Michigan Health Equity Status Report

Focus on Maternal and Child Health

Michigan Department of Community Health

2013

RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF COMMUNITY HEALTH
LANSING

JAMES K. HAVEMAN
DIRECTOR

September, 2013

Dear Colleagues:

We are pleased to introduce the first Michigan Health Equity Status Report, which focuses on Maternal and Child Health. This report is a joint effort between the Practices to Reduce Infant Mortality through Equity Project (PRIME) and the Health Disparities Reduction and Minority Health Section (HDRMHS). In 2010 Michigan's non-White population represented 21% of the total population, but 43% of the infant deaths. That same year, a Black infant born in Michigan was 2.6 times as likely to die before its first birthday than a White infant. Similar inequities are apparent in other health outcomes experienced by women, children, and infants living in Michigan.

Health equity is a social issue. This status report presents data for 14 indicators related to the social context in which women and children live. These data provide a snapshot of the non-biological factors that contribute to Michigan's inequities in maternal and child health. It is hoped that these data can be updated on a regular basis, monitoring Michigan's progress toward achieving health equity.

This report was developed in a collaborative effort through the Bureau of Family, Maternal, and Child Health, the Health Disparities Reduction and Minority Health Section, and the Lifecourse Epidemiology and Genomics Division. This type of collaboration is required to address the complicated and multifaceted issue of health inequity. We look forward to your involvement and welcome feedback as we work towards health equity in Michigan.

Sincerely,

Alethia Carr
Director, Bureau of Family, Maternal and Child Health

Sheryl Weir
Manager, Health Disparities Reduction and Minority Health Section

Michigan Health Equity Status Report

Focus on Maternal and Child Health

A joint report of the Practices to Reduce Infant Mortality through Equity Project and the Health Disparities Reduction and Minority Health Section

2013

Michigan Department
of Community Health

M DCH

September, 2013

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For more information about the Health Disparities Reduction and Minority Health Section please contact Sheryl Weir at weirs@michigan.gov or visit www.michigan.gov/minorityhealth.

Practices to Reduce Infant Mortality through Equity (PRIME)

The Practices to Reduce Infant Mortality through Equity (PRIME) project is a 3-year project funded by the W.K. Kellogg Foundation and implemented by the Michigan Department of Community Health.

The goal of PRIME is to reduce disparities in infant mortality rates among African Americans and American Indians living in Michigan. PRIME aims to achieve this by developing a set of resources, trainings, and tools that will enable MDCH staff to more effectively create programs, projects, and policies that will have a lasting impact on reducing Michigan's racial disparities in infant mortality rates. Central to PRIME's work are five basic assumptions:

- Determinants of health disparities are complex and rooted in historical, political and cultural factors.
- The cognitive development of individuals is necessary but insufficient for addressing racial health disparities.
- Education and training must help staff perform their day-to-day jobs in a way that is consistent with the mission and vision of MDCH and is conducive to reducing disparities .
- High quality data is needed to better understand how and where to intervene to reduce health disparities .
- Data should be used to document disparities, evaluate the effectiveness of interventions and policies, and help guide where and how MDCH intervenes.

This document was created as part of the PRIME project, in conjunction with MDCH's Health Disparities Reduction and Minority Health Section, to use data to describe the current state of equity as it relates to the social experience of pregnant women, new mothers, and infants in Michigan. Future updates to this report can be used to monitor how that experience is changing.

For more information about this document or the PRIME project, please contact Brenda Jegede at prime@michigan.gov or visit the webpage at www.michigan.gov/dchprime.

Introduction

In 1970, the African American infant mortality rate in Michigan was 30.6 infant deaths for every 1,000 live births. The White infant mortality rate in 1970 was 18.5. Fast forward to 2010, and the African American infant mortality rate fell to 14.2 while the White infant mortality rate fell to 5.5[1]. While both infant mortality rates decreased markedly over the 40 years, these declines in infant mortality rates mask an increase in disparities. The Black:White infant mortality rate ratio in 1970 was 1.7; by 2010 this ratio had increased to 2.6[1]. In other words, in 1970 an African American infant born in Michigan was 1.7 times as likely to die before their first birthday as a White infant; but in 2010 that same infant would be 2.6 times as likely to die by age 1 as a White infant. Efforts to decrease the infant mortality rates in Michigan are working, but while the overall infant mortality rate decreases, the disparities are increasing.

Current efforts are failing to achieve health equity.

The purpose of the *Michigan Health Equity Status Report* is to provide data that illustrate the state of inequity in Michigan as of 2010. In future years additional data can be used to monitor Michigan's progress towards Health Equity. This status report contains four parts:

- Introductory summaries of health equity, social determinants of health, and the life course theory
- Series of factsheets about social determinants relevant to maternal and child health.
- Data tables that complement the factsheets
- Appendices for Action

This report is meant to be used by public health practitioners. We hope that it will inspire action and change.

Key Terms:

- **Health disparities:** Measured health differences between two populations, regardless of the underlying reasons for the differences.
- **Health inequities:** Differences in health across population groups that are systemic, unnecessary and avoidable, and are therefore considered unfair and unjust.
- **Health equity:** The absence of systematic disparities in health and its determinants between groups of people at different levels of social advantage. To attain heath equity means to close the gap in health between populations that have different levels of wealth, power, and/or social prestige.
- **Social determinants of health:** Social, economic, and environmental factors that contribute to the overall health of individuals and communities. Social factors include, for example, racial and ethnic discrimination; political influence; and social connectedness. Economic factors include income, education, employment, and wealth. Environmental factors include living and working conditions, transportation, and air and water quality.

-Michigan Health Equity Roadmap[2]

Health Equity

Health Equity is the absence of systematic disparities in health and its determinants between groups of people at different levels of social advantage[2]. Put another way, health equity is "a fair, just distribution of the opportunities and resources needed to obtain well being" (D. Bloss[3]). To attain health equity means to close the gap in health between populations that have different levels of wealth, power, and/or social prestige.

In this definition of health equity, health is broadly defined and refers to physical and mental health; it is not limited to the absence of disease[4]. Social advantage refers to levels on a social hierarchy based on power, wealth, and social prestige[4]. If worse health outcomes are systematically associated with groups at lower levels of social advantage, health equity does not exist.

It is important to distinguish between health inequities and health disparities. *Health disparities* refer to measured differences between two groups, but do not indicate a reason for the differences. *Health inequities* refer to disparities that are avoidable and unjust. Disparities are not always inequities. Consider two groups; Group A has a higher all-cause mortality rate than Group B. If the only difference between Group A and Group B is that Group A is older, the difference in mortality rates is to be expected - it is a disparity but not an inequity. If, on the other hand, Group A lives in neighborhood A and Group B lives in neighborhood B, the difference in mortality rates is likely an inequity.

> **Limits to the freedom to choose healthy behaviors, unhealthy and stressful living and working conditions, inadequate access to healthcare and other services, and the inability to maintain social standing due to sickness and poor health are all examples of how social determinants of health drive health inequities.**

To further clarify the difference between a disparity and an inequity, Margaret Whitehead lists seven possible causes of differences in health between two groups, excerpted here[5]:
1. Natural, biological variation.
2. Health-damaging behavior *if freely chosen*, such as participation in certain sports and pastimes.
3. The transient health advantage of one group over another when that group is first to adopt a health-promoting behavior (as long as other groups have the means to catch up fairly soon).
4. Health-damaging behavior *where the degree of choice of lifestyles is severely restricted*.
5. Exposure to unhealthy, stressful living and working conditions.
6. Inadequate access to essential health and other public services.
7. Natural selection or health-related social mobility involving the tendency for sick people to move down the social scale.

The first three things on this list would lead to health disparities, but only the final four would lead to health inequities[5]. Limits to the freedom to choose healthy behaviors, unhealthy and stressful living and working conditions, inadequate access to healthcare and other services, and the inability to maintain social standing due to sickness and poor health are all examples of how social determinants of health drive health inequities. These final four causes of differences in health are the focus of this document. They are addressed in the next section and throughout the document.

Social Determinants of Health

Social determinants of health are the social, economic, and environmental factors that contribute to the overall health of individuals and communities[2]. Examples of social determinants include:

- Racism
- Education
- Poverty
- Transportation
- Affordable Housing
- Neighborhood Safety
- Social Cohesion
- Stress
- Employment

One of the first modern studies to demonstrate the impact of social factors on health was the Whitehall Study, conducted by Sir Michael Marmot in the United Kingdom. By following a cohort of 17,530 male civil service employees, all of whom had desk jobs in London, Marmot and colleagues showed that employees in the lowest employment grade had mortality rates three times higher than employees in the highest employment grade, even after controlling for age, smoking, and other risk factors. They attributed this difference to differences in social class[6]. The Whitehall study was key in establishing evidence that social factors are important determinants of health, in addition to biological factors. Since the first Whitehall study was published in 1978, a multitude of studies has demonstrated associations between social factors and nearly all health outcomes examined[6]. Examples of some of these findings as they relate to maternal and child health will be provided throughout this document.

> "...Social factors such as socioeconomic status and social support are likely "fundamental causes" of disease that, because they embody access to important resources, affect multiple disease outcomes through multiple mechanisms, and consequently maintain an association with disease even when intervening mechanisms change. Without careful attention to these possibilities, we run the risk of imposing individually-based intervention strategies that are ineffective and missing opportunities to adopt broad-based societal interventions that could produce substantial health benefits for our citizens..."
>
> -Link and Phelan, 1995[8]

Social determinants are considered "causes of causes" of poor health outcomes. For example, living in an unsafe neighborhood can cause stress and limited physical activity, both of which in turn can cause cardiovascular disease. This is the same idea behind describing social determinants as "upstream" factors. Additionally, one social determinant affects multiple disease pathways and health outcomes, and the association between a determinant and health outcome is unlikely to change if just one pathway is addressed. For this reason, social determinants are described as "fundamental causes"[8].

> "If one genuinely wants to alter the effects of a fundamental cause, one must address the fundamental cause itself."   -Link and Phelan, 1995[8]

Social Determinants of Health, Continued

The figure below illustrates a conceptual model from Richard Hofrichter and NACCHO, excerpted from page 245 of *Tackling Health Inequities Through Public Health Practice: A Handbook for Action[9]*. As this figure shows, the interplay is complex and multi-directional.

Figure 1. Conceptual model illustrating connection between social injustices, social determinants of health, and health inequity.
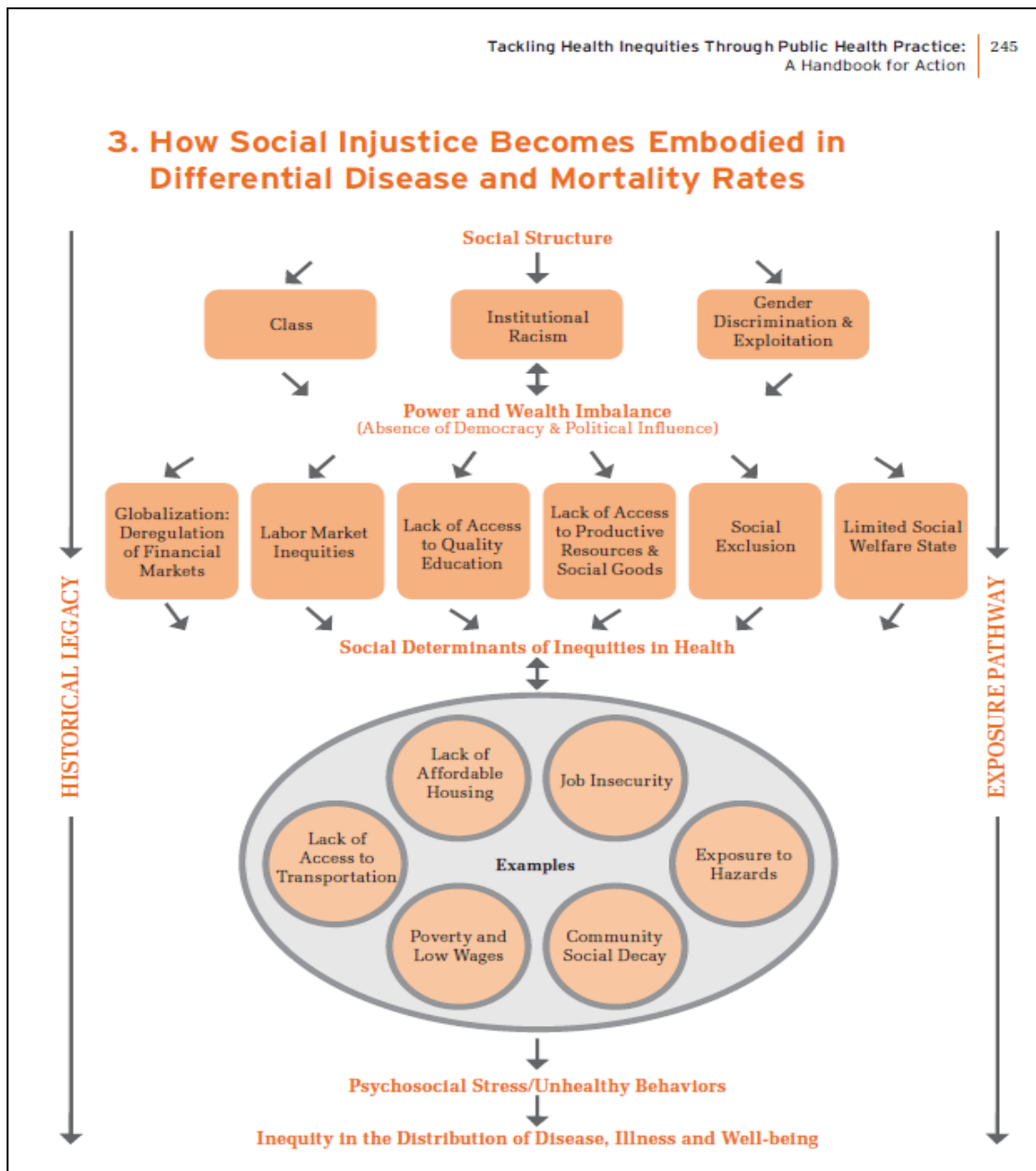
Source: Hofrichter, R[9]

The Life Course Perspective

It is impossible to discuss social determinants of health and maternal and child health (MCH) without incorporating the Life Course Perspective[10]. Throughout a child's development and into adulthood, he or she will be exposed to various risk and protective factors. The life course model states that a woman's exposure to these different factors throughout her life strongly influence her reproductive potential and the health of her children. This includes exposures while she herself was in-utero and during sensitive developmental stages, and the cumulative physical, social, and environmental exposures throughout her life[10]. The key implication of this model for maternal and child health is that healthy birth outcomes are influenced by the woman's experiences long before pregnancy. MCH programs should therefore focus on the health of a woman throughout her life. This is clearly reflected in Goal 6 of the State of Michigan's Infant Mortality Reduction Plan[11]. Additionally, while the life course perspective typically focuses on women's health throughout the life course, male fertility can also be influenced by lifetime exposures (for example, through environmental impacts on sperm production and quality[12]).

