

# Mental Health Services Act (MHSA) Workforce Education and Training (WET) Five-Year Plan 2014-2019 Needs Assessment:

## Report 4 – Analysis of Mental Health Workforce Supply

---

September 2014



**Prepared by: Resource Development Associates**

**Funded by Proposition 63 – The Mental Health Services Act via Contract with OSHPD**



## Table of Contents

<b>Executive Summary .....</b>	<b>19</b>
<b>California’s Public Mental Health Workforce.....</b>	<b>20</b>
<b>Key Findings.....</b>	<b>21</b>
<b>Frequently Used Acronyms and Abbreviations .....</b>	<b>23</b>
<b>Section 1: Workforce Projection Literature Review .....</b>	<b>26</b>
<b>Introduction .....</b>	<b>26</b>
Process.....	26
Key Findings .....	27
<b>Importance of Workforce Projections .....</b>	<b>27</b>
The Challenge .....	28
<b>Workforce Supply.....</b>	<b>29</b>
Factors Assessing Past and Current Workforce Supply .....	29
Types of Occupation.....	29
Wages.....	30
Education, Licensing, and Training Requirements.....	31
Skills Mix / Examining Provider Ratios.....	32
Contributing Factors to Future Workforce Supply.....	33
State and Federal Policies.....	33
Macroeconomic Conditions .....	33
Summary of Contributing Factors to Workforce Supply .....	34
<b>Review of Traditional Methods to Estimate Workforce Supply.....</b>	<b>34</b>
Methods to Estimate Workforce Supply .....	34
Workforce to Population Ratio Method .....	34
Service Targets Method .....	35
Benchmarking Model.....	35
World Health Organization Human Resources for Health (HRH) models.....	36
Advanced Analytical Techniques to Estimating Workforce Supply .....	36
Regression Analysis .....	36
Econometric Analysis .....	37

Deterministic Sensitivity Analysis.....37

Stochastic Simulation .....38

**California’s Public Mental Health Workforce Projection Modeling .....38**

**Section 2: Literature Review of Public Mental Health Workforce Supply ..... 39**

**Introduction .....39**

**Workforce Supply.....39**

Current Mental Health Workforce.....40

    Psychiatrists .....43

    Clinical, Counseling, and General Psychologists .....45

    NOTE: This figure was taken directly from the Lok and Chapman, 2009 report cited here.

    Marriage and Family Therapists .....45

    Social Workers .....46

    Psychiatric Technicians .....47

Types of Occupations .....48

Wages .....49

Education, Licensing, and Training Requirements .....49

Skills Mix / Examining Provider Ratios .....51

State and Federal Policies .....51

Macroeconomic Conditions.....52

Programs Enticing Entry into Public Mental Health System.....52

Aging of the Public Mental Health Workforce .....52

    Needs of Aging Workers.....54

    Best Practices and Strategies to Support and Retain an Aging Public Mental Health Workforce.....54

**Key Findings.....55**

**Next Steps and Areas for Further Study .....56**

**Section 3: Public Mental Health Workforce Supply Projections Report..... 57**

**Introduction & Methodology .....57**

Defining the Public Mental Health System (PMHS) Workforce .....57

    Surveying State and County Public Agencies.....58

    California Licensing Board Data Approach .....58

    National Provider Identification (NPI): Public Providers .....60

Entry to the Public Mental Health Workforce .....	63
Establishing Entry Trends with NPI Data .....	63
Incorporating New Graduates: The Education Pipeline.....	64
California, Out-of-State, and International Graduates .....	65
Exit from the Public Mental Health Workforce .....	66
Retirement.....	66
Other Exit Influences .....	69
Economic and Policy Influences – Affordable Care Act.....	69
Increases in Demand Pool.....	69
Demand on Primary Care Providers and Changing “Skills Mix” .....	69
RDA Occupational Skills Classifications .....	70
Other Economic Influences .....	70
California Gross Domestic Product (GDP).....	70
Population Growth.....	71
Wages.....	72
Analysis by Demographic Indicators .....	76
Forecasting Method .....	77
Data Arrangement .....	77
Wages Method .....	77
California Population Method.....	78
California GDP Method.....	78
Regression Estimation.....	78
Forecasting Estimation .....	79
<b>Data Sources .....</b>	<b>79</b>
Occupational Employment Statistics Survey .....	80
Limitations .....	80
American Community Survey.....	80
Limitations .....	80
Bureau of Economic Analysis.....	81
Quarterly Census of Employment and Wages.....	81
National Provider Identifier (NPI) Registry.....	81

Limitations .....81

Department of Consumer Affairs Board Licensure Data.....82

Data from Alcohol and other Drugs Counseling Certification Agencies .....82

**Structure of the Report .....83**

**Public Mental Health System (PMHS) Workforce .....83**

**Licensed, Prescribing Professions .....85**

    Psychiatrist .....88

        Boards Licensure Data .....88

        Demographics .....89

        Gender .....90

        Race/Ethnicity .....92

        Language .....97

        NPI Data.....98

        Provider-to-Population Ratios.....100

        Psychiatry Sub-Specialties .....102

    Nurse Practitioner – Furnishing.....107

        Board Licensure Data.....107

        Provider-to-Population Ratios.....107

    Nurse Practitioners .....109

        Board Licensure Data.....109

        Provider-to-Population Ratios.....109

    Psychiatric Mental Health Nurse Practitioners.....110

        Board Licensure Data.....110

        NPI Data.....111

        Provider-to-Population Ratios.....112

    Physician Assistant .....115

        Physician Assistant Committee Data .....115

        NPI Data.....116

        Provider-to-Population Ratios.....117

    Physicians with Addiction Specialties.....120

        NPI Data.....120

Provider-to-Population Ratios.....	121
Forecasts.....	123
Key Findings.....	128
<b>Licensed, Non-Prescribing, Nursing Occupations.....</b>	<b>129</b>
Registered Nurse.....	131
Board Licensure Data.....	131
NPI Data.....	131
Provider-to-Population Ratios.....	133
Registered Nurses with Psychiatric Mental Health Nurse Specialties.....	135
Clinical Nurse Specialists and Other Advance Practice Nurses.....	137
Board Licensure Data.....	137
NPI Data.....	138
Provider-to-Population Ratios.....	140
Clinical Nurse Specialists with Psychiatric Mental Health Specialties.....	142
Psychiatric Mental Health Nurses.....	142
Provider-to-Population Ratios.....	143
Public Health Nurses.....	144
Provider-to-Population Ratios.....	144
Licensed Practical Nurse.....	145
NPI Data.....	145
Provider-to-Population Ratios.....	147
Licensed Psychiatric Technician.....	148
Boards Licensure Data.....	148
NPI Data.....	149
Provider-to-Population Ratios.....	151
Licensed Vocational Nurse.....	153
Boards Licensure Data.....	153
NPI Data.....	154
Provider-to-Population Ratios.....	156
Forecasts.....	158
Key Findings.....	162

<b>Licensed, Non-Prescribing, Clinical Occupations .....</b>	<b>163</b>
Psychologist.....	165
Boards Licensure Data .....	165
NPI Data.....	165
Provider-to-Population Ratios.....	167
Marriage and Family Therapist.....	170
Boards Licensure Data .....	170
NPI Data.....	171
Provider-to-Population Ratios.....	172
Licensed Clinical Social Worker .....	175
Boards Licensure Data .....	175
NPI Data.....	176
Provider-to-Population Ratios.....	177
Licensed Professional Clinical Counselor.....	180
Boards Licensure Data .....	180
NPI Data.....	180
Provider-to-Population Ratios.....	182
Forecasts .....	185
Key Findings .....	189
<b>Alcohol and other Drugs Counseling.....</b>	<b>190</b>
Certification Data.....	190
NPI Data.....	192
Provider-to-Population Ratios.....	193
Forecasts .....	196
Key Findings .....	197
<b>Non-Licensed Professionals.....</b>	<b>199</b>
Case Managers/Care Coordinators.....	201
NPI Data.....	201
Provider-to-Population Ratios.....	202
Community Health Worker .....	204
NPI Data.....	204

Provider-to-Population Ratios.....	205
Counselors.....	207
NPI Data.....	207
Provider-to-Population Ratios.....	208
Mental Health Counselor.....	210
NPI Data.....	210
Provider-to-Population Ratios.....	212
Forecasts.....	214
Key Findings.....	218
Specialty Providers.....	219
<b>Concluding Findings.....</b>	<b>221</b>
Licensed, Non-Prescribing, Clinical Providers.....	221
Licensed, Prescribing Providers.....	222
Licensed, Non-Prescribing, Nursing Providers.....	223
Non-Licensed Professional Providers.....	223
Alcohol and other Drugs Counselors.....	224
Other Findings.....	224
Aging and Retirement.....	224
Diversity.....	225
<b>Conclusion.....</b>	<b>225</b>
<b>Appendices.....</b>	<b>226</b>
<b>Appendix 1: Counties in California Regions as defined by the Department of Consumer Affairs.....</b>	<b>226</b>
<b>Appendix 2. Regression Results and Interpretations.....</b>	<b>227</b>
I. Guide to the Statistical Findings.....	227
II. Interpreting Statistical Significance.....	227
III. Interpreting Coefficients.....	229
IV. A Note on Causality.....	230
V. Results.....	230
Licensed, Prescribing Providers.....	231
Alcohol and other Drugs Counselors.....	232
Licensed, Non-Prescribing, Clinical Providers.....	233



Licensed, Non-Prescribing, Nursing Providers.....234  
Non-Licensed Professionals .....235

