



A HEALTH IMPACT ASSESSMENT OF CALIFORNIA ASSEMBLY BILL 889:

The California Domestic Work Employee Equality, Fairness, and Dignity Act of 2011

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The views expressed herein do not necessarily reflect the official policies of the City and County of San Francisco; nor does mention of the San Francisco Department of Public Health imply its endorsement.

ACRONYMS USED

AB 889	Assembly Bill 889 or the CA Domestic Work Employee Equality, Fairness, and Dignity Act
CAL/OSHA	California Division of Occupational Safety and Health
CDWC	California Domestic Worker Coalition
DW	Domestic Worker
FLSA	Fair Labor Standards Act
HIA	Health Impact Assessment
IHSS	In-Home Supportive Services
NAICS	North American Industry Classification System
NLRA	National Labor Relations Act
OSH	Occupational Safety and Health
SFDPH	San Francisco Department of Public Health
SOC	Standard Occupational Classification (System)
WC	Workers' Compensation

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EXECUTIVE SUMMARY

Domestic workers are individuals hired to work within private homes to clean, cook, provide care to children, the elderly, or disabled individuals. In the United States, domestic workers have been largely excluded from protections under federal and state labor laws such as the 1938 Fair Labor Standards Act, the 1935 National Labor Relations Act, and the 1970 Occupational Safety and Health Act. Lack of legal protections and labor standards, combined with isolated workplaces, gender and racial discrimination, language barriers, and other vulnerability factors may cause or contribute to adverse health outcomes among domestic workers as well as health risks for both their care-recipients and society in general.

The Domestic Work Employee Equality, Fairness, and Dignity Act of 2011, also known as California Assembly Bill 889 (AB 889), proposes to make a number of labor protections enjoyed by many other workers also applicable for domestic workers. Specifically, the California state legislation includes requirements affirming domestic workers' right to overtime pay, reporting time pay, annual cost of living pay increases, meal and rest breaks, record-keeping of hours and wages, eight hours of uninterrupted sleep under adequate conditions, right to cook one's own food, paid vacations, paid sick leave, 21 day notice before employment termination, and coverage by state Workers' Compensation and Division of Occupational Safety and Health (Cal/OSHA). AB 889 also establishes penalties and enforcement procedures for employer violations of the legislation.

Recognizing that domestic workers are a vulnerable population whose health may be substantially affected by the proposed legislation, and building on previous research and collaboration with Bay Area domestic workers, the San Francisco Department of Public Health (SFDPH) conducted a Health Impact Assessment (HIA) on two of the twelve AB 889 provisions:

- Amending California Workers' Compensation legislation to include currently excluded domestic workers who work less than 52 hours or earn less than \$100 from one employer in 90 days
- Requiring employers to provide eight hours of uninterrupted sleep to domestic workers that work 24 hour or longer shifts or live in their employer's home and provide care to others

Consistent with the purpose and practice standards of HIA, this HIA aims to provide the best available information on the law's potential health effects, including effects of these proposed legislative changes upon the health of domestic workers and their care-recipients. In this assessment, the HIA considers evidence on the health value of the proposed labor protections, the size and demographics of the domestic worker population in California, their current working conditions and socio-economic vulnerabilities, and potential barriers to accessing those protections.

The key findings of this HIA, which are further discussed below, include:

- Many domestic workers currently do not benefit from occupational health, safety and labor protections enjoyed by other workers
- Domestic workers routinely report underpayment and nonpayment of wages and other violations of existing legal labor rights which negatively impact ability to meet basic health needs
- Domestic workers in California experience over 4000 work-related injuries and illnesses annually
- Up to 620 domestic workers would be eligible for workers' compensation benefits under the law
- Treatment of occupational injuries under the workers' compensation system is likely to prevent long-term disability among workers and may reduce job turnover
- Sufficient sleep would reduce risk of pre-mature death, chronic disease, and depression for 24-hour and live-in caregivers
- Sleep deprivation among domestic workers creates potentially severe health risks for care-recipients
- If AB 889 passes, barriers to worker utilization of laws still need to be addressed
- Improved data on the occupational health outcomes of domestic workers are needed

DOMESTIC WORKERS WORKING IN PRIVATE HOUSEHOLDS IN CALIFORNIA

Table A presents estimates of the number of domestic workers in California working in private households that would be impacted by AB 889 based on available data from the U.S. Census Bureau's American Community Survey. Specifically, the proposed legislation would impact an estimated 218,185 domestic workers in California, of whom 157,783 are employed by private households. The specific number of domestic workers impacted by each separate provision of the proposed legislation will vary depending upon hours worked, types of tasks/job classification, and other employment factors. This estimate excludes some individuals who work in private households but are self-employed or employed by third party agencies in non-private household industries (e.g. Services to Dwellings Industry and Child Day Care Services Industry (See Appendix A for methodology)). Of the 218,185 total domestic workers potentially impacted by the legislation, 42.2% are employed as maids and housekeeping cleaners, roughly one-third (34.8%) are employed as personal and home care aides, and 11.4% are employed as child care workers. Nationally, it is estimated that more than 90% of domestic workers are women, the majority are women of color, more than 40% are immigrants, and 22% are undocumented workers (DataCenter 2010, Passell 2005).

Across the United States, domestic workers have one of the lowest median wages of all occupations. In 2005, domestic workers made on average \$6.82-\$8.89 per hour depending upon the tasks performed. Recent surveys of domestic workers in New York and San Francisco Bay Area found that less than 20% earned a wage sufficient for all of their basic needs (e.g. food, housing, transportation, childcare). At the same time, more than half of NY and SF surveyed workers were primary income earners for their families and 72% also supported family members abroad. The majority of surveyed domestic workers do not have access to employer-based health insurance, which results in not being able to access medical care when needed or paying out-of-pocket for health care services. Most surveyed domestic workers also did not report receiving meal or rest breaks, paid sick days, or health and safety training.

Table A: Estimated Number of Domestic Workers in California that will be Impacted by AB 889		
Occupation	Total	Occupation as % of Industry*
Private Household Industry		
Maids & Housekeeping Cleaners	91,969	60.3%
Child Care Workers	24,918	16.3%
Personal & Home Care Aides	28,097	18.4%
Home Health Aides	2,231	1.5%
Other Related Occupations in Private Household Industry**	5,255	3.4%
Total Private Household Industry	157,783	100.0%
Available Data on Other Related Industries***		
Maids & Housekeeping Cleaners	n/a	n/a
Child Care Workers	n/a	n/a
Personal & Home Care Aides	47,851	n/a
Home Health Aides	17,864	n/a
Total Related Industries	65,715	n/a
Total Workers Working in Private Households		
Maids & Housekeeping Cleaners	91,969	42.2%
Child Care Workers	24,918	11.4%
Personal & Home Care Aides	75,948	34.8%
Home Health Aides	20,095	9.2%
Other Related Occupations in Private Household Industry	5,255	2.4%
Total Workers Impacted by AB 889	218,185	100%
<p>* Occupation as % of Industry = Shows distribution of occupations within selected industries.</p> <p>** Other related occupations in the Private Household Industry are individuals employed by private households to provide care services or support household maintenance and cleaning including cooks, grounds maintenance workers, and registered nurses. These workers would also be impacted by AB 889.</p> <p>*** Related industries include Home Health Care Services and Individual and Family Services industries. Data on maids and housekeeping cleaners and child care workers that are employed by third party agencies in other industries but work in private households is not available. See Appendix A for methodology.</p> <p>Data from the American Community Survey 2007-2009 3-Year Estimate Public Use Microdata Sample. Data for all California population and excludes individuals under 18, government workers, unpaid family members and unemployed individuals.</p>		

KEY FINDINGS

Many Domestic Workers Excluded from Occupational Health, Safety and Labor Protections

Most workers in the United States have a legally established right to minimum wage, overtime, meal and rest breaks, regular workplace inspections, access to medical care and disability payments when injured on the job, and the right to form unions. However, when the laws protecting workers' rights were first established, domestic workers and private household workplaces were explicitly excluded from the laws. Despite some modifications, many domestic workers remain largely excluded from labor protections afforded to other workers. Many domestic workers are employed informally, without written contracts or job descriptions, and paid in cash or personal check. Lack of formal employment increases likelihood of wage exploitation, job insecurity, and difficulty accessing state disability and social security programs. Lack of formal employment and legal protections also result in a lack of data about domestic work labor conditions.

Table B: Incidence Rates of Nonfatal Occupational Exposures, Injuries and Illnesses by Occupation*					
	Maids and Housekeeping Cleaners	Child Care Workers	Personal and Home Care Aides	Home Health Aides	General U.S. Private Worker Population**
Exposures/Events					
Struck by Object	24.3	7.3	8.8	4.7	14.3
Falls	67.8	27.1	29.6	20.8	15.6
Slips or trips without fall	14.9	7.6	6.0	3.9	3.6
Overexertion	57.2	4.2	56.8	39.7	25.0
Repetitive Motion	6.1	-	-	0.3	3.4
Exposure to harmful substance or environment	10.7	2.1	3.5	1.6	4.7
Transportation Accidents	2.9	4.9	5.9	7.9	4.6
Assaults, violent acts by person	1.1	12.3	17.6	8.6	1.7
Total assaults & violent acts	1.6	13.1	19.4	11.6	2.5
Injuries/Illnesses					
Sprains, Strains, Tears	112.5	43.3	90.2	49.0	41.6
Fractures	16.5	11.1	6.5	4.5	8.3
Bruises and Contusions	33.2	22.0	12.6	5.8	9.1
Chemical burns	2.3	-	0.6	-	0.5
Tendonitis	1.1	-	-	-	0.4
Multiple traumatic injuries and disorders	11.5	6.0	6.7	4.8	4.3
Back pain, hurt back only	12.2	7.0	6.3	6.5	3.6
Total soreness, pain	40.9	16.6	21.1	23.6	11.3
Total Non-Fatal Occupation Injury & Illness Incidence Rate	262.7	114.2	163.9	108.6	106.4
Estimated Number of CA Domestic Workers in the Occupation	91,969	24,918	75,948	20,095	
Estimated Number of Occupational Injuries and illnesses Experienced by CA Domestic Workers ***	2,416	2,85	1,245	218	Total = 4164
Data from the Bureau of Labor Statistics, 2009 Survey of Occupational Injuries and Illnesses (SOII). Tables R98 and R100.					
*Incidence rates reported are nonfatal occupational injuries and illnesses resulting in days away from work per 10,000 full-time workers. Rates are reported for the entire occupation, not just workers employed in private households, thus include individuals working for agencies and outside the home. However occupational exposures are anticipated to be similar.					
** General U.S. private worker population is defined as total private industries across the United States.					
*** Number calculated by multiplying occupation specific incidence rate per 10,000 workers by the occupation estimate.					
- = Data was not available.					

Domestic Workers Routinely Report Underpayment/Non-Payment of Wages & Other Labor Violations

Not being paid wages for hours worked and other violations of labor rights are routinely reported by domestic workers in California. In the Bay Area, 16% of surveyed domestic workers reported being not paid or paid with a bad check. In Los Angeles, 34.7% of surveyed domestic workers and 74.9% of child care workers reported a minimum wage violation in the previous work week. More than two-thirds of Bay Area domestic workers and over 90% of Los Angeles domestic workers working overtime reported not receiving overtime pay. Non-payment of wages may result in increased difficulty meeting basic health needs such as groceries, rent, transportation, and medical bills. Non-payment of wages may also cause financial and emotional stress and demands on the worker and their families.

Violations of other labor rights are also routinely reported, especially among domestic workers who live in their employer's homes. Twenty percent of surveyed Bay Area domestic workers reported being insulted or threatened, 9% had experienced violence and 9% report sexual harassment. Table B illustrates that personal and home care aides are more than ten times as likely and child care workers are more than seven times as likely to be assaulted by a person during work as the average worker.

Domestic Workers in California Experience Over 4000 Work-Related Injuries and Illnesses Annually

Compared to the general population, domestic workers face increased occupational hazards for musculoskeletal injury, asthma and dermatitis, sleep disturbances, exposure to infectious diseases, and work stress. As illustrated in Table B, maids and housekeepers are more than three times as likely to experience bruises and contusions, chemical burns and back pain as the general worker population. Child care workers are almost twice as likely to fall, slip or trip and personal and home care aides were more than twice as likely to overexert themselves or experience sprains, strains or tears on the job compared to the average worker population. Based on the incidence rates of total nonfatal occupational injuries and illnesses, California domestic workers experience an estimated 4164 occupational injuries and illnesses annually, of which more than one-third are musculoskeletal injuries.

Up to 620 Domestic Worker Illnesses and Injuries Would be Eligible for Workers' Compensation Benefits under the Proposed Legislative Change

AB 889 would eliminate the section in state workers' compensation law that excludes domestic (and other) workers who work less than 52 hours and earn less than \$100 in a ninety-day period for one employer. Domestic workers who work limited hours for multiple employers will benefit from this legislative change. We estimate that between 20 and 620 previously ineligible domestic workers would be eligible and able to utilize the workers' compensation system for work-related injuries each year if the law passes. The precise number will depend upon the number of currently ineligible workers and barriers to access and utilization of benefits.

Treatment of Occupational Injuries under Workers' Compensation System is Likely to Prevent Long-Term Disability and Reduce Job Turnover

Domestic workers utilizing workers' compensation because of the legislative change are likely to have more rapid and complete recovery, decreased long-term disability, and increased productivity and well being. In other occupations, research has found that workers who received treatment within the first ten days of injury were almost half as likely to suffer long term disability as those who had a twenty day or more delay. Untreated occupational injuries can increase turnover among experienced workers who seek alternative employment rather than continuing in the job that led to the injury; job turnover among workers providing health care supportive services or child care may negatively impact the quality, safety and continuity of care. Conversely, being able to recover from a work-related injury and return to work via workers' compensation benefits may decrease job turnover, leading to a more experienced and stable workforce and improving quality of care among care providers.

Sufficient Sleep Would Reduce Risk of Pre-Mature Death, Chronic Disease, & Depression for 24-Hr Caregivers

AB 889 would require employers to provide domestic workers that work 24 hour or longer shifts or that live in their employer's home with eight hours of uninterrupted sleep in adequate sleeping accommodations. Public health evidence suggests seven to eight hours of sleep is the optimal daily average needed for good health. Insufficient or irregular sleep increases risk of hypertension, diabetes, heart disease, obesity, depression, anxiety, and pre-mature mortality. Domestic workers who live in their employers' homes or work 24 hours or longer shifts and whose employers comply with the proposed sleep requirement will likely benefit by having sufficient time to rest and recover which will positively impact their physical and mental health. Care-recipients are also likely to benefit from providers' work hour limitations by receiving care from providers who are healthier and more alert and attentive to patients' needs.

Sleep Deprivation among Domestic Workers Creates Potentially Severe Health Risks for Care Recipients

Numerous research studies in diverse populations of caregivers consistently show a reduced number of hours of sleep increases rates of injury and accidents, decreases cognitive and motor performance, and decreases quality of care. Recent studies have found that medical residents working 24 hour shifts are up to 36% more likely to make medical errors and nurses working 12 hour shifts are two to three times as likely to report a motor vehicle accident following their shift compared to those who work shorter shifts. Fatigued domestic workers providing care may be more prone to mistakes and accidents, affecting not only their own health and safety but of those under their care as well.

If AB 889 Passes, Barriers to Worker Utilization of Laws Still Need to be Addressed

Barriers to utilization of the proposed protections by domestic workers, discussed further in Chapters 7 and 8, will likely include:

- Employee fear of retaliation, unemployment, or need for more income
- Employer and employee awareness and compliance
- Coordination of coverage by another care provider while domestic worker is sleeping
- Gender, racial, or economic dynamics inhibiting worker ability to confront non-compliant employers
- Limited oversight, data surveillance, and lack of enforcement

Improved Data on Occupational Health Outcomes of Domestic Workers Are Needed to Better Understand the Relationship Between Labor Law and Health in this Population

Workers in private households are regularly excluded from occupational health and safety regulations and surveillance systems. Census data may under-represent the number employed in this often underground and largely unregulated industry. Routine data collection on this population is needed to understand the working conditions of domestic workers and the impact of AB 889.

RECOMMENDATIONS

AB 889 is one component of larger efforts to improve employment conditions and workplace safety for vulnerable workers. These efforts may include legislative reform, regulation, enforcement, and education. Given the HIA analysis, the following general recommendations are offered to support protection and promotion of domestic worker health and well-being:

Policy-Makers and Regulatory Agencies

- Research the feasibility of expanding the scope of federal and state OSHA workplace standards to include homes as workplaces¹
- Include sufficient numbers of domestic workers in Bureau of Labor Statistics surveys and analysis to ensure sufficient sample sizes for data analysis
- Re-examine CA EDD data for private households and if appropriate, adjust methodology for underreporting to more accurately reflect private household industry employment data
- Improve visibility of private household workers compensation coverage on state labor websites
- Include cultural, linguistic competency and ease of access as part of workers' compensation provider quality standards
- Assess and enforce appropriate penalties for employer retaliation against workers who file workers' compensation claims

Insurance Companies

- Educate insured homeowners and renters about the use of workers' compensation coverage included in policies
- Include culturally appropriate community providers on workers' compensation provider panels

Organizations Working with Domestic Workers and their Employers

- Educate employers about the legislation, how workers' compensation coverage can be included in homeowner and renters' insurance, the health benefits of sleep and rest breaks for workers and care-recipients, and how workers compensation can help provide much needed medical care to workers, maintain continuity of service and care, and safeguard against lawsuits in the event of a workplace injury
- Support the organization and creation of domestic worker collectives that educate and train their members on their legal rights, and how to protect health and safety on the job
- Explore the creation of a business/program to provide temporary shift coverage for domestic workers (e.g. to cover workers while sleeping, recovering from injury, while on vacation, etc)

Service Providers

- If passed, educate service providers about the legislation, occupational vulnerabilities of domestic workers, and ways to educate domestic worker patients through grand rounds lectures and continuing education courses
- Work with safety net providers to improve their capacity to treat occupational conditions²
- Educate medical providers about appropriate documentation for work-related injuries and illnesses
- Work with insurers to include safety net providers on workers' compensation panels

¹ Current exclusion of homes from OSHA standards is a regulatory matter and could be remedied administratively without the passage of federal legislation (Hiller 2007).

² An example of an innovative program that has strengthened the ability of a safety net provider to provide occupational health services and to be reimbursed for WC medical care is the Watsonville-based Workers' Compensation Enforcement Collaborative. See <http://www.watsonvillelawcenter.org> for more information.

Researchers

- Research the demographics, economic status, and occupational health of domestic workers, particularly those providing live-in caregiving or 24-hour care
- Analyze the impact of increased labor protections, especially paid sick leave, on the health and well-being of clients including children, elderly and disabled adults
- Analyze the economic impact of the proposed labor protections including impact on public safety net, insurance rates, acquisition of temporary coverage, and job performance
- Evaluate how the projected growth in demand for home health care will impact the domestic work industry and associated labor standards
- Document the relationship between immigration enforcement and enforcement of labor protections
- Document the impact of new regulations on the structure and working conditions of the industry, e.g. whether private households turn to agencies and worker cooperatives or other groups to obtain workers, and impact on underground economy
- Analyze the impact of In-Home Supportive Services (IHSS) and other government funding cuts upon demand for non-profit and for-profit domestic work organizations offering home health care, employment registries, and private family and welfare agencies
- If passed, analyze the impact of the legislation upon domestic workers and care recipients' health and well-being, and compare findings to impact of New York legislation

I INTRODUCTION

The nature of work along with its remuneration, benefits, status, and associated working conditions has powerful effects on human health and health disparities. Levels of income and related wealth accumulation, job security and stability, the physical and psychosocial organization of work, and access to benefits such as paid vacation, sick days, family leave, and flexible work schedules, have all been associated with individual, and often community, health outcomes (Benach 2008, CBHA 2008, Marmot 2006).

Individuals hired to provide child care, clean, cook, and do other work within the home have been largely excluded de jure or de facto from U.S. national and state labor laws including laws necessary for health and safety. According to the International Labor Organization, these workers, known as “domestic workers” are “overworked, underpaid, and unprotected” because their work occurs in the home (ILO-TRAVAIL 2010). Lack of legal protections and labor standards, combined with isolated workplaces, gender and racial discrimination, language barriers, and other social and economic factors all contribute to the vulnerability of domestic workers to physical and economic exploitation and abuse.

Recent initiatives in the U.S. and elsewhere have aimed to increase domestic worker inclusion under labor protections. In 2010, the New York state legislature passed the first state-level Domestic Worker Bill of Rights in the United States and in Geneva, Switzerland, 61 governments voted to establish an International Convention, a set of binding international standards to protect and empower domestic workers, at the International Labour Conference.

On February 18, 2011, Assemblymembers Tom Ammiano and Manuel Perez introduced the Domestic Work Employee Equality, Fairness, and Dignity Act, or Assembly Bill 889 (AB 889), into the California State Assembly. Similar to the New York bill, the proposed legislation would increase labor protections for domestic workers. AB 889 includes requirements affirming domestic workers' right to overtime pay, meal and rest breaks, recordkeeping requirements, reporting time pay, annual cost of living pay increases, eight hours of uninterrupted sleep under adequate conditions, right to cook one's own food, paid vacations, paid sick leave, 21-day notice before employment termination, and coverage by state Workers' Compensation and Cal/OSHA laws.

In 2010, the San Francisco Department of Public Health (SFDPH) conducted a Health Impact Assessment (HIA) on two of the ten provisions of AB 889, specifically, the provision guaranteeing eight hours of uninterrupted sleep to 24-hour and live-in caregivers, and the provision that ensures access to workers' compensation benefits.

This HIA mobilizes and synthesizes evidence from diverse sources to make a judgment of the future health impacts of each of the two AB 889 provisions. Evidence utilized in this HIA comes from extensive literature reviews and routinely collected statistics about health and labor conditions. New qualitative research was also conducted to provide evidence for this HIA. Sections 2, 3, 4, and 5 of this report provide background for the HIA including a summary of the proposed legislation, a description of the HIA process, the multiple conceptual pathways in which AB 889 impacts health, and a review of the methods used to complete this HIA. Section 6 summarizes what is known about domestic workers' demographics, health, working conditions and vulnerabilities. Sections 7 and 8 present the summary of evidence related to the conceptual pathways, and the assessment of potential impacts of eight hours of uninterrupted sleep and workers' compensation coverage of AB 889, respectively. Sections 9 and 10 summarize the recommendations and conclusion of the analyses as well as identifying additional research needed.

2 BACKGROUND

2.1 Defining Domestic Work

The definition of domestic work, and whether it is considered “work” that is covered by labor standards afforded other workers, has long been a contentious issue in the United States and across the globe. Although widely acknowledged that the home is the work environment for domestic workers, there currently is no universally accepted definition of domestic work. In 1951, a meeting of experts defined a domestic worker as “[a] wage-earner working in a [private] household, under whatever method and period of remuneration, who may be employed by one or by several employers who receive no pecuniary gain from this work” (D’Souza 2010).³

In the New York Domestic Worker Bill of Rights, a domestic worker is defined as “a person employed in a home or residence for the purpose of caring for a child, serving as a companion to a sick, convalescing or elderly person, housekeeping, or for any other domestic service purpose” (DWU 2006). As noted by the International Labor Organization, key characteristics of domestic work include:

- the work site is a private home
- the work performed is of a domestic nature: cleaning, cooking, laundry, child care and personal care and may include other home-based tasks such as gardening, driving or patrolling;
- the work is carried out under the authority, direction and supervision of the householder;
- the worker is remunerated in cash and/or in kind, and
- the employer derives no pecuniary gain from the work performed (D’Souza 2010).

Section 5.1 provides the operational definition of domestic work, as defined in AB 889, used in this HIA.

2.2 Exclusion of Domestic Workers from Labor Protections

In the 1930s, the United States Congress and President enacted a number of major labor and economic programs known as the New Deal to provide relief for the poor and unemployed, reform the financial system and stimulate post-Depression economic recovery. Legislation such as the 1938 Fair Labor Standards Act (which established a national minimum wage, overtime pay for certain jobs and prohibited most forms of child labor), the 1935 National Labor Relations Act (which guaranteed certain workers the right to form labor unions, strike, and engage in collective bargaining), and the 1935 Social Security Act (which established disability and unemployment insurance and health insurance programs for the aged, disabled and children) significantly changed the work environment and social safety net for many workers in the United States.

However, not all workers have benefited from these reforms. Some members of Congress would only support the New Deal legislation if domestic and agricultural workers (most of whom were African-American at the time) were specifically excluded from labor protections (Boris 2008, DWU 2006, Hiller 2009). Subsequent legislation restored some labor protections to these excluded groups, but significant gaps remain.⁴

³ By definition, domestic work is defined as work by which the “employer derives no pecuniary gain” therefore differentiating domestic work from other forms of more “productive” work in labor market terms. As a result, paid domestic work may be undervalued as paid employment. In addition, domestic workers are often seen by their employers as “part of the family” rather than as employees (Dresser 2008, Browne 2003, Magagnini 2010). As noted by Domestic Workers United, one of the challenges facing domestic workers is for their work “to be recognized as ‘real work.’” Its historical roots in slavery, its association with women’s unpaid household labor, its largely immigrant and women of color workforce and exclusion from legal protections reinforce the notion that domestic work is less valuable than work outside of the home.” (DWU 2006).

⁴ Some parallels may be drawn between domestic and agricultural work: both populations were historically excluded from the FLSA and NLRA, both industries are entry jobs for many migrant workers, and in California, the majority of domestic and agricultural work are done today by migrants from Latin America. However, since the 1960s, increased labor protections have been instituted for farmworkers, in large part due to major organizing efforts within the industry. Farmwork continues to be an extremely dangerous occupation, accounting for 13% of all workplace fatalities in the United States. (Wallace 2007, Holley 2000)

Table 1 summarizes how domestic workers are excluded from select state and federal labor standards. Exclusions depend upon the type of work, hours worked, the size and nature of the workplace and the relationship with the employer. Where domestic workers are protected by law, compliance may be variable. Surveys of domestic workers show poor compliance with labor laws such as minimum wage and overtime (DWU 2006, MUA 2007). As described in Sections 6, 7, and 8, informal employment arrangements, social and economic factors, and enforcement agencies' reluctance to enter private homes all impact the rates of compliance with existing legal mandates.

Table 1: Domestic Worker Exclusions from State and Federal Labor Standards	
Minimum wage, overtime, and meal/rest breaks	The federal Fair Labor Standards Act (FLSA) and the California Labor Code both set standards for minimum hourly wages, overtime pay and meal/rest breaks. The FLSA exempts “casual babysitters and companions” from minimum wage requirements and overtime, and exempts live-in domestic workers from overtime requirements. ⁵ The California Wage Order covers all domestic workers in its minimum wage requirements. ⁶ In California, domestic workers who are “personal attendants” are exempt from overtime requirements, meal and rest breaks and other rights under the Wage Order. ⁷ Domestic workers who are not personal attendants in California are entitled to overtime pay. Live-in domestic workers, who are not personal attendants, are subject to more limited overtime rules. (CA Wage Order 15-2001 § 3(A))
Workers' compensation	Workers' compensation (WC) provides medical care and disability payments for workers injured on the job. WC is administered at the state level and requirements for domestic worker coverage vary by state. Most states do not require WC insurance for domestic workers, and thirteen states do not require very small employers to purchase coverage (Sengupta 2007). California WC law requires insurance coverage purchase by all employers, including employers of domestic workers if they employ a worker more than 52 hours or pay them more than \$100 in a 90-day period immediately preceding the injury. (CA Labor Code § 3351 & 3352(h)). In 2003, California passed legislation explicitly extending WC benefits to undocumented workers (Gonzales 2007). Domestic workers who do not meet the threshold requirement are excluded from the WC requirement.
Occupational Health and Safety Act (OSHA)	Federal Occupational Health and Safety Act (OSHA) regulations exclude domestic workers by excluding homes as workplaces from OSHA standards. ⁸ The state of California implements OSHA through the Cal/OSHA division of the Department of Industrial Relations. ⁹ The California Labor Code excludes household domestic service as “employment” covered by Cal/OSHA. ¹⁰

⁵ 29 U.S.C. §§ 213(a)(15) & (b)(21); 29 CFR §552.100. In 2001, the U.S. Department of Labor first acknowledged that the Companionship Services Exemption was outdated because “workers who today provide in-home care to individuals needing assistance with activities of daily living are performing types of duties and working in situations that were not envisioned when the companionship services regulations were promulgated”(Smith 2009). Amending the FLSA companionship services regulations is part of the current DOL regulatory agenda; however, the federal government has not yet acted to include companions under FLSA (U.S. DOL 2010). California and other states could help facilitate that federal action by explicitly granting protections to these excluded workers. In 2001, California amended Wage Order 15 to include personal attendants in the minimum wage provision, but personal attendants are still excluded from most other California Wage Order protections including overtime compensation and meal/rest breaks (CA IWC Wage Order 15-2001, §1(B)).

⁶ CA IWC Wage Order 15-2001 §4.

⁷ CA IWC Wage Order 15-2001, §1(B). Under California law, “personal attendants” are defined as “any person employed by a private householder or by any third party employer recognized in the health care industry to work in a private household, to supervise, feed or dress a child or person who by reason of advanced age, physical disability, or mental deficiency needs supervision” and who does not spend more than 20% of their time on general household work.

⁸ This exclusion is regulatory rather than an explicit part of the legislation, and could be remedied administratively, without the passage of federal legislation. See Hiller 2009.

⁹ See <http://www.dir.ca.gov/dosh/>

¹⁰ CA Labor Code § 6303(B).

State Disability Insurance (SDI)	In California, State Disability Insurance (SDI) provides cash benefits in the case of non-work-related illness or injury leading to work absence of more than eight days. To receive temporary disability benefits, a domestic worker must have earned at least \$300 from which SDI deductions were withheld during a previous period, and must have been under the care of a doctor during the first eight days after disability began and remain under care and treatment. ¹¹
Paid Sick Days	There is no legal obligation for employers to provide paid sick days for any workers (including domestic workers), either nationally or in California, except in San Francisco. San Francisco's 2007 Ordinance extends mandatory paid sick leave to domestic workers within city limits. ¹²
Discrimination/ Harassment	California law protects workers against workplace discrimination and harassment on the basis of characteristics such as race, gender, and national origin. For discrimination claims, the law applies to workplaces with five or more employees, which would exclude most domestic workers (CA Government Code §12926). However, for harassment claims, California law applies to workplaces with one employee and thus domestic workers would be covered. (CA Government Code §12940(j) (4) (A)). Federal law protects workers only in workplaces with fifteen or more employees. (42 U.S.C. §2000e (b)).
Sleep	There is no federal or state provision guaranteeing sleep for workers, however the FLSA does provide guidance regarding sleep standards for 24-hour shift workers. Specifically, the FLSA sleep time provision is primarily structured to establish legal standards for employers regarding when sleep, meal time and other free time may be excluded from hours worked for workers on 24-hour shifts and for live-in domestic workers. (29 C.F.R. § 552.10)
Record-keeping requirements	California law (Labor Code 226) requires employers to provide itemized wage statements showing gross and net wages earned, hours worked, deductions, and hourly rates, and to maintain employee records. This law specifically excludes domestic workers. However, the California Wage Order 15-2001 § 7 does have record-keeping requirements for employers of domestic workers who are not personal attendants.
Union organizing	The National Labor Relations Act (NLRA) establishes the right of workers to organize a union; however, the act specifically excludes domestic workers (DWU 2006). In California, domestic workers have the right to organize a union and other concerted activity for mutual aid or protection under Labor Code §923.

2.3 Legislative History

In May 2006, California State Assemblywoman Montañez introduced the “Domestic Worker Rights Bill” which proposed to increase legal protections for overtime compensation for personal attendants and provide liquidated damages to any domestic worker who suffered unpaid wages. The bill successfully passed both houses of California’s State legislature, but was ultimately vetoed by Governor Arnold Schwarzenegger.

Over the past five years, a number of national and international efforts have sought to create parity in labor protections for domestic work. In 2010, the New York State Legislature passed the Domestic Workers Bill of Rights (A1470B/S231IE), becoming the first state in the nation to guarantee overtime pay, a minimum of one day off every seven days, three days of paid leave per year, and protections against sexual harassment and racial discrimination for domestic workers. The bill also mandated a feasibility study be conducted to explore domestic worker unionizing.

¹¹ See http://www.edd.ca.gov/disability/disability_insurance.htm

¹² See <http://www.sfgsa.org/index.aspx?page=419>

That same year, over sixty governments in the International Labor Organization voted to create an International Convention on Domestic Work to protect the rights of domestic workers. This convention will be introduced and debated in Geneva in June 2011. Other legislative, regulatory and employer organizing efforts are happening around the United States and internationally.¹³

In April 2010 in California, Assemblymembers Manuel Perez (D-Coachella) and Tom Ammiano (D-San Francisco) introduced Assembly Concurrent Resolution (ACR) 163 to encourage greater protections in federal and state law for domestic workers. ACR 163 passed the State Assembly in June 2010, the State Senate in August 2010 and was chaptered in September 2010 (Box 1).

Box 1: Excerpts from California Assembly Concurrent Resolution 163

"... coverage of domestic workers under state and federal labor law should be an expression of respect for their dignity and equality and the importance of the work they perform, and a rejection of antiquated and long-discredited stereotypes about domestic work... the Legislature finds that domestic workers are entitled to industry-specific protections and labor standards that eliminate discriminatory provisions in the labor laws and guarantee domestic workers basic workplace rights to ensure that domestic workers are treated with the respect and dignity they so richly deserve"

Chaptered September 7, 2010. Full text of the resolution is available at: http://www.leginfo.ca.gov/cgi-bin/postquery?bill_number=acr_163&sess=CUR&house=A&search_type=bill_update

2.4 California Domestic Work Employee Equality, Fairness, and Dignity Act of 2011

The subject of this HIA is California State Assembly Bill 889, the Domestic Work Employee Equality, Fairness, and Dignity Act (AB 889), which was introduced into the state Assembly on February 18, 2011 by Assemblymembers Tom Ammiano (D-San Francisco) and V. Manuel Perez (D-Coachella).¹⁴ The proposed AB 889 would establish a set of industry-specific protections and labor standards for domestic workers which are briefly described in Table 2. The full text of the bill outlines the parties responsible for administering and enforcing the requirements of each article of AB 889. Full text of the legislation as introduced is available at: http://www.leginfo.ca.gov/cgi-bin/postquery?bill_number=ab_889&sess=CUR&house=B&author=ammiano

¹³ See <http://www.nationaldomesticworkeralliance.org/> for information about efforts to create regulatory reforms at the U.S. Department of Labor and pass an international convention on domestic work at the International Labour Organization.

¹⁴ This HIA was initiated in summer 2010 and completed in March 2011, just after the bill was introduced into the CA Assembly. Some of the language of the legislation used to conduct the HIA analysis differs from that finally introduced to the Assembly. New provisions include those for meal and rest breaks and recordkeeping requirements, an increase in the proposed sleep requirements from five to eight hours, and modification of who is covered by the legislation. The HIA attempts to be consistent with the current version of the legislative proposal.

