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In collaboration with:

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Health Impact Assessment (HIA) of Gender Pay Inequity

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Section I: Key Findings/Executive Summary

This report examines the potential impact on health outcomes of gender pay equity policies. Specifically, this analysis looks at General Income, Stress, and Health Care Access. The results of the preliminary Health Impact Assessment are that gender pay equity policies would have a significant positive impact on health. Evidence is provided throughout the report to support these results. The following list highlights key findings:

Even when you factor in time off for children, and other differences between men and women, women's pay is still inexplicably lower.

- Looking at 10 occupations, and using Bureau of Labor Statistics data on average earnings for men and for women, we predicted salary increases for full time women workers in Michigan if pay equity were in place. Our predictions took into account experience lost due to time women are away from the workforce and women's tendency to prefer more flexible schedules.
- For example, if there were pay equity between male and female nursing and home health aides, women in those professions in Michigan would have an annual increase of over \$2,200 – a 10% salary increase! Retail salespersons would see a 49% increase, teachers a 6% increase, and supervisors of retail workers a 30% increase.

If pay equity policies were implemented, and thus women's incomes increased, women's & family health would improve. Some examples from various studies include:

- Workers who make under \$15,000 a year have almost 4 times the risk of dying before the average life expectancy than those who make \$70,000 a year.
- Increasing incomes for those in the bottom income bracket to a living wage predicted decreases in the risk of taking sick days, of premature mortality, of early childbirth, and of depression.
- For people in low-status/low-paying jobs, there is almost double the prevalence of many diseases and poor health behaviors as those in high-status/high-paying jobs: angina, diabetes, obesity, risk of not exercising enough, and not eating enough fruits and vegetables.
- By increasing women's income, they and their families move into income brackets that experience less illness.
- An increase in annual income from \$19,000 to \$20,000 reduces the probability of developing an affective disorder or anxiety disorder by 60% and 56%, respectively.
- The decrease in stress due to an increase in income has the potential to positively impact many illnesses, such as cardiovascular disease, gastrointestinal disorders, stroke, susceptibility to infection, musculoskeletal disorders, and maternal and child health outcomes.
- Decreasing income-related stress can decrease prevalence of preterm birth and low birth weight.

If pay equity were implemented, people will be better able to purchase health insurance. Thus, the number of uninsured women and families will decrease and health outcomes will improve. Being uninsured leads to the following negative outcomes:

- Lower immunization rates among children
- A 70% reduction in the likelihood of a child receiving preventive or emergency care
- A greater risk of dying if hospitalized
- A greater risk of death following auto accidents
- Higher rates of stroke among at-risk adults,
- Lower likelihood that children will receive care for diabetes or asthma

Section II: Introduction

The Wayne County Department of Public Health (WCDPH) is a local public health entity located in Wayne County, Michigan whose mission is to serve the public health interests of County residents by continual evaluation of community-wide health needs and environmental conditions, by development of comprehensive personal and environmental health policies to prevent disease and prolong life, and by the continual improvement of services to assure a better quality of life. Wayne County, Michigan has a population of approximately 2.1 million making it the most populous county in the State of Michigan and the thirteenth most populous county in the Nation. WCDPH services a disparate population that includes a diversity of races and cultures with many distinct health issues.

One such health issue is the high incidence of infants that die before reaching their first birthday. A high number of infant deaths reflect the health of women and children, and the overall health status of the population. Michigan's infant mortality rate is consistently above the national average. The Michigan Department of Community Health reports that in 2008, Michigan's infant mortality rate of 7.4 per 1,000 was higher than the U.S. rate of 6.5 per 1,000 live births. In Wayne County (excluding Detroit), the infant mortality rate increased from 6.5 in 2007 to 7.1 in 2008. To address this growing problem, WCDPH implemented the Wayne County Infant Mortality Reduction Project. This project's goal is to utilize focused, upstream strategies that have a positive impact on the reduction of infant mortality in Wayne County.

A major component of the project is working with the Joint Center Health Policy Institute to eliminate health disparities. Wayne County is a part of the national learning community that consists of 16 Joint Center PLACE MATTERS teams. PLACE MATTERS works with its teams to identify the complex root causes of health disparities (e.g., employment, education, poverty, and housing) and define strategies to address them.

Wayne County is currently examining ways to reduce infant mortality and disparity in infant mortality by addressing social determinants of health such as social isolation, social perception of women, and social equity. Wayne County has determined that valuing womanhood in the pre-conception and inter-conception period would impact social determinants of health that affect pregnancy outcomes. In communities that value womanhood, institutional policies and practices exist that support women mentally, physically, socially, financially, and academically before, during, and after pregnancy and help them in achieving economic stability. These policies acknowledge the importance of context, place, diversity, economic stability, and education of women.

Background: Pay Equity

Pay equity is commonly referred to as "equal pay for equal work." Pay equity establishes that, regardless of sex or race, people doing the same jobs will receive the same pay. Under federal law, the Equal Pay Act of 1963 also defines pay equity as the right to equal pay. Michigan's Elliott-Larsen Civil Rights Act covers this right as well. These definitions of pay equity, however, have not successfully accomplished the goal of making women's pay equal to men's pay.

Statistics show that despite women's advancement in the types of jobs pursued and the level of education attained, they are still earning less than their male counterparts. The most recent data from the 2009 census shows that women's median incomes in the U.S. are just 78.2% of men's median incomes.

Women in Michigan fare even worse, earning only 71.9% of what men earn. Michigan has the 43rd worst earnings ratio between men and women in the United States (AAUW, 2010). The Equal Pay Act of 1963

has had a limited effect on the movement toward equal pay. In 2010, the Paycheck Fairness Act made substantial progress nationally, making it through the House but not the Senate; it will be reintroduced in 2011. In Michigan, legislators have introduced bills to address the lack of pay equity in the state in 2010. These bills would amend the Elliott-Larsen Civil Rights Act in order to prohibit employers from failing to provide equal pay for equal work, or work that is of “comparable value.” An additional bill would establish a Commission on Pay Equity in the Michigan Department of Civil Rights. The passage of this legislation depends on the individual and unified lobbying of our elected officials. This package of legislation was introduced by Representative Joan Bauer, and did not move in the 2010 legislative session. Similar legislation will be reintroduced in 2011.

Health Impact Assessment

Health Impact Assessment (HIA) is a research and engagement methodology used to predict the future health impacts of policies and projects in order to inform the decision-making process. Because policies are often decided on the basis of economic impacts and do not include a discussion of health impacts, externalities of these decisions often include negative health outcomes that disproportionately impact already vulnerable communities such as women, children, people of color, and those with lower incomes.

The use of HIA to inform policy decisions has grown in the last ten years in the United States. In 2010, Human Impact Partners (HIP) was awarded a grant from the W.K. Kellogg Foundation to work with several PLACEMATTERS sites including Wayne County. Human Impact Partners is the only organization in the United States focused on capacity building for Health Impact Assessments (HIA) – offering policymakers, project leaders, public agencies, community groups and advocacy organizations the support they need to conduct HIAs and use the results to make informed choices.

Section III: HIA Screening

Human Impact Partners (HIP) provided training to the Wayne County team on how to conduct HIAs. During the training, the topic of “pay equity for women” was selected for use as a case study. Participants conducted initial screening activities, reviewed existing legislation and participated in scoping activities. Further deliberations about how pay equity for women could hypothetically impact maternal and child health outcomes, including infant mortality, resulted in outlines used to create pathway diagrams. Pathway diagrams were created to examine how pay equity may impact several determinants including stress, health care access, social and self perception, housing, nutrition, transportation and education. The trainees became excited about this upstream, innovative method for examining policy and the momentum gained during training.

Given the interest of the diverse participants in the HIA training and the potential of the policy to reduce negative health impacts, it was decided that the Infant Mortality Reduction Team would continue working beyond the training and conduct a full Health Impact Assessment.

The team assigned HIA committees to carry out the project tasks with HIP staff providing continuing technical assistance. Committees include HIA Steering Committee, Scoping Committee, Outreach Committee, Literature Review Committee and the Data Committee.

Section IV: HIA Scope

The Scoping Committee determined which health impacts to evaluate, and created completed versions of the pathway diagrams. These diagrams were used to create scoping worksheets to examine existing conditions related to pay equity and develop impact hypotheses for further research. These hypotheses were prioritized to create a more streamlined focus for the assessment.

The initial pathways that were explored included: stress, change in work hours, nutrition, health care access, social and self-perception, housing, transportation, and education.

