

Current & Future Health Professions Workforce Needs in the San Joaquin Valley

by Janet Coffman, Timothy Bates, and Igor Geyn
Healthforce Center at UCSF

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Abstract / Overview

The San Joaquin Valley is one of fastest growing, poorest, and least healthy regions of California. The region has historically suffered from a shortage of physicians and other critical segments of the region's health professions workforce also may not be adequate to meet the region's needs. This report analyzes current data describing characteristics of the region's supply and demand for health professionals to assess whether the workforce will be adequate to meet the region's future demand for health professionals. The report finds that the region has a low supply of providers in most of the health professions examined, and that per capita supply varies widely across counties in the region. The report also finds that Latinos are underrepresented in most health professions relative to their proportion of the general population, and that large percentages of physicians and psychologists are likely to retire within the next 10 years. These findings suggest that action is needed to ensure that the San Joaquin Valley has supplies of health professionals that are sufficient to meet future demand.

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Research Report

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Executive Summary

The San Joaquin Valley is one of the fastest growing regions of California, has the largest share of Latinos in the general population of any region in state, and the health status of its residents is poor relative to other regions in the state. The San Joaquin Valley region has a high rate of poverty, and a high percentage of its population is eligible to enroll in Medi-Cal. The region has historically suffered from a shortage of physicians and it may be that other critical segments of the region's health professions workforce also are not adequate to meet the region's needs. This report analyzes current data describing the supply, distribution, and characteristics of health professionals in the region, in addition to the demand for health professionals in the region in order to assess whether the workforce will be adequate to meet the region's future demand for health professionals.

The San Joaquin Valley is defined as encompassing Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare counties. Findings are presented for physicians (MDs and DOs), physician assistants (PAs), certified nurse midwives (CNMs), certified registered nurse anesthetists (CRNAs), clinical nurse specialists (CNSs), nurse practitioners (NPs), and registered nurses (RNs), as well as behavioral health professionals (clinical psychologists, clinical social workers, marriage and family therapists, licensed counselors, psychiatric technicians, and substance abuse disorder counselors). The report also includes information describing the region's educational pipeline (i.e. training programs) for these professions.

The findings presented in this report are drawn from a variety of sources including California's licensing boards for health professionals, the California Employment Development Department, the Integrated Postsecondary Education Data System, the National Resident Matching Program, associations of health professions schools, and the US Census Bureau. A list of the data sources and the types of information obtained from each source can be found in Appendix B.

Findings

Current Supply of Health Professionals

- The San Joaquin Valley region has the lowest ratios of licensed MDs, DOs, NPs, RNs, marriage and family therapists, licensed counselors, and licensed social workers per 100,000 population in California and the second lowest ratios of PAs, CNs and psychologists per capita.
- The per capita ratio of licensed MDs to population in the region falls from 138 to 116 if MDs who are still in training (i.e., residents and fellows) or do not provide patient care are excluded.
- In most behavioral health professions, the per capita ratio of professionals in the San Joaquin Valley is less than half the ratio in California overall.
- Ratios of pre-license behavioral health professionals per 100,000 population are also low.
- Per-capita supplies of health professionals vary widely across the region's counties.

Demographic Characteristics of Health Professionals

- Physicians in the San Joaquin Valley region are more likely to be Asian or Latino and less likely to be White compared to California overall.

- Despite better representation relative to the state's overall physician workforce, the share of physicians in the region who are Latino is still much lower than the share of Latinos in the general population.
- In California, Latinos are better represented among PAs, NPs, RNs, social workers, and counselors than they are among physicians and psychologists.
- Only one-third of physicians in the San Joaquin Valley are female, whereas NPs, RNs, psychologists, social workers, and counselors are predominantly female.
- Thirty percent of active patient care physicians in the San Joaquin Valley region are over 60 years old.
- Thirty-seven percent of psychologists in the region are over 60 years old.

Pipeline of Trainees in Health Professions

- There are no medical schools in the San Joaquin Valley and the supply of medical residents in the region is 30% below the statewide average.
- There are no PA programs in the San Joaquin Valley region and there are no doctoral level training programs that focus specifically on preparing graduates to practice clinical or counseling psychology.
- Per capita ratios of trainees in medicine, clinical or counseling psychology, social work, and substance abuse/addiction counseling are low relative to California overall.
- In the San Joaquin Valley, psychiatric technician education programs had the largest number of graduates in 2015, followed by graduates of social work programs.
- In 2015, the region's psychiatric technician education programs produced 43% of all psychiatric technician program graduates in California.
- Females are better represented among recent medical school graduates compared to practicing physicians, while males are better represented among recent nursing school graduates compared to practicing RNs.
- Latinos are better represented among recent graduates of RN education programs, clinical or counseling psychology education programs and social work education programs in the region compared to practicing RNs, counselors, and social workers.
- In California, Latinos are better represented among recent graduates of PA, NP, CNS, RN, psychiatric technician, substance use/addiction counseling, and master's level training programs in clinical or counseling psychology and social work in comparison to graduates of medical schools and doctoral-level training programs in either clinical or counseling psychology or social work.

Future Demand for Health Professionals

- In both the San Joaquin Valley region and California overall, RNs represent the largest source of projected growth in employment among medical and nursing professions.

- Among medical and nursing professions, the rate of job growth in the San Joaquin Valley is projected to be highest for PAs and NP, but the absolute number of new PA and NP jobs is projected to be much smaller compared to number of new RN jobs.
- The rate of job growth for physicians in the region is projected to be lower than the rate of job growth among PAs, NPs, and RNs.
- Among behavioral health professions, clinical, counseling, and school psychologists are projected to experience the region's largest absolute increase in the number of jobs between 2014 and 2024.
- The behavioral profession with the highest projected rate of job growth varied substantially across counties in the San Joaquin Valley.

Conclusion

Findings from this project indicate that the San Joaquin Valley has low ratios of health professionals per 100,000 population in most medical, nursing, and behavioral health professions, relative to California overall and relative to most other regions of the state. This difference is most pronounced for physicians. Psychiatric technicians are a major exception most likely due to the presence of multiple behavioral health and correctional facilities, which are a major source of job opportunities for psychiatric technicians.

The project's findings also raise questions about whether the region will be able to absorb projected increases in the numbers of jobs in health professions and to meet the needs of the region's population. Concerns about ability to meet future workforce needs are most pronounced for physicians and psychologists because 30% of physicians and 37% of psychologists are age 60 or older. In addition, the region has low ratios of trainees to population in medical and behavioral health professions and has no training programs for physician assistants and certified nurse midwives. In addition, Latinos are better represented among recent graduates than among practicing clinicians but the percentages are not at parity with the percentage of Latinos in the general population of the region.

To meet future demand, the San Joaquin Valley will want to consider several strategies including recruitment of health professionals trained outside the region, expanding training opportunities in the region, and preparing young people in the regions to complete training in the health professions. In the short-term, scholarship and loan repayment programs would provide incentives for health professionals trained outside the region to practice in high need areas within the region. Expanding training opportunities in the region would also be helpful because health professionals often prefer to practice in the region in which they trained. Investment in preparing young people in the San Joaquin Valley for careers in the health professions will be critical over the long run to enable the region to have sufficient numbers of health professionals with racial/ethnic, cultural, linguistic, and socio-economic backgrounds similar to those of the region's population.

Introduction

The San Joaquin Valley is one of the fastest growing regions of California. The California Department of Finance has projected that the total population of counties in this region will increase by 12% between 2015 and 2025 and by 26% between 2015 and 2035.ⁱ The region also has the highest percentage of Latinos in its general population of any region of the state. The health status of its population is poor relative to other regions of California based on measures analyzed by the California Department of Public Health, such as prevalence of diabetes, mental distress, and low birthweight infants.ⁱⁱ Due to the region's high rate of poverty, 33% or more of the population in each county in the region is eligible to enroll in Medi-Cal.ⁱⁱⁱ The region has historically suffered from a shortage of physicians,^{iv,v} and other critical segments of the region's health professions workforce also may not be adequate to meet the region's needs. This report analyzes current data describing the supply, distribution, and characteristics of health professionals in the region, in addition to the demand for health professionals in the region, in order to assess whether the workforce will be adequate to meet the region's future demand for health professionals.

The San Joaquin Valley is defined as encompassing Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare counties. Findings are presented for physicians (MD and DO), physician assistants (PA), advanced practice registered nurses (APRN), and registered nurses (RN), as well as behavioral health professionals (clinical psychologists, clinical social workers, marriage and family therapists, licensed counselors, psychiatric technicians, and substance abuse disorder counselors). The report also includes information describing the region's educational pipeline (i.e. training programs) for these professions. In some cases, available data is used to describe characteristics of the selected health professions at the county level within the San Joaquin Valley region, and where appropriate, comparisons are made with regions across the state and California overall. A list of the regions and the counties in each region can be found in Appendix A.

The findings presented in this report are drawn from a variety of sources including California's licensing boards for health professionals, the California Employment Development Department, the Integrated Postsecondary Education Data System, the National Resident Matching Program, associations of health professions schools, and the US Census Bureau. A list of the data sources and the types of information obtained from each source can be found in Appendix B.

This report is divided into several chapters. Chapter 1 describes the current supply of health professionals and their geographic distribution. Chapter 2 presents information describing the demographic characteristics of health professionals. Chapter 3 describes graduates of health professions education programs. Chapter 4 focuses on projections of the region's future demand for health professionals. A description of the data sources (including limitations) and analysis methods are presented in a technical appendix at the end of the report.

In each chapter of the report, findings are organized into two sections: one focused on medical and nursing professionals and a second focused on behavioral health professionals. While some medical and nursing professionals provide behavioral health services, behavioral health care is primarily provided by persons who are trained in behavioral health disciplines. A concluding section in each chapter summarizes findings for all types of health professionals discussed.

Chapter 1 – Supply of Licensed Professionals

Information about the numbers of health professionals and their distribution was obtained primarily from the California Department of Consumer Affairs (DCA) Professional License Master File, which reports counts of persons who hold an active license issued by one of California's health professions licensing boards. Records for persons who had active licenses in 2016 were aggregated to county, regional, and state levels to provide information about the numbers of persons in each geographic area licensed to practice a particular profession.

Ratios of health professionals per 100,000 population were calculated to create a standardized measure that allows for comparisons of provider supply across geographic areas that have very different population sizes. This is especially important in California because the population varies substantially across regions. For example, the population of Los Angeles County is more than twice as large as the population of the entire San Joaquin Valley region. These per population measures are also a standard benchmark for assessing the adequacy of provider supply. Numbers of licensed health professionals were obtained from the DCA Professional License Master File and population estimates were obtained from the US Census Bureau.

Medical and Nursing Professionals

Ratios of Licensed Medical and Nursing Professionals to Population

Table 1.1. displays ratios of licensed medical and nursing professionals per 100,000 population in California overall, the San Joaquin Valley, and other regions of California. The table presents data describing allopathic (MD) and osteopathic (DO) physicians, physician assistants (PA), the four types of advanced practice registered nurses (APRNs) – nurse practitioners (NP), clinical nurse specialists (CNS), certified nurse midwives (CNM), and certified registered nurse anesthetists (CRNA) – as well as all registered nurses (RN). These data indicate that for the selected health professions, the San Joaquin Valley region had the fewest actively licensed professionals per capita of any region in the state, with only two exceptions: the Inland Empire region had slightly fewer APRNs per capita; the Los Angeles region had slightly fewer PAs per capita. The gap between the ratio of clinicians to population in California overall and in the San Joaquin Valley was most pronounced for physicians. California overall had 288 licensed physicians per 100,000 population in 2016, whereas the San Joaquin Valley had only 157 licensed physicians per 100,000 population.

Table 1.1. Actively Licensed Medical and Nursing Health Professionals per 100K Population by Region, 2016

Region	MD	DO	PA	NP	CNS	CNM	CRNA	RN
Central Coast	252	16	27	44	7	4	2	931
Greater Bay Area	411	13	23	68	17	5	5	1036
Inland Empire	165	22	25	35	6	2	5	899
Los Angeles	298	15	22	44	8	2	4	799
Northern & Sierra	184	19	34	55	3	5	4	969
Orange	324	22	30	57	8	3	5	936
Sacramento Area	315	17	28	49	8	3	7	1098
San Diego Area	317	20	28	57	13	4	5	983
San Joaquin Valley	157	13	23	39	5	1	3	774
California	288	16	25	50	9	3	5	913

Sources: Department of Consumer Affairs (DCA) Licensee Masterfile, June 2016; US Census Bureau, Population Division, Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2015.

Note: Advanced Practice Registered Nurses are abbreviated as follows: NP (Nurse Practitioner), CNS (Clinical Nurse Specialist), CNM (Certified Nurse Midwife), CRNA (Certified Registered Nurse Anesthetist).

Table 1.2. presents ratios of MDs, DOs, PAs, APRNs, and RNs per 100,000 population for counties within the San Joaquin Valley region. Fresno County generally had the highest per capita ratios while, Merced County had the lowest. For example, Fresno County had 231 physicians per 100,000 population (213 MDs plus 18 DOs), whereas Merced County had 98 physicians per 100,000 population (91 MDs and 7 DOs). Similarly, Fresno County had 926 RNs per 100,000 population, whereas Merced County had 489 RNs per 100,000 population. Tulare County had the highest ratio of PAs to population among counties in the San Joaquin Valley region.

Table 1.2. Actively Licensed Medical and Nursing Health Professionals per 100K Population by County, 2016

County	MD	DO	PA	NP	CNS	CNM	CRNA	RN
Fresno	213	18	30	62	11	2	6	926
Kern	131	12	21	33	2	0	2	667
Kings	93	10	25	34	1	5	7	641
Madera	143	17	17	26	4	1	3	605
Merced	91	7	19	30	0.4	0.4	0.4	489
San Joaquin	157	9	11	29	4	2	2	811
Stanislaus	187	18	22	35	3	2	2	895
Tulare	117	8	33	33	3	1	4	723
San Joaquin Valley	157	13	23	39	5	1	3	774
California	288	16	25	50	9	3	5	913

Sources: Department of Consumer Affairs (DCA) Licensee Masterfile, June 2016; US Census Bureau, Population Division, Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2015.

An important limitation of the DCA data is that they include all persons in these professions who have a currently active license. Some individuals who hold an active license may not be employed in their profession or may not provide patient care. For example, a physician may maintain an active license but work as a researcher in a biotechnology firm. Similarly, a registered nurse may maintain an active license but work in a health care management position that does not involve patient care. Residents and fellows are often excluded from estimates of MD supply because they are trainees. It is not uncommon for physician workforce studies to focus on physicians who provide patient care at least 20 hours per week given the interest in physicians whose primary professional activity is patient care.

Physicians

Data from the Medical Board of California (MBC) can be used to generate more accurate estimates of the numbers of physicians working in their profession and their per capita ratios. Table 1.3. illustrates how estimates of MDs per 100,000 population can change depending on how MD supply is defined. In this case, four different definitions of MD supply are used: (1) all MDs with active licenses *including* residents and fellows, (2) all active MDs *excluding* residents and fellows, (3) active MDs *excluding* residents and fellows who provide at least one hour of patient care per week, and (4) active MDs *excluding* residents and fellows who provide at least 20 hours of patient care per week. Depending on the definition used, the per capita ratio in 2015 ranged from 107 to 138 MDs per 100,000 population. These findings indicate that 85% of MDs in the San Joaquin Valley who have completed training provided at least one hour of patient care per week and that 77% provided 20 or more hours of patient care per week.

Table 1.3. also shows that regardless of the definition used, the San Joaquin Valley had the lowest ratio of MDs per 100,000 population of any region in the state, while the Greater Bay Area had the highest. The ratio of MDs per 100,000 population in the San Joaquin Valley who provided at least one hour of patient care per week was

36% lower than the statewide ratio (116 vs. 181). The ratio of MDs per 100,000 population who provided at least 20 hours of patient care per week was 31% lower than the statewide average (107 vs. 156).

