Health Status and Access to Health Care Among California's Hired Farm Workers

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Introduction

This paper discusses four main topics. First, the availability of health care services in rural California communities. Second, the ability of the state's rural working poor to access the services that are available. Third, our current knowledge about the state's hired farm workers, which have the poorest access to health care of any group in the state. Fourth, Federal rural health policy and how rural California receives a disproportionately small share of resources as compared to other rural areas of the U.S.

The first two sections of this paper address the context within which it becomes possible to understand and interpret the status of health care access for hired farm workers. As is demonstrated in what follows, hired farm workers, their families and the communities in which they largely reside, have the worst access to health care services in the entire state. While many health care policy analysts believe that literally everyone has access to care, and the only real question is the provider and who pays, the data clearly demonstrates that this is not the case for a very large proportion of the residents of hired farm worker communities. Though the data is scant, the information that is available shows that whether it is the share of the labor force without medical insurance, the lack of a regular physical examination, the lack of preventive dental care, the lack of preventive vision care, the lack of adequate immunization, or the lack of a usual source of care, a very large share of hired farm workers are demonstrably doing without the health care services they need.

It should be clear that most of California's land area is surely rural, whether it is desert, forest, open range, or devoted to growing crops. Further emphasizing the rural character of the state is the fact that fully half of the state's 100 million acres is administered by public natural resource agencies: Bureau of Land Management, U.S. Forest Service, National Park Service and California State Parks and Recreation.

California's position as the nation's leading agricultural state underscores the very great economic importance of California's rural areas. In 1997 California produced $26.8 billion in farm cash receipts from the sale of agricultural commodities, more than the combined value produced in the second and third ranking states, Iowa and Texas. The sheer size of California's farm production is so great that it is difficult to fully grasp: *each year California farmers receive cash receipts from farm commodity sales that are more than three times larger than the combined box office receipts of the entire U.S. motion picture industry.*

The size and importance of California's fishing, timber, oil, mining and outdoor recreational industries are also well known. Even though most Californians are urban residents, access to the rural parts of the state is frequently cited by city dwellers as being especially important to their quality of life.

According to the 1990 Census of Population and Housing, California had 2,188,143 rural residents, more than any other state in the Western U.S. In part, this large rural population reflects the fact that the state's major population centers are concentrated in its coastal shelf, a

relatively small portion of its geographical area. Since the Census definition of "rural" communities is primarily based on designating places as rural if they have fewer than 2,500 residents, a significant number of California's smaller agricultural or forest communities are classified by the Census as "urban." Many isolated farm towns, such as Huron, Mendota and Firebaugh, where agriculture is the *only* economic activity, or remote forest communities, such as Willits or Crescent City, are not considered to be rural by the Census. This is problematic, since virtually all residents of these communities, as well as those who live in major cities, regard these small isolated cities as prototypically rural in character.

In order to address this obvious definitional problem, the Census recognizes another population category that includes such communities: "Urban-outside of urbanized area" as contrasted with "Urban-inside of urbanized area." The Census finds that the aggregate California total of residents who live in communities that are "Urban-outside of urbanized area" is 2,105,967, essentially equal in size to the uniquely rural population. The distribution of the state's rural, urban-non-urbanized, and urban-urbanized population based on the 1990 Census is shown in Figure 1.

Thus, the Census finds that the total of California's "rural" and "urban-outside of urbanized area" population is 4,143,575, about one out of every seven state residents. This large, significant total is usually surprising to policy makers.

Similarly, this population is quite distinctive. For example, communities in which hired farm workers are a plurality of the labor force are currently experiencing the most rapid population growth of all communities in the state. During the decade of the 1980s, they grew at twice the rate of our major urban centers. Since these communities also have both a much younger population and a higher fertility rate than is found in California's major cities, they will continue to outstrip the state as a whole in rate of population growth for many years to come.

At the same time many hired farm workers live in larger cities that are centrally located within important agricultural regions. Thus, Fresno, Stockton, Oxnard and Salinas are home to many tens of thousands of such workers.

Availability of Health Care Services in Rural California

Rural health care service areas of the state have been defined and characterized by the Rural Health Policy Council (RHPC), an agency created by the California Department of Health Services to advocate on behalf of rural residents. The definition utilizes the Medical Service Study Areas (MSSA) concept developed by the Office of Statewide Health Planning and Development. The MSSA is a small geographic area in which residents are likely to seek health care services, whether that is a neighborhood within a large city, or an entire small city. There are 487 MSSA in the state, the majority of which are in urbanized areas. The RHPC definition is:

> *Rural areas are Medical Service Study Areas (MSSA), as defined by the Office of Statewide Health Planning and Development, that have a population density of less than*

250 persons per square mile and have no incorporated community with a population greater than 50,000 people.

This RHPC definition of rural areas conflicts with the Census definition of rural, as will be discussed further in the fourth section of this paper. However, the total population within the rural MSSA is 3,711,445, quite close to the combined total of Census-defined "rural" and "urban, outside of urbanized area" populations. Thus, rural MSSA are likely to capture the intuitive understanding of "rural" that most state residents would agree on. Figure 2 shows the state's rural and urban population as of the 1990 Census based on the RHPC definition.

The MSSA Data Base, assembled and maintained by the Primary Care and Family Health agency of DHS, provides the ability to characterize and describe both the population as well as the medical service characteristics of the RHPC-defined rural areas. Of the 487 MSSA in California, 210 are rural according to the RHPC definition.(1) Population data refer exclusively to 1990 Census of Population and Housing findings, while medical service data refers to the agency's own compilation of primary care physicians, specialty physicians, birth counts, and other similar measures of health care needs or services.

There are a number of important findings that can be obtained from analysis of the MSSA data base that pertain to rural health care access. First, the number of primary care physicians relative to population is twice as great in California's urban MSSA as compared with the rural MSSA. Simply, the average urban resident has twice as many primary care physicians available as does the average rural resident.

The actual number of residents (1990 Census) per primary care physician in rural MSSA is, on average, 1,924, which is twice as large as the figure of 986 per primary care physician found in urban MSSA. Of the 210 rural MSSA, 33 areas (16%) have no primary care physicians at all. While most of the rural MSSA without a primary care physician have relatively small populations, one-fourth have more than 5,000 residents, including one MSSA with more than 20,000 residents. In contrast, just 2 of the 277 urban MSSA (1%) are totally lacking in primary care physicians.