Below is a table showing the research questions that emerged as a result of early meetings and discussions:

High Priority Research Questions from Scoping Committee	
General	<ol style="list-style-type: none"> 1. What are income levels in different jobs for women? How would Pay Equity impact income levels for women? For women of color? Mothers? Single mothers? Women caring for other dependents? 2. Would Pay Equity impact job benefits, and if so, how? 3. How does income impact health? How does income impact premature mortality and longevity? 4. What would the cost of Pay Equity to businesses be (including potential increased pay and potential increased health insurance coverage)? Would this impact the # of women employed?
Stress and Work Hours	<ol style="list-style-type: none"> 1. What is the relationship between income and stress? How will Pay Equity impact stress levels in working women? Among different ethnic groups and single mothers? 2. How will Pay Equity impact number of hours worked and thus income levels and stress? 3. How will a change in # of hours worked impact access to health insurance? 4. How does stress impact cortisol levels? 5. How does stress/high cortisol levels impact: CVD, HBP, MH, birth outcomes, substance abuse, and other health outcomes? How will PE impact these?
Nutrition	<ol style="list-style-type: none"> 1. Would an increase in income impact the nutrition level of the food women purchase? 2. How would that impact health outcomes, specifically for chronic diseases and pregnancy-related outcomes? 3. Would an increase in income impact eligibility for WIC and food stamps? If so, what are the health outcomes related to a change in access to these food programs (<i>including ability to access nutritious food as well as nutrition education offered</i>)? 4. Would a change in income levels impact breastfeeding? How would that impact health?
Health Care Access	<ol style="list-style-type: none"> 1. What percentage of women/working women have health insurance in MI? 2. How does this vary by type of job, by ethnicity, and by income level? 3. Will Pay Equity change the number of women with health insurance? 4. How will this impact MCH and adult health outcomes? 5. What is the rate of use of preventative care and/or Emergency

	<p>Dept. use in MI if women have health insurance? Would that change with Pay Equity?</p> <p>6. What are rates of unplanned pregnancy and contraceptive use of working women in MI? Will that change with change in access to health insurance due to Pay Equity?</p>
Social Perceptions	<p>1. Will Pay Equity impact social perception of working women?</p> <p>2. Will Pay Equity impact how much power do women have in the workplace?</p> <p>3. What impact does social perception of women (valuation and power) have on competition in the workplace?</p> <p>4. What is the impact of power, valuation, competition on stress levels? How might that change with Pay Equity? What is the impact of that type of stress on health outcomes?</p> <p>5. Does decision-making power, valuation, competition impact job opportunities? How might that change with Pay Equity?</p> <p>6. How would social perception, valuation, power, competition, job opportunities, and stress change in the workplace for women of color, mothers (single and otherwise), and different income levels?</p>
Self-Perceptions	<p>1. What is the impact of Pay Equity on self-esteem for women?</p> <p>2. Does higher self-esteem impact decision-making? Reproductive decision? Life partner decisions? Social networks? Lifestyle choices? What impacts do these have on health?</p> <p>3. If women are paid equally, will they be more satisfied on the job? More productive? More motivated?</p> <p>4. What is the impact of satisfaction, motivation, productivity, and job mobility on stress? And what are the impacts of stress on health?</p> <p>5. How do self-perceptions (all questions above) play out for different income levels, ethnicities, and parenthoods?</p>
Housing	<p>1. What percentage of their income are working women paying for housing? How would Pay Equity impact this percentage? How would having more non-housing income impact health? For mothers? Single mothers? For different ethnicities and income levels?</p> <p>2. How does level of income relate to housing location? With Pay Equity, would women and families move? What would the community and health impacts of this be?</p> <p>3. How might Pay Equity impact ability to pay for heating/cooling? What are those health impacts?</p> <p>4. Would Pay Equity impact the # of people who receive public housing assistance? What would the health impacts of a change in # of people in public housing be?</p>

From this extensive list of research questions, three priority areas emerged. Answering the general questions related to women's income appeared to be a necessary first step in order to adequately address other areas of focus. Additionally, stress and health care access were selected as first priorities.

The Outreach Committee works to identify key stakeholders and recruit proponents of the proposed legislation that are interested in assisting to promote awareness of the issues and advocate for the education of the community and policy makers.

The Literature Review Committee is responsible for examining existing conditions and searching for literature related to the questions identified by the Scoping Committee.

The Data Committee is responsible for identifying data sources and analyzing results and findings.

Section V: Assessment Methodology and Findings

The Outreach Committee identified key stakeholders and recruited proponents of the proposed legislation. These stakeholders were interested in promoting awareness of the issues and advocating for the education of the community and policy makers about the potential health impacts of the legislation. The Literature Review Committee examined existing conditions and searched for literature related to the questions identified by the Scoping Committee. The Data Committee identified data sources, gathered secondary data in order to support the general conclusions drawn from the literature review, and analyzed results and findings.

Literature review was conducted using peer-reviewed journal findings linking income, stress, and health outcomes, and grey literature based on scientific findings compiled by groups such as the American Association of University Women, the Institute for Women's Policy Research, and the National Women's Law Center. Secondary data was gathered from the Michigan Department of Community Health, the Wayne County Department of Public Health, the U.S. Census, and the Bureau of Labor Statistics, among other sources. Analysis consisted of some quantitative predictions and some logical conclusions drawn from multiple studies and applied to a Michigan population.

Reporting

The Wayne County team continues in its efforts to plan for the dissemination of findings through fact sheets and reports. The team has secured several advocacy partners who are engaged in issues affecting infant mortality, women's health, and policies that impact low-income people of color in Michigan. Two of these groups are MOSES and Mothering Justice, who are assisting with dissemination and outreach. Current plans include participation in the Equal Pay Day 2011 events in Washington, DC, and Lansing, MI, and outreach to other advocacy groups as well as legislators to inform the decision-making process with health findings.

Monitoring

Monitoring and evaluation are key components of the HIA process. As the Wayne County team continues to move through this process, monitoring of goals, objectives, and indicators will be determined and implemented.

Findings

The following information provides several initial key findings related to women's income, stress, and health care access. It is important to note that this is preliminary. Further research continues and additional documentation to support or disprove the hypotheses will be presented in the future. Research and evaluation efforts are ongoing to explore all of the pathways identified during the HIA scoping, including the impact of pay equity on income increases and thus the impact of income increases on

nutrition, housing, and the expansion of the health care access section to include an analysis of retirement benefits.

General Income

WOMEN’S INCOME IN COMPARISON TO MEN’S

We hypothesized that on average, women earn less than men do, and that a policy to improve pay equity would increase women’s incomes. We also hypothesized that improved income would lead to improved health outcomes.

Existing Conditions

The most recent data from the 2009 census shows that women’s median incomes in the U.S. are 78.2% of what men’s median incomes are. In Michigan, specifically, the men’s average income of 2009 was \$48,066 and the women’s average income was \$34,542. Based on this information, in Michigan, women’s earnings are 71.9% of men’s earnings. (Getz, 2010). Table 1, which uses the 2009 American Community Survey from the U.S. Census Bureau, shows that there is a gap of \$13,524, on average, between what men and women in Michigan earn and nationally the gap is \$9,936. This ranks Michigan in the bottom ten states nationally and indicates that *women in Michigan do have lower incomes compared to the women in most states and there is a significantly high wage gap between the women’s and men’s earnings.*

Table 1: Earnings Comparisons and Poverty Rates by Race, Gender, and Geographic Area

	Michigan		United States	
Median Annual Earnings Full-Time, Year-Round for Employed <u>Women</u>, 2009	All Women	\$34,542	All Women	\$35,549
	White	\$35,246	White	\$36,812
	Black	\$31,611	Black	\$31,639
	Hispanic/Latino	\$28,862	Hispanic/Latino	\$26,347
Median Annual Earnings for Full-Time, Year-Round Employed <u>Men</u>, 2009	All Men	\$48,066	All Men	\$45,485
	White	\$48,906	White	\$48,211
	Black	\$35,517	Black	\$36,171
	Hispanic/Latino	\$32,577	Hispanic/Latino	\$29,856
Women’s Earnings as Percentage of White Men’s Earnings	All Women	70.6%	All Women	73.7%
	White	72.1%	White	76.4%
	Black	64.6%	Black	65.6%
	Hispanic/Latino	59.0%	Hispanic/Latino	54.6%
Percent Living Below 100% Federal Poverty Level (FPL) 2009	Women	15.7%	Women	13.9%
	Black Women	31.2%	Black Women	24.6%
	Hispanic Women	28.2%	Hispanic Women	23.8%
	Single Mother Families	42.7%	Single Mother Families	38.5%

The pay inequity is even starker with regard to women of color, mothers, single mothers, and women living in poverty. According to the Census statistics of 2010, the median incomes for women of color are lower than the median earnings of all women compared to men. Nationally in 2009, African American women made an average of \$31,824 and Latina women made \$27,181. These earnings are 67.5% and 57.7% of all men's earnings. Asian American women made \$42,331, which is about 90% of all men's earnings (National Committee on Pay Equity, 2011). A recent study by Marcelli found that Latina women earn the lowest hourly wages compared to any other demographic group. Lack of education, work experience and ability to speak English are factors in why Latina women work in lower skilled jobs with lower wages. However, these factors do not explain why Latinas make less money compared to other men and women with the same job. (Marcelli, 2009).

Table 1 shows the earnings and women's earnings by race as a percentage of White men's earnings in 2009 in Michigan and the United States. The median earnings for White Non-Hispanic women is 72.1% of what White men earn, for African American women is 64.6% of what White men earn, and for Hispanic women is 59% of what White men earn. These percentages are very similar to the national earnings data for the women as a percentage of what White men earn. However, women of all races in Michigan earn 70.6% of White men's earnings and women of all races in the U.S. earn 73.7% of White men's earnings. There is a notable difference of 3.1% between the earnings of women of all races in the U.S. and women of all races in Michigan when their earnings are compared to White men.

In the U.S., in 2009, the poverty rate for men was 10.5% and the poverty rate for men in Michigan was 12.7% (U.S. Census Bureau, 2009). The poverty rates for women in both Michigan and the nation, on average, are higher than the poverty rates for men. Table 1 shows the higher proportion of women of color who live below the poverty level; in Michigan about 15.7% of White women live in poverty vs. 31.2% of African American women, 28.2% of Hispanic women, and 42.7% of single mothers (U.S. Census Bureau, 2009). These poverty rates in Michigan are higher than the national averages for each category listed. Evidence of the low income levels and high poverty rates of women - especially women of color and single mothers - proves that pay inequity is a larger problem for some populations.