**Appendix 3. Number of Providers and Provider-to-Population Ratios by California County.....237**

## List of Tables

Table 1: Frequently Used Acronyms and Abbreviations .....	23
Table 2: OSHPD Mental Health Occupational Categories .....	30
Table 3: Years Required for Education, Licensing, and Training for Mental Health Occupations .....	31
Table 4: Employment, Projected Growth, and Mean Wages for Selected Professions in California's Mental Health Workforce .....	41
Table 5: Distribution of Selected Licensed Mental Health Professionals in California by Region: 2008.....	42
Table 6: Percentage of Psychiatrists Located in Each Region of California: 2006 .....	44
Table 7: OSHPD Mental Health Occupational Categories .....	48
Table 8: Years Required for Education, Licensing, and Training for Mental Health Occupations .....	50
Table 9: Health Care Provider Licensure Boards in California.....	59
Table 10: NPI Taxonomy Codes .....	61
Table 11: NPI Taxonomy Codes (continued).....	62
Table 12: Estimations of Average Ages of Entry into and Retirement from Mental Health Occupations.....	68
Table 13: Psychiatric Technician Annual Mean Reported Wage by MHSA Region (OES) .....	74
Table 14: Physician Assistant Annual Mean Reported Wage by MHSA Region (OES) .....	74
Table 15: Psychiatrist Annual Mean Reported Wage by MHSA Region (OES) .....	75
Table 16: Registered Nurses Mean Annual Reported Wages by MHSA Region (OES).....	75
Table 17: Licensed, Prescribing Professions, NPI Data, 2013.....	86
Table 18: Psychiatrists by Race/Ethnicity by County, Board Licensure Data, 2013.....	95
Table 19: Psychiatrist by MHSA Region, Board Licensure and NPI Data, 2013 .....	101
Table 20: Psychiatrist by County Size, Board Licensure and NPI Data, 2013 .....	102
Table 21: Distribution of Psychiatry Sub-Specialties in California, NPI Data, 2013.....	105
Table 22: Nurse Practitioner-Furnishing by MHSA Region, Board Licensure and NPI Data, 2013 .....	108
Table 23: Nurse Practitioner - Furnishing by County Size, Board Licensure and NPI Data, 2013 .....	108
Table 24: Nurse Practitioner by MHSA Region, Board Licensure and NPI Data, 2013.....	110
Table 25: Nurse Practitioner by County Size, Board Licensure and NPI Data, 2013 .....	110

Table 26: Psychiatric Mental Health Nurse Practitioner by MHSA Region, Board Licensure and NPI Data, 2013 .....114

Table 27: Psychiatric Mental Health Nurse Practitioner by County Size, Board Licensure and NPI Data, 2013 .....114

Table 28: Physician Assistant by MHSA Region, Board Licensure and NPI Data, 2013..... 119

Table 29: Physician Assistant by County Size Board Licensure and NPI Data, 2013 ..... 119

Table 30: Physicians with Addiction Specialties by MHSA Region, Board Licensure and NPI Data, 2013 .....123

Table 31: Physicians with Addiction Specialties by County Size, Board Licensure and NPI Data, 2013.....123

Table 32: Licensed, Prescribing Providers with Projections, Counts .....127

Table 33: Licensed, Non-Prescribing, Nursing Occupations, NPI Data, 2013.....129

Table 34: Registered Nurse by MHSA Region, Board Licensure and NPI Data, 2013..... 135

Table 35: Registered Nurse by County Size, Board Licensure and NPI Data, 2013 ..... 135

Table 36: Registered Nurses by Specialty.....136

Table 37: Clinical Nurse Specialists by MHSA Region, Board Licensure and NPI Data, 2013.141

Table 38: Clinical Nurse Specialists by County Size, Board Licensure and NPI Data, 2013....141

Table 39: Clinical Nurse Specialists by Psychiatric Mental Health Specialties, NPI Data, 2013 .....142

Table 40: Psychiatric Mental Health Nurses by MHSA Region, Board Licensure and NPI Data, 2013.....143

Table 41: Psychiatric Mental Health Nurses by County Size, Board Licensure and NPI Data, 2013.....143

Table 42: Public Health Nurses by MHSA Region, Board Licensure and NPI Data, 2013 .....144

Table 43: Public Health Nurses by County Size, Board Licensure and NPI Data, 2013.....145

Table 44: Licensed Practical Nurse by MHSA Region, Board Licensure and NPI Data, 2013 .148

Table 45: Licensed Practical Nurses by County Size, Board Licensure and NPI Data, 2013...148

Table 46: Licensed Psychiatric Technicians by MHSA Region, Board Licensure and NPI Data, 2013.....152

Table 47: Licensed Psychiatric Technicians by County Size, Board Licensure and NPI Data, 2013.....153

Table 48: Licensed Vocational Nurses by MHSA Region, Board Licensure and NPI Data, 2013 .....157

Table 49: Licensed Vocational Nurses by County Size, Board Licensure and NPI Data, 2013157

Table 50: Licensed, Non-Prescribing, Nursing Providers with Projections, Counts..... 161

Table 51: Licensed, Non-Prescribing, Clinical Occupations, NPI Data, 2013 ..... 163

Table 52: Psychologist by MHSA Region, Board Licensure and NPI Data, 2013 ..... 169

Table 53. Psychologist by County Size, Board Licensure and NPI Data, 2013..... 169

Table 54: Marriage and Family Therapists by MHSA Region, Board Licensure and NPI Data, 2013..... 174

Table 55: Marriage and Family Therapists by County Size, Board Licensure and NPI Data, 2013 ..... 174

Table 56: Licensed Clinical Social Workers by MHSA Region, Board Licensure and NPI Data, 2013..... 179

Table 57: Clinical Social Workers by County Size, Board Licensure and NPI Data, 2013 ..... 179

Table 58: Professional Counselor by MHSA Region, Board Licensure and NPI Data, 2013.... 184

Table 59: Professional Counselor by County Size, Board Licensure and NPI Data, 2013..... 184

Table 60: Licensed, Non-Prescribing, Clinical Providers with Projections..... 188

Table 61: Alcohol and other Drugs Counselors by MHSA, Board Licensure and NPI Data, 2013 ..... 195

Table 62: Alcohol and other Drugs Counselors by County Size, Board Licensure and NPI Data, 2013..... 195

Table 63: Alcohol and other Drugs Counseling Providers with Projections, Counts..... 197

Table 64: Non-Licensed Professionals by Category, NPI Data (2013) ..... 199

Table 65: Case Manager/Care Coordinator by MHSA Region, NPI Data, 2013..... 204

Table 66: Case Manager/Care Coordinator by County Size, NPI Data, 2013..... 204

Table 67: Community Health Worker by MHSA Region, NPI Data, 2013 ..... 207

Table 68: Community Health Worker by County Size, NPI Data, 2013..... 207

Table 69: Counselor by MHSA Region, NPI Data, 2013..... 210

Table 70: Counselor by County Size, NPI Data, 2013..... 210

Table 71: Mental Health Counselors by MHSA Region, NPI Data, 2013 ..... 214

Table 72: Mental Health Counselors by County Size, NPI Data, 2013 ..... 214

Table 73: Non-Licensed Professional Providers with Projections, Counts ..... 217

Table 74: Mental Health Workforce with Psychiatric Mental Health Specialties, NPI Data, 2013 ..... 219

Table 75: Licensed, Prescribing Providers: Regression Results..... 231

Table 76: Alcohol and other Drugs Counselors: Regression Results..... 232

Table 77: Licensed, Non-Prescribing, Clinical Provider Projections.....233

Table 78: Licensed, Non-Prescribing, Nursing: Regression Results.....234

Table 79: Non-Licensed Professionals: Regression Results .....235

Table 80: Psychiatrist by County, Board Licensure and NPI Data, 2013 .....237

Table 81: Psychiatric Mental Health Nurse Practitioner by County, Board Licensure and NPI Data, 2013 .....239

Table 82: Nurse Practitioner by County, Board Licensure and NPI Data, 2013 .....241

Table 83: Nurse Practitioner Furnishing by County, Board Licensure and NPI Data, 2013.....243

Table 84: Physician Assistant by County, Board Licensure and NPI Data, 2013 .....245

Table 85: Physician-Addiction Specialty by County, Board Licensure and NPI Data, 2013 .....247

Table 86: Registered Nurse by County, Board and NPI Data, 2013 .....249

Table 87. Clinical Nurse Specialists by County, Board Licensure and NPI Data, 2013.....251

Table 88: Public Health Nurse by County, Board Licensure and NPI Data, 2013 .....253

Table 89: Psychiatric Mental Health Nurse by County, Board Licensure and NPI Data, 2013 .255

Table 90: Licensed Practical Nurse by County, Board Licensure and NPI Data, 2013 .....257

Table 91: Licensed Psychiatric Technicians by County, Board Licensure and NPI Data, 2013.....259

Table 92: Licensed Vocational Nurses by County, Board Licensure and NPI Data, 2013.....261

Table 93: Psychologist by County, Board Licensure and NPI Data, 2013.....263

Table 94: Marriage and Family Therapists by County, Board Licensure and NPI Data, 2013..265

Table 95: Licensed Clinical Social Workers and Clinical Social Workers by County, Board Licensure and NPI Data, 2013 .....267

Table 96: Professional Counselor by County, Board Licensure and NPI Data, 2013.....269

Table 97: Alcohol and other Drugs Counselors by County, Board Licensure and NPI Data, 2013 .....271

Table 98: Case Manager/ Care Coordinator by County, Board Licensure and NPI Data, 2013 .....273

Table 99: Community Health Worker by County, Board Licensure and NPI Data, 2013.....275

