

# Ethical Issues in Infant Mortality: A Study in Disparities

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**INDIANA UNIVERSITY**  
SCHOOL OF MEDICINE

# Disclosures

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- I have no financial disclosures.

# Objectives

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- Recognize Indiana's high infant mortality rate and the existing black-white disparity
- Understand how structural racism and implicit bias may play a role in disparities in infant mortality rates
- Gain knowledge of programs working to reduce disparities in infant mortality and promote equity in Indiana



One of these babies is more likely to die before his first birthday.



# What is infant mortality?

- The death of a baby before his or her first birthday
- Infant Mortality Rate:  
number of infant deaths per  
1000 live births



# Causes of Infant Mortality

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- Premature birth (less than 37 weeks gestation)
- Low birthweight (less than 2500 grams – 5 ½ pounds)
- Congenital malformations (birth defects)
- Sudden unexpected infant death (sleep related deaths - accidental suffocation/strangulation in bed, SIDS)
- Injuries/Assaults



# US Infant Mortality

Infant mortality rates in selected OECD countries, 2010

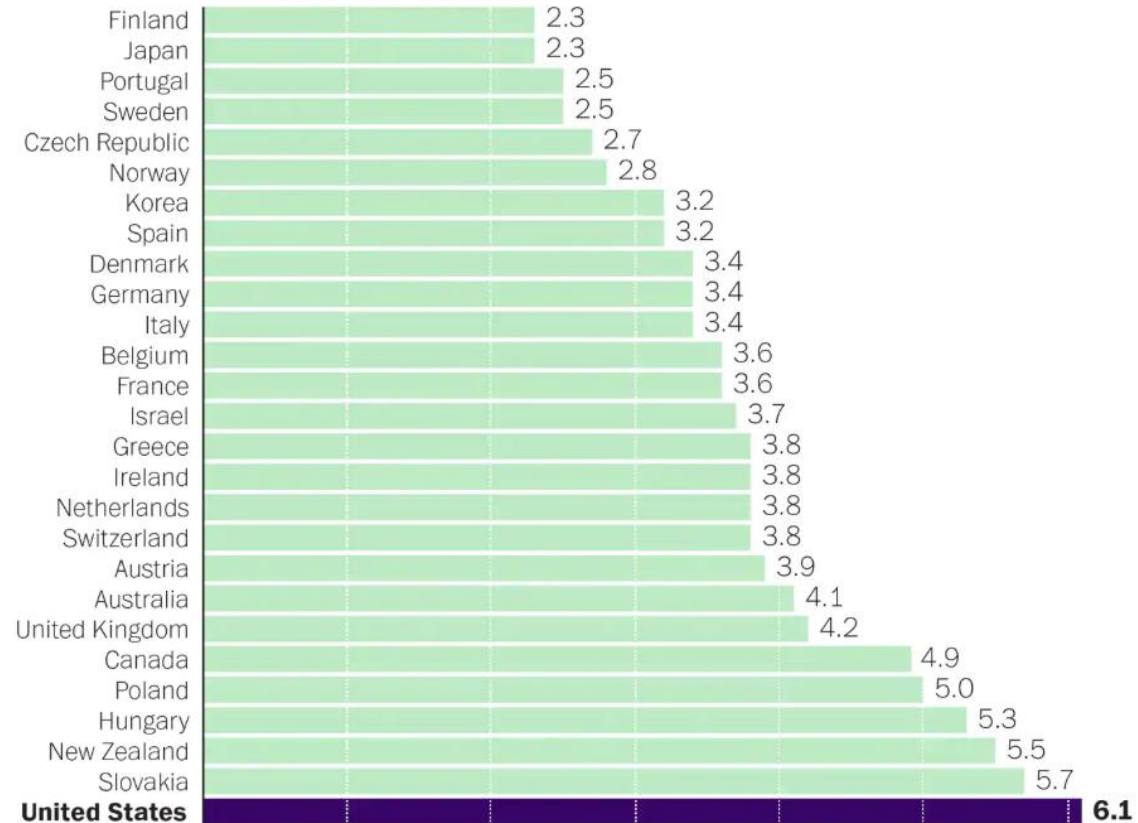
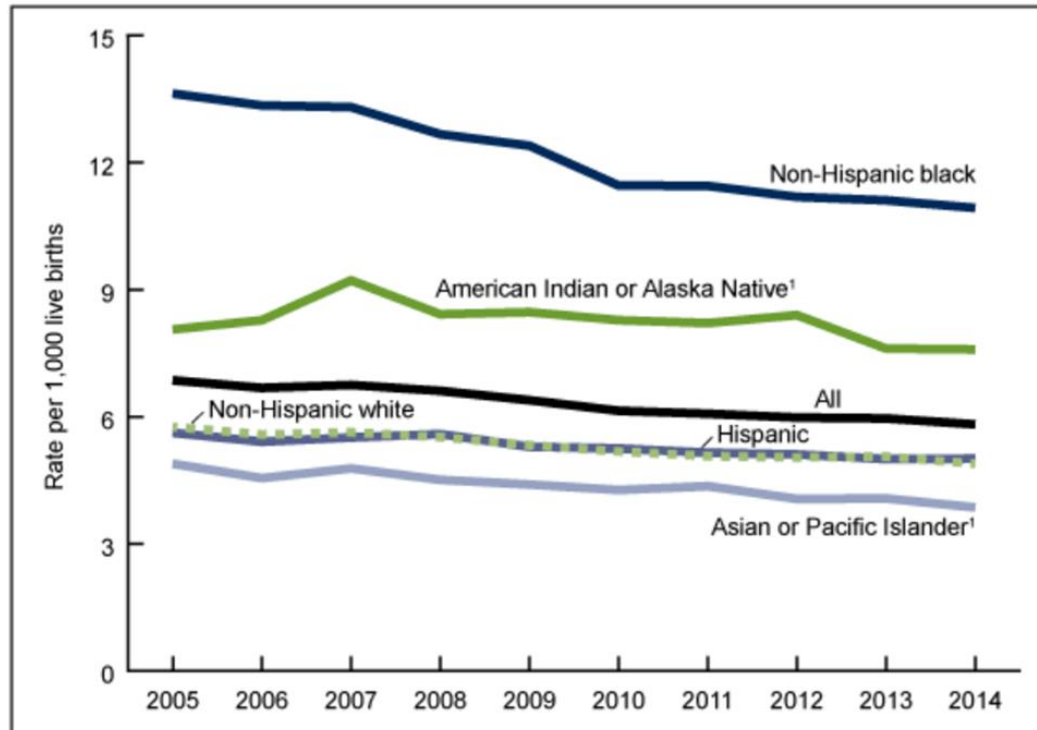
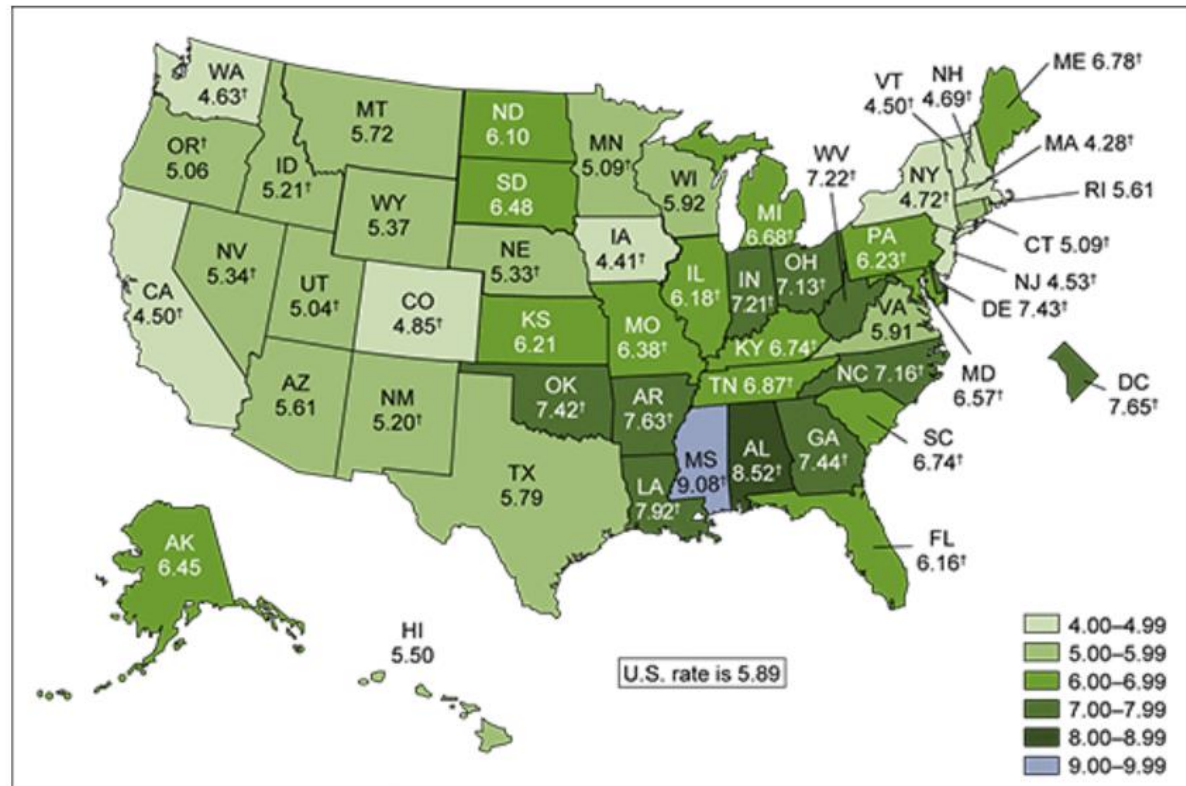


