Identifying the Occupational Health Needs of Migrant Workers

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ABSTRACT. The Community Collaboration for Farmworker Health and Safety is a community-based undertaking comprised of migrant farmworkers, agricultural employers, health professionals, and community stakeholders. The eventual goal of the project is the creation, evaluation, and dissemination of interventions demonstrated to reduce the risk of

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occupational injury. To do this, the project must build a functional, community work team, and this team must identify the occupational health problem of greatest significance to the community. In this report, the methods of these initial stages of this project are examined by assessing the measurable progress and the observations of project staff and project evaluators. These assessments document both the successful creation of an effective work team and the team's completion of its initial objectives. The assessments also note issues with irregular attendance by some team members, difficulties with some of the essential tasks designated for the team, and imbalance of power among members of the team. Approaches to dealing with similar issues in future projects are suggested. doi:10.1300/J125v15n03_04

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INTRODUCTION

With an unintentional death rate of 22.7 per 100,000 workers per year, agriculture continues to be among the United States' most dangerous industries (National Institute for Occupational Safety and Health (NIOSH), 2004). An estimated 2.5 million migrant and seasonal farmworkers (MSFWs) work within this industry (United States Commission of Agricultural Workers, 1993). The vast majority of MSFWs are employed in crop production, which at best is seasonal, and in some cases may only provide employment for a few weeks. Because of the short duration of employment, farmworkers often work in multiple regions, a situation which makes it difficult to identify the effects of specific work exposures and practices upon the health of the worker (Villarejo & Baron, 1999).

In many cases, the medical problems of MSFWs are addressed by the network of community migrant health programs. Services offered through migrant health centers focus upon general medical care with particular attention being appropriately directed to problems such as HIV, tuberculosis, diabetes, and reproductive issues. The occupational health problems of this population are generally not systematically addressed (Liebman & Harper, 2001) in the clinic setting and data from

clinic visits have generally not been explored for evidence of occupational problems. For this reason, it is not surprising that published reports of medically documented, occupational health problems in farmworkers are limited. Most studies that have been published tend to rely on self-reported data gathered in work or camp settings. Research on farmworker occupational health in North Carolina, Ohio, and South Carolina found injury rates of 8.4, 9, and 5.2% based upon camp survey methodologies (Ciesielski, Handzel, & Sobsey, 1991; Isaacs & Bean, 1995; McDermott & Lee, 1990).

Data on occupational injury among farmworkers in the Northeast have been derived from a different source, the review of thousands of records at multiple migrant health sites across the region (Earle-Richardson, Ivory, & May, 1998). Despite valid concerns regarding the short- and long-term effects of occupational exposure to pesticides, these data show that many other types of injuries affect Northeastern farmworkers with a greater frequency (Earle-Richardson et al., 2003). Because these medically-documented injury events occur in definable patterns, they are susceptible to workplace interventions. However, injury intervention efforts must acknowledge that migrant farmworkers continually encounter local and regional differences in working conditions, employer priorities, and community resources (Arcury, Quandt, & Dearry, 2001). Different commodities require different processes for planting and harvesting, different paces of production, and they tend to grow under different physical conditions–all of which can have notable effects upon the bodies and lives that serve the industry.

Because of this variability, it is clear that interventions aimed at reducing injury rates are likely to be more effective and feasible when developed in concert with the local agricultural community (Ehlers & Palermo, 2005). For these reasons, there have been considerable interests in the community-based participatory model as an approach that may more accurately identify community concerns, optimize participation rates, and lead to more effective interventions (Cornwall & Jewkes, 1995). Most applications in the area of MSFWs have dealt with pesticide-related health concerns (Arcury, Quandt, & Dearry, 2001; Flocks et al., 2001; Quandt et al., 2004), but some projects have addressed other occupational issues as well (Forst et al., 2004; Arcury, Quandt, & Mellen, 2003). The Community Collaborations for Farmworker Health and Safety project was designed to use a community-based participatory approach to the problem of occupational injury occurring in individuals involved in the harvesting of wild blueberries in Eastern Maine.

