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DEVELOPING OCCUPATIONAL SAFETY AND HEALTH TRAINING PROGRAMS FOR IMMIGRANT WORKERS: TRANSLATING RESEARCH TO PRACTICE

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The U.S. workforce has undergone significant changes in the past several decades, as large numbers of new immigrant workers have entered the workforce. In 2010, immigrants made up 16.4% of the labor force, compared with just 6.6% thirty years earlier (Singer, 2012). Hispanics now make up about half of all foreign-born workers, and Asians account for about a quarter (Bureau of Labor Statistics [BLS], 2012). With the aging of the U.S. native-born population, immigrant workers now make up a disproportionate share of the labor force. Many of these workers are concentrated in particular industries that are considered "3-D" jobs: dirty, demeaning, and dangerous (Connell, 1993; Quandt, Arcury-Quandt, et al., 2013). These industries include agriculture, food service, personal care, hospitality, warehousing, and construction (BLS, 2012).

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Within those industries, immigrants are clustered in lower skilled and more dangerous jobs (Singer, 2012). The result has been a significant change in the composition of the labor force and the health and safety training needs in these industries.

Immigrant workers make up an increasingly large proportion of work-related fatalities both internationally (Salminen, 2011) and in the United States (Loh & Richardson, 2004; Menéndez & Havea, 2011; Richardson, 2005). Immigrant workers are also overrepresented in injuries (Argeseanu Cunningham, Ruben, & Venkat Narayan, 2008; Centers for Disease Control and Prevention, 2008). Recent data on morbidity and mortality show that the industries that are becoming composed predominantly of immigrant workers experience the highest rates of work-related injury and death. For example, 7% of all fatal occupational injuries in 2010 occurred among crop production workers, and 17% occurred in construction (BLS, 2011).

Data from Europe show that once immigrant or minority workers come to predominate in a job category, that category seldom reverts to domestic or majority workers (European Agency for Safety and Health at Work, 2007; International Labour Office, 2004). Thus, there is a clear imperative for action to reduce these disparities in injury rates in these industries and with these immigrant workers.

Efforts to address occupational safety and health (OSH) can take several different approaches. The most basic is to eliminate workplace hazards, whether they are pesticides for farmworkers or the use of ladders for construction workers. Although some hazard elimination is often possible, complete elimination often is not. Therefore, engineering controls that prevent hazard exposure, such as saw guards, are the next most effective measures. In addition, regulations on supervisor and worker behaviors that reduce worker exposure can be developed—though without enforcement, they generally have little effect (Arcury, Lu, Chen, & Quandt, 2013; Robinson et al., 2011). Finally, OSH training programs can be provided. Such programs can increase workers' knowledge, improve their skills, and increase workers' self-efficacy to put the skills into practice (Robson et al., 2012).

This chapter focuses on the last approach to OSH: developing training programs. It is aimed primarily at developing training programs for those immigrant workers in manual occupations, and we argue for greater use of research-based OSH training programs for this worker population. After summarizing the characteristics of effective training programs, we discuss characteristics of immigrant workers in manual occupations that shape their training needs. We present a framework for using OSH research to develop training programs. We then discuss procedures for developing effective training activities and materials that can be used in training programs for immigrant workers.

CHARACTERISTICS OF EFFECTIVE OSH TRAINING PROGRAMS

There is no shortage of programs or materials intended for worker OSH training. For example, our team's experience reviewing programs and materials for pesticide safety for farmworkers published from 1988 to 1998 uncovered 35 items just on this limited topic (Quandt, Austin, Arcury, Summers, & Saavedra, 1999). These materials ranged in format from crude brochures to interactive computer programs to complete curricula. Most notable was the lack of provenience for many items: They gave few clues for how and where they were developed, whether they were effective, and whether they were developed to be appropriate for immigrant worker populations. Many appeared to have been developed by simply taking materials created for native-born workers, translating text into Spanish, and substituting pictures of workers with those of more Latino-appearing workers.

