

# **California Heat Illness Prevention Campaign Summer 2012**

## **Final Performance and Evaluation Report**

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Submitted to the California Department of Industrial Relations

## **About this report:**

This report summarizes findings from the evaluation conducted after the third year of California's Heat Illness Prevention Campaign. It is divided into two sections. The first focuses on the process evaluation and the activities carried out in 2012, as part of the contract the Department of Industrial Relations negotiated with the University of California.

The second section presents the findings of the outcome evaluation on the effectiveness of the campaign, measured through follow-up surveys with workers, employers and community organizations.

This report complements the report issued on the evaluation of the campaign's first year, in 2010. The 2010 report is available online at: Information on the 2010 campaign is available at <http://www.dir.ca.gov/DOSH/HeatIllnessInfo.html>

The campaign's second year (2011) was documented through internal process reports but there were no outcome evaluation activities.

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## **EXECUTIVE SUMMARY**

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California's heat illness prevention campaign has involved a comprehensive effort over three years to reduce heat-related fatalities and illness among low-wage, non-English speaking outdoor workers in the state. The principal target audiences for this campaign include Spanish-speaking agricultural workers and their employers, Spanish-speaking construction workers and their employers, Spanish-speaking landscape workers and their employers, and four other immigrant non-English speaking farm worker communities: Hmong-, Punjabi-, Mixteco- and Triqui-speakers.

The campaign was the result of a mandate from the California State Legislature to the Department of Industrial Relations (DIR) to conduct a targeted public education and outreach effort for non-English-speaking outdoor workers. DIR contracted with the University of California, under the direction of its Division of Occupational Safety and Health (DOSH or Cal/OSHA), to develop and implement a multi-level social marketing effort that included media, training of trainers' programs, and outreach and training to non-English-speaking workers, their employers as well as ancillary targets such as families, local organizations and the community at large.

This report summarizes findings from the evaluation conducted in 2012, after the third year of the campaign, which focused on the media and education components coordinated by the University of California. Cal/OSHA's comprehensive campaign also included enforcement activities and education and outreach conducted by agency staff themselves, and it is recognized that all campaign elements had reinforcing effects and contributed to reported impacts.

Evaluation findings indicate that Cal/OSHA's heat illness prevention campaign for non-English-speaking outdoor workers has been successful in contributing to changes at the worksite and in influencing behaviors of employers and workers. It has also been successful in engaging a network of community organizations in carrying out outreach and education with workers in their communities. In particular, workers, employers and representatives of community organizations all noted changes over the last few years related to increased provision of water and shade on the job. The findings also indicate a need to reinforce some of the heat standard's requirements that are more difficult to measure, such as the degree to which employees are encouraged to drink water frequently and rest to recover from the heat. Other ongoing challenges and barriers for workers that keep some at risk for heat illness on the job include the conflicting incentives associated with the piece-rate pay structure, social pressures to not slow the rest of the crew down or be perceived as not working hard, and fear to ask employers for changes.

Following are highlights of the campaign activities and outcome evaluation findings.

### **Program Activities**

Program activities in 2012 were based on using a social marketing framework to implement a media campaign and education and outreach strategies.

The **media component** was an integral part of the Summer 2012 campaign and directly targeted non-English speaking outdoor workers and their supervisors to raise their awareness about heat illness and how to prevent it. With the exception of adding new creative featuring a landscape worker, the same media ads and radio spots developed in 2010 continued to be used in order to maintain campaign identity and ongoing recognition. Media formats used in 2012 included outdoor advertising and radio.

- Media placement focused on coverage of inland areas from Imperial to Yuba Counties.
- A total of 391 outdoor ads were active between the end of May and September 2012. These included a combination of billboards, Wallgraphics, and ads on vans that take farm workers to work and lunch trucks that go to the fields and construction sites.
- Over 9,000 radio spots aired in the summer of 2012 (7,000 purchased and 2,300 in added bonus), distributed across markets that focused coverage in inland areas from El Centro north to Yuba City.
- An additional \$250,590 worth of media was received at no charge as a result of the negotiated media buy. This included the additional 2,300 additional radio spots and outdoor ads that were active beyond the purchase period, some into November 2012.

**Educational materials** developed and assessed in previous years continued to be distributed and used as part of the 2012 effort. These materials were re-printed under this contract and some were developed in 2012 in additional languages:

- DVDs with six language options, now including an audio track in Triqui, an indigenous language from Oaxaca, Mexico, in addition to the five languages on the original version: English, Spanish, Hmong, Mixteco and Punjabi.
- Two new materials in Punjabi: posters designed to be part of the Employer Training and the Supervisor's Daily Checklist.

**Training and education efforts** were conducted at different levels in order to attain the widest reach among key audiences: 1) training-of-trainer programs (TOTs) aimed to build the capacity of community organizations and employers to address heat illness and to implement educational activities in their own communities; 2) direct trainings were carried out with workers from different industries, including agriculture, construction, car washing, landscaping, and school district employees, among others; 3) selected participation in community events and health fairs, which often involved one-on-one chats with workers and distribution of campaign materials.

- Through 21 training-of-trainer (TOT) programs, 499 people representing 193 organizations were trained and engaged in the campaign, including 129 community groups and 65 employers.
- UC programs carried out 21 direct trainings for 814 workers, principally agricultural workers, but also day laborers, car wash workers, iron workers, and school district employees.
- UC programs participated in 28 outreach events throughout the state, reaching an estimated 4,000 people.

- Organizations participating in the TOTs went on to carry out large numbers of outreach and education activities in their communities, with estimates ranging from 7,000 to 11,000 workers reached.

## Outcome Evaluation Findings

### Approach and Methods

An independent evaluation team was contracted to collect data on the impact and outcomes of the heat campaign. The outcome evaluation evaluated the impact of the heat illness prevention campaign over the three years of the campaign by assessing the extent to which the goals of the program were met as well as gauging campaign exposure, worker perceptions, attitudes, behavior, working conditions, barriers to change, and Cal/OSHA visibility.

Evaluation strategies in 2012 included methods employed in the evaluation carried out in 2010, and in addition, included focus groups with outdoor workers. Methods used in 2012 were:

- Intercept interviews with 522 outdoor workers
- Three focus groups with outdoor workers and one with Hmong farmers
- A telephone survey administered to 87 participants in training of trainers (TOT) sessions who represented community organizations
- A telephone survey administered to 33 participants in training of trainers (TOT) sessions who were employers or supervisors
- Telephone interviews with 18 employer or employer representatives key informants.

### Evaluation Findings

Findings on campaign impact were positive. Improvements on outcome measures related to worker and employer behaviors and working conditions were reported by the majority of worker, employer, and CBO respondents, and signs of increased community capacity appeared promising as well.

- **Workers reported rates of behavior for specific heat illness prevention measures were high.** In particular, over 98% of workers stated they were drinking water frequently in 2012 and 76% said they rested in the shade.
- **Working conditions and employer actions to prevent heat illness appear to have improved** in recent years, with employers, workers, and CBO representative respondents all noting positive changes. Workers and CBOs reported that water and shade are increasingly available at worksites.
- **High levels of exposure to the campaign** were reported among outdoor workers, employers and CBO representatives.
- **Perceptions of the campaign were very positive** across the worker, employer, and CBO respondents to the evaluation. Almost all workers who had seen the campaign reported that it had motivated them in some way to increase their safety while working in the heat.
- **Workers agreed with attitudes promoted by the campaign**, including messages that frequently drinking water and resting in the shade were essential to the work and would make them more productive.

- **CBOs and employers reported favorable impressions of the campaign.** Employers' comments referenced campaign's value in reinforcing messages about heat safety, facilitating conversations with workers, providing effective materials they can use in training, and increasing employer concern. CBOs and employers also found the campaign materials easy to understand and use, and reported that they were well-received by workers.
- **CBO and employer capacity to address heat illness among outdoor workers was also increased through the efforts of the campaign** with representatives describing a new awareness and ability to educate and support workers in solving problems at the workplace through participation in TOTs. CBOs described incorporating the training and outreach material into their existing work. Employers noted that TOTs increased their capacity to successfully convey information on heat illness to workers.
- **Cal/OSHA visibility appears to also have been enhanced and enforcement is essential.** Over one-third of non-English-speaking, often more vulnerable workers reported familiarity with the agency. Employers and CBOs also came away with generally favorable impressions of Cal/OSHA and their efforts through this campaign, and frequently emphasized the critical importance of the agency's increased enforcement efforts in motivating employers to take action.

Although respondents almost universally agreed that increased efforts to prevent heat illness have taken place at the work site among employers and among workers, it was clear that major barriers remain. These include the extent to which employers create positive safety culture and actually encourage workers to follow behaviors that require them to stop for rest and water, as well as issues related to piece-rate pay structure, social pressures perceived within the crew, and workers' fears of asking for change or reporting to outside agencies. Findings suggested that subpopulations, such as Mixteco-speaking and Punjabi-speaking workers, may face additional barriers to effective heat illness prevention, in particular around communicating needs. CBO and worker respondents also referenced the fact that there is still a segment of employers who are not complying with the standard. Finally, Hmong farmers and some employers associated with smaller operations expressed concerns about increased costs of compliance and unrealistic expectations of the standard given the size of their operation.

## Conclusions

The three-year campaign to prevent heat illness among non-English-speaking outdoor workers used a multi-prong strategy combining a social marketing approach that included media and community education and outreach with concurrent enhanced enforcement efforts. Workers, employers, and community-based organization representatives report improved work site conditions in recent years, and attribute changes to the combined campaign efforts. Additionally, the sustained effort over multiple years was another unique factor that likely contributed to success.

Barriers and challenges remain that warrant further attention. Some are related to the work environment and the extent to which employers are encouraging workers to access the water and shade that is now provided. Other barriers are to a significant extent embedded in larger economic contexts that provide structural disincentives for workers to follow recommended

measures. Potential research and interventions focused on paying piece rate workers for time spent on heat prevention behaviors, and dissemination of best practices such as having the whole crew stop to rest at the same time, may be promising future directions.

Finally, the significant investment made in this heat illness prevention campaign and the infrastructure and network it has created may serve not only as an important foundation and platform for continued efforts to address heat illness, but may also present opportunities related to other health and safety goals in these industries. The community-based linkages and networks, the raised profile of a critical worker health and safety issue within industries and in the public consciousness are all potential parts of a lasting dissemination and health and safety promotion infrastructure.



## **BACKGROUND ON CALIFORNIA'S HEAT ILLNESS PREVENTION CAMPAIGN**

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California's heat illness prevention campaign has involved a comprehensive effort over three years to reduce heat-related fatalities and illness among low-wage, non-English speaking outdoor workers in the state. The strategies employed since 2010 involve working at multiple levels to educate workers, employers and the community as a whole about needed prevention measures and to ultimately develop a "community norm" that views heat illness as a serious issue which requires action in the workplace and community.

The principal target audiences for this campaign include Spanish-speaking agricultural workers and their employers, Spanish-speaking construction workers and their employers, Spanish-speaking landscape workers and their employers, and four other immigrant non-English speaking farm worker communities: Hmong-, Punjabi-, Mixteco- and Triqui-speakers.

The campaign was the result of a mandate from the California State Legislature to the Department of Industrial Relations (DIR) to conduct a targeted public education and outreach effort for non-English-speaking outdoor workers. DIR hired the Regents of the University of California, through a contract, to develop and implement a multi-level social marketing effort that included media, train-the-trainers' programs, and outreach and training to non-English-speaking workers, their employers as well as ancillary targets such as families, local organizations and the community at large. The campaign development and media component has been coordinated by the Labor Occupational Health Program (LOHP) at UC Berkeley, under the direction of DIR and its Division of Occupational Safety and Health (DOSH, commonly known as Cal/OSHA) and with the collaboration of MOB Media and Underground Advertising. Education and outreach activities have been coordinated at a regional level by LOHP, UCLA Labor Occupational Safety and Health Program (LOSH), and the Western Center for Agricultural Health and Safety (WCAHS) at UC Davis.

This report summarizes findings from the evaluation conducted after the third year of the campaign. It is divided into two sections. The first focuses on the process evaluation and the activities carried out in 2012, as part of the contract with the University of California. The second section presents the findings of the outcome evaluation on the effectiveness of the campaign, measured through follow-up surveys with workers, employers and community organizations. An outcome evaluation was also carried out in 2010, and the report on those findings are available online at: <http://www.dir.ca.gov/DOSH/HeatIllnessInfo.html>.

This heat illness outreach and public awareness campaign served as a complement to Cal/OSHA's own enforcement and outreach efforts. This report does not describe or directly address efforts managed by Cal/OSHA staff. However, it is recognized that all campaign elements had reinforcing effects and contributed to any reported changes.

## **Campaign Goals**

Specific goals developed to guide strategic thinking for the campaign are four-fold, and the outcome evaluation is organized around these goals:

- Goal 1: Promote adoption of heat illness prevention measures by non-English-speaking outdoor workers (especially in agriculture, construction and landscaping);
- Goal 2: Improve access to water, shade, rest and training at the worksite, as required by the heat illness prevention standard;
- Goal 3: Involve community-based organizations, government agencies, and others who serve as good access points for the target worker populations in heat prevention activities; and,
- Goal 4: Increase visibility of DIR's Cal/OSHA program as responsive to workers' needs.

## **Campaign Development and Main Strategies**

The campaign was first launched in 2010, continued in 2011 in a more targeted manner, and then was implemented again as a comprehensive effort in 2012. This third year's activities drew on lessons learned in previous years and continued the messaging, outreach and dissemination using media and materials that had been well-received previously. Table 1 provides an overview of campaign activities over the three years.

### **Media Approach and Messaging**

The principal strategies for the media and messaging are to create an environment supportive of prevention and to reach workers and employers at times and places where they are most likely to be in a position to do something about heat illness. Media messaging involves positioning heat safety as simply part of the job ("Water. Rest. Shade. The work can't get done without them.") and promoting an environment supportive of prevention.

The campaign development phase identified worker concerns about heat prevention measures (stopping to drink water or rest) as these actions were perceived as limiting their productivity or reducing their wages which are often based on piece-rate or quotas. In the case of heat illness, having symptoms makes workers less effective, while staying well-hydrated and resting in the shade not only avoids illness, but helps workers feel stronger and work more effectively. To this end, the campaign messaging centered on the concepts that heat safety is simply part of the job and that following prevention measures will result in greater productivity. The headlines for the campaign drew the link between the recommended prevention steps and the way that these make workers healthier, stronger and more productive.

**Table 1: Overview of Campaign Activities 2010 – 2012**

**Year 1: 2010**

- Development of media strategy and varied formats (outdoor ads, radio, promotional items) and implementation of media buy throughout inland areas of the state (agriculture principal focus).
- Development of a variety of educational materials in five languages – Spanish, English, Hmong, Punjabi and Mixteco (includes written materials, training kids, DVD with audio option in five languages, bandanas and other give-away items).
- Development of campaign website.
- Hotline piloted through federal EMPLEO hotline.
- Eight Train-the-Trainer (TOT) programs for community-based organizations in six regions of the state.
  - 125 number of people from 66 organizations participated
  - Follow-up surveys indicated that TOT participants had reached an estimated 6,000 – 8,000 workers in their communities through outreach and education.
- Outreach and dissemination effort to distribute materials to workers, employers, and 178 community groups.
- Development of booths and materials for increased Cal/OSHA presence in worker communities.

**Year 2: 2011**

- Targeted media buy in select regions of state – narrower scope than in 2010 and 2012 (continued focus on agriculture but more allocated towards construction)
- Expansion of TOT program
  - 14 TOTs carried out statewide; 356 participants from over 110 organizations
  - TOT lengthened to allow for more practice time and incorporate activity on filing a complaint to Cal/OSHA.
- Additional community outreach and training activities carried out by UC staff reached another 1,700 workers.
- Training and follow-up with EMPLEO hotline volunteers.

**Year 3: 2012**

- Media buy and placement similar to 2010 levels (+ new creative for landscaping workers)
- Expansion of TOT program
  - 21 TOTs carried out statewide; 499 participants from 193 organizations
  - TOT developed for supervisors/employers
  - Follow up with participants from community organizations indicates they reached 11,000 – 17,000 people in their communities
  - Follow up with employer participants indicates they reached between 5,900 – 7,500 workers and between 2,700 and 4,500 supervisors.
- Production of DVD with Triqui audio track, in addition to five original languages
- 814 workers reached through 21 trainings carried out by UC programs
- Almost 4,000 workers through additional community outreach activities carried out by UC staff.

The campaign images show confident workers taking proper safety precautions. The ads featured workers representing the target audiences: Latino, Mixteco, Punjabi, Hmong, male and female. The key message emphasized in all campaign materials (“Water. Rest. Shade. The work can’t get done without them”) reinforces how essential these are to doing the work and is a message that is relevant to workers as well as their supervisors and employers. The phone number (877-99-CALOR) that is included in all materials and ads is a direct resource for workers and Cal/OSHA’s logo is a reminder to all that Cal/OSHA is paying attention to this issue.

The radio strategy complements the messaging used in outdoor advertisements by featuring spots that are conversational, friendly, humorous and draw on similar language as in the outdoor ad headlines. These ads all integrate the message of “Water. Rest. Shade. The work can’t get done without them” and conclude with referencing Cal/OSHA and the hotline number. In addition, all stations are provided with ten- and 15-second spots to use as public service announcements (PSAs). A set of these was written for “high heat” alert days, to be issued when weather reports indicate a heat wave.

Media formats used over the three year campaign include outdoor advertising and radio. The outdoor advertising involved four formats: billboards, Wallgraphics (large posters), ads on vans that take farm workers to the fields and ads on lunch trucks that go to the fields or construction sites. This media mix was designed to maximize effectiveness. Radio is a popular format with all target groups and reaches large numbers of people, while outdoor has an ongoing presence. This combination helps enhance message retention and visibility, since outdoor ads will be visible long after the radio spot is over.

### **Educational Materials**

A wide variety of materials were developed in 2010, and these continued to be used in subsequent years. The intent was to develop materials that would be effective with workers, and that both employers and community organizations could use as part of worker training and other educational efforts. The materials’ effectiveness and ease-of-use were assessed previously. (For an in-depth description, see the 2010 evaluation report.) Table 2 provides a description of materials developed as part of this campaign.

**Table 2: Heat Illness Prevention Campaign Materials**

Material	Languages	Description and purpose
<b>Heat illness fact sheet</b>	English Spanish Hmong Punjabi	Fact sheet that provides key information (health effects, prevention steps, what is required at work) through illustrations.
<b>Community poster</b> - Agriculture worker version (3) - Construction worker version - Hmong worker version - Punjabi worker version	English Spanish Hmong Punjabi	Features same imagery from the outdoor ads in the campaign, for use to display in different community venues as well as worksites.
<b>DVD with facilitator's guide</b>	DVD with 6 language options (previously 5, added Triqui) Facilitator's Discussion guide: Spanish Punjabi	DVD that features workers from agriculture, construction and landscape industries and includes Spanish-, Mixteco Bajo-, Punjabi- and Hmong-speaking workers. Audio options in these languages as well as English and Triqui. Comes with a discussion guide so the facilitator can lead a short discussion after viewing.
<b>How to report a problem to Cal/OSHA (fact sheet)</b>	English Spanish	Describes how to file a complaint and what to include for it to be effective. The main audience is community organizations so they can assist workers in filing complaints. It is useful for workers as well since they do not otherwise learn of this process.
<b>Desktop flipchart training guide (for all industries)</b>	English Spanish	Developed primarily for community organizations to use in training. It is helpful for new trainers as they can view their notes and instructions while the audience views an image.
<b>Employer training posters</b> - Agriculture version - Construction version	Ag. English Ag. Spanish Construction Eng. Construction Spanish Ag. Hmong Ag. Punjabi	These are visual aids that can be used in training, include illustrations and key points.

Material	Languages	Description and purpose
<p><b>Employer training guide – agriculture and construction versions.</b></p> <p>Includes:</p> <ul style="list-style-type: none"> <li>- posters that can serve as visual aid while training</li> <li>- detailed training guide for crew leader or supervisor</li> <li>- fact sheets for workers</li> <li>- Supervisor’s daily checklist</li> </ul>	<p>English Spanish</p>	<p>Provides employers with a complete packet to deliver the training required by law.</p>
<p><b>Employer promotional postcards</b> (agriculture and construction versions, 5” X 7”)</p>	<p>Bilingual English and Spanish</p>	<p>Featuring images that match the outdoor ads, these postcards list the requirements of the heat standard.</p>
<p><b>Supervisor’s daily check list</b></p>	<p>Bilingual English and Spanish Bilingual English and Hmong Bilingual English and Punjabi</p>	<p>Intended to provide an easy reference for crew leaders and supervisors to check daily, to make sure they have on hand what’s needed to prevent heat illness.</p>

### Training and Outreach Strategies

An extensive community outreach list was developed in 2010 and expanded over the subsequent list to include the range of organizations active in communities across the state in serving, organizing or providing resources to the campaign’s target populations. Training activities expanded over the years in breadth and reach, but have included efforts at different levels: 1) training of trainers programs (TOTs) were conducted to build the capacity of community organizations to address heat illness and to implement educational activities in their own communities; 2) direct trainings were carried out with workers from different industries, including agriculture, construction, car wash, landscape, and school district employees, among others; 3) participation in community events and health fairs, which often involved one-on-one chats with workers and distribution of campaign materials.