Figure 1. Infant mortality rates, by race and Hispanic origin of mother: United States, 2005–2014



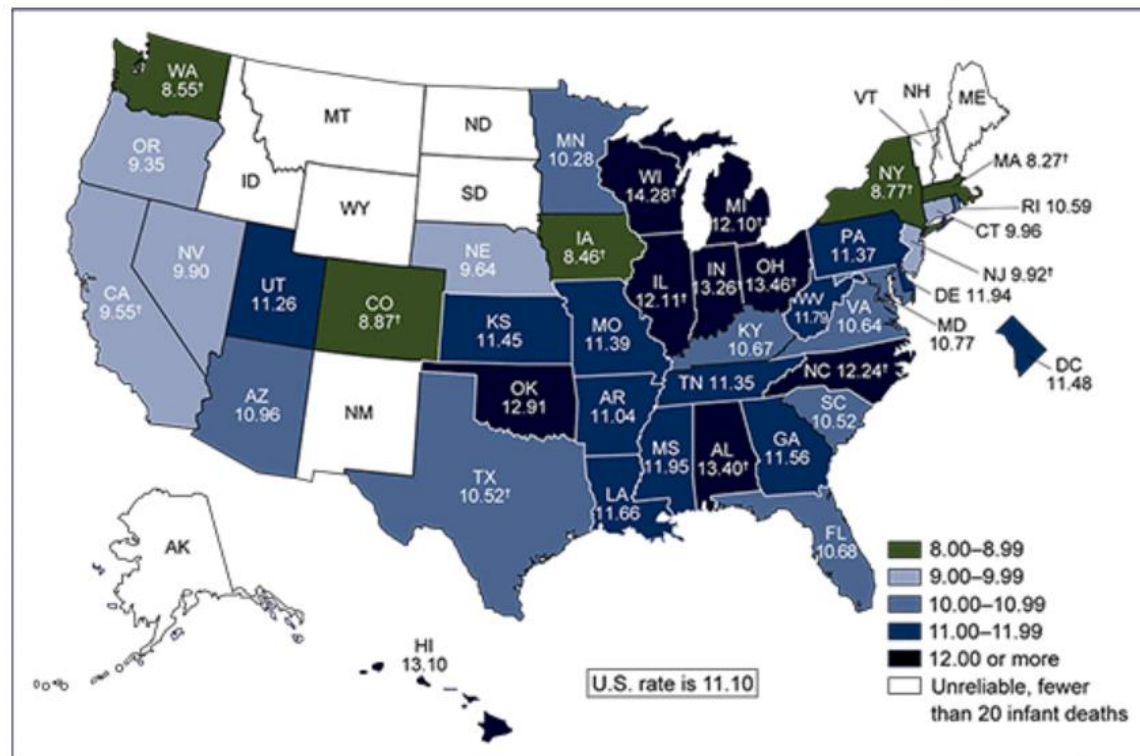
<sup>1</sup>Includes persons of Hispanic and non-Hispanic origin.

Figure 1. Infant mortality rates, by state: United States, 2013–2015



†Significantly different from the U.S. rate.


Figure 3. Infant mortality rates for infants of non-Hispanic black women, by state: United States, 2013–2015




†Significantly different from the U.S. rate.

A photograph of a baby being held up by an adult. The baby is wearing a white t-shirt with the text 'march of dimers' and 'heart life brain' printed on it. The adult is wearing a purple shirt and blue jeans. The background is a bright, cloudy sky. The text 'The black infant mortality rate has been more than double the white infant mortality rate for decades' is overlaid on the bottom half of the image.

**The black infant mortality rate has  
been more than double the white  
infant mortality rate for decades**

A black infant is being held by an adult, wearing a white t-shirt with the March of Dimes logo. The infant is smiling and looking up. The background is a soft-focus sky with clouds. The text is overlaid on the lower half of the image.

**The black infant mortality rate in  
2015 just reached the level of the  
white infant mortality rate in the  
1980s**

A portrait of Eric Holcomb, a man with grey hair and glasses, wearing a dark suit, white shirt, and a red patterned tie. He is looking slightly to the left.

2019

# STATE OF THE STATE

REDUCE THE INFANT MORTALITY RATE

Implementing new programs to help  
**more babies celebrate their first birthdays,**  
regardless of their zip codes

Eric Holcomb ● @HolcombForIN - Feb 1

No matter their zip codes, babies deserve equal access to healthcare. SHARE to spread the word about the work we're doing on this critical issue.



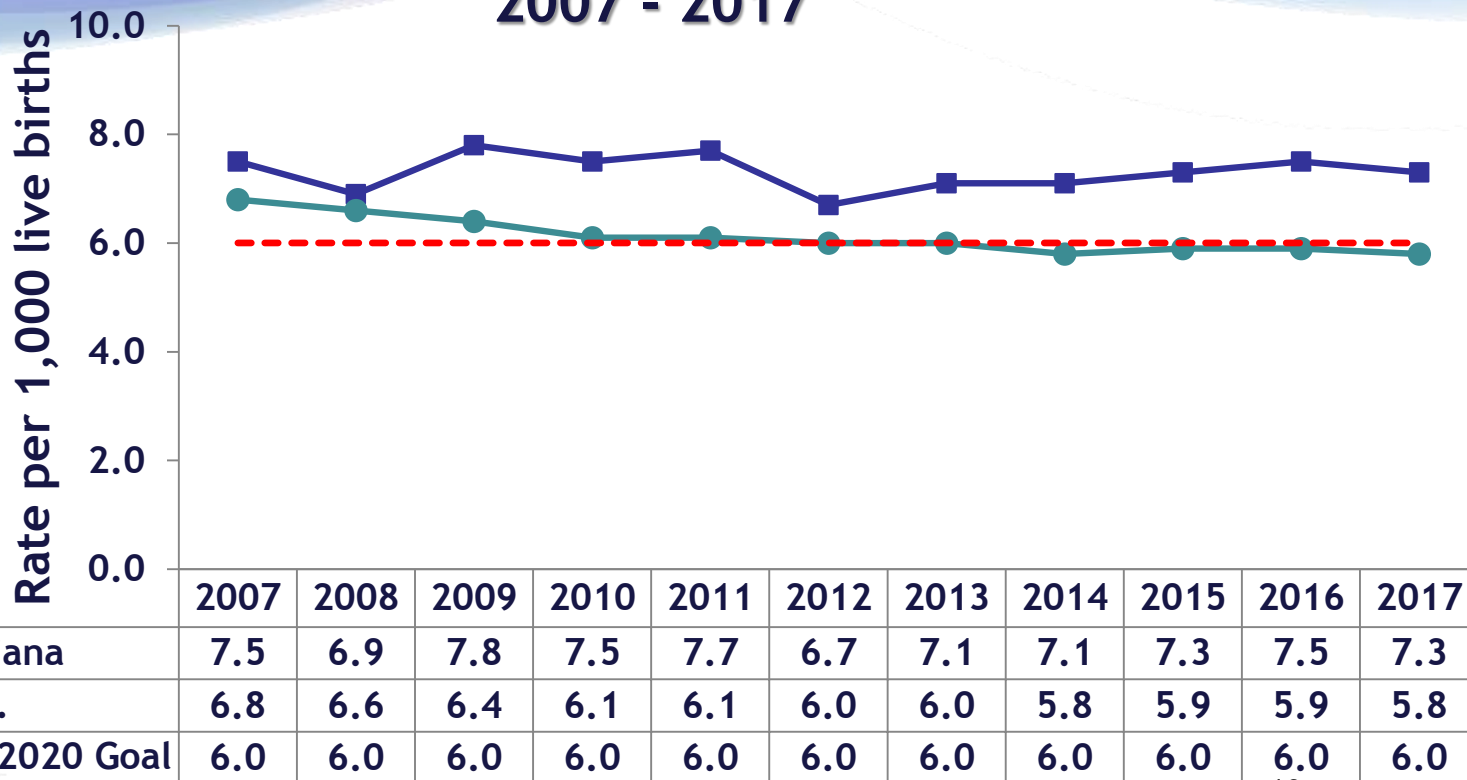
**In 2017, 602 babies  
in Indiana died.**



