Monograph series

Migrant Health Issues

Environmental / Occupational Safety and Health

by

Alice Larson, Ph.D.
Larson Assistance Services
Vashon Island, Washington

MIGRANT HEALTH

Monograph no. 2

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Many injuries and illness associated with employment in agriculture have been documented through the years (Wilk, 1986; Villarejo and Baron, 1999; Von Essen and McCurdy, 1998). Those employed in this occupation are at much greater risk of death than workers in every industry except construction. Agricultural crop and livestock production, combined with agricultural services, accounted for 13% of all occupational deaths from 1994-99, while only covering 2% of overall employment (Bureau of Labor Statistics [BLS], 2000).

Risks occur through work-related conditions, use of equipment and chemical exposure. The results can be seen in illness-related acute and chronic conditions, in severe disabilities, and in fatalities. Workers, their families, and particularly their children can be affected both at the work site and from contamination brought home.

The National Institute of Occupational Safety and Health (NIOSH) convened a panel of experts in 1995 to set occupational health priorities for agricultural workers (National Institute of Occupational Safety and Health [NIOSH], 1995). The following areas emerged as concerns:

Ergonomic conditions/musculoskeletal injuries
The heavy lifting, awkward body posturing, twisting and repetitive tasks of agricultural work lend themselves to the development of musculoskeletal injuries that can present acute problems and long-term disabilities for farmworkers. Contributing factors include poorly designed tools, lack of training, and long work hours. Most studies asking farmworkers about their health uncover a high level of backaches and other chronic conditions that cause lost work days, constant pain and difficulty moving (Villarejo et al., 2000; Strong and Maralani, 1998; Estill and Tanka, 1998; Palmer, 1996; Mines, Mullenax, and Saca, 2001).

(Back and neck pain were the most common types of chronic pain workers experienced. Over 40% of these workers left or changed jobs because of the pain they experienced.)

Traumatic injuries
Falls, cuts, amputations, and other injuries are commonplace in agricultural production (BLS, 2000; McDermott and Lee 1990; Schenker, Lopez, and Wintermute, 1995; Myers, 1997; Studeland, Mickel, Cleveland, et al., 1995; Mines et al., 2001). Individuals working full days under stressful conditions are more prone to accidents. When injuries occur, they can be severe. Examples include crushing from farm equipment, accidental slicing with hand labor tools, and falling from ladders. Farmworkers have little training in accident prevention. The prevalence of children in the field — either because no alternative care sites are available or because they are themselves involved in agricultural tasks — can also lead to fatal or life-altering accidents (Wilk, 1993). Transportation to and from work sites

often occurs in unsafe and/or overcrowded vehicles.

(31% of all injuries were due to falls.)

Respiratory problems
Agricultural work includes constant exposure to respiratory irritants, including pesticides, dust, plant pollen, and molds. Workers performing tasks may have their faces close to, or for some activities can literally be engulfed in, such irritants, constantly breathing in particles that can cause respiratory difficulties. Other workers, for example in nursery/greenhouse operations or mushroom production, work in enclosed spaces that may be poorly ventilated. Often these conditions are exaggerated through smoking. The results can be chronic respiratory illness, including allergies, bronchitis, and asthma (Scheneker, Ferguson, and Gamsky, 1991; Von Essen, 1993; Garcia, Dresser, and Zerr, 1996).

Dermatitis
Skin problems are extremely common among those who work the crops. These can be caused by plants that scratch the skin, by allergic reactions, by exposure to chemicals, or by other causes related to agricultural production (Hogan & Lane, 1986; O'Malley, 1997). A recent study found close to half of tobacco workers interviewed said they experienced the symptoms of green tobacco sickness at least once while working the season. This illness is related to dermal exposure to wet tobacco (Quandt, Arcury, Preisser, Norton, and Austin, 2000). Figures from the Bureau of Labor Statistics show almost half of all reported occupational illnesses within agriculture are associated with skin diseases or disorders (BLS, 2000). A 1990 study by the Migrant Clinician's Network found dermatitis to be the primary cause for patient visits to four migrant health centers among male farmworkers in their twenties (Dever, 1991). Most physicians are not trained to treat agriculturally-related dermatitis and have little experience identifying the cause of problems. Workers are hesitant to seek medical help for these conditions until they reach extreme levels.

