

Executive Summary: Health Impact Review of SB 5459

Implementing Family and Medical Leave Insurance

Evidence indicates that [SB 5459](#) has potential to improve financial security; to improve maternal, child, and family health; and to decrease health disparities by income, educational attainment, and race/ethnicity.

BILL INFORMATION

Sponsors: Senators Keiser, Hasegawa, Conway, McCoy, Kohl-Welles, Chase

Companion: [HB 1273](#)

Summary of Bill:

- Requires employers to annually provide twelve weeks of family and medical leave insurance to eligible employees for the birth or placement of a child and for a family member's serious health condition, plus 12 weeks for the employee's own serious health condition.
- Establishes that in order to be eligible for family and medical leave insurance an employee must work 680 hours during the qualifying year.
- Decreases the job protection tenure and minimum hour requirements from 12 months to six months and from 1,250 hours to 650 hours in six months (rather than 12 months).
- Provides that an employee's weekly benefit will be calculated as a percentage of their total quarterly wages (5.2%) and that the maximum weekly benefit amount will be one thousand dollars (adjusted annually for inflation).
- Requires employers to pay a premium to the family and medical leave insurance account based on the amount of the employee's wages. Each employer may deduct from the pay of each individual one-half of the full amount that the employer is required to pay for an individual. These premiums will eventually be adjusted annually to ensure that they are the lowest rate necessary to maintain solvency of the program.
- Requires the Employment Security Department to implement an outreach program (with information available in English and other primary languages as defined by [RCW 74.04.025](#)) to ensure that eligible individuals are aware of the benefits.

HEALTH IMPACT REVIEW

Summary of Findings:

This health impact review found the following evidence regarding the provisions in SB 5459:

- Strong evidence that employees use paid family and medical leave benefits when needed.
- Very strong evidence that paid leave for the birth or placement of a child is associated with improved maternal and child health outcomes and increased parental involvement.
- Strong evidence that paid medical leave to care for a family member's serious health condition is associated with improved health outcomes for employees and their families.
- The relationship between employees taking leave for their own serious health condition and their health outcomes has not been well researched (see the full health impact review for scenarios in which the evidence for this relationship may be stronger).
- Strong evidence that paid family and medical leave benefits improve financial security for eligible employees and their families.
- Very strong evidence that improved financial security is associated with improved health.
- Strong evidence that improved health outcomes for employees newly eligible for paid family and medical leave under SB 5459 would lead to decreased health disparities.

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Health Impact Review of SB 5459

Implementing Family and Medical Leave Insurance

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Acknowledgement

We would like to thank the individuals who provided their perspective and insights for this health impact review.

Contents

Introduction and Methods	1
Analysis of SB 5459 and the Scientific Evidence	2
Logic Model.....	4
Summaries of Findings	5
Annotated References	9

Introduction and Methods

A health impact review is an analysis of how a proposed legislative or budgetary change will likely impact health and health disparities in Washington State ([RCW 43.20.285](#)). For the purpose of this review ‘health disparities’ have been defined as the differences in disease, death, and other adverse health conditions that exist between populations ([RCW 43.20.270](#)). This document provides summaries of the evidence analyzed by State Board of Health staff during the health impact review of Senate Bill 5459 ([SB 5459](#)).

Staff analyzed the content of SB 5459 and created a logic model depicting possible pathways leading from the provisions of the bill to health outcomes. We consulted with experts and conducted objective reviews of the literature for each pathway using databases including PubMed and Google Scholar.

The following pages provide a detailed analysis of the bill including the logic model, summaries of evidence, and annotated references. The logic model is presented both in text and through a flowchart (Figure 1). The logic model includes information on the strength of the evidence for each relationship. The strength-of-evidence has been defined using the following criteria:

- **Not well researched:** the literature review yielded few if any studies or only yielded studies that were poorly designed or executed or had high risk of bias.
- **A fair amount of evidence:** the literature review yielded several studies supporting the association, but a large body of evidence was not established; or the review yielded a large body of evidence but findings were inconsistent with only a slightly larger percent of the studies supporting the association; or the research did not incorporate the most robust study designs or execution or had a higher than average risk of bias.
- **Strong evidence:** the literature review yielded a large body of evidence on the relationship (a vast majority of which supported the association) but the body of evidence did contain some contradictory findings or studies that did not incorporate the most robust study designs or execution or had a higher than average risk of bias; or there were too few studies to reach the rigor of ‘very strong evidence’; or some combination of these.
- **Very strong evidence:** the literature review yielded a very large body of robust evidence supporting the association with few if any contradictory findings. The evidence indicates that the scientific community largely accepts the existence of the association.

Staff made modifications to these criteria at the start of the 2015 legislative session beginning January 12, 2015. Therefore strength-of-evidence rankings may not be comparable between reviews completed before and those completed after this date.

This review was subject to time constraints, which influenced the scope of work for this review. The annotated references are only a representation of the evidence and provide examples of current research. In some cases only a few review articles or meta-analyses are referenced. One article may cite or provide analysis of dozens of other articles. Therefore the number of references included in the bibliography does not necessarily reflect the strength-of-evidence. In addition, some articles provide evidence for more than one research question so they are referenced multiple times.

Analysis of SB 5459 and the Scientific Evidence

Summary of SB 5459

- Requires employers to annually provide twelve weeks of family and medical leave insurance to eligible employees for the birth or placement of a child and for a family member's serious health condition, plus 12 weeks for the employee's own serious health condition.
- Establishes that in order to be eligible for family and medical leave insurance an employee must work 680 hours during the qualifying year.
- Decreases the job protection tenure and minimum hour requirements from 12 months to six months and from 1,250 hours to 650 hours in six months (rather than 12 months).
- Provides that an employee's weekly benefit will be calculated as a percentage of their total quarterly wages (5.2%) and that the maximum weekly benefit amount will be one thousand dollars (adjusted annually for inflation).
- Requires employers to pay a premium to the family and medical leave insurance account based on the amount of the employee's wages. Each employer may deduct from the pay of each individual one-half of the full amount that the employer is required to pay for an individual. These premiums will eventually be adjusted annually to ensure that they are the lowest rate necessary to maintain solvency of the program.
- Provides that the premiums will be 0.2 percent of wages beginning July 1, 2016, 0.4 percent of wages beginning January 1, 2018, and then will be adjusted annually.
- Requires the Employment Security Department to implement an outreach program (with information available in English and other primary languages as defined by [RCW 74.04.025](#)) to ensure that eligible individuals are aware of the benefits.

Health impact of SB 5459

Evidence indicates that SB 5459 has potential to improve financial security; to improve maternal, child, and family health; and to decrease health disparities by income, educational attainment, and race/ethnicity.

Pathways to health impacts

The potential pathways leading from the provisions of SB 5459 to decreased health disparities are depicted in Figure 1. There is strong evidence that when employees can access paid family and medical leave they use this leave to care for their family members and themselves when needed.¹⁻⁷ There is very strong evidence that paid leave for the birth or placement of a child is associated with improved maternal and child health outcomes and increased parental involvement.^{1,5,8-15} There is strong evidence that paid medical leave to care for a family member's serious health condition, is associated with improved health outcomes for employees and their families.^{6,13,16,17} However, the relationship between employees taking leave for their own serious health condition and their health outcomes has not been well researched.^{6,18} See page five of this review for an explanation of scenarios in which the evidence for this relationship may be stronger. There is strong evidence that paid family and medical leave benefits improve financial security for eligible employees and their families,^{1,6,7,17-19} which is in turn associated with improved health outcomes.²⁰⁻²⁸ There is strong evidence that improved health outcomes for employees newly eligible for paid family and medical leave under SB 5459 would lead to decreased health disparities.^{1,2,4,7,12,19-36} Evidence shows that low-income workers, people of color, workers with lower levels of educational attainment, and those without private health insurance are less likely to have access to paid family and medical leave benefits than their counterparts.^{7,19,29} These populations are also more likely to experience health disparities.^{20-22,24-28,30-36}

