Access to Health Care Among California's Rural Working Poor

Don Villarejo, Ph.D.
California Institute for Rural Studies, Inc.
P.O. Box 2143
Davis, CA 95617
(530)756-6555 voice
(530)756-7429 FAX
www.cirsinc.org

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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, barriers to health care access faced by the rural California population that has the poorest access to care of any group: the state's hired farm workers. Fourth, Federal rural health policy and how it largely disadvantages rural California as compared to other rural areas of the U.S.

Dictionary definitions of *rural* are essentially as follows:

> *"1. Of, relating to, or characteristic of the country. 2. Of or relating to people who live in the country: rural households. 3. Of or relating to farming; agricultural."*

From these concepts of rural, 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.

Underscoring the very great economic importance of California's rural areas is the fact that it is the nation's leading agricultural state. 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 dwellers of its major cities 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., and more than are found in nearly every other state. 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 Census 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.

Thus, the Census finds that the total of California's "rural" and "urban, outside of urbanized area" population is 4,143,575, or about one out of every seven state residents. That this total is so large is usually surprising to policy makers. Of great importance is that this population is quite distinctive in many way. 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, and they grew at twice as fast a rate as our major urban centers during the decade of the 1980s. 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.

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 articulate and advocate on behalf of rural residents. This 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 about 3,711,445, quite close to the 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.

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. There are 487 MSSA in California, of which 210 are rural.• Population data refers exclusively to 1990 Census of Population and Housing findings, while medical service data refers to the agency's own compilation of primary care 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 put, the average urban resident has twice as many primary care physicians available as does the average rural resident.

The actual number of residents 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 within then. Urban MSSA have an average population density of 1,383 residents per square mile, more that 50 times large than is the case for 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.

• RHPC actually classified 208 as rural. However, an additional two MSSA, 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 number of rural MSSA is 210.

There are two very different types of communities found among the 210 rural MSSA. At one extreme are the 98 rural MSSA that each have fewer than 12% Hispanic population, roughly half the statewide average of percent Hispanic. Without exception, these are *frontier* communities whose economies 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 23 with more than 50% Hispanic population, including a number where the percent Hispanic exceeds 75%. 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 each of these 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 communities examined in California, 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. And another 43 reported that between 15 percent and 20 percent of homes had no telephone service.

The lack of telephone service in an unacceptably 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, 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. And another two are reportedly close to shutting down (Coalinga, Sebastopol). Thus, a significant share of the state total of 71 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 precisely measure is the ability of the working poor to access health care services. There are two reasons why this is difficult. First, the 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, the larger the average family income, the greater is the community's ability to attract primary care physicians.

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 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 compelling evidence that access to care in most of California's rural areas is more limited than is the case for 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 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 value of 62.0, which is the threshold for qualification as a 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.

California's Hired Farm Workers: Worst 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. Because the term "farm worker" is so broad, it is not listed in the Census Bureau's roster of recognized occupations.

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. Direct observational research does show that a majority of California's hired farm workers are directly employed by farm operators. Farm operators are business entities which place capital at risk with the intention of producing an agricultural commodity for sale. They may be sole proprietorships, partnerships, corporations, or, less often, another form of business entity, such as a business trust. In the literature one often finds the terms "farmer" or "grower" in reference to employers who are farm operators.

However, as agricultural businesses have increasingly become larger and more complex, workers are being hired to perform farm work by employers which are not farm operators. As described further below, in 1990-91 nearly one-third of California's hired crop farm workers report that they work for a farm labor contractor. Most farm labor contractors are businesses that supply workers to perform specific tasks on farms in which they have no ownership interest. Wineries, citrus packing houses, vegetable packer/shippers and even employment agencies are today also found to be hiring people to work on farms. In each of these cases, the employer typically does not operate a farm.

These distinctions are significant for characterizing the population of interest. In fact, until very recently intervention for the purpose of promoting farm safety has been exclusively targeted to farm operators. Prior to the early 1980s, our understanding of hired farm workers relied either on administrative data submitted by farm operators, or on interviews with persons who they directly employed. As a consequence, a large share of hired farm workers were missed, especially those working for packer/shippers or for farm labor contractors. In addition, administrative data, such as employment or earnings reported by employers, were not informative about the demographics of this population, such as age distribution, gender, educational attainment, immigration status or migrancy.