"Long-term investments in women's life-course health development will likely yield greater returns on future birth outcomes than will short-term investments in quick fixes during prenatal care."

-Lu and Halfon, 2003[10]

The Life Course Perspective is particularly relevant when considering racial and ethnic disparities in birth outcomes. Exposure to racism, and increased likelihood of exposure to harmful physical, social, and environmental risk factors throughout the life course, accumulate and contribute to worse birth outcomes for nonwhite women than for white women. This is illustrated below in Figure 2. A detailed list of things that could reduce the birth outcome disparities between Blacks and Whites can be found in Appendix F[13].

Figure 2. Copied from Lu and Halfon, 2003[10]. "Down arrows represent risk factors and up arrows represent protective factors. The y-axis represents reproductive potential. African American women's increased exposure to risk factors throughout the life course and White women's increased exposure to protective factors throughout the life course helps to explain disparities in birth outcomes between the two groups."
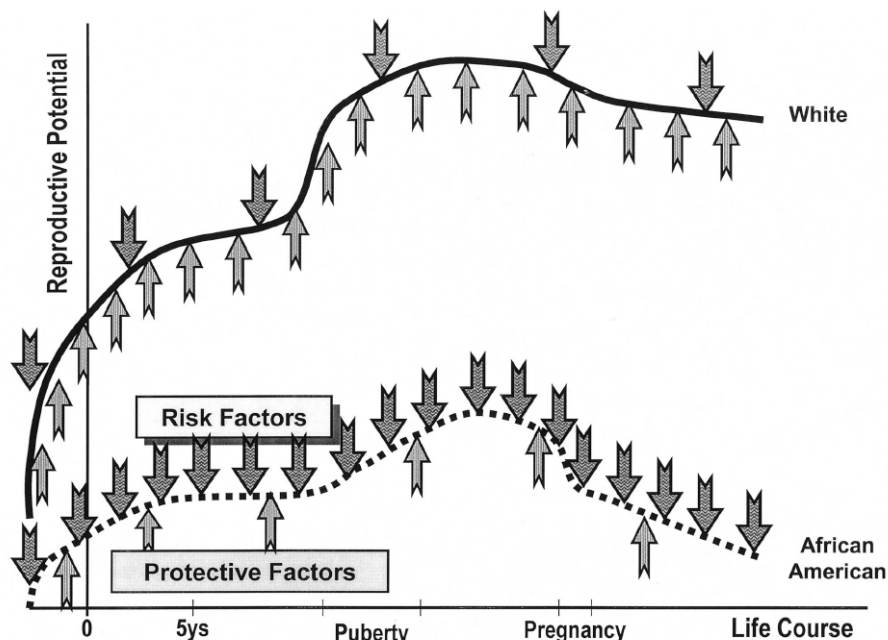
Source: Lu and Halfon, 2003[10]

Social Determinants Indicators

The following pages present a series of indicators, all of which are social determinants related to maternal and child health and infant mortality. Indicators are categorized as psychosocial factors, socioeconomic position, basic needs, or healthcare access. These indicators were selected based on relevance to maternal and child health and on data availability, and are described in Appendix A.

Each indicator is presented by race and ethnicity. We present data for all races and ethnicities for which sample sizes were large enough; if data for a specific population is not shown it is because the sample size was too small to calculate a reliable estimate*. Appendix A presents detailed information about the indicators and data sources, and Appendix B shows a series of data tables that present estimates, confidence intervals, and disparity ratios for each indicator.

For this project, the Non-Hispanic White population was chosen as a reference because this population is not exposed to racial/ethnic discrimination and is therefore the appropriate reference to use to measure the effects of this discrimination. All disparities are therefore calculated and discussed as the difference and/or ratio between the nonwhite population and white population.

CONTROLLING DISEASE AND CREATING DISPARITIES[*]
"It is our enormously expanded capacity to control disease and death in combination with existing social and economic inequalities that create health disparities by race and Socioeconomic Status...When we develop the ability to control disease and death, the benefits of this new-found ability are distributed according to resources of knowledge, money, power, prestige, and beneficial social connections. Those who are advantaged with respect to such resources benefit more from new health enhancing capabilities and consequently experience lower mortality rates. Disparities[*] are the result."

-Phelan and Link, 2005[14]

Collectively, the data and figures that follow illustrate the inequity in the lived experiences of women in Michigan. It is hoped that in future years it will be easy to update these data to monitor trends and changes in these experiences. If you are interested in similar data for additional indicators, data may be available online or through MDCH's Lifecourse Epidemiology and Genomics Division.

*Lack of data about small populations or sample sizes too small to calculate reliable estimates may in and of itself perpetuate disparities if the result is that these populations are unable to measure the health of their population, develop appropriate interventions, or gain funding to implement interventions.

Psychosocial

Psychosocial determinants of health are human interactions that cause stress or other psychological or biological responses. These can include power dynamics and status in a social hierarchy, social disorder and change, social marginalization and/or isolation, and social support (or lack thereof)[15]. This report presents data for four psychosocial factors:

- Racism
- Intimate Partner Violence
- Stress
- Partner Support (measured by Female-Headed Households)

Evidence linking racism to maternal and child health outcomes:

- Several studies have found a mother's self-reported experience of racism to be associated with very low birth weight and preterm infants[16]. Additionally, Collins et al. found that as a woman's exposure to racism increased, the odds of giving birth to a very low birthweight infant also increased[17]. A woman exposed to racism in 1 or more life domains (e.g., work, healthcare, receiving service at a store) was 1.7 times as likely to give birth to a very low birthweight infant as a woman who was not exposed to racism, after controlling for maternal age, education, and smoking; a woman exposed to racism in 3 or more domains was 2.6 times as likely.

Evidence linking intimate partner violence to maternal and child health outcomes:

- Pregnancy Risk Assessment Monitoring System (PRAMS) data from 26 states showed that women reporting an experience of intimate partner violence (IPV) in the year before giving birth had higher risks for pregnancy complications, including high blood pressure, vaginal bleeding, nausea/vomiting/dehydration, and hospital visits; and infant morbidities, including preterm birth, low birthweight infant, and infants transferred to the Neonatal Intensive Care Unit[18].

Evidence linking stress to maternal and child health outcomes:

- Stress is associated with poor health; studies have found associations between chronic stress and risk factors for diabetes, heart disease, and other chronic conditions[19]. Lifelong stress and stress during pregnancy have been associated with preterm labor and delivery, low birth weight, gestational diabetes, and developmental delays in children exposed to maternal stress in utero[20]. Stress is a key component of the life course model[10].

Evidence linking partner support to maternal and child health outcomes:

- Single mothers are exposed to increased stress on several levels, including the lack of social and economic support from a partner. Compared with married mothers, unmarried mothers have been shown to have higher odds of low birth weight (LBW), preterm (PTB), small for gestational age (SGA), and infant mortality[21,22]. A study of 720,586 Canadian births identified a dose-response relationship between partnership status and risk for adverse birth outcomes, with the risk of LBW, PTB, SGA, and infant mortality increasing in order of legal marriages, common-law unions, single mothers with father named, and single mothers with fathers unnamed[22]. Additionally, one study found that women in relationships with unsupportive partners showed a higher risk for antenatal depression than unpartnered women[23], pointing to the importance of considering the quality of the relationship in addition to whether or not a mother is partnered.

Racism in Michigan, 2010

Percent of women who were emotionally upset as a result of how they were treated based on their race
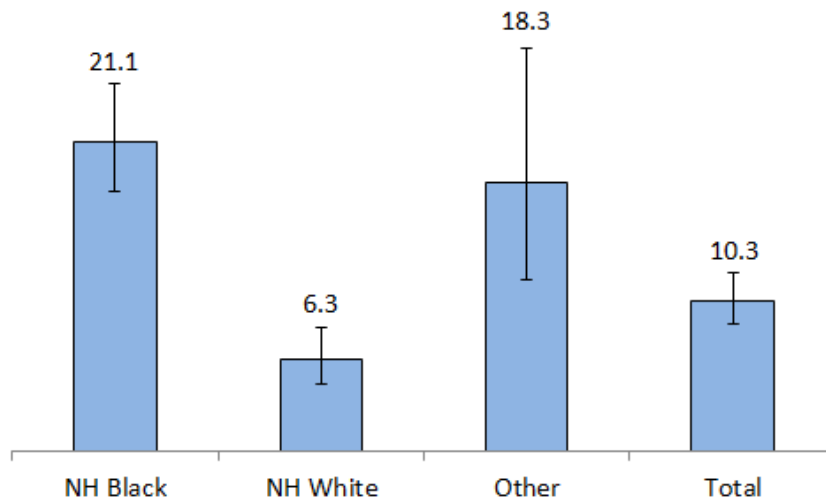
The figure above uses data from the 2010 Michigan Pregnancy Risk Assessment Monitoring System (PRAMS) to show the percent of women who reported that, during the 12 months before their baby was born, they felt emotionally upset as a result of how they were treated based on their race. This could include feeling angry, frustrated, or sad. Measuring a woman's emotional reaction to racism is one way to measure a mechanism by which exposure to racism may impact pregnancy and birth outcomes. The error bars represent 95% confidence intervals around each estimate. For smaller populations the error bars are very wide, and these estimates should be interpreted cautiously as they are not very precise.

Not unexpectedly, the percentage of White, Non-Hispanic women reporting these reactions to race-based treatment was lowest at 6.3%. Nearly three times as many women of Other races, and 3.4 times as many Black, Non-Hispanic women reported these feelings. One in ten (10.3%) of all women surveyed reported these feelings, while nearly one in five Non-White women reported these feelings (21.1% for Black, Non-Hispanic women and 18.3% for women of Other, Non-White races). It should be noted that we present data on experiences of racism in the 12 months before pregnancy because that is what is available, however, the cumulative effects of discrimination throughout the lifetime may be as important or more important in predicting poor birth outcomes.

Data Source: 2010 Michigan PRAMS Weighted Frequencies, provided by Cristin Larder, Michigan PRAMS, MDCH
Data suppressed when unweighted frequency <6
"Other" includes all individuals who did not identify as Non-Hispanic Black or Non-Hispanic White

Intimate Partner Violence in Michigan, 2010

Percent of women reporting experiencing intimate partner violence before or during pregnancy, by race
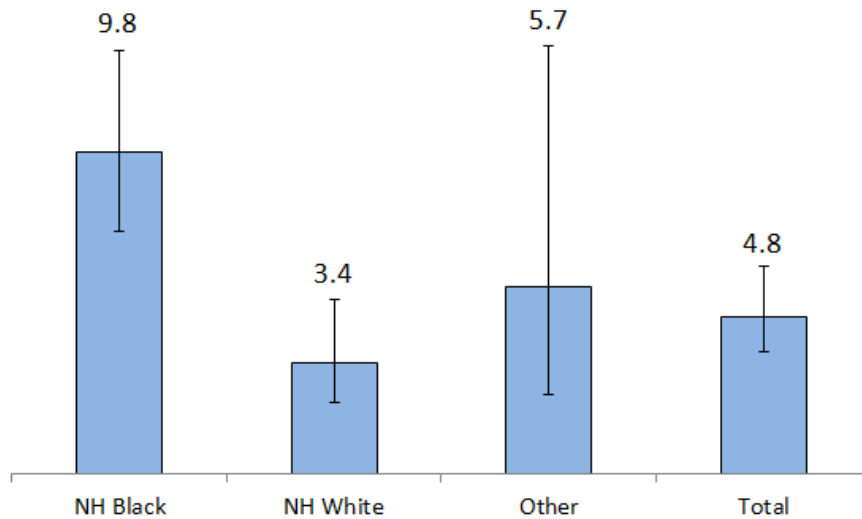
The figure above uses data from the 2010 Michigan Pregnancy Risk Assessment Monitoring System (PRAMS) to show the percent of women who reported experiencing intimate partner violence (IPV) before or during pregnancy. The actual experience of IPV may be higher than what is reported here. The error bars represent 95% confidence intervals around each estimate. For smaller populations the error bars are very wide, and these estimates should be interpreted cautiously as they are not very precise.