BACKGROUND

Farmworkers in Washington County, Maine

Approximately 8,000 MSFWs return to Washington County, Maine, every August to participate in an intense 3- to 4-week harvest of wild blueberries (Maine Department of Labor, 2004). This seasonal workforce is roughly 45% Hispanic, 45% Native American (from the Passamoquaddy and Micmac nations), and 10% Anglo or white. Maine blueberries differ from cultivated berries, as they are "wild," growing on scrubby bushes no higher than 16 inch off the ground. The berries are primarily harvested by hand with a comb-like metal rake of varying widths, weighing 3.5-10 lb. Bending at the waist, a "raker" either sweeps the rake through the bushes or engages the foliage with the rake and then pulls directly up at a rate sometimes exceeding 30 times per minute, pausing only intermittently to empty the collecting box (Tanaka, Estill, & Wild, 1995).

Ergonomic problems and related musculoskeletal injury are not isolated to one specific muscle group. Previous studies of blueberry raking in this population have identified problems affecting the elbows, shoulders, and particularly the back and wrist (Estill & Tanaka, 1998). These problems are not restricted to migratory rakers. In a study conducted with local high school students, similar findings of wrist pain, caused by raking were reported (Millard et al., 1996). Although results from these studies contributed to the development of a recommended ergonomic intervention disseminated by NIOSH in its *Simple Solutions* publication (Baron et al., 2001), anecdotal data suggest that few rakers or farm owners have reviewed or implemented these recommendations. This appears to relate to the lack of community participation in both the identification of the priority concerns and particularly in the resulting proposed intervention. Thus, members of the various community groups must not only help to identify the major concerns of the workforce, but also take part in the creation of the realistic workplace and community interventions (e.g., Lavery et al., 2005; Minkler & Wallerstein, 2003; McCauley et al., 2001a,b; Arcury, 2000; Israel et al., 1998).

Active participation by the community is believed to enhance the likelihood that safety intervention efforts address problems that are meaningful to the target population in ways that are most likely to be feasible (Gielen & Sleet, 2003). Other advantages of the community-based approach include the building of skills within the local community (Kreuter, Lezin, & Young, 2000) and the opportunity to draw

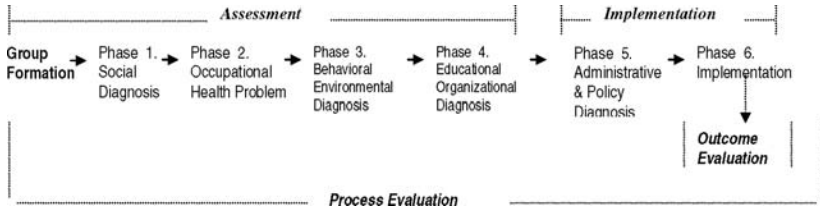
upon the specific expertise and resources available in the community (Bracht & Tsouros, 1990). Despite these advantages, the community-based approach presents a series of challenges in the migrant farmworker setting. As designed, the "community" includes both the farmworkers and their employers–groups traditionally viewed as having adversarial relationships. A greater challenge to this approach is the availability of both groups for participation during the growing and harvest seasons, times of prodigious effort for all involved. After the season, many of the workers are geographically unavailable for participation. Finally, a number of observers have recently noted the challenges encountered in meaningful evaluation of these community-based efforts (Viswanathan et al., 2004; Nilsen, 2005; Stith et al., 2006). Of particular concern is the problem of assuring that program success in one context translates into success in other settings (external validity) (Victora, Habicht, & Bryce, 2004).

Project Description

The design of the Community Collaboration for Farmworker Health and Safety project is based upon the Precede-Proceed model (Green & Kreuter, 1991). This model is useful in determining the major health issues that reduce a community's well-being. It assists in identifying the behavioral and environmental determinants contributing to the most important health problems and in assessing and categorizing all contributing factors. While leading participants to the most appropriate means of intervention, the model also provides a clear method of evaluating both the process and the impact of the overall effort. Precede-Proceed can be useful in designing interventions to reduce injuries (Sleet, 1987) and it is the model recommended by the National Committee on Injury Prevention and Control (1989). It has been used successfully in the workplace, utilizing employer/employee teams to address occupational health problems (Brosseau et al., 2002; Lazovich et al., 2002).