Table 2: Key Elements of the 2011 California Domestic Worker Equality, Fairness, and Dignity Act

Element	Existing Regulations	Proposed AB 889 Protections	Penalty for Violation
Overtime Rate	See Table 1. <i>Personal Attendants are Excluded from Overtime. Live-In Domestic Workers have limited overtime rules.</i>	Workers entitled to 1.5 times the regular rate of pay for more than 8 hrs in one workday or more than 40 hrs in any workweek, or more than 8 hrs on the 7th consecutive day of work in a workweek. Double the regular rate of pay for more than 12 hrs in any workday and for work over 8 hours on the 7 th consecutive day in a workweek.	See note below
Recording Hours & Wages	See Table 1. <i>Current conflict in the law re: record keeping requirements.</i>	CA Labor Code § 226 amended to eliminate current exclusion of domestic workers. Employers required to provide regular itemized wage statements showing gross and net wages earned, hours worked, deductions, and hourly rates, and to maintain employee records. Employer must provide right to inspect or copy employee records, and must respond to request for records within 21 days of request.	Entitled to recover the greater of [all actual damages or \$50/initial violation + \$100/each violation in subsequent pay period], not exceeding \$4000, + costs and reasonable attorney's fees. Failure to inspect or copy records = fine of \$750.
Meal and Rest Breaks	No existing regulatory protection for Personal Attendants	Workers entitled to 30-minute meal break when working more than 5 hours and two 30-minute meal breaks when working more than 10 hours. Workers and employers may decide to mutually forego meal breaks. Worker also entitled to 10 minutes of rest every 4 hours.	One hour of pay at regular compensation rate for missed meal and missed rest breaks.
Reporting Time Pay	No existing regulatory requirement for Personal Attendants.	All covered workers including personal attendants who show up but cannot work their usual scheduled workday, must be paid 1/2 the usual scheduled hours (up to 4 hrs) or 2 hours, whichever is greater. Does not apply to paid standby status workers.	See note below
Annual Cost of Living Pay Increases	No existing law or regulatory requirement for workers.	Domestic workers entitled to wage increase each year on the same day of the employee's original date of hire in an amount corresponding to the prior year's increase, if any, in the Consumer Price Index for urban wage earners and clerical workers as computed by CA DIR.	Entitled to recover liquidated damages equal to the wages unlawfully unpaid + interest. Discretion to award liquidated damages.
Eight Hours Uninterrupted Sleep Under Adequate Conditions	See Table 1. <i>FLSA establishes standards for live-in domestic workers and 24-hr shift workers.</i>	Employers must provide a minimum of 8 consecutive hours of uninterrupted sleep to employees working 24 or more consecutive hours and can agree in writing with employee to exclude the sleep time from hours worked. Live-in domestic workers shall have at least 12 consecutive hrs free of duty each 24-hr workday, including 8 hrs for uninterrupted sleep. Employers must also provide accommodations that are adequate, decent, and sanitary and not shared bed.	\$50/day for every day not provide 8 hours sleep

Table 2: Key Elements of the 2011 California Domestic Worker Equality, Fairness, and Dignity Act

Element	Existing Regulations	Proposed AB 889 Protections	Penalty for Violation
Right to Cook Own Food	No existing law or regulatory protection for domestic workers.	Employers must allow employees working 5 or more hours to choose the food they eat and to prepare their own meals. Employees shall have the right to make use of the job site's kitchen facilities and kitchen appliances at no charge.	\$50/day for every day violate section
Paid Vacations	No existing law or regulatory requirement for workers.	Starting with date of hire, workers are entitled to accrue one hr of vacation benefits for every 30 hrs worked. After 1 st year of service, worker can use 40 hrs/5 days of paid vacation in each calendar year; after 5 th year, 80 hrs/10 days; after 10 th year, 120 hrs/15 days. Unused accrued vacation carries over year to year. Employees are not required to find replacement when taking vacation time and must be paid for unused vacation time when employment ends. Upon request, employer must provide annual statement of accrued vacation.	Entitled to amount of any paid vacation unlawfully withheld + \$250 penalty
Paid Sick Leave (PSL)	See Table 1. No existing law or regulatory requirements, except in San Francisco.	Workers entitled to accrue one hour of sick leave for every 30 hrs worked and begin to use PSL on 90 th day of employment. Unused accrued sick day carries over year to year but employer may limit use of PSL to 40 hr/5 days per calendar year. Employees are not required to find a replacement when taking sick leave, but when possible, should give advance notice. Sick leave may be used for illness, injury, and the receipt of medical care, treatment or diagnosis both of the worker and for close family members. Employers not required to pay for unused PSL time when employment ends.	Amount of any sick days unlawfully withheld + Penalty to be paid (Penalty is whichever is greater: Dollar amount of PSL withheld multiplied by three or \$250)
21-Day Notice of Termination	No existing law or regulatory requirement for domestic workers. Notification requirements for mass layoffs or plant closings for companies with 100+ employees	Workers are entitled to written notice of termination 21 days before the final day of employment, except when termination is because employee causes intentional physical or psychological harm to person cared for or intentional physical damage to property.	Entitled to wages for period of violation, up to maximum 21 days
Workers' Compensation Coverage	See Table 1. Domestic workers who work <52 hours or earned <\$100 not covered	Labor Codes §§3351, 3352, 3551, 3708, 3715 amended to eliminate exclusions of domestic workers from eligibility and access to workers' compensation. Labor Code §§ 3354 and 4156 repealed.	See proposed legislation for explanation of penalty
Cal/OSHA Coverage	See Table 1. Domestic workers excluded from Cal/OSHA regulations.	Labor Codes §§ 6303 and 6314 amended to eliminate exclusion of household domestic service and to establish procedures for the investigation/inspection of violations	
<p>Note: §1453 provide general clauses allowing enforcement including the right to bring a civil action or Labor Commissioner claim. Domestic worker may also be entitled to recover an award of reasonable attorney fees and costs including expert witness fees. Any action to collect a civil penalty must commence within three years of the violation.</p>			

3 HIA PROCESS SUMMARY

Health Impact Assessment, or “HIA”, is a process to inform decision-makers about the health impacts of proposed decisions, including those related to legislation, regulations, programs, plans, and projects in diverse policy sectors. The World Health Organization defines HIA as “a combination of procedures, methods, and tools by which a policy or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population” (WHO 1999). The typical HIA involves six phases: screening, scoping, assessment, recommendations/mitigations, communication/reporting, and monitoring.¹⁵ These steps are described in Box 2.

Box 2: Steps of the HIA Process	
Screening	Determine need for and value of a HIA
Scoping	Determine which health impacts to evaluate, methods for analysis, and work plan to complete the assessment
Assessment	Judge magnitude and likelihood of potential health impacts
Recommendations and Mitigations	Identify and recommend health protective design and mitigation strategies
Reporting	Communicate results to stakeholders and decision-makers
Monitoring	Track effects of HIA and decision on health and evaluate HIA from start to finish

HIAs in the United States have been applied to policies and projects in diverse policy sectors including land-use, redevelopment, transportation, education, energy, food, prisons, and climate change. Over the past ten years, there have been eight HIAs completed on labor and workplace-related policies in the United States: two HIAs on living and minimum wage standards (Katz 2001, Cole 2005), and six on paid sick leave (HIP 2009, Bhatia 2008).¹⁶

In 2010, the North American HIA Practice Standards Working Group updated practice standards for HIA (North American HIA PSWG 2010). These standards recognize that HIAs may use a diverse range of methods and tools; must analyze the distribution of impacts on vulnerable populations; should seek to engage a diverse group of stakeholders impacted by the decision and health experts; and should draw upon diverse sources of knowledge including lay and professional experience and expertise. This HIA endeavored to adhere to these standards.

¹⁵ For additional background, see the California Department of Public Health’s Guide for HIA Practice. Accessed on January 24, 2011: <http://www.cdph.ca.gov/pubsforms/Guidelines/Documents/HIA%20Guide%20FINAL%2010-19-10.pdf>

¹⁶ For HIA reports and fact sheets on proposed paid sick leave legislation at the federal level and in California, Maine, Massachusetts, Milwaukee, WI, and New Hampshire, please visit Human Impact Partners’ Paid Sick Days overview: <http://www.humanimpact.org/past-projects>

4 SCREENING: THE DECISION TO CONDUCT A HIA ON AB 889

The first step in Health Impact Assessment is the establishment of the value and feasibility of a HIA for a particular decision-making context. This step is called screening and is generally informed by the following related questions:

1. Is the proposal associated with potentially significant impacts on health or health disparities?
2. Is it feasible to conduct a relevant and timely analysis of the health impacts of the proposal?
3. Would the information be new or useful in the decision-making process?

4.1 Potentially Significant Health Impacts

Due to their gender, income, class, ethnicity, educational attainment, languages spoken, and immigration status, domestic workers are a population vulnerable to the health impacts of adverse labor conditions. This vulnerability is further compounded by their specific conditions of employment.

Many domestic workers in California are explicitly excluded from key labor laws that protect the health of included populations. For example, Cal/OSHA excludes domestic worker service from state occupational safety and health laws. Lack of coverage limits accountability and oversight for healthy workplaces, which can increase risk of musculoskeletal disorders, asthma and respiratory problems, skin diseases, injury and stress/anxiety. Lack of a requirement related to minimum hours of uninterrupted sleep can result in physically and emotionally exhausted workers who are more vulnerable to infection, more likely to have an accident on the job, and more likely to have decreased concentration and cognitive performance. Furthermore, lack of sleep impacts the health of clients/patients as well as that of the larger community.

Each of the AB 889 provisions is an opportunity to change the work environment or employer/worker relations, which open opportunities to address worker health. Eliminating the exclusions and increasing worker protections could increase opportunities to access medical care when needed, decrease the spread of communicable diseases, decrease the risk of preventable accidents, injuries, or long-term disability, and increase economic stability. For example, eliminating the current exclusions from the state workers' compensation laws related to the number of hours and days worked for an employer may help domestic workers who work for multiple employers access medical care and paid recovery time when injured on the job. The provision of paid sick leave could help enable primary and preventative care for a worker or dependent family members. The provision of overtime and reporting time pay increases worker income, improving financial stability.

As discussed in the subsequent pages, although domestic workers may still face barriers to accessing their rights or lack of enforcement of worker protections, changing the laws to eliminate exclusions and increase protections creates a significant opportunity to change the work environment and employer relations.

Therefore, AB 889 has a significant potential to affect the health of domestic workers and their clients. A HIA will document the breadth, magnitude, and certainty of potential health benefits associated with policies established in AB 889.

4.2 Feasibility

A limited HIA, primarily utilizing available published research and statistics, is feasible within the timeline of the decision-making process for the bill. It may be possible to conduct limited qualitative research including focus groups and stakeholder interviews. Given available resources, it will not be possible to conduct epidemiological analyses using available health research datasets, to conduct new surveys of domestic workers and their employers, nor to analyze all AB 889 provisions.

4.3 Value of Information

Legislative sponsors of Assembly Concurrent Resolution (ACR) 163, including Assemblymembers Tom Ammiano (D-San Francisco) and Manuel Perez (D-Coachella), and stakeholders involved in the introduction of ACR 163 and AB 889, indicated that information produced through a HIA would be valuable to communicating the benefits of the law. The state coalition of domestic workers also expressed interest in using the findings to identify opportunities for more health-protective language in the 2011 legislation, for example, relating to the minimum hours of sleep needed for good health.

In addition to informing legislators and stakeholders directly involved in AB 889, the HIA holds the opportunity to inform other related regulatory decision-making processes as well. The state Departments of Occupational Safety and Health (Cal/OSHA) and Industrial Relations (DIR) might be able to use health analyses in consideration of administrative actions related to labor rules and enforcement policies.

Finally, this HIA might inform related efforts to protect domestic workers in other jurisdictions and other contexts as well as at larger scales. Specifically, the National Domestic Worker Alliance (NDWA) is anticipating that domestic worker bills of rights, similar to the New York and California campaigns, will be introduced in other states in the coming years. Similar to how the California Paid Sick Days HIA was replicated in other states, this HIA methodology could potentially be replicated to inform other states' decision-making as well. At the same time, NDWA is working at the national level to advance federal domestic worker legislation and policy change. AB 889 HIA analysis may help inform Department of Labor decisions regarding regulatory and administrative reforms to protect domestic workers. Additionally, NDWA is launching a national survey of domestic workers in 2011 and the AB 889 HIA findings could help inform survey question formation or analysis.¹⁷

¹⁷ Additional information about NDWA 's state and national efforts is available at: <http://www.nationaldomesticworkeralliance.org/>

5 SCOPING: POTENTIAL HEALTH IMPACTS OF THE PROPOSED LEGISLATION

The second step of a HIA—called scoping—involves the development of a work plan and timeline for conducting the HIA. This work plan begins with defining the population included in the HIA, followed by identification and prioritization of evidence and research questions to support health impact judgments. Scoping also considers who conducts the analysis, who oversees and reviews the research, what data, methods and tools are used, what demographic, geographic and temporal units of analysis will be used, and which stakeholders are engaged. Finally, the work plan also establishes the anticipated timeline for assessment, plan for public review, and consideration of decision alternatives.

5.1 Affected Population

AB 889 defines domestic work as follows:

"Domestic work" means services related to the care of persons in private households or maintenance of private households or their premises. Said occupations providing domestic work shall include but not be limited to the following: child care providers, caregivers of sick, convalescing, or elderly persons, house cleaners, housekeepers, maids and other household occupations.

"Domestic work employee" includes all of the following persons:

(A) An individual who performs domestic work.

(B) A "live-in domestic work employee" who performs domestic work and who lives in the establishment where he or she works.

(C) A "personal attendant" who performs domestic work-related to the supervision, feeding, or dressing of a child or other person who, by reason of advanced age, physical disability, or mental deficiency, needs supervision. A personal attendant includes babysitters. The status of "personal attendant" shall apply when no significant amount of work other than the foregoing is required.

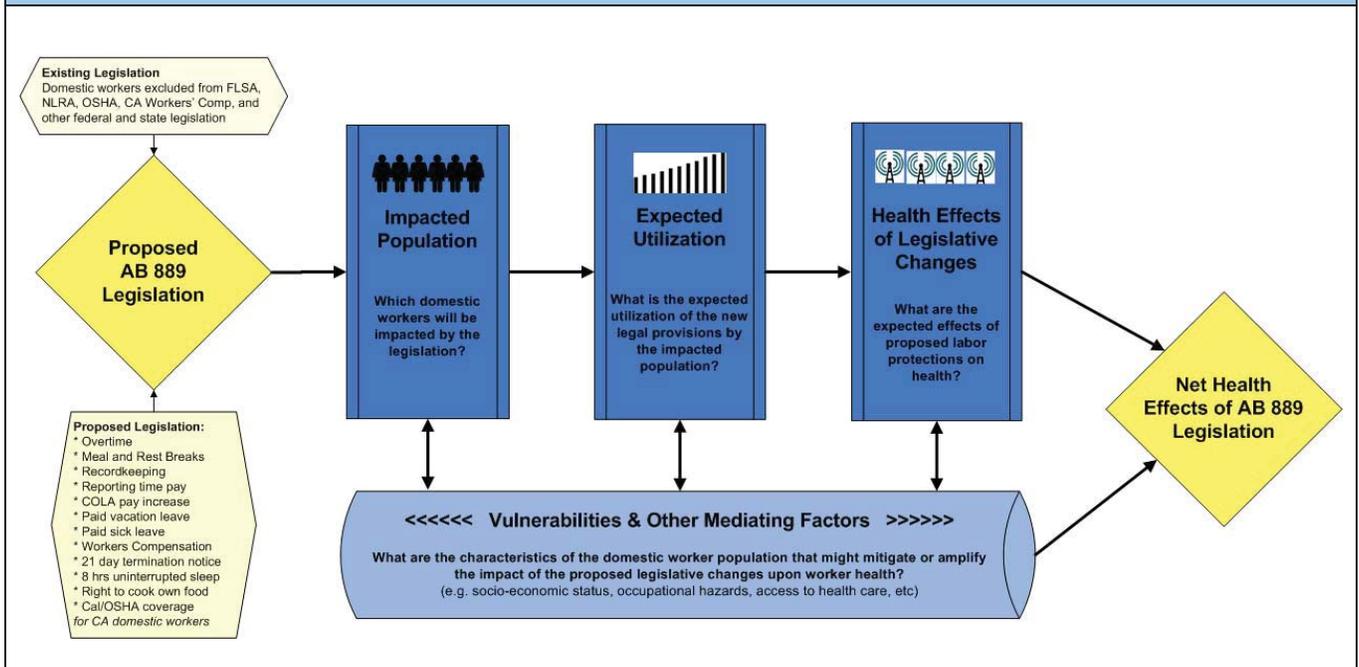
"Domestic work employee" does not include persons who perform services through the In-Home Supportive Services program; any person who is the parent, grandparent, spouse, child or legally adopted child of the domestic work employer; nor any person under the age of 18 who is employed as a babysitter for a minor child of the domestic work employer.

Given this HIA is an assessment of provisions in AB 889, its focus is on privately employed domestic workers who work as in-home nannies, au pairs, personal attendants and caregivers for adult clients, maids, housekeepers, and housecleaners in private homes. As written, the bill does cover domestic workers hired by a "third-party employer, temporary service, staffing agency or similar agency that employs or exercises control over the wages, hours, or working conditions of a domestic work employer." This does not include care providers who are hired to work in environments such as group homes, nursing homes, hospitals, hotels or other institutions which are not considered private homes. This also does not include In-Home Supportive Services workers who work in private homes but are employed by the state of California to provide supportive services.

5.2 Development of an Overarching Logic Model of Proposed Impacts

The HIA team developed an overarching logic model to understand how the proposed AB 889 legislation might impact the health of domestic workers in California. Figure 1 illustrates the logic model created.

Figure 1: Logic Model of Proposed Impacts of AB 889 Legislation



The HIA team theorized that the net health impacts of the legislation are functions of the size and characteristics of the impacted domestic worker population, factors impacting utilization of those protections, the effect of the labor protections upon individual and population health, and the socio-economic, occupational, and other vulnerabilities and characteristics of workers which would impact the other three elements. This logic model helps to focus research questions needed to predict the health impacts of each of the proposed AB 889 articles.

The first factor is how many domestic workers would be impacted by the legislation. Calculation of this number requires both an understanding of the total number of individuals employed as domestic workers and how their job classification, hours worked, place or length of employment, etc. impacts whether they will be covered by the legislation. For example, currently all domestic workers, except those classified as "personal attendants," are covered by meal and rest break laws in California (NELP 2009). Knowing the classification of workers impacts the calculation of the population affected.

The second factor is the utilization or compliance with the proposed labor protections. For example, although including domestic workers in Cal/OSHA laws may increase the opportunities to hold employers legally accountable for not providing a safe workplace, there may be barriers to ensuring safe workplaces for domestic workers, such as lack of training and education of workers, lack of enforcement by the state agency, and challenges to the creation of safe workplaces within home environments. Left unmitigated, these barriers can potentially reduce the effectiveness or net impact of the proposed legislation upon domestic worker health.

The third factor is the health value and benefits of the legal protections. Because most domestic workers do not currently have access to the proposed legal protections, it is not possible to compare the impact of the protections within the population; however, the HIA team could consider the impacts of the legal protections for other populations of workers. This analysis can be done by reviewing medical, public health, and occupational health literature for the impact of specific labor protections. And where possible, the team

may be able to analyze data from similar occupational groups – such as child care providers or home health care workers – that have mixed coverage/access to the benefits.

The fourth factor is the characteristics and vulnerabilities of the domestic worker population and how those characteristics amplify or mitigate the impacts of the proposed legislation upon the domestic worker population. For example, low-wage workers may disproportionately benefit from wage protections such as overtime pay or reporting time pay, compared to higher wage workers, or workers without access to medical care may disproportionately benefit from access to workers' compensation when injured. The characteristics and vulnerabilities of domestic workers may vary significantly from population to population, and ultimately from individual to individual. For example, one woman working as a personal attendant may have worked for ten years as a nurse in her home country and received extensive training on occupational safety and health, whereas another may have worked only as a housekeeper and recently transitioned into care-taking work. These workers may have different vulnerabilities to work-related injuries and therefore may be differentially impacted by regulations. Many factors impact the vulnerability of the domestic worker population including socio-economic status, wages and benefits received (including access to health care), work conditions and occupational hazards, employer characteristics, and immigration status.

Collectively, these four factors – the size of the population impacted, the utilization and compliance with labor protections, the health benefits of the increased labor protections, and the characteristics and vulnerabilities of the population – form the HIA research plan. To determine the health impacts of each of the AB 889 articles upon domestic worker health, the four factors need to be considered for each part of the legislation. More specific logic models are included in the assessment section of this report.

5.3 Logic/Pathway Models for Individual AB 889 Provisions

Based on a preliminary review of health research of labor and occupational safety and health protections and a review of previous domestic worker reports, the HIA team hypothesized several potential pathways between each of the proposed “regulations” in AB 889 and health outcomes. These pathways are outlined in Figure 2 and illustrate the potential direct, secondary/mediating and distal health impacts of AB 889 articles. More specific pathway diagrams are included in the assessment section of this report.

5.4 Selection of Legislative Provisions

Given the limited resources available, this HIA has focused on only two of provisions of the proposed legislation, specifically, requirements for “eight hours of uninterrupted sleep” and “access to workers' compensation”. Reasons for selecting these particular provisions include the specificity of the changes in requirements, the significance of sleep and workers' compensation to health, the availability of empirical literature to document the health impacts of the proposed legislation, and the lack of prior HIAs addressing these particular requirements. Table 3 provides an overview of the potential impacts of the other AB 889 provisions that are not analyzed in this HIA upon domestic worker, care-recipient, and population health as well as other relevant research and resources.

Figure 2: Potential Health Impacts/Pathways of the Proposed AB 889 Legislation upon Health

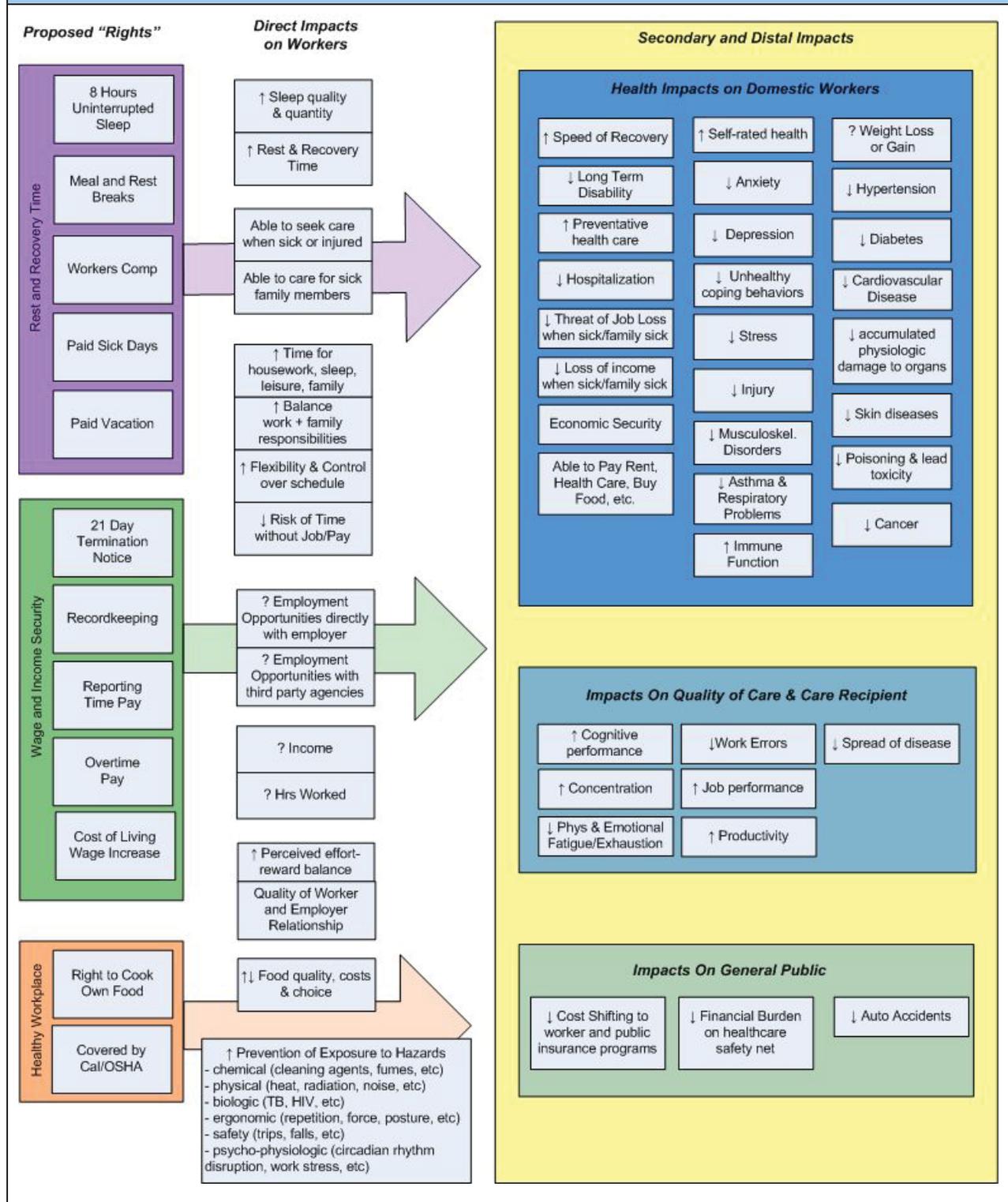


Table 3: Potential Impacts of Other AB 889 Provisions

AB 889 Element	Potential Impacts On Domestic Worker Health	Potential Impacts On Care-Recipient & Population Health	Resources
Paid Sick Days (PSD)	<ul style="list-style-type: none"> Enables workers to take leave for needed medical care → Timely medical care can result in more rapid and complete recovery and decrease hospitalizations Enables workers to stay home when they need to care for a sick dependent (e.g. child and parent) which can improve dependent's recovery time Prevents hunger and homelessness among low-income workers with severe illnesses 	<ul style="list-style-type: none"> Reduces spread of flu, including H1N1 Reduces care turnover rates, stabilizing and enhancing home care Keeps elders and others needing home care in more health promoting home care settings and out of nursing homes Allows caregivers opportunity to address their own needs, thereby be more attentive to needs of their clients Found to reduce likelihood of gastrointestinal disease transmission in long-term elderly care facilities. 	<p>Paid Sick Day HIAs in CA, MA, ME, NH, Milwaukee and Nationally, and CA PSD HIA Supplement on Home Care Workers (a)</p> <p>IWPR Articles, Fact Sheets and Testimony (b)</p>
Cal/OSHA Compliance	<ul style="list-style-type: none"> DWs experience high rates of preventable injuries and illnesses Standards for healthy workplaces help protect DW 	<ul style="list-style-type: none"> Cal/OSHA can provide training materials, technical assistance, and education to employers about how to improve workplace 	<p>OSHA History (c)</p> <p>See Table 10</p>
Meal and Rest Breaks	<ul style="list-style-type: none"> Decreases risk of musculoskeletal & back injuries (e.g. hotel workers) Decreases time pressure on jobs → decreased risk of hypertension (e.g. bus drivers) Allows for recovery from physical/ mental fatigue/ stress → decrease chronic disease and medical costs Increased rest can decrease workers' comp. & liability costs 	<ul style="list-style-type: none"> Increased rest/safety for workers → decrease workers' compensation and liability costs Rest improves productivity Rest improves quality of care Rest decreases job error/accidents <p><i>"Health and safety considerations... are what motivated the IWC to adopt mandatory meal and rest periods in the first place." Murphy, supra, 40 Cal. 4th at p. 1113; see also Gentry, supra, 42 Cal.4th at p. 456 (wage and hours laws "concern not only the health and welfare of the workers themselves, but also the public health and general welfare."); Kern's Catering Service v. Dept. of Indus. Rei. (1962) 57 Cal.2d 319,330 (The purpose of meal and rest break requirements is to foster the general health and welfare of employees.).</i></p>	<p>Legal reports on Meal and Rest Breaks (d)</p> <p>Research on shift work and long working hours (e)</p>
Paid Vacations	<ul style="list-style-type: none"> Allows flexibility to take time off when needed → decrease stress, improved caregiving for family (when sick or school vacation) Allows rest and recovery (in general & when sick) → more rapid and complete recovery (esp. for injuries) Decrease financial pressures (e.g. finding child care, not being paid when not work, etc) 		
Overtime Rate	<ul style="list-style-type: none"> Decrease stress, risk of nonpayment Improve economic security → improve ability to pay rent, health care, by food, etc Decrease risk of nonpayment Decrease stress of unknown work situation/ work vulnerability 	<ul style="list-style-type: none"> Improved worker economic sufficiency → decreased demand on public safety net <p><i>If all workers in California "earned a minimum of \$8/hr, the total costs of the 10 largest state public assistance programs would be reduced by \$2.7 billion. A movement to \$14 per hour would reduce expenditures by \$5.6 billion. (Zabin 2004)</i></p>	<p>Living Wage HIAs (f)</p> <p>Economic Analyses of Living Wage Policies (g)</p> <p>Systematic Reviews and Extensive Literature on Income and Health (h)</p>
Annual Cost of Living Pay Increases			
Recording Hours & Wages Reporting Time Pay			
21 Day Notice of Termination			
Right to cook own food	<ul style="list-style-type: none"> Increases control over food eaten and cultural relevance of food Accommodates food allergies and sensitivities 	<ul style="list-style-type: none"> Improved control over dietary needs at work improves job satisfaction and could reduce employee turnover 	<p>Food At Work: Workplace Solutions for Malnutrition, Obesity, and Chronic Diseases (i)</p>

- (a) See Bhatia et al, 2008 and HIP 2009. See also HIP PSD HIA reports: <http://www.humanimpact.org/past-projects>
- (b) See Lovell 2005 and the Institute for Women's Policy Research (IWPR) Family Leave and Paid Sick Days reports, policy briefs and fact sheets: <http://www.iwpr.org/initiatives/family-leave-paid-sick-days>
- (c) See the Occupational Safety and Health Administration's review of the agency's 40 year history: <http://www.osha.gov/osha40/> See also Impact of OSHA on Work Safety in US: <http://dspace.lib.iup.edu:8080/dspace/bitstream/2069/195/1/Angela+Bernardo.pdf>
- (d) See Worksafe et al. Amicus Brief submitted to Brinker Restaurant Corporation case: <http://worksafe.typepad.com/files/worksafe---brinker-amicus-app-and-brief.pdf> and Voices from the Underground Economy report by USC Law School and Bet Tzedek Legal Services: <http://www.bettzedek.org/PDF/voicesfromtheunderground.pdf>
- (e) See Box on Health Effects of Shift Work in Chapter 7. See also NORA report by Long Work Hours team (Caruso 2006) and AHRQ Evidence-Based Handbook for Nurses, Chapter 40, pg 6: http://www.ahrq.gov/qual/nursesfdbk/docs/rogersa_efsnp.pdf
- (f) See Katz 2001 and Cole 2005 for HIAs of living wage policies in San Francisco and Los Angeles.
- (g) See Howes 2005, Reich 2005, Brenner 2005, and Fairris 2005 for impacts of wage increases upon employee retention/turnover and income inequalities.
- (h) See CSDH 2008, Marmot 2006, Yen 1999, CPA 2010. See also Kawachi (1999) The Society and Population Health Reader: Income Inequality and Health. New Press.
- (i) See "Food at Work: Workplace Solutions for Malnutrition, Obesity and Chronic Diseases" written by Christopher Wanjek on behalf of the International Labor Organization: <http://www.christopherwanjek.com/Site/Food%20at%20Work.html>

5.5 Research Questions

The logic model and proposed pathways above suggest that AB 889 legal requirements could have diverse impacts on the health of domestic workers, their dependents and their clients or patients. To focus the evaluation, the HIA team selected the following research questions, organized around the logic model:

Domestic Worker Profile: Questions about the Impacted Population

- 6.1 What is the size and demographics of the domestic worker population in California?
- 6.2 What characteristics of California's domestic worker population make them vulnerable to adverse health impacts?

Questions about the Potential Impacts of Proposed Sleep Requirements

- 7.1 What are the known health effects of limited or impaired sleep?
- 7.2 What is the evidence for insufficient sleep among domestic workers?
- 7.3 Which domestic workers would be impacted by a change in sleep requirements?
- 7.4 How would the legislation change hours or quality of sleep of domestic workers?
- 7.5 How would the legislation impact care-recipients?
- 7.6 What is the likelihood, certainty, and magnitude of health effects resulting from the legislative changes to sleep requirements?
- 7.7 What barriers, vulnerabilities, or other uncertainty factors could modify the health effects of the law?

Questions about the Potential Impacts of Proposed Workers' Compensation Coverage

- 8.1 What is the incidence of occupational illness and injuries among domestic workers?
- 8.2 What are the known health effects of workers' compensation coverage?
- 8.3 What is the evidence for insufficient access to workers' compensation among domestic workers?
- 8.4 Which domestic workers would benefit from changes in workers' compensation coverage under the legislation?
- 8.5 How might the workers' compensation provision impact care-recipients and employers?
- 8.6 What are the likelihood, intensity, and magnitude of health effects resulting from legislative changes in workers' compensation rules?
- 8.7 What barriers, vulnerabilities, or other uncertainty factors could modify the health effects of the legislation?

5.6 Research Methods

In general, occupational health effects of labor protections for domestic workers specifically have not been the subject of public health research. However, the HIA team believed that reviews of the existing literature and some limited original research provide sufficient evidence to analyze health impacts based on the logic model. These methods are described in Table 4.

Empirical research used to analyze the health effects of the proposed labor protections in this HIA may not be specific to the domestic worker population covered by the legislation. In these cases, the analysis considers the generalizability of research on related occupational groups to the target population.

Table 4: Sources of Evidence Used in this HIA

- Review of peer-reviewed literature and “gray literature” concerning domestic workers’ working conditions, occupational health of domestic workers and similar populations, workers’ compensation and its relation to health outcomes, sleep deprivation and duration and its relation to health outcomes, general background concerning workers’ compensation and occupational health. Literature search was conducted using PubMed, PsychINFO, EconLit, Sociological Abstracts, Google Scholar, and LexisNexis using major topics and key words including: Workers’ compensation, occupational diseases and accidents, occupational health services, workplace, occupational safety, health services accessibility, treatment, outcomes, domestic workers/domestics, low-wage workers, housekeepers, housemaids, home health aides, home care, direct care, housekeeping, caregiver, child care, janitors, farmworkers, garment workers, hotel workers, undocumented, immigrants, social justice, socio-economic factors, asthma, repetitive stress injury, musculoskeletal, low back pain, dermatitis, occupational stress, precarious employment, workload, shift work, sleep deprivation, fatigue. Citations from key articles were also reviewed.
- Key informant interviews were conducted with academic, legal, public health, and policy experts, as well as members of domestic worker organizations. Fields of expertise included the history, sociology, and economics of domestic work, labor law, occupational health disparities, and workers’ compensation.
- Three focus groups were conducted with convenience samples of domestic workers to discuss their working conditions, health-related work experiences, and their opinions concerning the potential effects of increased labor protections.
- Information was collected concerning innovative programs to improve working conditions and increase workers’ compensation for domestic workers and related employment sectors such as home care workers and agricultural workers.
- Census and labor department data was analyzed to document the size, segmentation and occupational injuries and illnesses of the domestic worker population and related occupational groups in the US. Appendix A describes methodology used for these calculations. Detailed analysis of survey research, including the National Home Health Aide Survey, is planned to document the employment experiences of the domestic worker and analogous populations in the United States.

5.7 Limitations of Public Data Sources on Domestic Workers

Describing the domestic worker population generally, and the domestic worker population that will be affected by the legislation specifically, is challenged by the limited data collection on the domestic worker industry. With the exception of some Latin American nations, the majority of countries, including the United States, do not have national or regional statistics about domestic workers. A number of critical scholarly reports have been published discussing the working conditions of domestic workers in the United States and abroad (Bonato 2007, HRW 2001, ILO 2010). However, the majority of these reports are case studies, worker testimonials and qualitative research that do not attempt to enumerate the population.

In the United States, the U.S. Census Bureau and the Bureau of Labor Statistics routinely collect data from employers, workers, and tax collection agencies to describe employment and work conditions. In general, both agencies categorize their employment data by industry using the North American Industry Classification System (NAICS) and by occupation using the Standard Occupational Classification (SOC) System. Private household industry data includes diverse types of occupations employed in private households such as gardeners and drivers that have different demographics and occupational exposures. Publicly available datasets on domestic worker-related data by both industry and occupation is highly susceptible to under-counting as employment is often informal and workers may be reluctant to acknowledge that they are employed when questioned (Dresser 2008). Other factors impacting data collection from workers directly include language and literacy barriers, lack of resources and capacity to survey hard-to-reach populations (like live-in workers), worker fear of retaliation and deportation, and lack of institutional commitment to document conditions of domestic work also exist. Although the U.S. Census Bureau and other agencies try to correct for the undercount of marginalized or hard-to-reach populations, researchers acknowledge that these populations are underestimated in national surveys (Ronzio 2007).

Industry data on private households also may provide a partial picture of the demographics and working conditions of domestic workers because industry data are usually gathered through tax information and surveys of employers. A number of individuals employing domestic workers do not view themselves as employers (Associated Press (AP) 2008) and employers may not accurately report domestic worker employees' earnings for tax purposes (Bernhardt 2007). Analysis of industry data is also limited because domestic workers' primary industry, "private households" (NAICS Code 814), is routinely excluded from cross-industry analyses, potentially due to small sample size.

Recent and Planned Non-governmental Data Collection Efforts

In the past five years, notable efforts have been made to fill gaps in documentation of domestic worker working conditions. In 2006, the organization Domestic Workers United, supported by their member organizations and DataCenter, published a report on the domestic worker industry in New York (DWU 2006). The report included a survey of 547 New York domestic workers, 14 worker testimonies, seven employer interviews and legal analysis of the historical and current exclusions of domestic workers from labor standards. The following year, Mujeres Unidas y Activas, La Raza Centro Legal's Day Labor Program, and DataCenter released findings from their survey of 240 Bay Area domestic workers (MUA 2007). Both surveys documented the conditions faced by workers including average wages and hours worked, benefits received, length and nature of employment, abuse and exploitation, occupational exposures and injuries, and other factors related to working conditions. Additional surveys and data collection were completed in Los Angeles, CA and Montgomery County, MD, by organizations including IDEPSCA, CHIRLA and Casa Maryland. Currently, the National Domestic Worker Alliance (NDWA), in collaboration with DataCenter and the Center for Urban Economic Development (CUED) of the University of Illinois at Chicago, is conducting a participatory research survey of over 2100 domestic workers in thirteen metropolitan areas across the United States. This comprehensive 70-item survey will be conducted in nine languages and is designed to promote local organization capacity building, base building and leadership development.¹⁸

¹⁸ More information about the forthcoming survey, please visit: <http://www.datacenter.org/national-domestic-workers-alliance-project/>

6 ASSESSMENT: DESCRIBING THE IMPACTED POPULATION

To understand the health impacts of the proposed AB 889, it is important to first understand the size, nature and characteristics of the domestic worker population in California. To establish current conditions, the HIA team sought to answer the following questions:

- 6.1 What is the size and demographics of the domestic worker population in California?
- 6.2 What characteristics of California's domestic worker population make them vulnerable to adverse health impacts?

