Access to Health Care for California's Hired Farm Workers: A Baseline Report

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Don Villarejo, Ph.D.

David Lighthall, Ph.D.
Daniel Williams III
Ann Souter, R.N.
Richard Mines, Ph.D.
California Institute for Rural Studies, Inc.

Bonnie Bade, Ph.D.
California State University, San Marcos

Steve Samuels, Ph.D.
Stephen A. McCurdy, M.D., M.P.H.
University of California, Davis

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California Program on Access to Care, University of California

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I. EXECUTIVE SUMMARY

This report describes findings from the California Agricultural Worker Health Survey (CAWHS), a statewide cross-sectional health needs assessment that included a comprehensive physical examination. A three-stage, stratified, sample-proportional-to-size strategy was used to insure that participants were randomly selected. The survey was conducted in seven communities between March 1999 and December 1999. All six of California's agricultural regions were represented.

The CAWHS was a community-based household survey. In addition to completing a professionally administered survey instrument in the home, subjects were asked to participate in a comprehensive physical examination and a second survey instrument regarding health habits and personal risk behaviors. The clinical examination included a full blood chemistry analysis performed by an independent medical laboratory. A total of 970 randomly selected hired farm workers agreed to participate for a response rate of 83%. Two-thirds of those who agreed to participate completed all three components of the CAWHS for an overall response rate of 56%.

In a previous report, it was found that CAWHS subjects were predominately young, married, Mexican men who had median earnings of just $7,500 - $9,999 in 1998. It was also reported that, when age and sex were properly taken into account, a disproportionately large number had low blood hemoglobin (anemia), high serum cholesterol or were obese as compared with all U.S. adults. Results of the dental examination were startling: a great many CAWHS subjects had dental caries, missing or broken teeth, or gingivitis.

In the current report, for the first time, findings regarding immigration status and health, and the relationship between the use of social service programs and health are discussed. Also reported are findings on housing and living conditions, household composition and demographics, educational attainment and employment, race and ethnicity, and total household income.

KEY FINDINGS

1. *Hired farm workers and their family members are mostly young and very poor. While more than 92% of hired farm workers are foreign-born, two-thirds of their U.S. resident children were born here.*

Hired farm workers and their families are very young. More than half of U.S.-resident household members and CAWHS subjects are younger than 24 years of age. For all U.S. persons, the median age is 35.3 years.

While at least 92% of CAWHS subjects are foreign-born, 66% of their U.S.-resident children and 81% of their U.S.-resident grandchildren were born in the U.S. Approximately 10% of married CAWHS subjects said their spouse lived abroad.

CAWHS households are very poor. Median total family income reported for 1998 was in the range of $12,500 - $14,999. Per capita annual income in CAWHS households was between $3,690 and $4,420, which compares with the value of $28,163 reported for all Californians in 1998. Ownership of assets such as a vehicle or home was relatively uncommon: 68% said they owned no U.S. assets.

2. *Many hired farm workers live in crowded conditions: 42% of CAWHS subjects live in dwellings shared by two or more households, and 20% of dwellings where CAWHS subjects reside do not have any form of telephone service.*

Hired farm worker housing is often quite crowded. Some 42% of CAWHS subjects reside in dwellings shared by two or more households. In such cases, an average of 3.57 additional unrelated persons per dwelling shared living quarters with the CAWHS subject's family. The Census 2000 found that just 7.6% of California households had unrelated persons sharing a dwelling.

The extent of sharing of dwellings by multiple households varied greatly among the seven community sites and was as high as 87% among hired farm workers residing in Vista (northern San Diego County). The highest number of such "Other residents" found in the course of the survey was 15 in a structure in Cutler.

An average of 4.25 persons were found to reside in dwellings occupied by hired farm workers, as compared with the average household size of 2.87 persons for all occupied housing units in California. Telephone service was absent in 20% of all dwellings surveyed.

Large numbers of workers were found to reside in temporary dwellings, labor camps, or vehicles. Some CAWHS subjects were found residing in tool sheds, garages, trailers, abandoned vehicles, and every imaginable kind of shack.

3. *Health care access is extremely limited among hired farm workers, as reflected by the lack of health insurance and the date of most recent visit to a medical clinic, dentist or vision care provider. However, U.S.-resident spouses, women, and children fare somewhat better by each of these measures. Many workers prefer to seek health care services in Mexico.*

Access to health care services was quite limited among CAWHS subjects and household members. Only one-quarter of CAWHS subjects reported that they had some form of health insurance, most commonly provided through their employer. But 60% of their U.S.-resident spouses had medical insurance and 47% of their U.S.-resident children were covered. Younger household members were the least likely to be covered. CAWHS subjects said that 57% of their U.S.-resident household members had been to a doctor or clinic within the previous two years. However, 20% had never been to a doctor. Household members were less likely than CAWHS subjects to have never had a medical visit.

Participation in needs-based social service programs was also found to be strongly associated with greater access to health care services. Participation by at least one household member in either WIC or Medi-Cal enhanced the likelihood that a hired farm worker had a medical visit within the prior two years.

A significant number of CAWHS subjects prefer to obtain health care services in Mexico. Nearly half of those residing in either of the two sites closest to the border (Mecca and Vista) and who had reported a medical visit within the previous two years had gone to Mexico for care. Overall, about one-fifth of the medical visits of CAWHS subjects within the previous two years had been in Mexico. Both employer and labor union medical insurance plans reportedly use financial incentives to encourage use of Mexican health care services as opposed to U.S. providers.

4. *Clinical determinations of indicators of chronic health conditions (high serum cholesterol, high blood pressure, obesity) indicate that workers who have been in the United States for less time have somewhat better health status than workers who are longer term residents in the U.S.*

One of the most surprising findings was that workers with less time in the United States were more likely to be in better health than workers who had resided for longer period in the U.S., as measured by indicators of chronic health conditions, even when sex and age differences were taken into account.

The measurements of the three risk factors for chronic diseases, such as diabetes and heart disease, for documented versus undocumented workers illustrate this difference. The CAWHS finds that 24% of Documented male subjects have at least two of these three risk factors: high serum cholesterol, high blood pressure and obesity. However, just 9% of Undocumented male subjects have two or more of these same risk factors. The primary difference between the two groups was the duration of their residence in the U.S.: Undocumented workers typically reported many fewer years of U.S. residence.

5. *Female hired farm workers were found to be far more likely than male workers to have had a medical visit within the previous two years.*

Pronounced differences were found between males and females regarding recent medical visits. Females were far more likely to have had a medical visit within the previous two years. Among males, immigration status is strongly associated with frequency of medical visits. Some 44% of Undocumented males said they had never been to a doctor or clinic, whereas only 21% of Citizen males and 27% of Documented males had never been to physician or clinic.

Among females, there was essentially no difference among those of differing immigration status regarding recent medical visits. Between three-quarters and two-thirds of women of any immigration status had been to a doctor or clinic within the previous two years. But 23% of Undocumented females had never had a medical visit, as compared with 15% and 8% for Citizen and Documented females. As with all other

measures of frequency of medical visits, females were far more likely to access care as compared with males.

6. *Costs for most medical visit by hired farm workers are paid "out-of-pocket". Medi-Cal payments were quite significant in the case of medical visits by family members, but were still less important than "out-of-pocket" payments.*

Despite the fact that the overwhelming majority of hired farm workers are poor, the most common way they pay for health care is "out-of-pocket." When asked how they paid for their most recent medical visit, 56% of CAWHS subjects said they had paid out-of-pocket. Employer-provided health insurance had paid for 10% of those visits and Medi-Cal had paid for 16%. Among family members of CAWHS subjects, some 36% had paid out-of-pocket for their most recent doctor or clinic visit. Another 32% said Medi-Cal paid for the visit. Only 6% said employer provided health insurance had paid the cost.

POLICY RECOMMENDATIONS

- *We recommend exploring the concept of creating a multi-payer health insurance system that would be funded by contributions from hired farm workers themselves, as well as by contributions from farm employers and the public. Most hired farm workers are too poor to pay for an adequate level of health care, including dental and vision care; additional resources from employers, philanthropy and the public are essential if access to health care is to be improved for this population.*

- *Comprehensive monitoring of infectious disease among hired farm workers should be undertaken immediately. Any "guest worker program" between Mexico and the United States, if enacted, must insure that all applicants be screened for possible infectious disease by the U.S. Public Health Service prior to admission to the U.S*

- *A substantial program of "promotores de salud" should be implemented as widely as possible in under-served regions of California. Both philanthropy and federal programs can play critical roles in developing such programs.*

- *The existing system of federally funded migrant and community clinics needs to be expanded and strengthened. In addition to significant additional resources, an independent review system is needed to provide constructive oversight for existing clinics that serve hired farm workers.*

- *The erosion of health care services in rural and non-urbanized regions of California must be reversed. Existing federal definitions of "rural" need to be revised to more accurately represent communities with high proportions of hired farm workers.*

- *Bi-national cooperation, such as encouraging use of Mexican health care services, where appropriate, should be more fully developed.*

II. FIGURES

(All figures can be found at the end of this report).

III. TABLES

IV. INTRODUCTION

This report presents a major portion of the findings of the first statewide, cross-sectional survey of hired farm worker health to include a comprehensive physical examination. The California Agricultural Worker Health Survey (CAWHS), conducted during 1999, included interview and physical examinations among 970 randomly selected hired farm workers.

A previous report, *Suffering in Silence: A Report on the Health of California's Agricultural* Workers, included findings on health status from the physical examinations, health insurance status, and recent health care visits (Villarejo et al, 2000).

The present report examines housing and living conditions, household structure and composition, utilization of social services and additional findings from the physical examinations. Most importantly, for the first time, findings on the immigration status of this population and its impact on access to health care are presented and examined in detail. Moreover, findings for the 2,200 additional household members of CAWHS subjects are also presented for the first time. These are the husbands and wives, brothers and sisters, daughters and sons, and parents and grandchildren of California's hired farm workers.

A future report, now in preparation, will present findings regarding workplace health and safety, including workplace injuries and pesticide safety.

V. THE CALIFORNIA AGRICULTURAL WORKER HEALTH SURVEY-1999

Sampling Methodology

A total of 970 randomly selected subjects participated in the CAWHS. Interviews were conducted between March and December 1999.

The CAWHS employed a multi-stage, population-proportional-to-size sampling strategy. Participants were randomly selected in a door-to-door household survey conducted in seven communities. Five communities were randomly selected to represent five of the state's six agricultural regions: Arbuckle (Sacramento Valley), Calistoga (North Coast), Cutler (San Joaquin Valley), Gonzales (Central Coast) and Vista (South Coast). The community of Mecca represents the sixth region (Desert). A second San Joaquin Valley community, Firebaugh, was added because half of the state's agriculture workers are employed in the San Joaquin Valley.[1]

Four of these communities (Cutler, Firebaugh, Gonzales and Mecca) are located within "Farm Worker Medical Service Study Areas" (MSSAs). MSSAs are geographic regions of the state within which most residents normally seek and obtain health care services. There are 487 MSSAs in the state and, on average, each includes roughly a dozen Census Tracts. Of this total, 23 were found to be both rural and have a majority Hispanic population in the 1990 Census. It was found that about 35% of the combined employed population of the MSSAs meeting these two criteria worked as agricultural employees, a figure larger than for any other category. Hence, they have been characterized as "Farm Worker MSSAs."

Previously, it was reported that Farm Worker MSSAs have fewer primary care physicians per 1,000 population, are more likely to lack any primary care physician, and have a higher proportion of medically underserved residents, in comparison with California's urban and all other rural MSSAs (Villarejo, 1999). In short, hired farm workers residing in these communities are poorly served by the state's health care system.

The remaining three CAWHS sites include two rural communities (Arbuckle and Calistoga) in which the Hispanic population was a minority in the 1990 Census and an urban city (Vista), in which Hispanics are also a minority of residents.

The essential concept of the CAWHS survey methodology is that the sample frame is constructed from all dwelling places within a well-defined geographic area. A complete enumeration of all sleeping quarters is thus functionally equivalent to an enumeration of all persons, provided that a separate enumeration of persons is conducted within each dwelling.

[1] Mecca was purposefully selected to serve as the site for the pilot because of the presence of a migrant clinic in that community. Firebaugh was purposefully added to insure that the west side of the San Joaquin Valley would be represented since the randomly selected community, Cutler, is an east side community.

The multi-stage sampling strategy required on-the-ground mapping of every dwelling, no matter how informal, within the specified geographic boundaries for each of the seven community sites.[2] Site coordinators mapped residences within the towns, and also thoroughly searched labor camps and informal dwellings found in the agricultural fields surrounding these communities. However, in the Vista and Calistoga community sites, only portions of the towns were surveyed, corresponding to those census block groups where hired farm worker dwellings were found to be concentrated. In the other five community sites, including all four Farm Worker MSSAs, the entire towns and surrounding countryside were thoroughly surveyed. Informal dwellings found by the team include trailers, sheds, shacks, garages, lean-tos and other makeshift structures as well as vehicles, bushes, fields and orchards.

Dwellings were then randomly selected from these lists of enumerated places of residence. The survey protocol required that only those dwellings that were randomly selected were to be contacted. Survey interviewers personally visited each selected dwelling. At each selected dwelling where an eligible subject agreed to cooperate, a Participant Selection List was compiled that listed, by age and sex, all residents of the dwelling who met the survey eligibility criteria. Women were listed first, in order of descending age, and men were listed next, also in descending order of age. Finally, a CAWHS participant was randomly selected from that list.

Sampling and interviews were timed, insofar as possible, to coincide with "peak season" labor demand in each of the seven sites. However, because of the large number of subjects being sought, and because of the necessity to arrange physical examinations at a medical facility with only a limited capacity, in several sites (Calistoga, Cutler and Gonzales) the field research extended well beyond the end of the season. It is likely that migrant workers were under-represented in the sample as a result.

To be eligible to participate in the CAWHS, an individual needed to be at least 18 years of age at the time of the interview and to have performed hired farm work at some time during the previous twelve months. For purposes of the survey, any type of on-farm work qualified, including livestock or ornamental nursery crop production. However, off-farm packing and food processing employment was not considered "farm work" because those industries are classified as non-agricultural by the U.S. Department of Commerce.

This definition of "hired farm work" is congruent with definitions used by the U.S. Department of Labor, the U.S. Department of Agriculture, the California Department of Employment Development, and the agricultural economics literature. However, different criteria are used to determine eligibility for participation in various federally funded programs that serve "Migrant and Seasonal Farmworkers." Most frequently, these assistance programs also serve workers employed in the food processing industry or persons who have performed hired farm work during the prior twenty-four months, but exclude hired workers on livestock farms.

[2] A full description of the sampling methodology is found in Appendix I of the report, *Suffering in Silence*, see Villarejo, et al., 2000, pp. 33-34.

A combined total of 11,876 dwellings were enumerated in the seven communities, and 2,989 of these were randomly selected and contacted in person by project interviewers. Thus, the sampling fraction was roughly 25%, meaning that, on average, one in four dwellings in these communities was actually directly contacted. Ultimately, 1,173 randomly selected agricultural workers were asked to participate. Of these, 970 agreed, for a response rate of 83%. Our sampling process purposely over-sampled for women. The true proportion of eligible female subjects was determined from the complete enumeration of all eligible residents of dwellings, the Participant Selection Lists, allowing correction for the over-sampling for women.

Persons who were asked to participate were informed of their rights as required by standard Human Subjects protocols. In addition, they were informed that they would be provided free transportation to and from their clinical physical examination at a time of their own choice, that they would receive a consultation concerning the results of this examination, and that they would receive a $30 cash payment at the conclusion of the whole procedure in consideration of their time and inconvenience.

Each participant agreed to a one-and-one-half-hour interview at their residence, a comprehensive physical examination at a nearby medical facility, including a full blood-chemistry analysis performed by an independent medical laboratory, and a private interview while at the clinic that inquired about health habits and high-risk behaviors. Two-thirds of the randomly selected subjects (654) completed all three components of the CAWHS for an overall participation rate of 56%.

Summary of Previously Reported Findings

As noted previously, initial findings from the CAWHS have been reported elsewhere (Villarejo et al., 2000). The main feature of the CAWHS sample (970 persons) is that it comprises mostly young, married, Mexican men who have little formal education and who earn very low annual incomes. Overall, the sample median age is 34, about 92% are foreign-born, 59% are married, 63% have attained six or fewer years of formal education, only half say they can read Spanish well or very well, and the median reported total annual earnings from all sources is between $7,500 and $9,999. About 96% say they are Mexican, Hispanic or Latino, and 9% overall are of indigenous origin.