Second, rural MSSA comprise about 87% of the entire state land area. Even though they contain a substantial number of residents, some 3.7 million, the average population density of 27 persons per square mile found in rural MSSA is extremely low. This fact, by itself, raises concerns about the cost of providing needed health care services that can be physically accessed without undue hardship. In contrast, urban MSSA occupy just 18% of the state land area but include 87% of the state's total population. Urban MSSA have an average population density of 1,383 residents per square mile, more than 50 times larger than in the rural MSSA. In other words, even though California has a very large number of rural residents, they are, on average, dispersed over such a large area as to make it very difficult to provide services at a level found in urban areas.

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(1) RHPC actually classified 208 as rural. However, an additional two MSSAs, characterized by RHPC as non-rural should actually have been classified as rural. They are the areas comprising Brawley and surrounding portions of Imperial County, and the Planada-Le Grand area of Merced County. Thus, the total of rural MSSA is 210.

There are two very different types of communities found among the 210 rural MSSA. At one extreme are the ninety-eight rural MSSA that each have twelve percent or less Hispanic population, roughly half the Census finding of the statewide average of percent Hispanic. Without exception, these can be described as *frontier* communities, to borrow the term used by RHPC to describe California counties that have no city with a population of 20,000 or more. All ninety-eight of these *frontier* communities have economies that are based on mining, forestry, cattle ranching or rural tourism, such as Adin-Lookout (Modoc County) in the north and Argus-Trona (San Bernardino County) in the south. Fifteen of these *frontier* MSSA (15%) lack a primary care physician.

The second principal type of rural MSSA community includes the twenty-three with more than fifty percent Hispanic population, including a several where the percent Hispanic exceeds seventy-five percent. These are best described as *hired farm worker* communities because their economies are almost exclusively based on intensive irrigated agricultural production, such as Firebaugh-Mendota (Fresno County) in the San Joaquin Valley, and Calexico (Imperial County). In every one of these twenty-three communities agricultural employment is responsible for a plurality of all jobs. Five of these *hired farm worker* MSSA (22%) have no primary care physicians.

Rural MSSA are not only physically isolated but also many residents have no telephone service, and thus no means to seek assistance, even in the event of a medical emergency. Telephone service in rural communities is far more limited than is generally recognized. A 1997 CIRS study found that in 545 rural and non-urbanized California communities, an average of 8.7 percent of households lacked telephones in 1990. This rate is more than three times the state average for all California communities of 2.8 percent. Alarmingly, there were 49 rural or non-urbanized communities in which more than 20 percent of all occupied housing units lacked telephone service.

The lack of telephone service in a large share of rural California residences also limits the ability of many to access other needed government services. As more and more of these services, such as Unemployment Insurance or Job Services, come to rely exclusively on telephone call-ins, those without telephones will be completely left out.

Finally, the number of rural California health facilities is far more limited, relative to population (1990 Census), than the number found in urban areas. Just in the past year, three more rural hospitals closed for financial reasons (Patterson, Atwater, Newhall), leaving their communities entirely without these services. These shutdowns bring the total of rural hospital closures to nine just in the past decade. Two others are reportedly close to shutting down (Coalinga, Sebastopol). Thus, a significant share of the state total of seventy-one rural hospitals closed or were in danger of closing at the end of 1998.

Access to Health Care Services by California's Rural Working Poor

One of the most difficult concepts to measure precisely is the ability of the working poor to access health care services. There are two reasons why this is difficult. First, the perceived need for health care services is, for many people, a reflection of their perception of the

availability of needed services. For example, if one does not think that services are available then one is less likely to seek them out, except when absolutely necessary. Hence, there is a preponderance of low income people who seek emergency care for serious adverse health outcomes that were probably preventable when the same outcome was far less serious.

Second, low income communities have less resources available to attract potential providers who might consider working in a health services facility in such a community. Thus, low community income will, by itself, bias against having a high density of health care services which, in turn, will discourage access to care.

To illustrate, the ten most affluent communities in California (all of which are located in urban MSSA), based on average family income, have an average of 498 residents per primary care physician, about half the state average of all urban MSSA. In contrast, the ten poorest communities (all of which are located in rural MSSA), have an average of 3,548 residents per primary care physician, about seven times greater than is the case for the most affluent communities, and twice as great as the average for all rural MSSA. Clearly, high average family income significantly enhances a community's ability to attract primary care physicians.

Figure 3 summarizes the number of primary care physicians per 1,000 residents among the various categories of MSSA: all urban, all rural, ten richest, ten poorest, frontier, and hired farm worker. The gap between all urban and all rural MSSA is roughly a factor of two, and the gap between all urban and hired farm worker MSSA is more than a factor of three.

The lack of a primary care physician in a community is also a serious barrier for access to health care. The proportion of MSSA lacking a primary care physician among the different types of MSSA is shown in Figure 4. Frontier and all rural MSSA have very similar share lacking a primary care physician, while the ten poorest and hired farm worker MSSA are clearly experiencing the greatest barrier to care problem according to this measure.

The most valuable MSSA-based indicator of access to care is the Index of Medical Underservice (IMU), a Federally defined numerical index, that reflects several factors of importance in determining access to care. These include the proportion of the population of age 65 or greater, the fraction of the total population with income below the federal poverty level, infant mortality rate, and the primary care physician to population ratio. These factors are intended to reflect the level of demand for health care services as well as the ability of the population to either pay for their cost or obtain health insurance. These values are weighted and the sum is the IMU. An MSSA with an IMU of less than 62.0 is potentially eligible for designation as a Medically Underserved Area (MUA). Thus, this condition is necessary but not sufficient for such a designation.

In this paper the IMU will be used as an indicator of access to care. For California's urban MSSA, the average IMU value is found to be 83.4, well above the threshold value that indicates possible medical underservice. However, the average IMU for the state's rural areas is 72.7, a full 13% lower than the average for all urban MSSA. This is direct evidence that access to care in most of California's rural areas is more limited than in the state's urban areas.

There are fifty-eight MSSA with IMU values below 62.0. Forty of these are rural and only eighteen are urban. Moreover, twenty-four of the forty rural MSSA with IMU values below 62.0 have no primary care physician, while none of the eighteen urban MSSA lack a physician. The distribution of rural and urban MSSA with IMU values below 62.0 is shown in Figure 5.

Figure 6 shows the distribution of the fifty-eight potentially medically underserved MSSA according to their value of IMU (all MSSA with IMU below 62.0). The five lowest IMU values in the state are found in rural MSSA: four are *hired farm worker* communities and one is a *frontier* community. This suggests that *hired farm worker* communities are disproportionately represented at the bottom of the accessibility ladder as compared with other rural communities.

