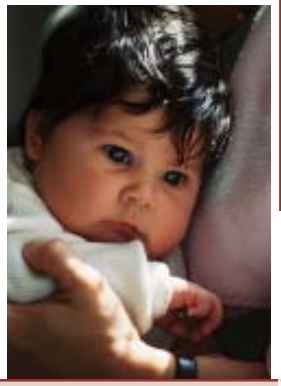

Right Start in Michigan And Its Counties–2011

Michigan Mothers and Their Babies: Overview and Trends 2000-2009

As Michigan seeks to revitalize its economy, the well-being of the next generation of students, citizens, parents and workers must be strengthened. Despite the state's population loss in the last decade, most people who are born in Michigan stay in the state to be close to their families and friends.

When the business cycle swings into a more positive arc with employment opportunities, the next generation must be ready to seize the opportunities that will occur. This review of the current status of mothers and babies in Michigan and its counties reveals the areas—geographically and socially—that state policymakers and local decision makers must address to ensure the state and its communities have the human capital to mobilize for economic growth.

ACKNOWLEGEMENTS

Many thanks for the feedback and data from staff at the divisions of Epidemiology, Vital Statistics, and Family and Community Health at the Michigan Department of Community Health as well as to Dr. Dele Davis from the Pediatrics and Human Development Department at Michigan State University for his review of the text. This report was funded by the Annie E. Casey Foundation, the Detroit-based Skillman Foundation, and the Blue Cross Blue Shield Foundation as well as local United Ways. The findings and conclusions presented herein do not necessarily reflect their opinions.

July 2011

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Michigan's Overview

Fewer babies are being born in the state. The number of births in Michigan decreased by 14 percent between 2000 and 2009—dropping from 136,000 births to 117,300. The difference between these two totals roughly equals the births in Michigan's second largest county—Oakland—in 2009. In fact, this overall drop in births represents half the population decline for children ages 0-9. Only four counties showed an increase in births between 2000 and 2009: Houghton (5%) had the largest. (See Table 1.)

Michigan was the only state in the nation to lose population between 2000 and 2010, but all the loss occurred among the state's child population, which dropped by 10 percent while the adult population rose by 3 percent. All but five Michigan counties lost child population between 2000 and 2010 compared with 62 counties experiencing gains in their adult population.

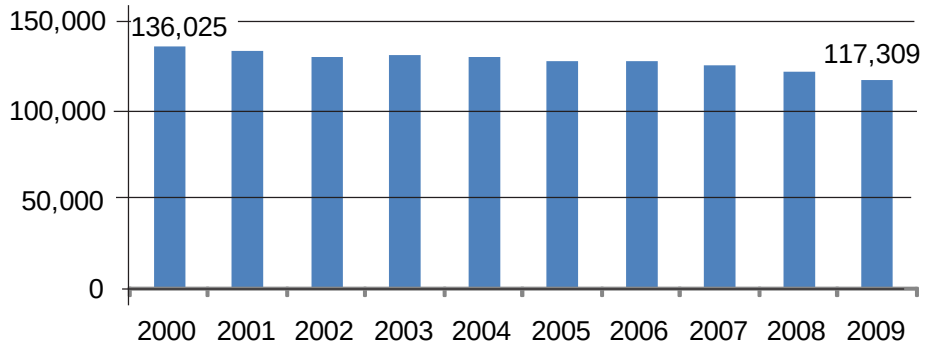
The sharp drop in Michigan births between 2007 and 2009 reflected a nationwide fertility decline that was more rapid than for any two-year period in over 30 years.[1] The national decline was for all women under age 40, all racial/ethnic groups, and birth orders, that is, whether this was a first or second child, etc. Researchers suspect the economic recession may be affecting this widespread decline.

Similarly Michigan mirrors the national averages on most aspects of maternal and infant well-being. The state was better than the national average in its significantly lower percentage of new mothers without a high school diploma or a GED—17 percent compared with the national average of 22 percent. (This situation may be a direct result of the state's relatively low Hispanic population, which tends to have disproportionately lower levels of education.) The state's percentage of new mothers who had received late or no prenatal care was also lower than the national average—5 percent compared with the national average of 7 percent.

Michigan's worst rankings among the 50 states were for the percentages of unhealthy births: babies born too soon or too small, these two measures ranked the state 31st and 36th respectively. (These rankings are available on the KIDS COUNT Data Center.) Its best ranking—19th of the 50 states—was its relatively small share (18%) of teen births that were to a teen who was already a parent. Three indicators that have been significantly altered in the revised birth certificate being gradually adopted across the states could not be ranked for all 50 states.

Trend analysis for the state was also limited to only five indicators of maternal and infant well-being since the other three were affected by Michigan's adoption of the revised birth certificate in 2007. Of the five measures the state is headed in the right direction on three: the percentages of births to teens, repeat births to teens, and preterm births. The challenges are the rising percentages of low-birthweight babies (weighing less than five and one-half pounds) and births to single women.

The number of births in Michigan fell over the decade.



Source: MIchigan Department of Community Health, Vital Records and Health Data Development Section

[1] Paul D. Sutton et al. *Recent Decline in Births in the United States, 2007-2009*. NCHS Data Brief, no. 60. Hyattsville, MD: National Center for Health Statistics. March 2011. The fertility rate is the number of live births per women ages 15-44.

Maternal and Infant Well-Being in MI vs. U.S.

	MI percent 2008	National percent	MI rank
Births to teens under age 20	10%	10%	25
Repeat births to teens	18	19	19
Unmarried women	40	41	25
No diploma or GED*	17	22	NA
Late/no prenatal care*	5	7	NA
Smoked during pregnancy*	NC	10	NA
Low-birthweight (under 5.5 lbs.)	8.6	8.2	36
Preterm birth (less than 37 weeks gestation)	13	12	31

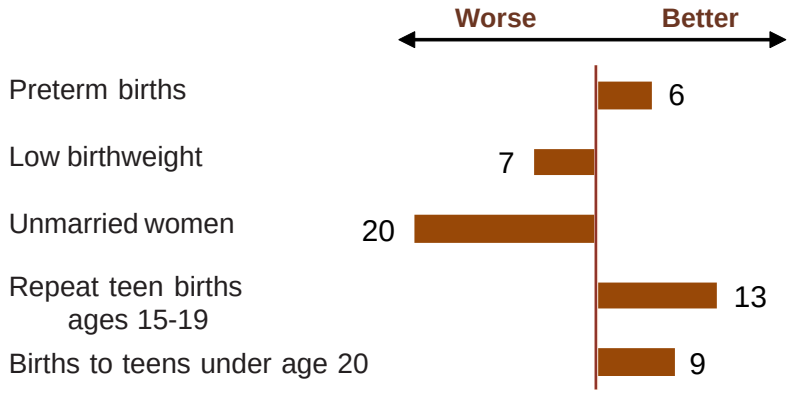
*Percentages are based on two-year average (2008-2009)
NA - Not all states are ranked due to changes in birth certificates.
NC - Not comparable to national rate due to differences in birth certificate.
Source: Michigan Department of Community Health, Vital Records and Health Data Development Section

More births are occurring to women who are economically insecure as indicated by the increasing percentage of births to single women and women in low-income families. Women who are unmarried at the birth of a child are less likely to secure a child support order to get financial assistance from the child's father thus escalating the risk of poverty in an economy that usually requires the income from two adults in low-wage jobs to cover basic needs.

In 2010 a Michigan family with a single worker with one infant needed an annual gross income of $40,200 ($19.03 an hour) in order to meet basic needs, including minimal savings for emergencies, retirement, education, and home ownership, according to the Basic Economic Security Tables Index for Michigan.[2] (A full-time minimum wage earner in Michigan at $7.40 an hour, or $15,629 annually, would fall far short of this level of economic security.) Women, who are often heads of households, are disproportionately represented in sectors with low hourly wages such as home health aid ($10 per hour), retail sales ($12), office clerk ($13) and child care ($10).[3]

Babies born to women in Michigan's two largest communities of color—African American and Hispanic—suffer from higher risk for almost all adverse circumstances than their white counterparts. Research has shown these birth disparities are reflected in early development, school readiness, academic achievement and lifelong potential.

Trends in maternal/infant well-being in Michigan (2000 vs. 2009)



The circumstances of birth also vary dramatically across Michigan counties. Overall rankings for the counties in this report reveal that Houghton in the Upper Peninsula had the best average ranking for maternal and infant well-being followed closely by Livingston County. The northern Michigan counties of Alcona and Crawford had the worst overall rankings. Among the 10 worst counties, Saginaw was the only urban county, and Luce the only UP county. (Urban counties are those with total population over 65,000.)

[2] Wider Opportunities for Women and Michigan League for Human Services. *The Basic Economic Security Tables for Michigan*. May 2011. [http://www.milhs.org/wp-content/uploads/2010/08/MI-BEST-Exec-Summary-Final.pdf]
[3] Ibid.

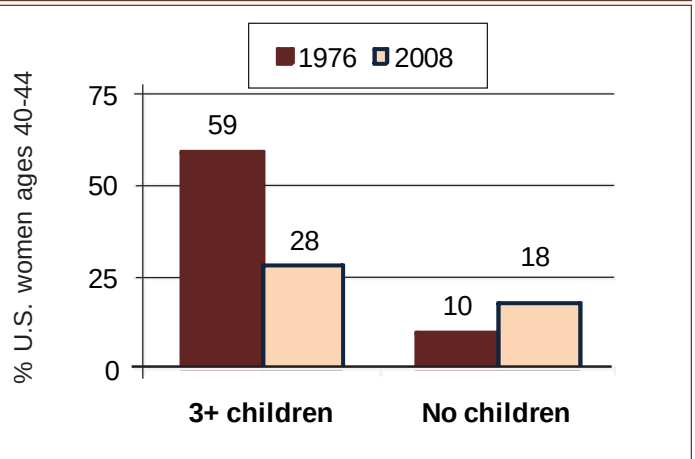
Major Changes Have Occurred Over the Past Three Decades for American Women

Birth trends in Michigan must be reviewed in the context of the large social changes for women over the past several decades. Smaller shares of American women are having children, and the trends vary dramatically by education levels. College-educated women are more likely to marry but less likely to have children while the reverse is true for high school dropouts. These trends are affected by policy decisions in other areas such as higher education, tax policy, and employment.

Fewer women have children, and they have fewer children.

The lives of American women have altered dramatically over the past several decades in their experience of motherhood, education, and employment opportunities. In 1976 roughly 59 percent of American women at the end of their childbearing years had borne three or more children, by 2008, that percentage had dropped by half—down to 28 percent, according to a recent U.S. Census Bureau analysis.[4] Furthermore, the percentage of women who remained childless in 2008 almost doubled compared with 1976—rising from 10 percent to 18 percent.

American women were much less likely to have more than two children or any children at all in 2008 compared with 1976.