Training programs should be conceptualized as (a) an overall approach, based in individual-, group-, or community-level perspectives (for examples, see Glanz, Rimer, & Viswanath, 2008); (b) a method of implementation (e.g., peer educators, community organizing); and print, electronic, or other materials used in the program. To be effective, training programs should meet a minimum set of criteria (see Exhibit 7.1). They should be evidence based: The concepts underlying the training materials should reflect current scientific research. This might include research for the dominant way worker exposure to chemicals or other agents takes place or research that compares

EXHIBIT 7.1
Checklist for Recognizing Potentially Effective Occupational Safety and Health Training Programs

- Evidence based
  - □ Consistent with valid, reliable, and current research
  - □ Efficacy and effectiveness established
- Culturally appropriate
  - □ Consistent with targeted trainees' values and beliefs
  - □ Consistent with trainees' life experiences
- Linguistically appropriate
  - □ Presented in the language used by the trainees
  - □ Uses vocabulary and idioms familiar to the trainees
- Educationally appropriate
  - □ Literacy level fits that of trainees and trainers
  - □ Aimed at adult learners, not children
- Realistic
  - □ Fits the resources available for worker training
  - □ Consistent with resources and possibilities for worker action found in the work environment

different safety practices. For example, research published in 2011 that compared different types of personal protective equipment demonstrated, for the first time, that transmission of seasonal influenza in hospital workers seems to occur as much through the eye as through inhalation (Bischoff, Reid, Russell, & Peters, 2011). Such novel results might well need to be incorporated in infection control training in health care workers. The section in this chapter titled "Developing OSH Training From the Research Base" elaborates the steps in ensuring that training reflects underlying research.

Training should be culturally and linguistically appropriate. Workers of different cultural backgrounds vary in how they understand the workings of the human body, and they often apply widely held lay beliefs about illness to those conditions identified by biomedicine. For example, researchers studying Latin American workers have noted that some, but not all, workers base their behavior around humoral medicine, which contrasts with biomedicine in assuming that hot/cold valences characterize human exposures (e.g., water, different foods), human activities such as strenuous physical exertion, and processes of illness and injury (Quandt, Arcury, Austin, & Saavedra, 1998; Rubel & Hass, 1996). Immigrant workers also recognize lay-defined illnesses that have no counterparts in biomedicine, such as *susto* and *nervios* among Mexican workers (Baer & Penzell, 1993; Weller, Baer, Garcia de Alba Garcia, & Salcedo Rocha, 2008), and they perceive some individuals as inherently resistant to harm from occupational exposure (Hunt, Ojanguren, Schwartz, & Laperin, 1999; Quandt et al., 1998). OSH training that fails to take such beliefs into account may be unsuccessful in promoting safety behaviors. Language appropriateness extends beyond a global assessment of languages spoken by a worker population. Spanish spoken in Mexico, for example, differs to a greater or lesser degree in vocabulary and pronunciation from that spoken in other Spanish-speaking countries. Even if Spanish is spoken, it may be a second language for those workers who were raised speaking indigenous Native American languages; these workers' comprehension of Spanish-language training is often limited (Farquhar et al., 2009). Workers may also use specific work-related terms that can be amalgamations of other words, such as farmworkers using the term *sprayando* when talking about spraying pesticides (Arcury, Estrada, & Quandt, 2010). Although these cultural and linguistic examples come from Hispanic populations, comparable examples undoubtedly exist with other immigrant worker groups.

Worker safety training should be educationally appropriate. The inclusion of materials that require reading should consider the literacy level of the workers who use the materials. Most immigrant worker populations in manual occupations have a broad range of educational statuses. It is not unusual to find individuals with at least some college training in these jobs. At the same time, the modal educational level is often quite low, with some individuals who have had no formal education. The challenge for training materials and

programs is to be able to accommodate this broad range. In most cases, it is best to consider ways to limit the need to read or to accompany words with audio or visual cues to help the worker grasp meaning without reliance on printed words.

