://www.diffen.com/difference/Morbidity_vs_Mortality

The infant mortality rates in the United States have continued to fall and in 2014 the rate fell from 6.0 to 5.8, slightly below the Healthy People 2020 goal of 6.0 and the lowest rate ever recorded. In 2014 the infant mortality rate in Indiana was 7.1 per 1,000 live births. Indiana remains at a higher rate than the United States' rate and has only fallen below 7.0 twice. Indiana's rate was 6.9 in 2008 and 6.7 in 2012.



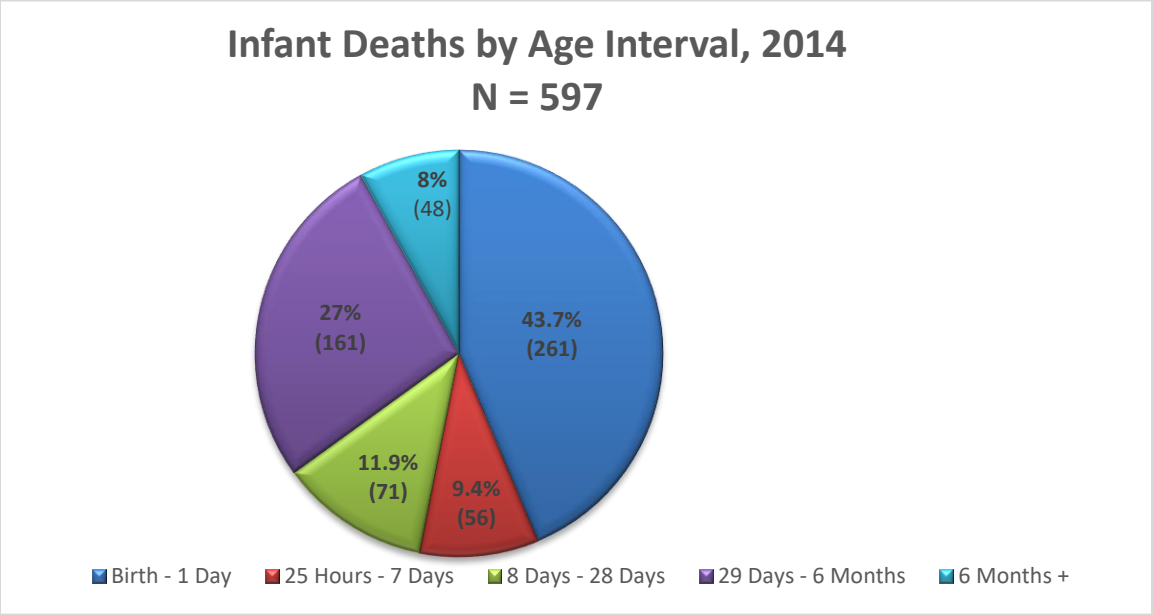
Indiana had made progress in reducing its black infant mortality rate, dropping from a high of 18.1 in 2006 to a low of 12.3 in 2011. In 2014 Indiana saw a decrease in the rate of black infant mortality from 15.3 in 2013 to 14.7 in 2014. The rate of white infant mortality increased from 5.8 in 2013 to 5.9 in 2014. The disparity between the white and black rates remains a significant issue for Indiana. Black infants are 2.5 times more likely to die than white infants.



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Total	7.6	7.4	8.1	8	7.9	7.5	6.9	7.8	7.5	7.7	6.7	7.1	7.1
White	6.5	6.4	6.9	6.9	6.4	6.5	5.5	6.4	6	6.9	5.5	5.8	5.9
Black	15.6	15.9	17.1	16.9	18.1	15.7	14.9	16.1	14.7	12.3	14.5	15.3	14.7

Source: Indiana State Department of Health, Maternal & Child Health Epidemiology Division [April 13, 2015]
Indiana Original Source: Indiana State Department of Health, PHPC, ERC, Data Analysis Team

The following chart represents the infant deaths in 2014 by age interval with the highest number of deaths occurring in the birth to one-day interval.

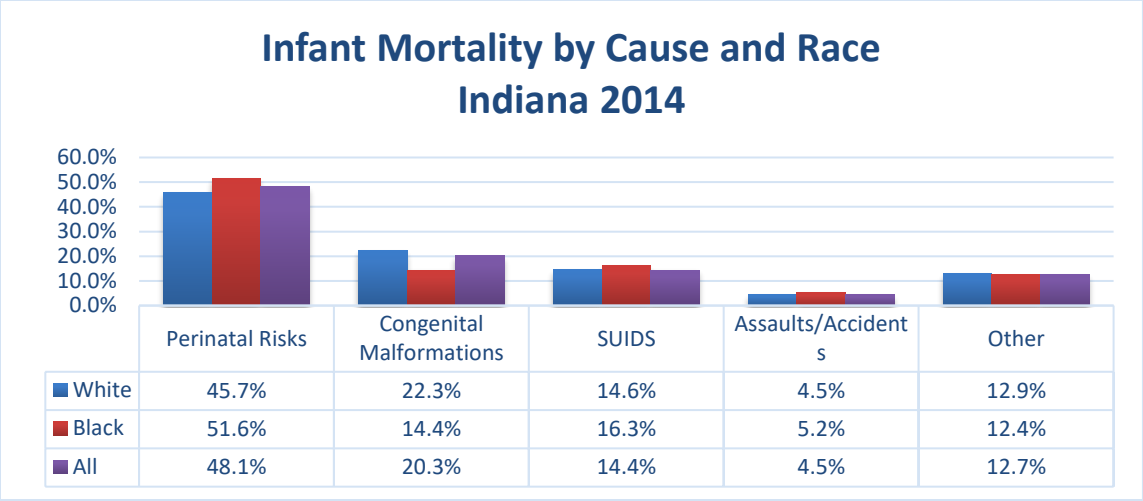


Source: Indiana State Department of Health, Maternal & Child Health Epidemiology Division (March 17, 2016)

In examining the cause of death, infant deaths are categorized by the following categories:

- *Perinatal Risks* = Certain conditions originating in the perinatal period (low birthweight, preterm, premature rupture of membranes, bacterial sepsis of newborn, etc.) Perinatal period = 22 completed weeks gestation to after birth;
- *Congenital Malformations* = A physical defect present in a baby at birth that can involve many different parts of the body (brain, heart, lungs, bones, etc). These can be genetic or result from exposure of the fetus to agents that cause developmental malformations, or be of unknown origin;
- *SUID* = Sudden Unexplained Infant Death;
- *Assaults / Other Accidents* = Homicide, accidental inhalation/ingestion, falls, MVA's, etc.; and
- *All other causes* = All deaths that do not meet the above four categories.

In looking at the cause of death by race, there are notable differences especially in the categories of Perinatal Risks and Congenital Malformations.



	Perinatal Risks	Congenital Malformations	SUIDS	Assaults/Accidents	Other
White	45.7%	22.3%	14.6%	4.5%	12.9%
Black	51.6%	14.4%	16.3%	5.2%	12.4%
All	48.1%	20.3%	14.4%	4.5%	12.7%

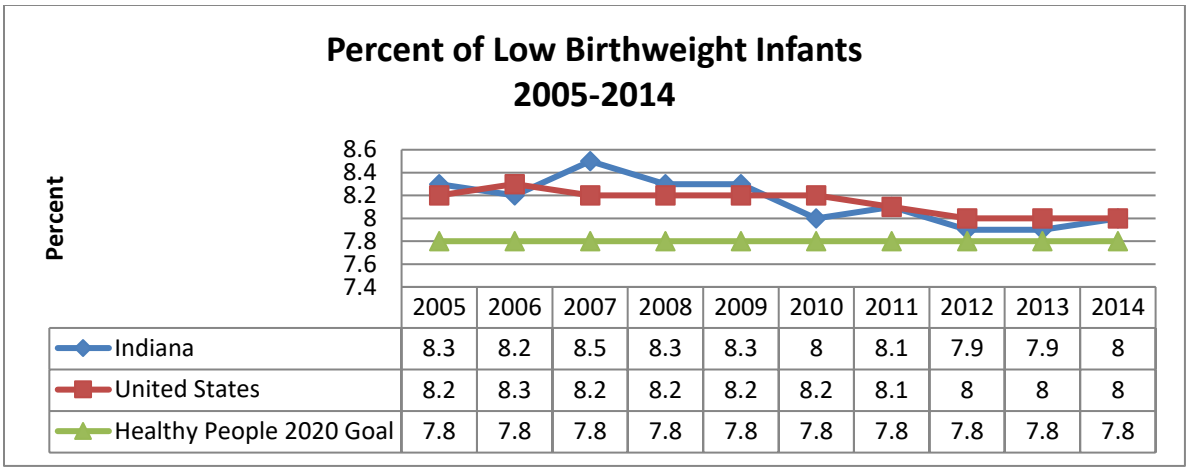
Source: Indiana State Department of Health, Maternal & Child Health Epidemiology Division [February 24, 2016]
Indiana Original Source: Indiana State Department of Health, PHPC, ERC, Data Analysis Team

BIRTH OUTCOME INDICATORS

The following data track outcomes that are known to correlate with both infant mortality and morbidity (poor outcomes).

