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HEALTH ISSUES OF MIGRANT AND SEASONAL FARMWORKERS

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Abstract: This paper describes the socioeconomic conditions under which the 3 to 5 million migrant and seasonal farmworkers in the United States live. Health consequences resulting from occupational hazards and from poverty, substandard living conditions, migrancy, language and cultural barriers, and impaired access to health care are described. Specific problems include infectious diseases, chemical- and pesticide-related illnesses, dermatitis, heat stress, respiratory conditions, musculoskeletal disorders and traumatic injuries, reproductive health problems, dental diseases, cancer, poor child health, inadequate preventive care, and social and mental health problems. By increasing awareness among health care professionals of the plight of migrant and seasonal farmworkers, the authors hope to encourage development of a stronger public health infrastructure and to improve the health status of these individuals.

Key words: Migrant farmworkers, seasonal farmworkers, agriculture, occupational injuries, pesticides, poverty, access to health care

Background

The plight of migrant and seasonal farmworkers (MSFWs) in the United States was first brought to national attention on Thanksgiving Day in 1960 by famed journalist Edward R. Murrow's documentary, "Harvest of Shame."¹ While families at homes across the country enjoyed their bountiful Thanksgiving dinners, the program depicted the miserable living conditions associated with migrant agricultural work as "sweatshops in the fields." Forty years later, MSFWs remain one of the most impoverished and underserved populations in the United States. MSFWs suffer morbidity and mortality rates greater than the vast majority of the American population, due in large part to

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occupational hazards, poverty, substandard living conditions, migrancy, and language and cultural barriers.^{1,2}

Characteristics of the agricultural workforce

Although it is difficult to quantify the number of hired farm laborers in the United States, because of their social, economic, and linguistic marginalization, current estimates suggest that the agricultural industry employs some 2.5 million such laborers.³ According to the U.S. Department of Labor's National Agricultural Workers Survey (NAWS), approximately 1.4 million of these farm laborers are MSFWs.⁴ Other estimates have reported that between 3 and 5 million MSFWs and their dependents (including husbands, wives, children, and other family members) live in the United States.⁵ A seasonal farmworker has been defined as "an individual whose principal employment is in agriculture on a seasonal basis who has been so employed within the last twenty-four months."⁶ A migrant farmworker meets the same definition but "establishes for the purposes of such employment a temporary abode."⁶

About two-thirds of MSFWs are "shuttle migrants" who travel from a home base (either inside or outside of the United States) to a specific destination for seasonal employment in agriculture. The remaining one-third follow crops for employment and move from place to place, usually along predetermined migratory streams along the Atlantic seaboard or the West Coast, or through the midwestern states and Texas.

Although knowledge about the subgroup of MSFWs is incomplete, the available evidence indicates that hired farm laborers are demographically very different from family farmers and members of nearly every other occupational category. Hired crop workers are predominantly male (80 percent) and young (66 percent younger than 35 years, median age 29 years).⁴ Slightly more than half (52 percent) are married; 55 percent of married couples migrate and work together.⁴ Forty-five percent have children, and 24 percent have children with whom they reside.⁴ Eighty-one percent of farmworkers and their families are foreign-born: 95 percent of these are from Mexico, 2 percent from other parts of Central America and the Caribbean, and 1 percent from Asia.⁴ Spanish is the predominant native language of 84 percent, followed by English (12 percent).⁴ The remaining 4 percent speak languages such as Tagalog, Ilocano, Creole, and Mixtec.⁴ The median educational attainment of MSFWs is 6th grade. Even in their native language, 20 percent of these workers are completely illiterate, 38 percent are functionally illiterate (capable of reading at the 4th- to 7th-grade levels), and 27 percent are marginally literate (capable of reading at the 8th- to 12th-grade levels).⁴

Socioeconomic conditions

According to the Economic Research Institute of the U.S. Department of Agriculture, the U.S. agricultural industry's net farm income during the 1990s

was \$45.5 billion per year.⁷ Agricultural workers cultivate and/or hand-harvest up to 85 percent of fruits and vegetables produced by this industry.⁸ One-half of all individual farmworkers earns less than \$7,500 per year, and one-half of all farmworker families earns less than \$10,000 per year.⁴ Consequently, 61 percent of all individual farmworkers, and 50 percent of those with three to five family members, have incomes below federal poverty levels (individual: \$8,860/year, three to five family members: \$15,020 to \$21,180/year).⁹

