

Closeout Document 1: Final Progress Report

Engaging Ethnic Community Agencies in Adopting Basic Worker Health Education

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### List of Terms and Abbreviations

Abbreviation	Description
CBO	Community-based organization
FBO	Faith-based organization
L&I	Labor and Industries
NORA	National Occupational Research Agenda
OH	Occupational health
OHS	Occupational health and safety
OHSA	Occupational Safety and Health Administration
WHE <sub>B</sub>	Basic worker health education

**Title:** Engaging Ethnic Community Agencies in Adopting Basic Worker Health Education

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## **Final Report Abstract**

**Background:** Compared to their native-born counterparts, immigrant ethnic minorities are overrepresented in low-paying and dangerous jobs. Relatively unsuccessful occupational health (OH) protection efforts, designed for worksite implementation with low-wage immigrant workers, compel re-thinking intervention strategies and optimizing novel community-focused, network-oriented approaches. Ethnic community agencies are important but underutilized assets capable of providing the essential building blocks for collaborative community OH approaches. This research investigated the integration of basic worker health education (WHE<sub>B</sub>) in, and by community agencies in order to reach a broad range of Chinese American immigrants. Study aims were: **Aim 1:** Critique and finalize WHE<sub>B</sub> materials for appropriateness, comprehensibility, and viability for use in community agencies; **Aim 2:** Characterize intra- and extra-organizational factors associated with community agency approaches to program changes, and agency openness to engage in adopting WHE<sub>B</sub> as a service innovation; and **Aim 3:** Describe the implementation process and outcomes of WHE<sub>B</sub> integration in diverse community agency settings, using a pilot implementation trial.

**Approach.** A mixed-methods design was used across study aims. Six bilingual service providers familiar with Chinese culture and agency workflow (**Aim 1**) critiqued the prototype WHE<sub>B</sub> materials, which were based on guidelines developed by OSHA, L&I and NIOSH. With agencies as observational units, middle/high level administrators from 26 agencies/organizations representing four types of community agencies were interviewed regarding factors associated with agency approaches to program changes and openness to adopt WHE<sub>B</sub> (**Aim 2**). We randomly selected eight agencies (two per agency type) that expressed interest in integrating WHE<sub>B</sub> into their services; an OH nurse worked with each agency to conduct the pilot implementation trial for the set of WHE<sub>B</sub> materials (**Aim 3**). With online surveys (post implementation & follow-up) completed by two representatives per agency, we collected data on the specific implementation process and outcome variables. We incorporated the OH nurse's participant-observations into the analysis, integrating quantitative and qualitative data to provide direct and practical knowledge about how community agencies move forward in adopting new program ideas for WHE<sub>B</sub>.

**Findings.** The community advisors were enthusiastic about the Chinese WHE<sub>B</sub> materials, which were finalized and used in the trial. Multiple intra- and extra-organizational factors influenced community agency program/service operation and decisions. The top three intra-organizational factors were organizational capacity, needs of existing program/service users, and agency decision-making flows; the top three extra-organizational factors were unmet needs of target communities identified by the agency, demographic changes in the community, and external funding. Four WHE<sub>B</sub> delivery prototypes suitable to community settings and barriers to continuation were identified from the trial.

**Implications.** *Occupational Health Equity* is one Core and Specialty Program on the National Occupational Research Agenda (NORA). Knowledge generated from this project will identify and guide strategic choices in order to facilitate community-based partnership development and dissemination of sustainable worker health programs for immigrant workers. The relevance of the WHE<sub>B</sub> materials, procedural and substantive knowledge, and demonstrated value of the community approach from this research will provide a program adoption model transferable in working with other ethnic minority and immigrant worker populations to promote OH equity.

## Section I of the Final Progress Report

This section includes important findings related to each specific research aim, an interpretation of how the findings can be used to improve the health of the U.S. immigrant workforce, and intermediate, as well as potential outcomes or impact on improving immigrant worker health and safety.