# Infant Mortality Rates

## Indiana, U.S. and Healthy People 2020 Goal

### 2007 - 2017



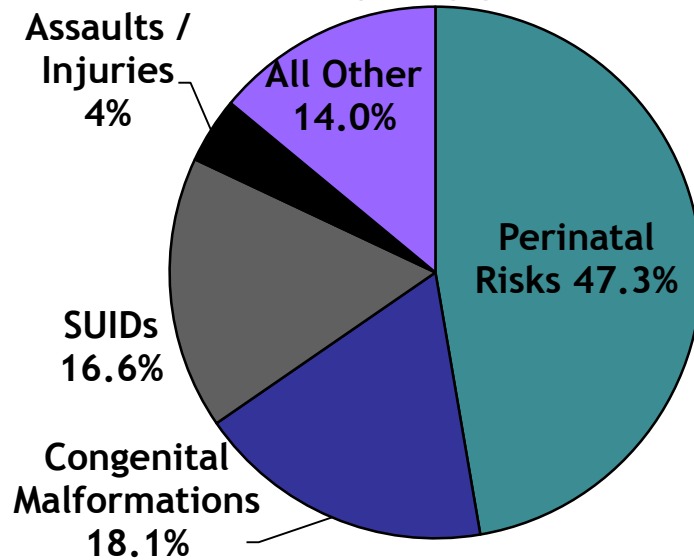
Source: Indiana State Department of Health, Maternal & Child Health Epidemiology Division [November 1, 2018]

United States Original: Centers for Disease Control and Prevention National Center for Health Statistics

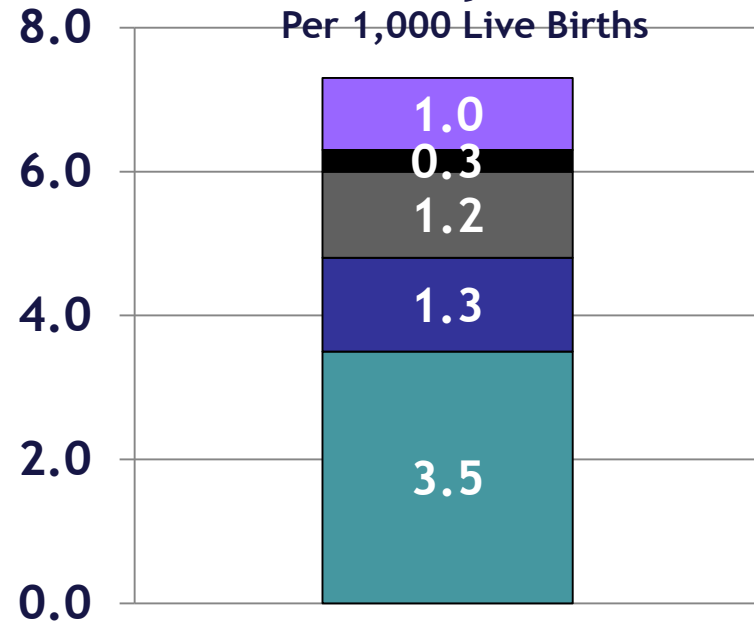
Indiana Original Source: Indiana State Department of Health. PHPC. ERC. Data Analysis Team

# Infant Mortality Distribution by Cause Indiana, 2017

% Distribution of Infant  
Deaths  
N = 602



## Cause Specific Mortality Rates\*



\*Note: Cause specific mortality rates may not exactly equal the overall infant mortality rate due to rounding.  
Source: Indiana State Department of Health, Maternal & Child Health Epidemiology Division [January 3, 2019]  
Indiana Original Source: Indiana State Department of Health, PHPC, ERC, Data Analysis Team

# Infant Mortality Rates County Level, All Races 2013 - 2017

## HIGHEST Infant Mortality Rates in Indiana

- Jay, 13.2      Delaware, 8.5
- Grant, 9.2      Dubois, 8.5
- Shelby, 9.2      Lake, 8.5
- Cass, 9.1
- St. Joseph, 8.7
- Clark, 8.5

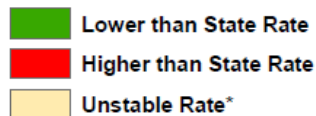
## Counties that have REACHED HP2020 Goal

- Hamilton, 4.9
- Johnson, 5.0
- Porter, 5.3
- Hendricks, 5.8

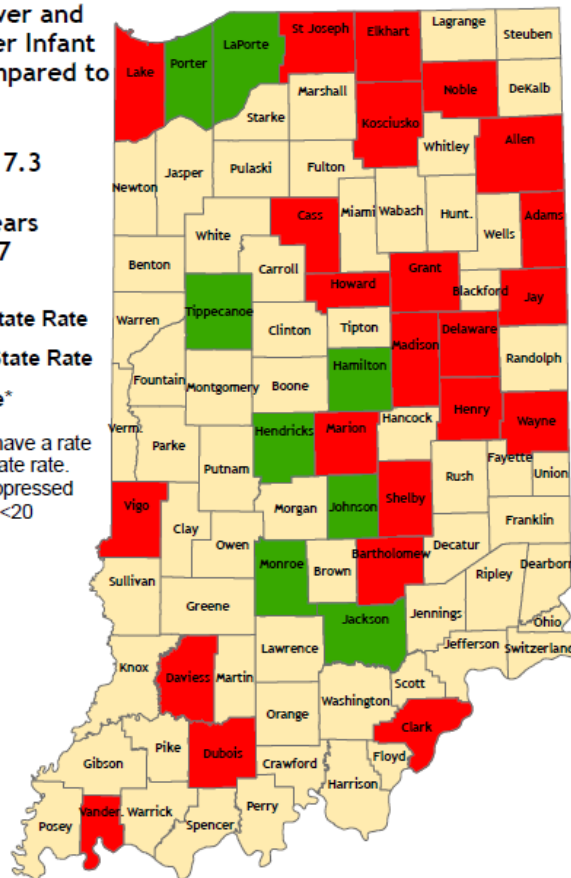
Counties with Lower and  
Counties with Higer Infant  
Mortality Rates Compared to  
Indiana

Indiana IMR = 7.3

Aggregated Years  
2013 - 2017



\*Unstable counties may have a rate  
higher or lower than state rate.  
These counties are suppressed  
due to numerator <20

