

The Binational Farmworker Health Survey

An In-depth Study of Agricultural Worker Health in
Mexico and the United States

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EXECUTIVE SUMMARY

The study of farmworker health detailed in this report provides new and vital information on how immigrant agricultural workers in the United States cope with the many health-care challenges they face. This 18-month pilot study—called the Binational Health Survey (BHS)—focused on families from among ten immigrant networks tied to the state of Zacatecas in northwestern Mexico. Relying on both a quantitative survey instrument and extensive field observations among farmworkers and health-care professionals in Mexico and the United States, the investigation offers key insights about institutional and social factors that affect farmworker health and outlines strategies for resolving these difficult issues.

The findings are particularly illuminating with respect to how U.S. health-care delivery and insurance systems create complex obstacles that impede access to needed treatments. These difficulties are exacerbated by the fact that farmworkers' understanding of health and their culturally defined treatment expectations are very different from the practices and procedures they encounter in the United States. As rural Mexican attitudes about medicine play out within the bureaucratic and time-consuming U.S. health-care system, the result often leads to random and unsupervised choices of treatments that promise "quick cures" and the use of substances that, at a minimum, should be administered by a qualified health care professional.

Key Findings

Access Barriers and Fragmented Services. Health care services and practices among migratory farmworkers in both the United States and Mexico are fragmented, meaning this population receives treatments intermittently and in an uncoordinated fashion from a wide variety of service providers on both sides of the border. This situation precludes follow-up treatment and limits opportunities for prevention. Structural factors, such as eligibility criteria, contribute to low insurance enrollment and cultural issues raise additional hurdles to effective care.

- Forty-seven percent of study respondents had not seen a doctor in two years, and 58 percent had not seen a dentist during the same period.
- Fifty-eight percent of respondents were uninsured, and 50 percent reported that no member of their family had insurance.
- Differential insurance coverage within households fragments care, since parents, who often have no insurance, go to different providers than their children, who are more often covered.
- Despite the poverty of the population, only 19 percent of respondents received Medi-Cal benefits.
- Thirty-eight percent of respondents pay at least part of their medical bills using out-of-pocket cash, 27 percent pay exclusively in cash.
- In Mexico, 81 percent of respondents pay at least part of their medical bills using cash, and 75 percent pay all of their bills using cash.
- Eighteen percent of respondents of the most settled groups used emergency room services as a primary source of care. Emergency care is used more by the settled families than solo newcomer migrants.

Preference for Mexican Medicine. Despite the fact that the respondents have, on average, spent the majority of their adult lives in the United States, they tend to prefer the type of health care that they have been accustomed to receiving in rural Mexico. This includes prompt service (no records are kept on patients), quick presumptive diagnosis with few laboratory tests, providers that share their language and cultural background and the immediate receipt of medicines that have prompt effects.

- Fifty percent of respondents indicated a preference for Mexican health care, 38 percent had a preference for U.S. health care and 11 percent were undecided.
- As farmworkers work more years in the United States, they tend to lose some of their preference for Mexican medicine, but even among those who have spent more than three-quarters of their adult lives in the United States, one-third still prefer Mexican health care.

- Men, the elderly and those with little education are more likely to prefer Mexican health care, while women, younger individuals and those with higher levels of education are more likely to prefer U.S. health care.

Occupational Risks. Study respondents suffered from exposures to pesticides, dust and noxious plants. They also run a high risk of injury, and they develop painful symptoms as a result of working in U.S. fields and orchards. Since the study collected lifetime information from current and former farmworkers, it was able to describe how these problems have affected the population over time.

- Workers reported suffering from occupationally induced symptoms for periods of three months or more. These included eye irritation (18 percent), rashes (12 percent) and headaches (11 percent).
- For those respondents who exhibited symptoms, 87 percent had first experienced their symptoms in the United States. This implies that the problems derive from U.S. exposures, as workers spend nearly half of their adult lives in Mexico.
- Grape workers reported rashes and eye irritations three times as often and headaches twice as often as non-grape workers.
- Twenty-seven percent of respondents reported at least one farm-related injury in the United States over their lifetime that interfered with their ability to work. Falls were the most significant cause of injury, and ladders were the most dangerous equipment.
- Forty-two percent of respondents experienced prolonged pain in one or more areas of the body.
- Twenty-one percent of all the respondents were forced to change to a less arduous job because of pain.
- Almost half of those experiencing some form of pain go without medical attention. The BHS binational sample is able to show that in cases where treatment is sought, 57 percent seek care in Mexico.

Disease. Unhealthy behaviors and occupational hazards contribute to the prevalence of illness among this population, which increase the risk of complications or comorbidity of disease. Chronic diseases were the most prevalent type of illness reported by respondents. Individuals with serious health conditions often are undiagnosed until symptoms become unbearable; others medicate themselves and do not consult a health practitioner. These practices stem from poor access to basic medical care and the lack of prevention efforts.

- One in four respondents reported having asthma, diabetes, arthritis, high blood pressure or vascular disease, heart disease or thyroid illness.
- Thirty percent of respondents who reported having these diseases had not received recent medical care within two years.
- Eleven percent of chronic disease cases practice self-medication.
- Elderly workers comprised the majority of respondents with chronic disease. Eighty percent of men over 60 who had been working in the United States in the BHS farmworker networks now live in Mexico, where there are few services for chronic diseases.

Ethno-specific Disease and Mental Health. Ethno-specific diseases and mental health have received little attention in the past with regard to the farmworker population. Ethno-specific diseases, while an integral part of the farmworker community's understanding of health, are poorly understood among health-care practitioners in the United States. As for mental health, occupational-induced stress and family separation impact the mental well-being of the community. Unfortunately, outreach programs related to this problem are few, and bilingual, culturally sensitive practitioners are in short supply.

- Twelve percent of respondents reported suffering from an ethno-specific disease.
- Twenty percent of respondents with an ethno-specific disease have experienced one or more of these conditions during their lifetime.
- Among male and female respondents, *nervios* (a type of anxiety disorder) was the most common ethno-specific disease.

- The separation of family members as a result of migration has implications on the well-being of families on both sides of the border.
- Due to a lack of mental health services, many individuals are self-medicating with sedatives and anti-depressants often without the advise of either a health professional or a traditional healer.

Recommendations

To improve the health of farmworkers, collaboration and coordination must be increased between Mexican and U.S. health-care providers and programs. A first step is to identify other existing farmworker kinship networks by mapping the Mexican localities (the “sending areas”) from which farmworkers originate along with the U.S. “receiving areas.” (The tendency is for networks from a sending area to concentrate in one receiving area, thus facilitating practical social mapping.) These informal networks and their associated linked sister communities can serve as a base for program planning and implementation.

Additional research in the following areas would also assist in guiding this binational approach:

- Cross-checking and enriching existing survey research data with additional systematic and rigorously collected field observations to improve the current knowledge base of farmworker networks. This effort would provide additional detail regarding the circumstances under which health and access outcomes are occurring, and help to build a model of outreach applicable to provider training and community education.
- Conducting detailed research on insurance and health problems encountered by a cohort of workers over a one-year period—coupled with in-depth interviews among relevant personnel at health care institutions. It is crucial that the point of contact between health-care providers and farmworkers be handled carefully to avoid discouraging this population from receiving regular care or participating in preventive care programs. This research would provide insights about how to lower barriers that currently discourage this population from enrolling in health-care programs.

With this information in hand, the following strategy would serve to improve health care services among farmworkers.

- Cross-train health-care delivery specialists from both countries. The objective would be to provide outreach workers and *promotores* in the United States and Mexico with the knowledge and tools they need to encourage farmworkers to engage in preventive care, maintain proper diet and exercise, use appropriate medication and seek insurance.
- Organize health-related outreach efforts in Mexico around existing binational organizations. Of particular relevance, are hometown clubs called *clubes de los hijos ausentes*, which many farmworker communities have formed. These, as well as other community organizations, can also serve as vehicles for pooling people for private insurance. They are also possible avenues for developing support groups for farmworkers facing specific diseases, such as diabetes.
- Train intake staff in the United States to effectively deal with the farmworker population. The objective would be to create a pilot cadre of effective intermediaries to facilitate greater health care access among this population. Outreach workers also need to be specifically trained to case manage families by piecing together a wide-range of resources with different eligibility criteria to minimize the fragmentation of health care within the family.
- Educational efforts must be specifically designed to help physicians and other providers in Mexico and the United States guide farmworkers in their use of medical resources, encourage preventive practices and facilitate insurance coverage. Physicians, especially those in the United States, would be aided by information about patients' attitudes, their town of origin and destination, work lives and community history.
- The collaboration between health-care providers, outreach providers and educators from both countries would aid in further targeting specific diseases to which this population is particularly vulnerable. It would also help in identifying culturally suitable and economically feasible diagnostic tests that could facilitate more consistency in the diagnosis of diseases.

INTRODUCTION

The vast majority of the 2-million farm laborers in the United States come from Mexico. Traveling along established routes to farm jobs in California and other states, these workers maintain ties to their communities in Mexico and satellite communities in the United States. A close examination of these ties reveals complex support networks, whereby individuals discuss and obtain advice from their peers and family members on how to survive abroad.

One vital topic of concern that circulates among these groups is how to obtain health care. (Farm work remains one of the most hazardous occupations in the United States, and workers suffer from a high injury rate along with other ailments.¹) In this regard, the networks not only influence how workers perceive health and illness, but also guide their choices in seeking treatment within the institutional setting that confronts them. Consequently, to understand the factors influencing the current status of farmworker health and well-being, it is important to examine the issue in the context of the transnational community networks that make up their world.

The study of farmworker health detailed in this report focuses on families from among ten binational community networks tied to the state of Zacatecas in northwestern Mexico. Called the Binational Health Survey (BHS), the investigation involved a detailed survey and extensive field observations among current and former U.S. farmworkers and health care professionals in Mexico and the United States. The inclusion of former farmworkers—those who had returned to Mexico to retire or had shifted to other work in the United States—among the study population is a key distinction between this investigation and previous farmworker health studies, which focused only on current workers. As a result, this 18-month project was able to better assess the long-range health impact of farm labor on these workers, and provides vital information on how farmworkers cope with the health care challenges they face.

We have organized this report into six sections. Following this introduction, we begin with an overview of the study methods (which are discussed in detail in Appendix A), followed by a description of the ten villages from which we drew our sample. Then, in

¹ McCurdy, S. and Carroll, D. "Agricultural Injury," *American Journal of Industrial Medicine* 38 (2000): 463-480.

sections three and four, we present findings regarding the complex matrix of institutional structures and farmworker community attitudes that, in large measure, determine the type of care this population receives. We also discuss the frequency of medical visits, insurance coverage, the payment system, the highly fragmented nature of the care received by farmworkers and the tradition (and preference) among workers of receiving treatments consistent with a model of medicine used by the Mexican poor.

In section five, we focus on health outcomes. We report on data gathered from current and former farmworkers and, on occasion, on measures of well-being obtained from respondents' family members. Our results also include the use and impact of pesticides, the type and cause of injuries, the frequency of pain symptoms and the importance of chronic and ethno-specific diseases. Because the study spanned the U.S.-Mexican border—paying careful attention to the complex social issues that arise in this transnational context—these findings are relevant for both individual farmworkers and the binational communities of which they are a part. Moreover, since a large proportion of the health problems facing farmworkers can be prevented through changes in social behavior, this community approach represents a key step toward understanding and identifying interventions that can improve farmworker well-being.

Finally, in section six we present our conclusions, accompanied by a binational strategy aimed at correcting the problems identified by this study and improving farmworker health.

SECTION I

METHODS OVERVIEW

An advisory committee of two U.S. and two Mexican specialists in farmworker health supervised the design of the BHS, and the director of the project and supervisory staff piloted the survey in rural Zacatecas. The survey interviews occurred between January and May of 2000, first in Mexico and then in the United States. Also, semi-structured interviews with health-care providers and community leaders occurred in Mexico and the United States beginning in the survey phase and later in May 2000 and February 2001.

The universe lists of respondents were developed in ten villages in southern Zacatecas. The sample was chosen from lists of all eligible people raised in the villages who had worked a minimum of two seasons of farm work in the United States, no matter where they were at the time the lists were created. (The vast majority of the people on the lists were either in their native villages or in the settlement communities in the United States.) The staff obtained lists of eligible people for each of the sites from village leaders. The number of persons varied from 94 to 302, depending on the size of the community. The lists were put together over a one-month period in late 1999, and involved repeated visits to the villages by the director and several Zacatecano staff. After obtaining the lists, the sample was chosen by juxtaposing a random number series alongside the universe lists, interviewing in the order prescribed by the random number list. Out of the 1,123 people on the universe lists, the study sampled 467 or about 42 percent. By sampling from unified lists on both sides of the border, the method assured a full sample of people living in the transnational community. (For more information on this and other methodological issues, see the detailed discussion in Appendix A.)

There was no attempt to choose the villages randomly among all villages in Zacatecas, only the people within the villages. The project director visited dozens of villages throughout Zacatecas over a two-year period before deciding to focus the research in the selected towns. The villages were all grouped in a 75-mile radius to facilitate the supervision of data gathering. The villages were chosen purposively to obtain a diversity of U.S. crop specialties and a variation of longevity in the migrant stream among the villages. In all the villages, there was a definite specialization in one or two types of agriculture, and most migrants from each village traveled to only a few destination locations in the United States. This concentration of

networks greatly facilitated finding the U.S. sample.

After training eleven interviewers in Zacatecas—eight of whom were local Zacatecanos and three of whom were experienced interviewers from the U.S. Department of Labor's National Agricultural Workers Survey (NAWS) in the United States—305 interviews were conducted in the villages. The three experienced staff continued the process in the filial communities in the United States, providing 162 more interviews. By starting in the familiar home surroundings in Mexico, the approach facilitated successful sampling by increasing staff exposure within the community, while also building rapport and confidence among its members.

A. Field Observations

The BHS approach included extensive field observations by the supervising interviewers, relying on key informants and health care professionals from the community on both sides of the border. This step was crucial because it provided important contextual information and enabled us to probe specific issues more deeply; this information proved extremely valuable in guiding the quantitative analysis.

Along with the confidence instilled in respondents by long-term rapport building, the most important advantage of the method was its ability to encompass the full universe of farmworkers. The survey included both respondents who are temporarily or permanently back in Mexico and former farmworkers. It was also designed to gather information on U.S. farmworker

Origin of the Binational Health Survey

When the National Institute for Occupational Safety and Health decided to fund a health supplement to the U.S. Department of Labor's ongoing National Agricultural Workers Survey (NAWS), the Labor Department convened a group of 30 farmworker health experts to tackle the project. These included medical doctors, public health specialists and epidemiologists from across the federal government. Together, they designed the questions that were later tested by the department and included in the NAWS health supplement. Many of these same questions were also included in the California Agricultural Worker Health Survey (CAWHS) funded by The California Endowment, which interviewed current farmworkers chosen randomly from seven California communities in 1999.

But neither the NAWS nor the CAWHS interviewed former farmworkers or those who returned to Mexico. A complete understanding of the issues these farmworkers face requires a focus not only on the immigrants' experience in the host country, but on the important relationships and formative experiences with their communities of origin. Consequently, to precisely study this transnational farmworker population, a binational approach was needed.

As a result, this study was conceptualized by CIRS as a necessary complement (at least in a pilot form) to the NAWS supplement and the CAWHS. Like the CAWHS, it closely follows the elements in the NAWS instrument—in all its sections—including demography, employment practices and health elements.

families and the medical environments in their places of origin as well as in the United States.

B. Generalizing the Results

How typical is the BHS sample of all farmworkers or of California farmworkers? Over three-quarters of U.S. farmworkers are Mexican born and the proportion continues to increase.² In as much as the BHS sample is made up of Mexican raised individuals, it reflects the larger population. However, there are also important differences represented in the BHS sample that distinguish it from the greater farmworker population.

First, the villages chosen tend to be comprised of relatively mature, rooted networks with a large proportion of legally documented members (there are still many undocumented individuals in these communities). Yet, overall, the health data reported here must be viewed in the light of the relative maturity of the networks under study.

Second, the chosen villages are in the Mestizo-dominated North Central Highlands—the traditional migrant area. Increasingly newer migrants are coming from parts further south and include indigenous peoples. These groups may have different exposures and cultural norms resulting in distinct health outcomes and needs. The traditional points of origin—from the North Central Highlands—are similar to Zacatecas and still provide the majority of U.S. farmworkers.

In comparing the currently active BHS farmworkers (about one-third of the full BHS sample are former farmworkers) with the California NAWS population, it appears that the BHS sample comes from a more mature migratory network—one that has been doing farmwork in the United States for a longer period of time (see Table I-1). The active farmworkers surveyed in the BHS villages are on average older (41 years versus 33 years in the NAWS) and married (82 percent versus 61 percent in the CAWHS). Moreover, the length of time spent in the United States is markedly longer for the BHS group (18 years versus 11 years in the NAWS). The percent of farmworkers in the entire BHS network who are men is also lower than the proportion of men in the NAWS sample (74 percent versus 82 percent in the NAWS). These indicators describe a population that has been doing farmwork in the United States for a longer period of time. The younger members of the network are beginning to move out of farm labor

²U.S. Department of Labor, Office of the Assistant Secretary for Policy, *Findings from the National Agricultural Workers Survey (NAWS) 1997-1998: A Demographic and Employment Profile of United Farmworkers*, Research Report no. 8 (Washington, D.C.: Government Printing Office, March 2000).

and, in some instances, into more economically rewarding areas of the U.S. economy. Also, the higher percent of women in farmwork and higher marriage rate indicates a more settled population with fewer solo male farmworkers than average.

Table I-1. Comparison of BHS and NAWS (Current Farmworkers)

	NAWS California	BHS (all current farmworkers)
Average age	33	38
Average years in the U.S.	11	17
Percent male	82	74
Percent married	61	78

Despite the difficulties of finding and interviewing this challenging population, other methods have achieved reliable samples of current farmworkers in the United States. The NAWS chooses its sample randomly from currently employed farmworkers nationwide. Another research effort, the California Agricultural Workers Health Survey (CAWHS), chose its sample by taking a careful, randomly based housing sample of seven farmworker communities in California.³ The BHS complements the findings of both of these other surveys.

The BHS method of choosing well-defined, cross-generational networks, where confidence among the respondents can be assured due to familiarity with the interviewing staff, overcomes the tendency to under-represent difficult-to-find populations, which distorts demographic and health findings about immigrant groups—a bias that is common in official survey and census data. The BHS demonstrates that a survey based on a random selection of members from among binational communities can be done effectively.

³ Villarejo, D., Lighthall, D., Williams, D., Souter, A., Mines, R., Bade, B., Samuels, S., and McCurdy, S. *Suffering in Silence: A Report on the Health of California's Agricultural Workers*. The California Institute for Rural Studies (The California Endowment, Woodland Hills, Calif.: 2000)

SECTION II
THE TEN VILLAGES AND THEIR BINATIONAL NETWORKS

Located in the southern section of Zacatecas, 100 miles north of Guadalajara in a region locally known as "Two Canyons," the ten villages used in this study range in population from 253 (for the adjacent villages of San Pedro and Rancho Nuevo) to 2,238 (for Moyahua). Because of their close proximity to one another and the fact that they share the same binational community network, the study combined six of the villages into three sets of two for the purpose of inter-village comparisons. The three sets are: 1) San Miguel/San Isidro, 2) San Pedro/Rancho Nuevo and 3) Mesquital del Oro/Los Huajes (see Table II-1).

