

**CPAC ISSUE BRIEF**

**Improving Recruitment and Retention of  
Primary Care Practitioners in Rural California**

*Janet Coffman, Emily Rosenoff, and Kevin Grumbach*

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**California Program on Access to Care**

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## EXECUTIVE SUMMARY

Many rural areas of California have insufficient numbers of primary care physicians, physician assistants, and nurse practitioners (hereafter referred to as primary care practitioners). Primary care practitioner shortages reduce access to care for persons in rural areas, potentially leading to poorer health outcomes. Federal and state governments have established an array of programs to increase the number of primary care practitioners in rural areas. This report describes how these programs are perceived by persons on the “front lines” of rural health care—rural primary care practitioners and administrators of rural hospitals, clinics, and medical groups. In addition, the report presents recommendations for policymakers interested in improving recruitment and retention of primary care practitioners in rural areas.

### Findings

- Recruitment and retention of primary care practitioners is a perennial challenge in rural California.
- Many interviewees sought career opportunities in rural areas because they prefer to practice in these areas.
- The characteristics of local health care organizations strongly influenced their decisions to practice in particular rural areas.
- When choosing among rural practice opportunities, primary care practitioners consider the following characteristics of local health care delivery systems: financial solvency of primary care clinics and group practices; competence of administrators and boards of directors; presence of other primary care practitioners; proximity to hospitals; and relationships with specialists at regional referral centers.
- Most interviewees believe government recruitment programs are needed because many rural hospitals and clinics have insufficient financial resources to rely exclusively on private firms for their recruitment needs. Interviewees found the following government programs and services helpful: Primary Care Health Professions Shortage Area designations; National Health Service Corps (NHSC) and NHSC/State Loan Repayment Program; California Rural Health Policy Council’s job listings Web site; and Federally Qualified Health Center and Rural Health Clinic designations.
- Some interviewees reported that affiliations with academic health centers and primary care training programs have enhanced recruitment and retention of primary care practitioners in their communities.

## **Recommendations**

- Expand loan repayment for primary care practitioners providing care to underserved populations in rural areas through enhancement of the NHSC/State Loan Repayment Program or establishment of a new state loan repayment program.
- Build upon current government and non-profit job listings by providing additional recruitment services, such as placement services, leadership training, and assistance with recruitment and retention strategies.
- Encourage every academic health center in California to identify a defined rural catchment area in which clinical, educational, and research partnerships with rural communities would be implemented.
- Develop an undergraduate medical education program in the Central Valley focused on preparing primary care practitioners for practice in underserved areas.
- Maintain cost-based reimbursement for Federally Qualified Health Centers and Rural Health Clinics and institute cost-based Medi-Cal reimbursement for Critical Access Hospitals.
- Establish a Medi-Cal technical services fee to reimburse rural health care facilities for use of telemedicine technology.
- Encourage telephone companies to invest in ISDN lines, the most cost-effective telephone lines for telemedicine transmissions such as consultations with specialists at remote sites.

## INTRODUCTION

Many rural areas of California have inadequate supplies of primary care physicians, physician assistants and nurse practitioners (hereafter referred to as primary care practitioners). Approximately 45% of rural Californians live in areas designated as Primary Care Health Professions Shortage Areas by the federal government. (See [http://bphe.hrsa.gov/dsd/hpsa\\_fr.htm](http://bphe.hrsa.gov/dsd/hpsa_fr.htm) for a description of the criteria used by the federal government to designate Primary Care Health Professions Shortage Areas.) Primary care practitioner shortages reduce access to care for persons in rural areas, which may lead to poorer health outcomes. Rural areas with high percentages of Latino residents are more likely than other areas to have shortages of primary care practitioners.<sup>1</sup>

Federal and state policymakers have implemented a number of programs to increase the supply of primary care practitioners in rural areas. Relatively little is known about how these policies and programs are by perceived rural primary care practitioners and administrators of rural health care organizations, even though their perspectives are critically important. Policymakers need to know whether practitioners on the “front lines” of rural health care believe existing programs are effective and need to obtain their suggestions for improving these programs and developing new initiatives.