Source: Jane Lawler Dye. Fertility of American Women: 2008. Current Population Reports, P20-563. U.S. Census Bureau. Issued November 2010

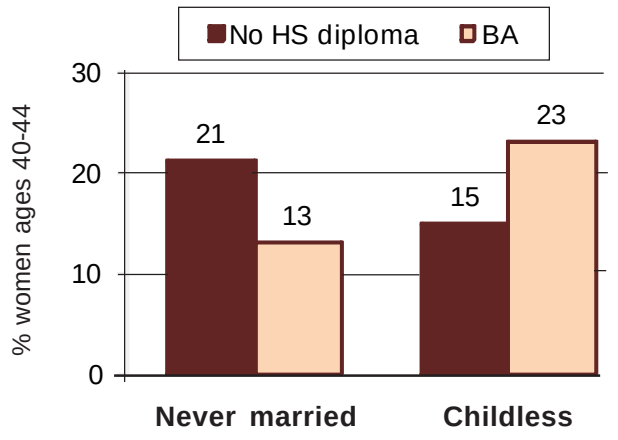
Trends in marriage and childbearing diverge by education level for women.

Women with a college education are more likely to marry but less likely to have children than their peers without a high school education. In 2008 only 13 percent of college-educated women ages 40-44 had never married yet almost one-quarter (23%) had remained childless. In contrast, 21 percent of their contemporaries without a high school education had never married, but only 15 percent remained childless. Access to family planning may be a factor in the smaller percentage of dropouts remaining childless as low-income women are less likely to have health insurance, and the costs of the more effective contraceptive options may be prohibitive.

College-educated women who are employed have much to lose financially by opting for motherhood. American workers pay a heavy price for taking time off or working part time to accommodate family responsibilities, and the impact of these employment policies disproportionately affects women who become mothers. A recent study of University of Chicago business school graduates found that early in their careers, men and women had nearly identical income and work hours, but after 15 years only

[4] Jane Lawler Dye. *Fertility of American Women: 2008. Population Characteristics*. Current Population Reports (P20-563). Washington D.C. U.S. Department of Commerce, Economics and Statistics Administration. U.S. Census Bureau. Issued November 2010.

Marriage and motherhood reflect opposite trends by maternal education.



Source: Fertility of American Women: June 2008 Current Population Reports, P20-563 November 2010.

the women who remained childless and never took time off maintained earning parity with men.[5]

Since men who marry and have children do not bear the costs of pregnancy and birth, male graduates were more likely to be married and have children during the early years of their career. By the ninth year after graduation male graduates were more likely to be married (81% vs. 65%) and have children (60% vs. 42%) than their female peers.[6]

Another factor that may deter motherhood for a working woman is the stress of trying to combine the care of a newborn, job demands, and reduced income. The U.S. is the only industrialized country without a national paid parental leave policy. The current available parental leave is short (12 weeks) compared with other counties, covers only employees in relatively large companies (50+ workers), and is unpaid.

Women with large student loan debt may not be willing or able to absorb the high cost of motherhood. The cost of higher education has shifted substantially to students and their families. In Michigan state support for public universities dropped by roughly one-third between FY2002 and FY2010 (in 2010 dollars).[7] During that same period average annual tuition and fees climbed by 88 percent—from $4,900 for in-state students to $9,300. Roughly three of every five Michigan college graduates exited with average college loans of $22,000—the 12th highest debt load in the country.[8] Cumulative debt loads for graduate degrees climb even higher.

On the other hand, high school dropouts who become mothers—many of them single—struggle to make a living in low-wage employment often with inflexible schedules and no health benefits. Opportunities for them to improve their employability by completing a diploma or earning a GED are very limited. Furthermore, few career ladders lead from low-wage to better paid positions for workers without postsecondary training or education, which is virtually unavailable on the job for low-wage workers.

Despite concerns about the low literacy and education levels of state residents, funding for adult education has dwindled over the decade. State support dropped from $80 million in FY2000 to $22 million in FY2010.[9] Not surprising, enrollment in adult education programs in Michigan plummeted by 63 percent between 2000-01 and 2008-09—from 56,000 to 28,200.[10]

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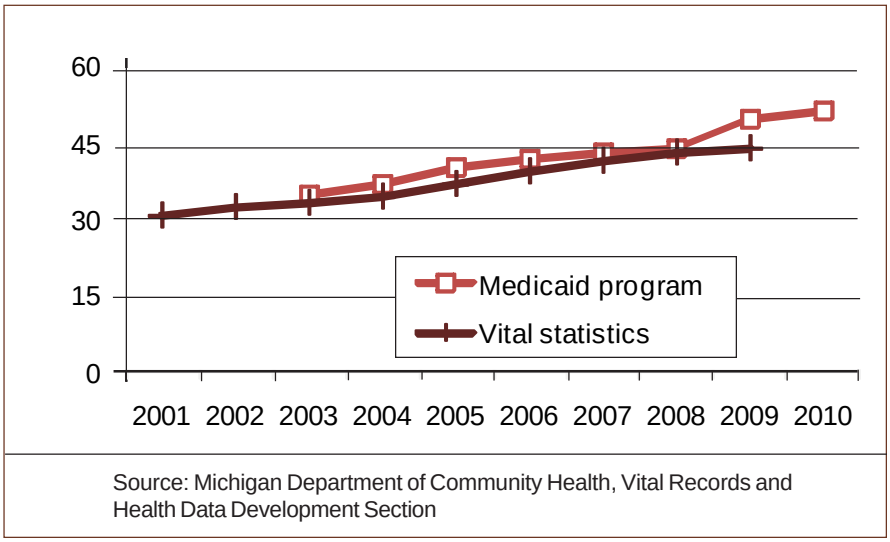
[5] Marianne Bertrand et al. Dynamics of the Gender Gap for Young Professionals in the Financial and Corporate Sectors. *American Economic Journal: Applied Economics 2* (July 2010): 228-255 [http://www.aeaweb.org/articles.php?doi=10.1257/app.2.3.228]
[6] Ibid.
[7] Michigan League for Human Services. *Pulling the Plug on Michigan's Future: Why Draining Resources Hurt Tomorrow's Workforce*. Lansing, MI. August 2010.
[8] Ibid.
[9] Michigan League for Human Services. *Good Ideas are not Enough: Michigan's Adult Learning System Needs More State Funding*. Lansing, MI. May 2010.
[10] Ibid.

Economic insecurity increased for mothers and their newborns.

More Michigan infants are being born to low-income mothers without health insurance. By 2009 roughly two of every five births in Michigan were covered by Medicaid—up by roughly 10 percentage points from 2003, based on information from hospitals at the time of the birth.[11] The actual percentage is higher, according to information from the Medicaid Program since eligibility may be determined after the delivery. While Medicaid Program data have been routinely a few percentage points higher than those from Vital Statistics over the years, in 2009 the gap widened to 6 percentage points.[12] This gap suggests many women whose delivery was covered by Medicaid did not realize they were eligible for Medicaid during the pregnancy and may not have sought prenatal care due to concerns about cost. Roughly half the women whose delivery was covered by Medicaid in 2008 did not qualify before the pregnancy, according to the Medicaid Program office.[13] (See Map 1.)

Pregnant women with no health insurance qualify for Medicaid with a household income below 185 percent of poverty ($31,946 for a married couple in 2009, or $27,000 for a single woman). In Michigan, as in the rest of the country, access to health insurance is connected to employment. Thus as unemployment rose in the state, many workers lost access to health insurance benefits as well as their jobs. Most working age women qualify for Medicaid only due to pregnancy since the income eligibility rises considerably. That coverage, however, is no longer available after the post-partum checkup, so costs for any complications from the pregnancy that develop later will have to be absorbed by the family. This situation will change with the implementation of the Affordable Care Act (ACA) as adults in households with income below 130 percent of poverty will be eligible for Medicaid. With better access to care before and after the pregnancy more low-income women may enter a pregnancy healthier or be able to manage their childbearing to meet their employment and education goals.

By 2010 one of every two Michigan mothers of a newborn was eligible for Medicaid.



Source: Michigan Department of Community Health, Vital Records and Health Data Development Section

In the U.S. young adults ages 19-29 are at highest risk of lacking health insurance—roughly one-third of them were uninsured in 2009.[14] Low-wage workers are particularly vulnerable. Half of young adults with incomes below double the poverty level—roughly $34,600 for a single parent with two children—

[11] Most references in this text to 2001 and 2009, specific to that trend period, actually reflect a three-year average for 2001-03 and 2007-09 unless otherwise stated.
[12] The higher figure for actual enrollment is expected and may reflect, in part, infants whose eligibility is determined after the delivery and/or confinement, but is "backed up" to the delivery date.
[13] For most categories of Medicaid eligibility for adults, income must be significantly below the poverty level.
[14] Sara R. Collins, Tracy Garber and Ruth Robertson. *Realizing Health Reform's Potential: How the Affordable Care Act is Helping Young Adults Stay Covered.* The Commonweath Fund. Pub. 1508. Vol.5. May 2011.

went without care because of cost in 2010. This situation is particularly acute in that these are the prime child-bearing years.

Currently the ACA provision that extends access to young adults by allowing those up to age 26 to participate in their parent's health plans as dependents has been implemented. This provision primarily benefits those with higher income employed parents with health care benefits. By 2014, however, when all the provisions of the ACA take effect, low-income families in this age group will have access to health insurance through Medicaid or subsidized private coverage through state insurance exchanges.

Current funding for Medicaid presents a challenge. The increase in the share of mothers who qualify for Medicaid and the decrease in provider rates paid by Medicaid have created an untenable financial situation for hospitals in several areas of the state. Medicaid reimbursement covers just two-thirds (65%) of actual costs of labor and delivery.[15] The low reimbursement coupled with the cost of malpractice insurance and difficulty in attracting ob-gyn specialists in rural areas have resulted in a loss of delivery services in 32 of the 83 counties, according to a recent review.[16] There are now 18 counties in northern Michigan without hospital delivery services. Overall, only half (84) of all hospitals in the state have obstetrical services. This is a sobering situation when a matter of minutes can have huge consequences on the lives and health of both mother and baby. (See Map 2).

In response to this situation, the Department of Community Health convened a group of experts in January 2009 to develop recommendations for a regional perinatal system of care in Michigan, pursuant to boilerplate language in the FY 2009 appropriations for the Department. Three work groups—Obstetrics, Neonatology and Pediatrics—were formed to develop level of care guidelines based on the *American Academy of Pediatrics/American College of Obstetrics and Gynecology Guidelines for Perinatal Care, 6th Edition* adapted to Michigan-specific standards. In April the resulting report on Michigan Perinatal Level of Care Guidelines and recommendations for implementing a regional system of care in Michigan was submitted to the Legislature.[17]

Economic risk besieges teen mothers and single mothers.