Migrants from each of the Mexican villages generally travel to two or three filial communities, usually nearby each other, in the United States. These destinations have changed over the years, as opportunities have changed. For example, immigrants from San

Table II-1. Villages and Filial Communities in the United States

Community	Municipality	Village Census Count*	Universe List**	Interviews Performed	U.S. Destinations
La Ceja	García de la Cadena	575	94	41	Hood River, OR Pasco/Brewster, WA, Earlimart/Delano/Ukiah, CA
Mezquital del Oro/Los Huajes	Mezquital del Oro	1,361	302	108	Ukiah/Delano/Los Banos/ Irvine, CA Ephrata/Yakima/Brewster, WA
Cuxpala	Moyahua	950	129	58	Cutler/Orosi/Woodlake/Los Banos/Ivanhoe, CA
Santa Rosa	Moyahua	608	139	57	Watsonville/Salinas/Tulare, CA
Moyahua	Moyahua	2,238	143	63	Newman/Crows Landing/ Patterson/Gustine/Visalia, CA
San Miguel/ San Isidro	Apozol	757	175	81	Hamilton City, CA, Thibadoux, LA Medford, OR
San Pedro Apostol/ Rancho Nuevo	Huanusco	253	141	59	MacFarland, CA
Total		6,742	1123	467	

* These numbers were gathered by the 1990 Census done by the Instituto Nacional de Estadística, Geografía e Informática (INEGI)

** The universe lists represent all individuals raised in the village, regardless of their place of residence, who have worked two or more seasons in U.S. agriculture (see Appendix A for further details).

Pedro and Rancho Nuevo first worked in the peach industry in Fowler and Selma, California up until the 1970s, but then shifted to the table grape industry in the MacFarland–Earlimart area. This latter industry was more year-round and several from the area of origin became farm labor contractors. Similarly, workers from San Miguel/ San Isidro had been going to Hamilton City for many years, and set up a small settlement community there. However, as the fruit tree industry shifted to almonds, employment demand, especially for women, dropped off. As a result, the men began traveling alone to Louisiana, where they worked in the sugar industry.

A. Village Development

Development among the ten localities generally varies according to size. For example, the smaller communities have only one or two public phones, while in the larger villages several dozen phones can be found dispersed among private homes. As for education, the two largest villages, Mezquital del Oro and

Moyahua (which are better described as small towns rather than villages), have high schools (*preparatoria*), while the mid-sized villages of San Miguel, Santa Rosa and La Ceja offer junior high school classes via broadcast television (*telesecundaria*). The other smaller villages provide primary school education.

In recent years, the region has witnessed a variety of improvements. With the exception of Mesquital del Oro and Los Huajes, the localities can now be reached by paved roads, making bus and automobile travel to Guadalajara, Aguascalientes and other

urban areas more feasible. In addition, electric power became available during the 1960s and 1970s and streetlights arrived in the 1990s.

Zacatecas Agriculture and Industry

Bean and corn crops and cattle raising are the foundations of the Zacatecas regional economy. Though its importance as a local crop has diminished somewhat, guava (*guayaba*) is still extensively grown in the vicinity of San Miguel, San Isidro and as far north as San Pedro and Rancho Nuevo. Nevertheless, the region's corn and tree fruit—and sugar cane—production is generally much lower than in previous decades. This trend is apparent in areas of both commonly owned (*ejidal*) land, such as San Miguel, San Isidro, San Pedro and Rancho Nuevo, and the remaining areas where small, private parcels predominate.

In comparison to agriculture, there are relatively few industries. Shoe factories and tanneries had once existed in the Moyahua area, and many localities were home to skilled craftsmen, such as blacksmiths. But these industries have declined or disappeared entirely. In the Rancho Nuevo–San Pedro area, lime had once been extensively mined, but that too has disappeared.

An important change in the last 15 years in rural Zacatecas has been an overall improvement in public hygiene. Sewage disposal and water supply infrastructure have been upgraded, accompanied by a significant shift from the use of contaminated water to purified or boiled water. While these improvements were being made, migration to the United States was emerging as the preeminent economic, demographic and social fact of life in the villages.

B. Health Care

Medical options within the ten villages are somewhat similar, although the residents of the smaller villages often have to travel to town to find private doctors (recently improved roads allow better access to hospitals in the cities of Zacatecas, Aguascalientes and Guadalajara). In Moyahua, there are six private doctors with their own pharmacies and one public clinic—Mexican doctors, or *medicos*, usually have a bachelor's level degree (*licenciatura*). In San Miguel and Cuxpala, the Mexican Institute of Social Security (IMSS—Instituto Mexicano del Seguro Social) for public employees operates a clinic. In Mesquital del Oro, the Secretary of Health (SSA—Secretaría de Salud) operates a public clinic, which is staffed by a senior medical student and one private doctor. IMSS qualified patients receive free services, but few individuals qualify. (The IMSS and SSA clinics usually charge small amounts per consultation, usually a contribution of 20 or 25 pesos, about \$2.50). In the small villages (San Pedro, Rancho Nuevo and La Ceja), there is a public health post or clinic.

Each village generally has a health committee, called a *comite de la salud*, whose members, primarily women, meet every month in an effort to strengthen community health efforts. They may work together with a senior medical student, called a *pasante*, staffing the local clinic. If there is no clinic, there are sometimes government-appointed individuals called *asistente de la salud rural* (rural health assistants) who work with the committees. A doctor,

Principal Diseases

The principal diseases in rural Zacatecas have shifted in recent years. A generation ago, villagers referred to the month of August as "el mes del angelito" (month of the little angels) because so many babies died of diarrhea during the wet summer. But now gastrointestinal diseases and parasites are much less common. Also, vaccination and antibiotics have wiped out or controlled a whole series of serious problems like polio, whooping cough, diphtheria and pneumonia. Physicians now consider respiratory illness as the leading disease, followed by diabetes and high blood pressure. Also important are vaginal infections, allergic reactions and scorpion bites. This latter problem is quite serious in southern Zacatecas and it is difficult to eradicate because migrants refuse to have their vacant houses fumigated in their absence.

usually a newly graduated one, also visits these villages once a month. Cuxpala and San Miguel have competent medical attendants, also a *pasante*, is available between the physician visits in each of these communities.

Women are most frequently targeted for health-care efforts in Mexico, perhaps due to their more continuous presence in the community. (They are also more knowledgeable about the use of herbs and traditional home remedies, particularly in the care of their children.) Government-sponsored health programs frequently involve mothers and/or wives (*amas de casa*). Women are encouraged, and in some cases forced, to serve as *promotoras* (health promoters). In some villages, a lottery is held to see who has to be a *promotora*. The *promotoras*' role is to educate the community about health. The health education programs are coupled with a very poorly paid welfare system called Progresa. If women attend classes and go to the clinic for checkups, they can receive about \$12 per month from the program. In addition, the *pasantes* also provide short health seminars.

In the United States, individuals from the Zacatecas networks use more public facilities and visit clinics, especially to obtain care for their children who frequently qualify for public insurance. However, adults tend to use walk-in private clinics for themselves, where they can pay up front and receive services similar to what they have received in Mexico. For example, farmworkers in the filial town of Hamilton City, California go to a private walk-in clinic in Chico, while Watsonville-Salinas residents use a chain of clinics called "Doctors on Duty." Farmworkers also return to Mexico for treatments or buy medicine at the border (a topic discussed more fully in sections III and IV).

C. The Binational Networks

Migration from areas of Zacatecas to the United States began as early as the 1920s and accelerated across Mexico in the 1940s, when the agricultural contract system called the Bracero Program was introduced.⁴ It was then that Mexican communities began sending numerous "pioneers" north in search of work; at times these pioneers were enlisted by recruiters with contacts to employers from across the border.⁵ The pioneers returned to their

⁴ The Bracero Program (1942–1964) was a response to U.S. agricultural labor shortages that began during World War II. The program permitted employers to hire Mexican laborers for a specified time.

⁵ Zabin, Carol, et al., *Mixtec Migrants in California Agriculture*, The California Institute for Rural Studies (Davis, Calif.: May, 1993), 92.

villages—in more recent times they telephone home—inviting relatives to join them in the north, thus creating family-based farmworker migration networks.⁶

These U.S.-Mexican farmworker networks have continued to develop over time. However, some are still in the early pioneering stages while others are deeply rooted in U.S. communities and labor markets. Mexican localities whose workers were among the first to migrate north were able to take fuller advantage of amnesty programs, such as those that occurred from 1965–1968 and 1986–1989.⁷ These villages have been able to set up broad U.S. settlement communities, resulting in an early shift in how individuals perceive their home village—from a place of production to a place for recreation.

The variation in maturity among networks brings them into competition with one other. The more recent networks do not yet have as much familiarity with U.S. labor law and have not adjusted their patterns to higher U.S. consumption standards as have the veteran, mature networks. As a result, the newcomers are willing to work at lower wages and poorer working conditions. These tensions have inexorably led to the undermining of improvements in employment conditions won by the more veteran networks. These forces have placed farmworkers at the mercy of the foreman or intermediary, which directly affects farmworker well-being.

D. The Norteño Effect

Mexican farmworkers in the United States visit their village or hometown for a period of several weeks to a few months each year. During these times, they engage in low-intensity work, if any, and soon return to *el norte* to earn the great bulk of their income. These *norteños*, as they are called, spend part of their earnings on village houses, churches, sewage systems and potable water supplies. Rarely do they invest in a factory, hotel, gas station or other business, which could help boost local development. As one former migrant who, unlike his compatriots, had invested in businesses in rural Zacatecas indicated, “the countryside has been converted from cornfields to scrub bush.”

⁶ See *Report of the Commission on Agricultural Workers*, (Washington, D.C: Government Printing Office, Nov. 1992), 43.

⁷ As part of an “informal amnesty,” the Immigration and Naturalization Service approved thousands of labor certification applications during the 1965 to 1968 period, which made ex-Bracero migrants permanent residents. During 1986–1987, the Immigration Reform and Control Act, through a special program designed for farmworkers, gave permanent-resident status to hundreds of thousands of undocumented Mexicans.

Table II-2. Proportion of Adult Life Spent in the U.S.

Town	Percent Adult Life in the U.S.	Sample Size
Santa Rosa	68	57
Cuxpala	67	63
Moyahua	60	58
San Miguel/San Isidro	53	81
La Ceja	51	41
San Pedro/Rancho Nuevo	45	59
Mesquital/Los Huajes	41	108
All Towns	54	467

At the same time, many successful northern migrants have bid up the price of land and hired sharecroppers to work it in their absence. This process has contributed to the social differentiation of the binational communities, whereby successful northerners comprise the wealthy class, the local professionals the middle class, and those who have been unable to get

Table II-3. Proportion of Children in Villages

Town	Born in Mexico, stayed in village (%)	Born in Mexico, emigrated to U.S. (%)	Born in the U.S. (%)	Count
Santa Rosa	9	17	74	78
Cuxpala	14	16	70	69
Moyahua	27	13	60	75
La Ceja	46	10	44	59
San Pedro/Rancho Nuevo	25	35	40	112
Mesquital/Los Huajes	59	16	25	201
San Miguel/San Isidro	71	11	18	146
All Towns	42	17	40	740

a profession or a good job in the United States the large lower class.

The three villages of Santa Rosa, Cuxpala and Moyahua have the highest percentage of *norteños*. The men from these villages live a large portion of their adult life in the United States and return to Mexico for recreation and retirement (see Table II-2). Another key *norteño*

measure is whether women remain in Mexico or accompany their husbands north. For example, in Santa Rosa almost all women accompany their husbands. This village has a very high proportion of individuals legally authorized to live in the United States—most only return to visit the village.

Finally, the differential pattern among villages with regard to *nortebños* is underscored by where children were born. Table II-3 shows that most of the children born in the United States have parents from the three high *nortebño* villages of Santa Rosa, Cuxpala and Moyahua.

SECTION III ACCESS TO HEALTH CARE

Whether in Mexico or the United States, farmworkers confront difficult health-care decisions that lead to a highly fragmented pattern of care, leaving many without access to basic or preventive treatment. The BHS research has identified structural and behavioral factors that discourage or prevent members of these communities from engaging in regular health-care practices. Both the patterns of neglect and the factors influencing these outcomes are discussed in this section.

Figure III-1. Doctor and Dental Visits Among Farmworkers in the Last Two Years



A. Patterns of Neglect

The BHS clearly demonstrates the pattern of health care neglect, including preventive care, in these communities. As in the California Agricultural Worker Health Survey (CAWHS), the study shows high rates of untreated illnesses (see Figure III-1). A significant number of respondents, 58 percent, have not seen a dentist in at least two years. Similarly, 47 percent have not visited a doctor in the past two years or longer. Rates in the CAWHS were similar: 30 percent had not seen a dentist and 40 percent had not seen a doctor. Perhaps more alarming, individuals with serious health problems often do not receive help for their conditions.

Figure III-2. Emergency Room Visits Among Farmworkers by Work Years in the United States

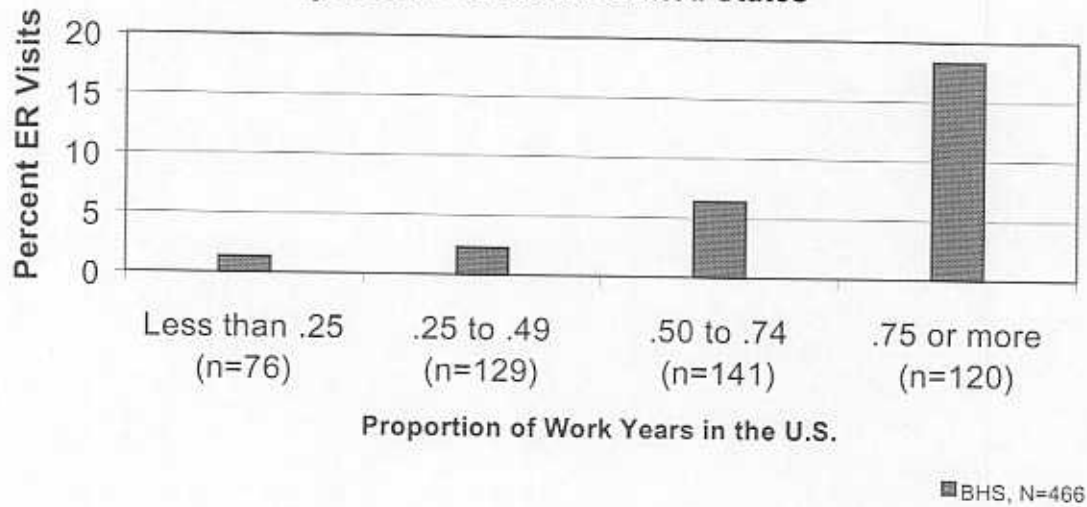
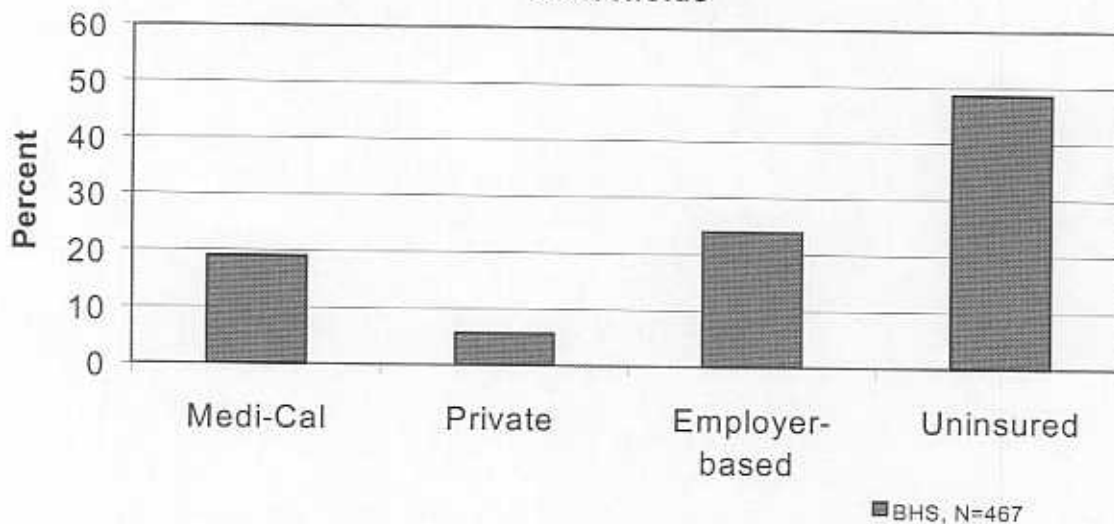


Figure III-3. Insurance Coverage for Farmworker Households



One-third of those with self-reported diseases in the BHS, including chronic illnesses, neglected to see a doctor for at least a two-year period before the interview, if not longer.

Low rates of outpatient doctor visits and high rates of emergency room use reveal that health care in this population is episodic and difficult to obtain. The BHS data demonstrate high rates of emergency room use among the most settled subgroup in this sample. Eighteen percent of farmworkers who spent three-quarters of their working years in the United States

report using the emergency room for care (see Figure III-2). It is less common for new male laborers to access care by way of the emergency room than for the more settled families that include women and children. Individuals that enter the emergency room without serious conditions receive screenings—in some cases, minimal quantities of medication—and obtain referrals, often with no follow-through. The tendency to rely on emergency room care—the most inefficient and costly mode of care for both hospital and patient—reflects the desperate situation of the workers; it is a response to the lack of health care options and the inherent structural and policy constraints confronting this community.

B. Insurance Coverage

Entry into the health care system, as well as the ability to continue using the system, hinges upon ongoing health insurance.⁸ In California, the proportion of farmworkers with no insurance (including public programs) is high, thereby leaving a large proportion outside of the health system.⁹ Approximately half of all BHS households reported having no medical insurance, and 58 percent of the individual respondents are uninsured (see Figure III-3). We estimate that fewer than 16 percent in *rural Zacatecas* have public insurance (*derechohabiencia*).¹⁰

For the younger CAWHS sample, the situation is even more severe, with 75 percent of the CAWHS respondents having no insurance. Despite the poverty of the population, enrollment in public programs is low, only 19 percent of respondents in the BHS are Medi-Cal recipients.¹¹ Among households with at least one U.S.-born child under 21 years of age, 68 percent do not have any members covered by Medi-Cal. Employment-based insurance covers 24 percent of the workers; however, this type of coverage is usually seasonal and often contingent upon a monthly quota of hours worked.

⁸ Wagner, T and Guendelman, S. "Healthcare Utilization Among Hispanics: Findings from the 1994 Minority Health Survey," *The American Journal of Managed Care*, Vol. 6, No. 3 (2000): 355-364.

⁹ Azevedo, K. *Medical Insurance Coverage and Usage Among Farmworker Families: A Case Study*. California Program on Access to Care Brief. Vol. 12, No. 7. (2000) California Policy Research Center, University of California, Berkeley, Calif.

¹⁰ The proportion of the population with insurance is lower in Zacatecas than it is nationwide in Mexico. In all of Zacatecas 31.8 percent have insurance; nationwide the number is 46 percent. In areas of Mexico with populations of less than 2,500, 16 percent of the population has insurance. For this reason, we estimate that fewer than 16 percent of the rural population in Zacatecas has insurance.

¹¹ Twelve percent of the BHS sample report that they work and reside outside of California; individuals in this group may be recipients of federal Medicaid benefits.

There is also a pattern of differential insurance coverage within a household. Fifteen percent of the study respondents reported having insurance coverage just for themselves, 26 percent had coverage for their families as well and 9 percent obtained insurance plans that cover their family members only. This latter group refers mostly to undocumented parents who have citizen children. Differential household insurance coverage is indicative of the complexities of enrollment and eligibility requirements.