Adult education principles need to be used to craft training programs appropriate for nonyouth workers. These principles are sometimes discussed as *andragogy* in contrast to *pedagogy*, the approach to teaching children. Adult education principles assume that the adult learner is self-directed, with a reservoir of experience that is both a resource for further learning and problem solving and a filter through which new information is interpreted. These principles also assume that adult learning is oriented to learners' social roles (e.g., being workers or parents), not to academic pressure, and that they are oriented to immediate application of knowledge, giving workers a problem-centered orientation to their learning (Knowles, 1973, 1980). In the context of these adult-learner characteristics, training programs that involve learners as partners rather than students, that use hands-on and active learning approaches, and that encourage learners to practice a skill or apply knowledge are appropriate. Training methods such as discussion, role-playing, games, demonstrations, mapping, and case studies are geared to adult learners (Collins, 2004). Programs that include peer-to-peer training with a lay health and safety promoter generally incorporate adult-appropriate training methods (Arcury, Marín, Snively, Hernández-Pelletier, & Quandt, 2009; Forst et al., 2004; Luque et al., 2007; Migrant Health Promotion, 2009; Quandt, Grzywacz, et al., 2013).

Finally, training programs must be a realistic match for the intended application. They need to fit the resources in time, equipment, and personnel available to provide training. Their content should also be consistent with workers' ability to take action. For example, telling workers to wear personal protective equipment (PPE) if none is provided will be less effective than accompanying the message to wear PPE with messages concerning employers' legal obligations to provide PPE and suggested actions to obtain the PPE.

CHARACTERISTICS OF IMMIGRANT WORKERS THAT SHAPE THEIR TRAINING NEEDS

Current immigrant workers in manual occupations in the United States have a number of common characteristics that should be considered in developing OSH training programs. Many of them are unfamiliar with the work tasks and work environment in which they have found employment. Even if they have previously worked in the same industry in their country of origin (e.g., agriculture, construction), they may be unfamiliar with the way work is organized in the United States and with aspects of the workplace such as

machinery and chemicals used. For example, a review of worker deaths in confined spaces in California highlighted cases in which recent immigrants died when they unknowingly went into situations where they were asphyxiated by chemicals (Worksafe, 2012).

Most workers new to the United States also know little of their rights, including those related to a safe workplace and to workers' compensation for injuries suffered at work. If they are noncitizens, and particularly if they are undocumented, many erroneously assume they are entitled to no protections (Flynn, Eggerth, & Jacobson, 2015).

Finally, labor unions in the United States have historically played an important role in OSH training. Yet, many immigrants work in jobs that are not unionized. These include day laborers and domestic workers employed in private households. Some areas of the country, like the South, have a limited union presence, so industries located there (e.g., poultry and meat processing) are often not unionized. Without unions, organizations providing training programs frequently lack access to the worksite and must conduct training in the community (e.g., Marín et al., 2009). Workers asked to participate in such trainings may be reluctant to do so for fear of employer retaliation.

DEVELOPING OSH TRAINING PROGRAMS FROM A RESEARCH BASE

Strategies for developing evidence-based OSH training programs are typically based on both existing research and focused research conducted in the process of program development and in target populations. The sequence of steps for program development and the integration of research is well described by Green and Kreuter's (2005) PRECEDE–PROCEED planning framework. The framework is flexible to be able to accommodate numerous theoretical approaches to changing OSH-related behavior and environment at the individual, group, or community level.

Steps in the PRECEDE phases of the framework occur before program implementation and are most crucial for training program development (see Figure 7.1). Phases 1 through 3 represent a thorough diagnosis of the OSH problem. Phase 1, social assessment, begins the process with on-the-ground research to understand the concerns of those potentially involved with implementing or receiving the training program, including workers and supervisors. Using qualitative methods such as focus groups or individual semistructured interviews can determine whether the concerns over worker OSH are shared broadly and whether workers can be engaged in the training; they can foreshadow resistance to change and help incorporate strategies necessary to overcome this.