The ninety-eight *frontier* MSSA have an average IMU of 72.85, nearly identical to the value that is the average for all 210 rural MSSA. On the other hand, the twenty-three *hired farm worker* MSSA have an average IMU of just 61.1, below the 62.0 threshold for consideration as a designated medically underserved area. Moreover, this IMU value of 61.1 is about 16% lower than the value found to represent *frontier* communities or all rural MSSA. This finding is a direct demonstration that *hired farm worker* MSSA have the poorest access to health care services of all California communities. Figure 7 summarizes the IMU values for the different types of MSSA: all urban, all rural, ten richest, ten poorest, frontier, and hired farm worker.

California's Hired Farm Workers Have Poor Access to Health Care

A "farm worker" is a person who performs tasks on a farm for the purpose of producing an agricultural commodity for sale. Therefore, by definition, it is inclusive of farmers, unpaid family members and hired workers.

For the purposes of this paper, we focus exclusively on "hired farm workers," which is a Census-recognized occupational category. It is important to note that the term does not explicitly refer to the nature of the employer doing the hiring, although it is widely assumed in the literature that it is a farmer.

Characteristics of California's Hired Farm Workers

Although our knowledge is far from complete, recent research enables us to characterize the hired farm work force of California to an extent that simply was not possible ten years ago. Survey research conducted by the National Agricultural Workers Survey (NAWS) of the U.S. Department of Labor, based on more than 1,800 interviews of hired farm workers in California conducted between October 1, 1994 and October 1, 1997, shows that the characteristics of this population are distinctive in comparison with nearly every other occupational group in the state.[1] Hired farm workers are mostly young immigrant males with limited formal education. Sixty percent live in poverty, but nevertheless rarely utilize government benefits. Most do not own any assets, vehicles included, except for their personal belongings. Salient features of the population are described in Table 1.

Recently, the NAWS published a summary report based on national cross-section interviews conducted in 1995. The national profile is quite similar to the data presented in Table

1, except that farm workers in others states include many more U.S. natives and citizens, but are more likely to have had no previous farm work experience in the U.S. Some 37% of the national hired farm work force was found to be undocumented as of 1995.

Table 1. Characteristics of California's Hired Farm Workers

National Agricultural Workers Survey, 1995-97

Demographics	
Age	30 years (median)
Gender	82% male
Place of birth	95% foreign-born (91% from Mexico)
Education	6 years (median)
Accompanied by family	45%
Spanish as primary language	95%
English-language fluency	9% speak, 10% read
Literacy skills	24% totally illiterate; additional 43% functionally illiterate
Employment	
Weeks of work per year	23 in farm work, 3 in non-farm work
Work for farm labor contractor	30%
Payment scheme	73% hourly basis, 24% piece rate, 3% mixed
Average hourly wage	$5.69 per hour ($5.27 per hour if FLC is employer)
Immigration status	42% unauthorized, 7% citizen, 50% LPR/TR
Migrancy status	57% migrate to seek or perform farm work
Economic status	
Median family income	$5 K - $7.5 K
Poverty rate (U.S. Census definition)	61% (poverty rate increases with family size)
Social service utilization	18% (primarily WIC & food stamps)
Assets	21% own no assets of any kind, including a vehicle

Source: "Who Works on California Farms: Demographic and Employment Findings from the National Agricultural Workers Survey," Howard R. Rosenberg et al, Agricultural Personnel Management Program, Agricultural and Natural Resources Publication 21583, University of California.

Another aspect of the new immigrants that is not easily summarized in Table 1 is that the population is less diverse with regard to its U.S.-born component but more diverse as to its Mexican and Central American members than was the case a generation earlier. While most hired farm workers originate from the historically traditional western Mexican sending states, such as Michoacan and Jalisco, increasing numbers are coming from areas that sent very few

migrants in the past. These include the southern-most states of Oaxaca and Chiapas. A large share of the new migrants are indigenous people, many of whom prefer to speak their own indigenous dialect. Survey research led by Runsten and Zabin enumerated about 50,000 Mixtecs working in California agriculture. Other language groups represented include Zapotec and Triqui. This diversity presents unusual challenges to employers and host communities. Service providers and educators are faced with assisting people who have completely unfamiliar cultural patterns and who, while Mexican, may not speak Spanish. Nevertheless, even among a group of indigenous migrants there is likely to be present an individual who is fluent in Spanish. For this reason, Spanish is, by far, the language of choice among hired farm workers. It is difficult, and will become more so, for health care providers who do not speak Spanish to adequately serve the hired farm worker population of California.

Estimates of the number and distribution of hired farm workers in California are difficult to make. The most reliable published estimated places the total at about 700,000 individuals. That is, about 700,000 persons perform tasks on farms as hired workers in the course of each year. Annual average hired worker employment, which takes account of the fact that only a portion of this labor force is able to find work in any given week, was reported to be 429,000 in 1997.

Size and Growth of Farm Worker Communities

While California agricultural land is shrinking, the acreage devoted to labor-intensive production is rapidly expanding. As a consequence, as well as because of higher yields for many crops, the production of fruits, vegetables, and ornamental horticultural products (flowers, shrubs, other nursery products) has reached record high levels.[2] In the past twenty-five years the annual tonnage of California's vegetable production has doubled, fruit output has increased by two-fifths, and ornamental crop output has more than doubled. California today has more acres planted to trees and vines, and more land planted to vegetables, than ever before in its entire history.

Associated with this intensification of the state's farming is the growth of farm income and of net cash return from the sale of agricultural commodities. For example, in 1997 California farm operators received more than $26.8 billion from commodity sales, up by 10% over the prior year. The state's farm sales are increasing at a faster rate than either the state or federal economy. And the greatest growth in net cash return is in those sectors producing labor-intensive crops.

California's booming agricultural industry has never been more dependent on foreign-born hired workers than it is today. A generation ago, statewide survey research indicated that about half of California farm workers were foreign-born. Today, more than ninety-five percent were born outside the U.S. California's future hired farm labor force will consist nearly entirely of persons born on foreign soil.

A central tenet of public health practice is that socio-economic status is the single most important factor affecting health status. The fact that more than sixty percent of all hired farm

workers in California live in poverty implies that adverse health outcomes will be more prevalent in this population than in the general population.