Perhaps most vulnerable to the effects of the lack of health coverage are elderly farmworkers returning to Mexico. Preventive measures remain largely underutilized by the transnational community, the effects of which have profound consequences on the elderly. In Mexico and among U.S. workers born in Mexico, an epidemiological transition is underway, characterized by increased longevity accompanied by a transition from infectious disease to chronic, degenerative illness as the principle cause of death.

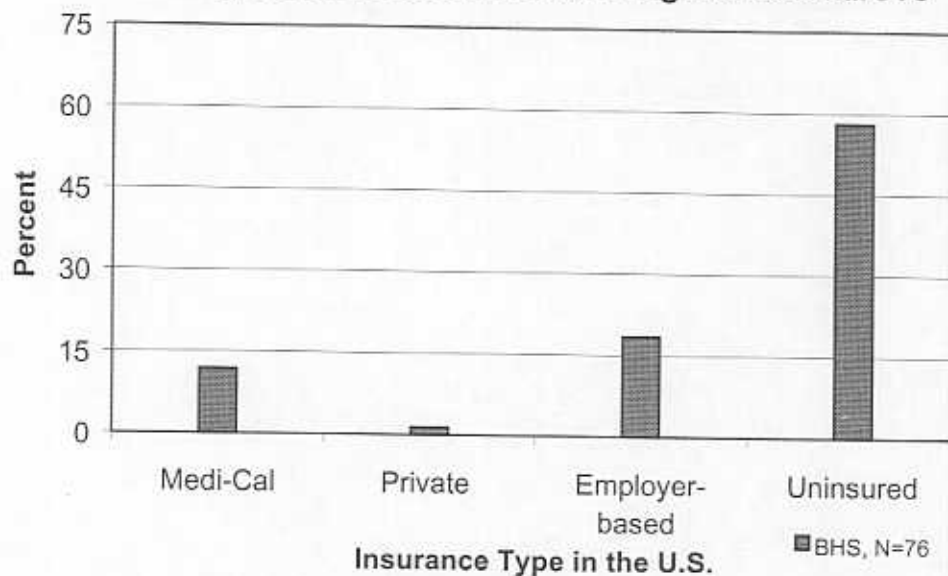
Although its members have spent the majority of their working years in the United States, a large proportion of the community over the age of 60 has returned at least seasonally to Mexico. Over 80 percent of the men over the age of 60 had returned to the villages at the time of the interviews. There are serious health implications for this elderly population, as rates of uninsured remain high in both countries. In all of Zacatecas, both rural and urban, only 32 percent of the population is eligible for health services from the Mexican Institute of Social Security (IMSS), the Institute for Social Security Services for State Employees (ISSSTE—*Instituto de Seguridad Social al Servicio de los Trabajadores del Estado*) or other institutional programs.¹²

This group of older, returning farmworkers accounted for 16 percent of the total study respondents, or nearly one in six laborers. Sixty-three percent of respondents over 60 years of age reported having no insurance in the United States. In their households, only 12 percent receive Medi-Cal benefits, 18 percent reported an employer-based insurance plan, and 58 percent are uninsured (see Figure III-4). In Mexico, it is unlikely that individuals over 60 years of age have health insurance, as 78 percent of respondents seek care from private physicians and 80 percent pay in cash.

¹² Instituto Nacional de Estadística, Geografía e Informática (INEGI) XII Censo General de Población y Vivienda, 2000. (General Census of the Population and Housing) *Tabulados de la Muestra Censal* (Tabulations of the Census Sample).

Due to the low rates of public-program coverage and private insurance, a majority of farmworkers resort to paying for medical services in cash, even at the high rates in the United States. A significant proportion of worker households, who are at or below the poverty level, pay full price for health services. In the United States, despite the options for eligible workers

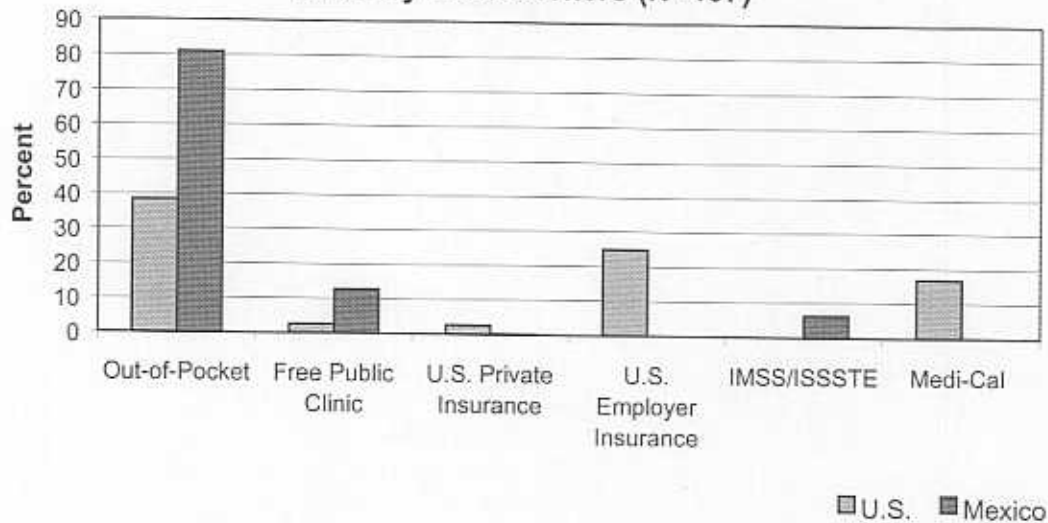
Figure III-4. Health Insurance Coverage Among Households of Workers Age 60 and Above



of public or employer paid insurance, many workers resort to private providers. Thirty-eight percent of respondents cover part of their medical costs themselves, while 27 percent pay entirely out of pocket. In the United States, 17 percent rely on Medi-Cal to cover at least a portion of payments, while 25 percent rely on their employer-based insurance to cover some of the costs. Many farmworkers pay out large sums of money for treatment (unlike HMOs or health insurance companies, who have the bargaining strength to negotiate lower treatment rates, uninsured individuals pay at high rates). A single medical emergency can easily place a family into a catastrophic economic position, as pointed out by this orange picker:

I make \$5.75 an hour picking oranges. When my son got sick last year, he was hospitalized for one night and underwent an appendectomy. I received a bill for \$12,000 for that one night at the hospital. I worked out a payment plan with the hospital and am still paying. I don't know what I'd do if something like this happens again.

Figure III-5. Method of Payment for Health Services Used by Farmworkers (N=467)



In rural Mexico, where public clinics are used infrequently and insurance for private medicine is uncommon, four out of five individuals pay for their medical care in cash (see Figure III-5). Private physicians are the primary source of medical care in these cases.¹³ Some individuals go to public clinics belonging to the Secretary of Health which charge very low (and, at times, no) payments, but only very few.¹⁴ Only 13 percent of the respondents' families received free services from public clinics while in Mexico. Health plans offered by the United Farm Workers and the Western Growers Association provide 100 percent payment in Mexico, but require co-payments in the United States.

C. Institutional Barriers to Care

Previous studies have shown that intricate application processes and confusing eligibility criteria for health coverage, as well as other structural factors, impedes enrollment of those

¹³ The National Health Survey II (ENSA-II) indicates that farmworkers prefer using private physicians. A large proportion of older social security recipients obtained services outside the system of care—25 percent for IMSS and 45 percent for ISSSTE. See Borges-Yáñez, S. & Gómez-Dantés, M. *Uso de los Servicios de Salud por la Población de 60 Años y Más en México. Salud Pública de México*, 40 (1998): 13-23. (Health Service Utilization by the 60-Year-Old and Older Population in Mexico); and Diringier, J., Ziolkowski, C., & Paramo, N. *Hurting in the Heartland: Access to Health Care in the San Joaquin Valley, A Report and Recommendations*. (1996) Rural Health Advocacy Institute, California Rural Legal Assistance Foundation; Sacramento, Calif.

¹⁴ Public clinics charge a voluntary payment of 20 to 25 pesos per visit. Private clinics charge 50-70 pesos.

targeted for various programs and services.¹⁵ The high proportion of uninsured farmworkers observed in the BHS was due, in part, to such eligibility requirement problems. Public health programs exclude individuals on the basis of age, pregnancy, county residency and immigration status. Furthermore, the application process involves intrusive probes and little privacy. The sheer burden of unfamiliar and complex paperwork for a non-English-speaking population with an average of six years of schooling is the first and perhaps most difficult obstacle. The official obstacles are compounded by mistrust of the providers, confusion about the need to avoid public programs to maintain one's immigration status and the inability to visit the provider during office hours. One respondent, who could not or would not get U.S. medical insurance, expressed her frustration this way:

I have to go to Tijuana once a year for treatment of my high cholesterol, high blood pressure, and diabetes. . . but at least I can communicate with the doctors in Mexico. In Mexico, I wait about 10 minutes to be seen by the doctor, even when I have no appointment. When I got an appointment here in the U.S., I had to wait more than 45 minutes and then had to leave before I was seen because the person taking care of my children could not stay longer. This happened twice. In the U.S., one medical appointment takes two to three hours of one's time. In Tijuana, I don't have to wait; I don't have to fill out paperwork.

The large group of workers who lack immigration papers have the greatest difficulty receiving care, since they are ineligible for most public insurance programs. Moreover, the vast majority lack private-employer insurance and few seek indigent care. Children and pregnant women are much more likely to be covered than adult men and non-pregnant women. For this reason, children are often taken to a public clinic, while parents go to a private clinic and pay in cash. Many also note that public clinics are closed by the time they return home from work and this was cited as the reason for their use of private clinics (some clinics do have extended hours). This practice, of course, fragments medical care for the family, rendering follow-up medical procedures and record maintenance more difficult.

Other workers are disqualified during the times of year that they earn a relatively higher income, because they have small but disqualifying assets, neglect to pay their monthly Healthy

¹⁵ Azevedo, K. *Medical Insurance Coverage and Usage Among Farmworker Families: A Case Study*. California Program on Access to Care Brief. Vol. 12, No. 7. (2000) California Policy Research Center, University of California, Berkeley, Calif.

Families premium or fail to stay abreast of Medi-Cal's on-going asset information requirements. One staff person from a community action agency described the problem this way:

[Workers] don't make sure they keep it (their payment) up-to-date and often get dropped both from Medi-Cal and somewhat less from Healthy Families. They detest paperwork and drop behind. Also, it is in part Medi-Cal's fault because the papers are unnecessarily complex. If a date is off or a check is slightly late, they get thrown off and then don't get around to re-applying. This causes families to struggle in a long process of applying and re-applying.

Moreover, even those that get care often feel frustrated by an inability to communicate with the provider or understand what to expect from the medicines. One U.S. health provider summed up the problems this way:

Take Healthy Families applications . . . a family applies and mails in their check with the application. The application is denied but the check is cashed. The family appeals, but the check is lost. Furthermore, the supposed process by which a Healthy Families application that is denied automatically becomes a Medi-Cal application simply doesn't happen. Applications end up in La-La land. . . . We spend a lot of money on training our staff on enrollment and billing, but we're so disjointed—there are so many players that no one knows what we're doing. Fifty percent of our Medi-Cal bills were denied and we must appeal this. There are litigious attitudes on both sides.

Fear of immigration authorities also discourages otherwise eligible persons from applying for public health programs. Rumors within networks inform individuals that receiving public medical insurance will disturb their own or their relatives' immigration cases with the U.S. Immigration and Naturalization Service. Medi-Cal eligibility staff and clinic administrators corroborate the community's apprehension. One Medi-cal worker described how such news spreads through the networks:

In the past, INS would make people comply with overpayments to Medi-Cal by having people pay back services they received legitimately from Medi-Cal. Word of this spread and people are fearful.

The inability to communicate properly with health care providers affects both the quality of care, as well as the patient-provider relations. The lack of communication is a frequent observation, as one woman put it:

I don't have confidence in the doctors here because they don't speak Spanish. When they diagnosed me with diabetes, they didn't explain anything or give me any advice. They just gave me some medicine that made me feel really bad.

Unfortunately, rebuilding that confidence, once broken, is a difficult task.

D. Behavioral and Attitudinal Factors

The traditions that Mexican families and kinship networks bring with them to the United States contribute to the strength and resiliency of their communities. These same traditions and networks influence a wide variety of community-wide behaviors and attitudes, including those related to health care. As described in Section IV, members of these communities are used to a particular kind of care prevalent in rural Zacatecas, which is characterized by short waits, little laboratory testing, no paperwork, no record keeping and access to fast-acting medicines. However, some of these behaviors and attitudes may in themselves be barriers to the acquisition of proper care among farmworkers.

Farmworker communities are quite insular and the exchange of information is excellent within the network community where individuals' actions and behaviors are buffered by group constraints.

However, when members of the networks

Gender Attitudes

Health providers and social workers in the United States explain that "honor" sometimes prevents Mexican men from receiving appropriate health care. These men refuse intrusive procedures, especially a prostate check. Health practitioners in Mexico are better acquainted with these attitudes, and know how to deal with this resistance.

In some instances, men's attitudes compounded by economic factors, prevent their wives and children from seeking medical treatments, particularly preventive care. One farmworker who expressed the common sentiment "we go to the doctor if we are really sick," dismissed the value of periodic check-ups for his wife. "That's \$40 dollars . . . we can do without them."

Other reasons cited for Mexican men preventing their wives from getting regular gynecological check-ups are the fears that the exams could lead to the detection of a venereal disease that implicates the husband, or the administration of birth control that will enable the wife to be unfaithful. This desire to control a women's sexuality was specifically expressed. For example, a U.S. outreach worker described the phenomenon this way: "[Men] don't want women to get check-ups because it might open up their eyes—for example, they might learn about why and how to use condoms. From there, the men think that they will lose control of their wives."

have to deal with health-care institutions, on either side of the border, they have to interact as individuals, not as groups. The most severe problems arise on the U.S. side due to the highly bureaucratic—and unfamiliar—paper-based system that exists there. The networks, normally a source of support, are of no help to individual farmworkers in filling out the necessary forms, finding the proper public programs or learning to adapt to the test-driven diagnosis common in U.S. public health institutions.

In sum, network communication shapes views about how to access health across the mosaic of health care options that farmworkers face, but have been of little use in teaching individuals how to effectively adapt to and efficiently utilize the new health care realities they confront. Lack of interest in prevention or in obtaining year-round health insurance, as well as misconceptions regarding actual policies (such as immigration policies) in the United States, circulate among networks, reinforcing resistance to outside institutions or agencies.

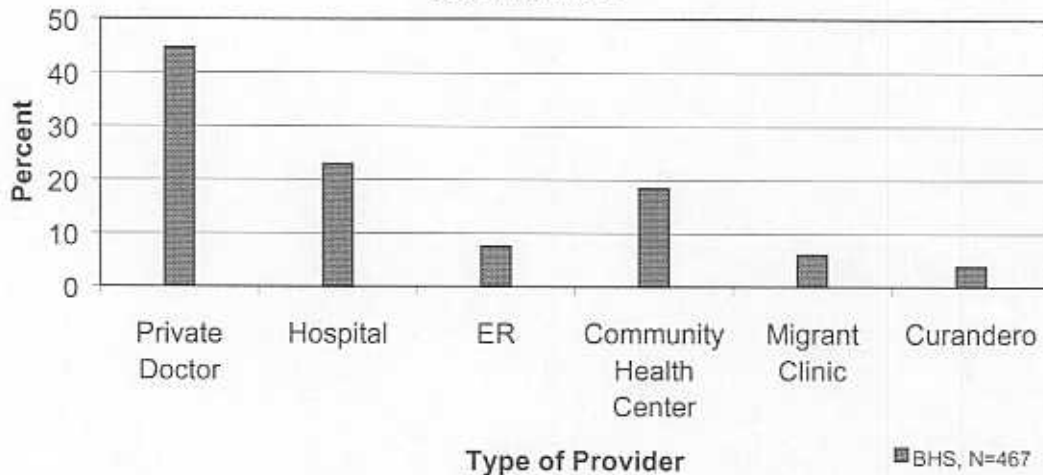
E. Patchwork of Care

Farmworkers tend to use an assortment of health providers. Over one quarter of the households that have used services providers in the United States have used two or more, and over 30 percent of those who have used providers in Mexico have used two or more. In the United States, just over one-quarter have never been to a provider, while in Mexico only 6 percent had never been to a provider.

As mentioned earlier, they use private physicians extensively. In the States, 45 percent of respondents reported going to a private physician in addition to seeking care from other providers. Approximately 8 percent of all respondents sought care at the emergency room, whereas fewer sought care at migrant clinics. In Mexico, 46 percent of respondents were treated by a private physician only, and 74 percent saw a physician in conjunction with other providers.

Workers and their families also use *curanderos*, who administer curative therapies based on a combination of ritual and empirical experience. (They are not to be confused with *sobadores*, namely masseuses or folk chiropractors, though they may share diagnostic and treatment techniques.) Workers also make trips to Mexico to obtain cost-effective treatments from either doctors or dentists, often returning to the security of their native villages if they become sick or need care. In addition, those with few financial resources rely on over-the-counter prescription medicines purchased in Mexico. Such self-medication practices can

Figure III-6. Service Providers Sought in the U.S. by Farmworkers



be dangerous. "Patients come in taking antibiotics, vitamins, even seizure medicine without really knowing why they are taking it," indicated one California physician. A California psychiatrist expressed a similar complaint. "Family members that treat other family members with these kinds of over-the-counter medicines," he said, "have no pattern of going to physicians to get prescriptions and get no kind of support for family members suffering from acute conditions."

Because farmworkers receive health services from several different sources, they do not receive the kind of informed, long-term care that comes with having a routine provider. This process precludes follow-up visits or opportunities for preventive screening. It is well established that the use of such preventive services is associated with a routine provider.¹⁶ In Mexico, the proper utilization of health services is associated with a routine place for care as well—pregnant women are more likely to obtain adequate prenatal care if treated by the same physician at IMSS.¹⁷ Failure to maintain continuity often results in the reliance on immediate treatment for symptoms that may become intolerable due to neglect of the illness or delay in treatment which increases both costs and health risks to the patient.

¹⁶ Solís, J., Marks, G., García, M., and Shelton, D. "Acculturation, Access to Care, and Use of Preventive Services by Hispanics: Findings from NHANES 1982–84," *American Journal of Public Health* 80(1990):11–19.

¹⁷ Martínez-González, L., Reyes-Frausto, S., & García-Peña, M. "Utilización Adecuada de la Atención Prenatal en el Instituto Mexicano del Seguro Social." (Adequate Use of Antenatal Care in the Mexican Institute of Social Security) *Salud Publica de Mexico*, 38(1996): 341–351

F. Conclusion

In sum, effective medical intervention to solve the health care problems of farmworkers is made difficult by a system of public health program eligibility that excludes or limits access for people in need. This is complicated by cultural norms of medical care that farmworkers obtain from rural Mexico. In many cases, farmworkers choose to return to Mexico to obtain treatment or obtain sources of medicines and treatment in the United States that are readily available and cheap, but often inappropriate and dangerous. This topic is further discussed in the next section.

SECTION IV HEALTH CARE PREFERENCES

Despite the fact that they spent most of their adult life in the United States, 50 percent of the study respondents indicated that if given a choice, they would prefer to obtain medical treatment in Mexico—38 percent preferred treatment in the United States and 11 percent do not favor one system over the other.¹⁸ Of the respondents' Mexican-born family members who had gone to the United States, more than half sought treatment in Mexico when they fell ill. Among these family members, males, elderly adults and very young people were frequently treated in Mexico, while most of the working-age group sought medical help in the United States.

Farmworkers generally prefer treatments in Mexico for several reasons. In comparison to physicians in the United States, Mexican doctors offer convenient, one-stop health care shops. Their diagnoses, though often presumptive, are generally immediate—as are most treatments—and medicines can often be purchased at the clinic or at a nearby pharmacy. Other important factors include treatment cost and the ability of the medical staff to effectively communicate with the patient.