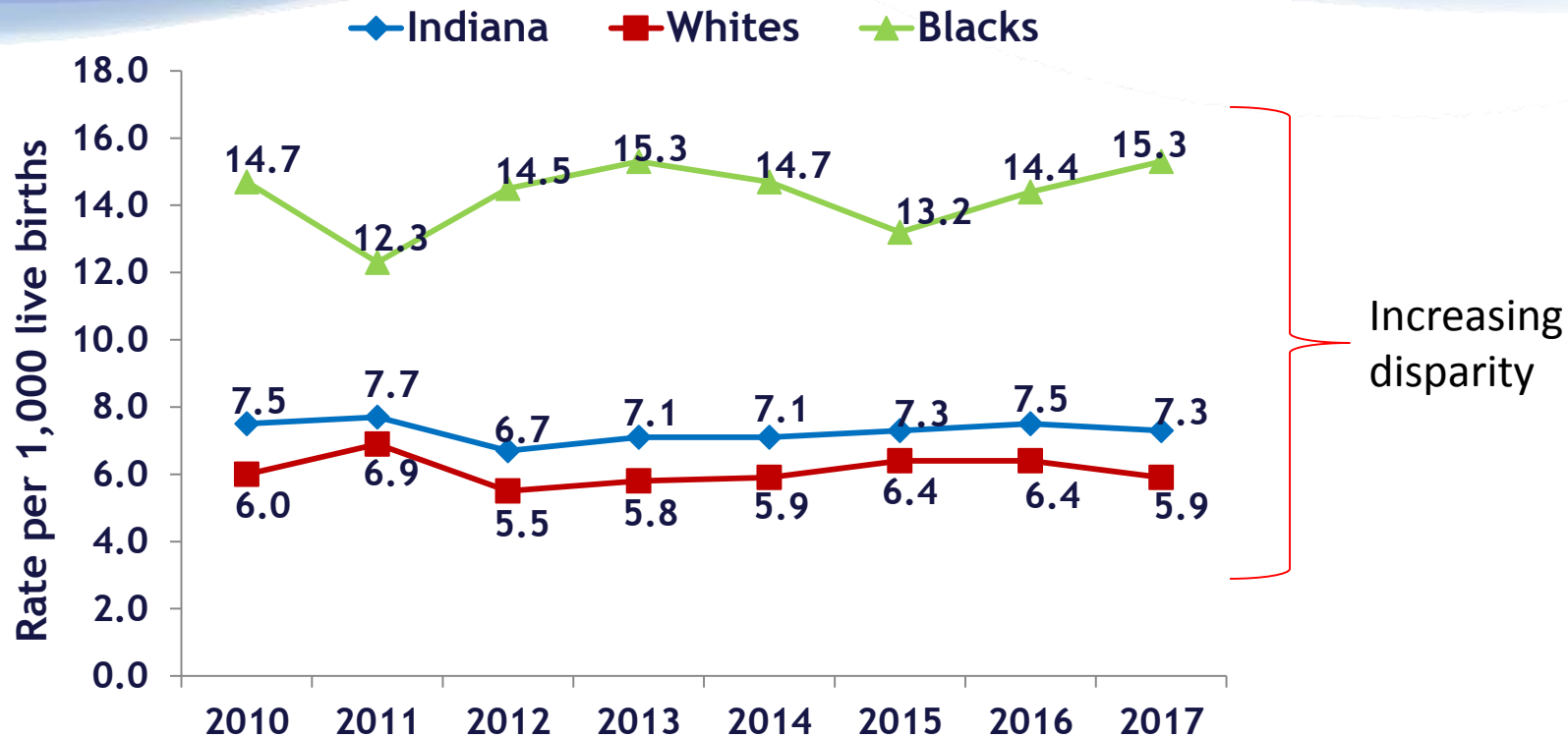


\*Numerator less than 20, the rate is unstable

Source: Indiana State Department of Health Division of Maternal and Child Health  
Created: November 15, 2018

Data Source: Indiana State Department of Health Epidemiology Resource Center Data Analysis Team

# Infant Mortality Rates by Race Indiana 2010 - 2017



Note: Hispanic ethnicity can be of any race

Source: Indiana State Department of Health, Maternal & Child Health Epidemiology Division [January 22, 2019]

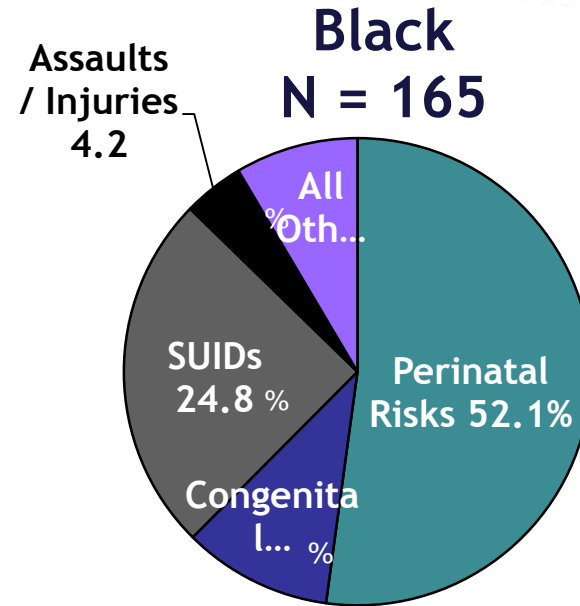
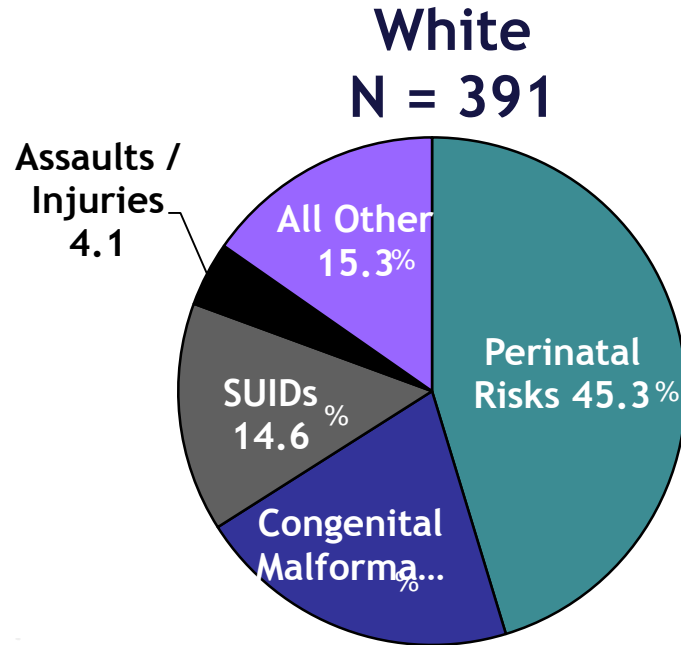
Indiana Original Source: Indiana State Department of Health, PHPC, ERC, Data Analysis Team