This issue brief summarizes the results of a series of structured interviews with primary care practitioners and health care administrators in six rural areas of California. The study sites were selected to reflect variation in the demographic characteristics, socio-economic conditions, climate, and topography of California’s rural areas (see Appendix). Interviewees were asked to assess the impact of community characteristics, health system characteristics, and government programs on the recruitment and retention of primary care practitioners in their communities.

## FACTORS AFFECTING PRIMARY CARE PRACTITIONER SUPPLY

The supply of primary care practitioners in the rural areas studied is very fragile. Four of the six areas had ratios of primary care practitioners to population below the threshold for designation as a Primary Care Health Professions Shortage Area. Interviewees in all six areas studied consider the recruitment and retention of primary care practitioners to be an ongoing challenge requiring constant attention. Even private physician practices primarily serving persons with commercial health insurance experience recruitment and retention difficulties.

Most of the primary care practitioners interviewed for this study reported that personal preferences led them to practice in a rural area. Some interviewees found that compared to its urban counterpart, primary care practice in rural areas provided more opportunities to provide inpatient services and treat patients with a wide range of disease and conditions, and was therefore more personally rewarding. Other interviewees were attracted by low rates of enrollment in managed care plans. Some had grown up in rural areas and preferred them to urban areas. Others cited low cost of living, low crime rates, and proximity to outdoor recreational activities. Some originally came to their communities while participating in the National Health

Service Corps (NHSC) or the NHSC/State Loan Repayment Program. Finally, some felt a moral obligation to practice in underserved rural communities that might not otherwise have access to primary care.

However, most primary care practitioners reported that organizational characteristics strongly influenced their decision to move to the particular rural communities in which they currently practiced. Organizational characteristics were important considerations because few primary care practitioners in the rural areas studied are in solo or small physician practices. Most practice opportunities in these rural areas are in community health centers, hospital-based rural health clinics, and large group practices. Administrators of hospitals and clinics also reported that organizational characteristics affect their ability to recruit and retain primary care practitioners. Organizational characteristics cited by interviewees included financial solvency, the quality of leadership provided by administrators and boards of directors, the presence of other primary care practitioners, proximity to hospitals, and relationships with specialists at regional referral centers.

Interviewees placed a high value on organizational stability and thus were interested in the financial condition and leadership of rural health care organizations. Most interviewees believed that strong leadership is a necessity for rural health care organizations to maintain financial solvency and obtain support from local communities. Several interviewees cited poor leadership and financial difficulties as major reasons why primary care practitioners had left their communities. A large proportion of primary care services are provided by community health centers and district hospitals that are required by law to have boards of directors made up of community representatives, and thus the capabilities of boards of directors are especially important in rural California.

The demands of rural practice generated concerns about the availability of colleagues. Rural area primary care practitioners who are distant from hospitals provide a large volume of urgent and emergency services since they are the only physicians available. In some rural areas, primary care practitioners are expected to staff hospital emergency rooms, which can add considerably to their workload. Primary care practitioners who do not have colleagues nearby may be on call every night of the week and often have difficulty obtaining relief coverage for vacations, holidays, and family emergencies. In addition, they lack a peer group with which to interact professionally and socially.

Concerns about proximity to hospitals and relationships with regional referral medical centers reflect the interdependent nature of primary care practice. Some interviewees preferred to practice in rural areas in proximity to hospitals because they felt they could provide better care to patients who need emergency services or acute care. In addition, they felt that strong relationships with regional referral medical centers are important for obtaining specialized medical services that are not available locally, particularly for patients who are on Medi-Cal or uninsured. Primary care practitioners in rural areas in which telemedicine services are available have found telemedicine to be a valuable resource for linking them to specialist colleagues at regional referral medical centers and for improving their patients' access to specialty care.



## **PERCEPTIONS OF STATE AND FEDERAL PROGRAMS**

Rural health care organizations utilize a variety of strategies to recruit and retain primary care practitioners, including government programs, affiliations with academic health centers and private recruitment, and “locum tenens” (physician contracting) firms. Most interviewees asserted that government programs are needed to assist in recruitment and retention efforts because many rural health care organizations have insufficient financial resources to purchase services from private recruitment firms. They believed that most state and federal government programs aimed at increasing primary care practitioner supply are helpful but that some programs could be improved. The following sections describe government policies and programs our interviewees found helpful.