Economic security is especially tenuous for new mothers who are teenagers or unmarried. These two populations reflect divergent birth trends: births to Michigan teenagers are declining, but those to unmarried women are rising. Births to teenagers represented just over one-fifth (22%) of all Michigan's nonmarital births.

In 2009 roughly 10 percent of all Michigan births were to a teenager compared with 11 percent in 2000—a 9 percent decrease. This trend does not reflect the extent of the actual decline in the births to teens since births among women over the age of 20 have also been decreasing. The birthrate per 1,000 Michigan teens ages 15-19 dropped by 20 percent between 2000 and 2008.

Michigan's younger teens have experienced the most substantial reduction in births. Births to girls under age 15 numbered 133 in 2009, compared with 221 in 2000, and those to teens ages 15-17 totaled 3,400 compared with 4,607 at the beginning of the decade. Despite this progress, too many young women still do not have the knowledge or skills to protect themselves from unintended pregnancies. Most Michigan teenagers under the age of 18 do not intend to become pregnant. More than four of every five Michigan teenagers under the age 18 who gave birth over the decade did not intend nor wish to have a child, according to survey data analyzed by the

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[15] Lawrence F. Barco, President, MidMichigan Medical Center-Clare. Testimony to the Senate Appropriations SubCommittee for Michigan Department of Community Health. February 25, 2010.

[16] Munson Health Care. *A White Paper on the Status of Women's and Children's Services in Michigan*

[17] *Perinatal Regionalization: Implications for Michigan*. A report by the Michigan Department of Community Health (MDCH) in collaboration with Michigan neonatal, obstetric and pediatric stakeholders. April 2009.

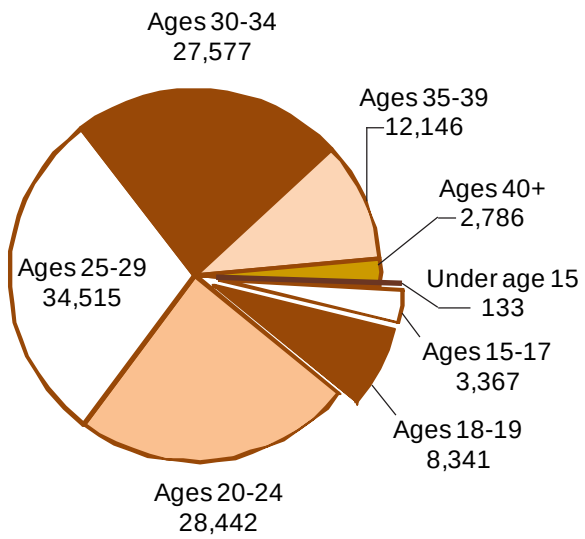
Michigan Department of Community Health.[18] This finding highlights the need for more intensive outreach and education to Michigan adolescents about sexual activity, contraceptive options, and parenthood.

Births to older teens, ages 18-19, represented 70 percent of all teen births in Michigan. Many of these young women would have been pregnant while still in high school. As new parents they may have difficulty completing a high school education or postsecondary training, so necessary to getting a job with an adequate wage to support a family. The incidence of unintended pregnancy is only slightly lower among this group than among younger teens (70%).[19]

The majority of births in Michigan are to women over the age of 25. The largest share (29%) is to women in their late 20's while births to women in their early 20's and in their early 30's both represented another one-quarter each of all births.

Data show that the younger the mother, the less likely she is to be married. While mothers under the age of 25 represented only one-third of Michigan births in 2009, they composed almost three-quarters of the state's nonmarital births. Young mothers in their early 20's represented almost one-quarter of all births in 2009, and two-thirds of those births were nonmarital. The majority (55%) of women in this age group also indicated that their pregnancy was unintended.[20]

The largest number of Michigan births in 2009 occurred among women ages 25-29.



Source: Michigan Department of Community Health, Vital Records and Health Data Development Section

While more couples are living together without being married, most single women who give birth are not in such a relationship, according to national survey data.[21] Only 28 percent of women giving birth in the previous year who were not married or who were married but separated or whose spouse was absent were living with a co-habiting partner.[22]

Five years after the birth of their children just over one-third of unmarried couples are living together and less than half of those are married, according to a major national longitudinal study.[23] The study also found that couples that were cohabiting at the time of the birth were more likely to have stayed together.

These unstable relationships can have a negative impact on children. Children born to

[18] Michigan Department of Community Health (MDCH). Pregnancy Risk Assessment Monitoring System (PRAMS) Survey Data. Lansing, Michigan: MDCH, Division of Genomics, Perinatal Health, and Chronic Disease Epidemiology, 2001-2008. The PRAMS is an annual survey of Michigan mothers with a live birth during the preceding year. It is designed to identify and monitor selected maternal experiences and behaviors before and during pregnancy and during the child's early infancy.

[19] Ibid.

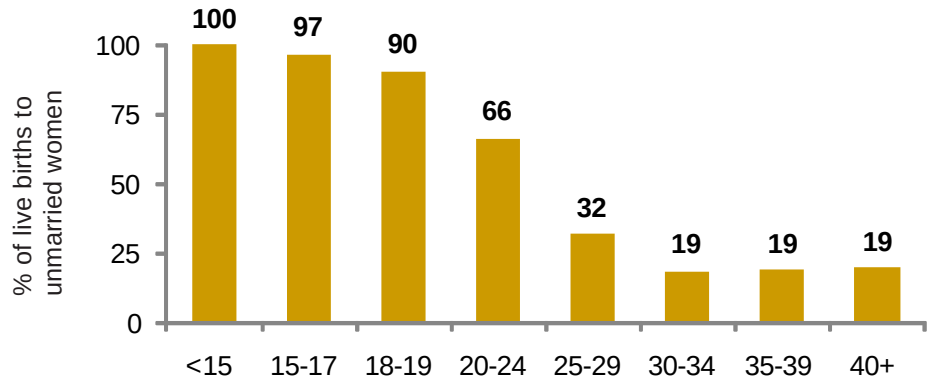
[20] Op. Cit. Michigan Department of Community Health (MDCH). Pregnancy Risk Assessment Monitoring System (PRAMS) Survey Data

[21] Jane Lawler Dye, Fertility of American Women: June 2008. Current Population Reports, P20-563, U.S. Census Bureau, Washington D.C. November 2010. A specific question about cohabitation was added to the Current Population Survey in January 2007.

[22] Ibid.

[23] Fragile Families and Child Wellbeing. Factsheet. [http://www.fragilefamilies.princeton.edu/documents/FragileFamiliesandChildWellbeingStudyFactSheet.pdf]

The majority of the births to women under age 25 were nonmarital.



Source: Michigan Department of Community Health, Vital Records and Health Data Development Section

unmarried parents often receive harsher discipline and fewer literacy activities than those in married couple families.[24] Some of these parenting behaviors may result from the stress of their desperate economic plight. Roughly half of mothers who remain unmarried lived in households with income below poverty, and an additional 20 percent to 25 percent were in households with income between 100 percent and 200 percent of poverty.[25] Studies have found that children in single mother families with more resources and social supports exhibit fewer behavior problems.[26] Only one-quarter of mothers who were unmarried at the birth of their children did not experience poverty during the first five years of their child's life, according to a major longitudinal study.[27]

In their efforts to address increases in non-marital births, policymakers have focused on promoting marriage, but research suggests that improving the education levels of both fathers and mothers, their individual parenting practices and the couple's relationship quality, whether married or not, may be the most effective strategies for bettering child well-being in unstable families.[28]

Maternal and Infant Well-Being in Michigan Counties

The variation in maternal and infant well-being among Michigan counties is closely tied to the economic status of the mothers.

The 10 Michigan counties with the best overall rankings for maternal and infant health (see Table 2) also tended to be the most affluent counties in the state. All 10 of the counties had relatively low percentages (below 46%) of women eligible for Medicaid. The average rankings of Houghton and Livingston counties were substantially better than the other top ten counties. What is striking in the geographic diversity of the best counties—one in the

[24] Mothers' and Children's Poverty and Material Hardship in the Years Following a Non-Marital Birth. Fragile Families Research Brief. No. 41. January 2008. [http://www.fragilefamilies.princeton.edu/briefs/ResearchBrief41.pdf]
[25] Ibid.
[26] Jane Waldfogel, Terry-Ann Craigie, and Jeanne Brooks-Gunn. "Fragile Families and Child Well-Being" in *Fragile Families*. The Future of Children. (A collaboration of the Woodrow Wilson School of Public and International Affairs at Princeton University and the Brookings Institute) Vol. 20. Number 2. Fall 2010.
[27] Ibid.
[28] *Maternal Stress and Mothering Behaviors in Stable and Unstable Families*. Fragile Families Research Brief. Princeton University. September 2004. No. 27.

UP, two in northern Michigan, one in west Michigan, and the others in central and southeast Michigan. Many of these counties are located right next to a county with some of the largest concentrations of economic insecurity, as represented by the percentage of Medicaid births.

Ten Best Counties

1. Houghton
2. Livingston
3. Washtenaw
4. Leelanau
5. Ottawa
6. Clinton
7. Oakand
8. Gr. Traverse
9. Monroe
10. Midland

Similarly the 10 counties with the worst rankings for maternal and infant well-being also had some of the largest percentages (56%+) of women eligible for Medicaid delivery—Manistee County was the only exception. In contrast to the 10 best counties, none of the worst counties are in the southeastern metropolitan area, and four of the 10 are concentrated in northern Michigan. (See Map 3.)

The range from the lowest to the highest percentages on the key indicators of maternal and infant well-being among Michigan counties reflected

Ten Worst Counties

72. Cass
73. Luce
74. Calhoun
75. Muskegon
76. Roscommon
77. Manistee
78. Clare
79. Saginaw
80. Crawford
81. Alcona

the smallest ratio for the measures of unhealthy births: that is, low-birthweight and preterm births in the worst county were roughly double those of the best county. In contrast, the percentage of births to mothers who had no high school diploma or GED was eight times higher in Oscoda County (40%) than in Livingston County (5%) and in Gladwin County pregnant mothers were seven times more likely to have received late or no prenatal care than their counterparts in Oakland County. (See Table 2.)

Trends for maternal and infant well-being vary among Michigan counties.