Table 1.3. Actively Licensed MDs per 100,000 Population by Training and Patient Care Status by Region, 2015

Region	Active Physicians <i>including</i> Residents/Fellows	Active Physicians <i>excluding</i> Residents/Fellows	Active Physicians ≥ 1 hour of patient care/week	Active Physicians ≥ 20 hours of patient care/week
Central Coast	207	203	167	144
Greater Bay Area	334	310	247	205
Inland Empire	142	134	112	101
Los Angeles	248	228	189	161
Northern & Sierra	168	166	142	125
Orange	243	232	188	163
Sacramento Area	254	238	193	170
San Diego Area	261	243	194	164
San Joaquin Valley	138	133	116	107
California	237	222	181	156

Sources: Medical Board of California 2015 Mandatory and Supplemental Surveys, private tabulation; US Census Bureau, Population Division, Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2015.

Table 1.4. reports ratios of MDs per 100,000 population across counties in the San Joaquin Valley in 2015 using the same four definitions as the previous table. Regardless of the definition used, Fresno County had the highest ratio of MDs per capita while Kings County had the lowest. The rank order of counties, in terms of MDs per capita, varies depending on which of the four definitions was used. If all licensed MDs, *including* residents and fellows are included, Fresno had the highest ratio of MDs per capita (171 MDs) followed closely by Stanislaus County (169 MDs). If residents and fellows *are excluded*, Stanislaus had the highest ratio of MDs per capita (165 MDs) and Fresno and Madera Counties had the second highest ratios (161 MDs for both counties). If residents and fellows are excluded, along with MDs who do not provide at least one hour of patient care per week, Stanislaus County and Madera County had the highest ratios of MDs per population (147 and 146 MDs, respectively). Regardless of the definition used, Kings County and Merced County had the lowest ratios of MDs per 100,000 population.

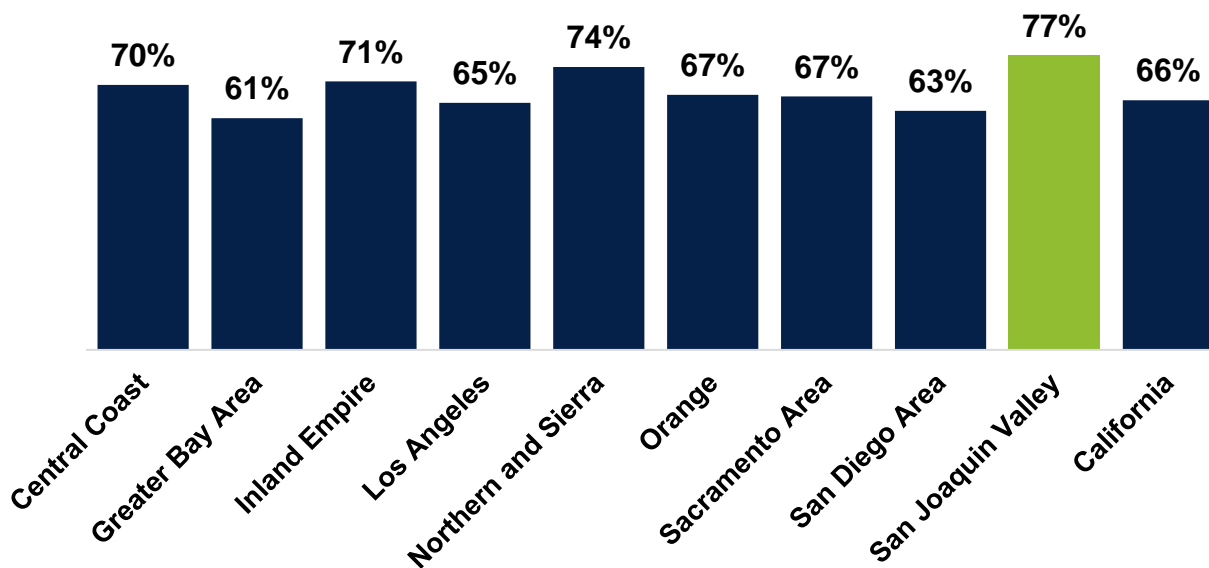
Table 1.4. Actively Licensed MDs per 100,000 Population by Training and Patient Care Status by County, 2015

County	Active Physicians <i>including</i> Residents/Fellows	Active Physicians <i>excluding</i> Residents/Fellows	Active Physicians ≥ 1 hour of patient care/week	Active Physicians ≥ 20 hours of patient care/week
Fresno	171	161	135	121
Kern	120	115	102	94
Kings	89	87	75	66
Madera	165	161	146	135
Merced	86	85	77	70
San Joaquin	134	131	116	107
Stanislaus	169	165	147	137
Tulare	107	105	94	87
San Joaquin Valley	138	133	116	107
California	237	222	181	156

Sources: Medical Board of California 2015 Mandatory and Supplemental Surveys, private tabulation; US Census Bureau, Population Division, Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2015.

According to 2015 MBC data, the San Joaquin Valley region had the highest percentage (77%) of active physicians providing at least 20 hours of patient care per week (Figure 1.1.). The share of physicians in the region who provided patient care at least 20 hours per week was more than 10 percentage points higher than the statewide average of 66%. One reason for this may be that there are fewer opportunities for physicians in the San Joaquin Valley to pursue careers in education or research compared to other regions of the state that encompass large metropolitan areas, such as the Greater Bay Area, Los Angeles, and San Diego.

Figure 1.1. Active Patient Care MDs as a Percentage of All Licensed MDs by Region, 2015



Source: Medical Board of California 2015 Mandatory and Supplemental Surveys, private tabulation.

Note: Active patient care MDs are defined as MDs who provide at least 20 hours of patient care per week, regardless of specialty.

Registered Nurses

Findings from a sample-based survey of RNs conducted biannually by the California Board of Registered Nursing (BRN) were used to produce more refined estimates of the RN workforce. Table 1.5. compares ratios of RNs per 100,000 population in the San Joaquin Valley with other regions in California based on findings from the most current BRN survey data available (2014). County level estimates of RNs per 100,000 population are not reported because the BRN survey sample size is not adequate to generate reliable estimates at the county level.

Table 1.5. indicates that in 2014, the San Joaquin Valley had a ratio of 600 “active RNs” per 100,000 population. “Active RNs” are defined as currently licensed RNs employed in a paid position that requires an RN license. The other two columns in the table report per capita ratios for active RNs who provide 1 or more hours of nursing care per week, and active RNs who provide 20 or more hours of nursing care per week. Nursing care is defined as activities related to “patient care and charting”, “patient education”, and “indirect patient/client care” performed as part of the RN’s principal nursing position; these are the nursing activities that most directly impact patients. When only active RNs who provide 1 or more hours of nursing care per week were considered, the number of RNs per capita fell to 545 per 100,000 population. When only active RNs who provide 20 or more hours of nursing care per week were considered, the ratio fell to 444 per 100,000 population.

Regardless of the definition used, the San Joaquin Valley had the second lowest ratio of RNs per 100,000 population of any of the region in the state. Los Angeles County was the only region to have a lower per capita ratio of RNs under all three definitions. The Sacramento region had the highest RNs per capita ratio under all three definitions. The ratio of RNs per population in the San Joaquin Valley was 9% to 13% smaller than the

statewide average, depending on the definition used. These differences between RN supply per capita in the San Joaquin Valley and California overall are less pronounced than differences in physician supply per capita.

Table 1.5. RNs per 100,000 Population by Nursing Care Activity Status and Region, 2014

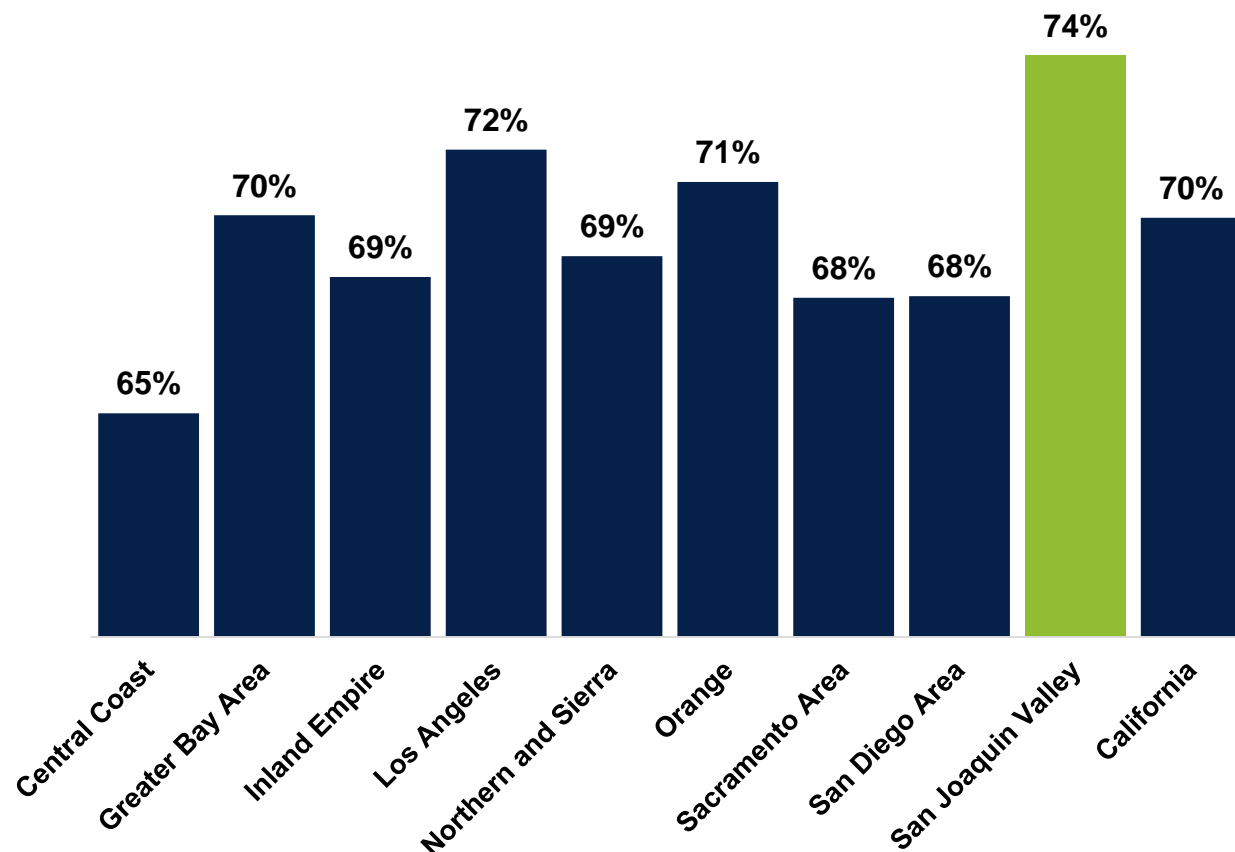
Region	Active RNs	Active RNs ≥ 1 hour of nursing care/week	Active RNs ≥ 20 hours of nursing care/week
Central Coast	701	630	498
Greater Bay Area	784	713	550
Inland Empire	694	613	477
Los Angeles	579	506	415
Northern & Sierra	763	678	528
Orange	756	683	537
Sacramento Area	826	722	563
San Diego Area	763	688	521
San Joaquin Valley	600	545	444
California	693	620	486

Source: California Board of Registered Nursing, 2014 Survey of Registered Nurses; US Census Bureau, Population Division, Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2014.

Note: Active RN is defined as currently licensed registered nurse employed in a paid position that requires an RN license. Nursing care is defined as activities related to “patient care and charting”, “patient education”, and “indirect patient/client care” performed as part of the RN’s principal nursing position.

The San Joaquin Valley region had the highest share (%) of active RNs providing at least 20 hours of nursing care per week (74%), according to data from the BRN 2014 Survey of Registered Nurses. The share of RNs in the San Joaquin Valley region who provided at least 20 hours of nursing care per week was four percentage points higher than the statewide average of 70%, and nine percentage points higher than the Central Coast, which had the lowest share of any region in the state. (See Figure 1.2.)

Figure 1.2. Percentage of Active RNs Providing 20 or More Hours of Nursing Care per Week by Region, 2015



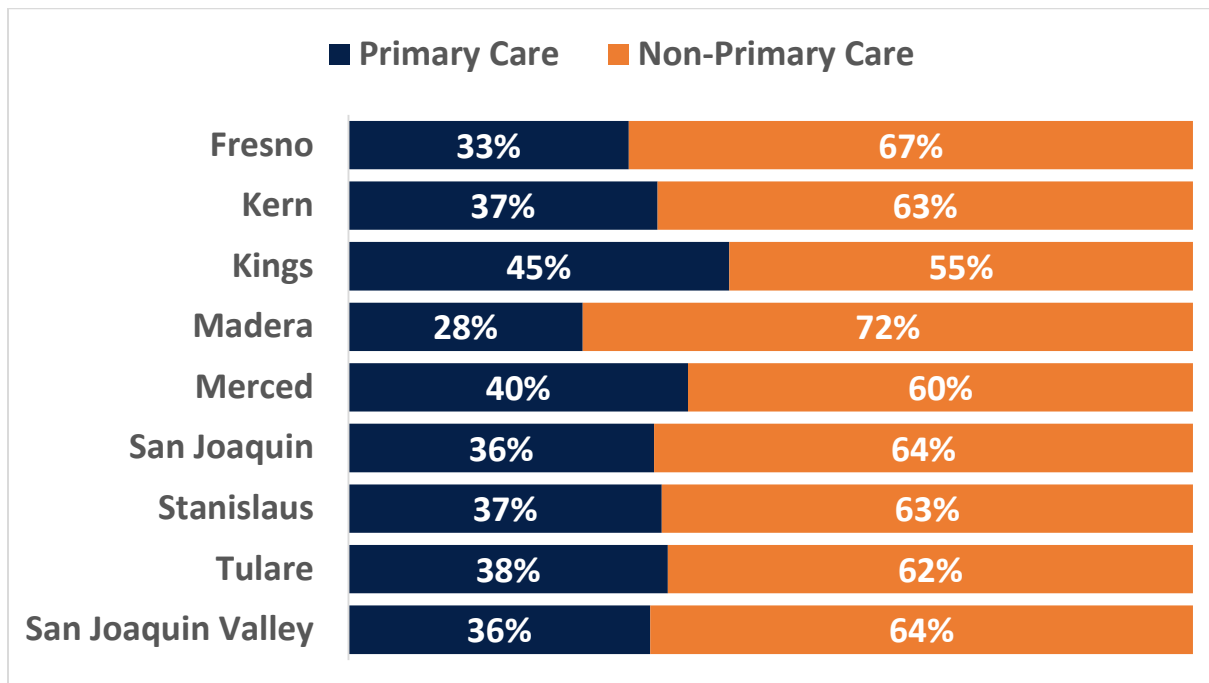
Source: California Board of Registered Nursing, 2014 Survey of Registered Nurses.

Note: Active nursing care is defined as RNs employed in a paid position that requires an RN license who provide more than 20 hours of nursing care per week.

Distribution of Physicians by Specialty

For physicians, it is important to consider not only their total numbers and per capita ratios but also their distribution across specialties. Since the 1990s, physician workforce experts have expressed concern that the United States does not have a sufficient number of primary care physicians, particularly in rural and low-income areas. There are also concerns that persons in rural areas have insufficient access to specialist physicians. Figure 1.3. displays the percentages of primary care and specialist physicians in San Joaquin Valley counties who provided at least 20 hours of patient care per week (excluding residents and fellows). For this report, primary care physicians are defined as family physicians, general internists, general pediatricians, and obstetrician/gynecologists. The share of primary care physicians varied across counties in the region, ranging from a low of 28% in Madera County to a high of 45% in Kings County.

Figure 1.3. Percentages of Active Patient Care Primary Care MDs and Specialist MDs by County, 2015



Source: Medical Board of California 2015 Mandatory and Supplemental Surveys, private tabulation.

Note: Active patient care is defined as MDs who provide at least 20 hours of patient care per week. Across all regions of California, less than one percent of MDs did not report a specialty.

Table 1.6. displays the numbers of MDs in the San Joaquin Valley in 11 major specialty groups who provided at least 20 hours of patient care per week (excluding residents and fellows). In 2015, the region had a total of 1,831 primary care MDs (704 family physicians, 550 general internists, 248 obstetrician/gynecologists, and 329 pediatricians). Among non-primary care specialties, the largest number of MDs (893) were in subspecialties of internal medicine, such as cardiology. Fresno County had the largest number of MDs in all specialties. Kings County had the smallest number of MDs in 7 of 11 specialties.