Table 100: Counselor by County, Board Licensure and NPI Data, 2013 .....277

Table 101: Mental Health Counselors by County, Board Licensure and NPI Data, 2013.....279

## List of Figures

Figure 1: Psychiatrists in California by Race and Ethnicity: 2004 .....	43
Figure 2: Psychiatrists in the United States by Age and Gender: 2007.....	44
Figure 3: Racial and Ethnic Composition for Reported Graduates of Doctorate and Master’s- Level Clinical, Counseling, and General Psychology Programs in California: 2000-2006 .....	45
Figure 4: Racial and Ethnic Composition for Reported Graduates of Master’s Level Marriage and Family Therapy Programs in California: 1995 - 2006.....	46
Figure 5: Racial and Ethnic Composition for Reported Graduates of Master’s-Level Social Work Programs in California: 2000 – 2006 .....	47
Figure 6: Racial and Ethnic Composition for Reported Graduates of Associate Degree and 1 – 2 year Certificate Psychiatric Technician Programs in California: 1995-2006 .....	48
Figure 7: Changes in Need for Mental Health Occupations in United States from 2006 to 2016	53
Figure 8: Effect of the NPI Final Rule on NPI Registry Enrollment.....	64
Figure 9: Educational Pipeline Example: Psychiatrist Training to Workforce Entry .....	65
Figure 10: California GDP, 2007-2019 .....	71
Figure 11: California Population, 2005-2019 .....	72
Figure 12: Nurse Practitioner Mean Annual Wages by MHSA Region (OES).....	76
Figure 13: Public Mental Health System Providers, by Provider Class, NPI Data, 2013 (n= 77,863) .....	84
Figure 14: Total Number of Public Mental Health System Providers, by County, NPI Data, 2013 .....	85
Figure 15: Map of Licensed, Prescribing Professionals Provider-to-Population Ratios in California, NPI Data, 2013 .....	87
Figure 16: Psychiatrists by MHSA Region, Board Licensure Data, 2013 (n=8,393).....	88
Figure 17: Psychiatrists by County Size, Board Licensure Data, 2013 (n=8,393) .....	89
Figure 18: Psychiatrists by Gender, Board Licensure Data, 2013 (n=7,107) .....	90
Figure 19: New Psychiatrists by Gender, Board Licensure Data, 2000-2013 .....	91
Figure 20: Psychiatrists’ Average Years in Practice by Gender, Board Licensure Data, 2013...92	
Figure 21: Psychiatrists by Race, Board Licensure Data, 2013 (n=4,000).....	93
Figure 22: Psychiatrists by Race/Ethnicity by County, Board Licensure Data, 2013.....	94
Figure 23: Psychiatrist Second Languages, Board Licensure Data, 2013 (n=3,324) .....	97

Figure 24: Percent of New Psychiatrists with a Second Language by Issue Year, Board Licensure Data, 2013.....98

Figure 25: Psychiatrists by MHSA Region and Gender, NPI Data, 2013 (n=6,107).....99

Figure 26: Psychiatrists by County Size and Gender, NPI Data, 2013 (n=6,107) .....99

Figure 27: Map of Psychiatrists-to-Population Ratio by County, NPI Data, 2013.....100

Figure 28: Psychiatrist by Specialty Area, NPI Data, 2013 (n=6,107).....102

Figure 29: Map of Distribution of Psychiatry Sub-Specialties in California, NPI Data, 2013.....104

Figure 30: Nurse Practitioners, Furnishing by MHSA Region, Board Licensure Data, 2013 (n=13,638) .....107

Figure 31: Nurse Practitioners by MHSA Region, Board Licensure Data, 2013 (n=16,837).....109

Figure 32: Psychiatric Mental Health Nurse Practitioners by MHSA Region, Board Licensure Data, 2013 (n=250).....111

Figure 33: Psychiatric Mental Health Nurse Practitioners by MHSA Region and Gender, NPI Data, 2013 (n=157).....112

Figure 34: Psychiatric Mental Health Nurse Practitioners by County Size and Gender, NPI Data, 2013 (n=157) .....112

Figure 35: Map of Psychiatric Mental Health Nurse Practitioner-to-Population Ratios by County, NPI Data, 2013 .....113

Figure 36: Physician Assistant by MHSA Region, Committee Data, 2013 (n= 8,574).....115

Figure 37: Physician Assistants by MHSA Region and Gender, NPI Data, 2013 (n=6,565).....116

Figure 38: Physician Assistants by County Size and Gender, NPI Data, 2013 (n=6,565).....117

Figure 39: Physician Assistant-to-Population Ratios by County, NPI Data, 2013 .....118

Figure 40: Physicians with Addiction Specialties by MHSA Region and Gender, NPI Data, 2013 (n=107) .....120

Figure 41: Physicians with Addiction Specialties by County Size and Gender, NPI Data, 2013 (n=107) .....120

Figure 42: Map of Physicians with Addiction Specialties-to-Population Ratios by County, NPI Data, 2013 .....122

Figure 43: Licensed, Prescribing Providers with Projections .....125

Figure 44: Map of Licensed, Non-Prescribing, Nursing Provider-to-Population Ratios by County, NPI Data, 2013 .....130

Figure 45: Distribution of Registered Nurses in Board of Registered Nurses Data Set by MHSA Region (n=332,586) .....131

Figure 46: Registered Nurses by MHSA Region and Gender, NPI Data, 2013 (n=7,520).....132

Figure 47: Registered Nurses by County Size and Gender, NPI Data, 2013 (n=7,520).....133

Figure 48: Registered Nurse-to-Population Ratios by County, NPI Data, 2013 .....134

Figure 49: Registered Nurses with Psychiatric Mental Health/Addiction Specialties (n=1,330)136

Figure 50: Distribution of Board-Registered Clinical Nurse Specialists by MHSA Region (n=3,616) .....137

Figure 51: Clinical Nurse Specialists by MHSA Region and Gender, NPI Data, 2013 (n=91) ..138

Figure 52: Clinical Nurse Specialists by County Size and Gender, NPI Data, 2013 (n=91) .....139

Figure 53: Clinical Nurse Specialists-to-Population Ratios, by County, NPI Data, 2013 .....140

Figure 54: Board-Registered Psychiatric Mental Health Nurses by MHSA Region (n=332).....142

Figure 55: Board-Registered Public Health Nurses by MHSA Region (n=51,933).....144

Figure 56: Licensed Practical Nurses by MHSA Region and Gender, NPI Data, 2013 (n=209) .....146

Figure 57: Licensed Practical Nurses by County Size and Gender, NPI Data, 2013 (n=209) ..146

Figure 58: Licensed Practical Nurse-to-Population Ratios, by County, NPI Data, 2013.....147

Figure 59: Licensed Psychiatric Technicians by MHSA Region, Board Licensure Data, 2013 (n=10,436) .....149

Figure 60: Licensed Psychiatric Technicians by MHSA Region and Gender, NPI Data, 2013 (n=827) .....150

Figure 61: Licensed Psychiatric Technicians by County Size and Gender, NPI Data, 2013 (n=827) .....150

Figure 62: Licensed Psychiatric Technician Provider-to-Provider Ratios, by County, NPI Data, 2013.....151

Figure 63: Licensed Vocational Nurses by MHSA Region, Board Licensure Data, 2013 (n=12,436) .....154

Figure 64: Licensed Vocational Nurses by MHSA Region and Gender, NPI Data, 2013 (n=2,622) .....155

Figure 65: Licensed Vocational Nurses by County Size and Gender, NPI Data, 2013 (n=2,622) .....155

Figure 66: Licensed Vocational Nurses Provider-to-Population Ratios, by County, NPI Data, 2013.....156

Figure 67: Licensed, Non-Prescribing, Nursing Providers with Projections.....159

Figure 68: Licensed, Non-Prescribing, Clinical Professionals Provider-to-Population Ratios, by County NPI Data, 2013 .....164

Figure 69: Psychologists by MHSA Region, Board Licensure Data, 2013 (n=17,392) .....165

Figure 70: Psychologists by MHSA Region and Gender, NPI Data, 2013 (n=12,180) .....166

Figure 71: Psychologists by County Size and Gender, NPI Data, 2013 (n=12,180).....167

Figure 72: Psychologist-to-Population Ratios by County, NPI Data, 2013.....168

Figure 73: Marriage and Family Therapists by MHSA Region, Board Licensure Data, 2013 (n=31,484) .....170

Figure 74: Marriage and Family Therapists by MHSA Region and Gender, NPI Data, 2013 (n=20,119) .....171

Figure 75: Marriage and Family Therapists by County Size and Gender, NPI Data, 2013 (n=20,119) .....172

Figure 76: Marriage and Family Therapist-to-Population Ratios, by County, NPI Data, 2013..173

Figure 77: Licensed Clinical Social Worker by MHSA Region, Board Licensure Data, 2013 (n=18,707) .....175

Figure 78: Clinical Social Workers by MHSA Region and Gender, NPI Data, 2013 (n=11,747) .....176

Figure 79: Clinical Social Workers by County Size and Gender, NPI Data, 2013 (n=11,747) ..177

Figure 80: Clinical Social Worker Provider-to-Population Ratios, by County, NPI Data, 2013 .178

Figure 81: LPCCs by MHSA Region, Board Licensure Data, 2013 (n=455) .....180

Figure 82: Professional Counselors by MHSA Region and Gender, NPI Data, 2013 (n= 325) 181

Figure 83: Professional Counselors by County Size and Gender, NPI Data, 2013 (n= 325)....182

Figure 84: Professional Counselor Provider-to-Population Ratios, by County, NPI Data, 2013 .....183