### **Primary Care HPSA Designations**

Many interviewees stated that Primary Care HPSA designations were critical to recruitment and retention of primary care practitioners in rural areas because these designations enable rural primary care clinics to participate in the National Health Service Corps (NHSC) and the NHSC/State Loan Repayment Program. HPSA designations are awarded by the federal Bureau of Primary Health Care in consultation with the California Office of Statewide Health Planning and Development (OSHPD). These designations are based primarily on ratios of primary care physicians to population. A few interviewees stated that the use of primary care physician to population ratios to determine eligibility for HPSA designations prevents some rural health care organizations that serve underserved populations from participating in the NHSC and other programs. In some rural areas in which the overall supply of primary care physicians is adequate, insufficient numbers of physicians are willing to provide care to Medicaid recipients and uninsured persons.

### **National Health Service Corps and NHSC/State Loan Repayment Program**

The NHSC administers two programs that provide financial incentives for primary care practitioners to practice in Primary Care HPSAs (rural and urban). The NHSC Scholarship Program provides full scholarships and stipends to students enrolled in primary care training programs in exchange for practice in a HPSA after graduation. The NHSC Loan Repayment program repays the student loans of primary care practitioners who practice in HPSAs. In addition, the NHSC funds the NHSC/State Loan Repayment program administered by OSHPD. Some states augment NHSC funds with state appropriations, but California has chosen not to do so. Most NHSC participants work in community health centers or rural health clinics. Currently, 150 primary care practitioners in California participate in the three NHSC programs. Fifty-two participate in the NHSC Scholarship Program, 28 in the NHSC Loan Repayment Program, and 70 in the NHSC/State Loan Repayment Program.

Many interviewees believe that the NHSC is a valuable recruitment tool for primary care clinics in eligible rural areas. The NHSC is especially helpful to clinics that cannot pay salaries equivalent to those available in private practice settings. In addition, the NHSC serves as a nationwide recruitment tool, because lists of eligible clinics are circulated to medical residents

and students in physician assistant, nurse practitioner, and nurse midwifery training programs across the United States. The program also attracts primary care practitioners who are genuinely interested in providing care to underserved populations.

Interviewees believe the biggest limitation of the NHSC is that participants are new graduates. Many NHSC participants are not trained in rural areas and may not be prepared for the demands of rural practice. In addition, NHSC participants may be less likely to stay in a particular rural area because their choice of practice locations is limited and because most do not have any prior ties to the communities and regions in which they practice. NHSC participants are especially likely to leave organizations that are not well managed and financially stable.

Interviewees were less enthusiastic about the NHSC/State Loan Repayment Program because the program requires participating clinics to pay 50% of loan repayment costs, whereas the federal NHSC Loan Repayment Program covers 100% of these costs. Some administrators interviewed stated that their clinics did not have the financial resources to participate in the NHSC/State Loan Repayment Program.

### **Rural Health Policy Council Job Listings**

Some interviewees have posted vacancies for primary care practitioners on the California Rural Health Policy Council's job listings web site and feel this has helped them recruit appropriate candidates. The Rural Health Policy Council's web site is particularly attractive because, unlike many private job-listings services, it is available free of charge. Interviewees also utilized free web-based job listings maintained by the California Primary Care Association and the California State Rural Health Association.

### **Federally Qualified Health Center and Rural Health Clinic Designations**

Many interviewees believed that Federally Qualified Health Center and Rural Health Clinic designations are as critical to primary care practitioner recruitment and retention as Primary Care HPSA designations. The FQHC designation provides cost-based reimbursement for care delivered to Medi-Cal and Medicare beneficiaries by community health centers that receive federal community or migrant health center grants or which have characteristics similar to federal grantees. The RHC designation provides cost-based Medi-Cal and Medicare reimbursement to clinics in rural areas designated as HPSAs, Medically Underserved Areas (MUAs), or state designated underserved areas. RHCs can be either freestanding physician practices or clinics sponsored by hospitals. Interviewees stated that FQHCs and RHCs are critical to the recruitment and retention of primary care practitioners in rural California because private physician practices are not viable in many rural areas due to high rates of uninsurance and enrollment in Medi-Cal. FQHCs and RHCs need cost-based reimbursement from Medi-Cal and Medicare to remain financially solvent. Cost-based reimbursement for FQHCs and RHCs in California is transitioning from a retrospective program to a prospective payment system in accordance with federal legislation enacted in 2000.