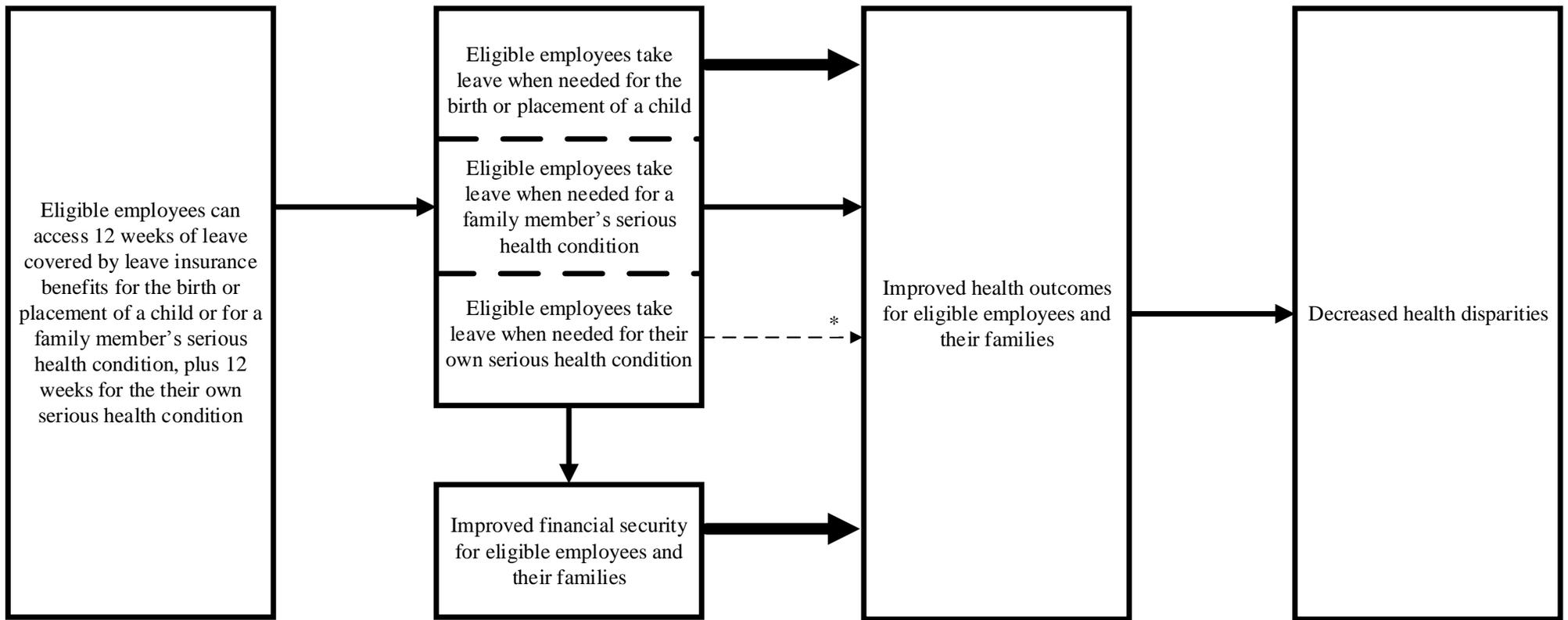
Magnitude of impact

According to US Bureau of Labor Statistics data, only ten percent of US workers had access to paid family leave in 2013.²⁹ Because these data include workers from states which have paid family leave legislation that reaches a majority of workers (e.g. California), it is possible that coverage in Washington is even lower than this average. While not all workers will become eligible for family and medical leave insurance under SB 5459 (due to the number of hours that an employee must work for an employer before qualifying) these data indicate that a large number of workers and their families should have access to paid family and medical leave insurance for the first time. Researchers in California found that the state's paid leave policy was associated with about a three week increase in the lengths of maternity and family leaves and about a 17 day increase in paternity leaves.^{3,4} A study in the United Kingdom found that fathers who were offered paternity/parental leave were five times more likely to take leave than fathers who did not have access to these benefits.⁵

Taking family and medical leave at all and longer duration of leave is associated with decreases in negative health outcomes, some of which are severe. For example paid leave may lead to reductions in postpartum depression, intimate partner violence,^{8,10,11} pain following surgery, length of hospital stays, and infant and child mortality.¹³ Leave is also associated with increases in breastfeeding initiation and duration,^{9,12-14} child immunization coverage,¹³ and parental involvement with their children.^{5,13}

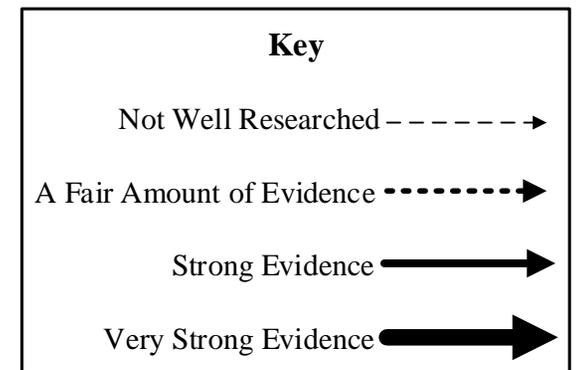
It is difficult to predict the rate changes in these health outcomes that we could expect to see in Washington as a result of paid family and medical leave, but the literature provides some examples of impacts that have been observed. Studies have found, for example, that women who took 13 weeks of maternity leave had 76% lower odds of experiencing psychological distress than women who took no leave; that women who received paid maternity leave had 58% lower odds than women who did not have this benefit of reporting intimate partner violence;⁸ that women who took less than six weeks of maternity leave had four times higher odds of *not* breastfeeding than those who took at least 12 weeks of leave;¹² and that fathers who took leave were between 19% and 25% more likely than those who did not take leave to be involved in the care of their babies (e.g. changing diapers, feeding their child, etc.).⁵

Logic Model



* See page 5 of this review for an explanation of scenarios in which the evidence for this relationship may be stronger.

Figure 1
Implementing Family and Medical Leave Insurance
SB 5459



Summaries of Findings

Will eligible employees use paid family and medical leave when needed?

There is strong evidence that eligible employees use paid (and unpaid) family and medical leave when they have this benefit available.¹⁻⁷ For example, several studies found significantly greater increases in the use of family leave in California among individuals eligible for paid leave compared to control groups both inside and outside of California following implementation of the state's paid family leave law.^{3,4}

It is important to note that there are other barriers that prevent employees from using paid family and medical leave, such as a lack of awareness of leave benefits and protections, work culture that discourages leave, fear of employer retribution despite protections afforded by the law, and not receiving full wage replacement.¹ However, evidence indicates that workers do use paid family and medical leave benefits when available. Therefore SB 5459 has potential to increase the number of people taking leave when needed, and to provide partial wage replacement for workers who would have taken unpaid leave in the absence of paid family and medical leave insurance.

If eligible employees use paid family and medical leave when needed for the birth or placement of a child, will this have positive impacts on child and maternal health and parental involvement?

There is very strong evidence that when caregivers take leave for the birth or placement of a child this is associated with improved child and maternal health and greater parental involvement.^{1,2,5,8-15} Taking parental leave at all and longer duration of parental leave is associated with improved maternal health outcomes such as decreases in psychological distress,⁸ depression, poor mental and physical health,^{8,10,11} intimate partner violence,⁸ and parenting stress.¹⁰ Parental leave is also associated with increased self-reported ability to care for one's child,¹ and greater initiation and longer duration of breastfeeding (a positive health outcome for the mother and the infant).^{9,12-14} Parental leave is also associated with other positive health outcomes for infants: decreased infant and child mortality, increased immunization coverage,¹³ and increased parental involvement.^{5,13} When fathers take leave, or increase the duration of their leave, this is associated with increased involvement in their child's life as well as improved maternal health outcomes.^{5,13,15} While breastfeeding is often considered a health outcome in itself, evidence also indicates that breastfeeding has short- and long-term positive health impacts on the child (e.g. improved immune system response and cognitive development, decreased rates of chronic diseases such as allergies and diabetes) and on the mother (e.g. lower risk of hypertension, heart disease, and breast cancer).¹³

If eligible employees use paid family and medical leave when needed for a family member's serious health condition, will this lead to improved health outcomes for these employees and their families?

There is strong evidence that paid family leave to care for a family member's serious health condition will lead to improved health for both the caregiver and their family member(s).^{6,13,16,17} Individuals who have taken leave to care for a child or adult family member have expressed that this leave positively affected their ability to care for their family member, their family members'

emotional and physical health, and their own emotional health.^{6,16,17} These benefits are stronger for employees that receive paid leave than for those that receive unpaid leave.¹⁷

Earle and Heymann cite evidence that caring for a child or an adult family member with special health care needs is associated with both health benefits (e.g. personal growth, a source of fulfillment, improved mental health) and health risks (e.g. negative physical and emotional outcomes, mental distress, and poorer physical health status). However, their study findings indicate that access to paid family leave can reduce the potential negative health outcomes that may result from caregiving.¹⁶

Studies also indicate that family members' presence during illness is associated with a number of positive health outcomes such as reduced pain and shorter hospital stays.¹³ There is an additional body of evidence that highlights the positive health impacts of family support, but we did not include this evidence as it does not highlight the direct link between being cared for by a family member and health outcomes. However, it is possible that providing care to a family member is one indicator of family support/social support used in these studies.

If eligible employees use paid family and medical leave when needed for their own serious health condition, will this lead to improved health outcomes for these employees?

The relationship between taking medical leave to care for one's own serious health condition and health outcomes is not well researched. It is possible that the link between taking leave to rest and care for your own serious health condition and improved health has not been extensively researched because the physiological mechanisms between self-care and improved health are generally accepted by the scientific community. We only identified one study which researched this link. A national survey found that over 70% of respondents who had used FMLA reported that it had increased their ability to care for their own or family members emotional health and 63% reported that it had improved their ability to care for their own or their family members physical health. In addition, of those that indicated positive effects of leave, over 93% indicated that it made it easier for them to comply with doctors' instructions and nearly 84% felt that it had led to a faster recovery.⁶ There are also studies which have found that when employees take time off of work to recover when ill they recover more quickly, and when they attempt to work through illness their symptoms can be exacerbated.¹⁸ However, these data were collected in regards to paid sick leave (rather than medical leave) and included qualitative data on taking paid sick leave to recover from short term illness (e.g. the common cold or the flu) which, unless complications arise, are not defined as serious health conditions ([RCW 49.78.020](#)) and do not qualify for family and medical leave insurance under SB 5459. Therefore, while these studies on the personal health benefits of paid sick leave may be generalizable to medical leave insurance, it is not clear so we did not include them here.