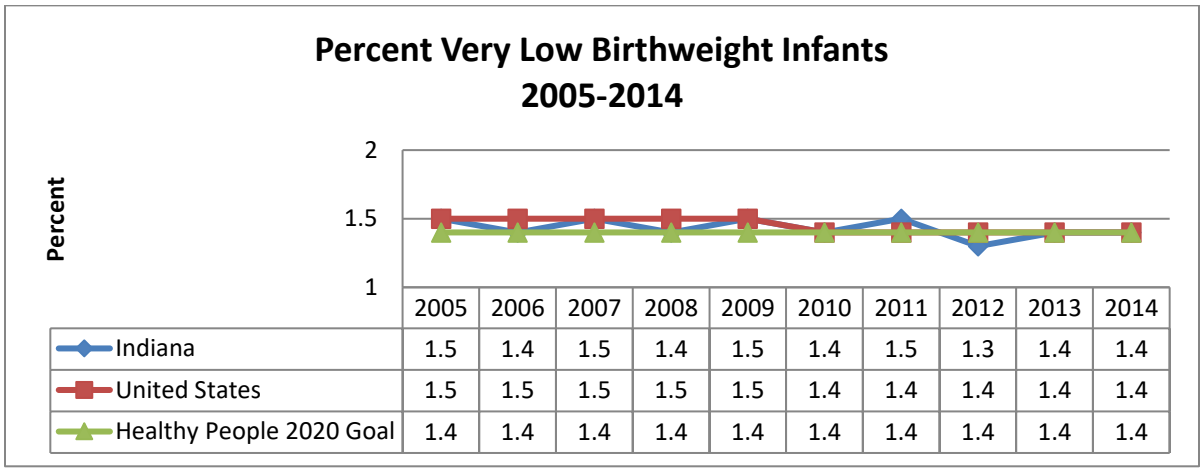
Low birthweight/Very low birthweight

When examining statistics for low birthweight (<2500 grams/5.5lbs.) and very low birthweight (<1500 grams/3.4 lbs), Indiana is more closely aligned with statistics for the United States. The most frequent cause of infant death is low birthweight/prematurity. Blacks have a higher percentage (13.3%) of low birthweight infants compared to whites (7.3%). Blacks also have a higher percentage of very low birthweight babies (2.7%) compared to the percentage of white infants (1.2%)



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Indiana	8.3	8.2	8.5	8.3	8.3	8	8.1	7.9	7.9	8
United States	8.2	8.3	8.2	8.2	8.2	8.2	8.1	8	8	8
Healthy People 2020 Goal	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8

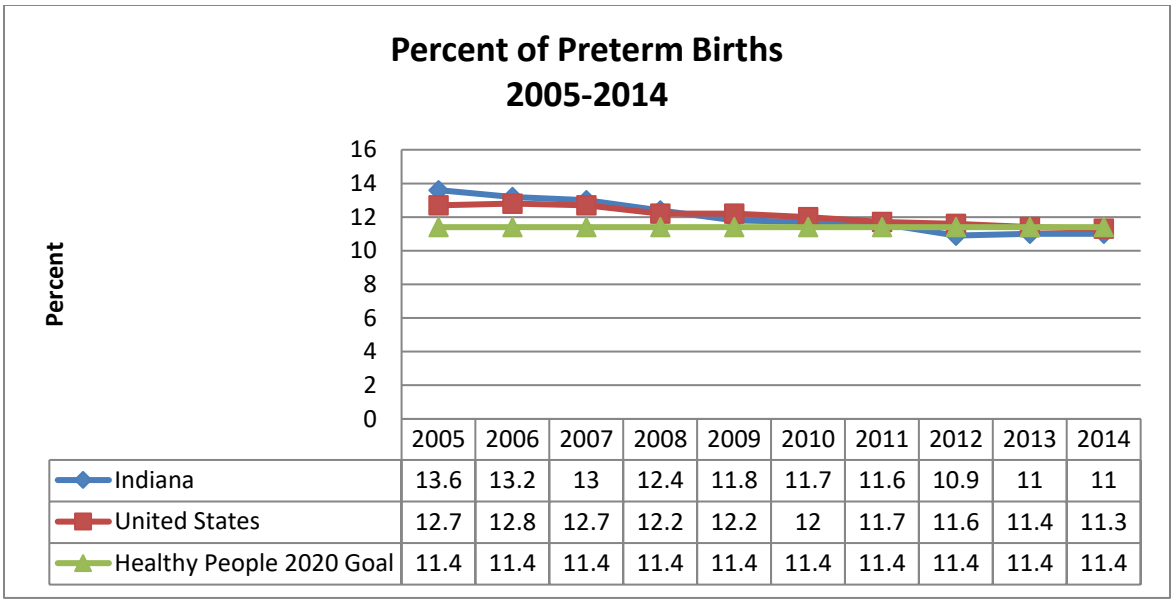
Source: Indiana State Department of Health, Maternal & Child Health Epidemiology Division [February 24, 2016]
United States Original: Centers for Disease Control and Prevention National Center for Health Statistics
Indiana Original Source: Indiana State Department of Health, PHPC, ERC, Data Analysis Team



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Indiana	1.5	1.4	1.5	1.4	1.5	1.4	1.5	1.3	1.4	1.4
United States	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.4
Healthy People 2020 Goal	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4

Source: Indiana State Department of Health, Maternal & Child Health Epidemiology Division [February 24, 2016] United States Original: Centers for Disease Control and Prevention National Center for Health Statistics

Similar to low birthweight and very low birthweight, Indiana's statistics for preterm births are similar to those of the United States and close to the Healthy People 2020 goal.



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Indiana	13.6	13.2	13	12.4	11.8	11.7	11.6	10.9	11	11
United States	12.7	12.8	12.7	12.2	12.2	12	11.7	11.6	11.4	11.3
Healthy People 2020 Goal	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4

Source: Indiana State Department of Health, Maternal & Child Health Epidemiology Division [February 24, 2016]
United States Original: Centers for Disease Control and Prevention National Center for Health Statistics

"In 2012, preterm birth affected more than 450,000 babies—that's 1 of every 9 infants born in the United States. Preterm birth is the birth of an infant before 37 weeks of pregnancy. Preterm-related causes of death together accounted for 35% of all infant deaths in 2010, more than any other single cause. Preterm birth is also a leading cause of long-term neurological disabilities in children. Preterm births cost the U.S. health care system more than $26 billion in 2005."[4]

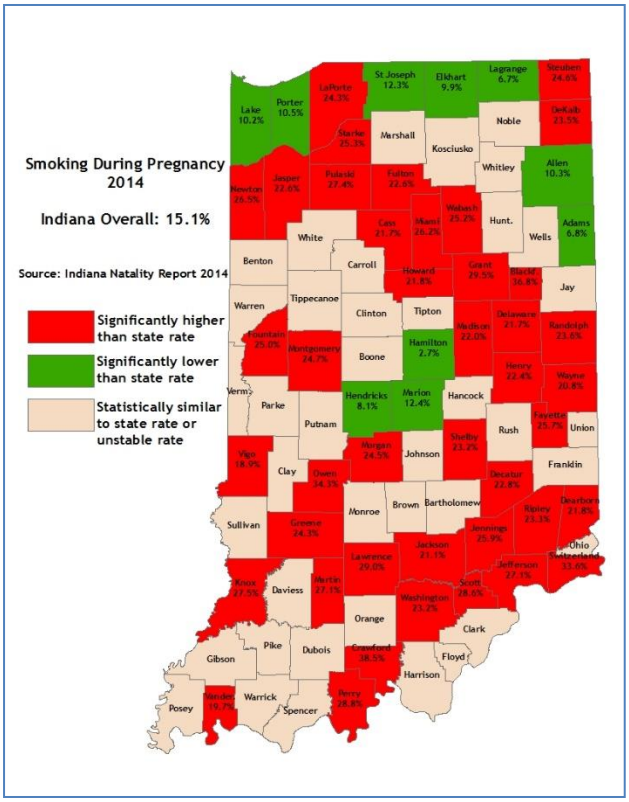
Smoking

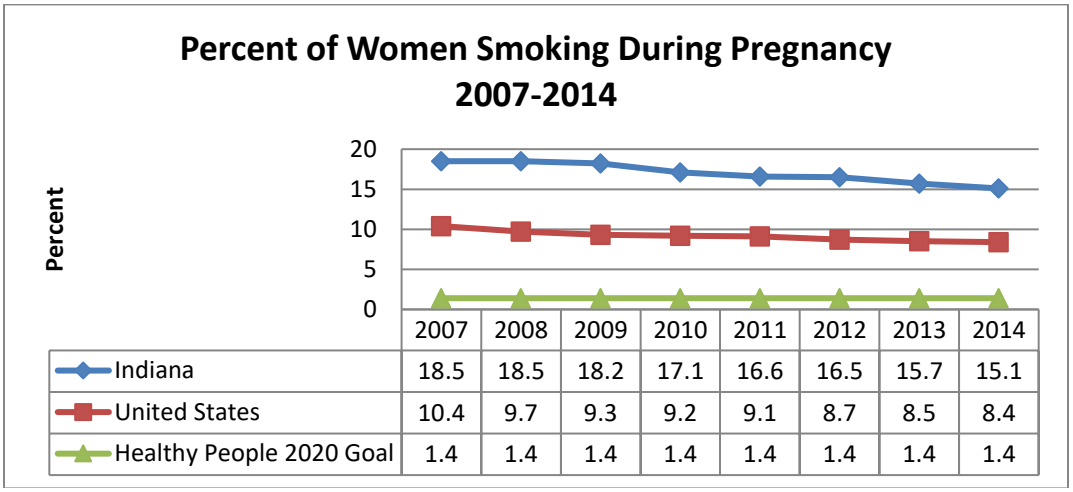
The Healthy People 2020 goal for the percentage of women who smoke during pregnancy is 1.4%. In 2014, 15.1% of women in Indiana reported they smoked during pregnancy compared to 8.4% of pregnant women in the United States. In Indiana, smoking while pregnant is predominantly a white issue. The percentage of white women who smoked was 16.4% compared to black women at 12.1%.

According to the Centers for Disease Control:

[4] http://www.cdc.gov/reproductivehealth/MaternalInfantHealth/PretermBirth.htm

- Women who smoke during pregnancy are more likely than other women to have a miscarriage;
- Smoking can cause problems with the placenta;
- Smoking during pregnancy can cause a baby to be born prematurely or to have low birthweight—making it more likely the baby will be sick and have to stay in the hospital longer;
- Smoking during and after pregnancy is a risk factor for Sudden Infant Death Syndrome (SIDS); and
- Babies born to women who smoke are more likely to have certain birth defects, like a cleft lip or cleft palate.