IPV is experienced by all populations in Michigan. Close to 1 in 20 (4.8%) women surveyed reported experiencing IPV before or during pregnancy. However, the data above also show a large racial disparity. 9.8% of Non-Hispanic, Black women reported experiencing IPV, which is nearly three times greater than the 3.4% of White, Non-Hispanic women reporting IPV. The percentage of women of Other races (5.7%) is also higher than what is reported for White, Non-Hispanic women, but this difference is not statistically significant.

Data Source: 2010 Michigan PRAMS Weighted Frequencies, provided by Cristin Larder, Michigan PRAMS, MDCH
Data suppressed when unweighted frequency <6
"Other" includes all individuals who did not identify as Non-Hispanic Black or Non-Hispanic White

Stress in Michigan, 2010

Number of life stressors experienced by women in the year before giving birth
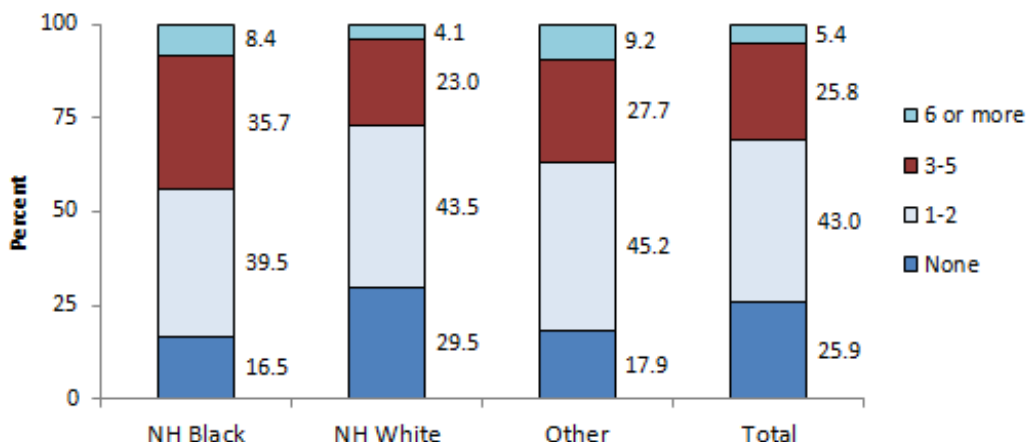
Top life stressors in the year before delivery, in order of frequency for each race

	Black, Non-Hispanic	White, Non-Hispanic	Other	Total (All Races)
1	Moved to a new address (38.1%)	Moved to a new address (34.5%)	Moved to a new address (45.5%)	Moved to a new address (36.4%)
2	Argued with partner more than usual (35.2%)	Close family member was hospitalized (26.2%)	Argued with partner more than usual (37.9%)	Argued with partner more than usual (26.5%)
3	Close person died (32.4%)	Argued with partner more than usual (22.5%)	Had a lot of bills that couldn't pay (26.1%)	Close family member was hospitalized (25.9%)
4	Close family member was hospitalized (29.7%)	Close person died (17.9%)	Close person had a drinking or drug problem (19.4%)	Close person died (20.6%)
5	Had a lot of bills that couldn't pay (24.1%)	Had a lot of bills that couldn't pay (17.6%)	Close person died (18.8%)	Had a lot of bills that couldn't pay (19.7%)
6	Partner said didn't want pregnancy (17.3%)	Close person had a drinking or drug problem (13.8%)	Close family member was hospitalized (17.1%)	Close person had a drinking or drug problem (14.3%)
7	Partner lost job (15.8%)	Partner lost job (13.4%)	Partner lost job (14.2%)	Partner lost job (13.9%)
8	Mother lost job though wanted to keep working (14.2%)	Mother lost job though wanted to keep working (9.8%)	Mother lost job though wanted to keep working (12.8%)	Mother lost job though wanted to keep working (10.9%)

Female-Headed Households in Michigan, 2006-2010

Percent of female-headed households with no husband present and children <18 years

KEY

AI/AN: American Indian or Alaska Native

A/C/S: Assyrian, Chaldean, or Syriac

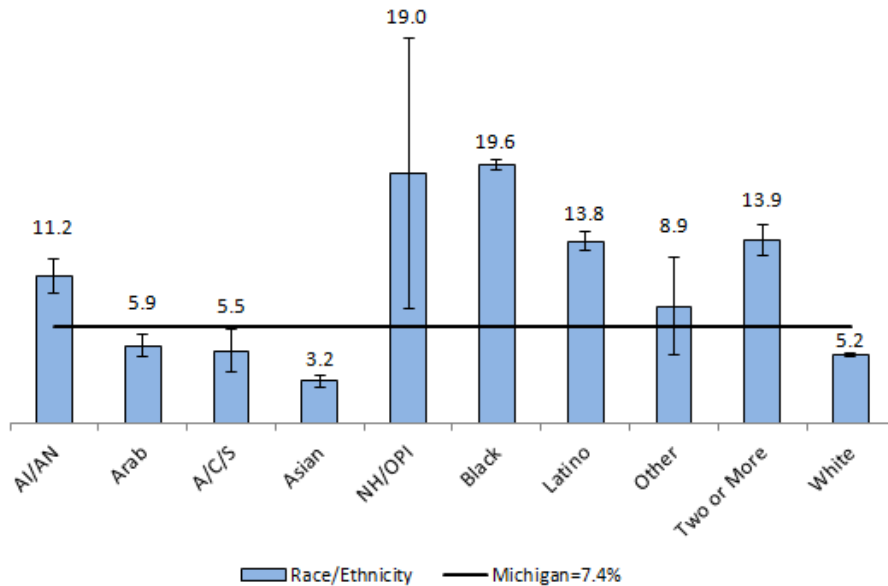NH/OPI: Native Hawaiian or Other Pacific Islander

Latino: Hispanic, Latino, or Spanish Origin

Other: Some Other Race

Two or More: Two or More Races

All groups are Non-Hispanic, with the exception of Arab, A/C/S, and Latino

The figure above shows 2006-2010 Michigan data from the American Community Survey. Of all households surveyed, the figure shows what percentage of family households are headed by a female, where no husband is present and she is living with her own children under 18 years. The error bars represent 90% confidence intervals around each estimate. For smaller populations the error bars are very wide. These estimates should be interpreted cautiously as they are not very precise.

On average, 7.4% of Michigan family households are headed by a woman. When looking at racial/ethnic groups individually, Arab (5.9%), Assyrian/Chaldean/Syriac (5.5%), Asian (3.2%), and White (5.2%) households are below the state average; while American Indian/Alaska Native (11.2%), Native Hawaiian or Other Pacific Islander (19.0%), Black (19.6%), Latino (13.8%) and Two or More Races (13.9%) households are above the state average. Households of Other races (8.9%) are not statistically different from the state percent.

Despite the wide error bars for some populations, it is clear that there is great variation by race/ethnicity. The percent of black female-headed households is 3.8 times greater than the percent of similar white households; the percent of Native Hawaiian/Other Pacific Islander households is 3.7 times greater than the percent of White households, the percent of Latino and Two or More Races households are 2.7 times greater than the percent of white households, and the percent of American Indian/Alaska Native female-headed households are 2.2 times greater than the percent of similar White households. Female-headed Asian households, on the other hand, are 0.6 times, or 40% less, the percent of similar White households. Disparities not described in the text were not statistically different from White households.

Data Source: U.S. Census Bureau, 2006-2010 American Community Survey

Socioeconomic Position

Socioeconomic position describes both access to resources and social prestige. This can include income, wealth, education, poverty, consumption habits, and occupation[24].

This hand book presents data for three socioeconomic determinants:

- Education
- Unemployment
- Poverty

Less education, unemployment, and poverty have been shown repeatedly to be associated with poor birth outcomes. A review of 106 studies investigating associations between socioeconomic disparities and birth outcomes found that 93 studies showed at least one significant association between a socioeconomic disparity and poor birth outcome. The socioeconomic disparities could be one or more of income, education, occupation, and neighborhood deprivation; and the birth outcomes could be one or more of low birth weight, preterm birth, or small for gestational age. The review included evidence of significant associations between each socioeconomic determinant and each birth outcome[25].

The same is true in Michigan. The figure below shows 2007-2009 Michigan infant mortality rates by percent of residents in census tracts living below federal poverty level. The bar on the far left shows that the infant mortality rate for infants born to mothers living in the lowest poverty census tracts, those with 5% poverty or less, was 5.4 infant deaths per 1,000 live births. As the level of poverty increases, the infant mortality rates steadily rise. In census tracts with poverty rates of 20% or more the infant mortality rate was 13.0 infant deaths per 1,000 live births; 2.4 times greater than the infant mortality rate in census tracts with <5% poverty.

Infant mortality rates by census tract poverty level, Michigan 2007-2009
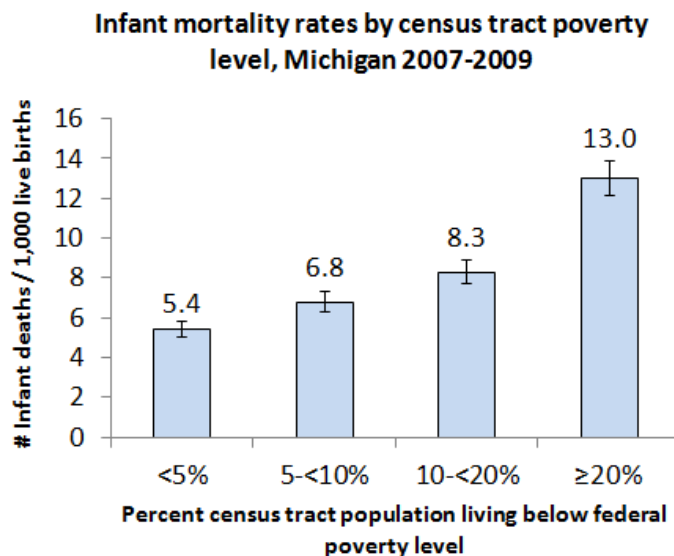
Source: Glenn Radford, 2007-2009 Michigan Resident Birth and Death Files, Division for Vital Records & Health Statistics, MDCH

Education in Michigan, 2006-2010

Percent of population 25 years or older who are high school graduates or more
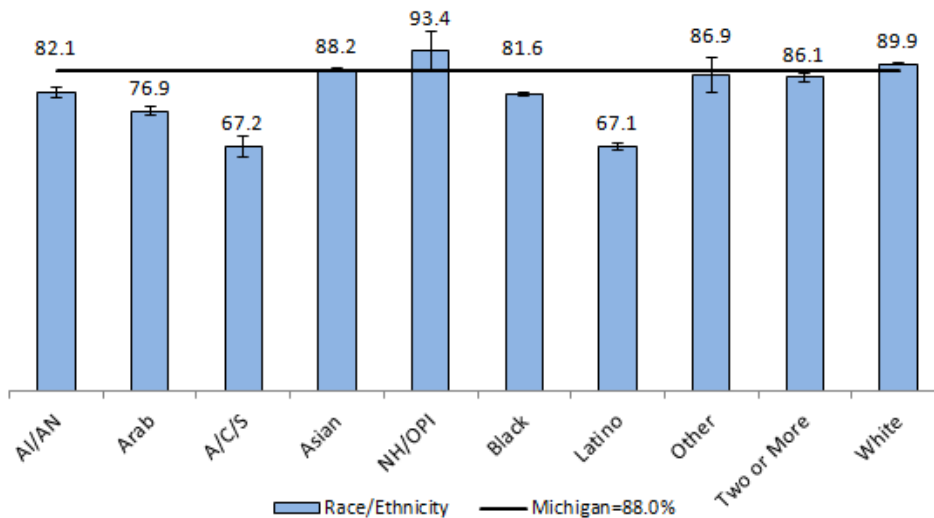
Legend: Race/Ethnicity — Michigan=88.0%

Values shown: AI/AN 82.1, Arab 76.9, A/C/S 67.2, Asian 88.2, NH/OPI 93.4, Black 81.6, Latino 67.1, Other 86.9, Two or More 86.1, White 89.9

KEY

AI/AN: American Indian or Alaska Native

A/C/S: Assyrian, Chaldean, or Syriac

NH/OPI: Native Hawaiian or Other Pacific Islander

Latino: Hispanic, Latino, or Spanish Origin

Other: Some Other Race

Two or More: Two or More Races

All groups are Non-Hispanic, with the exception of Arab, A/C/S, and Latino

The figure above uses 2006-2010 Michigan data from the American Community Survey to show what percentage of the population (25-years and older) have a high school diploma or more. The error bars represent 90% confidence intervals around each estimate. For smaller populations the error bars are very wide. These estimates should be interpreted cautiously as they are not very precise.

On average, 88% of Michiganders over the age of 25 are high school graduates. The population with the highest percentage of high school graduates is Native Hawaiian/Other Pacific Islanders (93.4%), although due to wide error bars this estimate is not statistically different from the state percentage or from some of the other populations. The Asian (88.2%) and White (89.9%) populations are higher than the state percent. The two populations with the lowest percentage of high school graduates are Assyrian, Chaldean, or Syriac (67.2%) and Latino (67.1%). The American Indian (82.1%), Arab (76.9%), Black (81.6%), and Two or More Races (86.1%) populations are also lower than the state percentage. Large disparities exist by race/ethnicity. While the estimated percentage is larger for Native Hawaiian/Other Pacific Islanders than for Whites, this difference is not statistically significant. The estimated percentages for all other groups except Other Races are all statistically lower than the White percentage. The largest disparity is observed between Assyrian/Chaldean/Syriacs and Whites and Latinos and Whites.   Whites are 1.3 times as likely to have a high school diploma or more education as both of these populations.