# 2013 - 2017

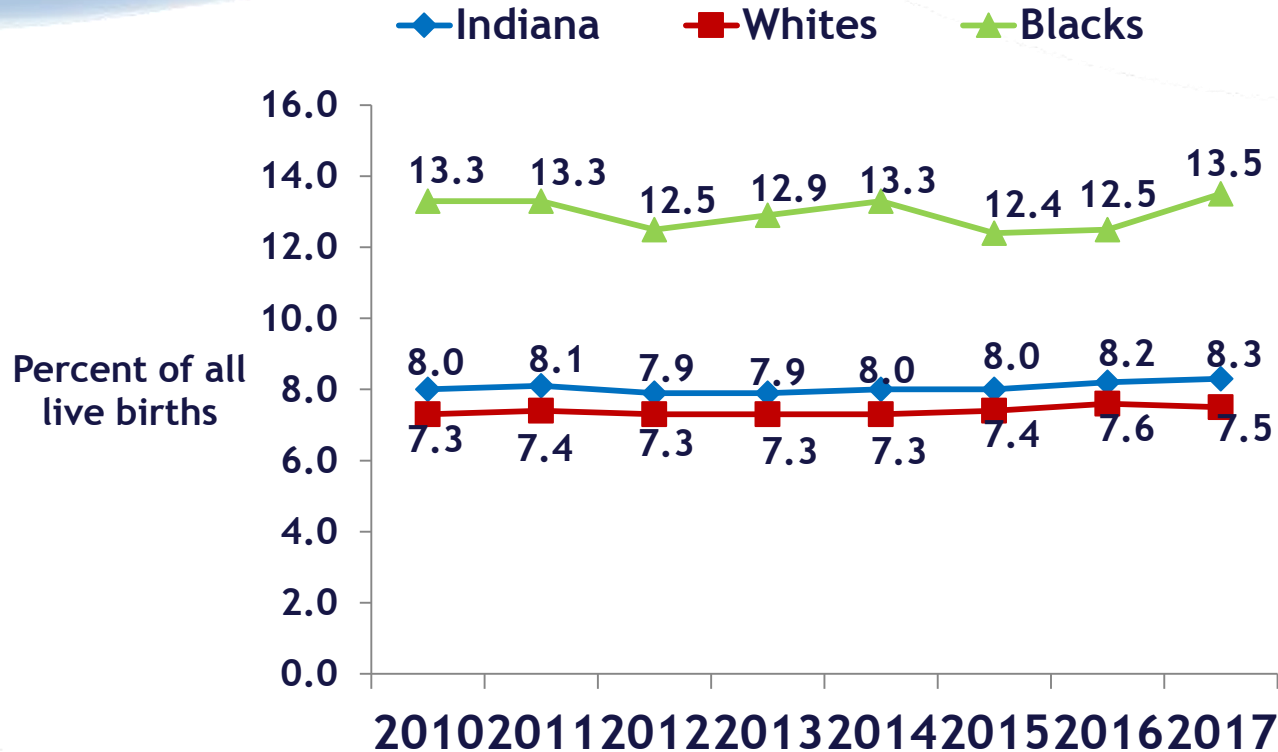
## Infant Mortality Rates by Zip Code

Zip Code	County	Births	Deaths	Infant Mortality Rate (IMR)	White IMR	Black IMR
46404	Lake	1,093	22	20.1	**	<b>21.2</b>
46312	Lake	2,350	37	15.8	11.2*	<b>23.4</b>
46324	Lake	1,409	22	15.6	15.0*	24.1*
46806	Allen	2,333	36	15.4	13.1*	<b>22.2</b>
46218	Marion	2,490	36	14.5	**	<b>18.7</b>
46619	St. Joseph	1,631	23	14.1	5.7*	19.8*
46226	Marion	3,483	44	12.6	6.5*	<b>14.8</b>
46203	Marion	3,093	39	12.6	<b>10.2</b>	16.4*
46205	Marion	2,417	30	12.4	8.9*	<b>15.3</b>
47130	Clark	2,966	36	12.1	<b>12.3</b>	15.6*
46628	St. Joseph	2,059	24	11.7	4.2*	<b>20.8</b>
46229	Marion	1,976	23	11.6	6.3*	13.8*
46235	Marion	3,191	37	11.6	6.3*	<b>13.0</b>
<p>*Numerator less than 20, the rate is unstable.  **Rate has been suppressed due to five or fewer outcomes.</p>						

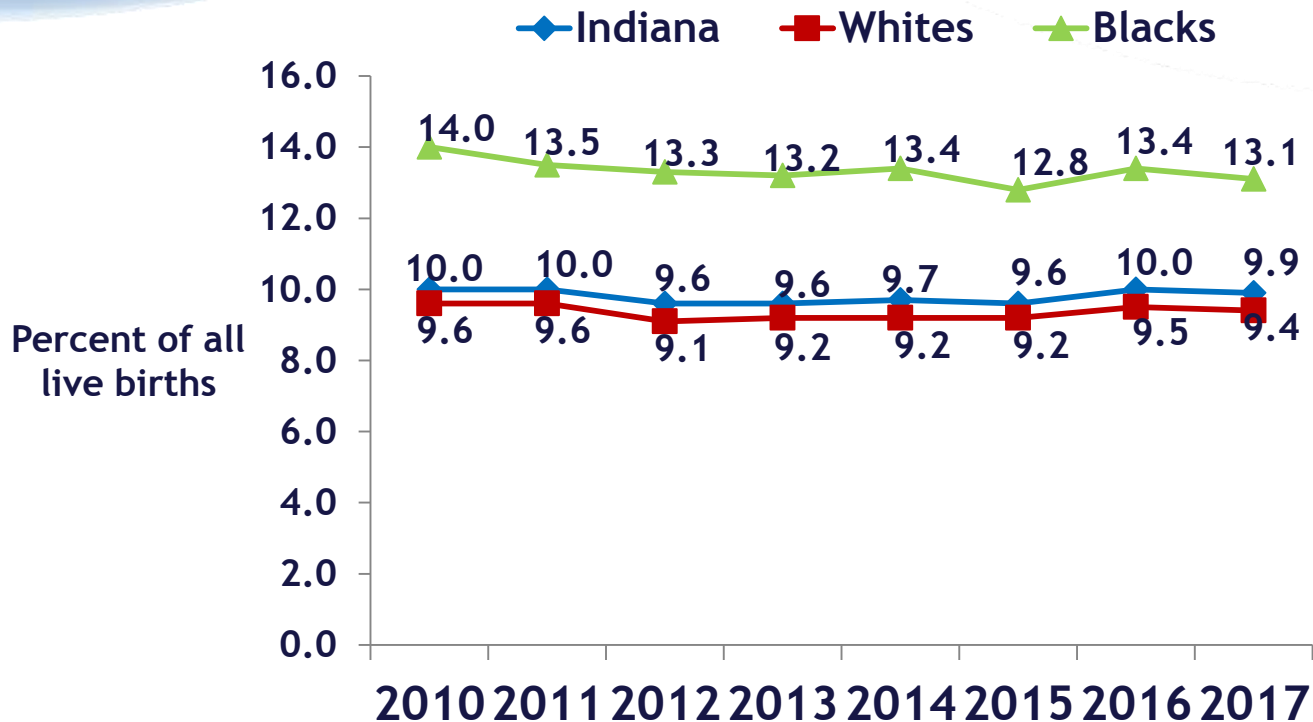
# Causes of Infant Mortality by Race Indiana 2017



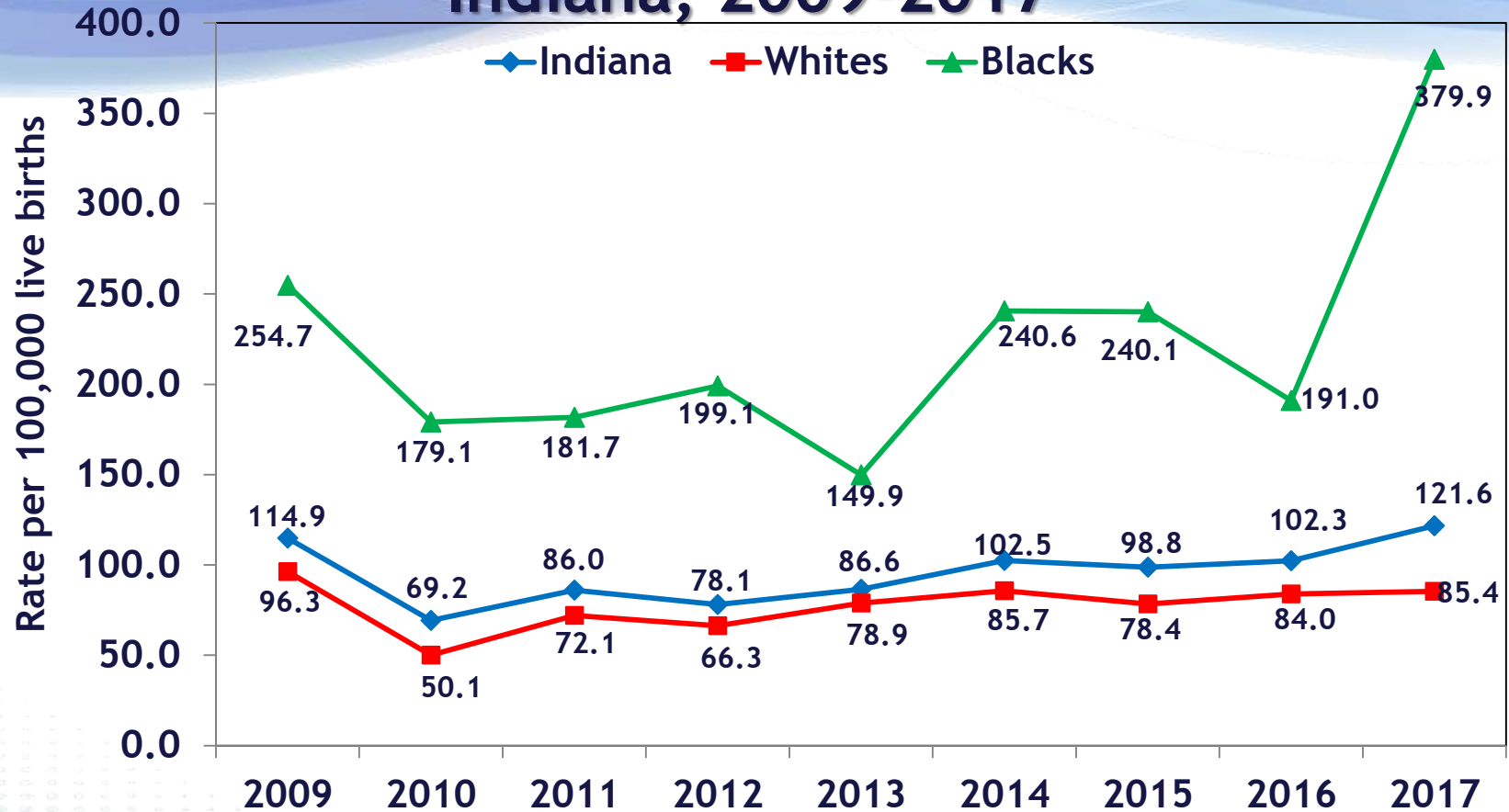
# % Low Birthweight Births (<2,500 grams) Indiana, by Race 2010 - 2017