The Community Collaboration for Farmworker Health and Safety project adapted this model (Figure 1) to accomplish two ultimate goals. First the project seeks to build an effective coalition of primary care practitioners (PCPs), a community migrant health program–Maine Migrant Health Program (MMHP), and a research team–the Northeast Center for Agricultural Health (NEC), in Washington County, Maine. Second, the project aims to develop and test a process through which this coalition can generate effective interventions to reduce occupa-

FIGURE 1. Modified Precede-Proceed Model



[1]Adapted from *Health Promotion Planning: An Educational and Environmental Approach* (2nd ed., p. 24) by L. W. Green and M. W. Kreuter, 1991, Mountain View, CA: Mayfield Publishing Co. by permission of The McGraw-Hill Companies, Inc.

tional injury and illness in the local migrant and seasonal farmworker community.

To accomplish this, the coalition will start by soliciting the participation of the migrant community in assembling a team of MSFWs, employers, health professionals, and other stakeholders who share the common goal of reducing occupational injury and illness. The coalition will guide this team in establishing injury/illness priorities and identifying prominent risk factors (Phases 1-4 of the Precede-Proceed model). After identifying modifiable risk factors, the coalition will guide this team in designing and testing interventions intended to reduce injury/illness under the guidance of the community team (Phases 5-9 of the Precede-Proceed model). Finally, the coalition will assess the results of these evaluations with the community team and assist community organizations to disseminate and institutionalize those interventions found to be effective. Thus, since it is anticipated that this community-based intervention model may be applicable to a number of sites across the Northeast, it is particularly important to understand the process by which effective interventions can evolve through community collaborations. For this reason, this article focuses on the creation of a functional community-based team and its subsequent performance in prioritizing the occupational health and safety concerns of migrant farmworkers in Washington County, Maine.

METHODS

In 2003, a coalition involving the MMHP, the NEC, and local migrant health practitioners began working with community members to create a work team representative of blueberry workers, employers, and

local service providers. The team was charged with drawing upon its members' personal knowledge of the work and upon epidemiologic data previously gathered on worker injury and illness in order to generate a list of health and safety concerns. This list was to be ultimately resolved into a hierarchy of occupational health priorities toward which future interventions would be directed.

Creating a Diverse, Community-Based Work Team

The first objective of the project was to create the team that would both represent the community and serve to solicit information and maintain dialogue with the larger community. The team needed to be diverse, community-based, and representative of the community's broad and often contradictory (sometimes even oppositional) interests. The most obvious component of this community is the diverse workforce, largely composed of Native American men, women, and children (generally persons 12 and older), and Hispanic men. Other interests in the agricultural community needed to be represented on the team as well. Corporate and family farm owners in the region provide the farmworkers with employment and also often provide housing for the workers. These employers are dependent upon the annual efforts of these workers and thus have social and economic investments in both the occupational and the broader conditions of worker life. Similarly invested are the local agencies that provide a wide variety of social and health care services to these transitional communities.

The methods used to recruit participants from these different community groups were almost as diverse as the groups themselves. At the onset of the project, MMHP hired a Site Coordinator who was fluent in both Spanish and English. This site coordinator was responsible for recruitment and organization of local team activities. Oversight of the site coordinator was shared between the local organization (MMHP) and the Project Manager at NEC. The project was announced to the community with a press release. The site coordinator was initially introduced to growers, community agency providers, and other potential stakeholders in the study region through a letter written by an established local health provider. For recruitment of farmworkers, the Maine Department of Labor and Mano en Mano (a social service agency serving the local Hispanic population) assisted with publicity on the project. Church and tribal contacts were helpful in recruiting farmworkers, but the most effective contacts were the Camp Health Aides from MMHP.

Following these contacts, the site coordinator relied upon a series of personal meetings to recruit both farm management and employees as members of the team. Additional team members included representatives of the state extension service, local social service organizations, and local migrant health providers. The initial meetings of the team were held at a mutually accessible community church site and were facilitated by a hired consultant in team building. Meetings were subsequently held on a monthly basis and were jointly facilitated by the project manager and the site coordinator. Hired interpreters provided simultaneous Spanish-English interpretation via an electronic interpretation system (Lexicon USA, San Diego, CA). A $25 stipend was given to reimburse expenses of travel and time for attendance at each of the monthly meetings (additional mileage reimbursement was offered to those who traveled a substantial distance). This stipend was offered to all workers and independent growers. Representatives of corporate farm operations and community agencies were not given stipends; however, deliberate efforts were made in industry communications and local media to formally recognize their participation. Skills in group interaction were addressed in the initial meetings by the hired consulting facilitator. Subsequently, leadership training for group members was offered through The National Center for Farmworker Health (Buda, TX). Through project staff, work team members learned to conduct focus groups with the migrant farmworkers in the community, semi-structured interviews with key informants, and to administer short questionnaires designed to check work team perceptions with those of the general community.