As outlined above, maternity leave is associated with positive health outcomes for the mother in addition to the child. While we have classified the evidence for maternity leave as evidence for the positive impacts of taking leave for the birth of a child—it is likely that mothers are also taking time during maternity leave to recover from pregnancy and the birth of their child. Therefore the extensive body of evidence supporting the connection between maternity leave and positive health outcomes outlined above could be applied here as well. This would bolster the

strength of evidence for the connection between improved health and taking leave to care for one's own serious health condition.

If employees use paid family and medical leave when needed, will this lead to improved financial stability for these employees and their families?

There are two main scenarios created by SB 5459: 1) employees that would not have taken leave because of financial need will take advantage of paid family and medical leave insurance, or 2) employees that would have taken leave and lost wages will still stay home but will be protected from at least some of this wage loss. In this second scenario, paid family and medical leave leads to improved financial security for these employees and their families.

There is strong evidence that paid family and medical leave insurance improves financial security for employees and their families.^{1,6,7,17-19} Employees consistently report that they did not take needed family or medical leave because they did not have access to paid leave and could not afford the missed wages.^{1,6,7,18,19} Employees that have taken unpaid leave report that this led to financial hardship such as having to use savings, borrowing money, signing up for public assistance, limiting spending on basic needs, and delaying paying bills to cover the financial strains of taking leave.¹⁷

Will improved financial security for employees and their families lead to improved health outcomes?

There is very strong evidence that economic instability and low-income are associated with adverse health outcomes. Research highlights the relationship between economic instability/low socioeconomic position and, for example, depression, acute and recurring infections, poor health-status, higher body mass index (BMI), and poor oral health.²⁰⁻²⁸ Data indicate that this correlation between low income and poor health is found in Washington state.^{20,21,25} Financial stress in itself is also associated with adverse outcomes for families such as problem behavior in adolescents, interparental conflict, and parental depression.²³

Will improved health outcomes for employees newly eligible for paid family and medical leave under SB 5459 lead to decreased health disparities?

There is strong evidence that improved health outcomes for employees newly eligible for paid family and medical leave under SB 5459 would lead to decreased health disparities.^{1,2,4,7,12,19,23,29} Evidence shows that not all populations currently have equal access to paid leave benefits. Low-income workers, people of color, workers with lower levels of educational attainment, and those without private health insurance are less likely to have access to employer-provided paid family and medical leave benefits (or other paid leave benefits) than their counterparts.^{7,19,29} These populations are also more likely to experience health disparities.^{20-22,24-28,30-36} Financial stress has also been shown to have a stronger detrimental impact on the mental health of mothers with low-incomes than on mothers in higher income families.²³ Evidence also indicates that while unpaid family and medical leave seems to provide greater benefits for more advantaged workers (e.g. those with higher incomes, working partners, and higher education attainment), moving from unpaid to paid leave or increasing the percent of wage replacement during leave seems to increase leave taking more among less advantaged workers who are least likely to take unpaid

leave.^{2,4} Improving health outcomes for these communities by increasing access to paid family and medical leave therefore has potential to decrease health disparities.

This bill will not guarantee paid leave benefits for workers who are undocumented, are paid under the table, frequently change jobs, or do seasonal work that prevents them from having enough tenure or accruing enough hours with an employer to qualify for paid leave insurance under SB 5459. Notably, women experiencing domestic violence are more likely than other women to experience income instability, discontinuity of employment, and underemployment.³⁷ These workers and their families will likely not experience the direct positive health impacts associated with paid leave. Section 11 of SB 5459 does decrease the tenure and number of hours needed in order for an employee to receive job protected leave from 12 to six months and from 1,250 hours to 650 hours in the previous six months (rather than 12 months)—so this will increase the number of employees that will be eligible for job protected leave.

In addition, a survey of California workers following implementation of California Paid Family Leave law found that low-wage workers, immigrants, and Latinos were less likely than other workers to be aware of the Paid Family Leave program.¹ This suggests that linguistically appropriate outreach (as required by SB 5459 Section 4) as well as culturally appropriate outreach to inform employees of this benefit will be essential in order for paid family and medical leave insurance to have the greatest impact on reducing health disparities.

Other considerations

We pursued a number of other research questions in order to determine if there are alternate pathways leading from the provisions in the bill to positive or negative health impacts. We ultimately did not include these pathways in the logic model on page four of this review because there was insufficient evidence to determine if the connections exist. We generally do not include a research question in the logic model if it is not well researched unless it is essential to the flow of the logic model. We evaluated the evidence on the impacts of paid family and medical leave policies on aspects of business such as profits and productivity. Stakeholders have expressed concerns about the potential costs to businesses, with a specific emphasis on the costs of the insurance premiums and the costs of replacing an employee while they are on leave (e.g. hiring and training a temporary employee). The connections between paid family and medical leave programs and business profits and productivity are not well researched, and the research that does exist is conflicting.^{1,3,7,38}

While several studies of paid and unpaid family and medical leave policies have found that a large majority of surveyed employers report that the policies had no noticeable effects or even positive effects on their business operations, a small minority of employers have reported that family and medical leave was associated with negative effects on profitability, productivity and turnover.^{1,7} Large businesses were more likely than small businesses to report these negative impacts of family leave policies.⁷ Evidence is conflicting in regards to how family and medical leave impacts productivity (through higher employer satisfaction and commitment) and turnover (through higher employee satisfaction and increases in the number of employees returning to their original employer at the end of their leave) with some studies finding positive impacts of leave policies and some finding no or negative impacts.^{3,38}

Annotated References

1. Appelbaum E, Milkman R. *Leaves That Pay: Employer and Worker Experiences with Paid Family Leave in California*. 2011.

Appelbaum et al. analyzed a number of impacts of California's Paid Family Leave (PFL) law on employers and employees six years after the law was implemented. The authors surveyed small and large employers (n=253) based on a directory list of all employers in the state. They also surveyed employees who were potentially eligible for PFL and experienced an event in the past four years that PFL was designed to cover (n=500). The authors also conducted interviews with 50 of the 500 surveyed employees and with a convenience sample of 20 worksites. The authors differentiated between employees with high-quality (those with health coverage and a wage of \$20 per hour or more) and low-quality jobs (no health coverage and a wage of less than \$20 per hour) in their data to focus on the effects on low wage workers. The authors found worker awareness of PFL was limited among employees and half of respondents did not know that the program existed. Low-wage workers, immigrants, and Latinos were less likely to be aware of the program than their counterparts. About one third of respondents who knew about PFL did not apply for it when they needed family leave because they felt the wage replacement was too low. Many of the employees who were aware of PFL but did not apply for it reported that they were afraid their employer would be unhappy, their opportunities for advancement would be negatively impacted, or they would be fired. A higher percentage of workers that used PFL (84%) received at least half of their usual pay compared to those who did not use PFL (31%). Those who took PFL were more likely in nearly all measures of the survey to report it helped their ability to care for their new child or ill family member compared to those who did not take PFL. The authors found that a majority of employers indicated that PFL had minimal impact on their business operations. Most employers surveyed reported that PFL had "no noticeable effect" or a "positive effect" on employer profitability (91%), productivity (89%), morale (99%), or turnover (96%). Ninety-one percent of employers surveyed indicated that they were not aware of any instances in which employees had abused PFL.

2. Bartel A, Baum C, Rossin-Slater M, Ruhm C, Waldfogel J. *California's Paid Family Leave Law: Lessons from the First Decade*. U.S. Department of Labor, ;2014.

Bartel et al. provide an overview of the first ten years of California Paid Family Leave law. The authors summarize data from California's Employment Development Department State Disability Insurance claims indicating that approximately 153,000 family medical leave claims were paid in California in fiscal year 2005-2006, 188,000 in fiscal year 2008-2009, and, after a slight dip in 2009-2010 reached 202,000 in fiscal year 2012-2013. About 87% of these claims were for bonding with a newborn and about 12 percent were to care for a sick family member. They cite one source (Zigler, Muenchow, and Ruhm [2012]) which estimates that the number of claims increased from 24 per 100 live births to 30 per 100 live births. The utilization rates were highest for those with incomes between \$12,001 and \$72,000 per year. Bartel et al. cite national and international evidence on both paid and unpaid family leave laws indicating that leave laws are associated with increased use of leave (although studies do indicate that employee awareness of leave benefits are not universal), longer leave, generally positive (although findings are conflicting) effects on labor market outcomes, generally positive reactions from employers, and improved child health outcomes. They also indicate that evidence suggests, that while unpaid leave may have more positive impacts on more advantaged employees, paid leave may have

greater benefits for employees with lower levels of education attainment or who are unmarried. Many of these studies are further summarized in this health impact review.

