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## WORKPLACE EXPOSURES AND PROTECTIVE PRACTICES OF HISPANIC WAREHOUSE WORKERS

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### Abstract

**Background**—This study was undertaken to assess workplace hazards and protective practices among Hispanic men and women working post-harvest in asparagus, apple and pear packaging warehouses.

**Methods**—Three focus groups were conducted in July 2003 with 25 workers (20 women, 5 men) recruited from communities in the Yakima Valley, Washington. Focus group content informed the design of an in-person structured interview administered to 50 additional warehouse workers from August–November 2006.

**Results**—Focus group participants reported difficult working conditions, exposure to chemicals, adverse health effects and use of work and home protective practices to minimize exposures for themselves and their families. Structured interview participants reported few workplace exposures to chemicals although many reported engaging in workplace and home protective practices.

**Discussion**—Findings from this research can direct initial efforts to determine if and how interventions for warehouse workers may be designed to protect against hazardous workplace exposures.

### Keywords

Warehouse workers; rural Hispanics; chemical exposures; take-home exposures; protective practices

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## INTRODUCTION

Although there has been a growing interest in characterizing the pesticide exposures of farmworkers and their children,<sup>1-10</sup> limited research has examined potential chemical exposures among individuals working post-harvest in packaging warehouses. Warehouse workers are thought to have direct exposure to pesticide residues on conventionally-grown fruits and vegetables that arrive at the warehouses after being harvested from the fields. Additional research is necessary to characterize the workplace exposures of warehouse worker families and to identify measures to reduce these hazards. It was of interest in the current study to explore the occupational exposures faced by warehouse workers employed in the Yakima Valley, a large agricultural region of Washington State.

One of the most commonly used organophosphate (OP) pesticides in the Yakima Valley is azinphos-methyl, a broad spectrum insecticide registered for use in the control of insect pests on a wide variety of fruit, vegetable, nut and field crops, ornamental plants, tobacco, and forest and shade trees. In 2005, azinphos-methyl was applied to Washington State apples and pears in estimated quantities of 196,400 pounds and 18,700 pounds, respectively.<sup>11, 12</sup> In the same year, phosmet, also an OP pesticide, was applied to Washington State apples and pears in estimated quantities of 87,100 pounds and 14,900 pounds, respectively,<sup>11, 12</sup> and chlorpyrifos was applied to apples and pears in quantities of 186,700 pounds and 13,200 pounds, respectively.<sup>11, 12</sup>

Azinphos-methyl is classified by the EPA as having Level I Toxicity and is reported to be highly toxic through inhalation, dermal absorption, ingestion, and eye contact.<sup>13</sup> The re-entry interval for azinphos-methyl applied to apples, pears, and peaches has been set at 14 days,<sup>14</sup> during which time only workers wearing protective equipment are allowed in the fields, and the recommended pre-harvest interval (i.e. length of time between field application and harvest) is 14-21 days.<sup>15</sup> For phosmet, the recommended pre-harvest interval after application to apple crops is 7 days,<sup>15</sup> while for chlorpyrifos, the interval lies between 21 and 35 days.<sup>15</sup> Information regarding adherence to pre-harvest intervals is limited.

Fungicides are also commonly applied to apples and pears to prevent conditions such as powdery mildew and scabbing, which can affect crops before they are harvested.<sup>16</sup> USDA agricultural chemical applications data show that in 2005, the fungicides most commonly applied to apples and pears in the fields in Washington were calcium polysulfide, mancozeb, and sulfur.<sup>11, 12</sup> Select fungicides, including thiabendazole and diphenylamine (DPA) may also be applied to the produce once it reaches the warehouses to slow the development of molds and to prevent conditions such as “brown rot” and “storage scald” which would otherwise render fruit unmarketable.<sup>16</sup> However, details are lacking regarding the quantity of these chemicals applied to the fruit post-harvest, after it has reached the packaging warehouses.