Motherhood can have an impact on women's wages. In 2003, the U.S. General Accounting Office determined that industry, occupation, race, marital status, and job tenure are some of the main factors that account for the difference in the income for men and women. GAO research also explains that women earn less than men because women tend to have fewer years of experience than men, work fewer hours per year, are less likely to work a full time schedule, and leave the labor force for longer periods of time than men due to family responsibilities (US GAO.gov, 2003). A 2001 study examined the wage penalty for motherhood and found that having children is associated with a 7.3% reduction in the wages of mothers. After taking into account mother's diminished experience because of their absence from the workforce and the probability that these women choose the types of jobs that offer flexibility, the women still experienced an unexplained 3.7% wage reduction. (Budig & England, 2001)

For low-income women and single mothers, raising women's income would also increase the family income and help decrease poverty. A 1999 report on equal pay for working families examined the incomes of single mothers, single women, and married women. The study found that if these women were paid the same as men that worked the same number of hours, had the same educational background, and lived in the same region, the working woman's family would benefit from pay equity with a gain of more than \$4,000 per year (Hartmann, Allen, & Owens, 1999).

WOMEN'S PAY IN THE SAME OR SIMILAR JOBS AS MEN

We hypothesized that women are paid less, even when they are performing the same tasks, with the same number of hours, and the same amount of experience as men.

Existing Conditions

More than 40 years ago, women used to earn 59% of what men earned (Rose & Hartmann, 2004). Although the wage gap has narrowed to women now earning 78.2% of men's earnings, women continue to get paid less than men - even for the same job. Table 2, below, provides a sample of different jobs and average weekly earnings for men and women in the United States.

Table 2: U.S. Median Weekly Earnings for Men and Women from 10 Selected Occupations
(Numbers in thousands)

Occupation	Number of Workers	Median Weekly Earnings (men)	Number of Workers	Median Weekly Earnings (women)	Women's Earnings as a percentage of Men's
Nursing, psychiatric, and home health aides	173	\$488	1,156	\$427	87.5%
Lawyers	435	\$1,895	234	\$1,461	77%
Elementary & Middle School Teachers	461	\$1,024	1,947	\$931	90.9%
Secondary School Teachers	504	\$1,035	612	\$962	92.9%
Special Education Teachers	54	\$993	274	\$960	96.7%
Retail Salespersons	1,011	\$651	734	\$421	64.7%
Supervisors/Managers of Retail Sales Workers	1,168	\$782	975	\$578	73.9%
Waiters and Waitresses	287	\$450	538	\$381	84.7%
Janitors & Building Cleaners	1,099	\$494	437	\$400	80.9%
Receptionists & Information Clerks	66	\$547	815	\$529	96.7%
Total, 16 years and over	55,059	\$824	44,472	\$669	81.1%

Note: Adapted from Household data annual averages, 2010. Available at <http://www.bls.gov/cps/cpsaat39.pdf>

To look in more depth at some specific professions, we found studies done about gender pay of lawyers and academics. In the legal profession, women's incomes are 60-70% of men's income, according to a

University of Michigan study. In 1999, the median income of women lawyers was 73% of male lawyers (Schmidt, Galanter, Mukhopadhyaya, & Hull, 2008). Currently, according to the 2010 U.S. Bureau of Labor Statistics, the median weekly earnings of male lawyers is \$1,895 and the median weekly earnings of women lawyers is \$1,461. These significant differences in the income of men and women lawyers exists because men tend to work more hours, do less childcare, and choose to practice law in fields that yield more income (Schmidt, et al., 2008), but even when controlling for these factors, women with the same amount of experience and number of hours worked get paid less. Even though men and women may start out their careers in law with a small difference in their average income, by fifteen years post-graduate, women earn approximately \$132,170 and men earn \$229,529 a year, which is a significantly high difference (Rose & Hartmann, 2004).

Female academics earn significantly less than male academics. Another University of Michigan study analyzed the average salaries of 1705 faculty members and found that the women's average salaries are lower than all the men's salaries. Women earned an average salary of \$72,392 and men earned an average salary of \$88,155. Study authors attributed difference in the gender salaries to rank and time since degree. The average woman faculty member received her degree fourteen years ago and the male faculty member received his degree twenty years ago. However, among the men and women that had the same rank, women still had lower salaries compared to men (Corcoran, Courant, & Raymond, 2001).

Regardless of the type of job (elite job, good job, or less skilled job), women consistently earn less than men (Rose & Hartmann, 2004). Even if jobs are in female dominated occupations, women earn less than men who work in that profession, for example nurse or teachers. Existing conditions data demonstrate that the wage gap continues to exist today (see Table 2).

Potential impacts of Pay Equity legislation on job-specific pay equity

To predict the increase in income for women if there were gender pay equity, we used the Bureau of Labor Statistics data from Table 2, and the Budig & England research that showed women continued to receive 3.6% less than men after controlling for absence from the workforce due to childbearing, and tendency to choose jobs that offer more flexibility.

The 3.6% was subtracted from the men's weekly earnings to determine the women's weekly earnings if the jobs accounted for absence from the workforce and choice of flexible jobs. From the amount X that women would make more per week, we calculated the annual increase and the percentage of salary increase from their current salary (Table 3).

Assumptions:

7.3% = how much women's earnings fell due to having a child (Budig & England, 2001)

3.6% = how much of this decrease was related to having less experience due to time lost in the workforce and women's choice to have more flexible jobs

3.7% = the difference in women's earnings that remained after adjusting for the above factors

Our calculation:

Men's weekly earnings - 3.6% = what women's weekly earnings should be if the jobs accounted for absence from the workforce and choice of flexible job.

Example: Nurses' aides, psychiatric aides, and home health aides (Health Aides)

- Male health aids' weekly earnings = \$488 (Bureau of Labor Statistics, 2010)
- 3.6% of \$488 = \$17.57 (~ \$18)
- \$488 - \$18 = \$470

Thus, if you accounted for less experience due to absence from the workforce for childbearing and women’s tendency to choose more flexible jobs, female nurses should still be making \$470/week.

- Female Health Aides, however, make \$428/week on average.
- \$470 (what female Health Aides “should” make weekly) - \$428 (what female Health Aides do make weekly) = \$42

Female nurses, with pay equity, would make \$42/week more.

- \$428 X 52 weeks = \$22,256 annual salary
- \$42 X 52 weeks = \$2,184 more per year = 9.8% more than the current salary

Table 3: Predicted Average Weekly and Annual Salary Increase for Women if Gender Pay Equity was Implemented

Occupation	Weekly increase	Annual increase	Salary Increase (%)
Nursing, psychiatric, and home health aides	\$43	\$2,236	10.1%
Lawyers	\$366	\$19,032	25%
Elementary & Middle School Teachers	\$56	\$2,912	6%
Secondary School Teachers	\$36	\$1,872	3.7%
Special Education Teachers	-\$3	-\$156	-.03%
Retail Salespersons	\$207	\$10,764	49.2%
Supervisors/Managers of Retail Sales Workers	\$176	\$9,152	30.4%
Waiters and Waitresses	\$53	\$2,756	13.9%
Janitors & Building Cleaners	\$76	\$3,952	19%
Receptionists & Information Clerks	-\$2	-\$104	-0.4%

Based on our predictions in Table 3, after accounting for factors that explain why women make less than men, *it is evident that women in most occupations will have a significant increase in their earnings from pay equity.*

According to our calculations, pay equity for women would most often result in pay increases. Because of this, women would be able to increase family income and support their families. In Michigan, for example, 41.9% of women are the main breadwinner in their families, and 21% are co-breadwinners, meaning they bring home at least one quarter but less than half of the income in the family (Boushey, Arons, & Smith, 2010). In addition, if pay equity was adopted, women who earn less than the poverty threshold could earn more and be above the federal poverty level. Equal pay would increase family income and fewer of these families would be living in poverty.

Income impacts health, especially premature mortality and longevity.

Existing Conditions

It has been well documented that people with low socioeconomic status (low income, low wealth, low education and low social status) live shorter lives than those who have higher incomes and are better educated (Cutler, Deaton, & Lleras-Muney, 2006). In the U.S., the prevalence of adverse health conditions is higher among the individuals with lower income and education. Those individuals with higher income have the economic resources to be able to make health promoting choices in regards to the food they eat, participating in physical activities, and living in safe homes and neighborhoods (Braveman, Egerter, & Barclay, 2011). This does not mean that there is a causal relationship between higher income and better health but it does indicate a positive relationship between income and health.

The U.S. Panel Study of Income Dynamics found that the group of people with annual incomes below \$15,000 had a premature mortality rate 3.9 times higher than the group in the high-income level, which earned more than \$70,000. Based on the data from this study, higher income means lower mortality (Marmot, 2002). Further analyzing mortality and longevity affects from income levels, it was concluded that populations with a more equal distribution of income will have better health than another population with a greater income inequality (Marmot, 2002).

Several other studies have shown that income is related to morbidity and mortality. Lynch et al. (1998) examined the association of income inequality and premature mortality in metropolitan areas of the U.S. This study showed that metropolitan areas with high income inequality and lower incomes had excess premature mortality compared to areas with low income inequality and higher incomes. If the areas with high income inequality/lower income had the same mortality as the areas with higher income/low income inequality, premature mortality would be reduced by 139.8 deaths per 100,000, i.e., income inequality accounted for almost 140 people per 100,000 dying earlier than average life expectancy. This difference in premature mortality due to income inequality is greater than the combined loss of life from lung cancer, diabetes, motor vehicle crashes, HIV infection, suicide, and homicide in 1995 (Lynch et al., 1998).