Data Source: U.S. Census Bureau, 2006-2010 American Community Survey

Unemployment in Michigan, 2006-2010

Percent of civilian labor force over 16 years that is unemployed

KEY

AI/AN: American Indian or Alaska Native
A/C/S: Assyrian, Chaldean, or Syriac
NH/OPI: Native Hawaiian or Other Pacific Islander
Latino: Hispanic, Latino, or Spanish Origin
Other: Some Other Race
Two or More: Two or More Races
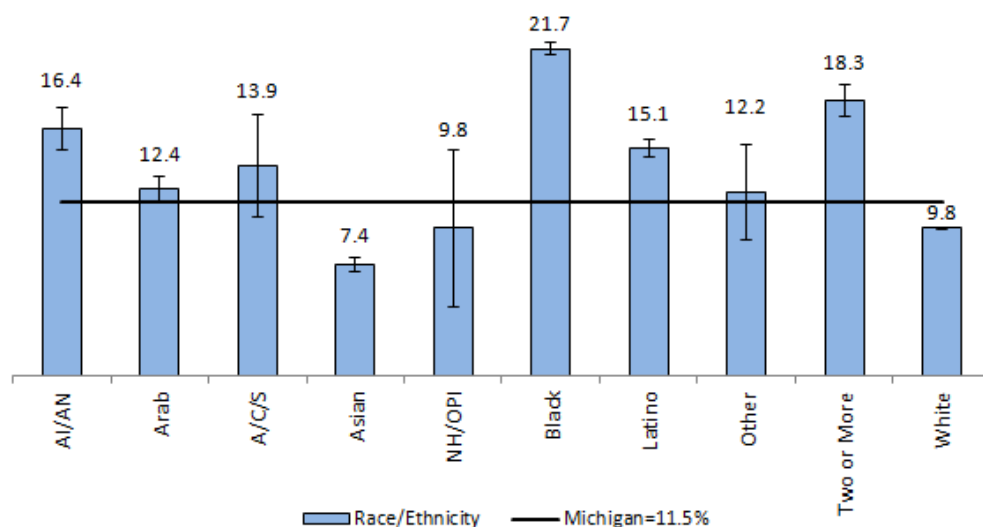All groups are Non-Hispanic, with the exception of Arab, A/C/S, and Latino

The figure above uses 2006-2010 Michigan data from the American Community Survey* to show what percentage of the population (16 years or older and in the civilian labor force) is unemployed. The error bars represent 90% confidence intervals around each estimate. For smaller populations the error bars are very wide. These estimates should be interpreted cautiously as they are not very precise.

On average, 11.5% of the Michigan civilian labor force over the age of 16 is unemployed. The unemployment rate is lower than the state rate among Asians (7.4%) and Whites (9.8%), and higher among American Indian/Alaska Natives (16.4%), African Americans (21.7%), Latinos (15.1%), and Two or More Races (18.3%). Arab (12.4%), Assyrian/Chaldean/Syriac (13.9%), Native Hawaiian/Other Pacific Islander (9.8%), and Other (12.2%) unemployment rates are not statistically different from the state rate.

As with other indicators, large disparities in unemployment rates are evident. The Asian unemployment rate is more than 20% lower than the White unemployment rate - Whites were 1.3 times as likely as Asians to be unemployed. The largest disparity using White as the reference population was between African Americans and Whites; African Americans were 2.2 times as likely as Whites to be unemployed in Michigan between 2006 and 2010. Two or More Race individuals were 1.9 times as likely as Whites, American Indians/Alaska Natives were 1.7 times as likely, Latinos were 1.5 times as likely, and Assyri-Chaldean/Syriacs were 1.4 times as likely as Whites to be unemployed in Michigan from 2006-2010.

Data Source: U.S. Census Bureau, 2006-2010 American Community Survey
* Note: Unemployment rates are typically reported from the Bureau of Labor Statistics (BLS) data, which differ slightly from American Community Survey data. However, the BLS is not able to provide data for smaller racial and ethnic populations.

Poverty in Michigan, 2006-2010

Percent of population living below the federal poverty level
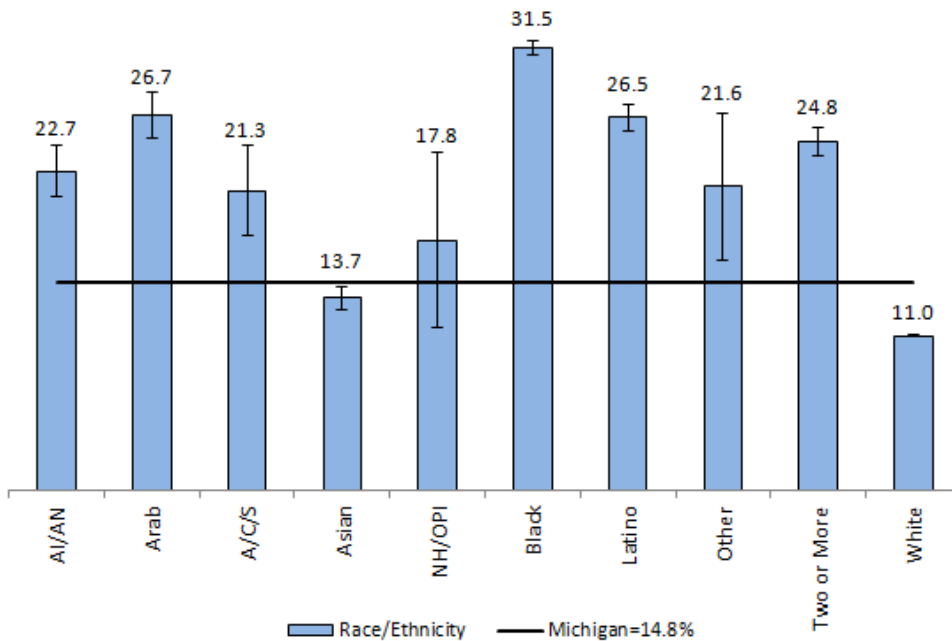
KEY

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Other: Some Other Race
Two or More: Two or More Races
All groups are Non-Hispanic, with the exception of Arab, A/C/S, and Latino

The figure above uses 2006-2010 Michigan data from the American Community Survey to show what percentage of the population was living below the federal poverty level. The error bars represent 90% confidence intervals around each estimate. For smaller populations the error bars are very wide. These estimates should be interpreted cautiously as they are not very precise.

On average, 14.8% of the Michigan population was living below the federal poverty level between 2006 and 2010. The only racial/ethnic groups with population averages below the state average were Whites (11.0%) and Asians (13.7%). At 17.8%, the percentage of Native Hawaiian/Other Pacific Islanders living in poverty was not statistically different from the state average. All other populations had much higher percentages living in poverty than the state average: American Indian/Alaska Native (22.7%), Arab (26.7%), Assyrian/Chaldean/Syriac (21.3%), African American (31.5%), Latino (26.5%), Other Races (21.6%), and Two or More Races (24.8%).

The disparities among non-Whites compared to Whites are enormous. All populations except Asians and Native Hawaiian/Other Pacific Islanders were at least twice as likely as Whites to live in poverty. Asians were 1.25 times as likely and Native Hawaiian/Other Pacific Islanders were 1.6 times as likely as Whites to live below the federal poverty level. The largest disparity was among African Americans, who were roughly 3 times as likely as Whites to live below the federal poverty level—286% as likely.

Socioeconomic Determinants and Race

Socioeconomic determinants of health are frequently used to explain racial and ethnic health disparities. It is true that socioeconomic determinants are correlated with race/ethnicity and may explain some observed differences in health. However, it must be emphasized that socioeconomic determinants *do not* completely explain racial/ethnic disparities; race/ethnicity plays an independent role. Two examples here illustrate this point. Both figures show infant mortality rates for Blacks (red) and Whites (blue).

The first figure shows infant mortality rates for four levels of poverty, determined by the % poverty in the census tract where the mother lived when she delivered. As poverty increases from left to right, infant mortality rates increase for both Blacks and Whites, demonstrating that as poverty increases infant mortality rates increase: poverty is associated with infant mortality. However, this figure also shows that at every level of poverty the Black infant mortality rate is higher than the White infant mortality rate. In fact, the Black infant mortality rate at the lowest level of poverty (13.0) is higher than the White infant mortality rate at the highest level of poverty (7.6). Poverty does not explain racial disparities in infant mortality rates.

Infant mortality rates by race and census tract poverty level, Michigan 2005-2009
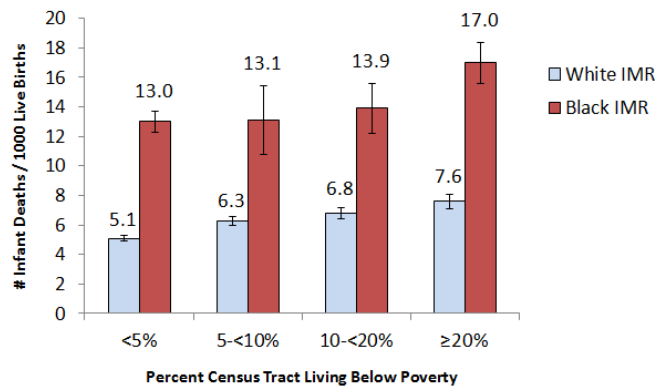
Source: Glenn Radford, 2005-2009 Michigan Resident Birth and Death Files, Division for Vital Records & Health Statistics, MDCH

The second figure shows infant mortality rates for four levels of maternal education. Again, we see that for both Black and White mothers, infant mortality decreases as the mother's education increases; education is associated with infant survival. However, again we see the same pattern: at all levels of education the Black infant mortality rate is higher than the White infant mortality rate, and the infant mortality rate for infants born to Black mothers who are college graduates or more is *higher* than the infant mortality rate for infants born to White mothers with less than a high school education. Additionally, the black line plots the disparity ratio between Black and White infant mortality rates increases with education. As education increases the disparity between Black and White infant mortality actually *increases*. As the impact of education on infant mortality is removed, the disparities between Black and White infant mortality become more visible and are more clearly linked to other factors experienced by the mothers. Education does not explain racial disparities in infant mortality rates.

Infant Mortality Rates by education and race, Michigan (2005-2009)
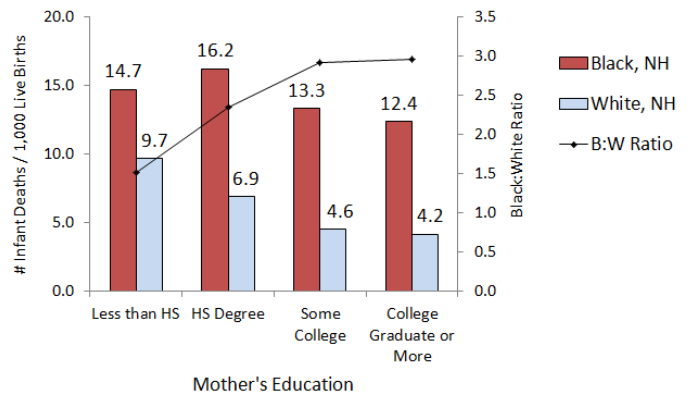
Source: CDC Wonder[26]

This does not mean that poverty and education are not important determinants of health, they are, but it does mean that they cannot be used to explain racial and ethnic disparities in infant mortality. Reducing these disparities requires an explicit focus on the role of race.

Basic Needs

The concept of "basic needs" is one approach used to understand poverty. With insufficient supply of any of the basic needs, an individual might be considered to be living in poverty. For this report, we expand the definition to include determinants related to daily living. Other things that might be included here are food and water access, clothing, telephone and electricity, and sanitation.

This report presents data for four basic needs determinants:
- Transportation
- Affordable Housing
- Neighborhood Safety
- Sleep Environment

These determinants are a tangible demonstration of how social determinants influence health. Affordable housing, neighborhood safety, access to transportation, and sleep environments are often the first social determinants of health cited because their importance to health is clear. For example, lacking transportation was cited by 2.4% of Michigan PRAMS respondents as a barrier to accessing prenatal care as early as they would have liked (details on page 24 of this report). However, basic needs are sometimes intermediate determinants— the ability to access adequate transportation, housing, and neighborhood safety are often determined by psychosocial and socioeconomic determinants such as income, employment, and institutional racism*. The impact of these psychosocial and socioeconomic determinants on health can be played out through access to basic needs.

In addition to the barriers imposed by inadequate transportation, unaffordable housing, and lack of nutritious foods, one way in which lacking these things impacts maternal and infant health is through the stress it places on the mother. As reported on page 12 of this report, moving to a new address was consistently the top stressor experienced in the year before pregnancy, as reported by the 2010 Michigan PRAMS respondents. Additionally, in a national study of 9,645 children, Ashiabi and O'Neal found that material hardship and food insufficiency negatively impacted children's health, both independently and through their influence on parental depression[27].

A final consideration is the role of neighborhoods. Neighborhoods are often characterized by similar access to affordable housing and transportation, safety, and healthy foods; and can determine access to education and employment opportunities, among other things. Research has shown associations between neighborhood characteristics and hypertension, diabetes, obesity, healthcare utilization, and preterm birth[28, 29].

Racial residential segregation affects the distribution of neighborhood resources and is a critical contributor to racial and ethnic disparities. As noted by LaVeist, segregated Black neighborhoods tend to be less well served by city services, have inadequate access to medical care, and have a higher cost of living due to increased housing costs[30]. Additionally, racial residential segregation is associated with higher disparities between the Black and White infant mortality rates. In cities with high levels of racial residential segregation the Black infant mortality rate is higher and the White infant mortality rate is lower than the infant mortality rates in less segregated cities[30].