The findings obtained in the physical examination phase of the CAWHS were:

- Nearly one in five male subjects (18%) had at least two, or all three, risk factors for chronic disease: high serum cholesterol, high blood pressure or obesity.
- For all age groups, a larger fraction of male subjects had high serum cholesterol as compared with all U.S. adult men.
- 81% of male subjects and 76% of female subjects had unhealthful weight, as indicated by the Body Mass Index (BMI) equal to or greater than 25 kg/m.^{2} Overall, 28% of men and 37% of women were obese (BMI equal to or greater than 30 kg/m^2).
- For both male and female subjects, the prevalence of anemia in the CAWHS sample was substantially higher than among U.S. adults.

- Clinically determined dental outcomes were startling. One-third of all subjects had at least one decayed tooth and one-third had at least one broken or missing tooth.

Subjects in the CAWHS sample were asked to report on utilization of and access to health care services. The findings provide a sharp and worrisome contrast with comparable data for U.S. adults:

- Over two-thirds of all persons in the sample lacked any form of health insurance, and only 7% were covered by any of the various government-funded programs intended to serve low-income persons.
- Only 11.5% were covered by health insurance through their employer, although 16.5% said their employer offered health insurance. However, nearly one-third of these same workers did not participate in the insurance plan that was offered because of the cost.
- When asked to describe their most recent visit to a doctor or clinic, a plurality of male subjects (32%) said they had never been to a doctor or clinic.[3] However, a plurality of women (38%) had a medical visit within the previous five months.
- Half of all male subjects and two-fifths of female subjects said they had never been to a dentist.
- More than two-thirds of subjects reported never having had an eye-care visit.

[3] The exact question was "Now I'm going to ask you some questions about you and your family's most recent visits to the doctor. When was your last visit to a clinic/health center/doctor?" It is likely that many, if not most, subjects understood this question to refer to medical visits in the U.S. A subsequent question asked about medical visits while in Mexico.

VI. CURRENT REPORT FINDINGS

Housing and Living Conditions

Extensive household information was collected from CAWHS subjects. Approximately two dozen questions taken directly from the Census of Population and Housing were deliberately included in the survey instrument. These questions were supplemented with additional questions regarding persons who were found to be sharing a dwelling with the subject and her/his family.

There are three different levels at which the data must be examined: dwelling, household, and subject. This is necessary because of the widespread practice of multiple families, or households, sharing a single dwelling. As previously indicated, 970 persons participated in the survey. However, the participant selection protocol contemplated the possibility that multiple persons residing in a single dwelling could be selected as subjects, a procedure intended to examine in greater detail those dwellings where a large number of residents were found. Two or more subjects were randomly chosen in 29 of the 940 dwellings where the selection protocol required that this be done.

Sleeping quarters where CAWHS subjects were found to be residing were classified into one of four categories. Dwellings were classified as "Permanent" if they were structures (normally houses or units in apartment buildings) recognized by the County Assessor for property tax purposes and if they also had fixed street addresses recognized by either the U.S. Postal Service or the County Assessor.

CAWHS subjects were also found residing in tool sheds, garages, automobiles, trailers, motor homes, abandoned vehicles, lean-tos constructed from plywood, tents and every imaginable kind of shack. Some were found residing in the open, usually amid trees, on hillsides, in ravines, or along riverbanks that provided some degree of privacy.

For purposes of classification of these other dwellings, three additional categories were arbitrarily defined. "Labor camps" were identified when they were self-described as such by their residents or if they were registered with state/county housing/health authorities. All other dwellings were categorized as "Temporary" if they did not meet the criteria for classification as "Permanent" or "Labor camps." However, automobiles used as sleeping quarters were separately classified as "Vehicles".

As more fully described in Table 1, dwellings occupied by CAWHS subjects differ in important ways from usual places of residence in California. First, large numbers of workers were found to reside in Temporary, Labor Camp or Vehicle dwellings. An estimated 30% of all hired farm workers did not reside in Permanent dwellings. However, some caution must be used in interpreting this finding. Many of the "Temporary" dwellings were mobile, manufactured houses and were clearly of superior quality to the much less commonly found sheds and other types of informal dwellings. But if a mobile home did not have a permanent street address and was not recognized by the County Assessor for tax purposes, it was classified as a Temporary dwelling.

Table 1. Housing Conditions, CAWHS, 1999

Dwellings of CAWHS Subjects	**940**
Dwellings Shared by Two or More Households	**42%**
Dwellings without Telephone Service	**20%**
Persons per Dwelling, Average	**4.25**
Farm Workers Residing in Temporary, Labor Camp or Vehicle Dwellings	**30%**
Members of CAWHS Households Living in the U.S.	**1,891**
Members of CAWHS Households Not Living in the U.S.	**333**

In the community of Mecca, the CAWHS found approximately 60% of all hired farm workers lived in Temporary, Labor Camp or Vehicle dwellings. Some workers in Mecca reside in vehicles parked along city streets at night during the peak of the desert table grape harvest in spring and early summer. A Mecca shopkeeper allows many of these "overnighters" to use his parking lot where two portable toilets are provided by local health authorities. Potable water is available for purchase. The shopkeeper also sells bottled spring water.

Overcrowding characterizes the living conditions of many hired farm workers and their families in California. The average number of persons per CAWHS dwelling was 4.25, whereas the Census 2000 found that the corresponding figure for all Californian dwellings was 2.87.[4]

For purposes of the CAWHS, a household was composed of family members or others, no matter where they reside, who share major living expenses, including shelter, food, clothing, transportation and medical expenses. 41.5% of dwellings surveyed had two or more households sharing the residence. The median number of these additional household residents in such dwellings was 3, and the average was 3.57. The highest number of such "Other residents" found in the course of the survey was 15 in a structure in Cutler. Vista was found to be the site that had the greatest degree of household sharing. Approximately 87% of all CAWHS dwellings in Vista were found to have two or more households sharing living quarters. In one dwelling in Vista, 13 persons were found sharing a two-bedroom apartment with a CAWHS subject.

The Census 2000 found that just 7.6% of all California households had unrelated persons sharing a dwelling.[5] For all U.S. households, the corresponding figure was even lower, 6.1%.[6]

[4] U.S. Census Bureau, Census 2000, Table DP-1. Profile of General Demographic Characteristics for California: 2000. See http://www.census.gov for the complete set of data.
[5] Ibid.
[6] U.S. Census Bureau, Census 2000, Table DP-1. Profile of General Demographic Characteristics for the United States: 2000. See http://www.census.gov for the complete set of data.

Many of these "roommates" were also employed as hired farm workers. In some dwellings, unrelated men share quarters that one of them had formally rented from the property owner. In others, boarders rent space from an "anchor" family. In still other cases, workers share a dwelling rented by a third party, sometimes a labor contractor. Typically, these other residents shared the cost of shelter with the CAWHS subject's household, but did not share other expenses.

The CAWHS finds that 20% of dwellings where hired farm workers reside lacked telephone service. On a national basis, it is estimated that 3% of all households lack phone service. Residents of Labor Camps, Temporary dwellings and Vehicles were twice as likely to report "No telephone in dwelling." However, 15% of CAWHS Permanent dwellings lacked phone service.

The lack of a telephone in the dwelling can be an important barrier to accessing health care services. Relatively simple matters, such as obtaining a medical appointment or determining opening hours, can become quite complicated, particularly if the caller can not provide a telephone number for return calls.

A major reason for the unusual sharing of dwellings by numerous unrelated individuals noted above is the acute shortage of affordable housing in these communities. When contacting randomly selected dwellings in each site, interviewers were asked to determine whether the dwelling was vacant or was occupied, and, if occupied, to determine whether an individual who qualified to participate in the CAWHS resided there. Thus, the CAWHS yields a detailed profile of housing occupancy in each of the seven communities.

As indicated in Table 2, vacancy rates for Permanent dwellings in the CAWHS sites located within Farm Worker MSSAs ranged from 1.3% to 4.4%, and averaged just 2.4%. In contrast, the vacancy rate in the other three CAWHS sites averaged 5.7%, and was as high as 8.6% in one (Calistoga).

The Census 2000 found that California had a rental vacancy rate of 3.7% and a homeowner vacancy rate of just 1.4%.[7] A vacancy rate of 5% is considered the threshold of a housing shortage, and that level of vacancy triggers strict rent control measures in New York City.[8] By that measure, these four MSSA communities have serious housing shortages. It is not surprising that temporary dwellings of all kinds have been established and are rented out to hired farm workers, some of whom may live in the community for only several months of the year.

It is important to point out that the timing of the CAWHS field research in each site was intended to coincide with "peak season" labor demand. For that reason, the observed

[7] U.S. Census Bureau, op. cit., California data.
[8] New York State Assembly, New York State Unconsolidated Laws, Emergency Housing Rent Control Law 274/46 337/61, Sec. 12, "Application…the percentage of vacancies in all or any particular class of housing accommodations is five percent or more…". See http://assembly.state.ny.us/leg/ for the complete text.

vacancy rate refers to those months of the year when large numbers of migrant workers may be present, not to the year-round average or off-season conditions.

Another factor contributing to the widespread sharing of dwellings is the very high cost of housing in California. Some rural areas have seen housing prices surge in recent years as commuters move away from high-cost urban centers seeking less expensive residences.[9]

Table 2. Vacancy Rates for Permanent Dwellings, CAWHS Sites in Farm Worker MSSAs, 1999

Cutler	**2.4%**
Firebaugh	**4.4%**
Gonzales	**1.3%**
Mecca	**1.7%**

Occupants of Permanent dwellings in the farm worker MSSAs (Cutler, Firebaugh, Gonzales and Mecca) were less likely to be employed as hired farm workers than persons who lived in the other three categories of dwellings. Roughly half of Permanent dwellings had at least one resident who qualified for the CAWHS, but almost three-quarters of all other types of dwellings in these communities had a qualifying resident who qualified. In contrast, less than 4% of Vista's Permanent dwellings had a CAWHS-qualified person present. In Calistoga, the corresponding figure was 15%.

Household Composition and Demographics

Demographic data were obtained for each member of the subject's household. CAWHS households were found to have diverse and complex structures. Among the 2,224 persons who were identified by CAWHS subjects as members of their households, 357 (16%) did not reside with the CAWHS subject; nearly all of those persons reside on a permanent basis in the country of origin of the subject. Of subjects who were married, 10% said their spouses reside in Mexico or Central America, and, in these cases, most often their children reside out of the country with their spouses.[10] In one-fourth of households in which the spouse was reported to reside out of the country, multiple household members were also reported to reside in the U.S. with the subject.

The CAWHS household data may not fully represent the population of hired farm workers and family members. As noted previously, it is likely that migrant workers were under-represented in the CAWHS sample in three of the seven sites. If true, then the proportion of household members residing abroad may be higher than indicated in the

[9] "Locked Out: California's Affordable Housing Crisis," California Budget Project, Sacramento, CA, May 2000.

[10] This figure of 10% of spouses residing abroad is certainly a lower bound for the true value. The ratio is the number of spouses identified by subjects as living abroad divided by the total number of married subjects. Some subjects who said they were married failed to include their spouses when enumerating their family or household. It is likely that at least some of these "missing" spouses reside in Mexico.

figures reported above. Also, 230 subjects (24%) said they were the only members of their household. More than half of these were undocumented males. Forty-eight (21%) of these solo household subjects said they were married and forty-six (20%) reported that their permanent residence was in Mexico. It is possible, even likely, that some of the persons who said that they were in solo households simply chose not to report their actual household members to the CAWHS interviewer. In what follows, the data is reported as directly obtained from CAWHS subjects. No corrections have been applied to take account of these possible sources of error.

Approximately four-fifths (82%) of CAWHS households report their permanent home is in the U.S. Surprisingly, a large share of foreign-born CAWHS subjects who had entered the U.S. for the first time in 1999, the year the survey was conducted, also said that the U.S. was their permanent home.

The average household size of CAWHS subjects was 3.39 persons. However, a significant difference in household size was found between U.S.-born subjects as compared with foreign-born subjects. Among households with a U.S.-born CAWHS subject, household size averaged 2.87 persons. However, among households with a foreign-born CAWHS subject, household size averaged 3.44 persons.

The most striking demographic feature of the CAWHS data is that this is a very young population. More than half of the total population of CAWHS subjects and their fellow U.S.-resident household members are younger than 24 years of age. Among older persons, only a very few CAWHS household members are age 65 or older. This finding contrasts sharply with that of all U.S. persons, for which the median age is 35.3 years. Census 2000 data indicate that the median age for White persons is 38.5 years while for all Hispanics it is 26.6 years (Bureau of the Census, 2001). The age distribution of CAWHS subjects and U.S.-resident household members is shown in Figure 1. Corresponding data for the U.S. 2000 general population, as reported from Census 2000, is also shown (Bureau of the Census, Census 2000).

Overall, only 44% of the combined total of CAWHS subjects and U.S.-resident household members were female. The large majority of males in many farm worker communities in California is well-known. This is another reflection of the finding reported above: the presence of migrant male hired farm workers whose spouses continue to reside in the sending country.

U.S.-resident spouses and parents of CAWHS subjects tend to be foreign-born: only 8% of spouses and 5% of parents were born in the U.S. However, 92% of CAWHS subjects were foreign-born. These figures contrast sharply with the findings for U.S.-resident children and grandchildren of CAWHS subjects: 66% of children and 81% of grandchildren were born in the U.S. The main findings for U.S.-resident household members are summarized in Table 3.

This pattern of place of birth of household members is consistent with permanent migration of CAWHS subjects from Mexico, Central and South America to the U.S.

Successive generations resident in the U.S. tend to be more and more U.S.-born: 6% among CAWHS subjects, 66% among their children and 81% among their grandchildren.

Households are quite diverse. It is not unusual for an undocumented CAWHS subject to have U.S.-born children, or a documented CAWHS subject to have both foreign-born and U.S.-born family members. However, it is rare is to find a U.S.-born female married to an undocumented male CAWHS subject.

At least 96% of the children of U.S.-born CAWHS subjects were born in the U.S. Fifty percent of U.S.-born married subjects had a U.S.-born spouse, the other half had Mexican-born spouses.

Table 3. U.S. Resident Household Members of CAWHS Subjects, CAWHS, 1999

Relationship	*Number*	*Percent U.S.-born*
Spouse	**470**	**8%**
Brother/Sister	**65**	**22%**
Father/Mother	**40**	**5%**
Other relative/Unrelated	**63**	**10%**
Daughter/Son	**1,211**	**66%**
Granddaughter/Grandson	**16**	**81%**

As noted, minor children of foreign-born CAWHS subjects were extremely likely to have been born in the U.S. Out of 1,060 minor children in such households, 762 (72%) were born in the U.S. In contrast, nearly all spouses of married foreign-born CAWHS subjects were born in Mexico or Central America (439 out of 450). This is strong evidence that foreign-born hired farm workers marry in their country of origin and eventually bring their spouses with them to the U.S., but that most of their children are born while they reside here.

The fact that most minor children were born in the U.S. has important consequences regarding access to health care. First, as citizens, these children are eligible to participate in all government programs intended to protect the health of minors. Second, it is likely that mothers giving birth in California, irrespective of their own immigration status, will have access to well-baby care during the first several months of their child's life. Both of these factors bring the mother and child into regular and on-going contact with the U.S. health care system.

Race and Ethnicity

Reports in the literature of differential treatment by health care providers toward indigenous hired farm workers raised the issue of the role of race and ethnicity in access to care (Bade, 1993; Bade, 2000). For this reason, CAWHS subjects were asked to describe their race and ethnicity, using the same questions, word for word, as are used in the Census of Population and Housing. The results show that the concepts that underlie

census questions are fundamentally flawed as applied to Mexicans who migrate to the U.S. to perform hired farm work.

Among U.S.-born CAWHS subjects, 94% said "Some other race" in response to the standard Census form choices regarding their race (White; Black, African-American or Negro; American Indian or Alaska Native; Asian; Native Hawaiian or Pacific Islander; or Some other race). Foreign-born CAWHS subjects were similarly inclined to choose "Some other race." In fact, 92% did so, and another 4% chose not to answer the question at all.

The separate Census question regarding Hispanic origin proved to be straightforward for most CAWHS subjects. Nearly all said that they were Hispanic, Mexican, Mexican-American or Latino. Only two persons said they were Chicano, despite the fact that it was one of the choices available to them on an equivalent basis to those mentioned previously. Clearly, Chicano is not a helpful descriptor of ethnic identity for Mexicans who come to the U.S. to perform hired farm work.