While some employers provide labor camps for MSFWs, attempts to enforce housing standards by the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) have created a trend toward discontinuing this practice.¹⁰ Many employers are unable or unwilling to pay for the construction and maintenance of standard-meeting labor camps. Those farmworkers unable to find employer-provided housing units use local private housing that is not subject to federal regulation. Private housing tends to be substandard and expensive.¹⁰

Since units are rarely equipped with laundry facilities, pesticide-contaminated clothing may be washed in the same sink in which food is prepared or in the bathtub in which children are bathed. Housing camps may also be located next to pesticide-treated fields, resulting in persistent pesticide exposure via drift or even direct spray. Although some housing is well kept, many camps are overcrowded, with poor ventilation and inadequate, faulty, or even nonexistent plumbing. In this environment, infectious diseases, such as tuberculosis, spread easily. Garbage heaps and stagnant water breed rodents and insects, which can further harbor and transmit zoonotic diseases such as tularemia, anthrax, or rickettsial infections. Unfortunately, some MSFWs do not have access to or cannot afford housing; they may be forced to sleep in tents, vans, cars, or even ditches or open fields.^{10,11} Migrant camps are not easy for the public or government to find, especially when they are privately owned. One of the many barns seen from a distance while driving on a rural road might, in fact, be a labor camp (Figure 1).

Occupational hazards

MSFWs face numerous occupational hazards. Farm labor is seasonal and intensive. Migrant workers labor in all seasons and weather conditions, including extreme heat, cold, rain, and bright sun. Work often requires stoop labor, working with soil and/or heavy machinery, climbing, and carrying burdensome loads, all of which lead to chronic musculoskeletal symptoms. Direct contact with plants can cause allergic rashes or, in the case of tobacco farmers, "green tobacco sickness" (i.e., transdermal nicotine poisoning).

Agriculture is one of the most hazardous occupations in the United States. In 2000, there were 780 deaths and 130,000 disabling injuries in agriculture.¹² The only industry that had more deaths was construction, with 1,220.¹² The actual rate of occupational injuries and illnesses in agriculture may, in fact, be

FIGURE 1
POOR CONDITIONS ABOUND AT MIGRANT LABOR CAMPS



much higher. Underreporting of medical conditions is significant due to limited access to health services, different cultural conceptions of health and disease, and fear of lost wages or jobs.¹³ Although OSHA regulations require agricultural employers of 11 or more workers to provide drinking water and hand-washing and toilet facilities, compliance with these regulations is poor; sanitation violations have been noted in up to 69 percent of its field inspections.¹⁰ Moreover, farms with fewer than 11 employees, a category that includes 95 percent of U.S. farms, are exempt from many OSHA regulations.¹⁴ As a result, some MSFWs resort to drinking or bathing in water contaminated with pesticides, chemical fertilizers, or organic waste.

Health problems

Although MSFWs and their families suffer from the same health problems found in the general population, the occupational hazards, poverty, substandard living conditions, migrancy, and language and cultural barriers that they face result in unique health hazards as well. As a result, the average life expectancy of MSFWs is 49 years, compared with the national average of 75 years.¹⁵ Various categories of health problems faced by MSFWs are discussed below.

Infectious disease. Migrant workers are at increased risk for contracting a variety of viral, bacterial, fungal, and parasitic infections.^{13,15-19} They are approximately 6 times more likely to have tuberculosis than the general population; up to 44 percent of migrants have positive purified protein derivative of tuberculin skin tests.¹³ Parasitic infection rates are 11 to 59 times higher than

in the general population.¹⁵ Untreated parasitic conditions can lead to chronic anemia or malnutrition. There is a high incidence of sexually transmitted diseases, primarily among young, single men in labor camps, who face social isolation and have limited recreational facilities. While the national seroprevalence rate of HIV infection is 0.4 percent, HIV seroprevalence rates among migrant workers are 2.6 to 13 percent.¹⁷⁻¹⁹ Migrant women are at particular risk of contracting HIV because of boyfriends or husbands visiting prostitutes; variable cultural beliefs about the use of contraceptive methods such as condoms; and a lack of access to educational, counseling, and preventive services.¹⁸

Migrant workers are also at increased risk for urinary tract infections, partly as a result of a lack of toilets at the workplace and stringent working conditions that promote chronic urine retention.^{10,20} Urinary retention in turn encourages bacterial growth and stretches and weakens the bladder wall; this in turn promotes chronic infections or colonization.