*Institutional racism is a systemic set of practices, patterns, procedures and policies that operate within institutions to consistently penalize, disadvantage, and exploit individuals who are members of non-White groups (PRIME)

Transportation in Michigan, 2006-2010

Percent of occupied housing units with no vehicle available
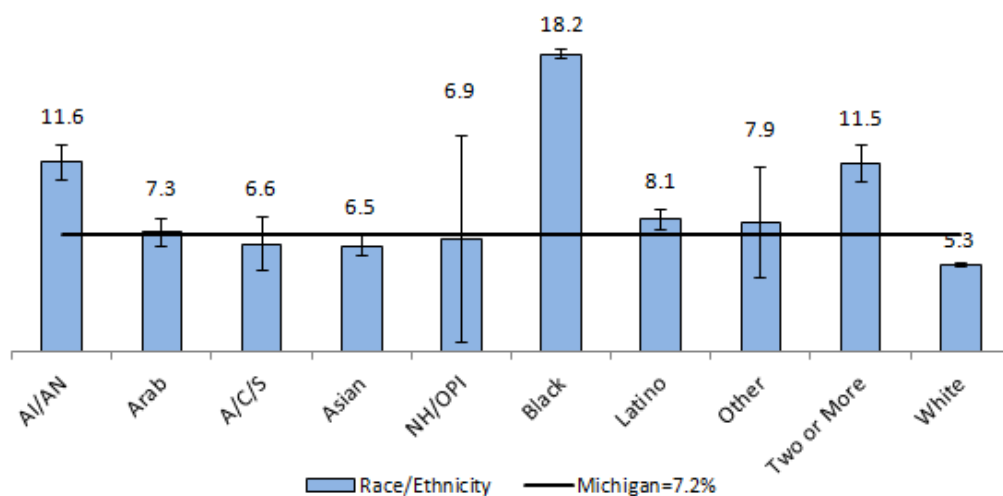
The figure above uses Michigan data from the 2006-2010 American Community Survey to show what percentage of occupied households do not have a vehicle at home and available to use. The error bars represent 90% confidence intervals around each estimate. For smaller populations the error bars are very wide. These estimates should be interpreted cautiously as they are not very precise.

On average, 7.2% of occupied households in Michigan do not have a vehicle available for use. The population with the highest percentage of households with no vehicle is African Americans (18.2%). American Indian (11.6%), Two or More Races (11.5%), and Latino (8.1%) households were also more likely than the state average not to have a vehicle available to them. The population with the lowest percentage of households with no vehicle, and the only population lower than the state average, is White (5.3%). Arab (7.3%), Assyrian, Chaldean, or Syriac (6.6%), Asian (6.5%), Native Hawaiian and Other Pacific Islanders (6.9%), and households of Other Races (7.9%) were not statistically different from the state average.

The disparities are clear. African American households are 2.5 times as likely as the average Michigan household not to have a vehicle, and 3.4 times as likely as White households. American Indian households and households of two or more races are 1.6 times as likely as the average Michigan household and 2.2 times as likely as White households not to have a vehicle available to them.

Data Source: U.S. Census Bureau, 2006-2010 American Community Survey

Affordable Rental Housing in Michigan, 2006-2010

Percent of occupied rental housing units where rent is 35% or more of household income
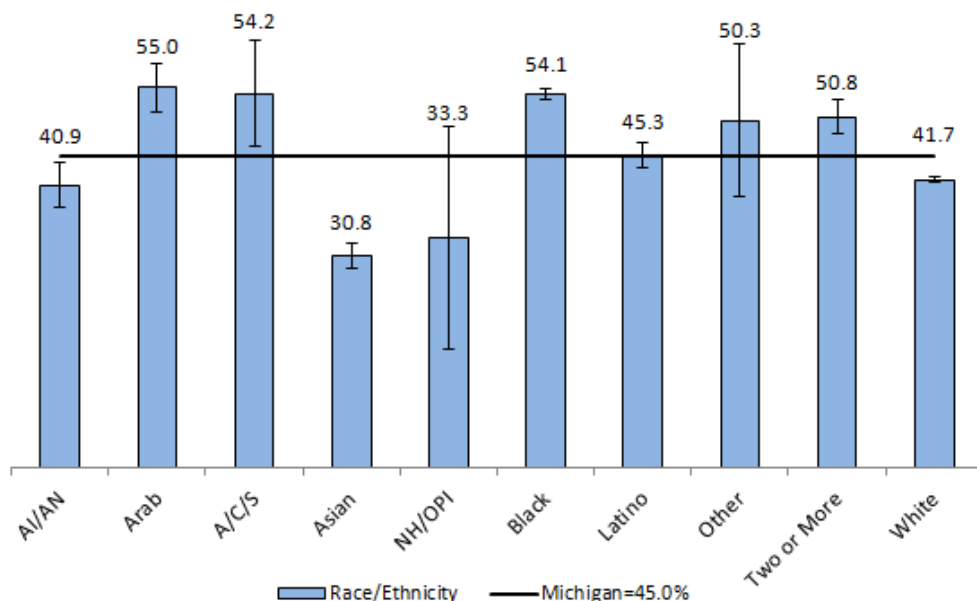
The figure above uses 2006-2010 Michigan data from the American Community Survey to show what percentage of renter-occupied housing units spend 35% or more of their annual household income on rent. The error bars represent 90% confidence intervals around each estimate. For smaller populations the error bars are very wide. These estimates should be interpreted cautiously as they are not very precise.

On average, 45% of Michigan renters are spending 35% or more of their annual household income on rent (considered "cost-burdened renters"). Arab (55%), Assyrian/Chaldean/Syriac (54.2%) and African American (54.1%) household have the highest percentage of cost-burdened renters. They and Two or More Races households (50.8%) are all higher than the state average. The lowest percentage of cost-burdened renters is among Asian households (30.8%). They, American Indian/Alaska Native (40.9%) and White (41.7%) households are all below the state average for percentage of cost-burdened renters. The remaining populations are not statistically different from the state average.

Asians are more than 25% less likely than Whites to be cost-burdened renters. All other populations are more likely than Whites to be cost-burdened renters, with the exception of American Indian/Alaska Natives, Native Hawaiian/Other Pacific Islanders, and Other Races, which are not statistically different from Whites. The largest disparities are observed among the Arab, Assyrian/Chaldean/Syriac, and Black populations, all of which are 1.3 times as likely as Whites to be cost-burdened renters.

Data Source: U.S. Census Bureau, 2006-2010 American Community Survey

Neighborhood Safety in Michigan, 2010

Percent of women who felt unsafe in the neighborhood where they lived in the 12 months before their baby was born:
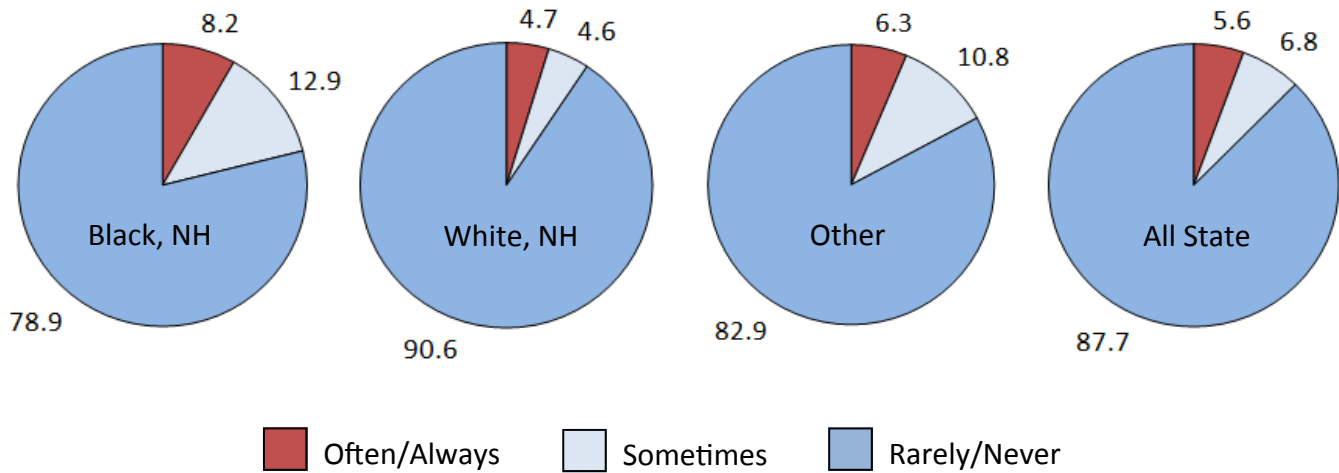
The figure above uses data from the 2010 Michigan Pregnancy Risk Assessment Monitoring System (PRAMS) to show the percentages of women who reported that they often/always, sometimes, or rarely/never felt unsafe in the neighborhood where they lived in the year before their baby was born. The estimates are less precise for smaller populations and should be interpreted cautiously.

These figures show that 5.6% of all women surveyed reported that they often or always felt unsafe in their neighborhood. The percentage of Black, Non-Hispanic women (8.2%) who reported this was nearly twice as high as the percentage of White, Non-Hispanic women (4.7%). 6.3% of women of Other races reported feeling unsafe in their neighborhood often or always.

On a more positive note, 87.7% of all women surveyed reported that they rarely or never felt unsafe in the neighborhood where they lived in the year before their baby was born. 90.6% of White, Non-Hispanic women reported that they rarely or never felt unsafe, 78.9% of Black, Non-Hispanic women, and 82.9% of women of Other races reported that they rarely or never felt unsafe in the year before their baby was born.

Data Source: 2010 Michigan PRAMS Weighted Frequencies, provided by Cristin Larder, Michigan PRAMS, MDCH
Data suppressed when unweighted frequency <6
"Other" includes all individuals who did not identify as Non-Hispanic Black or Non-Hispanic White

Sleep Environment in Michigan, 2010

Percent of women whose infant sleeps with another person

NH Black	NH White	Other	Total
22.5	10.8	20.7	14.0

Percent of women whose infant sleeps in a crib
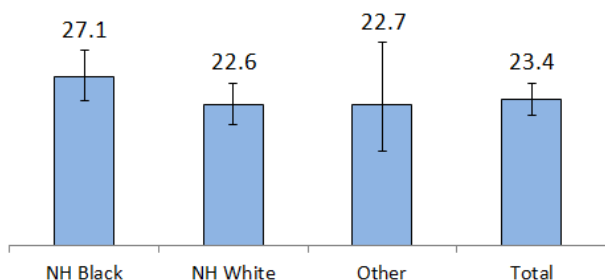
NH Black	NH White	Other	Total
78.2	92.7	83.5	89.1

Percent of women whose infant sleeps with blankets

NH Black	NH White	Other	Total
27.1	22.6	22.7	23.4

Percent of women whose infant sleeps with bumper pads

NH Black	NH White	Other	Total
23.4	36.4	24.9	32.8
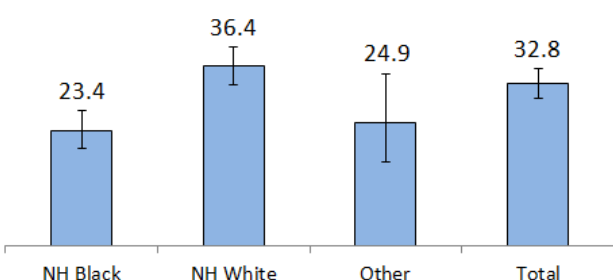
The figure above uses data from the 2010 Michigan Pregnancy Risk Assessment Monitoring System (PRAMS) to show various aspects of infant sleep environment, as reported by their mothers. (When looking at all four figures together, note that they are on different scales.) The error bars represent 95% confidence intervals around each estimate. For smaller populations the error bars are very wide, and these estimates should be interpreted cautiously as they are not very precise.

On average, 14% of mothers reported that their infants slept with another person. The percentage was highest for Black, Non-Hispanic mothers at 22.5%, and lowest for White, Non-Hispanic mothers (10.8%). 89% of mothers reported that their infant slept in a crib. The percentage was highest for White, Non-Hispanic mothers (92.7%) and lowest for Black, Non-Hispanic mothers (78.2%). 23.4% of mothers reported that their infants slept with blankets. The percentage was highest for Black, Non-Hispanic mothers (27.1%) and lowest for White, Non-Hispanic and mothers of Other races (22.6% and 22.7%, respectively), but none of these differences were statistically significant. 32.8% of mothers reported that their infant slept with bumper pads. The percentage was highest for White, Non-Hispanic mothers (36.4%) and lowest for Black, Non-Hispanic mothers (23.4%).
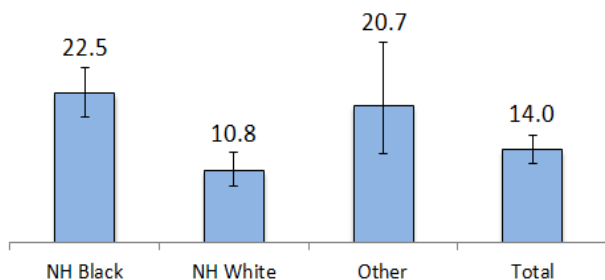
Data Source: 2010 Michigan PRAMS Weighted Frequencies, provided by Cristin Larder, Michigan PRAMS, MDCH
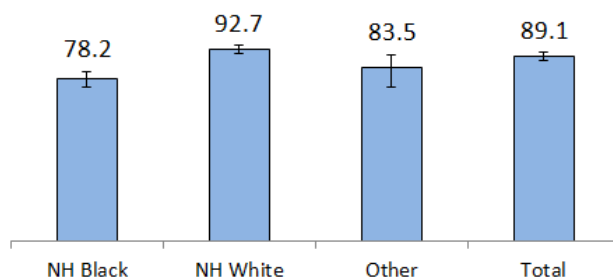Data suppressed when unweighted frequency <6
"Other" includes all individuals who did not identify as Non-Hispanic Black or Non-Hispanic White

Healthcare Access

Healthcare Access includes everything related to accessing care, including: proximity to primary care providers, specialists, hospitals, and neonatal intensive care units; health care coverage; and physical visits with a healthcare provider.