6.1 What is the size and demographics of the domestic worker population in California?

In the United States, the population of domestic workers may generally be grouped into three categories of “care” workers based on employment classification and occupational tasks: child care workers, hands-on health care workers, and housekeeping workers. These three categories may be divided between in-home care work and outside of the home care work. “Inside the home” care work may occur either in the worker’s home, the home of the child or adult receiving the care, and/or the employer’s home. “Outside the home” care work takes place in an established institution or business, such as a day care center, group nursing home, hotel, or hospital. Table 5 outlines the universe of care workers, the location of their work, and how they receive their pay.

Table 5: Universe of Care Workers		
	In-home	Outside the home
Child Care	Family Child Care Provider (in provider’s home, clients may receive the child care tax credit)	Day care worker in day care center, preschool, etc. (paid by institution/employer)
	Nanny, Au Pair, Babysitter (private pay, in child’s home)	
Hands-on Health	Home Health Aide (paid by a third-party such as Medicaid)	Nursing aide, orderly in nursing home, group home, etc. (paid by institution/employer or agency)
	Personal Attendant or Home Care Aide (private pay)	
Housekeeping	Maid, Housekeeper (private pay)	Maid, housekeeper in hotel, hospital, etc. (paid by institution/employer)

(Adapted from Dresser 2008)

This HIA only focuses on in-home workers who work in their employers’ homes, including privately employed domestic workers who work as in-home nannies, au pairs, babysitters, personal attendants and caregivers for adult clients, as well as maids, housekeepers, and housecleaners. The legislation also includes those working in private homes for third-party employers and agencies; however, these workers are already legally entitled to some of the protections in the law. The legislation and this HIA does not include individuals hired through the state of California’s In-Home Supportive Services (IHSS) Program, individuals under 18 years of age hired as a babysitter for a minor child, or the parent, grandparent, spouse, child or legally adopted child of the domestic worker employer.

For the purposes of our analysis we disaggregate workers into three employment categories: (1) Child caregivers; (2) Personal attendants or home care aides; and (3) Maids and Housekeepers. However, research suggests that individual domestic workers’ employment experiences and job duties often span employment categories (Dresser 2008; Bernhardt 2007).

6.1.1 Numbers of Domestic Workers

Current Estimates

Table 6 presents the estimated number of domestic workers impacted by AB 889. These estimates are generated using 2007-2009 data from the American Community Survey, an ongoing survey of households conducted by the United States Census Bureau. As previously described, AB 889 includes individuals working in private households that are employed or paid directly by the homeowner or renter, and individuals that are employed by a third party agency to work in private households.

Within each industrial category, data is disaggregated by domestic work-related occupations (maids & housekeeping cleaners, child care workers, personal and home care aides, and home health aides). The data is further disaggregated by "Class of Worker" to illustrate which workers are considered employees working for employers and which are considered self-employed.¹⁹ Appendix A provides an extensive explanation of the methods used to generate these estimates.

Based on the ACS, we estimate that at least 218,185 domestic workers were working in private households in California between 2007 and 2009. Of those domestic workers, 91,969 (42%) worked as maids and housekeeping cleaners, 24,918 worked as child care workers (11%), 75,948 (35%) worked as personal and home care aides, 20,095 (9%) worked as home health aides, and 5,255 (2%) worked in other related occupations in private households. Of those domestic workers 58% were employed by a private for-profit or non-profit business or individual for wages, salary or commission, and 43% were self-employed, mostly in not incorporated businesses.²⁰ For the reasons described in Table 6 below, this estimate is likely to undercount to actual number of domestic workers in California.

Growth of the Domestic Work Industry

According to both the Bureau of Labor Statistics and the California Employment Development Department (CA EDD), Personal and Home Care Aides is one of the fastest growing occupations in California and in the United States. In California, the occupation is expected to offer the most job openings of all occupations, with 158,200 new jobs and 43,300 replacement jobs by 2018.²¹ Home Health Care Aides are also a rapidly growing population in California, with an anticipated 43.6% growth, or 23,700 additional positions by 2018.²² This projected job growth is due to the anticipated rise in the number of elderly people who need assistance with daily activities and increased demand for home care as an alternative to inpatient care in hospitals and nursing homes which can be extremely expensive and less effective in recovery times (BLS 2010). CA EDD also anticipates that the number of private household workers will increase by 48.8%, from 290,500 in 2008 to 432,500 in 2018. Of those, 431,600 (or 99.5% of private household workers) are projected to work as maids, housekeeping cleaners, child care workers, or personal and home care aides.

¹⁹ Government employees were excluded from our estimate to exclude individuals employed as in-home supportive service (IHSS) workers (which are excluded from AB 889) and individuals working for Head Start and other government-funded child care programs. Family workers working without pay in family businesses were also excluded from the estimate since relatives of care recipients are excluded from AB 889. Appendix A provides additional explanation and estimations based on the "class of worker."

²⁰ As discussed in Appendix A, the ACS estimates vary significantly from the California Employment Development Department, whose estimates are generated from payroll taxes and surveys of employers. According to CA EDD data, there were 290,100 domestic workers in California in 2008, 96% of whom were employed as personal and home care aides. SFDPH is using the ACS data throughout this report since it is assumed that ACS is more representative of the general population, allows greater flexibility in data analysis, and is more likely to avoid double counting workers with multiple employers, which may occur in CA EDD data.

²¹ According to CA EDD, the fastest growing occupations in California are (1) Network Systems and Data Communications Analysts and (2) Medical Scientists, Except Epidemiologists, respectively. Replacement jobs are jobs replacing individuals who retired or changed occupations. Notably, of the fifty occupations slated for significant growth, both personal and home care aides and home health care aides have the second and third lowest average median wages after gaming dealers. Note that these estimates are for all industries, not only private households. Data from CA EDD Long-Term Projections. Accessed on January 24, 2010: <http://www.labormarketinfo.edd.ca.gov/?pageid=145>

²² The growth of the number of home health workers will likely increase job opportunities for domestic workers and may also decrease medical care expenses and improve quality of life for care recipients (See <http://laborcenter.berkeley.edu/homecare/> for discussion about institutional vs. home based care provision).

Table 6: Estimated Number of Domestic Workers Impacted by AB 889, by Selected Industries, Occupations, and Class of Worker in California

	Privately Employed		Self-Employed		Total
	<i>By private for-profit company or business, or of an individual, for wages, salary, or commission</i>	<i>By private not-for-profit, tax-exempt, or charitable organization</i>	<i>In own not incorporated business, professional practice, or farm</i>	<i>In own incorporated business, professional practice or farm</i>	
Private Household Industry					
Maids & Housekeeping Cleaners	32,968	0	59,001	0	91,969
Child Care Workers	14,050	0	10,868	0	24,918
Personal and Home Care Aides	20,143	0	7,954	0	28,097
Home Health Aides*	2,231	0	0	0	2,231
Other Related Occupations in Private Households **	3,436	0	1,819	0	5,255
<i>Subtotal Private Households</i>	<i>72,828</i>	<i>0</i>	<i>79,642</i>	<i>0</i>	<i>152,470</i>
Other Related Industries***					
Personal and Home Care Aides	32,955	6,193	7,748	955	47,851
Home Health Aides	11,484	2,057	3,668	655	17,864
Total: California Domestic Workers Impacted by AB 889					
Maids & Housekeeping Cleaners	32,968	0	59,001	0	91,969
Child Care Workers	14,050	0	10,868	0	24,918
Personal and Home Care Aides	53,098	6,193	15,702	955	75,948
Home Health Aides	13,715	2,057	3,668	655	20,095
Other Related Occupations in Private Households	3,436	0	1,819	0	5,255
TOTAL	117,267	8,250	91,058	1,610	218,185

Data from the American Community Survey 2007-2009 3-Year Estimate Public Use Microdata Sample. Data is for all of California and excludes individuals under 18 years of age, government workers and unpaid family workers.

* The "Home Health Aides" occupation includes nursing assistants and psychiatric aides who are supervised by nursing or medical staff. The authors assume that in the private household and home health care industries, the majority of individuals working as Nursing, Psychiatric or Home Health Aides are working as Home Health Aides, whereas in institutional settings, the majority are working as Nursing and Psychiatric Aides.

** Related Occupations in Private Households includes grounds maintenance workers, janitors and building cleaners, cooks, registered nurses, other personal care and service workers, housekeeping and janitorial supervisors, licensed practical and vocational nurses, dietitians and nutritionists, chefs and head cooks, general maintenance and repair workers, supervisors/managers of personal service workers and physical therapists. This estimate excludes the 44 other occupations that are employed in the Private Household industry but do not provide care or clean homes (such as chauffeurs, property managers, bookkeepers, carpenters, and construction workers).

*** Related Industries includes personal and home care aides in the Home Health Care Services (HHCS) Industry and the Individual and Family Services Industry, and home health aides in the Home Health Care Services industry. This estimate does not include maids and housekeeping cleaners employed in the Services to Buildings and Dwellings Industry, such as Merry Maids that are employed by a third party agency, because it is not possible to disaggregate the data into where an individual workers (building or dwelling). This estimate also excludes all individuals employed in the Child Day Care Services Industry who are assumed to work in private- or government-funded child care centers, institutions or family child care homes and to not provide care in the care-recipient's home. More detailed explanations for the above estimates are available in Appendix A.

6.1.2 Demographic Characteristics of Domestic Workers

National U.S. Census data describe the racial and ethnic diversity of the domestic worker population: approximately 45% are White, 45% Latina, 7% African-American, and 3% Asian. Ninety-two percent are women and more than 40% are immigrants.²³ The Pew Hispanic Center estimates that nationally 22% of domestic workers are undocumented immigrants, a proportion comparable to that of the construction or restaurant industry (Passel 2005). However, these estimates differ from the ethnic composition documented in surveys conducted by California and New York domestic worker organizations. Table 7 summarizes the demographic information of 240 domestic workers surveyed in San Francisco and Oakland and 547 domestic workers surveyed in New York City.

Table 7: Demographics of Surveyed Domestic Workers in California and New York		
	SF Bay Area Survey (N=240)	New York City Survey (N=547)
Gender	98% female	93% female
Ethnicity	94% Latina	99% non-white
Primary income earner	59%	54%
Support family abroad	72%	72%
Percent foreign born	99%	99%
Years in Industry	28% 1 year or less 41% 2-5 years 31% 6 or more years	6% 1 year or less 30% 2-5 years 59% 6 or more years
Source: MUA 2007 and DWU 2006.		

6.2 What characteristics of California’s domestic worker population make them vulnerable to adverse health impacts?

Private homes are largely isolated and unregulated workplaces. Consequentially, domestic workers may be particularly vulnerable to economic exploitation and preventable work-related injuries and illnesses. Live-in domestic workers may have particularly heightened vulnerabilities (See Box 3).

Table 8 summarizes the working conditions of domestic workers surveyed in New York City and the San Francisco Bay Area. As described in Section 5.7, these surveys were conducted by domestic worker organizations in collaboration with DataCenter using convenience sampling methods. While the survey may not reflect a representative sample of all domestic workers, many domestic workers reported earning minimum wages, long hours of unpaid or underpaid work, hazardous working conditions, and abuse by their employer.

Below we highlight some of the specific vulnerabilities experienced by domestic workers that may mitigate or amplify the potential health impacts of the improved labor protections. These vulnerabilities or characteristics may be grouped into three main categories of hazards impacting the domestic worker population: gender and racial dynamics, the economic hazards and informal employment conditions of domestic work, and occupational hazards that can result in work-related injuries and illnesses.

Other vulnerabilities may also impact domestic workers’ quality of life, health and well-being, such as barriers to accessing child care for their own children, affordable housing, healthy foods, reliable transportation, job training, job mobility, and experiencing intimate partner violence; however the discussion below is focused on vulnerabilities most likely to mediate the impact of the proposed legislation.

²³ Analysis of CPS data by Saba Waheed, The Data Center and Adrienne Pagac, Center on Wisconsin Strategy.

Box 3: Live-In vs. Live-Out Workers

Among privately employed domestic workers, the most important distinction with respect to terms of employment and working conditions may be between live-in and live-out workers. Depending on the jurisdiction, live-in workers may be subject to less stringent labor protections than live-out workers, especially with respect to overtime pay (NELP 2009).

Compared to live-out workers, live-in workers are more likely to have adverse working conditions and be subject to more occupational health hazards (DWU 2006). They are more likely to receive low wages, work long hours, experience employer abuse and endure psychological and social isolation (Hondagneu-Sotelo 2007). Live-in workers are more likely than live-out workers to be recent immigrants who are not familiar with the neighborhoods where they live, speak limited English, lack strong social networks, and be hesitant to assert themselves with employers (D'Souza 2010). Living in the employer's home may make it difficult for workers to maintain boundaries between their personal life and work life, and some workers may be expected to be on call during the night as well as during the day (Parrenas 2001, Milkman 1998, de Castro 2006). Thus live-in workers, such as caregivers and nannies, may not have an opportunity for uninterrupted sleep, essentially working 24-hour shifts (DWU 2006).

Almost half (48%) of live-in domestic workers surveyed in New York reported that they had experienced abusive treatment by an employer in the preceding twelve months, compared to 33% of all domestic workers surveyed. The same survey found that two-thirds of live-in workers worked overtime, as compared with half of live-out workers, and that two thirds of overtime work was uncompensated. In addition, 21% of live-in workers in New York earned less than minimum wage, as compared with 4% of live-out workers (DWU 2006), while in Los Angeles, the vast majority of live-in Latina domestic workers surveyed earned less than minimum wage (Hondagneu-Sotelo 2007). In her extensive interviews with domestic workers, Pierrette Hondagneu-Sotelo (2007) found that many live-in workers eventually prefer to transition to live-out work.

Table 8: Working Conditions of Domestic Workers Based on Surveys in Two Urban Areas

	SF Bay Area Survey (N = 240)	New York City Survey (N = 547)
Working Conditions		
Type of Work	Not addressed	77% child care 46% housekeeping (task overlap)
Overtime hours worked	31% worked more hours than agreed	48% live-out worked 40+hrs/wk 63% live-in worked 44+hrs/wk
Hazardous Conditions	63% work dangerous/hazardous 75% not receive safety equipment 86% not receive job safety training	17% heavy lifting/strenuous work 16% used toxic cleaning supplies 12% climb to reach hard-to-clean 9% cared for contagious ill person
Work-related Injury or Illness	30% experienced injury or illness in past year 64% not receive medical care needed	4% slipped and injured while on the job
Abuse by employers	20% were insulted or threatened 9% sexually harassed 9% experienced violence*	33% of all workers surveyed 48% of live-in workers surveyed experienced verbal or physical abuse by employer
Wages		
Wages	14% <minimum wage 23% below poverty line 19% earn livable wage	8% <minimum wage 18% below poverty line 13% earn livable wage
Meeting basic needs	93% unable to pay basic living expenses (rent, groceries, child care, bills)	37% unable to pay rent/mortgage 21% sometimes/often little food 25% unable to pay electricity/gas 40% unable to pay phone 36% unable to pay medical care
Overtime hours paid	90% did not receive	67% sometimes or never received
Non-payment of wages	16% not paid or paid with bad check	19% not paid on time 5% not paid at all
Meal & Rest Breaks	83% lacked rest; 78% lacked meal	41% sometimes or never received
Benefits		
Paid sick days	Not addressed	47% receive PSD
Paid vacation	Not addressed	67% receive vacation
Health Care	95% not have employer provided health insurance	90% not have employer provided health insurance

Source: MUA 2007 & DWU 2006.

* A high rate of non-response to questions concerning abuse was noted, perhaps indicating that workers were reluctant to discuss their experiences; actual rates of abuse may be higher.

6.2.1 Vulnerabilities Related to Gender, Race, and Class

Despite advances made in the past century to protect and promote civil and women's rights, gender and racial inequalities persist in access to power, resources, services, norms and values (CSDH 2008). Occupations have developed historically structured by the dynamics of gender, race, and class and the status, remuneration, and protections afforded to certain occupations today are inextricably tied to how these occupations are associated with gender and racial categories and the relative power of individuals in these categories in society today. For example, domestic work is generally considered low status but has historically offered one of the only opportunities for paid work for African American and newly migrated/immigrated women (Mercado 2009, Bernhardt 2007, DWU 2006).

Gender and racial health vulnerabilities for domestic workers are manifest in diverse ways including differences in the value given to work, differences in pay or job benefits, and various forms of exploitation associated with relative power. For example, in 2009 women in the United States earned on average 80 cents for every \$1.00 earned by men, and the median earnings were lower regardless of the gender concentration in the occupation (Hegewisch, 2010).

A survey of over 4,000 low wage workers in New York, Los Angeles and Chicago found that women were 50% more likely to experience minimum wage violations and also more likely to experience overtime, meal and rest break violations than their male counterparts. The same study found that low wage workers of color were more likely to experience minimum wage violations than their white counterparts, although overtime, meal and rest break violations varied by ethnic group (Bernhardt 2009). Other studies have found that Black and Hispanic/Latina women are more likely to be primary income earners in their families, but less likely to have access to paid sick days than white women (NPWF 2010). Racism and discrimination have been found to be deterrents from workers filing or pursuing workers compensation or wage claims (Lashuay 2006)

In part because of association with gender and race, domestic work maintains a stigma of being less valuable than work outside the home (D'Souza 2010). The frequent exclusion of domestic and other work in private households from employment and labor statistics further discredits the industry as "unproductive" labor that does not contribute to pecuniary gain of the employer or the state economy (D'Souza 2010). As described below, the minimalization of domestic work as labor contributes to its justification as an unregulated industry and its informal employment conditions.

Significant, economic, educational attainment, racial and other power differences exist between the employer and domestic worker. Although 99% of domestic workers surveyed in New York were women of color, 77% of their employers were white (DWU 2006). These differences may result in stereotyping. A female domestic worker in a minority racial category, may be less well able to negotiate her contract and workplace conditions with employers because of challenges in obtaining employment in other occupations, female domestic workers of color may be fearful of speaking up to demand actualization of their legal employment rights or improved working conditions.

As noted by Bernhardt and colleagues (2007), there is "strong evidence of a complex hierarchy of discrimination on the part of employers and employment agencies: white European women are referred to as nannies, English-speakers are preferred regardless of what the job requires, and stereotypes impacting hiring decisions abound. For example, employers have told us that Polish women steal less, Spanish women steal a lot, European women drink and smoke on the job, and African women are presumed to have AIDS." Language barriers and immigration status (described below) can further compound power differences.

6.2.2 Economic Hazards

Unregulated Industry

As previously discussed, the home is often not considered a workplace and is overlooked by many policymakers, agencies and researchers as a work environment needing regular data collection, monitoring of conditions, regulations, and enforcement of laws (See Table 1 in Chapter 2). As noted by researchers at the Brennan Center for Justice, “the [domestic work] industry is structurally wired to produce bad working conditions: workers are alone at their worksite and have to individually negotiate the terms of their employment, with no industry standards to set a floor on wages, benefits, sick days, vacations and breaks. As a result, compensation and working conditions vary greatly from one family to the next” (Bernhardt 2007).

Informal Employment

Domestic workers are often employed informally (Dresser 2008). Many do not have written contracts or job descriptions, and many are paid in cash or by personal check (DWU 2006, MUA 2007, Hiller 2009). Not having a written contract or record of wages paid or hours worked limits the ability of government agencies to enforce labor standards. Without a formal paycheck, workers do not pay into programs such as Social Security and State Disability Insurance (SDI), and are less likely to be able to collect these benefits in the future.

Informal employment has some potential financial advantages for workers as well, allowing for flexibility and negotiation with respect to the terms of employment. However informal employment increases vulnerability to wage exploitation (Dresser 2008) such as workers a) being paid a weekly or monthly “flat rate” that does not take into account variable hours worked or overtime hours, b) being paid less than agreed upon or being required to work more hours than agreed upon, and/or c) being required to perform tasks that were not part of the original employment agreement. This wage exploitation further decreases income for the low-wage worker and increases risk for income insufficiency-related health risks. For example, temporary employment may result in substantial variation in the amount of time domestic workers are able to spend with their families.

Income and Non-Payment of Wages

The median wage for domestic workers is at approximately the 10th percentile nationally and is approximately half the national median wage. In 2005, the median hourly wage for privately employed home health workers was \$8.89, while privately employed child care workers earned \$6.82 per hour and maids and housekeepers earned \$8.33 (Dresser 2008). Ninety-three percent of California domestic workers surveyed reported that their wages were not adequate to cover their basic living expenses, and 23% reported earning below the federal poverty line (MUA 2007).

Similar to other low-wage workers, domestic workers are vulnerable to non payment or underpayment of wages by employers (Bernhardt 2007, Milkman 2010)²⁴. As illustrated in Table 8, surveys of domestic workers found that 90% of Bay Area domestic workers were not paid for overtime hours worked, 16% were not paid or paid with a bad check, 83% were never provided rest breaks and 78% were never provided meal breaks (MUA 2007). Surveys of domestic workers in Los Angeles found that 34.7% of domestic workers and 74.9% of child care workers, many of whom worked in private households, experienced a minimum wage violation during the previous work week; and 92.3% of domestic workers who had worked more than forty hours for a single employer during the previous work week were not properly paid for overtime as required by law. The survey also found that 95.6% of home health care workers, child care workers, and maids and housekeepers experienced a weekly overtime violation during the previous work week (Milkman 2010).

²⁴ Wage theft is the illegal underpayment or non-payment of workers' wages by employers. Examples of wage theft include not paying minimum wage or overtime, misclassifying employees as independent contractors, forcing workers to work off the clock, not providing final paychecks, and not paying workers at all. For more information, see <http://www.iwj.org/index.cfm/wage-theft>

Similar to many other workers, domestic workers may be afraid to demand higher wages, or even wages owed, for fear of retaliation and job loss (CPA 2010). Low-wage jobs also limit workers' ability to pursue opportunities such as education and training to get higher paying jobs.

Despite very low wages, domestic work is often a long-term occupation that provides essential family income. Thirty-one percent of California domestic workers surveyed reported having worked in the industry for more than six years, while 59% of New York workers reported more than six years in the industry. The majority of domestic workers surveyed in both New York and California reported being the primary income earners for their families (DWU 2006, MUA 2007).

Immigration Status, Fear of Job Loss & Retaliation

Many domestic workers have left children behind in their countries of origin and are working to support family members outside the United States (Hondagneu-Soletto 2007, Parrenas 2001). Seventy-two percent of workers surveyed in California reported sending money or packages to relatives in their home countries (MUA 2007). Being an immigrant may be a source of stress not only because of psychological distress due to family fragmentation, but also because of concerns of deportation and firing. Several researchers have documented examples where employers effectively trap the worker in their position as a domestic worker by promising to sponsor a worker for an immigration visa but it delaying indefinitely or for extended periods of time (Bernhardt 2007), hiding their passports, or in more severe cases, trafficking women (HRW 2001).

Across the United States, an estimated 22% of domestic workers are undocumented immigrants (Passel 2005). Even where undocumented workers are entitled to labor protections, undocumented workers tend to be wary of asserting these rights in the workplace because of fear of retaliation and deportation (NILC 2009, Brown 2002, de Castro 2006). Although California specifically mandates a right to workers' compensation for undocumented immigrants (Gonzalez 2007), their precarious legal status makes them especially vulnerable to job loss and retaliation, and therefore unlikely to file claims (Klamut 2006). Undocumented domestic workers thus often have a double vulnerability with respect to labor protections; they are fearful of asserting their rights to labor protections because of their immigration status, and are also entitled to fewer labor protections than other workers because of their domestic worker status.

Although the rate of retaliatory behavior by the employers of domestic workers is not known, low-wage workers in general are very vulnerable to employer retaliation. Fifty percent of low-wage workers who attempt to file workers' compensation claims report experiencing illegal actions from their employers. These actions include firing or threats of firing, contacting immigration authorities, or telling the worker not to file a claim (Bernhardt 2010). Workers may prefer to self-treat and modify work duties rather than risk income or job loss by reporting their injury to their employer (Scherzer 2008). As one focus group participant put it, if a domestic worker reports an injury to her employer, she worries that "the employer is going to fire her because she doesn't want to take responsibility." As a result, in some cases injured workers file claims only after they have already left their jobs (Lashuay 2006).

Language Barriers

Although the number of domestic workers who do not speak their employers' language is not known, 99% of surveyed domestic workers in both California and New York were foreign born, so it is assumed that many domestic workers' first language is not English. Not speaking the same language as one's employer limits the worker's ability to negotiate work conditions and the work contract with their employer.

In New York, 18% of workers reported that language was a factor that contributed to employer abuse (DWU 2006). In domestic work as well as other low-wage industries, English proficiency has been shown to impact whether or not a worker is hired, what the worker is paid, what type of tasks the worker is asked to do, and the likelihood of experiencing a minimum wage violation (Bernhardt 2007, Bernhardt 2009). Language barriers may be a particularly grave vulnerability for domestic workers who received visas to work as live-in workers in their employer's household and may be disconnected from others (HRW 2001).

Language and literacy barriers may also impact workers' awareness and understanding of their existing legal rights as workers and access to health and safety training. Researchers from the WISH Coalition noted that for many poor immigrants "the inability to speak English ensures that they are employed in low-wage jobs with very few alternatives available to them. Having low literacy skills and often limited acculturation, these workers are far less likely to report occupational injuries and illnesses, often because they are unaware of their rights. Training and prevention efforts can also be hampered when employers and their staff do not speak the same language" (Lashuay 2006).

Knowledge gaps

Lack of awareness about workers' existing rights (e.g. to minimum wage or workers' compensation coverage for those who are eligible) is likely to be particularly low among domestic workers because of their isolated working conditions. However, awareness is low among demographically similar groups even if they are formally employed or unionized (Scherzer 2005, Carroll 2005, Scherzer 2007). There is also likely to be a significant lack of awareness among employers about the existence of the inclusion of workers' compensation coverage in some homeowner policies. Employers of domestic workers may be similarly unaware of their legal obligations to provide coverage for their workers and unaware of the illegality of retaliatory actions (Lashuay 2006).

Even though they may have employer support, some domestic workers may not file workers' compensation claims because they do not believe that their occupational injuries are compensable. Workers may accept chronic or cumulative work-related musculoskeletal conditions as natural "wearing out" of the body and may not seek definitive treatment. Because of culturally-based patterns of health care usage and poor access to general health care, workers may be accustomed to seeking medical care only for acute or very severe illness and injury, rather than for chronic complaints (Lashuay 2006).

Access to Health Care

Access to affordable, quality, and timely health care services, including preventative and primary care, has long been associated with decreased rates of preventable chronic conditions and hospitalizations (Starfield 2005, Epstein 2001, Coleman 2002). Similar to others with limited access to health services, domestic workers experience gaps in receiving preventative, primary and secondary health care services. A survey of domestic workers in the San Francisco Bay Area found that only 5% had employer-based health insurance coverage, two-thirds reported being unable to get needed care for illness and injury and over two-thirds reported paying out-of-pocket for health care services (MUA 2007). Although the proportion of domestic workers with health insurance is unknown, it is likely to be as low as, or lower than, that of low-wage and immigrant workers in general. For example, only half of Mexican immigrant women who work in employment sectors that are heavily reliant on Mexican immigrant labor are insured (Wallace 2007). Some domestic workers might qualify for public insurance programs such as Medicaid, but these programs restrict eligibility based on non-citizen immigration status, excluding as much as one fifth of domestic workers. For domestic workers without insurance coverage, options for free or low cost health care are community clinics or county-based indigent care programs, both of which have limited capacity, and have been heavily impacted by the economic downturn (MacMahon 2010).

6.2.3 Occupational Risks and Hazards

In the private home workplace, workplace hazards for domestic workers include the physical and ergonomic demands and exposure to household cleaning chemicals. Risks are increased because homes are uncontrolled environments that are not primarily designed or regulated as workplaces, and because domestic workers generally work alone, without psychological support or physical assistance. Because live-in workers generally work longer hours and have less support, they may be subject to greater health risks (DWU 2006).

Table 9 outlines the different occupational exposures and hazards by the type of domestic work performed. Adult caregiving and home health care provision appear to have the most occupational risks, followed by child care. Because care providers often do cleaning work as well as providing care, there is significant similarity among job categories.

Table 9: Occupational Risks Of Domestic Work By Type Of Work Performed			
	Child care	Adult Caregiving	Housecleaning
Lifting	X	X	X
Transfers		X	
Slips/falls	X	X	X
Repetitive upper extremity movements	X	X	X
Cleaning chemical exposure	X	X	X
Infectious disease exposure	X	X	
Psychological stress	X	X	X

Published surveillance data does not provide injury rates for the domestic worker population in private households specifically. Most occupational health surveillance data does not include domestic workers because federal and state databases of occupational injuries and illnesses rely on workers' compensation claims, medical reports, and employer surveys.²⁵

Table 10 describes incidence rates of occupational exposures and events as well as nonfatal occupational injuries and illnesses that resulted in days away from work in two of the three domestic worker occupational categories (maids and housekeeping cleaners, and personal and home care aides).²⁶ As illustrated in Table 10, total incidence rates for nonfatal occupational injuries and illnesses among maids and housekeeping cleaners (262.7 per 10,000 workers) was more than double the incidence rates for the average worker population (106.4 per 10,000 workers). Incidence rates for personal and home care aides, child care workers and home health aides were also higher than the average worker population. Data are also provided for the general worker population, defined as total workers employed by private industry sectors across the United States, as a reference population.

²⁵ Robert Harrison, MD (Chief, CDHS Occupational Health Surveillance and Evaluation Program), personal communication.

²⁶ This is based on occupation-specific injury rates, and not occupation and industry-specific rates thus the rates of injury and illness are for housecleaners and caregivers in both private household and institutional settings (e.g. hotels, hospitals, group homes, etc) rather than just private households.

Table 10: Incidence Rates of Nonfatal Occupational Exposures, Injuries and Illnesses by Occupation*

	Maids and Housekeeping Cleaners	Child Care Workers	Personal and Home Care Aides	Home Health Aides	General U.S. Private Worker Population**
Exposures/Events					
Struck by Object	24.3	7.3	8.8	4.7	14.3
Falls	67.8	27.1	29.6	20.8	15.6
Slips or trips without fall	14.9	7.6	6.0	3.9	3.6
Overexertion	57.2	4.2	56.8	39.7	25.0
Repetitive Motion	6.1	-	-	0.3	3.4
Exposure to harmful substance or environment	10.7	2.1	3.5	1.6	4.7
Transportation Accidents	2.9	4.9	5.9	7.9	4.6
Assaults, violent acts by person	1.1	12.3	17.6	8.6	1.7
Total assaults & violent acts	1.6	13.1	19.4	11.6	2.5
Injuries/Illnesses					
Sprains, Strains, Tears	112.5	43.3	90.2	49.0	41.6
Fractures	16.5	11.1	6.5	4.5	8.3
Bruises and Contusions	33.2	22.0	12.6	5.8	9.1
Chemical burns	2.3	-	0.6	-	0.5
Tendonitis	1.1	-	-	-	0.4
Multiple traumatic injuries and disorders	11.5	6.0	6.7	4.8	4.3
Back pain, hurt back only	12.2	7.0	6.3	6.5	3.6
Total soreness, pain	40.9	16.6	21.1	23.6	11.3
Total Non-Fatal Occupation Injury & Illness Incidence Rate	262.7	114.2	163.9	108.6	106.4
Estimated Number of CA Domestic Workers in the Occupation	91,969	24,918	75,948	20,095	
Estimated Number of Occupational Injuries and illnesses Experienced by CA Domestic Workers ***	2,416	2,85	1,245	218	Total = 4164

Data from the Bureau of Labor Statistics, 2009 Survey of Occupational Injuries and Illnesses, Tables R98 and R100.

*Incidence rates reported are nonfatal occupational injuries and illnesses involving days away from work per 10,000 full-time workers. Rates are reported for the entire occupation, not just workers employed in private households, thus include individuals working for agencies and outside the home. However occupational exposures are anticipated to be similar.

** General U.S. private worker population is defined as total workers employed in private industries across the United States.

*** Calculated by multiplying occupation specific incidence rate per 10,000 workers by the occupation estimate.

- = Data was not available.

The occupational health of domestic work may also be inferred from considering occupational hazards of similar employment sectors and occupational groups. Some of the employment sectors studied may overlap with the privately employed domestic worker group that is the focus of this HIA; for example, a large number of published studies have examined health problems associated with home health work, and there is growing interest in the health risks of cleaning work, including household cleaning. Fewer studies have addressed the health of child daycare workers, who would be expected to have similar health risks to nannies and babysitters working in private homes.

Comparisons thus may be drawn between domestic workers and other worker groups to illuminate occupational hazards and labor protection issues. Table 11 outlines different populations of workers that could be used to compare rates of occupational exposures and labor violations.

Table 11: Comparable Worker Populations		
Worker group	Similarities with domestic workers	Contrasts with domestic workers
Gardeners and construction workers (Ramirez 2008)	<ul style="list-style-type: none"> • Often from similar immigrant populations • Often paid informally • Often work for multiple employers • Often “independent contractors” • Social networks facilitate opportunities for upward mobility and entrepreneurship 	<ul style="list-style-type: none"> • Tends to be outdoor work whereas domestic work is usually indoors • Different occupational health risks and exposures • Male-dominated workforce
Nursing home orderlies/ CNAs (Baron 2009)	<ul style="list-style-type: none"> • Perform similar tasks to caregivers/personal attendants, similar occupational hazards • May be on inconsistent/changing schedule or night shift, impacting sleep quality & duration 	<ul style="list-style-type: none"> • Access to institutional work protections such as organized security, visitor restrictions, availability of colleagues and supervisors, protective equipment, infection control training and supervision, laundry/housekeeping services, ventilation and other standard health care infection controls • Institutional workplaces easier to inspect/regulate • Receive certified or formal training • May more easily find replacement help • Some workers are unionized
In-Home Supportive Services (IHSS) Workers (Boris 2006)	<ul style="list-style-type: none"> • Perform personal attendant/caregiver tasks in private homes, similar occupational hazards • Isolated workplaces 	<ul style="list-style-type: none"> • Paid with public rather than private funds • Many are unionized in California and Oregon • Potentially different income-levels of employer
Family daycare providers (Dresser 2008, Bernhardt 2007)	<ul style="list-style-type: none"> • Perform child care tasks, similar ergonomic and occupational hazards • Frequent minimum wage violations • Extremely low pay • Predominantly female workforce • Isolated workplaces 	<ul style="list-style-type: none"> • Care is provided in worker’s home rather than employer’s home • Workers are self-employed
Maids and Janitorial workers (Lashuay 2006)	<ul style="list-style-type: none"> • Perform housecleaning tasks, similar chemical exposures and ergonomic hazards 	<ul style="list-style-type: none"> • Institutional workplaces easier to inspect/regulate • Some workers are unionized • Workplaces are not as isolated

Musculoskeletal injury risks

Domestic workers who are caregivers and personal attendants for the elderly or adults with disabilities face dramatic risks for musculoskeletal disorders due to ergonomics (See Table 13). This caregiving work is often similar or identical to work performed by “home health aides”, “home health workers”, “direct care workers”, or “home care aides”, although those workers are generally paid through an agency or the In-Home Support Services (IHSS) system in California rather than being privately employed. Caregivers often care for adults with limited mobility, transferring or lifting clients without either the assistance of coworkers or the mechanical lift equipment that would be available in a hospital or nursing home (Galinsky 2001).

Moving clients without assistance is discouraged in institutional settings because it frequently leads to injury (Parsons 2006). Manual lifting and transfers subject the caregiver’s spine and back muscles to forces that exceed safety standards established by the National Institute of Occupational Safety and Health (NIOSH) (Howard 2010). Caregiving also often involves awkward postures such as bending, reaching, and twisting that can place significant strain on the muscles and joints (Galinsky 2001). As illustrated in Table 10, personal and home care aides are twice as likely to miss days of work due to overexertion and home health aides are twice as likely to miss days of work due to pain as the average worker.

Non-caregiving household work also carries significant musculoskeletal risks. Among domestic workers surveyed in New York, 17% reported doing heavy lifting, 12% reported climbing to clean hard-to-reach places, and 4% had slipped and injured themselves at work (DWU 2006). Cluttered home conditions may contribute to a high rate of injuries due to falls (Howard 2010). Maids and housekeeping cleaners are more than three times as likely to miss days of work from falls, slips or trips, sprains, strains, tears, fractures, bruises, and contusions as the general worker population (Table 10).

Maids and cleaning workers are recognized to be at high risk for work-related back pain (Guo 1995), as well as other chronic and acute injuries to the arms, hands, and shoulders such as tendonitis, carpal tunnel syndrome, and non-specific upper extremity pain syndromes (Punnett 2004). Multiple studies have shown that work-related upper extremity symptoms are associated with job stress and lack of control in the work environment (Walker-Bone 2005). Other risk factors for musculoskeletal injury among domestic workers involved in cleaning include rapid work pace and repetitive motions (Punnett 2004, Ahonen 2010), working with long-handled equipment such as brooms and mops, and working in a stooped or twisted postures (Zock 2005). Although less well-studied, child-care work also involves ergonomic stresses such as bending and one-sided lifting (Bright 1999, Owen 1994, Swanson 1994).

Several studies of care givers in institutional and home-based settings suggest that rates of musculoskeletal injuries, and subsequent workers’ compensation claims are impacted by job tenure, psychological demands, psychosocial rewards, and job satisfaction as well as the physical risks and job pace (Boyer 2009, Zontek 2009).