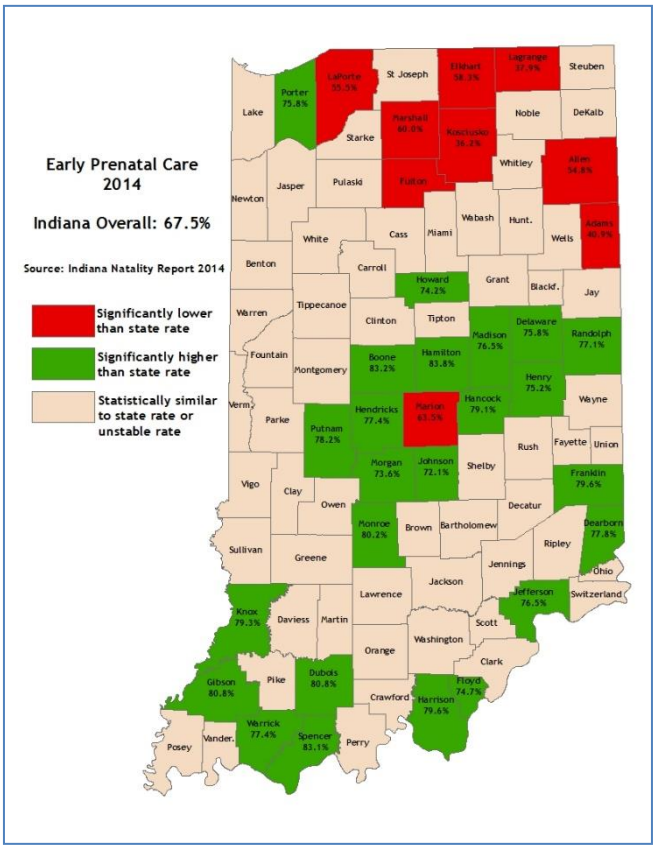


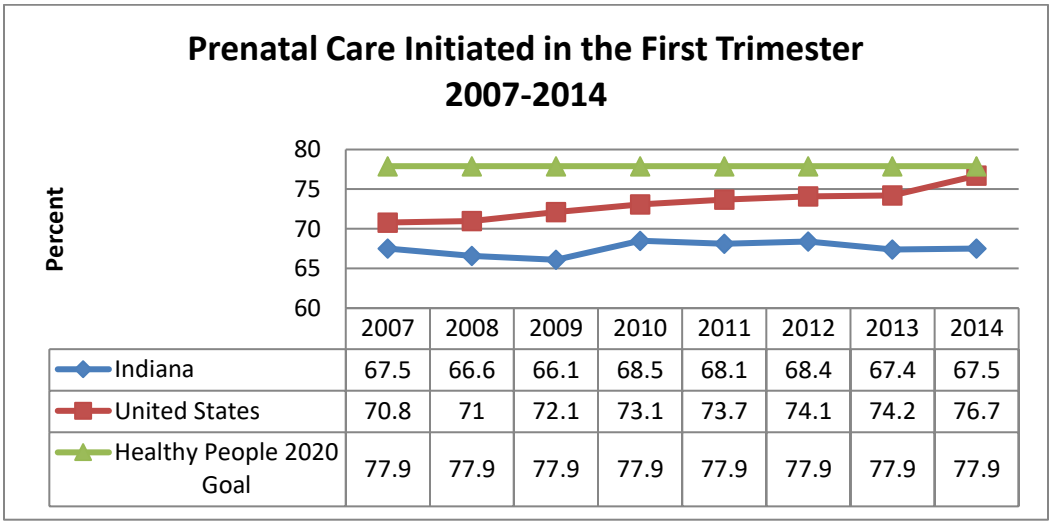
	2007	2008	2009	2010	2011	2012	2013	2014
Indiana	18.5	18.5	18.2	17.1	16.6	16.5	15.7	15.1
United States	10.4	9.7	9.3	9.2	9.1	8.7	8.5	8.4
Healthy People 2020 Goal	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4

Source: Indiana State Department of Health, Maternal & Child Health Epidemiology Division [February 24, 2016]
United States Original: Centers for Disease Control and Prevention National Center for Health Statistics
Indiana Original Source: Indiana State Department of Health, PHPC, ERC, Data Analysis Team

Prenatal Care

Another area where Indiana lags behind the rest of the country is women receiving prenatal care in the first trimester. The chart that follows documents the gap between Indiana and the rest of the country compared to the Healthy People 2020 goal. The disparity gap is significant here as well. Only 55.9% of black women received adequate prenatal care compared to white women (70.1%).



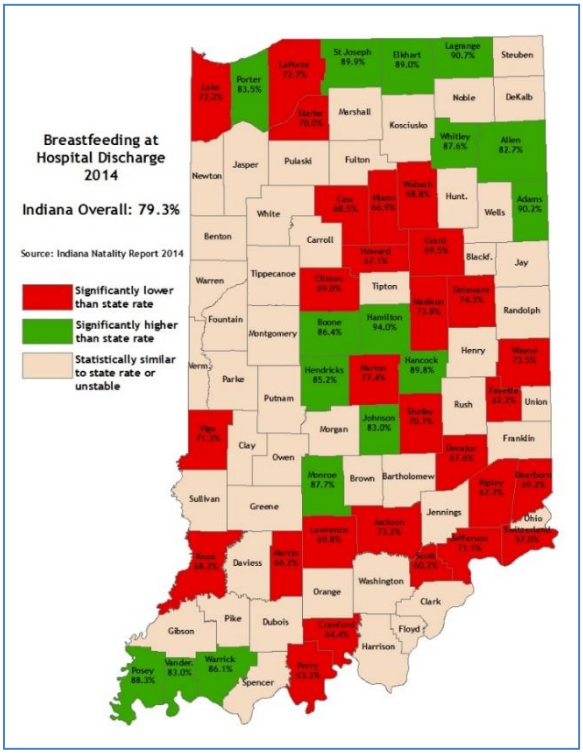


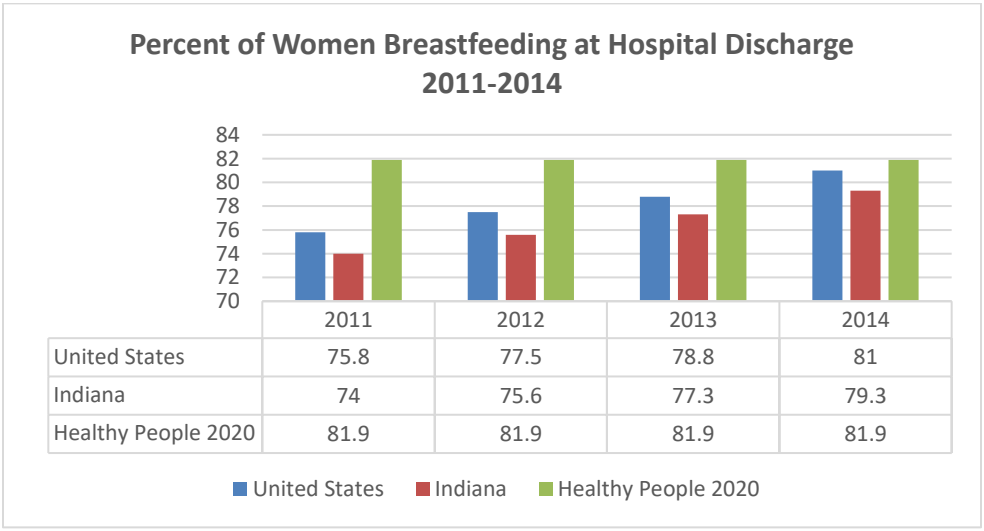
	2007	2008	2009	2010	2011	2012	2013	2014
Indiana	67.5	66.6	66.1	68.5	68.1	68.4	67.4	67.5
United States	70.8	71	72.1	73.1	73.7	74.1	74.2	76.7
Healthy People 2020 Goal	77.9	77.9	77.9	77.9	77.9	77.9	77.9	77.9

Early Prenatal Care = First Trimester
Source: Indiana State Department of Health, Maternal & Child Health Epidemiology Division [February 24, 2016]
United States Original Source: Centers for Disease Control and Prevention National Center for Health Statistics
Indiana Original Source: Indiana State Department of Health, PHPC, ERC, Data Analysis Team

Breastfeeding

An additional outcome that has research to support its efficacy in promoting healthy infants is breastfeeding. Indiana falls below the Healthy People 2020 goal of 81.9% of all women breastfeeding at discharge. Seventy-eight percent of white women were breastfeeding at discharge compared to 64.1% of black women.