This report presents data for two determinants related to healthcare access:

- Healthcare Coverage for Pregnancy and Delivery
- Barriers to Accessing Prenatal Care

As with daily living indicators, access to healthcare measures often reflect the impact of other, less tangible, health determinants such as income, employment, and neighborhood characteristics. One of the ways in which many other social determinants act on health is by increasing barriers to accessing healthcare. A series of focus groups with African American women living in Michigan revealed that access to preconception care and pregnancy planning are affected by race, economics, family, culture, and context[31].

Method of paying for delivery indicates what type of healthcare coverage a mother used to pay for her delivery: private insurance, Medicaid, or no insurance. Because this information is available from the live birth records, it is often used as a proxy for socioeconomic status in analyses of birth outcomes and infant mortality.

Inadequate prenatal care is often cited as a risk factor for infant mortality. In 2010 in Michigan, infants born to mothers with inadequate prenatal care died at a rate of 16.8 infants per 1,000 live births, which was 2.9 times greater than infants with adequate prenatal care[32].

The next page presents information about the type of healthcare coverage before pregnancy, used to pay for prenatal care, and for delivery. The final page lists barriers cited as reasons women did not receive prenatal care as early as they would have liked. These lists suggest that a variety of social determinants are at play in limiting access to prenatal care, including transportation, access to timely appointments, and stress. Given that inadequate prenatal care is a risk factor for infant mortality, this list highlights the undeniable connection between social determinants of health and infant mortality.

> "As medical technology approaches its maximum utility in reducing infant mortality, social factors will reclaim the central role in producing infant deaths. It stands to reason that the most vulnerable populations would be most severely affected."
>
> -LaVeist, 1993[30]

Healthcare Coverage for Pregnancy and Delivery in Michigan, 2010

Pre-Pregnancy Insurance Status

	NH Black	NH White	Other	Total
Uninsured	17.4	18.6	15.5	18.0
Medicaid	57.8	16.7	35.6	26.2
Private	24.8	64.8	49.0	55.8

Payment Method for Prenatal Care

	NH Black	NH White	Other	Total
Medicaid	67.3	35.1	45.0	41.8
Private	31.6	63.8	55.0	57.1

Payment Method for Delivery

	NH Black	NH White	Other	Total
Medicaid	74.2	38.5	53.3	46.6
Private	24.9	61.4	45.8	53.1

■ Private   ■ Medicaid   □ Uninsured
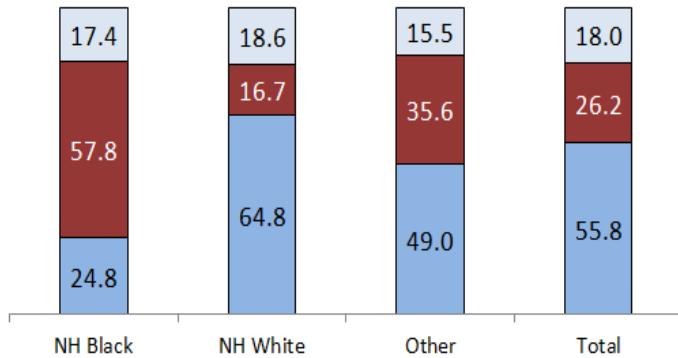
The three figures to the left use data from the 2010 Michigan Pregnancy Risk Assessment Monitoring System (PRAMS) to show percentages of women covered by private insurance, Medicaid, or no insurance. Each figure shows these percentages for Non-Hispanic, Black women; Non-Hispanic, White women; women of Other races/ethnicities; and all groups combined (Total). The top figure shows insurance status for women before they were pregnant, the second figure shows insurance used to pay for prenatal care, and the third figure shows insurance used to pay for delivery.

All three figures show large racial disparities. The percentage of Black, Non-Hispanic women with private insurance was the lowest compared to the other groups in all three cases, and the White, Non-Hispanic percentage was the highest. In contrast, the percentage of Black, Non-Hispanic women covered by Medicaid was consistently the highest of all groups while the White, Non-Hispanic percentage was the lowest.

For all populations, the percentage of women covered by Medicaid increases as the figures move from pre-pregnancy to delivery. The percentage of women covered by Medicaid before pregnancy is lower than the percentage covered by Medicaid for prenatal care, which is lower than the percentage covered by Medicaid for delivery. The percentages of women who were uninsured for prenatal care and delivery were either less than 1.2% or too low to report. Lower levels of coverage before pregnancy are an important barrier to preconception health.

Data Source: 2010 Michigan PRAMS Weighted Frequencies, provided by Cristin Larder, Michigan PRAMS, MDCH

Data suppressed when unweighted frequency <6

"Other" includes all individuals who did not identify as Non-Hispanic Black or Non-Hispanic White

Barriers to Accessing Prenatal Care in Michigan, 2010

Percent of women who did not receive prenatal care as early as wanted, by race
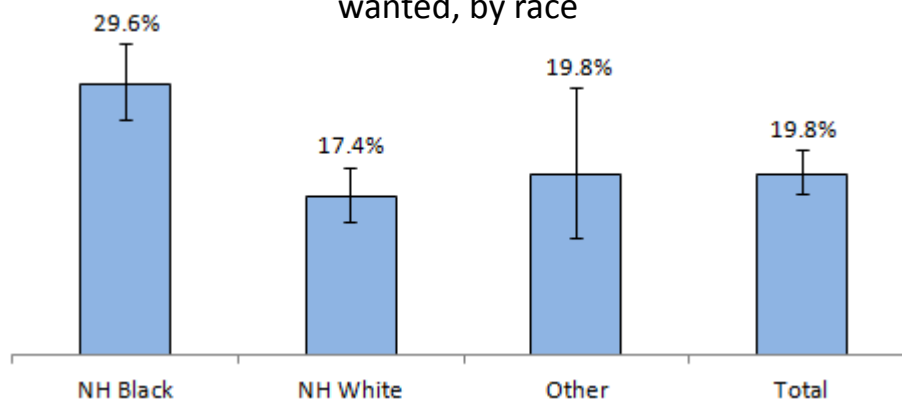
Barriers to accessing prenatal care, in order of frequency for each race*

	Black, Non-Hispanic	White, Non-Hispanic	Total (All Races)
1	Didn't know about pregnancy (16.5%)	Didn't know about pregnancy (6.7%)	Didn't know about pregnancy (8.4%)
2	Couldn't get an appointment (12.1%)	Couldn't get an appointment (6.5%)	Couldn't get an appointment (7.4%)
3	Didn't want others to know about pregnancy (7.3%)	Provider or health plan wouldn't start (5.6%)	Provider or health plan wouldn't start (5.4%)
4	Had too many other things going on (7.1%)	Didn't have enough money (4.8%)	Didn't have enough money (5.1%)
5	Didn't have Medicaid card (6.5%)	Didn't have Medicaid card (3.9%)	Didn't have Medicaid card (4.5%)
6	Provider or health plan wouldn't start (5.8%)	Had too many other things going on (1.9%)	Had too many other things going on (3.1%)
7	Didn't have transportation (5.7%)	Didn't want others to know about pregnancy (1.4%)	Didn't want others to know about pregnancy (2.6%)
8	Didn't have enough money (5.5%)	Didn't have transportation (1.4%)	Didn't have transportation (2.4%)
9	Didn't have child care (2.8%)		Didn't have child care (1.1%)

*Numbers too small to report for "Other" races, with the exception of two:
Didn't know about pregnancy (6.1%), Couldn't get an appointment (5.4%)

Data Source: 2010 Michigan PRAMS Weighted Frequencies, provided by Cristin Larder, Michigan PRAMS, MDCH

Data suppressed when unweighted frequency <6

"Other" includes all individuals who did not identify as Non-Hispanic Black or Non-Hispanic White

Closing Statement

Health equity is "the absence of systematic disparities in health and its determinants between groups of people at different levels of social advantage"[2]. The previous pages illustrate consistent racial and ethnic disparities among Michiganders. White Michiganders are privileged in terms of social environment and related stressors, socioeconomic status, basic needs, and healthcare access. Given this context, the racial and ethnic disparities in maternal and child health outcomes and infant mortality rates are clear inequities: systemic, avoidable, and unjust.

It is important to interpret these patterns in the context of social pressures and power dynamics. Michigan has a long way to go before achieving complete health equity, but there are clear steps that can be taken to increase equity. Appendices D-F outline different recommendations for action steps to increase equity and reduce disparities. Additional resources are listed below.

For More Information:

- Practices to Reduce Infant Mortality through Equity (PRIME): http://prime.mihealth.org/
- MDCH Health Disparities Reduction and Minority Health Section: www.michigan.gov/minorityhealth
    - *Michigan Health Equity Roadmap*
    - *Health Equity in Michigan: A Toolkit for Action*
- MDCH Health Equity Steering Committee:
    http://inside.michigan.gov/sites/DCH/hdrmh/SitePages/Home.aspx
    - *Health Equity Resources Comprehensive List*
- Applied Research Center: http://www.arc.org/
- Policy Link: www.policylink.org
- WHO conceptual framework for action on the social determinants of health:
    http://www.who.int/sdhconference/resources/ConceptualframeworkforactiononSDH_eng.pdf
- Childbirth Connection: www.childbirthconnection.org
    - *Listening to Mothers* Surveys and Reports: http://www.childbirthconnection.org/article.asp?ck=10068

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Appendix A: Data Sources

Data presented in this report come from two data sources, the American Community Survey and the Pregnancy Risk Assessment Monitoring System.

American Community Survey (2006-2010)

The American Community Survey (ACS) is a continuous national survey administered annually by the United States Census Bureau. Addresses are randomly selected and contacted by mail to complete a survey online or on paper. Telephone and in-person follow-up are used for households that do not respond initially. The ACS asks questions that were previously on the "long form" of the decennial census. These questions encompass demographic, social, economic, and housing data. Because 3-year estimates are available for populations greater than 20,000 or more, the ACS is an important tool for monitoring smaller communities and populations. ACS data are used by local and federal officials to understand local trends and plan programming accordingly. These data are also used by researchers, advocacy groups, and the general public. One-year and multi-year estimates are available at http://factfinder2.census.gov. All data presented in this report are combined estimates from 2006-2010.

Michigan Pregnancy Risk Assessment Monitoring System (2010)

The Michigan Pregnancy Risk Assessment Monitoring System (PRAMS) is a population-based survey partially funded by the Centers for Disease Control and implemented by the Michigan Department of Community Health. PRAMS survey data supplement birth certificate information and provide state specific information which can be used to plan and evaluate maternal and child health programs and make health policy decisions. PRAMS uses a combination of mail and telephone to ask women about their behaviors and experiences before, during, and immediately after pregnancy. Each year, approximately 2000 mothers in Michigan are randomly chosen from birth certificate records to participate in the survey. The Michigan PRAMS oversamples women based on increased risk for race, geographic location, and the birth weight of their infant. Data are weighted to be representative of all resident women who gave birth in Michigan that year. More information, including survey instruments and publications, are available at www.michigan.gov/prams. All data presented in this report are from women who gave birth in 2010.

Appendix A Continued: Selected Indicators

	Indicator	Numerator	Denominator	Data Source[*]
Psychosocial				
1	% Women emotionally upset as a result of race-based treatment in year before giving birth	# Women who reported feeling emotionally upset as a result of how they were treated based on their race in the 12 months before baby was born	# Women who responded to this question	PRAMS
2	% Women experiencing intimate partner violence before or during pregnancy	# Women who reported experiencing intimate partner violence before or during pregnancy	# Women who responded to this question	PRAMS
3	% Women experiencing life stressors in year before giving birth, categorized by number of stressors: 0, 1-2, 3-5, or 6 or more	# Women who reported experiencing number of life stressors in year before giving birth for each category: • 0 • 1-2 • 3-5 • 6 or more	# Women who responded to this question	PRAMS
4	% of Female-headed households with no husband present and living with own children <18 years	# Households headed by a female, no husband present, living with own children under 18 years	# Households	ACS

* PRAMS: Pregnancy Risk Assessment Monitoring System
* ACS: American Community Survey, U.S. Census Bureau

Appendix A Cont: Selected Indicators for Social Determinants Related to Maternal and Child Health

	Indicator	Numerator	Denominator	Data Source[*]
Socioeconomic Position				
5	% of Population with high school degree or higher	# People with high school degree or more education	# People aged 25 years or older	ACS
6	% of Population in civilian labor force that is unemployed	# People unemployed	# People aged 16 years or older and in civilian labor force	ACS
7	% Population below federal poverty level	# People below federal poverty level	# People for which poverty level was determined	ACS
Daily Living				
8	% Households with no vehicle available	# Households with no vehicle	# Occupied households	ACS
9	% Households paying ≥35% of annual household income on rent	# Renter-occupied households paying ≥35% of annual household income on rent	# Renter-occupied households	ACS
10	% Women feeling unsafe in neighborhood where they lived in year before giving birth: • Always/often • Sometimes • Rarely/never	# Women who reported feeling unsafe in neighborhood where they lived in 12 months before delivery for each of three categories: • Always/often • Sometimes • Rarely/never	# Women who responded to this question	PRAMS
11	% Women whose infants sleep in following environments: • With another person • In a crib • With blankets • With bumper pads	# Women who reported their infants sleep in each of four listed environments: • With another person • In a crib • With blankets • With bumper pads	# Women who responded to this question whose infant is still alive and lives with her	PRAMS

Appendix A Cont: Selected Indicators for Social Determinants Related to Maternal and Child Health

	Indicator	Numerator	Denominator	Data Source[*]
Healthcare Access				
12	% Women with private insurance, Medicaid, or no health insurance at each stage of pregnancy: • Pre-Pregnancy • Prenatal Care • Delivery	# Women who reported private insurance, Medicaid, or no health insurance at each stage of pregnancy: • Pre-pregnancy • Prenatal Care • Delivery	# Women who responded to this question	PRAMS
13	% Women who did not receive prenatal care as early as wanted	# Women who reported that they did not receive prenatal care as early as they wanted to	# Women who responded to this question	PRAMS

Appendix B: Data Tables

The tables that follow present data by race and ethnicity for each of the indicators outlined in this report. In addition to estimates by race/ethnicity, the tables also show disparity ratios to illustrate the disparity between each Non-White population and the White, Non-Hispanic (reference) population.