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.

Hired farm workers are mostly young immigrant males with limited formal education. Half 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.

Table 1

Characteristics of California's Hired Farm Workers
National Agricultural Workers Survey, 1995-97

<u>Demographics</u>	
Age	32 years (median)
Gender	81% male
Place of birth	95% foreign-born (91% from Mexico)
Education	6 years (median)
Accompanied by family	60%
Spanish as primary language	88%
English-language fluency	11% speak, 14% read
Literacy skills	26% totally illiterate; additional 39% functionally illiterate
<u>Employment</u>	
Weeks of work per year	33 in farm work, 2 in non-farm work
Work for farm labor contractor	31%
Payment scheme	69% hourly basis, 22% piece rate, 9% mixed
Average hourly wage	$5.50 per hour ($5.20 per hour if FLC is employer)
Immigration status	44% unauthorized, 3% citizen, 52% LPR/TR
Migrancy status	30% shuttle; 10% follow-the-crop
<u>Economic status</u>	
Median family income	$7.5 K - $10 K
Poverty rate (U.S. Census definition)	60% (poverty rate increases with family size)
Social service utilization	13% (primarily food stamps)
Assets	45% own no assets of any kind, including a vehicle

Source: National Agricultural Workers Survey, U.S. Department of Labor, unpublished data.

Recently, the NAWS published a summary report based on national cross-section interviews conducted in 1995. As compared with the profile presented in Table 1, the national data demonstrates that today's national hired farm work force is younger, more predominately male, less likely to be documented, less educated and more likely to have had no previous farm work experience in the U.S. than the earlier surveys. Some 37% of the national hired farm work force was found to be undocumented as of 1995.

Of considerable concern in the context of this paper is that the newer immigrants are less experienced: fully one in five current hired farm workers is working in U.S. agriculture for the very first time. Lacking experience, some may be prone to take risks that are unwise or unhealthful.

Another aspect of the new immigrants that is not easily summarized in Table 1 is that the population of more diverse 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, as well as Guerrero and Zacatecas. 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 tribes represented include Zapotec and Triqui. A survey conducted in nineteen farm labor encampments in northern San Diego County found that 43% of the combined population were indigenous peoples, representing fourteen indigenous dialects.

Beyond the Mexican migrants, small but increasing numbers of migrants from Central America can also be found working in the fields of California: *Salvadorenos*, *Guatemaltecos*, and *Hondurianos* now work alongside *mestizos* and *indios*. 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 any Spanish at all.

The new indigenous migrants are less well-educated than the *mestizos*, averaging just two years of formal education. Their average family income is also substantially lower, duration of employment smaller, and the jobs they are able to obtain are typically the least desirable farm jobs. As if that complexity is not enough of a challenge, in some cases there is even evidence of racism expressed by *mestizo* Mexicans against their indigenous countrymen. Of course, the anti-immigrant sentiment that has recently come to dominate California political life most often dwarfs these instances of anti-indigenous racism.

> Health Policy Issue: **More than 90% of California hired farm workers are foreign-born, and most are from Mexico. Is health care now a bi-national issue requiring collaborative action with Mexican health care providers?**

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 340,500 in 1995.

Approximately half of annual average hired worker employment in the state's agriculture is located in the San Joaquin Valley, the nation's most important farming region. The remaining

half is distributed throughout the state's other regions: 16% in the South Coast, 14% in the Central Coast, 9% in the Desert region, 7% in the Sacramento Valley and 3% in the North Coast.

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) is at record high levels. 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.

Corresponding to increases in production are changes in labor demand. Taking account of improvements in the productivity of labor, such as mechanization of various tasks and the introduction of field packing of many important fresh vegetables, overall demand for seasonal labor in California agriculture increased by about 21% in the period 1976-89. Thus, our state's farm industry needs more workers than it did twenty years ago.

While increased production is the main factor leading to increased demand for seasonal labor in California agriculture, changes in farm structure are also contributing to the need for more hired farm workers. Family farms are being replaced by large-scale agricultural businesses, and farmer and unpaid family labor is increasingly being supplemented by hiring workers directly or through labor contractors.