### A. Significant Key Findings

This project assessed the integration of immigrant-targeted basic worker health education (WHE<sub>B</sub>) by community agencies as an innovative strategy for program dissemination to the broad Chinese American community. Using a mixed-methods design, we conducted individual interviews and surveys followed by a focus group with six bilingual/bicultural Chinese service providers to critique, refine, and finalize the Chinese WHE<sub>B</sub> brochures. We collected interview data from 26 of the 52 agencies/organizations representing Chinese, Pan-Asian, and Pan-ethnic community-based organizations (CBOs) and Chinese faith-based organizations (FBOs) to understand factors influencing organizational decisions about program change, including adopting new programming. We piloted the WHE<sub>B</sub> in eight agencies, two from each of the abovementioned agency types. Surveys were collected from the designated administrator and implementation specialist at each agency at the end of the 2-month trial and two months after the trial. Field notes were also collected from research interviewers and the occupational health (OH) nurse who worked with the agencies for the pilot trial. Highlights of the findings for each research aim are described below.

Specific Aim 1: To engage a community advisory panel of service providers to critique and finalize WHE<sub>B</sub> materials with respect to their appropriateness, comprehensibility, and viability for use in community agencies.

- The advisory panel was enthusiastic about the WHE<sub>B</sub> information for the Chinese American community. The Chinese WHE<sub>B</sub> brochures met all evaluation criteria (appropriateness, comprehensibility, and viability) for use in community agencies. Panel's feedback improved the clarity, readability, and application to dialectal variation.

Specific Aim 2: To characterize intra- and extra-organizational factors that influence community agency approaches to programmatic change, and examine the associations between these factors and agency openness to adopting WHE<sub>B</sub> as a service innovation.

- Organizational capacity was the most commonly mentioned intra-organizational factor affecting program or service operation and change. Needs of existing program/service users, agency decision-making flows, agency mission, attitude toward change, impact of program change on agency finance and existing clients, characteristics of people served by the agency, and coethnic nature of the agency were also identified by at least one third of the sample.
- Extra-organization factors listed were unmet needs of target place-based or culture-based communities identified by the agency, demographic changes of the community and external funding sources in terms of requirements, priorities, approaches selected by the funders to address the problems, timing, and sufficiency of the funding to sustain the program/service of interest were the other factors noted by at least one third of the sample.
- All participating agencies recognized the value of WHE<sub>B</sub> for immigrant and refugee clients; only two agencies hesitated about adoption of WHE<sub>B</sub> due to concerns of undergoing organizational change and staff workload.

Specific Aim 3: To describe the implementation process (planning, delivery model selection) and outcomes (suitability, continuation) for the integration of WHE<sub>B</sub> in diverse community agency

settings.

- The delivery models selected by the agencies included individual session, group meeting, stand-alone workshop, or outreach. Five of the eight agencies modified their implementation plan (e.g., adding individual sessions when the workshop plan fell through) in order to reach their proposed target number. Five agencies reached at least 70% of their goals at the end of the trial.
- Three agencies continued to deliver the WHE<sub>B</sub> without further modification during the post-trial period. Change in staffing or office location, limited staff resources due to management of other projects, termination of group meetings that were selected for the pilot trial, no new service users since the pilot trial, and having reached the goal set for the pilot trial were the reasons reported for not continuing the WHE<sub>B</sub>.
- All but one respondent indicated that the delivery models were suitable to their agencies. All respondents rated that other agencies similar to theirs were likely or very likely to be open to having a WHE<sub>B</sub> in their agencies.
- Pan-Asian and Pan-ethnic CBOs expressed strong interests in having the WHE<sub>B</sub> in other languages (e.g., Vietnamese) for other immigrants using their services.

## **B. Translation of Findings**

Traditional worksite intervention efforts have not been highly successful for immigrant groups that are disproportionally represented in low-paying, risky occupations. Community-based collaborative approaches are increasingly being used to address complex health concerns such as health disparities. Recommendations for future investigative and intervention activities are described below.

- Simple interactive delivery models show promise for easy integration and dissemination of the WHE<sub>B</sub> at CBOs and FBOs.
- The identified intra- and extra-organizational factors can be used to evaluate the suitability of potential community partners and formulate an implementation plan that matches with the agency and community contexts.
- Additional investigations regarding how to maximize dissemination efforts and to sustain the WHE<sub>B</sub> using the identified delivery models and existing community resources will provide important insights into ways to reduce or prevent work injuries or illnesses among low-wage immigrant workers.