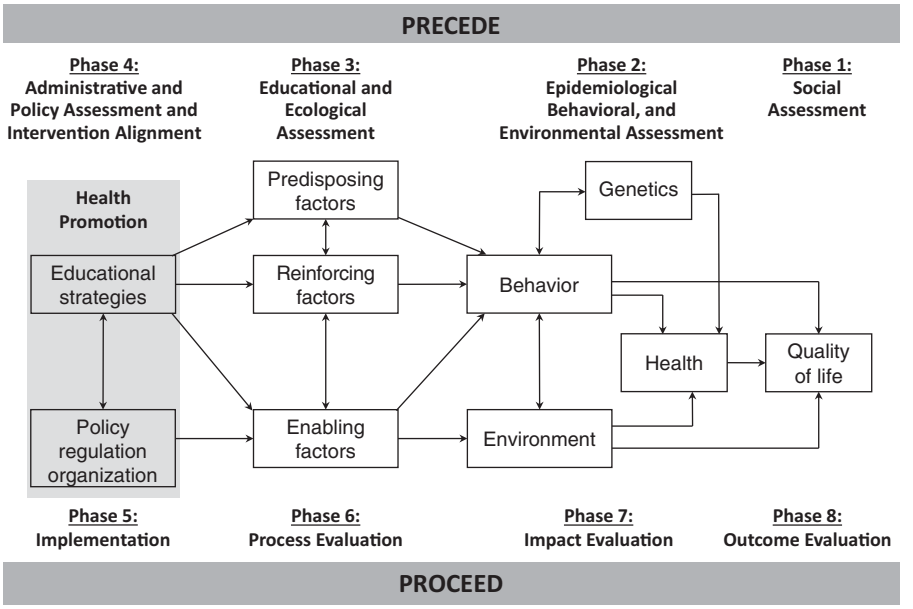

Figure 7.1. The PRECEDE–PROCEED planning framework. From *Health Promotion Planning: An Educational and Environmental Approach* (4th ed., p. 10), by L. W. Green and M. W. Kreuter, 2005, New York, NY: McGraw-Hill. Copyright 2005 by McGraw-Hill. Adapted with permission.

Phase 2, epidemiological, behavioral, and environmental assessment, calls for using existing, often published, research data to sharpen the focus on specific OSH issues and identify the behavioral and environmental factors most closely linked to these issues. Such factors are potential leverage points for the training program.

Phase 3, educational and ecological assessment, is the stage at which formative research is often necessary. This can be qualitative research (obtained from a combination of interview or observation), survey research, or a combination. The goal is an ethnographic understanding of the workplace, incorporating the perspectives and subjective experience of workers as well as a more objective understanding of structural factors related to OSH. It is often helpful to use this research to define the factors that must be in place for the change in behavior or environment necessary to improve OSH to occur (Green & Kreuter, 2005). *Predisposing factors* provide workers with the rationale or motivation for change. These can include beliefs, values, or existing skills. *Reinforcing factors* provide a continuing incentive for the change, including social support or the influence of peers and significant others. *Enabling factors* allow change to be realized and can include programs and services, as well as new skills for workers.

Finally, Phase 4, administrative, policy, and intervention alignment, is the stage at which data gathered in the previous phases are synthesized to create the OSH training program, or intervention. This synthesis requires two levels of alignment (Green & Kreuter, 2005). At the macrolevel, the program must consider organizational and environmental factors (e.g., worksite management and resources) that can influence achievement of the desired endpoints. At the microlevel, the program focuses on individual, peer, or group factors that can affect behavior change. The microlevel focuses quite directly on the predisposing, reinforcing, and enabling factors revealed in Phase 3.

The PRECEDE–PROCEED framework does not prescribe a particular type of program or even the type of theory underlying the program. Rather, the framework ensures that the program developed reflects data that have been systematically collected, analyzed, and considered.

Example: Developing a Comprehensive Pesticide Safety Training Program for Immigrant Farmworkers

The PACE (Preventing Agricultural Chemical Exposure) project began in 1996 as a community-based participatory research endeavor to understand and ultimately prevent exposure of Latino farmworkers to pesticides. The overall approach of the project and recent findings are described in Arcury and Quandt's Chapter 4 in this volume. Initial work in the PACE project conducted formative research on pesticide exposure and designed a safety-training program for workers. This work, described in greater detail elsewhere (Quandt, Arcury, Austin, & Cabrera, 2001), provides an example of using the PRECEDE–PROCEED planning framework to develop an OSH intervention grounded in research.

Social assessment (Phase 1) for the PACE intervention determined that health care providers and other service providers believed that pesticides were a significant health threat for farmworkers (see Figure 7.2). They cited acute poisonings, as well as concerns about the long-term health effects exposure might have for workers. Farmworkers had some concerns, though their focus was on acute exposures and their potential for lost work time due to pesticide-related illness.