Census distinctions between race and ethnicity regarding indigenous people do not accurately record the racial or ethnic composition of the CAWHS population. Only three persons said "American Indian" in response to the question regarding race. Just 25 foreign-born subjects said that they were of indigenous origin in response to the question regarding their particular type of Hispanic ethnicity, but, unsurprisingly, none of these said "American Indian" in response to the question regarding race. Of those who responded that they were Hispanic, Mexican or Latino, an additional 55 volunteered the information that they were indigenous persons when probed to give a more complete explanation of their ethnic origin. Thus, overall, about 9% of CAWHS subjects said they were indigenous persons. But this finding would never have been obtained had it not been for the additional probing. It is likely that additional indigenous persons were in the CAWHS sample who identified as Hispanic, Mexican or Latino but who did not respond to the probe.

Educational Attainment and Employment Patterns

There is a strong association between place of birth, educational attainment and likelihood of performing farm work. Only 13% of U.S.-born, adult household members over age 25 who reside with a U.S.-born CAWHS subject had performed some hired farm work in the prior twelve months. Median educational attainment for this group of adults was 12^{th} grade-no diploma.

In contrast, Mexican-born, adult household members who reside with a U.S.-born CAWHS subject were much more likely to perform hired farm work. Some 55% of those over age 25 had done so in the prior twelve months. Median educational attainment for this group was just 4^{th}-6^{th} grade.

Among households of foreign-born CAWHS subjects, the patterns are quite distinctive. U.S.-born, adult household members of foreign-born CAWHS subjects were only

somewhat likely to do farm work. Only 33% of those over age 25 had done hired farm work in the prior twelve months. Median educational attainment for this group was High School diploma.

Mexican-born, adult household members of foreign-born CAWHS subjects were more likely to work as hired farm workers than their U.S.-born siblings. About 44% of those age 25 or older had done hired farm work during the prior year. For this group, median educational attainment was 4^{th}-6^{th} grade.

In summary, U.S. birth is associated with higher educational attainment among household members of hired farm workers, irrespective of place of birth of the CAWHS subject. Second, higher educational attainment is inversely related to likelihood of performing hired farm work among adults age 25 or older, again irrespective of place of birth of the CAWHS subject. The greater the educational attainment, the less likely a household member is employed as a hired farm worker.

Household Income and Ownership of Assets

CAWHS households can be characterized as very poor. As shown in Figure 2, a large share of CAWHS subjects (30%) reported that their Total Family Income in 1998 was below $10,000. Overall, median Total Family Income was in the range $12,500 - $14,999. However, when asked to report their Total Family Income, about 10% said they didn't know and another 9% declined to provide the information. In reporting the median value quoted above, these households were excluded.

When Total Family Income for U.S.-born CAWHS subject households was separately determined, it was found to be the same as for all CAWHS households, which is somewhat surprising. This finding must be regarded as tentative since only 6% of CAWHS subjects are U.S.-born.

Since average CAWHS household size was 3.39 persons, average per capita income for 1998 in CAWHS households was in the range $3,690 - $4,420. CAWHS households with a U.S.-born subject were about 17% smaller in size, an average of 2.87 persons as compared with 3.44 for those with a foreign-born subject. Thus, per capita income in the households with a U.S.-born subject is correspondingly higher.

Average per capita income is very small for CAWHS households as compared with the $28,163 in average per capita income for all Californians reported for 1998 by the California Department of Finance (Department of Finance, 2000).

Mexican average per capita income for 1994-95 was reportedly $2,971 (United Nations, 1994-95). Demographers estimate it to be about $4,000 today. Since a great many U.S. hired farm workers migrate from rural and very poor areas of Mexico, it is very unlikely that most CAWHS subjects would be able to earn anywhere near as much in their home villages.

Few CAWHS subjects own any U.S. assets. This is shown in Table 4. Just 15% said they owned a house in the U.S., and, surprisingly, only 20% said they own a vehicle in the U.S. Some 68% said they own no U.S. assets.

Table 4. Ownership of U.S. Assets, CAWHS Subjects, 1999, N=970

House in U.S.	**15%**
Mobile Home in U.S.	**3%**
Automobile in U.S.	**20%**
Business in U.S.	**0%**
Own No Assets in U.S.	**68%**

Immigration Status and Health

Subjects were asked to describe their current immigration status. This is a sensitive question, particularly in light of tight restrictions applied to immigrants regarding qualification for any type of employment or participation in government assistance programs. CAWHS finds that two-thirds of hired farm workers are either citizens or legally authorized resident aliens. Most legally authorized resident aliens had permanent resident status, but some had various forms of temporary resident status. Proportionately more men than women said they were undocumented. Only 5% of CAWHS subjects said they were U.S. citizens by birth. It is important to note that 8% of CAWHS subjects declined to state their immigration status.

Since about two-thirds of CAWHS subjects completed the physical examination component of the survey, a matter of interest is whether there was any difference in the immigration status of those persons as compared with all CAWHS subjects. Among female subjects, 69% said they were citizens or legally authorized. Exactly the same percentage of female subjects who completed the physical examination were citizens or had legal immigration status. For male subjects, the comparable figures were 65% and 67%, respectively. Thus, we conclude that the immigration status characteristics of those who completed the physical examination did not differ appreciably from that of all CAWHS subjects.

In the following portion of this report physical examination findings are examined according to the self-reported immigration status for ***all foreign-born subjects***. Two broad categories of immigration status are identified for analysis: (a) *Documented*, which includes both migrants who may hold one of several types of visas authorizing employment in the U.S. as well as naturalized U.S. citizens; (b) *Undocumented* migrants. These two groups account for 87% of CAWHS subjects. Physical examination findings for native Citizen subjects or for those who declined to answer questions regarding their immigration status can not be separately reported because the numbers of each are too small to yield statistically reliable results.

Table 5 summarizes health status findings for documented and undocumented CAWHS subjects. Results for males and females are separately reported because there are known

differences in the prevalence of certain health conditions in the general U.S. population for men and women. Presumably, these same differences by sex would apply to CAWHS subjects.

First, we compare findings regarding anemia, as determined from the blood chemistry analysis. For men, a hemoglobin level of 13.5 gm/dl or less indicates anemia. For women, the cut-off is a hemoglobin level of 12.0 gm/dl or less. The most likely cause of anemia in this population is iron deficiency.

Table 5. Health Status Indicators, by Immigration Status, Crude (Not Age-Adjusted), CAWHS, 1999

Foreign-born Male Subjects, N= 370

Health Status Indicator	Documented	Undocumented
Anemia	4%	4%
High blood pressure	32%	20%
High cholesterol	25%	4%
Obesity	35%	16%

Foreign-born Female Subjects, N=203

Health Status Indicator	Documented	Undocumented
Anemia	14%	12%
High blood pressure	15%	12%
High cholesterol	5%	4%
Obesity	47%	22%

Note: Both naturalized U.S. citizens and non-citizen immigrants with various types of work-authorization visas are considered "Documented" in Table 5.

For both male and female subjects, Documented immigrants had higher prevalence of anemia than all U.S. adults. Interestingly, Undocumented immigrant male subjects also had higher prevalence of anemia (4%) than all U.S. adult males (1%), but Undocumented female subjects compared favorably with U.S. adult females. In the case of male subjects, a nearly comparable prevalence of anemia was found for both Documented (4.4%) and Undocumented (3.7%), and was four times larger than for U.S. adult males.

CAWHS subjects had blood pressure measurements taken by clinic staff at the outset of the physical examination. However, only one measurement was made. Thus, the findings do not constitute a medical determination of hypertension, which requires repeated measurements showing elevated blood pressure.

Findings regarding high blood pressure (defined as a minimum systolic blood pressure of at least 140 mmHg or diastolic blood pressure of at least 90 mmHg) are also reported in Table 5. Among both male and female subjects, Documented or Undocumented,

CAWHS finds a higher prevalence of high blood pressure than is the reported prevalence of hypertension among U.S. adults. These findings must be regarded as only suggestive since the CAWHS did not take multiple measures of blood pressure and thus cannot medically diagnose hypertension.

As in the case of anemia, there was a greater prevalence of high blood pressure for both male and female Documented subjects than among Undocumented subjects. The difference in the prevalence of high blood pressure between Documented and Undocumented subjects was considerably greater for males than for females. More thorough and on-going physical examinations will be required to determine whether the prevalence of hypertension among hired farm workers is greater than among all U.S. adults.

Third, serum cholesterol concentration values for CAWHS subjects used in the present analysis were those reported from medical laboratories contracted to provide this service. Blood samples were drawn from CAWHS subjects by clinic staff and promptly sent to an independent medical laboratory, where a full blood chemistry analysis was performed. The blood draw was not conducted under fasting conditions.

Table 5 shows the findings regarding high serum cholesterol (minimum serum cholesterol of 240 mg/dl). For Documented and Undocumented female subjects, serum cholesterol findings were within the normal range, as was the case for Undocumented male subjects. For Documented male subjects, the prevalence of high serum cholesterol was well above the comparable level in U.S. adult men.

Interestingly, for both male and female subjects, the prevalence of high serum cholesterol was greater among those who were Documented as compared with those who were Undocumented. The great difference in the prevalence of high serum cholesterol between Documented and Undocumented male subjects is particularly surprising.

Fourth, obesity data were obtained from direct clinic measurements of height and weight. No corrections were made for clothing worn by the subject during the weight measurement. Body Mass Index (BMI) values were calculated (weight in kilograms divided by the square of height in meters) from these measurements.

Healthful weight corresponds to BMI values between 18 kg/m^2 and 25 kg/m^2. Overweight corresponds to BMI values of 25.0 kg/m^2 or greater, and obesity corresponds to BMI values of 30.0 kg/m^2 or greater. While these benchmark values are actually somewhat arbitrary, at least to some extent expressing cultural norms, they are universally used on an international basis for determinations of obesity.[11]

[11] The cultural bias of the BMI Index is apparent if one considers that small changes of height have twice the effect of correspondingly small changes of body mass. For example, a 1% change of body mass yields a 1% change of the BMI, but a 1% change of height yields a 2% change of BMI since height enters the formula as the inverse square. Thus, persons of short stature, such as indigenous migrants from southern Mexico, will have a generally greater BMI than migrants from predominantly European areas.

Table 5 also presents the CAWHS obesity findings, for both Documented and Undocumented subjects. The contrast between Documented and Undocumented subjects is striking. Both male and female Documented subjects show an abnormally high prevalence of obesity in comparison with Mexican-American adults and in comparison with all U.S. adults. In contrast, Undocumented subjects show a much lower prevalence of obesity relative to Documented subjects and also in comparison with Mexican-American adults and U.S. adults.

These clinical findings are surprising: for all four indicators, and for both males and females, Undocumented subjects showed a lower prevalence of indicators of adverse chronic health conditions than did Documented subjects. This result suggests that the health status of Documented workers is less favorable than the health status of Undocumented workers.

This finding may be due to either a real underlying difference in health status between Documented and Undocumented farm workers or to other underlying differences between the two groups, such as age or duration of U.S. residence (see discussion of these two points below). It may also represent a selection effect, whereby relatively healthy farm workers complete the journey to the U.S. to become Undocumented farm workers, while less healthy workers remain in their home country. This would yield a population of Undocumented workers in the U.S. who are healthier on average than the Documented population, which presumably includes all individuals, regardless of health status.

Taken together, the measurements of the three risk factors for chronic diseases, such as diabetes and heart disease, allow an analysis that yields a remarkable result. The CAWHS finds that 24% of Documented male subjects have at least two of these three risk factors: high blood pressure, high serum cholesterol and obesity. However, just 9% of Undocumented male subjects have two or more of these same risk factors.

Among female subjects, findings were very similar: Documented female subjects were far more likely than Undocumented females to exhibit two or more of the risk factors for chronic disease. The CAWHS findings are: 12% among Documented females and 6% among Undocumented females.

These are extraordinary findings: among CAWHS subjects, Documented males were two and one-half times more likely than Undocumented males to exhibit at least two of the risk factors for the development of chronic disease; similarly, Documented females were nearly twice as likely as Undocumented females to have two of the three risk factors. Interestingly, the prevalence among Undocumented males and Undocumented females is somewhat similar, 9% vs. 6%, respectively. Among Documented males and Documented females, the prevalence differs substantially, 24% vs. 12%.

An important factor in interpreting these findings is that Documented and Undocumented subjects, both male and female, differed in their age distribution. It is well-established that the prevalence of obesity, high blood pressure and high serum cholesterol all increase

with advancing age. In general, among CAWHS subjects, those who were Documented were older: median age of females was 38, whereas for males it was 40. Among the Undocumented, the median age was 31 for females and 27 for males. One-fourth of both male and female Documented subjects were over the age of 45, but just 10% of male and 6% of female Undocumented subjects were in that age group.

In order to examine the possible influence of age differences between the Documented and the Undocumented CAWHS subjects, data for both were divided into identical age groups and the analysis was repeated, again for each sex and by immigration status. For obesity, there were a sufficient number of cases to allow for a meaningful comparison for both sexes, while for high serum cholesterol there were only an adequate number of cases for males to allow for this type of analysis. For both anemia and high blood pressure measurements, the number of cases was insufficient to allow analysis by sex, age group and immigration status.

The findings, by age, sex and immigration status for the prevalence of obesity are presented in Figures 3 and 4. In all three age groups, Undocumented men and women had a lower prevalence of obesity than did Documented men and women, respectively. It is therefore apparent that the difference in the age distributions of those who were Documented as compared with those who said they were Undocumented does not affect the conclusion that obesity was more prevalent among the former.

Similarly, for male subjects, in all three age groups, those who were Undocumented had a remarkably lower prevalence of high serum cholesterol as compared with those who said they were Documented. These results are presented in Figure 5. As was found for obesity, the difference in age distribution of male subjects between those who were Documented and those who were not has no effect on the conclusion: Undocumented men have a lesser prevalence of high cholesterol.

This finding that differences in age distribution do not account for the lower prevalence of obesity and high cholesterol among Undocumented male subjects suggests another line of inquiry. Differences in duration of U.S. residence might be associated with these different outcomes among Documented and Undocumented men. As mentioned previously, Undocumented men were quite a bit younger than Documented men. The median ages were 27 and 40, respectively. Since the largest legalization (amnesty) program in recent years was a part of the Immigration Reform and Control Act of 1986 (IRCA), and amnesty applicants under that program were required to show proof of employment for at least 90 days in perishable crop agriculture between May 1985 and May 1986, a great many of the Documented male subjects must have entered the U.S. before 1987. In contrast, most Undocumented male subjects said they had been in the U.S. fewer than ten years.

Therefore, an analysis was undertaken of both the median age and median number of years of U.S. residency among the Documented and Undocumented foreign-born CAWHS subjects. It was found that, for all three groups, the median duration of U.S.

residency was significantly greater for Documented males as compared with Undocumented males as illustrated in Table 6.

Findings were similar for female CAWHS subjects. Undocumented female subjects were resident in the U.S. for significantly fewer years than their Documented counterparts of the same age group.

Table 6. Median Years of U.S. Residence, by Age Group, Foreign-Born Male Subjects, by Immigration Status, CAWHS, 1999, N=370

Age Group	*Documented*	*Undocumented*	*Difference*
20-29	13.0	4.0	+9.0
30-39	16.0	11.5	+4.5
40-59	26.0	8.0	+18.0

Median Age Within Each Age Group, Foreign-Born Male Subjects

Age Group	*Documented*	*Undocumented*	*Difference*
20-29	26.8	25.4	+1.4
30-39	35.7	35.6	+0.1
40-59	45.7	48.2	-2.5

This finding that Documented subjects were found to have a larger number of years of U.S. residency than for Undocumented subjects suggests that differences in health status could possibly be attributed to the likelihood that Undocumented subjects retain more healthful diets than is the case for Documented subjects. Ikeda has studied the deterioration of diet among Mexican migrants and found deterioration of healthful diet over the first several years of U.S. residency (Ikeda, 1990).

The final clinical data reviewed in the present report are the dental examination findings. There is little difference between the Documented and Undocumented subjects. Both have a distressingly high prevalence of decayed teeth: 29% of Documented females and 33% of Undocumented females had at least one decayed tooth. Among males, 35% of both Documented and Undocumented subjects had at least one decayed tooth. Thirty-five percent of Documented female subjects had missing or broken teeth, as compared with 39% of Undocumented females. Male subjects fared somewhat better: 34% of Documented and 23% of Undocumented had missing or broken teeth.

Access to Health Care

It is apparent that, to a significant extent, Mexican immigrant hired farm workers are largely outside of the existing health care system. One of the seven CAWHS sites lacked any clinic or physician (Arbuckle). In another site (Gonzales), the only health care available was a private physician's office open 9 am – 5 pm on weekdays that limited its

acceptance of Medi-Cal patients and provides no emergency care. In only three sites community or migrant clinics were funded to serve this population.