3. Baum C, Ruhm C. The effects of paid family leave in California on labor market outcomes. Vol 8390: Institute for the Study of Labor (IZA); 2014.

Baum and Ruhm analyzed data from the National Longitudinal Survey of Youth's 1997 cohort (NLSY-97) to analyze the effects of California's Paid Family Leave law. The NLSY-97 collects data on the exact dates of childbirth as well as weekly employment status. California also offers temporary disability benefits for pregnant women and new mothers, which are generally exhausted six to eight weeks after birth. Paid family leave can be taken after disability benefits are exhausted. The authors controlled for potential confounding factors and compared changes in the treatment group (California parents with newborns working during the pregnancy period as they would potentially be eligible for paid leave) with parents with newborns in comparison states. The treatment and control group included 1,762 births for mothers and 1,728 births for fathers. The authors found that paid leave was significantly associated with increased leave-taking (about three additional weeks for mothers and an additional ten to 17 days for fathers). These leave increases were observed at about six to eight weeks post-birth for mothers (consistent with when temporary disability benefits would be exhausted), and immediately after birth for fathers who are not eligible for pregnancy-related temporary disability. This suggests that there may be a causal effect between the availability of paid leave and increased use of leave rather than just a correlation. The data indicate that paid leave was associated with an increase of 17 to 20 percentage points in leave-taking during the five weeks after birth and an increase of 20 to 34 percentage points from post-birth weeks six to fourteen for mothers. For paternal leave the increase peaked at an eight to nine percentage point increase in leave-taking. The authors also found that paid leave in California was significantly associated with a 4.8 to 5.4 percentage point increase in mothers having returned to work nine to twelve months after the birth of a child. The data suggest that mothers in California saw an increase between 0.5 and 1.0 percentage points in their likelihood of returning to the same place of employment after the birth of their child, but this difference was not statistically significant. The authors note that this relationship may be stronger but is not fully captured in their analysis because they only included mothers who had worked for at least 32 weeks during pregnancy where other mothers may also have been eligible for paid leave because of the relaxed eligibility requirements in California. The authors also found that paid leave had positive effects on hours worked by mothers in the second year of a child's life. Point estimates indicate that hourly wages were also about seven percent higher for mothers one year after a child's birth, but these figures were not statistically significant.

4. Rossin-Slater M, Ruhm CJ, Waldfogel J. The effects of California's Paid Family Leave program on mothers' leave-taking and subsequent labor market outcomes. *Journal of Policy Analysis and Management*. 2013;32(2):224-245.

Rossin-Slater et al. analyzed the impacts of California's PFL program which went into effect in 2004. California's leave allows six weeks of partially paid leave (55% of wages up to a maximum) for the birth or placement of a child or to care for a seriously ill family member, and almost all private sector workers are eligible. California's program does not contain employer size, strict work history, or other eligibility restrictions. This Paid Family Leave law does not provide job protection (though job protection would be available for employees who are eligible for the national Family and Medical Leave Act [FMLA]), and is funded through a payroll tax on

employees. California also provides temporary disability insurance which provides about two-thirds of earnings for about six weeks for pregnancy-related short-term disability. This leave can be taken before PFL. The authors cite two studies which found that the national FMLA is associated with mothers taking more leave and more time off work after birth, and three studies of state unpaid leave policies which found that state policies are also associated with more leave-taking. These effects seem to be largest for relatively advantaged women as they are more likely to be able to afford taking unpaid leave. Rossin-Slater et al. also cite seven studies which found that in Canada and European countries with paid leave, use of leave is very high. One study conducted in Norway found that an increase in the amount of pay provided during leave had the greatest increase in leave-use among women least likely to take unpaid leave (e.g. women with lower incomes). The authors analyzed 1999 to 2010 data from the March Current Population Survey. They compared the differences in the change in leave-use following the implementation of California's PFL program between mothers who would be eligible for California PFL (treatment group) and several control groups (women in California with older children, women in California with no children, and women in other states with infants). The data show a significantly greater increase in the use of maternity leave and family leave for the treatment group than the control group of women with infants in other states without paid family leave. The authors estimate that the program increased maternity-leave use by 110 to 116 percent, corresponding to an additional 3.1 to 3.3 weeks of leave. The magnitude of impact for family leave was similar. The analysis also shows that women with less than a college education, unmarried women, and women of color were less likely than their counterparts to access leave prior to the availability of paid leave. While the sample sizes were too small to reach statistical significance, the point estimates suggest that Paid Family Leave raised maternity leave-taking for women in general, but had a greater impact on these groups who were less likely to take leave in the absence of wage-replacement. The largest absolute gain was seen for black mothers who saw an average increase of about six weeks for maternity leave. They also found that there were not meaningful differences in employment pre- and post- implementation of the program, though there were significantly greater increases in the hours worked and total wages for the treatment group after the program was implemented. This last finding uses data from mothers of children 1-3 years of age to estimate working trends among mother several years after they would have potentially been eligible for paid leave, but these estimates are imprecise.

5. Tanaka S, Waldfogel J. Effects of parental leave and work hours on fathers' involvement with their babies: Evidence from the Millennium Cohort Study. *Community, Work and Family*. 2007;10(4):409-426.

Tanaka and Waldfogel cite four studies conducted in Sweden that indicate that parental leave promotes fathers involvement with their children; one study conducted in Massachusetts that found that fathers who took more days of leave were more involved in the care of their child; and one study from the UK which found that fathers who took leave were more involved in some specific activities, but did not spend more time overall with their children. Tanaka and Waldfogel analyzed data from the Millennium Cohort Study from the United Kingdom (UK) to explore the effect of leave-taking on father's involvement in parenting. The Millennium Cohort Study includes 18,819 infants born between September 2000 and January 2002. In order to be included, the infants had to have been between eight and 12 months old at the time of the survey. Both mothers and fathers (where both present) participated in an interview and a completed a self-completion module. The sample used for Tanaka and Waldfogel's study included fathers who

were employed when their partner became pregnant, were working at the time of the survey, were not self-employed, and provided information on leave-taking and work hours—leading to a sample size of 9,592 child-father pairs. They controlled for several potential confounding factors such as race and income. The data show that fathers who took leave had significantly higher odds than father’s who did not take leave of changing diapers (25% more likely), feeding their child (19% more likely), and getting up at night to care for the child (19% more likely). Fathers who took leave also had higher odds of looking after the baby than their counterparts, but this difference was not statistically significant. Fathers with longer work hours were significantly less likely to be involved across all four measures. The analysis also indicates that, after controlling for confounders, fathers who work for employers who offer parental/paternity leave are over five times more likely to take leave than fathers who do not have access to these benefits.

6. Waldfogel J. Family and Medical Leave: Evidence from the 2000 surveys. *Monthly Labor Review*. 2001;124(9).

Waldfogel cites two past surveys (conducted in 1995), two years after enactment of the Family and Medical Leave Act (FMLA), which found that the Act led to increased FMLA benefits for employees. Two-thirds of covered establishments reported changing their leave policies to comply with the law and covered businesses were more likely than their counterparts to offer FMLA. These surveys did show that 41.9% of employees had not heard of the law. Many employees who needed leave but did not take it indicated that this was because they could not afford to take unpaid leave. The author notes that several other studies of FMLA have found that family leave coverage increased following passage of the Act. Waldfogel analyzed 2000 Survey of Employees data (n=2,558 employees) and 2000 Survey of Establishments data (n=1,839 private businesses) to determine impacts of the Act seven years after implementation. The surveys showed that while only 33.5% of businesses not covered by the law offered FMLA benefits, 83.7% of those covered by the law did. The author found that while awareness of the law had increased since 1995 not all employees were aware of the law or if they were covered in 2000. About 16% of employees had taken leave for a family or medical reason in the 18 months prior to the survey (similar to the findings from the 1995 survey). The authors found that while a significantly smaller percentage of respondents in 2000 compared to 1995 indicated that they had needed to take leave and did not, an inability to afford taking unpaid leave was still the most commonly cited reason for not taking leave with 77.6% of those who needed but did not take leave citing this as their reason. Large percentages of leave-takers indicated that leave had positivity affected their ability to care for family members (78.9%), or their own or family members emotional health (70.1%) or physical health (63.0%). Of those that indicated positive effects of leave, 93.5% indicated that it made it easier for them to comply with doctors’ instructions and 83.7% felt that it had led to a faster recovery. Over half of leave-takers were worried that they would not have enough money to pay their bills. Women and low-income workers were less likely to have access to paid leave.

7. Klerman J, Daley K, Pozniak A. *Family and Medical Leave in 2012: Technical Report*. Prepared by Abt Associates Inc. for the U.S. Department of Labor;2012.