Table 1.6. Active Patient Care MDs by Specialty and County, 2015

County	Emergency Medicine	Facility-based Specialties	Family Medicine	General Internal Medicine	General Surgery	Medical Specialties	OB/GYN	Pediatrics	Psychiatry	Surgical Specialties
Fresno	70	174	160	159	30	260	62	74	66	115
Kern	43	117	131	115	18	156	56	57	52	79
Kings	8	11	29	14	2	11	3	3	10	11
Madera	17	33	19	12	3	63	6	27	10	19
Merced	14	24	53	14	6	38	12	9	4	15
San Joaquin	44	107	109	105	18	132	50	68	56	81
Stanislaus	43	119	127	95	13	154	29	51	30	69
Tulare	24	51	76	36	11	79	30	40	21	32
San Joaquin Valley	263	636	704	550	101	893	248	329	249	421

Source: Medical Board of California 2015 Mandatory and Supplemental Surveys, private tabulation.

Notes: Active patient care is defined as MDs who provide at least 20 hours of patient care per week, regardless of specialty. Across the San Joaquin Valley, 20 of 4,429 MDs (less than 1%) did not report a specialty or board certification. Facility-based specialties include anesthesiology, pathology, radiology, and other specialists who provide care in specific types of facilities and do not have primary responsibility for a patient's care.

Behavioral Health Professionals

Similar to medical and nursing professions, California lacks a uniform data set describing behavioral health care professionals. Several different sources of data must be pieced together to present a full picture of the current behavioral health care workforce in California overall, the San Joaquin Valley, and other regions.

The DCA Professional License Master File was used to provide counts of psychologists, marriage and family therapists (MFT), licensed professional clinical counselors (LPCC), licensed clinical social workers (LCSW), psychiatric/mental health RNs, and psychiatric technicians with active California licenses. DCA data were also used to generate counts of registered psychologists, psychological assistants, MFT interns, LPCC interns, and associate clinical social workers (ACSW) with active pre-license registrations. Licensing boards require graduates of training programs in these fields to register and complete a specified amount of supervised clinical training before attaining full licensure. Data describing licensed psychiatrists were obtained from the MBC, which is required by law to administer a survey to physicians every two years in conjunction with licensure renewal. Estimated employment of substance abuse and behavioral disorder counselors was drawn from the California Employment Development Department, Occupational Employment Statistics (OES) survey.

A limitation of the DCA data is that they describe all persons with an active California license, which may include individuals who are not currently practicing as a behavioral health provider. As a result, these data may overestimate the current supply of providers. The OES survey data describing substance abuse and behavioral disorder counselors provide an estimate of the number of jobs, not individuals.

Tables 1.7. through 1.11. present the ratios of licensed, registered pre-license, and unlicensed behavioral health professionals per 100,000 population for each region, counties within the San Joaquin Valley region, and for

California as a whole. Table 1.7. indicates that the per capita ratios of behavioral health providers in the San Joaquin Valley were consistently less than half as large as the state-wide average across all provider types, with the exception of psychiatric technicians. Table 1.7. also shows that the San Joaquin Valley region had the lowest per capita ratios of licensed behavioral health care providers of any region in the state, with the exception of psychologists and psychiatric technicians. In the case of psychologists, only the Inland Empire region had lower per capita ratio, though the difference was very small. For psychiatric technicians, the San Joaquin Valley region had the second highest per capita ratio among all regions in the state (behind the Central Coast), which was probably due to the presence of several psychiatric hospitals and state correctional facilities, all of which are an important source of psychiatric technician employment.

Table 1.7. Actively Licensed Behavioral Health Professionals per 100K Population by Region, 2016

Geography	Psychiatrist	Psychologist	MFT	LPCC	LCSW	Psych/ Mental Health RN	Psych Tech
Central Coast	15.3	44.8	121.0	3.6	45.5	0.9	73.1
Greater Bay Area	25.1	70.7	117.6	4.6	65.7	1.3	27.7
Inland Empire	7.7	15.6	40.9	1.9	26.4	0.3	54.6
Los Angeles	14.9	45.9	80.0	2.4	55.5	0.9	12.2
Northern & Sierra	8.7	22.6	85.9	3.3	46.4	0.9	20.1
Orange	10.3	38.6	81.6	3.7	41.6	0.5	27.1
Sacramento Area	14.6	34.8	75.5	3.7	56.3	0.3	15.5
San Diego Area	16.1	52.1	71.1	3.8	48.4	1.1	4.9
San Joaquin Valley	7.2	15.8	34.6	1.4	25.2	0.1	66.1
California	14.8	42.5	79.8	3.1	48.3	0.8	30.5

Sources: Medical Board of California Mandatory Survey, 2015; Department of Consumer Affairs (DCA) Licensee Masterfile, June 2016; US Census Bureau, Population Division, Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2016.

Note: Per capita counts of psychiatrists include active licensees who have completed training (i.e., residents and fellows are excluded)

Table 1.8. indicates that the ratios of registered, pre-license behavioral health providers per 100,000 population in the San Joaquin Valley were substantially lower than the state-wide average (approximately half as large), across all provider types. Table 1.8. also shows that San Joaquin Valley had the lowest per capita ratios of registered, pre-license behavioral health care providers of any region in the state, with the exception of psychological assistants (Northern & Sierra region is lower) and associate clinical social workers (Inland Empire is lower), though the differences are very small.

Table 1.8. Actively Registered Pre-license Behavioral Health Providers per 100K Population by Region, 2016

Geography	Registered Psychologist	Psychological Assistant	MFT Intern	LPCC Intern	ACSW
Central Coast	0.5	2.4	47.3	3.4	26.1
Greater Bay Area	1.7	4.2	44.6	5.1	35.0
Inland Empire	0.1	1.2	34.4	5.2	20.4
Los Angeles	0.8	6.4	47.2	2.9	43.6
Northern & Sierra	0.1	1.1	30.5	3.1	34.0
Orange	0.6	4.3	41.8	4.5	25.4
Sacramento Area	0.1	2.6	35.5	5.1	27.8
San Diego Area	0.5	4.4	37.9	5.1	24.3
San Joaquin Valley	<0.1	1.2	27.7	2.3	22.6
California	0.7	3.8	40.6	4.0	31.5

Sources: Department of Consumer Affairs (DCA) Licensee Masterfile, June 2016; US Census Bureau, Population Division, Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2016.

Table 1.9. demonstrates that supply of actively licensed behavioral health care providers varied considerably across the different counties that make up the San Joaquin Valley region. The highest per capita ratios for the different provider types were generally seen in Fresno County. Exceptions to this include the ratio of MFTs per population in Stanislaus County (though the difference is small), LPCCs per population in Madera County, and the ratio of psychiatric technicians in Kings, Tulare and San Joaquin counties. The high per capita ratios of psychiatric technicians in these three counties can be explained by the presence of psychiatric hospitals and correctional facilities, both of which are a significant source of employment for these professionals. In general, Merced County had the lowest per capita ratios in the region.

Table 1.9. Actively Licensed Behavioral Health Professionals per 100K Population by County, San Joaquin Valley Region, 2016

Geography	Psychiatrist	Psychologist	MFT	LPCC	LCSW	Psych/ Mental Health RN	Psych Tech
Fresno County	9.5	26.0	42.9	1.8	39.7	0.0	49.7
Kern County	6.6	12.8	33.0	1.1	16.0	0.1	11.1
Kings County	6.6	24.7	18.0	0.7	15.4	0.0	253.7
Madera County	7.1	17.5	34.3	3.2	21.3	0.0	14.2
Merced County	1.5	6.0	12.3	1.9	20.5	0.0	4.8
San Joaquin County	8.4	13.2	30.0	1.0	22.8	0.3	82.6
Stanislaus County	6.5	9.0	43.8	0.7	22.7	0.2	18.3
Tulare County	5.7	14.6	35.0	2.2	26.3	0.0	228.5
San Joaquin Valley	7.2	15.8	34.6	1.4	25.2	0.1	66.1
California	14.8	42.5	79.8	3.1	48.3	0.8	30.5

Sources: Department of Consumer Affairs (DCA) Licensee Masterfile, June 2016; US Census Bureau, Population Division, Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2016.

Table 1.10. reinforces the findings presented in Table 1.9. showing that the supply of actively registered pre-license behavioral health professionals varied considerably across the different counties of the San Joaquin Valley region. It is significant that, as of June 2016, there were zero registered psychologists in six of the region's eight counties, and zero psychological assistants in both Madera and Merced counties.

Table 1.10. Actively Registered Pre-license Behavioral Health Providers per 100K Population by County, San Joaquin Valley Region, 2016

Geography	Registered Psychologist	Psychological Assistant	MFT Intern	LPCC Intern	ACSW
Fresno County	0.1	2.9	39.6	3.7	23.7
Kern County	0.0	0.7	23.5	1.2	22.0
Kings County	0.0	0.7	24.7	1.3	20.0
Madera County	0.0	0.0	21.3	0.6	12.3
Merced County	0.0	0.0	16.4	1.9	26.4
San Joaquin County	0.1	1.2	22.9	2.7	21.0
Stanislaus County	0.0	0.6	24.0	3.5	27.9
Tulare County	0.0	1.1	32.4	0.7	19.8
San Joaquin Valley	0.0	1.2	27.7	2.3	22.6
California	0.7	3.8	40.6	4.0	31.5

Sources: Department of Consumer Affairs (DCA) Licensee Masterfile, June 2016; US Census Bureau, Population Division, Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2016.

Substance abuse and behavioral disorder counselor is an unlicensed occupation; therefore, a different source of data is needed to analyze how many of these providers are employed in the San Joaquin Valley region and how they are distributed geographically. The data presented in Table 1.11. are drawn from the OES survey, which is jointly administered by the Bureau of Labor Statistics and the Labor Market Information Division of the California Employment Development Department. Table 1.11. describes estimated employment and employment per capita for substance abuse and behavioral disorder counselors in the San Joaquin Valley region at the metropolitan statistical area (MSA) level, providing what is the functional equivalent of a county-level estimate. Data were not available for all counties in the region due to small sample size. With the exception of Tulare County, the ratio of substance abuse and behavioral disorder counselors among counties in the San Joaquin Valley region was below the state-wide average. Tulare County has a comparatively large number of alcohol and drug abuse recovery and treatment facilities certified by the California Department of Health Care Services, which may explain its high per capita employment of substance abuse and behavioral disorder counselors.

Table 1.11. Substance Abuse and Behavioral Disorder Counselors: Estimated Total Employment and Employment per 100,000 Population by County (San Joaquin Valley Region), 2015

Geography	Estimated total employment	Estimated employment per 100K population
Fresno MSA (Fresno County)	150	15.4
Bakersfield MSA (Kern County)	170	19.3
Hanford-Corcoran MSA (Kings County)	30	20.0
Stockton-Lodi MSA (San Joaquin County)	120	16.6
Visalia-Porterville MSA (Tulare County)	140	30.6
California	8,570	22.0

Sources: California Employment Development Department, Occupational Employment Statistics Survey, May 2015; US Census Bureau, Population Division, Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2016.

Chapter 2 – Demographic Characteristics of Health Professionals

When considering health workforce needs, it is important to consider the demographic characteristics of health professionals, as well as their supply and distribution. Demographic information provides insights about the persons in the workforce and how likely they are to remain in the workforce. Historically, African-Americans and Latinos have been underrepresented in many health professions, especially those that require doctoral degrees. The proportions of men and women in health professions have also varied across health professions with some composed primarily of men and others composed primarily of women. Information about the age distribution of health professionals is especially important because it indicates what percentage of persons in a profession are likely to retire in the near term.

As with supply and distribution, there is no single source of information that can be used to describe the demographic characteristics of all health professionals. For physicians and registered nurses (RNs), estimates were obtained from surveys conducted by their licensing boards. For all other professions, estimates were obtained from the American Community Survey (ACS) because their licensing boards do not report demographic information. Analyses for these professions are limited to the California-level and are based on a five-year sample covering the period 2011-2015. The estimates should be interpreted as average values over that 5-year period for the demographic characteristics of physician assistants (PAs), certified nurse midwives (CNMs), and nurse practitioners (NPs). A major weakness of the ACS is that the sample size is not large enough to generate regional or county level estimates of demographic characteristics for these health professionals. Estimates are not available for clinical nurse specialists (CNS) and certified registered nurse anesthetists (CRNAs).

Medical and Nursing Professionals

Race and Ethnicity

Table 2.1. presents estimates of the racial and ethnic composition of allopathic medical doctors (MDs) in the San Joaquin Valley obtained from the Medical Board of California's mandatory survey. The table describes active patient care physicians (i.e., physicians who have completed training and provide patient care 20 or more hours per week). Asians constituted the largest percentage of MDs in the San Joaquin Valley (43%) followed by Whites (25%). The percentage of Latinos MDs (8%) was much smaller compared to the percentage of Latinos in the region's general population. These estimates also indicate that the racial and ethnic composition of the MD workforce varied considerably across the seven counties of the San Joaquin Valley region. Kings County had the largest share of White MDs, while San Joaquin County had the lowest (32% vs. 21%). Tulare County had the largest share of Latino MDs and San Joaquin had the lowest (13% vs. 4%).

Table 2.1. Active Patient Care MDs by Race/Ethnicity and County, 2015

County	White	Latino	Asian	Black	Two or More Races	Other	Decline to State
Fresno	27%	11%	37%	4%	0%	4%	17%
Kern	23%	7%	45%	5%	1%	3%	15%
Kings	32%	8%	31%	8%	0%	5%	15%
Madera	27%	9%	39%	5%	0%	4%	17%
Merced	26%	5%	44%	4%	0%	5%	16%
San Joaquin	21%	4%	53%	6%	0%	3%	12%
Stanislaus	26%	5%	46%	2%	1%	3%	17%
Tulare	27%	13%	39%	3%	2%	4%	17%
San Joaquin Valley	25%	8%	43%	4%	1%	4%	15%
California	37%	6%	34%	3%	0%	3%	16%

Source: Medical Board of California 2015 Mandatory and Supplemental Surveys, private tabulation.

Notes: Active Patient Care defined as MDs who provide at least 20 hours of patient care per week, regardless of specialty. At the San Joaquin Valley region level, “Other” category includes Other Pacific Islander (<1%), American Indian (<1%), Native American (<1%), Fijian (<1%), Samoan (<1%), Guamanian (<1%), Hawaiian (<1%), and Other (3.4%).

As Table 2.2. indicates, among active patient care MDs, the San Joaquin Valley region had a substantially higher share of Asian physicians than California overall (43% vs. 34%); only the Inland Empire region had a larger share (45%). The share of MDs in the San Joaquin Valley identified as Latino was tied for the largest in the state (tied with San Diego) and was slightly larger than California overall (8% vs. 6%).

Table 2.2. Active Patient Care MDs by Race/Ethnicity and Region, 2015

Region	White	Latino	Asian	Black	Two or More Races	Other	Decline to State
Central Coast	48%	6%	21%	1%	1%	4%	19%
Greater Bay Area	39%	4%	34%	2%	0%	3%	18%
Inland Empire	26%	7%	45%	4%	1%	3%	14%
Los Angeles	33%	7%	37%	4%	1%	4%	15%
Northern & Sierra	53%	4%	18%	2%	0%	3%	20%
Orange	33%	5%	42%	1%	0%	4%	15%
Sacramento Area	40%	4%	32%	2%	1%	3%	18%
San Diego Area	47%	8%	22%	2%	0%	3%	18%
San Joaquin Valley	25%	8%	43%	4%	1%	4%	15%
California	37%	6%	34%	3%	0%	3%	16%

Source: Medical Board of California 2015 Mandatory and Supplemental Surveys, private tabulation.

Notes: Active Patient Care defined as MDs who provide at least 20 hours of patient care per week, regardless of specialty. “Other” category includes Other Pacific Islander (<1%), American Indian (<1%), Native American (<1%), Hawaiian (<1%), Fijian (<1%), Samoan (<1%), Guamanian (<1%), Tongan (<1%) and Other race (2.8%).

An important limitation of the Medical Board’s data describing the race and ethnicity of MDs is that 15% of active patient care MDs in the San Joaquin Valley who completed the mandatory survey in 2015 checked off a response option labeled “decline to state.” This is comparable to the percentage of MDs statewide who declined to report their race and ethnicity. It is unknown whether MDs declined to report this information at random or if MDs in certain racial and ethnic groups were more likely to decline to report than others.