Figure 85: Licensed, Non-Prescribing, Clinical Providers with Projections .....186

Figure 86: Alcohol and other Drugs Counselors by MHSA Region, Certification Data, 2013 (n=3882) .....191

Figure 87: Alcohol and other Drugs Counselors by County Size, Certification Data, 2013 .....191

Figure 88: Alcohol and other Drugs Counselors by MHSA Region and Gender, NPI Data, 2013 (n=2846) .....192

Figure 89: AOD Counselors by County Size and Gender, NPI Data, 2013 (n=2846).....193

Figure 90: Map of AOD Counselors Provider-to-Population Ratios by County, NPI Data, 2013 .....194

Figure 91: Alcohol and other Drugs Counseling Providers with Projections.....196

Figure 92: Map Non-Licensed Professionals-to-Population Ratios, by County, NPI Data, 2013 .....200

Figure 93: Case Managers/Care Coordinators by MHSA Region and Gender, NPI Data, 2013 (n=736) .....201

Figure 94: Case Managers/Care Coordinators by County Size and Gender, NPI Data, 2013 (n=736) .....202

Figure 95: Case Manager/Care Coordinator Provider-to-Population Ratios, by County, NPI Data, 2013 .....203

Figure 96: Community Health Workers by MHSA Region and Gender, NPI Data, 2013 (n=94) .....205

Figure 97: Community Health Workers by County Size and Gender, NPI Data, 2013 (n=94)..205

Figure 98: Community Health Worker Provider-to-Population Ratios, by County, NPI Data, 2013 .....206

Figure 99: Counselors by MHSA Region and Gender, NPI Data, 2013 (n=814).....208

Figure 100: Counselors by County Size and Gender, NPI Data, 2013 (n=814) .....208

Figure 101: Counselor Provider-to-Population Ratios, by County, NPI Data, 2013.....209

Figure 102: Mental Health Counselors by MHSA Region and Gender, NPI Data, 2013 (n=4797) .....211

Figure 103: Mental Health Counselors by County Size and Gender, NPI Data, 2013 (n=4797) .....212

Figure 104: Mental Health Counselor Provider-to-Population Ratios, by County, NPI Data, 2013 .....213

Figure 105: Non-Licensed Professional Providers with Projections .....215

Figure 106: Specialty Provider by MHSA Region, NPI Data, 2013 .....220

Figure 107: Specialty Provider by County Size, NPI Data, 2013 .....220

Figure 108: Public Mental Health Workforce with Projections.....221

# Executive Summary

---

The Mental Health Services Act (MHSA) was passed by voters in 2004 to create a transformed, culturally-competent system that promotes wellness, recovery and resilience across the lifespan of age groups such as infants, children, adolescents, transition age youth, and older adults. California's public mental health system (PMHS) suffers from a critical shortage of qualified mental health personnel to meet the needs of the diverse populations they serve. There are critical issues such as the mal-distribution, lack of diversity, and under-representation of practitioners across disciplines with cultural competencies including consumers and family members with lived experience to provide consumer and family-driven services that promote wellness, recovery, and resilience.

To address the workforce issues, the MHSA included a Workforce Education and Training (WET) component to develop programs that create a core of mental health personnel that would support the transformation of the public mental health system. In July 2012, following the reorganization of the former California Department of Mental Health (DMH), the MHSA WET programs were transferred to the Office of Statewide Health Planning and Development (OSHPD) which coincided with the completion of the first WET-Five Year Plan (April 2008 to April 2013).<sup>1</sup>

OSHPD was accountable for the development of the second MHSA WET Five-Year Plan 2014-2019. The development of the second WET Five-Year Plan provided the opportunity to refine the vision, values, and goals that guide the distribution of funds based on learnings to date. To strategically deploy funds and create programs that would effectively meet California's public mental health workforce needs, a greater understanding of how the distribution of mental health workers across the state aligns with the current and projected users of the public mental health system was necessary. An array of factors influences the demand and supply of the public mental health workforce in California.

OSHPD engaged Resource Development Associates (RDA) to conduct a large-scale analysis of California's public mental health workforce needs. The four major components of this project are:

1. An evaluation of state-administered WET programs
2. An assessment of public mental health workforce, training, and technical assistance needs as identified by counties and stakeholders;
3. An assessment of mental health education and training; and
4. Workforce projections estimating the supply and demand of California's public mental health workforce in the future.

---

<sup>1</sup> State of California Office of Statewide Health Planning and Development. (2013). *Proposal to Transfer Workforce Education and Training programs to OSHPD*. Retrieved from: <http://www.oshpd.ca.gov/LawsRegs/MHSAWET.html>

At the conclusion of its analysis, RDA produced six reports containing detailed descriptions of its methods, research and findings. The documents in each report are clustered by topic, in order to facilitate review by a diverse potential audience. Each report is prefaced with an Executive Summary to provide a brief description of the documents and key findings contained within each report. Please refer to the “*OSHPD MHSA WET Five-Year Plan: Executive Summary to the Final Report*” document for guidance regarding the overall objectives of the project and each of its six reports.

This report, *Report 4 – Analysis of Mental Health Workforce Supply*, presents the methodology, literature review, and findings related to the workforce supply projections including current distribution and composition of California’s public mental health workforce, and provide projections for how the workforce will grow into the next five years.

This work is complemented by *Report 6 – Public Mental Health Services Demand/Users*, which projects the future distribution and composition of California’s public mental health workforce. Together these reports provide a baseline for ongoing evaluation of and planning for the workforce and efforts to bolster the supply of providers in California.

## California’s Public Mental Health Workforce

Each of the sections in this report provide a distinct perspective on California’s existing public mental health workforce, or the supply of licensed and non-licensed professionals. The *Workforce Projection Literature Review and Proposed Methodology* section describes the range of methodological approaches to estimating workforce supply. Additionally, this section describes the importance of having a workforce projection methodology that balances statistical rigor and reproducibility. Data is acknowledged as a primary challenge to robust workforce projections.

The *Literature Review of Public Mental Health Workforce* section describes research on the existing California public mental health workforce, summarizing the following: 1) concerns around retirement and aging; 2) the distribution of workers across the state; 3) the role of skills mixes in workforce supply; and 4) where members of the public mental health workforce are being trained or working at. The literature review documents the variety of issues that should be considered when conceptualizing the workforce of a state’s public mental health system.

Finally, the *Public Mental Health Workforce Supply Projections* section, informed by the first two sections, provides detailed and data-informed descriptions of California’s current public mental health workforce, and projections for the future (using licensing board and national provider identification data from 2006 to 2013). Issues ranging from retirement, aging, educational pipeline, and economic and policy impacts are built into the projections model. The projections blend a statistical multivariate regression model with provider-to-population ratios. This approach ensures the rigor of the workforce projections, as well as allowing for its future reproducibility. The methods used are carefully documented so that future projections can build on the foundation set forth in this report.

The skills, qualifications, credentials, and responsibilities associated with each of the various mental health disciplines and professions provide natural groupings of types of providers. In the *Public Mental Health Workforce Supply Projections* section, mental health disciplines and professions are grouped together into five provider classes: 1) Licensed, Prescribing; 2) licensed, non-prescribing, nursing; 3) licensed, non-prescribing, clinical; 4) Alcohol and other Drugs Abuse (AOD) Counselors; and 5) non-licensed professionals. Findings and data are reported for each profession within each provider class, as well as broadly for each provider class. Additionally, in order to offer nuanced understandings of the state's workforce distributions, findings are stratified by MHA region, county size, and gender.

## Key Findings

Some of the key findings from this report analyzing the state's mental health workforce supply include the following:

- **Overall, most professions in the public mental health workforce grew from 2006 to 2013, and are anticipated to continue growing from 2014 to 2019.** Observed trends from 2006 to 2013 showed that the total number of mental health workforce increased each year from 2006 to 2013. These trends were forecasted to continue through the next five years for all professions in the public mental health workforce.
- **Rates of growth varied by profession and by provider class.** The number of Registered Nurses was estimated to increase by 50% over the next five year period, corresponding to the highest growth rate of all professions. Conversely, the number of Psychiatrists was estimated to increase by 14% over the same period, corresponding to the lowest growth rate of all professions.
- **Of the 19 different types of providers in the public mental health workforce, Marriage and Family Therapists (MFT) comprise the largest share, both in 2013 and for 2019 estimates.** MFTs constituted 46% of the licensed, non-prescribing, clinical class of providers, which was the largest group of providers in 2013. This distribution is forecasted to continue through 2019.
- **Among the Licensed, Prescribing class, Psychiatrists and Physician Assistants comprise the largest share, while Psychiatric Mental Health Nurse Practitioners comprise the smallest share of providers.** Psychiatrists comprised 47% of the licensed, prescribing providers, while Physician Assistants were 51% of the provider class. The highest counts of each profession are located in the Bay Area region, followed by the Southern and Los Angeles regions. Providers in both professions were located mostly in California's large counties. However, it should be noted that most Physician Assistants practice in non-public mental health settings.
- **While retirement is a key concern discussed in the literature and identified by counties, reliable estimates about retirement for all mental health professions were difficult to obtain.** In the supply projections, the notion of retirement was adjusted

for by using proxy indicators to estimate approximate providers' duration of practice from education to retirement. Based on the supply projections, retirement will not seriously affect the supply of Psychiatrists, MFTs or Licensed Clinical Social Workers (LCSW).