In 2012 Abt Associates Inc. conducted employer and employee surveys for the U.S. Department of Labor in order to analyze the impacts of the federal FMLA. The Employee Survey was a random-digit dial telephone survey (n=2,852). This survey oversampled workers who had taken leave and those who had needed to take leave but did not. The Worksites were drawn from the

2012 Dun's Market Identifiers file. The Researchers collected survey data by phone or via the web depending on the employers preference (n=1,812; 26% response rate). Seventeen percent of worksites reported that they were covered by FMLA, and an additional 30% were unsure. Fifty-nine percent of employees surveyed met all of the inclusion criteria for edibility— they worked for a firm with 50 employees within 75 miles of the employee's workplace, had 12 months of tenure, and had worked 1,250 hours in the past year. Thirteen percent of employees surveyed took leave for an FMLA-qualifying reason in the 12 months before the survey. Forty-two percent of leaves were ten days or less and 17% lasted over 60 days. Employees eligible for FMLA were significantly more likely to take leave than employees who were not eligible for FMLA—but the authors note that not all of this difference is necessarily a result of FMLA. Forty-eight percent of leave-takers received full pay while on leave and 17% received partial pay. Pay was generally provided through paid vacation, sick, or other leave hours. Forty-percent of leave-takers indicated that at least one reason that they returned to work when they did was because they could not afford to stay on leave. Five percent of employees indicated that they needed to take leave in the past year, but were unable to. The following groups were more likely than their counterparts to report unmet need: women, workers of color, unmarried workers, and low-income workers. Forty-six percent of these respondents said that they did not take leave because they could not afford to. From the Worksite Survey, data indicate that 14% of worksites large enough to have FMLA-eligible employees (50/75 worksites) reported that it was difficult, and 1% reported that it was very difficult to comply with the law. Fifty-percent of 50/75 worksites reported that the costs of administering FMLA are rising, and eight percent perceived negative effects of complying with FMLA. Negative reports are more common from large worksites. Less than one half of one percent (0.4%) of 50/75 worksites reported that FMLA had a large negative impact on productivity, 2.7% reported a moderate negative impact. Of 50/75 worksites, 0.2% reported FMLA had a large negative impact on profitability and 1.4% report a moderate negative impact. The low response-rate on the Worksite survey indicates that these findings must be interpreted with caution.

8. Aitken Z, Garrett CC, Hewitt B, Keogh L, Hocking JS, Kavanagh AM. The maternal health outcomes of paid maternity leave: A systematic review. *Social Science and Medicine*. 2015;130:32-41.

Aitken et al. conducted a systematic review of the literature addressing the effects of paid maternity leave and length of maternity leave on maternal health. The authors included studies published through August 2013 that included the input (paid maternity leave) and the outcome (maternal health) of interest and had a relevant comparison group. The authors identified seven studies (six published in peer reviewed papers and one PhD dissertation) which met their inclusion criteria. Aitken et al. applied a quality assessment tool adapted from the Cochrane Public Health Group Data Extraction and Assessment Template to measure study quality. These studies were conducted in six countries, including the United States. The authors identified four studies which explored the impacts of paid leave on maternal health at the individual leave (i.e. mothers who actually used paid leave versus those that did not). One cohort study conducted in Australia found that as length of maternity leave increased psychological distress decreased and that mothers who took 13 weeks of paid leave had 76% lower odds (OR 0.24 [95% CI 0.07-0.84]) of psychological distress than those who took no leave. A US study using cross-sectional analysis of the first wave of a cohort study found that less than eight weeks of paid leave, compared to eight or more weeks, was associated with a 9% increase in depression scores and a

2% higher risk of severe depression. This same study found that less than eight weeks of paid leave was associated with a greater risk of being in a poor health category. A cross-sectional study conducted in Lebanon found that each added week of paid leave was associated with a 2% reduction in the odds of self-reported poor mental health and a 4% reduction in the odds of reporting poor physical health. An Australian cohort study found that women who received paid leave were less likely (58% lower odds) to report intimate partner violence than women with no paid leave. The authors also identified three ecological studies (generally considered one of the weakest study designs). One of these studies conducted in Canada (comparing 25 weeks of paid leave and 50 weeks of paid leave) found no association between paid leave and mental or physical health and wellbeing. Another ecological study comparing the US, Norway, and Sweden also found no association between paid leave and mental health. An ecological study found in the grey literature conducted in California found a negative association between increased weeks of paid leave (an increase from six to 12 weeks) and reporting excellent or good health and no association between being eligible for more weeks of paid leave and being in a better health category. This last study compared mothers surveyed at two years after the birth of their child to mothers surveyed one year after the birth of their child, which likely does not provide a valid comparison.

9. Borrell C, Palència L, Muntaner C, et al. Influence of macrosocial policies on women's health and gender inequalities in health. *Epidemiologic Reviews*. 2014;36(1):31-48. Borrell et al. conducted a systematic review of the literature on the association between 1) macrosocial policies and women's health or gender inequalities in health and 2) parental leave and women's health. The later association is more specific to family and medical leave policies. The authors identified 17 publications on the connection between parental leave and maternal health. They conclude that "longer paid maternity leave was also generally associated with better [maternal] mental health and longer duration of breastfeeding."

10. Chatterji P, Markowitz S, Brooks-Gunn J. Effects of early maternal employment on maternal health and well-being. *Journal of Population Economics*. 2013;26(1):285-301. Chatterji et al. use US data from phase I of the longitudinal National Institute of Child Health and Human Development Study on Early Child Care. The authors analyze the connection between maternal employment and maternal mental health, overall health, parenting stress, and parenting quality when their child is six months of age. They cite two studies which found that longer maternity leave was associated with lower levels of depression and better self-reported health for the mother. The Study on Early Child Care enrolled 1,364 healthy infants from across the US (including Seattle, WA) in 1991 and then followed-up with these children and their families from birth until age 15 (telephone and in-person interviews and laboratory assessments). This study uses data collected at 1, 3, and 6 months old. The six month sample includes 1,198 mother/child pairs (about 88% of the original sample). Maternal Depression was measured using the Center for Epidemiological Studies Depression Scale. The authors found that among employed mothers (those working or on leave from employment) as hours worked when their infant was three months old increased, so did depressive symptoms, parenting stress, and overall poor health when infants were six months old. The increase in depression was mostly among mothers who were working full-time at three months post-birth, and the changes to overall health were small in magnitude. These trends were not observed among the full sample (which included employed and unemployed mothers). The authors note that they cannot definitively indicate that

these effects are causal, despite the longitudinal design and controlling for confounding factors, because there may be other confounders that they did not control for. Mother's employment was not associated with parenting quality (based on trained assessor's observations of mother-child interactions) at six months. The authors found that mothers who were employed at six months had significantly lower rates of depression (15%) than mother who were not employed at six months (22%). Note that "employed" includes both women who were working and those who were on leave from work. Mothers employed at six months also reported lower rates of poor/fair health (9%) compared to mothers who were not employed at six months (18%). Mothers employed at one and six months also reported lower levels of parenting stress than their counterparts. Trained observers also rated mother's sensitivity toward their children using videotaped interactions. The authors found no difference in maternal sensitivity between mothers employed at six months and not those employed at six months, but part-time working mothers did have slightly higher sensitivity ratings than mothers who were not employed. These findings may indicate that working at three months poses risks to maternal health but that unemployment (unemployment does not include mothers who are employed but on leave) at six months also poses risks to maternal health. However, the data presented for unemployment at six months did not control for confounding factors so these findings must be interpreted with caution.

11. Dagher RK, McGovern PM, Dowd BE. Maternity leave duration and postpartum mental and physical health: Implications for leave policies. *Journal of Health Politics, Policy and Law*. 2014;39(2):369-416.

Dagher and Dowd analyzed the impact of leave duration after childbirth on employed women's depression over the first 12 months after childbirth using data from the Maternal Postpartum Health Study. This study in a non-randomized, prospective cohort study which included adult, English-speaking women who delivered a live, singleton infant in one of three community hospitals in Minneapolis and St. Paul Minnesota in 2001. The authors compared the characteristics of the mothers who gave birth at these hospitals in 2001 to those of mothers who gave birth at other hospitals in the area in 2001 and identified how they were the same (e.g. marital status, age at childbirth, birthweight) and how they differed. The study hospitals had a higher proportion of Asian mothers, a lower proportion of African American mothers, and a lower proportion of cesarean deliveries compare to the other hospitals. In order to be included in the study, mothers must have been working at least 20 hours a week for three months before delivery and have planned to return to work after childbirth. The authors used the Edinburgh Postnatal Depression Scale and the Short Form-12 Mental Summary Score and controlled for potential confounding factors. A sample of 817 women (about 71% of eligible women) agreed to participate. Data were collected at six weeks, 12 weeks, six months, and 12 months after delivery. The authors only included women in the analysis if they had completed the interview at six weeks (n=716). They had 638 women respond at 12 weeks, 603 respond at six months, and 554 at 12 months. Of 340 non-participants, 295 mothers consented to have their medical charts examined for comparison with participant charts. The authors found that there were no significant differences between these women and the participants in relation to select indicators (e.g. duration of employment, number of hours worked per week before delivery, marital status). The authors controlled for potential confounding factors such as socioeconomic characteristics. The authors found that, on average, in the first year after birth each additional day of leave is associated with a decrease in postpartum depressive symptoms until six months post-delivery—after which point each additional day of leave is associated with an increase in postpartum

depressive symptoms. They found that women who had returned to work in the first six months had higher depressive symptoms than those that were still on leave at each measured point (six weeks, 12 weeks, and six months). At 12 months after delivery this trend flipped and mothers still on leave at this point had higher depressive symptoms than their counterparts who had returned to work. These later results must be interpreted with caution as so few mothers were still on leave at 12 months. These data also indicate that women on leave at six weeks and 12 weeks had significantly better physical health scores than their counterparts who had returned to work, but there were no significant differences in the physical health scores between women who had and had not returned to work at six and 12 months. They found no significant difference in the childbirth related symptoms (e.g. breast symptoms, vaginal discomfort, hemorrhoids, etc.) by leave duration in the first year first year after child-birth.