Linguistic barriers are also a concern. The study found low literacy rates- just 51% of adults say they can read Spanish well or very well – this finding implies that pamphlets, written guidelines for use of medications, and lengthy application forms to be filled out in order to qualify for services will be major barriers for many workers. This finding is consistent with other reports in the literature (Bade, 1994). In Vista, where an elderly farm worker was found to have a very high cholesterol level, the medical assistant handed him a paper written in 10-point type that listed the fat content in grams contained in serving portions of various types of food. This gentleman took the paper, thanked the medical assistant and later told the site coordinator that even if he could read the paper, he shared the kitchen of his residence with six other men. They took turns cooking, with each resident preparing dinner for all one evening per week, which effectively precluded following these dietary guidelines.

As previously reported, over two-thirds of CAWHS subjects said they had no medical insurance. About 11% had employer-provided medical insurance, but only 7% said they had insurance provided by government programs intended to serve low-income persons. Only 4% had privately purchased medical insurance. Given the low family incomes reported above, the great proportion of uninsured is not surprising.

In the following analysis, only U.S.-resident members of households are considered. For simplicity in the presentation, they will be referred to as "household members," and their U.S. residency will be assumed. No distinction was made for persons who had resided in the U.S. for less than one year.

When asked about members of their households, CAWHS subjects reported that a much greater fraction had some form of insurance as compared with the subjects themselves. This is shown in Figure 6, where the findings regarding medical insurance coverage for their household members are presented. About half of household members had some form of medical insurance. The largest number (about 13% of the total) had utilized Medi-Cal. A total of 20% were covered by one or another of various government programs intended to serve low-income persons.

Household members fared quite a bit better than did the CAWHS subjects themselves. Again, as shown in Figure 6, a very much larger share of CAWHS subjects lacked any form of medical insurance as compared with household members (73% vs. 52%). Spouses were most likely to be insured (60%), whereas slightly less than half (47%) of daughters and sons had medical insurance. This is a surprising finding since more than 90% of the spouses are foreign-born, and two-thirds of children are U.S.-born. The largest share of insured spouses had coverage by employer-provided medical plans, whereas for daughters and sons Medi-Cal was the most prevalent. It is important to note that Medi-Cal covers pregnancy-related care for adults, including Undocumented women in California through the Emergency Medi-Cal program. Curiously, just 40% of U.S.-

born household members had some form of medical insurance, whereas 62% of foreign-born household members had coverage.

Younger household members of CAWHS participants were the least likely to have some form of medical insurance. For the portion of this population who are under 6 years of age, less than half, about 42% were insured. Among household members in the age range 18-44 years, 61% were insured. These findings are opposite to what had been expected. Two-thirds of daughters and sons are U.S.-born. Clearly, U.S.-born children are citizens and do not face the same obstacles confronting immigrants seeking participation in needs-based assistance programs. One possible factor is that household members in the age range 18-44 years were likely to be employed, and may have employer provided health insurance. Those age 6 years and younger are less likely to have health insurance even if their parents are employed because most health plans only cover the employee. If coverage for dependents is offered, it is usually too costly for the family to afford.

When asked if their household members ever go to Mexico for health care, 9% of CAWHS subjects reported that their U.S.-resident household members had sought care in Mexico. The reason most often given for this decision to seek care in Mexico was, "Health care is cheaper in Mexico." Next most often mentioned was, "People in Mexico understand my needs better."

Perhaps most significant is that CAWHS subjects themselves said that 20% of their own doctor or clinic visits in the previous two years were in Mexico. Four of the most commonly encountered medical plans offering employer-provided medical insurance to hired farm workers will pay 100% of medical expenses if the worker utilizes a provider in Mexico (Azevedo, 2000). Both the Robert F. Kennedy Medical Plan (United Farm Workers of America, AFL-CIO) and the Western Growers Assurance Trust (Western Growers Association) maintain offices in Mexican border cities for this purpose.

Proximity to Mexico was also an important factor. Nearly half of CAWHS subjects residing in the two sites closest to the border (Mecca and Vista) who had been to a doctor or clinic within the two prior years obtained their care in Mexico.

Some 3% of CAWHS subjects said that they had been refused care while seeking health care services in the U.S. They also said that 1.5% of their household members had been refused care. The most frequent reasons cited for refusal of care were "Lack of insurance" and "Unable to pay."

When asked if one or more of their household members had ever been sick or hurt and had not sought needed health care services, 5% of CAWHS subjects said that they had done so. The most frequent reason cited was lack of insurance or inability to pay. But about one-third said that lack of convenient hours was the reason for not seeking care.

CAWHS subjects were asked to describe their most recent visit to a doctor or clinic. Figures 7 and 8 show the variation with self-reported immigration status of the date of the most recent medical visit for male and female subjects. Most striking is the enormous

difference in the percentage of males who said they had never been to a doctor among Undocumented male subjects as compared with those who are Citizens or are Documented immigrants. While 44% of Undocumented male subjects had never had a medical visit, just 21% of Citizen and 27% of Legal Permanent Resident or Temporary Resident immigrant male subjects had not been to a doctor or clinic. It is likely that some respondents understood this question to refer exclusively to health care visits in the U.S., and failed to report health care visits to Mexico.

In striking contrast, immigration status appears to play a relatively minor role in medical visits by female CAWHS subjects. Among Citizen, Documented and Undocumented, the share of female subjects who reported a medical visit in the prior two years was 74%, 78%, and 66%, respectively. Maternal health care was found to account for the major share of the difference in utilization patterns between men and women. Only among female subjects who said they had never had a medical visit were differences are associated with the immigration status of the subject. For Citizen, Documented and Undocumented, the share of female subjects who had never had a medical visit was 15%, 8% and 23%, respectively.

As illustrated in Figure 9, CAWHS subjects said that 46% of their household members had a doctor or clinic visit within the previous year, 57% had been to a doctor or clinic within the prior two years, and 20% had never been to a doctor. Household members were more likely than CAWHS subjects to have had a doctor or clinic visit. One note of caution is necessary in interpreting these findings: CAWHS subjects were unable to provide information about recent medical visits of for more than one-fourth of members of their own households.

There was a great variation in the date of the most recent visit among household members of differing ages. For example, just 6% of children under two years of age had not had a medical visit. Among children in the age range 2 through 5, only 8% had never been to a doctor or clinic. For children in the age group 5 through 17, about 15% had never had a visit. For those in the age range 18 through 24, the figure was 32%.

Foreign-born household members were nearly twice as likely to have never had a medical visit. CAWHS subjects said that 26% of their foreign-born household members had never been seen by a doctor or clinic staff member, while just 14% of their U.S.-born household members had never had a medical visit.

Dental visits were far less common. Approximately 42% of household members of CAWHS subjects had never been to a dentist. In this instance, foreign-born household members differed little from their U.S.-born counterparts: 42% vs. 43%, respectively.

Household members of CAWHS subjects were unlikely to have ever had an eye care visit: CAWHS subjects said 66% had never had such a visit. Male household members were slightly less likely than female household members to have had such a visit: 67% vs. 70%, respectively.

Visits to chiropractors and traditional healers were also rare. CAWHS subjects reported that only 4% of their U.S.-resident household members had ever visited a chiropractor, and just 3% had ever been to a traditional healer. Visits to traditional healers were twice as common among Mexican-born household members compared with U.S.-born household members.

Use of home remedies was far more frequently reported than use of traditional healers. About 30% of household members reportedly use home remedies at least a few times a year.

One of the most revealing parts of the survey is the description given by CAWHS subjects regarding payment for the cost of the most recent visit of a household member to a doctor or clinic. Figure 10 shows these findings. The most common method of payment, used by 36% of subjects, was out-of-pocket using personal funds. Another 32% of subjects said that Medi-Cal insurance paid for the visit.[12] Despite the fact that 10% of household members had coverage through the employer of the CAWHS subject, just 5.6% said that this coverage paid for the last visit. Personal or privately purchased medical insurance was no more effective in covering costs.

For CAWHS subjects themselves, 56% of those who reported a medical visit said out-of-pocket payment was used to cover the cost and 16% said the cost was paid by the Medi-Cal program. However, employer-provided insurance paid for 10% of the most recent visits by CAWHS subjects.

Utilization of Needs-based Social Service Programs

Despite their low income and lack of U.S. assets, participation in needs-based social service programs is relatively low. Figure 11 shows the responses of CAWHS subjects to the following question:

"In the last two years, has anyone in your household used the services of any of the following social programs?"

A list of thirteen programs followed, including food stamps, WIC, Medi-Cal, TANF, welfare, disability insurance and others. Subjects were asked to indicate positive responses for any program that had served any member of their household during the previous two years.

When compared with CAWHS subjects' responses about whether they had medical insurance, in which just 5% said they were enrolled in Medi-Cal, 23% of subjects said that someone in their household had participated in Medi-Cal, and 20% had participated in WIC. Women and children in households of hired farm workers clearly benefit from the WIC program. But there is no parallel program for men to encourage them to

[12] Since just 23% of U.S.-resident household members were participants in Medi-Cal, it is likely that Emergency Medi-Cal was responsible for a large share of those who said Medi-Cal paid for their most recent medical visit.

improve their nutrition or use of health care services. However, WIC coupons, which provide nursing and pre-natal women with food coupons for such staples as milk, eggs, cheese, beans, juice and cereal, are important supplements for the inadequate income of many hired farm workers.

The impact of Medi-Cal and WIC on the date of the most recent health care visit is shown in Figures 12-15. Household participation in either WIC or Medi-Cal greatly enhances the chances that a CAWHS subject has had a medical visit within the prior two years, particularly for female subjects.

VII. DISCUSSION AND CONCLUSIONS

The barriers to accessing health care in the CAWHS sample are formidable. They include low socio-economic status, lack of health insurance, lack of participation in social service programs, and immigration status. Qualitative data gathered in the CAWHS suggests that language and cultural barriers are also important.

The findings strongly suggest that most CAWHS subjects and their family members practice "symptomatic medical care," i.e., seeking medical help only when it is definitely required (Bade, 1994; Bade, 2000). The cost of medical insurance is too great for most hired farm workers to afford, so they simply do the best they can, which often requires paying out-of-pocket for medical care. Other factors, such as bureaucratic obstacles and limits on coverage for those who do have insurance, may also discourage workers from seeking to utilize existing programs.

One extremely striking finding is the very different levels of participation of females in the health care system as compared with males. Males are much less likely than females to have had a health care visit, to participate in programs intended to serve low-income persons, and are more likely have adverse health outcomes. Clearly, programs such as Medi-Cal and WIC have had an important measure of success in reaching female members of hired farm worker households. Maternal health care needs of women also play a major role in their greater access to and utilization of the health care system. However, even Medi-Cal coverage for maternal health is limited, ending within a few months after delivery.

The interpretation of the blood chemistry findings must proceed on an individual, case-by-case basis. Nevertheless, it can be said that poor nutrition is likely to be an important factor in the findings of a high prevalence of obesity, high blood pressure and high serum cholesterol. The fact that Documented migrant males have much greater level of risk factors for chronic disease than Undocumented males suggests that dietary changes upon migration to the U.S. could be an important contributing factor. Many migrants alter their traditional diet of meat, fruit, beans and corn tortillas by substituting more readily available and less expensive convenience foods in the U.S., such as donuts, chips, sodas and hot dogs.

If successful, proposals for regularization of the immigration status of Undocumented migrant workers, such as have been advanced by the new President of Mexico, Vicente Fox, and by the AFL-CIO, would remove one of the many barriers to health care faced by this population. The CAWHS finds that Undocumented male workers were far less likely than Documented male workers to utilize health care services. This suggests that regularization of the immigration status of Undocumented workers would likely improve their access to health care.

The dental problems found in the physical examinations were staggering. More than half of all CAWHS participants had an abnormal dental examination, i.e., needed care for conditions as varied as untreated dental caries, broken or missing teeth, and gingivitis.

Few federally-funded migrant or community clinics routinely offer a full range of dental services. Even union and employer-sponsored health insurance programs are reluctant to offer full coverage to this population because the burden of treating decades of accumulated neglect would be unaffordable within a small group plan. Poor dentition is the most widespread adverse health outcome found in the CAWHS sample.

The lack of adequate housing for many CAWHS subjects presents a host of potential health problems. Overcrowding and the lack of proper sanitation facilities are conducive to the spread of infectious disease. Lack of heat during the winter months in some parts of California can also be problematic. Workers sometimes use an inadequately ventilated gas range in an attempt to heat a room. When ten to fifteen people share a two-bedroom apartment, maintaining a high level of sanitary conditions in kitchens and bathrooms may become virtually impossible.

If there is one consistent predictor of poor health status, it is low socio-economic status. The extremely low total household income reported by CAWHS subjects has serious effects on their own health as well as on the health of members of their households. It is unusual for members of many CAWHS families to seek preventive care, whether it is regular dental checkups or even a once-in-a-lifetime eye care visit. When adverse health conditions are presented in members of these families, care is sometimes deferred as long as possible, occasionally until the condition is life-threatening.

In the course of this study, very serious, potentially life-threatening conditions were found in several CAWHS subjects or family members who had not obtained needed care through the existing health care system. Conditions found included a case of previously undiagnosed cervical cancer, a burst appendix in a child, a case of an extremely high level of blood sugar, two cases of previously undiagnosed syphilis and numerous cases of various types of adverse chronic health conditions.

Each community where the CAWHS was conducted had many capable residents who could, within the right type of program, provide much-needed information to hired farm workers in a manner that would be accessible, and assist workers in learning how to utilize the existing health care system. Some years ago, the author asked a prominent health care expert who has extensive knowledge of the situation faced by hired farm workers in California, what new program would be of the greatest assistance. Without much hesitation, he said, “Put a hundred public health nurses out in the field, with fully equipped medical vans, and have each supported by ten or so health *promotores de salud* (health promoters, or lay health advisors).” Perhaps it is time to try this suggestion.

VIII. POLICY RECOMMENDATIONS

1. *Most hired farm workers are too poor to pay for an adequate level of health care, including dental and vision care; additional resources from employers, philanthropy and the public are essential if access to health care is to be improved for this population.*

Clearly, additional resources are needed to improve the health of hired farm workers in California. As long as so many workers and their families are so poor and lack health insurance, their health care needs will go unattended. Farm employers lack the resources to pay the full cost of year-round health care insurance for their employees. Since most hired farm workers are employed for only a portion of the year (averaging perhaps 26 weeks of employment per year in California), it is unreasonable to expect that farm employers can or will pay the year-round cost of health insurance for seasonal employees. On the other hand, too few farm employers are contributing to providing health insurance for their workers. Just 11% of the CAWHS sample had health insurance through their employer. In striking contrast, on a national basis, half of all contract company workers, 30% of on-call workers, and 11% of all temporary help agency workers have employer-provided health insurance (Bureau of Labor Statistics, 2001). The California agricultural industry ranks at the very bottom of all industries by this measure.

Hired farm workers with fully paid health insurance covered by a union contract with an employer no longer have health insurance once their seasonal job ends.[13] Even if such workers are eligible for Medi-Cal coverage, the application process and waiting period will often leave them without medical insurance for an extended period of time. Some hired farm workers look forward to returning to a union job so that they can have a medical problem attended to with the cost covered by the union medical plan. [14]

2. *We recommend exploring the concept of creating a multi-payer health insurance system that would be funded by contributions from hired farm workers themselves, as well as by contributions from farm employers and the public.*

There is some evidence that hired farm workers would be willing to contribute financially to such a system. Azevedo found that hired farm workers in Mecca, site of her dissertation research and one of the CAWHS sites, said they would be willing to contribute $35 per month toward the cost of health insurance (Azevedo, 2000). Though small, this amount is not insignificant (total of $400 per year), and might amount to as much as 20% of the cost of annual premiums.

[13] Douglas Blaylock, Administrator, Robert F. Kennedy Health Plan, United Farm Workers of America, AFL-CIO, February 8, 2001, statement at Insurance and Coverage Work Group of CEO Task Force of the California Endowment.
[14] Ibid.

3. *Bi-national cooperation, such as encouraging use of Mexican health care services, where appropriate, should be more fully developed.*

Bi-national resources should be brought to bear to address issues of access to health care. Several farm labor union and farm employer health insurance plans presently offer to pay 100% of the cost of treatments obtained in Mexico whereas the identical treatment in the U.S. would require a co-payment. Both groups maintain offices in Mexican border cities for the specific purpose of encouraging this option. However, more can be done, such as developing collaborations between Mexican public health agencies and U.S. providers, and allowing Mexican dentists and physicians to provide services to hired farm workers here in the U.S.