Defining Injury/Illness Priorities and Identifying Prominent Risk Factors

The discussions of the work group did not begin in a vacuum, but rather began with the findings of the previous blueberry raking ergonomic and injury epidemiology studies already cited. These studies provided the work team with a preliminary set of health and safety problems that formed the basis for the team's subsequent deliberations. A similar approach has been used by other community-based projects (e.g., American Lung Association, 2001).

The initial responsibilities of the team were to develop and to pursue a methodology for collecting and processing data. These data would be needed to expand and then focus the preliminary list of the community's occupational health needs. In performing this work, the team repeatedly

referred back to the larger communities (i.e., farmworkers, employers, and regional healthcare/service providers) to be sure its decisions were appropriate.

Key informant interviews were used to explore the types of health problems experienced by community members during the blueberry harvest. The intent of the team was that these be straightforward and simple. To prepare for these planned interviews, the team developed interview objectives. In light of interviewer and interviewee literacy constraints, time constraints, and the physical demands experienced during an intense harvest, the group decided not to conduct structured or even semistructured interviews. Instead, they asked people to simply tell their stories along two basic themes: health and safety. Rakers were asked, "Have you had any work-related health problems? If so, can you talk about the problems?" In addition, the team asked, "Have you ever had to face physical safety problems when you were raking blueberries? If so, can you talk about the safety problems?" These interviews were taped and transcribed for analysis.

Project staff led a series of focus groups, usually with team member assistance for organization and facilitation. Focus groups were segregated into Passamoquoddy, Micmac, or Hispanic workers, generally with six or seven workers participating. Selections of participants from the farmworker community were based upon convenience. This is similar to the procedures used in other studies of this population (Tanaka, Estill, & Shannon, 1994; Estill & Tanaka, 1998). When culturally appropriate, discussions were tape-recorded. On other occasions, the facilitator and observer independently made notes immediately following the discussion. Two cycles of focus group discussions assisted the work team in identifying injury/illness priorities. Key topics explored in each of the first focus groups were worker concerns about health and safety and participants' personal experiences with occupational illness and injury, particularly related to blueberry work. A second round of focus groups held later sought feedback on the occupational health problems that had been prioritized by the work team and an exploration of potential antecedent factors that may have contributed to these problems. A few of the participants in this second round of focus groups had also participated in the first round. Transcripts, detailed notes, or both, were available from each of these interactions. Two reviewers independently coded each of the transcripts or notes sequentially, seeking evidence of dominant themes and recurring issues. Codes were listed for each transcript, and results were compared between the reviewers. Final codes were then combined and summarized to look for frequencies of issues

cited by informants. Those issues found to be most salient were presented to the work team at its next monthly meeting.

A short survey was used to validate the final priority decisions being made by the team. Survey respondents were asked to select their top three areas of concern from among the team's list of the top five items. If respondents felt their priority concern was missing from the list, additional space was given for write-ins. Results of these surveys were summarized in an Excel spreadsheet and distributed to work team members. Data derived from these efforts supplemented the problems identified in the prior ergonomic and epidemiologic studies of blueberry harvesting. Once a full list of candidate occupational problems was compiled, the team began a series of narrowing exercises with each team member having a vote in the prioritization decisions. At each subsequent meeting the list was reduced, eventually to five problems, and then the target problem was selected from this short list. Throughout this process, the team sought larger community input; preliminary conclusions were taken back to the community on several occasions for confirmation using methods already described.

Relying upon their knowledge of the work processes and upon data derived from focus group discussions, contributing or modifying factors were assessed for the target health problem. This approach employed Haddon's Matrix, which leads participants in the identification of pre-injury, injury and post-injury factors that influence the occurrence or outcome of an injury event (Haddon, 1980). Led by the project manager, the matrix exercise was used to stimulate examination of a wide variety of factors influencing the victim, the agent of injury, and the physical and social environment at various points surrounding the injury event.