## **C. Outcomes/Impact**

*Occupational Health Equity* is one Core and Specialty Program on the National Occupational Research Agenda (NORA). OHS traditionally focuses on worksite interventions. This project generated new knowledge describing factors and processes pertinent to engaging workers effectively outside the workplace through CBOs and FBOs to disseminate basic worker health education to immigrant worker populations. Below are the intermediate and potential outcomes of the study findings and recommendations that have been used to and could impact immigrant worker health.

- The agency staff and Chinese immigrant clients who received the WHE<sub>B</sub> have increased their knowledge about worker rights and employer responsibilities in the United States, workplace hazards, and musculoskeletal disorders and fall basic prevention strategies.
- The agency administrators expressed interest in future partnership to broaden the dissemination of the WHE<sub>B</sub> to other immigrant communities.
- While focusing on Chinese immigrants, the WHE<sub>B</sub> materials and relevance of procedural knowledge generated by this project provide a model for community work with other ethnic minority and immigrant worker populations.

## Section II of the Final Progress Report

### Scientific Report

**Background.** Immigrant ethnic minorities, compared to their native-born counterparts, are overrepresented in low-wage, dangerous jobs, in which they experience greater exposure to hazards, injury, and illness. Considering existing evidence that documents the relative lack of successful worksite intervention approaches with low-wage immigrant workers, our program of research seeks to broaden occupational health (OH) protection practice by embedding, incrementally, OH education within existing community networks, thereby promoting diffusion of knowledge with minimal demand on community resources.

Cross-sector collaborative approaches strengthen a community's capacity to address complex health concerns and are the most cost-effective and sustainable approaches for modifying socio-cultural factors that contribute to health disparities. Although some community-based OH projects have tapped into community resources, "community partners" are often limited to a single union or community-based organization (CBO). The extent to which such projects actually reach and impact the target population or community is influenced by the community partner's mission, membership, and ties with other subsystems of the community. Coethnic agencies and community groups—those established and managed by individuals of the same ethnic or national background—are underutilized community assets capable of providing essential building blocks for OH collaboration and promotion of immigrant worker health. This research project focused on understanding factors that influence community agencies' openness to engage in adopting new programmatic ideas for worker health, and what types of delivery models are best suited to different types of community settings.

**Specific Aims.** In this research project, we assessed the integration of immigrant-targeted basic worker health education (WHE<sub>B</sub>) by community agencies for dissemination. We focused on four types of community agencies (Chinese CBO, Chinese faith-based organization (FBO), Pan-Asian CBO, Pan-ethnic CBO) to generate knowledge needed to advance Chinese immigrant worker health and wellbeing. The specific research aims were:

Aim 1: To engage a community advisory panel of service providers to critique and finalize WHE<sub>B</sub> materials with respect to their appropriateness, comprehensibility, and viability for use in community agencies

Aim 2: To characterize intra- and extra-organizational factors that influence community agency approaches to programmatic change, and examine the associations between these factors and agency openness to adopting WHE<sub>B</sub> as a service innovation

Aim 3: To describe the implementation process (planning, delivery model selection) and outcomes (suitability, continuation) for the integration of WHE<sub>B</sub> in diverse community agency settings, using a pilot implementation trial

**Methods.** A mixed-methods design was used across study aims. Participating agencies were in King County where most Chinese reside (approximately 87,000) in WA State. **Aim 1:** English-Chinese bilingual and bicultural service providers familiar with Chinese culture and agency workflow were recruited to critique the prototype WHE<sub>B</sub> materials, which were based on guidelines developed by OSHA, L&I and NIOSH. Evaluation feedback was collected through individual interviews and quantitative ratings, followed by a focus group to assist finalizing the brochures for testing. **Aim 2:** 52 agencies representing Chinese, Pan-Asian, and Pan-ethnic CBOs as well as Chinese FBOs (churches and temples) were recruited. The Chinese CBOs and FBOs were run by Chinese, primarily serving Chinese individuals, whereas the Pan-Asian and Pan-ethnic CBOs served a broad range of clientele (including Chinese) with a mission and scope of service relevant to worker health (e.g., job training, health care assistance, and