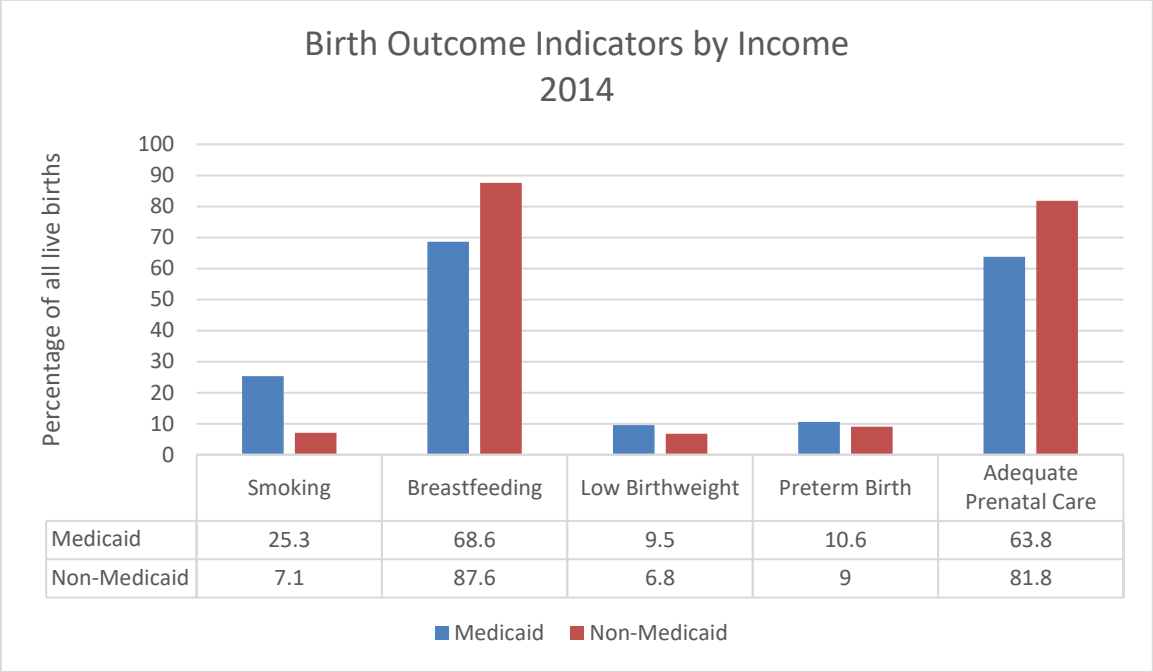


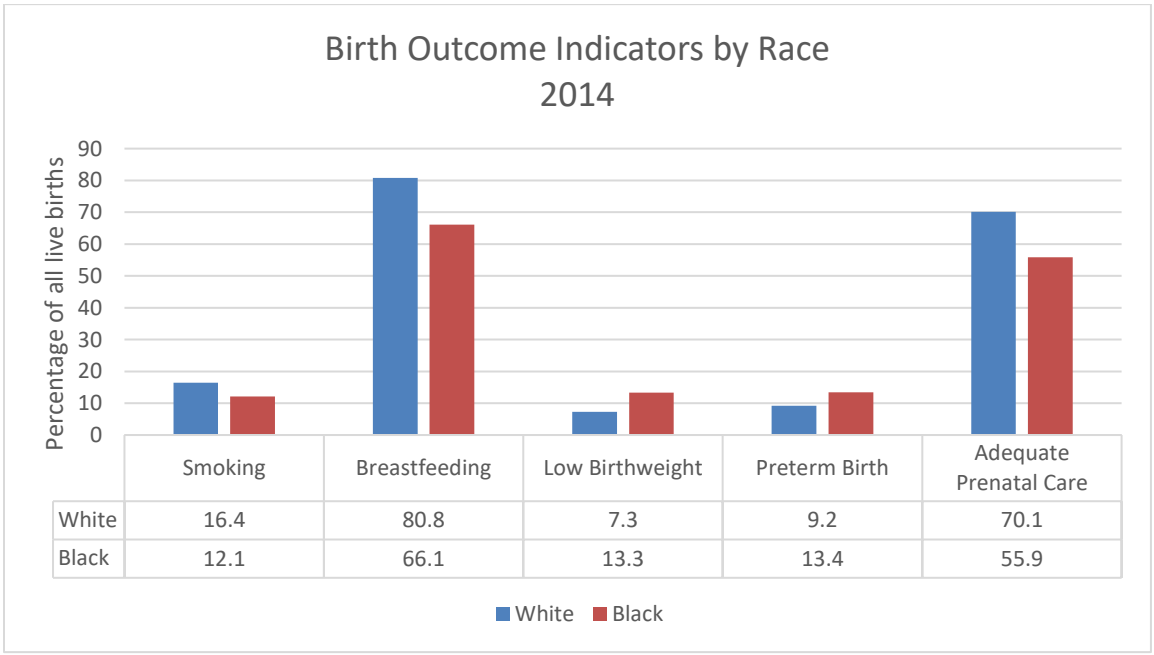


	2011	2012	2013	2014
United States	75.8	77.5	78.8	81
Indiana	74	75.6	77.3	79.3
Healthy People 2020	81.9	81.9	81.9	81.9

Source: Indiana State Department of Health, Maternal & Child Health Epidemiology Division [February 24, 2016]
United States Original Source: Centers for Disease Control and Prevention National Center for Health Statistics
Indiana Original Source: Indiana State Department of Health, PHPC, ERC, Data Analysis Team

The following tables summarize birth outcomes by race, income, maternal education, maternal age, geography and employment status.





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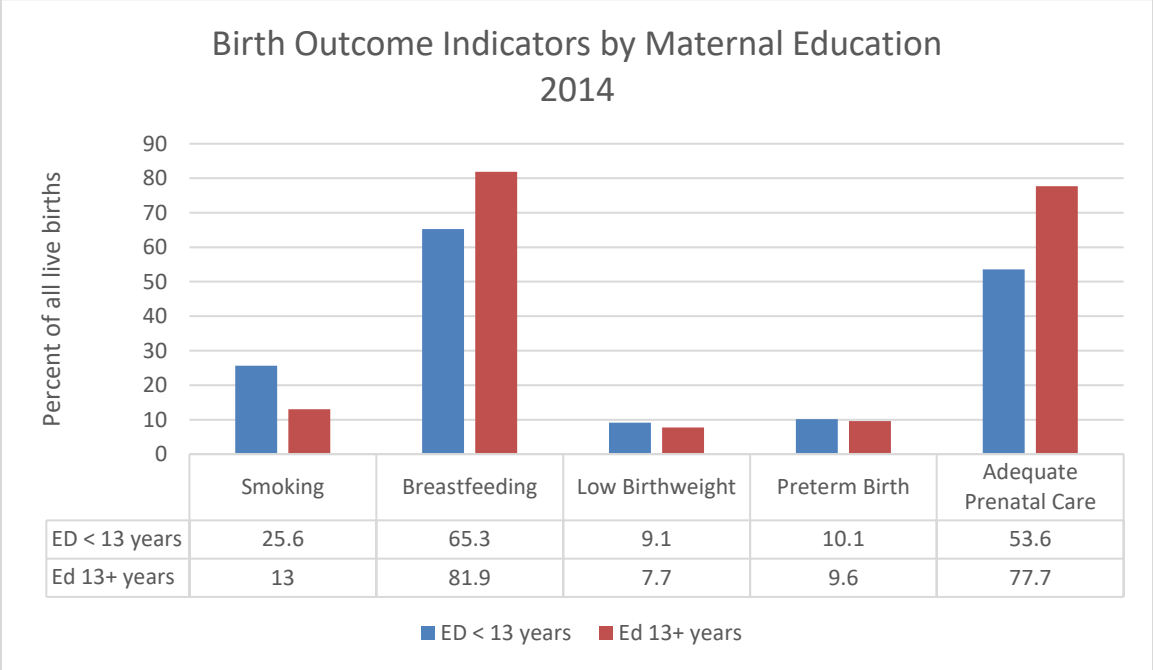
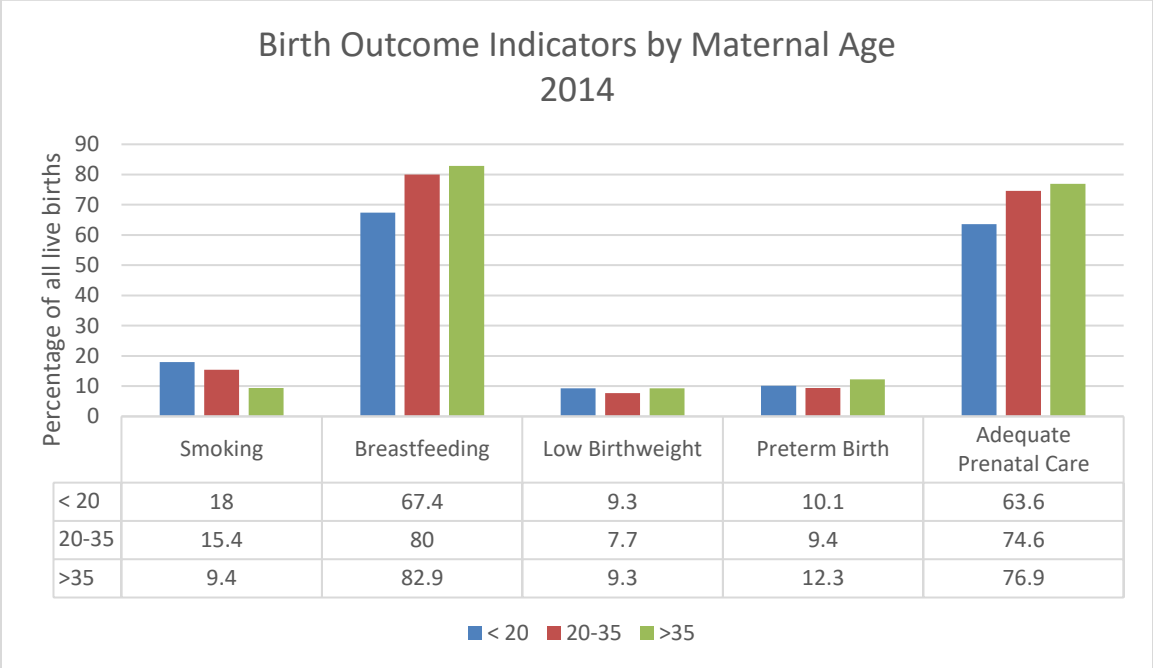


Source: Indiana State Department of Health, Maternal & Child Health Epidemiology Division [June 28, 2017]
Indiana Original Source: Indiana State Department of Health, PHPC, ERC, Data Analysis Team



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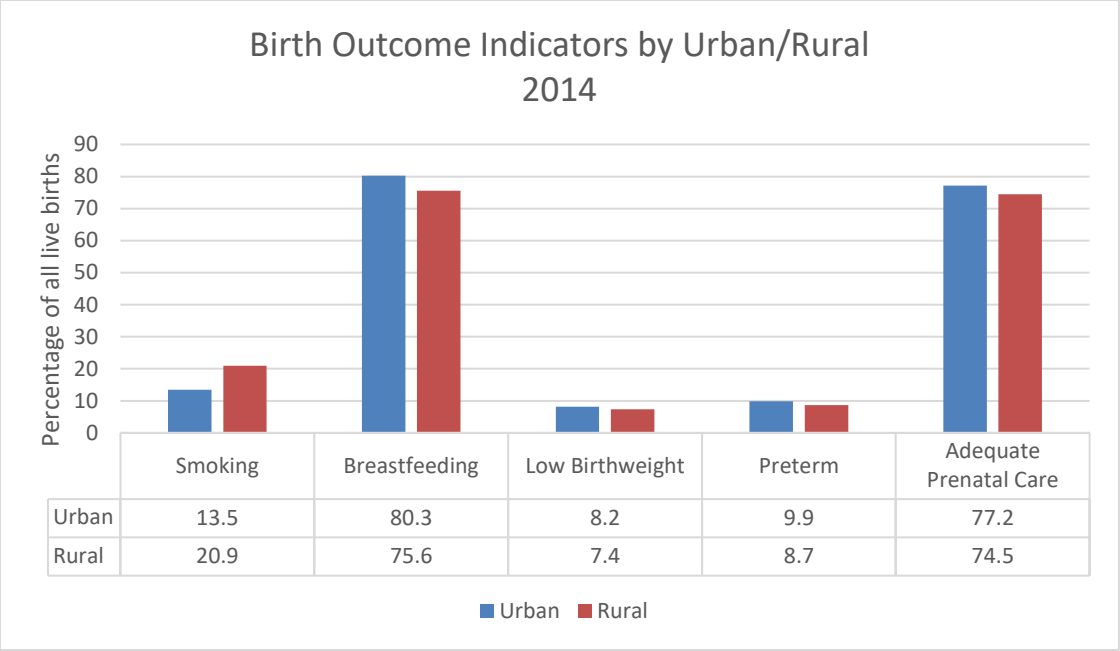