- ***While the Bay Area, Los Angeles, and Southern regions had the largest concentrations of providers in the state, the highest provider-to-population ratios for some professional categories occurred in the Central and Superior regions.*** This implies that when considering the number of providers relative to the populations of those regions, the Bay Area, Los Angeles, and Southern regions have fewer providers relative to their populations. However, both the Central and Superior regions have counties with rural populations; a rural community will have greater difficulty accessing providers even if they are available.

## Frequently Used Acronyms and Abbreviations

Table 1 lists the frequently used acronyms and abbreviations used in this report, as well as their definitions.

**Table 1: Frequently Used Acronyms and Abbreviations**

<u>Acronym</u>	<u>Definition</u>
<b>AA</b>	African American
<b>AOD</b>	Alcohol and Other Drug
<b>API</b>	Asian/Pacific Islander
<b>ASW</b>	Associated Social Worker
<b>AU</b>	MHSA Annual Update Report
<b>BA</b>	Bachelor of Arts Degree
<b>BEA</b>	United States Bureau of Economic Analysis
<b>BLS</b>	United States Bureau of Labor Statistics
<b>BSN</b>	Bachelor of Nursing
<b>CalHR</b>	California Department of Human Resources
<b>CalSWEC</b>	California Social Work Education Center
<b>CAMPHRO</b>	California Association of Mental Health Peer Run Organizations
<b>CBHDA</b>	County Behavioral Health Directors Association of California
<b>CBO</b>	Community-Based Organization
<b>CFM</b>	Consumer/Family Member
<b>CIMH</b>	California Institute for Mental Health
<b>CNS</b>	Clinical Nurse Specialist
<b>CPEC</b>	California Postsecondary Education Commission
<b>CSU</b>	California State University
<b>CSW</b>	Clinical Social Worker
<b>DCA</b>	California Department of Consumer Affairs
<b>DES</b>	Doctorate Employment Survey
<b>DHCS</b>	California Department of Health Care Services
<b>DMH</b>	California Department of Mental Health
<b>EBP</b>	Evidence-Based Practice
<b>EQRO</b>	External Quality Review Organization
<b>FTE</b>	Full-Time Equivalent
<b>FY</b>	Fiscal Year
<b>GDP</b>	Gross Domestic Product
<b>HRSA</b>	United States Health Resources and Services Administration
<b>HTF/HTR</b>	Hard-to-Fill / Hard-to-Retain

<u>Acronym</u>	<u>Definition</u>
<b>IPEDS</b>	Integrated Post-Secondary Education Data System
<b>K-12</b>	Kindergarten through 12th Grade
<b>LA</b>	Los Angeles
<b>LCSW</b>	Licensed Clinical Social Worker
<b>LGBTQ</b>	Lesbian, Gay, Bisexual, Transgender, Queer/Questioning
<b>LPN</b>	Licensed Practical Nurse
<b>LPT</b>	Licensed Psychiatric Technician
<b>LVN</b>	Licensed Vocational Nurse
<b>MA</b>	Master of Arts Degree
<b>MBC</b>	Medical Board of California
<b>MEd</b>	Master's of Education
<b>MES</b>	Master's and Specialty Education Survey
<b>MFT</b>	Marriage and Family Therapist
<b>MH</b>	Mental Health
<b>MHLAP</b>	Mental Health Loan Assistance Program
<b>MHSA</b>	Mental Health Services Act
<b>MSN</b>	Master of Nursing
<b>MSW</b>	Master of Social Work
<b>NAICS</b>	North American Industry Classification System
<b>NAMI</b>	National Alliance on Mental Illness
<b>NHSC</b>	National Health Service Corps
<b>NP</b>	Nurse Practitioner
<b>NPI</b>	National Provider Identifier Registry
<b>OES</b>	Occupational Employment Statistics
<b>OSHPD</b>	Office of Statewide Health Planning and Development
<b>PA</b>	Physician Assistant
<b>PEERS</b>	Peers Envisioning and Engaging in Recovery Services
<b>PEI</b>	Prevention and Early Intervention
<b>PGY</b>	Post-Graduate Year
<b>PMHNP</b>	Psychiatric Mental Health Nurse Practitioner
<b>PMHS</b>	Public Mental Health System
<b>PsyD</b>	Clinical Psychologist
<b>P-to-P Ratio</b>	Provider-to-Population Ratio
<b>QCEW</b>	Quarterly Census of Employment and Wages
<b>RDA</b>	Resource Development Associates
<b>RN</b>	Registered Nurse
<b>RP</b>	Regional Partnership
<b>UC</b>	University of California

<u>Acronym</u>	<u>Definition</u>
<b>WET</b>	Resource Development Associates
<b>WF</b>	Workforce
<b>WIC</b>	Welfare and Institutions Code
<b>WRAP</b>	Wellness Recovery Action Plan
<b>WWT</b>	Working Well Together Training and Technical Assistance Center

# Section 1: Workforce Projection Literature Review

---

## Introduction

The Mental Health Services Act (MHSA) was passed by voters in 2004 to transform the public mental health system and expand service delivery to better meet the diverse and changing needs of California residents in a more compassionate, culturally competent manner. The Workforce Education and Training (WET) component of the MHSA was established to create a core workforce that would support this transformation of the public mental health system into a more integrated, accessible, and recovery-oriented system of care. The transfer of MHSA funding oversight to the Office of Statewide Health Planning and Development (OSHPD) coincided with the completion of the first five-year WET funding cycle (April 2008 to April 2013).<sup>2</sup>

OSHPD was accountable for the development of the next MHSA WET Five-Year Plan (2014-2019). The development of the new WET Five-Year Plan provided the opportunity to refine the vision, values, and goals that guide the distribution of funds based on learning to date. To strategically deploy funds and create sustainable training and education pathways, a greater understanding of how the distribution of mental health workers across the state aligns with the current and projected users of the public mental health system is necessary. An array of factors influences the demand and supply of the public mental health workforce in California.

OSHPD engaged Resource Development Associates (RDA) to conduct a large-scale analysis of California's public mental health workforce needs. This report serves three functions: 1) to describe the purpose of workforce projections and how the procedure is pertinent to the OSHPD WET Five-Year Plan process; 2) to describe RDA's methodology for developing its workforce projection model; and 3) to describe the major factors and assumptions that RDA took into account when modeling the demand and supply of California's public mental health workforce.

## Process

RDA reviewed existing literature on workforce projections to identify the strategies available to project demand and supply. Research included papers on theoretical projection and planning, as well as sample studies that applied workforce projections on global, national, and state-level scale. These projections were gathered from fields of public health, planning, labor, and mental health.

RDA is cognizant of the recent important changes to the healthcare landscape in California. No projections or estimations about the future of the public mental health workforce can be reliably

---

<sup>2</sup> State of California Office of Statewide Health Planning and Development *Proposal to Transfer Workforce Education and Training programs to OSHPD*. [cited 2013 October 4]; Available from: <http://www.oshpd.ca.gov/LawsRegs/MHSAWET.html>.

made without thinking about new healthcare realities. The implementation of the Affordable Care Act (ACA) has created a larger consumer base, incentives for healthcare integration, and will likely have other unknown effects. RDA conducted reviews on these upcoming changes, with the goal of identifying what is known, and what remains unknown, about the ACA's effects on California's public mental health workforce. Topical research was derived primarily from public policy organizations and academic research. This research informs this analysis about how the ACA should be interpreted in modeling workforce projections.

## Key Findings

- ***Need for Advanced Statistical Approaches to Workforce Models:*** Previous workforce projection studies have struggled to integrate anticipated changes into projections. Newer, advanced approaches to workforce projection incorporate more factors of change, and utilize statistical tools to create more accurate projections. Workforce models must take factors affecting future changes into account, including demographics, geography, policy, service delivery, and technology.
- ***Influx of Consumers to the Public Mental Health System:*** The Affordable Care Act is set to drastically change the number of people with health insurance. Nearly four million Californians are newly eligible for Medi-Cal, with 380,000 anticipated to enroll in 2014.
- ***California's Aging Public Mental Health Workforce:*** A significant number of California's public mental health workers are aging and nearing retirement from the workforce. Projection models should identify the specific professions where retirement will constitute significant exit from the workforce.
- ***Healthcare Integration's Effects on the Entry and Exit of Providers in the Public Mental Health System:*** Integration efforts, incentivized by the Affordable Care Act, are anticipated to bring some mental health care services into the fold of primary care settings. This may decrease the utilization of Psychiatrists and other mental health providers, thereby decreasing public mental health workforce demand. However, integration also means that new types of providers will enter the public mental health workforce.
- ***Covered California Draws from the Public Mental Health System into Private Arenas:*** New demand for Covered California service providers is anticipated to pull providers from the public mental health system into non-public healthcare settings.

## Importance of Workforce Projections

The goal of workforce projection is to predict as accurately as possible the future supply and demand within a given market. Workforce projections are critical because supply does not match demand in many instances. Mismatches can result in shortages, where there is more demand than supply, or in surpluses, where there is more supply than demand. Workforce projections are especially important for public mental health services. In the public mental health

economy, healthcare workers constitute the largest cost to the system; both surpluses and shortages can create specific challenges. Over or under-supplying workers can cause costly problems for a state and its consumers, as well as issues related to access and quality of service.

Projections are also important for public mental health markets because supply policies are not immediately responsive to market demands. Public mental health fees for services are set at federal or state levels. These fees for services, which influence wages, are reviewed at set times. This system is contrary to a private market setting, in which the fee for a product or service is influenced by the demand. For example, if there is a surplus of wheelchair supply, the cost of wheelchairs is expected to decrease. The decreased cost of wheelchairs is then expected to help decrease the surplus of wheelchairs. However, if public mental health departments hire too many Psychologists, creating a surplus of supply, the market does not automatically correct the cost of Psychologists (wages) to compensate and adjust supply. In this scenario, the surplus of Psychologists would create a cost burden on public mental health departments.