4. *Any "guest worker program" between Mexico and the United States, if enacted, must insure that all applicants be screened for possible infectious disease by the U.S. Public Health Service prior to admission to the U.S.*

Both the U.S. and Mexican Presidents are considering developing a new "guest worker program" that would allow Mexican nationals temporary residence in the U.S. for the purpose of employment. Such a program could bring hundreds of thousands of persons across the border with temporary resident immigration status on an annual basis.

One of every forty hired farm workers who participated in an interview in the CAWHS said that a doctor had told them, at some point in their lives, that they had tuberculosis. This could mean that as many as 2,500 of every 100,000 guestworker applicants had a history of tuberculosis.

Requiring that persons seeking admission to the U.S. undergo screening for infectious disease has been a part of immigration policy for decades. For example, during the late 1980s and early 1990s applicants for Special Agricultural Worker (SAW) visas authorized by the Immigration Reform and Control Act of 1986 (IRCA) were required to include a current chest x-ray with their application.

We suggest that screening for parasitic infections and STDs be included along with screening for tuberculosis. The U.S. Public Health Service is widely regarded as the agency most qualified to assume this responsibility.

5. *Application forms for government-provided health insurance or other services should be simplified and reduced to a bare minimum.*

There is a difficult problem that also faces even the best-intended agencies. Many hired farm workers have limited formal education, and large numbers do not read Spanish well, their native language. Thus, the use of lengthy application forms and the reliance on documents, which is the basis of most government programs in the U.S. that assist low-income persons, presents a formidable barrier to many hired farm workers.

6. *Medical education programs and philanthropy should address the linguistic barrier between non-English speaking patients and health care providers who do not speak the patient's language.*

Many providers speak little or no Spanish. Nonetheless, just 3% of CAWHS participants chose to speak English during the interview portion of the survey and nearly all of the remaining 97% preferred Spanish. The existing language gap is partly addressed in medical offices through the use of bi-lingual medical assistants, or by the patients themselves, who may bring a bi-lingual family member to assist as an interpreter at the medical visit. Although these measures are helpful, a far more efficient use of provider time, their most valuable resource, could be obtained if Spanish language proficiency were required of those who serve this population. Of course, the medical education system can be urged to produce an adequate number of bi-lingual health care providers. However, until that day arrives, other measures will be needed. Philanthropy should be asked to assist in this regard, perhaps offering otherwise qualified rural health providers with one-month, all-expenses-paid, intensive language instruction in a desirable location, such as Cuernevaca, Mexico. The payoff would be immediate.

7. *A substantial program of "promotores de salud" should be implemented as widely as possible in under-served regions of California. Both philanthropy and federal programs can play critical roles in developing such programs.*

A program of *promotores de salud*, as suggested in the previous section, is the type of program that can address some of these cultural barriers and can serve many functions. First, they can serve as well-informed intermediaries between the population of hired farm workers and the health care system. By being based in the communities they serve, *promotores de* salud can obtain direct access to workers, most probably in ways that many agencies could not. Conversely, they can teach workers how to access services they need.

Second, *promotores de salud* can organize and teach hired farm workers to advocate on their own behalf, in the offices and clinics operated by public and private agencies, and at their places of work. Most often, training programs, such as the EPA-mandated pesticide safety training for farm workers under the Worker Protection Standard, will focus only on technical aspects of workplace safety and totally ignore the provisions of WPS that were intended to promote worker advocacy, such as right-to-know.

Third, *promotores de salud* can serve as a vital information link to community-based groups that seek to build democratic organizations of hired farm workers. In the course of the CAWHS project, more than a few subjects spoke frankly about the shortcomings of the way they felt that they are treated by the U.S. health care system. Abbreviated patient-provider consultations, long waiting periods, cumbersome appointment procedures, combined with language barriers and socio-economic factors, contribute to a feelings of being marginalized, as expressed by many hired farm workers. The American social service system is sometimes seen as patronizing by hired farm workers in need of services. Even migrant and community clinics were severely criticized by some workers.

By linking workers to organizations that are of and by workers themselves, *promotores de salud* can assist individuals who might wish to seek redress for perceived mistreatment.

Fourth, *promotores de salud* can provide much-needed information related to health and health promotion. The major health problems noted in this population – dental disease, overweight, elevated cholesterol, and diabetes – all can be prevented or significantly improved with lifestyle changes. Education, although not always sufficient, is a necessary first step in bringing about changes in lifestyle conducive to good health.

The type of program we have in mind would be based in farm worker communities and neighborhoods. *Promotores de salud* would mainly work in their own neighborhoods, going door-to-door and regularly meeting with workers and family members. Written records for each household member will include dates of medical visits, whether adverse health outcomes were diagnosed and, if so, whether medications or changes in behaviors have been implemented. Often, this kind of work will require evening or weekend visits. In-person delivery of facts and ideas by individuals known and trusted by hired farm workers can overcome many of the barriers to accessing care discussed above. We do not contemplate a program in which outreach workers are based in clinics or medical offices and simply wait for workers to come to the facility, or programs that involve only hand distribution of written materials.

8. *The existing system of migrant and community clinics, funded by Federal grants, needs to be expanded and strengthened. In addition to significant additional resources, an independent review system is needed to provide constructive oversight for existing clinics that serve hired farm workers.*

The existing resource base available to migrant and community clinics is inadequate. The fact that this project found only three communities among the seven CAWHS sites were served by Federally-funded migrant and community clinics was surprising. A community such as Arbuckle, having a large population of hired farm workers, but which lacks any medical services may be representative of a larger problem faced by workers in quite a number of rural and agricultural communities of the state. At one time, Arbuckle was a town with a significant population of farmers and their families. Today, it is a largely a hired farm worker town. A similar comment applies to the development of Firebaugh. As more rural and agricultural communities have been transformed in this way over the years, resource allocation by agencies charged with providing medical services for hired farm workers has failed to keep up.

A separate system of oversight is also needed to review and assist agencies serving low-income hired farm workers, and this is as needed for agencies serving all types of low-income workers as it is for those that serve hired farm workers. To be successful, current hired farm workers would have to play a vital role in carrying out this function. To avoid potential conflicts of interest, such an oversight agency would have to be funded by private philanthropy.

9. *The erosion of health care services in rural and non-urbanized regions of California must be reversed. Existing federal definitions of "rural" need to be revised to more accurately represent communities with high proportions of hired farm workers.*

The health care problems of hired farm workers are often intertwined with the lack of adequate medical services in rural or non-urbanized areas of California. California is a very large state, and its rural health care system has been in decline for some time. At the same time, the portion of the state's population residing in rural or non-urbanized portions of the state has been rising sharply. Thus, the quantity of health services available has seriously diminished in the face of increasing demand.

A community like Arbuckle, another of the CAWHS sites, once had an old-fashioned country doctor on whom the residents could rely. Today, that community has no doctor, no clinic and no prospects for either, but the town's population has increased sharply, mostly as a result of an enormous increase in the hired farm worker population. In the fields surrounding Arbuckle, vast new plantings of wine grapes, orchards and vegetable crops require much large numbers of hired farm workers than was the case a generation past, and the increase in the number of jobs has attracted more workers.

Substantial resources are needed to create medical services in underserved areas of California, and for similarly under-served rural or non-urbanized parts of the U.S. Recent proposals from the Bush administration regarding funding to create as many as 1,000 new community clinics may provide an opportunity to address the unmet needs in communities with a high proportion of hired farm workers. The proposed new clinics would provide an economical method for providing services in underserved rural and non-urbanized areas of California.

10. *New transportation facilities are needed between rural regions of California lacking health care providers and distant health care services.*

The problem of lack of transportation is significant, especially for Undocumented workers and their families. Some rural areas of the state lack emergency care services as well as birthing facilities. It is not unusual for rural workers and family members to have to travel 45 minutes or more to obtain access to such services. In California's Central Valley, persistent winter ground fog can double the length of such a journey. A program of *promotores de salud* with public health nurses and mobile screening units could begin to address the lack of transportation. The extent of this problem became more apparent during a recent visit to the Good News Center on the outskirts of Visalia, where the Daughters of Charity operate a free clinic that mostly serves Undocumented hired farm workers and their families. Sister Kenneth was asked what was their greatest unmet need. Without hesitation, she said, "Vans." California's prohibition against issuing driver's licenses to Undocumented workers has meant that families in many rural areas have no means of transportation. This is yet another barrier that more than a few Undocumented workers face in seeking health care services. Even if the husband unlawfully drives a vehicle to work (without a driver's license or automobile insurance),

he would most often be reluctant to drive to the urban location of the Good News Center out of fear of risking discovery and possible arrest. Sister Kenneth felt that the Good News Center needed the ability to go out into rural areas surrounding Visalia and provide services or transportation to the clinic when it is needed.

11. *Comprehensive monitoring of infectious disease among hired farm workers should be undertaken immediately.*

The CAWHS sought to include screening for serious infectious diseases, such as tuberculosis and HIV, as a part of the comprehensive physical examination. However, as discussed elsewhere, this effort was thwarted at the outset of the study in Mecca by the failures of the county-based public health care system (Villarejo et al, 2000).

There are two findings from the CAWHS that strongly suggest that comprehensive monitoring of serious infectious disease in this population is warranted. First, roughly one out of 40 CAWHS subjects reported that a doctor had told them they had tuberculosis. Second, the fact that anemia is present in the population at about four times the rate among all U.S. adults could reflect high levels of parasitic infection. Together with concerns about HIV in this population, screening for these conditions is clearly needed.

12. *A new initiative: cooperation between the public sector and philanthropy.*

If private philanthropy were to fund the start-up costs of placing a large number of mobile units, with public health nurses and with *promotores de salud* attached to each, in underserved rural or non-urbanized areas of California, then public agencies could be asked to pick up the operating costs after, say, two years. In that way, the risk capital would be provided by the philanthropic sector and the public sector would commit to fund those programs with proven track records of success.

In the authors' experience, the most successful of such programs would be supported through independent, community-based organizations comprised mostly of hired farm workers or members of their families, who would then contract with appropriate clinics for the needed medical services. This arrangement would protect the credibility of the program in the eyes of the community by having the provider of medical services in an "arms length" relationship.

The CAWHS findings are deeply troubling. While most hired farm workers are healthy, far too many are not. Often lacking funds, or health insurance, or access to services that would enable them and their family members to obtain minimal health care services, many CAWHS subjects try home remedies, or simply ignore the pain. Few Americans would tolerate heavy manual labor, low wages, seasonal employment and inadequate health care for their families. Perhaps that is why so few CAWHS subjects were born in the U.S. Hired farm work has become a type of employment increasingly engaged in only by very poor immigrants.

In the course of this project, CAWHS participants repeatedly expressed the hope that their personal contribution, both very private information about themselves as well as examination of their bodies, would lead to changes in the way that America treats hired farm workers. The fact that 83% of those who were randomly selected and asked to participate agreed to do so is a testimony of hope, a belief on the part of hired farm workers that America can and will do better.

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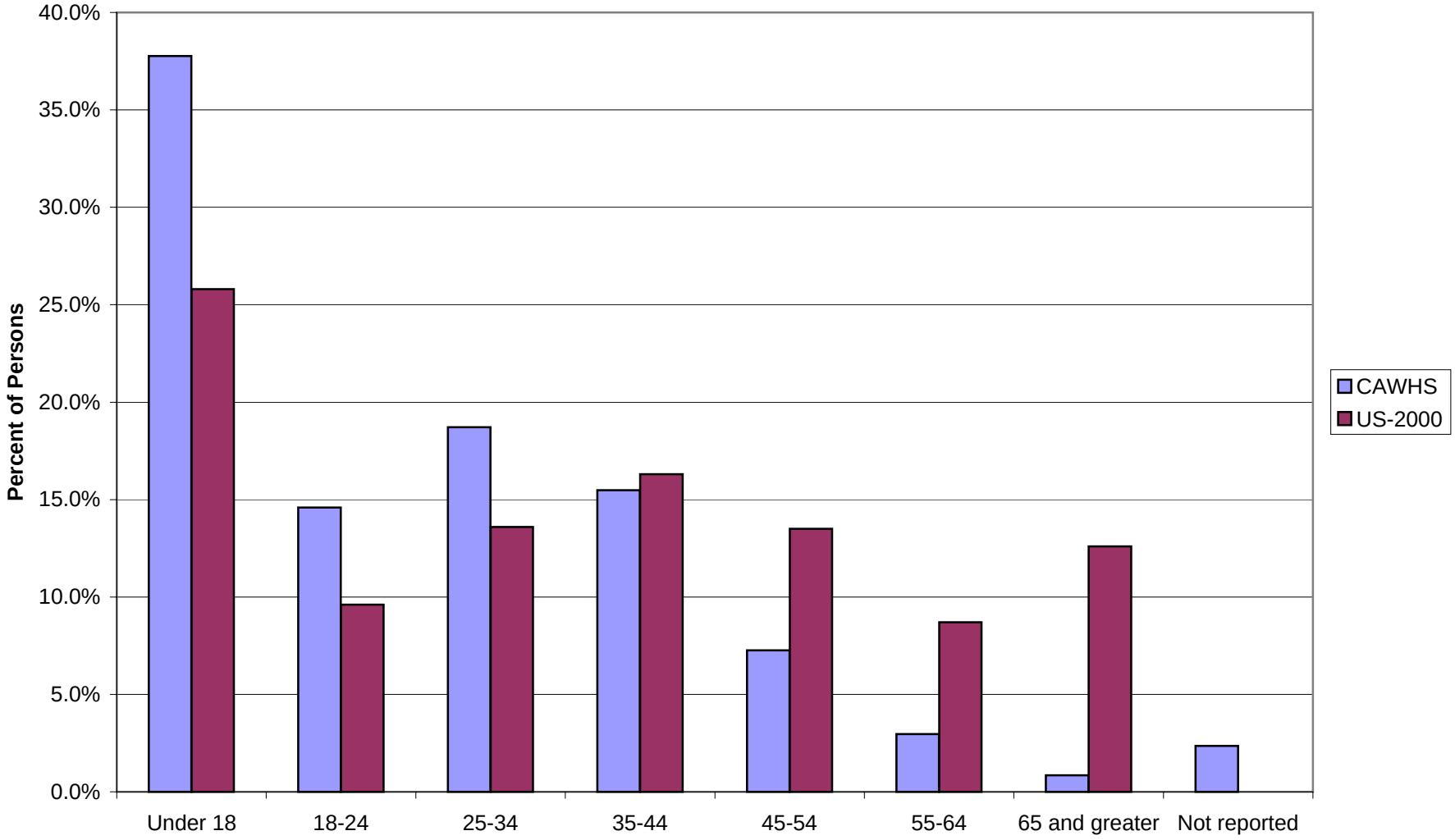
Contact information: *Don Villarejo is no longer affiliated with the California Institute for Rural Studies, Inc. He may be reached at donfarm@pacbell.net or P.O. Box 381, Davis, CA 95617; (530)756-6545, voice and facsimile.*

Figure 1. Age Distribution, CAWHS Subjects and U.S.-Resident Household Members, CAWHS, 1999, N=2,861



Source: U.S. Department of Health and Human Services, *Health, United States, 2000*, Centers for Disease Control and Prevention, National Center for Health Statistics, Hyattsville, MD, 2000.