Epidemiological assessment (Phase 2) found limited data for the study area (North Carolina) and more extensive data for elsewhere. These studies indicated excess morbidity and mortality for occupationally exposed workers; a time delay from exposure to health effects, including neurological, reproductive, and immunological effects; and greatest immediate effects among those who mixed and applied pesticides. The scientific literature noted that considerable pesticide exposure was due to pesticide residues remaining on plants, tools, and soil that could not be detected by sight or smell and that were absorbed through

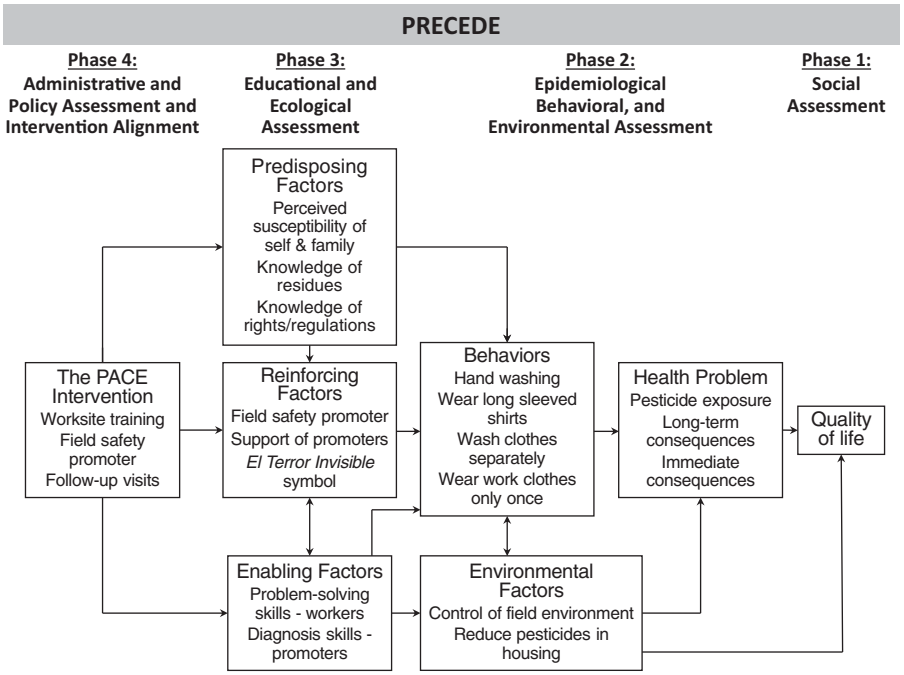

Figure 7.2. The Preventing Agricultural Chemical Exposure (PACE) model for pesticide safety intervention development. From "Preventing Occupational Exposure to Pesticides: Using Participatory Research With Latino Farmworkers to Develop an Intervention," by S. A. Quandt, T. A. Arcury, C. K. Austin, and L. F. Cabrera, 2001, *Journal of Immigrant Health, 3*, p. 92. Copyright 2001 by Plenum Publishing Group. Adapted with permission.

the skin. Behavioral and environmental assessment (Phase 2) included new research: interviews with workers, growers, and health care providers (Quandt et al., 1998). Workers expressed beliefs about pesticides that were inconsistent with scientific knowledge. They had no knowledge of pesticide residues and dermal exposure. They disliked recommended sanitation practices like wearing protective clothing and washing immediately after working because of the hot, humid working conditions and beliefs about health effects of washing that were apparently rooted in folk beliefs common in Mexico (Rubel & Hass, 1996; Weller, 1983). Growers rejected the notion that currently used pesticides were dangerous and that workers were being exposed, as workers did not mix or apply pesticides. They stated their frustration at trying to communicate with workers, few of whom spoke English, and with regulations that made them provide sanitation facilities that the workers did not seem to use.