Asthma and dermatitis due to cleaning products

Cleaning products are not required to be tested for their potential to cause asthma before marketing in the United States (Rosenman 2003), but a number of cleaning chemicals and product types have been associated with airway irritation and asthma in the published literature. Products associated with asthma include common household chemicals such as ammonia and bleach as well as solvents, surfactants, disinfectants, and sprays such as glass cleaners, degreasers and air fresheners (Medina-Ramon 2006, Arif 2008, Zock 2007). Frequent bleach exposure has been associated with doubling of the incidence of new onset asthma in nurses and tripling of the incidence of asthma among domestic workers (Medina-Ramon 2005, Arif 2009).

Focus groups with workers in Texas revealed that domestic cleaners actually have more frequent exposure to asthma-causing chemicals, experience more symptoms, and have less knowledge about the chemical hazards of their work than their institutionally-employed counterparts (Arif 2008). The most severe

potential chemical hazard for domestic workers and other cleaners is chlorine gas inhalation causing acute lung injury. Chlorine gas is produced by combining bleach with acid or ammonia (Zock 2005, Horton 2005).

Cleaning chemicals are also commonly associated with dermatitis and eczema, conditions involving symptoms of redness, itching, cracking, and blistering of the skin, usually the hands (Nielsen 1996). Working with wet hands interferes with the skin's natural barrier function, allowing irritant chemicals to penetrate and cause irritation or allergy (Zock 2005). Table 10 shows that maids and housekeepers are twice as likely to miss work due to exposure to a harmful substance or environment as the average worker (10.7 vs. 4.7 exposures per 10,000 workers) and more than four times as likely to miss work due to chemical burns as the general population (2.3 vs. 0.5 chemical burns per 10,000 workers).

Sleep Disturbances

Sleep disturbances and sleep disorders such as insomnia may be caused by psychological factors (such as anxiety, depression, or stress), physical factors (such as hormonal changes and medical conditions), or behavioral, occupational, or environmental factors (such as shift work, overuse of caffeine and alcohol, environmental noise, extreme temperatures or environmental changes) (NHLBI 2005). Domestic workers are vulnerable to sleep disturbances and disorders due to their socio-economic status and exposure to occupational stress. Lower-income populations are more likely to live in substandard housing, which increases exposure to environmental noise resulting in inadequate sleep (SFDPH 2004).

Domestic workers that provide 24-hour home care are analogous to rotating shift workers who often work an inconsistent schedule and must be alert both during the day and at night. As further described in Section Seven, continued exposure to such a schedule can lead to chronic fatigue and long-term health problems for the worker, such as increased risk of cardiovascular disease, diabetes, obesity, depression, anxiety, and injury. Habitual short sleep duration is also associated with increased mortality (Ulmer 2009, Colten 2006, Frank 2005). Exhausted, sleep-deprived workers are impaired in their ability to provide the highest quality of care and are more prone to accidents (Estabrooks 2009, Belenky 2003, Dongen 2003). Table 10 shows that home health aides and personal and home care aides are more likely to miss days of work due to occupation-related traffic accidents than the average worker (7.9 and 5.9 vs. 4.6 traffic accidents per 10,000 workers).

Psychological Stress

The National Institute of Occupational Safety and Health identifies occupational stress as being caused by heavy workloads, infrequent rest breaks, long work hours, hectic and routine tasks that do not utilize workers' skills and provide little sense of control, lack of worker voice in decision-making, poor social environment at work, conflicting expectations, job insecurity, and unpleasant or dangerous physical conditions. The domestic work industry is characterized by physically and emotionally intense work demands, minimal formal labor protections, minimal worker control over working conditions, and job insecurity (Parrenas 2001, Hondagneu-Sotelo 2007, Dresser 2008, HRW 2001). Domestic workers may also experience income-related stress from low wage jobs and stress from discrimination or financial, physical or sexual abuse by employers.

Despite these vulnerabilities, domestic workers also have the potential to have a higher level of control on the job than other industries because of the independent nature of many job tasks, potential for entrepreneurialism within the industry, and the high levels of satisfaction that caregivers can derive from their work (Delp 2006). However, the lack of labor protections in the industry and factors such as immigration status and gender dynamics keep most workers from achieving job control, security and satisfaction that could mediate the detrimental health impacts of occupational stress. Under current conditions, occupational stress is one of the greatest workplace hazards for domestic workers in terms of long-term health risks.

A survey of 547 domestic workers in New York City found that 46% of workers reported experiencing stress at work. Occupational stress was caused by employers requiring workers to perform multiple jobs, do work not in their job descriptions, and work for someone other than their employer (DWU 2006).

Occupational stress is a workplace hazard that has negative physical and mental health impacts. Research consistently shows that workers in jobs with high demands, low control and low job security have an increased risk for hypertension, obesity, cardiovascular disease, depression, anxiety, diabetes, injury and chronic pain (Kawachi 2000).

Infectious Diseases

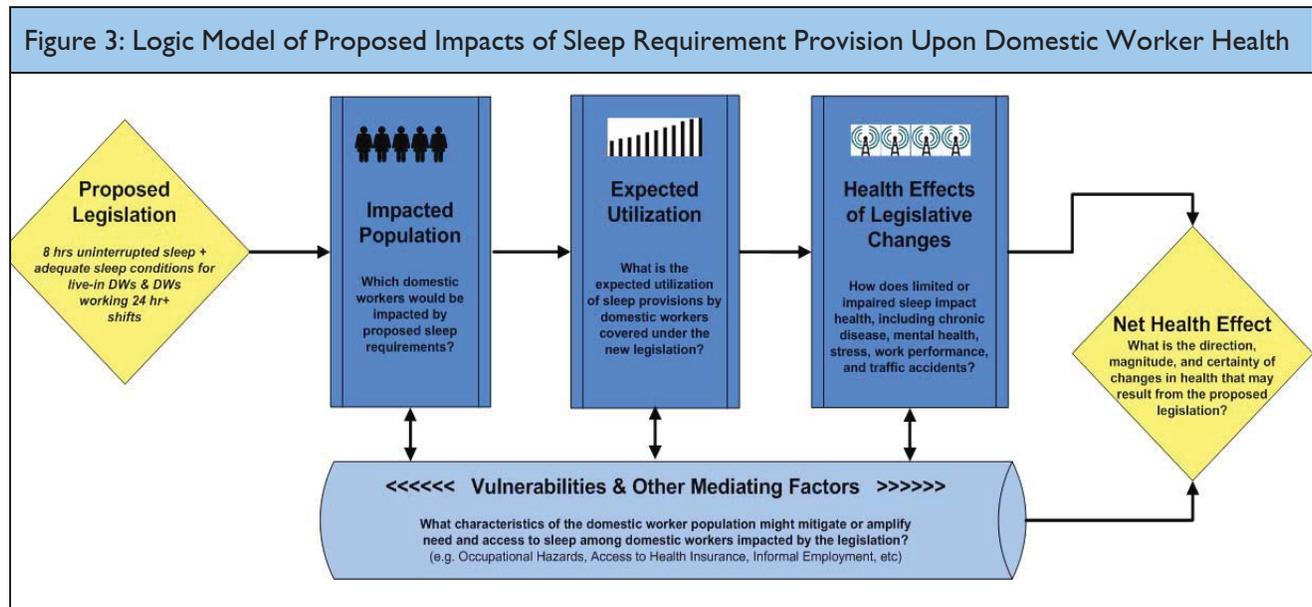
Workers who care for children or dependent adults may be exposed to infectious diseases such as hepatitis or gastroenteritis, especially if they are not trained in universal precautions for infection control. A study of home health care aides in Massachusetts found that one of every 100 home health care aides had experienced an injury involving sharp medical devices and more than 6 of every 100 home health care aides was exposed to blood and body fluid exposures on the job (Quinn 2009). Another study of home health care aides found that although home health care aides were less likely to handle blood and body fluids on the job than home health care nurses, they were five times as likely to experience a sharp injury and twice as likely to be exposed to blood and body fluids when changing wound dressings than the registered nurses providing home care (Lipscomb 2009). In both studies, the researchers observed that lack of experience and training on universal precautions increased risk for blood borne exposures. In addition, all sectors of the domestic workforce may experience the health risks associated with dirty or unhygienic workplaces (Zechter 1987, Taylor 2006).

Physical and Sexual Abuse

Some domestic workers are subject to physical and/or sexual abuse by their employers or clients. One percent of domestic workers surveyed in New York reported physical abuse, while 9% of domestic workers surveyed in California reported "violence" (DWU 2006, MUA 2007). Nationally, personal and home care aides are more than ten times as likely to be assaulted or violently attacked by another person on the job than the average worker (17.6 vs. 1.7 attacks per 10,000 workers) (Table 10). As noted by Geiger-Brown and colleagues (2007), violence against home care workers is generally perpetrated by the consumer or family member who may become abusive or violent during service delivery, but can also occur en-route to the client's home if traveling through an unsafe neighborhood. Experiencing abuse or violence, while providing home care work, increases the workers' risk of depression and anxiety (Geiger-Brown 2007). Trafficking and forced labor or enslavement of domestic workers in the United States, while relatively rare, has raised concern from prominent international human rights organizations, and the health implications of these cases are important for understanding the health risks for the industry's most vulnerable workers (Hiller 2009, HRW 2001).

7 HEALTH IMPACTS OF PROPOSED UNINTERRUPTED SLEEP REQUIREMENTS

Passage of the California Domestic Work Employee Equality, Fairness, and Dignity Act of 2011 would require employers to allow their employees eight hours of uninterrupted sleep in adequate sleeping conditions when their employees work 24 hour or longer shifts or live in their employer's home. This chapter analyzes how this proposed legal requirement would effect the health of domestic workers and care-recipients in California utilizing the logic model used for this assessment illustrated in Figure 3.



Consistent with the logic model, the analysis answers the following questions:

- 7.1 What are the known health effects of limited or impaired sleep?
- 7.2 What is the evidence for insufficient sleep among domestic workers?
- 7.3 Which domestic workers would be impacted by a change in sleep requirements?
- 7.4 How would the legislation change hours or quality of sleep of domestic workers?
- 7.5 How would the legislation impact care-recipients?
- 7.6 What is the likelihood, certainty, and magnitude of health effects resulting from the legislative changes to sleep requirements?
- 7.7 What barriers, vulnerabilities, or other uncertainty factors could modify the health effects of the law?

Box 4: AB 889 Sleep Provisions

1455. (a) A DW employee who is required to be on duty for 24 consecutive hours or more shall have a minimum of 8 consecutive hours for uninterrupted sleep, except in an emergency. (b) ... may agree in writing to exclude a bona fide regularly scheduled sleeping period... (c) ... not receive 8 consecutive hours... if... employer did not hire a replacement worker for at least 8 consecutive hours in a 24 hour work period. ... (d) ... employer who violates... shall pay a sum of \$50... for each day...violated provision.

1456. (a) A live-in DW employee who is not required to be on duty for 24 consecutive hours or more shall have at least 12 consecutive hours free of duty during each workday of 24 hours, of which a minimum of 8 consecutive hours are for uninterrupted sleep. A live-in DW employee suffered or permitted to work during the 12 consecutive off-duty hours shall be compensated (b) No live-in domestic work employee shall be required to work more than five days in any one workweek, without a day off of not less than 24 consecutive hours, except in an emergency. If the live-in domestic work employee is suffered or permitted to work in excess of five workdays in any workweek, the domestic work employee shall be compensated... (c) ... employer who violates...shall pay a sum of \$50...for each day that he or she violated this provision.

1457. Live-in DW employees and DW employees who work 24 hours or more shall have sleeping accommodations that are adequate, decent, and sanitary according to usual customary standards... shall not be required to share a bed.

7.1 What are the known health effects of limited or impaired sleep?

Sleep is essential for health. Scientists generally agree that sleep has multiple physiological functions. Researchers are still working to understand the complex functions of sleep; however, the evidence definitively shows that sleep plays a critical role in the normal function of the body's cardiovascular, respiratory, nervous, endocrine and immune systems. The restorative or "life-sustaining" function of sleep allows for healthy functioning of the endocrine and immune systems. The cognitive function of sleep allows for healthy brain development, and optimal learning and memory throughout life (Frank 2005, Harvard DSM, Walker 2009).

Health requires regular, sufficient sleep in a daily cycle. Circadian rhythms are the body's natural physiological and behavioral cycles. Circadian rhythms regulate body temperature, heart rate, muscle tone, and daily hormone secretion; modulate physical activity and food consumption; and control the sleep-wake cycle. Habitual sleep in keeping with circadian rhythms is associated with lower risk of cardiovascular disease, diabetes, and obesity; higher cognitive function; decreased risk for depression and anxiety; lower rates of injury; and decreased risk for immune impairment (Ulmer 2009, Frank 2006). Physiological processes – such as brain activity, heart rate, blood pressure and respiration – operate differently during sleep compared to wakefulness. These differences are also impacted by the type of sleep – known as non-rapid eye-movement (NREM) sleep and rapid eye-movement (REM) sleep (Colten 2006).

Basal sleep need is the amount of sleep the body needs on a regular basis for optimal performance. Sleep need varies somewhat by individuals; however, public health evidence shows that the optimal nightly average is seven or eight hours (Colten 2006, Lee-Chiong 2006, Pandi-Perumal 2007).

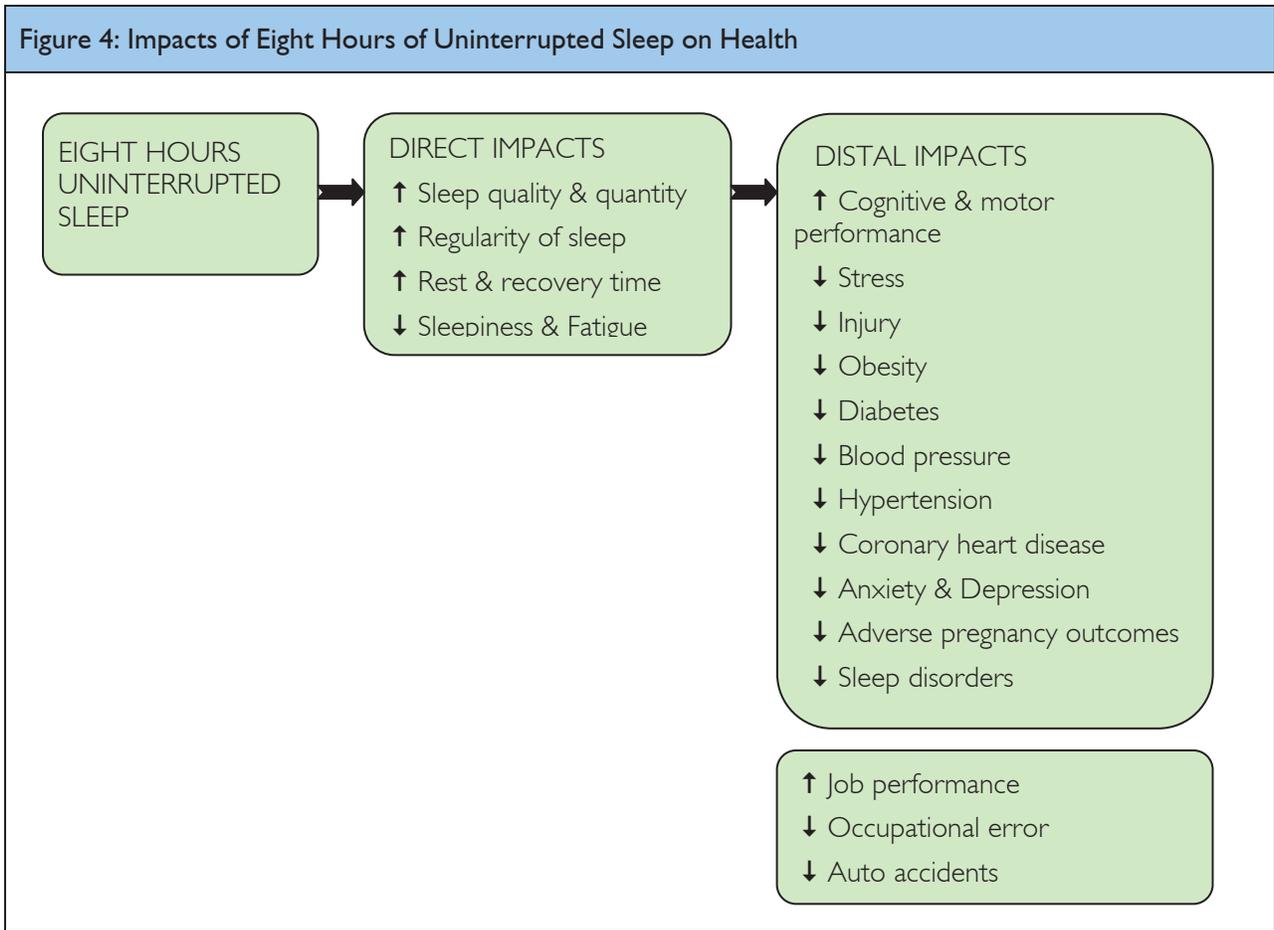
Sleep less than the basal sleep need leads to sleepiness and fatigue. Fatigue refers to a physical state of exhaustion, manifested in symptoms such as lethargy, lack of energy, tiredness, decreased strength and difficulty with concentration. Sleepiness and fatigue lead to functional impairments such as slower reaction time, reduced vigilance and deficits in information processing, which have consequences not just for the individual worker but also for the employer and broader society (U.S. DOT 1998). Dose-response studies have established that there is a relationship between the average number of hours of sleep and health outcomes including risk of hypertension, diabetes, obesity, mental health problems and mortality (Gangwisch 2006, Di Milia 2009, Hall 2008, Ayas 2003(a), Ayas 2003(b), Geiger-Brown 2004).

In a normal sleep-wake cycle, after a period of wakefulness, the body normally signals the need for sleep. However, after 16 to 18 hours of wakefulness, the brain's circadian system no longer opposes the physiological pressure for sleep. Thus, acute sleep deprivation begins when an individual remains awake over 16 hours or into their habitual sleep period. This results in sleepiness, fatigue, memory and attention lapses, and decreased cognitive and motor performance (Ulmer 2009, Colten 2006). Sleep debt is accumulated sleep deprivation.

Recognizing the relationship of sleep and health, minimum sleep and rest standards have been disseminated for certain occupational types. Most commonly, these regulations are promulgated to protect public health and safety and not the health of the worker. Appendix B summarizes sleep standards for several different types of workers in the United States.

The sections below provide a summary of the evidence for the direct and distal effects of sleep upon health as illustrated in Figure 4. We were able to identify systematic reviews or meta-analyses for the following health endpoints: mortality (Cappuccio 2010, Gallicchio 2009), obesity (Patel 2008, Cappuccio 2008), and cardiovascular disease (Cappuccio 2011). For other health endpoints, the protocol for literature review is described in the section on methodology.

Figure 4: Impacts of Eight Hours of Uninterrupted Sleep on Health



Box 5: Health Effects of Shift Work

Research on shift work provides evidence relevant to the potential health impacts of sleep. Shift work is defined as a schedule in which at least fifty percent of the employee's required work occurs between 4pm and 8am (Shen 2006). Rotating shift work is defined as a schedule in which the employee's required work alternates between the day, evening, and night shifts (Kawachi 1995). Individuals working night shifts are more likely to have insufficient or poor quality sleep than those with day time shifts (Akerstedt 2003, Ohanyon 2010).

Cross-sectional studies of shift workers in a variety of industries – manufacturing, long-haul driving, nurses, medical interns, nursing home attendants and other health care workers – provide evidence relevant to the cognitive and motor performance impacts of insufficient sleep. In a study of 405 shift workers, Shen et al. (2005) found a significant correlation between frequency of shift work and fatigue and the extent to which workers reported that fatigue intruded on their everyday life. Workers who engaged in shift work three or more days a week reported the highest levels of fatigue, with common complaints including irritability, difficulty concentrating and a lack of energy for other activities.

Research shows that shift workers are at greater risk for obesity and have higher mean BMI than day workers (Eberly 2010). A cross sectional study of 27,485 workers in Sweden found that women working night shifts have increased risk for metabolic syndrome²⁷ compared to workers who just work during the day. Women working shifts had a relative risk of 1.71 of testing positive for three metabolic variables, compared to women working normal day hours (Karlsson 2001).

Shift work is associated with significant mental health impacts, especially for women working as caregivers. Geiger-Brown and colleagues (2004) studied 473 female nursing assistants working in nursing homes in the United States to understand how schedule demands impacted workers' mental health. Working two or more double-shifts per month was associated with increased risk for all mental health indicators studied. Double-shift workers were at three times the risk for depression and showed a 75% increased risk for anxiety. Further, odds of depression were four times higher for nursing assistants that had multiple schedule demands: working over 50 hours a week, more than two weekends a month and more than two double shifts a month (Geiger-Brown 2004).

Shift work, and especially night shift work, increases the risk and severity of injuries for health care workers. Horwitz et al. (2004) conducted a cross sectional analysis of workers' compensation claims filed by hospital employees in Oregon from 1990 -1997. The injury rate for day shift workers was 176 per 10,000 compared to 324 for the evening shift and 279 for the night shift. Injuries to workers on the night shift were more severe overall with workers injured on the night shift averaging 46 days off for injury disability compared to 39 days off for evening shift workers and 38 for day shift. (Horwitz 2004)

In a prospective nationwide survey of medical residents, Barger et al. (2005) found that 86.5% of residents working extended shifts in the hospital slept four hours or less during their work shift of 24 hours or more. The survey found that the increased odds for reporting a motor vehicle crash after an extended shift was 2.3 and the increased odds for a near-miss accident was 5.9, compared to residents not working extended shifts. Each additional extended work shift scheduled in a month increased the monthly risk of crash during the commute by 16.2 percent (Barger 2005).

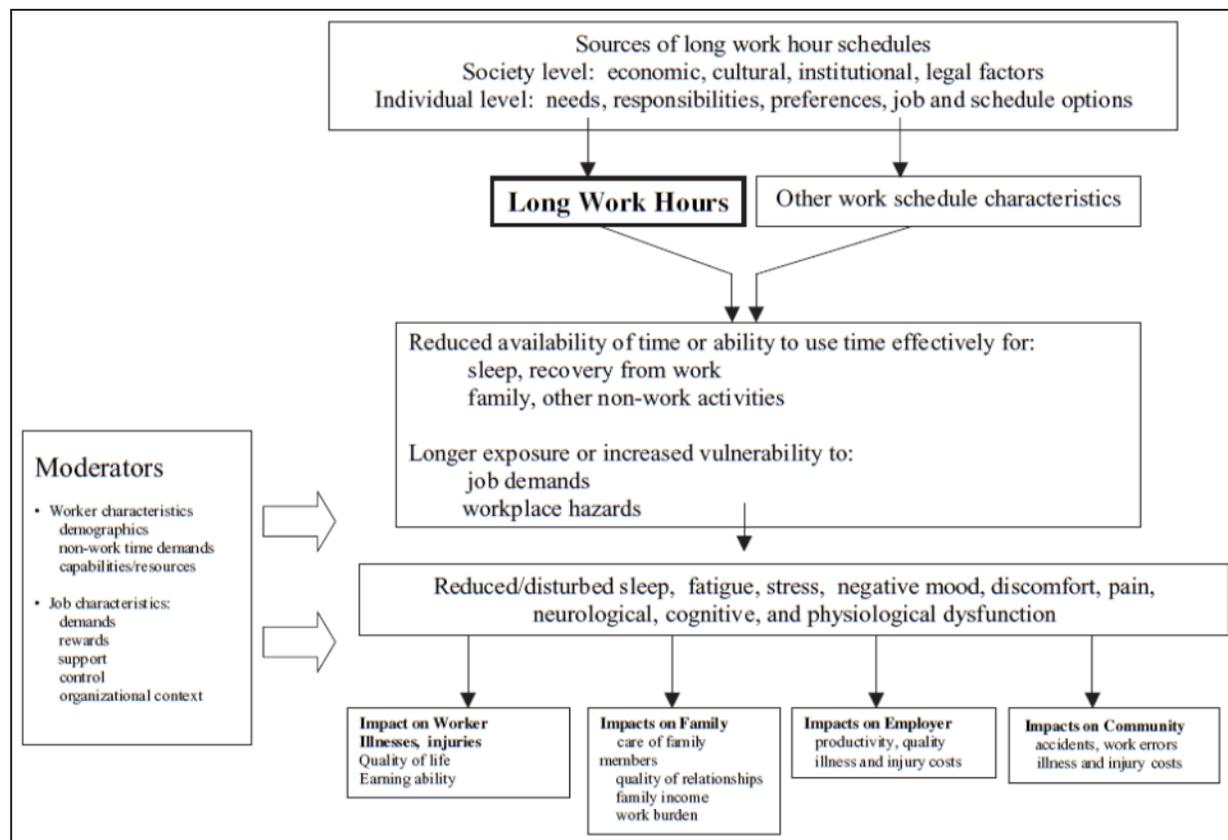
²⁷ Metabolic syndrome refers to a set of metabolic risk factors for coronary heart disease and type 2 diabetes. Metabolic risk factors include abdominal obesity, high triglycerides, low concentrations of HDL cholesterol, elevated blood pressure, and glucose intolerance (AHA 2010).

Box 6: Health Effects of Long Working Hours

The diagram below outlines a framework for studying the undesirable impacts of long working hours. This diagram was created by the National Occupational Research Agenda (NORA) Long Work Hours team to support future research on the health impacts of long work hours. The team, which included experts from industry, labor and government, conducted an extensive literature review and gathered input from attendees at a conference on long work hours to develop the framework illustrated below.

Similar to the findings in the Sleep section below, the Long Work Hours team found that long work hours can impact (1) workers' injuries, illnesses, quality of life and earning capacity; (2) the relationships, income and work burden of family members of the worker and the care-recipient; (3) the worker's productivity, quality of care, and injury costs; and (4) more broadly, the community at-large via likelihood of accidents, work errors and occupational injury and illness costs. The researchers found that long work hours contribute to reduced/disturbed sleep, fatigue, stress, negative mood, discomfort, pain, and neurological, cognitive and physiological dysfunction. These impacts may be mediated by worker vulnerabilities, the characteristics of the job, and various societal and individual level factors. This research framework and agenda could be helpful to shaping the formation of research on domestic workers and the impacts of sleep and rest requirements upon the worker and quality of care.

For more information about the NORA Long Work Hours report and other health effects of work schedules, please visit <http://www.cdc.gov/niosh/topics/workschedules/>



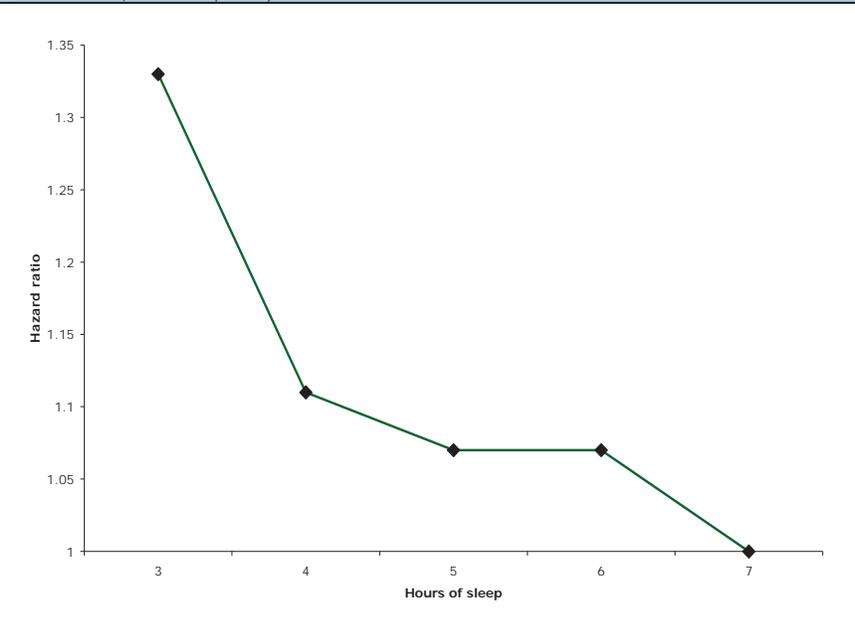
From Caruso et al. 2006

7.2.1 Sleep and Life Expectancy

Large cross-sectional and prospective studies show that people who routinely sleep five or fewer hours a night have a 10 -15% increased risk for all-cause mortality compared to people who sleep seven to eight hours a night (Gallicchio 2009, Kripke 2002, Patel 2004, Tamakoshi 2004, Ferrie 2007). A meta-analysis of 16 studies (27 cohort samples with 1.4 million participants) found that short sleep duration (less than five or seven hours of sleep) increases risk of death by 12% compared to those who slept seven or eight hours a night (Cappuccio 2010). Cappuccio and colleagues found that the causative mechanisms for increased morbidity from short

Figure 5: Sleep Duration and Mortality in Women in the United States

SOURCE: Kripke et al. (2002)



sleep duration were metabolic syndrome and stress-related (increased cortisol secretion and inflammation). Sleeping more than eight or nine hours was also associated with increased risk of death, compared to those who slept seven or eight hours per night, however the mechanism was unknown and authors believed that confounding and co-morbidities may have influenced risk. Kripke et al. (2002) found evidence for an exposure-response relationship between average hours of sleep and mortality (See Figure 5). Using the Whitehall II cohort of British civil servants, Ferrie and colleagues (2007) found that decreases in sleep duration over a three- to five- year period were associated with a 110% excess risk of mortality from cardiovascular disease after controlling for relevant risk factors.

7.2.2 Sleep and Chronic Disease

Research shows that insufficient sleep is associated with increased risk for obesity, diabetes, hypertension and coronary heart disease (Isomaa 2001, Lakka 2002, Knutson 2007, Cappuccio 2008, Patel 2008, Gottlieb 2006).

Hypertension

A longitudinal analysis of 4,810 participants in NHANES I (National Health and Nutrition Examination Survey) found that sleep duration of less than five hours per night was associated with a significantly increased risk of hypertension for participants 32-59 years old – twice the risk compared to those who slept eight hours a night (Gangwisch 2006).

Heart Disease

A systematic review and meta-analysis of articles published between 1997 and 2009 found that in the 15 studies (24 cohort samples with 474,684 participants) short sleep duration (less than five or seven hours of sleep) was associated with an increased risk of developing or dying of coronary heart disease (RR = 1.48) and stroke (RR = 1.15) (Cappuccio 2011). A large prospective cohort study of nurses in the United States found that short sleep duration has a significant impact on coronary heart disease. Compared to the

reference group of nurses that reported an average of eight hours of daily sleep, nurses who slept six hours had a relative risk of 1.30 for developing coronary health disease and nurses who slept less than five hours had a relative risk of 1.82 (Ayas 2003b). The same study also found that nurses who slept less than five hours nightly had an increased risk for diabetes (RR=1.57) (Ayas 2003a).

Obesity

Patel and Hu (2008) conducted a systematic review of manuscripts published between 1966 and 2007 on the relationship between short sleep duration and weight gain, finding there was a clear and strong association between short sleep duration and concurrent and future obesity among children. Among adults, there was a more mixed association with 17 of 23 studies finding an independent association between short sleep duration and weight gain. Though the association wanes with age, three longitudinal studies also found a positive association between short sleep duration and future weight gain in adults (Patel 2008). Cappuccio and colleagues (2008) conducted a meta-analysis of articles analyzing a relationship between short sleep duration and obesity at different ages. The authors found a pooled odds ratio of 1.89 for children (95% Confidence Interval: 1.46 to 2.43; $P < 0.0001$) and 1.55 for adults (95% Confidence Interval: 1.43 to 1.68; $P < 0.0001$), suggesting that short sleep duration consistently increases risk of obesity among both children and adults. However, the authors note that drawing any definite conclusion "is difficult due to lack of control for important confounders and inconsistent evidence of temporal sequence in prospective studies." (Cappuccio 2008)

Insufficient sleep duration is also associated with increased risk of metabolic syndrome (Karlsson 1999). DiMilia et al. (2009) conducted a cross sectional survey of 346 shift and day workers in the coal industry and found that long working hours (OR=2.82), age (OR=2.05) and short sleep duration (OR=1.92) were the most important predictors of obesity. A study of middle-aged adults in Pennsylvania found similar results of increased risk for metabolic syndrome associated with short sleep duration (Hall 2008).

7.2.3 Sleep, Stress and Mental Health

Sleep deprivation studies show that short-term reduced sleep duration among healthy volunteers is associated with stress-related health effects such as elevated blood pressure and increased production of cortisol²⁸ (Ulmer 2009, Colten 2006, Lee-Chiong 2006, Pandi-Perumal 2007). Over time, chronic stress negatively impacts the health of adults and children through its impacts on neuroendocrine, vascular, immune and inflammatory mechanisms. Specifically, chronic stress can accelerate aging and increase risk of heart disease, stroke, diabetes, low birth weight or premature birth, depression, anxiety, stroke, and other conditions (McEwen 1998, Harvard CDC 2007, Bauer 2004, Hertzman 2003).

Research shows that shortened sleep hours are related to increased depression, anger, frustration, tension, and anxiety (Kahn-Green 2007, Sagaspe 2006, Babson 2010). Lack of adequate sleep can result in the magnification of negative reactions to adverse experiences and mitigation of positive reactions to pleasant events (Zohar 2005). Negative reactions to adverse experiences could negatively impact caregiving and the ability of care providers to provide empathetic and positive care for care-recipients.

7.2.4 Cognitive and Motor Performance

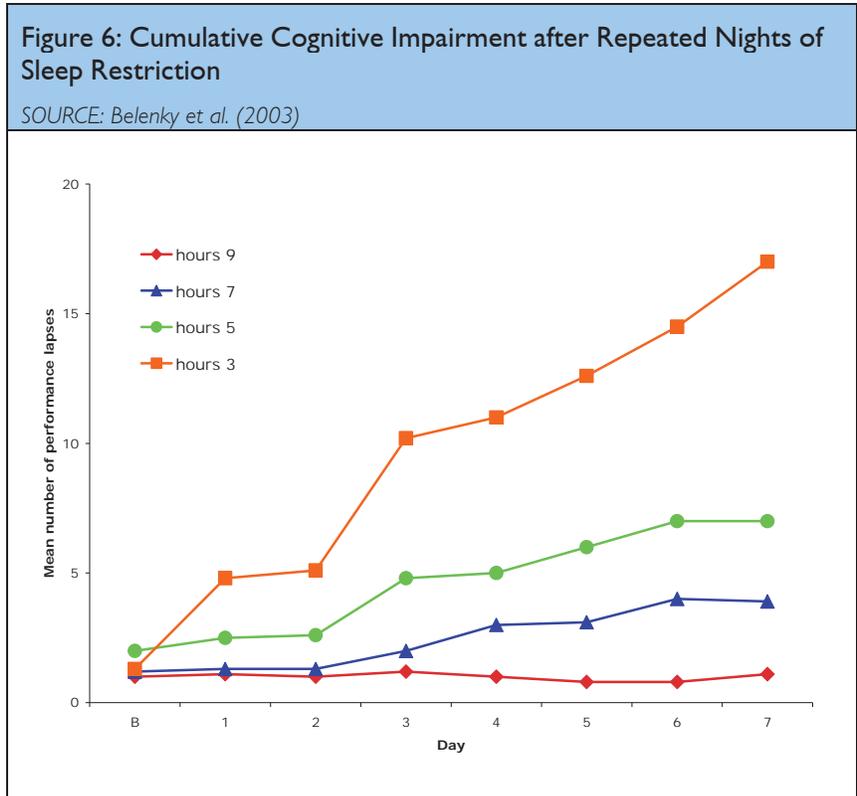
Experimental research shows that sleep deprivation significantly impacts cognitive and motor performance. Cognitive and motor performance lapses are of particular concern in a caregiving setting because those performance lapses lead to errors and decreased quality of care (Ulmer 2009, Estabrooks 2009, Surani 2008). Experimental research has consistently shown that individuals who sleep less than five hours a night experience acute sleepiness and fatigue that is manifested in the short term in decreased cognitive and motor performance (Belensky 2003, Dongen 2003).

²⁸ Often called the "stress hormone," cortisol in the saliva is increasingly used as a physiologic measure of stress. Although cortisol can support quicker reactions in adverse moments (e.g. "fight or flight responses"), long-term exposure can harm health.

A review and meta-analysis of sixty studies published between 1971 and 2005 involving 959 physician and 1028 non-physician participants found that sleep deprivation impacts human performance measures including cognitive function, vigilance, fine motor skills and mood. In pooled analysis, sleep deprivation reduced cognitive performance by nearly one standard deviation (-.951). The meta-analysis also showed significant and large effects on clinical performance, memory and vigilance. The authors also identified several aspects of sleep deprivation that have not been studied with respect to performance: chronic partial sleep deprivation, work task duration, pacing and complexity of tasks (Philbert 2005).

Another review and meta-analysis of nineteen studies found that “sleep deprivation strongly impairs human functioning” in the areas of cognitive performance, motor performance and mood. In pooled analysis, sleep deprivation reduced cognitive performance by 1.37 standard deviations. The authors found that mood was most affected by sleep deprivation, followed by cognitive performance and motor performance. Partial sleep deprivation was found to have a surprisingly strong overall effect, which points to the importance of circadian rhythms in day-to-day mood and function (Pilcher 1996).