### Campaign Hotline

In 2010, an analysis of the existing Labor and Workforce Development Agency’s (LWDA) hotline revealed several barriers that would hinder workers’ ability to communicate with the agency (detailed in 2010 evaluation report). A pilot program was set up in order to facilitate worker access to Cal/OSHA through a hotline that had live attendants who worked at trusted community resources. The pilot involves a collaboration with an existing hotline (EMPLEO), that operates mainly in Southern California, and is a partnership of the U.S. Department of

Labor, the Catholic Diocese of San Bernardino and the Mexican Consulate. Callers who call the number on all campaign materials – 877-99CALOR – are patched through to attendants who would triage their calls, provide information and refer to DOSH offices if needed. The attendants are volunteers who work with EMPLEO. Cal/OSHA trained volunteers and staff in 2010 when the pilot program launched, and this continued in 2011 and 2012, with Cal/OSHA and LOSH staff training EMPLEO volunteers in how to address calls related to heat illness.

## **PROCESS EVALUATION: REPORT ON 2012 ACTIVITIES AND DELIVERABLES**

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The following sections describe the media campaign and outreach and education activities carried out in 2012 as part of the Department of Industrial Relation's (DIR) contract with the University of California, as well as statistics on the use of the 877-99CALOR hotline.

### **Media Activities**

The media component was an integral part of the Summer 2012 campaign. With the exception of adding new creative featuring a landscape worker, the same media ads and radio spots developed in 2010 continued to be used in order to maintain campaign identity and ongoing recognition.

Media formats used in 2012 included outdoor advertising and radio. The outdoor advertising involved: billboards, Wallgraphics (large posters), ads on vans that take farm workers to the fields and ads on lunch trucks that go to the fields or construction sites. While the ads and overall strategy and distribution of creative mirrored the 2010 strategy and mix<sup>1</sup>, there were some modifications in 2012 based on lessons learned in previous years:

- There was an additional effort to secure targeted media for construction and landscaping workers, for example with more targeting of construction workers in Southern California through lunch truck ads. Additional construction and landscaping creative were placed in other areas of the state, closer to population centers.
- During the start of the summer, the radio ads with the water message (vs. shade/rest) ran more frequently, based on feedback from Cal/OSHA about the need to reinforce this message early in the campaign before the heat season began.
- The ads in Imperial Valley and El Centro area were scheduled to start and end earlier, to match local weather and workforce patterns.

### **Outdoor Ads**

Media placement focused on coverage of inland areas from Imperial to Yuba Counties. Distribution of media by industry sector can be assessed by total number of outdoor ads and by total gross impressions (number of times the target audience will likely view the media). A total of 391 outdoor ads were active between the end of May and September 2012, and some continued to be active into November 2012 as part of added bonus (described in following pages). The distribution by number of outdoor ads was 281 (72%) in agriculture, 76 (19%) in construction and 34 (9%) in landscaping. Distribution of outdoor ads by total gross impressions shows an increased allocation for construction and landscaping since these ads were placed in more urban areas that have larger numbers of viewers. By gross impressions, the distribution of outdoor units was 67% in agriculture, 23% in construction and 20% in landscaping.

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<sup>1</sup> Media in 2011 also mirrored the overall strategy but the amount available for a media buy was more limited, so the extent of the media placement was reduced.



The four formats for outdoor units were distributed in the manner described below (Appendix A provides a summary of outdoor media placement by region.).

## Billboards

There were 88 units placed, mostly 30-sheets<sup>2</sup> and also some larger freeway bulletins. As in previous years, billboards were selected based on location and availability, and were placed both in high traffic- locations to be seen by workers and the community at large and on rural roads near the fields. There were eight versions of the billboards: three in Spanish with agricultural worker images, three in English with those same images, one in Spanish with a construction worker image and one in Spanish with a landscape worker image.



*Landscape billboard*



*Agriculture billboard*

## Wallgraphics

A total of 157 units were placed as Wallgraphics (durable 30" X 46" ads installed in stores, check cashing locations and other places frequented by our target groups). These ads make the message available in areas that traditional media cannot effectively reach and also provide access to ancillary targets, such as families, local organizations and the community at large which are important for creating a broader environment supportive of prevention. These were produced in Spanish for agricultural and construction workers. In addition, Hmong Wallgraphics for Hmong farmers and workers were placed in Fresno and Punjabi Wallgraphics for Punjabi farm workers in Yuba City.

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<sup>2</sup> A standardized billboard format, typically measuring 12'3" x 24'6"; formally known as a 30-Sheet Poster.



*Wallgraphics in neighborhood stores*

### ***Vans and Lunch Trucks***

Finally, outdoor ads were placed on 50 commuter vans used to transport farm workers as well as 96 lunch trucks that frequent the fields or construction sites. This media allowed for timely message reinforcement when workers were on their way to work or at the job itself, and also were visible to supervisors. Ads were produced in Spanish with agricultural, construction and landscape worker images.



*Ads on lunch trucks*

### **Radio**

Over 9,000 spots aired in the summer of 2012 (7,000 purchased and 2,300 in added bonus), distributed across markets that focused coverage in inland areas from El Centro north to Yuba City. The radio ads were purchased on the stations that had been identified by workers during the needs assessment phase in planning for the 2010 campaign. This includes Spanish-language stations such as Radio Lobo, La Buena, Máquina Musical, La Favorita, La Preciosa, El Gallito, Radio Tricolor. A popular radio program with talk show host Piolin was highlighted repeatedly in the needs assessment interviews, and the radio buy included his show in the Fresno, Kern, Sacramento and Modesto markets. Radio Bilingue Public Radio Network and Radio Campesina

were also engaged. In addition, targeted radio markets for other language groups included La Hora Mixteca on Radio Bilingue, and a Hmong station in Fresno County. The spots were timed to air predominantly in the early morning hours or afternoon hours (3 - 5 AM, 5 – 8 AM, 3 – 7 PM) when workers were in transit to and from work. (Appendix B provides the estimated cumulative audience and reach/frequency information.)

Six 30-second radio spots in Spanish were rotated during the summer for variety, as well as three 30-second spots in Hmong and three in Mixteco. The 10- and 15-second “high heat” alerts were issued several times during the summer and into fall, due to an extended hot season. All the Spanish-language radio stations on which media were purchased aired extra PSAs as part of the high heat alerts.

### **Added Value**

Added value refers to bonus media placement negotiated at no charge. An additional \$250,590 worth of media was received at no charge as a result of the negotiated media buy. Some elements of the outdoor advertising plan continued to be active into November 2012, so there was an extended overrun placement beyond the contracted period. Over \$160,000 worth of outdoor units were placed as no charge bonus. In addition, over 2,300 additional radio spots were placed as added value, representing \$90,000 worth of spots.

### **Educational Materials**

Educational materials developed in 2010 were re-printed under this contract and continued to be used in 2012. These were distributed over the summer by Cal/OSHA staff, the UC programs and the network of organizations involved in outreach efforts. Materials developed and used for the first time in the summer of 2012 were:

- 1) DVDs with 6 languages options, now including an audio track in Triqui, an indigenous language from Oaxaca, Mexico
- 2) Two new materials in Punjabi: the posters designed to be part of the Employer Training and the Supervisor’s Daily Checklist

Bandanas were produced again in Spanish, Hmong and Punjabi, but none of the other campaign give-away items were produced in 2012.

### **Training and Outreach Activities**

As mentioned previously, the outreach and educational components of the campaign were carried out at different levels in order to yield widest reach: 1) training of trainers programs (TOTs) were conducted to build the capacity of community organizations to address heat illness and to implement educational activities in their own communities; 2) direct trainings were carried out with workers from different industries, including agriculture, construction, car wash, landscape, and school district employees, among others; 3) staff attended community events and health fairs, which often involved one-on-one chats with workers and distribution of campaign materials.

## Training of Trainers Programs

A total of 21 training of trainers (TOT) programs were carried out throughout the state in the spring and summer of 2012, with the goal of engaging community organizations (CBOs) and others who serve as resources to workers in heat illness prevention activities at the local level. This year, there was an enhanced effort to include employers in the TOT program, recognizing that often times the supervisors who are delivering training to workers can benefit from improving training techniques and having an introduction to the materials distributed by the campaign. In total, 499 people were trained through the 21 TOTs, representing 193 organizations (as detailed in Table 3). These 193 included 129 community groups and 65 employers. Some of the TOTs only included community organizations, others had a mixed audience of CBOs and employer representatives, and two in Napa were specifically designed for employer representatives.

### *TOT Structure and Content*

Most of the TOTs conducted in 2012 were 8-hours long. The agenda included a modeling of a heat illness prevention training using the campaign's "flipchart training guide," a review of good training techniques, clarification of content and heat illness information, and opportunities for participants to practice teaching. In addition, the training included a module on Cal/OSHA and the process for filing a complaint with the agency. A Cal/OSHA representative attended each TOT, and their presence was very well-received by both community groups and employer participants.

Almost all the TOTs were held in Spanish, and some were held in English with translation into Hmong or Punjabi. All participants received a box of campaign materials to use and distribute in their communities. The campaign materials included educational materials, the DVD and bandanas.

Evaluation following the TOT programs included use of written surveys and facilitating an activity to receive feedback. Participants had very favorable comments in these evaluations following the TOT. Overall, they commented that the trainings were interesting and that the materials and information they learned were important for their clients or workers they serve. They enjoyed the participatory activities and being able to practice using the flipchart guide. Many participants also mentioned that they had enjoyed hearing the information from the Cal/OSHA representative and appreciated being able to ask questions directly of Cal/OSHA staff.

### *TOT Recruitment*

Recruitment for TOTs involved extensive outreach in order to identify organizations and then invite them to participate. Program staff mainly did this by calling established contacts and asking for referrals to other organizations that serve the target populations, in this manner "mapping" the worker resources and networks in various regions of the state. While identified organizations received email invitations and announcements for the TOT in their region, most participants were enrolled after follow-up phone calls. An incentive in the way of a \$100 stipend was offered to participants from community organizations to attend the 8-hour TOT and engage

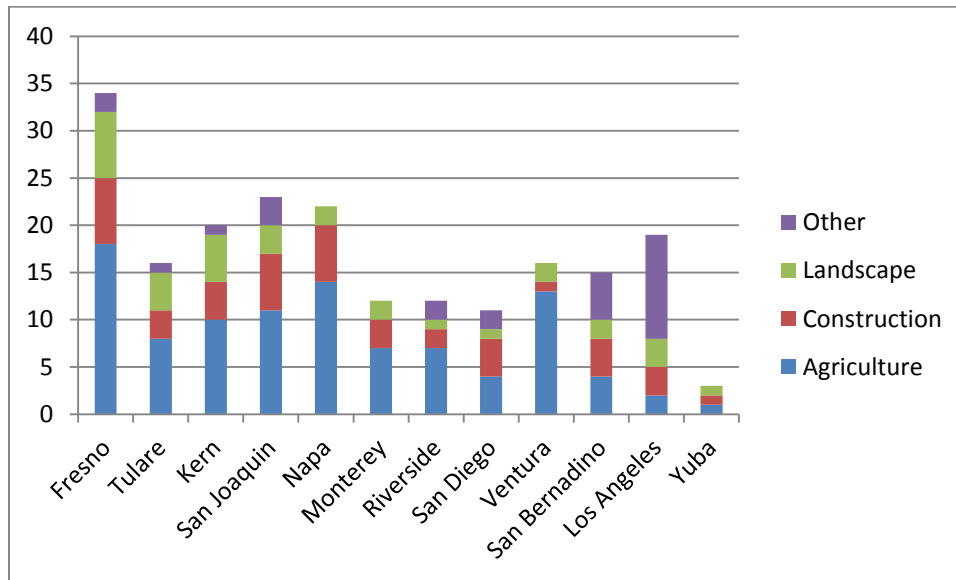
in follow-up activities in their communities. Local agricultural commissioners' offices were also helpful in recruiting employers to the TOTs.

A TOT program was carried out in each of the following counties: Kern, Los Angeles, Monterey, Riverside, San Bernadino, San Diego, Ventura, Yolo and Yuba. The following counties were site to more than one TOT program: Fresno (3), Napa (3), San Joaquin (4) and Tulare (2). At times, TOTs held in the same county targeted different populations. For example in Fresno, a couple of the TOTs were targeting organizations that reached Spanish- or Indigenous-speakers, while other TOTs were offered to Hmong farmers.

***Characteristics of Community Organizations that Participated in TOTs***

This summer's effort successfully included a diversity of organizations in the TOT programs, such as clinics, legal service providers, unions, schools, migrant education programs, Sikh temples, and worker advocacy groups. These organizations reported that they serve workers that are the principal target audiences of the campaign, as seen in Figures 1 and 2.

**Figure 1: Populations served by community organizations in TOTs, by Industry (Number of organizations in each county)**



In most regions, community groups reaching agricultural workers were well represented. Although landscape workers are more difficult to reach in a targeted manner through other campaign activities, a number of TOT participants reach these workers as part of their ongoing community outreach. Other industries they serve included nurseries, urban forestry, health, warehouse and service.

**Table 3: TOT programs carried out in 2012**

TOT Date	Location (City/County)	# of unique organizations	# of Participants	Language	UC Program*
5/3/2012	Stockton/San Joaquin	14	26	Spanish	WCAHS
5/30/2012	Woodland/Yolo	4	6	English	WCAHS
5/31/2012	Stockton/San Joaquin	6	16	Spanish	WCAHS
6/7/2012	Fresno	7	25	English/Hmong	WCAHS
7/1/2012	Stockton/San Joaquin	3	28	English/Punjabi	WCAHS
7/24/2012	Fresno	8	8	English/Hmong	WCAHS
8/26/2012	Lodi/San Joaquin	12	23	English/Punjabi	WCAHS
11/5/2012	Yuba City, Yuba	1	30	English/Punjabi	WCAHS
5/21/2012	Coachella/Riverside	9	34	Spanish	LOSH
6/9/2012	San Diego	7	17	Spanish	LOSH
6/15/2012	Ventura	13	36	Spanish	LOSH
7/14/2012	Ontario/San Bernadino	11	32	Spanish	LOSH
7/23/2012	Los Angeles	13	35	Spanish	LOSH
5/16/2012	Fresno	13	23	Spanish	LOHP
5/17/2012	Visalia/Tulare	7	26	Spanish	LOHP
6/12/2012	Visalia/Tulare	2**	24	Spanish	LOHP
6/13/2012	Bakersfield/Kern	14	19	Spanish	LOHP
6/19/2012	Napa***	15	26	Spanish	LOHP
6/20/2012	Napa	14	26	Spanish	LOHP
7/12/2012	Salinas/Monterey	10	14	Spanish	LOHP
8/1/2012	Napa***	10	25	Spanish	LOHP
<i>Total:</i>		<i>193</i>	<i>499</i>		

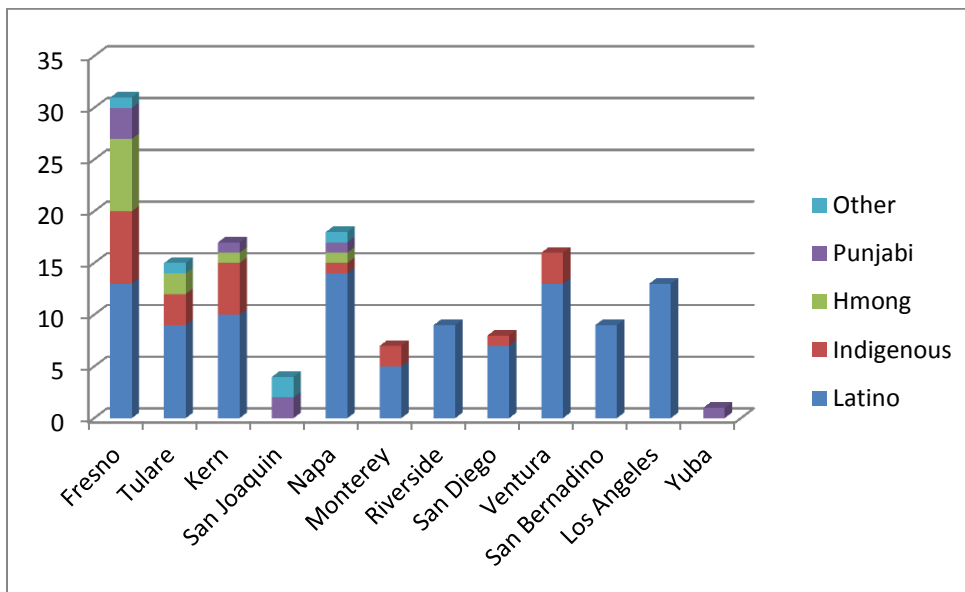
\*Key: LOHP: UC Berkeley's Labor Occupational Health Program; LOSH: UCLA's Labor Occupational Safety and Health Program; WCAHS: UC Davis's Western Center for Agricultural Health and Safety.

\*\* Co-sponsored by Family Health Care Network

\*\*\* Specifically for agricultural supervisors

Figure 2 describes the populations served by ethnicity. Organizations that serve Latino communities were represented in almost all the TOT programs, and organizations that serve indigenous communities were in attendance in Fresno, Tulare, Kern, Napa, Monterey, San Diego and Ventura. The programs specifically targeting organizations serving Punjabi workers were offered in San Joaquin and Yuba counties, but other organizations in Fresno, Kern and Napa also serve this population. Finally, organizations that serve Hmong communities attended TOTs in Fresno, Tulare, Kern and Napa.

**Figure 2: Populations served by community organizations in TOTs, by Ethnicity (Number of organizations in each county)**



### Direct Training with Workers

In addition to the TOTs, the UC programs carried out 21 trainings for workers, as detailed in Table 4. Workers trained were principally agricultural workers, but also included day laborers, carwashers, iron workers, and school district employees. Most were carried out through organizations such as advocacy groups, unions, farm worker housing centers. One training series for cotton workers was conducted in partnership with the Merced County Farm Bureau.

**Table 4: Worker trainings carried out in 2012**

Training Date	Location (City/County)	# People reached	UC Program
3/6/2012	Plymouth	28	WCAHS
3/15/2012	Placerville	43	WCAHS
4/28/2012	Dixon	80	WCAHS
5/7/2012	Sacramento	65	WCAHS
5/8/2012	Sacramento	30	WCAHS
8/27/2012	Sacramento	100	WCAHS
4/10/2012	Los Angeles	2	LOSH
5/11/2012	Lancaster	13	LOSH
05/16/2012	Anaheim	30	LOSH
05/18/2012	Poway	24	LOSH
06/05/2012	Los Angeles	11	LOSH
07/06/2012	Los Angeles	20	LOSH
08/24/2012	Calexico	14	LOSH
6/19/2012	Helena, CA	20	LOHP
7/16/2012	Mondavi, CA	28	LOHP
7/31/2012	Calistoga, CA	27	LOHP
9/18/2012	San Rafael, CA	13	LOHP
9/18/2012	Benicia, CA	15	LOHP
9/19/2012	Napa, CA	23	LOHP
9/24/2012	Dos Palos, CA	163	LOHP
12/14/2012	San Jose, CA	65	LOHP
<b>Total:</b>		<b>814</b>	

\*Key: LOHP: UC Berkeley's Labor Occupational Health Program; LOSH: UCLA's Labor Occupational Safety and Health Program; WCAHS: UC Davis's Western Center for Agricultural Health and Safety.



These trainings ranged in length from 45 minutes to 2 hours and included use of the flipchart guide or the guide's illustrations used within a Power Point presentation. A heat illness lotería game (similar to bingo) was developed and used as a review game during some of the trainings.

### Outreach Events

The UC programs participated in 28 outreach events throughout the state. A large number of these included community health fairs, but there were also promotora (lay community educators) conferences, Mexican Consulate outreach events and events sponsored by TOT participants who extended an invitation for UC staff to attend. Some of these events were part of the 2012 Labor Rights Week. Through these events, almost 4,000 people received information on heat illness prevention.