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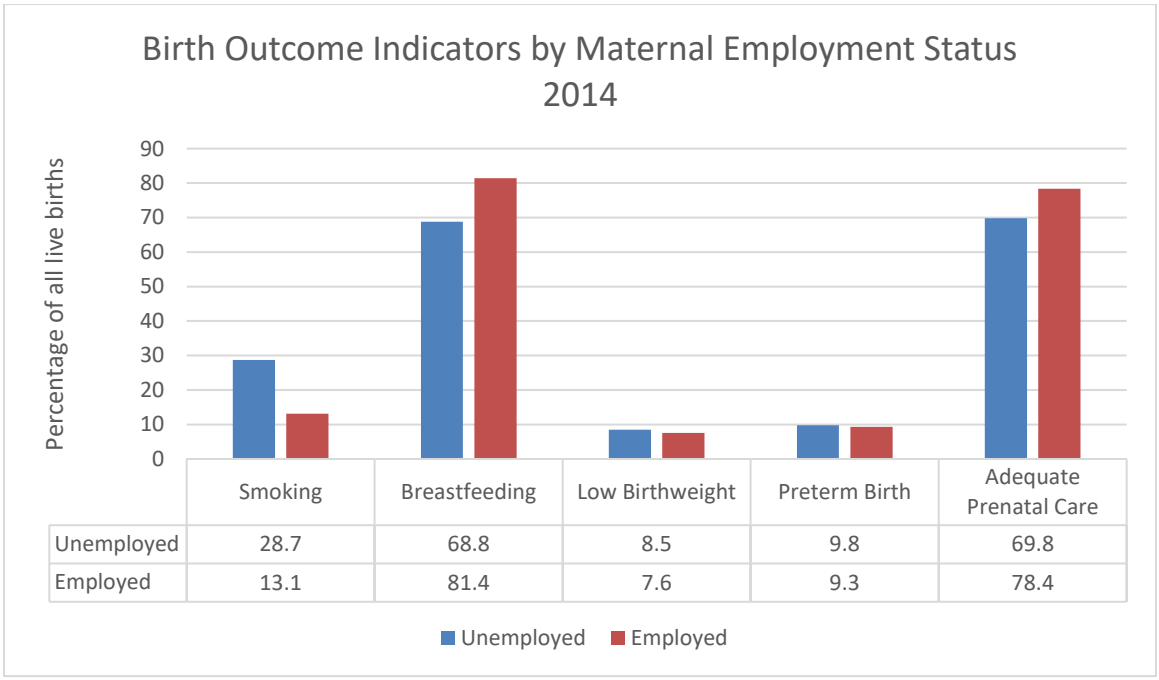
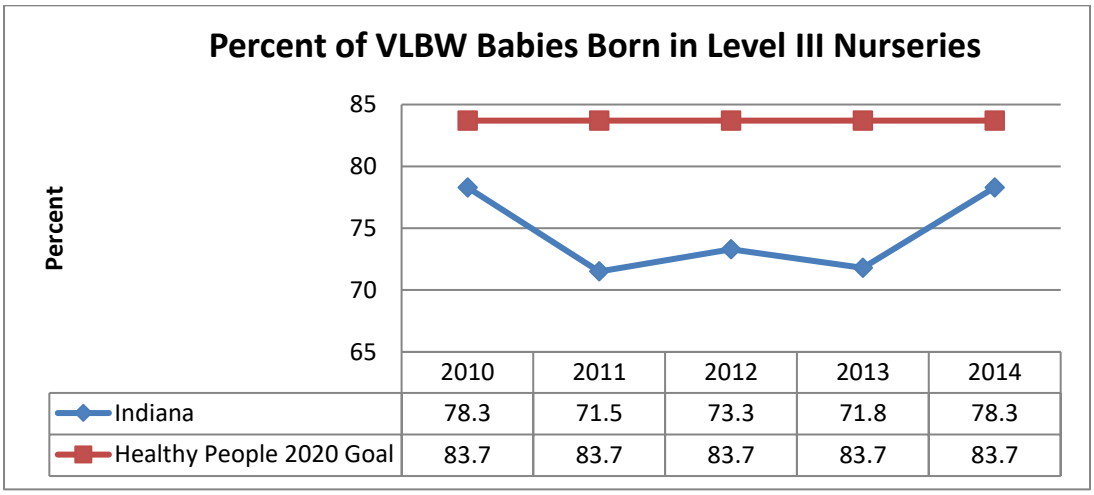


Source: Indiana State Department of Health, Maternal & Child Health Epidemiology Division [June 28, 2017]
Indiana Original Source: Indiana State Department of Health, PHPC, ERC, Data Analysis Team

Published literature has stated that one factor in reducing infant mortality is for the highest risk babies to be born in hospitals with the appropriate level of support. "The most common modifiable factor associated with mortality was delivery at a Center without an appropriate level of support."[5] The policy statement on Levels of Care developed by the American Academy of Pediatrics Committee on the Fetus and Newborn states "Facilities that provide hospital care for newborn infants should be classified on the basis of functional capabilities, and these facilities should be organized within a regionalized system of perinatal care."[6]

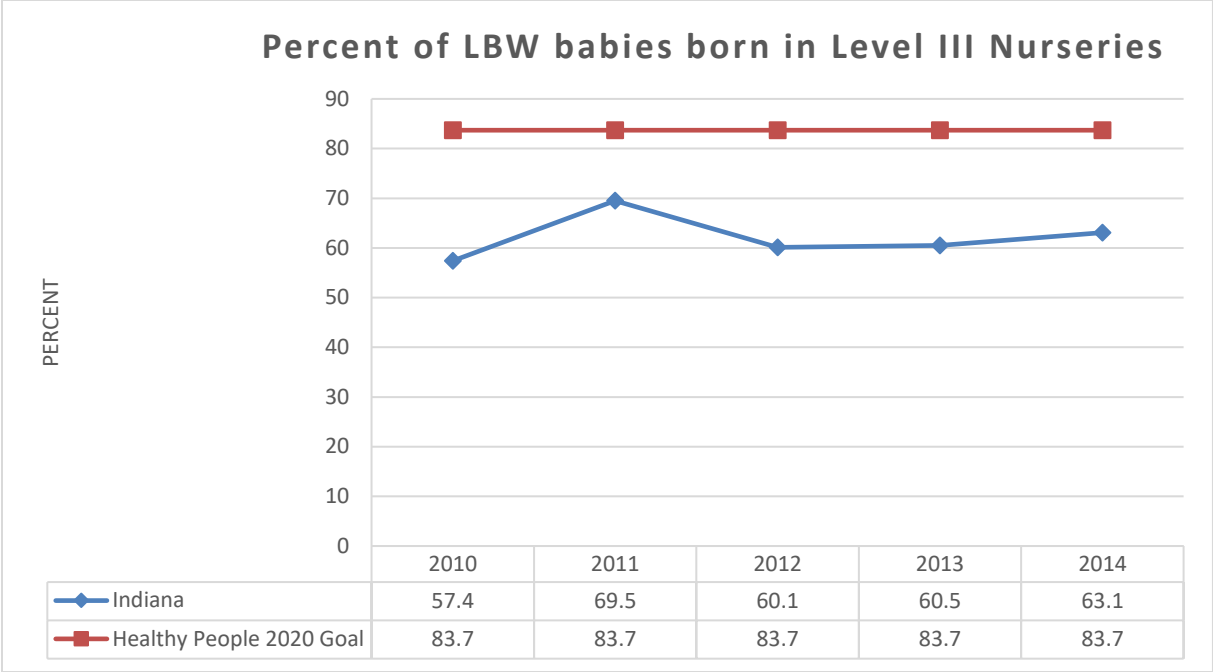
Indiana is developing regulations and a process for designating perinatal levels of care for delivering hospitals that are in compliance with the national recommendations. The charts below document the percentage of Very Low Birthweight and Low Birthweight babies who were born in self-declared Level III nurseries. While it is unrealistic to think that 100% of these babies would be born in Level III nurseries, Indiana remains below, for both VLBW and LBW, the Healthy People 2020 Goal of 83.7%.



	2010	2011	2012	2013	2014
Indiana	78.3	71.5	73.3	71.8	78.3
Healthy People 2020 Goal	83.7	83.7	83.7	83.7	83.7

Source: Indiana State Department of Health, Maternal & Child Health Epidemiology Division (February 24, 2016)
United States Original Source: Centers for Disease Control and Prevention National Center for Health Statistics
Indiana Original Source: Indiana State Department of Health, PHP, ERC, Data Analysis Team

[5] Pediatrics Vol 135, number 1, January 2015
[6] Pediatrics 2012;130:587–597



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United States Original Source: Centers for Disease Control and Prevention National Center for Health Statistics
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Indiana Perinatal Quality Improvement Collaborative

The vision of IPQIC is threefold:

- All perinatal care providers and all hospitals have an important role to play in assuring all babies born in Indiana have the best start in life.
- All babies in Indiana will be born when the time is right for both the mother and the baby.
- Through a collaborative effort, all women of childbearing age will receive risk appropriate health care before, during and after pregnancy.

In the fourth year of activity, the IPQIC Governing Council and its committees (Education, Finance, Perinatal Substance Use, System Infrastructure and Quality Improvement) committed significant resources to addressing the issues of infant mortality and morbidity. Building on the activities initiated in 2015, several major products were developed to support improving perinatal practice and infrastructure.

From PPOR to BABIES .....and beyond

In January 2016, the IPQIC Governing Council was host to a world expert in infant mortality. **Dr. Brian J. McCarthy**, MD, MSc, holds adjunct professor positions at both Notre Dame's Eck Institute for Global Health and the Emory University Rollins School of Public Health in the Global Collaborating Center in Reproductive Health. His 22-year career included the World Health Organization Collaborating Center in Reproductive Health (WHO/CC/RH) in the Division of Reproductive Health at CDC, developing methods to improve maternal and perinatal health information systems, performing in-country MCH needs assessments and program evaluations for United Nations agencies, carrying out health service research, and conducting MCH epidemiologic and management workshops to develop the local level capacity in these topics.

With the support of the ISDH/MCH epidemiologists, Dr. McCarthy provided an overview of the history of infant mortality data analysis, the progression of knowledge and informed decision-making.

Dr. McCarthy challenged the Council to explore all available data and to be open to in-depth analysis from a variety of methodologies to ensure that funding and interventions are driven by the data. Much of the analyses that he encouraged has in fact been conducted by ISDH and the MCH epidemiologists.