Warehouse workers may be at risk for other occupational hazards including workplace injuries. According to the Washington State Department of Labor and Industries, in 2005 the incidence of non-fatal occupational injuries and illnesses among transportation and warehouse workers in Washington State was 6.6 per 100 full-time workers in these industries,<sup>17</sup> although disaggregated data are not available for warehouse workers alone or specifically for those working in packaging warehouses. A substantial number of these cases (4.4 per 100) sustained an injury which resulted in either lost work, job transfers or job restrictions.<sup>17</sup> These figures likely underestimate the true number of injuries sustained on the job to the extent that undocumented individuals, who likely make up a substantial proportion of all warehouse workers, might be reluctant to report a workplace injury when it occurs.

To supplement the scarcity of information available on occupational hazards faced by warehouse workers and their families, this project began by gathering information about

workplace exposures and protective practices from 25 Hispanic warehouse workers in the Yakima Valley, who participated in one of three focus groups. Content from the focus groups informed the design of an in-person structured interview that was subsequently conducted with 50 Hispanic apple and pear warehouse workers, from the same communities in the Yakima Valley. The following analysis provides a description of the topics that emerged from the focus group sessions as well as a descriptive summary of the population of warehouse workers who participated in the in-person structured interviews and their self-reported exposures and protective practices intended to reduce exposures for themselves and their families.

## METHODS

### Setting

This research took place in the Lower Yakima Valley of Washington State where an estimated 50,000 people work in agriculture and the primary crops are apples, grapes, pears, cherries, hops, and peaches.<sup>18</sup> Approximately 50 percent of the area population is Hispanic, the majority of whom work in agriculture. For most crops cultivated in the Yakima Valley, the washing, sorting, and boxing of produce is performed in local warehouses.

### Study procedures

**Focus groups**—Warehouse workers were recruited for the focus groups from communities in the Lower Yakima Valley. Project staff conducted in-person recruitment at warehouses, community centers, churches, and retail outlets. Eligibility criteria included having worked in a warehouse in the past week. Individuals were considered ineligible if they had worked in a field or orchard in the past three weeks. All warehouse workers who were approached and were eligible agreed to participate.

In July 2003, three focus groups were conducted in Spanish with a total of 25 warehouse workers (20 women, 5 men), lasting approximately 90 minutes each. One of two trained Spanish-speaking facilitators led each focus group. A bilingual project staff member was also present to audio-record the sessions and to take notes. An open topic schedule was used to guide the sessions, leaving facilitators considerable freedom to explore issues that emerged in the discussion. Before the discussions, facilitators explained to participants that information gathered from the sessions would be used for research purposes and that discussions would be audio-recorded.

Focus group sessions addressed five major topics: warehouse work tasks and responsibilities, chemical exposures at work and resulting symptoms and health effects, warehouse conditions, workplace and home protective practices to reduce harmful exposures or hazards, including bathing/showering practices after work. The focus groups were conducted as a preliminary step to help inform the design of an in-person structured interview that was subsequently conducted with 50 Hispanic apple and pear warehouse workers, from the same communities in the Yakima Valley.

**In-person structured interviews**—Recruitment methods for participants in the in-person structured interviews were identical to those specified for focus group participants. Warehouse workers were recruited to participate in in-person structured interviews from communities in the Lower Yakima Valley. Project staff conducted in-person recruitment at warehouses, community centers, churches, and retail outlets. Eligibility criteria included having worked in a warehouse in the past week. Individuals were considered ineligible if they had worked in a field or orchard in the past three weeks. All warehouse workers who were approached and were eligible agreed to participate.

In-person structured interviews were conducted with 50 warehouse workers from August to November 2006. The interview was comprised of a 60-item questionnaire and was administered to participants in their homes, by a trained bilingual interviewer. Each interview lasted between 15 and 30 minutes. Prior to implementation, the interview instrument had been translated into Spanish, piloted among a group of 10 warehouse workers, and reviewed and edited by members of a community advisory board in the Yakima Valley.