Educational and ecological assessment (Phase 3) used interview and observational data to identify predisposing factors (lack of knowledge of

residues, lack of perceived susceptibility, lack of knowledge of regulations delaying entry into pesticide-treated fields), reinforcing factors (importance of fellow workers to reinforce safety behaviors and provide positive role models), and enabling factors (need for problem solving skills to gain control of workplace pesticide exposure). On this basis, the PACE intervention program was developed (Phase 4). The intervention's target was reducing farmworker contact with pesticide residues, as the planning process had made it clear that this was likely the workers' primary source of exposure. The intervention needed to center on addressing the predisposing factors through provision of scientifically accurate information about pesticides, in ways respectful of cultural beliefs, as well as education about workers' rights and OSH regulations. Reinforcing and enabling factors called for an intervention that increased group solidarity around safety and provided skills for diagnosing and solving problems in the work environment. The actual activities are described elsewhere (Quandt et al., 2001) and were developed with the approaches described next.

DEVELOPING EFFECTIVE TRAINING ACTIVITIES AND MATERIALS

Sometimes OSH educators are tempted to start with a favorite educational medium. For example, they may have expertise in developing videos. However, decisions on training media should come after other decisions are made. The first step in materials development is to clarify the objective of the training (see Figure 7.3). Once the objective is clear, this can be broken down into behavior changes that are needed to accomplish the objective, and

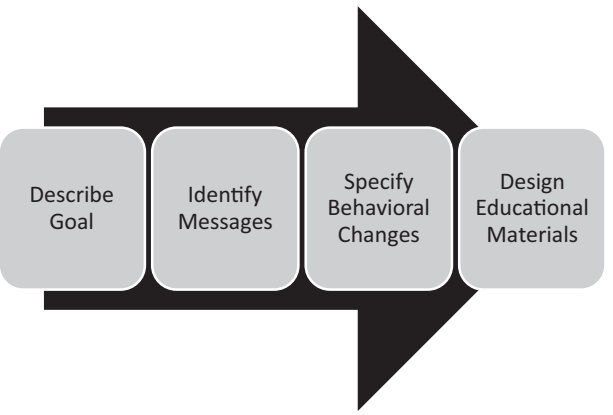

Figure 7.3. Steps for developing training materials.

messages to move from the objective to the desired changes can be drafted. Only then should specific training activities and educational materials and media be composed.

Identify the Message First

Most OSH programs will have one or more specific goals related to how worker behavior should change to achieve lower injury or disease rates. Each goal can be broken down into specific behavior changes that must occur to increase the likelihood of meeting the goal. These behavior changes can be encouraged with messages that communicate or remind the worker of the desired behavior.

Examine the "Scenario of Use" to Identify Appropriate Educational Material Formats

Educational activities for adult workers include a large number of possibilities. Hands-on, interactive activities can include role-playing, games, or quizzes; risk mapping; theater; photovoice; and storytelling. Even with the use of such activities, it is often advisable to include activities that use print or audiovisual materials. Exactly what training materials are included is best developed as part of an overall training program. Rarely does a single item stand alone. For example, a training video might need to be accompanied by a take-home item—a poster, a brochure, a hard-hat sticker—to serve as a cue to action for the worker, perhaps to call a source for additional information, to report rule violations, or to engage in a certain self-protective behavior. Initial decisions about the different training materials that are needed should take into account the overall training goals developed in a framework like PRECEDE–PROCEED and what workers need to know and do to reach those goals.

Using these goals, one can start by engaging the development team—trainers, workers, materials designers—to think about training materials' "scenario of use"—that is, think about who will use the materials, how they will interact with the materials, the context in which they will interact with the materials, and how much time they will have to interact with them (see Exhibit 7.2). For example, if training is to be delivered by a lay trainer in a community setting for a small group, this is an interactive setting. Deciding a priori that the training project should develop a comic book or *fotonovela* ignores the fact that such an item is best read individually. In such a scenario of use, games, flipchart lessons, or other means of assisting the lay leader in engaging the workers will be more appropriate. In a larger group, a video can be a useful way to present information, though it rarely can be used without

EXHIBIT 7.2
Checklist for Considering the "Scenarios of Use"
for Safety Training Materials

- Who will use the materials?
  - □ Workers alone
    - Age?
    - Gender?
    - Literacy level?
  - □ Lay trainers
  - □ Professional trainers
- In what context will workers interact with the materials?
  - □ In the workplace
  - □ In a community meeting
  - □ At home
- How will workers interact with the materials?
  - □ Individually
  - □ Small groups
  - □ Large groups
- How much time will be available for the interaction?
  - □ A brief interaction
  - □ All-day training session
  - □ Ongoing training program
- What are the cost restrictions on the training?

other more interactive training components that reinforce video content and allow workers to practice new skills.