The sharp cutbacks in support for government benefit programs for low-income people (welfare reform) and the similar restrictions imposed on immigrants for eligibility to receive these benefits (welfare and immigration reform) have impacted farm worker health. Nowhere is that impact clearer than in reductions of food stamp availability and in the proposed reduction of pre-natal services. For example, eligibility for food stamps for non-citizen immigrants is now limited to children and the elderly.

At the same time, since more than ninety-five percent of California farm workers are of Latino/Hispanic heritage, the dominant cultural practices that favor positive health outcomes tend to benefit the hired farm worker population. For example, the prevalence of smoking is far lower among Latinos/Hispanics than among other ethnic groups. Correspondingly, the incidence of cancer and heart disease is quite a bit lower in this population. But some other health outcomes, such as diabetes and homicide, compare less favorably to those of other groups. Latino/Hispanic death rates for selected outcomes, expressed as a percentage in comparison with non-Latino/Hispanic whites, are:

- all cancers, 69% (men) and 61% (women);
- heart disease, 65% (men) and 81% (women);
- respiratory disease, 78% (men) and 109% (women).

Hayes-Bautista, and Guendelman and Palerm have studied birth outcomes among successive generations of Mexican immigrant women. Both groups find that unhealthful birth outcomes and low birth weight babies are less prevalent among recent immigrant women than among non-Latino U.S.-born California residents, more prevalent among their U.S.-born daughters, and even more prevalent among their second-generation grand-daughters. It has been suggested that substance abuse (alcohol, tobacco and drugs) becomes more prevalent among the children and grand-children of immigrants contributing to these outcomes.

There is also evidence of a tendency of a deterioration of diet among Mexican immigrant hired farm workers as a consequence of their employment-determined lifestyle. Ikeda studied the food habits of hired farm worker families in Tulare County. She found convincing evidence of this effect and concluded, "The longer Mexican immigrants live in the U.S., the worse their diet becomes."[3]

Stress and mental health problems are likely to be among the less well-recognized health issues faced by hired farm workers. Low socio-economic status is known to be an important factor contributing to adverse mental health outcomes.

The prevalence of unaccompanied males in the hired farm work force contributes to loneliness, depression, and a greater tendency to certain forms of substance abuse, most notably alcohol abuse. Again, large concentrations of young, active but lonely men who have a weekly paycheck during the season is also a factor in the widespread prevalence of prostitution in certain communities, contributing to adverse health outcomes such as STDs, including AIDS. Gambling

is also known to be prevalent in the all-male subcultures that flourish in various Central Valley communities.

Barriers to Health Care Access

The increased ethnic and linguistic diversity of California's hired farm worker population presents special difficulties to providers of health services. Not only will providers encounter indigenous dialects that may prove extremely difficult to interpret, Western medical practices may be regarded with some suspicion or simply rejected. However, some may choose traditional cures because they may be less expensive than conventional health care services.

Bade has studied the attitudes of immigrant Mixtec women in Madera toward health care.[4] She finds conflicts between providers relying exclusively on Western medical practices and the numerous women who preferred traditional, non-Western treatment regimes. Madera is now home to an estimated 5,000 Mixtec immigrants but lacks any Mixteco-speaking health care providers.

Limited access to transportation, as reflected in the fact that roughly half of California's hired farm workers do not own a vehicle, presents serious obstacles to accessing health care services. Efforts of state agencies to screen the hired farm worker population for communicable diseases, such as the initiatives in the Central Valley taken by the Tuberculosis Control Branch of the California Department of Health Services, have been severely hampered by the limited transportation resources of this population.

The surprisingly low incidence of vehicle ownership among hired farm workers has contributed to a remarkable and highly problematic "mini-industry" in the Central Valley: *los raiteros*. Many hired farm workers now travel to and from work in panel vans driven by *mayordomos* or their assistants. Frequently, not only are workers charged exorbitant fees, typically $3 to $5 per day, but many find that paying for a ride in the van is a de facto condition of employment, even though it is a violation of U.S. labor law. During 1995-96, twenty-nine hired farm workers were killed in multi-fatality vehicle accidents involving *raitero*-driven vans or pick-up trucks in the two-county area of Fresno and Madera Counties.

The literature contains remarkably few statewide reports of findings of the general health status of California's hired farm workers or of their families. Most reports are either essentially anecdotal, such as summaries of case reports from migrant health clinics, summaries of intake forms from local health fairs, or are single-community case studies.

Results of Previous Research and Primary Surveys

There are no reports in the literature of a statewide survey of the health status of hired farm workers in California.[5] One study reports on the health status of a large number of Tulare County hired farm workers and their family members, but relies exclusively on self-reported information.[6]

However, there are two reports in the literature of single-community case studies of towns that are populated mostly by hired farm workers and their families in which both self-reported information and objective physical examinations were obtained. The largest of these is the McFarland Child Health Screening Survey in which an effort was made by the California Department of Health Services to screen every child in the community between the ages of 1 and 12.[7] This effort was prompted by an unusually high incidence of cancer among children in the community (eight-fold higher than expected incidence). The second study was a pilot cross-sectional survey of the entire adult population of Parlier.

In the McFarland case study, some 1,697 children were screened, representing an estimated 90% of the eligible population. While no additional cases of childhood cancer were found, the results of the physical examinations were extremely disturbing: some 71% of the children required a medical referral to treat one or more adverse health outcomes. The greatest number of referrals was for vision care (40%), dental care (37%) and anemia (24%). Some 15% of children under the age of four were referred because of incomplete immunizations or inadequate immunization information. It was found that half of the children over the age of 5 had never seen a dentist. And half of the children were lacking a timely physical examination, including 8% of all children who had never had a physical examination.

In McFarland, health insurance coverage was lacking for 46% of all families and for 64% of monolingual Spanish-speaking families. Only 32% of families had private health insurance, and 22% had Medicaid. In a multivariate analysis of the findings of the McFarland data, Smith et al[8] reported that specific unmet health services were linked with particular aspects of demand:

- Lack of dental care with low income, no health insurance, and lack of transportation and child care;
- Lack of physical exams with older age, perception of child's having poor health, Medicaid coverage, and lack of transportation;
- Lack of prenatal care in the first trimester with low income, larger households, lack of transportation, and low levels of education;
- Referral to a doctor for medical care with age of child and lack of transportation;
- No usual source of care was associated with older age, Medicaid or lack of health insurance, low income, and monolingual Spanish speakers.