Figure 6 illustrates the dose-response relationship between sleep restrictions and cumulative cognitive impairment. Belenky et al. (2003) studied the effects of cumulative sleep deprivation on an individual’s capacity to detect and respond to a stimulus in the environment (a light) and to sustain attention. Individuals who slept seven and nine hours performed significantly better than those who slept three hours, and the performance gap widened over several days of accumulated sleep deprivation. After seven days, individuals sleeping seven hours a night were averaging one-third as many performance lapses compared to individuals sleeping three hours a night (Belenky 2003).



7.2.5 Work Errors & Injuries

An indirect effect of impairment in cognitive performance is the increased likelihood of errors and decreased performance which may negatively impact quality of care. Caregivers who are sleepy or fatigued may be more stressed in their relationship with their employer, more likely to have difficulty with problem-solving or detail-oriented tasks, and more prone to household or motor vehicle accidents (McCurry 2007). A one-year randomized intervention study of medical residents compared medical errors among residents who worked a conventional extended 24-hour shift to those who worked an intervention schedule with no extended shifts. Serious medical errors were reduced by 36% among those working the intervention schedule and PAEs (measurement of harm reaching the patient) were reduced by 27% (Ulmer 2009). The American Medical Association evaluated this study, concluding that the performance improvements and reduction in medical errors were largely attributable to the intervention rather than any other confounding

factors. Most studies of the effects of shift length on patient care compare eight and twelve-hour shifts, and show a significant difference, with more errors and accidents among nurses who work twelve-hour shifts (Estabrooks 2009). These studies suggest that insufficient sleep may increase the likelihood of a work error that could result in injury to the worker, care-recipient or both.

7.2.6 Traffic Accidents

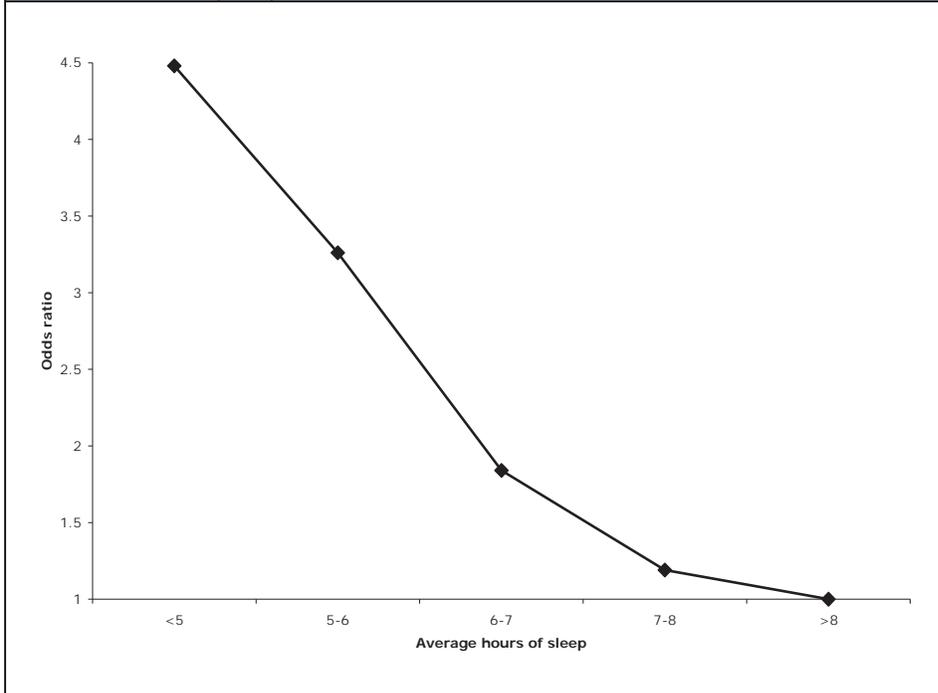
Drowsy driving is the reported cause of over 100,000 crashes annually in the United States, and according to the Department of Transportation, it is “widely recognized that drowsy driving is underreported as a cause of crashes” (U.S. DOT). One study by the National Highway Traffic Safety Administration placed electronic monitors on a random sample of 100 volunteer drivers over 13 months of driving and found that drowsiness was a contributing factor in 20% of all crashes (Klauer 2006). A systematic review of epidemiological studies that evaluated the role of driver sleepiness found that risk increases substantially when the driver had slept less than five hours or when driving in the early morning hours. Cumulative sleep debt in shift workers also compounded levels of sleepiness. The authors estimate that 15-20% of motor vehicle crashes in high-income countries are attributable to driver sleepiness (Connor 2009).

Recent studies have shown that health care professionals who work long shifts are at significantly increased risk for falling asleep while driving and for motor vehicle crashes. A study of 2737 medical residents found that a documented motor vehicle crash was more than twice as likely to occur after an extended work shift (≥ 24 hours) than after a non-extended shift. The odds of a near-motor vehicle crash, as reported by the medical residents, were more than five times as high after working an extended shift (Barger 2005). The same study found that each extended work shift scheduled in a month increased the monthly risk of a motor vehicle crash by 9.1 percent. If residents worked five or more extended shifts in a month, the study also found a significantly increased risk that they would fall asleep while driving (OR=2.39) or while stopped in traffic (OR=3.69) (Barger 2005).

Similarly, a study of 895 hospital nurses found that two-thirds of nurses reported at least one episode of drowsy driving in a month during their return commute. The risk for an episode of drowsy driving doubled when nurses worked shifts over 12 hours. The same study found that 16% of the nurses reported a motor vehicle crash or near-motor vehicle crash, and 60% of those reported incidents occurred following shifts of longer than 12 hours (Scott 2007). These studies show that the risks associated with drowsy driving and motor vehicle accident are not reserved to driving-related professions. Health care and caregiving professionals that work long shifts are at increased risk for falling asleep while driving and for motor vehicle crashes which makes their sleep deprivation a public health concern for all people involved in motor vehicle travel.

Figure 7: Risk of Auto Crash of Sleep Deprived Drivers

SOURCE: *Stutts et al. (1999)*



Stutts et al. (1999) and the AAA Foundation for Traffic Safety found a dose-response relationship between average hours of sleep and likelihood of sleep-related crash. The risk for drivers who slept five hours was half the risk of drivers who slept less than five hours, yet was twice the risk for crash for drivers who slept eight hours (Figure 7). The risk of traffic accidents has led to the creation of work limitations for certain occupations including pilots, truck drivers, and railroad conductors (See Appendix B).

7.2 What is the evidence for insufficient sleep among domestic workers?

To date, the number of domestic workers experiencing sleep impairment and the average length of sleep in this population has not been enumerated via survey or other research methods. However, it is reasonable to assume that the work environment contributes to insufficient sleep for a subset of domestic workers. A subset of domestic workers who provide care to children, the elderly, sick or disabled adults often provide care at night during typical sleeping hours. People with dementia or severe chronic disease have nocturnal needs for care (McCurry 1999, McCurry 2007, Carter 2000). Studies conducted over the past fifteen years have found that two-thirds of family caregivers for people with dementia experience sleep disturbances, and 80% of those experience sleep disturbances more than once a week (Wilcox 1999, McCurry 1995).

Other domestic workers are working 24-hour shifts or living in their employer's home. These workers are typically expected to perform work tasks both at night and during the day, depending upon the needs of the employer and care-recipient. This may contribute to an irregular and disrupted sleep schedule, which can also be a contributing factor to the development of sleep disorders such as insomnia that become a further barrier to uninterrupted sleep (Schulz 2004, McCurry 2009).

7.3 Which domestic workers would be impacted by a change in sleep requirements?

The proposed legislative protections for sleep would impact only a subset of California domestic workers — live-in workers or those who work 24 or more hours with one employer. Personal attendants and personal and home care aides are the types of domestic workers most likely to be impacted by this provision since they regularly provide long hours of continuous care. Child care providers, especially live-in nannies, would also be impacted. Housekeepers and maids may be impacted however it is anticipated that the majority of cleaning-related domestic work is performed by domestic workers who live outside their employer's home. According to our estimates, 43% of domestic workers in California are either classified as personal and home care aides or as child care workers (see Table 6). However it is not known what proportion of these workers work 24 or more hours or live in their employers home.

As noted in Section 6, the need for 24-hour care will continue to increase in the coming decades according to the projections of long-term care-recipients who prefer to receive care in their homes rather than enter a long-term care facility. Some care-recipients do not require round-the-clock care but some people with dementia, chronic disease or disability do need to have someone on call 24 hours a day (Smith 2009, U.S. DHHS 2003). Thus the number of home health care and personal care providers in California is projected to double by 2018 (CA EDD 2010), which would significantly increase the number of individuals impacted by the proposed AB 889 legislation.

As currently written, AB 889 allows for domestic workers and their employers to write a bona fide mutually agreed written agreement to forego the law's sleep requirements. This provision would allow for certain exceptions to the law when mutually agreed upon by both the worker and the employer. However, it is assumed that the majority of employers of live-in domestic workers and 24-hour caregivers would be required to comply with this provision.

7.4 How would the legislation change hours or quality of sleep of domestic workers?

AB 889 sleep provisions require employers of domestic workers to provide 1) a minimum of eight consecutive hours of sleep and 2) an adequate, decent, and sanitary sleeping location for domestic workers who work 24 or more consecutive hours. This rule applies both to live-in domestic workers and to personal attendants (Box 4).

Assuming compliance with the law, domestic workers who live in their employers' homes and domestic workers working 24 hours or more would be expected to have improved sleep conditions. Specifically, domestic workers would be expected to be able to rest for at least eight hours without interruption in a location that is suitable and adequate for sleeping.

7.5 How would the legislation impact care-recipients?

The care needs of employers of domestic workers differ. For example, employers of live-in domestic workers who primarily provide housekeeping may already place few nighttime demands on their workers or may more easily be able to meet the sleep requirements. In these cases, the provision is not likely to impact care-recipients.

Where 24 hour care is essential, for example for some disabled individuals, AB 889 sleep provision may result in employers' needing to hire additional employees. However, the total hours of work and thus employer costs should not change as the employer is currently required to pay for all hours worked. Alternatively, the employer may choose to forego care during the eight hour period that the domestic worker is sleeping or have a family member provide the care. It is not possible to judge whether the quality of care would change due to these reasons.

As described above, AB 889 sleep provisions may indirectly improve quality of care for care-recipients by reducing sleep deprivation and resulting impairment of cognitive motor performance. Regular sleep would a) decrease the likelihood of work errors and accidents that may negatively impact the care-recipient and b) result in more well-rested, healthier, and more focused workers.

Currently personal attendants are excluded from overtime laws and meal and rest break requirements. Other provision of AB 889, including overtime provision and paid sick days, could potentially impact the cost of 24 hour care; however, these provisions are not the subject of this HIA.

7.6 What is the likelihood, certainty, and magnitude of health effects resulting from the legislative changes to sleep requirements?

In summary, based on the available evidence, understanding of the domestic worker population and their socio-economic and work-related vulnerabilities, we predict that the passage of a sleep requirement for domestic workers would protect the health of a sizable and growing subset of domestic workers in California.

Table 12 provides a summary judgment of the likelihood, intensity, and magnitude of the health effect and the uncertainties related to limits of available evidence. A quantitative estimate of the magnitude of health effects related to sleep is not possible due to the lack of data on the following factors:

- the number of domestic workers working 24 hours or more or working as live-in workers
- the current distribution of sleep hours for domestic workers impacted by the law.

Table 12: Summary Assessment of Expected Effects of Sleep Protections on Health							
Health Outcome	Likelihood	Intensity / Severity	Who Impacted			Magnitude	Uncertainties related to limited evidence
			DW	CR	GP		
Mortality	▲▲▲	High	+			Small	Studies on health effects of sleep not specific to domestic work population
Chronic Disease & Obesity	▲▲	Mod	+			Small to Moderate	
Stress & Mental Health	▲▲	Mod	+	?		Small to Moderate	Limited information on current sleep patterns in affected population
Cognitive & Motor Performance	▲▲▲	Mod	+	+		Moderate	
Work Errors & Injuries	▲▲▲	High	+	+		Moderate	Baseline health status in affected domestic work population Data on utilization of protections
Traffic Accidents	▲▲▲	High	+	+	+	Uncertain	

Explanations:

- Likelihood refers to strength of research/evidence showing causal relationship between sleep and the health outcome: ▲ = limited evidence, ▲▲ = limited but consistent evidence, ▲▲▲ = causal relationship established. A causal effect means that the effect is likely to occur, irrespective of the magnitude or severity.
- Intensity/Severity reflects the nature of the effect its affects on function, life-expectancy and its permanence (High = very severe/intense, Mod = Moderate)
- Who impacted refers to which populations are impacted by the health outcomes associated with proposed sleep requirements. DW = Domestic Workers, CR = Care Recipient, GP = General Population.
- Magnitude reflects a qualitative judgment of the size of the anticipated change in the health effect (e.g. the increase in the number of cases of disease, injury, adverse events).

7.7 What barriers, vulnerabilities, or other uncertainty factors could modify the health effects of the law?

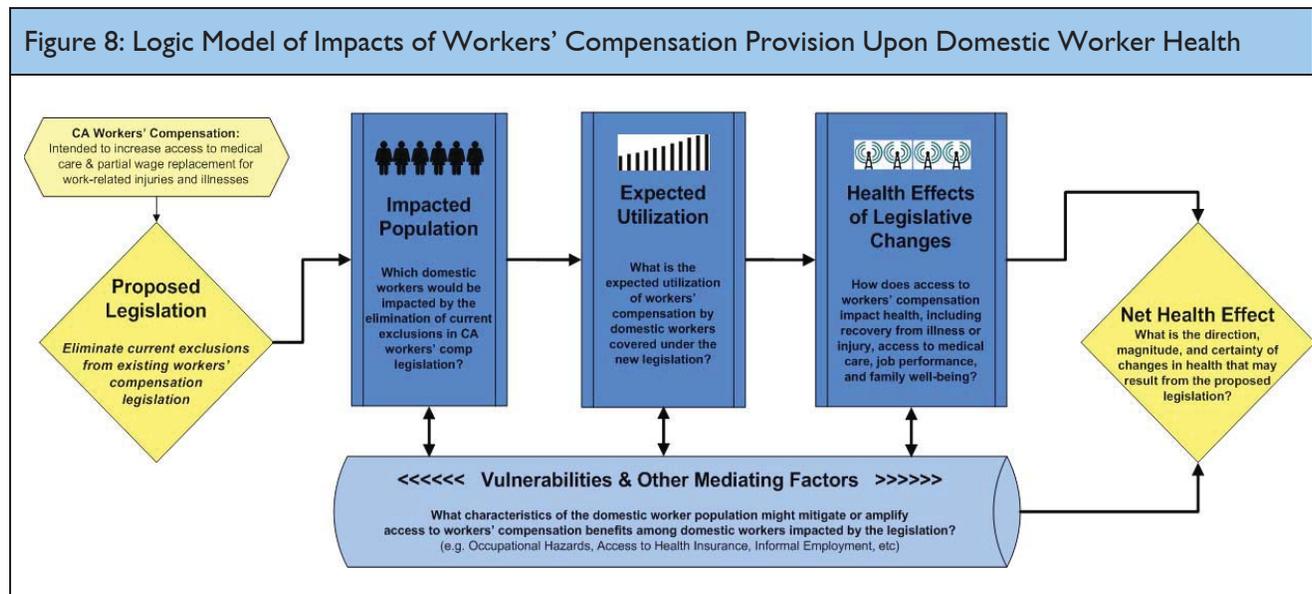
There is strong, consistent evidence for the health protective functions of sleep. The primary factors generating uncertainty in the health effects estimates include the lack of data on the size of the domestic worker population subject to the legal protections, their current sleep patterns, and understanding on the expected utilization of the law. Nevertheless, the evidence suggests that the benefit from sleep protections would be substantial for workers currently experiencing insufficient sleep due to work hours. Furthermore, the need for 24-hour care will continue to increase in the coming decades according to the projections of long-term care-recipients who prefer to receive care in their homes rather than enter a long-term care facility.

Mitigating the following barriers to utilization could maximize the protective effect of the law:

- Gender or racial dynamics may impact a worker's ability to confront non-compliant employers.
- Fear of retaliation, unemployment, or a need for more income may prevent low-wage or undocumented domestic workers from demanding a good night's sleep.
- Workers working without a contract may not know or believe that they are legally entitled to sleep.
- Enforcement agencies' limited resources may result in a lack of surveillance and lack of enforcement around this provision in private homes.
- Domestic workers who work 24-hour shifts or live in their employer's home may be the sole caregiver in the home, and may not have any flexibility to meaningfully exercise their right to sleep given the demands of their position. Sleep provisions are likely to have limited impact for caregivers in situations where employers are not able to afford to hire multiple caregivers to cover continuing, round-the-clock care.

8 HEALTH IMPACTS OF PROPOSED WORKERS' COMPENSATION COVERAGE

Passage of the California Domestic Work Employee Equality, Fairness, and Dignity Act of 2011 would eliminate language in Labor Code §§3351, 3352, 3715 that excludes certain classifications of domestic workers from state workers' compensation insurance (Box 7). The following analysis considers how this proposed change would affect the health of domestic workers in California utilizing the logic model illustrated in Figure 8.



Consistent with the logic model, to the analysis answer the following research questions:

- 8.1 What is the incidence of occupational illness and injuries among domestic workers?
- 8.2 What are the known health effects of workers' compensation coverage?
- 8.3 What is the evidence for insufficient access to workers' compensation among domestic workers?
- 8.4 Which domestic workers would benefit from changes in workers' compensation coverage under the legislation?
- 8.5 How might the workers' compensation provision impact care-recipients and employers?
- 8.6 What are the likelihood, intensity, and magnitude of health effects resulting from legislative changes in workers' compensation rules?
- 8.7 What barriers, vulnerabilities, or other uncertainty factors could modify the health effects of the legislation?

Box 7: AB 889 Workers' Compensation Provision

Proposed Change = California Labor Codes §§3351, 3352, 3551, 3708, 3715 amended to eliminate current exclusions of domestic workers from eligibility and access to workers' compensation. Labor Code §§ 3354 and 4156 repealed.

[Example of Repealed Code] (h) Any person ...who was employed by the employer to be held liable for less than 52 hours during the 90 calendar days immediately preceding the date of the injury or injuries..., or during the 90 calendar days immediately preceding the date of the last employment in an occupation exposing the employee to the hazards of the disease or injury or injuries..., or who earned less than \$100 in wages from the employer during the 90 calendar days immediately preceding the date of the injury or injuries... or during the 90 calendar days immediately preceding the date of the last employment in an occupation exposing the employee to the hazards of the disease or injury or injuries...

8.1 What is the incidence of occupational illness and injuries among domestic workers?

As described in Section 6.3, quantitative and qualitative research with domestic workers and related employment sectors suggest that domestic workers have a higher risk compared to other workers for musculoskeletal disorders,²⁹ including low-back pain, sprains, and strains; upper extremity repetitive strain injuries such as tendonitis and carpal tunnel syndrome; and occupational asthma and dermatitis from exposure to cleaning products.

Musculoskeletal injury risks

Bureau of Labor Statistics (BLS) data show that both housekeeping cleaners and home health care workers have three times the rate of occupational musculoskeletal injuries due to overexertion as compared with the overall worker population in the United States (Galinsky 2001). Home health workers take days off from work due to illness and injury at a rate 70% higher than the national average (Serb 1997). A survey of parents of young children found that two-thirds experience musculoskeletal pain associated with lifting and carrying their children (Sanders 2005); domestic workers involved in child care may be expected to suffer similar consequences. These findings and conclusions are consistent with the general observation that more demanding physical work is a factor that contributes to greater prevalence of reported workplace injury (Stover 2007, Dembe 2005, Coleman 2002).³⁰ Table 13 reviews selected studies of home health care worker injuries.

Table 13: Selected Studies Concerning Injuries Of Home Health Care Workers		
Study	Study population	Finding
Myers et al., 1994	Home health aides and hospital nursing aides at hospital and home health agencies in Baltimore/ Washington DC area	15.4/100 annual back injury rate among home health aides, double that reported by hospital nursing aides
Zechter et al., 1987	Home care workers in San Diego	26% of workers reported musculoskeletal pain as compared with 7.7% of controls
Denton et al., 2003	Home care workers in Ontario, Canada	12/100 annual injury rate; Twice the rate of back pain among home care workers as among all working women. Of injured workers, 53% report current back injury, while 28% had arm and hand injuries and 27% had shoulder injuries
Howard et al., 2010	Home care workers in Washington State in the state workers' compensation database	13.8/100 annual injury rate; 68-84% of injuries due to overexertion

Asthma and dermatitis due to cleaning products

Work-related asthma is gaining increasing attention as a contributor to adult asthma. Occupational exposures are estimated to account for 15% of adult asthma overall (Quint 2008, Tarlo 2008, Balmes 2003). Twelve percent of work-related asthma cases are related to the use of cleaning products (Rosenman 2003) and cleaners are diagnosed with work-related asthma and wheezing at significantly higher rates than the general worker population (Rosenman 2003, Charles 2009, Arif 2003, Jaakkola 2006). Janitors and cleaners in California were estimated to suffer from work-related asthma at eight times the rate of California workers in general (Reinisch 2001), while workers in health-related occupations had 2.3 times greater odds than the general worker population of having work-related asthma (McHugh 2010). Reported rates of work-related skin problems among cleaners vary from 6% to over 50%, depending on the research methodology and diagnostic criteria used (Charles 2009). One European survey found that 10% of cleaners

²⁹ These disorders are among the most common treated in the workers' compensation system (Liberty Mutual 2008), and an extensive literature exists concerning their management (Punnett 2004).

³⁰ Recent research suggest that physical work demands are a significant factor influencing likelihood of attributing musculoskeletal symptoms to the work environment (see Neuhauser F, UC Berkeley).

had sought medical care for their skin problems (Nielsen 1996). Data are not available on the frequency of work-related asthma in domestic workers.

Estimated Number of Injuries and Illnesses among CA Domestic Workers

We estimated an approximate expected number of occupational injuries and illnesses among the California domestic worker population by multiplying the reported rates of work-related injuries in related occupations by the estimated number of domestic workers working in private households in California by occupational classification. Table 14 presents these estimates along with national median days away from work and incidence rates per 10,000 full-time workers for all nonfatal occupational injuries and illnesses and due to musculoskeletal disorders by private industry occupational group.

Table 14: Median Days Away from Work, Incidence, and Estimated Number of Occupational Injuries and Illnesses for Select Domestic Work Occupations Working in Private Households in California								
Occupation in Private Industry	All nonfatal occupational injuries and illnesses				Musculoskeletal disorders (MSDs)			
	National Median Days Away from Work	National Incidence Rate ^A	# CA Domestic Workers ^B	Estimated # CA DW Total Occ.. Injuries & Illnesses ^C	National Median Days Away from Work	National Incidence Rate ^A	# CA Domestic Workers ^B	Estimated # CA DW MSD Occ. Injuries & Illnesses ^C
Maids & Housekeeping Cleaners	7	262.7	91,969	2,416	9	78.7	91,969	724
Child Care Workers	n/a	114.2	24,918	285	n/a	60.5	24,918	151
Personal and Home Care Aides	7	163.9	75,948	1,245	10	61.7	75,948	469
Home Health Aides	5	108.6	20,095	218	10	41.0	20,095	82
Total	n/a			4,164	n/a			1,425
Total Private Industry	8	106.4	n/a	n/a	10	31.3	n/a	n/a

^A Incidence rates are the number of injuries and illnesses per 10,000 full-time workers.
^B See Appendix A for explanation of estimate.
^C Estimated number of occupational injuries and illnesses among CA domestic workers is calculated by multiplying the incidence rate per 10,000 full-time workers by the estimated number of CA domestic workers per occupation. Estimates reflect annual estimates for 2009.

Data from Bureau of Labor Statistics, 2009 Survey of Occupational Injuries and Illnesses. Tables 3, 20, and R97.
 See Appendix A for methodology and explanation of median days away from work, incidence rates, and numbers of CA domestic workers. Median days away from work and incidence rates are for entire occupation in private industry, not just workers in private households.

Although the median days away from work is the same or less than average private industry workers, maids and housekeeping cleaners, child care workers, and personal and home care aides are more than twice as likely to take time off from work due to musculoskeletal disorders than the average worker in private industry. Based on the estimates above, California domestic workers were projected to experience roughly 4,164 work-related injuries and illnesses in 2009, or roughly 196 injuries for every 10,000 domestic workers in California, including 67 musculoskeletal injuries for every 10,000 workers, almost double the national average in private industry.

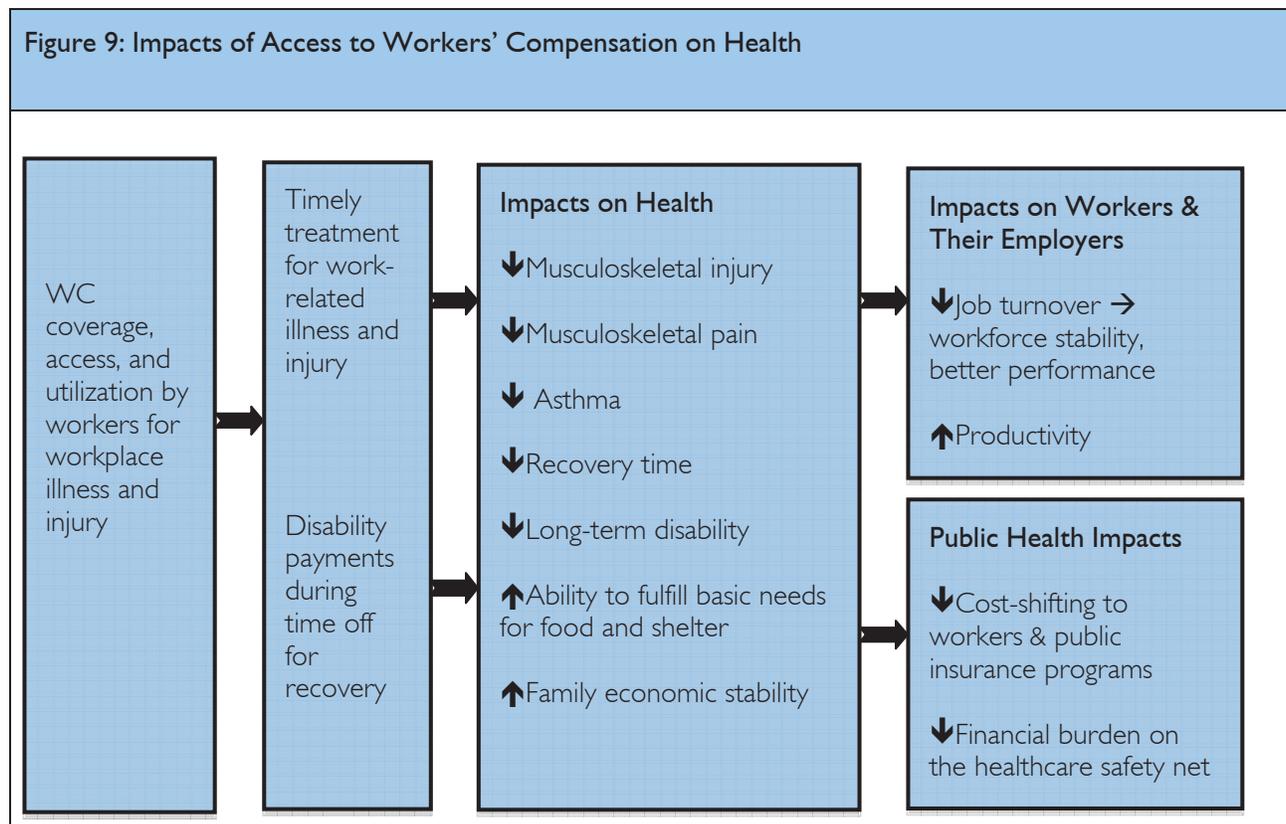
As stated in Section 5.7, population-based estimates using existing Census and Bureau of Labor Statistics (BLS) data likely underestimate the total number of domestic workers and existing surveillance systems of occupational injuries and illnesses may significantly underestimate the total work-related disease and injury

burden.³¹ Thus it is assumed that numbers presented above are very conservative estimates of the total occupational injury and illness burden in the California domestic worker population.

8.2 What are the known health effects of workers' compensation coverage?

Workers' compensation (WC) is an insurance program that provides medical care and temporary or permanent disability payments to employees with work-related injuries or illnesses. In the event of a work-related death, it also provides death benefits for families.³² See Appendix C for additional information on the California workers' compensation system. Only limited research has been conducted on health outcomes associated with workers' compensation coverage and utilization, in part because access to workers' compensation benefits is often assumed to be universal (Morse 1998, Stover 2007). However, access to workers' compensation and utilization of workers' compensation benefits is influenced by workers' ability to access medical care for work-related injuries and illnesses. Barriers to utilization are described in Section 8.7, and are likely to be significant for domestic workers.

Figure 9 summarizes the potential health consequences of increased workers' compensation coverage, access and utilization by injured and ill workers. Increased access to workers' compensation medical care and disability payments can potentially result in more rapid and complete recovery, decreased long-term disability resulting from workplace injuries and illness, increased productivity and well being, and decreased cost-shifting to public health safety nets.



³¹ Researchers have documented that occupational risks, illnesses, and injuries in occupations and industries that employ large numbers of low-wage and immigrant workers are often underestimated (Lashuay 2006). Incidence rates are from the Survey of Occupational Illnesses and Injuries (SOII) are “widely recognized [to] provide poor estimates of the incidence of occupational illness (vs. injury), and is particularly poor at surveillance of chronic illnesses” (Souza 2010).

³² WC insurance was originally created to help facilitate injured workers' access to medical care and financial compensation while limiting unpredictable lawsuits for employers (Fishback 1996, Bale 1989).

8.2.1 Access to Care and Treatment

Access to workers' compensation provides access to medical care and treatment of work-related injuries and illnesses, often with specifically qualified occupational health practitioners. Appropriate medical care for occupational injuries and illness supports recovery and decreases disability (Dembe 2005).

Lack of access to workers' compensation can result in delayed access to medical care, diagnosis and treatment of work-related injuries, particularly among workers who do not have general health insurance. In 2002, the Institute of Medicine released a report that found uninsured adults were less likely to receive medically necessary care in the case of traumatic injury. They received less surgery and less physical therapy than their insured counterparts (Coleman 2002).

Delayed treatment is likely to increase the risk of long-term disability for a variety of work-related medical conditions. Stover et al. studied workers in the Washington State workers' compensation system to discover what factors were associated with long-term disability due to workplace illness and injury. This research found that workers who had a delay of twenty or more days between the time of injury and the first medical visit had 1.8 times greater odds of suffering long-term disability than workers who received treatment in the first ten days after injury (Stover 2007). Similarly, a systematic review of prognostic factors for disability due to work-related low-back pain revealed that either delay in treatment or reluctance to report injury were associated with prolonged disability (Shaw 2001).

8.2.2 Prevention of Injury, Re-Injury, and Illness Exacerbation

Medical treatment under workers' compensation provides several specific opportunities for disease and injury prevention. The occupational medical provider potentially acts as an intermediary between the employer and worker, recommending changes to work tasks and increased safety measures in order to allow recovery and prevent injury (Stover 2007). Access to workers' compensation increases the likelihood that injured workers would be able to have medically-recommended work modifications, thus decreasing the risk for further injury and illness. For example, the prevention of re-injury for caregivers of clients with limited mobility may entail training in body mechanics, as well as the purchase or rental of lift or hoist equipment by the client or family (Parsons 2006, Gerr 2000). This purchase or rental can be recommended by the workers' compensation treating physician or the workers' compensation insurance company, and may be partially covered by the client's Medicare, Medicaid, or private health insurance program.

The workers' compensation treating physician may also play an important role in recovery from injury and illness by recommending time off from work and/or activity modification. Among nonfatal work-related injuries and illnesses leading to time off work, back injury is the most common, accounting for 24% of workers' compensation cases involving disability payments (NIOSH 2004, Stover 2007). Low-back pain gets better in fewer than 30 days in the vast majority of cases, no matter what specific treatment is given, so long as a worker is given the opportunity to rest from the work activities (such as heavy lifting or bending) that contributed to the pain (Gerr 2000, Johanning 2000, Pransky 2000).

Asthma and dermatitis prevention and treatment also both depend on avoiding inciting exposures. The most important principle in work-related asthma management is to discontinue exposure to the substance that is causing airway allergy or irritation (Nicholson 2005, Tarlo 2008). The earlier the worker is able to do so, the greater the chances of recovery (Perfetti 1998). Dermatitis due to workplace exposure is treated by avoidance of "wet work" by using gloves and limiting exposure to irritating or allergenic chemicals (Zock 2005, Dembe 2001). In the case of domestic workers who develop asthma or dermatitis due to cleaning chemicals, the substitution of non-irritating or non-allergenic products would facilitate recovery.

8.2.3 Wage Replacement and Economic Stability

Workers' compensation (WC) allows workers to receive partial income replacement while temporarily or permanently disabled by a work-related condition, potentially allowing for the material needs of a domestic worker to continue to be at least partially addressed in the case of temporary or permanent disability due to workplace illness or injury (Dembe 2001). This partial income replacement depends on the workers' compensation treating medical provider acting as a gatekeeper (LaDou 2006), determining inability to work (and thus access to cash benefits) much as he or she would in the case of a non-work-related disability claim. Specialized diagnostic testing as ordered by the treating provider may be required in order to verify that an injury or illness is work-related, or to verify the extent of disability (Dembe 2005). A provider's opinion that an injury or illness is work-related is an important consideration in the workers' compensation claims certification process (LaDou 2006; Sum 1996).

When temporary disability benefits are authorized, workers' compensation insurance provides workers with cash payments for both short- and long-term disabilities. These cash payments, set at approximately two-thirds of gross pay, are intended to prevent catastrophic consequences such as housing loss in the case of a work-related injury.³³ Lower-income unionized workers are more likely to file for workers' compensation benefits as compared with higher-income unionized workers, which may reflect the relative importance of partial income replacement for lower-income workers (Rosenman 2000).

In the event that a work-related illness or injury were to result in a permanent inability to work, documentation concerning the work-related condition by the workers' compensation treating provider is also crucial for protecting domestic workers' income. If the worker has received medical care within the workers' compensation system throughout the course of treatment, the documentation to support the work-relatedness of the condition and the nature and extent of disability is more likely to be complete. A thorough "paper trail" can be the determining factor as to whether the worker is able to receive disability payments or a financial settlement.³⁴

8.2.4 Job Productivity, Turnover, and Performance

Access to workers' compensation coverage impacts not only individual workers, but also clients, employers and the general public. Workplace injuries that are not treated within the workers' compensation system may increase turnover among "experienced, trained workers" who seek alternative employment rather than continuing in the job that led to the injury (Morse 2005). Turnover of employees can result in a variety of costs for employers including lost productivity or care during vacancies, time spent interviewing new candidates, lower performance of newly hired staff, and time and resources spent training and orienting the new employee (Lovell 2005). Seavey (2004) reviewed studies examining the direct and indirect costs of direct care worker turnover and found that average costs of each turnover ranged from \$951 to \$6,368, depending upon place and size of the establishment. Costs are anticipated to be lower for domestic workers because private individual employers do not maintain the same levels of administration, bureaucracy, or training as agencies and organizations. However, these studies do highlight the various, often hidden, costs associated with job turnover.

Another impact of job turnover is increased risk of injury and illness in the new worker, which increases medical costs for the worker, employer, and society at large. Researchers have consistently found that workers who are new on the job are more likely to get injured than those with longer job tenure (Breslin 2006, Strong 2005). A study of workers' compensation claims and job tenure found that workers who had been employed for one month were four to six times as likely to file a claim as workers who had been

³³ Though these payments may try to prevent catastrophe, some research has shown that WC disability payments, especially for workers with permanent disabilities, are inadequate for meeting basic needs. See Hunt 2003.

³⁴ Christine Baker, personal communication. If a work-related condition is determined to be no longer improving despite medical treatment, the condition may be deemed to be "permanent and stationary." In California, insurance companies may then offer workers a lump sum settlement as an alternative to disability payments (See Sum 1996).

working for one year in the job, after adjusting for occupation, industry and gender (Breslin 2006). Increased risk of injury not only increases the likelihood of needing to access medical care and take time off from work to recover, but also can impact the workers' income and job stability, which impacts their families' economic and social well-being.

Job turnover may also impact quality of care and the client or patient's physical and mental functioning (Stone 2004). Anecdotal evidence and qualitative studies suggest that job turnover among direct care workers may result in unsafe care, poorer quality of care, reduced access to care and major disruptions in the continuity of care (Stone 2004 from Wunderlich 1996).

8.2.5 Cost-Shifting

Each year, billions of dollars of the costs of workplace injuries and illnesses in the United States are "externalized"—the costs of medical treatment, as well as the costs of lost wages and productivity, are shifted from employers to workers and to public and private health insurance programs (Morse 2003, Bernhardt 2010, Pransky 2002, Leigh 2004). A recent study of workers' compensation utilization using the Behavioral Risk Factor Surveillance System (BRFSS) survey showed that the workers' compensation system paid the direct costs of workplace injuries for 61% of injured workers in California (CDC 2010); however this study did not examine indirect costs. Economic analysis shows that fewer than one-third of the combined direct and indirect costs of workplace injuries and illnesses are borne by the workers' compensation system, with workers and families paying 44% and government programs such as Medicare and Medicaid paying 18%. Private, non-workers' compensation health insurance covers approximately 10% of the total (AFL-CIO 2005, Leigh 2000). Access to and utilization of workers' compensation can prevent this cost-shifting.