12. Guendelman S, Kosa JL, Pearl M, Graham S, Goodman J, Kharrazi M. Juggling work and breastfeeding: Effects of maternity leave and occupational characteristics. *Pediatrics*. 2009;123(1):e38.

Guendelman et al. cite three studies that indicate women who seek to work full time after childbirth have a lower probability of starting to breastfeed than those who anticipate working part time or not returning to work. The authors also cite three studies that indicate postponing return to employment is positively correlated with the continuation of breastfeeding. Guendelman et al. analyzed the duration of breastfeeding among full-time working mothers age 18 and older (N=770; 73% response rate) who took part in California's Prenatal Screening Program in 2002-2003. The sample of women was a cohort drawn from a case-control study of infants with preterm birth and low birth weight. The authors elected to exclude women who worked less than 30 hours a week from the study because previous research indicated that breastfeeding is more likely to be compromised among women working full time, which is a limitation of the study as many low-paying shift jobs with rigid environments are often part time positions. The authors controlled for potential confounding factors and examined the relationship between breastfeeding and maternity leave and job attributes by calculating odds ratios (OR) for starting breast feeding and hazard ratios (HR) for stopping breast feeding. The data indicates that maternity leaves less than 6 weeks and between 6 and 12 weeks were significantly associated with four and two times higher odds (respectively) of not starting breast feeding and a higher likelihood of stopping to breastfeed compared to women who did not return to work at the time of the interview. Eighty-five percent of "nonreturnees" were interviewed 12 weeks after delivery. Participants were less likely than their counterparts to fail to establish breastfeeding if they were in a management role (OR 0.49 [95% CI 0.28-0.85]). They were also more likely to stop after they established breastfeeding if they worked in an inflexible position (HR 1.47 [95% CI 1.00-2.16]). Breastfeeding among women with large amounts of psychosocial distress were also more strongly affected by an early return to work. Taking leave prior to delivery did not significantly impact the likelihood of starting or stopping breastfeeding.

13. Heymann J, Earle A, McNeill K. The impact of labor policies on the health of young children in the context of economic globalization. *Annual Review of Public Health*. Vol 34:2013:355-372.

Heymann et al. conducted reviews of the literature on a number of policy areas which may impact working parent's ability to care for their children. Two of these reviews were leave for parents after placement or birth of a child and leave for preventive and treatment child health

visits. The authors cite evidence that paid parental leave is associated with reductions in infant mortality, postneonatal mortality, and child mortality and increases in immunization coverage, breastfeeding, and parental involvement in child rearing. The authors also highlight evidence on the health benefits of breastfeeding for both the mother and the child. The benefits for the child include improved immune systems and cognitive development and decreased rates of chronic diseases such as allergies and diabetes. The health benefits for the mother include faster weight loss following childbirth; and lower risk of breast cancer, heart disease, and high blood pressure. Heymann et al. also cite 20 studies which found that parental presence has positive benefits (e.g. less pain, reduced stress and anxiety, shorter hospital stays, and fewer negative side-effects) for children undergoing surgery or hospitalization for other reasons. They also cite evidence that parental presence improves recovery and increases management of chronic conditions. The authors do not note how they selected studies for inclusion.

14. Mirkovic KR, Perrine CG, Scanlon KS, Grummer-Strawn LM. Maternity leave duration and full- time/ part- time work status are associated with us mothers' ability to meet breastfeeding intentions. *Journal of Human Lactation*. 2014;30(4):416-419.

Mirkovic et al. cite eight studies indicating that maternal employment is frequently cited as a barrier to breastfeeding and that earlier return to work and return to full-time work are associated with shorter duration of breastfeeding. While this evidence may indicate that women stop breastfeeding earlier because they must return to work, Mirkovic et al. note that these studies do not account for the fact that women who don't plan to breastfeed as long may return to work earlier. In order to consider this issue, the authors explored the ability of mothers to breastfeed for at least three months among mothers who reported before the birth of their child that they intended to breastfeed for at least that length of time. The authors included a national cohort of US women in their study from the Infant Feeding Practices Study II (a longitudinal survey conducted between 2005 and 2007) who had indicated before the birth of their child that they planned to breastfeed for at least three months and were employed during pregnancy. Of the 1,506 women who met the inclusion criteria, 324 were excluded because they had missing data and 10 women left the study before three months (final sample of n=1,172). The women excluded for missing data were more likely to be younger, unmarried, women of color, from lower income households, and WIC participants. Over 40% of the sample planned to breastfeed for at least 12 months. The authors found that, after controlling for confounding factors, mothers who returned to full-time work before six weeks has 2.25 times higher odds (95% CI 1.23-4.12), and mothers who had returned to work full time after six weeks but before three months has 1.82 times higher odds (95% CI 1.30-2.56) than mothers not working at three months of not meeting their intention to breastfeed for three months. The authors found no association between returning to work part-time and not meeting breastfeeding intentions at three months.

15. Redshaw M, Henderson J. Father' engagement in pregnancy and childbirth: Evidence from a national survey. *BMC Pregnancy and Childbirth*. 2013;13:70.

Redshaw and Henderson cite two studies indicating that father involvement is associated with improved socio-emotional and cognitive outcomes among their children. The authors used data from a 2010 survey of mothers in England. Ten thousand women 16 years or older who had given birth during a two week period in 2009 were randomly-selected from vital statistics data. The authors received a response rate of 55.1% (n=5,333 women). Respondents were slightly more likely than non-respondents to be older, married, living in higher income areas, and to have

been born in the UK. Women whose partners had been more involved after the birth of the child reported significantly better overall health than their counterparts at three months post-delivery. After controlling for potential confounding factors, paternity leave was strongly associated with the mother's health at three months. Women who had more than one child were significantly more likely to report depression at one and three months if their partner did not take any leave than women whose partners took two weeks of leave. The data also indicate that women whose partners were more involved were more likely to breastfeed and to breastfeed longer—this trend was only significant for mothers with only one child. Among women who were breastfeeding at 10 days, breastfeeding problems were more common for women whose partners were more engaged—this trend was significant only for mothers who had more than one child.

16. Earle A, Heymann J. Protecting the health of employees caring for family members with special health care needs. *Social Science and Medicine*. 2011;73(1):68-78.

Earle and Heymann cite evidence that caring for a child or an adult family member with special health care needs is associated with both health benefits (e.g. personal growth, a source of fulfillment, improved mental health) and health risks (e.g. negative physical and emotional outcomes, mental distress, and poorer physical health status). They also cite extensive evidence that support from family members is associated with improved outcomes for both children and adults. The authors analyzed 2006 national Work, Family, and Community Nexus Survey data. This is a US random-digit dial telephone survey of adults used to examine a number of variables including well-being, family caregiving, and working outcomes (n=4,200; 60.1% response rate). Of all respondents, 2,674 were employed at the time of the survey, and the authors included data from 2,455 of these respondents who had been employed for at least a year. The survey used validated indicators to measure mental and physical health status. After controlling for confounding factors the authors found that caring for a child with special healthcare needs is significantly associated with poorer mental health—however, supportive workplace policies (e.g. access to paid family leave, flexible work environment) reduced the negative mental health impacts. After controlling for confounding factors, access to paid leave to care for a family member's health needs was significantly associated with better mental health outcomes for caregivers. These data also indicate that women are more likely than men to have negative mental and physical health impacts as a result of providing care.

17. Schuster MA, Chung PJ, Elliott MN, Garfield CF, Vestal KD, Klein DJ. Perceived effects of leave from work and the role of paid leave among parents of children with special health care needs. *American Journal of Public Health*. 2009;99(4):698.