**Table 5: Outreach events carried out in 2012**

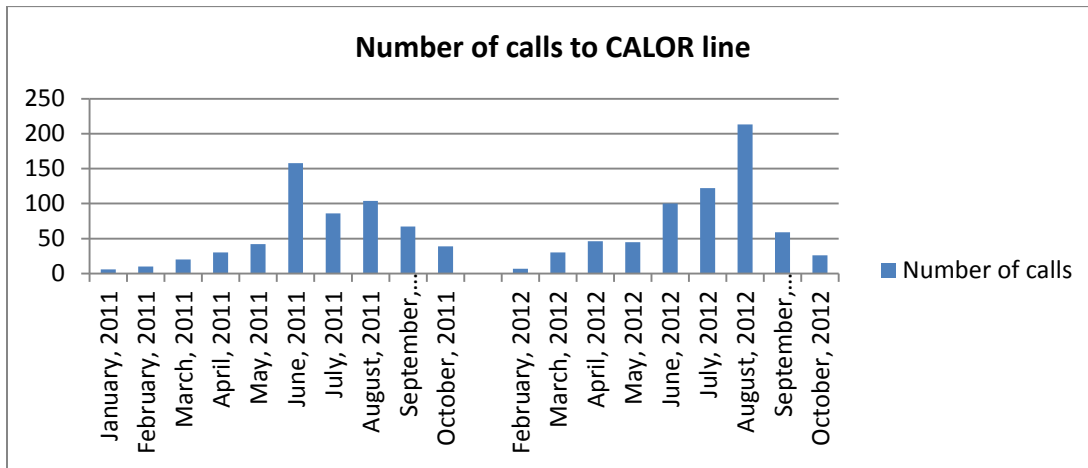
Outreach Event Date	Location (City/County)	# People reached	UC Program
3/4/2012	Stockton	80	WCAHS
3/22/2012	Fresno	250	WCAHS
4/18/2012	Lodi	60	WCAHS
4/29/2012	Sacramento	300	WCAHS
5/4/2012	Stockton	140	WCAHS
5/6/2012	Woodland	41	WCAHS
5/20/2012	Dixon	40	WCAHS
8/9/2012	Sacramento	100	WCAHS
Aug 27-31/2012	Sacramento	175	WCAHS
9/5/2012	Sacramento	20	WCAHS
9/21/2012	Lodi	200	WCAHS
11/2/2012	Tulare	100	WCAHS
4/26/2012	Los Angeles	400	LOSH
8/7/2012	San Diego	20	LOSH
11/14/2012	Mecca	350	LOSH
11/15/2012	Coachella	30	LOSH
12/7-12/8/2012	Los Angeles	800	LOSH

<b>Outreach Event Date</b>	<b>Location (City/County)</b>	<b># People reached</b>	<b>UC Program</b>
5/21/2012	Binational Promotora Conference, Oakland	200	LOHP
5/31/2012	Napa	25	LOHP
6/22/2012	Napa	70	LOHP
8/11/2012	Oakland	30	LOHP
9/2/2012	San Jose	8	LOHP
9/16/2012	Napa	50	LOHP
9/18/2012	Sacramento	30	LOHP
9/22/2012	Lodi	150	LOHP
9/22/2012	Berkeley	50	LOHP
10/4/2012	San Francisco	60	LOHP
11/8/2012	San Francisco	60	LOHP
12/7-8, 2012	Vision y Compromiso Conference, Los Angeles	100	LOHP
<i>Total:</i>		<i>3939</i>	

## **Calls to the CALOR Hotline**

The process evaluation looked at calls made to the CALOR hotline established by the campaign. Analysis of phone company records for the 877-99CALOR line show that 634 calls were made from 366 phone numbers during 2012, indicating that a subset of callers (N=124) called more more than once. In comparison, there were 562 calls to the CALOR line in 2011. Figure 3 shows that the number of calls increased each year during the summer months.

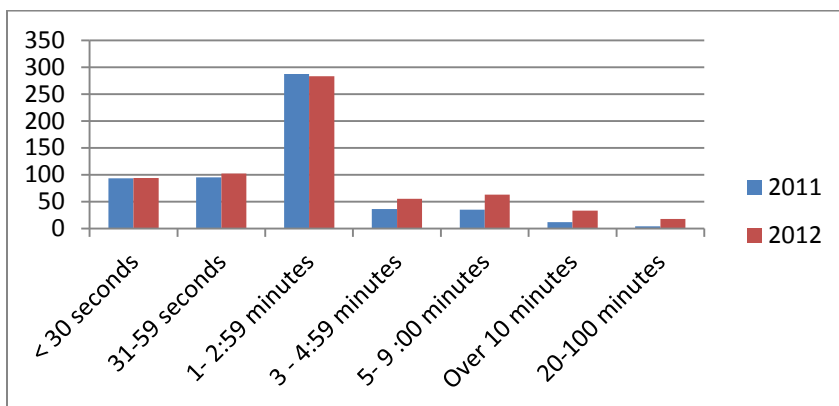
**Figure 3: Calls to CALOR Hotline, 2011 and 2012, by month**



An analysis of the “call origination point” (by county) shows that calls in 2012 were made from 34 of California’s 58 counties, and 4% of calls came from other states. The counties with the greatest frequency of calls were Fresno, Los Angeles, Kern, San Bernadino, San Joaquin and Tulare. While workers can eventually reach a live attendant when calling the hotline, there are a series of recorded prompts to get through first, and these take at least a minute. Figure 4 indicates that almost 200 of the calls were less than one minute long. Most of the calls to CALOR were less than 3 minutes long and it is not clear if the caller reached an attendant within that time period. However, there were over 100 calls that were over five minutes long in 2012, likely indicating that a conversation with an attendant took place.

Data on the nature of all these calls is not available, so we do not know if they were all heat related, or whether the caller had a specific question that a volunteer could answer, had called to request materials or to be referred to the appropriate Cal/OSHA office. Call data from the EMPLEO hotline program indicates there were four heat-related referrals to Cal/OSHA in 2012 for further investigation. There were also referrals for other health and safety issues, and it is possible some callers used the CALOR line for other work-related concerns.

**Figure 4: Duration of calls made to CALOR Hotline, 2011 and 2012**



## **IMPACT EVALUATION: OUTCOMES WITH WORKERS, EMPLOYERS AND COMMUNITY ORGANIZATIONS**

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The outcome evaluation assessed the impact of the heat illness prevention campaign over the three years of the campaign by assessing the extent to which the goals of the program were met as well as gauging campaign exposure, worker perceptions, attitudes, behavior, working conditions, and barriers to change. As mentioned previously, the campaign goals were to:

1. Promote adoption of heat illness prevention measures by non-English-speaking outdoor workers (especially in agriculture, construction and landscaping).
2. Improve access to water, shade, rest and training at the worksite, as required by the heat illness prevention standard.
3. Involve community-based organizations, government agencies, and others who serve as good access points for the target worker populations in heat prevention activities.
4. Increase visibility of DIR's Cal/OSHA program as responsive to workers' needs.

The logic model in Appendix C illustrates the underlying framework for this heat illness prevention communication program, and the assumptions of the program on how specific short- and mid-term objectives would lead to long-term behavior change goals. All of the efforts of the campaign ultimately aimed to protect non-English-speaking outdoor workers from heat illness. The media campaign directly targeted non-English speaking outdoor workers and their supervisors to raise their awareness about heat illness and how to prevent it. Additionally, the trainings and activities conducted with employer groups and community representatives sought to promote actions that would be beneficial to outdoor workers (discussed in Goals 2 & 3), as were the efforts to increase DOSH's visibility and workers' access to the agency (discussed in Goal 4).

### **Evaluation Approach**

An independent evaluation team was contracted to collect data on the impact and outcomes of the heat campaign. The evaluation focused on assessing overall impacts of the campaign, now in its third year, on workers, employers and community organizations. It aimed to build upon and expand the scope of the 2010 evaluation of the campaign<sup>3</sup> which focused primarily on awareness of and attitudes toward campaign messages and worker behaviors. In 2012, the evaluation also looked at impact on working conditions and the barriers to following heat illness prevention measures, and was designed so that multiple methods with worker, employer and community-based audiences could allow for triangulation of findings on key process and outcome measures.

The evaluation included measures consistent with social marketing and health communication frameworks. Health communication campaigns such as this seek to generate specific outcomes among a relatively large number of individuals through an organized set of communication activities. In order for health communication campaigns to be effective, the target audience needs

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<sup>3</sup> See "Heat Illness Prevention Campaign: Final Performance and Evaluation Report."  
<http://www.dir.ca.gov/dosh/HeatIllnessCampaign/HeatIllnessPreventionCampaignReport.pdf>

to be exposed to the campaign, pay attention to the material, understand the material, accept that the material is relevant to them, change the attitudes towards the message, and as a result, change their behaviors.<sup>4 5</sup>

While this outcome evaluation looked most closely at activities implemented under the contract with the University of California, Cal/OSHA's own enforcement and outreach activities were part of the comprehensive effort to address heat illness among outdoor workers by the State. Assessments of campaign impact almost certainly reflect the combination of all of these efforts and cannot be attributed to any one activity in isolation. In addition, since this campaign has been a multi-year effort, it is assumed that many of the changes described in the evaluation are the result of cumulative efforts over time, and changes are not ascribed to campaign activity occurring in any given year.

## Methods and Sample Characteristics

Evaluation strategies in 2012 utilized and expanded on methods employed in 2010 and involved:

- Intercept interviews with 522 outdoor workers
- Three focus groups with outdoor workers and one with Hmong farmers (new in 2012)
- A telephone survey administered to 87 participants in training of trainers (TOT) sessions who represented community organizations
- A telephone survey administered to 33 participants in training of trainers (TOT) sessions who were employers or supervisors
- A telephone interview with 18 employers or employer representatives considered to be key informants.

### Intercept Interviews with Outdoor Workers

Intercept interviews<sup>6</sup> were conducted with 522 outdoor workers aged 18 or older between September and November 2012 at public locations such as swap meets, stores, parks and public events. The intercepts were conducted in Arvin, Bakersfield, Fresno, Madera, Selma, Stockton, Turlock and Visalia, all areas that had media presence in the form of outdoor ads and radio announcements during the summer of 2012. Intercept interviews were also conducted in Yuba City to gather data from Punjabi-speaking workers. The campaign in Yuba City included outdoor ads in Punjabi, but no radio announcements.

Trained interviewers used a structured questionnaire to interview randomly selected individuals who had worked in industries such as agriculture, construction, and landscaping during the summer of 2012. The interviews assessed a range of issues, including exposure to the heat illness prevention campaign, perceptions of the usefulness and relevance of the campaign, impacts of the campaign on protective behaviors, perceptions of who is sponsoring the campaign, workplace

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<sup>4</sup> Freimuth, V, Cole, G, and Kirby, S. Issues in Evaluating Mass Media-Based Health Communication Campaigns. [http://www.cdc.gov/DHDSP/cdcynergy\\_training/Content/activeinformation/resources/Eval\\_Media\\_Campaign\\_WHO.pdf](http://www.cdc.gov/DHDSP/cdcynergy_training/Content/activeinformation/resources/Eval_Media_Campaign_WHO.pdf).

<sup>5</sup> Kotler P and Roberto E. Social Marketing – Strategies for Changing Public Behavior. The Free Press, 1989.

<sup>6</sup> Intercept interviews involve “intercepting” or stopping individuals randomly in geographic areas where you would expect to find your target population, screening them for inclusion in survey, and conducting brief interviews on selected topics. It is method commonly used in assessing mass communications efforts.

conditions and perceived barriers. During the interviews, respondents were shown examples of the media ads and educational materials and radio ads were played for them when applicable (i.e., Spanish-speaking workers). The interviews lasted approximately 10 minutes each and were conducted in Spanish or English, based on respondent preference. Punjabi workers completed the interview in English.

While the survey instrument was based on the instrument used in 2010, several modifications were made, including the following:

- A radio announcement was played for interviewees in 2012 but not in 2010.
- In addition to ads, educational materials were also shown to respondents in 2012, but not 2010. (Examples of ads were shown in both 2010 and 2012.)
- Several modifications were made to reduce response or social desirability bias, which occurs when interviewees provide what they believe is the “right” answer, even though it may not reflect their true beliefs or behaviors. For instance, questions about worker adoption of preventive behaviors or communication were not prefaced by the phrases “As a result of this campaign...” or “After having seen or heard these announcements...” as in 2010.
- The question that assessed worker attitudes included an option that would “give permission” to provide an answer not associated with campaign, i.e., “Experienced workers don’t need to drink water or rest in the shade.” This question was phrased negatively to test social desirability bias.

### *Intercept Interview Sample Characteristics*

As seen in Table 6, the worker intercept interview respondents are largely male (72%) and Spanish-speaking (89%), with a mean age of 39 years and 7.6 years of education on average.<sup>7</sup> The respondents have been employed in outdoor occupations for an average of 7.1 years with the majority (65%) working in agriculture.

**Table 6 Demographic Characteristics: Worker Intercept Survey (n=522)**

<b>Age (n=520)</b>		
Mean		38.8 years
18-29 years	12.1%	63
30-39 years	42.7%	222
40-49 years	34.2%	178
50+ years	11.0%	57
<b>Sex (n=522)</b>		
Female	28.2%	147
Male	71.8%	375
<b>Education (n=516)</b>		
Mean		7.6 years

<sup>7</sup> The demographic characteristics of farmworkers participating in the intercept interviews are very similar those of farmworkers in general, based on findings from the National Agricultural Worker Survey (See <http://www.ncfh.org/docs/fs-Migrant%20Demographics.pdf>.)

0-6 years	32.9%	170
7-8 years	19.7%	102
9-12 years	46.7%	241
13+ years	0.6%	3
<b>Years Working (n=522)</b>		
Mean		7.1 years
1-3 years	29.3%	153
4-7 years	34.5%	180
8-10 years	20.7%	108
11+ years	15.5%	81
<b>Ethnicity/Language spoken (n=521)</b>		
Spanish-speaking	88.9%	463
Mixteco <sup>8</sup>	6.5%	34
Punjabi	4.6%	24
<b>Industry (n=522)</b>		
Agriculture	65.1%	340
Construction	19.9%	104
Landscaping/Gardening	14.9%	78

### [Focus Groups with Outdoor Workers and Hmong Farmers](#)

Focus group discussions were conducted with three sets of outdoor workers and one with Hmong farmers with a total of 53 respondents participating. Focus group participants were recruited by local community-based organizations with ties to members of each community. The goal of the focus groups was to gain further insights into intercept survey findings and obtain data from some of the specific subgroups targeted by the campaign (Punjabi farm workers, Hmong farmers, construction workers in Southern California). We also wanted to obtain a deeper understanding of nuanced issues such as barriers to the adoption of heat prevention behaviors. Focus group discussions were conducted with the following populations (Table 7).

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<sup>8</sup> All participating Mixteco speakers also spoke Spanish.

**Table 7: Focus Group Characteristics**

Language spoken	Industry(ies)	Location	Number of Participants
Punjabi	Agriculture	Yuba City	11
Spanish or Mixteco	Agriculture	Madera	20
Spanish	Day labor: construction, landscaping	Los Angeles	13
Hmong	Agriculture (small farmers)	Fresno	9

We aimed to conduct groups with between eight and ten participants. However, efforts to over-recruit in the community to ensure adequate numbers sometimes resulted in large numbers of participants. Day laborers participating in focus groups worked in construction, particularly roofing, as well as other outdoor jobs such as gardening and landscaping. These workers likely represent one of the more vulnerable outdoor worker populations, but may also differ substantially from other workers in these industries, experiencing less stability in worksites and employers.

### **Follow-Up Surveys with Community-Based Organizations (CBOs) and Employers Participating in Train the Trainer Workshops**

Follow-up telephone surveys of community-based organizations (CBOs) (n=87) and employers (n=33) participating in training-of-trainers (TOT) workshops were conducted to assess perceptions of the sessions, ability to implement educational and outreach efforts with workers in their communities or worksite, and perceptions of campaign effectiveness. Program staff at UC Berkeley, UC Davis, and UCLA conducted the surveys which ranged between 30-45 minutes in length. Surveys were conducted in English or Spanish, based on respondent preference. Of the 87 CBO representatives who responded to the survey, 39.5% attended trainings hosted by LOHP, 36.0% by LOSH, and 24.4% by the Western Center for Agricultural Health and Safety at UC-Davis.

### ***Sample Characteristics: Community-Based Organizations<sup>9</sup>***

Table 8 presents the characteristics of the organizations and populations served of TOT participants from community-based agencies who completed the follow-up survey. The majority of respondents defined their organization as a community-based organizations (51.2%). Other organizations included educational institutions (5.8%) legal service providers (4.7%), clinics and other healthcare providers (4.7%), worker centers (2.3%), government agencies (2.3%) and unions (2.3%). Over one-fourth (26.7%) of respondents represented “other” types of organizations which included religious institutions (Sikh temples), non-profits, vocational training programs and the Mexican Consulate.

<sup>9</sup> For the purposes of this evaluation, organizations that are in the community or provide resources to workers have been included within the description of “community-based organizations” (CBOs).



When asked about the specific populations they served, the majority (87.5%) said they serve the Latino community, followed by Mixteco/indigenous communities (20.5%), Punjabis (12.5%) and Hmong (9.1%). Twenty-one percent serve “other” populations, including White, African American/Black, Native Americans and Filipinos. Many organizations reported serving more than one population.

The participating organizations reach workers in a variety of industries, including agriculture (77.5%), construction (42.7%) and landscaping (42.7%). Forty percent mentioned other industries as well, including hotels and hospitality, transportation, manufacturing/warehouse, restaurants and the service industry.

**Table 8: Select characteristics of participants in CBO survey (N=87)**

<b>Organization type (n=86)</b>	
Community organization	51.2%
Educational institution	5.8%
Legal Services	4.7%
Clinic/Health care	4.7%
Worker center	2.3%
Government agency	2.3%
Union	2.3%
Other	26.7%
<b>Region (n=87)</b>	
Bay Area	3.4%
Central Coast	5.7%
Central Valley	46.0%
Inland Empire	10.3%
Los Angeles/Ventura	18.4%
Napa Valley	11.5%
San Diego/Imperial	4.6%
<b>Populations served (n=86)<sup>10</sup></b>	
Latino	87.5%
Mixteco or other indigenous communities	20.5%
Punjabi	12.5%
Hmong	9.1%
Other	18.2%
<b>Industry type (n=87)<sup>11</sup></b>	
Agriculture	77.5%
Construction	42.7%
Landscaping	42.7%
Other	40.4%

<sup>10</sup> Percentages are greater than 100% because more than one response was allowed.

<sup>11</sup> Percentages are greater than 100% because more than one response was allowed.

### **Sample Characteristics: Employers**

Table 9 presents the demographic characteristics of employer and employer group participants who responded to the survey. Respondents were asked about their perceptions of the heat illness training of trainers workshops and actions the respondents engaged afterwards. All respondents except one were involved in agriculture (96.9%), while one (3.0%) reported being involved in both construction and agriculture. When asked about their specific work role, the majority categorized themselves as supervisors/crew leaders (41.9%), followed by growers (16.1%), farm labor contractors (6.5%) and others (6.5%), including an insurance broker and an administrative specialist. Specific roles were not available for 29.0% percent of the employer sample, who are categorized as N/A. The participants are based in Napa County (30.3%), followed by Stanislaus and Ventura Counties (both 12.1%).

**Table 9: Select characteristics of participants in employer survey (N=33)**

<b>Type of industry</b>	
Agriculture	96.9%
Construction	3.0%
<b>Role</b>	
Supervisor or crew leader	41.9%
Grower	16.1%
Farm Labor Contractor	6.5%
Other	6.5%
N/A	29.0%
<b>Location</b>	
Bay Area	6.1%
Central Coast	6.1%
Central Valley	36.3%
Inland Empire	6.1%
Los Angeles/Ventura	15.1%
Napa Valley	30.3%

### **Key Informant Interviews with Employers**

Semi-structured telephone interviews were conducted with 18 key informants who were employers or representatives of employer groups. These included agricultural, construction and landscaping employers, farm labor contractors, worksite supervisors, and representatives of grower associations.

The goal of the interviews was to obtain a more in-depth understanding of employer perceptions of the campaign, impacts and recommendations for improvement from a wider range of respondents than represented by TOT participants. The interviews sought employer feedback on a range of issues, including exposure to and perceptions of the media and educational components of the campaign, contact with and perceptions of Cal/OSHA, impacts of the

campaign on heat illness prevention activities and recommendations for other ways to reduce heat illness.