A. Language Barriers

Successful communication is vital for patient confidence in the providers. Mexican doctors' ability to speak Spanish gives them a key advantage over many physicians in the United States. Some U.S. providers use translators to overcome this obstacle. However, as one respondent indicated, even when a translator is present, the situation may go awry.

I went to the doctor and my eldest daughter accompanied me. There was a translator present. However, when I realized that the doctor thought it was my daughter who was ill, not me, I no longer could trust the translator or, for that matter, the doctor.

In some cases, miscommunication leads to misunderstandings about the doctor's instructions to patients. As another respondent indicated, a common source of confusion lies in

¹⁸ Those respondents with no clearly articulated preference indicated that their choices are influenced by the type or severity of their health problem and proximity to a service provider. In general, there is a preference for the U.S. system when there is a serious health problem. They also will tend to choose whatever health care provider happens to be closest to where they are living at the time. Those suffering from chronic conditions, however, prefer Mexican services.

instructions regarding medication dosage. "I was taking prednisone, three times a day. . . . I thought I was supposed to take three a day, but it was actually supposed to be only once a day. Once I realized this, I gradually reduced the quantity."

B. Immediate Treatment and Relief

Farmworkers place critical importance on receiving immediate treatment. It is also important that the treatments have a quick effect. As one private physician in Mexico pointed out, those physicians that fail the immediate effectiveness test can lose the confidence of their patients. "If my treatment doesn't work or the case is more complicated, patients will readily dismiss you as a doctor that is no good."

The urgency for a quick cure often leads physicians to prescribe a treatment after a physical examination and without further testing. The Zacatecano doctors we interviewed estimated that about 90 percent of the diagnoses they do are presumptive and 10 percent are based on laboratory tests. They combine this approach with the practice of prescribing "strong medications," particularly injections of antibiotics. This strategy is commonplace and patients have come to expect this style of treatment. One cannot know to what extent these "quick cure" practices result from a lack of diagnostic equipment in rural areas and to what extent they result from demands by the patients for a certain kind of medicine.

Furthermore, some farmworkers use medicines not sanctioned by the *Physicians' Desk Reference*. Farmworkers use improper mixtures of prescribed medicines or those obtained

The Mexican Health Care System

Mexican health services are organized into three divisions:

- 1) Public health services for uninsured individuals provided by institutions such as the Secretary of Health
- 2) Social Security programs such as IMSS, ISSSTE or public companies such as PEMEX (Servicios Medicos de Petróleos Mexicanos) that serve specific employment sectors
- 3) Private medicine used by the insured wealthy and the uninsured population that pays out of pocket

The public insurance programs cover 41 percent of the population, but in rural Zacatecas the proportion is much lower—less than 16 percent. Services offered by the various government programs are fragmented and uncoordinated, while the private sector is largely unregulated. In general, government clinics in the villages are used for minor ailments and private physicians are sought for more serious cases.

without prescription. For example, from about 1970 to 1980, Mexican farmworkers were buying a medicine called *azareon* or *polvo de plomo*. This substance contained lead dust and was poisonous. In Mexico, it was mixed with bee honey and sold as a cure-all.

In Mexico, farmworkers also buy medications that contain morphine—to which they are becoming addicted—so that they can get relief from physical pain. Valium and other kinds of addictive sedatives are also bought in Mexico, along with vast quantities of antibiotics. Mexican physicians also complain that the Mexican government has no control over antibiotics like it does over psychotropic medicine, and many individuals self-medicate. Farmworkers also return to Mexico to obtain injections that will “make them stronger”—like vitamin B shots and steroids—in an effort to better endure their work in the fields. Mexican stores in the United States also stock these popular drugs.

Farmworkers feel cheated if they do not receive any medication or therapy after a consultation with a doctor, especially if they are charged for the visit. Some informants reasoned that doctors in the United States offer few medications as part of a clever business tactic for making more money (by having patients return again and again for mild treatments) or because they were afraid of being sued. One particularly skeptical farmworker considered anything but injections to be a waste of money.

When I go to the doctor, I want to be made to feel better. Otherwise, what's the point? I miss more work. But in the U.S. they always give pills, never injections. Injections are indispensable for fevers, coughs, sore throats. . . . I don't want to see a *pastillero* [doctor who prescribes pills]; those that prescribe pills, like Tylenol, simply want you to return to see them. I've had penicillin injections all my life and they've never harmed me!”

C. Understanding of Disease

All cultures have systems for classifying diseases on the basis of etiology, symptoms and treatment. In Mexican folk medicine, the cause of disease, in a general way, is thought to result from an imbalance in the body. This accounts, in part, for the belief that there must be a balance of hot and cold, moist and dry and internal and external pressure. If these balances are disturbed, the result is disease. This is most notable in the etiologies described for ethno-specific diseases such as *aires* (see Section V).

Farmworkers' understanding of disease, which includes the belief in a “quick cure,” has a significant effect on their preference. Treatments that take time are not part of their conceptual

framework of disease and health. The idea of prevention, an alien notion, is also not part of the general scheme. If patients feel well, they are well. However, such thinking often leads to late detection and treatment of disease, especially in the early, non-symptomatic stages of disease like tuberculosis or diabetes.¹⁹ (Individuals who delay or avoid proper medical treatment may also be responding, in part, to structural constraints, such as a lack of insurance—see Section III).

Table IV-1. Preference for Healthcare by Work Years in the U.S.

	Proportion of Adult Life Spent in the United States			
	Less than 25% (N=70)	25% to less than 50% (N=118)	50% to less than 75% (N=122)	75%+ (N=100)
Mexico	84%	67%	48%	36%
U.S.	16%	33%	52%	64%

Note. Table IV-1 percents do not include "don't know" responses.

But understandings of disease are dynamic and can change according to an individual's environment. The BHS findings indicate that preference for U.S. or Mexican medicine is a function of the proportion of time spent in the respective countries. Eighty-four percent of those who spent the lowest proportion of their adult life in the United States will opt to receive care in Mexico (see Table IV-1). The rate of preference for Mexican medicine steadily declines as individuals spend more time in the United States. Yet 36 percent of individuals who resided three-quarters or more of their adult lives in the United States favor the Mexican system of health care. The fact that over one-third of this most settled population remain partial toward Mexican medicine indicates that the strength of prior experience should not be dismissed.

D. Potency and Cost

Aside from treatment type, cost is perhaps the most significant factor shaping farmworkers' treatment preferences. Many Hispanics purchase prescription medication from Mexico to minimize expenses.²⁰ In the BHS, nearly 30 percent of respondents who favor the system of health care in Mexico do so because of its greater affordability. Almost one-quarter of these

¹⁹ Hufford, David J. "Cultural Diversity, Alternative Medicine, and Folk Medicine," *New Directions in Folklore* 1 (1997).

²⁰ Casner, P. and Guerra, L. "Purchasing Prescription Medication in Mexico Without a Prescription, The Experience at the Border," *Western Journal of Medicine* 156 (1992): 512-516.

respondents also distinguish between the efficacy of treatment modalities in Mexico compared to the United States. This group of individuals perceives Mexican medicines to be more potent and more effective in curing ailments. The combination of high cost in the United States and the perceived ineffectiveness of treatment is at the heart of farmworkers' preference for the Mexican health care system. One respondent summed it up this way, "I took my son to the doctor; they gave him Tylenol, and then they charged us \$200 dollars." Another respondent decried the entire system as flawed.

In the U.S. they only have pills that don't work. One goes to the doctor with an illness and they don't attend to you, only at the emergency room. And that comes out to \$500 dollars. They give you an appointment three days later, and you can't buy medicines in the pharmacies.

As indicated in the preceding section on access, many farmworkers face high health-care costs in the United States because of structural problems in the insurance system. But even among farmworkers who have U.S. insurance, they face the uncertainty of having an unspecified fraction of their total health care cost covered by the insurance company. Moreover, the practice among insurance companies of sending out bills, even when there is a zero balance due, adds further confusion. "Getting stuck with the bill" is a common experience and makes this population leery of U.S. insurance and medical services in general—whether public or private. As one respondent indicated:

We have insurance but at the moment we took our child with asthma to the hospital, the insurance didn't pay and the bills began arriving. Why have insurance? They take out money [from paychecks] for benefits, but there aren't benefits!"

Finally, although the BHS did not collect quantitative data related to the use of dentists or eye-doctors, study respondents reported a much greater preference for Mexican eye doctors and dentists, primarily due to cost.

E. Perceived Skill Level

Approximately 10 percent of the respondents indicated that Mexican doctors are better than their U.S. counterparts. Eight percent affirmed that medical facilities and equipment in Mexico are as good as those in the United States.

At the same time, a preference for the U.S. health system is grounded in the perceived quality of facilities and greater technology available in the United States. “If it’s serious, the United States has better equipment and those kinds of things,” is a common farmworker response. Of those who favor U.S. health care, 36 percent indicated the medical services and equipment are superior to those in Mexico. Fifteen percent regard treatment practices in this country to be more effective and only 5 percent perceive U.S. doctors superior to Mexican physicians.

Table IV-2. Gender Differences and Health System Preference (N=463)

	Men (%)	Women (%)
Mexico	52	36
U.S.	37	47
Don't know	11	17

F. Gender, Education and Age

Finally, gender, education and age also affect farmworker preference. In general, women are somewhat more partial to the U.S. system than men. Forty-seven percent of all women interviewed indicated that they favored the U.S. system, while 37 percent of men expressed a similar preference (see Table IV-2). This finding may reflect the greater access for women to health care in the United States. Moreover, U.S. government-funded health programs that target low-income populations often exclude men, whereas pregnant women generally qualify regardless of immigrant status. Also, since many programs (such as CHDP, CCS) cover undocumented children, and since women in general are in charge of child health care, women generally have more contact with the U.S. system.

Another factor influencing this outcome is that men show a reluctance to see a doctor unless they are under extreme duress, regardless of the country of treatment. Medical staff on both sides of the border mentioned this tendency. An intern at a Mexican government clinic said, “Men feel shame to come [to the clinic in Mexico]. Ninety percent of my patients are women and children.” A physician with a private practice in Mexico indicated that he treats many patients with muscular and back problems, but the majority are women. When asked why, he responded, “The men don’t come.”

Both education and age appear to affect the preference of where to seek medical treatment (see Table IV-3 and IV-4). Older farmworkers prefer Mexican medicine while the younger population favors U.S. medical care. Over three-quarters of those 51 and older prefer

Table IV-3. Preference for Treatment by Age Group Among Interviewees Who Expressed Preference (N=409)

	Age		
	16 to 24 (%)	25 to 50 (%)	51 and older (%)
Mexico	43	48	76
U.S.	57	52	24

Note. Table IV-3 percents do not include "don't know" responses.

treatment options in Mexico. Alternatively, those in the primarily working-age group (25 to 50 years of age) have a slight preference for U.S. medicine, while individuals under 25 years of age display an even greater tendency to favor U.S. health care. The preference for Mexican medicine is more prevalent among the least educated groups—those with less than four years of school—whereas those with more education favor U.S. medicine.

Table IV-4. Preference for Treatment Education (N=410)

	Education (Years)		
	0 to 3 (%)	4 to 6 (%)	7+ (%)
Mexico	68	55	42
U.S.	32	45	58

Note. Table IV-4 percents do not include "don't know" responses.

G. Conclusion

The BHS found that the model of medicine familiar to the Mexican poor in Mexico includes:

- Easy and culturally compatible communication with the provider
- Reliance on immediate curative measures such as pills or injections, presumptive diagnosis, few laboratory tests and no record keeping or follow-up treatment
- Treatment that is "strong" and simultaneously available at a low cost

However, from the perspective of U.S. health professionals, the "quick cure" aspects of this model of health care are detrimental to patient education and illness prevention. As one U.S.

nurse familiar with the system indicated, “In Mexico, going to the doctor is a one-time thing. There is no teaching discipline, no maintenance medicine. Going to the doctor in Mexico is a last resort, it is never preventive.”

In the next section, we will show how preferences, compounded by the health risks experienced by this population, paint a perilous picture of health care and prevention. Delayed treatment, the absence of regular check-ups and the use of medications without diagnosis or prescriptions further jeopardize the well-being of the farmworker population.

SECTION V HEALTH OUTCOMES

In this section we examine health outcomes according to the categories of injury, pain, disease, ethno-specific disease and mental health. Although useful for the purposes of analysis, these categories are artificial with regard to physiology, and the co-occurrence of diseases is frequent. Older farmworkers, in particular, experience a wide array of related diseases. We can also infer from the data that numerous causal relationships exist between these divisions, for example, arthritic conditions are related to previous work conditions or injuries.

A. Work-related Conditions

Working conditions have serious effects on both the physical and mental health of the farmworker family. Common physical ailments are related to handling of and exposure to toxic agricultural chemicals, dust, noxious plants, repetitive body motions and demanding and repetitive body postures. In addition, working conditions for agricultural farmworkers are varied with relation to wages, work schedule, time in the field, number of work breaks, transportation facilitation, provisions for equipment used on the job and education on health protection measures.

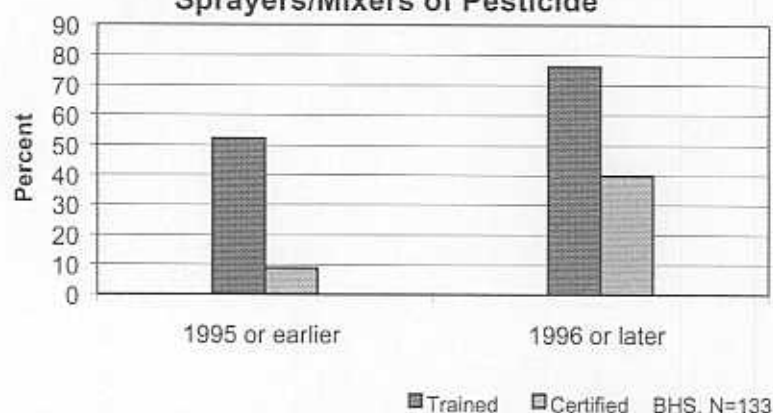
Analysis of the survey research demonstrates that employees of farm labor contractors (FLCs) are, on average, treated more poorly than other workers. And though measures of poor treatment are elusive through survey research, proxies, such as paying for equipment, wage levels, off-the-job health coverage and paying for rides to the work site, have been shown to be good measures of treatment on the job. Despite the maturity of the BHS networks, a large proportion of the population (30 percent) said their last job was for an FLC.

In the BHS networks, 42 percent the FLC employees paid for all or part of their equipment, compared to only 14 percent for those directly hired by growers. About twice as many respondents who had employer-paid, off-the-job health insurance were direct hires, as opposed to FLC employees (24 percent vs. 12 percent, respectively). The same ratio holds for paying for transportation to and from a job site; FLC employees pay for transportation twice as often as others (24 percent vs. 12 percent, respectively). Finally, with respect to wages, direct hires have earned \$7.20 per hour in recent years, while FLC employees earned \$6.60 per hour.²¹

²¹ Only data after 1996 was used. (N=221 growers, 100, FLC employees)

Considering that the average farmworker is employed only about 1,000 hours per year, these wages barely sustain a minimum standard of living in the United States. The evidence indicates that, for the BHS farmworker networks, a significant proportion, and especially those working for FLCs, are confronted with working conditions and income levels that adversely affect their well-being and health.

Figure V-1. Training and Certification for Sprayers/Mixers of Pesticide



Training: Received training organized by the employer in pesticide safety that lasted 15 minutes or more.

Certification: Received an official government certificate that training had occurred.

The survey findings related to pesticides reflect both continuing problems and certain improvements. Positive changes demonstrate the significant influence of government intervention in this area, but worker reports of incomplete compliance shows that the problems persist. In 1996, many growers implemented the Worker Protection Standards (WPS) of the U.S. Environmental Protection Agency.²² Since the BHS data includes former farmworkers who worked before this regulatory change, it is possible to make time comparisons to test if the change made a difference to farmworkers. The resulting evidence clearly shows a positive impact. Though there are requirements that nearly all farmworkers be trained about pesticides, in each case where we could test the results, we divided those who reported having mixed or

²² The WPS went into effect April 15, 1994. However, a lag occurred before employers started implementing procedures. Compliance with the WPS occurred gradually over time as word spread among growers that they were in violation of the law. (see *Worker Protection Standard: How to Comply*, EPA 735-B-93-001, July, 1993)

applied pesticides from the other farmworkers, since the mixers often experience more exposure to chemicals than do other farmworkers.²³

Too few workers reported being trained or certified for pesticide use. In the period before 1996, about half the mixers were trained and 9 percent were certified. Since then, 76 percent of the mixers have been trained and 40 percent have been certified (see Figure V-1). For non-sprayers, there was much less compliance. The earlier period showed 16 percent trained, while in the more recent period 55 percent were trained. Our findings show that FLC employees have much lower levels of pesticide training and certification than those working for growers. Overall, levels of compliance are still too low, but much improved subsequent to the EPA intervention.

Another measure of compliance is the use of protective equipment such as gloves, masks, rubber suits and the like. Here we analyzed respondents' information on use of equipment during the last time they sprayed or mixed chemicals. Overall, 23 percent of the mixers and sprayers used no protective equipment the last time they worked with chemicals on a U.S. farm. Again, workers were divided into two groups—those who worked before and after 1996. In the pre-1996 group, 43 percent used no protective equipment, while 18 percent of the latter group used no protective equipment. Again, the progress in safety behavior related to pesticides is noticeable but still indicates a problem.

Though there are considerable problems related to the exposure to pesticides, dust and noxious plants in U.S. agriculture, it is difficult to discern from this study which is most responsible for negative health outcomes. The standard used in the study to try and identify health problems related to such exposure was high, as respondents were asked to identify exposures that were followed by symptoms of three months or more.

Overall, 35 percent of the respondents said they had one or more prolonged symptoms, and there was not much difference between the sprayers and non-sprayers (41 percent versus 33 percent, respectively). Approximately a third of those with symptoms reported of having at least two. The most prevalent problems reported were eye itch (18 percent), rashes (12 percent) and headaches (11 percent). It is quite common to have both eye irritation and a rash (about 7 percent of all workers). The workers reported that these symptoms persisted while in the United States and rarely in Mexico. Only 13 percent of the cases reported having such

²³ See California Pesticide Safety Regulations (revised 1997), Section 6764, Agricultural Personnel Management Program.

symptoms in Mexico, despite the fact that this population spends nearly half its adult life in Mexico. This implies that dust, plants, pesticides or perhaps the intensity of the work in the United States is causing these prolonged symptoms.

The relationship between the enduring symptoms discussed here and working in U.S. agriculture is particularly unique with respect to grape workers. One of the BHS networks (San Pedro/Rancho Nuevo) is connected to the table grape industry in the MacFarland-Earlimart area of California. Earlier work identified a connection between work in the table grape industry and dermatological symptoms.²⁴ In the BHS sample, 75 workers (approximately 16 percent of the total sample) engaged in grape production. In Table V-1 we compare these workers to non-grape workers to show their far greater susceptibility to certain symptoms. Among the grape workers, 56 percent reported having health symptoms or a combination of symptoms, while 30 percent of the non-grape workers reported symptoms. And 45 percent of the grape workers that exhibited symptoms reported having two or more, whereas the rate of multiple symptoms among the non-grape workers was only 29 percent.

Table V-1. Symptoms Among Grape and Non-grape Workers

Symptom	Percent of Grape Workers N=75	Percent of Non-grape Workers N=389
Rash	27	9
Itchy eyes	38	13
Headache	18	9

The mean age of the grape workers is 42 and 43 for other workers.