advocacy). The final sample (N=26 agencies) consisted of 4 Chinese CBOs, 11 Chinese FBOs, 3 Pan-Asian CBOs, and 8 Pan-ethnic CBOs. Interviews were conducted with a middle or high level administrator designated by each agency; ten of the interviews were completed in Chinese. Participant-observations by the trained research interviewers were recorded as field notes. **Aim 3:** The pilot implementation trial of WHE<sub>B</sub> was conducted in eight agencies, two from each of the four agency types used for Aim 2. The agencies were randomly drawn from the pool of agencies that expressed interest in integrating WHE<sub>B</sub> into their services with Chinese immigrant clients. Ten agencies were recruited; one Chinese CBO and one Pan-Asian CBO were unable to participate (despite of their interest and willingness to engage) because the timing of our project did not align well with the dissemination mechanisms that the agency had identified. For the eight agencies that were able to participate, an experienced OH nurse worked with the designated administrator and implementation specialist in each agency to identify the target number of clients and direct interactive mechanisms for integrating all three WHE<sub>B</sub> brochures into their existing service for the 2-month trial. An implementation manual, which was developed with and individualized for each agency, was used to ensure implementation specialists' comprehension of and skills for disseminating the WHE<sub>B</sub> materials. Periodical check-in was provided by the OH nurse to support the implementation specialists and answer questions. Surveys were collected from each administrator and implementation specialist at the end of the trial and two months after the completion of the trial. The OH nurse's participant-observations were recorded as field notes.

**Measurement.** **Aim 1:** *Advisor Interview* was administered by a trained bilingual (English-Chinese) research interviewer. Section A asked about demographics and work experience. Section B captured the advisors' evaluative ratings (see Table 1) and responses to open-ended questions about WHE<sub>B</sub> materials. *Focus Group Discussion Guide* was based on questions similar to the advisor interview. Participants verbally indicated their rating for each question. **Aim 2:** *Organizational Interviews* were conducted by trained research interviewers. The first section measured organization characteristics such as mission, service/programs at the agency, structure, funding and human resources, and bilingual capacity. The second section measured organizational change processes and factors influencing the agency's decision on program change *in general* and WHE<sub>B</sub> for immigrant workers *in particular*. *Contact Summary forms* were used by the interviewers to record field observations of all agency contacts and to specify questions or issues to address in the following contact. **Aim 3:** The *Pilot Trial Evaluation Survey* assessed the implementation process and outcomes from the agency's perspective. The *Post-Trial Sustainability Survey* gathered data about agency decisions and activities related to WHE<sub>B</sub> integration and reasons for the decisions (see Table 2). *Contact Summary forms*, used for Aim 2, were used by the OH nurse to record main issues and relevant information gained from participant-observations during each contact. Table 1 and Table 2 summarize the key concepts that were examined for Aim 1 and Aim 3, respectively.

**Table 1. Summary of Aim 1 Key Concepts and Measures**

Concepts	Description of measures
Appropriateness	Three items assessed relevance, cultural appropriateness, Chinese translation of WHE <sub>B</sub> (0=not at all to 10=extremely).
Comprehensibility	Two items assessed reading level for Chinese immigrants (at least 8th grade equivalent) (0=not at all on target to 10=exactly on target) & clarity of layout (0=difficult to follow & understand to 10=extremely easy to follow & understand).
Viability	Two items assessed the ease of use and likelihood of organizational support (0=not at all to 10=extremely) to integrate the materials in agency-based work.

**Table 2. Summary of Aim 3 Key Concepts and Measures**

Concepts	Description of measures
Process Variables	
<i>Areas for change</i>	Open-ended survey questions and Contact Summaries provided recommendations for modification of specialist training, program mechanisms, targeted number, delivery model & protocol.
<i>Delivery model choice</i>	Contact Summaries assessed agency perceptions of interactive WHE <sub>B</sub> delivery; delivery models were identified and categorized: 1=individual session, 2=group meeting, 3=workshop, 4=mixed approach, 5=outreach.
Outcome Variables	
<i>Suitability</i>	Single item inquired about perceived fit between selected delivery model and agency context (0=no, 1=yes) coupled with a follow-up question regarding the basis/reasons for this assessment.
<i>Continuation</i>	Single item assessed agency efforts to integrate WHE <sub>B</sub> materials post trial: 0=stopped, 1=continuing same activity, 2=continuing and plan to develop further, 3=continuing and have expanded activity; open follow-up question pinpointed reasons for continuation (or not).