**Table 10: Select characteristics of participants in employer key informant interviews (N=18)**

<b>Type of industry (n=18)</b>	<b>%</b>
Agriculture	77.8%
Construction	11.1%
Landscaping	5.6%
Insurance	5.6%
<b>Role (n=18)</b>	<b>%</b>
Grower	22.2%
Supervisor or crew leader	33.3%
Grower organization	16.7%
Farm Labor Contractor	22.2%
Insurance	5.6%
<b>Location (n=18)</b>	<b>N<sup>12</sup></b>
Bay Area	6
Central Coast	1
Central Valley	18
Inland Empire	0
Los Angeles/Ventura	2
Napa Valley	5

## Limitations of Evaluation Methodology

While the evaluation employed different methods with worker, employer, and community-based organization audiences in order to assess impact of the campaign, as with any evaluation effort, limitations to conclusions that can be drawn remain. These are due in part to methods used as well as the complexities of a multi-faceted, multi-year, statewide campaign. Limitations include:

- Data are based on non-random samples and there were no control or comparison groups. Identifying comparable communities in media and non-media areas would have been problematic for assessing the media components of the campaign, since entire geographic regions were saturated.
- All data are based on self-report.

<sup>12</sup> Sum of numbers is greater than 18 since key informants cited work in multiple regions.

- The ability to directly compare data with the 2010 evaluation is somewhat limited. Efforts to address possible positive response bias in the 2010 data (particularly in worker reports of behavior) resulted in some modifications to the questions that were asked in the intercept surveys. Therefore, it is not possible to make direct comparisons between the data collected in 2010 and 2012.
- While the findings are based on data gathered from similar stakeholder groups as the 2010 survey, follow-up was not conducted with the same individuals in both years. In particular, for the key informant interviews there was an effort to obtain more feedback from employers with direct experience preventing heat illness on the job site than had been obtained in 2010.
- Cal/OSHA's comprehensive campaign to prevent heat illness among outdoor workers included this media and outreach campaign as well as increased enforcement efforts and additional educational activities Cal/OSHA conducted themselves. These concurrent elements were intended to have reinforcing and interacting effects. Consequently, the ability to isolate the impact of any particular activity is limited.

## Findings: Impact on Workers

### Goal 1: Promote adoption of heat illness prevention measures by non-English-speaking outdoor workers, principally those in agriculture, construction and landscaping.

To gauge the impact of the campaign on workers and on their ability to adopt heat illness prevention measures, the evaluation focused on several areas:

- 1) Workers' exposure to and perceptions of the campaign and its messages
- 2) Workers' attitudes and knowledge related to heat and work
- 3) Workers' own behaviors related to heat illness prevention, particularly on regularly drinking water, resting in the shade and communicating with employers. Barriers that workers face in protecting themselves from heat illness on the job were also explored.
- 4) Workers' experience with heat illness symptoms.

Data was collected on these themes using the following sources:

- Worker intercept interviews with 522 workers (primary source)
- Focus group discussions with Latino, Mixteco and Punjabi workers in agriculture, and day laborers in Southern California
- CBO TOT follow-up survey with 87 respondents

## Worker Exposure to and Perceptions of the Heat Illness Prevention Campaign

### *Exposure to Campaign*

In response to a general question about exposure to information about heat illness, the majority of workers (85.1%) reported having seen or heard any information at all about protecting themselves from heat illness during the summer of 2012, while 14.4% did not (0.5% were unsure).

When asked specifically about the ads used in the campaign, the majority (86.2%) of survey respondents recognized the visual images promoted as part of the campaign, while 13.4% did not recognize them. The vast majority of those who saw the ads (91.6%) had seen the images as wallgraphics and billboards, while 2.9% had seen them on lunch trucks or vans and 5.5% reported seeing them at other venues, particularly worksites. A similar percentage of respondents (85.5%) reported having heard the radio ads, while 13.9% had not (0.6% were unsure).<sup>13</sup> Additionally, 83.1% of respondents reported seeing the educational materials distributed as part of the campaign, while 16.3% had not (0.6% were unsure). Exposure was relatively high across all intercept sites (Table 11).

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<sup>13</sup> These percentages do not include Punjabi-speaking respondents from the Yuba City area, since radio ads were not aired in that region.

Nearly two thirds (65.4%) of respondents who reported seeing the media ads (n=450) had also seen them in previous years, while one third (33.1%) reported seeing them for the first time this year.

**Table 11: Exposure to Campaign by Intercept Location**

	Saw outdoor ads	Heard radio ads	Saw educational materials
Arvin (n=16)	100.0%	100.0%	100.0%
Bakersfield (n=26)	88.5%	84.6%	80.8%
Fresno (n=54)	81.5%	81.5%	74.1%
Madera (n=30)	86.7%	90.0%	65.5%
Selma (n=26)	80.8%	73.1%	61.5%
Stockton (n=122)	84.4%	83.6%	83.6%
Turlock (n=60)	88.3%	81.7%	86.7%
Visalia (n=164)	87.2%	89.6%	89.6%
Yuba City (n=24)	87.5%	NA <sup>14</sup>	83.3%

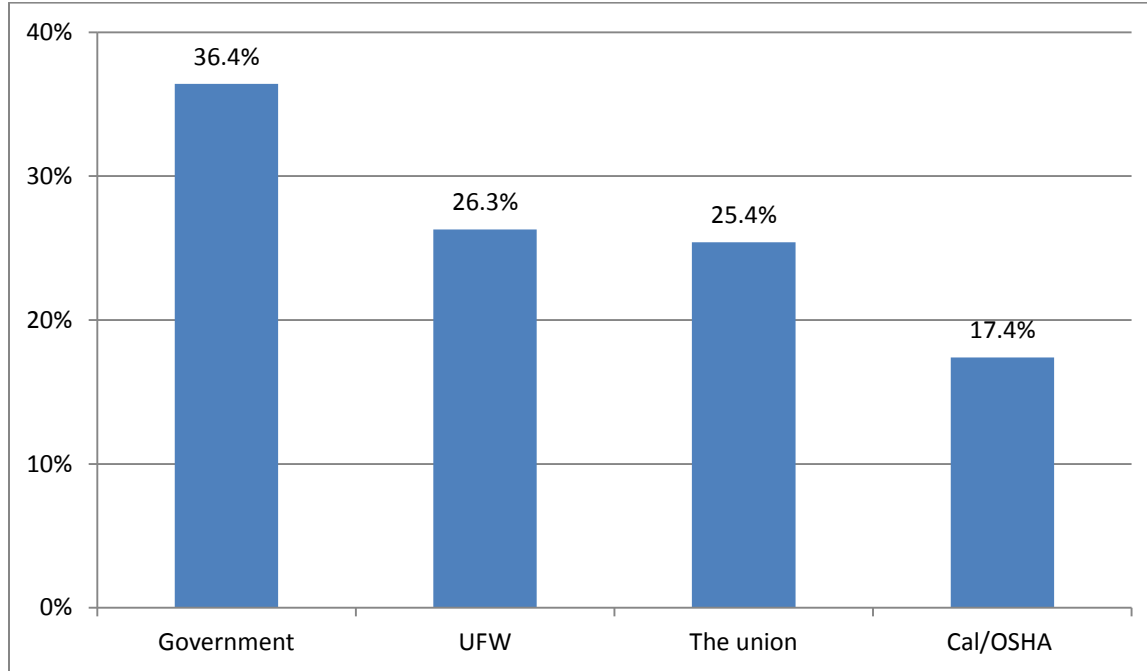
Variation in exposure by industry (agriculture, construction, landscaping) or ethnolinguistic group (Spanish-speaking, Mixteco, Punjabi) was not statistically significant.

When asked who they thought sponsored the heat illness media campaign, intercept interview respondents mostly frequently cited the government (36.4%), Cesar Chávez or the United Farm Workers (UFW) (26.3%), “the union”<sup>15</sup> (25.4%), and Cal/OSHA (17.4%). When responses indicating the government in general or Cal/OSHA are combined, the percentage of respondents who believe the government is responsible for the campaign is 47.7%. When responses indicating unions or the UFW are combined, the percentage of respondents who believe the union is responsible for the campaign is 42.5% (Figure 5). A small number of respondents cited other entities they believed were responsible for the campaign, including employers, nonprofit organizations, community clinics and radio stations.

<sup>14</sup> Yuba City respondents were Punjabi-speaking, and the media campaign did not include radio ads in Punjabi.

<sup>15</sup> Interviewers did not ask whether a response of “the union” referred to the United Farm Workers, other unions or unions in general.

**Figure 5: Who do you think is responsible for this campaign? (n=522)**

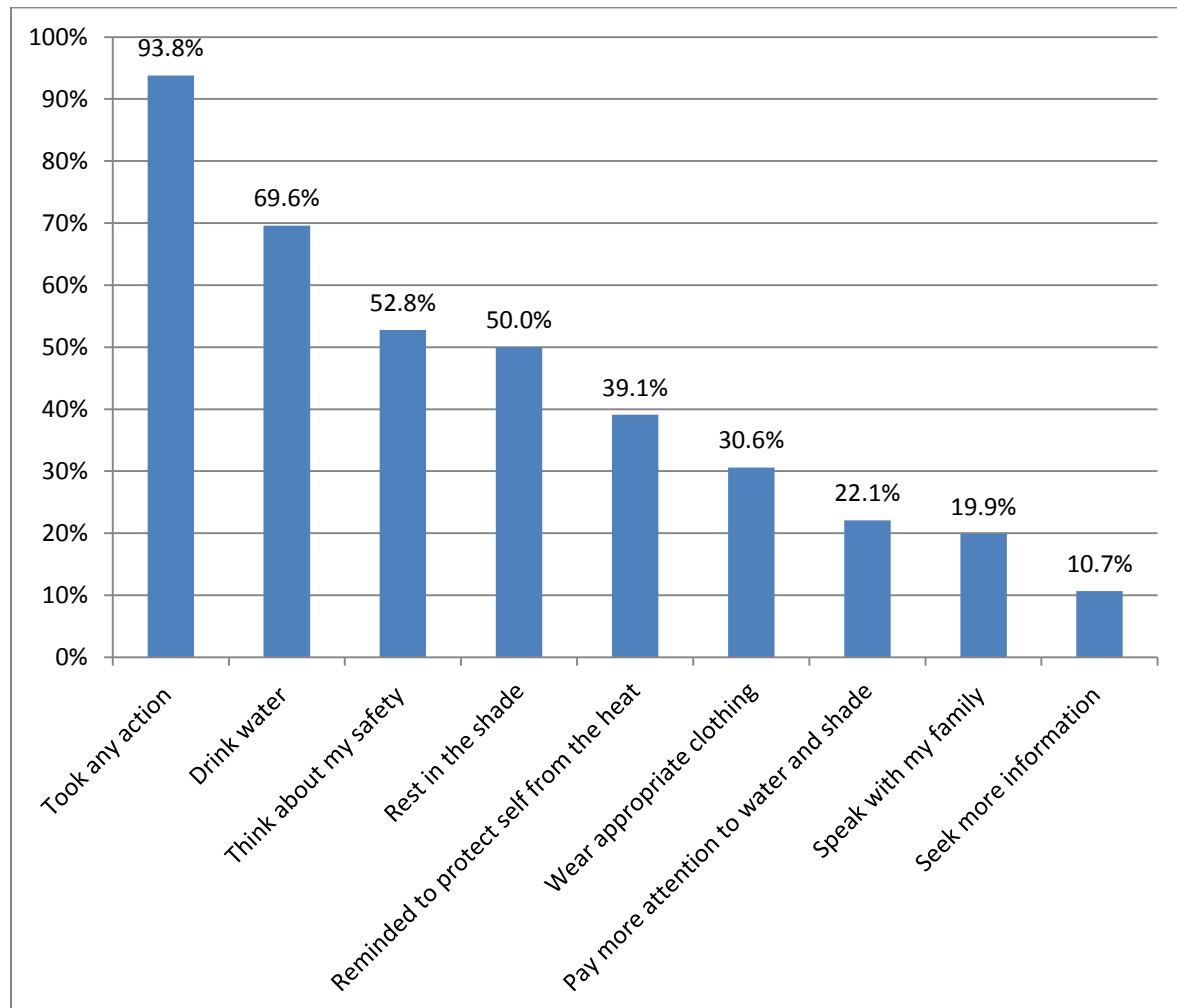


### *Perceptions of the Campaign*

The evaluation assessed worker perceptions of the ads and messaging and whether these were motivating in any way. The survey respondents had very positive perceptions of the campaign. Almost all (98.1%) believed the ads provided useful information, while 97.0% found the information relevant to their work and 95.1% felt the campaign materials elevated the importance of worker health and safety.

More importantly perhaps, 93.8% of the respondents reported that seeing or hearing the ads motivated them to take some form of action to increase their safety while working in the heat. Workers were asked to report which ways, if any, that the campaign motivated them to protect their health and safety in the fields. Responses principally fell into the categories of encouraging them to drink water (69.6%), think more about their safety when working (52.8%) and rest in the shade (50.0%).

**Figure 6: Did the ads motivate you to do something different to prevent heat illness? What? (n=522)**



### Workers' Attitudes Related to Heat and Work and Knowledge of Rights

The evaluation measured workers' attitudes about campaign messages promoting heat safety as an integral part of the job and prevention measures as a way to greater productivity. Almost all (98.7%) of respondents agreed with the statement that protecting themselves from the heat would make workers more productive, while 95.8% agreed that water, rest and shade are essential parts of working outdoors.

A question providing respondents with an opportunity to disagree with campaign messages stated that "experienced workers do not need to drink water or rest in the shade." Only 13.5% of respondents agreed with the statement, though the percentage of those agreeing increased with age, with nearly 30% of respondents aged 50+ in agreement.

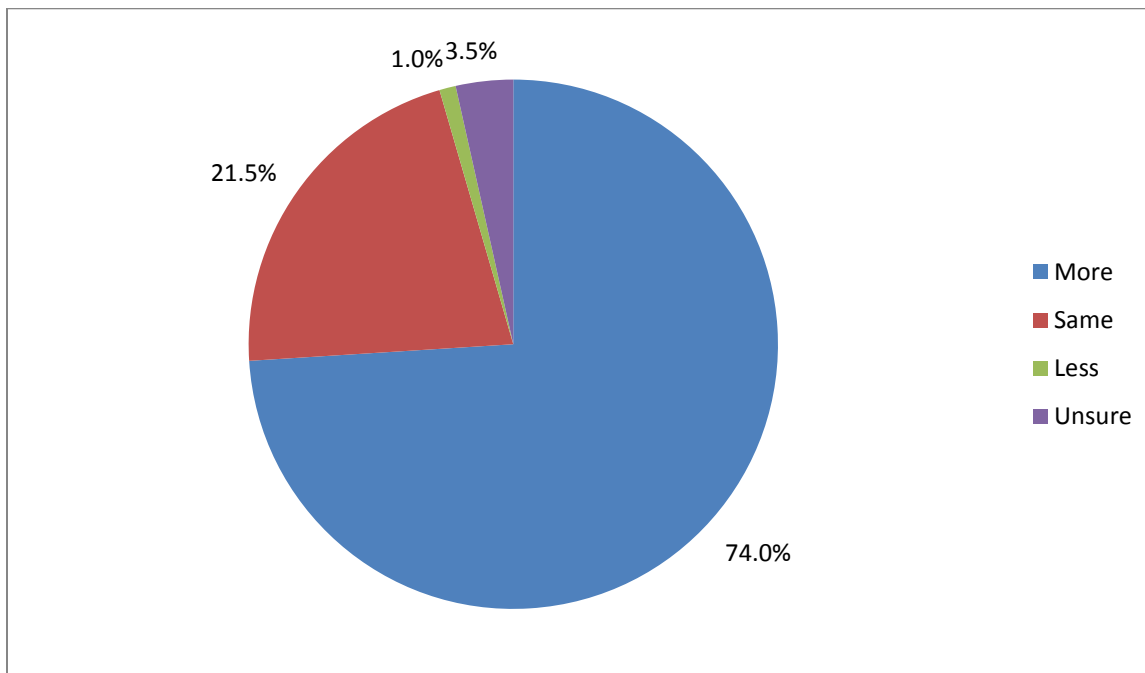


Almost all (97.3%) survey respondents agreed that they have a right by law to water, rest and shade.

### Workers' Behavior and Heat Illness Prevention Measures

Survey respondents reported changes in the extent to which workers as a whole are taking measures to prevent heat illness. The majority (74.0%) of workers believed that workers are doing more to protect themselves from the heat than in previous years.

**Figure 7: Perceptions of Worker Efforts to Prevent Heat Illness, This Year and Previous Years (n=522)**



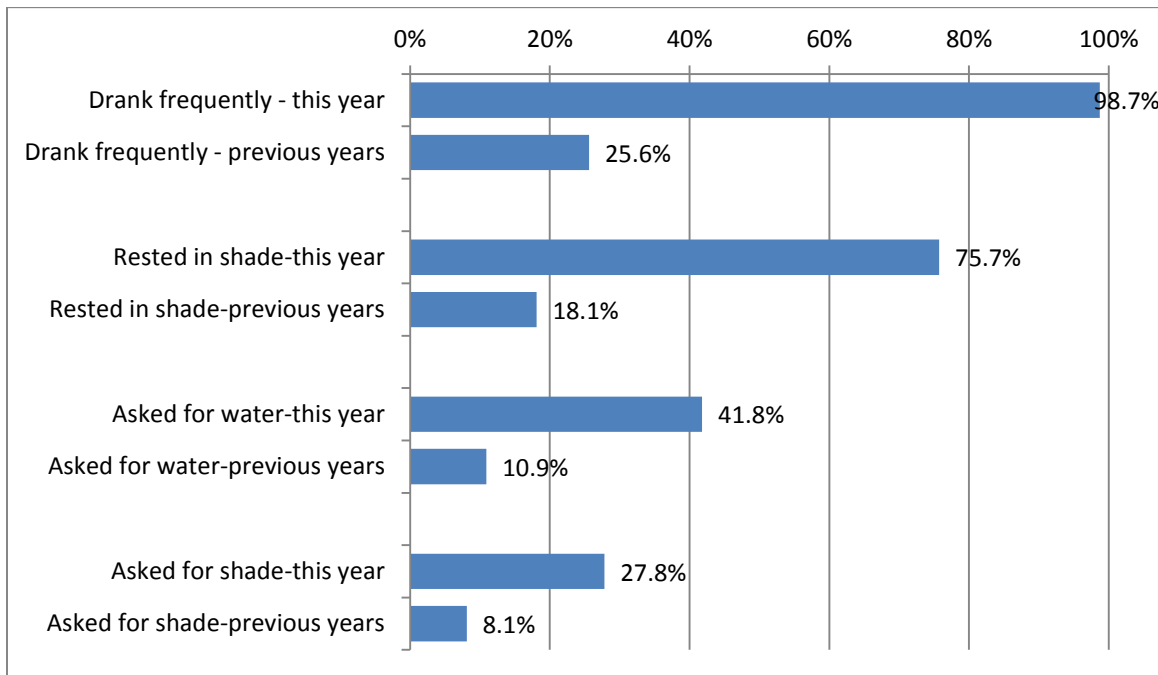
Worker adoption of heat illness prevention measures was also high. Workers were asked if they engaged in heat illness prevention behaviors (drank water frequently, rested in the shade, asked for water, and asked for shade) this summer and whether they had done this in previous summers.<sup>16</sup> Figure displays the percentages of respondents positively reporting that they had engaged in the behavior<sup>17</sup>. Workers' reports of drinking water frequently, resting in the shade, and asking for water and shade were dramatically higher for the past summer than their

<sup>16</sup> The surveys did not ask workers to describe whether they rested in the shade during regularly scheduled break times or as part of the 5-minute or more recovery period allowed under the heat standard.

<sup>17</sup> The evaluation attempted to gauge whether there were workers who did not ask for water or shade this summer because it was "not necessary" – that is, these were already provided for them. Findings on this were inconsistent, however, and likely reflect confusion with the question. Therefore, the findings included here describe the percentage who reported they had actively engaged in these behaviors.

recollections of engaging in these behaviors from previous years<sup>18</sup>, suggesting perceptions of noticeable improvements in the extent to which workers are now taking protective measures as compared to the recent past. We expect that when workers responded about “previous years,” they were in fact referring to changes they have observed since the campaign began rather than specifically to 2011.

**Figure 8: Respondents Reporting Adoption of Preventive Behaviors, 2012 and in previous years (n=522)**



Workers were also asked about other behaviors related to heat illness prevention. As seen in Table 12, the most common of these was speaking with employers or supervisors about ways to prevent heat illness (42.0%), followed by speaking with co-workers about these issues (38.3%). Significantly lower numbers of workers sought additional information on heat illness, called the Cal/OSHA hotline, or reported problems related to heat illness to outside agencies<sup>19</sup>.

<sup>18</sup> The decision was made to ask respondents to compare current circumstances with those of “previous years” as a way of gauging campaign impact over the three-year period. Comparisons to 2011 would not have been appropriate for capturing effects of the multi-year effort, and asking respondents to recall conditions exactly three years in the past likely seemed awkward and unlikely to yield precise estimates. Previous years was therefore used to assess the general sense of change in workers behaviors over time.

<sup>19</sup> Depending on the specific behavior, between 18% to 45% of respondents reported that these activities were “not necessary,” possibly indicating that the issue was taken care of at work.