In California overall, Latinos were better represented among PAs, NPs, and CNMs than they are among MDs. As Table 2.3. shows, the ACS data indicate that in California, Latinos constituted 22% of employed PAs (versus 6% of MDs). In contrast, the share of PAs identified as Asian is lower in comparison to MDs (20% vs. 34%). Statewide, the share of employed NPs and CNMs identified as Latino falls between the shares of MDs and PAs (8% of MDs, 14% of NPs and CNMs, 22% of PAs.) Asians were less represented among employed NPs and CNMs in comparison to PAs (13% vs. 20%). As noted previously, regional and county level estimates are not available for these professions due to small sample size.

Table 2.3. Employed PAs, NPs, and CNMs by Race/Ethnicity, California, 2011-2015

Race/Ethnicity	PAs	NPs and CNM
White	48%	65%
Latino	22%	14%
Asian	20%	13%
Other	10%	8%

Source: American Community Survey (ACS) Public Use Microdata Sample (PUMS) 2011-2015, 5-year estimates.

Notes: Data represent a five-year average; sample is restricted to employed PAs, NPs, and CNMs with an associate degree or higher. “Other” category includes Black or African-American, Native Hawaiian or Pacific Islander, Some other race, and Two or more races (small sample sizes made it impossible to generate estimates for these groups individually).

Table 2.3. presents estimates of the racial and ethnic composition of RNs by region derived from responses to the California Board of Registered Nursing (BRN) 2014 Survey of Registered Nurses. White RNs accounted for the largest percentage of all RNs in the San Joaquin Valley (51%), followed by Filipino RNs (21%). Compared to California overall, the San Joaquin Valley had a slightly larger percentage of Latino RNs (10% vs. 8%) but the percentage was much smaller relative to the share of Latinos in the region’s general population. The San Joaquin Valley had the largest share of Latino RNs of any region in California, except the Inland Empire. County level estimates are not presented because sample sizes are too small to generate reliable estimates at the county level.

Table 2.4. Active RNs by Race/Ethnicity and Region, 2014

Region	White	Latino	Filipino	Other Asian	Black	Other or Two or More Races
Central Coast	75%	7%	8%	3%	0.5%	6%
Greater Bay Area	52%	6%	20%	11%	4%	7%
Inland Empire	47%	10%	20%	5%	7%	10%
Los Angeles	32%	9%	28%	13%	10%	8%
Northern & Sierra	85%	3%	3%	3%	2%	4%
Orange	52%	4%	24%	15%	1%	4%
Sacramento Area	63%	4%	17%	6%in	4%	6%
San Diego Area	58%	8%	20%	4%	3%	6%
San Joaquin Valley	54%	10%	21%	4%	3%	7%
California	51%	8%	21%	9%	5%	7%

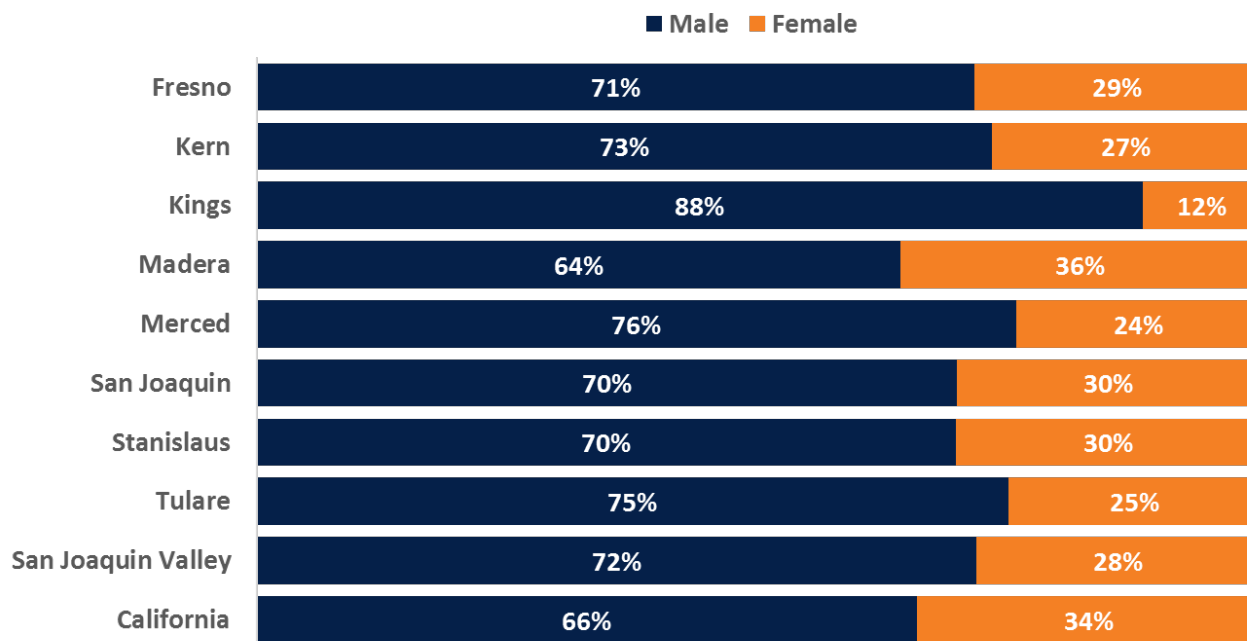
Source: California Board of Registered Nursing Sample Survey, 2014.

Notes: The category “Other Asian” includes Cambodian, Chinese, Indian, Indonesian, Japanese, Korean, Laotian, Pakistan, Thai, Vietnamese, Guamanian, Hawaiian, Samoan, Tongan, and other Asian.

Gender

Figure 2.1. displays the percentages of active patient care physicians by gender for each county within the San Joaquin Valley region, the region overall, and California overall. The percentage of female physicians in the San Joaquin Valley was smaller compared to California overall (28% vs. 34%). Madera County had the largest share of female MDs (36%) while Kings County had the smallest (12%). The large share of female MDs in Madera County may reflect the presence of Valley Children’s Hospital, as pediatrics has a higher share of female physicians relative to most other medical specialties.

Figure 2.1. MDs in the San Joaquin Valley and California by Gender, 2015



Source: Medical Board of California 2015 Mandatory and Supplemental Surveys, private tabulation.

Note: Active patient care defined as physicians who provide at least 20 hours of patient care per week, regardless of specialty.

Table 2.5. presents estimates of the gender composition of employed PAs, NPs, and CNMs in California. In California, the share of employed PAs identified as female was much larger in comparison to MDs (66% vs. 34%), while females constituted a much larger percentage of employed NPs and CNMs (90%) compared to either PAs (66%) or MDs (34%). This is largely due to the fact that NPs and CNMs are registered nurses (RNs) with advanced training. Although the percentage of RNs who are male has increased in recent decades, RNs remain predominantly female.

Table 2.5. Employed PAs, CNMs and NPs by Gender, California, 2011-2015

Gender	PAs	NPs and CNM
Male	34%	10%
Female	66%	90%

Source: American Community Survey (ACS) Public Use Microdata Sample (PUMS) 2011-2015, 5-year estimates.

Note: Data represent a five-year average; sample is restricted to employed PAs, NPs, and CNMs with an associate degree or higher. Regional and county level estimates are not available due to sample size limitations.

Table 2.6 shows that statewide 88% of RNs were female and 12% are male. The gender composition of RNs in the San Joaquin Valley was identical to that of California overall.

Table 2.6. Active RNs by Gender, California, 2014

Gender	RNs
Male	12%
Female	88%

Source: California Board of Registered Nursing Survey, 2014.

Age Distribution

Table 2.7. presents estimates of the age distribution of active patient care MDs for each county within the San Joaquin Valley, the region overall, and California overall. Active patient MDs in the San Joaquin Valley region were older compared to active patient care MDs statewide. Thirty percent of active patient care MDs in the San Joaquin Valley region were over the age of 60 versus 17% of all active patient care MDs in California. Within the San Joaquin Valley region, Stanislaus County had the smallest share of physicians over age 60 years (22%) and Kings County had the largest (39%).

Table 2.7. Age Distribution of Active Patient Care by MDs County, 2015

Region	Under 40 Years Old	40 to 60 Years Old	Over 60 Years Old
Fresno	13%	58%	29%
Kern	12%	55%	33%
Kings	12%	49%	39%
Madera	18%	57%	24%
Merced	14%	50%	36%
San Joaquin	14%	53%	33%
Stanislaus	17%	62%	22%
Tulare	13%	49%	38%
San Joaquin Valley	14%	56%	30%
California	27%	57%	17%

Source: Medical Board of California 2015 Mandatory and Supplemental Surveys, private tabulation.

Note: Active patient care defined as MDs who provide at least 20 hours of patient care per week, regardless of specialty.

Table 2.8. displays estimates of the age distribution of employed PAs, NPs, and CNMs in California. The PA workforce was younger than the MD workforce. Estimates from the ACS indicate that only 8% of employed PAs in California were over the age of 60, compared to 17% of all active patient care physicians. The percentage of NPs and CNMs over the age of 60 (13%) was higher than the percentage of PAs, but lower than the percentage of MDs.

Table 2.8. Age Distribution of PAs, NPs, and CNMs, California, 2011-2015

Age Group	PAs	NPs and CNMs	RNs
Under 40 Years Old	53%	32%	31%
40 to 60 Years Old	39%	55%	52%
Over 60 Years Old	8%	13%	18%

Source: American Community Survey (ACS) Public Use Microdata Sample (PUMS) 2011-2015, 5-year estimates; California Board of Registered Nursing Survey, 2014.

As the estimates displayed in Table 2.9. indicate, the percentage of RNs in California overall who were age 60 or older was similar to the percentage of MDs (18% vs. 17%). The RN workforce in the San Joaquin Valley was younger compared to the overall RN workforce in California. According to the BRN 2014 Survey of Registered Nurses, 14% of RNs in the region were age 60 or older vs. 18% of RNs in California. The percentage of RNs who are age 60 or older is less than half the percentage of MDs (30%).

Table 2.9. Age Distribution of RNs, California and the San Joaquin Valley, 2014

Age Group	San Joaquin Valley	California
Under 40 Years Old	31%	31%
40 to 60 Years Old	55%	52%
Over 60 Years Old	18%	18%

Source: California Board of Registered Nursing Survey, 2014.

Behavioral Health Professionals

The demographic characteristics of the behavioral health care workforce are an important indicator of future workforce needs and the extent to which current providers reflect the diversity of the patient population they treat. Comparisons of behavioral health care professionals' race and ethnicity, gender, and age profile are presented. Estimates are derived from the American Community Survey (ACS), Public Use Microdata Sample (PUMS) with the exception of those describing psychiatrists, which are sourced from the Medical Board of California.

ACS data have two important limitations. The first is the lack of specificity; only psychologists, counselors, and social workers can be uniquely described, and within each of these professions, the ACS data will include individuals who are working in settings unrelated to behavioral health care. The second critical limitation of the ACS is the small number of sample observations for individual professions. The analysis of psychologists,

counselors, and social workers presented here is limited to the California-level and is based on a five-year sample covering the period 2011-2015. The estimates should be interpreted as average values over that 5-year period for the demographic characteristics of psychologists, counselors and social workers. There are too few sample observations in the ACS to describe characteristics of individual behavioral health professionals at the regional level or for a single year. The data sourced from the Medical Board mandatory survey represents individuals with an active license and current practice in California as of 2015. These data can be used to describe psychiatrists practicing in the San Joaquin Valley region and they are included in the series of tables that follow.

Race and Ethnicity

The racial and ethnic composition of psychiatrists is presented separately from psychologists, counselors, and social workers because the response categories used in the two different surveys (the Medical Board's renewal survey versus the American Community Survey) are not entirely consistent. The Medical Board data includes two response options "decline to state" and "did not answer" that do not exist in the ACS data.

Table 2.10. compares the racial and ethnic composition of psychiatrists practicing in the San Joaquin Valley versus California. These data indicate that psychiatrists in the region were more racially and ethnically diverse compared with the state as a whole. The share of psychiatrists identified as White in the San Joaquin Valley (25%) was considerably smaller than California overall (41%). This difference is reflected in the shares psychiatrists identified as Asian, who accounted for 39% of psychiatrists practicing in the region but only 20% of psychiatrists practicing in the state. The percentage of Latinos was much lower among psychiatrists than among the general population of the region.

Table 2.10. Active Psychiatrists by Race and Ethnicity, San Joaquin Valley vs. California, 2015

Profession	San Joaquin Valley	California
White	25%	41%
Latino	7%	4%
Asian	39%	20%
Black or African American	3%	2%
Other	2%	4%
Decline to state	11%	13%
Did not answer	13%	17%
Number of professionals	298	5,806

Source: Medical Board of California, mandatory survey, 2015.

Note: The Medical Board data describe psychiatrists who have completed training and practice in CA; residents and fellows are excluded. "Other" includes Alaska Native, American Indian, Native American, Fijian, Guamanian, Hawaiian, Samoan, Tongan, Other Pacific Islander, and Other race/ethnicity.

Table 2.11. presents data describing the racial and ethnic composition of psychologists, counselors, and social workers employed in California over the period 2011-2015. Due to small sample size, psychologists identified as Black or African American are included with "Other" in the table below. The data indicate that counselors and social workers were more racially and ethnically diverse than psychologists, with substantial differences in the

shares of White, Latino, and African American professionals. The share of Latino counselors and social workers was three times as large as the share of psychologists. The share of Black or African American psychologists was too small to estimate; in contrast, 8% of counselors and 11% of social workers were identified as Black or African American.

Table 2.11. Employed Psychologists, Counselors, and Social Workers by Race and Ethnicity, California, 2011-2015

Profession	White	Latino	Asian	Black or African American	Other	Number of professionals
Psychologists	79%	8%	8%	--	5%	15,359
Counselors	57%	23%	10%	8%	2%	35,690
Social Workers	50%	24%	11%	11%	3%	32,749

Source: American Community Survey, Public Use Microdata Sample 2011-2015, 5-year estimates.

Note: The ACS data were limited to employed psychologists with a doctoral degree, employed counselors with a master's or higher degree, and employed social workers with a master's or higher degree. "Other" includes Native Hawaiian or Pacific Islander, American Indian, Alaska Native, Some other race, and Two or more races (and in the case of psychologists, Black or African American). Small sample counts prevented the generation of estimates for these groups individually.

Gender

Table 2.12. presents data describing the composition of psychiatrists, psychologists, counselors and social workers employed in California. As with the data comparing each profession's age profile, Table 2.12. demonstrates substantial differences in gender composition by provider type. Psychiatry stands out for the share of the workforce identified as male (63%). The share of men employed in each of the other three professions was considerably smaller; only 25% of counselors and only 18% of social workers were male.

Table 2.12. Behavioral Health Care Professionals by Gender, California, 2011 – 2015

Profession	Male	Female	Number of professionals
Psychiatrists – San Joaquin Valley (2015)	68%	32%	298
Psychiatrists – California (2015)	63%	37%	5,806
Psychologists	33%	67%	15,359
Counselors	25%	75%	35,690
Social Workers	18%	82%	32,749

Sources: American Community Survey, Public Use Microdata Sample 2011-2015, 5-year estimates; Medical Board of California, mandatory survey, 2015.

Note: The ACS data were limited to employed psychologists with a doctoral degree, employed counselors with a master's or higher degree, and employed social workers with a master's or higher degree. The Medical Board data describe psychiatrists who have completed training and practice in CA; residents and fellows are excluded.

Age Distribution

Table 2.13. presents the distribution for psychiatrists, psychologists, counselors and social workers in California by age group. The age group distribution for psychiatrists represents individuals with an active license and current practice in California as of 2015. These data indicate contrasting age profiles for psychiatrists and psychologists in comparison to counselors and social workers. Nearly half of all psychiatrists (45%) and more than one-third of psychologists (37%) were over the age of 60; the shares of counselors and social workers over the age of 60 were considerably smaller (17% of counselors, and just 13% of social workers). Conversely, the share of counselors and social workers under the age of 40 (both 41%) was much larger in comparison to psychiatrists (11%) and psychologists (23%).