Figure 2. Total Family Income, CAWHS Households, 1999, N=959

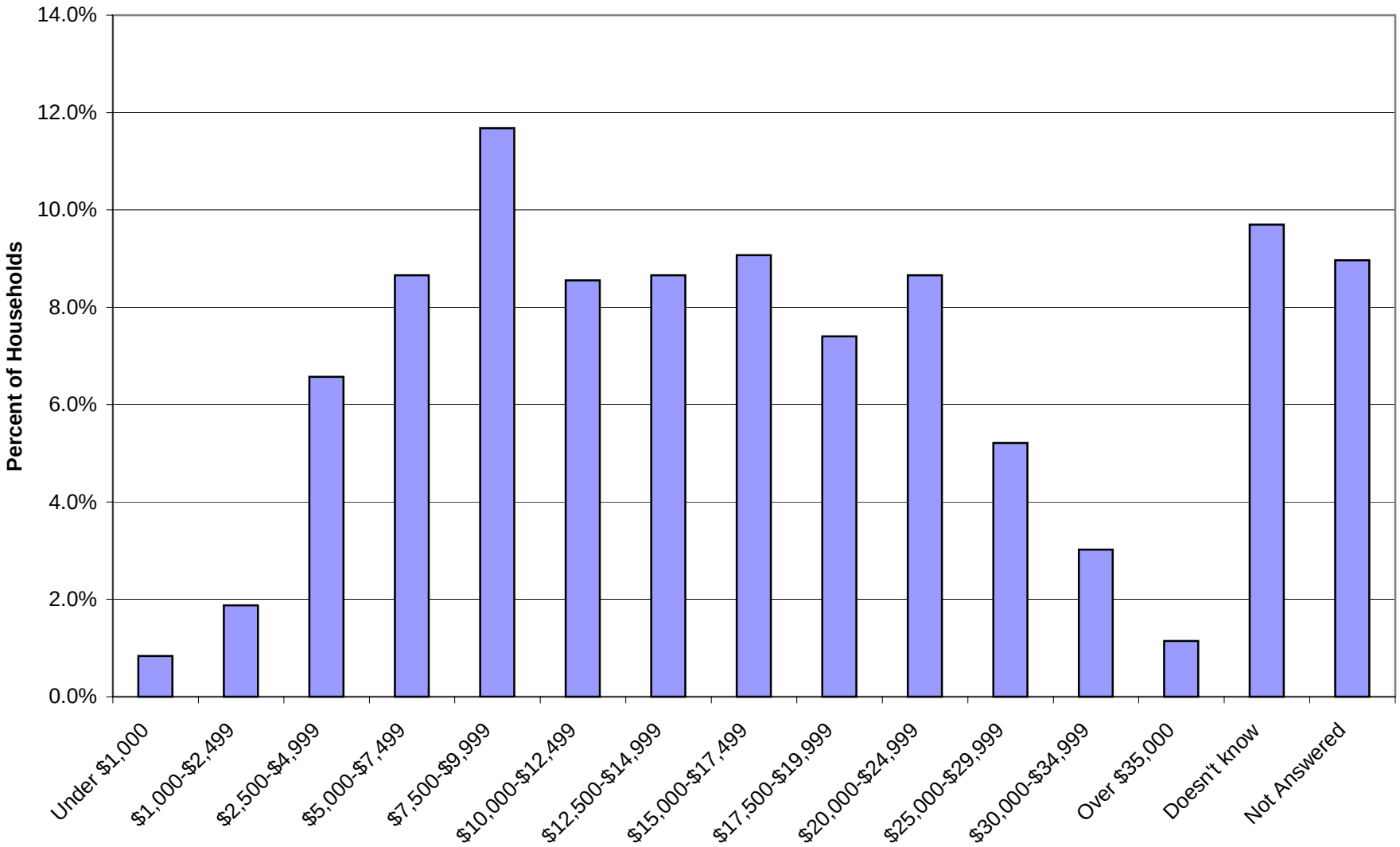


Figure 3. Obesity (BMI = 30.0 or greater), Foreign-Born Male Subjects, by Immigration Status, CAWHS, 1999, N=324

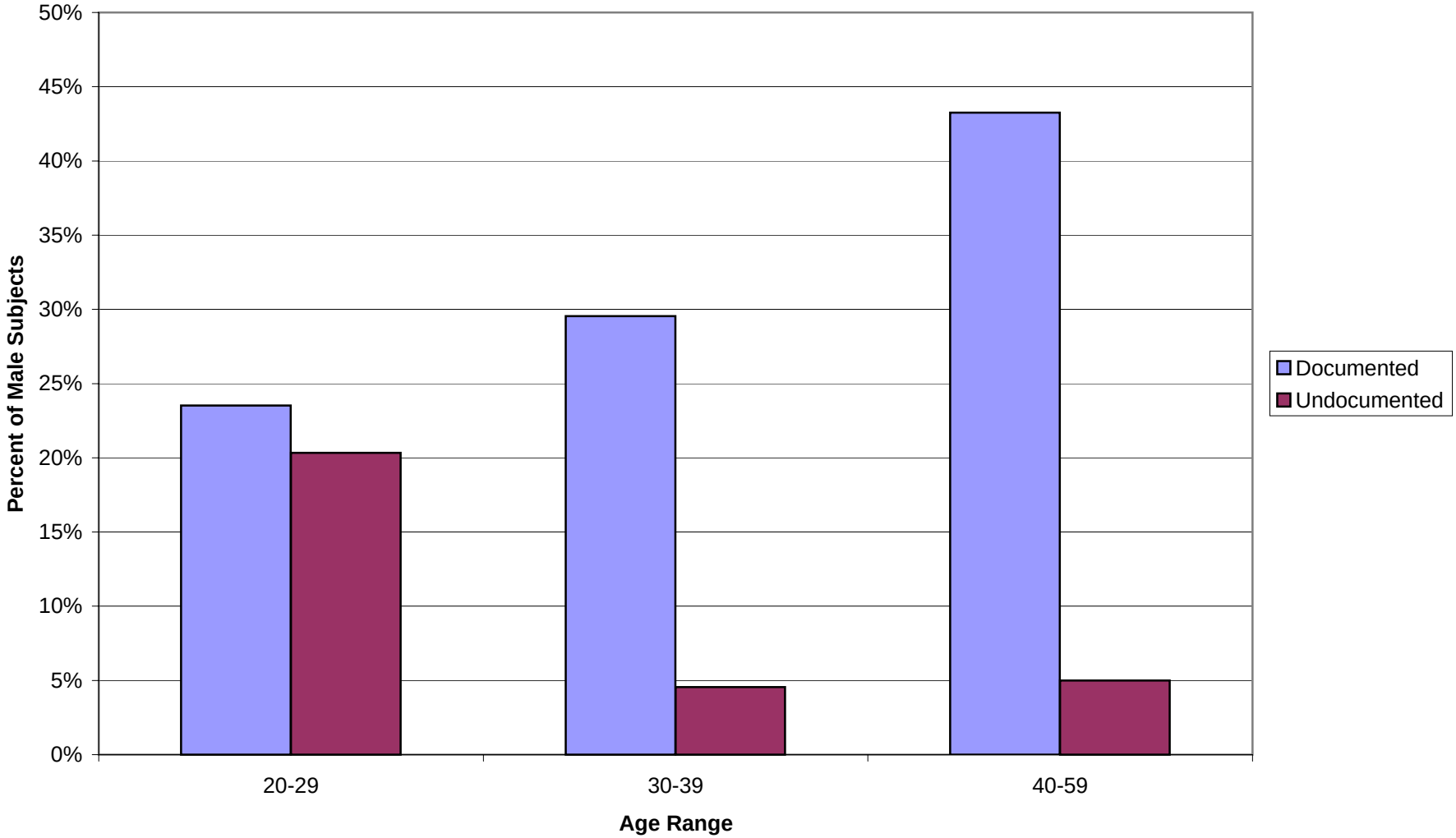


Figure 4. Obesity (BMI = 30.0 or greater), Foreign-Born Female Subjects, by Immigration Status, CAWHS, 1999, N=188

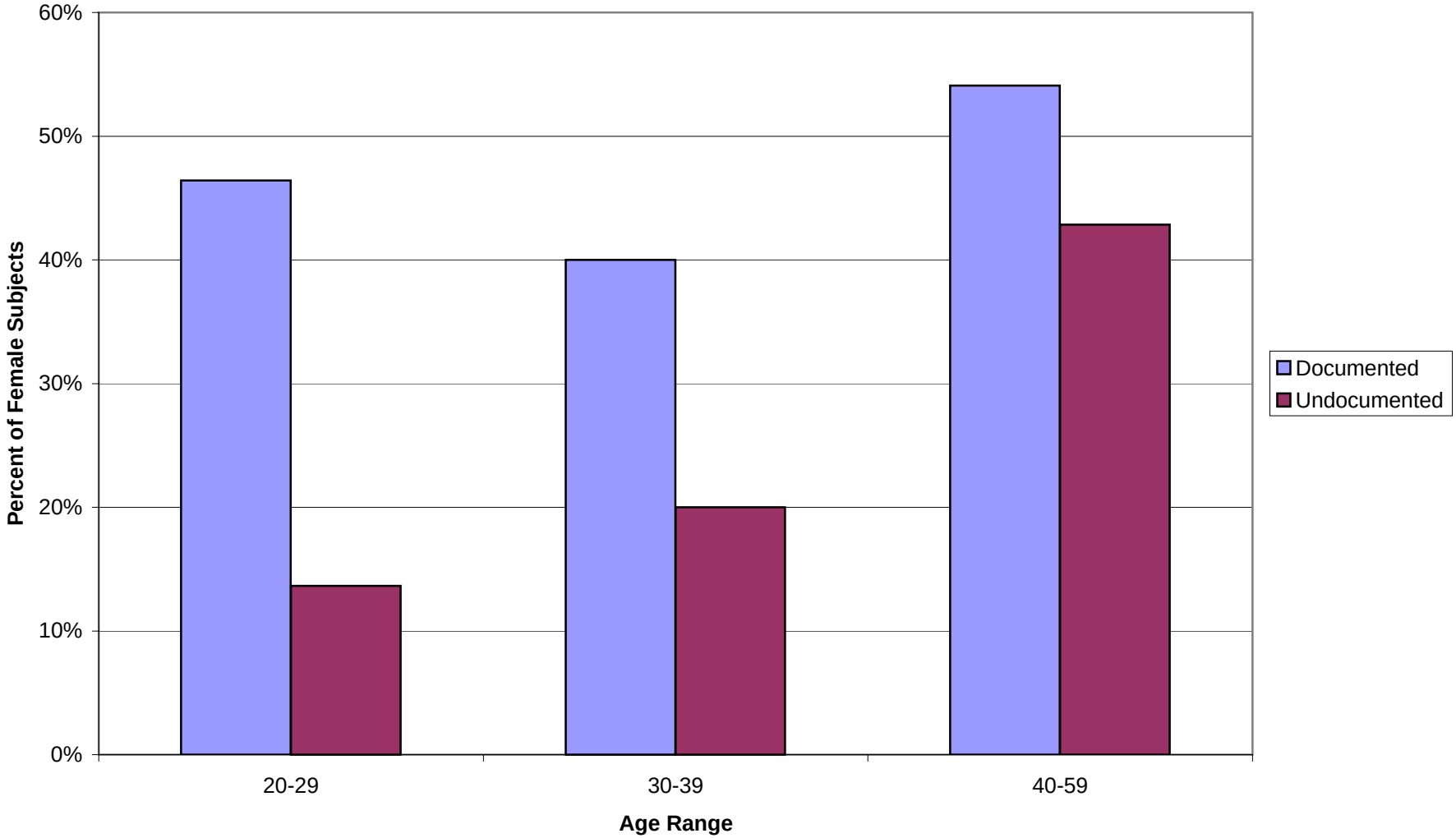


Figure 5. High Serum Cholesterol (240 mg/dl or greater), Foreign-Born Male Subjects, by Immigration Status, CAWHS, 1999, N=318

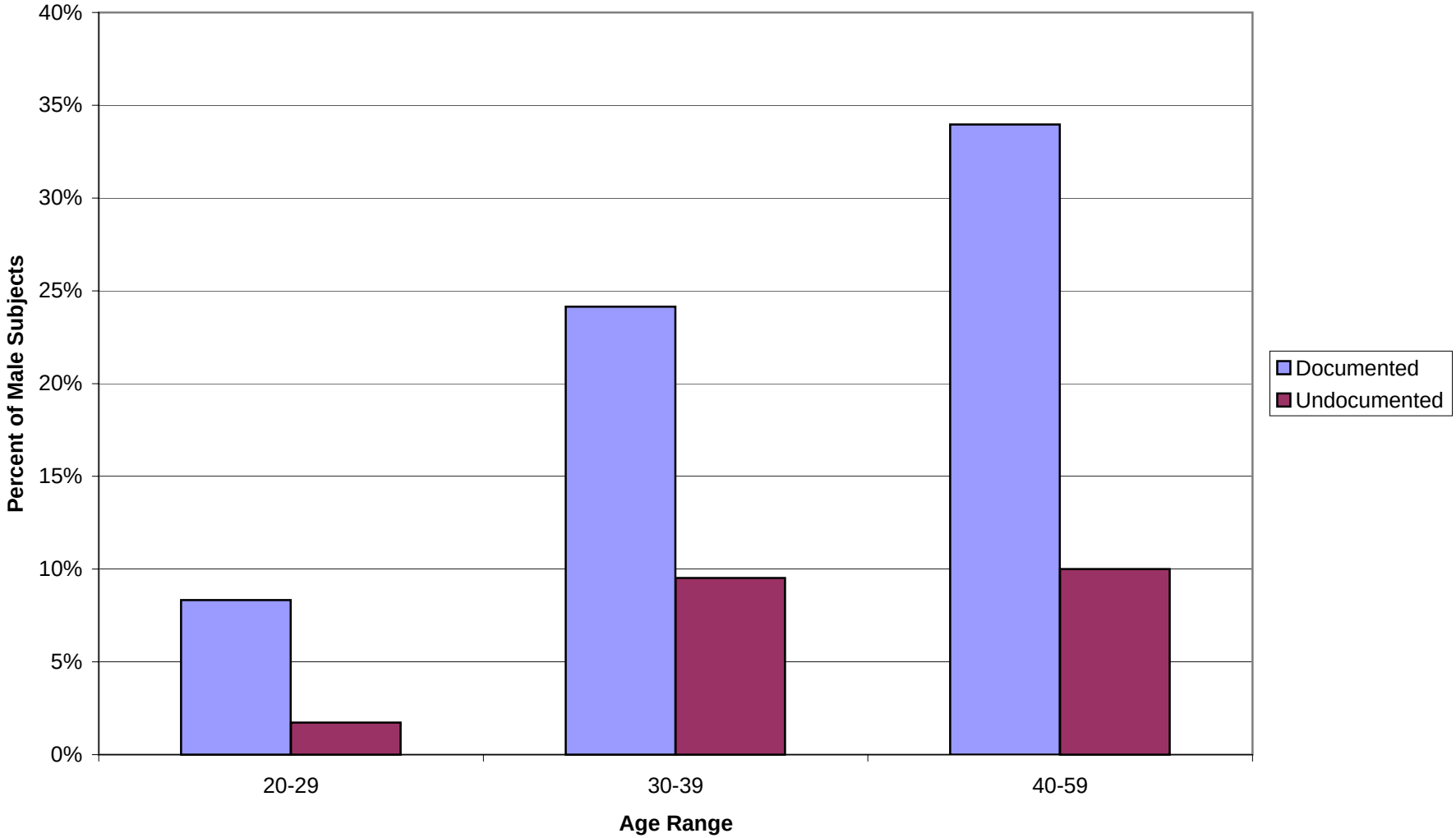


Figure 6. Medical Insurance Status, CAWHS Subjects and U.S.-Resident Household Members, CAWHS, 1999, N=2,927

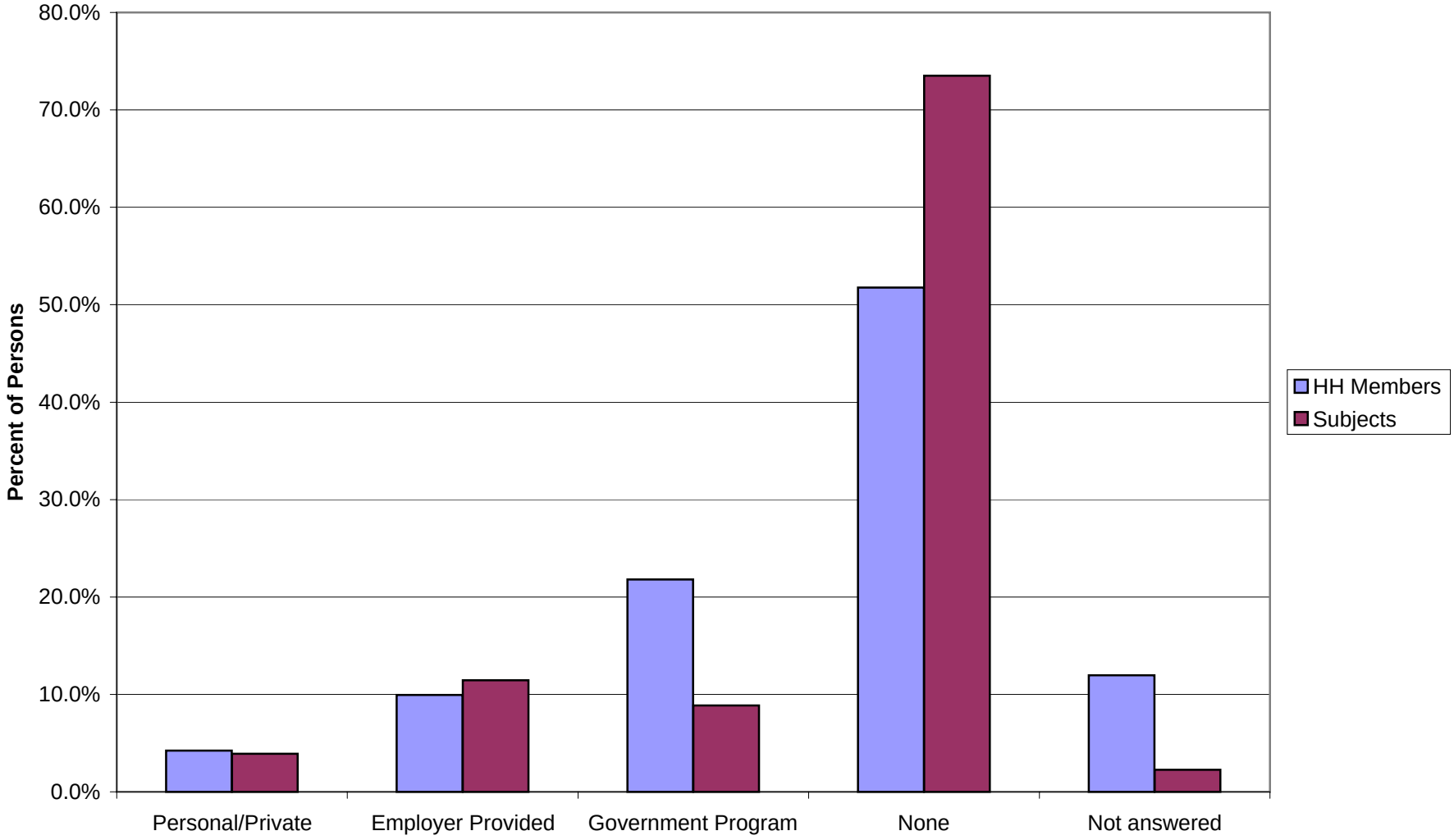


Figure 7. Most Recent Doctor/Clinic Visit, Male Subjects, by Immigration Status, CAWHS, 1999, N=627