**Table 12: Did you do any of the following since May of this year? (n=522)**

	Yes (%)	No (%)	Not Necessary (%)
Spoke with employer/supervisor	42.0	39.7	18.4
Spoke with co-workers	38.3	42.0	19.7
Sought information on heat illness	13.8	52.1	34.1
Called Cal/OSHA hotline	11.7	46.0	42.3
Reported a problem to an outside agency	9.6	45.7	44.7

As seen in Table 13, there were no significant differences with respect to self-reported behaviors regarding drinking and resting in the shade based on ethnolinguistic group. However, Mixteco-speaking respondents were significantly less likely than their Spanish- and Punjabi-speaking counterparts to request water or shade when it was necessary. Given the small number of Mixteco- and Punjabi-speaking respondents, these findings should be interpreted with some caution, but the differences are large, particularly for the behaviors among Mixteco workers that relate to communicating or making requests. Additionally, Mixteco respondents' reports of other behaviors (drinking water and resting the shade) are similar to those of other groups.

**Table 13: Preventive Behaviors, by Ethnolinguistic Group**

	Spanish		Mixteco		Punjabi		p value
	(%)	(n)	(%)	(n)	(%)	(n)	
Drank frequently	98.7	456	100.0	33	100.0	22	.697
Rested in shade	82.0	350	81.2	26	76.2	16	.798
Asked for water	56.4	198	7.4	2	85.0	17	.000
Asked for shade	40.6	134	7.7	2	47.1	8	.000

As seen in Table 14, Mixteco-speaking workers were much less likely to report speaking with their employer/supervisor or their coworkers than their Spanish- or Punjabi-speaking counterparts. Both Mixteco and Punjabi workers were much less likely to report seeking information on heat illness, calling the Cal/OSHA hotline, or reporting a problem to an outside agency, though again, differences were not statistically significant.

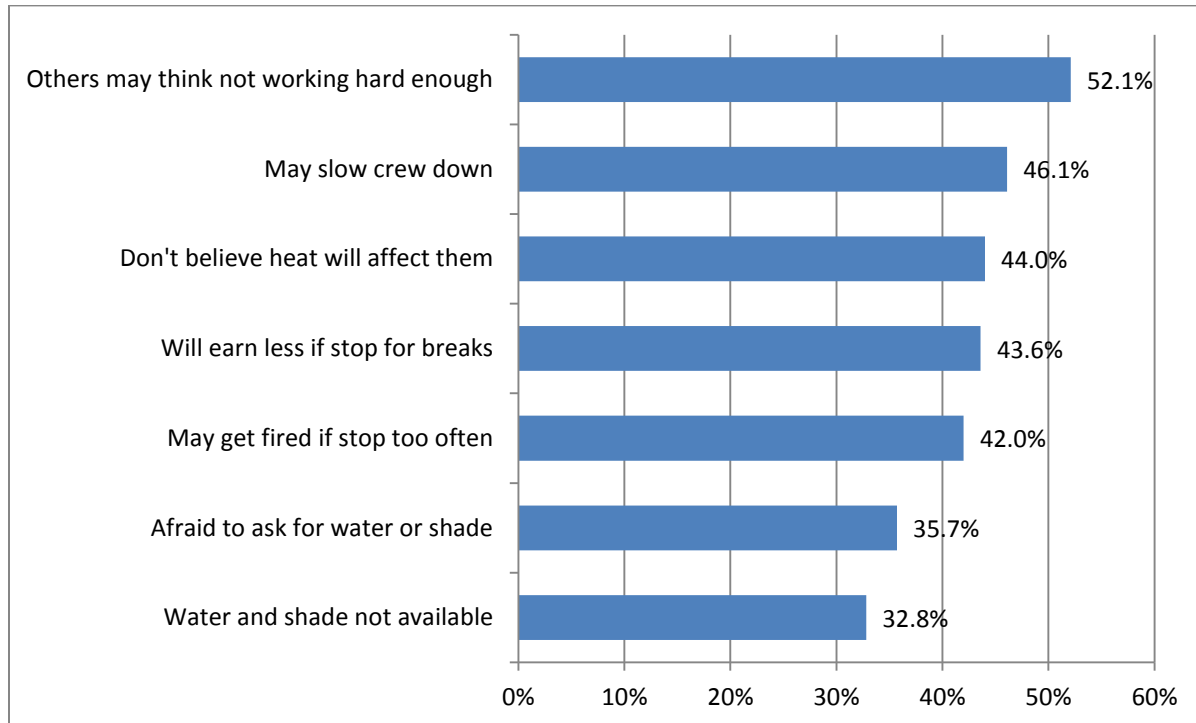
**Table 14: Communications Regarding Heat Illness Prevention by Ethnolinguistic Group**

	Spanish		Mixteco		Punjabi		p value
	(%)	(n)	(%)	(n)	(%)	(n)	
Spoke with employer/supervisor	53.1	205	18.8	3	43.5	10	.020
Spoke with co-workers	48.8	188	14.3	2	52.6	10	.036
Sought information on heat illness	23.0	70	6.2	1	4.3	1	.036
Called Cal/OSHA hotline	21.9	59	0.0	0	10.5	2	.115
Reported a problem to an outside agency	19.1	49	0.0	0	5.3	1	.093

### Barriers to Adopting Preventive Behaviors

The survey elicited information regarding barriers to the adoption of heat illness prevention behaviors during the past summer. When asked to think about any times that they had not taken measures to protect themselves from heat illness that summer, almost all (90.8%) of respondents cited at least one barrier. The principal barriers cited by survey respondents indicate the presence of social pressures, including concerns about others thinking they are not working hard enough if they stop for water or shade too frequently, about slowing down the crew, and about earning less in wages. Employer actions and reactions were also important concerns for many respondents, with 42.0% worried they may get fired if they stop too often, 35.7% afraid to ask for water or shade, and 32.8% reporting that water and shade were not available (more details on employer behaviors and working conditions are presented under Goal 2).

**Figure 9: Thinking about the times this summer when you did not take measures to protect yourself from the heat, why was this? (n=522)**



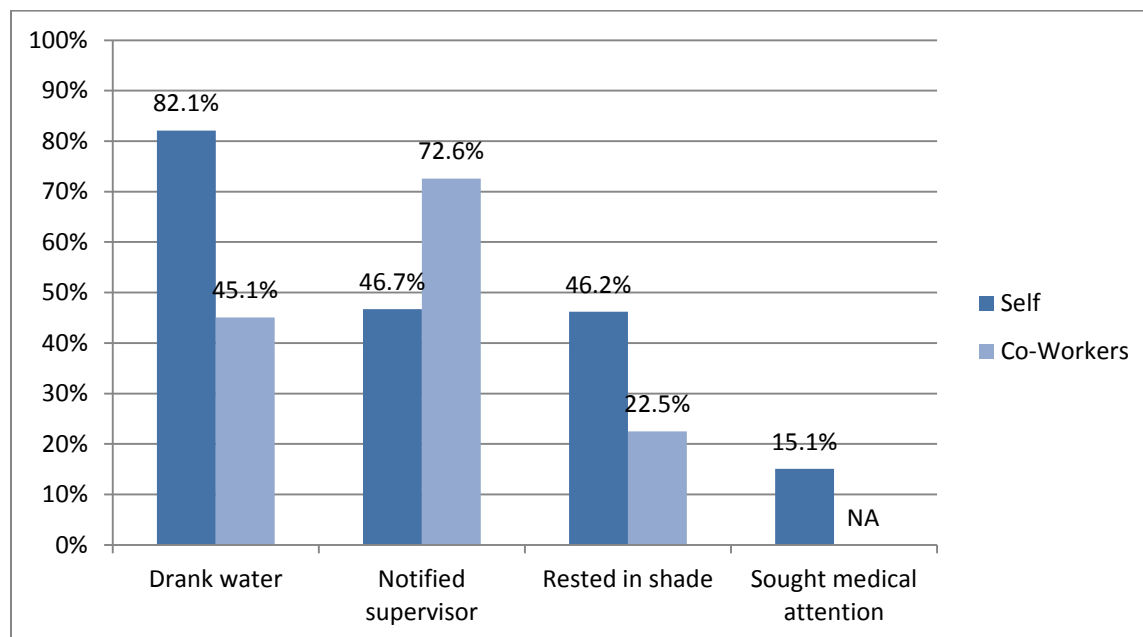
Some patterns emerged related to workers' age. Younger workers were more likely to cite fear of asking employers to implement preventive measures than their older counterparts. Nearly half (46%) of workers between the ages of 18 and 29 and 40.5% of workers between the ages of 30 and 39 cited this as a concern. In contrast, 27.7% of workers over the age of 40 cited fear of speaking with employers as a barrier.

### Experience with Heat Illness Symptoms

Approximately one-fifth (21.8%) of respondents reported symptoms that they believed were caused by heat during the previous summer, while 14.8% reported that co-workers had experienced such symptoms.

When actually feeling symptoms of heat illness, as seen in Figure 10, workers were by far most likely to drink water (82.1%), followed by notify supervisors (46.7%) and rest in the shade (46.2%). When co-workers experienced symptoms of heat illness, respondents reported that they were most likely to notify supervisors first, followed by offering water and shade.

**Figure 10: How Workers Addressed Heat Illness, Self and Coworkers (n=522)**



### **Findings from Focus Groups with Outdoor Workers**

The findings from the worker intercept surveys were supplemented by focus group discussions. These discussions with Spanish and Mixteco-speaking farmworkers in Madera, Punjabi-speaking farmworkers in Yuba City and Spanish-speaking day laborers in Los Angeles shed additional light on the campaign’s impacts and issue affecting heat illness among outdoor workers. Again, agricultural workers cited significant awareness of the campaign and noted many improvements in worksite conditions in recent years. In fact, when asked whether workplace conditions have improved, an agricultural worker in Madera commented that “yes, things started improving about three years ago.” All workers cited increased awareness of the need to protect themselves from the heat, however, significantly higher levels of concern were expressed among agricultural workers compared with day laborers. Day laborers also on the whole did not cite barriers to accessing water and shade. Barriers to adopting measures to prevent heat illness such as stopping for water and rest varied, particularly between those cited by piece rate and hourly workers. Some specific themes that emerged from the focus groups are highlighted below.

### **Limited Awareness of Specifics of the Heat Standard**

While many intercept survey respondents reported an awareness of legal rights related to heat illness protection, focus group findings revealed limited awareness of the specific elements of the law, including which temperatures the regulations referred to, how much water employers are required to provide or rights regarding rest and shade. Misinformation regarding the law appears to exist as well. Punjabi farmworkers reported that a foreman instructed them that it is illegal for workers to stop to drink one half hour after the beginning of a shift or one half hour before the end of a shift.

### ***Barriers to Taking Protective Measures***

Workers in focus groups described very different pressures, based on pay arrangements, which prevented them from adopting heat illness prevention behaviors.

Virtually all Spanish- and Mixteco-speaking agricultural workers said that water and shade were increasingly available in recent years. Nonetheless, these workers described how they often did not avail themselves of water and shade because they are paid on a piece-rate basis, such that stopping signifies a loss of income. These workers said that they are free to stop as often as they would like, but explained that concerns about lost wages often kept them from doing so.

In contrast were the accounts of Punjabi-speaking workers in Yuba City who were largely employed sorting stone fruit on an hourly basis during the summer. While they also said that the farms they work on have been doing a much better job of providing water and shade in recent years, they said they often do not receive permission to take breaks when needed because it would signify a loss of income for the farm. Moreover, Punjabi-speaking workers described constraints related to their breaks, including that water and shade are often located at such a distance that they would need to spend all or most of their break walking there and back, and that they often had to go for periods of two hours or more without stopping. Most believed they would be fired for taking a break without permission, although none had attempted that. Finally, they also referred to concerns of falling behind on their work if they stop for water or rest. They related that if even if they as hourly workers stopped to protect themselves, workers who are paid piece rate would continue filling the bins, resulting in a back log in the process.

### ***Day laborers Describe Water and Shade as Accessible***

Day laborers working in construction (particularly roofing) and landscaping in Los Angeles reported fewer issues related to water and shade, describing that both are usually accessible. These workers expressed a high degree of awareness regarding the dangers of heat illness, but seemed less concerned than agricultural workers. Participants who had worked as farmworkers in the past also felt that agriculture was much more challenging in terms of exposure to the sun and heat than their current employment in urban areas.

### ***Concerns about Cal/OSHA Inspections and Filing a Complaint***

Punjabi participants in Yuba City described concerns about Cal/OSHA inspections and about calling Cal/OSHA. While they saw violations of the heat regulations, they did not call the Cal/OSHA hotline because of concerns regarding anonymity and fears of retaliation from employers were they to be found out. These participants had strong concerns that Cal/OSHA inspections did not seem to be conducted on a surprise and unannounced basis, and also felt that inspectors should spend several hours at worksites to get a real sense of the situation to see how infrequently workers are allowed to access water and shade. They also said in their experience, inspectors asked workers about field conditions in the presence of supervisors, so workers did not feel free to express their true opinions. Suggestions included ensuring that inspections are unannounced, making it clearer that calls to the hotline will be anonymous or kept confidential, and that Cal/OSHA inspectors speak to workers privately, which would allow them to share information more freely.

## CBO Perspectives on Impacts on Workers

CBO respondents cited a number of impacts this campaign has had on workers. The largest set of comments had to do with increased knowledge and awareness of workers' rights regarding heat illness.

*"I hear workers say employers have to provide clean, drinkable water and shade... workers are informed and the employers know that the employees know their rights."*

*"They are not so fearful and they know they have rights, even if they're undocumented."*

*"People are more familiar with the topic, seeing something or having heard about it. We still come across people who have no idea, but for the most part people will tell us 'Oh, we've seen the billboards,' 'I saw that video at the consulate,' 'Oh yeah, we have to drink water.'"*

*"Until recently they did not receive training on prevention, [but now] know how to protect themselves from heat and are more concerned about drinking water and taking breaks."*

Respondents also cited increased worker confidence with respect to reporting problems, that workers are becoming more proactive about not working in unsafe conditions and are demanding safe working conditions.

*"There are many farmworkers in the area where I live. People have been speaking up more in the last three years. They are demanding their rights and are not remaining silent."*

*"I've heard that some workers will not work if they are not provided water or breaks."*

Despite these changes, fears still exist. As a respondent explained, "Things have improved but workers are still afraid of managers."



## **Findings: Impact on Employers and Working Conditions**

### **Goal 2: Improve access to water, shade, rest and training at the worksite, as required by the Heat Illness Prevention Standard.**

To assess the impact of activities associated with Goal 2 relating to employers and working conditions, the evaluation focused on measures of process and impact:

- 1) Educational activities reported by employers who had participated in a training of trainers (TOT) program.
- 2) Employer exposure to and perceptions of the campaign
- 3) Changes on employers and working conditions (access to water, shade, rest, etc.) from the perspectives of employers, workers, and CBO representatives.
- 4) Findings from the focus group with Hmong farmers

Data was collected on these themes using the following sources:

- Employer TOT follow-up surveys with 33 respondents<sup>20</sup>
- Employer key informant interviews with 18 respondents<sup>22</sup>
- Worker intercept interviews with 522 workers
- CBO TOT follow-up surveys with 87 respondents

#### **Educational Activities of Employer TOT participants**

This year, there was an enhanced effort to include employers and supervisors in the training of trainers (TOT) programs, recognizing that supervisors who are conducting worker training sessions could benefit from receiving an introduction to the campaign's educational materials and tips on training techniques. In follow-up surveys with employer participants, the majority of respondents (90.9%) felt very well-prepared to conduct outreach and education on heat illness prevention after attending a TOT, while 9.1% felt somewhat well-prepared and none felt unprepared (Table 15). Confidence in all areas was high, with almost 100% of respondents reporting being very confident in the areas of employer responsibilities and what workers should do to prevent heat illness. In contrast, 72.7% of respondents indicated feeling very confident about providing training on the California heat law (72.7%).

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<sup>20</sup> Telephone surveys were carried out with 33 employer participants in TOT sessions. In addition, some of the 18 employers who participated in key informant interviews had also attended a TOT which they referenced in interviews.

**Table 15: Employer Confidence in Specific Aspects of Outreach and Education (n=33)**

Outreach and Education Area	Very Confident (%)	Somewhat Confident (%)	Need more information or help (%)
Employer responsibilities	100.0	0.0	0.0
What workers should do to prevent heat illness	97.0	3.0	0.0
Recognizing heat illness symptoms	90.9	9.1	0.0
How to contact Cal/OSHA	90.9	6.1	3.0
What to do if someone gets heat illness	90.9	9.1	0.0
The California heat law	72.7	24.2	3.0

Aspects of the TOTs that employer participants found particularly helpful included recognizing the symptoms of heat illness and how to prevent heat stress. A number of respondents found the skits a useful way of absorbing this information, while several noted the importance of reminding workers to drink constantly.

Employer comments indicated a high level of satisfaction with the TOTs. Many expressed a hope that the workshops will continue to be offered, while a number noted that they would like to continue receiving the educational materials as well. As a participant noted,

*“I would like to participate in another workshop. It was very informative and very important information. Thank you for offering the workshop in Spanish!”*

Employer perceptions of the trainings can perhaps best be summed up in the words of one respondent:

*“We have, I think, because of the training, a reference point or resource. We have somewhere to go if we need more information or materials. We have a support person.”*

Finally, some of the employer key informants also reported positive comments on the trainings and materials. As a farm labor contractor explained,

*“I really enjoyed the training. It was useful and a good way to keep up with any changes.”* Similarly, a supervisor explained that *“I really liked that the training helped me learn how to teach the materials with handouts and made it easy for everyone to understand.”*

A farm labor contractor cited a significant impact of the training on him personally and professionally. As he explained,

*“The difference is that as a result of attending training, I have become more vocal about this subject with my workers. It has also motivated me to care more about my workers in this and other aspects of their lives.”*

### *Activities Performed Since Participation in TOT*

With respect to activities they had conducted since the TOT, virtually all respondents reported engaging in some type of activity. As seen in Table 16, the types of activities included conducting trainings and workshops, distributing materials to supervisors and employers, posting campaign materials at worksites and distributing materials to workers in other ways, all of which were reported by 28 of the 33 respondents (84.8%). Additional activities included showing the heat illness DVD to workers, as reported by over half (57.6%) of respondents, and seeking more information about heat illness as reported by 39.4%. Eighteen percent of respondents reported conducting a range of other activities, including skits, reminders about heat illness prevention during team meetings, interactive discussions in which workers could ask questions and share experiences, use of the campaign flipchart guide to present information and occasional quizzes to assess employee awareness of heat illness prevention. Employers conducting education and outreach activities in a variety of languages, including Spanish (87.9%), English (21.2%), Hmong (6.1%) and Mixteco (3.0%).

**Table 16: Employer Activities Since Participating in the TOT (n=33)**

<b>Activities Conducted</b>	<b>Percent Reporting</b>
Conduct trainings or workshops with workers	84.8
Distribute materials to other supervisors or employers	84.8
Post campaign materials at the worksite	84.8
Distribute materials to workers in other ways	84.8
Show the heat illness DVD to workers	57.6
Seek more information about heat illness	39.4
Other activities	18.2

According to employer TOT survey participants, most workers responded positively to outreach and education efforts. Workers were interested in the information and found the materials to be very user-friendly. Several also commented that it provided a good opportunity to engage in conversation about heat illness, observing that workers generally welcomed discussion of these issues with employers and supervisors.

### *Numbers of Workers and Supervisors Reached*

The TOT survey respondents were asked approximately how many workers they had reached through their activities. Thirty-nine percent reached between one and 25 workers, 33.3% reported reaching between 26 and 100 workers, and 27.3% reported reaching between 100 and 500 workers. Four respondents (12.1%) reported reaching more than 500 workers, with a range of 600 to 2,500 workers (Table 17). Estimates for total workers reached range from 5,900 – 7,500.

Respondents were also asked how many other supervisors or employers they had reached following participation in the train the trainer workshop. Estimates for total supervisors or employers reached range from 2,700 and 4,500.

**Table 17: Workers and Supervisors/Employers Reached by Employer TOT Participants (n=33)**

Individuals Reached	% Employer TOT participants reporting	Estimated numbers of workers reached	Supervisors or Employers (%)	Estimated numbers of supervisors/ employers reached
1-25	39.4%	13 – 325	52.9%	17-43
26-50	21.2%	182-350	17.6%	151-290
51-100	12.1%	204-399	0.0%	0
101-200	9.1%	303-601	5.9%	197-389
201-500	6.1%	405-1007	5.9%	391-974
501 or more	12.1	4,800	11.8%	3,000
<b>Total</b>	<b>100.0%</b>	<b>5,900 – 7,500</b>	<b>100.0%</b>	<b>2,700 – 4,500</b>

### Employer Exposure to and Perceptions of the Heat Illness Campaign

Exposure to the campaign was relatively high among employer TOT survey respondents during the summer of 2012. When asked about exposure to the campaign as a whole (media, training, Cal/OSHA presence) 27% of respondents reported that the past summer was the first time they had been exposed to the campaign, over one half (54.5%) reported exposure in previous years, while 18.2% were unsure/did not respond. When asked specifically about exposure to the media campaign, 60.6% reported hearing radio spots or seeing billboards and 21.2% had not.