These factors lead to the inescapable conclusion that California's booming agricultural industry has never been more dependent on foreign-born hired workers than it is today. And as far into the future as anyone can project, few U.S.-born workers will be willing to do this work. Indeed, a generation ago, statewide survey research indicated that about half of California farm workers were foreign-born. Today, more than 92% were born outside the U.S. The hired farm labor force of California will be replicated 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 half 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) has likely adversely impacted farm worker

health. Nowhere is that impact clearer than in the reductions in food stamps and in 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 90% 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, heart disease and respiratory 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);
- diabetes, 186% (men) and 238% (women);
- homicide, 360% (men) and 200% (women).

Thus, some important adverse health outcomes are less likely to be problematic among hired farm workers than are certain other outcomes.

Hayes-Bautista, and Gondleman 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.”

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.

In one Central Valley community (Parlier), when a Latino/Hispanic majority finally won control of city government, the first act of the new officials was to close all of the city's *cantinas* where unhealthful practices were known to flourish. Other communities, for example, Huron, are widely known to be centers for these risk behaviors.

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.

Bade has studied the attitudes of immigrant Mixtec women in Madera toward health care. 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 a majority 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 hired farm workers 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 "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. Tragic accidents involving *raiteros* have become so frequent in the Central Valley that the California Highway patrol now routinely provides assistance to government officials who are seeking to enforce labor and employment-related safety laws in the valley.

> Health Policy Issue: **Culturally appropriate outreach and ambulatory services may be necessary to bring health education and basic screening services to hired farm workers and their family members. Should *promotores* and legal service providers be linked with public health nurses to accomplish this?**

The literature contains remarkably few 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.

There are no reports in the literature of a statewide survey of the health status of farm workers in California. One study reports on the health status of a large number of Tulare County hired farm workers and their family members (Mines and Kearney,1982), but relies exclusively on self-reported information.

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 (1989) 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. 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 (1992).

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 (1996) 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. 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 (1982) studied hired farm worker families in Tulare County using ethnographic survey methods. 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.

There have been two episodes of unexpected communicable disease outbreaks in rural or agricultural areas of California in recent years. In both of these hired farm workers appear to have been disproportionately represented. The most 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.

A second episode of communicable disease that appears to be more prevalent among hired farm workers than in the general population is the resurgence of tuberculosis. Clinic-based sampling of hired farm workers suggest an incidence of positive skin tests approaching 25%, more than twenty-five times higher than in the general population. Of course, given the relatively low utilization of migrant clinics - the McFarland and Parlier case studies indicate that fewer than one in six farm workers has ever visited a migrant clinic - the indicated 25% incidence rate can not be considered to be statistically valid. Nevertheless, the incidence of active cases of the disease, as opposed to a positive skin test, was a nationwide low

of 22,000 cases in 1985 and rose steadily since to about 27,000 cases in 1992. There are no reliable figures for the incidence of active cases of tuberculosis among California's hired farm workers.

A cross-sectional survey of North Carolina hired farm workers in five counties found the incidence rate of positive skin tests to be 37% among Hispanics, and the incidence rate of active cases to be 0.47%. This study also found that the incidence of positive skin test was proportional to the duration of hired farm work by the subject: the longer the worker had been doing farm work, the greater the incidence rate of positive skin test. That the incidence of the disease was found to be proportional to exposure is compelling evidence of the association of the occupation "hired farm worker" with exposure to the tuberculosis bacterium.

Very recently, a dramatic increase in the incidence of AIDS has begun to appear among residents of a number of Mexican sending villages. The available evidence suggests that heterosexual transmission is the most prevalent form of transmission, most often through intercourse between infected returning migrant male workers and their village-resident partners. It is not known how prevalent the disease is among the hired farm work force of California. However, it is not unusual in California for a few prostitutes to service a large number of men at an isolated farm labor camp, usually in an RV or the back of a covered pick-up truck. The possibilities for transmission of STDs in this circumstance are unacceptably large.

Some decades ago, when migrant clinic programs were initiated and supported by government agencies, there were few physicians in California's willing and able to treat low-income Spanish-speaking Mexican migrants. Today, millions of dollars are spent annually to support migrant clinic programs although Hispanic/Latino health care providers are no longer a novelty in the state.