Chemical and pesticide-related illnesses. The full extent of acute and chronic pesticide poisoning among MSFWs is not known, due to the lack of formal reporting systems, the reluctance of workers to report poisonings, workers' inability to seek medical treatment when accidents occur, and a dearth of physician knowledge and training in recognizing and treating pesticide-related illnesses.²⁰ Migrant workers suffer from the highest rates of toxic chemical injuries of any group of workers in the United States; the Environmental Protection Agency estimates that 300,000 farmworkers suffer acute pesticide poisoning each year.²¹ Chemical and pesticide poisoning may result from direct spraying of workers; indirect spray from wind drifts; direct dermal contact with residues on crops; bathing in, or drinking, contaminated water; or transfer of residues from contaminated hands while eating, smoking, or defecating. Acute organophosphate exposure causes increased salivation, tearing, blurred vision, nausea, vomiting, abdominal cramps, urinary and fecal incontinence, increased bronchial secretions, cough, wheezing, and sweating. In more severe acute intoxication, dyspnea, bradycardia, heart block, hypotension, pulmonary edema, paralysis, convulsions, or death may occur. Long-term pesticide exposure may cause permanent neurological deficits, such as peripheral neuropathy or deficits in motor skills, memory (or, attention), and cancer.^{3,22} This is especially true with certain outlawed (in this country) persistent organic pollutants, which may have endocrine, reproductive, and oncogenic effects on pregnant women and on growing children.^{14,23}

Dermatitis. Agricultural workers have a higher incidence of skin disorders than employees in any other industry; dermatitis is the most common occupational health problem among MSFWs.^{13,20} Skin disorders may stem from exposure to pesticides, fertilizers, latex, chemicals, allergenic plants (e.g., poison ivy, ragweed, and sumac), and allergenic crops (e.g., asparagus, barley, tobacco, celery, lettuce, and mustard). Sun, sweat, chapped or abraded skin,

lack of protective clothing, and absence of hand-washing facilities at the worksite all contribute to skin conditions. Because occupational dermatitis often occurs on the hands, migrant workers may suffer a reduction in their work capability and/or income.²⁰

Heat stress. Strenuous outdoor labor with few, if any, rest periods, combined with a lack of potable water, contributes to a high incidence of heat stroke, heat exhaustion, and heat cramps. Farmworkers are four times more likely than nonagricultural workers to suffer from heat-related illnesses.²⁰

Respiratory conditions. Migrant workers are exposed to many hazardous agents, including organic and inorganic dusts (e.g., cotton, grain, hay, silica), gases (e.g., NH₃, H₂S, CO, CO₂, CH₄, NO₂), herbicides (e.g., Paraquat), fertilizers, solvents, fuels, and welding fumes.¹⁴ As a result, they are at risk for mucous membrane irritation, allergies, asthma, hypersensitivity pneumonitis (i.e., farmer's lung), pulmonary fibrosis, chronic bronchitis, pulmonary edema, tracheobronchitis, emphysema, and asphyxiation.^{3,13,14,16}

Musculoskeletal disorders and traumatic injuries. Agricultural labor places migrant workers at risk for musculoskeletal disorders as a result of heavy lifting and carrying; prolonged kneeling, stooping, or otherwise difficult postures; working with the arms above shoulder level; whole body vibration (e.g., tractor driving); and rapid repetitive motions.^{3,13,14,20} Workers face three main categories of problems: traumatic injuries (e.g., fractures, strains), joint and tissue irritation, and accelerated joint degeneration. Interventions such as warming up, stretching, and ergonomic education and training might help to reduce traumatic injuries and chronic musculoskeletal illnesses in this population.^{13,14}

Reproductive health. Prolonged standing and bending, overexertion, dehydration, poor nutrition, and pesticide or chemical exposure contribute to an increased risk of spontaneous abortion, premature delivery, fetal malformation and growth retardation, and abnormal postnatal development.^{18,20,24} Moreover, low socioeconomic status; frequently young maternal age; and late, little, or no prenatal care increase risk to mother and child.¹⁸ The infant mortality rate among MSFWs has been estimated to be twice the national average.²⁵ In one study of California migrant women, 24 percent had had at least one miscarriage or stillbirth.²⁶

Child health. Although the U.S. government limits the legal age of child labor in most industries to at least 16 years, for agricultural labor it is 12 years.^{10,18} Children are particularly vulnerable to pesticide poisonings and respiratory and communicable diseases. In fact, children may be more vulnerable than adults to the same dose of pesticides, since they have greater surface area to body weight ratios than adults, greater circulatory flow rates that affect the distribution of toxic chemicals, and less mature immune systems that may

be less effective than adults' immune systems in detoxifying and eliminating hazardous agents.²⁷ During development, changes also occur in liver enzymes that can increase the toxicity of environmental chemicals, causing a greater proportional impact from the same amount of chemicals.²⁷ Many migrant children are below average height. They suffer more frequent respiratory, parasitic, and skin infections; chronic diarrhea; vitamin deficiencies; and dental problems than other children.^{18,20,28} Children of migrant farmworkers experience homelessness, frequent moves, poverty, and interruptions of schooling and friendships that pose both psychosocial and developmental risks.¹⁵