Throughout this effort, all participating in the project were surveyed by phone by a separate NEC evaluation team. These interviews explored participants' level of satisfaction with all aspects of the project. Results were summarized in a semi-quantitative format along with pertinent quotes and shared with the entire project team at annual meetings.

RESULTS

Creating a Diverse, Community-Based Work Team

The process described in the previous section succeeded in establishing a functioning team composed of seven workers and three employers.

Despite considerable concern among project staff over variable attendance, a core group of three farmworkers and two employers emerged as consistent attendees with additional farmworkers attending when their schedules permitted. Two Native Americans and one Hispanic worker comprised the farmworker portion of the team. Other regular participants included a local migrant health clinician, the project manager, the site coordinator, and two interpreters. Attendance by extension personnel was helpful, but infrequent. Participation by the Hispanic community social services group, Mano en Mano, became increasingly regular and important as the process went on.

Evaluation telephone surveys were completed with nine work team members and project staff. Five of seven respondents (71%) were very satisfied with the recruitment process. All those surveyed felt their participation in the group was welcomed and all but one felt that other team members respected their opinions. Nearly all responders described good feelings regarding the nature of the project, the sense of shared mission, the sincere effort of participants, and the ability to accommodate diverse perspectives. Concerns voiced about team makeup included too few farmworkers, insufficient participation by PCPs, and the exclusion of local White rakers from the project team. Some participants felt that the initial concepts presented were too abstract and that it took too long to get going on the work of the project. Others felt that the pace was too rapid to allow optimal collaboration, community interaction, and discussion within the team.

Members of the work team both reported and displayed commitment to the process and cohesiveness as a community-based group. Work team members also reported and displayed an emerging sense of ownership over the project, and even redefined the "rules" and goals set by the researchers, signifying a notable level of comfort in the process. As one farmworker explained, "I think that I am a community representative. I go to the community and ask what they want, and then bring it back to the group. I am sort of a liaison between the community and the group. I am building information to see what the community wants from the project." Other forms of emotional affiliation are apparent in comments like the following made by an employer in a process evaluation interview: "All opinions and ideas are posted and then discussed. Through our discussions the number of ideas narrows to an agreed upon priority list. I think we are targeting the most important issues." In general, team members seemed to be both committed to the team and to the larger enterprise and they took individual and collective pride in the achievements. This commitment assumed considerable significance for some

team members. One Native American farmworker attended nearly all of the off-season team meetings, despite the fact that they were held 250 miles from her residence in New Brunswick, Canada. One of the employers has contributed significantly to the project in terms of expensive equipment (amounting to several thousand dollars) donated for use by the project.

Other indicators of effective team functioning included: the team's designation and adoption of group functioning rules, which were observed by team members thereafter; active participation in various capacity building activities; careful adherence to the project timeline (albeit with considerable direction by the project manager); and finally as already noted, the team's cohesion and independence in deciding not to follow the advice of the collaborating organizations regarding the designation of one very specific target problem.

Defining Injury/Illness Priorities and Identifying Prominent Risk Factors

The team succeeded with this objective, but only with considerable support from the project staff, particularly the site coordinator and project manager. Despite considerable discussion and training from project staff, with some notable exceptions, most team members did not contribute substantially to the data-gathering effort (Table 1). One-on-one interviews between work team members and key informants turned out to be infeasible for most work team members. Eventually one member

TABLE 1. Data Gathering Initiatives

Source of Data	Time	No. of Participants
Community Focus Groups		
Passamoquoddy	Harvest	6
Micmac	Harvest	6
Hispanic	September	7
Passamoquoddy	Late October	6
Micmac	Late October	6
Key Informant Interviews		
Micmac	Harvest	2
Hispanic	Harvest	12
Survey		
Micmac	Spring	29

was able to conduct two interviews with peers, and the site coordinator and project manager conducted interviews with five other individuals who had extensive histories in the migrant and seasonal community. A project assistant conducted seven additional interviews with Hispanic farmworkers, again exploring the two themes developed by the work team.