A reasonable question to pose is whether these programs are meeting the present needs of the population they were intended to serve. In this context it is worth noting that the United Farm Workers of America, AFL-CIO, closed their own clinics because they felt that there were now sufficient other resources available in the private and public sectors within California to serve a mostly Mexican immigrant labor force.

This question is very difficult to answer. We do know that both the McFarland and Parlier studies show that relatively few hired farm workers utilize the clinics in these two communities: an estimated one in six has ever visited the local clinic. While there is no credible evidence that the clinics are not doing a responsible job, in general there is a feeling expressed by several key informants that hired farm workers are no longer a high priority at many of these facilities. This is congruent with the findings of the surveys mentioned previously. In Parlier, workers complained about long waits in the clinic, lack of respectful attention to patients, lack of sufficient evening hours and of fees charged to first-time visitors.

It is certain that financial problems face health care service providers which seek to serve low-income populations. Moreover, their federal support has significantly diminished, as measured in constant dollars, over the past decade. For this reason many clinics actively sought

to serve Medical patients, believing that they could count on the income they provide as well as furnish low-cost services.

Public funds provided to clinics usually require that the Board of Directors must include a sizable number of patient constituents. However, few clinics have any current hired farm workers on their Board of Directors, or serving in advisory capacities. Most staff tend to handle routine matters in English, most Board documents are provided only in English, and only rarely do mono-lingual Spanish-speaking patients receive full information about the running of the clinic. In large part, this tendency to exclude patients from decision-making is de facto, not de jure and is a reflection of the professionalization of the clinic staff.

> Health Policy Issue: **Since there is little reliable cross-sectional health status information available, is an objective health status assessment the first and necessary step in identifying useful interventions?**

Agriculture is America's most dangerous industry, according to occupational mortality reports compiled by the National Safety Council. 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: farms, 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, more specific figures are 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. Fully half of all occupational fatalities among hired farm workers in the state during the ten-year period 1981-90 were a result of accidents involving vehicles: tractors or various types of farm machines.

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 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.

Disabling on-the-job injuries among California's hired farm workers appear to have increased during the late 1970s and 1980s, leveled off in the early 1990s and may be decreasing at the present time. Over the sixteen-year period 1976-91, the reported total number of such injuries increased by a quite substantial 20%, primarily reflecting the shift to labor-intensive crop production noted in a previous section of this paper. Most notable, however, is that all of the net

annual increase occurred among employees of agricultural service firms, and *two-thirds of the increase was among employees of farm labor contractors*. The annual number of disabling injuries among workers directly hired by farm operators did not change at all in this period.

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.

The largest share of reported disabling injuries to hired farm workers in California are either sprains or strains (43%), with lacerations next in frequency (18%), followed by contusions (12%) and fractures (11%). Chemical poisonings are relatively infrequent (1%).

The back, chest or abdomen is the body part reported injured in about one-third of the cases, consistent with the finding that sprains or strains comprise the largest share of injuries. Upper extremities account for one-quarter of the injuries and lower extremities for one-fifth.

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. For example, in the Parlier Health Survey our interviewers found that 1.7% of the subjects had experienced a disabling occupational injury that was not treated or reported under workers compensation, including one case of a broken leg. In all such instances discovered in Parlier, the employer was a labor contractor who had provided a cash payment directly to the worker in lieu of medical treatment or indemnity payment under workers compensation. Based on the California-wide incidence rate of about 5% for disabling injuries in agriculture, the Parlier data suggests that under-reporting of disabling injuries may amount to 7% to 10% of the total. This figure should be used with caution because it is an estimate based on a small, statistically unreliable sample in just one community.

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 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 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.

Most of the employer respondents to the FELS survey are farm operators, so the data probably does not reflect conditions among employees of farm labor contractors. As noted previously, slightly less than one-third of hired farm workers in California are employed by labor contractors. The most recent survey data among this category of hired farm workers did not find a single instance in which a labor contractor provided health insurance for their 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, or 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.

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.