In addition to these symptoms, the survey gathered self-reported information about respiratory problems. Out of 467 respondents, 24 percent said that they suffered from wheezing, but only 3 percent said it bothered them day and night. Approximately 75 percent of those who experience wheezing said it was related to colds or other temporary illness, while 27

²⁴ Mines, R. and Kearney, M. *The Health of Tulare County Farmworkers: A Report of 1981 Survey and Ethnographic Research for the Tulare County Department of Health* (1982) California Department of Health Services.

Gamsky, T., McCurdy, S., Wiggins, P., Samuels, S., Berman, B. and Shenker, M. "Epidemiology of Dermatitis Among California Farm Workers," *Journal of Occupational Medicine*, 34, no. 3 (1992): 304-310.

percent said the condition is long-term and have taken medicines in the last year. Fifty-four percent said they still have the condition. Interestingly, 21 percent said the condition gets worse when they are working on U.S. farms.

In sum, it is difficult to determine the number of those actual sufferers from chronic respiratory problems, but approximately 6 percent are using medicine and seeing doctors for a long-lasting condition. Almost half are over 55, though only 23 percent of the population is over 55. The findings in this area are inconclusive and lack a standard of comparison, but they nevertheless demonstrate a possible association between exposures involved in U.S. agriculture and respiratory problems.

B. Injuries

The study recorded the life experiences of individuals in several farmworker networks (88 percent work in California). The described injuries offer important insights into the risk of injury for U.S. farmworkers of Mexican origin. The average age of the individuals reporting injuries was 46; the average age at the time of the injury was 34—workers recalled injuries that on average occurred 12 years before the interview.²⁵ Although considerable time had passed in some cases, all workers gave detailed descriptions of the problems they classified as injuries that interfered with their ability to work.

The BHS networks were purposively chosen to represent a variety of crop specialties in U.S. agriculture; consequently, the data provide a valuable cross-sectional comparison of labor injuries across these specialties. More importantly, although the data do not permit a meaningful comparison of incidence of injuries with other data sets (such as those of the Bureau of Labor Statistics), they do provide important information on the lifetime injury risk on U.S. farms.

When 467 former and current farmworkers were asked if they experienced an injury that interfered with their normal ability to work, 27 percent listed at least one injury (140 injuries were reported with 11 respondents reporting two injuries). Data was gathered about each incident in sufficient detail to allow a fine-grained analysis of the problem experienced, the body parts affected and the associated crop, equipment and type of activity. The study findings

²⁵ Although the average age was 46, the highest rates of injuries occur in the youngest and oldest age ranges.

are based on worker self-reports of injury that have not been classified by injury specialists. Nevertheless, the findings reveal a history of injuries as perceived by the farmworkers.

In one-fifth of the cases, inadequate information was given to classify the injury by one of the common injury categories; instead respondents stated that the problem that caused them to miss work was pain. For this reason, we added a pain category to our analysis. We also noticed that many referred to a cumulative injury process—rather than a single event—contributing to increasing physical pain and discomfort that led them to miss work. This reference to cumulative injury was reported in a minority of cases. We divided the injuries reported by respondents into two groups of about equal size (see Table V-2). The first group—pain, sprain, dislocation, bruise and hernia—are conditions which can be caused by either a repetitive activity or single incident (according to farmworker testimony), the second group can be caused only by single incidents.

With regard to those injuries resulting from a single incident (Type B in Table V-2), four workers had lost fingers, one lost a hand and two suffered a loss of sight during accidents. The amputations were caused by machines and, in one case, a saw. The reported loss of sight resulted from a pesticide exposure. The cuts and tears were caused mostly by human error of

Table V-2. Proportion of Type A and Type B Injuries Among 140 Farmworkers

Type of Injury		Number	Percent
Type A	Pain	28	20.0
Subject to repetitive or single incident events	Sprain	15	10.7
	Dislocation	15	10.7
	Bruise	8	5.7
	Hernia	5	3.6
	Type B	Fracture, crushed	19
No repetitive or cumulative causes mentioned	Cuts, tears	23	16.4
	Burns, swelling	9	6.4
	Amputation, loss of sight	7	5.0
	Others*	11	7.9
	Total		140

*Rashes, infections, irritations, animal bites that interfered with work.

the worker or negligence on the part of the employer. The body parts most frequently injured were a hand, leg or foot. In 5 out of the 23 cuts and tears, the injury involved the eye or ear.

The objects or tools that harmed the individuals were a combination of tree branches, ladders, clippers and machine parts. The commodities included orchard, vineyard and row crops of all types.

The nine burns and swelling incidents included three chemical exposures, three explosions, two falls and a frying-pan burn incurred while cooking in the labor camp. A variety of crops were involved, and the injuries occurred mostly on the hands and face. The fractures and crushed body parts occurred mostly while working on ladders or around vehicles or machines. Ten of the nineteen incidents occurred due to a fall, three were due to machine malfunctions and four were due to automobile accidents.

In the first repetitive motion or cumulative injury category (Type A), workers described their injuries four different ways. In the first, a cumulative or repetitive body motion was cited as both the cause of pain and, consequently, loss of work time. For example, one worker said, "I was working on a tractor, and with the jolts I began to feel a lot of pain; they took me to a hospital and the doctor told me I had a sciatica nerve problem, then he gave me medicine; I didn't work for a week, and it still hurts." Other reported examples of this type of injury involved loading, for example, "I was loading strawberries and the next morning I couldn't raise my arms."

Table V-3. Crop Activity When Injured

Category	Number	Percent
Deciduous fruit trees	38	28.1
Field crop and grain	22	16.3
Citrus and olives	18	13.3
Dates and nuts	13	9.6
Strawberries and caneberries	12	8.9
Grapes	12	8.9
Vegetables	12	8.9
Nursery and organic herbs	8	5.9
Total	135	100.0

In the second subcategory, most injuries were clearly caused by a single event. For example, "While picking up a bale (of alfalfa) I felt something move in my lower back and I got hurt. I've got two dislocated disks." In the third subgroup, the pain was sometimes

described as one that came and went, for example, "In June I got hit on the knee, but I could walk away okay. But, since September . . . the pain has not gone away."

While such incidents may have caused workers to lose at least one week or more of work, at the time of the interview they believed themselves to be fully recuperated. The fourth subgroup includes those injuries that are difficult to associate with an event or repetitive or cumulative injury process, for example, "I was pruning olive trees when my shoulder gave out," or "I never figured out how I hurt my heel, it's a pain that appeared by itself. Probably from my back, which I twisted carrying the bag [of oranges]."

Of the 71 injuries that could either be caused by a single event or by cumulative causes, it was possible to determine the exact cause for 66 of these. Nineteen of these problems (or 29 percent) resulted from repetitive or cumulative causes. We know from the data that most of the injuries occurred in the field. Only a few occurred in the labor camp, on the road or in a building.

The crop activity at the time of the injury reflects the diversity of commodities worked by these networks (see Table V-3). Twenty-eight percent of the workers were injured doing mostly ladder work in deciduous orchards. Next in importance were the injuries sustained while working in a variety of field and grain products (16 percent); many of these involved machines. Next in line are workers in citrus and olive groves, again, half involved falls from ladders (13 percent). Nut workers are next (10 percent), followed by workers in field berries

Table V-4. Cause of Event or Process

Type	Number	Percent
Falls	43	30.7
Repetitive motion	19	13.6
Human error	15	10.7
Machine malfunction	15	10.7
Struck by object or plant	11	7.9
Chemical exposure, pesticide	7	5.0
Human negligence	5	3.6
Explosion	3	2.1
Animal bite, sun exposure	2	1.4
Accident, unspecified	10	7.1
Unspecified	10	7.1
Total	140	100.0

and brambles, grapes and vegetables (9 percent). The fewest injuries were in nursery and herb crops. Other than the 19 repetitive motion injuries, most injuries were due to accidents (see Table V-4).

The most significant cause was due to falls (31 percent of all injuries), while human error and machine malfunction accounted for 11 percent each. Next were incidents involving an individual struck by an object, machine, vehicle or plant (8 percent) and chemical exposure (5 percent). Other causes, such as human negligence, animal bites and sun exposure and explosions, were less significant.

Equipment was involved in 94 of the 140 cases, or two-thirds of the time (see Table V-5). In the remaining cases, the problem was caused by the activity (such as bending, climbing

Table V-5. Equipment Involved in Injury Incident

Type of Equipment	Number	Percent
Ladder	28	30.0
Tractor	13	13.8
Other farm machinery	10	10.6
Vehicles (trucks, car, motorcycle)	13	13.8
Spraying equipment	5	5.3
Clippers	5	5.3
Picking box or bag	4	4.3
Hand tool	4	4.3
Irrigation pipe	2	2.1
Almond harvest rod	2	2.1
Mill, shed	1	1.1
Other cement block, boot, battery, frying pan, fence, nail, water pump	7	7.4
Total	94	100.0

and lifting) and equipment was not directly involved in causing the injury. The most dangerous single piece of equipment is the ladder. In 30 percent of the incidents involving equipment, a ladder was present. Next in level of danger were various kinds of farm equipment; these were involved in about one-fourth of the events. Tractors were involved in 14 percent of the cases and other farm machinery in 11 percent of these cases. Next were motor vehicles (cars, trucks and motorcycles), involving incidents that occurred in the fields.

We were able to determine the area of the body affected for 131 of the injuries. Injuries occurred most often in two areas: around the hands and fingers and the area of the back (see Table V-6).

Table V-6. Parts of the Body Involved in Injuries

Part of the Body	Number	Cum. percent
Hand, wrist, finger	25	19.9
Back	26	19.8
Foot, ankles, heels, tendons	20	13.8
Eye, other head and face	16	12.2
Hip, knee, leg	12	8.4
Arm, elbow	9	7.6
Chest	10	8.4
Nerves, muscles	4	3.1
Groin	3	2.3
Shoulder	3	2.3
Skin	1	0.8
All body parts	2	1.5

Approximately one in five of the injuries occurred in each of these two areas of the body. The feet, ankles and tendons represented about 14 percent of the injuries, and injuries to the head and face represented another 12 percent. The leg area, the arm area and the chest area each represent about 8 percent, while other areas of the body were affected less frequently.

Injuries occur mostly to people in the 25–44 age group, due to the fact that most of the active farmworkers from these networks are in this age category. However, if we establish a rate of injury based on our knowledge of the distribution of workers by age group, we can demonstrate that the young and the old are in particular jeopardy of injury. To establish a denominator, we took the total population of active farmworkers from the full sample (interviewees and members of their households). This is column three in Table V-7 (Number Engaged in Farmwork). To establish the numerator we listed the number of workers who were injured at a given age. This is column two in the Table V-7 (Number of Respondents Injured). By dividing column two by column three, we calculate a ratio of injured individuals at a given age range to the number of people in that age range actively engaged in farm work. The ratio is

Table V-7. Current Farmworker Population—Injuries by Age Group

Age at Time of Injury	Number of Respondents Injured	Number Engaged in Farmwork*	Percent of Total Injured
14-21	17	62	27.4
22-24	11	55	20.0
25-34	47	240	18.8
35-44	23	184	12.5
45-50	10	95	10.5
51-54	8	54	14.8
55-64	11	71	15.4
All Ages	127	761	20.6

*Includes parents, children, siblings, and others who were engaged in farmwork.

an indication of the rate of injury by age. This follows the pattern found in other studies.²⁶

The data collected on workers' injuries underscore the need for medical care for farmworkers injured on the job and increased precautionary and accident prevention measures in the field. It demonstrates that the pain and bodily injury endured by farmworkers (because it "comes with the job") keeps workers from seeking treatment sooner. One alarming finding is the number of injuries caused by repetitive body activity. The data show that injuries occurring to farmworkers while they are in their prime have complicating consequences later in life, when their resources and health-care options are even more limited.

C. Pain

Data was recorded for all pain reported by farmworkers to have lasted one week or more. However, the average time people experienced pain is best measured in years. For the leading pain types, the average length of pain ranged from 6.4 to 7.9 years (see Table V-8). The people who experienced pain were, on average, 47 years old, considerably older than the average age of 43 for the whole group.

Eighty-five percent of the former and current farmworkers who had experienced pain still suffered from it in the year before the interview. For this reason, it is possible to compare the

²⁶ McCurdy, S. and Carroll, D. "Agricultural Injury," *American Journal of Industrial Medicine* 38 (2000): 463-480.

Table V-8. Length of Pain Experience

Part of Body	Average Length of Pain (Years)	Number
Back, neck	7.5	149
Leg, foot, knee	7.4	93
Arm, hand	6.4	85
Shoulder	7.4	58
Other	7.9	12
Total	7.2	397

BHS findings with other surveys of current farmworkers that ask respondents about episodes of pain in the year before the survey. The California Agricultural Workers Health Survey (CAWHS) asked questions in an almost identical fashion, providing us with corroborating evidence about pain.

Pain victims who suffered within a year of the BHS interview sought a doctor's care 38 percent of the time. Fifteen percent of the cases sought other forms of help, and 47 percent went without any medical attention. The CAWHS pain victims suffered in silence to an even greater extent. Fully two thirds (69 percent) had not seen a doctor for their pain in the last year. In both surveys, a substantial minority sought the care of someone other than a physician, usually a natural massage therapist or *sobador* (see Table V-9).

Table V-9. Type of Health Workers Treating Pain Victims

Type of Professional	BHS		CAWHS	
	Count	Percent	Count	Percent
Doctor	128	38.0	151	19.6
Other	52	15.4	91	11.8
None	157	46.6	529	68.6
Total	337	100.0	771	100.0

The CAWHS included only current farmworkers and workers from both mature and immature networks. Its sample population was thus younger and less experienced on average

Table V-10. One-year Pain by Body Part

Part of the Body	BHS		CAWHS	
	Count	Percent	Count	Percent
Back, neck	124	36.8	334	36.3
Leg, foot, knee	82	24.3	303	33.0
Shoulder	49	14.5	114	12.4
Arm, hand	73	21.7	140	15.2
Other	9	2.7	28	3.0
Total	337	100.0	919	100.0

than those in the BHS.²⁷ This partly explains why the CAWHS sample received less care from doctors than that of the BHS.

In terms of the areas of the body where pain occurs, the BHS findings were also remarkably similar to the pain ailments reported by CAWHS respondents. Back-neck and leg-foot pain were among the leading areas of pain and together represented the majority for both surveys. In both surveys, arm-hand and shoulder pain reports were also numerous (see Table V-10).

In the BHS, 44 percent of the population reported a pain problem occurring in the year before the interview, while for the CAWHS this proportion was 42 percent. As an older group, the BHS respondents had somewhat higher rates of pain and more cases of multiple pain. Comparing the two surveys by place of treatment, we find a considerable difference in response (see Table V-11). The BHS reports three times the rate of treatment in Mexico. In fact, the majority (57 percent) of the BHS pain victims who sought care did so in Mexico, while

Jobs that End in Pain

It is surprising how many of the workers had to change or leave their jobs because of physical pain that either resulted from or was exacerbated by their farmwork jobs. Forty-three percent (100 workers) of the workers in pain said they changed or left their job because of the pain. This means that one in five BHS respondents (21 percent) left or changed jobs because of pain. Many workers, even young workers, commented that because of pain they had to switch their type of work. Many report arthritic types of conditions. In general, the change in jobs was from a arduous field task, for example, harvesting or hoeing, to a less strenuous job, such as irrigating, pruning or supervising.

²⁷ The average age in the CAWHS was 35.4 and in the BHS it was 43.

only one-fifth (18 percent) of the CAWHS victims say they sought care in Mexico. This difference results from the fact that a large share (65 percent) of the BHS interviews were done in Mexico among current and former U.S. farmworkers, and included many workers who return seasonally to Mexico

Table V-11. Pain in the Previous Year (BHS)

	Total		Treated in Mexico (%)	
	BHS	CAWHS	BHS	CAWHS
Back, neck	67	76	52.2	13.2
Leg, foot,				
knee	43	54	53.5	25.9
Shoulder	34	22	70.6	4.5
Arm, hand	44	27	59.1	18.5
Other	7	5	28.6	60.0
Total	195	184	56.4	17.9

and those who have returned or retired back in their native home towns. Since the CAWHS survey was less likely to include back-and-forth migrants and included no returnees, the CAWHS was unable to examine how and where a large proportion of current and former farmworkers receive treatment. Despite the fact that the pain reported in the BHS was in most cases caused or exacerbated by U.S. farmwork, 57 percent of the treatment occurred in Mexico.²⁸ The strength of the BHS methodology in uncovering this important tendency to return to Mexico to seek relief of pain is underscored by this comparison.

D. Diseases

Farmworkers' lack of basic and preventive health care, in addition to high-risk activities and exposure to environmental hazards on the job, may contribute to acute health problems or chronic conditions. By examining the trajectory of life experiences from

²⁸ Since half of the current and former farmworkers in the BHS who suffered from pain changed or left their U.S. farm job due to pain, it is safe to assume that U.S. farm work was the cause of or contributed to pain in most cases.

migration to settled communities of farmworkers, the BHS obtained insight into the prevalence of disease-related risk factors. Our analysis includes only cases reporting a physician's diagnosis. Therefore, these rates underestimate the magnitude of particular diseases in these communities, as a portion of respondents remain undiagnosed for health conditions. The high percentage of all subjects who have not seen a doctor in the previous two years or longer confirms that self-reports of doctor-diagnosed diseases are underestimated.

In order to corroborate our findings regarding the order of importance of the major diseases reported in the BHS, we present comparative figures from the CAWHS. Respondents from both the BHS and the CAWHS were asked if they had been diagnosed during their lifetimes with the diseases shown in Table V-12. Although significant under-reporting is likely in both surveys, the information from the CAWHS supports data gathered in the BHS. The data reflect the diseases for which the respondents believe they have been diagnosed. The comparison includes a group of current farmworkers (CAWHS sample) and a group of current and former farmworkers that includes older individuals (the BHS sample).

The most common category of disease for BHS respondents was chronic illness. One in four individuals reported diagnosed cases of chronic illness, including several with a combination of these conditions. Evidence from this sample demonstrates that many of the individuals with chronic ailments go untreated and others self-medicate, that is, they medicate without a physician's supervision. Of the cases involving chronic conditions, 59 percent saw a doctor in the year before the interview, but 70 percent were medicating during that year.

Equally problematic are data from the BHS showing that 30 percent of individuals with chronic disease indicate that they have not received a physician's care at all in the past two years. The implications of these figures underscore notions that members of these communities may be at high risk for co-morbidity of chronic conditions, in addition to cases of undetected illnesses. Of the high blood pressure cases reported, 56 percent have also experienced other conditions (23 percent had been diagnosed with vascular conditions or heart disease, and 8 percent were also diagnosed with arthritis at some time). Half of all diabetes cases were also diagnosed with other conditions at some point, the most common of which was arthritis (25 percent), followed by high blood pressure and vascular or heart disease. One-quarter of reported asthma cases have also experienced high blood pressure as well.

Table V-12. Reported Disease (BHS and CAWHS)

Disease	BHS (N=467) Percent	CAWHS (N=968) Percent
High Blood Pressure	11.1	7.6
Gastro-Intestinal	6.2	*
Diabetes	5.1	3.1
Urinary Infection	5.1	*
Arthritis	5.1	7
Asthma	3.4	1.6
Hernias	3.4	*
Vascular	3	*
Typhoid	2.7	*
Heart	2.6	0.8
Renal/urological	2.3	*
Infections	1.5	*
Tuberculosis	1.1	3
Respiratory	1	*
Thyroid	0.9	*
Hepatitis	0.9	0.4
Pulmonary	0.6	*
Cancer	0.4	0.7
Epilepsy	0.4	1.2

*CAWHS did not ask these questions.