Decreasing Sudden Unexplained Infant Deaths (SUIDs)

In May 2016, the Quality Improvement (QI) Committee of the Indiana Perinatal Quality Improvement Collaborative reviewed results of the Maternal Child Health (MCH) Epidemiology Section's Perinatal Periods of Risk (PPOR) analysis and 2013 Indiana Vital Statistics data. The 2011 PPOR analysis showed that Sudden Infant Death Syndrome (SIDS) and other Sudden Unexpected Infant Deaths (SUIDs) accounted for just under half of the excess mortality that occurred in the post-neonatal period to infants that were born >= to 1500 grams. Black race significantly doubled the odds of having a SIDS/SUIDs death. SIDS and suffocation (in bed) made up the majority of SUIDs deaths. Sleep environment and positioning played a large ***preventable*** role in the number of SUIDs deaths.

Results of the PPOR analysis indicated that preventions efforts would be most effective if geared toward methods to reduce the number of Very Low Birth Weight births and SIDS/suffocation deaths. The majority of risk factors and outcome rates are higher among Non-Hispanic Blacks; however, Non-Hispanic Whites should also be targeted for specific risk factors of interest, such as cigarette smoking, due to the larger population numbers.

Data from 2013 and 2014 showed continued high rates of Sudden Unexpected Infant Deaths (SUIDs). SUIDs accounted for 14% of infant deaths in 2013 and 14.4% in 2014.

The Quality Improvement Committee conducted a survey among 90 Indiana hospitals. With an almost 40% response rate, survey findings and hospital policy review identified that infant safe sleep policies among Indiana hospitals demonstrate three areas for

improvement: 1) variation exists among Indiana hospital infant safe sleep practices; 2) opportunities are present to develop standardized processes and to spread best practice recommendations; and 3) external partnerships should be cultivated using consistent SUID prevention messaging,

There have been and still are many individuals, groups, and organizations trying to reduce SUIDs and SIDS in Indiana. Funding and support for these initiatives has waxed and waned. In Indiana, there have been several thousand cribs given away, but results have not been documented and death rates from SUID, particularly accidental suffocation and strangulation in bed, continue to rise. Although Indiana has made multiple efforts to decrease SUID and SIDS, there has not been a statewide effort with consistent messaging among all concerned parties.

Having reviewed the relevant data, the committee, led by Annette Handy and Dr. Nancy Swigonski, identified three primary drivers: Certification /coding, hospital safe sleep practices and community outreach and primary care practice. These drivers were used to divide into three Safe Sleep task forces. The Subcommittee agreed on the following overall AIM Statement:

Decrease Indiana's 5 year (2009-2013) SUIDs rate from 87.12 per 100,000 live births by 20% (to 69.72 per 100,000 live births) by the year 2018.

Three recommendations came out of the committee's work:

1) Adopt a statewide safe sleep campaign utilizing the ABC's of safe sleep ("**A**ll by myself, on my **B**ack, in my **C**rib") with a simple, consistent and wide spread message across the life course continuum from pregnancy care (pre-natal to partum to postpartum) to community care (parental care to early childhood care to primary care).
2) Encourage all Indiana hospitals caring for infants, defined as 12 months or younger, to adopt the model safe sleep policy template.

3) The ISDH Fetal, Infant and Child Death Review and Safe Sleep Program should continue its infrastructure work that is necessary for collecting consistent and accurate SUID baseline data and evaluation of programmatic interventions.

The Governing Council unanimously adopted the report on May 24, 2016. The report can be accessed at http://www.in.gov/laboroflove/files/decreasing-sudden-unexpected-infant-deaths-in-indiana.pdf

Perinatal Substance Use

In 2016, four hospitals began the implementation of the protocol, developed in 2015, for identification of substance exposed newborns. The hospitals are:

- Schneck Hospital (Seymour)
- Hendricks Regional Hospital (Danville)
- Columbus Regional Hospital (Columbus)
- Community East Hospital (Indianapolis)

The pilot hospitals were provided with a set of draft materials for consumers in both Spanish and English. The materials include:

- Information brochure for pregnant women with known substance use;
- Information brochure for pregnant women with no known substance use; and
- A family guide for taking home a baby with NAS.

All educational materials can be found under perinatal substance use at: http://www.in.gov/laboroflove/762.htm

Materials developed for the hospitals and providers included:

- An overview of the pilot process;
- A treatment protocol guide; and
- A sample informed consent document that can be modified for each institution's requirements.

At the end of the first six months, the hospitals agreed that there were no changes necessary in the materials or the protocol. Screening data and lab results were monitored

monthly. By the end of 2016, 770 babies across the four hospitals were screened and 311 of them tested positive for substance exposure. Because universal screening of newborns is not mandated, these numbers do not reflect all births that occurred in the four hospitals.

In the fall, ISDH agreed to open the process to additional hospitals who expressed an interest in implementing the protocol. ISDH anticipated that an additional 4-5 hospitals would respond. However, 24 hospitals responded to the invitation and an additional 22 hospitals will join the effort in 2017 to identify and support pregnant women and their newborns with substance use issues.

Perinatal Transport Conference

In May, the Transport Subcommittee of the System Infrastructure Committee held the first annual Perinatal Transport Conference. As a component of the efforts of ISDH to support risk-appropriate care for all pregnant women and their newborns, the Transport Subcommittee focused on improving the perinatal infrastructure through interfacility perinatal transfers. A transport survey conducted in 2013 documented the variability across hospitals and the need for increased standardization for safe and coordinated transfer of care.

Ninety-five medical professionals registered for this first conference. Keynote Speakers included:

- ***Linda A. Meiner, MSN, RNC-NIC:*** *Ms Meiner is the Clinical Manager of Perinatal/Pediatric Services amd CAMTS Accreditation Coordinator for PHI Air Medical Group in Phoenix Arizona. Ms. Meiner has an extensive work history as a Neonatal Flight Nurse, Supervisor and Manager of Perinatal Flight Services and a Supervisor of CQI and Research.*
- ***Michael T. Bigham, MD, FAAP, FCCM:*** *Dr. Bigham is a Pediatric Critical Care Physician at Akron Children's Hospital. Dr. Bigham serves as Medical Director of the Transport Services where he oversees the transport of over 3,000 ground and helicopter transports annually. Dr. Bigham is the co-founder of the Ground and Air Medical Quality Transport (GAMUT) Database which is the largest international repository of quality performance metrics for neonatal/pediatric/adult critical care transport.*

The transport conference was well-received and will become an annual conference.

Long-Acting Reversible Contraception (LARC)

In June 2015, the Indiana Health Coverage Programs (IHCP) modified its payment policy to allow separate reimbursement (outside the global fee for delivery) of long-acting reversible contraception (LARC) devices implanted during an inpatient hospital or birthing center stay for a delivery. This change in IHCP policy removed a substantial barrier to providing LARC services to women in the immediate postpartum period, enabling new mothers to choose and initiate highly effective methods of contraception in a timely manner. Successful hospital implementation of this policy involves changes in prenatal care counseling, educational outreach on billing and pharmacy procedures, and patient care during the hospital stay, requiring a coordinated effort among multiple hospital departments and with payers (insurers). However, other barriers to LARC services were identified: Those barriers included:

- Lack of provider awareness of current practice guidelines, improvements in current devices and insertion procedures;
- Insufficient comprehensive patient counseling on the safety and effectiveness of LARCs;
- High-end costs for stocking the device (e.g. through the Affordable Care Act and Medicaid);
- Clinical protocols that do not permit postpartum insertions and single-visit outpatient insertions; and
- Misperceptions and myths regarding safety, side effects and usefulness of LARCs.

As a result, in 2016 a multidisciplinary group of medical providers and administrators developed a toolkit to address these barriers in Indiana. The toolkit can be found at http://www.in.gov/laboroflove/files/larc-tool-kit-w-appendices.pdf and is designed to be used in whole or specific elements can be printed individually for medical practitioners and/or patients to use.

Additional ISDH Infant Mortality and Morbidity Initiatives

PRAMS

In 2016, ISDH was also awarded CDC funding to initiate the Pregnancy Risk Assessment Monitoring System (PRAMS) for the first time since 1996. This will provide data around pregnancy related behaviors and will specifically provide the ability to support, monitor, and evaluate the ongoing ISDH/IPQIC work around the issue of SUIDs and NAS in Indiana. Additionally PRAMS will stratify by race in an effort to understand maternal attitudes, behaviors, and expectations immediately before, during and in the months after delivery. With a close alignment of quality data and program planning, addressing disparities will be a constant focus.

An exciting addition to inform our injury prevention programming is that Indiana has returned to the Pregnancy Risk Assessment Monitoring Survey (PRAMS) after a 20-year hiatus. Initiatives such as car seat usage, bed sharing and sleep positioning, interpersonal violence in the home, and substance use, to name a few will be able to be tailored to address the needs based on the experiences, attitudes and behaviors that women report in the survey. These key initiatives related to trauma and injury prevention require a nuanced understanding of how our current education initiatives, (Cribs for Kids, car seat installation programs, etc.) intersect with intentions to affect outcomes.

Indiana Birth Defects and Problems Registry -ZIKA

The Indiana Birth Defects and Problems Registry (IBDPR) is a population-based surveillance system established in 1986 (IC-16-4-10-6) to monitor incidence rates for conditions impacting fetal, infant and child health. The goal of surveillance through IBDPR is to develop public health initiatives for increased awareness, population education, and risk reduction for disease prevention. Currently, IBDPR collects data on 49 reportable conditions, 47 designated nationally by the CDC as well as Autism Spectrum Disorders and Fetal Alcohol Syndrome.

Currently, data is collected retrospectively through a web-based application directly to the IBDPR. Hospitals submit discharge data through the web-based application which is audited for accuracy and completion by an ISDH employee. Physicians report directly to the IBDPR using the Physician Reporting System when a birth defect is identified. As well, data is collected through newborn screening for defects identifiable at birth.

Future intentions of the IBDPR are, while operating under the ISDH Genomics and Newborn Screening, to develop a birth defect follow-up program operating in real-time connecting families with resources, services and providers with the goal of improving quality of life. Currently, de-identified data is utilized to fuel public health initiatives in order to increase awareness and provide education regarding quality of life, disease risk factors and preventative measures.