In one of the first health impact assessments (HIA) in the United States, the San Francisco Department of Public Health was able to model a statistical improvement in health outcomes resulting from implementation of a policy to increase wages for city and county employees to a “living wage” of \$11.00 per hour in 1999. Based on their analysis of applying a living wage to families with incomes under \$20,000, women working full time would lower their risk of premature mortality by 4%. Increasing income through a living wage would decrease the risk of people self-reporting only fair or poor health by 6%, of having work limitations by 6%, of depression by almost 2%, of taking recent sick days by almost 6%, and reduced risk of early childbirth by 22%. Results for part-time workers for all categories were a slight bit lower (Bhatia & Katz, 2001). This predictive data supplies compelling evidence that increasing incomes, particularly for lower-income workers, can provide powerful gains in health status.

The Whitehall II study conducted in London examined men and women (ages 35-55 years) in twenty civil service departments to determine the degree and causes of the social gradient in morbidity and to study the cardiovascular risk factors that related to the gradient in mortality (Marmot et al., 1991). To explain the study author’s intention, there were 6 grades of employment in this study, in which grade 1 represented the high-status/ high-paying jobs and grade 6 represented the low status/low-paying jobs. The researchers found not only that high-status workers had lower health risks than low-status workers, but that there was a gradient all along each status/pay grade level, signifying that even advancing a small portion up the pay grade would have a positive impact on health outcomes. Focusing on the effects of women’s income on health, Table 4 shows a summary of the findings from this study. In each health

condition listed, the low status job had a significantly higher prevalence of the poor health condition compared to the high status jobs. For example, nearly twice as many women in the low status jobs rate their health as average or worse compared to women in high status jobs (Marmot et al., 1991).

Table 4: Morbidity Prevalence of Women by Employment Grade Category

For Women	Grade 1 (High status jobs)	Grade 6 (Low status jobs)
Possible ischemia (ECG) or angina	4.5%	11.1%
Diabetes	0.9%	1.4%
Self-rated health average or worse	26.2%	42.1%
Any health problems	69.8%	75.6%
Drug therapy for hypertension	3.7%	4.3%
Obese	7.4%	13.2%
Smokers	18.3%	27.5%
No moderate or vigorous exercise	12%	31.1%
Eat fresh fruit or vegetables less than daily	17.7%	43.6%

Note: Adapted from “Health inequalities among British civil servants: the Whitehall II study,” by Marmot et al., 1991, *The Lancet* 337, 1387-93.

A study by Bartley, Martikainen, Shipley, & Marmot (2004) also used the participants of the Whitehall II study, a prospective study of men and women (ages 35-55 years) in three employment grades, to analyze the associations between men and women’s socioeconomic position and the risk factors such as smoking, diet, exercise, alcohol consumption and measures of social support for prevalent chronic diseases. The employment grades were classified as low (grade 3- clerical and support staff) which earned 3,000-6,000 British pounds; middle (grade 2- professional and executive) which earned 6,001- 17,999 British pounds, and high (grade 1-administrative) which earned 18,000- 62,000 British pounds in 1987. Among all the employment grades and risk factors analyzed, the health inequalities were higher among the lower employment grade compared to the men and women in the higher employment grades. Looking at the risk factors for women, women of grade 3 (low) were 2.7 times more likely to smoke than those of Grade 1 (adjusted for age); 2.6 times more likely to have a poor diet than those of Grade 1 (adjusted for age); and 2.5 times more likely to have no or low exercise than those of Grade 1 (Bartley et al., 2004).

Another study by Martikainen, Stansfield, Hemingway, & Marmot (1999) used the participants of the Whitehall II study in phase 3 and 4 to analyze the socioeconomic differences in change in physical and mental functioning. The same three employment grades were used to compare the men and women’s physical and mental functioning. Over a three year period, there was a small decline in the mean functioning levels. Looking at the employment grades, men were 1.79 times more likely to experience rapid decline of mental functioning and 1.56 times more likely to experience rapid decline of physical functioning than men in the highest employment grade. Women in the lowest employment grade were 1.34 times more likely to experience a rapid decline in physical function and 1.75 times more likely to report just average physical functioning versus above average physical functioning than women in the highest employment grade (Martikainen et al., 1999). In this study, the decline in mental functioning was more apparent among the men than the women. The overall employment grade differences in the decline

in physical and mental functioning among the men and women in this study could reflect early stages of morbidity (Martikainen et al., 1999).

At phase 5 of the Whitehall II study, Ferrie et al. (2003) examined the job security and financial insecurity contributions to socioeconomic inequalities in morbidity and cardiovascular risk factors. Weight, blood pressure, and serum cholesterol were factors that were examined in men and women to determine the morbidity at lower and higher employment grades. The findings from the employment grade gradients in morbidity and cardiovascular risk factors show that employed women in the lowest employment grade have 4.1 times the risk of having poor or fair self-rated health; 1.9 times the risk of having high diastolic blood pressure; and 2.1 times the risk of having a high BMI than those in the highest employment grade. Employed men in the lowest employment grade have 2.4 times the risk of having poor or fair self-rated health; 1.2 times the risk of having high diastolic blood pressure; and 0.4 times the risk of having a high BMI than the men in the highest employment grade. In addition to these findings, financial insecurity, which is determined by lack of income and wealth, has been associated with poorer mental health outcomes (Ferrie et al., 2003).

Potential impacts of income equality on health

To predict the impact of income equality on women’s health, we used the average annual salary increase for women from Table 3 for each of the 10 occupations listed in Table 2, and calculated the annual salary if pay equity was implemented (Table 6). Then, using Table 5, we determined which of the ten occupations listed for women would change income brackets and how this change would affect the health conditions in Michigan.

Table 5: Michigan Data on Prevalence of Health Conditions by Household Income, 2009

Health Conditions	Household Income					Men	Women
	<\$20,000	\$20,000 - \$34,999	\$35,000 - \$49,999	\$50,000 - \$74,999	>\$75,000		
General Health Fair or Poor	32.5%	19.8%	15.1%	10.4%	4.8%	14.3%	15.7%
Dissatisfied with Life	17.1%	8.2%	5.9%	4.5%	2.9%	6.8%	6.9%
Obese (BMI≥30)	34.5%	34.7%	32.8%	34.5%	25.7%	30.8%	31.0%
Inadequate Physical Activity	56.5%	53.3%	48.5%	47.3%	41.4%	46.3%	50.9%
Inadequate Fruit & Vegetable Consumption	80.8%	79.3%	77.6%	78.8%	73.0%	81.9%	74.1%
Currently Smoking	35.2%	25.5%	19.9%	16.5%	11.6%	21.5%	18.2%
High Blood Pressure	38.0%	38.6%	33.7%	25.3%	22.1%	32.6%	28.4%
High Cholesterol	42.1%	45.3%	40.5%	36.5%	33.6%	41.2%	36.8%

Current Asthma Prevalence	15.5%	10.7%	7.8%	9.2%	7.0%	7.3%	12.3%
Cardiovascular disease-Stroke	6.3%	3.4%	1.8%	1.2%	0.8%	2.4%	2.9%
Diabetes	14.0%	14.2%	7.9%	8.7%	4.2%	9.7%	9.2%
Cancer	11.7%	10.45	10.7%	8.7%	8.6%	8.7%	11.0%

Note: Adapted from “Estimates for Risk Factors and Health Indicators” by C. Fussman, 2010, *State of Michigan. Michigan Department of Community Health*. Available at http://www.michigan.gov/documents/mdch/2009_MiBRFS_Standard_Tables_FINAL_318700_7.pdf

Table 6: Increases in Women’s Income in 10 Occupations After Pay Equity is Implemented

Occupations	Annual income	Annual income if pay equity were implemented
Nursing, psychiatric, and home health aides	\$22,204	\$24,440
Lawyers	\$75,972	\$95,004
Elementary & Middle School Teachers	\$48,412	\$51,324
Secondary School Teachers	\$50,024	\$51,896
Special Education Teachers	\$49,920	\$49,764
Retail Salespersons	\$21,892	\$32,656
Supervisors/Managers of Retail Sales Workers	\$30,056	\$39,208
Waiters and Waitresses	\$19,812	\$22,568
Janitors & Building Cleaners	\$20,800	\$24,752
Receptionists & Information Clerks	\$27,508	\$27,404

Our findings are that elementary and middle school teachers, supervisors or managers of retail sales workers, and waitresses are the three occupations (from the ten occupations we examined) that would move up an income bracket, using the income brackets defined by the Michigan Department of Community Health.

For example, retail sales supervisors currently make \$30,056, on average. With pay equity the estimated salary would be \$39,208, which puts them one level up in the income brackets. In their current income bracket (\$20,000 - \$34,999) almost 39% of people have high blood pressure. In the \$35,000 - \$49,999 income bracket, only about 34% do. While this is a crude quantification, and making approximately \$9,000 more a year may not automatically decrease risk, the literature cited above and the raw data stratifying income levels and prevalence of disease and health risk behaviors is strong evidence that increasing incomes would decrease risk of a vast array of poor health outcomes. Consider what making

\$9,000 more/year would mean for a family. The same observation for elementary and middle school teachers and waitresses can be made using Table 6. *Since the prevalence of almost all health conditions decreases as income increases, moving up income brackets means that, in most cases, people’s health will improve.*

A final note concerns the magnitude of impact of pay equity legislation, in Michigan alone. Table 7 details approximate numbers of women in different professions, using occupation categories from the US Census. While Bureau of Labor Statistics and US Census categories were not the same, they were similar enough to draw rough estimates of numbers of women affected by this legislation. If looking just at the 10 categories studied in this report (minus Supervisors of Retail Workers, for which there was no identified category in the US Census), there would be 635,177 women impacted by this policy. It would be far more, if accounting for all women in the workforce.