**Analysis. Aim 1:** Descriptive statistics were used to describe panel advisors' assessment of key concepts identified in Table 1. The rationale and suggestions provided by the advisors were reviewed and analyzed along with the numerical ratings by the English-Chinese bilingual PI and another PhD-prepared, bilingual nurse scientist. **Aim 2:** Recorded interviews were transcribed verbatim by a trained English-Chinese bilingual transcriptionist and audited by the PI. The transcripts were coded by the PI and verified by another bilingual nurse scientist (who also conducted the interviews) for credibility and confirmability of the analyses. Descriptive statistics were used to characterize each agency and calculate frequency and percentage of agency responses to adopting WHE<sub>B</sub>. **Aim 3:** Descriptive statistics were used to summarize the distribution of agency participants' evaluation for areas for change, delivery model choices, suitability of community-based WHE<sub>B</sub>, and continuation of adoption across agencies. Content analysis was used to identify and summarize suggestions for future changes.

**Results. Aim 1:** Six community advisors (3 females, 3 males) participated in the review of the WHE<sub>B</sub> materials. All of the advisors were Chinese immigrants from Hong Kong (n=4) or Taiwan (n=2). Four advisors worked for human and social service CBOs, one advisor had experiences with human and social service CBO and Chinese FBO, and one advisor represented Chinese FBO. They all had at least some levels of interactions with Chinese immigrants in their position.

The mean scores for each evaluation question ranged from 7.0 to 8.0, which was equal or greater than the cut-off score at 7.0. The questions about layout, ease of use, and likelihood of organizational support to integrate the materials in agency-based work had widely dispersed ratings. Analyses of the advisors' explanations for their ratings and feedback led to wording modifications in each brochure to capture dialectic variation and improve clarity and readability for Chinese with less formal education. The revision received positive feedback and met all evaluation criteria during the focus group.

**Aim 2:** Twenty-six of 52 agencies declined to participate or were not reached, yielding an acceptance rate of 50%. Chinese immigrants from Asian countries were the largest immigrant clientele at 17 participating agencies, including two non-Chinese CBOs. All but one agency had unpaid, volunteer staff to support their operation. Eleven agencies reported being understaffed, whereas the rest of the agencies considered themselves adequately staffed (n=9) or well staffed (n=6).

Through an iterated process, factors emerging from the qualitative analysis fell into two major categories: intra- vs extra-organizational factors. Intra-organizational factors refer to agency-

level factors that affect program or service operation and decisions, including modification, addition, or elimination of programs or services. Extra-organizational factors are those external to the agency and yet influence agency program or service operation and decisions. Overall, participants were more articulate about factors that were internal than external to their organization.

*Organizational capacity* was the most commonly mentioned intra-organizational factor (n=23). Specific attributes of organizational capacity included financial capacity (n=20), manpower (n=14), language and cultural capacity (n=8 & 6, respectively), staff equipped with needed specialized training (n=7), staff's willingness and motivation (n=6), staff's knowledge and ability (n=5), space (n=4), experience with similar programs/services (n=2), liability coverage (n=1), and needed materials (n=1). In addition, *needs of existing program/service users* (n=22), *agency decision-making flows* (n=20), *agency mission* (n=17), *attitude toward change* (n=11), *impact of program changes on agency finance and existing clients* (n=11), and *characteristics of people served by the agency* (n=10) were identified by at least one third of the sample. *Coethnic nature of the agency* (n=9) was a factor unique to Chinese CBOs and FBOs. A smaller number of CBOs in the sample also indicated using *organizational strategic initiatives* (n=7) and *ongoing quality and process improvement practice* (n=5) to guide their decisions.