In the BHS sample of current and former farmworkers, the most prevalent illness reported was high blood pressure, particularly among those 55 years and older. Eleven percent of all respondents suffer from this condition (see Table V-12). The condition varies by age; few of the very youngworkers suffer from the ailment, while 21 percent of those over 55 have the disease. Arthritis is a condition that also plagues the older cohort in this community—16 percent of the sample who were aged 55 and over reported being diagnosed with the disease (see Table V-13). Slightly more individuals are self-medicating for arthritis than those who are receiving medical treatment (67 percent versus 63 percent). Arthritis is experienced entirely by

males in this sample, and over one-third of these individuals have not seen a doctor in the past two years.

Five percent indicate that they suffer from diabetes. Three-quarters of the diabetic cases reported consulting a doctor, however 83 percent of respondents reported taking medications to treat the condition. A higher incidence of diabetes occurred among those 55 years of age or older (see Table V-14).

Six percent of the sample had a gastrointestinal illness. Among the total sample, 5 percent report a urinary infection. Urinary problems were common among the younger cohorts—with a mean age of 43—and among women. In addition, 36 percent of women reported suffering from a vascular disease.

About 3 percent of the community suffered from asthma. Most of the cases were male, likely due to the fact that men spend more time in the dusty and pesticide exposed fields and women rarely engage in pesticide mixing or spraying as an agricultural task.

Across all cases of self-reported illnesses, 12 percent involved self-medication or unsupervised treatment from a health practitioner. About 1 percent of the sample was diagnosed with tuberculosis or some form of hepatitis. Securing proper medical attention appears to have been problematic for these infectious diseases. Of the four cases of hepatitis, none were treated. Five men reported having tuberculosis; only one individual received treatment.

Comparing the self-reported illnesses among similar age men in the BHS with men in the National Health and Nutrition Examination Survey (NHANES), shows less reporting of diagnosed diseases occurred in the BHS sample.²⁹ The two samples have some common elements, as well as some differences. In the NHANES sample of all men, in particular Mexican-born men, the occupational distribution is quite different since 70 percent of the BHS sample are current farmworkers while very few of the NHANES sample work in the fields. Perhaps most important, those in the NHANES sample seek medical care more frequently. Among the NHANES Mexican-born men, 73 percent have been to the doctor in the last two

²⁹ Figures from NHANES were tabulated using the National Health and Nutrition Examination Survey III, 1988–94, National Center for Health Statistics/Centers for Disease Control and Prevention CD-ROM Series 11, no.1, Revised October 1997, SETS Version 1.22a. Values were tabulated from the NHANES III Household Adult Data File and are not weighted. Records for adult Mexican-born males were selected based on the following fields: DMARETHN, HSSEX, HFAGERR, and HAV12R. The selected fields for tabulation include: HAE2, HAC1A, HAD1, and HAB6S, and include “yes,” “no” and “don’t know” responses.

years (the percent of all men is even higher) while only 52 percent of the BHS men have seen a doctor during that time period. This pattern demonstrates that not going to the doctor may result in a lower detection and consequently a lower rate of reporting diagnosed diseases in the BHS sample.

**Table V-13. Self-Reported Diseases, Male Respondents
BHS and NHANES by Age Group**

Age	BHS		NHANES III Mexican-born Men		NHANES III All Males		
	Count	(%)	Count	(%)	Count	(%)	
High Blood Pressure							
25-34	94	3	342	5	1,715	11	
35-44	89	13	197	14	1,757	19	
45-54	93	17	139	15	1,228	25	
55+	101	21	236	30	3,461	38	
Arthritis							
25-34	94	0	342	1	1,715	5	
35-44	89	2	197	8	1,757	8	
45-54	93	5	139	7	1,228	13	
55+	101	16	236	29	3,461	32	
Diabetes							
25-34	94	2	342	2	1,715	2	
35-44	89	3	197	4	1,757	3	
45-54	93	5	139	7	1,228	7	
55+	101	14	236	17	3,461	13	

Many diseases affect the older population. Interviewees age 51 years and older report more cases of diabetes, heart problems, vascular disease, thyroid disease and arthritis. The younger individuals suffer from urinary infections, hernias and gastrointestinal problems. The concentration of disease among the elderly is particularly troubling, as this group spends much

of it time in rural Mexico and depends on medicine in home areas where the health policies tend to exclude the elderly.³⁰

In the BHS, respondents were also asked to report illness and disease of family members. The results demonstrate a similar pattern between respondents and their adult family members. The rank order of diseases shown in Table V-15 corroborate observations that high blood pressure, diabetes and arthritis are the most prevalent diseases in farmworker communities. A myriad of physical ailments were not included in the Table V-14 summary, including sexually transmitted diseases. Although the survey requested information about “any other ailment not specifically mentioned,” no one, understandably, admitted to having had a sexually transmitted disease. Furthermore, many such diseases are asymptomatic in males, who comprised the majority of survey respondents.

Nonetheless, staff at clinics in both the United States and Mexico stated that these diseases were prevalent among this population—especially the female patients who they were more likely to see.

Table V-14. Rank Order of Disease for Family Members (Age 18+)

Disease	Rank Order	Disease	Rank Order
High Blood Pressure	1	Typhoid	6
Diabetes	2	Cancer	7
Urinary Infection	3	Hernia	7
Arthritis	4	Hepatitis	8
Heart	5	Thyroid	9
Asthma	5	Tuberculosis	9

The doctor in one Mexican clinic stated that of all the village women of fertile age, 90 percent had sexually transmitted diseases and/or cervical infections. She attributed this to the wives being infected by their husbands. Since many of these diseases require medication of both partners, she doubted the efficacy of her treatments.

³⁰ Rodríguez Ramírez, H. “Principales Características Sociodemográficas de los Adultos Mayores en Zacatecas,” (Principal Sociodemographic Characteristics of Older Adults in Zacatecas) in *Los Retos Demográficos de Zacatecas en el Siglo XXI*. García Zamora, R. and Padilla, M., eds. (2000) Secretaría Académica de la Universidad Autónoma de Zacatecas, Mexico.

We would like to again emphasize that injury, pain and disease, though presented in separate categories, often occur together in an individual.

E. Ethno-specific Illnesses

Migrant farmworkers of Mexican origin, as well as Mexicans in general and other Latinos, exhibit a number of ethno-specific diseases that are generally not clinically recognized in U.S. medicine or among its health practitioners. Nevertheless, these diseases have a real and large presence in these communities, affecting 12 percent, or nearly one in eight farmworkers in this sample of 467. In addition, of those reporting ethno-specific diseases, 20 percent have experienced two or more of these diseases during their lifetime. In general, the community does not perceive U.S. doctors as being familiar with these ailments. Despite their perceptions, and despite the lack of knowledge of many providers about ethno-specific conditions, individuals often seek out some form of Western medical intervention.³¹

The classification and definitions of these ethno-specific diseases are multivalent—among Mexican subgroups there are regional and cultural variations that create differences in the way these conditions are understood. Given this reality, providing appropriate and effective health care services for farmworkers (and the Hispanic population in general) hinge upon an understanding of the symptoms and perceived etiologies, as well as the medications, remedies or alternative therapies employed to treat the conditions. While these illnesses often have overlapping etiologies, they also present specific symptoms that call for curative action.³² These measures often involve medications purchased from Mexico that are unfamiliar to U.S. practitioners, some of which present potentially harmful side effects. However, ample commonalities exist among classifications to develop descriptions regarding their purported etiologies, including commonly used medications (traditional and non-traditional).

1. Nervios

Among those reporting having suffered from an ethno-specific disease, 50 percent experienced an anxiety disorder known as *nervios*, or “nerves.” It is a common illness category throughout Mexico and most of Latin America, with symptoms that include generalized

³¹ *Nervios* is often interpreted by physicians as anxiety disorder.

³² Bade, B. *Is There a Doctor in the Field? Underlying Conditions Affecting Access to Health Care for California Farmworkers and Their Families*. (1999) California Policy Research Center Report. Berkeley, California.

feelings of severe anxiety, a sense of desperation, insomnia and the desire to cry; it is sometimes brought on by a frightening or difficult experience. *Nervios* was the most commonly cited disease among both male and female respondents, including their household members. Of 92 reported cases of *nervios*, doctors treated 58 percent, *curanderos* treated 14 percent and over 20 percent received no care. Individuals sought therapies in both the U.S. and Mexico, with 63 percent of the cases treated in Mexico.

Commercial drugs were most often used to treat *nervios*, with 50 percent of respondents reporting having taken some medication—usually sedatives or antidepressants.³³ Strong and often addictive drugs were used for treatment. The use of such drugs underscore the need to

Table V-15. Modes of Treatment for Ethnospecific Conditions (N=227 cases)

Ethno-Disease	Doctor/Nurse	Curandero	Family/Friends	No Treatment	Count
	Percent	percent	Percent	Percent	
Aire	34	25	14	25	44
Empacho	11	33	30	26	27
Susto	18	23	9	50	22
Mollera Caida	16	58	21	5	19
Mal de Ojo	7	57	7	29	14
Nervios	58	14	4	22	92

better understand both the prevalence and etiology of such conditions, especially given the potential for negative health consequences resulting from the types of medications used for treatment. Some of the drugs used are not in the *Physicians' Desk Reference*. Among those who were not taking anxiolytic drugs or antidepressants, 21 percent used herbs, vitamins, teas or *sobadas* (massage). A common herb used was *tilia* (linden flowers), a sedative and diaphoretic. Most individuals treated for the condition reported some relief, if not complete recuperation as a result of the medications or remedies employed.

The data demonstrate a high prevalence of *nervios* among the women in this sample, but particularly those wives who remain in Mexico while their husbands work in the United States. Among the wives who reported suffering from *nervios*, about half had never left Mexico and

³³ These include anxiolytic drugs such as clonazepam and diazepam, as well as antidepressants.

stayed behind while their husbands traveled to and from the United States. Overall rates of *nervios* for this community reveal that wives remaining in Mexico experience a greater degree of stress than those accompanied by their husbands. Twenty percent of wives whose husbands left them behind in the village while they worked in the United States suffered from *nervios*, compared to only 9 percent among those who reside with their husbands.

2. Aires

Aires, *aire* or *aigre* affects individuals of all age groups. *Aire* is a condition recognized by headaches, dizziness, body aches or fatigue. The incongruence of internal versus external temperature (exposure to the cold, particularly when the body is warm) is thought to cause the illness.³⁴ This condition accounts for 18 percent of the total reported cases of ethno-specific diseases reported in this sample, more often afflicting women (68 percent) compared to men (32 percent). The practice of treating the ailment involves both doctors and *curanderos*; however doctors were sought more often in these cases. Of those who sought treatment, 34 percent went to a doctor.³⁵ *Curanderos* treating the disease frequently do so by "cupping" with a *ventosa*. The cup is heated and deoxygenated with a flame—whether a match, candle or lit piece of paper—and is placed on the affected area. The vacuum in the cup causes the skin to swell and the knotted muscles to loosen up, and thereby the *aire* is "extracted."

3. Empacho

Empacho refers to an impacted stomach or digestive ailment—frequently likened to indigestion and most common among children. Symptoms may include stomachache, anorexia, vomiting, pain with diarrhea and abdominal fullness. More males reported cases of *empacho* in this sample as compared to females, 61 percent versus 39 percent, respectively. Although some

³⁴ This belief—namely, the danger of cooling a hot body or heating a cool body—accounts for Mexicans' resistance to fevers being treated by cooling the body. U.S. health professionals, particularly those seeing acute cases of fevers, such as emergency room doctors or ambulance paramedics, struggle against this belief. For example, they may be blamed of contributing to a child's sickness because they may unclot or bathe a feverish child in cool water. Fever among most Hispanics is treated by bundling the individual in warm clothes and blankets.

³⁵ Home remedies cited for *mal aire* include the use of various herbs in teas, particularly Santa Maria (*Pyrethrum parthenium*) and ruda (*Ruda graveolens*).

individuals did seek the care of physicians, people were more likely to use home remedies or go to a *curandero* to treat *empacho*.³⁶

4. Mollera Caida

Most common among children is *mollera caida*. This condition refers to a sunken or fallen fontanel (soft spot) and affected children may exhibit diarrhea, persistent crying, appetite loss or sleeplessness. *Mollera caida* can be a fatal illness. Any severe illness—dysentery or sepsis—resulting in 10 percent loss of body weight (and severe dehydration) in an infant can be caused by *mollera caida*, though our informants did not cite these as causes. The etiology was unknown to most of our respondents, though some said it could be brought on by an injury or bruise to a baby's or child's head.³⁷ Almost 80 percent of respondents citing cases in their families of *mollera caida* either sought help from a *curandero* (58 percent) or used home remedies (21 percent).

5. Susto

A traumatic or frightening experience is perceived to cause the condition known as *susto*, or "fright," and individuals may experience restlessness, loss of appetite, fever, vomiting or diarrhea. While *susto* and *nervios* are similar, *susto* is thought of having a single-event cause, for example, witnessing a bad accident.³⁸

Most *susto* victims in our sample did not seek medical care. Eighteen percent sought the aid of doctors, and 23 percent sought help from a *curandero*. *Susto* is also attributed as a cause, or trigger, for diabetes. As one diabetic informed us, "People's diabetes kicks in when they

³⁶ Home remedies used for *empacho* include (1) burning the food that caused the indigestion until it is carbonized, and then ingesting it, often by dissolving it in a hot peppermint (*hierba buena*) tea, (2) drinking milk, and (3) having your stomach area or back massaged (*sobada*). Other remedies cited, though not used by anyone in the sample, include the use of various herbs in purgative teas—including camomile (*manzanilla*) and wormwood (*estafiate*). *Empacho* is also treated by ingesting lead (*azarcon*) or mercury (*greta*) powders, which are highly toxic and can cause extreme illness, brain damage, and also death.

³⁷ The most common cure consists of having a experienced person—whether a *curandero* or someone else—use her fingers or thumb (most commonly, the middle finger) to press up on the soft palate of the patient. This pressure on the soft palate lifts the sunken fontanel. Another folk remedy cited, though not used among those suffering from this condition in this sample, is the practice of holding the afflicted child upside down over a bucket of water, while sometimes shaking or hitting the child's feet.

¹⁷ In traditional Mexican medicine, *susto* is commonly treated by 'sweeping' the patient, who lies on the floor, with "brooms" made of herbs, such as rosemary, sage and rue.

experience a *susto*, a big surprise of some kind, or a problem or disagreement. That is how diabetes develops. That's what happened to me."

6. Mal de Ojo

Mal de ojo, "the evil eye," is attributed to jealousy or excessive admiration of a "weaker" person, commonly a child.³⁹ It is the one kind of ethno-specific disease that is believed the least (only 6 percent of the cases of ethno-specific diseases involved *mal de ojo*). In many cases people interpreted the survey question as asking about an "eye infection" (*estar mal del ojo*) as opposed to the evil eye, or *tener mal de ojo*. As in cases of *mollera caida* and *susto*, *curanderos* are used preferentially for *mal de ojo*. Among the entire spectrum of these types of diseases, *susto*, *mollera caida*, *empacho* and *mal de ojo* are more prevalent among the younger age cohorts (see Table V-16).

**Table V-16. Rank Order of Ethno-specific Disease
(Members of the Household—BHS Only)**

Ethno-specific Disease	Respondents	Spouse	Children
Nervios	1	1	4
Aires	2	2	3
Susto	3	3	5
Empacho	4	.	1
Mal de Ojo	5	4	6
Mollera Caida	6	4	2

7. Rank Order of Conditions

The rank order of ethno-specific disease demonstrates the relative importance of their prevalence. For all respondents in the BHS and the CAWHS, *nervios* was the leading condition affecting the population. However, women suffer more from *aires* than men, and men suffer more from *empacho* (See Table V-17). In the BHS data, we ranked the diseases by respondent, spouse and child. Although *nervios* and *aires* were the leading problems for adults, children

³⁹ Its folk treatments include rubbing the body of the victim with a chicken egg or "sweeping," as in the case of *susto*.

were affected less by this problem—cases of *empacho* was most common among children (see Table V-16).

The most important aspect of the ethno-specific diseases (with the exception of *nervios* and *aires*) is that individuals are most likely to obtain treatment without consulting a health practitioner.

**Table V-17. Rank Order of Ethno-specific Disease
(Interviewees and Household Members)**

Ethno-specific Disease	BHS		CAWHS	
	Men	Women	Men	Women
Nervios	1	1	1	1
Aires	3	2	4	3
Empacho	2	4	3	4
Susto	2	3	2	2
Caida de Mollera	4	5	5	5
Mal de Ojos	5	6	6	6

While most herbs and medicines commonly used to treat these illnesses pose minimal or no threat to the individual, some are used to the individual's detriment. As a result, careful communication between the patient and practitioner, particularly in the United States, regarding these diseases is necessary so that medications are adequately used and monitored.

Finally, the use of *curanderos* for ethno-specific diseases is relatively low. At one time, this group, who administer curative therapies based on a combination of ritual and empirical experience, was considered to have special expertise in this realm of illness. Due to changing perceptions in Mexico, especially among the younger and more educated part of the population, as well as to the exposure to other medical environments, a transformation of the role and status of the *curandero* has occurred. Ethnographic evidence demonstrates that those who do seek attention from *curanderos* often do so as a secondary strategy—one that follows when inadequate or unsatisfactory results are obtained from the consulting physician (on either side of the border). The decreased reliance on *curanderos*, who are familiar with appropriate

home remedies, coupled with a lack of consultations with doctors for ethno-specific diseases creates a dangerous environment of self-medication.

F. Mental Health

Despite the importance of the topic, the psychological well-being of farmworkers has not been adequately addressed in the social science literature.⁴⁰ This lacuna is due, in part, to the difficulty of designing mental health instruments appropriate for use among this population. The education level is low and the language and cultural norms are quite distinct from the milieu in which mental illness surveys are normally carried out. In addition, other aspects of community life make mental health a challenge to understand. These binational communities move back and forth between villages in Mexico, where community life has a slow pace, to a fast-paced environment in the United States. In the latter case, the community is spread out over neighborhoods and adjacent towns, leisure time is scarce and additional resources—such as a means of transportation—are necessary for survival. The pattern of spending three to four months of the year in the villages and the rest of the year working U.S. fields is especially taxing.

Moreover, the high level of family separation presents particular emotional stresses for the communities. While mental health was not a major focus of the BHS, measures were gathered using questions designed to measure the impacts that changes in location and work environments have had on the community. Follow-up with semi-structured interviews revealed that a large number of respondents consider themselves to be suffering from mental health conditions—particularly anxiety and depression.

In the Mexican villages there are no mental health providers in the Western sense of the term—that is, counselors, psychiatrists or psychologists. In the U.S. communities, there are very few mental health providers serving these communities; those that do exist are primarily for children with severe problems or very acute adult cases. Those providers were overburdened and the programs under-staffed. There is particular scarcity of bilingual staff.

In the BHS, information about the mental health of the survey respondents was gathered by a series of open-ended questions. These were supplemented by information solicited on ethno-specific diseases, particularly, *nervios*, *aires* and *susto*. Follow-up interviews were also

⁴⁰ For interesting work on this topic see Nelly Salgado de Snyder "Family Life Across the Border: Mexican Wives Left Behind," *Hispanic Journal of Behavioral Sciences*, 15, no. 3 (August 1993).

conducted with farmworkers and their families about these topics, as well as with mental health professionals and others closely aligned to the field, including physicians trained in Western medicine and *curanderos*.