The structured interview questions addressed three main areas: 1) demographic information, 2) work exposures and tasks and 3) protective practices. Questions about demographic characteristics (e.g. country of birth, health care coverage, marital status, age, annual household income) were asked, along with the amount of time (years and months in last year) participants worked in a warehouse, the number of hours/week the participant worked in a warehouse and the number of hours worked in a typical work shift. The section on work practices explored work tasks performed in the warehouse, receipt of job safety training, experience of workplace injury and exposure to chemicals. The section addressing protective practices assessed hand washing practices at work. Workers were also asked whether they removed their shoes before entering their home, and how long they waited to change out of their work clothes and wash their hands upon arriving home. Additional questions asked about frequency of hugging children while wearing work clothes, of washing hands before eating, the usual wait time before showering upon arriving home and how work clothes were laundered.

The focus group questions, structured in-person interview instrument and all study procedures were reviewed and approved by the Fred Hutchinson Cancer Research Center Institutional Review Board (IRB #5946). All focus group and in-person structured interview participants provided written informed consent to participate in the study.

## Data analysis

**Focus groups**—Analysis of focus group information was based on audio-tapes and field notes. After the sessions, transcriptions were made of the tapes and translated into English. Audio-tapes were shared only with project staff and were erased after transcription to help maintain confidentiality. Information was analyzed following principles of qualitative research suggested by Morgan and Krueger.<sup>19, 20</sup> In each focus group, a matrix of the main topics was created. From the matrix, two staff members independently identified and coded key words and common themes that appeared throughout the sessions. The staff members then met to review all of the themes and key words that were identified. In cases where there was disagreement about a theme or key word, the item was discussed until a consensus was reached. To maintain the richness of the information obtained during the focus group sessions, direct quotes were translated and are presented in Table 1. Although the specific words may not have been repeated by all participants, the meaning was expressed and widely affirmed during at least one session.

**In-person structured interviews**—Responses from the in-person structured interviews were entered into a common database and analyses were conducted using the statistical software package, STATA 9.0. Results for this paper were limited to descriptive analysis of the sample, and frequencies (n and % in each category) are presented in Tables 2-4 on demographic characteristics of respondents and their self-reported workplace exposures and protective practices.

## RESULTS

### Focus groups

Focus group participants reported enduring difficult working conditions, including exposure to strong chemical smells, heat, poor ventilation, long work shifts and standing for hours at a time (Table 1). Some workers reported being exposed to chemicals while working in warehouses and described that chlorine and ammonia were used to clean the produce while other participants reported that water alone was used to wash the produce as it arrived from the fields. Others insisted that chemicals were used, although they were kept uninformed by their employers about which chemicals. Application of chemicals was reported to occur both in fields and in warehouses and participants reported acute symptoms resulting from their exposures including rashes, itchiness, dizziness, vomiting, throat and nose irritation, and burning eyes. Although participants reported harmful exposures through working in the warehouses, it was commonly perceived that warehouse work was less harmful than fieldwork, as fieldwork was believed to involve exposure to stronger chemicals.

Workers reported the use of protective equipment at work (e.g. gloves, aprons, hairnets, eyeglasses, earplugs and masks) to minimize potential workplace hazards and exposure to chemicals. Participants also reported washing their hands frequently while at work and stepping outside for fresh air. Use of gloves and hairnets was also reported as a practice intended to protect the produce rather than to protect the workers themselves. Once workers arrived home they commonly removed work clothes immediately and many reported separating work clothes from the rest of the laundry, washing their children's clothes separately as well. Washing hands after work, staying away from children until showering/washing clothes and cleaning children's toys were also reported, although many workers reported waiting for some period of time after arriving home before they showered. Many believed that the body needed to cool down before showering and that taking a cold shower when the body was still warm would result in illnesses such as arthritis.