# % Preterm Births (Obstetric Estimate) < 37 weeks gestation Indiana, by Race 2010 - 2017



# SUIDs Rates by Race Indiana, 2009-2017



**Why is the black infant  
mortality rate higher than the  
white infant mortality rate?**

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**Is it genetic?**



US born white mothers



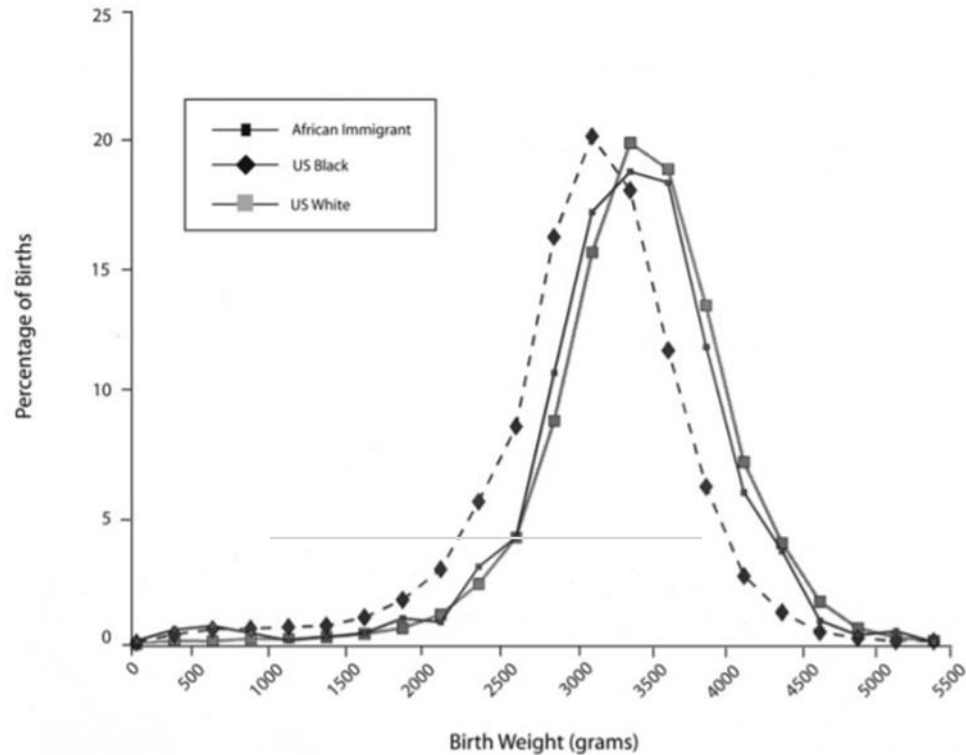
US born black mothers



African born black mothers

# Race and Low Birthweight Deliveries





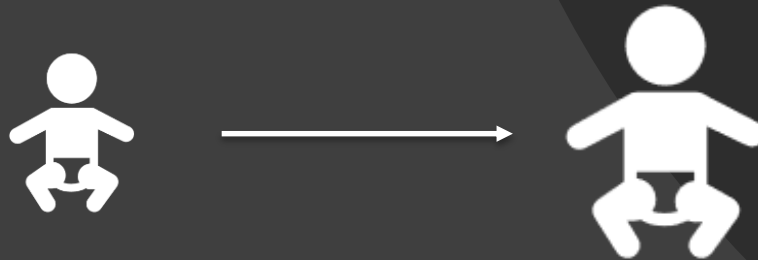
Source. Reprinted with permission from David and Collins.<sup>55</sup>

**FIGURE 2—Birthweight distributions of 3 Illinois subpopulations.**

# Is this difference sustained across generations?

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- In non-immigrant populations, birthweight tends to rise in each subsequent generation



## Is this difference sustained across generations?

- Grandchildren of European immigrants
- Grandchildren of African and Caribbean immigrants



# What drives disparities between white and black infant mortality rates?

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- It is not “race” or genetic predisposition.
- So what is it?

# Factors associated with Infant Mortality

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- Smoking
- Poor/limited prenatal care
- Poor maternal health status
  - Obesity
  - Pre-existing chronic health conditions
  - Depression/anxiety
  - Substance use
- Short interpregnancy interval
- Unsafe sleep practices



# What drives disparities between white and black infant mortality rates?

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- Conventional risk factors have a more pronounced negative effect on black infant outcomes.
- “Protective factors” for pregnant women do not provide the same benefits for black women.



# Socioeconomic Status

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- Women from lower SES backgrounds are more likely to have a preterm birth.
  - Diminished access to quality health care, food, housing
  - Increased poverty-related stressors



# Socioeconomic Status

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- Low SES
  - White mothers – 7.7% low birthweight
  - Black mothers – 10.9% low birthweight

# Improvement in Socioeconomic Status and birth outcomes by race

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- White mothers
  - Low SES – 7.7% low birthweight
  - High SES – 4.3% low birthweight
- Black mothers
  - Low SES – 10.9% low birthweight
  - High SES – 11.3% low birthweight



**Table 2**

Kalamazoo County Prevalence of Low Birth Weight, Stratified by Maternal SES, Maternal Race and Community Residence.

	<i>Low birth weight prevalence (with confidence interval)</i>			
	<i>White</i>		<i>Black</i>	
	<i>Low-SES</i>	<i>Higher-SES</i>	<i>Low-SES</i>	<i>Higher-SES</i>
Living in Higher SES Black Neighborhood	N=216 % 8.3	N=99 % 7.1	N=245 % 11.4	N=25 % 4.0
Living in Higher SES White Neighborhood	N=678 % 7.5	N=1316 % 4.1	N=224 % 10.3	N=55 % 14.5

Notes: Three subjects are excluded due to missing Medicaid-status values.

# Maternal Age

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- Typically, premature birth and infant mortality are highest in adolescent mothers and mothers delivering after mid-30s
- Women are “protected” having babies in their 20s – early 30s.



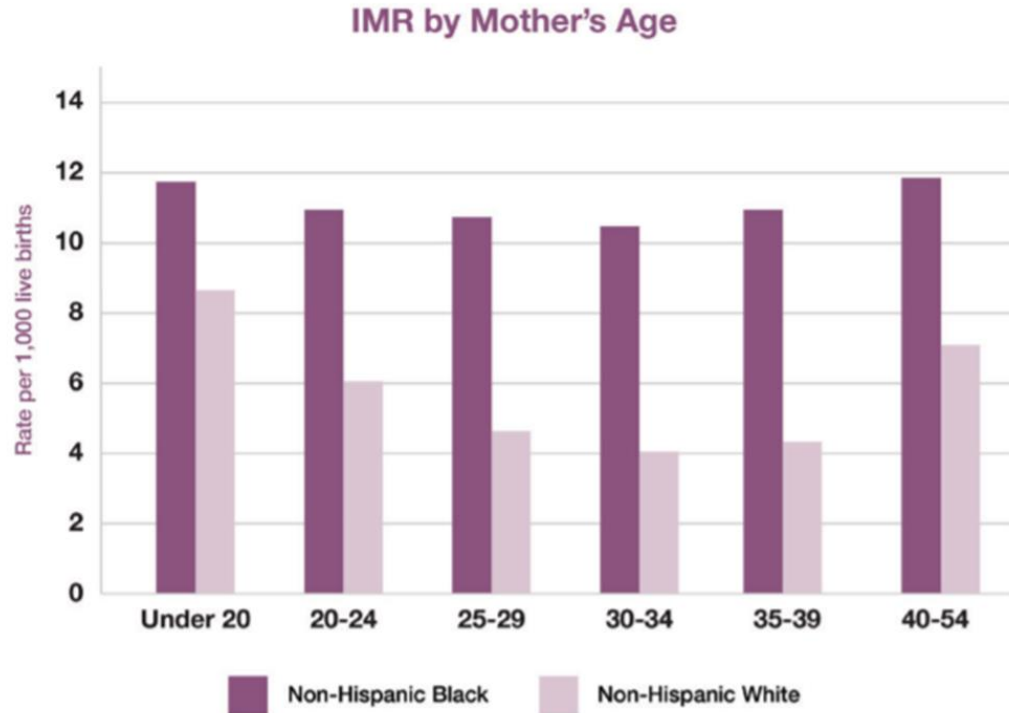


Figure 1. Source: CDC 2015, Infant Mortality Statistics from the 2013 Period Linked Birth/Infant Death Data Set, National Vital Statistics Reports.