## **J-1 Visa Waiver Program**

Interviewees were less enthusiastic about the J-1 visa waiver program. Many graduates of international medical schools who pursue post-graduate training (i.e., residency) in the United States have J-1, or exchange visitor visas. International medical graduates holding such visas must return to their home countries for at least two years upon completion of their training. This requirement is waived if an international medical graduate practices in a HPSA or a MUA for at least three years. Interviewees stated that their organizations generally prefer not to use the J-1 visa waiver program but are glad it is available as a last resort when other strategies fail. Administrators interviewed prefer to recruit primary care practitioners who will practice in their clinics for long periods of time and are skeptical of J-1 physicians' intentions in this regard. Interviewees in areas with high percentages of Latinos were receptive to hiring J-1 physicians from Spanish-speaking countries, but most of the inquiries they received regarding J-1 placements were from physicians from countries in which Spanish is not spoken. Administrators also found the application process for J-1 visa waivers more time consuming and expensive than participating in the NHSC and NHSC/State loan repayment programs.

The future of the J-1 Visa Waiver program in California is uncertain. In February 2002, the U.S. Department of Agriculture (USDA) suspended its J-1 visa waiver program, citing heightened concern about terrorism in the wake of the events of September 11, 2001. The USDA subsequently agreed to process pending applications for J-1 visa waivers but continues to refuse new applications.<sup>2</sup> Federal law permits states to administer their own J-1 visa waiver programs, and California has recently launched such a program.<sup>3</sup> However, states are authorized to process only 20 J-1 visa waivers per year, a number sufficient to meet the needs of only a few rural areas with physician shortages. The uncertainty regarding the J-1 Visa Waiver Program and respondents' lukewarm interest in the program suggest that California policymakers should focus on other strategies for improving recruitment and retention in rural areas.

## **Affiliations with Academic Health Centers**

Some interviewees reported that affiliations of their clinics with academic health centers enhanced recruitment and retention of primary care practitioners. They believed their organizations derived two major types of benefits from these affiliations. First, affiliations with primary care practitioner training programs were important recruitment tools for some rural clinics and private practices. Several interviewees reported that their organizations have provided clinical education for nurse practitioner and physician assistant students who joined their staffs upon graduation. Second, affiliations with academic health centers can improve retention of primary care practitioners by reducing professional isolation.

Primary care practitioners in one of the rural areas studied rely heavily on telemedicine to facilitate consults with specialists practicing at an academic health center and have found telemedicine to be a useful tool for strengthening their relationships with specialists and their knowledge of state-of-the-art diagnostic techniques and treatments. Despite these benefits, the long-term viability of telemedicine services in California is uncertain, because most telemedicine services are funded through grants that will expire in the near future.

## RECOMMENDATIONS

### Incentives for Practitioners

*Expand loan repayment for primary care health professionals practicing in rural areas.*

Loan repayment is an effective and timely strategy for increasing the number of primary care practitioners in underserved rural areas. Expanding loan repayment would provide quick relief for rural communities, because it targets primary care practitioners who have already completed their education. California relies too heavily on the federal NHSC scholarship and loan repayment programs. Many eligible rural communities in California cannot obtain primary care practitioners through the NHSC programs, because the NHSC does not have sufficient resources to place participants in all eligible communities. Although the President has proposed a \$44 million increase in NHSC's budget for Fiscal Year 2003, there is no guarantee that Congress will honor his request.<sup>4</sup> Moreover, California would have to compete with other states for any additional funds the NHSC may receive.

California has two options for expanding loan repayment. It can either provide state funds to augment federal funding for the NHSC/State loan repayment program, or develop a new state-only loan repayment program.