Schuster et al. sampled children with special health care needs receiving care at two tertiary-care referral centers—one in Chicago (89% response rate) and one in Los Angeles (85% response rate). Using the billing databases, the authors identified all patients less than 18 years of age with qualifying diagnoses who accessed care at these centers from October 2002 to September 2003. The researchers conducted telephone interviews with the parents (either the parent willing to participate or, if both were willing, the parent who worked more hours) and had a total sample size of 1,116. Forty-two percent of interviewed parents were eligible for FMLA. Forty-three percent of respondents had received no pay, 15% had received partial pay, and 42% had received full pay when they had to miss work to care for their child (during the longest leave they had taken to care for their child). Eighty-one percent of parents indicated that taking leave had a “very good” or “good” effect on their child's physical health. Eighty-five percent of parents

reported that their leave had a very good or good effect on their child's emotional health. Fifty-seven percent of parents reported that leave had a very good or good effect on their own health, while twenty-four percent indicated that it had a negative effect. Forty-two percent of parents reported that their leave had a "bad" or "very bad" effect on their ability to perform their job, while 14% reported that it has a very good or good effect. Seventy-four percent of parents reported financial strain resulting from taking leave. Parents reported using savings, borrowing money, signing up for public assistance, limiting spending on basic needs, and delaying paying bills to cover the financial strains of taking leave. Parents who had received full pay while on leave had significantly higher odds than parents who had received no pay of reporting that their leave had a positive effect on their child's physical health (OR 1.85 [95% CI 1.13-3.03]), had a positive effect on their child's emotional health (OR 1.68[95% CI=1.02-2.76], had a positive effect on their emotional health (OR=1.70 [95% CI=1.04-2.77]), and that they had fewer financial problems as a result of the leave (OR 0.20 [95% CI=0.12-0.34]. As the length of leave increased so did the perceived positive health effects, the perceived negative effects on job performance, and the number of reported financial problems.

18. Cook WK, Heller J, Bhatia R, Farhang L. *A Health Impact Assessment of the Healthy Families Act Of 2009. Human Impact Partners and San Francisco Department of Public Health;2009.*

The Human Impact Partners and the San Francisco Department of Public Health conducted an HIA of the Healthy Families Act of 2009. This Act would have given United States workers employed by firms with at least 15 employees access to paid sick time (1 hour for every 30 hours worked). This time could have been used to care for or seek preventive care for oneself or a family member, or to recover from or seek assistance related to domestic violence, stalking or sexual assault. The authors conducted focus groups in California and Milwaukee, Wisconsin and learned that not being able to afford to take time off was one barrier to staying home when sick. Other factors mentioned included guilt for abandoning their coworkers, fear their employer would see them as irresponsible, and fear of losing a good shift or the job. Participants indicated that if they miss work because they are sick they often cannot pay rent or afford food. They described times when their illness had been exacerbated because they did not take sick days off to recover because they did not have access to paid sick leave. Some focus group participants mentioned that domestic violence was triggered by wage loss as a result of missing work when sick or that employers had expressed that they would not hire parents in the future because they take too many sick days to care for their children.

19. Shepherd-Banigan M, Bell J. Paid leave benefits among a national sample of working mothers with infants in the United States. *Maternal Child Health Journal. 2014;18(1):286-295.*

Shepherd-Banigan and Bell cite two studies which indicate that unpaid leave in the US (as allowed under the federal FMLA) increases leave primarily among economically advantaged groups. Data from the Centers for Disease Control and Prevention also indicates that Hispanic women are less likely to have taken maternity leave compared to non-Hispanic white and black women. They cite another source which indicates that in 2000, women and employees who were unmarried, low income, or younger were less likely than their counterparts to get company-provided paid leave. The authors note that low-income families also have fewer resources to offset lost wages even if they can take unpaid leave. Shepherd-Banigan and Bell conducted a

cross-section study using US national data from the Listening to Mothers II Survey. The participants included English-speaking women 18-45 years old who had given birth in a US hospital in 2005 and were employed during pregnancy. Six months later 903 women from Wave 1 participated in a follow-up survey. The analysis included a sample of from 611 to 858 respondents from wave 1 and 388 to 389 respondents from wave 2. These ranges were a result of excluding women who had missing data for the analysis of that variable). Fifty-nine percent of the participants received no paid maternity leave. Those who did receive paid leave, on average received pay for 3.3 weeks with a mean wage replacement of 33%. Older women, those with higher educational attainment, those with higher income, those who were partnered, and those who had private insurance had more generous paid maternity leave benefits. Sixty percent of women with a bachelors or higher received paid leave versus 29% of those with high school or less. About 50% of privately insured women versus only 16% of women covered by Medicaid/out-of-pocket received paid leave. Forty-three percent of partnered women received paid leave compared to 16% of women who were not partnered. Black non-Hispanic women were more likely to receive paid leave (57%) than their white non-Hispanic (38%) and Hispanic (39%) counterparts. After controlling for other socio-demographic factors, the authors found that women who were “non-Hispanic Black, privately insured, working full time and from high income families (\$75,000 or more) were significantly more likely to receive paid maternity leave, for more time, and at higher levels of wage replacement” than their counterparts. Higher income women not only had access to more days of paid leave and higher wage replacement, they also took more leave than lower income women. Over 50% of the Wave 1 respondents indicated that they did not take as much maternity leave as they would have liked to, and 81% of these women cited lack of financial resources as the primary reason. The authors point out that their finding that non-Hispanic black women were more likely to receive paid leave than non-Hispanic white women and that Hispanic women tended to have more days per year of paid personal leave does not align with the trends found in other studies. They note several reasons that their findings may differ: 1) this could be a result of self-section bias in which the respondents do not represent the general population, 2) because they only included English-speaking women, it is possible that they excluded key Hispanic subpopulations, 3) because they only included women who were working during pregnancy, this may not be representative of the proportion of availability of paid leave among all women, and 4) unlike the general population women from each racial/ethnic group were evenly distributed within each income category.

20. Boysun M, Wasserman C. *Health of Washington State Report: Tobacco*. Washington State Department of Health;2012.

Washington state Behavioral Risk Factor Surveillance System (BRFSS) data from 2008-2010 indicate that adults with lower incomes are significantly more likely to report smoking cigarettes than their counterparts. AI/AN and black populations also have significantly higher smoking rates than white, Hispanic, and Asian populations.

21. Centers for Disease Control and Prevention. Behavioral risk factor surveillance system prevalence and trends data: Washington-2013. 2013; <http://apps.nccd.cdc.gov/brfss/page.asp?cat=XX&yr=2012&state=WA#XX>. Accessed February 11, 2015.

Behavioral Risk Factor Surveillance System (BRFSS) 2013 data from Washington state show significant correlations between lower income and a number of health indicators including:

worse overall self-reported health, depression, asthma, oral health, tobacco use, women's health indicators, health screening rates, physical activity, and limited activity as a result of a disability. BRFSS data from 2011 show that black, AI/AN, and Hispanic respondents are significantly more likely to report fair or poor general health than white or Asian respondents. Participants who identified as multiracial also reported significantly higher rates of asthma than white and Hispanic respondents. These data also show a correlation between higher educational attainment and positive health outcomes for a number of indicators including: oral health, tobacco use, women's health indicators, health screening rates, and physical activity.

22. Healthy Youth Survey. QxQ Analysis. 2012; <http://www.askhys.net/Analyzer>. Accessed March 2, 2015.

Washington Healthy Youth Survey data from 2012 indicate that Native American youth and youth of color are more likely than their white peers to report several negative health outcomes. For example these data show that 8th, 10th, and 12th grade respondents who identified as American Indian/Alaska Native, Hispanic, or "other" or who reported multiple racial/ethnic categories were significantly more likely than their white peers to report symptoms of depression. Over forty-three percent of AI/AN 10th graders (43.3% [95% CI 37.1- 49.5%]) reported feeling depressed compared to about 29% of white 10th graders (28.5% [95% CI 27.2%-29.8%]). Among 6th graders all other racial/ethnic groups were more likely than white students to report that they had contemplated suicide; however, these rates were only significant for students who identified as AI/AN, Hispanic, or "other," or identified with multiple racial/ethnic groups.

23. Ponnet K. Financial stress, parent functioning and adolescent problem behavior: An actor-partner interdependence approach to family stress processes in low-, middle-, and high-income families. *Journal of Youth and Adolescence : A Multidisciplinary Research Publication*. 2014;43(10):1752-1769.

Ponnet cites extensive evidence on the relationship between financial hardship and emotional problems among youth and adults, family conflict, problem behavior among adolescents, and psychological distress. The author analyzed data from a subsample of two-parent families with children between 11 and 17 years of age from the Relationship between Mothers, Fathers and Children study drawn from the Dutch-speaking part of Belgium (n= 1,596 individuals of 798 families). Analysis showed that parents in low-income groups had significantly more financial stress than those in middle-income and high-income groups. The author found that the association between financial stress and problem behavior in adolescents is mediated by depressive symptoms, interparental conflict, and positive parenting. They also found that financial stress had more detrimental impacts on depressive feelings for mother with low-incomes than for those with higher incomes.

24. Prause J, Dooley D, Huh J. Income volatility and psychological depression. *American Journal of Community Psychology*. 2009;43(1-2):1-2.

Prause et al. analyzed a sample (n = 4,493) from the National Longitudinal Survey of Youth. Researchers found that income volatility was significantly associated with depression; and downward volatility (frequent losses in income) was significantly associated with depression even after controlling for baseline depression. High income appeared to act as a buffer, so those with lower incomes were more vulnerable to the adverse effects of downward volatility.