Infant Mortality Summit

ISDH created an IPQIC subcommittee focused on addressing health disparities related to infant mortality. The 2015 Labor of Love Infant Mortality Summit's theme was on disparities, bringing attention to the Black infant mortality rate and the social determinants of health that contribute to these high numbers.

In October 2016, ISDH hosted the fourth Infant Mortality Summit with a focus on the importance of partnerships (more information found at http://www.infantmortalitysummit-indiana.org/). Keynote speakers were Dr. Kyle Pruett, expert on child and family development specializing in the role of men as fathers; Ryan Adcock, Executive Director of Cradle Cincinnati Infant Mortality Campaign; Troy Riggs, Chief of the Indianapolis Metropolitan Police Department and nationally recognized leader in the field of public safety; and Dr. Jocelyn Elders, the former Surgeon General.

Breastfeeding Conference

Along with the Office of Women's Health, MCH works closely with their leadership team and efforts to reduce interpersonal domestic violence. Trauma-informed care has been a

special focus of attention, most notably with education and speakers at the Office of Women's Health February 2016 Breastfeeding Conference.

Levels of Care

The ISDH in partnership with the Indiana Perinatal Quality Improvement Collaborative (IPQIC) has been working to develop regulations and a process for designating perinatal levels of care that are in compliance with national recommendations. The vision of IPQIC is threefold: (1) All perinatal care providers and all hospitals have an important role to play in assuring all babies born in Indiana have the best start in life; (2) all babies in Indiana will be born when the time is right for both the mother and baby; (3) and through a collaborative effort, all women of childbearing age will receive risk appropriate health care before, during and after pregnancy. There are over two hundred active members of IPQIC working on a wide range of projects through five core committees including: Education, Quality Improvement, Perinatal Systems Infrastructure, Perinatal Substance Use and Finance, each with multiple ad hoc workgroups.

Indiana continues to develop guidelines and a process for designating levels of care that are in compliance with the national recommendations. While it is unrealistic to expect that 100% of very low birth weight babies would be born in level III nurseries, Indiana continues to focus on increasing the percentage as the state is significantly below the Healthy People 2020 goal of 83.7%.

During the gap analysis surveys for Indiana Perinatal Hospital Standards, hospital lactation support was the most prevalent gap across all levels of care and across the state. A significant barrier to hospitals is training and adequate amounts of specialized support. In 2017, ISDH will establish a scholarship program with Healthy Children to train at least 30 nurses or physicians to become Certified Lactation Counselors (CLC's). The ideal recipient works in a level I or level II hospital with little or no lactation support program, but anyone interested will be encouraged to apply. These CLCs will return to their community to educate families, nurses and providers.

MOMS Helpline Rebrand

Launched on March 1, 2016, our rebranded MCH MOMS Helpline (formerly known as the Family Helpline) connects mothers and pregnant women with a network of prenatal and child health care services within local communities, state agencies and health care organizations around the state. These include: providing site locations for free pregnancy tests, facilitating Presumptive Eligibility for Medicaid, linking mothers to qualifying clinicians for themselves and their infants, social service resources and referrals, home visiting options, and aiding with transportation. With the newly awarded Early Childhood Comprehensive Systems (ECCS) grant, the Helpline will expand to providing developmental screening for mothers with perinatal mood disorder symptoms, and will be the call center for the evidence-based Help Me Grow model, enhancing the conduit of services even further. The Helpline has regular hours (Monday – Friday from 7:30am – 5:00pm) with voicemail outside of regular hours. Spanish-speaking specialists are available. MCH intends to integrate the data received from the Helpline to identify gaps in services throughout the state and will be instrumental in connecting services to high-need areas that might have otherwise gone unnoticed.

ECCS

In July 2016, Indiana was awarded a competitive grant from the Maternal and Child Health Bureau for funding for the Early Childhood Comprehensive Systems (ECCS) Program to mitigate the toxic stress experienced by young children throughout the state. Indiana proposed to build on existing resources to create a coordinated training model that cuts across disciplines and links systems in order to achieve a sustainable system of evidence based and informed supports and treatment services for infant and young children and their families that have experienced trauma or that are at risk for trauma.

Safety Pin

The Maternal & Child Health program received a new State fund, Safety PIN (Protecting Indiana Newborns), to provide grants to Indiana communities and organizations to address infant mortality. ISDH released this funding opportunity announcement in spring 2016 in

an effort to fund innovative programming that will move the needle on reducing infant mortality.

Next Steps

Indiana has a unique opportunity in 2017 and beyond to build on the work that has been accomplished to date. While there have been significant efforts to address infant mortality and morbidity, Indiana has far to go to improve outcomes for mothers and babies. While the initiatives described in this report have been designed to reduce poor outcomes, Indiana remains in the bottom 10 states in infant mortality rates.

The generosity of volunteers is amazing. With the commitment of their time and expertise, along with marshalling available resources and focusing on the identified outcomes, Indiana can look forward to improved perinatal outcomes and “making mothers and babies count in Indiana".

Appendix A: IPQIC Membership

Governing Council Membership		
Jerome	Adams, MD*	ISDH Commissioner
Douglas	Leonard*	Indiana Hospital Association
Ann	Alley	ISDH - Office of Primary Care
Martha	Allen	ISDH - Maternal and Child Health
Jarnell	Burks-Craig	Indiana Minority Health Coalition
Melissa	Cervantes	Indiana Latino Institute
Susan	Elsworth	Consumer, Central IN NOFAS
Bill	Engle, MD	IU School of Medicine
Cindy	Gil	IUPUI – Office of Engagement
Paul	Halvorson	IU School of Public Health
Kitty	Herndon	IN AWHONN
Julia	Hogan	Indiana Perinatal Network
Don	Kelso	Indiana Rural Health Association
Paula	Means	Tabernacle Presbyterian
James	McIntire	IN State Medical Association
Phil	Morphew	IN Primary Health Care Association
Joe	Moser	FSSA Office of Medicaid Policy and Planning
Risheet	Patel, MD	IN Academy of Family Physicians
Stephen	Robertson	IN Department of Insurance
Kimberly	Roop, MD	Anthem Medicaid
Michelle	Saysana, MD	Indianapolis Coalition for Patient Safety
Jeena	Siela	March of Dimes
James	Sumners, MD	IN ACOG
Nancy	Swigonski, MD	IN Academy of Pediatrics
Calvin	Thomas	Ivy Tech
*	Co-Chair	

System Implementation Committee		
Farrah	Allen	St. Mary's Medical Center
Deb	Beynon	St. Vincent Women and Children
Mary	Blackburn, CNM,MSN	HealthNet Women's Services & Midwifery
Win	Boon, MD	Parkview Hospital
Kristina	Box, MD	Community Health Network
Niceta	Bradburn, MD *	St. Vincent Hospital
Patti	Brahe	Parkview Hospital
James	Cameron, MD	Northern IN Neonatal Associates
Krista	Collings	St. Vincent Women and Children
John	Clark	International Board of Specialty Certification
Anne	Coleman	St. Vincent Women and Children
Joan	Culver	Franciscan Alliance
Jennifer	Culler, RNC	Dupont Hospital
Jenny	Davis	St. Mary's Hospital
Maria	Del Rio Hoover, MD	St. Mary's Neonatal Clinic
Dana	Flueher	IU Ball Memorial
Donetta	Gee Weiler	Community Health Network
Suzanne	Grannan, MD	Community Health Network
Laura	Green	Lutheran Hospital
Marissa	Kiefer	IU Health/Riley
Janet	Leezer, MD	Northern IN Neonatal Associates
Ann	McCutchen	IU Health Lifeline
Elizabeth	McIntire, MSN, WHNP	IU Health/Riley
Michelle	Musgrave	St. Mary's Hospital
Lori	Norton	Parkview Hospital
Krista	Peak	Lutheran Children's Hospital
Carrie	Renschen	Franciscan St. Anthony

System Implementation Committee		
Christine	Riley, MD	St. Mary's Hospital
Emily	Roberts	IU Health
Chris	Ryan	The Women's Hospital
Renata	Sawyer, MD	Memorial Hospital, South Bend
Patty	Scherle	Jasper Memorial
Frank	Schubert, MD*	IU Health
Jessica	Shuppert	Beacon Health Systems
Jeena	Siela	March of Dimes
Lisa	Stringer	St. Vincent Women and Children
Michael	Trautman, MD	Indiana University
Marsha	Wetzel	ISDH
Robert	White, MD	Pediatrix Medical Group
Sharon	Worden	St. Vincent Women's Hospital
*	Co-Chair	

Quality Improvement - SUIDS Committee		
Lisa	Barker	ISCTB
Sharon	Berry	Pulaski Memorial Hospital
Kara	Casavan	IU School of Medicine
John	Cavanaugh	Pathologist
Carla	Chance	IPHCA
Melissa	Ciszczon	IACCRR
Joan	Culver	Franciscan Alliance
Kelly	Cunningham	ISDH
Paris	Curtis	Indiana Black Breastfeeding
Amy	Eberle	Marion General Hospital
Sharolyn	Faurote	Adams Memorial Hospital
Dana	Fluhler	IU Health Ball

Quality Improvement - SUIDS Committee		
Lauren	George	Child Care Answers
Tony	GiaQuinta	Hendricks Regional Health
Deb	Givan, MD	IU Health
Debra	Gloyd	Margaret Mary Community Hospital
Lori	Grimm	The Women's Hospital
Kendra	Ham	ISDH
Annette*	Handy	Indiana Hospital Association
Heather	Henry	Parkview Hospital
Robert	Herr	Bedford PD
Barb	Himes	First Candle
Kim	Hodges	IU Health Maternity Center
Cindy	Hoess	Community Healthnet
Julia	Hogan	IPN
Fausta	Houzanme	ISDH
Teresa	Hutton	Green County General Hospital
Barb	Johnson	Retired IU Child protection
Connie	Kerrigan	Parkview Hospital
Marissa	Kiefer	Riley Hospital
Cynthia	Smith	DCS
Lola	King	Special Projects MCPHD
Kirk	Koon	Dad
Angela	Larkin	Local WIC
Sarah	Long	Milk Bank
Christina	Lopez	Methodist Hospitals
Gretchen*	Martin	ISDH
Phil	Morphew	IN Primary Health Care Association
Doris	Muriathiri	IU School of Medicine
Elizabeth	Peyton	ISDH/WIC