Low income or lack of health insurance affected every unmet need indicating access-to-care problems, except for the referral of the child to a doctor. Medicaid families had the lowest incomes and the sickest children, which may indicate that families obtained Medicaid coverage only when their children became ill.

Smith et al conclude that economic demand for health care services in McFarland, based on ability to pay, is insufficient to support the number of private-sector physicians needed in the community. Based on existing models of physician to patient ratios, the community needs at least four full-time-equivalent physicians, but only has sufficient discretionary income to support one. Not surprisingly, the town has just one private sector physician. Although the town does have a publicly-supported migrant clinic, just one in six families has ever sought care at the clinic.

Their findings also suggest that under-utilization of health care services is associated with lower levels of education. Thus, their morbidity rate could be lowered if access to care were facilitated through culturally appropriate health education and outreach.

In contrast, the Parlier Health Survey sought to survey a cross-section of the adult population of the city of Parlier, a small city of 10,000 residents located twenty miles southeast of Fresno.[9] Absence of health insurance, dental care and vision care was found to be prevalent, as in the case of McFarland. The self-reported health status of the adult hired farm workers was found to be quite good, in contrast to the findings among the children of McFarland. Most reported that they were in excellent condition, which was supported by the results of their physical examinations. Few had specific complaints concerning their health status, although there were a number of cases of obesity and hypertension. About 10% had complaints of hay fever or allergies. About 20% had persistent back or musculo-skeletal pain but did not regard it as sufficiently serious to cause them to miss work. Some 17% said they were exposed to pesticides at work. About 90% said that they had no physical impairment of any kind. In most respects, the Parlier Health Survey results mirror the findings of the Hispanic Health and Nutrition Survey (HHANES).

As in the case of the McFarland case study, most adults in Parlier (61%) lack any form of health insurance. Just 14% report having Medicaid and the remaining 25% have some form of private health insurance. Relatively few adults sought health care services at the Parlier migrant clinic, fewer than one in six. Parlier has just one private physican and one OD, but is relatively close to Fresno, a major metropolitan area with a county-supported hospital. Nevertheless, 5% had never been to a health professional in their entire life.

Mines and Kearney studied hired farm worker families in Tulare County using ethnographic survey methods.[10] Their findings suggest a somewhat different profile of the health status of farm workers than is reported for the Parlier Health Survey or the McFarland Child Health Screening Survey. First, the most prevalent health problem reported was of headaches and nervousness. This was followed in frequency by dental problems, skin irritations, respiratory problems and musculoskeletal problems.

Similar to the findings in McFarland and Parlier regarding lack of dental and vision care, some 42% of the Tulare County sample had never been to a dentist, and 60% had never been to an eye doctor. Doctor visits are about one-third lower among Tulare County hired farm workers than for the nation as a whole. Of women who had completed pregnancies since 1970, 18% had no prenatal exam and over half did not have a prenatal exam during the first trimester. Some 46% of these women thought that such an exam was unnecessary, but one-third said it would cost too much.

Cultural practices among Mexican immigrants in many cases lead to very different ways of attending to health outcomes as compared to "normal" practices in the U.S. For example, Mexican women do not normally seek the services of a physician during the early months of pregnancy, instead relying on the services of a *partera* (mid-wife). Similarly, the application of

salves and ointments, or the use of herbal remedies, recommended by a *curandera/o* (traditional healer), is often the preferred first step in attending to a health complaint.

For this reason outreach programs involving community-based lay health advisors have proven to be among the most effective means of educating and delivering certain types of health care services to hired farm workers. Bringing health care information and screening services to the worker and his/her family in a culturally appropriate manner may prove to be far more effective than relying on them to find and then go to a service provider.

Communicable Disease

There was a major outbreak of unexpected communicable disease in rural or agricultural areas of California in recent years. Hired farm workers appear to have been disproportionately represented. Widely reported was the measles outbreak in 1989-90. Despite the lack of occupational data in the case reports, a high prevalence among hired farm worker families caused the California Farm Bureau Federation to encourage their members to strongly urge their hired workers to obtain proper vaccinations. In a feature story on the epidemic in the Farm Bureau newspaper *Ag Alert*, the lead paragraph described three adult Glenn County farm workers seeking treatment for persistent high fever, dizziness and blotchy skin, and who were discovered to be sick with measles.

The episode was just one of hundreds occurring in rural or agricultural centers of the state. In all, some 12,719 cases were reported, including 327 in Fresno County. There were 33 child deaths from the disease. By contrast, in 1981 there were only 321 cases of measles in all of California and no child died of measles for the entire period 1982 through 1987.

In an editorial titled "The Unnecessary Epidemic," the *Fresno Bee* commented that the entire episode could have been prevented by adequate immunization. According to the editorial, in Fresno County some 30% of all children and 50% of minority children had not been immunized by age 2.

Occupational Safety and Health

Agriculture is America's most dangerous industry, according to occupational mortality reports compiled by the National Safety Council.[11] The incidence of occupational fatalities for U.S. agriculture was determined by the NSC to be 35 per 100,000 workers in 1993, exceeding the rates for construction and mining. This rate refers to all types of farm workers: farmers, unpaid family members and hired farm workers. No specific figures are available for hired farm workers. Data from other sources confirm this high rate of occupational fatalities: between 660 and 1,100 deaths per year occur in U.S. agriculture as a direct result of occupational hazards.

Within California, there are more specific figures available. In 1994 there were 47 deaths of hired farm workers in California resulting from on-the-job injuries. Their occupational mortality rate was 17 per 100,000 workers in 1994, more than three times greater than for nearly all private sector industries. Only construction had a higher occupational mortality rate.

Non-fatal injuries also occur at a much higher rate among hired farm workers in California than for all private sector industries except construction. In 1994 there were 34,214 cases of occupational injury among California's hired farm workers that resulted in a paid workers compensation insurance claim. This corresponds to an incidence rate of approximately 10,000 per 100,000 full-time-equivalent workers. In other words, one in every ten hired farm workers suffered an on-the-job injury that resulted in a paid workers compensation insurance claim. About half of these injuries were sufficiently serious that the employee was disabled, in most cases only temporarily. In contrast, the California Department of Industrial Relations reports that manufacturing workers in the state experience about 7,500 injuries per 100,000 workers.