Infectious diseases
Both the NIOSH Work Group charged with prioritization of farm worker occupational health and safety issues and the recent review on the occupational health status of farmworkers (Villarejo et al., 1999; NIOSH, 1995) categorize infectious diseases as related to agricultural employment. Tuberculosis and parasitic diseases are attributable to deficient sanitation both at work and at residence sites, poor quality drinking water and failure to provide uncontaminated washing and drinking water (Wilk, 1993; Ciesielski, Seed, Ortiz, and Metts, 1992; Jacobson, Mercer, and Simpson, 1987). Seasonal agricultural workers, due to lack of economic resources, must live in deficient housing or overcrowded conditions that are conducive to unhealthy living situations (Sherman, Villarejo, Garcia, et al., 1997; Larson, 1995). These conditions all contribute to the spread of communicable disease.

Cancer
A high incidence of cancer is suspected but not well documented among the farmworker population. Agricultural workers are exposed to known cancer-causing chemicals, and studies find a high prevalence of breast cancer, brain tumors, non-Hodgkin's lymphoma, and leukemia within agricultural communities. Constant exposure to the sun can promote skin cancer within workers (Blair and Zham, 1991; Zham and Blair, 1993). Because farmworkers are mobile, live and work within numerous and varied situations, and may move in and out of agricultural work, the long-term studies necessary to investigate cancer prevalence have been lacking with this population.

Eye problems
A health issue for farmworkers recently receiving more attention is eye problems. Several reports

have documented the prevalence of eye complaints and eye-related visits to health facilities (Villarejo et al., 2000; Myers, 1997; Hall, Cartwright, & Hunter, 2000; Centers for Disease Control and Prevention, 1995; Mines et al., 2001). Similar to dermatitis causing agents, farmworkers are exposed to potential eye irritants as they work including dust, pollen and chemicals. Untreated chronic eye problems can lead to serious damage (NIOSH, 1995); tree branches and accidents with agricultural tools can cause abrasions. Most Migrant Health Centers do not have an ophthalmologist on staff, and therefore may face difficulty offering comprehensive treatment.

(Itchy eyes were the most common complaint among pesticide sprayers as well as nonsprayers.)

Pesticide Exposure

Farmworker exposure to pesticides and the potential for health-related effects are probably the most documented and researched area within agricultural occupational health; yet, so many related hazards remain unknown and research left undone. The use of agricultural chemicals and required employee training are highly regulated covering all aspects of protection and education; yet so much remains unenforced and workers continue to be employed in hazardous situations. Even the extent to which these issues pose a problem is unclear due to underreporting and lack of clinician training.

It seems every review of occupational health issues in agriculture lists pesticide exposure as a potential hazard (Wilk, 1986; Villarejo et al., 1999; Von Essen et al., 1998). The Environmental Protection Agency (EPA) regulates the use of such chemicals and has laid out strict guidance for their development, sale, hazard classification and use. The potential for acute poisoning is well documented based on lethal effects on test animals, and research has shown the results of exposure to workers in the manufacturing process and to applicators for individual chemicals. The effects of long-term exposure are less well documented, although some pesticides are clearly carcinogenic (Purschwitz and Field, 1990).

Almost all research on pesticides used in agriculture tracks a single chemical. What is not known and continues to lack research is the effect of continuous exposure to a variety of pesticides. Additionally, little research has been done on the interaction of one pesticide on another, or on the adherents used within the pesticide formulation, many of which themselves may be hazardous (Simcox et al., 1999; Shaver and Tong, 1991; Moses, 1989). It is these topics that are the most relevant to farmworkers, as they are exposed to not a single pesticide but to multiple pesticides of various classifications, and to a variety of doses over an extended period of time. Pesticide-related research in this area is very difficult, as cause and effect are rarely clear, leaving conclusions of any sort muddy (Mobed, Gold, and Schenker, 1992).

The EPA and the Occupational Safety and Health Administration (OSHA) regulate pesticide production and application, and both agencies require that workers be given pesticide related information (U.S. Department of Labor, Occupational Safety and Health Administration, 1987) and receive comprehensive training, particularly for those involved in pesticide handling (Environmental Protection Agency [EPA], 1988). A recent study found that, despite improvements in training and certification of workers following the Worker Protection Standard, a significant number has not received training (Mines et al., 2001). Several studies have determined these laws are not enforced; workers are not receiving required training or are subject to ineffective educational techniques (Larson, 2000; Perry and DiFonzo, 1998; Arcury et al., 1999; Columbia Legal Services, 1998; Davis and Schleifer, 1998). The result is that agricultural workers are often ill

prepared to protect themselves from the potentially hazardous chemicals around them.