Designed to elicit the individual's perceptions about the topic in an open-ended way without prompting, the survey questions were purposively general in nature. For example, one survey question sought to identify respondents' overall satisfaction or dissatisfaction in attaining their goals by having migrated to the United States. More than two-thirds of the respondents (68 percent) replied that they felt they had met their goals, although many added that they had endured sacrifices to do so (see Table V-18). Also, respondents explained that their expectations of life in the United States were greater than the reality. Common responses among those disillusioned included:

- “[Did I meet my goals?] Yes and No. I was able to help my family move forward [economically], but it wasn’t easy. I suffered a lot.”
- “In the North there is more opportunity than in the city of Zacatecas or in one’s own village; the north pays well but it’s really hard on you.”
- “There is more of a chance to make money and help your family [in the U.S.] even though the work in the north is backbreaking.”

While respondents' goals varied, there were commonalities. Ninety percent made reference to attaining a better life because of better work opportunities and less poverty. For example, one respondent stated, “In a certain way [I did meet my goals] because there aren’t many opportunities here [in Mexico]; there [in the U.S.] one is able to live better.”

Twenty percent of this group attributed their success to owning possessions, 20 percent cited employment opportunities, and 17 percent claimed that being able to provide for oneself and one’s family as key. “I sought a life that could bring me money,” said one respondent, “there was no way to find it here [in Mexico] and we had to find a way to eat.” Another explained that “in Zacatecas there are no work opportunities. I didn’t want to see my children feel hunger.”

**Table V-18. Proportion Who Attained Goals
by Migrating to the U.S.
(only those with explanations included)**

Response	Count	Percent
No	146	32
Yes	316	68
Total	452	100

The remaining one-third of respondents did not attain their goals. A significant portion indicated that they were barely surviving, had not earned enough money and were unable to purchase basic items or felt trapped in farm work and desired other opportunities, particularly educational ones. "I have not attained the goals that I had in coming to this county," indicated one farmworker. "My goal was to make money and return to my country—but that is not the way it is. I have to stay here to continue to make money."

In general, respondents attest to a strong family and community support system. About 89 percent indicated that either family or friends (or both) provided support while residing in the United States. Four main categories of support were discerned.

- Thirty percent reported having received some form of assistance in obtaining employment
- Twenty-nine percent received financial assistance (and of these, 10 percent were provided loans or outright grants to finance border crossings from their friends and relatives)
- Twenty-four percent received food and lodging from either friends or family members
- Nineteen percent received emotional or social support.

A minority (11 percent) who felt they had not received support claimed that this was due to one of three factors. Either they 1) didn't ask for help, 2) didn't have anyone they could turn to for help or 3) they did not want to ask other family and community members, who themselves were in need.

A significant proportion of respondents (22 percent) reported a loss of motivation or feelings of depression so severe that it affected their ability to work. Most of these respondents

(53 percent) indicated that the cause for their condition was brought on by being separated from and missing their family. The remaining indicated that they either had some financial problem, personal or family illness or that work in the fields was too difficult.

When interviewees were asked “What do you do to relieve your stress/anxiety?” four out of five respondents (80 percent) acknowledged the need for relief, while only one in five replied that they had experienced no stress/anguish. Fifteen percent said they talked or socialized with friends and family, 10 percent said they drank alcohol and 7 percent said they exercised or played sports. The remaining respondents either focused on their work (4 percent), watched television or listened to music (4 percent), tried to relax (4 percent), wrote letters home to their families in Mexico (3 percent), tried to find solutions (3 percent), cried (1 percent), smoked cigarettes (1 percent) or prayed (1 percent). No one in the sample sought out Western psychiatric or counseling services.

Most farmworkers, especially male farmworkers, are stoic and rarely see a doctor unless there is a problem. As one worker put it, “I have never gone to a doctor for a check-up. I would go only if I couldn’t work.” This avoidance behavior is further accentuated when related to questions of mental health and emotional stamina. Even among those who did respond affirmatively to the question of stress relief, one-quarter (25 percent) said they simply withstood it [the stress/anxiety] and did nothing. Some U.S. health professionals also noted this tendency for stoicism. For example, one clinical supervisor stated:

It is more likely that schizophrenic farmworkers will continue to work than get on SSI and not work. Mental health clinics therefore need to play a role in work readiness. Furthermore, stress can bring on schizophrenia, or conditions referred to as bipolar disorders, schizophrenic disorders and depression. This also needs to be addressed.

1. Mental Health Risks

The mental health of farmworker families is threatened by a number of environmental factors, one of the most salient being the long-distance, long-term separation of family members and spouses. The stress involved in this situation is severe and affects every family member, though most acutely the children and wives. Despite the high proportion of legal immigrants in Zacatecano villages, large numbers of women are raising children alone most of the time. Of 226 Mexican-born women married to U.S. workers interviewed in Mexico, 104 (or 46 percent) have never been to the United States. Even in these villages, with relatively long-

term migration patterns, almost half of the women remain in the villages while their husbands work for long periods north of the border. The emotional cost associated with this stress is largely overlooked. A medical intern from one of the Mexican villages explained:

The most serious problem we confront [in the village] is the disintegration of the family caused by the absence of the fathers. The women and children are left alone. They must do everything. While the husbands almost always send money, many times the money isn't enough or the flow isn't continuous. Women don't know what they will be receiving from the north. Mothers must be both mothers and fathers at the same time; and alone they must worry about the education and well being of their children. This lack of stable family relations is serious and at the root of a lot of psychological problems and other problems, like teenage alcoholism.

There are also economic repercussions resulting from family separation. The husbands in these separated families spend much less time in the United States than the families who go back and forth to the United States together. The separated husbands spent 47 percent of their working lives in the United States, while those husbands whose wives accompany them to the United States spent 67 percent. This has meant much more earning power and better jobs for the latter group. A comparison of the assets held between the two groups reveals large disparities. The families of the men whose wives accompany them to the United States have more assets in both countries than the families where the wife stays in Mexico. Therefore, in addition to the separation, wives who remain in Mexico are among the poorest villagers.⁴¹ As one informant put it: "The people that stay behind are the women, children and those who take care of the belongings of those who have left. Those who stay do so because they can't leave—they don't have the money to cross the border. . . . This village now has an artificial life; every one leaves, it is always lonely."

⁴¹ About 17 percent of the husbands who do not take their wives to the United States reported having assets in the United States, while among the husbands with their wives, 56 percent own assets there. Husbands without wives are far less likely to own a vehicle or a house. Approximately 15 percent of husbands without wives have a vehicle, and only 2 percent own a house. However, in the group whose wives are with them, 48 percent have a vehicle and 22 percent own a house. The families of the men whose wives stay behind have some assets in Mexico. About 76 percent of these men own a house in Mexico, 40 percent have land, 35 percent have a vehicle and 26 percent own animals. In comparison, 76 percent of men with wives in the United States own a house, 34 percent have land, 40 percent have a car or truck and 31 percent have animals in Mexico. Furthermore, 13 percent of these men have a house in Mexico and in the United States, compared to only 1 percent of husbands without wives.

In addition, this population, whether legal residents of the U.S. or not, deal continuously with the ordeal of crossing the U.S.–Mexican border. Boys and young men ages 12 to 18 most often begin their journey north knowing they must cross illegally. While the *migra* are a definite hazard, so too are the many ways in which one can get robbed or hurt on the way. One interviewee stated that his experience continued to traumatize him, more than a decade later.

I came with my brother and cousins. On the Mexican side, the night before we were going to cross, the *coyote* took us to a hillside and told us to sleep there. It was outdoors. We slept in our clothes, huddled. It was cold. In the middle of the night we were attacked by a band of young male robbers who demanded from us the money we carried to pay the *coyote*. When I didn't have any, because my brother carried it, I was beaten and stabbed several times. I received a wound to my head. I wasn't able to wash the wound or blood until we got to Los Angeles, four days later.

Young men, alone in the U.S. without their families, frequently expressed feelings of remorse and unhappiness about being in the United States. Many came believing that life would be good. Instead, they were confronted with loneliness and grueling and relentless work in a country in which they are outsiders. Furthermore, upon arrival, these young men must immediately begin working to pay off their debts incurred to get across the border.

But it is not only sons who lose their families, the mothers who remain in Mexico lose not only their husbands but also their sons. The uncertainty of their children's safety, along with powerlessness to protect him, is excruciating for those who remain behind. Mothers, sisters and fathers suffer with the knowledge that their son or brother could be hurt, imprisoned or die and that they are powerless to prevent it. Some mothers reported not having seen their children in 15 years and deeply lamented it. Young men and women in the United States also expressed this regret: "I don't think there is a person that doesn't feel depressed in this country [U.S.] when they leave their families," said one respondent. "This is not a familiar community."

However, it is not only the south-to-north border crossing that has perils. Many interviewees complained about crossing the border into Mexico where immigration officials would steal their belongings. One respondent lamented the theft of her second-hand sewing machine that she had brought with her so that she might begin work as a seamstress. Another said she didn't understand the pay-off system and was reprimanded by a guard when she supplied him with the money he requested in front of a video camera. "When I cross the border from the U.S. to Mexico, I feel very insecure because the government officials behave badly

and rob people,” she said. “They want to take everything away that one has earned in the U.S. through sacrifice.”

In family settings on the U.S. side, where family members are united but mothers and wives now work in the field along side their husbands, there are other stressors. These are created by physically demanding working conditions, including long work hours (or odd hours) that separate parents from children before and after school, thereby exacerbating lack of parental supervision at crucial times of the day, while simultaneously undermining the development of strong parent-child relationships. This phenomenon has severe repercussions for both family and community-wide problems, including truancy, low rates of academic achievement, decreased parental involvement in children’s school success and increased teenage delinquency.

Working conditions also have a negative impact on nutrition. Mothers, returning at night from the field must still put a meal on the table for their families. Given the premium on time, they resort to foods that can be prepared quickly and are readily available in the United States. Diets among farmworkers in the United States include more sugar, carbohydrates and meat and fewer vegetables than diets in Mexico.

Work schedules also inhibit personal and family development in the areas of education and health. Many interviewees described their frustration of not having had time to better themselves through education because of their demanding work lives. In addition, most interviewees reported that given their low wages, they could not leave work to do important things during the day—when businesses, including government agencies, are open.

Young mothers who migrate with their husbands, or join their husband after a period of separation, suffer psychologically.⁴² Not only are they frequently adapting to patrilocal residence (and are separated from their natal families for the first time), but they are also confronted with a strange new country. As one young bride, living with her husband and his family in the States, explained:

I’m a worrier. The fact that I am without my family depresses me. I always want to cry, I am sad, I don’t want to do anything and I only sleep. I did go to the doctor here [in the U.S.] but she told me to see a counselor. But I don’t want to go tell a stranger my problems. And furthermore, they probably don’t understand Spanish. How can they understand me if they are from here?

⁴² The NAWS data demonstrates that most male Mexican farmworkers are joined by their wives and children.

Consequently, many farmworkers seek relief from depression and anxiety by acquiring strong medications in Mexico and at U.S. flea markets and Latino stores. As indicated earlier, conditions of *nervios*, *susto* and *aires* are frequently treated with sedatives and antidepressants, though often with no diagnosis or clinical follow-up and rarely, if at all, with any form of counseling or psychiatric care. Sometimes symptoms are so acute that individuals go to emergency rooms. Several symptoms—numbness around the mouth and hands and feet—are manifest due to hyperventilation that can accompany these anxiety disorders. Individuals frequently believe they are having a stroke.

Cases of severe depression go untreated. The stigma attached to mental conditions is negative. One is considered *loco* (crazy), and as one health provider put it, “it is hard for them to understand that there may be good reasons for certain mental states of mind.” The belief that mental disease is brought on by the devil is also popular.

The causes cited for depression were generally attributed to family separation or economic stress. Health providers also identified a causal link between depression and psychological disorders to the loss of communication between parents and children living in the United States. Migrant children are learning English and speaking English while the parents remain monolingual. This further separates children from parents and, in some cases, leads to a complete lack of parental control over children. Respondents in Mexico and the United States both mentioned this problem.

For example, one Mexican doctor from a public clinic stated, “I think that what most affects the community’s health is the disintegration of the family. The family [in Mexico] is raised without a father figure; the older kids lose respect for their parents. When the father returns, they say ‘You don’t tell me what to do. Who are you? You don’t even live here.’”

This breakdown in generational communication is also associated with an increase in drug use (both legal and illegal) and alcohol.⁴³ As noted previously, there is abundant use of strong drugs bought at pharmacies without doctors’ prescriptions, prescribed medications, herbs, vitamins and natural medicines among this population. Self-medication for *nervios* is

⁴³ Drinking appears to be a problem for many of the BHS respondents—75 percent of the men and 11 percent of the women. Among those who drink, the median is two days per week, three drinks per day. A few drinkers (about 13 percent of the total) say they drink six or seven days a week and average 21 drinks. These data are disturbing for these men; though the timing of the survey has to be considered since many of the interviews were done during the heavy-drinking holiday season. Another disturbing finding is that the young drink more than their older relatives.

commonplace, especially if individuals have become hooked on drugs like valium.⁴⁴ But alcohol is also cited frequently. One doctor indicated:

This emotional destabilization within the family can be seen by how young people are drinking more and more alcohol. Although the sale of liquor to minors is prohibited, one sees more and more 14 and 15 year olds drinking a lot. It's a serious problem—and it has a lot to do with the influence of the youth that come back here [to the village] from the North.

Numerous health providers reported an increase in drug use among farmworkers, especially males, to be able to withstand the hardship of farmwork. According to one health outreach worker:

A large number of male farmworkers use drugs to be able to withstand *aguantar* (the workday). They smoke marijuana or smoke/inject heroin. Now there is more crack because it is less expensive. Sometimes they use cocaine. Women rarely seem to be involved with these drugs, but they often inject themselves or get injected with vitamins (especially vitamin B) for a period of three months prior to the work season's beginning.

The need for services related to mental health is compounded by cultural and linguistic factors, among them, this population's complete lack of experience with mental health providers. As one U.S. psychiatrist noted, "The first contact with the county's mental health providers is an 800 number . . . if the phone is answered in English, Spanish speakers hang up. Plus, Hispanics aren't comfortable with 800 numbers. They don't like speaking to strangers, much less an 800 number."

Mental health poses a difficult challenge to health care providers in the United States, whose programs, already cut back to bare-bone, are bereft of bilingual staff. The somatization of mental illnesses—for example, *nervios*—is commonplace, and, in extreme cases, those suffering from acute conditions seek help from medical doctors and in emergency rooms in the U.S. However, these providers, cannot address the root causes of these ailments, and often cannot treat the symptoms or provide the needed levels of follow-up support. According to one U.S. mental health provider, in extreme cases, such as schizophrenia, Hispanics are meeting their own needs by buying over-the-counter antipsychotics (such as Haldol) in Mexico. More

⁴⁴ Medicines for conditions related to depression and/or anxiety are being prescribed by Mexican doctors, and in a few cases, nurses, pharmacists or U.S. doctors. However, these medications are being used in the absence of clinical supervision, counseling or psychiatric care, and in many instances, without appropriate diagnosis.

importantly, family members of individuals suffering from acute conditions receive no support in dealing with their family member's condition.

SECTION VI CONCLUSIONS

This study of binational farmworker networks has demonstrated that structural and behavioral factors impede agricultural workers from engaging in a regular, preventive pattern of health care both in Mexico and the United States. Consequently, serious diseases go undetected and untreated and lead to debilitating and chronic conditions with high economic and human costs.

Most of the farmworkers participating in the study did not have U.S. health insurance, regardless of their eligibility for such programs and despite the fact that they have spent the majority of their adult life in the United States. When these Zacatecanos, most of whom earn extremely low wages, do seek out health services in the United States, they frequently pay in cash.

The principal factors impeding farmworker access to health care in the United States are the confusing and limiting eligibility criteria for health-care coverage, compounded by the common fear among workers that use of U.S. public programs will jeopardize their immigration status. In addition, the seasonal nature of their work and the corresponding fluctuations in their income cause workers to be periodically ineligible for U.S. low-income insurance programs. Since farmworkers place a high value on having their own transportation and home and strive to acquire these items, they also often violate the strict minimum asset requirements for Medi-Cal.

The appropriateness of U.S. medical care for this community is varied. Some providers in farmworker communities attempt to customize their services to the recently arrived Mexican community and facilitate their entry into the U.S. health-care system. Nevertheless, the majority of the Zacatecano farmworkers prefer medicine in Mexico because the U.S. system does not suit their needs and treatment and medication are more affordable in their home country.

In general, workers and their families obtain infrequent and irregular treatment from a mosaic of different providers. These include private and public clinics in both countries, emergency rooms in the United States and unlicensed Mexican doctors practicing in the United States. They obtain medicine and home remedies from various sources, including those available near the border, U.S. Latino markets and flea markets and from private doctors and

pharmacists who specialize in Mexican patients. The lack of regulatory control in Mexico over the dispensation of pharmaceutical drugs and the availability and increasing popularity of homeopathic drugs, in combination with presumptive diagnoses and sporadic and uncoordinated medical supervision, is also a source of concern.

The most common diseases suffered by Zacatecano farmworkers are chronic in nature, and these often go untreated. To compound this situation, work-related health risks for migrant workers are among the highest of any industry. The workers report high rates of work-related injuries, high levels of physical pain related to working conditions and long-lasting symptoms related to occupational exposures in the field. Furthermore, work-related injuries frequently evolve into more complicated, chronic conditions that plague farmworkers for the rest of their lives, even though they may change occupations because of their physical debilitation.

Related to the problem of chronic disease is the fact that health resources are especially lacking for elderly farmworkers who return to Mexico after years of work in U.S. fields. The inability of both the Mexican and U.S. health-care systems to achieve a continuity of care, or build a culture of preventive care among the population, is creating serious long-term public health problems. Rural Mexico, where many of the workers from these 10 villages are retiring, is unprepared to care for this elderly population's health needs.

The burden of moving between two countries and the separation of family members, in addition to the physically demanding nature of the work and their low wages, makes this population particularly vulnerable to stress-related health problems, most notably, depression and anxiety. Mental health resources are extremely scarce in both countries and, if available, are often not culturally appropriate. Consequently, self-medication is frequently the norm and strong and frequently addictive medicines are being self-administered in these communities.

The number of factors that contribute to this picture of inadequate farmworker health care are complex. A basic inconsistency between the health-care system common in rural Zacatecas and the one farmworkers must adapt to in the United States is a key factor. This "clash" of systems is complicated by the fact that high barriers prevent farmworkers from obtaining health care. And even when they overcome the U.S. institutional barriers, the community attitudes in their networks and their comparative experience with Mexican medicine inform them that they are receiving inadequate care from U.S. providers. Moreover, the proximity to Mexico and the temptation to use a more familiar style of medicine makes for a difficult transition to U.S. health care for this population.

A. Improving Farmworker Health: A Binational Strategy

To improve the health of farmworkers, collaboration and coordination must be increased between Mexican and U.S. health-care providers and programs. A first step is to identify other existing farmworker kinship networks by mapping the Mexican localities (the “sending areas”) from which farmworkers originate along with the U.S. “receiving areas.” (The tendency is for networks from a sending area to concentrate in one receiving area, thus facilitating practical social mapping.) These informal networks and their associated linked sister communities can serve as a base for program planning and implementation.

Additional research in the following areas would also assist in guiding this binational approach:

- Cross-checking and enriching existing survey research data with additional systematic and rigorously collected field observations to improve the current knowledge base of farmworker networks. This effort would provide additional detail regarding the circumstances under which health and access outcomes are occurring, and help to build a model of outreach applicable to provider training and community education.
- Conducting detailed research on insurance and health problems encountered by a cohort of workers over a one-year period—coupled with in-depth interviews among relevant personnel at health care institutions. It is crucial that the point of contact between health-care providers and farmworkers be handled carefully to avoid discouraging this population from receiving regular care or participating in preventive care programs. This research would provide insights about how to lower barriers that currently discourage this population from enrolling in health-care programs.