Table 2.13. Behavioral Health Care Professionals by Age Group, California, 2011 – 2015

Profession	Under 40 years old	40 to 60 years old	Over 60 years old	Number of professionals
Psychiatrists – San Joaquin Valley (2015)	8%	50%	43%	298
Psychiatrists – California (2015)	11%	44%	45%	5,806
Psychologists	23%	40%	37%	15,359
Counselors	41%	42%	17%	35,690
Social Workers	41%	46%	13%	32,749

Sources: American Community Survey, Public Use Microdata Sample 2011-2015, 5-year estimates; Medical Board of California, mandatory survey, 2015.

Note: The ACS data were limited to employed psychologists with a doctoral degree, employed counselors with a master's or higher degree, and employed social workers with a master's or higher degree. The Medical Board data describe psychiatrists who have completed training and practice in CA; residents and fellows are excluded.

Chapter 3 – Educational Pipeline

An assessment of the pipeline of graduates of training programs in medical, nursing, and behavioral health professions is important to evaluate the San Joaquin Valley's ability to meet future workforce needs. This chapter presents information about graduates of training programs in the region and in California because some health professionals migrate within the state after completing training. In addition, in some health professions, the region must rely on educational institutions in other parts of California, the nation, and the world to fill positions. As in the chapter focused on the current workforce, findings in this chapter are organized into two sections: one describing the educational pipeline for medicine and nursing and a second focused on behavioral health professionals.

Information presented in this chapter was obtained from multiple sources. Data on graduates of medical schools and residency programs were acquired from the American Association of Colleges of Osteopathic Medicine, the Association of American Medical Colleges, the National Resident Matching Program, and the Medical Board of California's mandatory survey. The American Association of Colleges of Nursing was the source of information about graduates of advanced practice nursing education programs. Data on graduates of registered nursing (RN) education programs were extracted from reports issued by the California Board of Registered Nursing (BRN). The Integrated Post-secondary Education Data System was used to obtain data on graduates of training programs in the behavioral health professions.

Medical and Nursing Professionals

Supplies of Medical School and Residency Graduates and PA, NP, and CRNA Graduates

There are no physician assistant (PA) education and certified nurse midwifery (CNM) education programs in the San Joaquin Valley, and clinical nurse specialist (CNS) programs in the region did not report any graduates in 2016. In these professions, the region has to rely on persons who are trained in other parts of California, other states, or other countries. The region also does not have any medical schools but does have medical residency and fellowship programs in multiple specialties. (To obtain a license to practice medicine, a physician has to complete medical school as well as a residency in a particular specialty, which usually lasts three to five years. Some physicians also choose to complete a fellowship in a sub-specialty.)

Table 3.1. describes the numbers of first-year allopathic (MD) residents and fellows and graduates of nurse practitioner (NP) and certified registered nurse anesthetist (CRNA) training programs in each county in the San Joaquin Valley in 2016. The number of first-year residents and fellows is similar to the number of graduates of medical residency and fellowship programs. The region had a total of 203 first-year residents and fellows, 64 graduates of NP education programs, and 9 graduates of CRNA training programs. The numbers of first-year residents and fellows and graduates of NP and CRNA training programs vary across counties in the San Joaquin Valley. Six of the eight counties in the region have medical residency and/or fellowship programs, but Fresno and Kern counties are the only counties that have NP education programs. Fresno is also the only county that has a CRNA education program. Fresno County had a much larger number of first-year medical residents than any other county in the region due to the presence of the UCSF-Fresno Medical Education Program.

Table 3.1. MD Residents & Fellows, NP and CRNA Graduates by County, San Joaquin Valley region, 2016

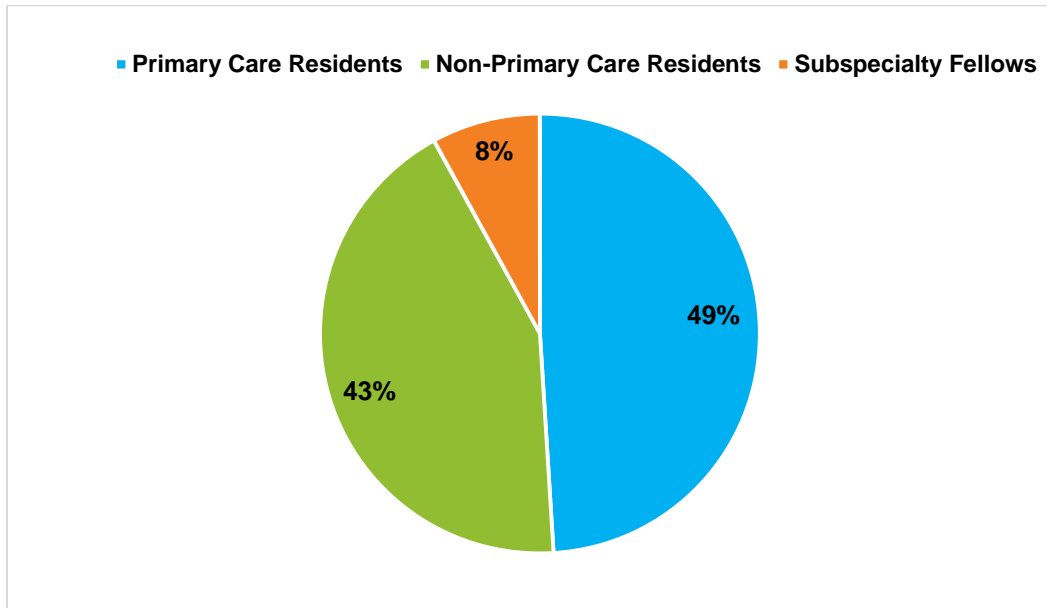
County	1 st -year MD Residents and Fellows	NP Graduates	CRNA Graduates
Fresno	95	45	9
Kern	33	15	0
Kings	0	0	0
Madera	0	0	0
Merced	8	0	0
San Joaquin	20	0	0
Stanislaus	12	0	0
Tulare	35	0	0
San Joaquin Valley	203	64	9
California	37%	6%	34%

Sources: National Residency Match Program (NRMP) 2016 Main Match Results; Program directors of CRNA and CNM nursing education programs; American Association of Colleges of Nursing, *Research and Data Services*.

Note: CRNA data describe 2014-2015 academic year graduates. Currently, there are no allopathic (MD) or osteopathic (DO) granting medical schools and no PA, CNM, or CNS programs in the San Joaquin Valley region.

Figure 3.1. displays the percentages of first-year medical residents and fellows in the region who enrolled in residency programs in primary care specialties, residency programs in non-primary care specialties, and sub-specialty fellowships. For this report, primary care specialties are defined as family medicine, general internal medicine, general pediatrics, and obstetrics/gynecology. Forty-nine percent of first-year residents and fellows were enrolled in residency programs in primary care specialties. Many of these residents will go on to provide primary care but large percentages of general internal medicine and general pediatrics residents will go on to complete a sub-specialty fellowship.

Figure 3.1. First-Year MD Residents & Fellows in the San Joaquin Valley by Specialty Type, 2016

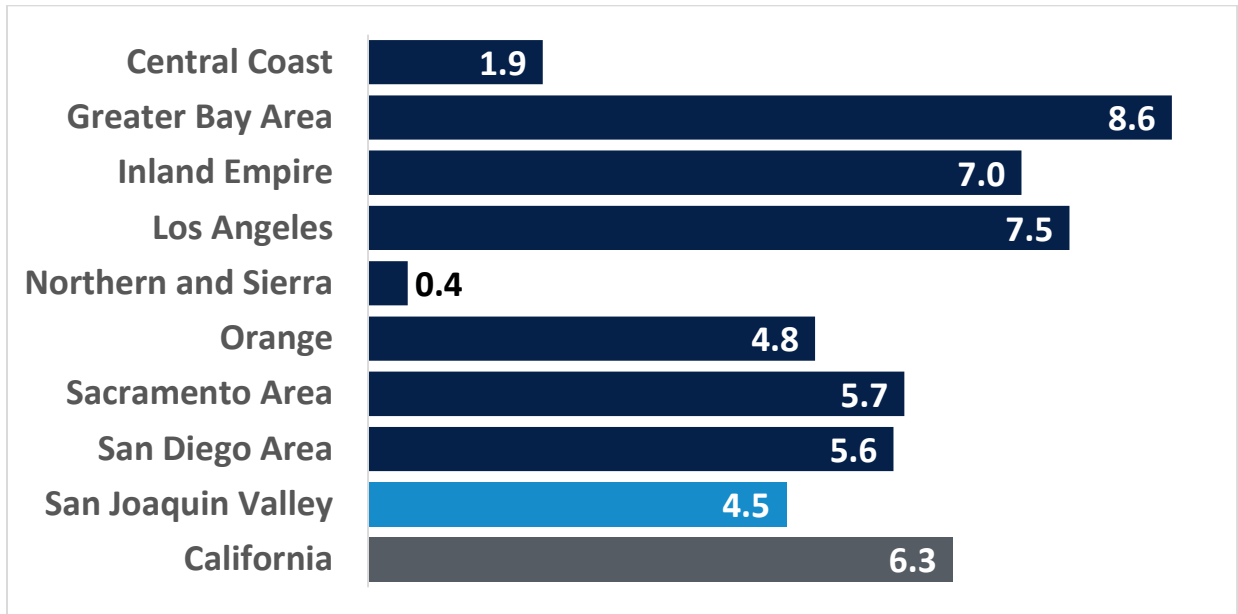


Source: National Residency Match Program (NRMP) 2016 Main Match Results and 2017 Specialty Match Results.

Note: MD fellowship data describe 2017 match results.

As Figure 3.2. indicates, the San Joaquin Valley has the third lowest ratio of first-year medical residents per 100,000 population of any region in California. Only the Central Coast and Northern and Sierra regions have lower per capita ratios of first-year medical residents. The per capita ratio of first-year medical residents in the San Joaquin Valley was 29% lower than the per capita ratio for California overall (4.5 vs. 6.3) and 48% lower than the per capita ratio in the Greater Bay Area (8.6), the region with the highest per capita ratio of first-year medical residents.

Figure 3.2. First-Year Medical Residents per 100,000 Population by Region, 2016



Sources: National Residency Match Program (NRMP), “NRMP Program Results 2012-2016 Main Residency Match”, private data aggregation and calculation; US Census Bureau, Population Division, Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2015.

Table 3.2. presents information about numbers of graduates of RN education programs and ratios of RN graduates per 100,000 population in 2014-2015. According to data reported to the BRN, 1,112 persons graduated from an RN education program in the San Joaquin Valley in 2014-2015. The per capita ratio of RN graduates in the San Joaquin Valley was similar to the per capita ratio for California overall but lower than the ratios in the Bay Area, Los Angeles, and San Diego regions. Note that the regions the BRN uses to report data on RN education are not the same as the regions used elsewhere in this report.

Table 3.2. Number of Graduates of RN Education Programs in California and by Region, 2014-2015

Region	RN Graduates	RN Graduates Per Capita
Bay Area	2,472	35
Central Coast	188	15
Central Sierra	0	0
Greater Sacramento	477	20
Inland Empire and Orange County	1,625	21
Los Angeles and Ventura	3,714	34
Northern California	100	19
Northern Sacramento Valley	250	48
San Diego Area	1,181	34
San Joaquin Valley	1,112	27
California	11,119	28

Source: California Board of Registered Nursing School Reports, 2014-2015.

Note: A list of counties in each of the regions used by the BRN is available at: <http://www.rn.ca.gov/forms/reports.shtml#school>.

Demographic Characteristics of Graduates of Medical and Nursing Education Programs

Race and Ethnicity

Data on the race and ethnicity of graduates of medical schools and PA, NP, and CNS education programs in California are presented in Table 3.3. In all five professional disciplines, Whites constituted the largest percentage of graduates in 2016 and Asians constituted the second largest percentage. In all professions, Latinos were underrepresented relative to the percentage of Latinos in California's general population (38%). African-Americans were underrepresented among graduates of MD, DO, and PA education programs.

Table 3.3. Graduates of MD, DO, PA, NP, and CNS Education Programs in California by Race, Ethnicity, 2016

Race/Ethnicity	MD	DO	PA	NP	CNS
White	38%	53%	50%	35%	48%
Latino	7%	4%	20%	14%	15%
Asian	35%	33%	18%	27%	21%
Black or African-American	5%	1%	2%	11%	7%
Other	4%	5%	3%	9%	7%
Two or More Races	11%	5%	7%	5%	2%

Sources: Association of American Medical Colleges, FACTS: Applicants, Matriculants, Enrollment, Graduates, M.D.-Ph.D., and Residency Applicants Data; American Association of Colleges of Osteopathic Medicine, Reports on Graduates; Integrated Postsecondary Education Data System (IPEDS) Completions Data; American Association of Colleges of Nursing (AACN), Research and Data Services

Table 3.4. displays information on the race and ethnicity of graduates of RN education programs in the San Joaquin Valley and California during the 2014-2015 academic year. The percentage of Latino graduates of RN education programs in the San Joaquin Valley was much larger than the percentage of practicing Latino RNs in the region (25% vs. 10%) and larger than the percentage of RN graduates in California overall (20%). In contrast, the percentage of Filipinos among RN graduates in the region was much lower than the percentage of practicing RNs who were Filipino (6% vs. 21%). This finding is not surprising because many Filipino RNs who practice in California completed their education in the Philippines before immigrating to the United States.

Table 3.4. Graduates of RN Education Programs in California by Race, Ethnicity, 2016

Race/Ethnicity	San Joaquin Valley	California
White	46%	42%
Latino	25%	20%
Filipino	6%	8%
Other Asian	14%	18%
Black or African-American	2%	4%
Other	4%	4%
Two or More Races	3%	3%

Source: California Board of Registered Nursing School Report, 2014-2015.

Note: Percentages may not sum to 100% due to rounding.

Gender

Table 3.5. describes the gender composition of 2016 graduates of MD, DO, PA, NP, and CNS education programs in California. The percentage of female graduates of MD-granting medical schools was higher than the percentage of practicing female MDs (48% vs. 34%). The percentages of males and females among graduates of PA education programs was similar to the percentages of males and females among practicing PAs. Males were a higher percentage of NP graduates than of practicing NPs (15% vs. 10%).

Table 3.5. Graduates of MD, DO, PA, NP, and CNS Education Programs in California by Gender, 2016

Gender	MD	DO	PA	NP	CNS
Male	52%	58%	32%	15%	11%
Female	48%	42%	68%	85%	84%
Unknown	0%	0%	0%	0%	6%

Sources: Association of American Medical Colleges, FACTS: Applicants, Matriculants, Enrollment, Graduates, M.D.-Ph.D., and Residency Applicants Data; American Association of Colleges of Osteopathic Medicine, Reports on Graduates; Integrated Postsecondary Education Data System (IPEDS) Completions Data; American Association of Colleges of Nursing (AACN), Research and Data Services.

Table 3.6. displays the percentages of males and females among persons who graduated from RN education programs in the San Joaquin Valley and in California overall, during the 2014-2015 academic year. As with NPs, the percentage of males was higher among graduates of RN education programs in California than among practicing RNs (18% vs. 12%). The percentage of males among graduates of RN education programs in the San Joaquin Valley was even higher (24%).

Table 3.6. Graduates of RN Education Programs in the San Joaquin Valley and California, 2014

Gender	San Joaquin Valley	California
Male	24%	18%
Female	76%	81%
Unknown	0%	1%

Source: California Board of Registered Nursing School Report, 2014-2015.

Behavioral Health Professionals

Supplies of Psychiatric Residents and Fellows, and Graduates of Behavioral Health Professions Education Programs

Tables 3.7. through 3.11. describe the supply of first-year psychiatry residents, first-year child and adolescent fellows, and graduates of clinical or counseling psychology (which includes marriage and family therapy), social work, psychiatric technician, and substance abuse and addiction counseling education programs. The tables present the total number of residents, fellows, and graduates, and totals adjusted per 100,000 population. Data are presented for the San Joaquin Valley region and for California overall, and where applicable, by type of degree.

As with the supplies and demographic characteristics of behavioral health professionals, there is no single source of data on the supplies and demographic characteristics of trainees in these professions. Data on residents and fellows in psychiatry were obtained from the NRMP and indicate the numbers of first-year residents and fellows in 2016.