As previously mentioned, this review could include a trend between 2000 and 2009 for only those five indicators that remained the same on the previous and current versions of the Michigan birth certificate. The most consistent shifts among the counties were in the increase in nonmarital births and decrease in teen

Best and Worst Rankings for Michigan Counties on Right Start Indicators

Indicators	County	Best	State Average	Worst	County
Births to teens under age 20	Livingston	4.5%	**10.1%**	18.7%	Luce
Repeat births to teens	Alpena	9.3	**18.4**	28.6	Lake
Nonmarital	Keewenaw	15.6	**40.5**	54.7	Baraga
No diploma or GED*	Livingston	4.8	**16.2**	39.8	Oscoda
Late/no prenatal care*	Oakland	1.5	**3.2**	10.4	Gladwin
Smoked during pregnancy*	Ottawa	9.5	**19.3**	49.1	Crawford
Low-birthweight	Baraga	4.3	**8.5**	10.4	Genesee/ Wayne
Preterm birth	Menominee	5.3	**10.2**	12.8	Ingham

*Percentages are based on two-year average (2008-09) rather than three-years (2007-09)
Source: Michigan Department of Community Health, Vital Records and Health Data Development Section

births. Only seven of 81 counties experienced a decline in births to unmarried women, with Keweenaw, Mackinac, and Menominee showing the largest drops of at least 11 percent. In contrast, the counties of Lapeer, Livingston, Macomb, Cass and Alger saw their rates climb by 50 percent or more. (See Table 3.)

The state decline in the percentage of teen births was echoed in 73 of 83 counties with the largest improvements in Mackinac, Presque Isle and Montmorency where the rates dropped by at least half. Only four counties—Alcona, Barry, Crawford and Luce—sustained double digit increases with Luce having the most substantial jump (38%).

The improvement in the percentage of births to teens who were already parents was also quite consistent across counties with 44 of the 68 where a trend could be calculated reflecting declines. The percentages of these births in Alpena, Clinton and Gladwin counties were down by 40 percent or more while Otsego and Menominee rose by over half during this period.

Similarly preterm births were down in 56 of the 82 counties where a change could be calculated. Cheboygan led the way with a 50 percent drop in its rate while those in Luce and Mackinac counties rose by as much. The proximity of these counties make the extremities of these changes remarkable.

Only 21 of 81 counties saw improvements in their percentages of babies born at low-birthweight. Cheboygan County led the way with a decrease of just over one-third in that percentage. In contrast, the rate in Mackinac County more than doubled over the trend period.

Higher Risks to Maternal and Infant Well-Being Persist in Communities of Color.

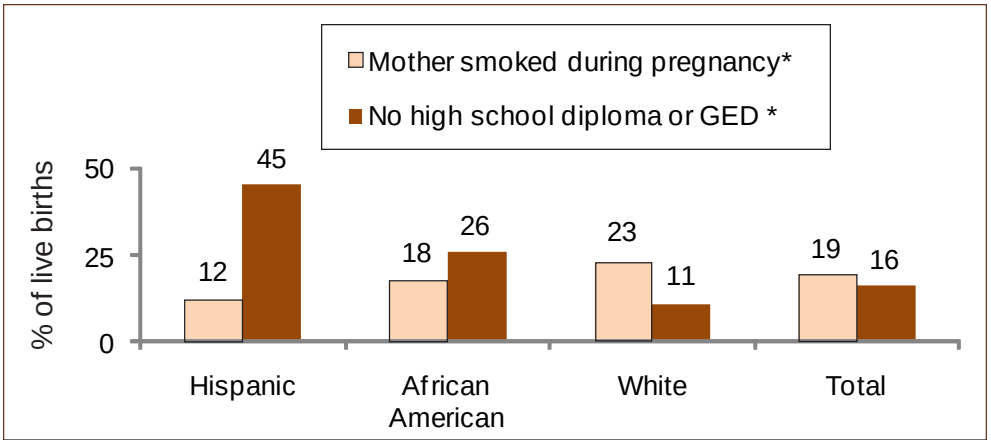
One of every four births in Michigan is to a mother from a community of color.

The share of Hispanic children will continue to grow if current birth trends continue. The number of births to non-Hispanic white mothers sustained a large decline (15%) between 2000 and 2009, more than double that of African Americans, while births to Hispanic mothers rose by 35 percent though still representing only 7 percent of all births.

Risk to maternal and infant well-being varies considerably among racial/ethnic groups.

Almost half of Hispanic mothers of newborns had no high school diploma or GED as did one quarter of African Americans compared with only 11 percent of white mothers. On the other hand, roughly one quarter of non-Hispanic white mothers of newborns reported smoking during pregnancy as did one fifth of African Americans compared with only 12 percent of Hispanics. As communities seek to improve maternal and infant well-being, it is important to note the differences and variation in trends among racial/ethnic groups.

Maternal risk factors varied dramatically by race/ethnicity.



*Percentages are based on two-year average (2008-2009)
Source: Michigan Department of Community Health, Vital Records and Health Data Development Section

Teen births and nonmarital births were substantially higher in Michigan's two largest communities of color than among whites.

Roughly four of every five births to African American women and one of every two of those to Hispanic women were nonmarital compared with roughly one of every three to whites. Similarly the percentages of births to teenagers were double the white rate among Hispanics and triple the white rate among African Americans.

Research studies echo three key themes in their efforts to explain these large disparities, according to a recent analysis, which identified the following:[29]

- structural socioeconomic barriers such as intermittent employment, unstable housing, poor health, to marriage and family stability
- sex ratios i.e. women in geographic areas with fewer marriageable males are less likely to marry
- differences in culture and norms for family formation and stability as reflected in different relationship patterns among similarly economically disadvantaged immigrant groups

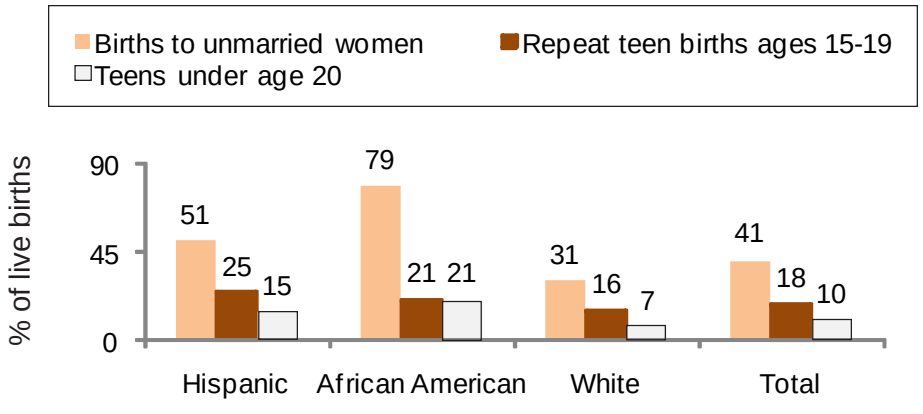
Among the three themes, socio-economic factors are considered the most salient in explaining these disparities. For example, responses to the high incidence of nonmarital births must be grounded in policies to address structural barriers that lead to the high rates of high school dropout, unemployment, mortality and incarceration, particularly for African American men.[30] Multiple studies have found that male unemployment is a barrier to marriage and marital stability.

Unhealthy births vary dramatically among communities of color.

Despite relatively high levels of maternal risk, Hispanic infants reflect the same rates of low-birthweight and preterm births as those among non-Hispanic white babies. On the other hand, African American babies are roughly twice as likely as white or Hispanic babies to weigh less than five and one-half pounds at birth, and are at much higher risk of being born before at least 37 weeks in utero. Many research studies are attempting to determine how racism, segregation and stress are related to these differences.

Women in communities of color were at much higher risk of receiving late or no prenatal care than white women.[31] The most common barriers to first trimester prenatal care entry included not having received a Medicaid card, the desire to keep the pregnancy secret, and the refusal of the health care provider to start care sooner,

Births to single women and teens were much more prevalent in communities of color.



Source: Michigan Department of Community Health, Vital Records and Health Data Development Section

[29] Robert A. Hummer and Erin R. Hamilton. "Race and Ethnicity in Fragile Families." *Fragile Families*. The Future of Children. (A collaboration of the Woodrow Wilson School of Public and International Affairs at Princeton University and the Brookings Institute) Vol. 20. Number 2. Fall 2010.

[30] *Racial and Ethnic Differences in Marriage among New Unwed Parents*, Fragile Families Research Brief. Princeton University. July 2004. No. 25.

[31] http://www.unnaturalcauses.org/assets/uploads/file/Braveman_NIH_Summit_12-12 08.pdf;http://www.rwjf.org/files/research/sdohseries2011raceandses.pdf;http://www.rhrealitycheck.org/blog/2010/05/05/racism-behind-disgracefulinfant-mortality-rates-among africanamericans;http://www.mcclatchydc.com/2007/09/28/20099/racism-may-affect-infant-mortality.html;

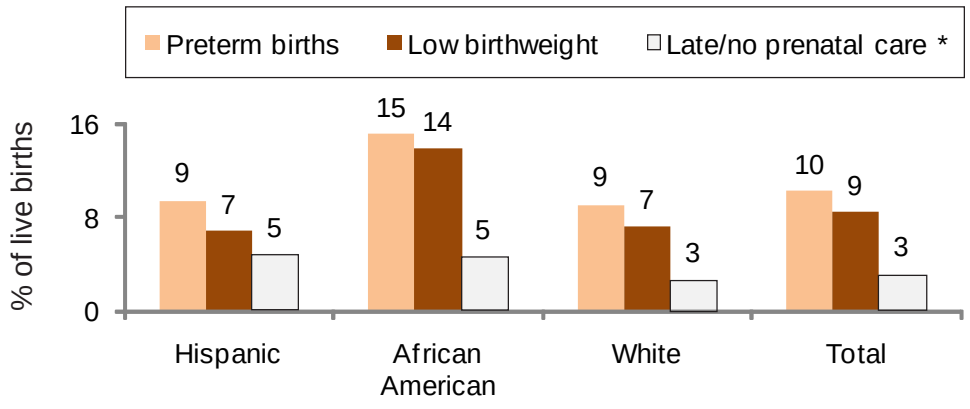
according to a survey of mothers of newborns in 2008.[32]

One strategy to improve birth outcomes and access to prenatal care is to ensure interconception (between pregnancies) care to women who have had pregnancy complications or a baby born too soon or too small. In one pilot site of interconception care the incidence of low-birthweight babies was reduced by one-third.[33] Another strategy is to improve the quality of prenatal care to redress racial inequities. Several studies have documented substantive omissions in the health behavior advice, screenings and services in the prenatal care received by African American women compared with white women.[34]

Access to quality prenatal care is critical as interventions early in the pregnancy can increase the likelihood of a healthy baby. For example, increasing the consumption of folic acid before or during pregnancy or controlling blood sugar levels for mothers with diabetes can reduce the risk of a birth defect.[35] Children born with a birth defect are four times more likely to die before their first birthday compared with the overall rate, and almost six times more likely to die before their 10th birthday than the overall age group.[36] In 2006-08 roughly 7 percent (8,274) of all Michigan infants were born annually with a birth defect that was detected during the first year.