With this information in hand, the following strategy would serve to improve health care services among farmworkers.

Within the context of the binational networks and sister communities, it is essential to cross-train health-care delivery specialists from both countries. The objective would be to provide outreach workers and *promotores* in the United States and Mexico with the knowledge and tools they need to encourage farmworkers to engage in preventive care, maintain proper

diet and exercise, use appropriate medication and seek insurance. It is feasible to organize health-related outreach efforts around existing binational organizations. Of particular relevance, are hometown clubs called *clubes de los hijos ausentes*, which many farmworker communities have formed. These, as well as other community organizations, can also serve as vehicles for pooling people for private insurance. They are also possible avenues for developing support groups for farmworkers facing specific diseases, such as diabetes.

Intake staff in the United States must be trained to effectively deal with this population. The objective would be to create a highly trained pilot cadre of effective intermediaries to facilitate greater health care access among this population. Outreach workers also need to be specifically trained to case manage families by piecing together a wide-range of resources with different eligibility criteria to minimize the fragmentation of health care within the family. And doctors should have translators available to them who know where the clients come from and are familiar with the localisms of the particular communities.

Educational efforts must also be specifically designed to help physicians and other providers in Mexico and the United States guide farmworkers in their use of medical resources, encourage preventive practices and facilitate insurance coverage. Physicians, especially those in the United States, would be aided by information about patients' attitudes, their town or origin and destination, work lives and community history. It would assist them in adapting their communication and bedside manner to ensure more successful patient-provider interactions. Training programs for providers should also include information regarding the risks to farmworkers of uncoordinated treatment from a variety of sources, as well as their lack of medical records and patient histories. This would also facilitate a better understanding of patient expectations and common health risks.

Finally, the collaboration between health-care providers, outreach providers and educators from both countries would aid in further targeting specific diseases to which this population is particularly vulnerable. It would also help in identifying culturally suitable and economically feasible diagnostic tests that could facilitate more consistency in the diagnosis of diseases. However, most rural Mexican communities lack diagnostic laboratory equipment and the medical staff to run the equipment. In some cases, additional resources will be needed to obtain the necessary devices and training.

APPENDIX A METHODS

The BHS was an experiment to test whether reliable data useful for improving health services delivered to California and other U.S. farmworkers of Mexican origin can be acquired using a novel binational research design. The project gathered self-reported quantitative health status data and qualitative key informant data about how Mexican immigrants from rural-based binational communities conceptualize their own and their community's well-being. The project involved quantitative analyses of a structured interview with 467 members of binational farmworker immigration networks from ten villages and of semi-structured interviews with selected individuals from these towns and among other individuals who provide health services to these communities.

The project tested a random sampling technique for the study of the demographics of U.S. workers who were born and raised in rural Mexico. Census data and national surveys of Hispanics and other "official" sources are not adequate tools for gathering non-biased information about Mexican participants in low-wage U.S. industries. These official data-gathering techniques tend to acquire information about one segment of the immigrant community—the most settled groups—and to exclude that part of the population which is mobile, non-English speaking, undocumented and housed in substandard dwellings. This excluded section is likely to have different demographic characteristics and social service needs than other immigrants.

The BHS relied on a sampling technique that specifically aims to choose among the full universe of U.S. farmworkers of rural Mexican origin. The method was also designed to allow the acquisition of reliable data based on the building of trust between interviewers and the chosen communities. The success of the BHS demonstrates that it is possible to pick a random sample of both current and former workers in a given sector (in this case, U.S. agriculture) who come from Mexico. Furthermore, it is possible to probe these individuals for otherwise difficult-to-obtain information and gather reliable answers. The method functioned well because it was based on winning the confidence of the community by using local interviewers and gaining a reputation within a given set of social networks.

By starting within specific communities on the Mexican side of the border, the project built trust in the chosen communities, gained access to their members and gathered reliable

information among all members on both sides of the border from defined universes of individuals. Also, by beginning in Mexico, the technique allowed for the inclusion of returned or visiting farmworkers who would have otherwise been excluded from the survey had it been done exclusively in the United States. Other farmworker surveys, which have excluded returnees and visitors, reflect results biased toward a younger, less infirm group. By including these Mexican groups, the BHS complements surveys done exclusively on the U.S. side—such as the California Agricultural Workers Health Survey (CAWHS) and the U.S. Department of Labor's National Agricultural Workers Survey (NAWS), which are limited to current farmworkers and to those residing in the United States. Since the sample was small and was limited to one region, the results cannot be freely generalized to the Mexican-origin farmworker population as a whole (see Section I). However, the success of the experiment opens up the possibility of replication of the same type of study on a broader scale. Such a wider study could gather an adequately large sample size and achieve representativeness for sufficient areas in Mexico to make its findings applicable to social service delivery policies on both sides of the border.

A. Building on Existing Data Sets

The main data sets used for comparison purposes in this report are from the NAWS and the CAWHS (the latter was also funded by The California Endowment). It did not prove useful to make comparisons with Mexican data sources at this time. Also, data about the Mexican-born participants in the National Health and Nutrition Examination Survey (NHANES) done by the Center for Health Statistics were used for comparison purposes. Since 1992, the NAWS has collected some data on the health of farmworkers of all nationalities. (About 75 percent of the NAWS's respondents in recent years have been Mexicans.) Since 1998, a special occupational health supplement, funded by the National Institute of Occupational Safety and Health, has been carried out in conjunction with the traditional NAWS interview (about 3,500 are done each year). There have been about 30,000 NAWS questionnaires, including demographic and employment data, collected over a 12-year period.

The CAWHS, fielded by CIRS, was an occupational health survey occurring in the summer and fall of 1999, which was modeled (like the BHS) to a large extent on the NAWS questionnaire. A total of 968 interviews were carried out in this survey. Many of the

communities selected for the CIRS survey turned out to be, by coincidence, the receiving destinations for the Zacatecano transnational communities surveyed in the BHS. For this reason, the BHS and CIRS data are particularly comparable and the data from the two surveys reinforce each other. The CAWHS survey included a physical exam for about 65 percent of the interviewees. It is important to remember that the CAWHS and the NAWS samples are representative of a younger group of current farmworkers (see Appendix B). The NAWS sample in particular, due to its large sample size and multi-county distribution, is a relatively good demographic measure of the universe of farmworkers in California and nationally.

B. Research Design and Questionnaires

The research design, sampling technique and questionnaires were all reviewed and approved by an advisory committee composed of two Mexicans and two North Americans with experience in health survey work among rural Mexicans. Included were Nelly Salgado de Snyder, a Ph.D. Mexican psychologist currently working with the National Institute of Public Health; Maestra Flor Sanchez, the director of the Public Health Department at the Autonomous University of Zacatecas; Sherry Baron, a medical doctor and public health specialist from the U.S. National Institute for Occupational Safety and Health; and Michael Kearney, a University of California medical anthropologist with wide experience in Mexico. In addition, Stephen Reeder, a statistician from Oregon State University, gave statistical advice to the project.

The questionnaire was modeled on the NAWS and CAWHS instruments. The sampling design, general design and questionnaire content were approved by the advisory committee after a meeting in early October 1999 held in Zacatecas.

C. The Pilot and Revision of the Questionnaire

As a result of the advisory committee meeting, the questionnaire underwent a thorough revision. Between October 11 and 14, 1999, the project piloted the revised survey with four experienced NAWS interviewers (Nathan Weiss, Enrique Herrera, Dara Winfield and Richard Mines). The four interviewers visited eight village communities and did 19 interviews including 5 with the female heads of household present. As a result of the pilot, further revisions were made. The psychological questions approved by the advisory committee were revised, the labor history was altered to record more accurately the exact periods of time

workers are exposed to occupational risks and clarifying questions were added with regard to reasons for leaving jobs. The resulting *Version 4* questionnaire was returned to the advisory committee, which suggested further changes. The final *Version 5* questionnaire was administered during January 2000, during which time 304 interviews of sufficient quality to be used in the analysis were conducted.

The questionnaire was further revised in early February 2000 (*Version 6*) to adapt it to circumstances in the United States, where it was administered in April and May of 2000 in the sister settlement sites of the ten binational village communities.

D. Training of Interviewers and Structure of the Staff

The project design required that a random sample of individuals be located and interviewed in both the United States and in Mexico. Since many of the eligible members of the universe (i.e., current or former U.S. farmworkers born and raised in the communities) are difficult to find in one of the two countries at any time during the year, the design required that select individuals be sought on both sides of the border.

The interviewing staff was originally structured to have one project director, four lead interviewers and six Zacatecano interviewers to carry out the preparatory and interview work on the Mexican side. One of the lead interviewers dropped out early in the project so that the fieldwork was conducted with only three lead interviewers. Extra Zacatecano interviewers (a total of eight) were hired to compensate for the missing lead interviewer. The U.S. interviews were done entirely by the three lead interviewers. The project director visited each of the three interviewers for a week period during the collection of data in the United States.

In early January 2000, the 11 interviewers and the project director met for three days in Zacatecas for a training program. The Zacatecano staff were first given a thorough explanation of the purpose of the project and the sources of the funding. The responsibilities of the supervisory interviewers and the administrative structure were then explained. Topics about general approaches for doing field research and methods of conducting interviews were then covered and the target communities were described. Finally, a question-by-question review of the questionnaires was conducted and the interviewers practiced by interviewing each other and supervisory staff. In the field, each of the three lead interviewers assumed responsibility for two to three villages and the supervision of two to three Zacatecano interviewers. Once in the

field, each Zacatecano conducted at least one interview with the supervisory interviewer present. During the interview period, a rigorous review of every interview was conducted to avoid errors of carelessness or inconsistency. The three supervisory interviewers and the project director spent many hours in this effort to protect data quality. Still, some interviewers required constant supervision and at times had to return to redo interviews in order to bring their work up to acceptable levels. Approximately 5 percent of the interviews were rejected during the data entry stage.

The challenges of implementing the interview process with inexperienced interviewers suggest that changes in the training program as well as added supervision in the early stage of interviews are required. Procedures need to be put in place that encourage quality rather than quantity. It would have been advisable to have a pilot interview period in the field of two days and then regroup to review the questions.

All the Zacatecano interviewers were either advanced college students or university graduates (four were medical students, two were economics students, one was a public health graduate student and one was an experienced rural social worker). All were carefully chosen after a rigorous, competitive hiring process including a test (mock) interview with the project director. Nevertheless, it was quite challenging to field a sophisticated questionnaire using staff whose experience at comparable activities was limited. In general, the Zacatecano interviewers improved with time and gained from the experience. In large measure, due to the close supervision of the lead staff, 98 percent of 310 Mexican-side interviews were of acceptable quality.

E. Choice of Communities and Sampling Methods

Due to limited resources, the project could not take a random sample of all Zacatecano villages. It would be practical in a larger project to make a list of all villages (below a certain population level) in given states and create criteria for choosing a random sample, possibly using a stratified-selection approach. This process would require a discussion with knowledgeable individuals in each municipality about the population characteristics of each community. It would also require, in some cases, visits to the communities to verify the descriptions. A further complication for the random choice of villages was one of supervision. It was deemed necessary for this pilot project to concentrate all the chosen villages within

commuting distance of one spot so that the project director could manage problems as they arose. For these reasons, it was decided to select a group of villages in the Dos Cañones section of southern Zacatecas. It is an area that has an enormous flow of migrants to U.S. agriculture and a variety of types of villages, destinations and U.S. crop activities.

Table A-1. Percent Distribution of Crops by Village Communities

Crop	La Santa		Moyahua	Cuxpala	Mesquital	San	San Pedro	Total
	Ceja	Rosa			del Oro/ Los Huajes	Miguel/ San Isidro	Rancho Nuevo	
Citrus	5	0	2	53	5	1	7	10
Non-citrus fruit trees	51	0	39	22	47	46	19	33
Row fruit	2	79	2	0	1	1	2	11
Grapes	29	0	4	11	15	0	64	16
Horticulture	12	11	2	0	25	2	0	9
Vegetables	0	10	40	3	1	1	3	8
Field crops/ Grains/other	0	0	12	11	7	48	5	13
Total	99	100	101	100	101	99	100	100

Included in the choice were villages (or sub-networks within villages) which specialize in a variety of crops including table grapes, wine grapes, strawberries, caneberries, melons, almonds, pears, olives, apples, oranges, sugarcane, peaches, tomatoes, nurseries and various row vegetables (see Table A-1). Also, within the networks were workers of the vast majority of U.S. farm tasks, including hoeing, thinning, harvesting, irrigating, pruning, tying, putting down plastic, tractor driving, loading, field packing, transplanting, spraying, field preparation, orchard management and various supervisory tasks. The choice of villages was made with an eye to including as much variety as possible. In each of the municipalities of the region, the project director made inquiries about the various communities and visited many of them over a three-year period (1996–1999). The final choices were made in October 1999 when the questionnaire was piloted.

Although the towns were chosen purposively, a rigorous random selection strategy was followed. To follow this strategy, statistician Stephen Reeder reviewed each step of the

process.⁴⁵ The first step was to collect the universe of eligible people in each village. The project director and one Zacatecano interviewer entered all of the sampling sites and spoke with several informants in each one. Certain information was gathered on each eligible individual in the town: name, gender, age, place of destination in the United States and address. Over 300 names in the villages were gathered in this initial way. Then, after the training program for the Zacatecano interviewers, another universe building period was implemented. In the first two days, the interviewers and supervisors spoke to several other informants in the communities and expanded the universe lists. It is estimated that quite complete lists of the universe of eligible individuals, regardless of whether or not they had recently been in the village, were included by the time the expansion period was completed. After the expansion of the lists 1,123 individuals had been included. Interviewers were required during the subsequent interview stage to record further names of eligible individuals without including them in the universe to be interviewed. The few additional names that were found were not included.

We ordered the names of sampling lists from one to the highest number in the order the individuals were added to the lists. Then, we applied a list of random numbers provided by Dr. Reeder to choose the order of the interviews. We worked the lists in random order until we achieved a quota for each village of 35 to 50 interviews (depending on the size of the village) or until no more willing or currently present interviewees could be located. For example, suppose we had collected these hypothetical names starting with Juan Gonzalez up to Jesus

Table A-2. Hypothetical Example: Creating the Order in Which the Interviews Are Done

Universe List of Former and Current Farmworkers	Number in Order Put on List	Number in Random Order
Juan Gonzalez	1	10
Jaime Ortega	2	3
Pedro Gutierrez	3	5
Ma del Sol Ortega	4	12
Jesus Juaregui	5	1
Etc.	.	.

⁴⁵ Reeder is an experienced sampler of farmworker populations. He currently is the sampling statistician for the NAWS. He is a professor at Oregon State University.

Jaruregui and beyond (see Table A-2), but we interviewed Jesus Jauregui first, Jaime Ortega third, Pedro Gutierrez fifth and so on. If someone was not in the village or settlement community at the time of the interviews, we skipped to the next number on the random order list. We ended up with approximately 40 interviews per village, with the larger areas producing more interviews. The random order of interviews was strictly followed.

The lead interviewers in the United States took the universe lists with them and worked one settlement community at a time. They went down the list of all the individuals reported to be present in the U.S. settlement community on the universe list until they achieved a quota of 12 to 18 per settlement area. They then moved on to the next settlement area. For example, one lead interviewer began in the MacFarland area, fulfilling her quota of interviews of residents from Rancho Nuevo and San Pedro (two adjoining villages in Zacatecas), and then proceeded to the nearby Earlimart area to cover the second area of people from this same sending area. She subsequently moved on to Hamilton City where people from San Miguel and San Isidro (two other adjoining villages) are located. After completing her quota there, she moved to Thibadoux, Louisiana, which is the other major receiving area of men from these latter two sister villages. In each case, she remained true to her original universe list and did not interview any non-members of the original list.

The second lead interviewer had the same experience with her transnational Zacatecano communities of Moyahua, Cuxpala and Santa Rosa. She stayed true to her original universe lists in Salinas/Watsonville, Gustine/Newman/Crow's Landing and in Cutler/Orosi. The third lead interviewer, in charge of Mesquital del Oro and Los Huajes and La Ceja also stayed true to his universe list until late in the interviewing process. While in the state of Washington, he found that he was having trouble filling his quota in a couple of small settlement areas by remaining strictly loyal to the original universe list. This problem occurred because he did not collect sufficient contact information in the villages during the Mexican phase of the project. As a consequence, it became necessary to occasionally allow him to create a second list for the settlement community by discussing with a local informant all the names of the individuals (those present on the original list could not be used on a second list) in the settlement community. He then followed the original procedure and chose from the new list using random numbers.

This straying from the original list by this interviewer was permitted in this pilot circumstance in a few cases, but it should be avoided at all costs in future surveys of this type.

One sure way to avoid this problem will be to pursue the contact information with the greatest tenacity in the villages. A second but more expensive approach would be to formulate the list simultaneously (before the survey begins) in the sending village and the settlement communities. This would require a visit by the lead interviewer to the United States after establishing contacts and an initial list in the village.

In retrospect another problem came up with the universe lists. They included too many men. We can tell by analysis of all the people engaged in U.S. agriculture in our larger sample (interviewees and household members) that about 74 percent of U.S. farmworkers in these networks were men, but 90 percent of our interviewers were men (see Appendix B, Table A-2). When we collected the lists, our informants would provide the name of the husband who was a farmworker and sometimes not the wife, although she also did farm work (possibly because of the patriarchal nature of the communities or because men were recognized as more experienced farmworkers than their wives). In a future survey, this problem should be avoided by more extensive probing for the names of wives who do farm work.

F. The Ethnographic Reports

Each of the lead interviewers collected the medical, demographic and employment history of the villages for which they were responsible from key informants. In addition, the project director and a Zacatecano sociologist, Gamielo Jauregui, collected data from semi-structured interviews with 13 health providers in rural Zacatecas in June 2000. Furthermore, Richard Mines, Nancy Mullenax and Lisette Saca collected data from semi-structured interviews among health providers and lead informants from the Zacatecano communities in February 2001. As with the quantitative data, the data were analyzed and included in the report. The semi-structured interviews were crucial to providing a context for the quantitative results of our study. These interviews allowed us to understand the history of the communities with respect to changes in infrastructure, economic development, migration trends, industrial decline and health care.

G. Data Entry

Interviewers entered the data using recorded words instead of code numbers wherever possible to avoid entering the wrong number during the interview process. The data were then entered by Zacatecano staff trained and supervised by the project director. There were

continual questions early in the process by the three individuals entering data, who were being supervised closely. One of the interviewers, Julio Fernandez, also served as a data entry person, and he entered all his own surveys. One of the other data entry people, Anayatzin Larios, also served as a data analyst for the project director. She traveled to the United States in August of 2000 and entered all of the 167 surveys completed in the United States; Ms. Larios thus entered over half of the study interviews. All the data were entered on Microsoft Access and were checked for consistency both with Access and then with SAS. The data were further validated by a U.S. employee who checked a computer printout of every piece of data in the 16 data sets created from the survey data against the hard copy of the surveys themselves. He checked every sixth interview and found an overall error rate of 1.03 percent (362 errors out of 35,135 entries of data).

The refusal rate was insignificant. This was due primarily to the slow cultivation of network contacts achieved by the BHS in the ten communities; we were talking to networks of people who all knew each other and they had heard about us before we asked for permission to interview them. We also offered a cash payment of \$15 dollars in the United States and 50 pesos in Mexico as compensation for their time. There were certain individuals on the universe lists who were absent from the village or the settlement areas while the interviewers were present. The lead interviewers reported 13 refusals in the whole sample in all 7 communities. In effect, the refusal rate was less than 3 percent. Overall, 42 percent (467 out of 1123) of the entire universe list was successfully interviewed (see Table A-2).

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