Another important challenge for public mental health systems is that the supply of professionals involves long educational trajectories as well as training and licensing requirements. The education and training requirements are critical to a competent and professional public mental health workforce but make it difficult to quickly respond to a workforce shortage. The result is a delay between when a current shortage is recognized and when it can be addressed with additional supply. For example, California counties identify Psychiatrists as a workforce shortage in mental health departments statewide. While attracting existing Psychiatrists into the public mental health workforce is one way to address the gap between supply and demand, there may not be a pool of currently licensed Psychiatrists who are available to work. As a result, solutions to address the gap by generating new Psychiatrists are delayed by the time it takes to educate and license additional Psychiatrists. The educational pipeline for Psychiatry is very long and involves completing medical school, internship, residency, and a board certification exam. At the end of the education and training, the new Psychiatrist must also then choose to work in the public mental health system.

Marking projections about future workforce supply and demand is critical to identifying potential surpluses or shortages. Such projections allow for planning and development of strategies in the present to address anticipated workforce gaps in the future. Targeting current workforce development strategies to projected need provides the opportunity to prevent mismatches in supply and demand. Advance projections and planning can help save agencies money and ensure that they are prepared to meet the public's service needs.

## The Challenge

While workforce projections have been widely acknowledged as an important element of workforce planning, accurate projections are difficult to achieve. All workforce projections need past and current information on supply and demand to form a foundation from which to project future trends. Traditional workforce projection techniques have relied heavily on past trends to make predictions. Although in some cases past trends can predict future ones, there are many

new contributing factors that impact demand or supply. These factors include policy, demographics, and economic changes. Incorporating estimates of these changes into projections is necessary to provide a holistic and more accurate depiction of the future. The following section outlines factors that should be taken into consideration in workforce projections. These factors can be divided into two categories: factors to analyze past and current trends, and factors that might influence changes in the future.

## Workforce Supply

Workforce supply refers to the number and types of mental health workers available. As with workforce demand, it is useful to think about who makes up the past and current public mental health workforce supply, and who will be the future public mental health workforce. Also similar to workforce demand, past and current data can be used to establish baseline rates. These rates are then adjusted according to factors that influence change.

Generally, supply is easier to estimate than demand; the primary difficulty is the reliability of data on those entering and exiting the workforce. In the context of public mental health, estimates of incoming workforce supply have traditionally been made by assessing the number of students graduating with relevant degrees, or getting licensed or certified in mental health professions. However, not all of these students will enter the *public* mental health workforce. Analysis of past and current trends can tell us the proportion of graduating students with relevant degrees to enter the workforce, but we must also analyze factors that may change that proportion in the future. Similarly, looking at current professional staff describes the universe of available professional staff but does not account for the myriad of settings that mental health professions work in, including private practice and other non-public mental health settings.

## Factors Assessing Past and Current Workforce Supply

Past and current workforce supply should be analyzed by the same demographic and geographic markers as workforce demand. These factors include, but are not limited to, race/ethnicity, age, gender, and geographic distribution.

Age is a particularly important indicator in analyzing supply because the public mental health workforce is getting older. In 2002, over 65% of Psychiatrists were over the age of 50.<sup>3</sup> Over 58% of Social Workers were also over the age of 50. Since these estimates are over ten years old, concerns surrounding an older and aging workforce should be closely examined.

### Types of Occupation

In addition to disaggregating supply by demographic indicators, workers also need to be categorized by their occupation. The mental health occupational categories include:

---

<sup>3</sup> Annapolis Coalition on the Behavioral Health Workforce. *An Action Plan for Behavioral Health Workforce Development*. Substance Abuse and Mental Health Services Administration. 2007. Available from: <http://www.samhsa.gov/workforce/annapolis/workforceactionplan.pdf>

**Table 2: OSHPD Mental Health Occupational Categories**

<u>Occupational Category</u>	<u>Type of Professional</u>	<u>Ability to Prescribe</u>
<b>Benefits/Eligibility Specialist</b>	Non-licensed Professional	No
<b>Case Manager/Service Coordinator</b>	Non-licensed Professional	No
<b>Clinical Nurse Specialist</b>	Licensed, Certified, Registered	No
<b>Clinical Psychologist</b>	Licensed, Certified, Registered	No
<b>Designated Consumer/Family Member, Admin/Policy</b>	Administrative	No
<b>Designated Consumer/Family Member, Direct Service</b>	Non-licensed Professional	No
<b>Designated Consumer/Family Member, Training/Ed</b>	Non-licensed Professional	No
<b>Employment Service Staff</b>	Non-licensed Professional	No
<b>Housing Support Services Staff</b>	Non-licensed Professional	No
<b>Licensed Clinical Psychologist</b>	Licensed, Certified, Registered	No
<b>Licensed Clinical Social Worker</b>	Licensed, Certified, Registered	No
<b>Licensed Professional Clinical Counselors</b>	Licensed, Certified, Registered	No
<b>Licensed Psychiatric Technician</b>	Licensed, Certified, Registered	No
<b>Marriage and Family Therapist</b>	Licensed, Certified, Registered	No
<b>Mental Health Rehabilitation Specialist</b>	Licensed, Certified, Registered	No
<b>Nurse, Other</b>	Licensed, Certified, Registered	No
<b>Occupational Therapist</b>	Licensed, Certified, Registered	No
<b>Other Non-Licensed Mental Health Staff Not listed above</b>	Non-licensed Professional	No
<b>Physician Assistant</b>	Licensed, Certified, Registered	Yes
<b>Promotora</b>	Non-licensed Professional	No
<b>Psychiatric Mental Health Nurse Practitioner</b>	Licensed, Certified, Registered	Yes
<b>Psychiatrist</b>	Licensed, Certified, Registered	Yes
<b>Psychiatrist, Child/Adolescent</b>	Licensed, Certified, Registered	Yes
<b>Psychiatrist, Geriatric</b>	Licensed, Certified, Registered	Yes
<b>Psychologist</b>	Licensed, Certified, Registered	No
<b>School Psychologist</b>	Licensed, Certified, Registered	No
<b>Substance Abuse Counselor</b>	Non-licensed Professional	No

### Wages

While the demand for public mental health services does not vary greatly by the capacity to pay for services, the supply of public mental health workers may be affected by wages. Wages in the public sector, if lower than in the private market, may influence certain professionals to work

in private rather than public settings. Or, if wages are expected to increase for Nurses, increased wages may incentivize more students to choose nursing programs, and may provide an influx of nurses to the system. These factors make tracing wages an important factor in analyzing past and current supply and projecting future supply.

**Education, Licensing, and Training Requirements**

Requirements around education, licensing, and training are extensive in the public health context. It is important to understand the time it takes for each type of worker to become qualified to serve in the public mental health system, because advance planning must occur to address any shortages. RDA has identified the minimum number of years needed to meet the education, licensing, and training requirements for each of the mental health occupational categories:

**Table 3: Years Required for Education, Licensing, and Training for Mental Health Occupations**

<u>Occupational Category</u>	<u>Minimum Years to Completion</u>	<u>Training and Education Required for Service Provision</u>
<b>Benefits/Eligibility Specialist</b>	N/A	N/A
<b>Case Manager/Service Coordinator</b>	N/A	N/A
<b>Clinical Nurse Specialist</b>	2 years	2 year Master's Degree Program, Exam
<b>Clinical Psychologist</b>	5 years	4 year Doctorate Degree, 1 year Post-doctoral Training, Exam
<b>Designated Consumer/Family Member,</b>	N/A	N/A
<b>Employment Service Staff</b>	N/A	N/A
<b>Housing Support Services Staff</b>	N/A	N/A
<b>Licensed Clinical Psychologist</b>	5 years	4 year Doctorate Degree, 1 year Post-doctoral Training, Exam
<b>Licensed Clinical Social Worker</b>	4 years	2 year Master's Degree Program, 2 years Post-graduate Training, Exam
<b>Licensed Professional Clinical Counselors</b>	4 years	2 year Master's Degree Program, 2 years Post-graduate Training, Exam
<b>Licensed Psychiatric Technician</b>	1 year	12 months, Exam
<b>Marriage and Family Therapist</b>	4 years	2 year Master's Degree Program, 2 years Post-graduate Training, Exam
<b>Mental Health Rehabilitation Specialist</b>	N/A	N/A
<b>Nurse, Other</b>	*	
<b>Occupational Therapist</b>	2 years	2 year Master's Degree Program, Exam
<b>Other Non-Licensed Mental Health Staff</b>	N/A	N/A
<b>Physician Assistant</b>	N/A	2 year Master's Degree Program, Exam

<u>Occupational Category</u>	<u>Minimum Years to Completion</u>	<u>Training and Education Required for Service Provision</u>
<b>Promotora</b>	N/A	N/A
<b>Psychiatric Mental Health Nurse Practitioner</b>	2 years	2 year Master's Degree Program, Exam
<b>Psychiatrist</b>	8 years	4 years Medical School, 4 years Post-graduate Training, Board and Specialty Board Exams
<b>Psychiatrist, Child/Adolescent</b>	8 years	4 years Medical School, 4 years Post-graduate Training, Board and Specialty Board Exams
<b>Psychiatrist, Geriatric</b>	8 years	4 years Medical School, 4 years Post-graduate Training, Board and Specialty Board Exams
<b>Psychologist</b>	5 years	4 year Doctorate Degree, 1 year Post-doctoral Training, Exam
<b>School Psychologist</b>	2 years	2 Year Master's Degree Program
<b>Substance Abuse Counselor</b>	**	

\*Registered Nurses may take one to four years to complete education and training. This includes a 1-year program for people with a Bachelor's Degree in another discipline, a 2-year Associate's Degree program, or a 4-year Bachelor's Degree program. Licensed Vocational Nurses (LVN) are eligible for licensure after a 12-month program. All require a post-school exam.