A significant advantage of a state-only program would be greater flexibility in designating eligible rural sites. A state-only program would not have to use the same eligibility criteria as the NHSC, which limits eligibility to clinics in Primary Care HPSAs. Eligibility for HPSA designations is based primarily on the number of primary care physicians in a community, a criterion that prevents some rural community health centers and rural health clinics from participating. The U.S. Senate has passed legislation, S. 1533, which would automatically designate all CHCs as HPSAs for purposes of NHSC placements, but it is unclear whether the House of Representatives and the President will support this legislation.<sup>5</sup> A state-only program could instead consider the characteristics of a community (e.g., high rate of poverty, high Spanish-speaking population) or of a clinic's patients (e.g., primarily uninsured persons, Medi-Cal recipients) as primary criteria for eligibility. To maximize utilization of a loan repayment program, the benefits to participants and the costs to eligible sites should be equivalent to those of the NHSC loan repayment program.

A new proposal from the California Medical Association (CMA) that would establish a California Physician Corps loan repayment program illustrates the potential flexibility of a state-only program. Eligibility would be based on the California Health Manpower Policy Commission's designations of areas with "unmet priority needs" for physicians. The criteria for this designation are broader than those used for Primary Care HPSA designations. In addition, designations are issued automatically by OSHPD, whereas communities must apply to the federal government for HPSA designations and renew their applications periodically. Both primary care and specialist physicians would be eligible to participate in the proposed program. The program could improve recruitment of specialists in rural areas which could, in turn, aid recruitment of primary care physicians by enhancing their ability to obtain referrals for patients who need specialty consultations.

## **Recruitment Assistance**

*Build upon current government and non-profit web-based job listing sites to offer additional services.* Many community health centers, rural health clinics, and private practices in rural areas of California cannot afford to use private recruitment firms. These organizations have found the California Rural Health Policy Council's web site to be a useful means for advertising vacant positions. California should consider expanding recruitment services to include services offered by other states, such as technical assistance to help rural primary care clinics and practices develop effective recruitment and retention strategies, a database of primary care practitioners interested in practicing in rural areas, and a recruitment/placement service for rural primary care clinics and practices.

## **Health Professions Education**

*Maintain funding for the Song-Brown Training Program.* The Song-Brown Family Physician Training program provides grants to family practice residency programs, family nurse practitioner education programs, and physician assistant education programs. Many of these programs have placed significant numbers of their graduates in rural areas. Grant awards should continue to be based on the percentage of an applicant's graduates practicing in rural and urban underserved areas, among other factors. A priority should also be given to applicants that recruit students from rural areas and train students in rural areas. Funds should be provided for special projects to develop rural training opportunities. Such priorities are consistent with the considerable evidence that primary care education programs that recruit students from rural areas and focus on preparing students for rural practice can increase the number of primary care practitioners practicing in rural areas.<sup>6</sup>

*Develop an undergraduate medical education program in the Central Valley focused on preparing primary care practitioners for practice in underserved areas.* California's medical schools and residency programs provide relatively little training in rural areas. In contrast, several family nurse practitioner and physician assistant education programs focus on preparing persons for rural practice. The University of California should develop an undergraduate medical education program that would train a limited number of students interested in practicing underserved areas of the Central Valley. The program should be placed in the Central Valley because this region, which is among the most underserved in the state, has no medical schools. One model for the program would be to provide the first two years of basic science programs at the new UC Merced campus and the last two years of clinical education through the UCSF-Fresno Medical Education Program. (UCSF-Fresno currently offers medical student clerkships in ten specialties and residency programs in seven specialties.)