25. Reed P KD, Cheng E, Kinne S. Washington State Department of Health. *Health of Washington State Report: Mortality and Life Expectancy*. 2013. The authors present Washington state data on mortality and life expectancy. The data show that age-adjusted death rates were higher in Washington census tracts with higher poverty rates. The state data also show that self-reported health status decreases as income decreases.

26. Spencer N, Thanh TM, Louise S. Low income/socio-economic status in early childhood and physical health in later childhood/adolescence: A systematic review. *Maternal and Child Health Journal*. 2013;17(3):424-431.

Spencer et al. conducted a meta-analysis of studies examining the relationship between low socioeconomic status in the first five years of life and physical health outcomes in later childhood and adolescence. Nine studies met the researchers' strict inclusion criteria. The studies indicated significant associations between early childhood low-income status and a number of adverse health outcomes including: activity-limiting illness, parent-reported poor health status, acute and recurrent infections, increasing body mass index (BMI), dental caries, and higher rates of hospitalization.

27. Subramanyam M, Kawachi I, Berkman L, Subramanian SV. Relative deprivation in income and self-rated health in the united states. *Social Science and Medicine*. 2009;69(3):327-334.

Subramanyam et al. analyzed data from the Current Population Surveys conducted by the United States Census Bureau. Researchers found that individuals from the lowest income category were over five times more likely to report being in poor health than participants from the highest income category. In addition, they found that relative deprivation (the differences in incomes between an individual and others who have higher incomes than that individual [one measure of income inequality]) appeared to explain a large part of this association.

28. VanEenwyk J BG, Bezruchka S, Pobutky, A. Washington State Department of Health. 2013. *Health of Washington State Report: Social and Economic Determinants of Health*. 2013.

VanEenwyk et al. conducted a review of the literature on the complex relationships between the social factors that impact health. The authors found that the literature provides extensive evidence of the association between lower income and poor health outcomes.

29. Minnesota Department of Health. *White Paper on Paid Leave and Health*. Center for Health Equity, Saint Paul, MN;2015.

This report summarizes peer reviewed literature, other health impact assessments of paid sick leave policies, and national and Minnesota state level data. They examined the evidence for paid sick leave, parental leave, maternity and paternity leave, and family leave. Through analysis of the US Bureau of Labor Statistics data, they found that only one in ten US workers have access to paid family leave in 2013. They also found that workers with the lowest incomes are the least likely to have access to paid family leave. Among all jobs in the US, 12% of employees had access to paid family leave while 21% of the highest wage quartile and only 5% of the lowest wage quartile did. Among mothers, access to any paid leave (including maternity, sick, vacation, and other paid leave) also decreases with decreasing levels of educational attainment. These data

also indicate that women of color are less likely to have access to maternity leave use maternity leave after the birth of a child.

30. Kandel DB, Griesler PC, Schaffran C. Educational attainment and smoking among women: Risk factors and consequences for offspring. *Drug and Alcohol Dependence*. 2009;104:24-33.

Researchers examined United States data from four national data sets and found that, among women, lower levels of education are associated with greater risk of being a current smoker, smoking daily, smoking heavily, being nicotine dependent, starting to smoke at an early age, having higher levels of circulating cotinine (a metabolite of nicotine) per cigarettes smoked, and continuing to smoke in pregnancy. In addition, lower levels of maternal education were linked to increased risk of antisocial behavior among offspring.

31. McCarty CA, Mason WA, Kosterman R, Hawkins JD, Lengua LJ, McCauley E. Adolescent school failure predicts later depression among girls. *The Journal of Adolescent Health*. 2008;43(2):180-187.

McCarty et al. conducted a prospective longitudinal cohort study with a sample of 808 youth followed from ages 10 to 21. The researchers discovered that adolescent school ‘failure’ (meaning being suspended, expelled, or dropping out of high school early) predisposed girls to depression in early adulthood.

32. McLaren L. Socioeconomic status and obesity. *Epidemiologic Reviews*. 2007;29(1):29-48.

McLaren et al. conducted a meta-analysis exploring the relationship between obesity and SES among adults. A total of 333 studies published internationally met the inclusion criteria. In highly developed countries, the majority of the studies found higher body weights among women with lower education attainment. Nearly 50% of the studies in highly developed countries found the same relationship for men.

33. Mersky JP, Reynolds AJ. Educational success and adult health: Findings from the Chicago Longitudinal Study. *Prevention Science*. 2009;10(2):175-195.

Mersky and Reynolds analyzed data from a Chicago prospective cohort study that followed 1,539 individuals. Results indicate that high school completion was significantly and inversely associated with tobacco smoking, frequent substance use, depression, and no health insurance coverage. In addition, middle school reading performance was inversely related to depression and student’s expectation to attend college was negatively associated with frequent drug use.

34. Mezuk B, Eaton WW, Golden SH, Ding Y. The influence of educational attainment on depression and risk of type 2 diabetes. *American Journal of Public Health*. 2008;98(8):1480.

Researchers analyzed adult survey data collected in the Baltimore Epidemiological Catchment Area and then conducted follow-up interviews with the survey cohort. Mezuk et al. found a statistically significant association between type 2 diabetes and lower educational attainment. In addition, the data indicate that depression was associated with type 2 diabetes, but each year of education attained decreased the risk of type 2 diabetes for those experiencing depression.

35. Skodova Z, Nagyova I, Dijk J, et al. Socioeconomic differences in psychosocial factors contributing to coronary heart disease: A review. *Journal of Clinical Psychology in Medical Settings*. 2008;15(3):204-213.

Skodova et al. conducted a meta-analysis of the literature addressing the relationships between SES, coronary heart disease (CHD), and psychosocial factors contributing to coronary heart disease. Researchers identified 12 studies that met their inclusion criteria. They found that higher levels of education are associated with lower rates of CHD, and that decreasing education is associated with factors that are linked to CHD such as depression, anxiety, hostility, and a lack of social support.

36. Steptoe A, Hamer M, Butcher L, et al. Educational attainment but not measures of current socioeconomic circumstances are associated with leukocyte telomere length in healthy older men and women. *Brain Behavior and Immunity*. 2011;25(7):1292-1298.

Steptoe et al. analyzed data collected from 543 male and female London-based civil servants of white European origin. All participants were between the ages of 53 and 76 and healthy. Researchers looked at blood samples to determine telomere length and telomerase activity. Telomere shortening is associated with aging. Short telomeres are also associated with increased risk of premature heart attack and mortality. Researchers found that lower educational attainment was associated with shorter telomere length after controlling for biological and behavioral covariates. This association remained significant even after adjusting for current SES. Researchers speculated that low educational attainment may be an indicator of long-term lower SES, and may be associated with accumulated stress resulting in telomere shortening. They also postulate that education may promote problem-solving skills leading to reduced responses to stress, thereby impacting aging.

37. Morton, J. *Seeking Safety: A Study with Domestic Violence Service Providers About Seattle's Paid Sick and Safe Time Ordinance*. 2013.

Morton cites evidence indicating that one in five women in Washington reports being injured by domestic violence at some point in her lifetime and that these numbers are likely underestimations. The author also cites evidence that experiencing domestic violence is predictive of employment instability, discontinuity of employment, and decreased intensity of employment. This abuse is also associated with underemployment and underemployment.

38. Lee S, Hong J. Does family- friendly policy matter? Testing its impact on turnover and performance. *Public Administration Review*. 2011;71(6):870-879.

Lee and Hong highlight the evidence on the potential impacts of family leave (and other “family-friendly” policies such as telework, flexible schedule, and child-care subsidies) on employers. The authors note that reduced employee turnover and increased productivity are often cited as benefits of family-friendly policies, but that this is not really supported in the literature. They cite a 2000 national survey of 527 US firms which indicates that firms with family-friendly policies (including leave policies) had higher perceived organizational performance than firms without these policies. In order to address this gap in the literature, Lee and Hong conducted research to determine the impacts of child care subsidies, telework, paid family leave, and alternative work schedules on federal employee turnover and productivity. The authors analyzed data from the Federal Human Capital Surveys from 2004 and 2006 for the independent variables (e.g. family leave) and 2005 and 2007 data from other sources (e.g. annual Performance and Accountability

Reports) for the dependent variables (e.g. turnover and agency productivity) so that the independent variables preceded the dependent variables. The 2004 Federal Human Capital Survey was completed by 150,000 executive branch employees (54% response rate), and the 2006 survey received 221,479 completed responses (response rate 57%). The authors analyzed outcomes at the agency level, so they aggregated responses by agency. Participants were asked, “How satisfied are you with paid leave for illness (e.g. personal), including family situation (e.g., childbirth/adoption or elder care)?” After controlling for three potential confounding factors, employee satisfaction with paid family leave did not significantly affect employee turnover rate or productivity at the agency level. This analysis only provides information on employee satisfaction with family leave and does not provide information on actual leave usage among employees or their personal turnover and productivity.