The disparity in access to prenatal care between white and African American women is particularly disturbing as the gap in the incidence of birth defects has been widening in Michigan. The birth defect rate for white infants remained at essentially the same level between 1996 and 2006 but that for African American infants escalated. In 1996 the rate for African American infants was 34 percent higher than that of whites, and by 2006 it had widened to 75 percent.[37] Over this period the birth defect rate among African American infants rose steadily from 760 cases per 10,000 live births to 1,280 cases per 10,000 live births. Hispanic birth defect rates remained relatively stable at roughly 500 cases per 10,000.[38]

Infants in communities of color are at higher risk of being born too small or too soon.



*Percentage is based on two-year average (2008-2009)
Source: Michigan Department of Community Health, Vital Records and Health Data Development Section

[32] PRAMS Report 2008. Michigan Department of Community Health (MDCH). The Pregnancy Risk Assessment Monitoring System (PRAMS) is a population-based survey of mothers who delivered a live infant in that year; mothers are selected at random to participate in the survey.
[33] Michael C. Lu, Milton Kotelchuck, Vijaya Hogan, Loretta Jones, Kynna Wright, Neal Halfon. "Closing the Black-White Gap in Birth Outcomes: A Live-Course Approach." *Ethnicity & Disease*, Volume 20, Winter 2010. [http://www.unnaturalcauses.org/assets/uploads/file/ClosingTheGapBWBirthOutcome.pdf]
[34] Ibid.
[35] Reimink B, Ehrhardt J, Copeland G, Grigorescu V, Bach J, Simmons L, Silva W. *Monitoring Infants and Children with Special Health Needs: Birth Defects Prevalence and Mortality in Michigan, 1992-2006*. Michigan Department of Community Health, Bureau of Epidemiology. 2011.
[36] Ibid.
[37] Ibid.
[38] Ibid.

Epidemiologists at the state health department do not currently have the resources to explore the potential causes in these disturbing trends for African American infants.

Racial/ethnic groups in Michigan reflect same trends on teen births and nonmarital births.

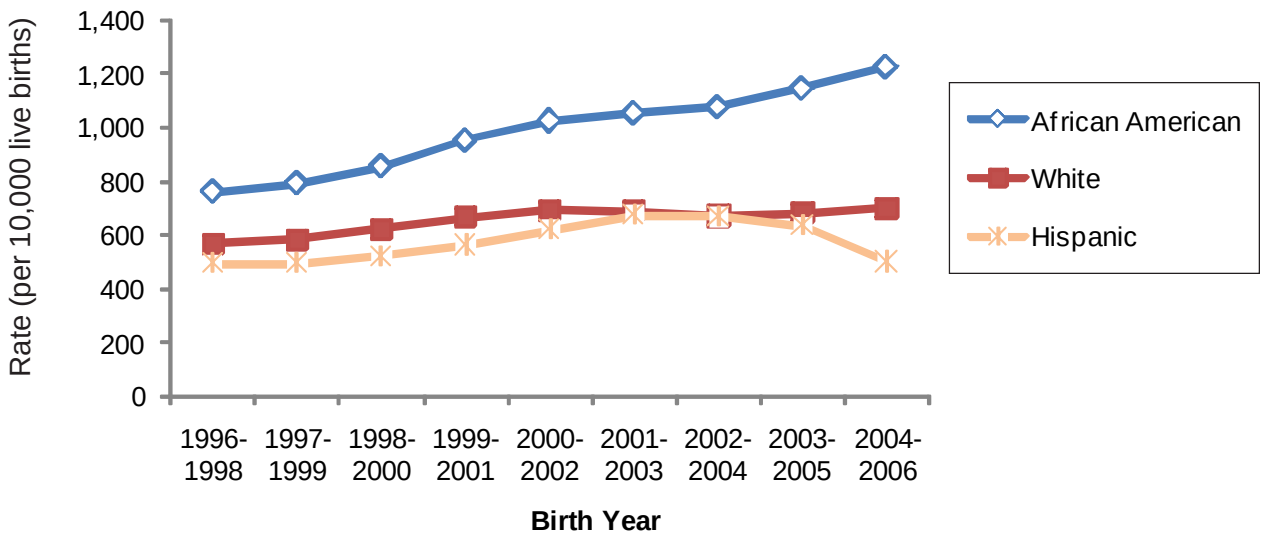
All three racial groups sustained increases in the percentage of births to single women, but the trend was much more pronounced for whites where the rate rose by 27 percent over the trend period—jumping from 24 percent to 31 percent of births. African Americans experienced the smallest increase in non marital births and the largest decrease in repeat births to teens—dropping from 27 percent of teen births to 21 percent over the trend period. Unfortunately the overall percentage of births to teens increased slightly (2%) among African Americans while the rate dropped by 17 percent and 16 percent among Hispanics and whites, respectively.

The good news is that unhealthy births are decreasing among African American women albeit not dramatically: between 2000 and 2009 the percentages of preterm births dropped by 10 percent and low-birthweight babies by 4 percent. Nonetheless, African American rates on these two indicators remained significantly above those of whites and Hispanics. During the same period the percentages of babies born too small among whites and Hispanics rose by 11 percent and 6 percent respectively.

The latest approach to addressing the profound inequities in health across race/ethnicity is life course theory (LCT). The LCT perspective looks at the biological, psychological, behavioral, social and environmental factors that influence physical and mental health over the lifespan.[39] Each life stage influences the next stage, thus the prenatal stage influences infancy, then early childhood, and so on. The prenatal period and early childhood are viewed as key transitions where interventions can have a profound impact.

The LCT conceptual framework helps explain health and disease patterns—particularly health disparities—across populations and over time. It highlights the broad social, economic and

Birth defects escalated for African American infants between 1996 and 2006.



Source: Michigan Department of Community Health, Vital Records and Health Data Development Section

[39] MCH Life Course Tool box available: http://www.citymatch.org/lifecoursetoolbox/

environmental factors as key to a wide range of diseases and conditions across population groups. These factors have a cumulative impact over time.

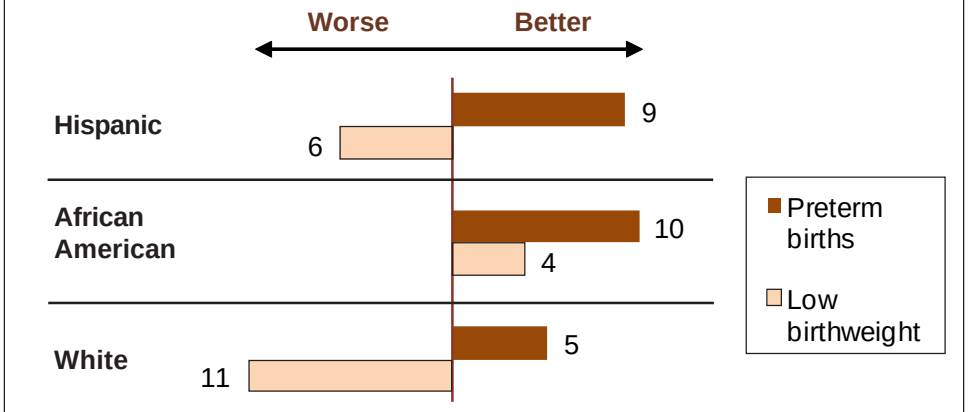
Stated more simply, key life course concepts can be summarized as follows:

- ***Timeline:*** *Today's experiences and exposures influence tomorrow's health.*
- ***Timing:*** *Health trajectories are particularly affected during critical or sensitive periods.*
- ***Environment:*** *The broader community environment—biologic, physical, and social—strongly affects the capacity to be healthy.*
- ***Equity:*** *While genetic make-up offers both protective and risk factors for disease conditions, inequality in health reflects more than genetics and personal choice.*[40]

Nonmarital births rose in all three largest racial/ethnic groups in Michigan.

Source: Michigan Department of Community Health, Vital Records and Health Data Development Section

Low-birthweight babies increased among whites and Hispanics.



Source: Michigan Department of Community Health, Vital Records and Health Data Development Section

The Michigan Department of Community Health is shaping its practices in light of LCT and has implemented professional development for staff. The national maternal and child health is encouraging this framework as a way to use the latest understanding of the interaction between biology and the environment—physical, social, and economic—to promote better health for all mothers and babies. Clearly Michigan needs to make an action plan based on LCT a priority with adequate resources for implementation.

[40] *Rethinking MCH: The Life Course Model as an Organizing Framework*. Concept Paper. U.S. Department of Health and Human Services Health Resources and Services Administration Maternal and Child Health Bureau, November 2010. Version 1.1.

Policy Options to Improve Maternal and Infant Well-Being

Provide more robust family support services.

Michigan has experienced a significant decline in the total number of births but more mothers of newborns are economically insecure. The percentage of Michigan births to low-income women is rising. These families are particularly vulnerable as wages continue to erode and living costs rise. At the same time eligibility for family support programs like the Family Independence Program and Emergency Services is eroding. Critical interventions such as home visiting programs and other family supports will be necessary to improve the life chances of their children. Without such supports these families will be at high risk of being unable to meet the basic needs of their children and thus coming to the attention of the child welfare authorities. Life Course Theory emphasizes the critical importance of the prenatal months and early childhood to influence development and health onto a positive trajectory.

Prioritize women's health as key to infant health.

While Michigan does not deviate substantially from the national averages on most key indicators of maternal and infant well-being, its worst rankings are for the two key outcomes for infants: being born too small or too soon. Both these conditions elevate the risk of developmental delay, chronic disease and even death during infancy. Infant health is inextricably entwined with that of the mother so policies and programs that improve the health of women before they become pregnant and between pregnancies could increase the likelihood of a healthy birth as well as improve the conditions during infancy and early childhood for both mother and child.

Ensure access to family planning.

Michigan is making substantial gains on reducing births to teens, and slight progress on reducing preterm births. Given the financial pressure on families, access to family planning is essential to address the large percentages of unintended pregnancies among teens and women in their early 20's. Young women in these age groups need to have the opportunity to complete their education and post-secondary training or education before becoming parents. Denying them this option by limiting access to family planning services and teen pregnancy prevention initiatives will have a long-term impact on their ability to earn a family-supporting wage and provide for their children. These children will be at high risk of living in poverty with all its damaging effects.

Support Medicaid.

Counties with the largest percentages of uninsured low-income women were also among those with the worst overall rankings on maternal and infant well-being. The risk to these women and infants is now further compounded by the lack of available obstetric services at the hospitals in many of these same counties. The erosion in Medicaid rates for providers is affecting access to health care. Health disparities by race/ethnicity and income are aggravated by lack of access to consistent quality care across the life span. Tying health care access to employment has left many women of childbearing age and children uninsured or underinsured. Michigan must address this issue in its implementation of Affordable Care Act.

Address disparities in maternal and infant health.

Indicators of maternal and infant well-being in communities of color continued to reflect persistently higher levels of risk for all but one of the eight key measures. These inequities impede Michigan's economic recovery as these children face risks to their optimum social and cognitive development, academic achievement and eventually employment possibilities. The state needs an educated workforce to attract skilled job opportunities and develop business ventures. It becomes ever more critical to the state's future to address these disparities across multiple systems, which have an impact on family formation, stability and ultimately the well-being of children.