Oral health. MSFWs experience 150 to 300 percent more decayed teeth than their peers.²⁹ Dental caries is the most common untreated health problem in migrant children; at least one-half of farmworker children have at least one and an average of three carious teeth.¹⁸ Children who do not receive dental care are at increased risk of developing severe periodontal problems as adults. Dental disease results in part from an overall lack of knowledge about dental care. Many MSFWs have weak knowledge of the relationship between sweet foods and caries and of the positive effects of good oral hygiene and fluoride on periodontal health.^{18,30}

Cancer. Migrant workers are exposed to a wide variety of carcinogens, including pesticides, solvents, oils, fumes, ultraviolet radiation from chronic sun exposure, and biologic agents such as human and animal viruses. Farm laborers have increased mortality rates for cancers of the lip, stomach, skin (melanotic and nonmelanotic), prostate, testes, and hematopoietic and lymphatic systems (e.g., multiple myeloma, and Hodgkin's and non-Hodgkin's lymphomas).^{3,13,14,31} A recent study reported that the California members of the United Farm Workers of America developed more cases of leukemia, stomach cancer, and uterine corpus and cervix cancers than the general California Hispanic population.³² Farmworkers also experienced later stage disease at diagnosis in comparison with the general California Hispanic population for most major cancer sites, which may reflect impaired access to preventative and screening health services.³² Children exposed to pesticides seem to show higher relative risks than adults for developing many of these cancers.³³ Farmworkers have decreased mortality from cancers of the lung and bladder, which may be related to a lower prevalence of smoking.¹⁴ Very few studies have focused on hired farmworkers, so data must be interpreted cautiously. Methodological challenges for future research include the difficulty of follow-up due to migrancy, the complexities of estimating exposure, and the (in)accuracy of occupational codes on death certificates.

Social and mental health. Migrant workers face numerous sources of stress, including job uncertainty, poverty, social and geographic isolation, intense time pressures, poor housing conditions, intergenerational conflicts, separation from family, lack of recreation, and health and safety concerns.^{13,14}

Manifestations of stress include relationship problems, substance abuse, domestic violence, and psychiatric illness. Heavier drinking patterns have been noted in communities of predominantly single men compared with those consisting primarily of families. Children of migrant workers experience a sixfold greater risk of mistreatment than children in the general population.¹³

Despite the stressors faced by migrant workers, their lifetime prevalence of psychiatric disorders actually may be lower than that of Mexican Americans and of the U.S. population as a whole.³⁴ However, prolonged U.S. residence leads to an increased risk of psychiatric disorders; the increased risk may be attributed to the loss of protective sociocultural factors (e.g., cohesive communities based on strong social support, family ties, language and group identity), or it could represent initially healthy migrants becoming less psychologically healthy with acculturation over time.³⁴

Impaired access to health care

Migrant workers face numerous barriers to medical care, including lack of transportation, insurance, and sick leave; the threat or fear of wage or job loss; language barriers between MSFWs and health care providers; and limited clinic hours.^{10,13,15,16,20} Illiteracy further limits verbal communication and the degree to which written information can be relied on to provide educational or preventive advice and information regarding how to get health care. The fact that treatment is often sought for acute rather than for chronic conditions or for preventative services is likely due, in part, to this illiteracy. Migrant workers have increased hospitalization rates and mortality from common conditions (e.g., pneumonia mortality may be up to 200 percent higher than the national average); the prevalence of chronic conditions such as hypertension, anemia, obesity, and dental disease is high.^{10,14} Chronic illnesses that require careful monitoring, such as diabetes, tuberculosis, and HIV, present special problems to MSFWs, who often lack follow-up care or a long-term relationship with a single health care provider or clinic.