### In-person structured interviews

Fifty workers completed in-person interviews in 2006. All participants were Hispanic, most were female (74.0%), and the average age of participants was 37.6 years (Table 2). Most participants were married or living with a partner. The majority of participants were born in Mexico (84.0%) and completed the study interview in Spanish (84.0%). Less than half of workers reported an annual household income of greater than \$15,000. Roughly one-third of workers reported medical coverage by the state-sponsored Basic Health Care Plan, while just under one-third reported having no insurance. On average, workers reported having worked in a warehouse setting for 8.6 years. A small percentage of workers (22%) also reported having a household member who currently worked in the fields.

With regard to self-reported work tasks and workplace exposures (Table 3), sorting fruit was the most commonly reported primary task (62.0%), followed by stacking produce (10.0%), engaging in clean-up activities (8.0%) or in mechanical tasks (8.0%). Less than half of workers (42.0%) reported that their job required heavy lifting, reporting an average weight of 10.7 kg per item lifted. No workers reported ever sustaining a workplace injury at the warehouse (results not shown), but nearly all participants indicated that if a serious or minor injury were to occur, they would report it. Nearly three-fourths of participants reported having received job safety or injury prevention training as a warehouse worker. Only one participant reported having ever been exposed to chemicals on the job (results not shown).

All participants reported wearing rubber gloves at work, although use of other types of protection was infrequent (Table 4). Workers reported washing their hands with water at the

end of the work day on an average of 2 out of the 3 past work days, and reported using hand sanitizer at the end of the work day on an average of 1.7 out of the past 3 work days. The majority of workers reported that they usually or always washed their hands before eating and workers reported that on an average of 0.9 days out of the past 3, they removed their shoes before entering the house and that on an average of 0.8 days out of the past 3, they had held their child while still wearing work clothes. A small percentage of participants waited more than 2 hours after returning home to change clothes (10.0%) and to bathe or shower (8.0%). Roughly one-third of participants waited between 1-2 hours before bathing or showering. A minority of respondents (16.0%) reported that they “rarely” washed their work clothes apart from other laundry.

## DISCUSSION

Content from the focus groups conducted in 2003 informed the development of the in-person structured interview conducted with a larger sample of warehouse workers in 2006. Chemical exposures that had occurred in warehouses, resulting symptoms, and home and work protective practices identified by focus group participants helped to frame specific questions that were asked in the structured interviews. Responses from focus group sessions also serve to complement findings from structured interviews and in some instances, provide information that may help to illuminate otherwise puzzling results.

Limitations of the in-person structured interview include the relatively small sample size of 50 individuals, which calls into question the generalizability of our results to warehouse workers overall. The sample may not be representative of all warehouse workers to the extent that it was a convenience sample of individuals who were approached and willing to participate.

In spite of the project’s limitations, results from the in-person structured interviews serve to characterize demographic information, workplace exposures, and protective practices among Hispanic apple and pear warehouse workers in the Yakima Valley. To our knowledge, there have been no prior attempts to characterize individuals who engage in this type of work, to examine the risks they and their families may be exposed to, or to gauge the extent of their practices to protect against exposures.

On average, these warehouse workers were fairly young and primarily female, although male workers were also interviewed. There were some discrepancies between the findings from the focus groups and the in-person structured interviews. Although most focus group participants reported exposures to chemicals in the warehouse setting and reported a variety of adverse health effects that they attributed to these exposures, only one structured interview participant reported exposure to chemicals on the job.

Similarly, none of the structured interview participants indicated that they had ever been injured on the job, although nearly all men and women indicated that they would report both serious and mild workplace injury if it occurred. These findings may be explained by healthy worker bias. If injured workers were unable to work, our recruitment methods would not have captured them as individuals who had not worked in a warehouse within the past week were not eligible to participate. Alternatively, the lack of reported exposures may be explained by the fact that even if some of the workers were exposed to chemicals, they might be unwilling to report exposure for fear of jeopardizing their employment. This may not be the most likely explanation, however, given that participants in the focus groups were very candid in disclosing what they believed to be chemical exposures. More likely, the lack of affirmative answers to this question in our interview can be attributed to the structure of the question which broadly assessed whether or not individuals had ever been exposed to chemicals at work. If a respondent answered “no,” then no additional follow-up questions about specific exposures or adverse

health effects were asked. If asked, the follow-up questions may have otherwise elicited positive responses from those not initially categorizing their exposures as “chemical”.