Table 1: Total Live Births by County

COUNTY	2000	2009	Percent Change
Michigan	**136,025**	**117,309**	**-14**
Alcona	79	70	-11
Alger	76	75	-1
Allegan	1,527	1,469	-4
Alpena	344	284	-17
Antrim	255	222	-13
Arenac	165	126	-24
Baraga	90	66	-27
Barry	716	634	-11
Bay	1,286	1,184	-8
Benzie	201	170	-15
Berrien	2,256	1,999	-11
Branch	623	535	-14
Calhoun	1,874	1,704	-9
Cass	561	541	-4
Charlevoix	287	231	-20
Cheboygan	264	224	-15
Chippewa	425	409	-4
Clare	348	348	0
Clinton	792	710	-10
Crawford	156	134	-14
Delta	422	403	-5
Dickinson	267	231	-13
Eaton	1,292	1,157	-10
Emmet	377	320	-15
Genesee	6,356	5,412	-15
Gladwin	300	235	-22
Gogebic	137	139	1
Gr. Traverse	1,026	944	-8
Gratiot	534	493	-8
Hillsdale	643	527	-18
Houghton	390	410	5
Huron	398	309	-22
Ingham	3,776	3,351	-11
Ionia	856	758	-11
Iosco	266	211	-21
Iron	87	117	34
Isabella	707	715	1
Jackson	2,125	1,850	-13
Kalamazoo	3,188	3,066	-4
Kalkaska	226	193	-15
Kent	9,596	8,892	-7
Keweenaw	26	27	4

COUNTY	2000	2009	Percent Change
Lake	133	111	-17
Lapeer	1,076	848	-21
Leelanau	207	178	-14
Lenawee	1,216	1,068	-12
Livingston	2,061	1,642	-20
Luce	77	61	-21
Mackinac	96	78	-19
Macomb	10,331	9,298	-10
Manistee	269	203	-25
Marquette	603	697	16
Mason	363	295	-19
Mecosta	488	460	-6
Menominee	265	219	-17
Midland	1,043	869	-17
Missaukee	181	181	0
Monroe	1,786	1,713	-4
Montcalm	834	710	-15
Montmorency	105	74	-30
Muskegon	2,389	2,283	-4
Newaygo	633	570	-10
Oakland	16,252	13,406	-18
Oceana	371	339	-9
Ogemaw	237	193	-19
Ontonagon	50	39	-22
Osceola	287	286	0
Oscoda	94	81	-14
Otsego	277	259	-6
Ottawa	3,669	3,243	-12
Presque Isle	127	95	-25
Roscommon	205	175	-15
Saginaw	2,832	2,422	-14
St. Clair	2,180	1,779	-18
St. Joseph	991	838	-15
Sanilac	530	481	-9
Schoolcraft	89	69	-22
Shiawassee	931	716	-23
Tuscola	706	573	-19
Van Buren	1,070	1,033	-3
Washtenaw	4,133	3,781	-9
Wayne	31,122	24,646	-21
Wexford	382	400	5

Source: Vital Records and Health Data Development Section, Michigan Department of Community Health

Table 2: Michigan County Ranks and Rates for Birth Indicators

	County	Average births 2007-09	Percent of Medicaid births		Mother less than age 20		Births to unmarried women		No high school diploma or GED**		Mother smoked during pregnancy**		Low birthweight babies		Preterm births	
Avg Rank		Number	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank
	Michigan	**121,237**	**42.8**	**—**	**10.1**	**—**	**40.5**	**—**	**16.2**	**—**	**19.3**	**—**	**8.5**	**—**	**10.2**	**—**
1	Houghton	410	36.3	9	5.9	4	22.5	3	4.9	2	24.0	25	4.8	3	6.8	8
2	Livingston	1,727	22.0	2	4.5	1	21.2	2	4.8	1	19.6	12	6.7	24	8.4	21
3	Washtenaw	3,869	28.1	4	5.2	2	27.2	7	6.8	5	12.5	4	7.8	49	8.4	21
4	Leelanau	177	41.2	13	8.5	24	31.2	11	10.9	20	20.9	16	4.9	4	6.6	7
5	Ottawa	3,398	30.1	5	7.3	15	23.6	4	12.1	26	9.5	1	6.5	18	8.6	29
6	Clinton	754	31.2	6	6.1	6	25.0	5	8.0	7	10.5	2	6.4	15	11.4	77
7	Oakland	13,787	25.8	3	5.3	3	25.8	6	8.5	8	10.7	3	8.2	60	9.4	44
8	Gr. Traverse	969	44.5	22	6.9	11	30.9	10	10.0	13	21.6	18	6.7	24	9.0	37
9	Monroe	1,697	34.7	8	9.7	32	35.8	26	12.5	28	19.9	13	6.4	15	8.0	17
10	Midland	875	41.7	16	7.2	13	32.9	17	10.7	18	23.3	24	7.0	35	8.3	19
11	Emmet	339	45.2	23	7.3	15	33.8	19	6.7	4	28.8	42	6.5	18	8.9	35
12	Dickinson	249	44.3	20	8.6	25	39.5	38	10.5	17	25.2	30	6.7	24	6.8	8
13	Marquette	683	44.3	20	6.2	7	34.6	21	6.4	3	25.9	33	7.0	35	9.5	47
14	Macomb	9,598	32.1	7	5.9	4	30.4	9	10.1	15	17.1	9	8.7	69	9.8	57
15	Allegan	1,480	42.0	17	8.8	27	32.0	12	15.2	43	18.5	10	6.6	22	9.3	41
16	Menominee	226	14.9	1	11.1	48	29.8	8	14.3	37	22.4	21	8.4	63	5.3	1
17	Presque Isle	103	46.6	31	7.1	12	35.9	28	12.3	27	24.6	27	7.4	44	7.8	14
18	Barry	666	37.8	10	10.8	41	32.9	17	13.1	30	25.2	30	6.2	12	9.4	44
19	Charlevoix	254	45.9	25	7.9	20	35.6	24	9.1	11	31.8	60	6.3	13	9.1	38
20	Benzie	172	49.9	39	7.2	13	32.5	13	10.0	13	22.2	19	7.2	39	9.7	56
21	Eaton	1,147	41.6	15	8.7	26	35.8	26	10.8	19	14.7	7	6.9	31	10.8	73
22	Ionia	802	43.4	19	9.3	29	36.9	30	13.5	32	21.0	17	6.4	15	10.5	67
23	Sanilac	490	46.4	29	8.3	23	35.3	22	14.6	40	29.8	45	6.9	31	8.5	24
24	Otsego	277	53.4	51	9.1	28	39.1	35	13.1	30	30.5	49	6.1	11	7.6	12
25	Lapeer	893	41.3	14	8.1	22	34.1	20	11.9	24	24.8	29	7.8	49	10.0	60
26	Isabella	731	40.9	12	9.6	30	41.1	48	12.0	25	26.4	35	7.1	38	9.2	40
27	Kent	9,153	40.8	11	9.8	33	38.6	32	19.1	62	12.5	4	7.4	44	9.5	47
28	Mackinac	81	48.8	33	6.6	8	32.6	14	7.9	6	25.8	32	9.1	74	10.7	72
29	Huron	308	49.4	36	6.8	10	37.5	31	10.1	15	31.2	55	7.0	35	10.2	64
30	Oscoda	81	46.3	27	11.1	48	32.8	15	39.8	82	31.3	57	5.7	9	7.0	10
30	Hillsdale	559	49.0	34	10.1	36	35.7	25	20.4	66	30.6	51	6.6	22	7.8	14
32	Delta	383	50.3	41	7.6	17	39.3	37	8.5	8	31.2	55	8.5	64	8.7	32

** 2 year average 2008-09

Note: Restricted to the 81 counties with a rate for all 7 indicators, and the 7 indicators for which 81+ counties have a rate.

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Avg Rank		Number	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank
33	Montmorency	70	59.3	66	6.7	9	44.5	61	9.8	12	39.9	75	6.7	24	7.7	13
34	Montcalm	776	49.6	37	11.9	59	39.8	39	17.6	52	28.4	39	6.3	13	8.6	29
35	Missaukee	173	51.4	44	11.6	55	38.8	33	21.3	69	28.4	39	5.0	5	8.5	24
35	Kalamazoo	3,160	46.3	27	10.2	39	40.9	45	13.7	34	19.1	11	8.3	61	9.6	52
37	Lenawee	1,130	46.1	26	12.1	60	40.1	40	15.6	46	20.8	15	7.2	39	9.5	47
38	Osceola	278	49.1	35	11.6	55	39.2	36	21.8	70	35.4	68	5.6	8	6.0	3
39	Alger	77	61.2	71	7.8	18	43.1	58	11.3	21	31.9	61	6.5	18	8.6	29
40	Tuscola	593	50.0	40	10.0	34	35.5	23	11.8	23	30.8	52	7.6	47	10.1	63
41	Chippewa	371	51.7	46	10.9	45	46.1	66	12.7	29	39.2	73	5.7	9	8.3	19
42	Gogebic	150	54.3	56	7.8	18	41.0	46	8.5	8	31.5	59	7.3	42	10.0	60
43	Cheboygan	243	59.3	66	10.8	41	46.2	67	14.6	40	33.4	65	5.2	6	6.4	5
44	Shiawassee	765	46.9	32	10.1	36	38.8	33	14.3	37	29.4	43	7.9	52	10.5	67
45	Mecosta	445	50.8	43	9.6	30	40.2	42	22.7	73	33.7	67	6.9	31	8.1	18
46	Gratiot	473	54.2	55	11.2	50	41.7	50	11.3	21	30.5	49	7.9	52	8.9	35
47	Iron	107	59.9	69	13.7	70	45.3	63	14.2	36	31.1	54	6.5	18	6.2	4
48	Branch	569	51.8	47	12.2	61	42.2	52	29.9	81	25.9	33	6.7	24	8.4	21
49	Ingham	3,482	50.7	42	10.1	36	42.4	53	16.5	50	12.5	4	8.1	58	12.8	82
50	Newaygo	620	52.0	48	14.0	72	40.1	40	19.0	60	28.6	41	6.9	31	9.3	41
51	Ogemaw	201	61.3	72	12.5	63	44.7	62	15.9	48	42.0	76	4.7	2	7.5	11
51	Mason	313	56.2	61	11.3	52	42.5	56	13.5	32	29.5	44	8.0	55	8.8	34
53	Arenac	141	54.5	57	10.6	40	45.8	65	15.9	48	30.3	47	8.0	55	8.5	24
54	St. Clair	1,838	45.6	24	10.0	34	41.6	49	15.2	43	31.4	58	8.3	61	11.3	75
55	Baraga	77	57.8	64	11.2	50	54.7	83	19.0	60	46.3	81	4.3	1	6.5	6
56	Wexford	434	54.6	58	10.8	41	40.5	44	19.2	64	33.1	64	7.8	49	9.1	38
56	St. Joseph	908	52.4	49	12.3	62	41.0	46	29.3	79	24.4	26	6.8	29	10.5	67
58	Antrim	222	53.5	52	11.4	53	40.4	43	15.7	47	28.2	38	8.9	73	10.4	65
59	Van Buren	1,038	57.2	62	13.9	71	42.4	53	25.7	76	20.0	14	7.2	39	9.9	59
60	Schoolcraft	79	61.4	73	11.4	53	43.2	59	15.1	42	33.6	66	8.1	58	8.5	24
61	Bay	1,209	49.7	38	10.9	45	43.9	60	15.3	45	32.0	62	8.6	67	10.4	65
62	Jackson	1,936	51.5	45	13.4	67	48.0	72	17.8	53	30.2	46	8.0	55	9.5	47
63	Gladwin	246	52.8	50	10.8	41	36.0	29	29.7	80	32.0	62	8.5	64	11.0	74
64	Oceana	373	64.5	76	14.7	77	42.9	57	28.6	78	24.6	27	7.5	46	9.3	41
65	Iosco	207	61.7	75	11.6	55	46.8	69	14.5	39	43.7	78	6.8	29	10.0	60

** 2 year average 2008-09

Note: Restricted to the 81 counties with a rate for all 7 indicators, and the 7 indicators for which 81+ counties have a rate.