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 (McCurdy, Villarejo and Stoecklin, 1998) demonstrated that the program was effective. 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 Policy Issue: **Too little resources are presently devoted to labor and safety law enforcement in agriculture, would it be better to seek to assist enforcement efforts with community-based collaborations?**

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. 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 40% 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 intended to cover several Central Valley towns. 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. Obviously, not all of the difference can be attributed to workers living in "back houses." Some of the difference is due to the fact that the Census is conducted in late March and early April whereas many migrant hired farm workers remain in Mexico until later in the season. Nevertheless, anecdotal evidence indicates that thousands of hired farm workers in each of dozens of communities reside in unofficial housing units. For example, near Bard in the Coachella Valley, hundreds, if not thousands, of workers camp out in the desert. Newspaper accounts of hired farm workers renting spaces for cash in vacant Bard parking lots shocked Southern California readers, further underscoring the gravity of the problem.

Stricter immigration enforcement designed to exclude undocumented workers by the Border Patrol 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 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.

Nitrate contamination of groundwater wells in the vicinity of Central Valley dairies has become a minor scandal in the past year. With the relocation of dozens of large Southern California dairies to the Central Valley in recent years, the enormous volume of animal effluent has become a health concern, most notably due to nitrates leaching through the soil. There has been no systematic determination of the impact of this problem on the quality of drinking water in farm labor camps.

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. Additional resources have been provided to hospitals in rural areas, and specially designed programs of support for outreach workers have also been developed.

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 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 had devastating consequences for rural California residents.

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."[i]

Using this classification criterion all of 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. Note that this usage of metro/non-metro refers to classifications of entire counties. A county is unambiguously either one or the other, which is convenient for assignment purposes.

Rural places are much smaller in 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-four of the state's fifty-eight counties are now classified as "metro" and, as population growth continues, several more of the remaining twenty-four 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."[ii] 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 of the eleven western states, of whom just 226,659 were poor.[iii]

The same classification scheme also leads to the finding that fewer than 8% of the nation's non-metro county residents live on farms.[iv] Hence, if rural is equivalent to non-metro, then it follows that rurality today has little to do with farmers. Some conclude from this finding that rural no longer refers to agriculture. However, as is also further discussed below, the implicit identification of agricultural activity with farm residents is also suspect.

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.

For example, in the eleven western states, there are two states in which the rural population greatly <u>exceeds</u> the non-metro county population, in the case of California the number of Census-enumerated rural people is two and one-quarter times <u>larger</u> than the population of the state's non-metro counties.

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 all of the Western states. What is most striking is that in two states, California and Washington, an actual majority of the Census-enumerated rural population reside in <u>metro</u> counties. *In California, three-quarters of the rural population is in metro counties and only one-fourth in non-metro counties.* 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.

Only in those states with a predominately rural population (Idaho, Montana, Wyoming) do we find a very high proportion of rural people living in non-metro counties. Clearly, these states fit well into the simple two-valued classification scheme: non-metro (rural) or metro (urban).

But most Western states are evidently more complex, showing as much diversity within county boundaries as across them. Perhaps that is the principal lesson. A two-value classification scheme is unable to accommodate the complexity of rural areas of the West today.

The value of the metro/non-metro classification of counties is that it makes possible the graphical visualization of rural places. Rural places can be spatially located. To more accurately visually 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 of such great value: they are a scheme for making a sub-county population analysis that allows for the subtleties of the West.

Table 2

Population of Western States, 1990 Census

State	Total Population	Rural Population	Rural Population Metro Counties	Rural Population NonMetro Counties
Arizona	3,665,228	458,153	207,449	250,704
California	29,760,021	2,188,143	1,662,691	525,452
Colorado	3,294,394	578,645	228,661	349,984
Idaho	1,006,749	428,373	68,222	360,151
Montana	799,065	379,076	33,737	345,339
Nevada	1,201,833	140,521	54,788	85,733
New Mexico	1,515,069	410,314	115,455	294,859
Oregon	2,842,321	839,322	394,471	444,851
Utah	1,722,850	223,475	30,649	192,826
Washington	4,866,692	1,149,568	593,597	555,971
Wyoming	453,588	159,123	16,192	142,931

If we use Table 2 data to summarize the various population categories across all eleven states as a whole, we find a surprising result. The combined rural population of these eleven states totals 6,954,713, of which 49% (3,405,912 persons) are residents of metro counties.