Three focus groups were held in conjunction with the blueberry harvest or immediately after. Six experienced Passamaquoddy rakers participated in the first. The second included six (five experienced and one novice) Micmac rakers. Immediately following the blueberry harvest, seven young (aged 19-29) Hispanic workers participated while they were beginning the nearby apple harvest. In all cases, the groups were facilitated by project staff but recruited and organized by team members. A second round of focus groups were held in late fall in Northern Maine and New Brunswick, Canada. Here, work team members played a key role in arranging for focus groups (six workers each) and assisting with the meeting while the project staff was visiting. A team member contributed significantly to the survey effort. Project staff designed the survey format and the team approved it. Then the work team representative administered this survey to 29 Micmac farmworkers.

The team functioned well in compiling the list of occupational health problems. After the first critical thinning the list had 17 items. With successive meetings, it was narrowed to five items and these choices were supported by the results of the subsequent survey effort. At this point, however, the team deviated from the project's stated aim of designating "the" occupational problem of highest priority. Despite advice to the contrary, the team chose to designate two main problems and to define one of these in quite general terms that might make subsequent selection and testing of an intervention considerably more complex.

The Haddon Matrix approach to analyzing injury causes and modifiers did not work. Despite efforts in two successive team meetings, these concepts could not be effectively communicated to the team members. It did not appear to simply be a language problem, since all team members struggled with this exercise. Eventually the project staff and health professionals who participated on the team constructed the matrix. The major findings of the matrix were then presented to the team for assent or dissent.

All responders voiced "satisfaction" with the intervention target that emerged, but only a quarter of these described themselves as "very satisfied." Seventy-five percent of respondents believed that the choice of the target occupational health problem was made "by all or most

coalition members," 17% felt it had been made "by a few influential members," and 8% "by NEC staff." These surveys indicated generally positive feelings on the part of the team who believed that the farmworker community was "extremely grateful" for the activities of the project. Other observations included that farmworkers' time is extremely limited, scheduling needs to be more flexible, and meetings should be more accessible without getting bogged down. All described information from the community as "very important."

DISCUSSION

With the assistance of the federally funded migrant health programs across seven Northeastern states, the NEC has, in recent years, used a medical chart review methodology to identify specific patterns of occupational injury for each participating clinic site. These epidemiologic injury data provide insight into some of the occupational challenges in each of these communities. Additional insight remains to be gained from the community itself. Meaningful occupational health interventions can be undertaken at each of these sites if effective collaboration with the community can be established. The intent of this work was to examine whether the approach taken in Maine's Community Collaboration for Farmworker Health and Safety project effectively recruited and built a functional community work team. Furthermore, did this lead to the identification of the highest priority occupational problems and related contributing factors.

The findings suggest that, with some qualifications, the answer to both questions is "Yes." The recruiting efforts were generally felt to have been effective by project staff and team members. Yet it is apparent that with added attention to local dynamics and resources, additional team members would have been desirable. One individual who possesses unique expertise with regard to potential interventions has since been added to the team. Interestingly, the team members identified the lack of participation by Anglo rakers, a group that comprises only about 10% of the workforce, as a weakness in the team.

As is typical of community-based activities, attendance at work team meetings tended to fluctuate (Arcury, Quandt, & McCauley, 2000). The variability in attendance appeared to be the product of many factors.

1. *The seasonal nature of the work*–Owing to this, many of the Hispanic farmworkers quickly moved to other regions for work, and as a result, were unable to participate on a regular basis during

the fall, winter, and spring months. A smaller group of "settled" (resident) Hispanic workers was invited to participate; however, regular participation was hindered both by their extended work schedules (often with more than one job) and an apparent sense of having been "tapped" excessively as key informants for research and other purposes.

2. *Limitations of time*–Participation in project activities, such as interviews and some meetings during the harvest proved to be impracticable for farmworkers, employers, and service providers alike. The work is intense and requires a seven-day workweek, with the very limited time off being used for rest, laundry, shopping, and calling home.
3. *Limitations of communication*–Many participants cannot be readily contacted by telephone or electronic methods. Changes in meeting times and locations appear to exacerbate the pressures against attending, and on at least one occasion appear to have made it impossible for several attendees to locate the meeting.
4. *Costs of participation*–This appears to have been adequately defrayed by the availability of meeting stipends ($25 per meeting), which in some cases may have actually increased participation. However, additional reimbursement for mileage became necessary when it was apparent that some team members were prepared to drive up to 250 miles each way to participate in the project.