Table 2: Michigan County Ranks and Rates for Birth Indicators

	County	Average births 2007-09	Percent of Medicaid births		Mother less than age 20		Births to unmarried women		No high school diploma or GED**		Mother smoked during pregnancy**		Low birthweight babies		Preterm births	
Avg Rank		**Number**	**Rate**	**Rank**	**Rate**	**Rank**	**Rate**	**Rank**	**Rate**	**Rank**	**Rate**	**Rank**	**Rate**	**Rank**	**Rate**	**Rank**
66	Berrien	2,045	55.2	60	12.9	65	47.6	71	22.5	72	22.8	22	8.7	69	9.6	52
67	Kalkaska	208	66.3	80	12.8	64	42.4	53	18.5	58	38.6	71	8.5	64	8.5	24
68	Lake	110	65.2	78	13.0	66	50.9	76	18.4	55	38.7	72	7.9	52	7.9	16
69	Wayne	25,612	46.4	29	13.6	69	53.8	81	23.8	74	16.9	8	10.4	80	11.8	79
70	Alpena	296	53.6	54	11.0	47	41.7	50	16.8	51	42.3	77	9.5	76	10.5	67
71	Genesee	5,712	53.5	52	13.4	67	53.0	80	18.2	54	23.0	23	10.4	80	12.7	81
72	Cass	528	59.7	68	14.3	76	49.1	74	26.4	77	31.0	53	7.6	47	9.4	44
73	Luce	62	65.2	78	18.7	82	49.2	75	19.8	65	48.9	82	5.3	7	9.6	52
74	Calhoun	1,800	57.6	63	14.1	73	51.2	77	18.4	55	27.2	36	8.6	67	11.3	75
75	Muskegon	2,351	61.6	74	14.1	73	51.7	78	19.1	62	30.3	47	8.7	69	9.6	52
76	Roscommon	186	69.2	81	14.8	78	52.2	79	18.4	55	45.3	80	7.3	42	9.5	47
77	Manistee	219	54.8	59	11.7	58	47.0	70	18.6	59	39.4	74	9.6	77	10.5	67
78	Clare	349	60.8	70	15.5	80	45.3	63	21.0	68	36.8	69	8.8	72	9.8	57
79	Saginaw	2,447	58.9	65	14.2	75	54.3	82	20.4	66	28.0	37	10.3	79	11.6	78
80	Crawford	130	65.0	77	17.1	81	48.1	73	24.0	75	49.1	83	9.2	75	8.7	32
81	Alcona	64	64.9	76	15.2	79	46.6	68	22.1	71	45.0	79	9.9	78	12.0	80

** 2 year average 2008-09

Note: Restricted to the 81 counties with a rate for all 7 indicators, and the 7 indicators for which 81+ counties have a rate.

Table 3: Trends in Maternal and Infant Health in Michigan and its Counties between 2000 and 2009

	Mother under age 20	Births to teen already a parent	Mother unmarried	Low-birthweight babies	Preterm births
	% Change	% Change	% Change	% Change	% Change
Michigan	**-9**	**-13**	**20**	**7**	**-6**
Alcona	12	*	41	19	26
Alger	-18	*	63	-9	29
Allegan	-26	-1	23	7	2
Alpena	-13	-44	19	56	-13
Antrim	-21	16	26	53	7
Arenac	-10	*	11	13	-16
Baraga	-25	*	29	3	-26
Barry	15	-2	28	-24	-18
Bay	-6	9	28	13	3
Benzie	-37	*	25	6	-6
Berrien	-24	-18	15	6	-16
Branch	-19	11	24	7	-12
Calhoun	-11	-9	22	12	18
Cass	-2	-8	55	3	-6
Charlevoix	-17	15	17	17	17
Cheboygan	-10	-37	44	-35	-50
Chippewa	-17	1	25	46	14
Clare	2	-10	22	24	-16
Clinton	-5	-42	35	-2	26
Crawford	18	-29	18	77	-9
Delta	-34	30	16	76	25
Dickinson	-27	-5	40	41	-28
Eaton	-17	-23	23	1	6
Emmet	-28	14	29	6	-22
Genesee	-6	-8	16	16	30
Gladwin	-6	-41	13	9	-5
Gogebic	-36	*	36	3	-13
Gr. Traverse	-20	-39	25	14	-9
Gratiot	-15	1	30	6	-17
Hillsdale	-23	-21	14	-11	-23
Houghton	-36	22	-4	34	6
Huron	-14	-19	45	-8	-8
Ingham	-10	-16	15	3	20
Ionia	-27	1	14	10	3
Iosco	-6	-31	19	-5	-12
Iron	2	*	32	78	-38
Isabella	-16	1	26	8	-14
Jackson	-9	7	21	6	4
Kalamazoo	-8	-10	17	10	-10
Kalkaska	-16	19	16	30	-11
Kent	-15	-6	20	-1	-6
Keweenaw	*	*	-23	*	*
Lake	-37	-2	-3	31	-23
Lapeer	-12	1	51	21	-1
Leelanau	-6	4	29	-14	-21

Table 3: Trends in Maternal and Infant Health in Michigan and its Counties between 2000 and 2009

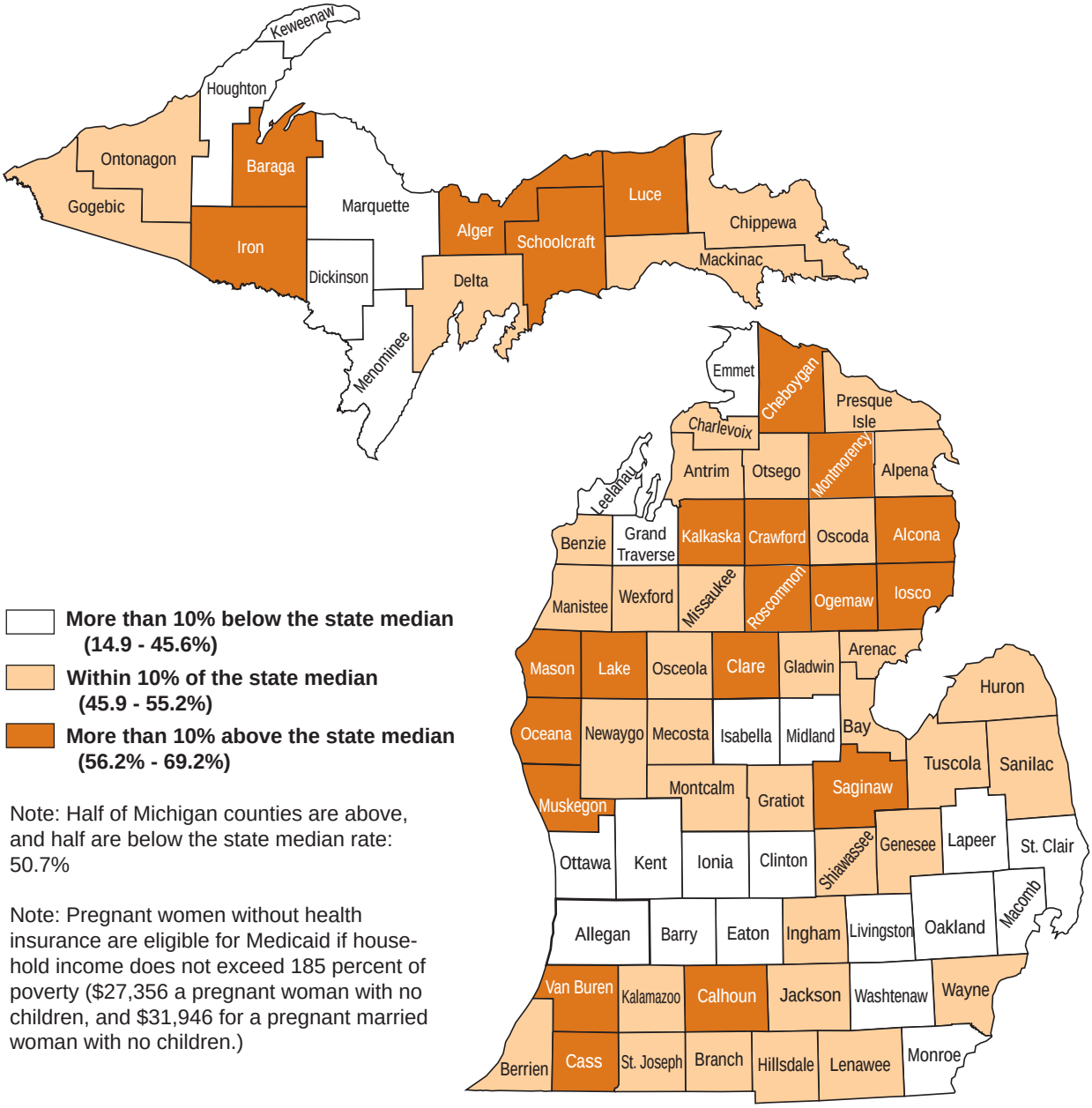
	Mother under age 20	Births to teen already a parent	Mother unmarried	Low-birthweight babies	Preterm births
	% Change	% Change	% Change	% Change	% Change
Lenawee	0	-10	27	0	-6
Livingston	3	-21	54	18	-4
Luce	38	*	33	-24	48
Mackinac	-54	*	-11	151	55
Macomb	-1	-18	55	27	-3
Manistee	-8	37	30	31	-15
Marquette	-29	-14	16	64	12
Mason	-38	-24	25	31	-1
Mecosta	-20	4	18	-1	-11
Menominee	-15	59	-11	16	-37
Midland	-14	-8	43	5	-16
Missaukee	-32	32	17	-22	-7
Monroe	-13	-3	41	3	-19
Montcalm	-17	-10	21	-14	-15
Montmorency	-50	*	40	30	-14
Muskegon	-18	-17	15	10	-1
Newaygo	-12	8	28	13	2
Oakland	-3	-13	39	17	-8
Oceana	-13	-24	37	5	-10
Ogemaw	-13	14	21	-18	-10
Ontonagon	-27	*	-5	*	-39
Osceola	-12	4	12	-14	-24
Oscoda	-27	*	-2	80	-21
Otsego	-24	57	41	37	4
Ottawa	-17	3	22	6	0
Presque Isle	-52	*	34	25	-22
Roscommon	-4	-2	22	-12	-14
Saginaw	-1	-5	20	13	-7
Sanilac	-28	-21	27	17	-16
Schoolcraft	-26	*	33	-17	-26
Shiawassee	-17	-26	27	18	12
St. Clair	-10	-5	34	32	8
St. Joseph	-16	-11	18	-6	1
Tuscola	-27	-23	8	16	-6
Van Buren	-10	-13	18	-3	-14
Washtenaw	-21	-12	20	12	7
Wayne	2	-24	12	-1	-15
Wexford	-32	-20	19	-2	-27