In addition, all but one of the employer key informants reported exposure to the campaign, including campaign ads, radio announcements, educational materials and giveaways such as hats and bandanas. Exposure occurred in multiple venues, including outdoor billboards, lunch trucks, at trainings, town hall and OSHA meetings, and at worksites.

Employer key informants were asked about their perceptions of the campaign, and virtually all gave positive responses. They appreciated that the campaign supported employers in conveying safety messages. As one supervisor explained,

*“I liked that it helped me deliver the message in a way that made sense to my workers. They paid attention and listened when I brought up topics or reminders.”*

Another supervisor liked the campaign:

*“It was effective at reminding outdoor workers at all levels about the importance of protecting themselves from heat and injuries associated with heat. It reinforced my messages.”*

Two respondents commented that the radio announcements provided an opportunity for them to discuss heat illness prevention with workers and supervisors. As one farm labor contractor shared,

*“It’s a very good campaign. The commercial would come on from time to time during breaks and I would discuss the importance of heat safety with the mayordomos and workers.”*

Several respondents felt the campaign increased the general level of employer concern about heat illness and mentioned the importance of having the media campaign in conjunction with enforcement and compliance efforts. Employer key informant comments included:

*“I think it’s good that they reinforce their regulations with a media campaign. It makes it easier for us to pass on information or reinforce the message if workers see it outside of the workplace.”*

*“OSHA’s presence with inspections has assured that everyone does their best to be compliant. It helps that educational resources are abundant.”*

*“[It’s had] a positive impact. It facilitates us getting the message out to farmers and raises compliance due to educational materials and trainings that OSHA provides and conducts.”*

*“I really liked the print materials and the media campaign to reinforce what happens in the workplace. Driving on any given day and seeing the billboards and commercials keeps you thinking about it.”*

One insurance industry representative explained,

*“We have for years been providing materials and discussing the issues with farmers, but the campaign has helped keep it in the spotlight. Growers just want to be in compliance.”*

Farm labor contractor key informants described differing grower attitudes around the issue:

*“Growers are more concerned about being in compliance and not getting fined.”*

*“While most growers are concerned about these issues, there are some owners that are not too concerned or care about this, so they are not as supportive.”*

Many key informants were happy with the campaign as is and merely suggested that Cal/OSHA “keep doing what it is doing.”

### **Feedback on Materials**

The TOT follow up survey also asked about the usefulness of the training materials. Almost all of the 19 employer respondents (94.7%) found the materials very useful and one (5.3%) found

them somewhat useful. Materials most well-received were the illustrated fact sheet, posters that are part of the employer training kit, flipcharts and the DVD. Respondents noted that the posters reminded workers to protect themselves from the heat, with one who reported putting them up next to the employee time clock. Several others explained that the notes at the back of the flipchart guide served as helpful aids when presenting information.

Employer key informants also reported a high level of satisfaction with the training materials provided by Cal/OSHA, which they believe has allowed them to conduct better trainings and has increased communication with workers. Many noted that the materials are very useful and some expressed that they liked having materials in other languages in addition to Spanish. As one grower said,

*“We found it to be very useful. We made use of the print materials and DVD for our workers and have made it a point to apply suggestions given at the training. There isn’t anything I could think of that I didn’t like.”*

This was echoed by another grower, who commented,

*“I thought it was great. The handouts are very informative and we definitely made good use of them.”*

A supervisor in the landscaping sector also liked the print materials and described them as:

*“...easy to read and effective at delivering the message,”* while another respondent called it *“a good campaign,”* saying *“it has helped me make sure I have no injuries.”*

Supervisors commented that they were able to provide simpler trainings using the materials and handouts and several others gave examples of how they had used the materials, for example attaching information to employer’s paychecks, showing the DVD as part of new employee orientation, and posting materials at construction sites.

Several key informants also expressed appreciation for Cal/OSHA’s generosity in providing materials. As a farm labor contractor explained,

*“I like all the materials and appreciate that OSHA is generous with providing materials as they are needed, with no charge or quota.”*

Although most key informants did not have specific recommendations for adapting the campaign in the future a few mentioned some suggestions, as listed below:

- Training for employers focused on properly identifying and reporting of a true heat illness injury, as opposed to similar symptoms caused by other conditions
- More training on regulations
- Increased Cal/OSHA presence through trainings, not just in compliance efforts
- Making materials more specific for regions or industries, such as tailoring materials for coastal workers and for different industries (e.g. landscapers)

- More materials with pictures to address literacy concerns
- Improved ease of ordering materials over the phone. (One respondent noted that it was difficult to order through hotline without having the specific product numbers for the items being requested.)
- More giveaways like bandanas and hats as these are very well-received by workers.

### Employer Awareness & Knowledge

Employer key informants were asked about the campaign’s impacts on their awareness of issues related to heat illness. Most stated that the campaign did not necessarily increase their awareness, which they felt was already high. However several responded that the campaign has served as a helpful reminder of the issues and has helped increase knowledge and awareness among workers. One farm labor contractor explained,

*“We had already received materials from our insurance company as well as OSHA, but it was good to have that reminder to share information on an ongoing basis.” Another farm labor contractor explained that the campaign “reminded me of how important it is to take heat and water seriously, but we have already been learning about this for the past five years.”*

A couple of TOT participants mentioned new knowledge gained. One described that he had learned more about why you should not drink sodas or energy drinks and shared that information with his employees, while another shared that this was the first time he had been sent to a training on heat illness prevention and appreciated the opportunity to become more informed about this important topic.

### Employer Behavior

Both employer TOT participants and key informants were asked whether they had done anything differently in the last three years to address heat illness prevention, as compared to previous years. Almost all TOT survey respondents reported having taken some additional action (18 of 19 respondents). The most frequently cited behavior changes included reminding workers to protect themselves from the heat (84.2%), more communication about heat illness prevention (84.2%), providing water regularly (78.9%), having water easily accessible (78.9%) and encouraging workers to drink frequently (78.9%). Less than half of the employers mentioned having a written plan for heat illness prevention, planning for an emergency and making sure workers know what to do and who to call if someone has heat illness.<sup>21</sup>

Other employer behavior changes mentioned include providing ice machines to keep water cool, providing all supervisors with telephones in case of emergencies and putting campaign posters on supervisors’ trucks. As one respondent explained,

*“We actually bought those little tents and have chairs, and we also have first aid kits now. I think it’s impacted a lot of workers and companies that before didn’t care about their workers.”*

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<sup>21</sup> These are based on answers to an open-ended question about specific changes made, not on employer responses to specific prompts.

**Table 18: Employers reporting having done anything differently to improve the prevention of heat illness among employees in the last three years (n=19)**

Changes Made in Past Three Years	Percent Reporting “Yes”
Give workers reminders so they can protect themselves from heat	84.2%
More communication with workers about preventing heat illness	84.2%
Provide water regularly	78.9%
Have water easily accessible and close to crew	78.9%
Encourage workers to drink water frequently	78.9%
Provide shade	73.7%
Encourage workers to rest in the shade	73.7%
Provide training	68.4%
Have a written plan for heat illness prevention	47.4%
Plan for an emergency	36.8%
Make sure workers know what to do and who to call if someone has heat illness	36.8%
Other	21.1%

In contrast to TOT survey respondents, most employer key informants explained that they have not made many changes, since they were already in compliance with the law. Nonetheless, several cited changes. For example, two respondents described how they are now using mobile shade trucks, and a supervisor explained that they now have thermometers in the field in order to be aware of ambient temperature and also have plans to stop working earlier in the day in order to prevent worker exposure to extreme heat.

***What is Working Well***

When asked what is working well at their work sites in terms of heat illness prevention, employers cited practices mentioned above including having more water and shade nearby, reminding workers to drink and take breaks, starting work early and stopping if it gets too hot, putting ice in drinking water on particularly hot days and allowing workers to work at a slower pace. Noting that some workers do not want to lag behind their crews, one respondent explained that they ask the entire crew to take a break at the same time so that no one is left behind. One farm labor contractor explained that they started to use the “whistle rule,” where they all take scheduled breaks based on preventing heat illness.

A TOT respondent felt that these efforts appear to be making a difference among workers, who are more likely to notify supervisors if they are not feeling well. Respondents also felt that



increased compliance with the standard is good for both workers and employers. Another TOT participant commented that heat illness prevention makes good business sense, explaining that

*“We as a company need to watch our costs. Heat illness prevention helps lower costs since we save for our company by improving safety.”*

A farm labor contractor observed, *“employees know their rights and we have had no injuries since three years ago.”* Similarly, a supervisor reported that, *“When workers are safe, they work better. They give better output because they trust us.”*

## **Challenges**

Challenges faced by employers in addressing heat included several issues also mentioned by worker respondents. The most frequently cited challenge was getting workers to drink enough or take breaks. Similar to reports from workers, employers noted that this is most common among piece-rate workers, who lose money when they stop to drink or rest. One respondent said that his workers get annoyed when they are forced to stop to drink or rest. Other challenges raised are that some workers are embarrassed to engage in preventive practices while others fear they may be fired if they say they do not feel well.

Interestingly, most employer key informants did not report any challenges with respect to compliance with the heat regulations. Comments from a grower and supervisors included,

*“Surprisingly, nothing really [in terms of challenges]. We have a lot of workers but the teams make sure they comply with the regulations.”*

*“Nothing really has been hard, we just do what the law requires...if workers do not pay attention, then they do not work here.”*

Of the two respondents who did describe challenges, they emphasized cost issues which they felt were barriers for smaller operations. One supervisor at a landscaping company explained that it was hard for small companies to comply with “big company rules.” For example,

*“Having to follow the buddy rule when the job really only needs one employee, but because they are outdoors and working in field, they have to have a buddy. That costs the company.”*

A farm labor contractor also commented that “water has been a challenge” and has increased his costs.

*“I have 500 workers and having to keep water within reach and filled to at least half way has made it so that I hire three extra people to just focus on monitoring and moving water up so that it is within reach of workers.”*

## **Impacts on Employers: Worker Perspectives**

During the intercept surveys, workers were asked about their working conditions over the summer. Worker reports suggested that overall, there have been improvements in working

conditions and employer efforts to address heat in providing water, opportunities for rest, shade, and training. The majority (75.0%) of workers responding to the intercept survey (n=522) reported they believe employers are making greater efforts to prevent heat illness than previous years, while one-fifth (21.2%) believe they are making the same effort as before. As seen in Figure 11, the condition workers most frequently reported as “always” being true was employers providing fresh water (75.2%). Worker responses were more mixed regarding other conditions. “Sufficient water”<sup>22</sup> and shade were reported as always available 50.0% and 45.0% of the time respectively, while 47.1% and 50.8% of workers reported these conditions to be in place “sometimes.” Slightly over one-third (37.1%) reported that supervisors always encouraged workers to drink water or rest in shade, while a similar number reported that heat illness prevention training was always offered.

**Figure 11. Thinking about your work this past summer, please tell me if the following were always, sometimes or never true (n=520)**

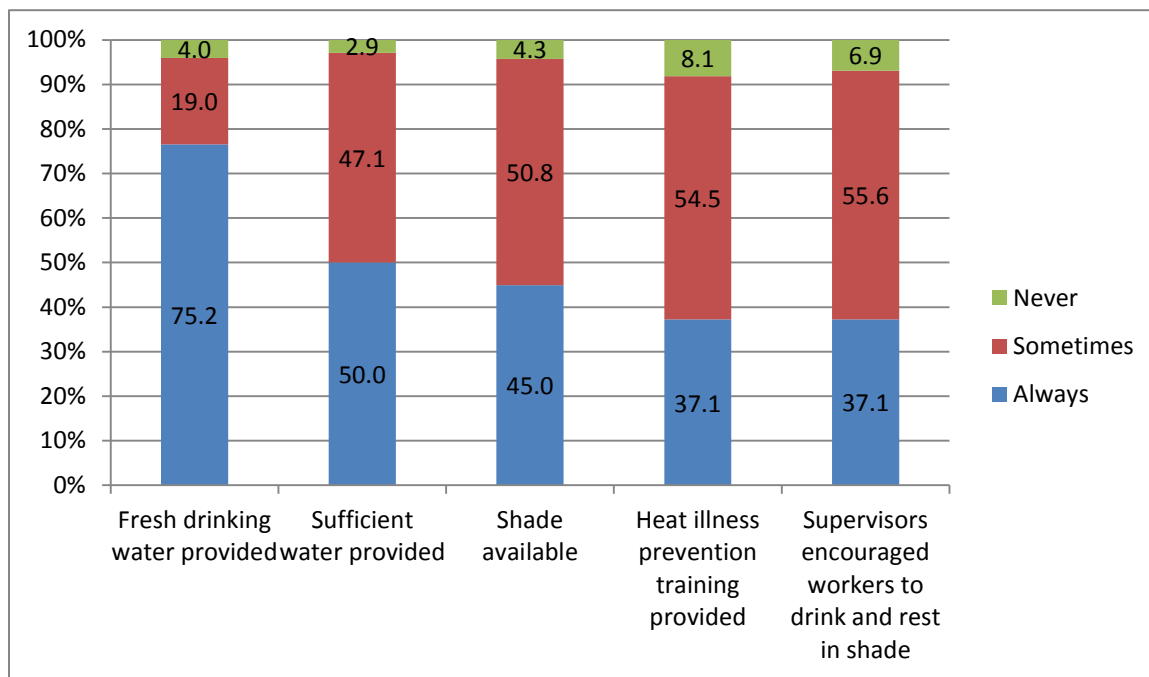
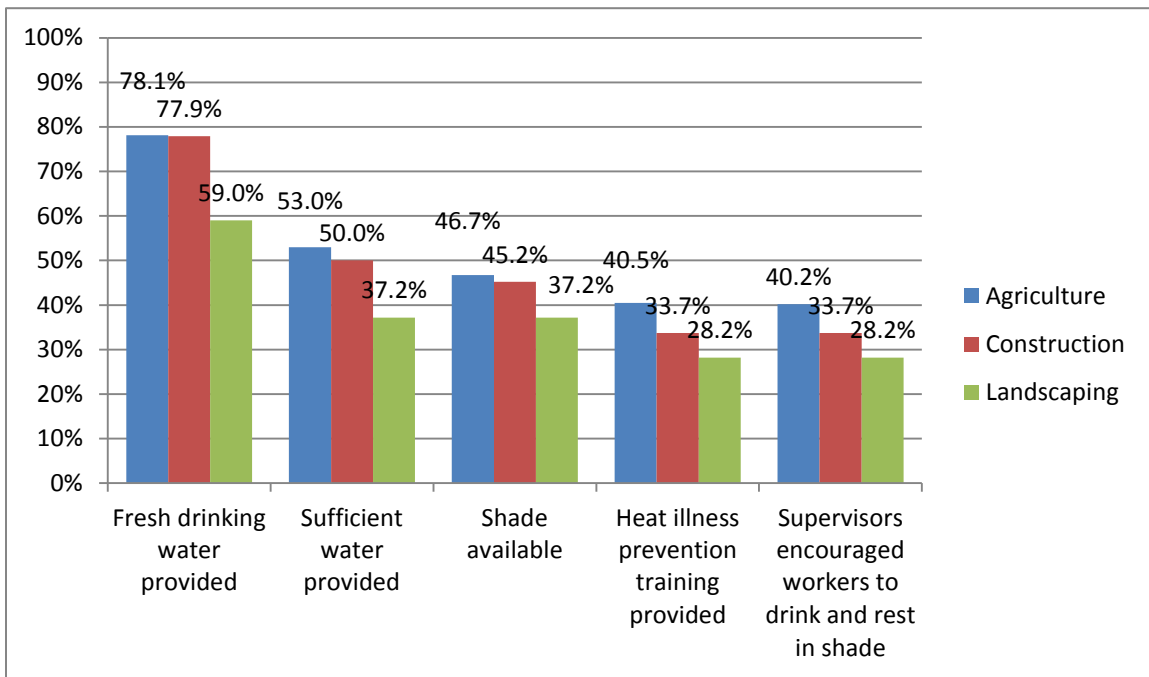


Figure 12 shows that workers employed in agriculture and construction were somewhat more likely to report better workplace conditions than their counterparts in the gardening and landscaping sectors.

<sup>22</sup> Access to “sufficient” drinking water is based on worker perception, not legal requirement of 1 quarter per worker per hour.



Focus group discussions with agricultural workers supported the finding that water and shade have become increasingly available in recent years. In addition to water and shade, focus group participants noted that employers often stop work early on particularly hot days and start work earlier when temperatures are expected to be especially high.

### Impacts on Employers: CBO Perspectives

CBO respondents to the TOT follow-up survey cited perceived impacts the campaign has had on employers in terms of field conditions, increased employer awareness and concern about sanctions.

#### *Improved Field Conditions*

The majority of their comments reflected perceptions of improved field conditions with a few highlighting recent improvements especially in the provision of shade. References include:

*“We live in an agricultural community so now I’ve seen more shade spots for workers and more water availability.”*

*“I have seen workers that have shade in the fields. Usually before we didn’t see that. Now they have water and tents for the crews.”*

*“After the training I realized why I see tents and chairs as I drive through the agricultural areas. I had no clue. I thought they were being nice farmers. After the training I see that employers are taking care of their workers.”*

*“Before, workers had to bring all their water. Now the managers give them everything.”*

One respondent reported an increase in night work as a means of reducing heat illness:

*“Workers no longer harvest during the day. They work in the early morning or at night.”*

### **Increased Employer Awareness**

Other comments from CBO representatives focused on increased employer awareness of heat illness and improved attitudes. Respondents noted that employers are more alert to what is required.

*“Now [employers] provide training, take care of their people. They want them to feel well and healthy.”*

*“Employers do take it a little bit more seriously when talking about no water, no shade. It’s exceptional that we see a field without shade lately. Maybe two years ago we were still finding a lot of sites that were 90 degrees and shade was a 10 minute walk away or not there at all. This year, most of the sites we saw had shade and had water. Employers realized that that’s important, because Cal/OSHA is taking it more seriously. Two years ago it was harder to get employers to agree to bring shade.”*

*“Now employers are afraid. Before they didn’t care, and since many were undocumented they took advantage of them. Now there isn’t so much abuse.”*

Another respondent commented on these changes as well as the impacts of giveaway items provided as part of the outreach:

*“I’ve asked the people and they tell me they’re getting water and shade. So there are changes. They’ve told me that employers give them the Cal/OSHA number and if not, it’s on the bandanas you gave us, so they can’t say they lost the paper with the number.”*

In addition to changes at individual worksites, a respondent cited increased collaboration with a grower organization, stating that now this association is willing to partner with them and work together towards improved occupational health and safety.

### **Fear of Sanctions**

Several CBO respondents commented that employers are more afraid of fines as a result of the campaign, and that in turn, they are more considerate and respectful of workers. One respondent believes that fear of sanctions has resulted in improved communication:

*“I have seen more communication, that workers are listened to more now. I think it’s because of fear of the consequences.”*

Another respondent explained that sanctions have made some employers more receptive to their own outreach efforts:

*“At first they didn’t like us to teach this, but after Cal/OSHA fined them they’ve been helping a little more.”*

## Perceptions of Limited Change

Although most comments related to observed improvements in employer efforts to prevent heat illness among their workers, several CBO respondents felt that change was still not complete. As one respondent noted:

*“Things have improved, but unfortunately some employers don’t implement these things. They don’t listen. And in order to keep their jobs, we don’t do what the materials tell us to do, like taking breaks and drinking water.”*

Another felt that things have improved in some industries, but less in agriculture:

*“There are more laws in factories but it’s different in the harvest. In factories the laws are posted visibly and they protect workers more. But it’s not the same for farmworkers. Things have changed, but very little.”*

Another respondent noted that while water and shade are more available, workers at some sites are still discouraged from stopping to take advantage of these. A respondent explained that workers can be discouraged as they hear some “smart comment” from the supervisor about accessing water or shade.

## A Subgroup of Farm Employers: Hmong Farmers

Hmong farmers represent a unique population in that they are employers and also work on their farms using a mix of hired labor and nuclear and extended family members. The campaign targeted Hmong farmers via outdoor ads and educational materials in the Hmong language. A focus group discussion was conducted with nine Hmong small farmers in Fresno County to gauge awareness of heat illness and impacts of the campaign on this subpopulation. Participants farmed land that ranged from two to 15 acres, and all relied on family help with two who also hired help outside of family.