Although team member attendance was sometimes inconsistent, it is clear that cohesion and commitment developed among the participants, particularly those who attended more regularly. Involving the work team members in data collection and analysis, as well as the determinations of what data needed to be collected were procedurally important because it helped establish work team cohesiveness. This approach also drew upon expertise that only the rakers and employers possess. Finally, the discussions and negotiations within work team meetings between farmworkers, employers, and providers may have helped to create social linkages that will be helpful for future discussions beyond the scope of the current project.

The inability of the team to contribute significantly to the Haddon Matrix analysis of injury factors was unexpected and disappointing. This was an area where the team's expertise might have contributed significantly. The reason for the problem remains unclear, but based upon this experience, in future projects a somewhat more concrete and visually

accessible technique, such as logic modeling, may prove to be more effective.

An unexpected outcome was the empowering of the community team to reconceptualize one of the key project objectives. A major goal of this project for the research team was the identification of "the" highest priority occupational health problem. The work team, however, elected to create conjoined lists of symptoms and injuries connected by hyphens or slash marks (e.g., "muscle and joint–back/legs/arms and wrists"). Thus the team not only designated two priorities, but also expanded each priority to include a larger range of related risks. This decision implies that health and safety priorities experienced by the community might not be perceived as the hierarchically ranked risks envisioned by research professionals. Instead the community concerns are put forth as "clustered concerns," linked to each other as much as the body parts are to themselves. One farmworker on the work team explained: "If you've raked before, you'd know that it's not just your back that hurts, but your whole body. It's all connected." In addition, it seems clear that the group's refusal to create hierarchy reflects a desire to be inclusive of the various opinions and seek consensus within the work team at the price of specificity. One participating farmworker stated, "Well, during the meetings that we have had, there have been several things that we have talked about, but my hope would be that out of all those things that the most important things are fixed, maybe two things. I know that we are a lot of people living different lives, so for me it seems a little difficult to agree."

Although there remains some concern that the work team's low level of specificity in ranking health concerns will make the intervention and outcome evaluation phases of the project more complex, it is clear that this community-based team was able to successfully identify and rank health and safety concerns, even if in a manner slightly different from traditional researcher-based approaches. It is unclear how this relates to the subsequent evaluator observation that project members were generally "satisfied" with the target problem(s) that were designated, but only a quarter felt "very satisfied."

CONCLUSION

Stimulating community ownership of problems and solutions and enhancing the capability to discuss and address other problems is an effective way to address occupational health challenges to farmworker

populations. This approach was not, however, without its difficulties and challenges. Thus, there are some conclusions related to logistical, procedural, and specifically community-oriented suggestions to assist practitioners in similar future projects. The following logistical approaches deserve consideration by anyone seeking to use community-based approaches in working with farmworkers and possibly their employers.

1. Clearly define goals, responsibilities, decision making, reimbursement policies, and other process issues very early.
2. Offer small incentives for participation. In addition to reimbursing travel/time, meals at meetings lighten the load for participants and foster group bonding.
3. Once established, consider shifting from time-intensive meetings to teleconferencing when such capabilities can be established.
4. Include team members in project annual meetings, research team meetings and presentations of the project at professional forums. This can substantially enhance the sense of ownership and level of commitment of community members.

It is important to attend to the impact of power differences within the team, particularly when it includes groups as disparate as farmworkers, employers, and health professionals. In this project, it appeared that Hispanic workers felt themselves to be more vulnerable to employer action and thus less free to speak directly and honestly on certain issues. Similar tensions were also present among employers, who were, in reality, competitors and may have felt constrained by this relationship. Future projects should allow greater amounts of process time to address these problems and plan ongoing process evaluation that is particularly sensitive to such issues. These are challenges that appear to be common to community projects, yet the structure of the work teams (both employers and workers) in this project tended to heighten these issues. In this setting attention to seating arrangements, composition of task subgroups, and variation in the wording of goals and questions may be particularly important. The importance of building community participants' organizing and interactive skills was initially seen as a functional goal, but was quickly identified as having significant affective and commitment effects. Thus, it is recommended that future program planners heavily emphasize both training and skill building up front. One consequence of this may be increased independence of the team in reexamining project strategy. Organizers must be prepared to respect the community's judgment by examining and even welcoming unanticipated changes.

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