\*\*Substance Abuse Counselors may be registered or certified through the California Association of Alcohol and Drug Abuse Counselors (CAADAC), the CARR Institute, Breining Institute, or other alcohol and drug organization with an associate or non-degree program.

### **Skills Mix / Examining Provider Ratios**

Skills mix refers to the relationship between the different professional groups in a system of care. Skills mix analyses examine the way in which a distribution of professionals (Nurses, Physicians, and Psychiatrists) is related to patient outcomes. Studies that incorporate skills mix analyses have been used to examine trends in the types of professions represented in an area and resulting patient outcomes. For example, one study identified a relationship between the proportion of Registered Nurses in a hospital and adverse patient events. In the case of public mental health services, there are limited examples of studies that have analyzed supply in this way. Studies have identified trends and demand by professional type (e.g. number of Psychiatrists supplied, number of patients seeing a Psychiatrist). Skills mix implies an analysis of the past and current trends across professional types, and could be a strong addition to the factors considered in the public mental health context.

Another way of conceiving of skills mixes is to frame them as a provider ratio. Provider ratios refer to the relation in number of providers to patients served. For example, if one Psychiatrist can see 10 patients in a day, a Psychiatrist's provider ratio would be 10:1. Changing the skills

mix of the workforce is closely related to changing provider ratios. In a recent study on California public mental health workforce needs, RDA identified a common demand for Psychiatric Nurse Practitioners. Nurse Practitioners may be able to offload some of a Psychiatrist's responsibilities, and increase a Psychiatrist's provider ratio. Moreover, if more Nurse Practitioners were to enter the workforce, there might be a workforce shift in skills mixes. Their skill set may be able to help to fill the demand for Psychiatrists. This is just one example of how understanding skills mixes is relevant to workforce projection and planning.

## Contributing Factors to Future Workforce Supply

### State and Federal Policies

The Affordable Care Act (ACA) will spur a significant expansion of mental health services. Title V of the ACA makes provisions for "mental and behavioral health education and training grants to schools for the development, expansion, or enhancement of training programs in social work, graduate psychology, professional training in child and adolescent mental health, and training of non-licensed professionals in child and adolescent mental health."<sup>4</sup> ACA funding will provide scholarships and loan repayment programs incentivizing pursuit of careers in mental health and entry into the public mental health system. Additionally, ACA funding will support scholarships and loan repayments for disadvantaged students who commit to working in medically underserved areas of the country. Many of these programs are currently scheduled to be administered by the National Health Service and the Health Resources and Services Administration (HRSA). With its many postsecondary educational institutions, California is poised to benefit greatly from ACA provisions encouraging the development and expansion of the public mental health workforce.

### Macroeconomic Conditions

Macroeconomic conditions such as the state of the U.S. economy, gross domestic product (GDP), and overall labor market participation may affect the supply of public mental health workers. Macroeconomic conditions are beyond the state's planning purview, but must be considered in workforce planning because of their potential effects. From 2010 to 2020, the GDP is anticipated to increase by 3% annually, which is an improvement from the 2000 - 2010 decade (although still slower than growth from 1990 to 2000).<sup>5</sup> Analysts examining recovery from 2010 to 2013 have found the GDP to be rising more slowly than the 3% estimate, but most believe that recovery will strengthen toward the latter end of the decade. Employment is also expected to increase from 2010 to 2020. Projections estimate a 1.1% annual growth for employment, which is a strong improvement from the 2000 to 2010 period (0.2% growth). Federal expenditures in aid, including Medicare and Medicaid, are projected to increase from the 2000 to 2010 period. Medicaid investments are anticipated to continue increasing by 1.5% annually from 2010 to 2020.

---

<sup>4</sup> The White House. *Putting Americans In Control of Their Health Care*. [cited 2013 September 30]; Available from: <http://www.whitehouse.gov/health-care-meeting/proposal/titlev/increasing-supply>

<sup>5</sup> Bureau of Labor Statistics. *The U.S. Economy in 2010: Recovery in Uncertain Times*. January 2012. Available from: <http://www.bls.gov/opub/mlr/2012/01/art2full.pdf>

These conditions are not within the control of public mental health departments, but ultimately can affect individual decisions about participation in the labor force, as well as state and federal budgeting choices.

### **Summary of Contributing Factors to Workforce Supply**

Supply consists of the public mental health workforce at any given point. Factors that can influence workforce entry or exit include demographic factors, especially age; policy changes and programs; and economic factors such as wages or overall economic growth. For projections of future supply, it is important to analyze trends in the workforce by professional type and skills mix. Finally, identifying the time it takes to prepare potential workers for the workforce (i.e. the time it takes to meet education, licensing, and training requirements) is essential in order to translate supply needs into supply plans.

## **Review of Traditional Methods to Estimate Workforce Supply**

RDA surveyed a range of workforce projection studies to identify methods used to estimate supply. We drew from projection models in the fields of labor economics, public health, and mental health. This section serves to identify the methods workforce projection studies have commonly used in the past. Each method has a “core idea” behind it; the name, details, and actual step-by-step procedures attached to each model vary greatly. Moreover, as previously acknowledged, many of these methods have not been able to produce accurate projections. Thus, while it is important to understand the core ideas behind the models, they represent conceptual approaches rather than applicable methods. In other words, these methods are more ways of thinking about supply or demand than complete models for workforce projections.

For each model, RDA identifies the core goal of the model, the data required, the assumptions it involves, and any limitations or advantages to the model.

## **Methods to Estimate Workforce Supply**

### **Workforce to Population Ratio Method**

The Workforce to Population Ratio method is one of the most common approaches for estimating workforce supply. The fundamental aspect of this method involves assessing the current number of workers and comparing that number to the overall population. Analysis would result in a ratio, sometimes called a “threshold,”<sup>6</sup> such as 33.5 Psychologists per 100,000-person population in the United States in 2004.<sup>7</sup> Assuming that researchers have reliable data, there are not many complications in this description of the data.

---

<sup>6</sup> World Health Organization. *Models and Tools for Health Workforce Planning and Projections*. June 2011. Available from: <http://www.who.int/hrh/resources/observer3/en/>

<sup>7</sup> Keckley, Paul. *The new healthcare workforce: looking around the corner to future talent management*. Deloitte Center for Health Solutions. Available from: [http://www.deloitte.com/assets/Dcom-UnitedStates/Local%20Assets/Documents/Health%20Reform%20Issues%20Briefs/us\\_chs\\_NewHealthCareWorkforce\\_032012.pdf](http://www.deloitte.com/assets/Dcom-UnitedStates/Local%20Assets/Documents/Health%20Reform%20Issues%20Briefs/us_chs_NewHealthCareWorkforce_032012.pdf)

Analysts have varied in how to apply the current ratio to future supply estimates. One approach assumes that the ratio of workers to the population will remain constant. This perspective also assumes that each worker will be, on average, equally productive (e.g. all Psychologists will see on average the same number of patients per year). Alternatively, workforce-to-population ratios can be analyzed to describe current trends alone, while future supply is estimated using a different method. The current workforce-to-population ratio then serves as a basis for comparison to estimates of future supply and future population.<sup>8</sup> In this case, ratios were used to compare differences over time.

The workforce-to-population ratio method was applied in an analysis of the California Mental Health Service context by Lok and Chapman in 2009.<sup>9</sup> In this study, ratios of mental health professions to 100,000-person populations were used to describe the current ratios only. They were not applied to future projections.

This method provides a straightforward description of the current supply of workers relative to the population. It only requires data on the current and past supply of workers, and no data on the future supply. The workforce-to-population ratio method is very limited in terms of estimating future supply because it requires several assumptions that are unlikely in the current context. It assumes that (1) ratios will remain constant, (2) all providers have the same productivity, and (3) no changes occur in the population or number of providers. This method also does not take into account diversity needs by age, race/ethnicity, language, or regional distributions.

### **Service Targets Method**

This method focuses on a future, ideal distribution of health services. It establishes targets for each type of service by professional category. Applied to the public mental health context, this method would require creating goals for the number of patients each type of practitioner should see per day. After establishing such goals, the service targets method assesses how the current workforce supply must evolve to meet those goals; for example, increasing the number of Psychiatrists available, or changing the number of patients a Psychiatrist sees per day.

The most important assumptions of this method involve establishment of the target goals. Assumptions must be made regarding each service type (psychiatry, counseling, nursing, etc.) and what their service production should be. This method also assumes that those goals are stable over different aspects of the population, and does not take into account demographic or geographic differences nor changes in skills mix. This method requires data on the current workforce supply and their levels of productivity.

### **Benchmarking Model**

This model is like the service target model, as it involves adopting target standards of care. The key differentiating aspect is that the targets, called benchmarks, come from a different existing

---

<sup>8</sup> *Ibid.*

<sup>9</sup> Lok and Chapman. *The Mental Health Workforce in California: Trends in Employment, Education, and Diversity*. March 2009, Available from: [http://www.futurehealth.ucsf.edu/Content/29/2009-03\\_The\\_Mental\\_Health\\_Workforce\\_in\\_California\\_Trends\\_in\\_Employment\\_Education\\_and\\_Diversity.pdf](http://www.futurehealth.ucsf.edu/Content/29/2009-03_The_Mental_Health_Workforce_in_California_Trends_in_Employment_Education_and_Diversity.pdf)

population. That population should be comparable in size, demographic makeup, and health needs. This model would require extensive data on multiple populations to establish an accurate comparison population, from which to identify benchmarks in services and standards of care. The data requirements are a primary limitation to this model. Access to other states' public mental health service data and the quality and comparability of that data to California would be potential obstacles. Moreover, selecting a benchmark model of service assumes that those benchmarks are optimal and that they will remain optimal in the future. This model does not incorporate changes to future supply influenced by shifts in policy or the economy.