It is significant that these reported agricultural injuries are quite serious, requiring an average of eight work days off-the-job to recover. The most frequent cause of disabling injuries in agriculture is over-exertion, followed next by cases involving "struck by or against" an object (machine, tree, vines, tool, etc.). Chemical agents, such as pesticides or fertilizers, are responsible for about 1.5% of all reported occupational injuries in agriculture, and about 2% of all disabling injuries. There is compelling evidence that the incidence of reported injuries caused by chemical agents have declined substantially in agriculture in recent years.

An important and difficult question is whether all injuries are properly reported to authorities and enumerated in the summary data we have reviewed. There is substantial anecdotal evidence that under-reporting does occur, and that the amount of under-reporting may be large. Reasons for this include the large and rising number of undocumented workers, employers who may discourage claims, fear of losing one's job, and the fact that a worker may be related to a foreman or other supervisor.

Anecdotal evidence suggests that under-reporting occurs because many hired farm workers fear retribution by an employer if they file an employment-related complaint to governmental or other authorities. In some instances, a worker may have personal obligations to his/her labor contractor. In other cases, the worker may be undocumented and fearful of possible deportation, or may be ignorant of the requirements of workers compensation under California law.

There is also evidence that the state's vaunted workers compensation system is not serving farm workers very well. Recent changes in workers compensation law have adversely affected hired farm workers as well as other persons who work at seasonal jobs and who have been injured on the job. Instead of using the previous week's earnings to compute indemnity payments, the fraction of the year during which the injured worker was employed by that specific employer is now used to determine the amount of the payment. As a result of the seasonal nature of farm work, injured workers who may only work for a specific employer for a few weeks and then find a farm job with another employer are receiving indemnity payments as low as $6. This type of low indemnity payment, in turn, discourages other workers from filing claims.

Labor and safety law enforcement has proven to be an effective tool to improve the health status of hired workers. In recent years, the Mine Safety Act revolutionized conditions in the nation's coal mines and led to a dramatic decrease in occupational fatalities and injuries.

Today, coal mining is safer than agriculture, though the opposite was the case prior to enactment of the law.

Labor and Safety Laws in California Agriculture

California law is rather strict with respect to agriculture. For example, field sanitation standards were in place in the state long before they were adopted nation-wide. Similarly, the Agricultural Labor Relations Act provides protections for workers that are more generous than can be found in any other state. State minimum wage, workers compensation insurance, unemployment insurance coverage, and anti-discrimination laws provide universal protection to virtually every California farm worker.

At the same time, enforcement of labor and safety laws in the state is widely reported to be relatively weak. In large part this appears to be due to limited resources, a consequence of policy set at the highest level of state and federal government. For example, none of the 300 Cal-OSHA compliance officers is assigned to agriculture. Just four U.S. Department of Labor (Wage and Hour Division) staff work in the Central Valley, and they must cover all industries, not just agriculture. The State Labor Commissioner (Division of Labor Standards Enforcement) has just five staff regularly assigned to agriculture, and only one Spanish-speaking law enforcement officer. Pesticide safety enforcement is conducted by County Agricultural Commissioners, officials who have been traditionally aligned with farm operators in promoting their county's farm industry.

Despite these weaknesses there has been some improvement over the past five years in the level of safety and labor law enforcement in California agriculture. The Targeted Industries Partnership Program (TIPP), initiated in late 1992 as a joint enforcement and employer education effort of the State Labor Commissioner (Division of Labor Standards Enforcement), U.S. Department of Labor (Wage and Hour Division), Cal-OSHA, and Department of Employment Development sought to focus on agriculture and the garment industry. Analysis of the TIPP program's records of citations and/or fines levied for the first two and one-half years demonstrated that the program was effective.[12] Moreover, the analysis also showed which industries, regions and types of employers were most likely to have been non-compliant, which could be used to more precisely pin-point potential violators.

On the other hand, the number of TIPP inspections in agriculture has fallen off to very much lower levels in the past several years. It is not yet clear whether this is due to the lack of consistent leadership – three successive Labor Commissioner appointments in the past two years – or to a conscious decision to focus resources in other industries.

Health Insurance

There is a paucity of information about health insurance coverage of hired farm workers. On a national basis, insurance industry estimates find that 40% lack health insurance, the highest for any occupation. However, careful review of this data shows that the figure refers to coverage among regular, year-round employees. Industry sources do not provide data for those who are seasonally employed.

The National Agricultural Workers Survey (NAWS) findings indicate that 32% of California's hired farm workers have some form of health insurance through their employer. However, since some workers may confuse workers compensation insurance, which provides fully-paid medical care for health outcomes that are job-related, with health insurance for all types of conditions, it is thought that the figure may be unreliable.

Surveys of employers conducted by the Farm Employers Labor Service (FELS) indicates that about 60% of employers provide health insurance for their regular, year-round employees. The same survey indicates that only about 13% of these same employers provide health insurance for seasonal employees.

Taken together, the data on farm operators and farm labor contractors suggests that few seasonally-employed farm worker enjoy health insurance provided by the employer. As a consequence many simply do without health care, apply for Medicaid coverage, go to migrant clinics, or turn to emergency services. Though the evidence is not very comprehensive, it appears that most hired farm workers do without regular health care services and only seek services when absolutely necessary.

Farm Worker Housing: A Health Issue

There is compelling evidence of a serious deterioration of the quality of housing available to hired farm workers in California. This change is a direct result of both the great increase in the supply of farm workers as well as new laws regarded as onerous by many employers.

Historically, farm operators offered housing, often subsidized by the employer, as an incentive to retain workers for subsequent seasons. As a result of the substantial surplus of agricultural labor now available, many farm operators concluded that this incentive was no longer important. Moreover, new laws enacted during the 1970s required farm operators to meet housing quality standards to which they objected or, at a minimum, believed to be too expensive to implement. In addition, if a farm operator provides housing on the farm, then workers compensation law applies twenty-four hours a day, potentially greatly increasing the cost of premiums to the employer in the event of a non-work time accident.

During the past twenty years the amount of farm operator supplied housing has been drastically diminished. Tens of thousands of units have been demolished, sold or abandoned. As a consequence, relatively few farm workers now reside in units of this type. Since California is a notoriously high-rent state, in many cases large groups of workers crowd into housing units intended for a single family. Informal encampments have also been established by workers in canyons and *arroyos* of some of our wealthiest coastal communities. And thousands of workers manage to find unofficial homes in unlikely places.