Table 3.7. presents NRMP data on first-year residents in psychiatry and first-year fellows in child psychiatry, the only sub-specialty of psychiatry in which fellowship programs in California participated in the NRMP. Fellowships in child psychiatry enroll physicians who have completed a residency in psychiatry and wish to obtain additional training in the care of children and adolescents with psychiatric needs. Overall, psychiatric residency and fellowship programs train comparatively few people. In 2016, there were 13 first-year psychiatry residents in the San Joaquin Valley and three first-year fellows in child and adolescent psychiatry. After adjusting for population size, there was no appreciable difference in the supply of residents and fellows comparing the San Joaquin Valley region with the state as a whole.

Table 3.7. First-year Psychiatric Residents and Fellows (Number and Per capita ratio), San Joaquin Valley vs. California, 2016

Program Type	Number		Per 100K Population	
	San Joaquin Valley	California	San Joaquin Valley	California
Psychiatry (first-year residency)	13	146	0.31	0.37
Child & Adolescent Psychiatry (first-year fellowship)	3	33	0.07	0.08

Sources: National Resident Matching Program, 2016; US Census Bureau, Population Division, Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2016.

Notes: Psychiatry includes 146 first year positions in psychiatry programs and 33 first year positions in combined psychiatry and medicine or family medicine residency programs.

Tables 3.8. and 3.9. describe 2015 graduates of clinical or counseling psychology (including marriage and family therapy) and social work programs at the master's and doctoral level. The social work data describes graduates of programs that have been approved by the California Board of Behavioral Sciences (BBS) as meeting the educational requirements to become a licensed clinical social worker. The clinical or counseling psychology master's degree data represent schools that offer programs approved by the BBS as meeting the educational requirements for licensure as a marriage & family therapist (MFT) or licensed professional clinical counselor

(LPCC). Because there is no comprehensive list of approved programs published by the California Board of Psychology, the clinical or counseling psychology doctoral degree data represent graduates of all doctoral-level programs, except those that are explicitly unrelated to behavioral health care practice (e.g., industrial and organizational psychology).

There are 9 BBS-approved MFT or LPCC programs in the San Joaquin Valley. However, five of these programs are part of a multi-campus institution (e.g., University of Phoenix) which reports data at the corporate system level. There is no way to know how many graduates of a multi-campus institution attended a program in the San Joaquin Valley, versus another region of the state. Thus, the number of graduates reported in tables 3.8. and 3.9. (and all tables describing graduates of clinical or counseling psychology programs) may underestimate the total number of graduates in the San Joaquin Valley. Furthermore, many schools that offer BBS-approved MFT & LPCC programs offer other graduate-level programs in psychology that do not lead to MFT or LPCC licensure. In some cases, the schools report IPEDS data in a way that makes it impossible to distinguish graduates who have trained to pursue MFT or LPCC licensure from graduates who have not. Finally, there is only a single doctoral-level psychology program in the San Joaquin Valley region (UC Merced). Due to the manner in which UC Merced reports IPEDS data, it is not possible to distinguish graduates who plan to pursue clinical practice in behavioral health from graduates who will seek employment in fields outside of healthcare.

Table 3.8. presents the 2015 total number of graduates from clinical or counseling psychology and social work programs for both the San Joaquin Valley region and California as a whole, by degree level. Clinical social work requires a master's degree for licensure. Thus, it is not surprising that the region has no doctoral-level programs in social work, and there were very few doctoral-level, social work graduates in California overall. As noted above, there is only a single doctoral-level psychology program in the region, which reported just three total graduates in 2015. Table 3.8. also shows that graduates of social work programs outnumbered graduates of clinical or counseling psychology programs in the San Joaquin Valley region, whereas the reverse was true for California as a whole. However, as noted above, the IPEDS data likely undercount the number of clinical or counseling psychology graduates due to the presence of several multi-campus institutions that operate in the region, but which report data only at the corporate system-level.

Table 3.8. Graduates of Clinical or Counseling Psychology and Social Work Programs by Degree Type (Number), San Joaquin Valley vs. California, 2015

Program Type	Master's Degree		Doctoral Degree		Total	
	San Joaquin Valley	California	San Joaquin Valley	California	San Joaquin Valley	California
Clinical or Counseling Psychology	98	4,629	3	1,170	101	5,799
Social Work	186	3,371	0	18	186	3,389

Source: Integrated Postsecondary Education Data System (IPEDS), 2015 Completions Survey

Table 3.9. presents the 2015 number of graduates of clinical and counseling psychology and social work programs, adjusted for population size, and indicates that the San Joaquin Valley region's supply of graduates preparing to enter the workforce, in these fields, is far below average. The per capita ratio of social work graduates was approximately half the size of the state-wide average, although it is important to keep in mind the caveat regarding multi-campus institutions and how these institutions report data. The per capita ratio of master's-

level graduates of clinical or counseling psychology programs in the region was less than one-quarter the size of the state-wide average.

Table 3.9. Graduates of Clinical or Counseling Psychology and Social Work Programs by Degree Type per 100K Population, San Joaquin Valley vs. California, 2015

Program Type	Master's Degree		Doctoral Degree		Total	
	San Joaquin Valley	California	San Joaquin Valley	California	San Joaquin Valley	California
Clinical or Counseling Psychology	2.4	11.9	0.1	3.0	2.5	14.9
Social Work	4.5	8.6	0.0	0.1	4.5	8.7

Sources: Integrated Postsecondary Education Data System (IPEDS), 2015 Completions Survey; US Census Bureau, Population Division, Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2016.

Table 3.10. presents the 2015 total number of graduates from psychiatric technician and substance abuse and addiction counseling programs for both the San Joaquin Valley region and California as a whole, by degree level. Psychiatric technician education occurs overwhelmingly within California's community college system. A majority of graduates were awarded non-degree certificates below the associate degree level, both in the region and the state overall. Over 40% of all graduates in California trained at a program located in the San Joaquin Valley region. Substance abuse and addiction counseling programs do not lead to licensure; though these professionals are often certified. Graduates of these training programs, overwhelmingly, were granted non-degree certificates below the associate degree level.

Table 3.10. Graduates of Psychiatric Technician and Substance Abuse and Addiction Counseling Programs by Degree Type (Number), San Joaquin Valley vs. California, 2015

Program Type	Non-degree Certificate (below Associate degree)		Associate degree		Total	
	San Joaquin Valley	California	San Joaquin Valley	California	San Joaquin Valley	California
Psychiatric Technician	184	421	101	237	285	658
Substance Abuse and Addiction Counseling	62	1290	13	381	75	1,671

Source: Integrated Postsecondary Education Data System (IPEDS), 2015 Completions Survey

Table 3.11. programs adjusted for population size. These data underscore the fact that the San Joaquin Valley has a very high concentration of psychiatric technicians, both in terms of the educational pipeline and licensed professionals. In contrast, the per capita ratio of substance abuse and addiction counselor graduates (1.8 overall) is low compared to the statewide average (4.3 overall).

Table 3.11. Graduates of Psychiatric Technician and Substance Abuse and Addiction Counseling Programs by Degree Type per 100K Population San Joaquin Valley vs. California, 2015

Program Type	Non-degree Certificate (below Associate degree)		Associate degree		Total	
	San Joaquin Valley	California	San Joaquin Valley	California	San Joaquin Valley	California
Psychiatric Technician	4.4	1.1	2.4	0.6	6.9	1.7
Substance Abuse and Addiction Counseling	1.5	3.3	0.3	1.0	1.8	4.3

Sources: Integrated Postsecondary Education Data System (IPEDS), 2015 Completions Survey; US Census Bureau, Population Division, Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2016.

Race and Ethnicity

Table 3.12. describes the 2015 racial and ethnic composition of psychiatry residents in California in 2015. The share of residents identified as White (35%) was smaller by comparison with practicing psychiatrists (41%), while the share of residents identified as Asian (24%) was larger (20% of practicing psychiatrists in California identified as Asian).

Table 3.12. Residents in Psychiatry by Race and Ethnicity, California, 2015

Race/Ethnicity	California
White	35%
Latino	6%
Asian	24%
Black or African-American	3%
Other	5%
Decline to state	18%
Unknown	10%
Total reported residents	290

Source: Medical Board of California, mandatory survey, 2015

Note: "Other" category includes Other Pacific Islander (<1%), American Indian (<1%), Native American (<1%), Hawaiian (<1%), Fijian (<1%), Samoan (<1%), Guamanian (<1%), Tongan (<1%) and Other race (2.8%). Estimates of number of psychiatry residents sourced from the Medical Board dataset differ from those derived from the National Resident Matching Program because the Medical Board data only include residents who have obtained licensure to practice medicine. Physicians must complete one year of residency to obtain their license.

Table 3.13. describes the 2015 racial and ethnic composition of graduates of clinical or counseling psychology degree programs for both the San Joaquin Valley region and California overall. These data indicate that graduates at the region-level were more racially and ethnically diverse by comparison with the rest of the state. This difference was pronounced for graduates who identified as Latino, who represented 36% of master's-level graduates in the San Joaquin Valley region, but just 20% of master's-level graduates across the state. Although comparisons can only be made at the state-level, doctoral-level graduates were less diverse than master's-level graduates. The difference was most apparent in the share of graduates identified as Latino (20% of master's-level graduates, 10% of doctoral-level graduates) and Black or African American (9% of master's-level graduates, 5% of doctoral-level graduates).

Table 3.13. Graduates of Clinical or Counseling Psychology Programs by Race and Ethnicity and Degree Type, San Joaquin Valley vs. California, 2015

Race/Ethnicity	Master's Degree		Doctoral Degree
	San Joaquin Valley	California	California
White	39%	47%	58%
Latino	36%	20%	10%
Asian	7%	6%	10%
Black or African-American	1%	9%	5%
Other	4%	1%	1%
Two or More Races	0%	3%	3%
Unknown	13%	14%	12%
Total reported graduates	98	4,629	1,170

Source: Integrated Postsecondary Education Data System (IPEDS), 2015 Completions Survey

Note: UC Merced reported three doctoral-level graduates that are not included. "Other" category includes Native American and Native Hawaiian/Pacific Islander.

Table 3.14. describes the 2015 racial and ethnic composition of graduates of social work graduates for both the San Joaquin Valley region and California overall. These data indicate that graduates of master's-level social work programs were diverse, both at the region-level and across the state. The 2015 racial and ethnic composition of graduates at the state-level was very similar to that of California's general population. At the region level, Latino graduates represented more than half (51%) of all master's-level graduates in the San Joaquin Valley region (compared to 35% overall). Similar to clinical or counseling psychology programs, graduates of doctoral-level social work programs were less diverse in comparison to master's-level programs.

Table 3.14. Graduates of Social Work Programs by Race and Ethnicity and Degree Type, San Joaquín Valley vs. California, 2015

Race/Ethnicity	Master's Degree		Doctoral Degree
	San Joaquin Valley	California	California
White	25%	36%	22%
Latino	51%	35%	22%
Asian	9%	8%	11%
Black or African-American	8%	12%	11%
Other	1%	1%	0%
Two or More Races	1%	3%	0%
Unknown	6%	6%	33%
Total reported graduates	186	3,371	18

Source: Integrated Postsecondary Education Data System (IPEDS), 2015 Completions Survey

Note: "Other" category includes Native American and Native Hawaiian/Pacific Islander.

Table 3.15. describes the 2015 racial and ethnic composition of psychiatric technician program graduates for both the San Joaquin Valley region and California overall. In general, graduates of psychiatric technician programs were diverse, both in the region and across the state. These data indicate small differences in racial and ethnic composition depending on the award type. At the state-level, White graduates were more likely to earn an associate degree versus the non-degree certificate; at the region-level, Asian graduates were more likely to earn an associate degree versus the non-degree certificate.

Table 3.15. Graduates of Psychiatric Technician Programs by Race and Ethnicity and Degree Type, San Joaquín Valley vs. California, 2015

Race/Ethnicity	Non-degree Certificate (below Associate degree)		Associate degree	
	San Joaquin Valley	California	San Joaquin Valley	California
White	24%	19%	24%	26%
Latino	42%	38%	40%	36%
Asian	22%	20%	29%	20%
Black or African-American	7%	16%	6%	11%
Other	0%	2%	0%	0%
Two or More Races	1%	2%	0%	5%
Unknown	4%	3%	2%	2%
Total reported graduates	184	421	101	237

Source: Integrated Postsecondary Education Data System (IPEDS), 2015 Completions Survey.

Note: “Other” category includes Native American and Native Hawaiian/Pacific Islander.

Table 3.16. describes the 2015 racial and ethnic composition of substance abuse and addiction counseling program graduates for both the San Joaquin Valley region and California overall. At the region-level, the data indicate a difference in the shares of White and Black or African American graduates who earned an associate degree versus the non-degree certificate. However, it is important to acknowledge that only 13 graduates of associate degree programs were reported. It is notable that there were no graduates identified as Asian at the region-level, and Asian graduates represented just 2% of the total statewide. This is a much smaller share by comparison with the other behavioral health professions examined for this report.

Table 3.16. Graduates of Substance Abuse and Addiction Counseling Programs by Race and Ethnicity and Degree Type, San Joaquin Valley vs. California, 2015

Race/Ethnicity	Non-degree Certificate (below Associate degree)		Associate degree	
	San Joaquin Valley	California	San Joaquin Valley	California
White	42%	37%	62%	37%
Latino	34%	29%	31%	24%
Asian	0%	2%	0%	2%
Black or African-American	19%	23%	0%	21%
Other	0%	1%	0%	2%
Two or More Races	3%	3%	8%	4%
Unknown	2%	4%	0%	11%
Total reported graduates	62	1,290	13	381

Source: Integrated Postsecondary Education Data System (IPEDS), 2015 Completions Survey

Note: “Other” category includes Native American and Native Hawaiian/Pacific Islander.

Gender

Table 3.17. shows the 2015 gender composition of psychiatry residents in California, which was 55% male and 45% female. This is consistent with the overall 2016 gender composition of U.S. allopathic medical school graduates.^{vi}

Table 3.17. Residents in Psychiatry by Gender, California, 2015

Gender	California
Male	55%
Female	45%
Total reported residents	290

Source: Medical Board of California, mandatory survey, 2015

Note: Estimates of number of psychiatry residents sourced from the Medical Board dataset differ from those derived from the National Resident Matching Program because the Medical Board data only include residents who have obtained licensure to practice medicine. Physicians must complete one year of residency to obtain their license.

Table 3.18. describes the 2015 gender composition of clinical or counseling psychology program graduates for both the San Joaquin Valley and California overall. The share of female graduates of master’s-level programs

was slightly higher than the statewide average. Across degree levels and geographies, clinical or counseling psychology graduates were predominantly female.

Table 3.18. Graduates of Clinical or Counseling Psychology Programs by Gender and Degree Type, San Joaquin Valley vs. California, 2015

Gender	Master's Degree		Doctoral Degree
	San Joaquin Valley	California	California
Male	17%	20%	22%
Female	83%	80%	78%
Total reported graduates	98	4,629	1,170

Source: Integrated Postsecondary Education Data System (IPEDS), 2015 Completions Survey

Note: UC Merced reported three doctoral-level graduates that are not included.

Table 3.19. describes the 2015 gender composition of social work program graduates for both the San Joaquin Valley and California overall. Across degree levels and geographies, graduates of social work programs were predominantly female.

Table 3.19. Graduates of Social Work Programs by Gender and Degree Type, San Joaquin Valley vs. California, 2015

Gender	Master's Degree		Doctoral Degree
	San Joaquin Valley	California	California
Male	15%	15%	11%
Female	85%	85%	89%
Total reported graduates	186	3,371	18

Source: Integrated Postsecondary Education Data System (IPEDS), 2015 Completions Survey

Table 3.20. describes the 2015 gender composition of psychiatric technician program graduates for both the San Joaquin Valley and California overall. The share of male graduates was slightly higher at the non-degree certificate-level, both in the San Joaquin Valley region and the state as a whole (the difference was more pronounced at the region level). In comparison to graduates of clinical or counseling psychology programs or social work programs, graduates of psychiatric technician programs were less likely to be female.