*Encourage every academic health center in California to identify a defined rural catchment area and implement a range of partnerships with rural communities in its catchment area.* Most rural primary care clinics and private practices in California do not have strong relationships with academic health centers. The few clinics and practices that have developed partnerships with academic health centers believe these partnerships have greatly improved recruitment and

enhanced retention and job satisfaction among primary care practitioners. Partnerships with academic health centers should be expanded, ideally through specified regional catchment areas to avoid duplication of efforts by multiple academic health centers. Partnerships between rural primary care providers and academic health centers could include a wide range of initiatives, such as the following:

- clinical education for medical students, medical residents, nurse practitioner students, and physician assistant students;
- special consideration for applicants to primary care practitioner training program who were raised in rural areas;
- telemedicine linkages for specialty consultations and continuing medical education;
- *locum tenens* services to provide vacation and family leave coverage for rural primary care practitioners and rural practice opportunities for faculty and new graduates; and
- research projects involving rural primary care clinicians.

The California Area Health Education Centers (AHECs) may be appropriate entities to facilitate these partnerships, because they have extensive experience in implementing community-based training in primary care.

### **Reimbursement for Health Care Services**

*Maintain cost-based reimbursement for Federally Qualified Health Centers and Rural Health Clinics.* Federally qualified health center (FQHC) and rural health clinic (RHC) designations are critical to the delivery of primary care services in many rural areas of California. Many rural areas cannot sustain private primary care practices because the majority of their residents are uninsured or enrolled in Medi-Cal. FQHCs and RHCs currently receive cost-based reimbursement from Medi-Cal and Medicare, without which many would not be able to operate. Assuring the financial solvency of FQHCs and RHCs is a critical aspect of recruitment and retention of primary care practitioners, since financial solvency is an important consideration of primary care practitioners when choosing among practice opportunities. Policymakers should closely monitor the implementation of the new Medi-Cal prospective payment system to ensure that this new reimbursement system provides payments that accurately reflect costs FQHCs and RHCs face in furnishing care to Medi-Cal recipients.

*Create a Medi-Cal Critical Access Hospital Program.* The Medicare Critical Access Hospital Program was developed by the federal government to improve the financial solvency of small rural hospitals by providing cost-based reimbursement for services provided to Medicare beneficiaries. Establishing a parallel Medi-Cal Critical Access Hospital program would assist small rural hospitals with large percentages of Medi-Cal patients. Improving the financial stability of these hospitals would enhance their ability to recruit and retain primary care practitioners.

*Require Medi-Cal to pay a telemedicine services technical fee in conjunction with the provider services fee for consultations via telemedicine.* Telemedicine benefits residents of rural areas by reducing their need to travel long distances to visit specialists. Telemedicine also reduces professional isolation for rural primary care practitioners, and improves the financial

stability of rural health care facilities by increasing the range of health care services they provide. At the present time, most payers only reimburse specialists for telemedicine consults. Other costs, such as maintenance of telephone lines, usage, and equipment costs, are borne by grants that are likely to expire in the near future. A Medi-Cal telemedicine technical service fee would provide an ongoing source of reimbursement for these technical costs that would enable rural health care facilities with telemedicine equipment to continue providing telemedicine services and facilitate expansion of telemedicine to additional facilities.

## **Health Care Infrastructure**

*Encourage telephone companies to invest in placing ISDN lines in rural areas for telemedicine.* Integrated Services Digital Network (ISDN) lines are the preferred type of telephone line for telemedicine transmissions. However, ISDN lines are not available in the most remote parts of California, and telephone companies have been slow to expand ISDN service in these rural areas. This has forced health care facilities to install T-1 lines, which are more costly and less effective. Telephone companies should be encouraged to invest in ISDN lines through subsidies or regulatory changes.

*Enhance leadership development for administrators and boards of directors.* Strong leadership is critical to a rural community's ability to recruit and retain primary care practitioners. Primary care practitioners want to work in organizations that are well managed and financially solvent. Leadership from boards of directors is especially important in rural California because a large percentage of primary care services are delivered by organizations with boards of directors, such as community health centers and district hospitals. Policymakers should partner with organizations representing community health centers and district hospitals to enhance leadership development opportunities for administrators and board members.