The Worker Protection Standard also requires workers to be afforded assistance if pesticide exposure should occur. This includes transportation to the nearest health facility and cooperation with medical providers in offering information about the chemicals to which they may have been exposed (EPA, 1988). However, it is not clear whether this is occurring, and there have been anecdotal reports of employers who are not forthcoming with information that can make a difference in patient care (EPA, 1997).

Clinicians receive little training in recognition and treatment of pesticide-related illness which, in many instances, might present as flu-like symptoms. The health facility may not take a work history of patients that can serve to alert providers to possible exposure. Clinicians may lack knowledge that can relate symptoms to diagnosis and may actually discount workers' protestations in this regard (Mobed et al., 1992; Meggs and Langley, 1997). The chronic effects of association with pesticides, such as cancers, neurological problems, miscarriages, and impotence, are treated without considering long-term exposure to pesticides as a potential cause.

Often what is heard is that there is no problem with exposure to pesticides because there is little reporting of incidents. Even in states with mandatory reporting of suspected pesticide-related illness, there is a sense that not all incidents are recognized and reported (Pesticide Incident Reporting and Tracking Review Panel, 2000; Pesticide Analytical and Response Center, 1999). This has been attributed to physician's failure to recognize pesticide-related illness or to their hesitancy to report for fear of community retribution. Other causes may be employers discouraging their workers from using the health care facility, claiming "everything is reported as pesticide exposure," and worker unwillingness to seek health care or report exposure incidents for fear of retaliation (Schnitzer and Shannon, 1999; Mobed et al., 1992).

Although much still remains to be done, there are a few positive things on the horizon that might help with some of these issues. Many states are developing a uniform surveillance system for reporting of pesticides that would include common data elements and procedures. This may be able to provide more information regarding pesticide exposure and problem chemicals and situations (Schnitzer and Shannon, 1999).

The Bureau of Primary Health Care, in conjunction with the Office of Migrant Health, has undertaken a "Pesticide Collaborative" as a way to develop a model for prevention, recognition and treatment of pesticide-related illness that can be effectively instituted within a migrant health setting.

The EPA has begun a year-and-a-half national comprehensive effort to assess the effectiveness of the Worker Protection Standard that will look at broad issues such as training, enforcement, complaint and retaliation, communication, and information exchange. The result will be recommendations for changes to increase effectiveness, possibly including revisions to the legislation itself.

AmeriCorps Volunteers are being placed in community-based organizations to focus on worker pesticide health and safety training. Half of these are located in Migrant Health Centers.

Other hands-on pesticide safety training programs have been developed, many of which focus on train-the-trainer techniques to teach community members how to educate others (Weinger and Lyons, 1992). The use of lay health workers as

educators seems to be particularly effective in providing this safety-related information to farmworkers.

States are beginning to recognize the need for bilingual/bicultural investigators for gathering information about suspected pesticide-related incidents. These individuals are better able to talk directly to farmworkers and are more adept at winning the trust needed to obtain the information necessary to conduct a thorough investigation.

One of the most interesting and potentially far-reaching cooperative efforts recently undertaken to address some of the fundamental problems associated with helping farmworkers avoid potential problems and treat actual pesticide exposure is the development of "Pesticides and National Strategies for Health Care Providers." This effort of the EPA, the Health Resources and Services Administration, the U.S. Department of Labor, and the U.S. Department of Agriculture is based on the idea all health providers should "possess a basic knowledge of health effects related to pesticide exposures and an ability to take action to ameliorate such effects through clinical and preventive activities" (EPA, 2000). The implementation plan looks at three specific targets: educational settings, practice settings, and resources and tools. It establishes strategies for each area. The document emphasizes that activities are needed at every level of health provider interaction and must involve a variety of agents using broad implementation approaches. Only in this way can long-term results be accomplished.

The draft plan of this document will become final in 2001 and be introduced to a wide range of stakeholders to secure their endorsement. Funding will then be sought for implementation of various components and training begun for health professionals and students.

Produced for the National Advisory Council on Migrant Health by the National Center For Farmworker Health, Inc., Buda, TX, October 2001.

Copies may be obtained through the following sources:

National Center for Farmworker Health, Inc., Buda TX
Phone: (512) 312-2700
http://www.ncfh.org

Migrant Health Branch, Bethesada, MD
Bureau of Primary Health Care
Phone: (301) 594-4300
http://bphc.hrsa.gov/migrant/

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