Table 3.20. Graduates of Psychiatric Technician Programs by Gender and Degree Type, San Joaquín Valley vs. California, 2015

Gender	Non-degree Certificate (below Associate degree)		Associate degree	
	San Joaquin Valley	California	San Joaquin Valley	California
Male	33%	35%	27%	32%
Female	67%	65%	73%	68%
Total reported graduates	184	421	101	237

Source: Integrated Postsecondary Education Data System (IPEDS), 2015 Completions Survey

Table 3.21. describes the 2015 gender composition of substance abuse and addiction counseling program graduates for both the San Joaquin Valley and California overall. These data indicate a difference in gender composition among graduates in the San Joaquin Valley region relative to the rest of the state; the share of male graduates in California was considerably larger. At both the region and state-level, the gender composition did not change based on the type of award (non-degree certificate versus associate degree). Similar to psychiatric technician programs, graduates of substance abuse and addiction counselor programs were more likely to be male in comparison to either clinical or counseling psychology or social work program graduates.

Table 3.21. Graduates of Substance Abuse and Addiction Counseling Programs by Gender and Degree Type, San Joaquin Valley vs. California, 2015

Gender	Non-degree Certificate (below Associate degree)		Associate degree	
	San Joaquin Valley	California	San Joaquin Valley	California
Male	32%	40%	31%	40%
Female	68%	60%	69%	60%
Total reported graduates	62	1,290	13	381

Source: Integrated Postsecondary Education Data System (IPEDS), 2015 Completions Survey

Chapter 4 - Future Demand for Health Professionals

The California Employment Development Department's (EDD) Labor Market Information Division is one of the most widely used sources of estimates of future demand for health professionals in California. One advantage of the EDD estimates is that the agency uses a single algorithm and set of assumptions to estimate demand for all professions. This facilitates direct comparison of estimates for specific health professions and comparisons of health professions to other occupations outside of healthcare. Other forecast models are often specific to a single profession and the assumptions underlying such models prevent their results from being compared to forecasts for other health professions. EDD measures demand as the number of jobs that employers in a given geographic area will seek to fill and typically makes projections for 10-year time horizons.

This chapter presents a series of tables that report EDD's estimates of projected job growth between 2014 and 2024 in the eight metropolitan statistical areas (MSA) of the San Joaquin Valley region: Bakersfield, Fresno, Hanford-Corcoran, Madera, Merced, Modesto, Stockton-Lodi, and Visalia-Porterville. A separate table is presented for each MSA because EDD generates these estimates separately; they cannot be combined with one another. For some professions, MSA-level estimates are not available due to small sample size. Estimates are available for at least one MSA in the region for the following physician specialties: family and general practitioners, general internists, psychiatrists, and all other physicians. Estimates are also available for physician assistants (PAs), nurse practitioners (NPs), registered nurses (RNs), and for the following behavioral health occupations: clinical, counseling, and school psychologists, substance abuse and behavioral disorder counselors, marriage and family therapists, mental health counselors, child, family, and school social workers, healthcare social workers, mental health and substance abuse social workers, and psychiatric technicians.

One limitation of the EDD projections is the use of Standard Occupational Classification (SOC) codes to categorize individual professions. They are not identical to the classifications used by California's licensing boards to categorize licensees, nor are they identical to the Classification of Instructional Program (CIP) codes used by health professions schools to report data through the Integrated Postsecondary Education Data System (IPEDS). For example, there are three SOC codes that may encompass jobs that would require licensure as a licensed clinical social worker – child, family, and school social workers, healthcare social workers, and mental health and substance abuse social workers. Similarly, graduates of master's social work programs could work in any of these three occupations. The EDD estimates also, potentially, overestimate the number of individuals providing behavioral health care because a person could be employed in more than one position.

Medical and Nursing Professionals

Tables 4.1. to 4.8. display EDD estimates of projected employment for medical and nursing professions in the eight MSAs that constitute the San Joaquin Valley region. In each of the seven MSAs for which RN employment projections are available, RNs represent the largest source of absolute job growth among medical and nursing professions. This finding is not surprising given that nursing is the largest health care occupation. In five of the eight MSAs, the relative rate of job growth was highest for either PAs or NPs. Across the seven MSAs for which EDD reported NP employment projections, the relative rate of job growth between 2014 and 2024 is expected to range from 20% to 39%. However, the absolute number of PA and NP jobs that EDD projects will be available in 2024 is much smaller in comparison to the projected number of RN jobs. In all but one of the MSAs for which projections of growth in physician jobs are available, EDD projects that growth in the absolute number of physician jobs and the rate of growth in physician jobs will be lower than job growth among PAs, NPs, and RNs.

In addition to needing medical and nursing professionals to fill new jobs, the San Joaquin Valley will also need additional professionals to replace professionals who are projected to retire within the next 10 years. As with absolute job growth, registered nursing is projected to need the largest number of persons to replace professionals who retire. In four of the seven MSAs in the region for which projections of demand for RNs are

available, the number of RNs needed to replace RNs who are projected to retire is greater than the projected number of new RN jobs.

Table 4.1. Projections of Numbers of Jobs in Medical and Nursing Professions, Bakersfield MSA, 2014-2024

Occupation	Estimated Employment 2014	Projected Employment 2024	Numeric Change 2014-2024	Percent Change 2014-2024	Annual Average Percent Change
Family and General Practitioners	290	310	20	7%	1%
General Internists	200	200	0	0%	0%
Psychiatrists	70	80	10	14%	1%
All Other Physicians	Projections not available				
Physician Assistants	110	140	30	27%	3%
Nurse Practitioners	100	130	30	30%	3%
Registered Nurses	4,580	5,460	880	19%	2%

Source: California Employment Development Department, Labor Market Information Division, January 2017.

Table 4.2. Projections of Numbers of Jobs in Medical and Nursing Professions, Fresno MSA, 2014-2024

Occupation	Estimated Employment 2014	Projected Employment 2024	Numeric Change 2014-2024	Percent Change 2014-2024	Annual Average Percent Change
Family and General Practitioners	290	340	50	17%	2%
General Internists	Projections not available				
Psychiatrists	90	100	10	11%	1%
All Other Physicians	360	410	50	14%	1%
Physician Assistants	220	290	70	32%	3%
Nurse Practitioners	350	480	130	37%	4%
Registered Nurses	6,440	7,490	1,050	16%	2%

Source: California Employment Development Department, Labor Market Information Division, January 2017.

Table 4.3. Projections of Numbers of Jobs in Medical and Nursing Professions, Hanford-Corcoran MSA, 2014-2024

Occupation	Estimated Employment 2014	Projected Employment 2024	Numeric Change 2014-2024	Percent Change 2014-2024	Annual Average Percent Change
Family and General Practitioners	90	100	10	11%	1%
General Internists	Projections not available				
Psychiatrists	Projections not available				
All Other Physicians	Projections not available				
Physician Assistants	30	30	0	0%	0%
Nurse Practitioners	Projections not available				
Registered Nurses	1,080	1,360	280	26%	3%

Source: California Employment Development Department, Labor Market Information Division, January 2017.

Table 4.4. Projections of Numbers of Jobs in Medical and Nursing Professions, Madera MSA, 2014-2024

Occupation	Estimated Employment 2014	Projected Employment 2024	Numeric Change 2014-2024	Percent Change 2014-2024	Annual Average Percent Change
Family and General Practitioners	30	40	10	33%	3%
General Internists	Projections not available				
Psychiatrists	Projections not available				
All Other Physicians	Projections not available				
Physician Assistants	60	90	30	50%	5%
Nurse Practitioners	Projections not available				
Registered Nurses	Projections not available				

Source: California Employment Development Department, Labor Market Information Division, January 2017.

Table 4.5. Projections of Numbers of Jobs in Medical and Nursing Professions, Merced MSA, 2014-2024

Occupation	Estimated Employment 2014	Projected Employment 2024	Numeric Change 2014-2024	Percent Change 2014-2024	Annual Average Percent Change
Family and General Practitioners	Projections not available				
General Internists	Projections not available				
Psychiatrists	Projections not available				
All Other Physicians	Projections not available				
Physician Assistants	50	60	10	20%	2%
Nurse Practitioners	40	50	10	25%	3%
Registered Nurses	860	1130	270	31%	3%

Source: California Employment Development Department, Labor Market Information Division, January 2017.

Table 4.6. Projections of Numbers of Jobs in Medical and Nursing Professions, Modesto MSA, 2014-2024

Occupation	Estimated Employment 2014	Projected Employment 2024	Numeric Change 2014-2024	Percent Change 2014-2024	Annual Average Percent Change
Family and General Practitioners	150	170	20	13%	1%
General Internists	Projections not available				
Psychiatrists	Projections not available				
All Other Physicians	170	200	30	18%	2%
Physician Assistants	140	190	50	36%	4%
Nurse Practitioners	110	150	40	36%	4%
Registered Nurses	3,000	3,930	930	31%	3%

Source: California Employment Development Department, Labor Market Information Division, January 2017.

Table 4.7. Projections of Numbers of Jobs in Medical and Nursing Professions, Stockton-Lodi MSA, 2014-2024

Occupation	Estimated Employment 2014	Projected Employment 2024	Numeric Change 2014-2024	Percent Change 2014-2024	Annual Average Percent Change
Family and General Practitioners	210	250	40	19%	2%
General Internists	Projections not available				
Psychiatrists	50	50	0	0%	0%
All Other Physicians	320	390	70	22%	2%
Physician Assistants	50	80	30	60%	6%
Nurse Practitioners	80	110	30	38%	4%
Registered Nurses	4,300	5,150	850	20%	2%

Source: California Employment Development Department, Labor Market Information Division, January 2017.

Table 4.8. Projections of Numbers of Jobs in Medical and Nursing Professions, Visalia-Porterville MSA, 2014-2024

Occupation	Estimated Employment 2014	Projected Employment 2024	Numeric Change 2014-2024	Percent Change 2014-2024	Annual Average Percent Change
Family and General Practitioners	150	170	20	13%	1%
General Internists	Projections not available				
Psychiatrists	Projections not available				
All Other Physicians	Projections not available				
Physician Assistants	Projections not available				
Nurse Practitioners	130	180	50	39%	4%
Registered Nurses	1,900	2,290	390	21%	2%

Source: California Employment Development Department, Labor Market Information Division, January 2017.

Behavioral Health Professionals

Tables 4.9. to 4.16. display EDD estimates of projected employment for behavioral health professions in the eight MSAs that constitute the San Joaquin Valley region. In six of the region's eight MSAs, EDD projects that clinical, counseling, and school psychologists will experience the largest absolute increase in the number of jobs between 2014 and 2024. In one of the MSAs (Merced), the absolute number of jobs for child, family, and school social workers and healthcare social workers are projected to increase by the same number as the number of clinical, counseling, and school psychologists. The occupation with the largest rate of growth in the number of jobs varied substantially across the MSAs in the San Joaquin Valley. In three MSAs, the highest rate of job growth was among mental health counselors (Fresno, Modesto, Stockton-Lodi). In two MSAs, the highest rate of job growth was among mental health and substance abuse social workers (Madera and Merced). In two MSAs, the highest rate of job growth was projected for psychiatric technicians (Bakersfield and Hanford-Corcoran) but in two MSAs EDD projected a reduction in psychiatric technician jobs (Fresno and Stockton-Lodi). As with medical and nursing professions, the San Joaquin Valley will need additional behavioral health professionals to replace workers who are projected to retire, as well as to fill new jobs in these professions. In six of the eight MSAs in the region, the number of child, family, and school social workers who will be needed to replace retirees is projected to be greater than the number of new jobs in this occupation.

Table 4.9. Projections of Numbers of Jobs in Behavioral Health Professions, Bakersfield MSA, 2014-2024

Occupation	Estimated Employment 2014	Projected Employment 2024	Numeric Change 2014-2024	Percent Change 2014-2024	Annual Average Percent Change
Clinical, Counseling, and School Psychologists	330	440	110	33%	3%
Substance Abuse and Behavioral Disorder Counselors	190	230	40	21%	2%
Marriage and Family Therapists	Projections not available				
Mental Health Counselors	230	290	60	26%	3%
Child, Family, and School Social Workers	930	1,090	160	17%	2%
Healthcare Social Workers	140	170	30	21%	2%
Mental Health and Substance Abuse Social Workers	360	460	100	28%	3%
Psychiatric Technicians	50	70	20	40%	4%

Source: California Employment Development Department, Labor Market Information Division, January 2017.

Table 4.10. Projections of Numbers of Jobs in Behavioral Health Professions, Fresno MSA, 2014-2024

Occupation	Estimated Employment 2014	Projected Employment 2024	Numeric Change 2014-2024	Percent Change 2014-2024	Annual Average Percent Change
Clinical, Counseling, and School Psychologists	890	1,050	160	18%	2%
Substance Abuse and Behavioral Disorder Counselors	160	200	40	25%	3%
Marriage and Family Therapists	160	190	30	19%	2%
Mental Health Counselors	220	280	60	27%	3%
Child, Family, and School Social Workers	870	980	110	13%	1%
Healthcare Social Workers	640	760	120	19%	2%
Mental Health and Substance Abuse Social Workers	320	380	60	19%	2%
Psychiatric Technicians	680	520	-160	-24%	-2%

Source: California Employment Development Department, Labor Market Information Division, January 2017.

Table 4.11. Projections of Numbers of Jobs in Behavioral Health Professions, Hanford-Corcoran MSA, 2014-2024

Occupation	Estimated Employment 2014	Projected Employment 2024	Numeric Change 2014-2024	Percent Change 2014-2024	Annual Average Percent Change
Clinical, Counseling, and School Psychologists	170	240	70	41%	4%
Substance Abuse and Behavioral Disorder Counselors	30	40	10	33%	3%
Marriage and Family Therapists	Projections not available				
Mental Health Counselors	Projections not available				
Child, Family, and School Social Workers	100	120	20	20%	2%
Healthcare Social Workers	Projections not available				
Mental Health and Substance Abuse Social Workers	120	150	30	25%	3%
Psychiatric Technicians	90	130	40	44%	4%

Source: California Employment Development Department, Labor Market Information Division, January 2017.

Table 4.12. Projections of Numbers of Jobs in Behavioral Health Professions, Madera MSA, 2014-2024

Occupation	Estimated Employment 2014	Projected Employment 2024	Numeric Change 2014-2024	Percent Change 2014-2024	Annual Average Percent Change
Clinical, Counseling, and School Psychologists	180	210	30	17%	2%
Substance Abuse and Behavioral Disorder Counselors	Projections not available				
Marriage and Family Therapists	Projections not available				
Mental Health Counselors	40	50	10	25%	3%
Child, Family, and School Social Workers	70	80	10	14%	1%
Healthcare Social Workers	Projections not available				
Mental Health and Substance Abuse Social Workers	70	90	20	29%	3%
Psychiatric Technicians	Projections not available				

Source: California Employment Development Department, Labor Market Information Division, January 2017.

Table 4.13. Projections of Numbers of Jobs in Behavioral Health Professions, Merced MSA, 2014-2024

Occupation	Estimated Employment 2014	Projected Employment 2024	Numeric Change 2014-2024	Percent Change 2014-2024	Annual Average Percent Change
Clinical, Counseling, and School Psychologists	130	150	20	15%	2%
Substance Abuse and Behavioral Disorder Counselors	30	30	0	0%	0%
Marriage and Family Therapists	Projections not available				
Mental Health Counselors	80	90	10	13%	1%
Child, Family, and School Social Workers	180	200	20	11%	1%
Healthcare Social Workers	110	130	20	18%	2%
Mental Health and Substance Abuse Social Workers	30	40	10	33%	3%
Psychiatric Technicians	Projections not available				

Source: California Employment Development Department, Labor Market Information Division, January 2017.

Table 4.14. Projections of Numbers of Jobs in Behavioral Health Professions, Modesto MSA, 2014-2024

Occupation	Estimated Employment 2014	Projected Employment 2024	Numeric Change 2014-2024	Percent Change 2014-2024	Annual Average Percent Change
Clinical, Counseling, and School Psychologists	440	530	90	20%	2%
Substance Abuse and Behavioral Disorder Counselors	150	170	20	13%	1%
Marriage and Family Therapists	Projections not available				
Mental Health Counselors	220	290	70	32%	3%
Child, Family, and School Social Workers	220	250	30	14%	1%
Healthcare Social Workers	130	170	40	31%	3%
Mental Health and Substance Abuse Social Workers	Projections not available				
Psychiatric Technicians	Projections not available				

Source: California Employment Development Department, Labor Market Information Division, January 2017.