Developing a scenario of use requires open discussion by a team including those knowledgeable about the worker population (including worker representatives), the potential trainers, and the industry for which training is to be provided. Including educational materials designers (e.g., graphic artists, videographers) can provide resources to the group, although it is important that the skills of the particular materials designers not lock in a specific format before the scenario is developed.

Example: Developing Educational Materials for a Farmworker Pesticide Intervention

In planning an intervention to reduce pesticide exposure among migrant farmworkers and their families, formative research showed that both agricultural and residential pesticides were significant sources of exposure (Quandt et al., 2004). Because migrant farmworkers must occupy temporary housing to work, housing conditions factor in their occupational safety and health in ways different from most other worker populations. On the basis of research that showed that most farmworker housing was of poor quality (Early et al., 2006; Gentry, Grzywacz, Quandt, Davis, & Arcury, 2007), the researchers

decided that encouraging farmworkers to follow pest control measures that do not require pesticides would help lower pesticide exposure while accomplishing the workers' objective of reducing the problem of insect and rodent pests. This particular component of the intervention was developed to supplement those components more directly related to agricultural work (described for the PACE project, mentioned previously).

The planned intervention drew on principles of integrated pest management (IPM), which highlights eliminating the conditions that attract pests and preventing pests from gaining access. Three messages were developed in English (with Spanish translations): Starve them out! (*¡Mátalas de hambre!*), Dry them out! (*¡Mátalas de sed!*), and Keep them out! (*¡No los dejes entrar!*). Each of these messages was linked to two behavior changes (see Figure 7.4).

Once the messages were identified, a scenario-of-use review suggested that the program to educate workers and their families would likely occur in small groups in farmworker camps. Workers would be Spanish speaking, largely from Mexico, and some would have very low literacy skills. The intervention would likely be presented by lay health promoters (*promotores de salud*) on evenings or weekends. Two media were selected: an animatic cartoon video (Lane,

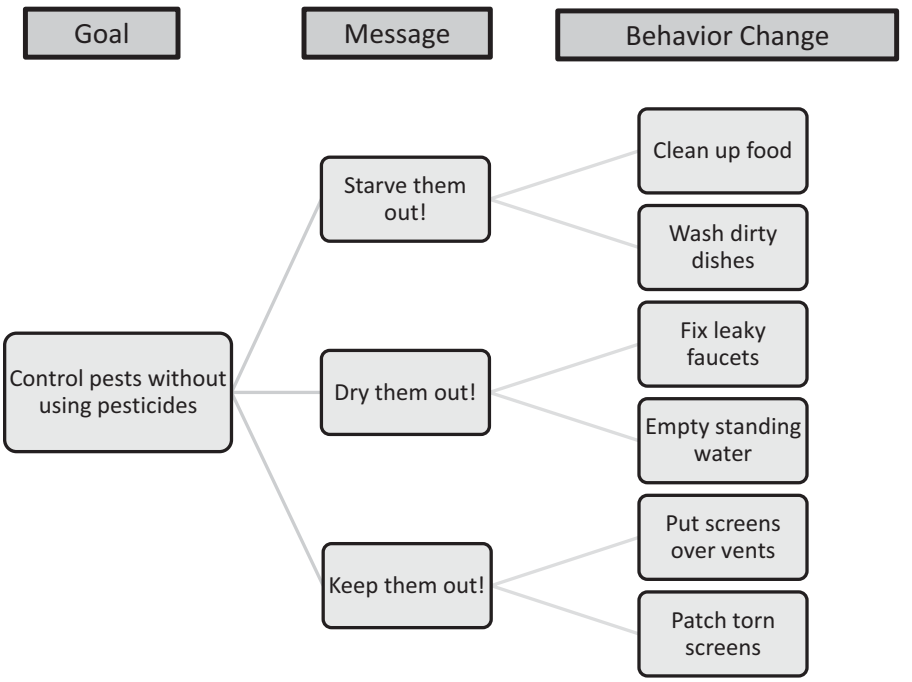

Figure 7.4. Example of plan for developing educational materials related to integrated pest management in farmworker housing.