For extra-organizational factors, *unmet needs of target communities (place-based or culture-based) identified by the agency* (n=18) was the most commonly mentioned. *Demographic changes in the community* (n=11) and *external funding sources* (n=11) in terms of requirements, priorities, approaches selected by the funders to address the problems, timing, and sufficiency of the funding to sustain the program/service of interest were other factors noted by at least one third of the sample. *Existence of similar services at other agencies in the community* (n=8) was an extra-organizational factor that was particularly pertinent to CBOs for not duplicating services. CBOs also discussed how the *designation to a certain agency type* (n=8) (i.e., Community Health Center, Community Action Agency) influenced program decisions. *Support or direction from upper division of FBOs* (n=5) was an extra-organizational factor uniquely identified in Chinese FBO interviews.

All agencies recognized the value of WHE<sub>B</sub> for immigrant and refugee clients. Considering the characteristics of their clients, they were open to further discussions about the adoption or dissemination of WHE<sub>B</sub> for Chinese or other immigrant/refugee populations. Only two agencies hesitated about adoption of the WHE<sub>B</sub> due to concerns about undergoing organizational change and staff workload.

**Aim 3: Process variables (areas for change, delivery model choice).** Each agency was able to identify one or two delivery models that already existed in the agency for the implementation trial. The choices included individual sessions, group meetings, stand-alone workshops, and outreach events. Analyses of the field notes and written comments on the surveys revealed that five agencies reached at least 70% of their stated goals at the end of the 2-month trial, whereas one FBO reached no program attendee and two CBOs only reached 11% and 15% of the goals. Five of the eight agencies modified their plan during the implementation because the initially chosen model fell through, posing problems to meet their proposed target number. Of the five agencies, four agencies indeed improved their numbers as a result of the change. A standard information sharing focused mechanism (e.g., family support case management meeting, support group), whether it was delivered through an existing individual or a group format, was perceived as the most natural venue by five (of the six) CBOs to integrate the WHE<sub>B</sub>. Overall, few changes were suggested on the surveys. One respondent recommended the need to modify their target goal, and another respondent suggested that we have "Chinese translation in a less formal writing for Cantonese clients."

It is important to note that some implementation specialists were concerned about not being able to deliver the WHE<sub>B</sub> because they were not OH professionals. Seven of the eight specialists were able to associate the information in the WHE<sub>B</sub> with their personal experiences and/or client experiences during the training with the OH nurse. After the training, all of the implementation specialists demonstrated their comfort to deliver the WHE<sub>B</sub>.

*Outcome variables (suitability, continuation).* Despite the changes in the implementation plan, seven of the eight agencies indicated that the delivery models were suitable to their agencies. One CBO had mixed responses in which the designated administrator thought that group meetings would be more appropriate and effective in reaching Chinese immigrants through their selected program than individual meetings with the implementation specialist. All respondents rated that other agencies similar to theirs were likely (n=9) or very likely (n=5) to be open to having a WHE<sub>B</sub> in their agencies. As for agency efforts to integrate WHE<sub>B</sub> materials post trial, the survey responses showed that three agencies continued to deliver the WHE<sub>B</sub> without further modification. Change in staffing or office location, limited staff resources due to management of other projects, pause of the group meeting mechanism that was selected for the pilot trial, no new service users since the pilot trial, and having reached the goal set for the pilot trial were the reasons reported for not continuing the WHE<sub>B</sub>.

**Challenges and Solutions for Successful Engagement.** Over the course of the project, we encountered numerous challenges. These challenges prolonged the research activity; at the same time, they presented invaluable opportunities to gain insights into conducting community-based OH research with agencies that are unfamiliar with research in general and OH research in particular and whose missions are to provide human, social, health, or spiritual services. Some of the challenges reflected intra-organizational factors such as organizational capacity, agency mission, and client needs that were identified in this project. Table 3 summarizes main challenges that we encountered and solutions that we implemented to facilitate the process toward successful engagement.