Exposure might occur through fungicides applied to fruit in the warehouse. It is feasible that some of the workers in our sample were not cognizant of such exposures if they had occurred. Although fungicides are often added to the fruit or vegetable wash at the warehouse site, some workers may be unaware that anything has been added to the wash, as evidenced by responses from a subset of participants in the focus group sessions. Consequently, these individuals may not have realized that they had been directly exposed to these chemicals. Additionally, workers are likely directly exposed to pesticide residue on the skin of fruits and vegetables brought in from the fields, particularly if produce has been recently sprayed, although they may not consider reporting this as in-warehouse exposure. A lack of awareness would not be surprising given that little information on exposures is available from local pesticide bureaus, and, as elicited from the focus groups, some employers are unwilling to inform workers about if and what chemicals are used. This lack of awareness is also likely to influence engagement in protective practices; those who are unaware of exposures might not see a need to protect themselves or their families.

Although there was a moderately high frequency of engagement in protective practices overall, it is important to note that there is currently no research supporting whether these practices, commonly recommended for agricultural workers to protect against exposure to pesticides, actually protect against exposures faced by warehouse workers. Our results suggest that many workers were aware of the need to protect themselves and their children from chemical exposures. However, this awareness may have come primarily from prior work in other settings (i.e. fields) or from a spouse or household member’s concurrent work in the fields given that 22% of participants reported that a family member was currently working in the fields.

The practice of bathing or showering immediately after arriving home from the fields is recommended for agricultural workers to minimize potential for exposing family members to chemicals that may remain on the skin or clothes. However, survey results indicate that more than one-third of warehouse workers waited one hour or longer after arriving home before showering. Results from the focus group sessions reveal the likely explanation for this finding; the commonly held belief that it was only appropriate to shower after the body had cooled down. Failure to do so may result in bodily harm. Not only is it important to establish that protective practices are effective at reducing warehouse exposures for self and family, but it is also essential to understand the beliefs of the individuals who are being targeted to adopt these practices, before attempting to effect behavior change.

## CONCLUSIONS

Despite the limitations outlined, to our knowledge this study is the first attempt to characterize the demographic profile and workplace exposures and hazards specific to warehouse workers. Although these findings are specific to a population of Hispanic warehouse workers in the Yakima Valley of Washington State, findings from this research can direct initial efforts to determine if and how interventions should be designed to protect against hazardous exposures. Focus group participants reported exposures to chemicals and adverse health effects resulting from exposure, findings which warrant further attention. Although the results from the in-person structured interviews were not consistent with the focus group findings, some form of protective behavior was practiced by the majority of participants, though it has not yet been demonstrated whether these practices are truly protective against exposures among warehouse workers. Further research is needed to determine effective protective practices and the acceptability of these practices among warehouse workers exposed to chemicals through their place of work.

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**Table 1**  
Themes identified from focus groups with Hispanic warehouse workers