**Appendix  
Description of Case Study Sites**

<b>Site Number</b>	<b>Site 1</b>	<b>Site 2</b>	<b>Site 3</b>	<b>Site 4</b>	<b>Site 5</b>	<b>Site 6</b>
<b>Region</b>	North Coast	Sierra Mountains	Central Valley	Central Valley	Inland Empire	Southern California
<b>Population per Primary Care Physician</b>	6,000–7,000	1,000–2,000	4,000–5,000	20,000–25,000	2,000–3,000	4,000–5,000
<b>Size and Population Density</b>	Three small towns and surrounding rural area with a population of approximately 10,000 persons	Six small towns and surrounding rural area with a population of approximately 25,000	Two small towns and surrounding rural area with a population of approximately 25,000	Three small towns and surrounding rural area with a population of approximately 20,000	One large town and surrounding rural area with a population of approximately 40,000	One small city, three towns and surrounding rural area with a population of approximately 130,000
<b>Percent Hispanic, 1998</b>	Less than 10%	Less than 10%	90%–100%	80%–90%	Less than 10%	70%–80%
<b>Percent Children, 1998</b>	25%–30%	25%–30%	35%–40%	40%–45%	15%–20%	30%–35%
<b>Percent Low Income (&lt; \$25K), 1998</b>	60%–70%	50%–60%	50%–60%	60%–70%	20%–30%	50%–60%
<b>County Unemployment Rate, 1998</b>	5%–10%	5%–10%	30%–35%	35%–40%	5%–10%	25%–30%
<b>Percentage of County Population in Medi-Cal</b>	15%–20%	10%–15%	20%–25%	25%–30%	20%–25%	25%–30%
<b>Private Physician Practices</b>	None	None	One	None	Large multi-specialty group and several solo and small practices	10–20 solo and small group practices
<b>Community Health Centers, Rural Health Clinics, and other primary care clinics</b>	Two single site chcs, one hospital-based RHC	One single site chc, four hospital-based RHCs, one county preventive services clinic	One chc belonging to a multi-site chc, one county clinic administered by a non-profit hospital	One chc belonging to a multi-site chc	One single site chc	Three chcs belonging to a multi-site chc, two hospital-based RHCs, two women’s health clinics operated by hospitals
<b>Hospitals</b>	One district hospital with less than 25 beds	Five district hospitals with less than 50 beds	None	None	One district hospital with 50–100 beds	Two hospitals with 100–125 beds, one district, one municipal



## NOTES

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<sup>1</sup> Komaromy, M., K. Grumbach, M. Drake, K. Vranizan, et al. 1996. The role of black and Hispanic physicians in providing health care for underserved populations. *New England Journal of Medicine*. 334:1305–1310.

<sup>2</sup> M Doyle. 2002. “Casualty of Terror,” *Fresno Bee*, April \_\_\_.

<sup>3</sup> California Rural Health Policy Council Web site. <http://www.oshpd.ca.us.gov/rhpc>

<sup>4</sup> U.S. Office of Management and Budget. *Fiscal Year 2003 President’s Budget for the Department of Health and Human Services*. <http://www.hhs.gov/budget/pdf/hhs2003bib.pdf>

<sup>5</sup> National Association of Community Health Centers. 2002. *Senate Passes Health Center Reauthorization*, press release, April 17. [http://www.nachec.com/federal\\_affairs/Reauthorization/Senate\\_Passage.htm](http://www.nachec.com/federal_affairs/Reauthorization/Senate_Passage.htm)

<sup>6</sup> Adkins, R., G. Anderson, T. Cullen, W. Myers, F. Newman, and M. Schwartz. 1987. Geographic and Specialty Distributions of WAMI Program Participants and Nonparticipants. *Journal of Medical Education*. 62:810–817. Goldberg, H., F. Hafferty, and V.K. Fowkes. 1984. The Effect of Decentralized Education Versus Increased Supply on Practice Location. Experience with Physician Assistants and Nurse Practitioners in California, 1972–1982. *Medical Care*. 22(8):760–9. Rabinowitz, H., J. Diamond, F. Markham, and C. Hazelwood. 1999. A Program to Increase the Number of Family Physicians in Rural and Underserved Areas. *Journal of the American Medical Association*. 281(3):255–260. Verby, J., J. Newell, S. Andresen, and W. Swentko. 1991. Changing the Medical School Curriculum to Improve Patient Access to Primary Care. *Journal of the American Medical Association*. 266(1):110–13.