Table 7: Approximate Number of Women in Michigan in Selected Occupations

Occupations	Approximate # of women in Michigan
Nursing, psychiatric, and home health aides	56,946
Lawyers	14,058
Elementary & Middle School Teachers	83,151
Secondary School Teachers	
Special Education Teachers	
Retail Salespersons	121,283
Supervisors/Managers of Retail Sales Workers	
Waiters and Waitresses	45,044
Janitors & Building Cleaners	24,969
Receptionists & Information Clerks	289,726
Total (minus Supervisors of Retail Workers)	635,177

Note: Adapted from U.S. Census data table “Occupation by Sex and Median Earnings in Past 12 Months in Michigan,” American Community Survey 2009, 1-year estimates.

Since Table 5 shows household income, in general, pay equity will increase the household income and reduce the prevalence of health conditions for men, women, and children. The findings reported in this Pay Equity Health Impact Assessment white paper are preliminary, and the Wayne County Department of Public Health Infant Mortality Working Group is continuing to examine the relationship between income inequity and health outcomes. However, even this preliminary analysis shows extremely strong evidence that increasing incomes for women will impact health outcomes.

Stress

CORRELATIONS BETWEEN INCOME AND STRESS

We hypothesized that people with lower income levels have higher levels of stress. We also hypothesized that stress related to low income leads to more negative physical and mental health outcomes for women, especially women with children and maternal child health. Parenting behaviors would also seem to be impacted negatively by income-related stress due to the hardship and distraction of trying to satisfy basic needs. Finally, we hypothesized that with income increases gained from pay equity, women and their families would experience less stress, and as a result, fewer poor health outcomes.

Existing Conditions – Work, income level, and stress

The link between higher levels of stress and lower income has been consistently found in various studies (Adler et al., 1994; Cohen, Doyle, & Baum, 2006; McEwen, 2000). In a study of low-income African American women, “inadequate financial resources” was the most commonly referred to source of stress (McCallum, et al., 2002). People who cannot fulfill their basic needs, or live in poor social and economic conditions, may experience feelings of stress as they struggle to improve the livability of their environment (Ng, Diener, Aurora, & Harter, 2008). These findings are especially worrisome for single parents who often rely on a single income to support their family. According to a review of public polling conducted by Greenberg Research (2010), 63% of single parents are concerned about the effects of stress on their lives, compared to 50% of married parents, and just 44% of people without kids. Almost twice as many single parents (59%) responded that they worry “a lot” about paying bills and making ends meet, compared to just 34% of married parents.

Existing Conditions – Physical health

The chronic stress associated with lower socioeconomic status (SES) has been identified as a major pathway linking SES and health (Baum, Garofalo, & Yali, 1999). Stress, lack of social recognition, and low job control are associated with many varied health effects, especially among people with lower socioeconomic status. One outcome of stress and lack of social recognition is a cortisol increase and insufficient recovery of cortisol, which lead to a range of negative health effects and higher risk of illness and disease (Wust et al., 2000; Kristenson et al., 2004). Additionally, stress, especially as experienced by those with low SES, alters neuroendocrine and immune responses creating increased vulnerability to a range of illnesses including gastrointestinal disorders, amenorrhea, heart attacks, heart disease, stroke, and susceptibility to infectious agents (Adler et al., 1994). Women, and people of low socio-economic status in general, have a higher cortisol awakening response, signifying higher stress levels (Kunz-Ebrecht et al., 2004). Stress also affects musculoskeletal disorders; those who perceived their work as stressful most of the time were almost twice as likely to report back pain or shoulder pain than those who consider their work as seldom stressful (Nahit et al., 2001). In the First Annual Health Survey: Women Talk, conducted by the National Women’s Health Resource Center (2005), “reducing stress” and “having more time to take care of self” were the two top responses (both 38%) to the question of which steps would most help improve personal health; having more money followed closely behind (28%).

Existing Conditions – Maternal child health

Preterm birth is one of the most significant threats to maternal-child health in the United States, and stress has been consistently shown to increase the risk for preterm birth, especially among minorities (Wadhwa et al., 2001). Similarly, anxiety has also been linked to spontaneous preterm birth, even after adjusting for other traditional risk factors (Dole et al., 2003; Orr, Reiter, Blazer, & James, 2007). A report issued by the Joint Center for Political and Economic Studies (2007) describes a model constructed by Wadhwa et al. (2001) demonstrating how maternal stress and anxiety compromises immune, endocrine, and vascular functioning during pregnancy, resulting in preterm delivery. *Orr et al. (2007) found that women with the highest levels of anxiety during pregnancy faced almost three times the risk of preterm birth, compared to women with the lowest levels of anxiety.*

Studies have shown that the lifelong chronic stresses caused by racism and poverty accumulate and contribute to poor pregnancy outcomes. Holland, Kitman, & Veazie (2009) have shown that a variety of psychological stresses increase risk for decreased birth weight, including neighborhood safety (Jaffee & Perloff, 2003), stressful life events and living in a neighborhood rated “unfavorable” (Collins et al., 1998), living in a neighborhood with high crime and deprivation (Messer, Kaufman, Dole, Savitz, & Laraia, 2006), and general or pregnancy-related anxiety (Rini et al., 1999). Food insecurity, household crowding, unemployment, and poor coping skills have also been shown to increase the risk for low birth weight among low-income women (Borders, Grobman, Amsden, & Holl, 2007). In a study of low-income Black women, life event stress and pregnancy anxiety predicted infant birth weight and gestational age (Wesley, 2006). *Each unit of stress during the third trimester was related to a 55g decrease in birth weight, and each unit of anxiety was associated with a 3- day decrease in gestation.*

Existing Conditions – Mental health

Poverty, mediated through stress and social support, is one of the most consistent predictors of depression in women, especially mothers with young children (Belle & Doucet, 2003). Stress also directly impacts the likelihood of prenatal and postpartum depression. A greater number of stressful life events pre-pregnancy leads to increased rates of postpartum depression (Ritter, Hobfoll, Cameron, Lavin, & Hulsizer, 2000). One study of recent and current recipients of welfare found that more than one quarter of the mothers met diagnostic criteria for major depression (Siefert, Bowman, Heflin, Danziger, & Williams, 2000). Financial hardship almost doubles the risk for onset of depression among single mothers (Brown & Moran, 1997). Depression is connected to poor health outcomes, especially coronary heart disease (Adler et al., 1994).

Income inequality measured at the state level is also strongly associated with women’s risk of depression, especially among mothers (Kahn, Wise, Kennedy, & Kawachi 2000). *Women in states with the highest inequality in income experienced a 60% greater risk of depressive symptoms and an 80% greater risk of fair to poor health.*

Furthermore, people with wealth have lower rates of anxiety disorders than those without wealth (McEwen, 2000). Table 7, below, shows the relative risk, or probability, that a person will develop an affective disorder (e.g., depression; bipolar disorder) or an anxiety disorder (e.g., panic disorder; post-traumatic stress disorder) at different levels of income, compared to those making over \$70,000 annually. Individuals in the lowest income group, (\$19,000 annually or less), are 1.73 times more likely than individuals in the highest income group (\$70,000 annually or more) to develop an affective disorder, and 2.12 times more likely to develop an anxiety disorder (McEwen, 2000).

Table 7: Relative Risk for Two Nervous System Disorders at Different Income Levels

Annual Income	Affective Disorders	Anxiety Disorders
\$0-19K	1.73	2.12
\$20-34K	1.13	1.56
\$35-69K	1.01	1.50
\$70K>	1.00	1.00

Note: Adapted from “Allostasis and Allostatic Load: Implications for Neuropsychopharmacology,” by B. McEwen, 2000, *Neuropsychopharmacology* 22, 108-24.

Existing Conditions – Parenting behaviors

An abundance of evidence supports links between poverty-related stress, parent psychological well-being and the provision of competent, nurturing parenting (Klebanov, Brooks-Gunn, & Duncan, 1994; Middlemiss, 2003; Watson, Kirby, Kelleher, & Bradley, 1996). Models of poverty risk suggest that economic hardship takes a toll on children via its impact on parent mood (Brown & Lynn, 2010). Studies reveal that on days with higher levels of poverty-related stress, parents reported a more negative mood. A report on the Women’s Employment Study conducted at the University of Michigan (2004) revealed that moving from welfare-reliance to combining welfare and work is associated with a decrease in harsh parenting and an increase in positive parenting. In public polling of parents in the US, a significant portion of parents feel that it is difficult to spend time with family because of the time they spend on their job. Seventy-four percent of mothers feel that finding a work/family balance is difficult (Greenberg Research, 2010).

Potential health impacts of Pay Equity legislation on stress, and on health related stress outcomes

As evidenced in the General Income discussion, equality in pay would result in significantly higher wages for women. Earning higher wages would begin to move women up the SES scale, thereby reducing the inherent effects of chronic stress, the higher likelihood for depression, and increased rates of affective and/or anxiety disorders. Since these conditions are clearly linked to preterm birth/low birth weight, coronary heart disease, and a range of other illnesses discussed above, this reduction would result in improved maternal and child health outcomes. Research by McEwen (2000) shown in Table 7, above, indicates that an increase in annual earnings from \$19,000 to \$20,000 reduces the probability of developing an affective disorder or anxiety disorder by 60% and 56%, respectively.