A negative change reflects an improvement. The larger the improvement, the higher the rank--with 1 being the best.
2000 and 2009 actually represent a percent based on a three year total for 1998-2000 and 2007-2009.
Percentage change is calculated on rates. Not all counties had rates for the base and recent year.

Medicaid Births in Michigan Counties

(2007-09 Average)

Michigan Average: 42.8 Percent



More than 10% below the state median (14.9 - 45.6%)

Within 10% of the state median (45.9 - 55.2%)

More than 10% above the state median (56.2% - 69.2%)

Note: Half of Michigan counties are above, and half are below the state median rate: 50.7%

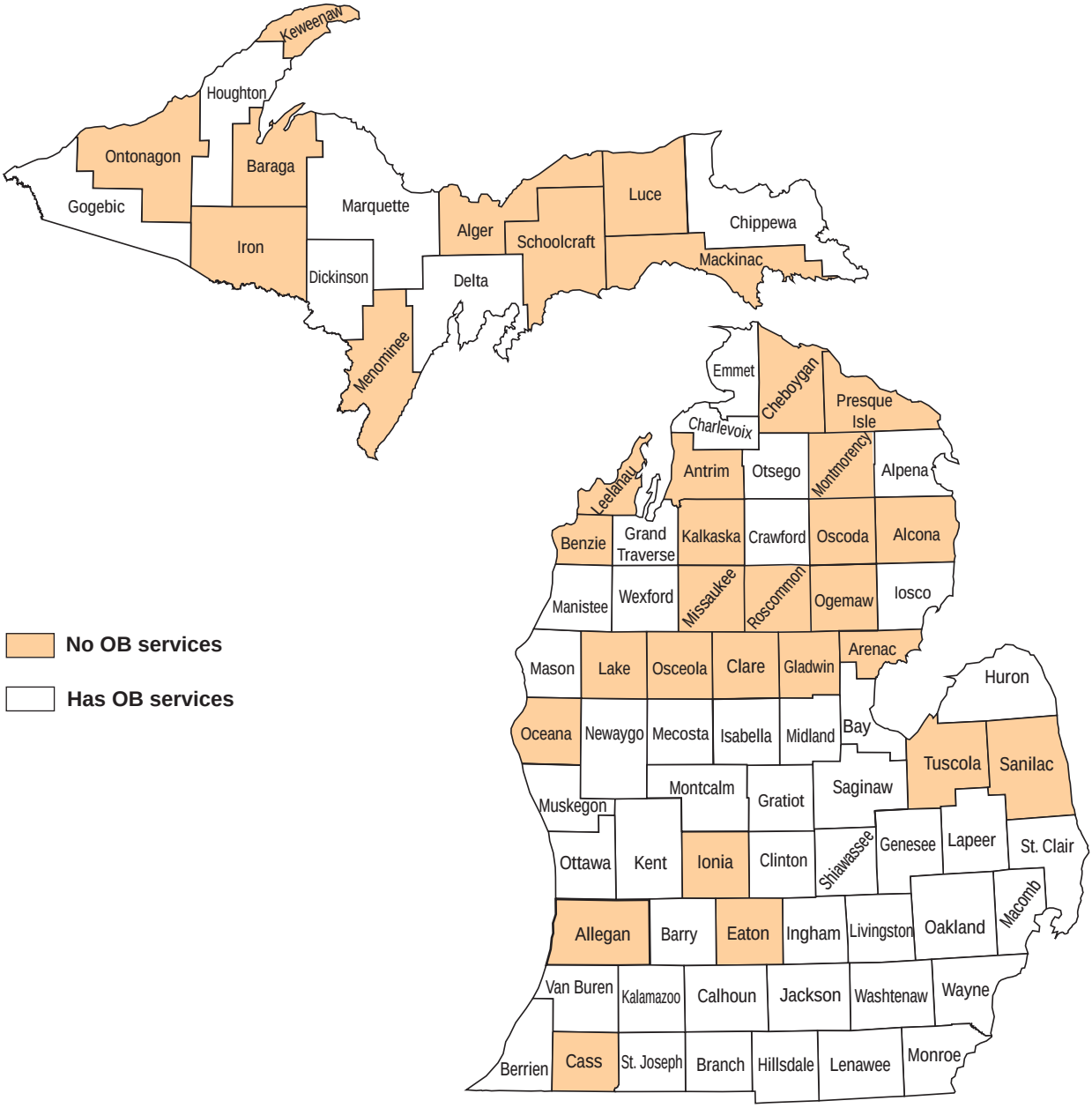
Note: Pregnant women without health insurance are eligible for Medicaid if household income does not exceed 185 percent of poverty ($27,356 a pregnant woman with no children, and $31,946 for a pregnant married woman with no children.)

Source: Michigan Department of Community Health, Vital Records and Health Data Development Section

Map 2

Michigan Counties Lacking Hospital-Based Obstetrical Services 2010

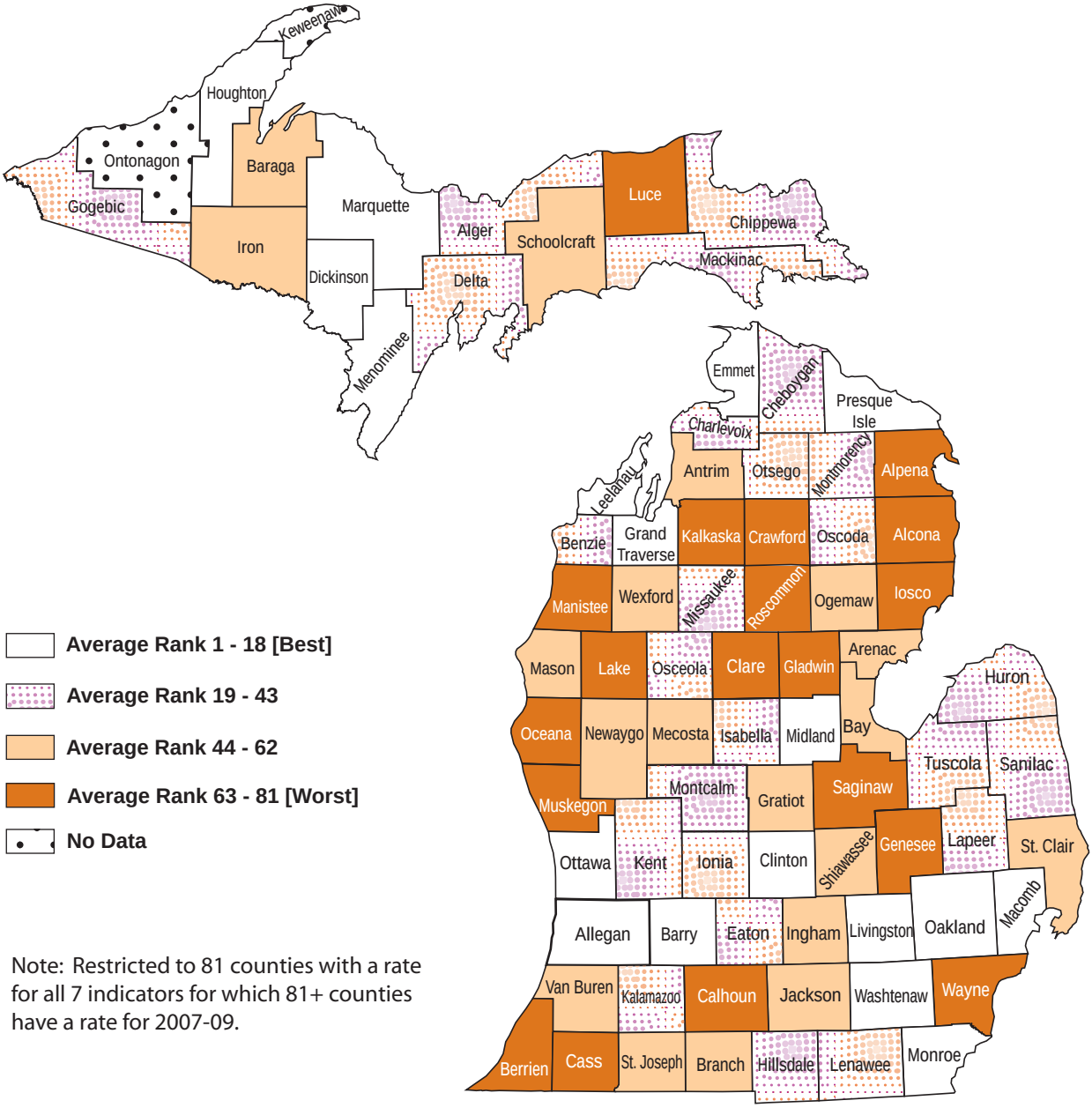
Right Start - 2011



Source: Munson Healthcare. *A White Paper on the Status of Women's and Children's Services in Michigan.*

Overall Rank for Michigan Counties on Maternal/Infant Well-Being

Right Start - 2011



Average Rank 1 - 18 [Best]

Average Rank 19 - 43

Average Rank 44 - 62

Average Rank 63 - 81 [Worst]

No Data

Note: Restricted to 81 counties with a rate for all 7 indicators for which 81+ counties have a rate for 2007-09.

Source: Michigan Department of Community Health, Vital Records and Health Data Development Section