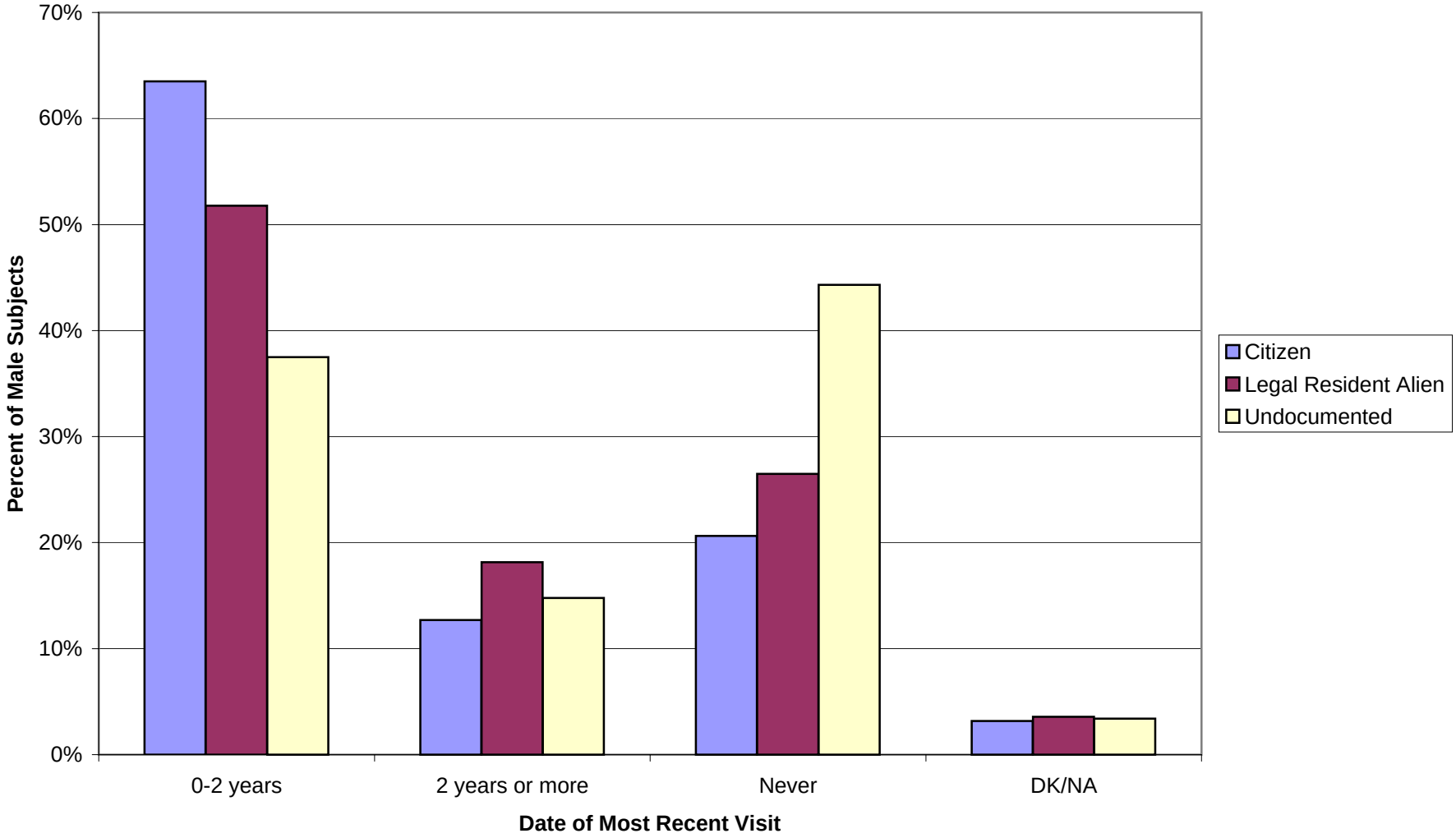


Figure 8. Most Recent Doctor/Clinic Visit, Female Subjects, by Immigration Status, CAWHS, 1999, N=343

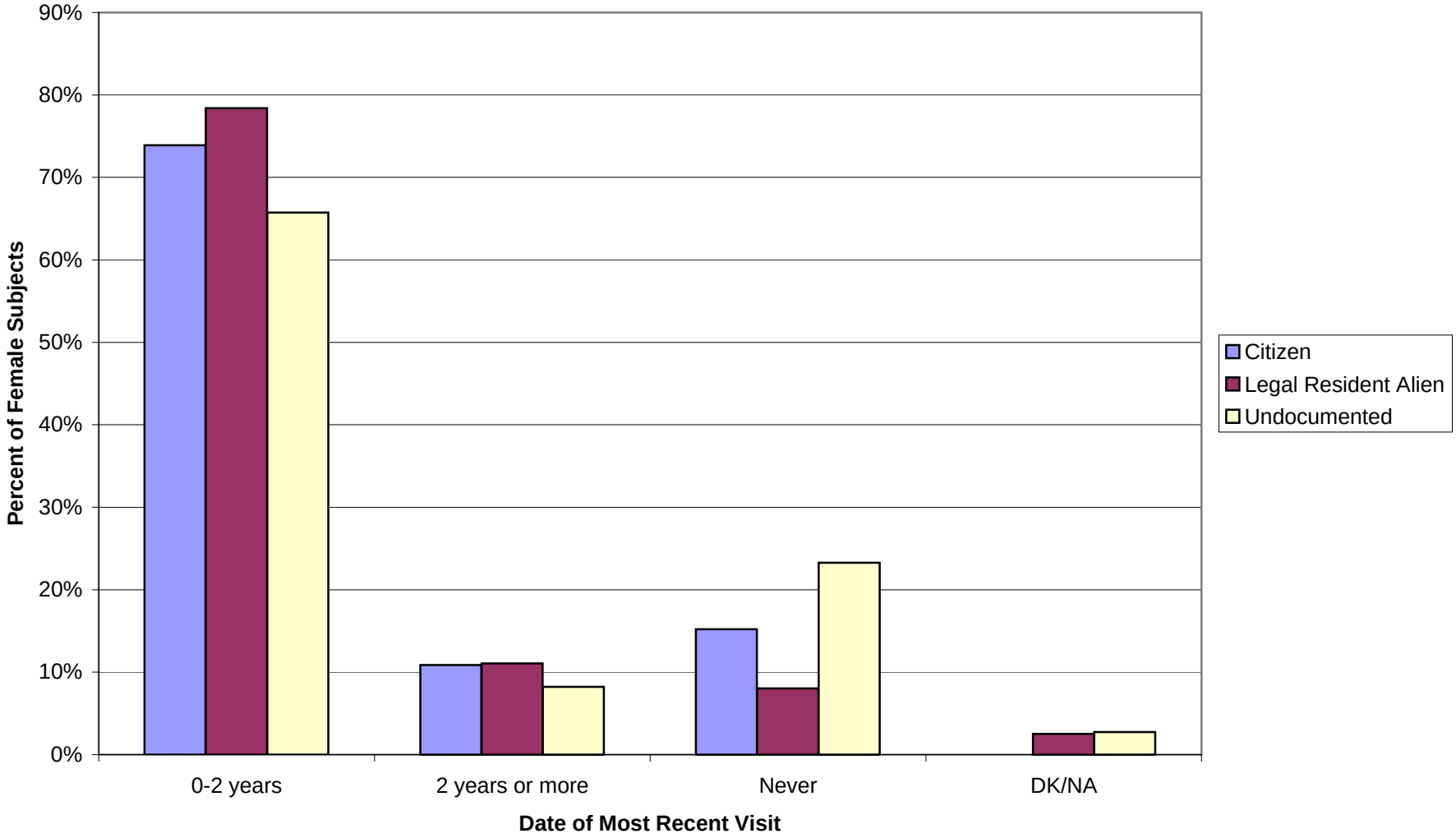


Figure 9. Most Recent Doctor/Clinic Visit, CAWHS Subjects and U.S.-Resident Household Members, CAWHS, 1999, N=2,861

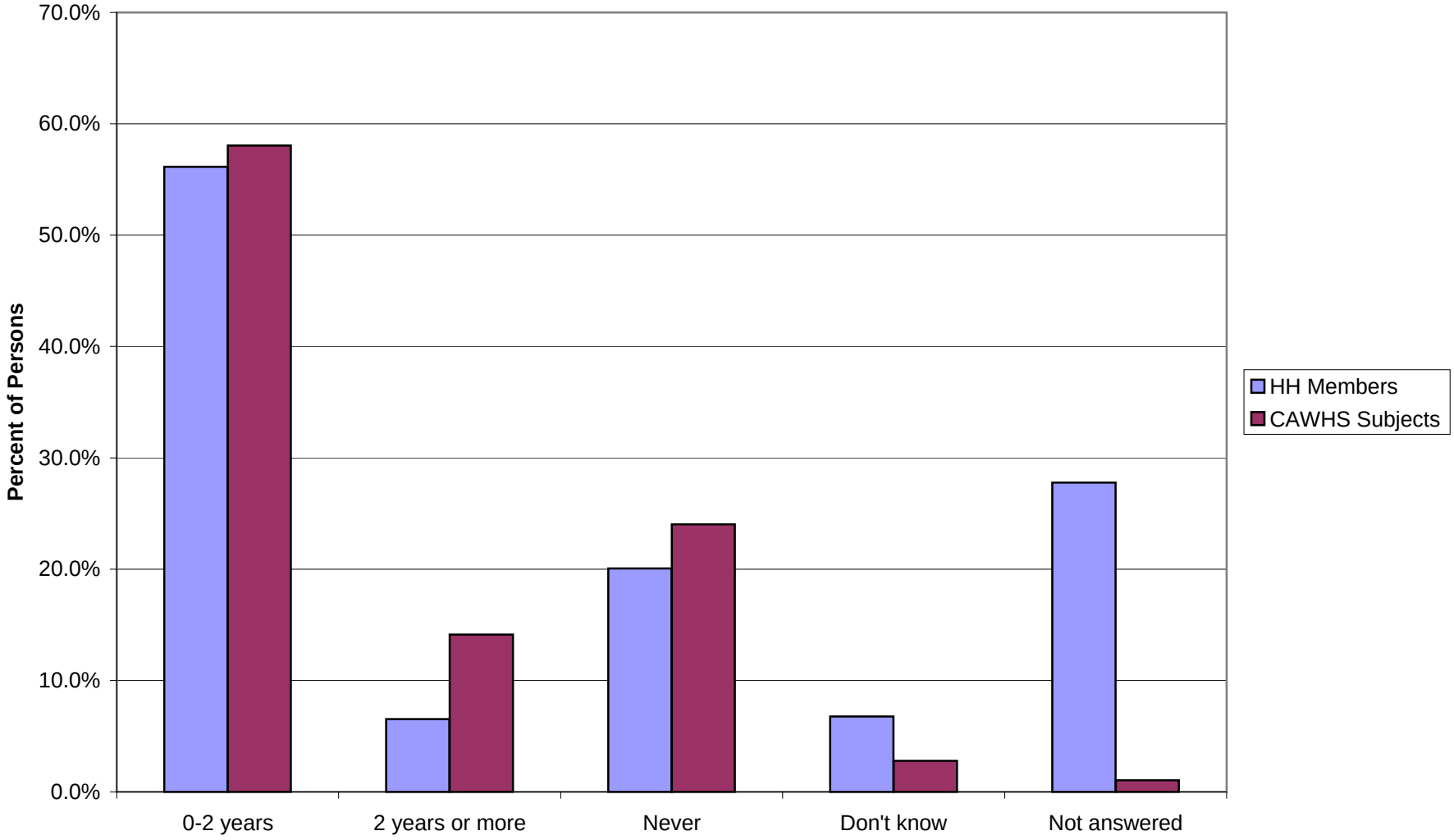


Figure 10. Method of Payment, Most Recent Doctor/Clinic Visit, CAWHS Subjects and U.S.-Resident Household Members, CAWHS, 1999, N=1,887

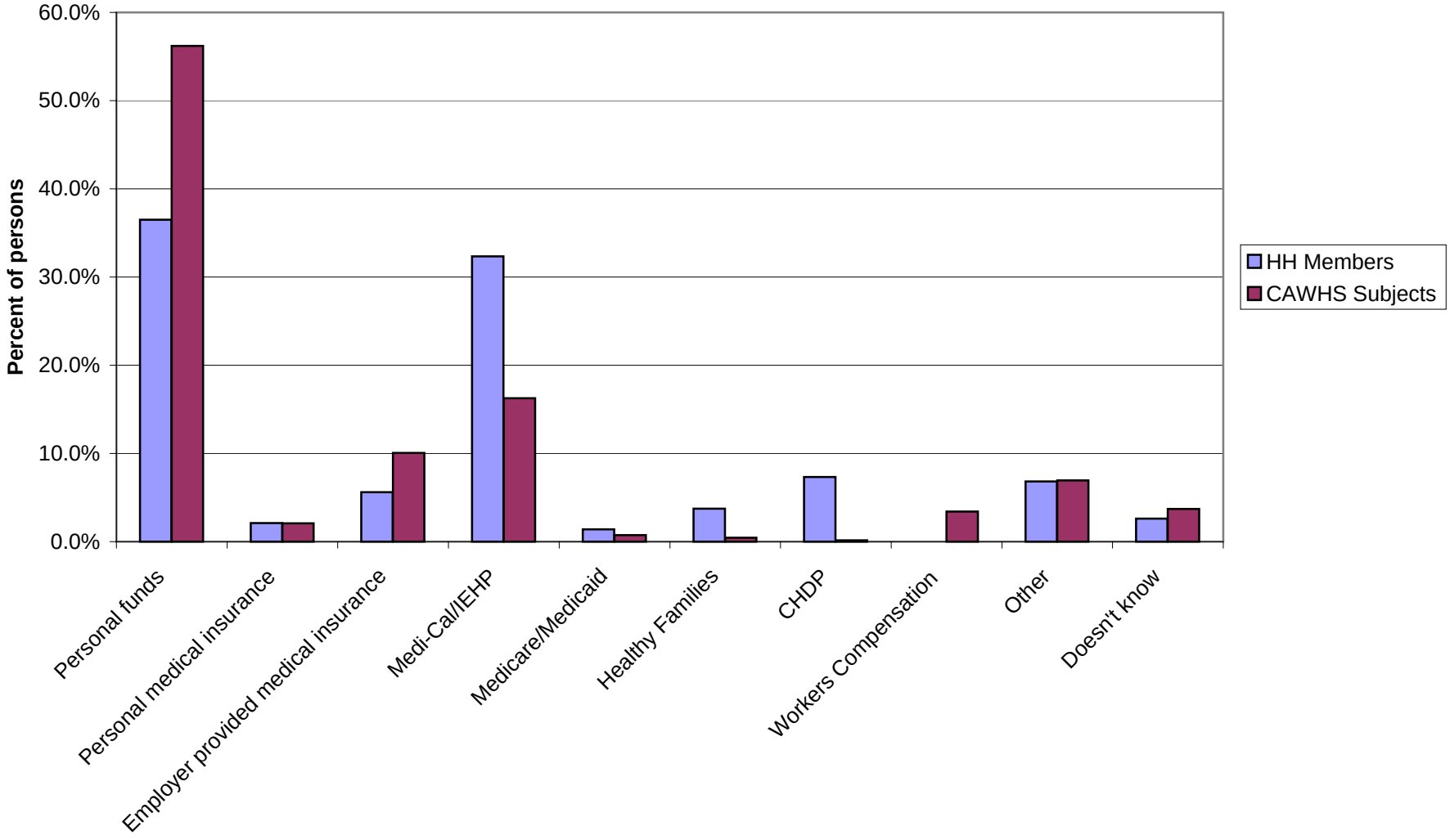


Figure 11. Participation of Any Member of CAWHS Households in Needs-Based Social Service Programs During Prior Two Years, CAWHS, 1999, N=959