Health Care

THE UNINSURED

While pay equity legislation does not address access to job-related benefits, we hypothesized that those most affected by gender pay inequity (women, the working poor, minorities, and older women), would also experience a higher burden of not having health insurance. Due to lower incomes, higher rates of part-time vs. full-time work, and increased likelihood to work at jobs that do not provide health insurance, access to health care would be more difficult, and Emergency Department (ED) use would be higher. Because of a lack of health insurance, women would have higher rates of more severe illnesses. According to the Kaiser Family Foundation (2007), the Institute of Medicine reports that about 18,000 people die unnecessarily each year because they are uninsured. Other estimates of unnecessary deaths due to lack of insurance are as high as 44,500 (Bernstein, Chollet, & Peterson, 2010). We further hypothesized that increasing incomes due to gender pay equity would enable more women to have access to health insurance and would decrease ED use.

In the following sections we look at the existing conditions for all people, and specifically the poor and working poor, regarding lack of insurance, the cost of health insurance, and the impacts of not having insurance on Emergency Department use and on health outcomes. Then we specifically look at women, and older women, and lack of insurance. Finally we make a prediction about how gender pay equity would impact women’s access to health insurance, and resulting health outcomes.

Existing Conditions-Uninsured status in the general population and among ethnic minorities

The same populations that we have shown, in the General Income chapter of this HIA, to be disproportionately burdened by pay inequity are also those who more commonly do not have health insurance. While women are insured at higher rates than men, this is due to the large number of public programs that provide insurance or assistance with insurance to pregnant women and women with children who are living in poverty. An increasing number of persons in the United States, including those at middle-income levels, have had periods with no health insurance coverage in recent years, which is associated with increased levels of forgone preventive health care (Morbidity and Mortality Weekly Report, 2010). Since preventive health care is less costly than emergency care, people who wait until they have more serious health conditions before seeking care drive up health care costs for themselves and the health system and experience more detrimental health outcomes. People who become burdened by large medical bills are often forced into other difficult financial situations. According to a 2008 report by The Commonwealth Fund, 40% of uninsured adults with large medical bills said they weren't able to pay for food, heat, or rent because of these bills, and nearly 50% had used their entire savings towards paying the bills (Collins, Kriss, Doty, & Rustgi, 2008).

We have seen from Table 1 in the General Income chapter that almost 16% of Michigan women live in poverty, and the rates of living in poverty are worse for African American and Hispanic women, and particularly for single mothers, of whom almost 43% live in poverty. The poor and working poor are disproportionately uninsured. Additionally, people at or near the poverty level have the most adverse health outcomes, and limited access to health insurance and other resources only worsens the situation (Braveman, Cubbin, Egerter, Williams, Pamuk, 2010). The majority of the uninsured are in working households, and thus a policy of gender pay equity would positively impact them. Michigan's poor and working poor (below 200 percent of the poverty level) make up 25 percent of the non-elderly adult population but 53 percent of the uninsured population. Of the uninsured population, over half (52.6 percent) are families headed by full-time/full-year workers or part-time workers that work the entire year (Michigan Department of Community Health (MDCH), 2010). Low-income workers in the United States frequently encounter employment-related barriers to accessing primary health care services. Lack of health insurance coverage is the most frequently cited of these barriers (Weinich, Zuvekas, & Drilea, 1997).

Non-White minorities are also more likely to be uninsured. Compared to White residents, Michigan's Hispanic residents are more than twice as likely, and Black residents are nearly one and a half times more likely, to lack health insurance. The racial breakdown shows persons of Hispanic origin to be the most at risk of being uninsured (35.6 percent). Black non-Hispanics closely follow with a rate of 23.1 percent uninsured. These two race and ethnic groups are twice as likely to be enrolled in a public health insurance program as Whites (MDCH, 2010). To aid in understanding the income levels that correspond to the Federal Poverty Level (FPL), we have provided that information in Figure 1, below.

Table 8: Uninsured by Race, Gender, and Federal Poverty Level

	Michigan		United States	
Percent of Uninsured Age 18-64 (From 2009 ACS)	Women	15.0%	Women	18.1%
	Men	20.2%	Men	23.1%
	White	16.2%	White	18.1%
	Black	23.1%	Black	25.2%
	Hispanic/Latino	35.6%	Hispanic/Latino	42.5%
	Above 200% FPL	10.7%	Above 200% FPL	12.9%
	Below 200% FPL	32.7%	Below 200% FPL	39.6%
	Between 100-200 % FPL	32.2%	Between 100-200 % FPL	38.5%
	Below 100% FPL	33.2%	Below 100% FPL	40.9%

Additionally, the Table 9, below, shows the percent of people living below 100% federal poverty level who are on Medicaid, as well as the gender difference for receiving Medicaid assistance. There are a variety of qualifying factors used in determining Medicaid eligibility. In Michigan, the income eligibility for most groups is an annual income of less than 185% FPL, but income is not the only eligibility criteria. A higher percentage of women receive Medicaid because they are more likely to live in poverty, and they also have increased eligibility when they become pregnant or have children.

Table 9: Percent of People Below 100% FPL Receiving Medicaid, with Gender Breakdown

	Michigan		United States	
Percent on Medicaid Age 18-64 (From 2009 ACS)	All Women	15.0%	All Women	11.7%
	All Men	10.4%	All Men	7.8%
	Below 100% FPL	42.1%	Below 100% FPL	32.6%

Figure 1: 2011 Federal Poverty Guidelines for the 48 Contiguous States and the District of Columbia

Family Size	% Gross Yearly Income									
	25%	50%	75%	81%	100%	133%	175%	200%	250%	300%
1	\$2,723	\$5,445	\$8,168	\$8,821	\$10,890	\$14,484	\$19,058	\$21,780	\$27,225	\$32,670
2	\$3,678	\$7,355	\$11,033	\$11,915	\$14,710	\$19,564	\$25,743	\$29,420	\$36,775	\$44,130
3	\$4,633	\$9,265	\$13,898	\$15,009	\$18,530	\$24,645	\$32,428	\$37,060	\$46,325	\$55,590
4	\$5,588	\$11,175	\$16,763	\$18,104	\$22,350	\$29,726	\$39,113	\$44,700	\$55,875	\$67,050
5	\$6,543	\$13,085	\$19,628	\$21,198	\$26,170	\$34,806	\$45,798	\$52,340	\$65,425	\$78,510
6	\$7,498	\$14,995	\$22,493	\$24,292	\$29,990	\$39,887	\$52,483	\$59,980	\$74,975	\$89,970
7	\$8,453	\$16,905	\$25,358	\$27,386	\$33,810	\$44,967	\$59,168	\$67,620	\$84,525	\$101,430
8	\$9,408	\$18,815	\$28,223	\$30,480	\$37,630	\$50,048	\$65,853	\$75,260	\$94,075	\$112,890

Figure 1: Adapted from “2011 Federal Poverty Level Guidelines,” by the Foundation for Health Coverage Education, 2011.

Emergency Departments (EDs) have assumed many of the responsibilities of primary care facilities as entry points into the US healthcare system for people with low income and the uninsured. This creates an undue financial burden on the healthcare system, since the costs associated with ED use are often much higher than regular doctor visits (citation). In a study of low income uninsured patients' use of EDs, not being able to afford an office visit, unpaid bills from previous visits, and access issues were the main reasons for delaying doctor visits until symptoms were more severe (Hall, 2005). The uninsured and publicly insured make up 60% of all ED use nationwide (Agency for Healthcare Research and Quality, 2008). Women are also more likely than men to use the ED. Nationwide, women made up 55% of all ED visits (AHRQ, 2008).

For the uninsured to purchase health care individually, that is directly purchased rather than employer provided, the cost is often unaffordable. The cost for a middle-income family to purchase individual coverage is 22%-50% of their net annual household income, on average. In 2009, the U.S. average annual premium price for individually purchased insurance was \$2,985 for single coverage (or about \$249/month) and \$6,328 for family coverage (about \$527/month) (America's Health Insurance Plans, 2009).

According to the Employer Health Benefits Survey, in 2008, workers who did receive coverage through an employer spent, on average, \$721 annually for directly-purchased single coverage and \$3,354 for family coverage. This is double the amount that it cost in 1999 (Claxton et al., 2008). Even when insurance is provided through an employer, low-income earners are disproportionately burdened by out-of-pocket costs for premiums and co-pays. The figure below, from a report by The Commonwealth Fund (2008), shows this disproportionate burden of out-of-pocket insurance costs for low-income earners. Over three times as many low-income earners spend 10% or more of their income on out-of-pocket insurance costs, compared to high income earners. This disparity provides additional insight to the reasons why low-income earners may find it difficult to retain health insurance coverage.