Table 4.15. Projections of Numbers of Jobs in Behavioral Health Professions, Stockton-Lodi MSA, 2014-2024

Occupation	Estimated Employment 2014	Projected Employment 2024	Numeric Change 2014-2024	Percent Change 2014-2024	Annual Average Percent Change
Clinical, Counseling, and School Psychologists	370	450	80	22%	2%
Substance Abuse and Behavioral Disorder Counselors	Projections not available				
Marriage and Family Therapists	Projections not available				
Mental Health Counselors	130	170	40	31%	3%
Child, Family, and School Social Workers	360	420	60	17%	2%
Healthcare Social Workers	230	260	30	13%	1%
Mental Health and Substance Abuse Social Workers	160	170	10	6%	1%
Psychiatric Technicians	200	190	-10	-5%	-1%

Source: California Employment Development Department, Labor Market Information Division, January 2017.

Table 4.16. Projections of Numbers of Jobs in Behavioral Health Professions, Visalia-Porterville MSA, 2014-2024

Occupation	Estimated Employment 2014	Projected Employment 2024	Numeric Change 2014-2024	Percent Change 2014-2024	Annual Average Percent Change
Clinical, Counseling, and School Psychologists	160	200	40	25%	3%
Substance Abuse and Behavioral Disorder Counselors	180	220	40	22%	2%
Marriage and Family Therapists	80	100	20	25%	3%
Mental Health Counselors	170	200	30	18%	2%
Child, Family, and School Social Workers	580	640	60	10%	1%
Healthcare Social Workers	60	80	20	33%	3%
Mental Health and Substance Abuse Social Workers	340	380	40	12%	1%
Psychiatric Technicians	550	590	40	7%	1%

Source: California Employment Development Department, Labor Market Information Division, January 2017.

Chapter 5 – Conclusion

Findings from this project indicate that in most medical, nursing, and behavioral health professions, the San Joaquin Valley has low ratios of health professionals per 100,000 population relative to California overall and relative to most other regions of the state. The gap between the per capita ratio of professionals in the San Joaquin Valley region and California overall is most pronounced for physicians. Psychiatric technicians are a major exception most likely due to the presence of multiple behavioral health and correctional facilities which are a major source of job opportunities for psychiatric technicians.

Project findings also indicate that Latinos are better represented among recent graduates than among practicing clinicians in medical, nursing, and mental health professions but the percentages are not at parity with the percentage of Latinos in the general population of the region. Underrepresentation of Latinos is especially pronounced in professions that require a doctoral degree.

The project's findings also raise questions about whether the region will be able to maintain current per capita ratios of health professionals and absorb projected increases in the numbers of jobs in health professions. These concerns are most pronounced for physicians and psychologists because 30% of physicians and 37% of psychologists are age 60 or older and thus, are likely to retire within the next 10 years. Concerns about ability to meet future workforce needs are heightened because the region has low per capita ratios of pre-license behavioral health professionals and low per capita ratios of graduates of medical residency programs, clinical and counseling psychology, social work, and substance abuse/addiction counselor education programs. The region also has no training programs for physician assistants and certified nurse midwives.

To meet future demand, the San Joaquin Valley will want to consider several strategies including recruitment of health professionals trained outside the region, expanding training opportunities in the region, and preparing young people in the region to complete training in the health professions. In the short-term, scholarship and loan repayment programs, such as those administered by the National Health Services Corps and the Health Professions Education Foundation, would provide incentives for health professionals trained outside the region to practice in high need areas within the region. Expanding training opportunities in the region would also be helpful because health professionals often prefer to practice in the region in which they trained. The amount of time required to see the fruits of expanding training varies depending on the length of training required for a profession. For medicine, expanding residency training in the region would yield additional physicians more quickly than establishing a medical school. Investment in preparing young people in the San Joaquin Valley for careers in the health professions will be critical over the long run to enable the region to have sufficient numbers of health professionals with racial/ethnic, cultural, linguistic, and socio-economic backgrounds similar to those of the region's population. The region has a number of health career pathway programs at K-12 and college levels, such as the Doctor's Academy in Fresno County, which could be expanded and could also draw upon lessons learned from pathway programs in other parts of the state and the nation.

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Appendix A.

Regions

The California Health Interview Survey (CHIS) is administered by the University of California Los Angeles, Center for Health and Policy Research, and is the nation’s largest state health survey and a critical source of data on Californians. The CHIS groups the state’s 58 counties into nine distinct regions, which are utilized for regional analysis by a number of organizations and publications. The list of counties in each region can be found below.



REGION	COUNTIES
Central Coast	Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz, Ventura
Greater Bay Area	Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma
Inland Empire	Riverside, San Bernardino
Los Angeles County	Los Angeles
Northern and Sierra	Alpine, Amador, Butte, Calaveras, Colusa, Del Norte, Glenn, Humboldt, Inyo, Lake, Lassen, Mariposa, Mendocino, Modoc, Mono, Nevada, Plumas, Shasta, Sierra, Siskiyou, Sutter, Tehama, Trinity, Tuolumne, Yuba
Orange County	Orange
Sacramento Area	El Dorado, Placer, Sacramento, Yolo
San Diego Area	Imperial, San Diego
San Joaquin Valley	Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, Tulare

Appendix B.

Data Sources

National Data Sources

U.S. Census Bureau

California population estimates at the state and regional levels were obtained from the Census Bureau of the Economic and Statistics Administration. These data were used to calculate ratios of licensed, pre-license, and unlicensed providers per 100,000 population, and to describe the demographic characteristics of employed health professionals (except physicians and nurses). In each context, the most current data available were utilized. Additional information describing the Census data product utilized for this report is provided below.

Annual Estimates of the Resident Population (PEPANNRES)

Population estimates for the United States are generated by the Census Bureau's Population Estimates Program (PEP). The estimates generated by PEP (used for this report) are benchmarked to the most recent decennial census (2010), and are reflective of currently available data on births, deaths, and migration. County-level population estimates sourced from the Annual Estimates of the Resident Population (PEPANNRES) were aggregated into the nine CHIS regions described above.

The population estimates found in this report can be accessed using the "PEPANNRES" table, available via American Fact Finder (<https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t#none>).

American Community Survey

Several components of analysis presented in this report were conducted using data sourced from the 2011-2015 5-year American Community Survey (ACS) Public Use Microdata Sample (PUMS) file. PUMS data allow researchers to describe a range of population characteristics that are not available in the summary table available through American Fact Finder. In this report, PUMS data were used primarily for the description of health professionals' demographic characteristics—age, sex, and race/ethnicity. Additional technical information about PUMS can be found on the "About PUMS" page (<https://www.census.gov/programs-surveys/acs/technical-documentation/pums/about.html>) as well as in the Design and Methodology Report (<https://www.census.gov/programs-surveys/acs/methodology/design-and-methodology.html>).

The ACS is not designed specifically for analysis of the health professions workforce. However, because PUMS data describe population characteristics at the individual person-level (i.e. each observation in the dataset represents one person's responses to the survey questions), the UCSF research team was able to limit the analysis to only those individuals most likely to be working as one of the health care providers that are the focus of this report. For example, persons who were not employed or out of the labor force at the time of the survey were excluded. Persons whose reported level of educational attainment was not sufficient to meet the requirements for professional licensure in California also were excluded. Finally, it should be acknowledged that regional analysis of individual health professions was possible only by using the 5-year ACS PUMS file, which aggregates responses from survey participants over a five-year period. This file was used to ensure a sufficient number of sample cases from which to generate statistically valid estimates. The findings presented in this report sourced from the 5-year ACS PUMS file should be interpreted as a five-year average over the period 2011-2015.

National Center for Education Statistics (NCES)

Integrated Postsecondary Education System (IPEDS)

The U.S. Department of Education's National Center for Education Statistics (NCES) utilizes a system of annual surveys to collect data on enrollments, completions, and other characteristics from every institution that participates in federal student aid programs. More than 7,500 liberal arts colleges, research universities,

community colleges, technical schools, and other programs participate in IPEDS data collection each year. At the time of the report's preparation, 2015 was the most recent year for which completions data were available.

While non-degree institutions that participate in federal student aid are included in these data, some schools report statistics at the system level rather than for each individual program. For this reason, the authors took additional steps to validate IPEDS data, especially those used in reporting the region-level supply of behavioral health and other health professions graduates.

State Data Sources

California Employment Development Department, Labor Market Information Division

Occupational Employment Statistics (OES)

The California Employment Development Department (EDD), Labor Market Information Division provides employment and wage estimates as part of its Occupational Employment Statistics and Wages (OES) program. OES produces these estimates for over 800 occupations at the California state and Metropolitan Statistical Area (MSA) levels, which are the functional equivalent of county-level estimates from this data source. The authors used the most current data available at the time of the report's preparation (May 2015) to report estimated employment of substance abuse and behavioral disorder counselors for five MSAs in the San Joaquin Valley region.

Department of Consumer Affairs, Professional License Master File

The Department of Consumer Affairs (DCA) maintains a database of over 150 professional license types for the various licensing boards for which it has oversight responsibilities, including the licensing boards that regulate MDs, DOs, RNs, APRNs, PAs, and behavioral health professionals. The research team obtained these data using a standard public information request form. All counts of licensed professionals presented in this report (based on DCA data) reflect individuals whose record indicated an "active" license as of June 15, 2016 (records marked "inactive", "expired" or "delinquent" were excluded). In addition, individuals whose address of record was in a state outside of California were omitted from these counts, under the assumption they are not currently practicing in California.

It is important to note that DCA data do not indicate whether licensed individuals practice in the profession for which they are licensed or whether they are employed at the time of data collection (e.g. someone with an active Licensed Clinical Social Worker license may be employed in an unrelated profession/industry or unemployed/out of the labor force altogether). As a result, the DCA data do not provide any information describing practice/employment activities; there is no way to know the extent to which a licensed individual is engaged in direct patient care versus other activities such as teaching, administration or research. Thus, counts of licensed professionals presented in this report may overstate the actual supply of health care providers.

Medical Board of California Mandatory and Supplemental Surveys.

The Medical Board of California (MBC) is the regulatory body that oversees the licensing of allopathic physicians (MDs) in California. California law¹ requires the MBC to administer a survey to MDs every two years as part of the licensure renewal process. The survey asks about licensees' professional activities in medicine, the number of hours they work, their medical specialty, the zip code of their practice, training status (i.e. whether a licensee is a resident or fellow), race and ethnicity, and languages spoken other than English.

The MBC also collaborated with UCSF on a voluntary supplemental survey that was administered in 2015, which contained questions about the settings in which MDs practice.

For counts of actively licensed physicians, MDs were excluded based on the following criteria:

- **“Not in 2-Year Cohort”**: This criterion removes respondents who did not renew an existing license or establish a new license (in the case of recent medical school graduates) within two years of the survey’s distribution.
- **“Practicing Out-of-State”**: This criterion removes respondents who report that their primary practice location is outside the state of California regardless of their residence address. For example, physicians living on the California side of Lake Tahoe who primarily practice in the state of Nevada would be omitted from this analysis.

Additionally, MDs’ training status was used to provide counts inclusive and exclusive of residents/fellows per the following criterion:

- **“Residents/Fellows”**: This criterion removes respondents who identify as either residents or fellows. These physicians are considered trainees for purposes of this report because they have not completed all training required to practice in their chosen specialties.

The ability to identify residents and fellows was also useful in the description of the health professions educational pipeline. For this piece, the authors restricted their analysis to actively licensed physicians in the MBC dataset who indicated an active training status (i.e. those currently in residency of fellowship programs in California).

The MBC mandatory survey asks respondents to identify their primary and secondary specialties from among 55 “Areas of Practice” (e.g. Allergy and Immunology, Internal Medicine). The UCSF team developed an algorithm to collapse the 55 “Areas of Practice” into eleven distinct categories: Emergency Medicine, Facility-Based Medicine, Family Medicine, General Surgery, General Internal Medicine, Medical Specialty, Obstetrics/Gynecology, Pediatrics, Psychiatry, Surgical Specialty, and Other Specialty. In the 2015 MBC Survey, 237 active patient care physicians (0.4%, N=61,196) could not be classified into any of these nine categories. The four used to identify primary care providers (PCPs) for this report are Family Medicine, General Internal Medicine, Obstetrics/Gynecology, and Pediatrics. The remaining seven categories were aggregated to comprise non-primary care physicians.

Descriptions of physicians’ demographic characteristics (race and ethnicity, gender, and age) are restricted to the population of actively licensed California physicians who have completed training and provide at least 20 hours of patient care per week.

California Board of Registered Nursing, 2014 Survey of Registered Nurses

In its current format, the California Board of Registered Nursing, Survey of Registered Nurses has been conducted biannually since 2004 (non-comparable versions of the survey were fielded in 1990, 1993, and 1997). The 2014 survey results are the most current data available. The survey is designed to collect information describing the demographic, educational and employment characteristics for all registered nurses (RNs) with active California license. In order to obtain results that can be used to evaluate how characteristics of the RN workforce vary across different regions of the state, eligible survey participants are organized into nine geographic regions. The approximately 5,500 survey responses are weighted by region and by age in order to produce statistically valid sample estimates.

The authors used data from the 2014 survey to estimate the number of licensed RNs in each region of the state who are employed in a paid position that requires their RN license (some licensed RNs are employed outside of nursing). These data also were used to estimate the number of RNs in each geographic region (employed in a paid position that requires an RN license) who provide at least one hour of nursing care per week in their principal nursing position, and the number of RNs who provide at least 20 hours of nursing care in their principal nursing position.

California Board of Registered Nursing, Annual School Survey

The California Board of Registered Nursing, Annual School Survey has been conducted continuously since 2000-01 academic year. It provides comprehensive information about the characteristics of both pre-license and post-

license registered nursing students and programs at all degree levels. Every Board-approved RN program in the state participates in the annual survey.

The authors used data from the 2014-15 survey to report the number of pre-license nursing program graduates, as well as their gender and racial and ethnic composition at the San Joaquin Valley region-level and for California overall.

Program directors of Certified Registered Nurse Anesthetist and certified nurse midwifery nursing education programs

The authors obtained program-specific counts of CRNA and CNM completions for programs located in California. There was one certified registered nurse anesthetist (CRNA) program and no certified nurse midwifery (CNM) programs in the San Joaquin Valley at the time of the report's preparation.

Associations of Health Professions Schools

Allopathic Physicians (MDs)

Association of American Medical Colleges (AAMC)

FACTS: Applicants, Matriculants, Enrollments, and Graduates, MD-PhD, and Residency Applicants Data

FACTS is a collection of tables that present data collected by the Association of American Medical Colleges (AAMC). These tables are publically available on the FACTS web page, available (<https://www.aamc.org/data/facts/>). They report data on applicants and matriculants to U.S. medical schools, enrollees and graduates (including MD-PhD students) of U.S. medical schools, and data on applicants to residency/fellowship programs through the ERAS system. These data were used to describe the demographic characteristics of MD graduates in California.

National Residency Match Program (NRMP)

The National Residency Match Program (NRMP) is a nonprofit organization that matches graduates of U.S. and international medical schools with residency positions in the United States. The "Match" also performs this function for fellowship programs available to physicians wishing to subspecialize. Data on both primary care and specialty residencies in California were obtained from the "2016 NRMP Main Match Results", "NRMP Program Results 2012-2016 Main Residency Match", and "2017 Specialty Match Results" reports that are available on the NRMP website. Only first-year residents and fellows were included in the counts to serve as a proxy for numbers of graduates, which were not available.

Osteopathic Physicians (DOs)

American Association of Colleges of Osteopathic Medicine (AACOM)

The American Association of Colleges of Osteopathic Medicine (AACOM) collects demographic information on entrants and graduates to osteopathic (DO) medical schools. In addition, AACOM collects data on graduate medical education (GME) for graduates of osteopathic medical schools. Data from different tables and years were aggregated to present findings on the trainees educated in California osteopathic medical schools and residency programs.

Registered Nurses (RNs) and Advance Practice Registered Nurses (APRNs)

American Association of Colleges of Nursing (AACN), Research and Data Services Custom Tabulation

The American Association of Colleges of Nursing (AACN) is a national association of nursing schools that award bachelor's, master's, and/or doctoral degrees in nursing that conducts annual surveys of nursing schools that belong to the association. Data were obtained from AACN on the numbers and demographic characteristics of

persons enrolled in nurse practitioner (NP) and combined NP/clinical nurse specialist (CNS) education programs in California.