**Table 3. Summary of Main Challenges and Solutions for Engaging Community Agencies in OH Research**

Challenges
<ul style="list-style-type: none"> <li>• Multiple phone “tags” required before actual connections</li> <li>• Agency personnel changes</li> <li>• Agency website contact information insufficient to initiate the invitation process</li> <li>• Agency unfamiliar with research</li> <li>• Inconvenient or poor timing for agency participation</li> <li>• Agency unable to conceive the relevance of or fit with research project goals</li> <li>• Concerns about demands on staff</li> <li>• Concerns about clients’ perceived relevance for their primary reason for visiting the agency</li> <li>• Uncertainty about feasible mechanisms to engage Chinese immigrants at the agency to deliver the WHE<sub>B</sub></li> </ul>
Solutions
<ul style="list-style-type: none"> <li>• Be persistent</li> <li>• Use broad data collection windows</li> <li>• Provide ongoing support and assistance to research staff in developing effective strategies to facilitate recruitment and reduce frustration</li> <li>• Create research project-specific Frequently Asked Questions (FAQs) and communication templates for effective recruitment guidance</li> <li>• Tailor communication strategies to help agencies understand the research project</li> <li>• Brainstorm <i>with</i> agency staff to find ways to integrate the interventions</li> </ul>

**Discussion/Conclusions.** Community agencies serve as resources, cultural and linguistic brokers, and advocates for immigrants; these institutions provide viable alternatives to reach

immigrant workers and their co-ethnics. This research generated new knowledge and critical understanding of factors that influence agency decisions for program or service changes across four types of community agency settings. The findings reveal, consistent with the social sciences literature, that organizational capacity—a concept comprising multiple attributes—is vital to agency program or service decisions across settings. Yet, the findings also reveal that there are additional factors, internal *and* external to the agency, that simultaneously shape agency decisions about what program/service to offer and how to sustain it as well as how to implement the change. Moreover, the findings support the unique roles of coethnic organizations (i.e., Chinese CBOs and FBOs in this project) for reaching immigrant workers and their co-ethnics for worker health promotion. While coethnic organizations do not exclude other groups from attending their programs, serving their ethnic communities is perceived as priority and as part of their mission. Partnership is one of the six core components of NIOSH Research to Practice (r2p) approach. Effective community collaboration requires understanding what works in specific contexts to address OH equity and promote total worker health. These findings highlight the importance of and potential to expand “partners” from conventional partners such as labor unions and companies to CBOs and FBOs that have expertise in working with immigrant communities, thereby transferring OH protection knowledge to these agencies as well as the immigrant communities. The factors identified in this project can guide selection of community partners, development of communication plans tailored to the agency context, and determination of resources that may be required to implement OH interventions.

The implementation trial also generated new knowledge needed to integrate and launch community-based WHE<sub>B</sub> and to build an implementation prototype for community agency-based prevention work. The WHE<sub>B</sub> was designed to be low cost and easy to implement and integrate in community agency settings that have no OH experts. The findings reveal the openness of CBOs and FBOs to adopting the WHE<sub>B</sub> and the promise of integrating the WHE<sub>B</sub> into existing programs or services without requiring additional agency resources (e.g., FTE, specialized OH skills or knowledge) and without creating much extra workload on the staff. The training protocol, delivery mechanisms selected by the CBOs and FBOs in the project, and the WHE<sub>B</sub> materials can serve as a prototype for future community agency-based, OH r2p projects. The trial also reveals challenges to sustainability such as unexpected staffing or program changes, or limited growth of clientele or membership, which may be attributed to the nature of the pilot trial that was limited to one implementation specialist and one program/service mechanism at each agency for a very limited timeframe.

In summary, this research created the foundation necessary to move toward a community-based, non-worksites approach to address OH equity and total worker health. Engaging community agencies to participate in OH research is challenging; however, we have identified a series of solutions that led to successful engagement for future community-based OH research. Further research is warranted to evaluate the uptake and sustainability of the WHE<sub>B</sub> in more community agency settings, diffusion of the WHE<sub>B</sub> in immigrant communities, and efficacy in individual and organizational changes for OH protection and promotion.

***Inclusion Enrollment Tables.***

**Study Title:** Engaging Ethnic Community Agencies in Adopting Basic Worker Health Education

**Total Enrollment:** 47

**Protocol Number:** 68

**Grant Number:** NIOSH 5R21OH010670-02

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Inclusion Enrollment Tables are not included in this report as this project was determined and approved by the University of Washington Human Subjects Division (HSD) as an exempt human subject research in accordance with the federal regulations under 45 CFR 46.101/ 21 CFR 56.104.