Overall, the focus group discussion suggested that issues related to enforcement of the heat standard were embedded in a larger context of concerns faced by the community around preserving family agricultural traditions and having their farming knowledge and expertise acknowledged and respected.

In terms of exposure to the campaign, all but two of the nine participants had seen the campaign materials, which they liked and found to be informative, culturally appropriate and easy to understand. They especially appreciated information on how to identify and treat heat illness.

Respondents, however, did not express a high level of concern about heat illness saying that they already took adequate measures to rest, drink plenty of water and protect themselves from the heat. They described their belief that they know when to stop and start, and that they do not farm when temperatures are too hot. They therefore reported not having made any real changes as a result of the campaign which they felt simply reaffirmed that what they already do is correct. They explained:

*“We are farmers who come from farmers – [we] know what to do.”*

Overall, the participants reported awareness of the heat illness regulations and believed they were in compliance, but also expressed some strong reservations about “being told how to farm.” As one stated,

*“We know how to protect ourselves. You do not need to come and tell us how to do things and fine us.”*

Respondents went on to describe how regulations seemed overly prescriptive and not tailored to the realities of small farmers. They felt there should be different laws for small farms, who cannot afford to implement many of these requirements. In one respondent’s words:

*“It is not profitable for two acres with two family members to have a Port-a-potty, tent, and have to pay insurance and potential fines.”*

Respondents felt it burdensome to constantly monitor water and much simpler for workers to just carry a personal container of water with them. They also felt that it is too costly to purchase a special tent for shade, again citing the knowledge and judgment of farmers and workers who know when they need to take a break and where to go rest.

Regarding the shade provision of the standard, several focus group participants also expressed some confusion, stating that they had already had built their own tents and were wondering if that would be in compliance or if it had to be the type featured in the print materials.

Requirements of the heat standard alternately were described by participants as both in line with common-sense practices they already have in place and at the same time, not well-suited to and overly burdensome for the circumstances of their small farms who employ mostly family members. Further research to better understand and address issues experienced by Hmong farmers could be beneficial in ensuring that all workers are well-protected from heat.

## **Findings: Impact on Community Organizations**

### **Goal 3: Involve community-based organizations, government agencies, and others who serve as good access points for the target worker populations in heat prevention activities.**

Goal 3 is more broadly related to community impact. In the long term, this strategy aims to develop a community norm that views heat illness as a serious issue, requiring action not only at the workplace but also in the community. Furthermore, it is anticipated that community-led activities reach families and others who can ultimately support workers in adopting the recommended behaviors or seeking improvements at the worksite. To assess the impact of activities associated with Goal 3, the evaluation focused on measures of process and impact:

- 1) Educational and outreach activities of CBO TOT participants from community organizations.
- 2) CBO representatives' exposure to and perceptions of the campaign
- 3) CBO representatives' observations of the impact the campaign has had on their organizations and the community at large.

Data was collected on these themes using the following sources:

- CBO TOT follow-up surveys with 87 respondents

#### **Educational Activities of CBO TOT Participants**

Follow-up surveys conducted after the summer show that overall, CBOs participants felt well-prepared by the TOTs to perform outreach and education on heat illness prevention. Almost all (90.6%) of CBO respondents felt very well prepared, while 8.2% felt somewhat well prepared and 1.2% felt not very well prepared.

CBO respondents reported varying levels of confidence in their abilities to provide training or information on specific issues related to heat illness. Respondents felt most confident in their ability to conduct outreach on how to prevent heat illness (84.7%), followed by how to address heat illness symptoms (78.8%), how to recognize heat illness symptoms (75.3%) and how to contact Cal/OSHA (67.1%). Less than half (43.5%) felt very confident in their ability to provide outreach and training about the California heat law but when asked about confidence in training on employer responsibilities regarding heat illness, 75.3% stated they were very confident.

**Table 19: CBO Confidence in Specific Aspects of Outreach and Education (n=85)**

Outreach and Education Area	Very Confident	Somewhat Confident	Need more information or help
What workers should do to prevent heat illness	84.7%	10.6%	4.7%
What to do if someone gets heat illness	78.8%	17.6%	3.5%
Employers' responsibilities: what employers must provide	75.3%	20.0%	4.7%
Heat illness symptoms	75.3%	18.8%	5.9%
How to contact Cal/OSHA	67.1%	20.0%	12.9%
The California heat law	43.5%	34.1%	22.4%

During the follow-up survey, participants had the opportunity to reflect back on how the TOT had been helpful now that they had carried out activities in their communities. Aspects of the training that CBO participants most appreciated included role playing and the ability to practice outreach and presentations, tips on making the presentations entertaining and engaging, and information on issues including the law, workers' rights, employer responsibilities, how to prevent heat illness, and how to recognize symptoms of heat illness. The campaign's materials were also very well-received, including the DVD and instructions on its use, pamphlets and other educational materials. In particular, the illustrations and bandanas were mentioned repeatedly:

*"The material is great and good because it is taught in a practical way, with visuals and examples, it is tied to the work they do and not very long."*

*"They liked the pañuelos [bandanas] because they can use it and take it to work, and it has the number to call on there, which is more practical than a paper."*

*"I showed the DVD in my office, and people would then ask me about it...I would respond to their questions with steps on how to prevent these illnesses."*

### **Activities Performed since Participating in the TOT**

Respondents were asked about the actions they had carried out since participating in the TOT workshop. Virtually all (97.7%) respondents reported engaging in at least one activity. These included posting campaign materials (76.7%), distributing materials to workers in other ways (67.4%), conducting outreach at health fairs and other venues (65.1%) and carrying out trainings and workshops (53.5%).

Additional activities included showing the heat illness DVD in an office waiting area or other site (44.2%), distributing materials or reaching out to employers or supervisors (39.5%) and seeking more information about heat illness (16.3%). Approximately one-third (34.9%) of respondents reported engaging in other activities, including presentations to parents, students, police and church groups, giving materials to workers to pass out to coworkers, presenting on the



radio, handing out water bottles with information on heat illness and presenting at mobile consulate events.

**Table 20: CBO Activities Since Participating in the TOT (n=86)**

Activity	Percent
Post campaign materials	76.7%
Distribute materials to workers in other ways	67.4%
Carry out any training or workshops	65.1%
Conduct outreach, for example through health fairs and other activities	53.5%
Show the heat illness DVD in your office waiting area or other site	44.2%
Distribute materials or reach out to employers or supervisors	39.5%
Other	34.9%
Seek more information about heat illness	16.3%
No action was taken	2.3%

Respondents described workers responding positively to the information provided and that many appreciated the visuals and user-friendly nature of the materials. They noted that the information was new for many workers, who were often surprised to learn they had legal rights with respect to protection from heat illness. A number of respondents also noted that workshop participants had already received this information, indicating that outreach is being conducted at multiple venues. Outreach and workshops were conducted in a variety of languages, including Spanish (83.5%), English (24.7%), Punjabi (8.2%), Mixteco (5.9%), Hmong (1.2%) and Triqui (2.4%).

While almost all (90.7%) respondents stated on an action plan completed during the TOT that they were going to conduct one or more heat training workshops, slightly over half of these reported doing so. They described a wide variety of training activities, including reaching workers through presentations at church meetings, parent meetings at Migrant Education or school programs, at the Mexican Consulate, and at migrant camps. A couple also mentioned training supervisors.

Respondents described other ways they provided workshops, either on a one-on-one basis or by “going to where the workers are.” For example:

- Inviting soccer players to a shade tent to rest after a game, and providing a brief workshop
- Conducting “corner outreach” sessions for day labor workers in Southern California
- Conducting field visits and chats with workers
- Conducting outreach sessions at flea markets

Several mentioned using the role play or *teatro* [theater] to talk about heat illness symptoms and steps to follow if someone becomes ill, and others described how they used the DVD and flipchart guide. A few mentioned participating on radio programs and talking about this topic.

Several CBO representatives offered additional comments on their high level of satisfaction with the workshops and gratitude for the opportunity to learn more about heat illness. Many respondents expressed a desire for this program to continue.

### *Numbers of Workers Reached*

Survey respondents were asked to estimate how many workers they had reached through their efforts. Based on the figures listed in Table 21, it is estimated that the organizations that participated in the TOT reached between 11,000 and 17,000 non-English speaking workers in their communities.

**Table 21: Numbers of workers reached by CBO participants in TOTs, during outreach and education activities**

Range	Number of organizations	Estimated number reached
1-25	18 organizations	18 - 450
26 – 50	15 organizations	390 – 750
51 – 100	19 organizations	969 – 1,900
101-200	14 organizations	1,414 – 2,800
201- 500	9 organizations	1,809 – 4,500
More than 500	9 organizations (7000 total workers)	7000
<b>Total</b>		<b>11,600 – 17,400</b>

When describing worker response to their trainings or other outreach activities, most mentioned that workers were happy to receive the information, interested in it, and pleased with the material.

*“They were thankful the community is concerned about them. Many ignored their rights because they thought that not having documents meant not having rights. They were very grateful for the information we shared with them.”*

Some commented that this was not the first time workers had received training on this topic, as they had received training at work or had seen the media advertisements. About an equal number of respondents, however, mentioned that workers did not know their rights and were surprised by the information provided at the training.

*“Unfortunately workers do not know much about their rights. They were very surprised with the information I provided, but also thankful.”*

In this respect, CBO respondents mentioned that workers were interested in knowing who to call (Cal/OSHA) and that this was a helpful part of the training. However, some also mentioned that

workers fear reporting concerns to Cal/OSHA, not believing that complaints are truly anonymous and worried that they may be fired for doing so. Furthermore, workers believe that employers actually know when Cal/OSHA is doing inspections in spite of hearing that they are supposed to be unannounced. These factors contribute to a resistance among workers to calling the agency.

### *Helping Resolve Work-Related Issues*

Nineteen (22.1%) of respondents reported assisting workers to resolve a heat-related problem at work, while 57.0% had not and 20.9% were unsure. Based on respondents estimates, about 140 workers were helped through their efforts (Table 22). The most commonly cited forms of assistance are listed in Table 23.

**Table 22: Number of Workers Helped to Resolve Heat Problems at Work**

Number of Workers Helped	Number Helping This Many Workers	Total Number of Workers Helped
1	2	2
2	2	4
3	2	6
4	1	4
5	3	15
9	1	9
10	1	10
10+	3	30+
20+	3	60+
<b>Total</b>	<b>18</b>	<b>140+</b>

**Table 23: CBO Assistance Resolving Heat-Related Problems (n=18)**

Type of Assistance Provided	Percent
Provided Cal/OSHA's phone number	47.4%
Helped them get more information about the law or what they could do	42.1%
Helped them figure out how to resolve it with their supervisor	26.3%
Helped them contact Cal/OSHA to file a complaint	26.3%
Referred them to another organization that could help them	15.8%
Other	42%

Responses listed under the category of “other” included sending a letter to the owner of a car wash facility about providing water to workers, providing education on needed prevention measures, and informing workers about their rights.

When asked if they had called the 99CALOR hotline for any reason this summer, only three (3.5%) respondents reported doing so, while the majority (96.5%) did not. Two stated they called for more information, and one said they had called to file a complaint.

### **Exposure to and Perceptions of the Heat Illness Campaign**

CBO survey participants were asked whether this was the first year in which they had been exposed to the campaign (including the media, trainings, Cal/OSHA presence and enforcement) or if they had seen this activity before. About 38.4% said they had seen or heard about it before, 60.5% said it was the first time this summer, and about 1.2% were not sure.

In addition, CBO survey participants were asked if they had seen or heard any of the media advertisements in their communities about heat illness prevention. Approximately two-thirds (65.3%) of those in regions with campaign presence reported hearing or seeing radio spots and/or billboard advertisements associated with the campaign, while 30.6% had not (4.1% were unsure).

When asked about the campaign and the factors that contributed to success, respondents mentioned the increased education and awareness, the media and stories about heat illness, and employers’ fear of sanctions. Several mentioned that change has come about as a result of the mix of strategies. As summed up by one respondent:

*“[change has been due to] ... a combination of all the different efforts, from Cal/OSHA, the media, different groups. There are more groups out there now – not just CRLA – giving out information about what your rights are in terms of heat stress. Workers are more willing to say to employers, ‘Hey you need to bring water.’ Employers are aware that there are more serious consequences of violating the regs. And workers are also more aware knowledgeable in terms of what the law says and what their rights are.”*

### **Impacts on CBOs and their Work**

The CBO TOT follow-up survey included questions to gauge the perceived impacts of participating in this effort on the participants, the organization and the nature of their work.

#### ***Increased Outreach on Heat Illness***

Most of the CBO respondents referred to the increased outreach efforts on heat illness as a result of the trainings. For some, this represented explicitly integrating heat illness content into their existing work. Some of the representative comments include:

*“Now we talk about this. Before we didn’t. Now I can speak about how important it is.”*

*“The way we organize to help the community around heat has changed. For example, now when people ask us about medical resources and we see they work in the fields, we also give them information about heat illness and workers’ rights.”*

*“I used to only give talks about topics of the clinic and now I can include information about heat illness. The clinic has also let me put out the materials we got at the training.”*

*“We now include heat illness within the annual work plan.”*

*“Something wonderful that’s happening is that we’re going to open a community center in one of our churches and we’re going to include your training and share the information you gave us with more people.”*

The campaign has also increased demand for outreach on the part of some employers. A respondent reported that they are getting requests for trainings on heat illness from supervisors.

Respondents expressed appreciation for access to tools to better educate community members about heat illness.

*“Now we have resource materials to distribute and we now have scheduled heat classes for next year with the materials you have provided. It has increased my personal awareness. Before sending workers out to jobs, we ask if there is going to be water, breaks and even lunch, though workers know to ask for breaks.”*

*“Now I have the tools. When the heat comes back I will do it all over again. I showed the DVD in the client’s home. Some homes did not have a computer to play it on. Did you know that you can also play the DVD through a game station like the x-box? The kids showed me how to do it!”*

Nonetheless, challenges remain. A respondent explained :

*“My level of awareness has changed. Now I pay more attention to workers working in the heat, and I try to speak with them every opportunity I have. But it’s hard because the bosses don’t let them speak with unfamiliar people. They’re always with them.”*

Several comments also described the ripple effect that outreach and training can have and emphasized the importance of educating CBOs.

*“I think it’s the work everyone is doing with the workshops. Like a chain, they teach people so they can teach others that are interested.” That sentiment was echoed by another respondent, who noted that “the outreach by UC Davis produces a chain – a domino effect. So, the information spreads.”*

*“It has helped us help other people. We get calls with complaints about the heat and what can we say if we don’t know about this. Now we can share what we know and have learned in the workshop.”*

### ***Increased Knowledge and Awareness***

CBO respondents also referred to their own increased knowledge and awareness of heat illness as a result of the workshops.

*“I didn't know anything about this and I've changed the way I think. Now we know what water, shade and rest mean. Basically, the heat law.”*

*“Personally, I have changed too. I always tell people I know that are working in the field about heat illness prevention. They are often afraid to get fired, but now I try to reassure them, that they won't get fired, no matter their immigration status, that's the law.”*

## **Findings: Visibility of DOSH**

### **Goal 4: Increase visibility of the Division of Occupational Safety and Health (DOSH) as an agency responsive to workers' needs.**

Goal 4 aimed to position the Division of Occupational Safety and Health (DOSH), more commonly known as Cal/OSHA, as a worker resource and emphasize that the agency was paying attention to the issue of heat illness. Campaign activities related to this goal included information provided in the media ads and in trainings for employers, community representatives, and workers and Cal/OSHA's own educational outreach efforts and enforcement inspections. Many campaign materials, such as the advertisements, provided information on how to contact Cal/OSHA via the website and the 99 CALOR hotline, and trainings emphasized the requirements of the heat standard. To assess campaign activities associated with promoting the visibility of Cal/OSHA, the evaluation drew on data collected from the following sources:

- Worker intercept interviews with 522 workers
- CBO TOT follow-up surveys with 87 respondents
- Employer TOT follow-up surveys with 33 respondents
- Employer key informant interviews with 18 respondents

### **Worker Familiarity with Cal/OSHA**

Over one-third (36.6%) of workers participating in the intercept survey reported that they had heard of Cal/OSHA, while over half (54.0%) had not and 9.4% were unsure. As Table 24 indicates, familiarity with Cal/OSHA varied based on demographic and other variables. Significant differences were notably found by industry, with those in construction (48.1%) most familiar and those in landscaping the least; by language, with Mixteco-speaking workers least likely to report familiarity (14.7%) and Punjabi-speaking workers the most (50.0%); by age, with those over 50 more likely to report familiarity (50.6%); and campaign exposure with workers reporting any exposure almost 20% more likely to be familiar with Cal/OSHA than those who had not.

**Table 24: Outdoor Worker Familiarity with Cal/OSHA**

Heard of Cal/OSHA	Yes %	p-value
All workers	36.6	.000
Industry		.000
Agriculture	37.1	
Construction	48.1	
Landscaping	19.2	
Ethnicity		.040
Spanish	37.4	
Mixteco	14.7	
Punjabi	50.0	
Age		.045
18-29	36.5	
30-39	33.8	
40-49	35.4	
50+	50.9	
Any exposure to campaign		.000
Yes	39.2	
No	21.3	
Prior exposure to campaign		.077
First time	32.9	
Prior exposure	40.5	

Feedback from UC program staff who trained both workers and CBO staff intermediaries for the campaign suggested that 37% of this population of workers being familiar with the agency is a positive finding, as often immigrant workers are not aware of the agency.

When intercept survey respondents were asked who they thought sponsored the heat illness media campaign, the most frequent response was the government (36.4%), Cesar Chávez or the United Farm Workers (UFW) (26.3%), “the union”<sup>23</sup> (25.4%), and Cal/OSHA (17.4%). The

<sup>23</sup> Interviewers did not ask whether a response of “the union” referred to the United Farm Workers, other unions or unions in general.

17% of workers who named Cal/OSHA as responsible for the campaign also seemed relatively high as the question asked was open-ended and did not provide set response options.

While day laborer focus group participants had not heard of Cal/OSHA, agricultural workers participating in focus group discussions indicated some awareness of Cal/OSHA and its role with respect to protecting worker health and safety. About half of the Spanish- and Mixteco-speaking participants said they knew of the agency and some referred to Cal/OSHA in answers to other questions. For example, when asked about any changes observed in working conditions:

*“Water is near, shade is near, you see less work accidents and we have seen OSHA with more of a presence.”*

*“There has been change, Cal/OSHA comes out to inspect if there is shade, if the restrooms are clean, if we take breaks, if there is water...They speak with the contractors to see if there is anything wrong or if they have any questions.....”*

As mentioned in Goal 1, Punjabi farmworkers participating in a focus group in Yuba City discussed concerns they had about the inspection process, particularly that they did not perceive inspections to be unannounced and felt that they should last longer to fully observe the actual circumstances and environment workers experience. They also encouraged Cal/OSHA inspectors to interview workers away from supervisors, noting that otherwise they were afraid to speak openly. While participants in that focus group were familiar with the complaint hotline, none had called because they were not sure if it would be an anonymous call and feared for their jobs should their identities be revealed.

### **CBO Representative Perceptions of and Experience with Cal/OSHA**

Community respondents to the TOT follow-up survey described Cal/OSHA enforcement efforts and described the impact that these have had on improving working conditions. They also made many references to the value of the increased outreach and education opportunities that Cal/OSHA’s campaign has provided at the local level, as described under Goal 3. Furthermore, when asked about which aspects of the TOT program CBOs found most helpful, several respondents cited the importance of learning about Cal/OSHA. In evaluations immediately following the TOTs, many participants noted that they valued the opportunity to ask questions directly of the Cal/OSHA representatives present at the sessions.

Nineteen (21.8%) CBO respondents reported helping workers resolve heat-related problems at work. Of those, nine (47.3%) provided workers with Cal/OSHA’s telephone number, while five (26.3%) helped workers contact Cal/OSHA to file a complaint. Only three of 87 CBO survey respondents reported calling the 99-CALOR telephone number, however. Reasons for low utilization of this resource are unclear and would benefit from additional research.

Finally, CBOs often emphasized the importance of Cal/OSHA’s increased enforcement efforts of the heat standard.



*“This year, most of the sites we saw had shade and had water. I realized that that's important, because Cal/OSHA is taking it more seriously. Two years ago it was harder to get employers to agree to bring shade.”*

*“At first they [employers] didn't like us to teach this but after Cal/OSHA fined them they've been helping a little more.”*

*“Employers took that information seriously because they are afraid they're going to call Cal/OSHA.”*

*“Cal/OSHA helps employer be responsible for protecting their workers.”*

### **Employer Perceptions of and Experiences with Cal/OSHA**

Overall, employers participating in evaluation activities had positive perceptions of Cal/OSHA and the campaign. Employer stakeholders participating in key informant interviews were very positive about the campaign in general, and a common sentiment from these respondents appeared to be that Cal/OSHA should “keep doing what they are doing.”