The NEW ENGLAND  
JOURNAL of MEDICINE

ORIGINAL ARTICLE

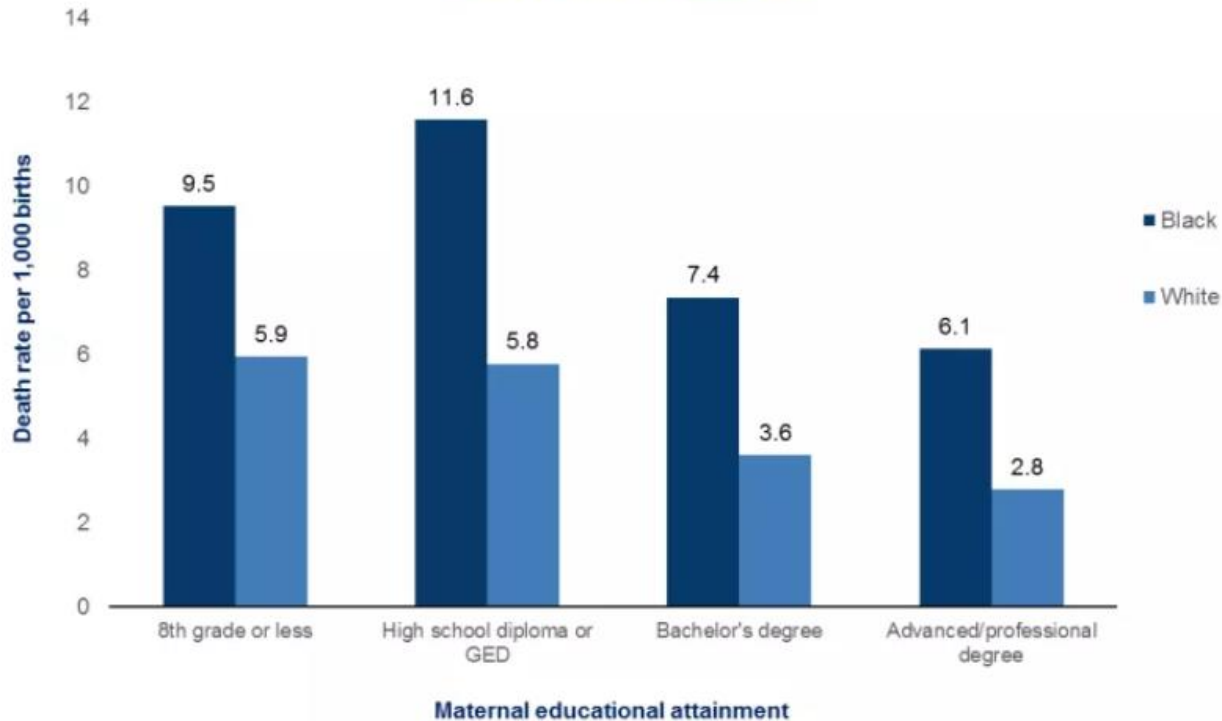
# Mortality among Infants of Black as Compared with White College-Educated Parents

Kenneth C. Schoendorf, M.D., M.P.H., Carol J.R. Hogue, M.P.H., Ph.D., Joel C. Kleinman, Ph.D., and Diane Rowley, M.D., M.P.H.

- IMR 1.8 times higher for black infants than white infants
- Low birthweight deliveries more than 2 times higher for black infants than white infants



## Infant mortality higher for middle-class blacks than lower-class whites



Source: Centers for Disease Control and Prevention (Wonder), Linked Birth / Infant Death Records, 2007 - 2013.

BROOKINGS

A dark, moody photograph of a pregnant woman holding a baby. The woman's face is partially visible in profile, looking down at the baby. Her hands are gently cradling the baby. The overall tone is intimate and contemplative. The word "Why?" is overlaid in a large, white, sans-serif font, positioned to the right of a thin vertical white line.

**Why?**

# Structural racism

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- A system in which public policies reinforce and perpetuate historic racial group inequity
- Not policy makers intentionally “discriminating” – but also not working to change long standing practices that continue to reinforce the status quo
- Example – school funding, residential segregation



# Explicit vs. Implicit biases

## Explicit Bias

- Aware
- Voluntary
- Intentional



## Implicit bias

- Unaware
- Involuntary
- Unintentional

Implicit bias is not racism!



# Implicit Bias

<https://www.nytimes.com/video/us/100000004818663/peanut-butter-jelly-and-racism.html>