Arcury, Quandt, & Marín, 2003a), with an accompanying print comic book (Lane, Arcury, Quandt, & Marín, 2003b). The messages and behaviors were woven into a dramatic story involving a buffoon, Pablo, who is attempting to rid his house of pests using all the wrong methods. His neighbor Maria and her friend and *promotora de salud* Selena teach him the correct ways to reduce his pesticide problems by implementing IPM techniques (see Figure 7.5). The animatic cartoon video uses brightly colored computer-generated art and professional voiceover to capture the audience's attention. The art is in a simple storyboard format with relatively little animation used at key points in the story for emphasis. Both the cartoon video and the comic book use repetition, sound effects (aural or pictured), and humor to teach and reinforce the messages and their corresponding behaviors.

Assess the Suitability of OSH Materials for Immigrant Workers

Immigrant workers vary widely in their educational experience, so materials suitable for low-literacy learners are appropriate. In developing new materials or choosing from existing ones, evaluation of materials before putting them to use is imperative. Getting feedback from workers, whether in informal one-on-one encounters or in focus groups, can help one gauge the appropriateness of the materials. Techniques such as "think aloud" can be used to judge workers' comprehension of print materials. Getting feedback on details such as color, facial expressions, skin color, and accuracy of worksite depictions can prove useful in finalizing materials (e.g., see flipchart pages in Grzywacz et al., 2009). Obtaining feedback on drafts early in the process can help avoid the need for costly revisions when materials have been finalized.

No matter the format of the OSH materials being assessed, a standard set of factors can be reviewed. Doak, Doak, and Root (1996) suggested a standardized suitability assessment of five criteria (see Exhibit 7.3): content, literacy demand, graphics and layout, stimulation and motivation, and cultural appropriateness. Reviewing these criteria throughout the development of materials can keep the process on track and produce training materials that are appealing to workers and effective in improving their OSH-related knowledge and behavior.

FINAL THOUGHTS: RESEARCH TO PRACTICE IN OSH TRAINING

The characteristics of immigrant workers and the worksites in which they are employed shape their OSH training needs. Existing OSH education and training programs vary in quality and appropriateness, and many are not evidence based. Creating OSH programs and materials requires consideration

Figure 7.5. Comic book cover for *Dígale Adios a Las Plagas* by C. M. Lane Jr., T. A. Arcury, S. A. Quandt, and A. Marín, 2003b, Winston-Salem, NC: Department of Family and Community Medicine, Wake Forest University School of Medicine. Copyright 2003 by C. M. Lane Jr., T. A. Arcury, S. A. Quandt, and A. Marín. Reprinted with permission.

EXHIBIT 7.3
Checklist for Evaluating Training Materials for Low Literacy Workers

- Content
  - □ Purpose is evident
  - □ Content focuses on "behaviors"
  - □ Scope is limited
  - □ Includes a summary or review
- Literacy demand
  - □ Uses common words
  - □ Simple writing style, active voice
  - □ Reading level is low
- Graphics and layout
  - □ Uncluttered
  - □ Only relevant illustrations
- Stimulation and motivation
  - □ Behaviors modeled and specific
  - □ Interaction used
  - □ Motivation: self-efficacy
- Cultural appropriateness
  - □ Match the language and experience of the audience
  - □ Use cultural images and examples

Note. From *Teaching Patients With Low Literacy Skills* (2nd ed., p. 51), by C. C. Doak, L. G. Doak, and J. H. Root, 1996, Philadelphia, PA: Lippincott. Copyright 1996 by Cecilia Doak. Adapted with permission.

of how they will be used and by whom, research to shape the programs and materials to the particular worker population, and evaluation of the materials during and after development. Publication of such evaluations and creation of accessible repositories of materials grounded in research will assist OSH practitioners in providing the best possible training for workers.

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