*“OSHA has done a great job of being visible and available in regard to the campaign. They attend our community meetings and have answered all our questions.”*

Agency efforts to reach employers through associations and other employer groups were also found to be helpful in disseminating materials and information and increasing employer ability to share information about heat illness prevention with workers. Employers described the usefulness of the campaign materials and satisfaction with their effectiveness.

Fifteen (45.5%) employer TOT respondents reported forms of contact with Cal/OSHA other than through the hotline during the summer of 2012. Of those, one reported calling Cal/OSHA for a consultation, two reported attending a Cal/OSHA presentation or other training on heat illness, while three reported that their work site had been inspected by Cal/OSHA.

As mentioned in the section on Goal 2, several employer respondents suggested the weight of Cal/OSHA and its enforcement role reinforced and influenced employer behavior in important ways.

*“OSHA's presence with inspections has assured that everyone does their best to be compliant. It helps that educational resources are abundant.”*

*“We have for years been providing materials and discussing the issues with farmers, but campaign has helped keep it in the spotlight. Growers just want to be in compliance.”*

*“Growers are more concerned about being in compliance and not getting fined.”*

## Experiences with the 99CALOR Hotline

Documentation on the CALOR hotline is limited and warrants further investigation. The hotline was established in order to improve access to live attendants, and it appears that it generated a large numbers of calls in 2012 with phone company data indicating 648 calls made. As mentioned in the process evaluation section, data is not currently available on the nature of these calls and whether attendants were able to address the caller's questions. Tracking logs from hotline operators shows that four referrals were made to Cal/OSHA on heat-related matters that led to investigations. However, the hotline also makes referrals for other non-heat related matters and it is not possible to discern whether workers called CALOR about other issues.

Among worker intercept survey respondents, 11.7% or 61 workers, indicated they called CALOR. Among CBO respondents, of those helping workers contact Cal/OSHA to file a complaint, two reported calling the 99-CALOR number. None of the TOT employer respondents reported calling the hotline, although two of the employer key informants had done so and reported different experiences.

*"I liked it. I had a question about a regulation and they helped me get through to the person who could answer my question. No comment on improvement, it works fine."*

*"I was told I could use the hotline to order supplies. It was difficult to have to listen to the different menus and when I got through they needed numbers of the items. I didn't have the product numbers so it was more of a hassle. I just got stuff from my insurance."*

## **DISCUSSION**

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Overall, the evaluation findings indicate that Cal/OSHA's heat illness prevention campaign for non-English-speaking outdoor workers has been successful in contributing to changes at the worksite and in influencing behaviors of employers and workers. It has also been successful in engaging a network of community organizations in carrying out outreach and education with workers in their communities. The evaluation also highlighted, however, ongoing challenges and key barriers to change that keep some workers at risk for heat illness on the job.

While this outcome evaluation looked most closely at activities implemented under the contract with the University of California, Cal/OSHA's own enforcement and outreach activities were part of the comprehensive effort to address heat illness among outdoor workers by the State. Assessments of campaign impact almost certainly reflect the combination of all of these efforts and cannot be attributed to any one activity in isolation. In addition, since this campaign has been a multi-year effort, it is assumed that many of the changes described in the evaluation are the result of cumulative efforts over time, and changes are not ascribed to campaign activity occurring in any given year.

### **Highlights of Campaign Impact**

Findings on campaign impact were positive across worker, employer, and community-based organization audiences, including high reported levels of campaign exposure, positive perceptions of campaign activities, and endorsements of attitudes promoted by campaign messages. Improvements on outcome measures related to worker and employer behaviors and working conditions were reported by the majority of worker, employer, and CBO respondents, and signs of increased community capacity appeared promising as well.

#### **Campaign Exposure**

Findings from intercept interviews and focus groups indicate high levels of exposure to the campaign among outdoor workers, with the large majority (over 85%) of all workers reporting seeing or hearing the campaign messages. These rates are comparable to 2010, and suggest that the campaign was able to sustain a strong presence over the three years. The majority of employers and CBO representatives also reported exposure to the campaign.

#### **Perceptions of Campaign and Influence on Attitudes**

Perceptions of the campaign were also very positive across the worker, employer, and CBO respondents to the evaluation. Workers found the messages to be relevant and conveying important messages about worker safety and health. Almost all (93.8%) workers who had seen the campaign reported that it had motivated them in some way to increase their safety while working in the heat.

Workers also agreed with attitudes consistent with those of the campaign, that frequently drinking water and resting in the shade were essential to the work and would make them more productive. These figures are comparable with 2010 survey findings as well, which found high rates of agreement with these attitudes.

CBOS and employers also reported favorable impressions of the campaign. Employers comments referenced campaign's value in reinforcing messages about heat safety, facilitating conversations with workers, providing effective materials they can use in training, and increasing employer concern. CBOs and employers also found the campaign materials easy to understand and use, and reported that they were well-received by workers. Community organizations reported that some of the campaign's impact on workers included workers being more aware of health risks associated with health, more aware of their rights, and a number of respondents spoke of workers being less fearful to speak up about their concerns.

### **Changes in Worker Behavior**

Worker-reported rates of behavior for specific heat illness prevention measures were high. In particular, over 98% of workers stated they were drinking water frequently in 2012 (98.7%), and 76% said they rested in the shade. Rates for "asking for water" and "asking for shade" were 42% and 28% respectively.

Rates of self-reported worker behavior were at times lower than those reported in 2010. The 2010 reports were very high: 95% of workers said they drank water frequently, 91% rested in the shade, 92% asked for water on the job, and 85% were asked for shade. However, the question was worded differently in 2010, asking whether these behaviors were done after seeing or hearing campaign ads. Questions asked in 2012 were purposefully designed to reduce response bias (allowing respondents to disagree with campaign intent), and some of the reduced response on certain behaviors in may be due to these changes. Nonetheless, workers reports of engaging in these behaviors this year were dramatically higher than what they had done in "previous years" suggesting that workers perceive a substantial change in their own behavior over time and potentially indicating a sense of "before and "after" in relation to the campaign and increased enforcement efforts.

The evaluation also looked at workers' reports related to communication that could enhance heat safety. In addition to asking for water or shade as mentioned above, 42% of workers reported talking to a supervisor about the issue, while 38% spoke with coworkers. Some differences were observed among particular ethnolinguistic subgroups, however, with Mixteco workers being far less likely to report asking for water or shade or speaking with an employer, and Mixteco and Punjabi workers being less likely to report issues to outside agencies.

### **Changes in Working Conditions and Employer Behavior**

Evaluation findings indicate that the campaign has had many positive impacts with respect to employers, who report high rates of exposure to the campaign and positive perceptions of the trainings, materials and media campaign. Employers note that the trainings have increased their capacity to successfully convey information on heat illness to workers, while the materials are seen as effective and user-friendly. The media campaign has also served to reinforce worksite messages about heat illness, while the radio announcements have provided employers with increased opportunities to engage with employees on these issues.

Working conditions and employer actions to prevent heat illness appear to have improved in recent years, with employers, workers, and CBO representative respondents all noting positive changes. Workers and CBOs reported that water and shade are increasingly available at worksites. Specifically, CBO respondents recall observing more shade structures in 2012, and clean fresh water was reported to be more consistently supplied and more accessible than in previous years.

A large majority of employers mentioned that changes in the past three years include providing water, shade and training, communicating with workers about heat illness, and reminding workers to take measures to protect themselves. In contrast, less than half of the employer respondents mentioned changes related to having a written plan for heat illness prevention, a plan for an emergency, or ensuring workers know what to do if someone has heat illness. These may be areas for further focus in future efforts. Of note, only 37% of workers said they had always received heat illness prevention training in the summer of 2012.

Hmong farmers represent a unique sub-population, and evaluation findings are limited to one focus group. These findings, however, indicated that legal requirements related to heat and tension around enforcement were part of a larger context of challenges for this population involving preserving family and cultural farming traditions and having their experience respected. While Hmong farmers reported compliance with the heat regulations, comments indicated that they do not find them entirely appropriate to the type and scale of their farming operations. Further research to better understand and address these issues, and to develop targeted culturally-appropriate approaches among Hmong farmers could be beneficial.

### **Impact on Community Organizations**

This summer's effort successfully included a diversity of organizations in the TOT programs, such as clinics, legal service providers, unions, schools, migrant education programs, Sikh temples, and worker advocacy groups, among others. Their capacity to address heat illness among outdoor workers was increased through the efforts of the campaign with representatives describing a new awareness and ability to educate workers about heat illness through participation in TOTs. CBOs described incorporating the training and outreach material into their existing work, and as a whole estimated reaching 7,000 – 11,000 workers with this information. One-fifth of the CBOs who participated in the TOTs described assisting workers with a heat-related problem at work, most frequently by providing Cal/OSHA's number<sup>24</sup> or giving workers more information about the heat standard and helping them figure out how to address the issue.

### **Visibility of Cal/OSHA**

Finally, Cal/OSHA visibility appears to also have been enhanced, with over one-third of non-English-speaking, often more vulnerable workers reporting familiarity with the agency. Employers and CBOs also came away with generally favorable impressions of Cal/OSHA and their efforts through this campaign.

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<sup>24</sup> In TOT trainings, participants were encouraged to contact and provide the district Cal/OSHA telephone number as opposed to 99CALOR to have a more direct link to their local office.

At the same time, workers in focus groups and some CBO representatives also mentioned some concerns related to their ability to successfully interface with Cal/OSHA. They described the need to ensure that workers both realize and trust that calls to the agency are anonymous, and also described experiences related to the inspections that they felt could be improved. These included employers anticipating inspections, workers needing to be interviewed in private, and the need for observations of working conditions over longer periods of time.

Regarding the 99-CALOR hotline, few workers, CBO representatives, and employers reported calling the Cal/OSHA hotline and only four heat-related calls were tracked by the call center. However, a high volume of calls was recorded by the phone company. Efforts to improve this resource, its accessibility, and audience propensity to use it should be explored.

Positive responses to the campaign website were provided by employers who had used the resource. Other respondents were not asked about their experiences in 2012, though in 2010, CBO representatives had found the website to be generally useful.

## **Barriers to Change**

Although respondents almost universally agreed that increased efforts to prevent heat illness have taken place at the work site among employers and among workers, it was clear that major barriers remain for workers to consistently be able to follow recommended heat illness prevention measures. These are described below.

### **Issues Related to Pay Structure**

Workers, employers and community representatives all made mention of the influence that the piece-rate pay arrangement has in discouraging workers from stopping for water or rest. Both workers and employers described the competing incentives that exist for “contract” or piece-rate workers. In the intercept surveys, 44% of workers said “earning less if they stop for breaks” was one reason why they sometimes do not take measures to protect themselves. Other workers referred to situations in which workers paid by contract do not stop and instead “work fast to get [their] money and go home and rest.” Employers echoed these remarks, also reporting that a major challenge for them was getting workers to drink enough or take breaks, most commonly among piece-rate workers. These observations stand in contrast to the overwhelming agreement by most workers on the intercept survey that “water, shade, and rest make me more productive,” yet likely point to the choices workers must make between earning needed income and protecting themselves in optimal ways.

Workers paid by the hour also referred to feeling pressure to maximize output and not getting permission from supervisors to stop and drink water and rest. In focus groups, some hourly workers reported not being allowed to drink or rest frequently enough due to employer concerns about losing potential income.

### **Need for Employer Support of Worker Behaviors**

There is indication of the need to reinforce a positive culture around heat safety at the workplace. While water and shade are increasingly available, 42% of workers still reported “fear of getting

fired if they stop too often” as a barrier that has at times prevented them from protecting themselves from the heat. Among employer respondents, 74% indicated that they are “encouraging workers to rest in the shade” and 79% indicated they “encourage workers to drink water frequently,” but only 37% of workers said supervisors “always” encouraged them to drink and rest in the shade. Workers in focus groups and CBO respondents mentioned that workers did not always feel they could easily access the water or rest in the shade without the supervisor making discouraging comments.

In addition to fear of taking action, fear of speaking up and asking for change were issues that workers and CBOS also said continue to be serious problems. In the intercept surveys, workers mentioned fear of asking employers for water or shade (36%). Although the sample of Mixteco workers for the intercept survey was small, responses were potentially indicative of additional challenges these workers face. While Mixteco workers were comparable to Spanish-speaking and Punjabi workers in reporting that they drank water frequently and rested in the shade, when it came to requesting water and shade when necessary, the percentage of workers reporting these behaviors dropped dramatically.

### **Presence of Social Pressures**

Workers also reported barriers related to social pressures, such as concerns that others may think they are not working hard enough (52%) or that they will slow the crew down (46%) if they stop for water and rest.

### **Employer Non-Compliance**

Some community respondents described employers who continue to flout the standard, not providing adequate water or shade or discouraging workers from stopping to drink water or rest as necessary. In the intercept survey, 33% of workers also said a barrier to action included water and shade not being available.

### **Small Business Employers**

Finally, some employer respondents associated with smaller operations also described barriers they face and expressed concerns about increased costs of compliance with the standard.

### **Contributors to Impact**

A comprehensive campaign approach with reinforcing components of media, education, outreach and Cal/OSHA enforcement was central to the strategy of promoting heat illness prevention for outdoor workers and their supervisors. Evaluation findings support the strength of this multi-prong approach.

Increased enforcement of employer compliance with the heat standard was essential, providing real incentives and consequences, and also further solidifying the industry norm around this health and safety issue. Education and outreach efforts targeting employers provided additional support and incentives. Through the interactions with employers at the TOTs, it was evident that supervisors still have questions about their responsibilities within the standard, and that many

need support to fulfill their training obligations. While the campaign always considered issues of literacy among worker populations, these exist among supervisors as well.

The media component provided mass messaging, awareness building, and validation of heat concerns among worker and other stakeholder populations, such as employers and CBO representatives. The visibility of the ads extends the campaign so the issue of heat illness is not isolated within the workplace and the messages reinforce the training received at work. The media also serves as a reminder of Cal/OSHA's presence and attention to the issue, which in turn influences employer behavior.

Educating CBOs on the issue of heat illness through TOTs and training them to in turn educate worker populations they serve leads to increased awareness in the community and can create a ripple effect in accessing other targets, such as families, friends and support networks within the community. Ultimately, CBOs can provide critical organizational support for workers who want to advocate for better conditions or file complaints. The effort served to reinforce the importance of the issue and enhanced the community norm that heat illness is a serious concern and measures need to be in place at the worksite to prevent it.

Other efforts not coordinated by the campaign were also cited by respondents as contributing to the campaign's impact, particularly news coverage of heat-related worker deaths which raised awareness and underscored the seriousness of the issue, and accounts of labor shortages that may have introduced greater employer incentives to provide better working conditions.

In addition to the comprehensive nature of the campaign, the sustained effort over three years likely contributed to the impact on heat prevention measures. Public health intervention and social marketing literature support the idea that longer duration can provide greater opportunity for sustained impact. CBO representatives in particular reported seeing more shade structures this year than in previous years, which may be suggestive of the cumulative effect of each year's messages and enforcement presence.



## CONCLUSIONS

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The three-year campaign to prevent heat illness among non-English-speaking outdoor workers used a multi-pronged strategy combining a social marketing approach that included media and community education and outreach with concurrent enhanced enforcement efforts. Workers, employers, and community-based organization representatives report improved field conditions in recent years, and attribute changes to the combined campaign efforts. The sustained effort over multiple years was another unique factor that likely contributed to success.

Barriers and challenges remain that warrant further attention. Some are related to the work environment and the extent to which employers are encouraging workers to access the water and shade that is now provided. Other barriers are challenging because they are to a significant extent embedded in larger economic and social contexts that may create disincentives for workers to follow recommended measures. For example, the impact of piece-rate arrangements in outdoor work or hourly pay based on the desired outcomes was noted by workers, employers and community organizations. Potential research and interventions focused on paying piece-rate workers for time spent on heat prevention behaviors, and dissemination of best practices such as having the whole crew stop to rest at the same time, may be promising future directions.

Finally, the significant level of investment made in this heat illness prevention campaign has resulted in an elevated profile of a critical health and safety issue within targeted industries and in the public consciousness. It has also led to the development of community-based linkages and networks at a local level throughout the state. These outcomes serve not only as an important foundation and platform for continued efforts to address heat illness, but also present opportunities to address other important health and safety issues in these industries and communities.

APPENDIX 1: Outdoor Media Coverage by Region, 2012

Outdoor Media	Agricultural					Construction					Landscape					Grand Total
	Fwy Bulletins	30 Sheets	Lunch Trucks	Wall Graphics	Vans Total	Fwy Bulletins	30 Sheets	Lunch Trucks	Wall Graphics	Vans Total	Fwy Bulletins	30 Sheets	Lunch Trucks	Wall Graphics	Vans Total	
Bakersfield-Kern	1	15	5	45	10	-	-	-	-	-	-	-	-	-	-	76
Fresno-Tulare-Madera-Merced	3	22	19	45	15	4	4	-	-	4	2	-	-	-	6	114
Imperial/Palm Springs		8			8	2	2			2					2	12
Los Angeles/Orange Co								28		28			21		21	49
Sacramento-Stockton-Yuba City	1	9	11	39	25	2	2		28	30	1				1	85
San Bernardino-Riverside					-			12		12	4				4	24
San Diego		8			8	-	-	40	28	76	2	11	21	-	34	391
<b>Total</b>	<b>5</b>	<b>62</b>	<b>35</b>	<b>129</b>	<b>50</b>	<b>8</b>	<b>8</b>	<b>40</b>	<b>28</b>	<b>76</b>	<b>7</b>	<b>81</b>	<b>96</b>	<b>157</b>	<b>50</b>	<b>391</b>
Grand Total - Ag/Const/Land =																

## APPENDIX 2: Estimated Radio Cume 2012

<b>Bakersfield-Kern</b>	<b>Hisp A2554 6-10A</b>	<b>Avg 2 Week Reach/Frequency</b>
KBFP-FM	13,900	84%/4.0
KCHJ-FM	3,600	
KEBT-FM	29,800	
KIWI-FM	18,300	
KMYX-FM	12,200	
KWAC-AM	4,000	
<b>Weekly Cume</b>	<b>81,800</b>	
<b>Campaign Cume</b>	<b>818,000</b>	<b>92%/19.4</b>
<b>Fresno-Tulare-Madera</b>	<b>Hisp A2554 6-10A</b>	<b>Avg 2 Week Reach/Frequency</b>
KAAT-FM	2,000	87%/4.5
KBHH-FM	1,100	
KBIF-FM	1,500	
KFSO-FM	23,400	
KGEN-FM	600	
KLBN-FM	11,900	
KMAK-FM	3,100	
KMQA-FM	6,100	
KNTO-FM	2,600	
KOND-FM	41,100	
KRDA-FM	15,000	
KSKD-FM	2,150	
KUFW-FM	600	
<b>Weekly Cume</b>	<b>111,150</b>	
<b>Campaign Cume</b>	<b>1,111,500</b>	<b>94%/22.3</b>
<b>Yuma-El Control</b>	<b>Hisp A2554 6-10A</b>	<b>Avg 2 Week Reach/Frequency</b>
KCEC-FM	600	75%/4.5
KMXX-FM	11,400	
<b>Weekly Cume</b>	<b>12,000</b>	
<b>Campaign Cume</b>	<b>72,000</b>	<b>81%/8.1.0</b>

<b>Sac-Stock-Mod</b>	<b>Hisp A2554 6-10A</b>	<b>Avg 2 Week Reach/Frequency</b>
KBAA-FM	13,100	88%/4.3
KBBU-FM	11,500	
KBYN-FM	3,700	
KCFA-FM	2,100	
KGRB-FM	18,650	
KMIX-FM	21,400	
KRCX-FM	37,200	
<b>Weekly Cume</b>	<b>107,650</b>	
<b>Campaign Cume</b>	<b>1,024,100</b>	<b>95%/21.7</b>
<b>Riverside-San Bern</b>	<b>Hisp A2554 6-10A</b>	<b>Avg 2 Week Reach/Frequency</b>
KAEH-FM	21,400	49%/2.1
KBTW-KXSB-KXRS	34,100	
KCAL	5,400	
KLYY-FM	37,200	
<b>Weekly Cume</b>	<b>98,100</b>	
<b>Campaign Cume</b>	<b>674,200</b>	<b>70%/6.6</b>
<b>Palm Springs</b>	<b>Hisp A2554 6-10A</b>	<b>Avg 2 Week Reach/Frequency</b>
KFUT-FM	7,800	74%/4.6
KLOB-FM	34,200	
<b>Weekly Cume</b>	<b>34,200</b>	
<b>Campaign Cume</b>	<b>205,200</b>	<b>81%/7.6</b>