During 1992, CIRS and the UC Davis Department of Epidemiology and Community Medicine conducted a thorough survey of the community of Parlier, now known as the Parlier Health Survey.[13] An unusual feature of the survey was that a major effort was made to find every single place where people were actually living, instead of limiting the survey to residents

of officially-recognized dwelling units. Individuals were found living in tool sheds, garages, informal shacks constructed of plywood or sheet metal, abandoned automobiles and even underneath porches. Altogether, these "back houses" (so-called because they were generally located in back yards of regular residences) included 28% of the total number of residents of the community. Virtually all of this population is not enumerated by the Census, both because they lack a postal address, which is needed for the mail-return Census forms, and their landlords prefer that they remain invisible.

Generally, more persons and fewer rooms, corresponding to over-crowded conditions, characterize the back houses of Parlier. In some cases, a garden hose was the only source of water and a chamber pot was the only toilet. A normal rental was $25 per person per week, paid in cash.

The most surprising finding of the Parlier Health Survey, insofar as housing conditions were concerned, was that about 60% of back house residents lived there year round. This was contrary to anecdotal information provided by local officials, who asserted that this type of housing was "temporary," to accommodate seasonal migrants.

The total number of persons residing in this type of unofficial housing on a statewide basis is not accurately known, and the Parlier Health Survey itself was only a pilot for a larger household survey that will eventually include an additional seven *hired farm worker* communities. However, the large difference between the findings of the Census of Population and Housing in Parlier and the findings of the Parlier Health Survey at least partially explains the enormous discrepancy between the 1990 Census finding of 175,000 hired farm workers in California and the "best estimate" of ethnographers and economists of some 700,000.

Stricter immigration enforcement by the Border Patrol designed to exclude undocumented workers has contributed to a climate of opinion among many Mexican migrants that it is simply too costly or risky to return to Mexico for family visits or holiday periods. As a consequence, immigration experts have concluded that Mexican migrants are now more likely to reside in California year-round. This factor increases the pressure on the housing supply.

In this context, one of the difficult issues facing hired farm workers is that present-day housing policy tends to favor the nuclear family ideal. That is, public labor camps do not provide housing for groups of unaccompanied men, nor to large extended family households. The nuclear family model for low income housing also conflicts with the Mexican migrant norm of households that are based on an extended family and, in some cases, may also be bi-national, with wage earners on both sides of the border contributing to the support of all members.

Thus, housing initiatives intended to more accurately address the nature and composition of the immigrant labor force in agriculture are desperately needed. These must include appropriate housing for groups of unaccompanied male workers and for large, multi-generation extended families. Modest planning initiatives designed for groups of unaccompanied male workers have been undertaken by Prof. Patricia Harrison, of the UC Davis Environmental Horticulture Department, with the cooperation of various staff of the Cooperative Extension

Service. However, no new units have been built even though detailed construction plans are now available.

The decline in housing stock for hired farm workers may also be associated with a deterioration of the quality of drinking water. As fewer and fewer farm operators provide housing for their employees, the "back house" of Parlier are becoming the norm. Ironically, since these units are unofficial, they are not regularly inspected by health authorities.

In 1991, the U.S. Environmental Protection Agency found that 191 agricultural labor camps in California were in violation of the nation's Safe Drinking Water Act. Water supplies are subject to federal drinking water standards if piped water is provided to at least 25 people or 15 service connections for at least 60 days per year.

"EPA's discovery that a large number of migrant labor camps are providing potentially unhealthy water is appalling," said Daniel W. McGovern, EPA's Regional Administrator. The largest number of non-compliant camps were found in Fresno County (52), San Joaquin County (32) and Merced County (24). A surprising finding was that many workers live in these "migrant camps" on a year-round basis. According to EPA administrators, county officials stated that many camp owners close their camps rather than comply with the law, exacerbating the housing problem.

There is also evidence that state officials have reduced the number and frequency of testing of private drinking wells. Under state law, Cal-EPA is required to test wells for pesticide contaminants. In the most recent several years, these tests have involved both a reduced number of pesticide contaminants as well as fewer sites.

Federal Health Policy and Rural California

Federal health policy toward rural America is based on providing supplementary resources to designated rural areas. Congress and a series of Presidents have appreciated the degree to which health care access is problematic in much of rural America. Resources provided to rural hospitals have been especially important.

California has enjoyed the benefit of some of these resources. But the state's demographic trends and Federal definitions of rural areas have worked to the selective disadvantage of its rural residents. Today, just half of the hospitals in California's rural MSSA qualify for Federal support under their definition of rural.

As previously suggested, Federal health policy toward rural America has been mostly driven by a different set of demographic measures than those used to develop California's MSSA: classification of entire counties as rural or non-rural according to whether or not the county contains a designated metropolitan area. This approach has significant consequences for some rural Californians.

The recent literature on rural America posits that rural is equivalent to non-metropolitan, especially when classifying places. Dudenhefer, in referring to the work of the Task Force on

Persistent Rural Poverty of the Rural Sociological Society, states categorically, "By rural, they mean counties classified by the U.S. Census Bureau as 'non-metropolitan'; generally speaking, these are counties in which the largest city contains less than 50,000 people and the inhabitants do not commute to an urban center. The Task Force uses 'rural' and 'non-metropolitan' interchangeably, as does this article."[14]

Using this classification criterion all the nation's approximately three thousand counties can be classified as either metro or non-metro. Roughly speaking, if a county includes a place with at least 50,000 persons or has a sizeable number of persons commuting to such an urban center, it is defined to be a metro county; otherwise, it is non-metro.

Rural places have a much smaller population: they are places with a population of less than 2,500 located in non-urbanized areas. Rural places are identified at the sub-county level, although a county may be rural if it includes only places that are rural. Note carefully that a non-metro county may contain places of intermediate population (from 2,500 up to 49,999). A non-metro county may even be largely composed of non-rural people.

The most remarkable feature of this scheme is the absence of "rural" from the most important agricultural areas of the West. Nearly all of the San Joaquin Valley (California) and most of the Yakima Valley (Washington) are classified as "metro" as are Yuma and Maricopa Counties (Arizona).

Within California, thirty-three of the state's fifty-eight counties are now classified as "metro" and, as population growth continues, several more of the remaining twenty-five rural counties are likely to be designated as "metro" subsequent to Census 2000. With a stroke of the Federal pen, all of the rural residents of these metro counties are now considered to be urban residents, *despite the fact that the Federal Census found them to be genuinely rural residents by its own criterion.* This obvious contradiction has had an especially great impact on rural Californians. Fully 1.6 million rural Californians, out of the total of 2.2 million, have been reclassified as metro county residents, and are no longer counted as rural for many Federal policy purposes.