Figure 2: Out-of-Pocket Expenses Higher Among Low-Income Earners

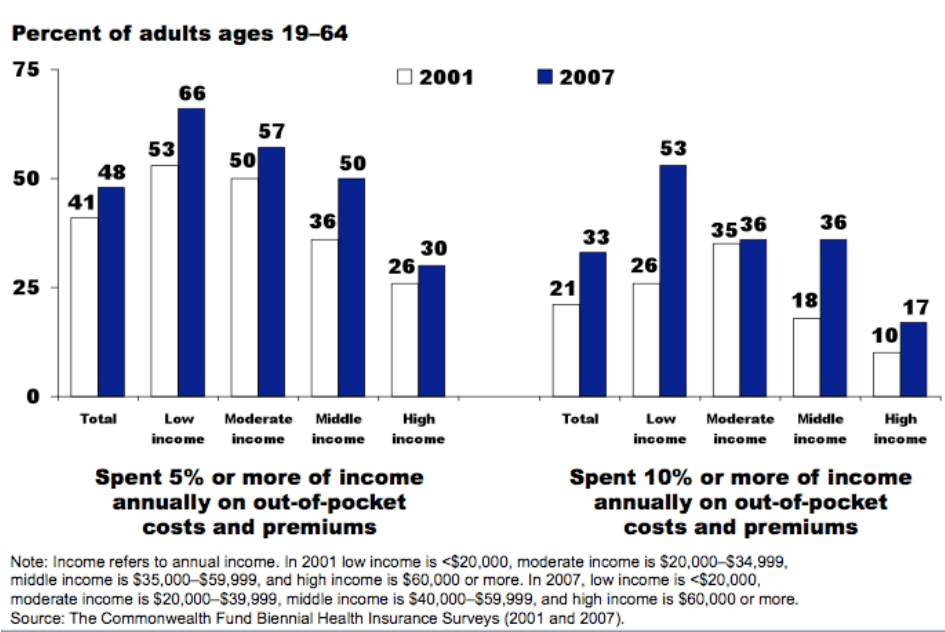


Figure 2: Adapted from "Losing Ground: How the Loss of Adequate Health Insurance is Burdening Working Families," by Collins et al, 2008, *The Commonwealth Fund*. Available at www.commonwealthfund.org

Existing Conditions- Women

Table 8, above, shows that over 18% of women in the US, and 15% of women in Michigan, are uninsured. However, there is more to the story. Single mothers make up nearly 43 percent of all families in poverty in the U.S. (ACS, 2009), and from Table 8 it is clear that people living in poverty are uninsured at more than three times the rate of people living above poverty. In Michigan, single mothers are uninsured at nearly twice the rate as mothers who are married (MDCH, 2010).

According to a report by the UCLA Center for Health Policy Research, race and income levels are key factors in determining whether women are healthy and whether they have health insurance (Wyn, Hastert, & Peckham, 2008). Wyn et al. (2008) found that women living below the poverty line and women of color were four times more likely to be uninsured and three times more likely to report fair or poor health than women with higher incomes and White women. Hispanic women were the most likely of all racial groups to be uninsured.

Women are especially hard hit by problems related to being uninsured. Data from the 2007 California Health Interview Survey revealed that women were the least likely to have employer-provided coverage (24%), compared to other forms of insurance such as public coverage, directly purchased, or lack health coverage for several reasons, and point-in-time coverage estimates do not adequately represent the problems faced by low-income working women (Anderson & Eamon, 2005). Since women make up 58.8% of low-wage workers, they are disproportionately affected (Dale, 2006). Low-income workers are less likely than people with higher incomes to be offered coverage by their employer (Suttner, 1999), and often experience employment instability (Anderson, Halter, Jules, & Scheldt, 2000; Eden & Lien, 1997). Just 38% of women are provided insurance by their employer, versus 50% of men (Kaiser Family Foundation, 2007). Frequent job interruptions faced by many women also affect the consistency of available coverage (Currie Yelowitz, 2000; Hale, 1997; National Center for Health Statistics, 1997). Finally, even when employer-based coverage is available, the premiums and co-pays are often unaffordable for the low-income earner, as cited above (Hoffman & Scholbohm, 2000).

Potential Impacts of Pay Equity Legislation on Access to Health Insurance

Pay Equity legislation does not address access to benefits such as health care and retirement, but our hypothesis involves the ability of women to purchase health care insurance and pay for out-of-pocket premiums and co-pays if they are making higher incomes. If pay equity were enacted, a greater number of women would be able to afford health insurance for themselves and their children.

People will rise above the federal poverty level, and thus be better able to purchase health insurance. Thus, the number of uninsured women and families will decrease.

Using the data from Table 3, of the General Income chapter, we see that in the ten random professions we chose to estimate, four of the professions would be able to afford the average annual cost for individual coverage of \$2,985 if they chose to put that much of their increased earnings toward purchasing health insurance (lawyers, retail salespeople, retail sales supervisors, janitors and building cleaners). Elementary and middle school teachers would almost be able to pay for health insurance. Only women who are lawyers, retail salespersons, and supervisors of retail salespersons would make enough to be able to purchase family coverage (\$6,328 on average annually).

If pay equity were implemented, all ten of the professions examined – if they had health insurance through their work - would be able to afford the average annual cost of premiums and co-pays estimated, or \$721/year for single coverage. Only four professions would be able to afford the average costs of

premiums and co-pays for a family (\$3,354/year): women who are lawyers, retail salespersons, supervisors of retail salespersons, and janitors/building cleaners.

Table 10: Prediction of Increased Health Insurance Coverage for Select Occupations

Occupation	Annual increase	Could purchase single coverage	Could purchase family coverage	Could cover premiums & co-pay: single coverage	Could cover premiums & co-pay: family coverage
Nursing, psychiatric, and home health aides	\$2,236			X	
Lawyers	\$19,032	X	X	X	X
Elementary & Middle School Teachers	\$2,912			X	
Secondary School Teachers	\$1,872			X	
Special Education Teachers	-\$156			X	
Retail Salespersons	\$10,764	X	X	X	X
Supervisors/Managers of Retail Sales Workers	\$9,152	X	X	X	X
Waiters and Waitresses	\$2,756			X	
Janitors & Building Cleaners	\$3952	X		X	X
Receptionists & Information Clerks	-\$104			X	

Because families have health insurance, use of preventive services will increase, emergency department use will decrease, and health outcomes will improve.

Insurance coverage is linked to better health outcomes. According to an issue brief by Mathematica Policy Research, Inc., being uninsured leads to lower immunization rates among children, a 70% reduction in the likelihood of a child receiving preventive or emergency care, a greater risk of dying if hospitalized, a greater risk of death following auto accidents, higher rates of stroke among at-risk adults, higher unmet need for mental health services, lower likelihood that children will receive care for diabetes or asthma, a greater likelihood that adults will miss work, and more days of missed school for children (Bernstein, Chollet, & Peterson, 2010).

Additionally, increasing access to health insurance coverage can lead to reduced rates of emergency department use, which costs two to five times as much as preventive primary care (New England Healthcare Institute, 2008). In an analysis of insurance and emergency department use in Massachusetts, obtaining insurance coverage resulted in a 2 to 8 percent reduction in emergency department usage (Miller, 2011).

Conclusion

Our findings strongly suggest that improving women’s income through legislation requiring pay equity would generally have a strong impact on the health of women and their families. Given the evidence of larger inequities in income and pay for women of color, lower-income women, and mothers, our predictions are that equal pay would have a disproportionately positive impact for those populations, and thus move toward improving the disparities that exist in the health outcomes identified below, particularly in infant mortality and other maternal and child health outcomes.

Pathway	Health Impact (+/-)	Health Outcomes Impacted	Magnitude of Impact (* small; *** large)	Quality of Evidence (1 – 5; 5 being very strong)
General Income	+	Premature mortality, cardiovascular disease, high blood pressure, premature birth	***	5
Stress	+	Depression, anxiety, affective disorders, anxiety disorders, immune response, gastrointestinal disorders, preterm birth, low birth weight,	***	4
Health Care Access	+	Hospitalization outcomes, stroke, injury-related deaths, immunization rates, diabetes, asthma	***	5
Nutrition	Still to be assessed			
Housing	Still to be assessed			
Self-perceptions	Still to be assessed			
Social perceptions	Still to be assessed			
Retirement Benefits	Still to be assessed			

References

- Adler, N., Boyce, T., Chesney, M., Cohen, S., Folkman, S., Kahn, R., & Syme, S. (1994). Socioeconomic status and health: The challenge of the gradient. *American Psychologist*, 49(1), 15-24.
- Anderson, S., & Eamon, M. (2005). Stability of health care coverage among low-income working women. *Health & Social Work*, 30(1), 7-17.
- Bartley M, Martikainen P, Shipley M, Marmot M. 2004. Gender differences in the relationship of partner's social class to behavioral risk factors and social support in the Whitehall II study. *Social Science and Medicine* 59:1925-36.
- Baum, A., Garofalo, J., & Yali, A. (1999). Socioeconomic status and chronic stress. *Annals NY Academy of Science*, 131-144.
- Belle, D., & Doucet, J. (2003). Poverty, inequality, and discrimination as sources of depression among U.S. women. *Psychology of Women Quarterly*, 27, 101-113.
- Bernstein, J., Chollet, D., & Peterson, S. (2010). How does insurance coverage improve health outcomes? *Mathematica Policy Research, Inc.*
- Bhatia R., Katz M. 2001. Estimation of health benefits from a local living wage ordinance. *Am J Public Health* 91: 1398-1402.
- Borders, A., Grobman, W., Amsden, L., & Holl, J. (2007). Chronic stress and low birth weight neonates in a low-income population of women. *Obstetrics & Gynecology*, 109(2), 331-338.
- Boushey H, Arons J, Smith L. 2010. Families Can't Afford the Gender Wage Gap. Center for American Progress. Available at:
http://www.americanprogress.org/issues/2010/04/women_breadwinners.html
- Braveman, P., Egerter, S., Barclay, C. (2011) Robert Wood Johnson Foundation. Issue brief series: Exploring the social determinants of health what shapes health-related behaviors? The role of social factors. Available at
http://www.rwjf.org/files/research/sdohwhatwhapeshealthrelatedbehaviorsissuebrief20110324.pdf?cid=XEM_206603
- Braveman, P., Cubbin, C., Egerter, S., Williams, D., & Pamuk, E. (2010). Socioeconomic disparities in health in the United States: What the patterns tell us. *American Journal of Public Health*, 100(S1), S186-S196.
- Brown, E., & Lynn, T. (2010). Daily poverty-related stress and mood for low-income parents, as a function of the presence of a cohabiting partner relationship. *Individual Differences Research*, 8(4), 204-213.
- Budig, M.J., & England, P. (2001). The wage penalty for motherhood. *Amer Soc Rev* 66(2):204-225.
- Cohen, S., Doyle, W., & Baum, A. (2006). Socioeconomic status is associated with stress hormones. *Psychosomatic Medicine*, 68, 414-420.