Figure 10 provides an overview of cost-shifting from employer and the workers' compensation system to workers, government programs, and private health insurance companies. Figure 11 shows the distribution of who paid the direct and indirect costs of workplace injuries and illnesses. Notably the workers' compensation system covered only one-quarter of all occupational injuries and illnesses, whereas workers and others paid 45% of the costs out-of-pocket or through other means (Leigh 2000).

Figure 10: Cost-Shifting Due to Under-Coverage and Under-Utilization

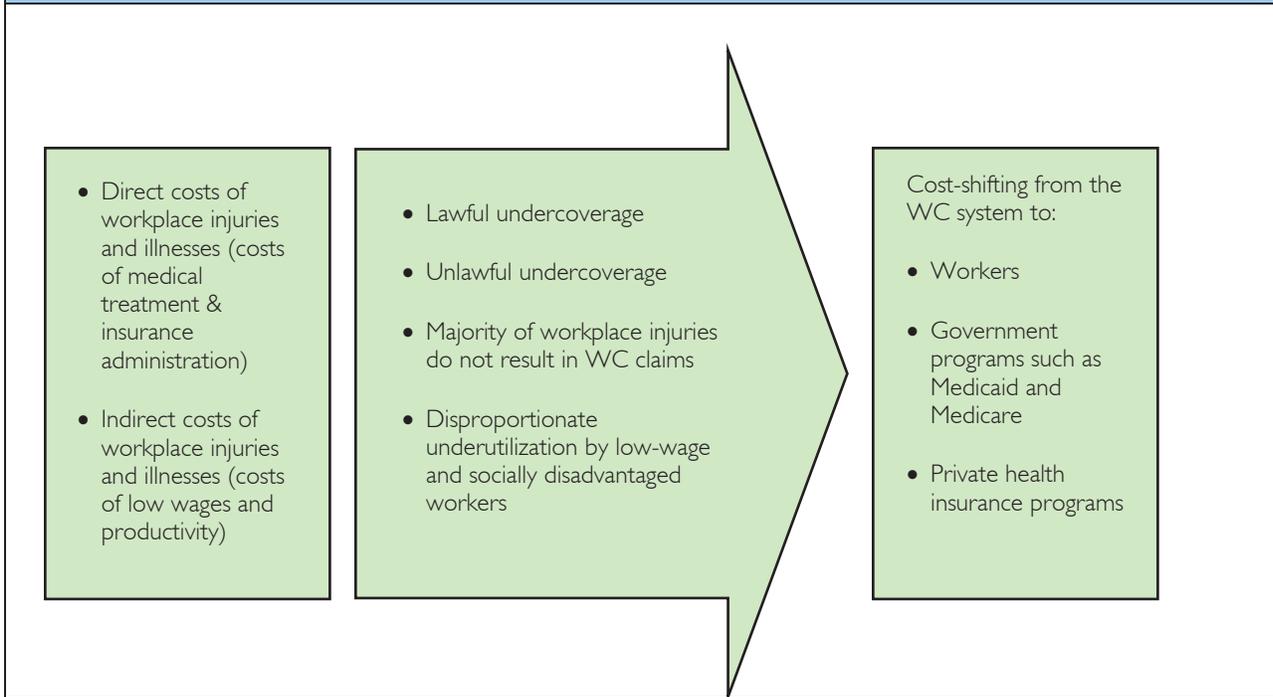
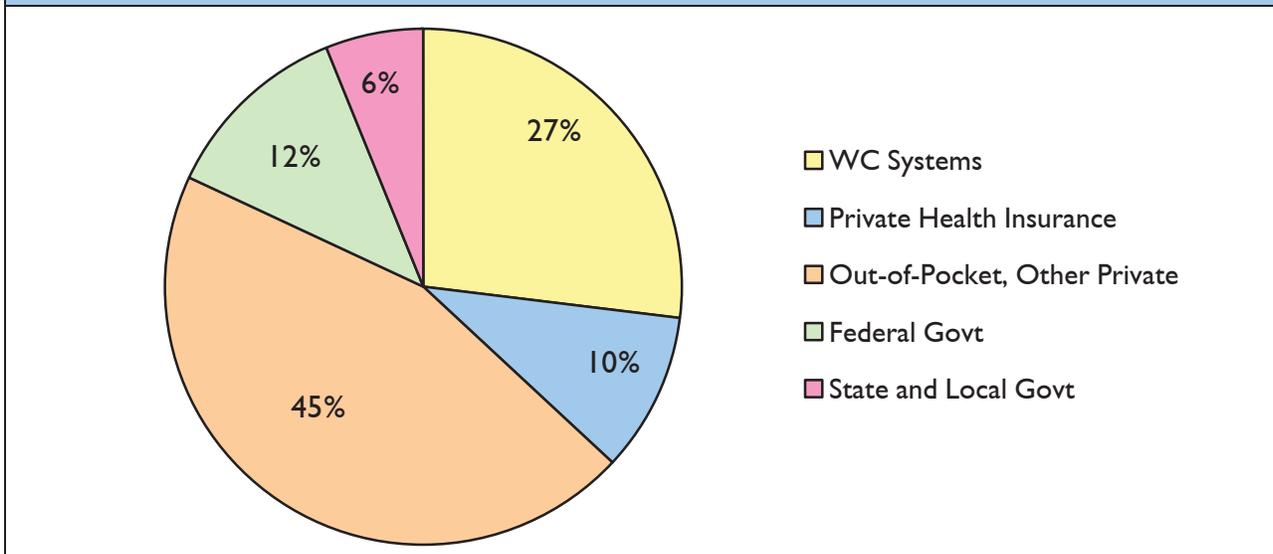


Figure 11: Distribution of Who Paid Direct & Indirect Costs for Workplace Injuries and Illnesses



Data from Leigh, et al. 2000.

8.3 What is the evidence for insufficient access to workers' compensation among domestic workers?

Insufficient access to workers' compensation can be determined by comparing the need/demand for workers' compensation to the access and utilization of workers' compensation. Currently there is no publicly available data to document domestic workers' access to and utilization of workers' compensation.³⁵

However, domestic workers' employment in high-risk jobs, limited access to medical care, and economic vulnerability to income loss suggest that there is strong demand/need for access to workers' compensation.

As described in Section 6.2.3, domestic workers are at significant risk for preventable work-related injuries such as back pain and other musculoskeletal injuries, asthma, and dermatitis. Given the existence of "job creep" (Bernhardt 2007), many domestic workers might be at risk for multiple types of work-related injuries because of the multiple job tasks. Data from the Bureau of Labor Statistics show that individuals employed as maids and housekeeping cleaners (11.5 per 10,000 full-time workers) were twice as likely to miss days from work due to multiple traumatic injuries and disorders compared to the general worker population (4.3 per 10,000 workers) (Table 10).

The survey of Bay Area domestic workers found that although nearly one-third (30%) of workers had suffered an injury or illness requiring medical care in the previous year, nearly two-thirds (64%) of workers who were injured or ill never received the medical care they needed due to inability to pay. The majority (68%) of those who did receive medical care paid for it themselves or through family or friends (MUA 2007). At the same time, 93% of surveyed Bay Area domestic workers reported precarious finances; their earnings were not sufficient to cover basic living expenses for themselves and their families, and many were the sole wage earners for their families (MUA 2007).

In contrast to the general belief that workers' compensation coverage is universal, survey research across multiple employment sectors documents a pattern of low-wage, ethnic minority, and immigrant workers being less likely than the general population to have workers' compensation insurance coverage (See Table 15) and to utilize workers' compensation benefits; this pattern is likely to affect domestic workers as well. Even where coverage exists, immigrant and low-wage workers may be less likely to file a claim if they are injured due to fear of retaliation and job loss. Similar to the workers described below, domestic workers are also likely to have insufficient access to workers' compensation.

Table 15: Low-Wage, Immigrant, and Minority Workers and Workers' Compensation		
Study	Employment sector	Finding
Pransky et al., 2002	Non-agricultural Latino immigrant workers in Virginia	56% had workers' comp (WC) coverage; 40% with workplace injury had filed WC claim
Bernhardt et al., 2010	Low-wage workers in Chicago, Los Angeles, and New York City	8% with serious workplace injury had filed a WC claim
Lashuay et al., 2002	Garment workers in the San Francisco Bay Area	3% of eligible injured workers had filed a WC claim
Scherzer et al., 2005	Hotel room cleaners in Las Vegas	20% of unionized workers experiencing work-related pain had filed a WC claim
Valenzuela et al., 2006	Day laborers in U.S.	6% of injured workers had WC coverage for injury
Carroll et al., 2005	Farmworkers in U.S.	33% undocumented workers had WC coverage vs. 65% authorized workers
Herbert et al., 1999	NY OSH clinic patients who filed claims for carpal tunnel syndrome	Non-white workers' claims were 28% more likely to be challenged than white workers'
Chinese Progressive Association, 2010	Restaurant workers in San Francisco's Chinatown	76% of injured workers not report job injuries 56% not know how to make a WC report

³⁵ Insurance companies may be a potential source of utilization data, however contacting insurance companies and conducting analysis of their data was beyond the scope of this HIA.

National research also shows that many low-wage workers are excluded from workers' compensation benefits because they are systematically misclassified as independent contractors (Bernhardt 2010). Domestic workers are at risk for this misclassification, especially if they have multiple employers or have found their position through a placement agency (Smith 2002). Both employers and domestic workers may not understand that domestic workers' workers' compensation coverage is obtained through homeowners' and renters' insurance. In addition, misunderstandings may arise because the workers' compensation claims form requests a social security number. A valid workers' compensation claim can be filed even if the field is left blank, but workers and employers may be unaware that this omission is permitted.

8.4 Which domestic workers would benefit from changes in workers' compensation coverage under the legislation?

Currently, any domestic worker who works more than 52 hours or earns more than \$100 in the previous 90 days is entitled to workers' compensation coverage by their employers. The specific number of domestic workers currently excluded from workers' compensation benefits and protections is not known. The change in the law under AB 889 is anticipated to effect domestic workers who work limited hours for multiple employers (e.g., housecleaners) (Box 7). If AB 889 passes, all domestic workers who are injured on the job and work for an individual employer that has homeowners' or renters' insurance that includes the workers' compensation liability provision, would be eligible for coverage by workers' compensation through their employers' insurance.

The proposed legislation would also support access to workers' compensation benefits for some domestic workers who currently do not have the ability to seek redress from the workers' compensation appeals board in the event that the employer has not appropriately purchased workers' compensation insurance. Currently, only domestic workers employed for more than 52 hours or who earn more than \$100 in a ninety day period by a single employer are able to seek such redress. Excluded workers are able to sue their employers, but not to seek this important administrative remedy.³⁶ The provision of the law concerning redress from the workers' compensation appeals board is not a focus of this HIA.

8.5 How might the workers' compensation provision impact care-recipients and employers?

In general, workers who continue to work with an injury or illness may not be providing adequate or safe quality of care. Medical care under workers' compensation system thus might also improve the quality of care for care-recipients. However, in some situations, the employer would need to find an alternative or temporary worker to fill in until the primary domestic worker returns. This may result in a gap in care provision or hiring of an employee that is less experienced or less accustomed to the care needs of the care-recipient.

The law also is not likely to substantially affect the costs of care for employers, though may require the purchase of homeowner or renters' insurance. The utilization of workers' compensation benefits is typically borne by the insurance carrier and thus shared among all covered employers. Commonly, workers' compensation insurance for private household employees is included in homeowners' and renters' insurance policies in California. In these cases, the employer of the injured worker would only need to provide wages to the temporary worker who is filing in for the injured worker.

³⁶ See Appendix D for discussion about how WC was originally designed to create a no-fault system, to support workers' quicker access to medical care and temporary disability payments.

8.6 What are the likelihood, intensity, and magnitude of health effects resulting from legislative changes in workers' compensation rules?

The health and societal benefits of the workers' compensation system for employed workers is substantial. However, estimating the magnitude of these benefits for domestic workers currently excluded from protections requires making reasoned inferences about domestic workers' access to workers' compensation and potential utilization of workers' compensation benefits, their frequency of being injured on the job, the nature of their illnesses and injuries, access to medical care from other care providers, socio-economic and other vulnerabilities, and various factors impacting utilization.

Impacts on Domestic Workers

The value of workers' compensation medical care benefits depend in part on existing access to non-workers' compensation health services. Most workers obtain a significant proportion of medical care for work-related illness and injury from non-workers' compensation providers, paying out-of-pocket for services and utilizing non-workers' compensation payer sources such as public and private insurance programs (Leigh 2000). However, we expect occupationally injured domestic workers would be less able to access non-workers' compensation sources of medical care than the general population due to their low rates of health insurance coverage and their reduced ability to pay for services out of pocket. In some cases, workers with work-related conditions are turned away by non-workers' compensation providers, leaving them with no source of care at all (Lashuay 2006).

Given their relatively low wages, even the partial income replacement that workers' compensation (2/3rd of income) provides is likely to significantly contribute to fulfillment of basic needs like food or shelter for injured domestic workers and their families. Not all domestic workers may utilize temporary disability benefits. Researchers have found that more seriously affected workers are more likely to file claims in order to claim cash disability payments and receive medical care (Rosenman 2000). Domestic workers who experience serious injuries causing long-term or permanent disability may also be more likely to file claims with workers' compensation than workers who anticipate short recovery times and may be able to seek alternative medical care or recover on their own.

Impacts on Employers and the General Population

Improved access to workers' compensation for domestic workers would have potential benefits for employers, especially the employers of caregivers and babysitters or nannies if it leads to decreased job turnover. Potential benefits for the larger community include decreased cost-shifting from employers to the overburdened public health insurance system and health care safety net as discussed in Section 8.2.5 above. Box 8 describes the UC Labor Center's projected analysis of AB 889's worker compensation provision upon domestic worker employers.

Box 8: UC Labor Center Analysis of AB 889 Impacts on Workers' Comp Access

Agencies employing domestic workers are already required to provide workers' compensation insurance, as are households employing individuals whose work and pay exceed the thresholds described above. To put this in perspective, household employees working four or more hours a week for ninety days are already entitled to workers compensation insurance under current law. Under the California Insurance Code homeowners' and renters' liability insurance policies are required to include a provision for workers' compensation insurance for those domestic workers entitled to coverage. Expanding coverage to employees with limited work hours, as proposed in the bill, may increase the number of claims paid by insurance companies which may result in higher premiums for homeowners and renters who already have insurance. We cannot predict the premium increase amount though it is unlikely to be significant if spread among all policy-holders. In order to comply with the law, renters who do not currently have renters insurance that hire domestic workers for limited hours would either need to purchase a policy or hire workers through an agency which provides that coverage (Lucia 2011).

Magnitude of Impacts

Precise quantification of the effects requires information not available for this assessment, including:

- Additional number of domestic workers eligible for workers' compensation benefits under the law
- The occupational injury rate for eligible domestic workers
- The utilization rate of benefits
- Measures of the differential health effects of workers compensation benefits on injured workers.

While all the above information is not available, we can estimate the additional number of injuries suffered by domestic workers covered under the workers' compensation system by making several assumptions. Box 9 illustrates this estimation under several scenarios in which we vary the key assumptions. We assume that one-quarter or less of all domestic workers work for less than 52 hours or earn less than \$100 from a single employer in California, so 25% or fewer domestic workers will be newly eligible for workers compensation benefits under AB 889. We further assume that domestic worker utilization of workers' compensation benefits may range between the average utilization rate among low-wage and immigrant workers of 8% and 100%.

Box 9: Estimation of Injuries Previously Untreated by Workers' Compensation

$$X = DW_T * I * WC_C * WC_U$$

Where:

X = # additional domestic workers' work-related injuries that would be treated in workers' comp system

DW_T = # domestic workers in CA

I = annual work-related injury rate

WC_C = hypothetical % of domestic workers that gain coverage with legislation

WC_U = hypothetical % of domestic worker that able to utilize/access workers' compensation (WC)

$$152,470 * 162.4/10,000 * WC_C * WC_U = \text{additional work-related injuries that would receive treatment in workers' compensation system/yr}$$

Additional injuries that will receive WC treatment given hypothetical scenarios				
		Hypothetical % of DWs Able to Utilize WC (WC_U)		
		8% <i>Bernhardt 2010</i>	61% <i>CDC 2010</i>	100% <i>Full Utilization</i>
Hypothetical % of DWs that gain coverage with legislation (WC_C)	10%	20	151	248
	15%	30	227	371
	20%	40	302	495
	25%	50	378	619

Recognizing that 100% utilization is unlikely among the domestic worker population, there will likely be less than 600 additional injuries treated per year through workers' compensation, depending upon the percent of domestic workers that will be newly covered through the legislation and their ability to access/utilize workers' compensation.

DW_T = 152,470 domestic workers working in Private Household Industry in California (See Table 6). It is assumed that domestic workers employed by third-party agencies/employers (e.g. employed in other related industries) would already have access to workers' compensation through their employer.

I = 162.4 injuries and illnesses per 10,000 full-time workers (average of nonfatal occupational injury and illness rates for maids, child care workers, personal/home care aides, and home health aides) (See))).

WC_C = 10%, 15%, 20%, or 25% (hypothetical percentage of CA domestic workers that work less than 52 hours or earn less than \$100 in 90 days from single employer and would be covered under CA workers' compensation laws if AB 889 passes).

WC_U = hypothetical % of domestic workers that are able to utilize/access workers' compensation :

WC_{u1} = 8% = Scenario #1: Estimate based on average workers' compensation utilization rate of other low-wage and immigrant worker groups (using Broken Laws survey, Bernhardt 2010).

WC_{u2} = 61% = Scenario #2: Estimate based on average workplace injuries in CA treated within workers' compensation system (using BRFSS data, CDC 2010).

WC_{u3} = 100% = Hypothetical Scenario #3: 100% of domestic workers that receive coverage through AB 889 are able to access/utilize workers' compensation if/when injured on the job.

Table 16 summarizes the likelihood, intensity, and magnitude of potential effects of workers' compensation upon domestic workers' health providing key uncertainties.

Table 16: Summary Assessment of Expected Effects of Workers' Compensation Protections on Health							
Health-Related Outcome	Likelihood	Intensity/ Severity	Who Impacted			Magnitude	Key Uncertainties
			DW	CR	GP		
<i>Acute, Injury/Illness Specific Impacts</i>							
Access to Care & Treatment for Work-Related Illness or Injury	▲▲▲	Mod	+	+		Small to Moderate	- Health insurance coverage - Cultural & linguistic competency - Transportation & ease of access - Other risk & protective factors - Cumulative & synergistic effects - Type and severity of injury - Ability to modify work tasks - Access to replacement help - Replacement wages sufficient to meet basic needs
More Rapid and Complete Recovery Time	▲▲▲	Mod	+	+		Small to Moderate	
Prevention of Further Injury & Illness	▲▲	Mod	+	+		Uncertain	
Wage Replacement	▲▲▲	High	+	?	+	Small to Moderate	
<i>Broader, Longer-Term Impacts</i>							
Decreased Job Turnover & Performance	▲	Mod	+	+		Uncertain	- Other risk & protective factors - Cumulative & synergistic effects - Type and severity of injury
Increased Productivity	▲	Low	+	+		Uncertain	- Ability to modify work tasks - Access to replacement help - Full recovery occurs
Decreased Cost-Shifting	▲▲▲	High	+	-	+	Small	- Health insurance coverage - WC coverage and utilization - Employer retaliation - Barriers to WC minimized
<p><i>Explanations:</i></p> <ul style="list-style-type: none"> Likelihood refers to strength of research/evidence showing causal relationship between sleep and the health outcome: ▲ = limited evidence, ▲▲ = limited but consistent evidence, ▲▲▲ = causal relationship established. A causal effect means that the effect is likely to occur, irrespective of the magnitude or severity. Intensity/Severity reflects the nature of the effect its affects on function, life-expectancy and its permanence (High = very severe/intense, Mod = Moderate) Who Impacted refers to which populations are impacted by the health outcomes associated with proposed sleep requirements. DW = Domestic Workers, CR = Care Recipient, GP = General Population. Magnitude reflects a qualitative judgment of the size of the anticipated change in the health effect (e.g. the increase in the number of cases of disease, injury, adverse events). 							

8.7 What barriers, vulnerabilities, or other uncertainty factors could modify the health effects of the legislation?

According to the California Commission on Health and Safety, and Workers' Compensation, 12-15% of employers in California have not purchased workers' compensation insurance as required by law.³⁷ In California, employers may purchase workers' compensation insurance for domestic workers as part of a homeowners' or renters' insurance policy. By law, household employee workers' compensation coverage is included in personal liability coverage (CA Insurance Code Chapter 1, Article 2.5) but personal liability coverage is not automatically included in all homeowners' or renters' insurance policies. Some policies require separate purchase of personal liability coverage for an additional fee. There is some confusion about what types of domestic workers must be covered by homeowners' policies; a law treatise (Sidbury 2010) used by at least one insurer, for example, incorrectly concludes that paid caregivers of adults in homes are not considered employees.³⁸

As described in Section 6.2, gender, ethnicity, income, immigration status, and the nature of employment may all create barriers to accessing to workers' compensation. Specifically, gender and ethnicity may impact domestic workers' ability to negotiate terms and request coverage and time off to recover. Being low-income and/or undocumented may increase fear of job loss and retaliation. Language spoken and literacy may impact ability to navigate the workers' compensation system. Informal employment without a contract or payment in cash or personal check may create challenges to being viewed as an employee eligible for state workers' compensation benefits. Workers who do not have legal representation or union assistance often have difficulty contesting denials, meaning that domestic workers may be particularly vulnerable to denials of legitimate workers' compensation claims.

In addition to barriers created by domestic workers' specific vulnerabilities, other general barriers exist to accessing the workers' compensation system for workers in California. Dembe and Harrison (2005) have applied existing models of health care access to an analysis of the workers' compensation system, characterizing barriers as primary (due to blocked entry to the workers' compensation system), secondary (due to structural barriers within the system), and tertiary (due to the system's failures to address patient needs). These barriers are outlined in Table 17 below.

³⁷ Christine Baker, CHSWC Executive Officer, personal communication. See <http://www.dir.ca.gov/chswc/uefintro.html> and <http://www.dir.ca.gov/dlse/UUEEP-2009.pdf> for further information concerning California's efforts to increase compliance with WC insurance requirements.

³⁸ Personal communication, Juliann Sum, JD, LOHP and Judge Lachlan Taylor, CHSWC.

Table 17: Barriers To Accessing Workers' Compensation	
Level of Barrier	Types of Barriers
Primary access barriers: Blocked entry to workers' compensation system	<ul style="list-style-type: none"> • Non-coverage • Avoiding claims because of fear of job loss or retaliation • Lack of knowledge concerning workers' compensation benefits (workers and employers) • Limited ability to take time off from work • Excessive denial of workers' compensation claims
Secondary access barriers: Structural barriers within workers' compensation system	<ul style="list-style-type: none"> • Difficulty finding workers' compensation providers, esp. in rural areas • Lack of transportation to medical visits • Bureaucratic delays • Need for initial out-of-pocket spending by workers
Tertiary access barriers: Failure of workers' compensation system to address patient needs	<ul style="list-style-type: none"> • Providers' lack of familiarity with domestic workers' occupational health issues • Inadequate documentation and record keeping • Worker mistrust of employer-selected provider panels • Lack of culturally and linguistically appropriate services • Limited ability of workers to modify activities or take time off from work • Employer difficulty finding replacement care

On the other hand, the vulnerabilities of domestic workers could actually increase the relative value of labor protections like access to workers' compensation for this population. For example, lack of general health insurance coverage could increase the relative benefit of accessing medical care through the workers' compensation system, particularly for undocumented workers who may not be eligible for Medicaid and other health care and disability programs. Similarly, the low-income status of many domestic workers makes the partial wage replacement benefits relatively more important to their economic well-being.

9 RECOMMENDATIONS FOR POLICY & RESEARCH

AB 889 is one component of larger efforts to improve employment conditions and workplace safety for vulnerable workers. These efforts may include legislative reform, regulation, enforcement, and education. Given the HIA analysis, the following general recommendations are offered to support protection and promotion of domestic worker health and well-being:

Policy-Makers and Regulatory Agencies

- Research the feasibility of expanding the scope of federal and state OSHA workplace standards to include homes as workplaces³⁹
- Include sufficient numbers of domestic workers in Bureau of Labor Statistics surveys and analysis to ensure sufficient sample sizes for data analysis
- Re-examine CA EDD data for private households and if appropriate, adjust methodology for underreporting to more accurately reflect private household industry employment data
- Improve visibility of private household workers compensation coverage on state labor websites
- Include cultural, linguistic competency and ease of access as part of workers' compensation provider quality standards
- Assess and enforce appropriate penalties for employer retaliation against workers who file workers' compensation claims

Insurance Companies

- Educate insured homeowners and renters about the use of workers' compensation coverage included in policies
- Include culturally appropriate community providers on workers' compensation provider panels

Organizations Working with Domestic Workers and their Employers

- Educate employers about the legislation, how workers' compensation coverage can be included in homeowner and renters' insurance, the health benefits of sleep and rest breaks for workers and care-recipients, and how workers compensation can help provide much needed medical care to workers, maintain continuity of service and care, and safeguard against lawsuits in the event of a workplace injury
- Support the organization and creation of domestic worker collectives that educate and train their members on their legal rights, and how to protect health and safety on the job
- Explore the creation of a business/program to provide temporary shift coverage for domestic workers (e.g. to cover workers while sleeping, recovering from injury, while on vacation, etc)

Service Providers

- If passed, educate service providers about the legislation, occupational vulnerabilities of domestic workers, and ways to educate domestic worker patients through grand rounds lectures and continuing education courses
- Work with safety net providers to improve their capacity to treat occupational conditions⁴⁰
- Educate medical providers about appropriate documentation for work-related injuries and illnesses
- Work with insurers to include safety net providers on workers' compensation panels

³⁹ Current exclusion of homes from OSHA standards is a regulatory matter and could be remedied administratively without the passage of federal legislation (Hiller 2007).

⁴⁰ An example of an innovative program that has strengthened the ability of a safety net provider to provide occupational health services and to be reimbursed for WC medical care is the Watsonville-based Workers' Compensation Enforcement Collaborative. See <http://www.watsonvillelawcenter.org> for more information.

Researchers

- Research the demographics, economic status, and occupational health of domestic workers, particularly those providing live-in caregiving or 24-hour care
- Analyze the impact of increased labor protections, especially paid sick leave, on the health and well-being of clients including children, elderly and disabled adults
- Analyze the economic impact of the proposed labor protections including impact on public safety net, insurance rates, acquisition of temporary coverage, and job performance
- Evaluate how the projected growth in demand for home health care will impact the domestic work industry and associated labor standards
- Document the relationship between immigration enforcement and enforcement of labor protections
- Document the impact of new regulations on the structure and working conditions of the industry, e.g. whether private households turn to agencies and worker cooperatives or other groups to obtain workers, and impact on underground economy
- Analyze the impact of IHSS and other government funding cuts upon demand for non-profit and for-profit domestic work organizations offering home health care, employment registries, and private family and welfare agencies
- If passed, analyze the impact of the legislation upon domestic workers and care recipients' health and well-being, and compare findings to impact of New York legislation

10 CONCLUSION

The establishment of wage and labor standards and occupational safety and health laws has historically excluded certain categories of workers. Today, these “excluded workers” include farm workers, day laborers, incarcerated workers, guest workers, taxi drivers, domestic workers and others (EWC 2010). National, regional and local efforts to extend the coverage of labor laws to these excluded workers are fundamentally about fairness but are equally significant for health.

The California Domestic Work Employee Equality, Fairness, and Dignity Act would extend to domestic workers a basic floor, or minimum standard of protection, enjoyed by most other workers. This health impact assessment has examined evidence of the potential health effects of two provisions of this law – an end to exclusion of certain domestic workers from the California Workers’ Compensation benefits and a requirement for eight hours of uninterrupted sleep for 24 hour and live-in caregivers.

In general, domestic workers are a socio-economically and occupationally vulnerable population. Predominantly done by immigrant women of color, most domestic work occurs in isolated, unregulated workplaces where workers frequently report low wages and challenging work conditions. Qualitative and quantitative data have found that domestic workers have a higher risk compared to other workers for musculoskeletal disorders, including low-back pain, sprains, and strains; upper extremity repetitive strain injuries such as tendonitis and carpal tunnel syndrome; and occupational asthma and dermatitis from exposure to cleaning products.

Analysis and quantification of the health effects of AB 889 are limited by available data, including data on the size and demographics of the domestic worker population in California, their working conditions, current sleep quality, injury rates, and the expected utilization of the law. However, sufficient evidence exists to support the conclusion that AB 889 would positively impact the health of a sizeable share of domestic workers. Public health evidence clearly shows that regular sleep is essential for health. For domestic workers who live in the employer’s home or work 24 hour shifts, legal protection for adequate sleep would support maintenance of circadian rhythms and help reduce risks of premature death, chronic disease, and poor mental health. Sufficient sleep would also improve quality of care, improve work performance, and reduce accident risks.

Eliminating the current hours and pay requirements for coverage and access to workers’ compensation could result in more rapid and complete recovery, decreased long-term disability resulting from workplace injuries and illness, and increased productivity and well-being among those workers newly covered. Partial income replacement may help domestic workers fulfill basic needs like food or shelter if they are unable to work due to workplace injury and illness. Improved access to workers’ compensation for domestic workers has potential benefits for employers as well, especially the employers of caregivers and babysitters or nannies. Decreased job turnover may lead to a more experienced and stable workforce and improved relationships with valued caregivers. Potential benefits for the larger community include decreased cost-shifting from employers to the public and reduced burdens on the health care safety net. More research and documentation is needed to better quantify these effects.

This HIA analyzed only two of the twelve proposed provisions of AB 889. The health impacts of other provisions including paid sick days (HIP 2009, Lovell 2005), increased wages (Bhatia 1999, Cole 2005), vacation time, meal and rest breaks, and other AB 889 articles may also have important benefits to the health of domestic workers. More research is needed to understand the health impacts of the other provisions of AB 889 as well as the impacts of the legislation upon care-recipients and the general public.

II APPENDIX A: DATA ANALYSIS OF DOMESTIC WORKER POPULATION, INDUSTRY AND OCCUPATION

SFDPH used data from the U.S. Census Bureau's American Community Survey, the California Employment Development Department and the Bureau of Labor Statistics' National Employment Matrix and Survey of Occupational Injuries and Illnesses to conduct the analysis presented in this report.

For each of these databases, when possible, we selected private households as the industry (NAICS Code 814) and four occupational categories as the occupations: maids and housekeeping cleaners (SOC Code 372012), child care workers (SOC Code 399011), personal home care aides (SOC Code 399021), and home health aides (SOC 371011) as the universe of the domestic worker population.

The American Community Survey is an ongoing statistical survey conducted by the U.S. Census Bureau that is sent to approximately 3 million addresses per year or 250,000 addresses monthly. The ACS is the second largest survey administered by the Census Bureau, following the decennial census. Data are collected primarily by mail, with Census Bureau telephone and personal visit follow-up.

ACS Data were extracted from the U.S. Census Bureau's Data Ferrett in April 2011. We used a three-year sample (2007-2009) to provide a larger sample size than one single year.

SFDPH worked closely with Christina Fletes from the Data Center to develop the methodology presented below. Other individuals who provided guidance on these estimates include Hina Shah from the Women's Employment Rights Center; Victor Narro and Ana Luz Gonzalez from UCLA Labor Center, Annette Bernhardt, National Employment Law Project; Laura Dresser, Center on Wisconsin Strategy; Vicky Lovell, California Budget Project; Sherry Baron and Matthew Groenewold of the National Institute for Occupational Safety and Health; and Ana J Montalvo, Matthew Whipple, Jeremy Stash, and other staff at the United States Census Bureau.

SFDPH selected the following "selectable geographies" variables for analysis:

GEOG-102 – Public Use Micro data Area (PUMA)

- o We used all CA PUMA codes (00100:08200) for California Analysis
- o We used all FIPS State Codes for U.S. Analysis
- o We found that use of all CA PUMA codes produced the same estimate as using FIPS State Code 06 for California.

SFDPH selected the following "population" variables for analysis:

AGEP – Age

- o We excluded individuals under age of 18 years from the analysis to exclude casual babysitters, so AGEP range was 18-99.

ESR - Employment Status Recode

- o We included 01 "Civilian Employed, At Work" and 02 "Civilian employed, with a job but not at work".
- o We excluded 00 "N/A (less than 16 years old)"; 03 "Unemployed"; 04 "Armed Forces, At Work"; 05 "Armed Forces, With a Job But not at work"; and 06 "Not in Labor Force."

NAICSP – NAICS Industry Code

- o We included select occupations (described below in SOCP) within the following NAICS Industry Categories: Private Households (814110), Home Health Care Services (6216), and Individual and Family Services Industry (6241).
- o We excluded the following variables from our estimate:

- 1) Services to Buildings and Dwellings (5617Z), which includes janitorial services (56172). We excluded this entire industry because we are not able to determine which percentage of workers work in buildings, vs. residential facilities (e.g. group or nursing homes), vs. private households.
 - 2) Landscaping Services Industry (561730) since we were not able to distinguish between landscapers and gardeners (grounds maintenance workers employed in Private Households are included);
 - 3) Child Day Care Services Industry (624410) because it is assumed that privately employed child care workers in this industry work in child care centers and self-employed child care workers in this industry provide Family Home Child Care within their own home (rather than the employer's home) and that both categories of workers should be excluded;
 - 4) Employment Services (561300), which are temporary employment agencies and labor contractors. Although temporary employment agencies may provide home-related services such as temporary maids, we assumed that the majority of employees in temporary employment agencies provide services to buildings, not to private households; and
 - 5) Other Health Care Services (621M), which is a "crosswalk" term that is assigned by NAICS to NAICS industries (6215: Medical and Diagnostic Laboratories) and (6219: Other Ambulatory Health Care Services). Due to potential misunderstanding of the industry's definition, it is possible that some domestic workers may have been incorrectly classified in this industry; however it is assumed that the majority of workers employed in this industry provide more technical services outside of the home setting, so this industry is excluded.
- o We compared NAICSP codes to INDP codes and found that both industry classifications resulted in the same industry breakdowns/estimates.

SOCP – SOC Occupation Code

- o In general, we identified the following SOC Occupation categories as the primary occupations of California Domestic Workers: Maids and Housekeeping Cleaners (372012); Child Care Workers (399011); Personal and Home Care Aides (399021); and Nursing, Psychiatric and Home Health Aides (311010).
- o Unfortunately, it was not possible to break "Nursing, Psychiatric and Home Health Aides" into three separate categories to just include "Home Health Aides." So we made the assumption that individuals working as Nursing, Psychiatric and Home Care Aides in the Private Household Industry and the Home Health Care Services Industry were likely providing care in private households and that the majority were likely home health care aides, whereas in other industries, the majority were likely nursing and psychiatric aides providing care outside of private household settings, e.g. in hospitals, group homes, nursing homes, schools, etc..
- o Within the Private Household Industry, we also included the following occupations which would also be impacted by AB 889. All of these occupations are grouped together under the "All other private households" category:
 - Janitors and Building Cleaners (372011), Grounds Maintenance Workers (373010), First-Line Supervisors/Managers of Housekeeping and Janitorial Workers (371011), General Maintenance and Repair Workers (499071)
 - Cooks (352010), Chefs and Head Cooks (351011), Dietitians and Nutritionists (291031)
 - Registered nurses (291141), Personal Care and service workers (all other) (399099), Licensed Practical and Licensed Vocational Nurses (292061), First-Line Supervisors/Managers of Personal Service Workers (391021), and Physical Therapists (291123).
- o This estimate excludes all other occupations employed in Private Households that are not listed above (occupations such as chauffeurs and other drivers, bookkeepers and office assistants, construction laborers, hairdressers, property managers, carpenters, etc) which represent 32% of all occupations in the Private Household Industry (or 5313 workers).
- o We compared SOCP codes to OCCP codes and found that both occupational classifications resulted in the same occupation breakdowns/estimates.

COW – Class of Worker

Class of Worker has the following categories:

- 1) N/A (less than 16 years old/unemployed who never worked/NILF who last worked more than 5 years ago)
- 2) Employee of a private for-profit company or business, or of an individual, for wages, salary or commission

- 3) Employee of a private not-for-profit, tax-exempt, or charitable organization
 - 4) Local government employee (city, county, etc.)
 - 5) State government employee
 - 6) Federal government employee
 - 7) Self-employed in own not incorporated business, professional practice or farm
 - 8) Self-employed in own incorporated business, professional practice or farm
 - 9) Working without pay in family business or farm
 - 10) Unemployed
- o We included categories #2, #3, #7 and #8 were included in our estimate.
 - o We excluded categories #1, #4, #5, #6, #9 and #10 from our estimate. We excluded a) those under 16 since they are explicitly excluded from the legislation; b) local, state and federal government employees to exclude in-home supportive service (IHSS) workers (who are explicitly excluded in the AB 889), c) individuals working without pay in family business or farm (since relatives of the care-recipients are also explicitly excluded from AB 889), and d) unemployed since they should not be included in a current estimate of workers.