On the basis of this equivalency of rural with non-metro at the county level Federal officials and some scholars find that there are remarkably few persons in rural poverty in California. Summers goes even further, omitting reference to the non-metro classification scheme at the county level and states, "In 1990 there were slightly over 9 million rural residents of the United States who were poor...and Hispanics made up only 5.4% of the total."[15] Remarkably, by this stroke of wordsmithing, there are absolutely no rural persons living in poverty in all of Fresno, Kern, Madera, Merced, San Joaquin, Stanislaus and Tulare Counties. This line of reasoning implies that, at most, only 486,000 rural Hispanics were living in poverty in the entire U.S.! On this same basis it is found that there are only 751,667 non-metro Hispanics in all the eleven western states, of whom just 226,659 were poor.[16]

On its face, equating "rural" with "non-metro" appears to make sense: major metropolitan centers do not contain rural residents. While the equivalence of rural and non-

metro at the county level appears to be supported by a body of evidence, the simple application of this equivalence is fundamentally inaccurate in major parts of the West.

The shortcoming of the "rural/non-metro" equivalency is illustrated in Table 2 where we show the 1990 Census-enumerations of populations for the following: total, rural, rural (metro counties) and rural (non-metro counties) in California and Washington. What is most striking is that in these states an actual majority of the Census-enumerated rural population reside in metro counties. *In California, three-quarters of the rural population is in metro counties and only one-fourth in non-metro counties.* Figure 8 summarizes the distribution of the genuinely *rural* residents of the state according to this metro/non-metro classification scheme.

The classification scheme for sorting counties using a single characteristic (metro/non-metro) as a surrogate for urban/rural is clearly not helpful. That the scheme should break down so completely for the two states with the largest share of the rural population of the West calls it into serious question.

The usefulness of the metro/non-metro classification of counties is that it makes it possible to simply represent rural places based on county boundaries, which are familiar to most policy makers. Rural places can be spatially located. To more accurately represent rural areas of the West would requires sub-county analysis, breaking up many of the metro counties, such as those of the San Joaquin Valley, into rural and urbanized portions.

This is why the MSSA designations are so useful: they are a scheme for making a sub-county population analysis that takes account of the very large size of many counties in the West. For example, San Bernardino County comprises more than 12 million acres, the same size as the combined areas of the entire states of New Hampshire and Vermont. These two eastern states have a total of twenty-four counties, while, interestingly, the number of assigned MSSA in San Bernardino County is also twenty-four. Thus, the MSSA of California are roughly the same size as the small counties of the East.

Table 2. Population of California and Washington, 1990 Census

State	Total Population	Rural Population	Rural Population Metro Counties	Rural Population Non-Metro Counties
California	29,760,021	2,188,143	1,662,691	525,452
Washington	4,866,692	1,149,568	593,597	555,971

Conclusions and Recommendations

1. This paper finds that, on average, rural California communities experience poorer access to health care services than is the case for urban California communities. This is a result of fewer primary care physicians per resident as well as a low and declining number of rural hospitals.

2. There are two principal types of rural communities in California: *frontier* communities based on natural resource economies, but not on intensive irrigated agriculture; and *hired farm worker* communities with economies based nearly exclusively on intensive irrigated agriculture. These two types of communities are distinguished by their very different levels of Hispanic population, comprising fewer than 12% of the population of each *frontier* community but more than 50% of the population of *hired farm worker* communities.
3. While rural communities, on average, report poorer access to health care services that is the case for urban communities, the very poorest access to health care is found in *hired farm worker* communities.
4. Federal definitions of rural areas are contradictory and disadvantage rural residents of the West, especially rural Hispanics. This disadvantage arises from the Federal designation of counties as metro or non-metro, despite the size of the rural population in the county.
5. California efforts to develop sub-county designations of rural and urban Medical Service Study Areas are a useful and informative method to classify rural and urban communities.

Recommendation 1. Promote settlement of migrant workers, especially unaccompanied males, through the development of suitable housing. The major decrease of employer-provided housing has left many workers homeless, resulting in a dramatic increase in the number of people living in unhealthful or sub-standard units. In addition, present day housing programs for hired farm workers are based on the nuclear family model, ignoring the fact that most workers live in either extended family households or households comprised exclusively of unaccompanied males.

Recommendation 2. California should cooperate with the just-organized Census initiative to completely enumerate hired farm workers for Census 2000. The likely allocation of additional federal resources alone fully justifies the proposed effort.

Recommendation 3. Placement of 50 - 100 public health nurses with continuation education in occupational and preventive medicine to serve *hired farm worker* communities. Said nurses should be assisted by a cadre of *promotores de salud* in each site. Their initial tasks should focus on specific priority areas, such as communicable disease, immunization, health care for undocumented workers, safety and labor law enforcement, and health education.

Recommendation 4. Since even a crude statewide needs assessment using proper scientific protocols has never been implemented for the hired farm worker population, it can be argued that this is the essential first step of any intervention program. Without baseline data, it is not possible to properly prioritize interventions, nor is it possible to measure the effectiveness of those which are supported.

Recommendation 5. Independent and rigorous peer-review evaluation of existing intervention programs of various public and private agencies that are intended to serve the hired farm worker population is of vital importance. Millions of dollars are spent on intervention programs intended to assist hired farm workers and their family members, such as job training, migrant education, migrant health, legal services, migrant head start, among others, but they are rarely evaluated in a rigorous scientific manner by independent peers.

Recommendation 6. Collaborate with the efforts of Meyers/Miles/Fawcett at the University of California to focus on back and musculo-skeletal injury prevention in the farm work place. This combination of public health specialists and agricultural engineers is unique and has already produced some significant improvements for the nursery crop industry

Recommendation 7. Careful analysis of the experience of hired farm workers in light of the recent major changes in workers compensation law is needed. Some of these changes appear to have had a substantial negative influence on indemnity payment to injured seasonal workers.

Recommendation 8. Efforts to change Federal health policy guidelines for designations of rural areas should be strengthened and resources should be allocated by the new administration to support this effort. The payoff in terms of additional resources to support health care facilities in rural areas of California would more than offset the costs that the effort would require. Moreover, unless such an effort is mounted, the state will very likely lose some of the Federal resources that are provided to its remaining rural hospitals in the wake of Census 2000.

Recommendation 9. The availability of allied health professionals in rural areas needs to be documented, e.g., number of dentists, vision care providers, nurses, specialty physicians and so forth.

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