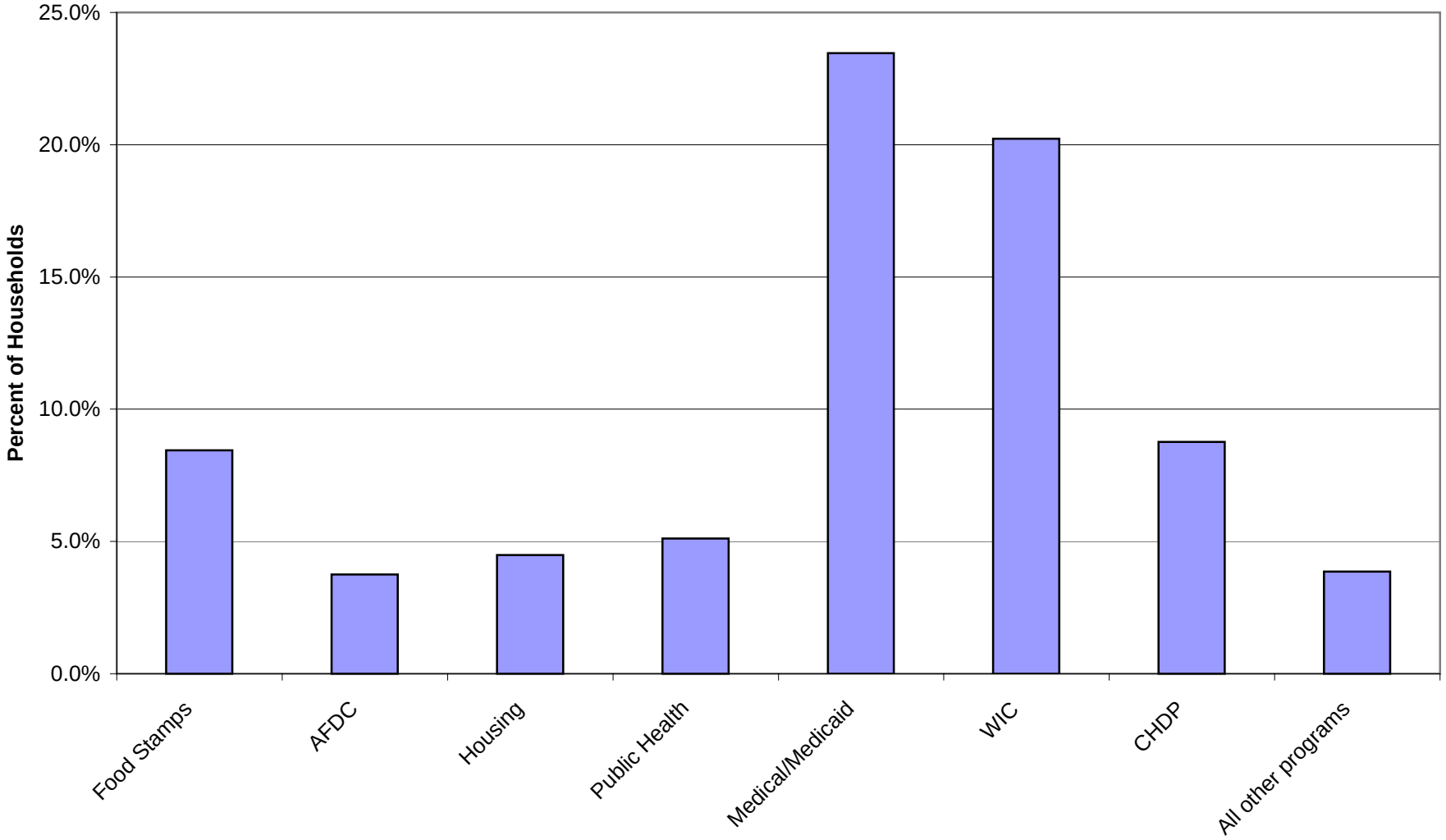


Figure 12. Most Recent Doctor/Clinic Visit, Male Subjects, by Household Participation in Medi-Cal, CAWHS, 1999, N=627

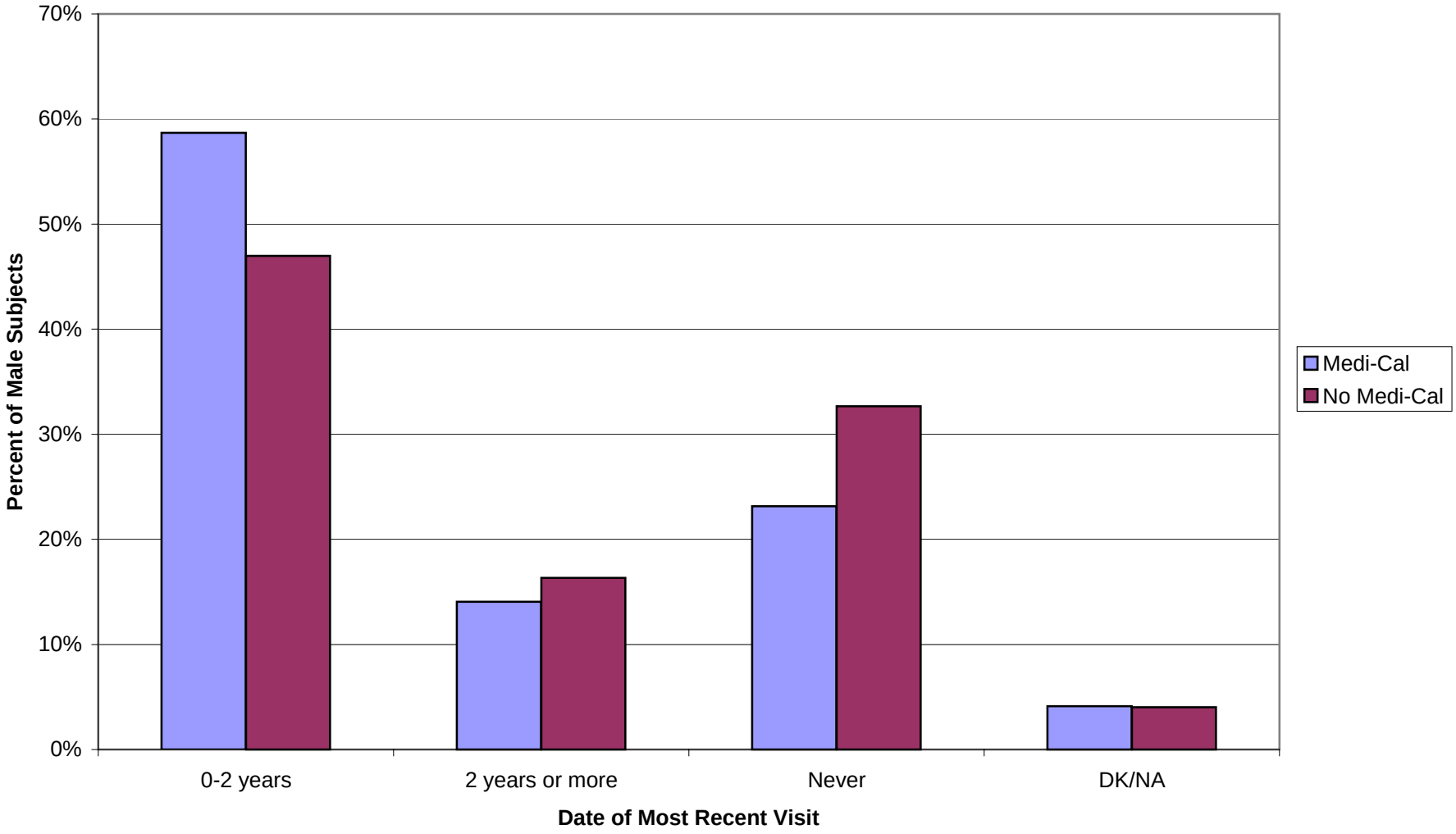


Figure 13. Most Recent Doctor/Clinic Visit, Female Subjects, by Household Participation in Medi-Cal, CAWHS, 1999, N=343

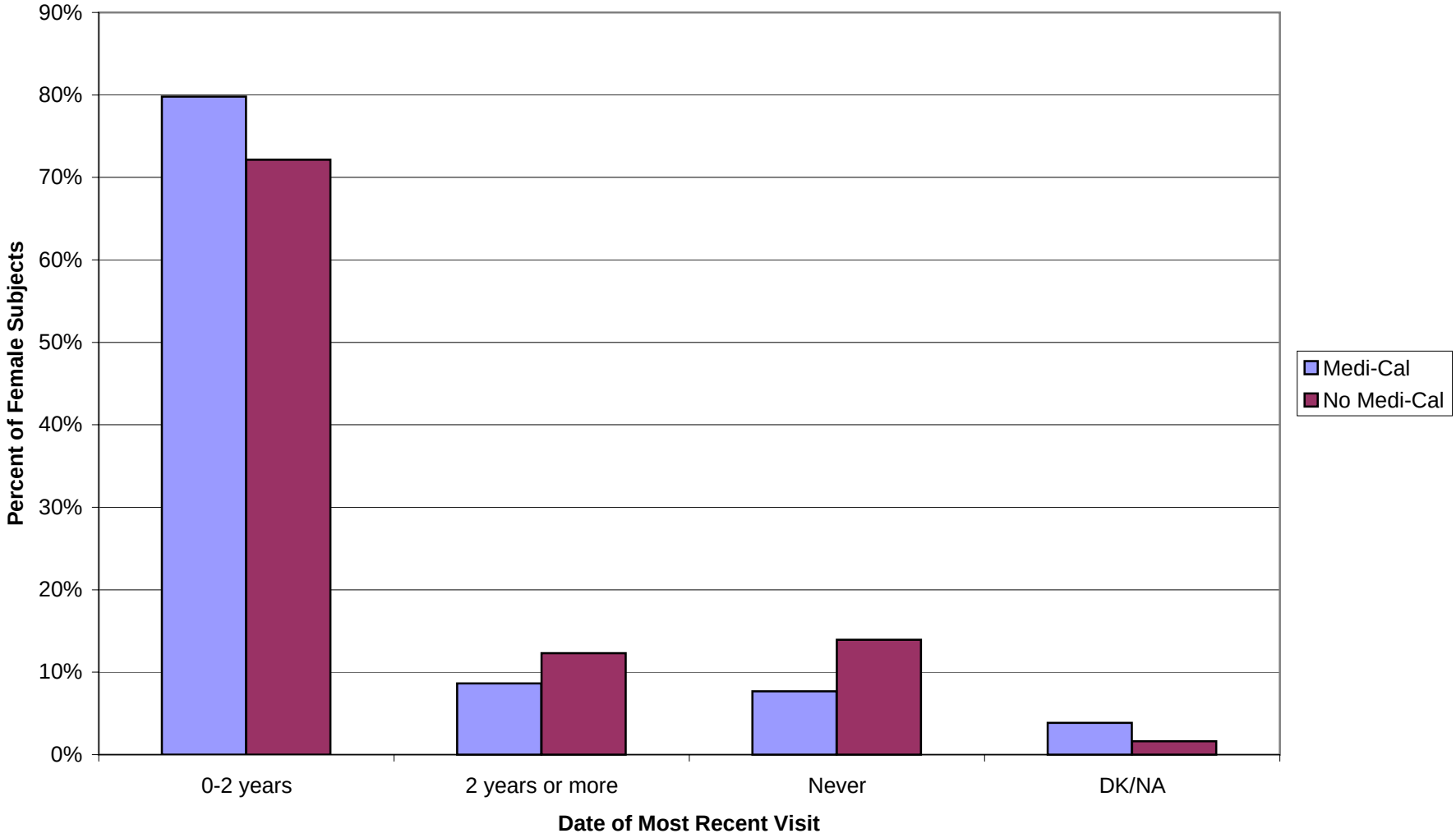


Figure 14. Most Recent Doctor/Clinic Visit, Male Subjects, by Household Participation in WIC, CAWHS, 1999, N=627

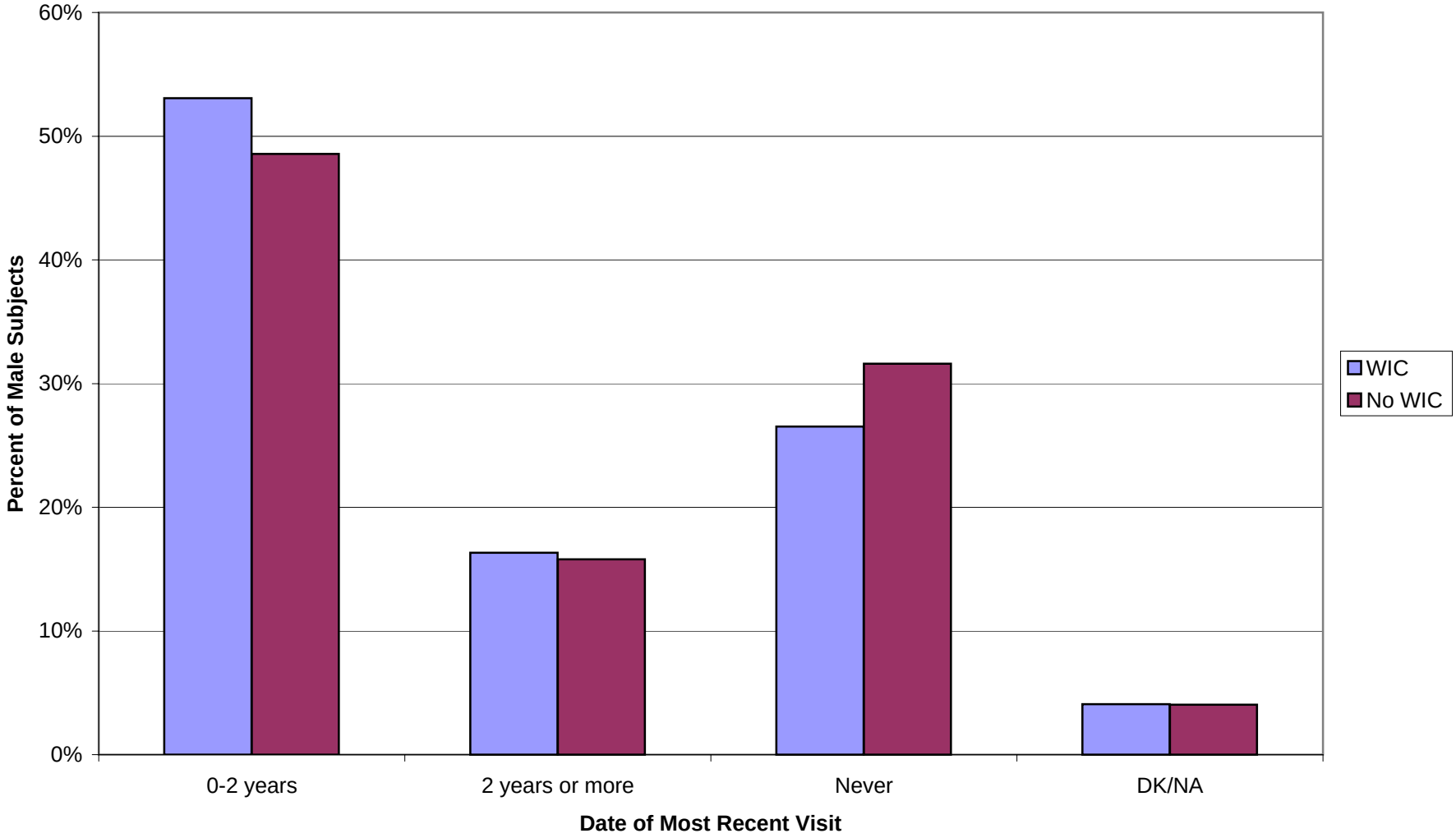


Figure 15. Most Recent Doctor/Clinic Visit, Female Subjects, by Household Participation in WIC, CAWHS, 1999, N=343