<b>Conditions in the warehouses</b>	
<i>Strong chemicals</i>	In the [asparagus] warehouse the chemicals are stronger. When I enter I can smell it. And the chemical bothers us
<i>Heat and poor ventilation</i>	The doors are very big. The boxes are stacked. The boxes are placed next to the door. And it gets very hot.  ...there is very little ventilation.
<i>Standing on feet</i>	You get tired from being on your feet
<i>Long work hours</i>	Sometimes I work for 10 hours
<b>What chemicals are you exposed to through your work in the warehouses?</b>	
<i>Chlorine</i>	In the warehouse the chlorine that is used to wash the asparagus is also used to wash the fruit. When water gets in your eyes then they get red and this must be because of chlorine or ammonia in the water.
<i>No chemicals</i>	When they bring them from the field they wash them with cold water and soap to clean off the spray.
<i>Uninformed</i>	They never let the workers know what type of spray is used in the field. It's the same for the warehouses. In the warehouse they don't tell us the name of the spray or anything like that. Nor do they tell us the secondary effects they could have. It would be better if we knew.
<b>Where are chemicals applied to the produce?</b>	
<i>In the warehouse</i>	...they also add chlorine inside the warehouse because it smell like chlorine in the warehouse.
<i>In the fields</i>	All the produce have and carry chemicals and pesticides on them. Sometimes nobody knows they are being put on, it's usually when the people are working in the grape fields that they put them on and they are very strong.
<b>Symptoms and conditions resulting from exposure to chemicals in the warehouse</b>	
<i>Rashes, itchiness, dizziness and vomiting</i>	...where we work is a warehouse of asparagus where ... they put chlorine on the asparagus. Sometimes it stings us on the face or on the skin. We get spots (on the skin) and the smell makes us feel faint.  You itch a lot. It feels like a lot of little ants.  Dizziness, because there is very little ventilation.  When it is very strong, I also experience vomiting.
<i>Throat and nose irritation</i>	In the warehouse, the ammonia is very strong and you can feel it in the throat.  The spray causes a lot of problems, the chemicals cause bleeding in your nose and during work they (chemicals) cause blood in your nose.
<i>Burning eyes</i>	There are days that the chemicals are very strong, your eyes burn, and your skin gets irritated and turns red.
<b>Use of protective equipment and practices at work to minimize potential work hazards</b>	
<i>Gloves, aprons, hairnets</i>	In the factory I use a hairnet, gloves, and apron. Because there is also fruits and if you grab these with your bare hands then you can cut and split your skin.

<i>Eyeglasses</i>	In the asparagus [warehouse] we only use gloves. In the carrot [warehouse] we only use an apron. We wear long sleeves. Over there in [another warehouse] we use protective eyeglasses.
<i>Earplugs</i>	In the warehouses you use ...plugs for the ears.
<i>Mask</i>	I use a mask.
<i>Wash hands</i>	I wash [hands] frequently like when I go to eat, or when I'm coming back from the bathroom because they don't give us much time, otherwise.  The smell from the spray stays on your hands so you must wash your hands.
<i>Go outside</i>	Well, we go outside.

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#### Practices to protect the produce

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<i>Gloves</i>	There is a tray with water and yellow liquid that the gloves are put into to wash. If you don't wash your hands they send you back. If the manager is around she'll tell you to go back.
<i>Hairnet</i>	We also use caps to cover our heads so hair won't fall into the carrots.  She will call you on it if you have hair sticking out of the net. They give you the cap so you'll put it on again. They are very picky.  The food has to be sent out in good condition. Everything has to go well. Many times there are hairs.

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#### Use of protective practices at home to minimize potential exposures for self and family

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<i>Separate work clothes before doing laundry</i>	I separate them because there is stuff that splashes on my clothes... I separate them from my other clothes, the first thing I do when I return from work is wash my hands, take off my work clothes and change into other clothes.  That is what the wife of my brother does [separate laundry] because they have children in their house.
<i>Remove work clothes after work</i>	I remove my clothes.
<i>Wash hands after work</i>	[Wash hands] immediately after work.
<i>Stay away from children until showering, washing clothes</i>	... we also had to pack [the fruit]. Since it had all the spray, what we did was arrive (at home), quickly go to the restroom, take a shower and the clothes to wash so that the kids won't get close, because it can harm them, that's what we do so that the kids don't get powder/dust, one washes even twice...
<i>Avoid hugging children</i>	Not hold them, not hug the kids...
<i>Clean children's toys</i>	I wash [the toys] with soap disinfectant.  I separate the toys in a different room where [the children] play.

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#### How long to wait before taking a shower/bathing after work?

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<i>Depends on children</i>	The needs are different for those who have children and those who don't.
<i>Right away</i>	Immediately.
<i>Once the body cools down</i>	We stand up for a long time there (at work), and to arrive from work (and bathe) can cause harm - it causes the most harm on the hands.  One comes home and waits until the feet cool down and then you shower, or remove the closed shoes and put on flip-flops on your feet.