## **Publications**

### **Reporting preliminary findings:**

- Tsai JHC, Thompson EA, Herting JR: [2017] Understanding Community Infrastructure and Capacity to Engage Community Agencies in Advancing Occupational Health Disparities Research. Paper presented at the 2017 Expanding Research Partnerships: State of the Science Conference (sponsored by NIOSH), Denver, CO.
- Tsai JHC, Herting JR: [2017]. Integrating Worker Health Education in Community Agencies to Address Immigrant Worker Health. Symposium presented (with Dr. Rosenberg and Dr. Boutain) at the 12<sup>th</sup> International Conference on Occupational Stress and Health, Minneapolis, MI.
- Tsai JHC, Thompson EA, Herting JR: [2016] Implementing Worker Health Education with Ethnic Community Agencies. Poster presented at the 49th Annual Communicating Nursing Research Conference/30<sup>th</sup> Annual Western Institute of Nursing Assembly, the Research and Information Exchange Session, Anaheim, CA.
- Tsai JHC, Thompson EA, Herting JR: [2015] Reducing Health Disparities: Implementing Worker Health Education with Ethnic Community Agencies. Poster presented at the American Public Health Association 2015 Annual Meeting and Exposition, Chicago, IL.

### **Manuscripts in preparation:**

- Tsai JHC, Herting JR: [2018] Exploring Factors That Matter to Community Organizational Program Decisions. Manuscript in preparation.
- Tsai JHC, Herting JR: [2018] Integrating Worker Health Education in Community Agencies to Address Immigrant Worker Health: A Pilot Trial. Manuscript in preparation.

### **Inclusion of Gender and Minority Study Subjects**

**Aim 1:** Both women (n=3) and men (n=3) participated as the Community Advisor Panel to critique a prototype of basic worker health education (WHE<sub>B</sub>) materials. These were community service providers from community-based organizations and faith-based organizations in King County, Washington who were bilingual in English and Chinese and proficient in Chinese culture, working in service provision to Chinese immigrants, and working in agency for at least 12 months to ensure job and workflow familiarity. Gender and race/ethnicity were not inclusion criteria.

**Aim 2:** Both women (n=12) and men (n=14) participated in this project for this specific aim. The “agency” was the sampling unit and unit of analyses. Each agency recommended representatives who were proficient in English or Chinese, had been in their respective positions for at least 12 months (to ensure familiarity with the job and the system), and had sufficient knowledge about the range of agency activities to participate in the interview. Gender and race/ethnicity were not inclusion criteria.

**Aim 3:** Both women (n=12) and men (n=3) participated to serve as the agency designated administrators or implementation specialists. Similar to Aim 2, the “agency” was the sampling unit and unit of analyses. Each agency recommended representatives to implement the WHE<sub>B</sub> pilot trial. Gender and race/ethnicity were not inclusion criteria.

The focus of this project was on Chinese immigrant workers in the United States, thus we recruited individuals from the Chinese, Pan-Asian, and Pan-ethnic community service agencies as well as Chinese faith-based organizations. As a result of this focus, our study participants were predominantly of Asian ethnicity.

### **Inclusion of Children**

No agency or organization workers ages 18-21 participated in the study. This study focused on working adults, thus the inclusion of children under age 18 was not appropriate.

### **Materials Available for Other Investigators**

Anonymous data, the implementation manual template, the prototype WHE<sub>B</sub> materials, and the contact summary template for field notes will be made available to researchers (e.g., graduate students, University of Washington faculty) within the University who will work with the PI. These data and materials will also be available upon request to outside investigators within six months of publication of the primary analyses; access to data will include a required written user agreement to ensure human subjects protection and reliable knowledge dissemination.



### **Closeout Document 2: Federal Financial Report (FFR)**

This report is prepared and submitted by the University of Washington Grant and Contract Accounting Office.

### **Closeout Document 3: Equipment Inventory Report**

There have been no purchases that meet the definition of equipment.

### **Closeout Document 4: Final Invention Statement and Certification**

The signed certification is included in this report on the following page.