Quality Improvement - SUIDS Committee		
Mary	Puntillo	Community Hospital Munster
Maria	Reisenauer	Nurse Family Partnership
Anne	Reynolds	ISDH
Emily	Roberts	IU Methodist
Katelin	Ryan	Tobacco Cessation
Kim	Sausman	Methodist Hospitals Northlake
Michele	Saysana	Riley Hospital
Kim	Schneider, MD	Riley Hospital
Emily	Scott, MD	IU Health Methodist
Michie	Sebree	Neophyte
Nancy*	Swigonski, MD	Children's Health Services Research
Joy	Usigbe	Indianapolis Healthy Start
Lee-Ann	Weber-Hatch	Northwest Indiana Healthy Start
Phil	Zahm	Indiana Coroner's Assn
*	Co-chair	

Disparities Committee		
Lynn	Baldwin	Goodwill Industries
Tatiana	Alvarez	DCS
Victoria	Ballard	Indianapolis Healthy Start
Yvonne	Beasley	Marion Co Department of Health
Mary	Black	Raphael Health Center
Lindsey	Bryant	NAMI
Laura	Chavez	ISDH
Jessica	Craig	Marion Co Department of Health
Lisa	Crane	Goodwill Industries
Kelly	Cunningham	ISDH

Disparities Committee		
Kiahna	Davis	Alpha Kappa Alpha
Morella	Dominguez	Shalom Health Center
Susan	Elsworth	IN Title V Family Delegate
Toni	Elzy	DCS
Kelsey	Gurganus	ISDH – MCH
Kendra	Ham	ISDH – MCH
Doris	Higgins	Covering Kids & Families
Jenni	Hill	IN Rural Health Association
Antoniette	Holt	ISDH
Hannah	King	MHIN
Keisha	Knight	IN Dept. of Corrections- Wee One's Nursery
Tracy	Lewis	Lake County Minority Health Coalition
Joanne	Martin	Goodwill Industries / NFP
Gretchen	Martin	ISDH
Shaleea	Mason	Rae Synergistics
Paula	Means*	
Birdie	Meyer	IU Health
Barbara	Moser	NAMI
Millicent	Moye	Aescalapien Society (MD)
Karl	Nichols	Phi Beta Sigma
Kimber	Nicolette	Multicultural Efforts to End Sexual Assault
Sara	Pollard	NFP
Caitlin	Priest	Covering Kids & Families
Rise	Ratney	Northwest Indiana Healthy Start
Nona	Mahari	ISDH / WIC
Georgiana	Reynal	St. Vincent Hospital
Jennifer	Riley	Harrison County Early Start
Calvin	Roberson*	Indiana Minority Health Coalition

Disparities Committee		
Sarah	Stelzner	IU School of Medicine
Sue	Taylor	Memorial Hospital
Joy	Usigbe	Indianapolis Healthy Start
Felicia	Williams	Indianapolis Healthy Start
Renetta	Williams	Health Visions of Ft. Wayne
Belva	Willis	Raphael Health Center
Lee	Austin	IU Medical Student
*	Co-chairs	

Education Committee		
Kristin	Adams	Indiana Family Health Council
Barb	Beaulieu	Purdue University
Mary	Blackburn	IU Healthnet
Brian	Busching	ISDH
Casandra	Cashman, MD	Community
Carol	Dinger	Lutheran Hospital
Lauren*	Dungy-Poythress, MD	IU
Carl	Ellison	Indiana Minority Health Coalition
Elizabeth	Ferries-Rowe, MD	IU
Laura	Green	Lutheran Hospital
Linda	Heacox	ISDH
Amy	Hutcheson	Nurse Family Partnership
Ashley	Jones RN MS	Nurse Family Partnership
Velvet	Miller	IU Health
Heidi	Neuburger	Mother to Baby Project
Rise	Ross Ratney	Healthy Start
Carolyn	Runge	ISDH
Jeena*	Siela	March of Dimes

Education Committee		
Laurie	Weinzapfel	MDwise
Rebekah	Williams	IU Adolescent Medicine
Austin	Lee	IU Medical Student
Carolyn	Runge	ISDH
Geena	Lawrence	ISDH
*	Co-chairs	

Finance Committee		
Charles	Allen, MD	Action Health Center
Tiffany	Berry	Lutheran Health Network
Tina	Cady	The Women's Hospital
Joan	Culver	Franciscan Alliance
Lauren	Dungy-Poythress, MD	IU Health
Penny	Dunning	Indiana Primary Health Care Assoc
John	Ellis, MD	MHS Indiana
Bill	Engle, MD	Riley Hospital
Julia	Feagans	Medicaid
Spencer	Grover	Indiana Hospital Association
Richard	Hug	IU Northwest
Don	Kelso	IN Rural Health Association
Marissa	Kiefer	IU Health/Riley
Debra	Kirkpatrick, MD	IU Women's Healthcare
Joseph	Landwehr, MD	IU Health Ball Memorial
James	Lemons, MD	Riley Hospital
Ed	Liechty, MD	Riley Hospital
Diane	Lorant, MD	IU School of Medicine
Karen	Porter	Strategic Solutions
Ryan	Randall	Anthem Medicaid

Finance Committee		
Kimberly	Roop, MD*	Anthem Blue Cross & Blue Shield
Ty	Sullivan, MD	MD Wise
Dana	Watters, MSN, RNC-OB	IU Bloomington
Barbara	Wilder	MD Wise
Ann	Zerr, MD*	Office of Medicaid Policy and Planning
*	Co-chair	

Neonatal Abstinence Syndrome (NAS) Committee		
Jonell	Allen, DNP, MSN, CNS-BC, RNC-OB	Community Health Network
Ivy	Antonian, RN	Franciscan St Elizabeth East
Deb	Beynon	St Vincent Women & Children's
Jane	Bisbee	Department of Child Services
Sirrilla	Blackmon	DMHA
Dave	Bozell	DMHA
Mike	Brady	INSPECT
Victoria	Buchanan	ISDH
James	Cameron, MD	Northern IN Neonatal Associates
Kathryn	Carboneau, MD	Anesthesiologist
Ellen	Clancy, RN	Staff Nurse, NICU
Teri	Conard	Marion Co Health Department
Joan	Culver	Franciscan Alliance
Ted	Danielson, MD	ISDH
Mary	Degeneffe, MD	Pediatrix Medical Group
Stan	DeKemper	ICAADA
Maria	Del Rio Hoover, MD*	St. Mary's Neonatal Clinic
Joan	Duwve, MD	ISDH / IU
John	Ellis, MD*	MHS Indiana

Neonatal Abstinence Syndrome (NAS) Committee		
Susan	Elsworth	Central IN NOFAS
Nancy	Fitzgerald, MSN	Consultant
Shannon	Garrity	ISDH
Donetta	Gee-Weiler, RN, BSN	Community Health Network
Mark	Gentry, MD	IN ACOG
Beth	Gephart, RN, BSN	Hendricks Regional Hospital
Dawn	Goodman-Martin, MA, LMHC, LCAC, NCC	Schneck Medical Center
Don	Granger, MD, MPH	St. Mary's Neonatal Clinic
Lori	Grimm	The Women's Hospital
Annette	Handy, RN CDE BSN	Indiana Hospital Association
Laura	Haneline, MD	IU Dept of Pediatrics
Julia	Tipton Hogan	Indiana Perinatal Network
Katie	Hokanson	ISDH
Leslie	Hulvershorn, MD	DMHA
Letitia	Jackson, MS, EdS, LMHC	Wellpoint
Chastity	Johnson	Schneck Medical Center
Julie	Kathman, MSN, RN, CNS-BC, CPN	Bloomington Hospital
Julie	Keck, MD	Anthem
Kristen	Kelley	Attorney General's Office
Pam	Knight	DCS
Donna	Kovey	IU North
John	Kunzer, MD	Community Health Network
Joseph	Landwehr, MD	IU Health Ball Memorial
Amy	Little	IU Bloomington
Bethany	Littrell, LMHC, LCAC	St. Vincent Hospital
Art	Logsdon	ISDH

Neonatal Abstinence Syndrome (NAS) Committee		
Joanne	Martin, RN DrPH	Goodwill of Central Indiana
Rainey	Martin, MSN, CNS,RNC-OB	Community Health Network
JoAnn	Matory, MD	Eskinazi Hospital - March of Dimes
Christina	McCaul	Community Health Network
Deborah	McCullough, MD	North Shore Community Health Center
Debra	McDaniel, MD	Southern Indiana Physicians
Ann	Morrow, MSN, RN	Columbus Regional Hospital
Heidi	Neuberger	Mother to Baby Project
Cara	Nichols, RN	Schneck Medical Center
David	Orentlicher, MD JD	IU School of Medicine/School of Law
Amy	Pettit	Schneck Medical Center
Dheeraj	Raina, MD	Anthem
Anna	Schwartz, MD	IU Department of Pediatrics
Emily	Scott, MD	Methodist Hospital
Lisa	Scott, MSN, NNP-BC	Indiana University Health Physicians
Kimberly	Shimer, MD	The Women's Hospital
Jeena	Siela	March of Dimes
Stacey	Slagle	Women’s Hospital
Kelly	Smith, RN	Anthem Medicaid Care Management
Laura	Sparkman, RNC-OB, BSN	Community Health Network
Anne Lise	Sullivan, RN, BSN, MA	Marion Co Public Health
Drew	Trobridge, MD	Interventional Spine/Pain Management
Brownsyne	Tucker-Edmonds, MD, MPH	IU School of Medicine
Janice	Walker	
John	Wareham, MD	St Vincent Women & Children's
Aileen	Wehren	Porter Starke Services

Neonatal Abstinence Syndrome (NAS) Committee		
Eric	Yancy, MD	MHS Indiana
*	Co-chair	

Quality Improvement Administration Committee		
Martha	Allen, MSN, RN, NE-BC	ISDH
Bill*	Engle, MD	Riley Hospital
Marissa	Kiefer	IU Health/Riley
Kelsey	Gurganus, MPH	ISDH - MCH
Annette*	Handy	IHA
Robert	Jansen, MD	St Vincent
Julie	Kathman, MSN, RN, CNS-BC, CPN	IU Bloomington
Ed	Liechty, MD	Riley Hospital
Beth	McIntire, RN, MSN, WHNP-C, C-EFM	Riley Hospital
Anne	Reynolds, MPH	ISDH
Nancy*	Swigonski, MD	Children's Health Services Research
Jennifer	Walthall, MD	ISDH
*	Co-chair	