For this project, the White population was chosen as a reference because this population is not exposed to racial/ethnic discrimination and is therefore the appropriate reference to use to measure the effects of this discrimination against.

More information about health equity measures can be found in the Health Equity Data Project, online at www.michigan.gov/minorityhealth.

Appendix B: Data Tables

Insurance Coverage, Michigan 2010

	NH Black		NH White		Other		Total		Disparity Ratios	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	Black:White	Other:White
Pre-Pregnancy										
Private	24.8	(21.2-28.8)	64.8	(61.0-68.4)	49.0	(39.3-58.7)	55.8	(52.8-58.7)	**0.38**	**0.76**
Medicaid	57.8	(53.3-62.2)	16.7	(13.9-19.9)	35.6	(26.6-45.7)	26.2	(23.8-28.8)	**3.46**	**2.13**
Uninsured	17.4	(14.2-21.1)	18.6	(15.7-21.8)	15.5	(9.5-24.2)	18.0	(15.7-20.5)	0.94	0.83
Prenatal Care										
Private	31.6	(27.5-36.0)	63.8	(59.9-67.4)	55.0	(44.9-64.7)	57.1	(54.1-60.1)	**0.50**	0.86
Medicaid	67.3	(62.8-71.4)	35.1	(31.4-38.9)	45.0	(35.3-55.1)	41.8	(38.9-44.8)	**1.92**	1.28
Uninsured	Data Suppressed		1.2	(0.6-2.4)	Data Suppressed		1.1	(0.6-1.9)	N/A	N/A
Delivery										
Private	24.9	(21.3-29.0)	61.4	(57.5-65.1)	45.8	(36.1-55.8)	53.1	(50.1-56.0)	**0.41**	**0.75**
Medicaid	74.2	(70.2-77.9)	38.5	(34.8-42.3)	53.3	(43.4-63.1)	46.6	(43.6-49.6)	**1.93**	**1.38**
Uninsured	0.8	(0.4-1.9)	Data Suppressed		Data Suppressed		0.3	(0.1-0.8)	N/A	N/A

2010 Michigan PRAMS Weighted Frequencies
Data provided by Cristin Larder, Michigan PRAMS
Data supressed when unweighted frequency <6
Disparities measured as the ratio with the White population (Non-White %/White %). A value of 1.00 indicates no disparity.
Bold ratios indicate disparities that are statistically significant at the 0.05 level.

Barriers to Accessing Prenatal Care, Michigan 2010

	NH Black		NH White		Other		Total		Disparity Ratios	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	Black:White	Other:White
Received PNC as early as wanted	70.4	(66.0-74.4)	82.6	(79.5-85.4)	80.2	(70.8-87.2)	80.2	(77.7-82.5)	**0.85**	0.97
Couldn't get an appointment	12.1	(9.5-15.4)	6.5	(4.8-8.7)	5.4	(2.4-11.7)	7.4	(6.0-9.1)	**1.86**	0.83
Didn't have enough money	5.5	(3.8-7.9)	4.8	(3.4-6.8)	Data Suppressed		5.1	(3.9-6.6)	1.15	N/A
Didn't have transportation	5.7	(3.9-8.3)	1.4	(0.7-2.8)	Data Suppressed		2.4	(1.7-3.4)	**4.07**	N/A
Provider or health plan wouldn't start	5.8	(4.0-8.3)	5.6	(4.1-7.7)	Data Suppressed		5.4	(4.2-7.0)	1.04	N/A
Didn't have Medicaid card	6.5	(4.5-9.1)	3.9	(2.6-5.7)	Data Suppressed		4.5	(3.4-5.9)	1.67	N/A
Didn't have child care	2.8	(1.6-4.7)	Data Suppressed		Data Suppressed		1.1	(0.7-1.9)	N/A	N/A
Had too many other things going on	7.1	(5.1-9.7)	1.9	(1.1-3.3)	Data Suppressed		3.1	(2.3-4.2)	**3.74**	N/A
Didn't know about pregnancy	16.5	(13.3-20.2)	6.7	(5.1-9.0)	6.1	(2.7-13.4)	8.4	(7.0-10.2)	**2.46**	0.91
Didn't want others to know about pregnancy	7.3	(5.2-10.2)	1.4	(0.8-2.6)	Data Suppressed		2.6	(1.9-3.5)	**5.21**	N/A

2010 Michigan PRAMS Weighted Frequencies
Data provided by Cristin Larder, Michigan PRAMS
Data supressed when unweighted frequency <6
Disparities measured as the ratio with the White population (Non-White %/White %). A value of 1.00 indicates no disparity.
Bold ratios indicate disparities that are statistically significant at the 0.05 level.

Intimate Partner Violence, Michigan 2010

	NH Black		NH White		Other		Total		Disparity Ratios	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	Black:White	Other:White
Before pregnancy	6.2	(4.3-8.8)	2.4	(1.4-4.0)	Data Suppressed		3.3	(2.4-4.5)	**2.58**	N/A
During pregnancy	7.1	(5.1-9.9)	2.6	(1.6-4.3)	Data Suppressed		3.5	(2.5-4.7)	**2.73**	N/A
Before or during pregnancy	9.8	(7.4-12.9)	3.4	(2.2-5.3)	5.7	(2.4-13.0)	4.8	(3.7-6.3)	**2.88**	1.68

2010 Michigan PRAMS Weighted Frequencies
Data provided by Cristin Larder, Michigan PRAMS
Data supressed when unweighted frequency <6
Disparities measured as the ratio with the White population (Non-White %/White %). A value of 1.00 indicates no disparity.
Bold ratios indicate disparities that are statistically significant at the 0.05 level.

Felt emotionally upset as a result of how treated based on racial or ethnic background, Michigan 2010

	NH Black		NH White		Other		Total		Disparity Ratios	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	Black:White	Other:White
	21.1	(17.7-25.1)	6.3	(4.6-8.5)	18.3	(11.7-27.5)	10.3	(8.7-12.2)	**3.35**	**2.90**

2010 Michigan PRAMS Weighted Frequencies
Data provided by Cristin Larder, Michigan PRAMS
Data supressed when unweighted frequency <6
Disparities measured as the ratio with the White population (Non-White %/White %). A value of 1.00 indicates no disparity.
Bold ratios indicate disparities that are statistically significant at the 0.05 level.

Felt unsafe in neighborhood where lived in 12 months before baby was born, Michigan 2010

	NH Black		NH White		Other		Total		Disparity Ratios	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	Black:White	Other:White
Always	4.7	(3.1-7.1)	2.6	(1.6-4.2)	Data Suppressed		3.2	(2.3-4.5)	1.81	N/A
Often/Almost Always	3.5	(2.2-5.5)	2.1	(1.2-3.7)	Data Suppressed		2.4	(1.6-3.5)	1.67	N/A
Sometimes	12.9	(10.1-16.2)	4.6	(3.2-6.5)	10.8	(5.7-19.3)	6.8	(5.4-8.4)	**2.80**	2.35
Rarely	18.7	(15.4-22.6)	15.7	(13.2-18.7)	13.0	(7.7-21.0)	16.0	(13.9-18.3)	1.19	0.83
Never	60.2	(55.7-64.6)	74.9	(71.4-78.1)	69.9	(59.8-78.3)	71.7	(68.9-74.3)	**0.80**	0.93

2010 Michigan PRAMS Weighted Frequencies
Data provided by Cristin Larder, Michigan PRAMS
Data supressed when unweighted frequency <6
Disparities measured as the ratio with the White population (Non-White %/White %). A value of 1.00 indicates no disparity.
Bold ratios indicate disparities that are statistically significant at the 0.05 level.

Infant Sleep Environment, Michigan 2010

	NH Black		NH White		Other		Total		Disparity Ratios	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	Black:White	Other:White
Sleeps in crib	78.2	(74.1-81.8)	92.7	(90.3-94.5)	83.5	(74.3-89.9)	89.1	(87.1-90.8)	**0.84**	**0.90**
Sleeps on firm mattress	70.3	(65.9-74.4)	90.0	(87.3-92.1)	80.5	(70.7-87.6)	85.4	(83.2-87.4)	**0.78**	0.89
Sleeps with pillows	9.8	(7.4-12.8)	4.1	(2.8-5.9)	10.0	(5.2-18.3)	5.8	(4.5-7.3)	**2.39**	2.44
Sleeps with bumper pads	23.4	(19.7-27.5)	36.4	(32.7-40.2)	24.9	(17.1-34.8)	32.8	(30.0-35.8)	**0.64**	0.68
Sleeps with blankets	27.1	(23.3-31.3)	22.6	(19.4-26.1)	22.7	(15.1-32.6)	23.4	(20.9-26.1)	1.20	1.00
Sleeps with toys	0.8	(0.4-1.7)	2.8	(1.8-4.3)	Data Suppressed		2.1	(1.4-3.2)	**0.29**	N/A
Sleeps with another person	22.5	(18.9-26.5)	10.8	(8.6-13.6)	20.7	(13.5-30.3)	14.0	(12.0-16.2)	**2.08**	1.92

2010 Michigan PRAMS Weighted Frequencies
Data provided by Cristin Larder, Michigan PRAMS
Data supressed when unweighted frequency <6
Disparities measured as the ratio with the White population (Non-White %/White %). A value of 1.00 indicates no disparity.
Bold ratios indicate disparities that are statistically significant at the 0.05 level.

Life stressors in 12 months before delivery, Michigan 2010

	NH Black		NH White		Other		Total		Disparity Ratios	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	Black:White	Other:White
Total number of stressors										
None	16.5	(13.4-20.1)	29.5	(26.2-33.0)	17.9	(11.7-26.3)	25.9	(23.3-28.6)	**0.56**	0.61
1-2	39.5	(35.1-44.0)	43.5	(39.7-47.3)	45.2	(35.6-55.2)	43.0	(40.0-46.0)	0.91	1.04
3-5	35.7	(31.5-40.1)	23.0	(19.9-26.4)	27.7	(19.5-37.7)	25.8	(23.2-28.5)	**1.55**	1.20
6 or more	8.4	(6.2-11.2)	4.1	(2.7-6.0)	9.2	(4.8-17.0)	5.4	(4.2-7.0)	**2.05**	2.24
Individual stressors										
Close family member was hospitalized	29.7	(25.8-34.0)	26.2	(23.0-29.8)	17.1	(10.8-26.0)	25.9	(23.3-28.6)	1.13	0.65
Separated or divorced from partner	9.4	(7.1-12.3)	5.9	(4.3-8.1)	11.8	(6.6-20.0)	7.2	(5.7-8.9)	1.59	2.00
Moved to a new address	38.1	(33.9-42.6)	34.5	(31.0-38.3)	45.5	(35.8-55.6)	36.4	(33.5-39.4)	1.10	1.32
Was homeless	5.6	(3.9-8.2)	2.1	(1.2-3.6)	Data Suppressed		2.7	(1.9-3.8)	**2.67**	N/A
Partner lost job	15.8	(12.7-19.5)	13.4	(11.0-16.2)	14.2	(8.4-23.2)	13.9	(11.9-16.1)	1.18	1.06
Mother lost job though wanted to keep working	14.2	(11.3-17.8)	9.8	(7.7-12.5)	12.8	(7.4-21.0)	10.9	(9.2-13.0)	1.45	1.31
Argued with partner more than usual	35.2	(31.0-39.6)	22.5	(19.4-25.9)	37.9	(28.6-48.1)	26.5	(23.9-29.2)	**1.56**	**1.68**
Partner said didn't want pregnancy	17.3	(14.1-21.0)	5.9	(4.3-8.0)	5.6	(2.4-12.5)	7.9	(6.5-9.6)	**2.93**	0.95
Had a lot of bills that couldn't pay	24.1	(20.4-28.2)	17.6	(14.8-20.7)	26.1	(18.2-36.0)	19.7	(17.4-22.2)	1.37	1.48
Was in a physical fight	8.3	(6.1-11.2)	2.2	(1.3-3.7)	5.3	(2.3-12.0)	3.6	(2.7-4.8)	**3.77**	2.41
Partner or self went to jail	7.9	(5.8-10.6)	2.9	(1.8-4.6)	7.4	(3.4-15.2)	4.3	(3.2-5.7)	**2.72**	2.55
Close person had a drinking or drug problem	13.4	(10.7-16.6)	13.8	(11.3-16.8)	19.4	(12.4-29.0)	14.3	(12.3-16.7)	0.97	1.41
Close person died	32.4	(28.3-36.8)	17.9	(15.1-21.1)	18.8	(12.1-28.1)	20.6	(18.3-23.1)	**1.81**	1.05

2010 Michigan PRAMS Weighted Frequencies
Data provided by Cristin Larder, Michigan PRAMS
Data supressed when unweighted frequency <6
Disparities measured as the ratio with the White population (Non-White %/White %). A value of 1.00 indicates no disparity.
Bold ratios indicate disparities that are statistically significant at the 0.05 level.