Thus, only 51% (3,548,801 persons) of the combined states' rural population lives in non-metro counties.

This raises the question of how much sense does it make to have as one's main classification scheme a mechanism that only accounts for half of the population, i.e., very nearly half of the population doesn't fit? Despite the greater difficulty associated with visually representing rural places, a sub-county scheme is clearly essential.

Even more difficulty is encountered in analyzing the location of rural Latinos with respect to metro/non-metro classification in the Western states. Table 3 shows the Census-enumerated populations of the following sub-categories: rural Hispanic, rural Hispanic in metro counties, and rural Hispanic in non-metro counties.

Table 3

Rural Hispanic Population in Eleven Western States, 1990 Census

State	Rural Hispanic Population	Rural Hispanic Population of Metro Counties	Rural Hispanic Population of Nonmetro Counties
Arizona	78,371	45,396	32,975
California	385,467	334,108	51,359
Colorado	57,005	17,943	39,062
Idaho	21,475	5,172	16,303
Montana	4,068	458	3,610
Nevada	10,824	3,382	7,442
New Mexico	151,395	52,869	98,526
Oregon	29,969	14,709	15,260
Utah	7,875	1,094	6,781
Washington	54,152	30,656	23,496
Wyoming	5,304	513	4,791

In Arizona, California and Washington, the majority of the rural Hispanic population resides in metro counties: in the case of California some 87% do so. The residence location of most Census-enumerated rural Hispanics in the West clearly defies the supposed equivalence of rural and non-metro.

On the other hand, for most of the eleven states, and especially for the most predominately rural (Idaho, Montana, Wyoming), the association of rural with non-metro is a good one for rural Hispanics. But, as before, when states with a more complex population structure are considered, the two-valued classification is simply not adequate to the task.

If we use Table 3 data to analyze the residence location of rural Hispanics in the West, we find an even greater mismatch of rural with metro than was the case for the rural population. Out of a total rural Hispanic population of 805,905, some 63% (506,300 persons) live in rural areas of metro counties, and just 37% (299,605 persons) live in non-metro counties. This predominance of rural associated with metro is precisely the opposite of what one would expect to find if the association of rural with non-metro was a useful one.

Interestingly, about 47% of residents of non-metro counties of the West are classified as urban by the Census. This is because they live in small cities or towns with populations that exceed the 2,500 threshold. These urban places of residence in the West correspond to small cities and towns that are often embedded in areas with significant agricultural or other natural resource production. The *hired farm worker* communities of Huron, Mendota and Firebaugh are good examples of this type of urban community. They correspond to the "colonias" or predominately Latino communities of the Western states whose formation has been studied by Palerm and Rochin.[v]

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 relatively 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 absolute size of the rural population in the county.
5. California efforts to develop sub-county designations of rural and urban Medical Service Study Areas is a useful and especially informative method to classify rural and urban communities.

Recommendation 1. 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 2. 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 3. Since even a crude 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 4. 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 but they are rarely evaluated in a rigorous scientific manner.

Recommendation 5. 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 6. Establish a private watchdog group to monitor enforcement activities of public agencies which have responsibility for labor and safety in the fields. Oversight is needed for the activities of the U.S. Department of Labor (Wage and Hour Division), State Labor Commissioner (Division of Labor Standards Enforcement), Cal-OSHA, California Department of Pesticide Regulation and County Health Officers.

Recommendation 7. 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, neglecting the fact that most workers live in either extended family households or households comprised exclusively of unaccompanied males.

Recommendation 8. Establish a network of "settlement houses" along the lines of the Jane Addams Hull House (Chicago) or other suitable models. The intention would be to promote a variety of cultural, educational and community-building activities. A central feature of the model is promotion of the positive benefits of the inclusion of immigrant workers in our society.

Recommendation 9. Develop binational health education and outreach programs through collaboration with the Mexican government or NGOs. New cooperative arrangements between Mexico and California have been established by Prof. Juan Vicente Palerm (UC-MEXUS) and can serve as a model.

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ii. G. Summers, "Rural Poverty, Remarks Prepared for the Rural Sociological Society, 1994 Annual Meeting," The Rural Sociologist, Vol. XX, No. XX, 1994.

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iv. Paul Dudenhefer, op. cit., p. 37.

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