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#### Perceived severity of exposures from warehouses as compared to fields

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*Fieldwork is more dangerous*

The ones that work in the field separate their clothes because the pesticides are more dangerous.

I know the ones that work in the warehouse don't have a lot of chemicals on their clothes, as do the people that work in the field.

The pesticides that are used to put on the cherries are stronger than the ones used in the warehouses. They usually only use chlorine and disinfectants. But the people that work in the fields.....

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**Table 2**  
Demographic characteristics of structured interview participants

	<b>Total (n=50) n (%)</b>
<b>Age (in years) (mean (sd))</b>	37.6 (11.0)
<b>Gender</b>	
Male	13 (26.0)
Female	37 (74.0)
<b>Marital status</b>	
Married/living with partner	37 (74.0)
Divorced or separated	9 (18.0)
Never married	4 (8.0)
<b>County of birth</b>	
United States	16 (32.0)
Mexico	34 (68.0)
<b>Language of interview</b>	
English	16 (32.0)
Spanish	34 (68.0)
<b>Annual household income</b>	
\$5,0001-10,000	8 (16.0)
\$10,001-15,000	23 (46.0)
\$15,001 or more	19 (38.0)
<b>Health insurance</b>	
Private	13 (26.0)
Basic Health Care Plan	18 (36.0)
Medicare/Medicaid	4 (8.0)
Veterans Affairs insurance	1 (2.04)
No insurance	15 (30.0)

**Table 3**

Self-reported workplace tasks and exposures of structured interview participants

	<b>Total (n=50) n (%)</b>
<b>Years working in a warehouse</b> (mean (sd))	8.6 (6.3)
<b>Months in last year working in warehouse</b> (mean (sd))	5.6 (2.4)
<b>Hours in last week working in warehouse</b> (mean (sd))	36.2 (7.4)
<b>Number of hours per shift</b> (mean (sd))	8.0 (4.7)
<b>Household member field work in the past week</b>	
Household member worked in fields	11 (22.0)
<b>Work tasks</b>	
clean-up	4 (8.0)
packer	2 (4.0)
peeler	2 (4.0)
sorter	31 (62.0)
stacker	5 (10.0)
weigher	2 (4.0)
mechanical tasks	4 (8.0)
<b>Heavy Lifting</b>	
Job requires heavy lifting	21 (42.0)
Average weight of items lifted (in kilograms)( <i>mean (sd)</i> )	10.8 (10.7)
<b>Injury</b>	
Would report severe injuries	49 (98.0)
Would report minor injuries	46 (92.0)
Ever received job safety/ injury prevention training as warehouse worker	37 (74.0)

**Table 4**

Self-reported practices to reduce workplace and home exposures among structured interview participants

	<b>Total (n=50) n (%)</b>
<b>Protective equipment (use in the past week)</b>	
Gloves	50 (100.0)
Apron	18 (36.0)
Other	3 (6.0)
<b>Work practices (in past 3 days) (mean days (sd))</b>	
Washed hands with water at end of day	2.0 (1.3)
Washed hands with sanitizer at work at end of day	1.7 (1.4)
Washed hands before eating:	
Usually/Always	42 (84.0)
Sometimes	8 (16.0)
<b>Home practices (in past 3 days) (mean days (sd))</b>	
Removed shoes before entering the home	0.9 (1.2)
Held children while wearing work clothes	0.8 (1.3)
Changed out of work clothes:	
Within 1 hour	31 (62.0)
1-2 hours	14 (28.0)
More than 2 hours	5 (10.0)
Washed hands:	
Within 1 hour	34 (68.0)
1-2 hours	16 (32.0)
Took bath or shower:	
Within 1 hour	29 (58.0)
1-2 hours	17 (34.0)
More than 2 hours	4 (8.0)
Washed work clothes apart from other laundry:	
Usually/Always	35 (70.0)
Sometimes	7 (14.0)
Rarely	8 (16.0)