Selection of Specific Occupations by Class of Worker and Industry

Because the legislation includes both individuals hired directly by private households and hired indirectly by third party agencies that contract with the private households, yet the Census bureau does not collect data on the location of the work (e.g. whether it occurred in a building/agency or private home/dwelling), we needed to make some assumptions about which types of workers were more likely to work in homes than for businesses/buildings. The following are our assumptions used to make the estimate of domestic workers in California:

- o We assumed that all of our selected occupations hired within the Private Household Industry (814110) should be included since Private Household suggests that the worker is being employed directly by the homeowner/renter.
- o Within the Home Health Care Services Industry (6216), we assumed that the majority of privately employed Personal and Home Care Aides (399021) and Nursing, Psychiatric and Home Health Aides (311010) are employed by a third party agency to provide their services within private households, whereas maids and housekeeping cleaners and child care workers are more likely to providing their services within the agency's building rather than in the home. So we included all aides but excluded other occupations within this industry.
- o Within the Individual and Family Services Industry, we included Personal and Home Care Aides who are assumed (because of their occupational definition) to provide care in private homes, but excluded the other occupations since the BLS notes that the majority of services to children, youth, elderly, persons with disabilities, and others within in this industry are provided as nonresidential social assistance services (thus assumed to be outside private homes). We assumed that there was likely to be more nursing and psychiatric aides than home health aides working in this industry and so excluded "Nursing, Psychiatric and Home Health Aides" from this count.
- o As described in the NAICSP description above, we decided to exclude certain industries from our analysis even though the authors recognize that this results in an underestimate of the number of individuals employed by third party agencies (e.g. Merry Maids) or that work as self-employed or independent contractors that exclusively provide services to private households. Given the lack of data about location of work services, we were not able to estimate the percentage of privately employed or self-employed individuals for relevant, non-Private Household industries except for personal and home care aides who are assumed to almost entirely work in private home settings.
- o Finally, we are assuming that In-Home Supportive Service workers would be categorized as "Personal and Home Care Aides" in the Private Households, Home Health Care Services, and/or Individual and Family Services Industries, but that they would be classified as government employees since their funding comes from local and state governments and that by excluding "government employees" we are excluding IHSS workers.

Other Notes

- o The estimated number of domestic workers in California is likely a conservative underestimate of the total number of domestic workers employed in California because it does not include maids and housekeeping cleaners nor child care workers who are employed by third party agencies to provide services in private households. This would exclude individuals like "Merry Maids" employees and au pair/nannies who receive their payments from a third party agency rather than directly from the private household where they are providing their services.

- o This estimate also excludes all "self-employed" workers who classified themselves as working in another industry but provide their services in private households.
- o The authors acknowledge that random error may have occurred both in survey response and survey coding due to lack of understanding of industry, occupational, and class of worker classifications.
- o This potential random error is particularly relevant for the "class of worker" classifications given that we are trying to exclude all IHSS workers (some may have been coded as privately employed or self employed) and trying to distinguish between workers employed directly by private households and employed by third party agencies. However, because there is no way to determine whether there was systematic error in survey response or coding, the authors are unable to adjust for error and therefore are conducting their analysis based on the assumptions stated above.

Occupational Definitions:

Maids and Housekeeping Cleaners

<http://www.bls.gov/oes/current/oes372012.htm>

Perform any combination of light cleaning duties to maintain private households or commercial establishments, such as hotels, restaurants, and hospitals, in a clean and orderly manner. Duties include making beds, replenishing linens, cleaning rooms and halls, and vacuuming.

Child Care Workers

<http://www.bls.gov/oco/ocos170.htm>

Child care workers generally are classified into three different groups based on where they work: private household workers, who care for children at the children's homes; family child care providers, who care for children in the providers' homes; and child care workers who work at child care centers, which include Head Start, Early Head Start, full-day and part-day preschool, and other early childhood programs.

Private household workers who are employed on an hourly basis usually are called babysitters. These child care workers bathe, dress, and feed children; supervise their play; wash their clothes; and clean their rooms. Babysitters also may put children to bed and wake them, read to them, involve them in educational games, take them for doctors' visits, and discipline them. Those who are in charge of infants prepare bottles and change diapers. Babysitters may work for many different families. Workers who are employed by one family are often called nannies. They generally take care of children from birth to age 12, tending to the child's early education, nutrition, health, and other needs. They also may perform the duties of a housekeeper, including cleaning and doing the laundry.

Personal and Home Care Aides

<http://www.bls.gov/oco/ocos326.htm>

Personal and home care aides—also called homemakers, caregivers, companions, and personal attendants—work for various public and private agencies that provide home care services. In these agencies, caregivers are likely supervised by a licensed nurse, social worker, or other non-medical managers. Aides receive detailed instructions explaining when to visit clients and what services to perform for them. However, personal and home care aides work independently, with only periodic visits by their supervisors. These caregivers may work with only one client each day or five or six clients once a day every week or every 2 weeks.

Some aides are hired directly by the patient or the patient's family. In these situations, personal and home care aides are supervised and assigned tasks directly by the patient or the patient's family. Aides may also work with individuals who are developmentally or intellectually disabled. These workers are often called direct support professionals and they may assist in implementing a behavior plan, teaching self-care skills and providing employment support, as well as providing a range of other personal assistance services.

Nursing Assistants; Psychiatric and Home Health Aides

<http://www.bls.gov/soc/2010/soc311010.htm>

Nursing Assistants provide basic patient care under direction of nursing staff. Perform duties such as feed, bathe, dress, groom, or move patients, or change linens. May transfer or transport patients. Includes nursing care attendants, nursing aides, and nursing attendants.

Psychiatric Aids Assist mentally impaired or emotionally disturbed patients, working under direction of nursing and medical staff. May assist with daily living activities, lead patients in educational and recreational activities, or accompany patients to and from examinations and treatments. May restrain violent patients. Includes psychiatric orderlies.

Home Health Aides provide routine individualized healthcare such as changing bandages and dressing wounds, and applying topical medications to the elderly, convalescents, or persons with disabilities at the patient's home or in a care facility. Monitor or report changes in health status. May also provide personal care such as bathing, dressing, and grooming of patient.

Table 18 presents the outcomes from our data extraction. The data are grouped by industry, and presented by occupational categories (maids and housekeeping cleaners, child care workers, and personal and home care aides), and class of worker (private employee, government employee, self-employed, and unpaid family). Cells shaded in yellow with bolded text are included in our estimates of the number of workers impacted by AB 889 (see Table 6). Cells that are not shaded in yellow are not included in our estimate for the reasons described above.

Table 18: All Industries and Occupations Considered for Estimate of Total Workers Impacted by AB 889

Cells shaded in yellow included in estimate. Data is from American Community Survey, 2007-2009 Three Year Sample.

	Privately Employed		Self-Employed		Working without pay in family business or farm ^A	Government Employed ^B		
	Employee of a private for-profit company or business, or of an individual, for wages, salary, or commissions	Employee of a private not-for-profit, tax-exempt, or charitable organization	Self-employed in own not incorporated business, professional practice, or farm	Self-employed in own incorporated business, professional practice or farm		Local govt (city, county, etc.)	State govt	Federal govt
INDUSTRIES INCLUDED IN FINAL ESTIMATE								
Private Household Industry								
Maids and Housekeeping Cleaners	32,968	0	59,001	0	697	0	0	0
Child Care Workers	14,050	0	10,868	0	193	0	0	0
Personal and Home Care Aides	20,143	0	7,954	0	462	0	0	0
Nursing, Psychiatric, and Home Health Aides ^C	2,231	0	0	0	0	0	0	0
<i>Additional Occupations in Private Households^D</i>								
Grounds Maintenance Workers	771	0	0	0	149	0	0	0
Janitors and Building Cleaners	951	0	478	0	0	0	0	0
Cooks	474	0	821	0	31	0	0	0
Registered Nurses	514	0	0	0	0	0	0	0
Personal Care and Service Workers, All Other	216	0	221	0	0	0	0	0
First-Line Supervisors/Managers of Housekeeping and Janitorial Workers	41	0	200	0	0	0	0	0
Licensed Practical and Licensed Vocational Nurses	214	0	0	0	0	0	0	0
Dietitians and Nutritionists	87	0	30	0	0	0	0	0
Chefs and Head Cooks	80	0	19	0	0	0	0	0
Maintenance and Repair Workers, General	60	0	0	0	0	0	0	0
First-Line Supervisors/Managers of Personal Service Workers	0	0	50	0	0	0	0	0
Physical Therapists	28	0	0	0	0	0	0	0
Home Health Care Services Industry^E								
Maids and Housekeeping Cleaners	277	48	86	0	0	181	329	0
Child Care Workers	81	32	16	0	0	114	22	0
Personal and Home Care Aides	15,217	2,150	3,092	451	28	8,383	7,668	117
Nursing, Psychiatric, and Home Health Aides	11,484	2,057	3,668	655	24	5,059	3,763	43
Individual and Family Services Industry^F								
Maids and Housekeeping Cleaners	443	461	117	0	47	458	0	15
Child Care Workers	741	578	89	59	0	1,445	197	152
Personal and Home Care Aides	17,738	4,043	4,656	504	77	20,745	8,944	361
Nursing, Psychiatric, and Home Health Aides	2,109	716	0	0	25	2293	1,114	19
OTHER INDUSTRIES CONSIDERED BUT NOT INCLUDED IN FINAL ESTIMATE								
Child Day Care Services Industry^G								
Maids and Housekeeping Cleaners	210	0	20	0	0	0	0	0
Child Care Workers	27,237	6,628	52,764	4,932	644	5,216	1,504	544
Personal and Home Care Aides	386	0	427	95	0	99	0	0
Nursing, Psychiatric, and Home Health Aides	256	82	0	0	0	63	38	0
Landscaping Services Industry^H								
Maids and Housekeeping Cleaners	25	0	55	0	0	0	0	0
Child Care Workers	15	0	0	0	0	0	0	0
Personal and Home Care Aides	0	0	0	0	0	0	0	0
Nursing, Psychiatric, and Home	0	0	0	0	0	0	0	0

Health Aides									
Grounds Maintenance Workers	94,826	2,032	54,977	4,372	942	349	177	0	
Services to Buildings and Dwellings Industry¹									
Maids and Housekeeping Cleaners	23,881	980	13,540	1,130	269	58	23	180	
Child Care Workers	28	0	0	0	0	0	0	0	
Personal and Home Care Aides	46	0	0	0	0	0	0	0	
Nursing, Psychiatric, and Home Health Aides	0	0	0	0	0	28	0	0	
Grounds Maintenance Workers	393	0	0	0	0	0	0	0	
Employment Services Industry¹									
Maids and Housekeeping Cleaners	640	0	0	0	0	31	0	0	
Child Care Workers	316	140	53	0	0	0	0	0	
Personal and Home Care Aides	1,327	258	0	59	0	0	22	0	
Nursing, Psychiatric, and Home Health Aides	972	0	0	0	0	165	0	0	
Grounds Maintenance Workers	380	0	0	0	0	25	15	0	

Data from American Community Survey 2007-2009 3-Year Estimate Public Use Microdata Sample, obtained via Data Ferrett on March 3, 2011. Data are for California employees only and exclude individuals under 18 years of age, the unemployed, family members, and government employees.

Boxes highlighted in yellow were included in calculation of the number of workers impacted by AB 889.

^A Family workers working without pay in family businesses were excluded from the estimate since relatives of care-recipients are excluded from AB 889.

^B Government employees excluded from estimate to exclude individuals employed as in-home supportive service (IHSS) workers (who are excluded from AB 889) and individuals working for Head Start and other government funded child care programs.

^C It is assumed that in private household and home health care services industry, the majority of individuals employed as "nursing, psychiatric or home health aides" are working as home health aides, whereas in other industries and institutions (e.g. group homes, hospitals, nursing homes, etc), the majority of individuals are employed as nursing or psychiatric aides.

^D Additional occupations included in the domestic worker estimate are ones that either provide care or help with cleaning of the home. This estimate excludes the 44 other occupations that are employed in the Private Household industry but do not provide care or clean homes (such as chauffeurs, property managers, bookkeepers, carpenters, and construction workers). In total, the other 44 occupations total to 5313 persons, roughly half the total "other occupations" beyond the primary four listed.

^E Private maid/housekeeping cleaner employees working in home health care services industry are assumed to be cleaning home health care agency facilities and not working in private households, so are excluded from the estimate. Child care workers employed in the home health care services industry are assumed to be misclassified and so are excluded from this estimate.

^F According to the BLS definition, "individual and family services industry" are services provided to children, families, the disabled and elderly, primarily in non-residential settings. Authors assumed that child care, housekeeping, and nursing/psychiatric aides classified this way were providing care in non-private household settings (e.g. in social service settings or group homes). Authors assumed that because of the occupational definition of personal and home care aides, this occupation is providing care in individual homes, so this one occupational category was included in the estimate.

^G Child care workers working in the child care industry are assumed to provide care/work outside of private home settings. Specifically, privately employed child care workers working for-profit or non-profit organizations are assumed to be working in child care centers and institutions. Self-employed child care workers are assumed to be family child care home providers, which provide child care in the worker's home, not the child's home. Therefore all child care workers in the Child Day Care Services Industry are excluded from our estimate. Nannies and other child care workers that provide care in the child's home are assumed to be included in Private Household Industry.

^H Grounds maintenance workers are often employed by private households to do landscaping and groundskeeping – either directly or by third party agencies. Because we cannot determine what percentage of grounds maintenance workers and others employed in the Landscaping Services Industry work in private households vs. for buildings and businesses, we have excluded the entire industry from our analysis.

^I Similarly, we are unable to determine what percentage of maids and housekeeping cleaners provide services in homes/dwellings vs. buildings and institutions like hotels, hospitals, and group homes. Because it is not possible to determine who works in private homes or dwellings vs. buildings, this entire industry was excluded from our estimate. The authors assume that individuals employed by third party agencies (e.g. Merry Maids) would be listed in the "Services to Buildings and Dwellings" Industry and recognize that this result in an underestimate of the total maids/housekeeping cleaners employed in private households.

^J Employment services industry predominantly employs temporary hires to fill in for other workers. Because we do not know what percentage work in private homes vs. buildings/institutions, we excluded this entire industry.

Table 19 presents our estimated number of domestic workers impacted by AB 889 by occupation and class of worker.

Table 19: Estimate of Total Workers Impacted by AB 889, by Class of Worker and Occupation									
	Total	Class of Worker				Working without pay in family business or farm	Government Employed		
		Privately Employed		Self-Employed			Local govt (city, county, etc.)	State govt	Federal govt
		Employee of a private for-profit company or business, or of an individual, for wages, salary, or commissions	Employee of a private not-for-profit, tax-exempt, or charitable organization	Self-employed in own not incorporated business, professional practice, or farm	Self-employed in own incorporated business, professional practice or farm				
Maids and Housekeeping Cleaners	91,969	32,968	0	59,001	0	697	0	0	0
Child Care Workers	24,918	14,050	0	10,868	0	193	0	0	0
Personal and Home Care Aides	75,948	53,098	6,193	15,702	955	567	29,128	16,612	478
Nursing, Psychiatric, and Home Health Aides	20,095	13,715	2,057	3,668	655	24	5,059	3,763	43
Additional Occupations in Private Households	5,255	3,436	0	1,819	0	180	0	0	0
Total	218,185	117,267	8,250	91,058	1,610	1,661	34,187	20,375	521

Cells shaded in yellow included in estimate. Data from American Community Survey 2007-2009 3-Year Estimate Public Use Microdata Sample, obtained via Data Ferrett on March 3, 2011. Data is for California employees only and excludes individuals under 18 years of age. Explanation of industries, occupations and class of worker included in this estimate are available in Table X and the text above

This estimate is a conservative calculation of the number of domestic workers in California because:

- a) There may be some individuals employed by private for-profit or non-profit agencies in the Child Day Care Services Industry and the Services to Buildings and Dwellings Industry who work in private homes (e.g. Merry Maids) that are excluded from our estimate;
- b) There may be some individuals who are employed by temporary labor contracting agencies (Employment Services Industry) who regularly work in private homes that are excluded from our estimate;
- c) There may be some individuals who are privately employed or self-employed in Individual and Family Services Industry that work in private homes that are excluded from our estimate;
- d) Some self-employed child care workers may provide care in the child/care-recipient's home and not work as family child care home providers;
- e) There may be some individuals under the age of 18 who are working full- or part-time as domestic workers and not as casual babysitters;
- f) Live-in domestic workers may be under-represented in Census data;
- g) Some workers may be accidentally misclassified by industry, occupation or class of worker (e.g. workers are employed by private household to provide child care, but are classified as self-employed in child care industry rather than private household industry);
- h) Census data may underestimate certain sub-populations including immigrants.

CA EDD Estimate of Domestic Workers

Table 20 presents the number of individuals employed in private households in California according to data gathered by the California Employment Development Department (CA EDD), a state agency that monitors and disseminates data and reports on employment trends in California. CA EDD estimates are based on payroll taxes and surveys of employers. The table presents the number of individuals employed in 2008 and the projected number of individuals that will be employed in 2018 by occupational category.

Table 20: Total Workers Employed in Private Households, by Occupation, using CA EDD data			
SOC	Occupation Title	Employment in CA	
		2008	2018
39-9021	Personal and Home Care Aides	278,900	412,900
37-2012	Maids and Housekeeping Cleaners	6,800	11,700
39-9011	Child Care Workers	4,400	7,000
37-3011	Landscaping and Groundskeeping Workers	200	300
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	100	200
53-3041	Taxi Drivers and Chauffeurs	100	100
31-1011	Home Health Aides	100	100
31-1012	Nursing Aides, Orderlies, and Attendants	100	200
39-9099	Personal Care and Service Workers, All Other	100	200
37-1011	First-Line Supervisors/Managers of Housekeeping and Janitorial Workers	0	100
35-2013	Cooks, Private Household	0	100
47-2061	Construction Laborers	0	100
Total Workers in Private Households		290,800	433,000

Data from California Employment Development Department, CA Industry and Occupation Staffing Patterns 2008 and 2018. Accessed online on March 3, 2011: <http://www.labormarketinfo.edd.ca.gov/iomatrix/Staffing-Patterns3.asp?IOFlag=Ind&SIC=814000>

Table 21 compares the estimated number of individuals employed in private households using the American Community Survey and CA EDD data. The two data sources estimate substantially different numbers of domestic workers working in each of the three relevant occupational categories.

Table 21: Comparison of ACS and CA EDD Estimates of Private Household Industry Employees, by Occupation, in California				
Occupation Title	ACS 2007-2009 Estimate*	Occupation as % of Private Household Industry (ACS)	CA EDD 2008 Estimate**	Occupation as % of Private Household Industry (CA EDD)
Maids & Housekeeping Cleaners	91,969	60.3%	6,800	2.3%
Child Care Workers	24,918	16.3%	4,400	1.5%
Personal and Home Care Aides	28,097	18.4%	278,900	95.9%
All other occupations employed in private household industry	7,486	4.9%	700	0.2%
Total	152,470	100.0%	290,800	100.0%

*Data from American Community Survey 2007-2009 3-Year Estimate Public Use Microdata Sample.
 **Data from California Employment Development Department, CA Industry and Occupation Staffing Patterns 2008 and 2018. Accessed online on March 3, 2011: <http://www.labormarketinfo.edd.ca.gov/iomatrix/Staffing-Patterns3.asp?IOFlag=Ind&SIC=814000>

Note: ACS Estimates exclude individuals under 18 years of age and individuals who are unpaid family workers who work for a family business or farm. If all ages and unpaid family members are included, the ACS estimate would increase by roughly 6,000 more workers.

CA EDD estimates are based upon surveys of employers, and so may double count domestic workers who work for multiple employers. It is unknown how individuals employed through In-Home Supportive Services, the state-funded program to provide personal and home care to low-income sick, disabled and elderly individuals, are accounted for in CA EDD estimates, but they may be included in the 278,900 estimate for Personal and Home Care Aides described above. Based on conversations with Census Bureau staff and other anecdotal evidence, SFDPH assumes that a significant number of domestic workers are misclassified as self-employed individuals when they actually are employees of private households. This misclassification may be attributable to employer and/or employee error in documentation of hours worked and wages earned, and taxes filed or not filed. Self-employed workers may account for the significantly lower number of maids/housekeeping cleaners and child care workers in CA EDD private household industry data compared to ACS private household industry data.

Based upon the analysis above, and in consultation with the Data Center⁴¹, SFDPH decided to use the American Community Survey as the population estimates used throughout the report.

Injury and Illness Estimates

Occupational injury and illness data presented in this analysis are from the Survey of Occupational Injuries and Illnesses (SOII) which is an annual survey of employers conducted by the Bureau of Labor Statistics to estimate the number and rates of work-related injuries and illnesses. The analysis in this HIA uses data from the 2009 SOII. Publicly available data from the SOII is available by industry or by occupation.

We used occupation-reported injury and illness rates rather than industry-reported rates because the rates reflect occupational exposures of individuals doing tasks similar to domestic workers. However, this means that the occupation estimates includes injuries and illnesses of individuals working in institutional settings, such as hotels, hospitals, nursing homes, group homes, and child care centers, and not just individuals working in private households. Use of private household industry injury and illness data would have included injuries and illnesses from gardeners, landscapers, cooks, drivers, and others who work in private households in addition to those providing housekeeping, child care, or other forms of care included in our description of domestic work. Use of industry data for related industries (e.g. janitorial services, child care services, and home care services) would have included individuals who work in private households as well as those who work in institutional settings, but include additional occupational categories such as individuals working in administration and transportation which have very different occupational exposures.

Table 10 presents the incidence rates of nonfatal occupational exposures and events, and nonfatal occupational injuries and illnesses among the four primary occupations analyzed: maids and housekeeping cleaners, child care workers, personal and home care aides, and home health aides. Table 14 presents the median days away from work and incidence rates of occupational injury and illnesses for each of these categories when available. Data presented are from Tables 3, 18, 19, and 20 of the Bureau of Labor Statistics' Economic News Release of 2009 nonfatal occupational injuries and illnesses involving days away from work (<http://www.bls.gov/news.release/osh2.toc.htm>), as well as from Tables R57 (http://bls.gov/iif/oshcdnew2009.htm#09Supplemental_Tables).

Table 14 also presents the estimated number of domestic workers in California (described above) and calculates the estimated number of total nonfatal occupational injuries and illnesses and number of musculoskeletal injuries among California domestic workers. For both tables, incidence rates represent the number of injuries and illnesses per 10,000 full-time workers. Incidence rates are for entire occupation in private industries, not only individuals working in private households. Incidence rates were calculated as: $(N/EH) \times 20,000,000$ where

N =number of injuries and illnesses

EH =total hours worked by all employees during the calendar year

20,000,000=base for 10,000 equivalent full-time workers (working 40hrs/wk, 50 weeks per year)

For Table 14, median days away from work (MDAFW) is the measure used to summarize the varying lengths of absences from work among the cases with days away from work. Half the cases involved more days and half involved less days than a specified median. MDAFW are represented in actual values. DAFW cases include those that resulted in days away from work, some of which also included job transfer or restriction. MDAFW are for entire occupation in private industries, not only individuals working in private households.

⁴¹ The Data Center is conducting national research on the domestic worker industry in consultation with national experts including Laura Dresser, Associate Director of the Center on Wisconsin Strategy, and Annette Bernhardt, Policy Co-Director of the National Employment Law Project.

12 APPENDIX B: SLEEP-RELATED LABOR PROTECTIONS & REQUIREMENTS

Provision §551.432 of the federal Fair Labor Standards Act (FLSA) establishes minimum standards related to sleep among workers whose shift is 24 hours or more. The FLSA sleep time provision is primarily structured to establish legal standards for employers regarding when sleep and rest breaks are considered unpaid time for workers on 24-hour shifts.

Over the past several decades, the federal government has adopted work-hour limitations in professions where 24-hour shifts are common, such as medical residents, pilots, truck drivers, and railroad conductors. The state of California has adopted limitations for additional groups such as nurses and firefighters. Some professional associations have also established recommended standards for rest and sleep time during long shifts. Table 22 below outlines the requirements by occupation.

Table 22: Work-Hour Limitations & Required Hours Of Rest By Occupation		
Occupation	Minimum Rest Between Shifts	Regulatory Agency
Nurses	12 hrs in 24-hrs except in a health care emergency	California Department of Labor NOTE: The California Nurses Association has led the way in negotiating restrictions on mandatory overtime for nurses.
Firefighters, EMS & Police	8 consecutive hrs The FLSA has set special work hour maximums for fire and police based on different reporting period lengths.	Federal Department of Labor California Department of Labor NOTE: Unions have been very important in negotiating collective bargaining agreements for fire and police personnel that are more restrictive than the FLSA standard and ensure fair scheduling, along with overtime and rest pay for extended shifts.
Medical Residents	8 consecutive hrs (with 10 hours recommended) after a 16-hour shift or 14 consecutive hrs after a 24-hour shift	Accreditation Council for Graduate Medical Education (Effective July 2011)
Pilots	11 consecutive hrs in the 24 hours prior to 9+ hours of flight time	Federal Aviation Administration
Long-haul Truck Drivers	10 consecutive hrs after a maximum of 11 hours of driving	Federal Motor Carrier Safety Administration
Railroad Conductors	10 consecutive hrs after a 12-hour shift and 8 consecutive hours during the 24 hours prior to any shift	Federal Railroad Administration
SOURCES: ACGME 2010, Bae 2010, Ulmer 2009, Jahnke 2009.		

Box 10: Minimum Sleep Requirements: The Case Of Medical Residents

Policymakers are currently considering the debate around minimum hours of sleep required for medical residents. In Fall 2010, the Accreditation Council for Graduate Medical Education (ACGME) approved new duty hour standards for medical residents based on recommendations from the Institute of Medicine. The new professional standards go into effect in July 2011. The American Medical Students Association and SEIU are working to get OSHA to adopt regulations that would codify and strengthen overtime rules and rest protection for medical residents. These standards are relevant to domestic workers because both professions focus on caregiving, and sleep deprivation may result in comparable impacts on performance. The debate for medical residents may help inform the definition of necessary and adequate sleep and rest time for domestic workers.

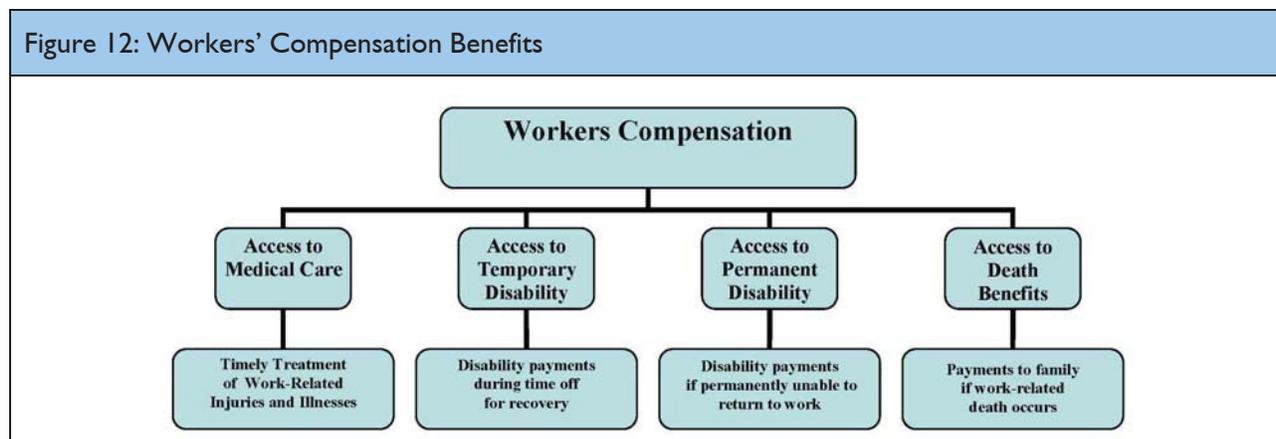
Medical residents are currently allowed to work 24-hour shifts, and that will continue – although in a more restricted manner – under the new ACGME standards. In 2009, the Institute of Medicine published a report titled “Resident Duty Hours: Enhancing Sleep, Supervision and Safety” that recommended a protected sleep period following any shift longer than 16 hours. In September 2010, the American Medical Students Association and SEIU petitioned OSHA to establish rules limiting shifts to 16 hours followed by a minimum 10-hour break.

On September 2, 2010, OSHA director Dr. David Michaels responded: “We are very concerned about medical residents working extremely long hours, and we know of evidence linking sleep deprivation with an increased risk of needle sticks, puncture wounds, lacerations, medical errors and motor vehicle accidents... It is clear that long work hours can lead to tragic mistakes, endangering workers, patients and the public. All employers must recognize and prevent workplace hazards. That is the law. Hospitals and medical training programs are not exempt from ensuring that their employees’ health and safety are protected.” In this statement, OSHA Director Michaels emphasizes that the law’s requirement for standards that prevent workplace hazards may command sleep protections beyond the five hours mandated under FLSA.

13 APPENDIX C: GENERAL BACKGROUND & OVERVIEW OF WORKERS' COMPENSATION

Workers' compensation (WC) is an insurance program for workers who have injuries or illnesses related to their jobs. It provides for medical care and temporary or permanent disability payments, and also provides death benefits for families in the event of a work-related death. In most states, though not in California, it also covers retraining for injured workers. Most employers are mandated to purchase workers' compensation insurance for their employees, with specific exceptions to this mandate varying by state. Several states have an exclusive statewide workers' compensation fund, while other states such as California permit the purchase of workers' compensation insurance through private insurance carriers. Texas is the only state that does not mandate the purchase of workers' compensation insurance (Sengupta 2007). Workers' compensation is a state, rather than a federal program; each state oversees its own workers' compensation system and the organization of workers' compensation varies markedly among states. In California, workers' compensation is overseen by the Division of Workers' Compensation (DWC) of the Department of Industrial Relations (CDWC 2010).

Figure 12 provides a brief overview of the main components of the workers' compensation insurance system: access to medical care, temporary or permanent disability and death benefits. Given the nature of domestic workers' occupational exposures, access to medical care and temporary disability are the two components of the workers' compensation insurance system most likely to be used by domestic workers. Although there is likely a very small number of domestic workers who would be eligible for permanent disability or death compensation benefits, and those financial benefits would likely significantly impact the well-being of the individual and/or their family, the HIA team decided to focus the HIA analysis on access to medical care and temporary disability given the likely small numbers of individuals impacted by permanent disability and death benefits.



Most states, including California, enacted workers' compensation legislation during the 1910s, supported by coalitions of employers, insurers, and workers. Workers' compensation came into being during an era of labor activism and the resulting establishment of multiple labor protections; it was also an era of extremely hazardous working conditions in many industries (Bale 1988). Workers' compensation insurance replaced a poorly functioning system in which injured employees' main recourse was to sue their employers for negligence. These lawsuits (undertaken by relatively few workers) had unpredictable results for both employers and employees, leaving many injured employees without any financial compensation or medical care and subjecting employers to unpredictable damage awards (Sengupta 2007, Fishback 1996). Workers' compensation represented a trade-off for employees and employers, exchanging workers' right to sue for damages with a predictable system that theoretically guaranteed benefits and did not require a finding of fault (Bale 1989).

Workers' compensation insurance has evolved significantly during the 100 years since it was enacted. Its intent was to mitigate the often adversarial relationship between the injured employee and his/her employer; however, it has often resulted in new forms of conflict and litigation as employees' workers' compensation claims are frequently contested by insurers and employers (Bale 1989, LaDou 2006). When workers' compensation was first enacted, the majority of claims were for acute, traumatic injuries. Today, the majority of occupational conditions treated in the workers' compensation system are chronic rather than acute in nature (Piligan 2000). The most common workers' compensation-treated conditions are low back and upper extremity musculoskeletal injuries (Pransky 2000). Among workers' compensation recipients, women have been noted to be more likely than men to have injuries that are gradual in onset and come about as the result of routine work activities; they were also more likely to encounter negative responses from employers when injured (Harrold 2008).

Recent concerns about rapidly increasing costs within the workers' compensation system have led to the adoption of cost-saving reforms in many states, including California. These reforms include the introduction of medical managed care principles such as utilization review and limitations on provider choice, as well as caps on disability payments to injured workers (Sengupta 2007). With a few exceptions, employers generally have the right to specify a panel of medical providers that employees must select from for their workers' compensation medical care. Critics have complained that affordability to employers has dominated dialogues concerning workers' compensation reform, at the expense of attention to the accessibility and adequacy of benefits for workers (Rosenman 2000).

Workers' compensation insurance is best understood as a central element of the health and social safety net to be activated in the event of illness, injury, or disability, rather than a primary injury prevention strategy. "Experience rating," whereby employers' insurance rates are affected by their claim rate, would be expected to provide some economic incentive for employers to improve workplace safety; however, this incentive is relatively weak (LaDou 2006, Rosenman 2000). State and federal standards promoting workplace safety, such as laws governing working hours and the Occupational Safety and Health Act (OSHA), were enacted separately and often decades after workers' compensation insurance was established. Workers' compensation complements these occupational safety standards, providing income replacement and medical treatment for workers who are injured or become ill on the job despite the presence of other labor protections.

Table 23: Workers' Compensation Facts and Figures		
	United States (2007)	California (2007)
Number of covered workers	131,734,000	15,395,000
Number of WC claims per year ⁴²	Approximately 4 million claims by employees in "private industry"	644,700
Employer costs for WC insurance	\$87.3 billion	\$14.6 billion
Medical benefits paid	\$27.2 billion	\$5.4 billion
Cash benefits paid	\$28.3 billion	\$4.5 billion
Citations	Sengupta 2007	Sengupta 2007, Rosenman 2000, Smith 2005

⁴² The number of WC claims per year is much smaller than the actual injury and illness rate, because not all workplace injuries and illnesses result in a claim. Leigh et al. (2004) incorporated multiple data sources in an analysis that estimated approximately 14.5 million work-related injuries and illnesses in the United States and 1.8 million work-related injuries and illnesses in California in 1992. In contrast, Smith et al. (2005) used the NHIS to estimate work-related injuries (excluding illnesses), reporting an incidence of 5.5 million injuries a year in the US.

14 REFERENCES

- Accreditation Council for Graduate Medical Education (ACGME) (2010). Duty Hours: Approved Standards, Effective July 2011. Accessed on September 20, 2010: http://www.acgme.org/acwebsite/home/Common_Program_Requirements_07012011.pdf
- Akerstedt T (2003). Shift work and disturbed sleep/wakefulness. *Occupational Medicine*. 53: 89–94.
- Ahonen EQ, López-Jacob MJ, Vázquez ML (2010). Invisible work, unseen hazards: The health of women immigrant household service workers in Spain. *American Journal of Industrial Medicine*, 53:405-16.
- American Federation of Labor-Congress of Industrial Organizations (AFL-CIO) (2005). *Immigrant Workers at Risk: The Urgent Need for Improved Workplace Safety and Health Policies and Programs*. Washington, D.C.: AFL-CIO.
- American Heart Association (AHA) (2010). *Metabolic Syndrome*. Dallas, TX: AHA. Accessed on September 20, 2010: <http://www.americanheart.org/presenter.jhtml?identifier=4756>.
- Arif A, Delclos G, Serra C (2009). Occupational exposures and asthma among nursing professionals. *Occupational and Environmental Medicine*, 66:274.
- Arif A, Delclos G, Whitehead L, et al. (2003). Occupational exposures associated with work-related asthma and work-related wheezing among U.S. workers. *American Journal of Industrial Medicine*, 44:368-76.
- Arif A, Hughes P, Delclos G (2008). Occupational exposures among domestic and industrial professional cleaners. *Occupational Medicine*, 58:458.
- Associated Press (AP) (2008). Domestic Workers demanding labor rights. *Washington Times*. Washington DC, Associated Press. June 5, 2008.
- Ayas NT, White DP, Al-Delaimy WK, et al. (2003a). A prospective study of self-reported sleep duration and incident diabetes in women. *Diabetes Care*, 26(2):380-384.
- Ayas NT, White DP, Manson JE, et al. (2003b). A prospective study of sleep duration and coronary heart disease in women. *Archives of Internal Medicine*, 163(2):205-209.
- Babson KA, Trainor CD, Feldner MT, et al. (2010). A test of the effects of acute sleep deprivation on general and specific self-reported anxiety and depressive symptoms: An experimental extension. *Journal of Behavior Therapy and Experimental Psychiatry*, 41(3):297-303.
- Bae SH, Brewer, C (2010). Mandatory Overtime Regulations and Nurse Overtime. *Policy, Politics, and Nursing Practice*. 11(2):99-107.
- Bale A (1989). Medicine in the industrial battle: Early workers' compensation. *Social Science & Medicine*, 28:1113-20.
- Bale A (1998). Assuming the risks: occupational disease in the years before workers' compensation. *American Journal of Industrial Medicine*, 13:499-513.
- Balmes J, Becklake M, Blanc P, et al. (2003). American Thoracic Society Statement: Occupational Contribution to the Burden of Airway Disease. *American Journal of Respiratory and Critical Care Medicine*. p167.
- Barger LK, Cade BE, Ayas NT, et al. (2005). Extended Work Shifts and the Risk of Motor Vehicle Crashes among Interns. *New England Journal of Medicine*, 352(2):125-34.
- Baron S, McPhaul K, Phillips S, et al. (2009). Protecting home health care workers: a challenge to pandemic influenza preparedness planning. *American Journal of Public Health*. Oct;99 Suppl 2:S301-7.
- Bauer AM, Boyce WT (2004). Prophecies of Childhood: How Children's Social Environments and Biological Propensities Affect the Health of Populations. *International Journal of Behavioral Medicine*, 11(3): 164-75.
- Belenky G, Wesensten NJ, Thorne DR, et al. (2003). Patterns of performance degradation and restoration during sleep restriction and subsequent recovery: a sleep dose-response study. *Journal of Sleep Research*, 12(1):1-12.
- Benach J, Muntaner C, Santana V (2008). *A Synthesis of the WHO Employment Conditions Knowledge Network and Final Report: National Collaborating Centre for Determinants of Health*.