The migrant health care system of approximately 400 federally authorized clinic sites (funded under the Public Health Service Act) reaches only 12 to 15 percent of the migrant population annually.¹⁸ Although many MSFWs are eligible for assistance programs, as few as 15-20 percent actually obtain benefits.¹³ Incomes can fluctuate during different agricultural seasons, preventing qualification based on monthly or weekly wages, even though annual earnings are below poverty levels. Fear of immigration penalties and a lack of knowledge of eligibility criteria also hinder enrollment. Migrant workers are often disqualified because they do not meet the 45-day residency requirement that many states impose. As many employers do not report wages of MSFWs, they are often unable to prove claims for Social Security, workers' compensation, occupational rehabilitation or disability compensation benefits.^{10,14,18,20}

Finally, as few as 1-2 percent of MSFWs have protections afforded by labor union representation, which could provide collective bargaining agreements for services such as employer-provided health insurance.¹³

Limitations of available data

Historically, much of the information available concerning MSFWs has been derived from secondary sources and has been limited in scope. Frequently, survey data of employers or information gathered from analyses of administrative data have been used.¹³ Recently, however, there has been a trend toward using experienced interviewers who are bilingual and who conduct interviews directly with the MSFWs.¹³ Consequently, many of the language and cultural barriers that previously isolated researchers from the MSFW community have fallen. In addition, reports such as the Department of Labor's NAWS have improved the accuracy of demographic data collection. Each year, NAWS enumerates all farms and randomly selects populations of about 2,500 farmworkers for interviews to compile demographic, employment, and migratory data.⁴ Nevertheless, much data on MSFWs are descriptive and sometimes are anecdotal. Future studies must continue to provide accurate baseline data on MSFWs in order to examine them alongside comparison groups. Systematic epidemiological investigation of the causes and prevention of the health problems described above will be critical in improving the lives of MSFWs and their families. Basic health status indicators such as age-related death rates and prevalence rates for common causes of morbidity and mortality need to be characterized. Research on interventions (such as education programs), new regulations, or protective technologies may further elucidate specific actions that may be taken on behalf of the MSFW community.

Summary and recommendations

Migrant and seasonal farmworkers are vital to our nation's economy and diverse culture, yet they constitute a marginalized and underserved population with many unmet socioeconomic and health care needs. (Table 1 summarizes the major points made above.) Occupational hazards, poverty, substandard living conditions, migrancy, and language and cultural barriers contribute to MSFWs' health problems and constitute barriers to health care. The challenge to providers, policy makers, and socially conscious Americans is to create a stronger public health infrastructure; to collect more data on specific health conditions in MSFWs; to improve education among MSFWs and health care providers; and to increase awareness of the plight of these men, women, and children (Table 2). Those who harvest our fields deserve better than they are getting now.

Table 3 contains a list of informational resources regarding MSFWs.

TABLE 1
SUMMARY POINTS

- Migrant and seasonal farmworkers (MSFWs) constitute a tragically underserved population with many socioeconomic and health care needs.
 - Occupational hazards, poverty, substandard living conditions, migrancy, and language and cultural barriers contribute to MSFWs' health problems and constitute barriers to health care.
 - Specific health challenges faced by MSFWs include infectious diseases, chemical and pesticide-related illnesses, dermatitis, heat-related illnesses, respiratory conditions, musculoskeletal disorders, traumatic injuries, reproductive and child health problems, tooth decay, cancer, mental illness, and lack of access to health care.
 - Increased attention, resources, education, and preventive services should be directed toward these men, women, and children, and toward those who serve them.
-

TABLE 2
WHAT CAN BE DONE TO IMPROVE THE HEALTH OF MSFWs?

- Create a stronger public health infrastructure
- Enroll more health care providers to work with underserved populations
 - Employ more community outreach workers
 - Train bilingual and bicultural health care providers
 - Encourage alternative health care delivery methods (e.g., "health care vans")
 - Implement more advanced information-tracking systems that can be networked among clinicians
 - Increase preventive health services such as dental care, family planning, accident prevention, and detection and control of chronic diseases
 - Broaden legislation and protection through improved U.S. Department of Labor, Occupational Safety and Health Administration, and Environmental Protection Agency standards to eliminate overcrowded and unsanitary living conditions and workplace hazards and exposures
 - Create a system of universal access to care
 - Improve education among migrant and seasonal farmworkers (MSFWs) and health care providers
 - Educate MSFWs about prevention, detection, and treatment at their homes, workplaces, or community centers
 - Include migrant health care in medical, nursing, and dental school curricula (e.g., interactive lectures)
 - Improve physician recognition, management, and reporting of pesticide-related illnesses
-

TABLE 3
INFORMATION RESOURCES

- Health Resources & Services Administration, Bureau of Primary Health Care, Migrant Health Program (www.bphc.hrsa.gov/migrant)
 - Health Resources & Services Administration of Minority and Women's Health (www.bphc.hrsa.gov/omwh)
 - National Center for Farmworker Health (www.ncfh.org)
 - Migrant Clinicians Network (www.migrantclinician.org)
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