- CoinMill.com – The Currency Converter. Available at http://coinmill.com/GBP_calculator.thml#GBP=3000
- Collins, S., Kriss, J., Doty, M., & Rustgi, S. (2008). Losing ground: How the loss of adequate health insurance is burdening working families. *The Commonwealth Fund*, Available at www.commonwealthfund.org › Publications › Fund Report
- Corcoran, M.E., Courant, P.N., Raymond, P.A. (2001) University of Michigan Gender Salary Study: Summary of Initial Findings. Retrieved from http://www.provost.umich.edu/reports/U-M_Gender_Salary_Study.pdf
- Cutler, D., Deaton, A., Lleras-Muney, A. (2006) The determinants of mortality. *Journal of Economic Perspectives*. Vol. 20, 3, p 97-120.
- Deaton, A. (2003). Health, Income, and Inequality. The National Bureau of Economic Research. Retrieved from <http://www.nber.org/reporter/spring03/health.html>
- Dole, N., Savitz, D., Hertz-Picciotto, I., Siega-Riz, A., McMahon, M., & Buekens, P. (2003). Maternal stress and preterm birth. *American Journal of Epidemiology*, 157(1), 14-24.
- DollarTimes.com The Inflation Calculator. Available at <http://www.dollartimes.com/calculators/inflation.htm>
- Ferrie JE, Shipley MJ, Stansfeld SA, Davey Smith G, Marmot M. 2003. Future uncertainty and socioeconomic inequalities in health: the Whitehall II study. *Soc Sci & Med* 57:637-46.
- Figart, D. Race and pay equity policy brief. Retrieved from <http://www.pay-equity.org/info-racebrief.html>
- Getz, D.M. (2010). American Community Survey Briefs: Men’s and Women’s Earnings for States and Metropolitan Statistical Areas: 2009. US Census Bureau. Available at <http://www.census.gov/prod/2010pubs/acsbr09-3.pdf>
- Greenberg Quinlan Rosner Research. (2010). Single parents in america: A review of public polling. Available at www.wkkf.org/~/.5116BC1348704BD883D4BB90A4D39CB3.ashx
- Hartmann, H., Allen, K., Owens, C. Equal Pay for Working Families. *Institute for Women’s Policy Research* (www.iwpr.org) June, 1999.
- Hegewisch, A. (2010) The gender wage gap by occupation. Retrieved from <http://www.iwpr.org/pdf/C350a.pdf>
- Holland, M., Kitman, H., & Veazie, P. (2009). The effects of stress on birth weight in low-income, unmarried black women. *Women’s Health Issues*, 19(6), 390-397.
- Kahn, R., Wise, P, Kennedy, B, & Kawachi, I. (2000). State income inequality, household income, maternal mental and physical health: cross sectional national survey. *BMJ*, 321, 1311-1315.
- Kaiser Family Foundation. (2008). Employer Health Benefits. Available at

ehbs.kff.org/images/abstract/7791.pdf

- Kaiser Family Foundation. (2007). Women's Health Policy Facts. Available at www.kff.org/womenshealth/upload/6000_05.pdf
- Klebanov, P., Brooks-Gunn, J., & Duncan, G. (1994). Does neighborhood and family poverty affect mothers' parenting, mental health, and social support? *Journal of Marriage and Family*, 56(2), 441-455.
- Kristenson, M., Eriksen, H., Sluiter, J., Starke, D., & Ursin, H. (2004). Psychobiological mechanisms of socioeconomic differences in health. *Social Science & Medicine*, 58, 1511-1522.
- Kunz-Ebrecht, S., Kirschbaum, C., Marmot, M., & Steptoe, A. (2004). Differences in cortisol awakening response on work days and weekends in women and men from the Whitehall II cohort. *Psychoneuroendocrinology*, 29, 516-528.
- Lynch, J.W., Kaplan, G.A., Pamuk, E.R., Cohen, R.D., Heck, K.E., Balfour, J.L., & Yen, I.H. (1998) Income inequality and mortality in metropolitan areas of the United States. *American Journal of Public Health*. Vol. 88, 7, p1074-1080.
- Marcelli P.J. (2009) The Spatial Determinants of Wage Inequality: Evidence from Recent Latina Immigrants In Southern California. *Feminist Economics*.
- Marmot MG, Davey Smith G, Stansfeld S, Patel C, North F, Head J, White I, Brunner E, Feeney A. 1991. Health inequalities among British civil servants: the Whitehall II study. *The Lancet* 337:1387-93.
- Marmot, M. (2002). The influence of income on health: views of an epidemiologist. *Health Affairs* Vol. 21, 2, p31-46.
- Martikainen P, Stansfield S, Hemingway H, Marmot, M. (1999). Determinants of socioeconomic differences in change in physical and mental functioning. *Soc Sci & Med* 49:499-507.
- McCallum, D., Arnold, S., & Bolland, J. (2002). Low-income African-american women talk about stress. *Journal of Social Distress and the Homeless*, 11(3), 249-263.
- McEwen, B. (2000). Allostasis and allostatic load: Implications for neuropsychopharmacology. *Neuropsychopharmacology*, 22(2), 108-124.
- Michigan Department of Community Health. (2010). [Data files]. Available at <http://www.michigan.gov/mdch/0,1607,7-132-2944---,00.html>
- Middlemiss, W. (2003). Brief report: Poverty, stress, and support: Patterns of parenting behaviour among lower income black and lower income white mothers. *Inf Dchild Dev*, 12, 293-300.
- Miller, S. (2011). The effect of insurance on outpatient emergency room visits: An analysis of the 2006 Massachusetts Health Reform. Available at <https://netfiles.uiuc.edu/.../MA%20Outpatient%20ER%20Usage%20-%20Miller.pdf>
- Centers for Disease Control and Prevention. (2010). Morbidity and Mortality Weekly Report. 59(44).

- Nahit, E., Pritchard, C., Cherry, N., Silman, A., & Macfarlane, G. (2001). The influence of work related psychosocial factors and psychological distress on regional musculoskeletal pain: a study of newly employed workers. *The Journal of Rheumatology*, 28(6), 1378-1384.
- National Committee on Pay Equity. Retrieved from <http://www.pay-equity.org/info.html>.
- National Women's Health Resource Center. (2005). First annual health survey: Women talk. Available at <http://www.healthywomen.org>
- National Women's Law Center (2010). Poverty among women and families, 2000-2009: Great recession brings highest rate in 15 years. Available at <http://www.nwlc.org/sites/default/files/pdfs/statepovertyday2009table.pdf>
- Ng, W., Diener, E., Aurora, R., and Harter, J. (2008). Affluence, feelings of stress, and well-being. *Soc Indic Res*, published online 2008. Retrieved from <http://ebookbrowse.com/affluence-feelings-of-stress-and-well-being-dec-08-pdf-d25772714>
- Orr, S., Reiter, J., Blazer, D., James, S. (2007). Maternal prenatal pregnancy-related anxiety and spontaneous preterm birth in Baltimore, Maryland. *Psychosomatic Medicine*, 69, 566-570.
- Ritter, C, Hobfoll, S., Cameron, R., Lavin, J., & Hulsizer, M. (2000). Stress, psychosocial resources, and depressive symptomatology during pregnancy in low-income, inner-city women. *Health Psychology*, 19(6), 576-585.
- Rose, S. J., & Hartmann, H. I. (2004) Institute for Women's Policy Research (IWPR) Still a Man's Labor Market: The Long-Term Earnings Gap. Retrieved from; http://www.iwpr.org/pdf/C366_RIB.pdf
- Schmidt, K.G., Galanter M.S., Mukhopadhyaya, K., & Hull, K.E. (2008) Gender and the legal profession: The Michigan Alumni Data Set 1967-2000. *American Law & Economics Association Papers*.
- US General Accounting Office- WOMEN'S EARNINGS: Work Patterns Partially Explain Difference between Men's and Women's Earnings. October, 2003. Available at <http://www.gao.gov/new.items/d0435.pdf>
- Wadhwa, P., Culhane, J., Rauh, V., Barve, S., Hogan, V., Sandman, C., Hobel, C., Chicz-DeMet, A., Dunkel-Schetter, C., Garite, T., & Glynn, L. (2001). Stress, infection and preterm birth: a biobehavioural perspective. *Paediatric and Perinatal Epidemiology*, 15 (Suppl. 2), 17-29.
- Watson, J., Kirby, R., Kelleher, K., & Bradley, R. (1996). Effects of poverty on home environment: An analysis of three-year outcome data for low birth weight premature infants. *Journal of Pediatric Psychology*, 21(3), 419-431.
- Williams, E. (2007) Economic status of women in Michigan. Retrieved from <http://www.iwpr.org/publications/pubs/the-economic-status-of-women-in-michigan>