Bernhardt A, McGrath S, DeFilippis J (2007). *Unregulated Work in the Global City: Employment and Labor Law Violations in New York City*: Brennan Center for Justice at New York University School of Law.

Bernhardt A, Milkman R, Theodore N, et al. (2009). *Broken Laws, Unprotected Workers: Violations of Employment and Labor Laws in America's Cities*. Center for Urban Economic Development/ National Employment Law Project/ UCLA Institute for Research on Labor and Employment.

Bhatia R, Farhang L, Heller J, et al. (2008). *A Health Impact Assessment of the California Healthy Families, Healthy Workplaces Act of 2008*. Oakland, CA: Human Impact Partners and San Francisco Department of Public Health.

Bonato S, Coll M (2007). *Domestic Workers' Rights in the United States: A report prepared for the U.N. Human Rights Committee In response to the Second and Third Periodic Report of the United States*. Accessed on September 20, 2010: <http://www.law.unc.edu/documents/clinicalprograms/domesticworkersreport.pdf>

Boris E, Klein J (2006). *Organizing Home Care: Low-waged Workers in the Welfare State*. *Politics & Society*, 34:81.

Boris E (2008). "Labor's Welfare State: Defining Workers, Constructing Citizens," in *The Cambridge History of American Law*, vol. III, Michael Grossberg and Christopher Tomlins, eds.(Cambridge University Press, 2008), 319-58.

Brenner MD (2005). "The economic impact of the Boston living wage ordinance." *Industrial Relations* 44(1): 59-83.

Breslin FC, Smith P (2006). Trial by fire: a multivariate examination of the relation between job tenure and work injuries. *Journal of Occupational and Environmental Medicine*. 63(1):27-32.

Bright K, Calabro K (1999). Child care workers and workplace hazards in the United States: overview of research and implications for occupational health professionals. *Occupational Medicine*, 49:427.

Brown M, Domenzain A, Villoria-Siegert N (2002). *California's Immigrant Workers Speak Up About Health and Safety in the Workplace*. Los Angeles: UCLA; December 2002.

Browne I, Misra J (2003). The intersection of gender and race in the labor market. *Annual Review of Sociology*, 29:487-514.

California Division of Workers' Compensation (CDWC) (2010). CDWC Homepage. Accessed August 23, 2010: http://www.dir.ca.gov/dwc/dwc_home_page.htm.

California Industrial Welfare Commission (CA IWC) Wage Order No. 15-2001, Section 2. Accessed on September 20, 2010: <http://www.dir.ca.gov/IWC/IWCArticle15.pdf>

California Insurance Code, Chapter 1, Article 2.5, Section 11590-11593: Personal Liability Insurance Providing Workers' Compensation Coverage for Household Employees.

Cappuccio FP, Taggart FM, Kandala NB, et al. (2008). Meta-Analysis of Short Sleep Duration and Obesity in Children and Adults. *Sleep*, 31(5):619-626.

Cappuccio, FP, Miller, MA, D'Elia, L, & Strazzullo, P (2010). Sleep duration and all-cause mortality: A systematic review and meta-analysis of prospective studies. *Sleep* 33(5): 585-5

Cappuccio, FP, et al. (2011). Sleep duration predicts cardiovascular outcomes: a systematic review and meta-analysis of prospective studies. *European Heart Journal*. 32(4)

Carroll D, Samardick R, Bernard S, et al. (2005). Findings from the National Agricultural Workers Survey (NAWS) 2001-2002: A demographic and employment profile of United States farm workers. U.S. Department of Labor.

Carter PA & Chang BL (2000). Sleep and Depression in Cancer Caregivers. *Cancer Nursing*, 23:410-415.

Caruso CC, Bushnell T, Eggerth D, Heitmann A, et al. (2006). Long working hours, safety, and health: toward a National Research Agenda. *American Journal of Industrial Medicine*. Nov;49(11):930-42.

Centers for Disease Control and Prevention (CDC) (2010). Proportion of Workers Who Were Work-Injured and Payment by Workers' Compensation Systems: 10 States, 2007. *Morbidity and Mortality Weekly Report*. 59:897-900.

- Charles L, Loomis D, Demissie Z (2009). Occupational hazards experienced by cleaning workers and janitors: A review of the epidemiologic literature. *Work: A Journal of Prevention, Assessment and Rehabilitation*, 34:105-116.
- Chinese Progressive Association (CPA) (2010). Check, Please! Health and Working Conditions in San Francisco Chinatown Restaurants. In partnership with the SFDPH; UCSF Medical School; UCB School of Public Health and UCB Labor Occupational Health Program, with writing support from the Data Center. San Francisco, CA; September 17, 2010.
- Cole B, Shimkhada H, Morgenstern H, et al. (2005). Projected health impact of the Los Angeles City living wage ordinance. *Journal of Epidemiology and Community Health*. 59(8): 645–650.
- Coleman MS, Kellerman AL, Andersen RM (2002). *Care Without Coverage: Too Little, Too Late*. Report of the Institute of Medicine. Washington, DC: National Academy Press.
- Colten HR, Altevogt BM & Institute of Medicine (2006). *Sleep disorders and sleep deprivation: An unmet public health problem*. Washington, DC: Institute of Medicine.
- Commission on Social Determinants of Health (CSDH) (2008). *Closing the gap in a generation: health equity through action on the social determinants of health. Final Report of the CSDH*. Geneva: World Health Organization.
- Commission to Build a Healthier America (CBHA) (2008). *Work Matters for Health*. San Francisco: UCSF Center for Social Disparities in Health and the Robert Wood Johnson Foundation; 2008 December.
- Connor, JL (2009). The role of driver sleepiness in car crashes: a review of the epidemiological evidence. *Drugs, driving and traffic safety*. 187-205.
- D'Souza A (2010). *Moving Towards Decent Work for Domestic Workers: An Overview of the ILO's Work*. Working Paper 2. International Labor Organization, Bureau for Gender Equality. Available at: http://www.ilo.org/wcmsp5/groups/public/---dgreports/---gender/documents/publication/wcms_142905.pdf
- de Castro A, Fujishiro K, Sweitzer E, et al. (2006). How immigrant workers experience workplace problems: a qualitative study. *Archives of Environmental and Occupational Health*, 61:249-58.
- Delp L (2006). *Job stressors among home care workers in California's consumer directed model of care: The impact on job satisfaction and health outcomes*. University of California Los Angeles.
- Dembe A, Harrison R (2005). *Access to Medical Care for Work-Related Injuries and Illnesses: Why Comprehensive Insurance Coverage is Not Enough to Assure Timely and Appropriate Care*. RAND Corporation.
- Dembe A, Himmelstein J (2001). *The Workers' Compensation Health Initiative: At the Convergence of Work and Health to Improve Health and Health Care*. The Robert Wood Johnson Foundation Anthology.
- Denton M, Zeytinoglu I, Davies S (2003). *Organizational change and the health and well-being of home care workers*: McMaster University.
- Di Milia L, Mummary K (2009). The Association between Job Related Factors, Short Sleep and Obesity. *Industrial Health*, 47(4):363-8.
- Domestic Workers United (DWU) and DataCenter (2006). *Home is Where the Work Is: Inside New York City's Domestic Work Industry*. Accessed at: <http://www.datacenter.org/reports/homeiswheretheworkis.pdf>
- Dongen HP, Maislin G, Mullington JM, et al. (2003). The Cumulative Cost of Additional Wakefulness: Dose-Response Effects on Neurobehavioral Functions and Sleep Physiology From Chronic Sleep Restriction and Total Sleep Deprivation. *Rapid Publication. Sleep*, 26(2):117.
- Dresser L (2008). "Cleaning and caring in the home: Shared problems? Shared possibilities?" In: Bernhardt A, Boushey H, Dresser L, Tilly C, eds. *The Gloves-Off Economy: Workplace Standards at the Bottom of America's Labor Market*. Ithaca, NY: Cornell University Press.
- Eberly R, Feldman H (2010). Obesity and shift work in the general population. *The Internet Journal of Allied Health Sciences and Practice*. 8(3).
- Epstein AJ (2001). The role of public clinics in preventable hospitalizations among vulnerable populations. *Health Services Research*. 36(2):405-20.

- Estabrooks CA, Cummings GG, Olivo SA, et al. (2009). Effects of shift length on quality of patient care and health provider outcomes: A Systematic Review. *Quality and Safety in Health Care*, 18(3):181-8.
- Excluded Workers Congress (EWC) (2010). *Unity for Dignity: Expanding the Right to Organize to Win Rights at Work*. Written with support from Rebecca Smith, National Employment Law Project, and Harmony Goldberg. New York: Inter-Alliance Dialogue. Accessed on January 24, 2010: <http://www.excludedworkers.org/report>
- Fairris, D. (2005). "The impact of living wages on employers: A control group analysis of the Los Angeles ordinance." *Industrial Relations* 44(1): 84-105.
- Fan Z, Bonauto D, Foley M, et al. (2006). Underreporting of work-related injury or illness to workers' compensation: Individual and industry factors. *Journal of occupational and environmental Medicine*, 48:914.
- Ferrie JE, Shiple MJ, Cappuccio FP, et al. (2007). A Prospective Study of Change in Sleep Duration: Associations with Mortality in the Whitehall II Cohort. *Sleep*, 30(12):1659-1666.
- Fishback P, Kantor S (1996). *The Adoption of Workers' Compensation in the United States, 1900-1930*. Cambridge, MA.
- Frank M (2005). "The Function of Sleep" in *Sleep: A Comprehensive Handbook*, Ed. Lee-Chiong. John Wiley & Sons, Inc: New Jersey. pp 45-47
- Galinsky T, Waters T, Malit B (2001). Overexertion injuries in home health care workers and the need for ergonomics. *Home Health Care Services Quarterly*, 20:57-73.
- Gallicchio, L, & Kalesan, B (2009). Sleep duration and mortality: A systematic review and meta-analysis. *Journal of Sleep Research* 18(2): 148-158.
- Gangwisch JE, Heymsfield SB, Boden-Albala B, et al. (2006). Short Sleep Duration as a Risk Factor for Hypertension Analyses of the First National Health and Nutrition Examination Survey. *Hypertension*. 47(5):833-9.
- Geiger-Brown J, Muntaner C, Lipscomb J, et al. (2004). Demanding work schedules and mental health in nursing assistants working in nursing homes. *Work and Stress*, 18(4), pp.292-304
- Gerr F, Mani L (2000). Work-Related Low Back Pain. *Primary Care*, 27:865-76.
- Gonzales K (2007). Undocumented immigrants and workers' compensation: rejecting federal preemption of the California Workers' Compensation Act. *UC Davis Law Review*, 41:2001.
- Gottlieb DJ, Redline S, Nieto FJ, et al. (2006). Association of Usual Sleep Duration with Hypertension: The Sleep Heart Health Study. *Sleep*, 29(8):1009-1014.
- Guo H, Tanaka S, Cameron L, et al. (1995). Back pain among workers in the United States: national estimates and workers at high risk. *American Journal of Industrial Medicine*, 28:591-602.
- Hall MH, Muldoon MF, Jennings JR, et al. (2008). Self-Reported Sleep Duration is Associated with the Metabolic Syndrome in Midlife Adults. *Sleep*, 31(5):635-643.
- Harrold L, Savageau J, Pransky G, et al. (2008). Understanding the role of sex differences in work injuries: Implications for primary care practice. *Disability and Rehabilitation*, 30:36-43.
- Harvard Medical School, Division of Sleep Medicine (Harvard DSM). Why do we sleep anyway? Accessed on September 20, 2010: <http://healthysleep.med.harvard.edu/>
- Harvard University Center on the Developing Child (Harvard CDC) (2007). *A Science-Based Framework for Early Childhood Policy: Using Evidence to Improve Outcomes in Learning, Behavior, and Health for Vulnerable Children*. Available at <http://www.developingchild.harvard.edu>.
- Hegewisch A, Liepmann H (2010). *The Gender Wage Gap by Occupation*. Fact Sheet #350a. Washington DC: Institute for Women's Policy and Research. April 2010. Accessed on January 24, 2011: <http://www.iwpr.org/pdf/C350a.pdf>
- Herbert R, Janeway K, Schechter C (1999). Carpal tunnel syndrome and workers' compensation among an occupational clinic population in New York State. *American Journal of Industrial Medicine*, 35:335-42.

- Hertzman C, Power C (2003). Health and Human Development: Understandings from Life-Course Research. *Developmental Neuropsychology*, 24(2&3): 719-44.
- Hiller A, Saxtein L (2009). Falling Through the Cracks: The Plight of Domestic Workers and Their Continued Search for Legislative Protection. *Hofstra Labor and Employment Law Journal*, 27:233.
- Holley M (2000). Disadvantaged by design: How the law inhibits agricultural guest workers from enforcing their rights. *Hofstra Labor & Employment Law Journal*, 18:575.
- Hondagneu-Sotelo P (2007). *Domestica: Immigrant workers cleaning and caring in the shadows of affluence*: University of California Press.
- Horton D, Berkowitz Z, Kaye W (2005). Morbidity and mortality from hazardous materials events in the personal services industry, 1993-2001: A follow-up report from the Hazardous Substances Emergency Events Surveillance (HSEES) system. *American Journal of Industrial Medicine*, 47:419-27.
- Horwitz IB, McCall BP (2004). The impact of shift work on the risk and severity of injuries for hospital employees: an analysis using Oregon workers' compensation data. *Occupational Medicine*, 54(8):556-63.
- Howard N, Adams D (2010). An analysis of injuries among home health care workers using the Washington state workers' compensation claims database. *Home Health Care Services Quarterly*, 29:55-74.
- Howes C (2005). "Living wages and retention of homecare workers in San Francisco." *Industrial Relations* 44(1): 139-163.
- Human Impact Partners (HIP) and San Francisco Department of Public Health. *A Health Impact Assessment of the Healthy Families Act of 2009*. Oakland, California. June 2009.
- Human Rights Watch (HRW) (2001). *Hidden in the home: Abuse of domestic workers with special visas in the United States*. New York: Human Rights Watch.
- Hunt H (2003). Benefit Adequacy in State Workers' Compensation Programs. *Social Security Bulletin*. 65:24-31.
- International Labor Organization (ILO) (2010). Decent work for domestic workers. In: *International Labour Conference, 99th Session; 2010; Geneva; 2010*.
- International Labor Organization (ILO-TRAVAIL). *Conditions of Work and Employment Programme (TRAVAIL). Domestic Workers*. Accessed on September 20, 2010: http://www.ilo.org/travail/areasofwork/lang-en/WCMS_DOC_TRA_ARE_DOM_EN/index.htm
- Isomaa B, Almgren P, Tuomi T (2001). Cardiovascular morbidity and mortality associated with the metabolic syndrome. *Diabetes Care*, 24(4):683-689.
- Jaakkola J, Jaakkola M (2006). Professional cleaning and asthma. *Current Opinion in Allergy and Clinical Immunology* 6(2):85-90.
- Jahnke CM & Royal Oak Police Department (2009). *Resource Allocation and Scheduling Alternatives for Police*. Accessed on September 20, 2010: www.ci.royal-oak.mi.us/portal/sites/default/files/.../2009/0504-08a.pdf
- Johanning E (2000). Evaluation and management of occupational low back disorders. *American Journal of Industrial Medicine*. 37:94-111.
- Kahn-Green ET, Killgore DB, Kamimori GH, et al. (2007). The effects of sleep deprivation on symptoms of psychopathology in healthy adults. *Sleep Medicine*. 8: 215-221.
- Karlsson B, Knutsson A, Lindhal B (2001). Is there an association between shift work and having a metabolic syndrome? Results from a population based study of 27,485 people. *Occupational and Environmental Medicine*. 58:747-752.
- Katz M, Bhatia R (2001). Estimation of health benefits accruing from a living wage ordinance. *American Journal of Public Health*. 91:1398-1402.
- Kawachi I, Coakley EH, Schwartz J, et al. (2000). Association between Psychosocial Work Characteristics and Health Functioning in American Women: Prospective Study. *British Medical Journal*. 320:1432-1436.
- Kawachi I, Colditz GA, Stampfer MJ, et al. (1995). Prospective Study of Shift Work and Risk of Coronary Heart Disease in Women. *Circulation*, 92:3178-3182.

- Klamut J (2006). Invisible Fence: De Facto Exclusion of Undocumented Workers from State Workers' Compensation Systems. *Kansas Journal of Law & Public Policy* 16:174.
- Klauer SG, Dingus TA, Neale VL, et al. (2006). The impact of driver inattention on near-crash/crash risk: An analysis using the 100-Car Naturalistic Driving Study. Report for the U.S. Department of Transportation, National Highway Traffic Safety Administration. Washington, DC: National Highway Traffic Safety Administration.
- Knutson KL, Spiegel K, Penev P, et al. (2007). The metabolic consequences of sleep deprivation. *Sleep Medicine Reviews*. 11(3):163-178.
- Kripke DF, Garfinkel L, Wingard DL, et al. (2002). Mortality associated with sleep duration and insomnia. *Archives of General Psychiatry*. 59(2):131-136.
- LaDou J (2006). Occupational and Environmental Medicine in the United States: A Proposal to Abolish Workers' Compensation. *International Journal of Occupational and Environmental Health*. 12:154-68.
- Lakka HM, Laaksonen DE, Lakka TA, et al. (2002). The Metabolic Syndrome and Total and Cardiovascular Disease Mortality in Middle-aged Men. *Journal of the American Medical Association*. 288(21):2709-2716.
- Lashuay N, Burgel B, Harrison R, et al. (2002) We spend our days working in pain: a report on workplace injuries in the garment industry. Oakland, CA: Asian Immigrant Women Workers Clinic.
- Lashuay N, Harrison R (2006). Barriers to Occupational Health Services for Low-Wage Workers in California: A Report to the Commission on Health and Safety and Workers' Compensation. Sacramento, CA: California Department of Industrial Relations.
- Lee-Chiong TL. (2006). *Sleep: A comprehensive handbook*. Hoboken, NJ: Wiley-Liss.
- Leigh J, Marcin J, Miller T (2004). An estimate of the U.S. Government's undercount of nonfatal occupational injuries. *Journal of Occupational and Environmental Medicine* 2004;46:10.
- Leigh J, Markowitz S, Fahs M, et al. (2000). *Costs of Occupational Injuries and Illnesses*. Ann Arbor: University of Michigan Press.
- Leigh J, Robbins J (2004). Occupational disease and workers' compensation: coverage, costs, and consequences. *Milbank Quarterly*. 82:689-721.
- Liberty Mutual Research Institute for Safety (2008). *Workplace Safety Index. From Research to Reality*. 11:1-6.
- Lipscomb J, Sokas R, McPhaul K, et al. (2009). Occupational blood exposure among unlicensed home care workers and home care registered nurses: are they protected? *American Journal of Industrial Medicine*. Jul ;52(7):563-70;
- Lovell V (2005). *Valuing Good Health: An Estimate of Costs and Savings for the Healthy Families Act*. Report for the Institute of Women's Policy Research. IWPR Publication #B248. http://paysickdayscalif.org/learn/IWPR_ValuingGoodHealth.pdf
- Lucia L (2011). Fact Sheet: Analysis of Domestic Workers Bill of Rights (AB 889). University of California Berkeley Labor Center. April 11, 2011.
- MacMahon T, Newman M (2010). *California's health care safety net: Facts and figures*. Oakland, CA; California HealthCare Foundation.
- Magagnini S, Smith D (2010). Undocumented workers can become 'one of the family,' expert says. *Sacramento Bee*. October 1, 2010: Page 14A.
- Marmot M, Wilkinson R, editors (2006). *Social Determinants of Health*. Second edition. New York: Oxford University Press.
- McCurry SM, Logsdon RG, Teri L, et al. (2007). Sleep disturbances in caregivers of persons with dementia: contributing factors and treatment implications. *Sleep Medicine Reviews*. 11(2):143-53.
- McCurry SM, Logsdon RG, Teri L, et al. (1999) Characteristics of sleep disturbance in community-dwelling Alzheimer's disease patients. *J Geriatr Psychiatry Neurol* 12:53-9.
- McCurry SM, Teri L (1995). Sleep disturbance in elderly caregivers of dementia patients. *Clinical Gerontology*. 16:51-66.

- McCurry SM, Gibbons LE, Logsdon RG, et al. (2009). Insomnia in Caregivers of Persons with Dementia: Who is at Risk and What Can be Done About It?. *Sleep Medicine Clinics*. 4:519-526.
- McEwen BS (1998). Stress, Adaptation, and Disease. Allostasis and Allostatic Load. *Annals of the New York Academy of Sciences*. 840:33-44.
- McHugh M, Symanski E, Pompeii L, et al. (2010). Prevalence of Asthma by Industry and Occupation in the U.S. Working Population. *American Journal of Industrial Medicine*. 53:463-75.
- Medina-Ramon M, Zock J, Kogevinas M, et al. (2005). Asthma, chronic bronchitis, and exposure to irritant agents in occupational domestic cleaning: a nested case-control study. *British Medical Journal*. 62:598.
- Medina-Ramon M, Zock J, Kogevinas M, et al. (2006). Short-term respiratory effects of cleaning exposures in female domestic cleaners. *European Respiratory Journal*. 27:1196.
- Mercado AC, Poo AJ (2009). *Domestic Workers Organizing in the United States*. San Francisco and New York City: Association for Women's Rights in Development (AWID)'s Building Feminist Movements and Organisations (BFEMO) Initiative. Accessed on November 2, 2010: www.comminit.com/en/node/284096/348
- Milkman R, Reese E, Roth B (1998). The Macrosociology of Paid Domestic Labor. *Work and Occupations*. 25:483-510.
- Milkman R, Gonzalez AL, Narro V (2010). Wage Theft and Workplace Violations in Los Angeles: The Failure of Employment and Labor Law for Low-Wage Workers. UCLA Institute for Research on Labor and Employment. Accessed on January 15, 2011: <http://www.irle.ucla.edu/publications/pdf/LAwagetheft.pdf>
- Morse T, Dillon C, Kenta Bibi E, et al. (2005). Trends in work-related musculoskeletal disorder reports by year, type, and industrial sector: A capture recapture analysis. *American Journal of Industrial Medicine*. 48:40-9.
- Morse T, Dillon C, Warren N, et al. (1998). The economic and social consequences of work-related musculoskeletal disorders: the Connecticut Upper-Extremity Surveillance Project (CUSP). *International Journal of Occupational and Environmental Health*. 4:209-16.
- Morse T, Punnett L, Warren N, et al. (2003). The relationship of unions to prevalence and claim filing for work-related upper-extremity musculoskeletal disorders. *American Journal of Industrial Medicine*. 44:83-93.
- Mujeres Unidas y Activas (MUA), La Raza Centro Legal and DataCenter (2007). *Behind Closed Doors: Working Conditions of California's Household Workers*. Oakland, CA: March 2007. Accessed on September 10, 2010: <http://www.datacenter.org/wp-content/uploads/behindcloseddoors.pdf>
- Myers A, Jensen R, Nestor D, et al. (1994). Low back injuries among home health aides compared with hospital nursing aides. *Home Health Care Services Quarterly*. 14:149-55.
- National Employment Law Project (2009). *Rights Begin At Home: Defending Domestic Workers' Rights in California*. San Francisco, CA.
- National Heart, Lung, and Blood Institute (NHLBI) (2005). *Your Guide to Healthy Sleep*. National Institute of Health Publication No. 06-5271. Bethesda, MD: November 2005. Accessed on January 24, 2011: http://www.nhlbi.nih.gov/health/public/sleep/healthy_sleep.pdf
- National Immigrant Law Center (2009). *Overview of Key Issues Facing Low-Wage Immigrant Workers*. Los Angeles, CA and Washington, DC: November 2009.
- National Institute for Occupational Safety and Health (2004). *Worker Health Chartbook*. Cincinnati, OH; Centers for Disease Control and Prevention.
- Nicholson P, Cullinan P, Newman Taylor A, Burge P, Boyle C. Evidence based guidelines for the prevention, identification, and management of occupational asthma. *Occupational and environmental medicine* 2005;62:290.
- Nielsen J (1996). The occurrence and course of skin symptoms on the hands among female cleaners. *Contact Dermatitis*. 34:284-91.
- North American HIA Practice Standards Working Group (North American HIA PSWG). *Practice Standards for Health Impact Assessment, Version 2*. North American HIA Practice Standards Working Group. November 2010. Available at: www.sfpbes.org
- Owen B (1994). Intervention for musculoskeletal disorders among child-care workers. *Pediatrics*. 94:1077-9.

- Pandi-Perumal SR, Léger D. (2007). *Sleep disorders: Their impact on public health*. London: Informa Healthcare.
- Parrenas R (2001). *Servants of Globalization: Women, Migration and Domestic Work*. Palo Alto, CA: Stanford University Press.
- Parsons K, Galinsky T, Waters T (2006). Suggestions for Preventing Musculoskeletal Disorders in Home Healthcare Workers: Parts I & 2: Lift and Transfer Assistance for Partially Weight-Bearing Home Care Patients. *Home Healthcare Nurse*. 24:158, 227
- Passel J (2005). *Unauthorized Migrants: Numbers and Characteristics*. Washington, DC: Pew Hispanic Center.
- Patel SR, Ayas NT, Malhotra MR (2004). A Prospective Study of Sleep Duration and Mortality Risk in Women. *Sleep*. 27(3): 440-444.
- Patel SR, Hu FB (2008). Short Sleep Duration and Weight Gain: A Systematic Review. *Obesity*, 16(3):643-653.
- Perfetti L, Cartier A, Ghezzi H, et al. (1998). Follow-up of occupational asthma after removal from or diminution of exposure to the responsible agent. *Chest*. 114:398.
- Philibert, I (2005). Sleep Loss and Performance in Residents and Nonphysicians: A Meta-Analytic Examination. *Sleep*, 28(11): 1392
- Pilcher, JJ, & Huffcutt, AI (1996). Effects of Sleep Deprivation on Performance: A Meta-Analysis. *Sleep*, 19(4): 318.
- Pransky G, Benjamin K, Hill-Fotouhi C, et al. (2000). Outcomes in work-related upper extremity and low back injuries: results of a retrospective study. *American Journal of Industrial Medicine* 37:400-9.
- Pransky G, Moshenberg D, Benjamin K, et al. (2002). Occupational risks and injuries in non-agricultural immigrant Latino workers. *American Journal of Industrial Medicine*. 42:117-23.
- Punnett L, Wegman D (2004). Work-related musculoskeletal disorders: the epidemiologic evidence and the debate. *Journal of Electromyography and Kinesiology*. 14:13-23.
- Quint J, Beckett W, Campleman S, et al. (2008). Primary prevention of occupational asthma: identifying and controlling exposures to asthma-causing agents. *American Journal of Industrial Medicine*. 51:477-91.
- Quinn MM, Markkanen PK, Galligan CJ, et al. (2009). Sharps injuries and other blood and body fluid exposures among home health care nurses and aides. *American Journal of Public Health*. Nov;99 Suppl 3:S710-7.
- Ramirez H, Hondagneu-Sotelo P (2009). Mexican immigrant gardeners: entrepreneurs or exploited workers? *Social Problems*. 56:70-88.
- Reinisch F, Harrison R, Cussler S, et al. (2001). Physician reports of work-related asthma in California, 1993-1996. *American Journal of Industrial Medicine*. 39:72-83.
- Reich MP, Hall et al. (2005). "Living wage policies at the San Francisco Airport: Impacts on workers and businesses." *Industrial Relations* 44(1): 106-138.
- Ronzio CR (2007). Ambiguity and discord in U.S. Census data on the undercount, race/ethnicity and SES: Responding to the challenge of complexity. *DataCrítica: International Journal of Critical Statistics*, 1(1).
- Rosenman K, Gardiner J, Wang J, et al. (2000). Why most workers with occupational repetitive trauma do not file for workers' compensation. *Journal of Occupational and Environmental Medicine*. 42:25.
- Rosenman K, Reilly M, Schill D, et al. (2003). Cleaning products and work-related asthma. *Journal of Occupational and Environmental Medicine*. 45:556.
- Sagaspe P (2006). Effects of sleep deprivation on Color-Word, Emotional, and Specific Stroop interference and on self-reported anxiety. *Brain and Cognition*. 60(1):76-87.
- Sanders M, Morse T (2005). Ergonomics of caring for children: An Exploratory Study. *American Journal of Occupational Therapy*. 59:285.
- San Francisco Department of Public Health, Program on Health, Equity, and Sustainability (SFDPH) (2004). *The Case for Housing Impacts Assessment: The human health and social impacts of inadequate housing and their consideration in CEQA policy and practice*. Accessed on January 24, 2011: <http://www.sfpbes.org/publications/reports/HIAR-May2004.pdf>

- Scherzer T, Newcomer R (2007). Barriers to documenting occupational injuries among personal assistance services workers. *American Journal of Industrial Medicine*. 50:536-44.
- Scherzer T, Rugulies R, Krause N (2005). Work-related pain and injury and barriers to workers' compensation among Las Vegas hotel room cleaners. *American Journal of Public Health*. 95:483.
- Schnall PL, Dobson M, Roskam E (2009). *Unhealthy Work: Causes, Consequences, Cures*. Amityville, N.Y: Baywood Publishing Company
- Schulz R, Martire LM (2004). Family Caregiving of Persons With Dementia: Prevalence, Health Effects, and Support Strategies. *American Journal of Geriatric Psychiatry*. 12:240-249.
- Scott LD, Hwang WT, Rogers AE, Nysse T, Dean GE, & Dinges DF (2007). The Relationship between Nurse Work Schedules, Sleep Duration, and Drowsy Driving. *Sleep*. 30(12): 1801.
- Seavey D (2004). The Cost of Frontline Turnover in Long-Term Care. A report for Better Jobs, Better Care, Institute for the Future of Aging Services. October 2004. Accessed on February 24, 2011: http://www.aahsa.org/uploadedFiles/IFAS/quality_workforce/current_projects/TOCostReport.pdf
- Sengupta I, Reno V, Burton J (2007). *Workers' Compensation: Benefits, Coverage, and Costs*. DC: National Academy of Social Insurance.
- Serb C (1997). Home is Where the Harm Is. *Hospitals and Health Networks*, 71:22.
- Shaw W, Pransky G, Fitzgerald T (2001). Early prognosis for low back disability: intervention strategies for health care providers. *Disability & Rehabilitation*. 23:815-28.
- Shen J, Botly L, Chung SA, et al. (2006). Fatigue and Shift Work. *Journal of Sleep Research*. 15:1-5.
- Sidbury V, Weiner B, Sayre E, et al. (2010). *California Insurance Law and Practice*. Matthew Bender & Company Publishers.
- Smith G, Wellman H, Sorock G, et al. (2005). Injuries at work in the U.S. adult population: contributions to the total injury burden. *American Journal of Public Health*. 95:1213.
- Smith P (2009). Protecting Home Care Workers under the FLSA. *Direct Care Alliance Policy Brief 2*. June 2009. Accessed on September 20, 2010: http://blog.directcarealliance.org/wp-content/uploads/2009/06/6709-dca_policybrief_2final.pdf
- Smith R, Emsellem M (2002). *Contingent rights: the legal landscape for nonstandard workers in California*. Washington, DC: Center on Policy Initiatives for National Employment Law Project.
- Souza K, Steege AL, Baron SL (2010). Surveillance of Occupational Health Disparities: Challenges and Opportunities. *American Journal of Industrial Medicine*. 53(2): 84-94.
- Starfield B, Shi L, Macinko J (2005). Contribution of Primary Care to Health Systems and Health. *Milbank Quarterly*. 83:457-502.
- Stover B, Wickizer T, Zimmerman F, et al. (2007). Prognostic factors of long-term disability in a workers' compensation system. *Journal of Occupational and Environmental Medicine*. 49:31.
- Strong LL, Zimmerman FJ (2005). Occupational Injury and Absence From Work Among African American, Hispanic, and Non-Hispanic White Workers in the National Longitudinal Survey of Youth. *American Journal of Public Health*. 95(7): 1226-1232
- Stutts J, Wilkins J, Vaughn B, (1999). *Why do people have drowsy driving crashes? Input from drivers that just did*. University of North Carolina Highway Research Center and UNC School of Medicine. Washington, DC: AAA Foundation for Traffic Safety.
- Sum J, Stock L (1996). *Navigating the California Workers' Compensation System: The Injured Worker's Experience*. San Francisco: California Commission on Health and Safety and Workers' Compensation.
- Surani S, Subramanian S, Babbar H (2008). Sleepiness in Critical Care Nurses: Results of a Pilot Study. *Journal of Hospital Medicine*. 3(3): 200-205.
- Swanson N, Piotrkowski C, Curbow B, et al. (1994). Occupational health and safety issues in child-care work. *Pediatrics*. 94:1079.

Tamakoshi A, Ohno Y (2004). Self-Reported Sleep Duration as a Predictor of All-Cause Mortality: Results from the JACC Study, Japan. *Sleep*. 27(1): 51-54.

Tarlo S, Balmes J, Balkissoon R, et al. Diagnosis and Management of Work-Related Asthma. *Chest* 2008;134:1S.

Taylor B, Donnelly M (2006). Risks to home care workers: Professional perspectives. *Health, Risk & Society*. 8:239-56.

Ulmer C, Wolman D, Johns M, et al. (2009). Resident Duty Hours: Enhancing Sleep, Supervision, and Safety. Report of the Institute of Medicine. Washington, DC: National Academy Press.

U.S. Department of Health and Human Services (U.S. DHHS) (2003). The Future Supply of Long-Term Care Workers in Relation to the Aging Baby Boom Generation. Report to Congress. Office of the Assistant Secretary for Planning & Evaluation: May 14, 2003.

U.S. Department of Labor (U.S. DOL) (2010). Regulatory Agenda Spring 2010. Accessed on September 14, 2010: <http://www.dol.gov/regulations/factsheets/whd-fs-flsa-companionship.htm>.

U.S. Department of Transportation (U.S. DOT) (1998). Drowsy Driving and Automobile Crashes, National Highway Transportation Safety Association. Accessed at: http://www.nhtsa.gov/people/injury/drowsy_driving1/drowsy.html

U.S. Department of Transportation (U.S. DOT), National Highway Traffic Safety Administration. Research on Drowsy Driving. Accessed on January 20, 2010: <http://www.nhtsa.gov/Driving+Safety/Distracted+Driving/Research+on+Drowsy+Driving>

Valenzuela A, Theodore N, Melendez E, et al. (2006). *On the Corner: Day Labor in the United States*. Los Angeles, CA: Center for the Study of Urban Poverty, UCLA.

Walker MP (2009). The Role of Sleep in Cognition and Emotion. *Annals of the New York Academy of Sciences*. 1156:168–197.

Walker-Bone K, Cooper C (2005). Hard work never hurt anyone: or did it? A review of occupational associations with soft tissue musculoskeletal disorders of the neck and upper limb. *British Medical Journal*. 4:1391.

Wallace S, Castaneda X, Guendelman S, et al. (2007). *Immigration, Health & Work: The Facts Behind the Myths*. Berkeley, CA: Health Initiative of the Americas, University of California.

Wei A, Aguilar C, Davenport A, et al. (2008). CHSWC 2008 Annual Report. Oakland, CA: The California Commission on Health and Safety and Workers' Compensation.

Wilcox S, King AC (1999). Sleep complaints in older women who are family caregivers. *Journal of Gerontology*. 54B:189–98.

World Health Organization (WHO) (1999). Gothenburg Consensus Paper. Health impact assessment: main concepts and suggested approach. Brussels: European Centre for Health Policy, World Health Organization Regional Office for Europe. Available at: <http://www.euro.who.int/document/PAE/Gothenburgpaper.pdf>.

Yen IH, Syme SL (1999). The Social Environment and Health: A Discussion of the Epidemiologic Literature. *Annual Review of Public Health*. 20:287-308.

Zechter J, Guidotti T (1987). Occupational hazards of domestic workers providing home care. *Public Health*. 101(4):283-91.

Zock J (2005). World at work: Cleaners. *Occupational and Environmental Medicine*. 62:581.

Zock J, Plana E, Jarvis D, et al. (2007). The use of household cleaning sprays and adult asthma: an international longitudinal study. *American Journal of Respiratory and Critical Care Medicine*. 176:735.

Zohar D, Tzischinsky O, Epstein R (2005). The Effects of Sleep Loss on Medical Residents' Emotional Reactions to Work Events: A Cognitive-Energy Model. *Sleep*. 28(1): 47-54.