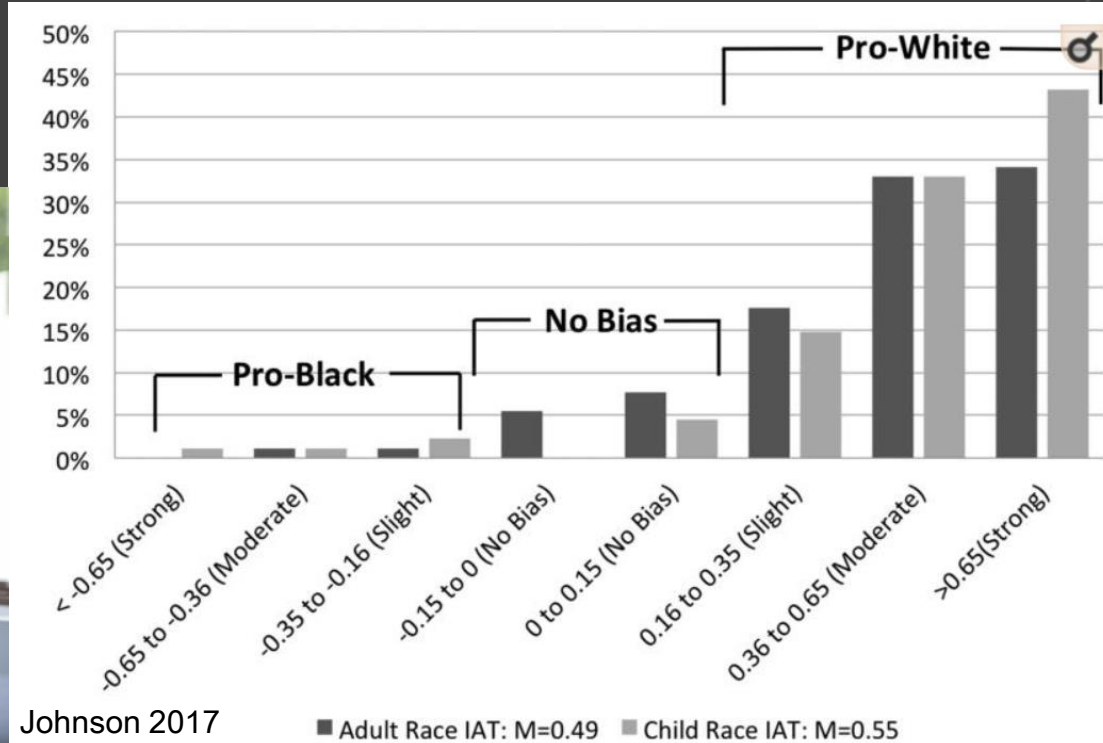




## Implicit bias among healthcare professionals

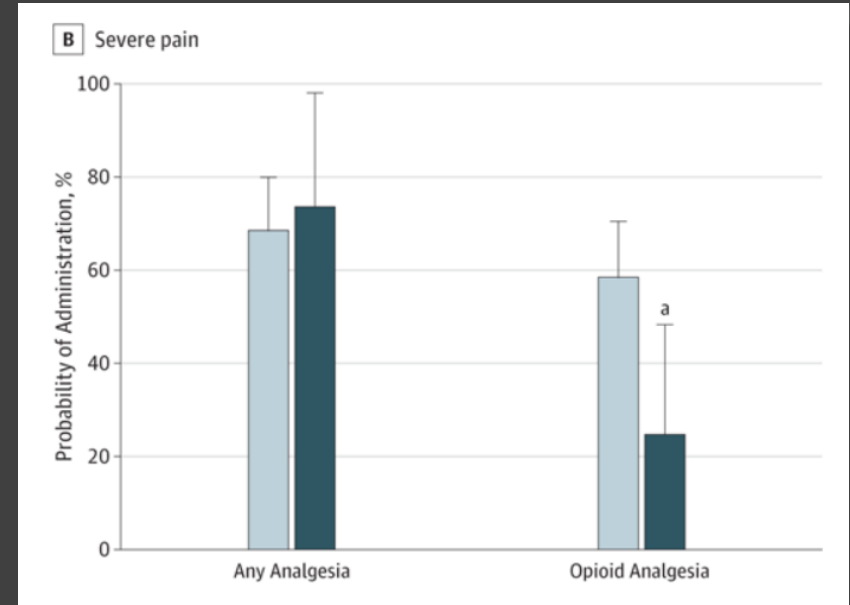
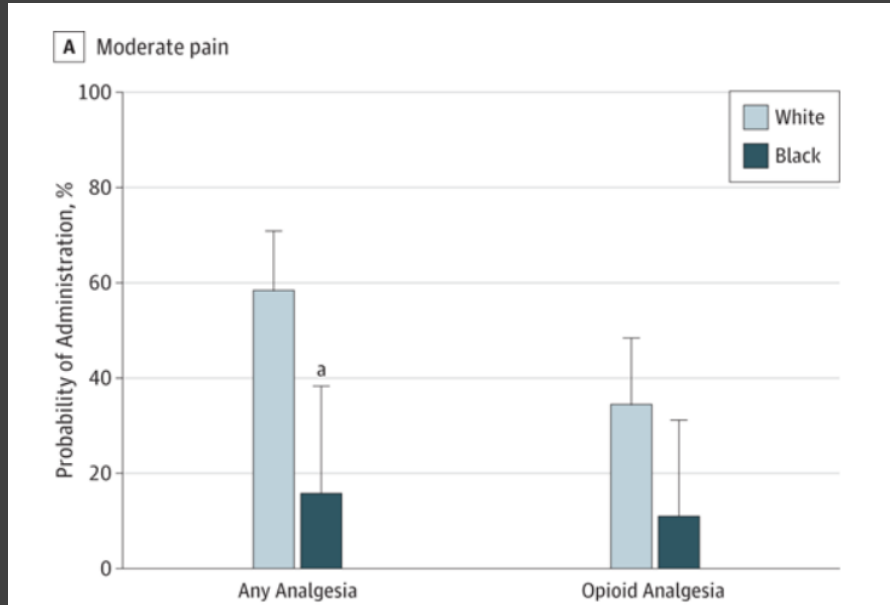
- We do “help people...”
- But we have similar rates of bias as the general population

# Implicit bias among pediatric residents



# Implicit bias affecting health care delivery

## Pain management in children with appendicitis





# Why America's Black Mothers and Babies Are in a Life-or-Death Crisis

The answer to the disparity in death rates has everything to do with the lived experience of being a black woman in America.

By LINDA VILLAROSA APRIL 11, 2018



Image: Nick Anderson

# Striving for health equity

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- Everyone has as fair and just opportunity to be healthy



# EQUALITY *SOUNDS* FAIR



# EQUITY IS FAIR



**Public Health**  
Prevent. Promote. Protect.

<https://www.mmshealthycommunities.org/collective-action/health-equity/>

# Health equity as an outcome

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- Reducing and ultimately eliminating health disparities in health and its determinants that adversely affect excluded or marginalized groups



# How do we move towards health equity?

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- Approaches should build on/optimize existing strengths and assets of groups
- Approaches should address not only overt discrimination but implicit bias and discriminatory efforts of structures and policies created by historical injustices, even when conscious intent to discriminate no longer exist



# Achieving Health Equity

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- Requires sustained societal action to remove obstacles to health and increase opportunities to be healthy for everyone, focusing particularly on those who face the greatest social obstacles and have worse health

# What can we do to pursue health equity?

- Recognizing and addressing our own biases is a critical step towards eliminating health disparities and achieving health equity
- National Institute for Children's Health Quality – Implicit Bias Resource Guide
  - 7 steps we can all take to address our implicit bias



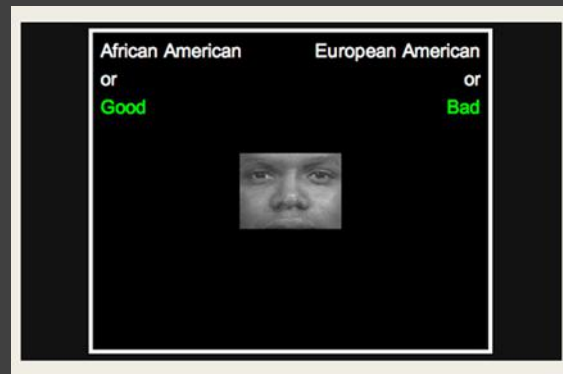
## Step 1: Acknowledge your bias

- Everyone experiences bias
- Human brains are wired to look for patterns and create shortcuts based on our environment
- Subconscious neural connections influence our actions, even when we are not aware of it
  - Everyone has it
  - No one should be embarrassed or shamed
  - We probably can't make it go away
  - We must work to mitigate the effects of implicit bias in healthcare



## Step 1: Acknowledge your bias

- Harvard Implicit Association Test
- Goal – to capture unconscious connections between groups and assigned values
- Works by measuring the time for the subject to match a social group with a positive or negative attribute
- Available for: race, gender, sexual orientation, weight, disability status



## Step 2: Challenge your current negative bias

- If you find yourself treating someone differently because of a bias, take a moment and reflect carefully about your assumptions
- Reflect about what similarities you may have with the person you feel bias towards
- Expose yourself to others that counter the specific perceptions you possess
- Ex. Opioid exposed families



## Step 3: Be empathetic

- You may not have a personal connection with the person/group you feel bias towards
- Find ways to learn more about minority populations that you do not regularly interact with – through books, movies, documentaries



## Step 4: See differences

- The idea of being “colorblind” negates or minimizes a person’s lived experience.
- If we do not find opportunities to learn about other historically marginalized groups, we perpetuate bias



## Step 5: Be an ally

- Step up when we see people discriminated against based on stereotypes
- Ask permission first – don't presume what the other person wants to happen
- “I see what is happening to you and it's not fair.” “Do you want me to do something about this?” “Do you want me to help you do something.”
- Form a plan together



## Step 6: Recognized that this is stressful and painful

- The natural reaction to an uncomfortable moment or conversation is “fight or flight”
- Stay present, stay inquisitive as you begin to counter your stereotypes



## Step 7: Engage in dialogue

- Talk these thoughts through with someone who has a different perspective
- Ask them “how does it feel to be you in the health system?”
- Stop and listen to their response
- Ask yourself how you may have contributed to the bias he/she encountered



## Step 7: Engage in dialogue

- “Oops...Ouch” approach
- Mutual assumption of the good intentions of others
  - When something offensive or harmful is said, it is addressed in the context of helpfulness rather than blame or shame



## How do we get started?

- Have everyone take the implicit association test and reflect in a group on the results
- Share within a small group your reflections on bias
  - When have you experienced bias?
  - When has bias influenced your actions?
- Start by discussing an article, book, television show, documentary that explores bias.
- Ground rules – safe space, “Oops, Ouch” approach



## Equality



## Equity



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A photograph of a baby being held up by an adult, with the baby's arms outstretched. The baby is wearing a white onesie with a logo that says "march of dimes". The background is a soft-focus outdoor scene. The text is overlaid on the image in white, bold font.

If the black infant mortality rate was  
the same as the white infant mortality  
rate in 2017,

**101** more 1 year olds would be alive  
today in Indiana.

# Thank you!

- Lucia Wocial
- Jenny Durica
- Jeena Siela
- Jack Turman
- Nancy Swigonski
- Lisa Crane
- Kara Casavan



# References

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