Michigan 2006-2010		AI/AN			Arab			A/C/S	
	%	90% CI	Disparity	%	90% CI	Disparity	%	90% CI	Disparity
% Female-headed HH, with children and no husband present Denominator: All family households	11.2	(9.9-12.5)	**2.15**	5.9	(5.1-6.7)	1.13	5.5	(3.9-7.1)	1.06
% High school graduate or higher Denominator: Population 25 years and over	82.1	(80.8-83.4)	**0.91**	76.9	(75.8-78)	**0.86**	67.2	(64.4-70.0)	**0.75**
% HH with no vehicles available Denominator: Occupied housing units	11.6	(10.5-12.7)	**2.19**	7.3	(6.5-8.1)	**1.38**	6.6	(5.0-8.2)	1.25
% Rental HHs paying 35% of income or more for rent Denominator: Occupied housing units paying rent	40.9	(37.6-44.2)	0.98	55.0	(51.6-58.4)	**1.32**	54.2	(46.6-61.8)	**1.30**
% Unemployed Denominator: Population 16 years and older, In civilian labor force	16.4	(15.0-17.8)	**1.67**	12.4	(11.5-13.3)	**1.27**	13.9	(10.5-17.3)	**1.42**
% People below poverty level Denominator: Population	22.7	(20.9-24.5)	**2.06**	26.7	(25.1-28.3)	**2.43**	21.3	(18.1-24.5)	**1.94**

Michigan 2006-2010		Asian			NH/OPI			Black	
	%	90% CI	Disparity	%	90% CI	Disparity	%	90% CI	Disparity
% Female-headed HH, with children and no husband present Denominator: All family households	3.2	(2.8-3.6)	**0.62**	19.0	(8.7-29.3)	**3.65**	19.6	(19.2-20.0)	**3.77**
% High school graduate or higher Denominator: Population 25 years and over	88.2	(87.6-88.8)	**0.98**	93.4	(88.2-98.6)	1.04	81.6	(81.3-81.9)	**0.91**
% HH with no vehicles available Denominator: Occupied housing units	6.5	(5.9-7.1)	**1.23**	6.9	(0.6-13.2)	1.30	18.2	(17.9-18.5)	**3.43**
% Rental HHs paying 35% of income or more for rent Denominator: Occupied housing units paying rent	30.8	(29.0-32.6)	**0.74**	33.3	(17.1-49.5)	0.80	54.1	(53.4-54.8)	**1.30**
% Unemployed Denominator: Population 16 years and older, In civilian labor force	7.4	(6.9-7.9)	**0.76**	9.8	(4.6-15.0)	1.00	21.7	(21.3-22.1)	**2.21**
% People below poverty level Denominator: Population	13.7	(12.9-14.5)	**1.25**	17.8	(11.6-24.0)	**1.62**	31.5	(31.0-32.0)	**2.86**

Data Source: U.S. Census Bureau, 2006-2010 American Community Survey

Disparities measured as the ratio with the White population (Non-White %/White %). A value of 1.00 indicates no disparity.

Bold ratios indicate disparities that are statistically significant at the 0.1 level.

KEY

AI/AN: American Indian or Alaska Native

A/C/S: Assyrian, Chaldean, or Syriac

NH/OPI: Native Hawaiian or Other Pacific Islander

Latino: Hispanic, Latino, or Spanish Origin

Other: Some Other Race

Two or More: Two or More Races

All groups are Non-Hispanic, with the exception of Arab, A/C/S, and Latino

Michigan 2006-2010	Latino			Other			Two or More		
	%	90% CI	Disparity	%	90% CI	Disparity	%	90% CI	Disparity
% Female-headed HH, with children and no husband present Denominator: All family households	13.8	(13.1-14.5)	**2.65**	8.9	(5.2-12.6)	1.71	13.9	(12.7-15.1)	**2.67**
% High school graduate or higher Denominator: Population 25 years and over	67.1	(66.2-68.0)	**0.75**	86.9	(82.2-91.6)	0.97	86.1	(85.1-87.1)	**0.96**
% HH with no vehicles available Denominator: Occupied housing units	8.1	(7.5-8.7)	**1.53**	7.9	(4.5-11.3)	1.49	11.5	(10.4-12.6)	**2.17**
% Rental HHs paying 35% of income or more for rent Denominator: Occupied housing units paying rent	45.3	(43.4-47.2)	**1.09**	50.3	(39.2-61.4)	1.21	50.8	(48.3-53.3)	**1.22**
% Unemployed Denominator: Population 16 years and older, In civilian labor force	15.1	(14.5-15.7)	**1.54**	12.2	(9.0-15.4)	1.24	18.3	(17.2-19.4)	**1.87**
% People below poverty level Denominator: Population	26.5	(25.6-27.4)	**2.41**	21.6	(16.4-26.8)	**1.96**	24.8	(23.8-25.8)	**2.25**

Michigan 2006-2010	White			Total MI		
	%	90% CI	Disparity	%	90% CI	Disparity
% Female-headed HH, with children and no husband present Denominator: All family households	5.2	(5.1-5.3)	Ref	7.4	(7.3-7.5)	**1.42**
% High school graduate or higher Denominator: Population 25 years and over	89.9	(89.8-90.0)	Ref	88.0	(87.9-88.1)	**0.98**
% HH with no vehicles available Denominator: Occupied housing units	5.3	(5.2-5.4)	Ref	7.2	(7.1-7.3)	**1.36**
% Rental HHs paying 35% of income or more for rent Denominator: Occupied housing units paying rent	41.7	(41.3-42.1)	Ref	45.0	(44.6-45.4)	**1.08**
% Unemployed Denominator: Population 16 years and older, In civilian labor force	9.8	(9.7-9.9)	Ref	11.5	(11.4-11.6)	**1.17**
% People below poverty level Denominator: Population	11.0	(10.9-11.1)	Ref	14.8	(14.6-15)	**1.35**

Data Source: U.S. Census Bureau, 2006-2010 American Community Survey

Disparities measured as the ratio with the White population (Non-White %/White %). A value of 1.00 indicates no disparity.

Bold ratios indicate disparities that are statistically significant at the 0.1 level.

KEY

AI/AN: American Indian or Alaska Native

A/C/S: Assyrian, Chaldean, or Syriac

NH/OPI: Native Hawaiian or Other Pacific Islander

Latino: Hispanic, Latino, or Spanish Origin

Other: Some Other Race

Two or More: Two or More Races

All groups are Non-Hispanic, with the exception of Arab, A/C/S, and Latino

Appendix C: Equality vs. Equity

Adapted from the PRIME Learning Labs[33]

Equity is not the same thing as equality.

Equality focuses on equal inputs (actions, interventions, etc.):

- Doing the same for everyone
- Treating everyone equal
- Ensuring the same approach for all: assuming one size fits all
- Following the rules and regulations equally/the same for everyone

Even when the inputs are the same, outcomes may be different. This is not equitable.

Equity focuses on equal outcomes. Inputs may need to be different to achieve equal outcomes.

Equal Inputs

Equal Outcomes

EQUALITY   EQUITY
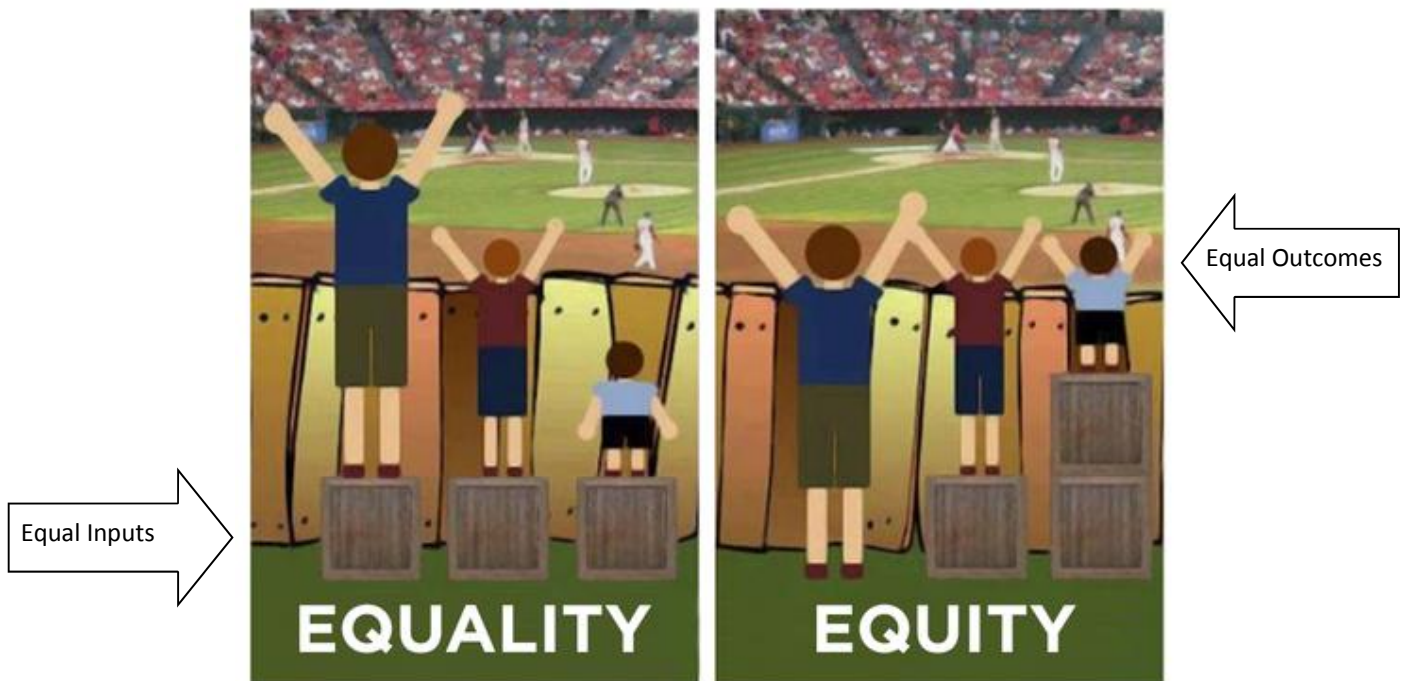
Appendix D: Principles for Action

In her 1991 paper, Margaret Whitehead listed the following seven principles for action to achieve health equity. More information can be found in a later version of the same paper, available for free at: http://salud.ciee.flacso.org.ar/flacso/optativas/equity_and_health.pdf

PRINCIPLES FOR ACTION[5]

One: Equity policies should be concerned with improving living and working conditions.

Two: Equity policies should be directed towards enabling people to adopt healthier lifestyles.

Three: Equity policies require a genuine commitment to decentralizing power and decision-making, encouraging people to participate in every stage of the policy-making process.

Four: Conduct health impact assessments together with intersectoral action.

Five: Mutual concern and control at the international level is required.

Six: Equity in health care is based on the principle of making high quality health care accessible to all.

Seven: Equity policies should be based on appropriate research, monitoring and evaluation.

> *"No one group or agency can, by itself, address the multiple factors at multiple levels that contribute to health disparities. Maternal and Child Health (MCH) leadership needs to engage MCH and non-MCH partners in a collaborative effort to eliminate disparities in birth outcomes. Such partners may include community police officers to double as outreach workers, municipal transportation authorities to map out more accessible bus routes, and even small convenience store owners to carry healthy groceries. They, too, become 'prenatal care providers'.*
>
> *-Lu and Halfon, 2003[10]*

Appendix E: Evaluating Policies for Equity

Link and Phelan provided criteria in 1995 to use when evaluating policies for equity[8]. Example of policies that affect fundamental causes of disease include: minimum wage, housing for people who are home-less, capital-gains taxes, parenting leave, and Head Start programs. Link and Phelan's criteria are ex-cerpted below[8]:

(1) Policymakers should require that all interventions seeking to change individual risk profiles contain an analysis of factors that put people at risk of risks. This will avoid the enactment of interventions aimed at changing behaviors that are powerfully influenced by factors left un-touched by the intervention.

(2) Policymakers should require confirmation that the intervention works outside of an experi-mental context.

(3) Health policymakers should consider whether a proposed intervention will have an impact on just one disease or whether, because of its influence on a fundamental cause, it will affect many diseases. An intervention that has even a modest impact on many diseases may be far more important than one that has a relatively strong impact on just one.

(3) Health policymakers concerned with broad social conditions as causes of disease should re-gard with skepticism interventions that focus only on intervening variables but claim to ad-dress the broader social condition. Even an "effective" intervention that addresses the identi-fied risk factor will, in the long run, fail to eliminate the effect of a fundamental social condi-tion.

(4) A research-based "health impact statement" should accompany such plans, and health ex-perts should be trained in the skills needed to produce such a statement.

Appendix F: 12-Point plan to close Black-White gap in birth outcomes through a life-course approach[13]

In 2010, Lu, Kotelchuck, and Hogan et al. outlined the following twelve points to close the Black-White gap in birth outcomes through a life-course approach. Details on each point can be found in the paper[13].

1. Provide interconception care to women with prior adverse pregnancy outcomes

2. Increase access to preconception care to African American women

3. Improve the quality of prenatal care

4. Expand healthcare access over the life course

5. Strengthen father involvement in African American families

6. Enhance coordination and integration of family support services

7. Create social capital in African American communities to promote reproductive health

8. Invest in community building and urban renewal

9. Close the education gap

10. Reduce poverty among African American families

11. Support working mothers and families

12. Undo racism