### **World Health Organization Human Resources for Health (HRH) models**

The World Health Organization (WHO) has produced a Human Resources for Health (HRH) workforce projection model. The model comes in the form of excel spreadsheets, where WHO queries information such as number of Physicians, hospital size, and projected disease burdens. After entering these inputs, the model automatically generates outputs for workforce needs. While WHO has created a simple and straightforward tool for workforce planning, this model does not allow modifications to the terms and conditions of the California context. The underlying assumptions for this model are also based in public health. Given the changing healthcare landscape, with a wide variety of considerations with regard to the ACA, California's unique diversity, and that the assumptions are rooted in a public health setting, such a predetermined approach may not be the best.

### **Advanced Analytical Techniques to Estimating Workforce Supply**

This section introduces analytical techniques that go beyond the traditional methods of estimating supply. Unlike the previous section, these techniques are not differently delineated as techniques for predicting demand *or* supply; rather, they are analytical approaches to data that can be incorporated into model for supply.

#### **Regression Analysis**

Regression analysis is the workhorse of statistical analyses and has been applied in public health projection modeling in many scenarios.<sup>10</sup> Regression analysis can employ multiple variables (multivariate regressions), allowing a simultaneous consideration of the many key variables influencing supply and demand. A regression analysis can therefore determine the importance, statistical significance, and extent to which each variable is related to a given outcome. The outcomes would vary by supply or demand estimations. As an example, a regression analysis could use the number of Psychiatrists per county in California as the outcome. Variables influencing the outcome could include the overall population size of the county; whether the county was small, medium, or large size county; or the number of educational institutions in the county. The regression analysis would use variation among the counties to identify what variables were strongly related to increased numbers of Psychiatrists per county. Multivariate regression analysis can also involve controls for economic factors such

---

<sup>10</sup> Roberfroid et al. *Physician Supply Forecast: Better than Peering in a Crystal Ball?* 2009. Available from: <http://www.human-resources-health.com/content/7/1/10>

as GDP growth or decline. Controlling for these economic factors, which cannot be influenced by public health planning but can affect it, is an important way to ensure that the analysis is as accurate as possible.

The data required for this type of multivariate regression analysis includes information on the number of mental health professionals by type, disaggregated by counties and by demographic indicators.

There are many advantages to a regression approach. This type of model has been used often and with relative success in workforce projections. It is capable of incorporating several of the desired variables in assessing current and past trends in workforce demands. Incorporating this approach would provide an easily replicable pathway for future workforce projections. A regression approach is limited, however, in terms of projecting the future supply or demand of the public mental health workforce. Regression analyses rely entirely on historical data.<sup>11</sup> As previously discussed, policy, demographic, economic, and other changes should be considered in the future projections aspect of the model.

### **Econometric Analysis**

Econometric models apply statistics in the context of an economic problem. These models can also apply regression analysis, so differentiating between an “econometric model” and a “regression model” is theoretically difficult. In the context of projection literature, econometric models are discussed as involving more advanced statistical techniques. Econometric models also imply integration of market factors, such as service utilization and access to services.<sup>12</sup> However, these factors can also be considered in a regression approach.

### **Deterministic Sensitivity Analysis**

Deterministic sensitivity analysis is an approach used to identify important and “sensitive” variables that have a serious impact on the outcomes.<sup>13</sup> A sensitivity analysis can identify the relative importance of variables that have uncertain values. To conduct a sensitivity analysis, the values of the parameters of interest are changed, and the consequent changes to the outcomes are measured. An advantage of a sensitivity analysis is that in the face of a changing health policy landscape, there are several variables for which we have estimates but not certain values. A sensitivity analysis would tell us the extent to which changing those unknown values would affect our estimates.

A drawback of the sensitivity analysis approach is that it requires multiple additional estimations, on top of the actual projection modeling. In this sense, it would be a time-intensive addition to the modeling process.

---

<sup>11</sup> *Ibid.*

<sup>12</sup> Bipartisan Policy Center and Deloitte Center for Health Solutions. *Better Health Care Worker Demand Projections: A Twenty-First Century Approach*. February 2013. Available from: <http://bipartisanpolicy.org/sites/default/files/BPC%20DCHS%20Workforce%20Demand%20Paper%20Feb%202013%20final.pdf>

<sup>13</sup> Roberfroid et al. *Physician Supply Forecast: Better than Peering in a Crystal Ball?* 2009. Available from: <http://www.human-resources-health.com/content/7/1/10>

### **Stochastic Simulation**

Stochastic simulation models incorporate uncertainty and probability into their estimations. Stochastic models apply variant, random samples from the data, as opposed to deterministic approaches, which involve clearly identified samples. In the stochastic approach, random samples are used to gauge the probability of any certain outcome. A significant drawback in utilizing the stochastic model is that the method has not been tried often. Since it requires such complex techniques and interpretation, it is unlikely to be applied easily by organizations undertaking planning efforts in the future. However, efforts that have used stochastic modeling in workforce projections have been more accurate than traditional and deterministic approaches. Accuracy is a key goal in workforce projections, and a hard one to achieve. Moreover, stochastic modeling has been recommended for scenarios where many variables and estimates are uncertain. This is also the case given upcoming changes to the consumer pool and the potential changes in workforce supply.

### **California's Public Mental Health Workforce Projection Modeling**

California's public mental health workforce is continually evolving to meet the needs of the state's public mental health system user population. Workforce projection modeling is the process of identifying trends in workforce demand and supply, and analyzing how these trends may change over time. Workforce demand in the state is comprised of the growing needs and financial means of Californians for public mental health services, as well as the changing policy landscape for improvements in the delivery of health care services across the state. Workforce supply constitutes the myriad of factors that affect the entry of health care professionals into the public mental health workforce, as well as the factors for mental health providers leaving the workforce. Examining details of public mental health system entry and exit by users and providers provides a nuanced examination of the state's future public mental health workforce needs. In the presently evolving climate of health care service delivery, it is even more important to understand the major factors influencing the changes in demand and supply of California's public mental health workforce.

## Section 2: Literature Review of Public Mental Health Workforce Supply

---

### Introduction

Having an understanding of California's public mental health workforce, particularly the demand for public mental health services as well as the supply of providers to meet demand, is important in the development of the WET Five-Year Plan. This section of the report provides a summary of studies on subjects pertinent to understanding the state's public mental health workforce needs. Literature relevant to California's public mental health system is prioritized in this review. However, there is a scarcity of information for some topics, and relevant findings pertaining to the larger United States are included when California-specific information is unavailable. Report #6 outlines findings for public mental health workforce demand. This report presents findings with respect to workforce supply.

The public mental health workforce supply topics examined in this report are:

- current mental health workforce;
- types of occupations;
- wages;
- education, licensing, and training requirements;
- skills mix and examining provider ratios;
- state and federal policies;
- macroeconomic conditions;
- increased demand of mental health professions in the private sector;
- increased demand for mental health services in primary care settings;
- programs enticing entry into the public mental health system; and
- aging of the public mental health workforce

### Workforce Supply

Workforce supply refers to the number and types of public mental health workers available. Generally, the concept of workforce supply is easier to understand than workforce demand; the primary difficulty is the reliability of data on those entering and exiting the workforce. In the context of public mental health, estimates of incoming workforce supply have traditionally been made by assessing the number of students graduating with relevant degrees, or getting licensed or certified in mental health professions. However, not all of these students will enter the *public* mental health workforce. Analyses of past and current trends can identify the proportion of graduating students with relevant degrees who enter the workforce. Similarly, looking at current professional staff describes the universe of available professional staff but does not account for

the myriad of settings that mental health professions work in, including private practice and other non-public mental health settings.

### Current Mental Health Workforce

California's current mental health workforce is comprised of a variety of types of mental health professionals, including:

- Unlicensed mental health direct service staff such as Case Managers, Mental Health Rehabilitation Specialists, and Consumer Support Staff
- Licensed mental health direct service staff such as Psychiatrists, Clinical Nurse Specialists, Licensed Clinical Social Workers, and Marriage and Family Therapists
- Other health care staff such as Physicians, Registered Nurses, and Physician Assistants
- Managerial and supervisory staff such as Supervising Psychiatrists and Licensed Supervising Clinicians
- Support staff such as Analysts and Clerical Assistants.

In 2007, California's public mental health workforce was estimated to consist of 48,513 full-time equivalents (FTE), including both full-time and part-time workers. Of the state's overall public mental health workforce, 30.32% (14,711 FTEs) were licensed mental health staff.<sup>14</sup> In 2008, there were 72,433 licensed mental health professionals in California.<sup>15</sup> Therefore, between 2007 and 2008, approximately 20.31% of the state's licensed mental health professionals practiced within the realm of public mental health services.

Table 4 indicates a wide salary range in the mental health workforce (\$16.96-\$72.92 per hour).<sup>16</sup> Mental Health and Substance Abuse Social Workers (38.4 providers per 100,000 people) represent the largest provider sector, and Substance Abuse/Behavioral Disorder Counselors are the fastest growing profession (35.4% expected job growth).

---

<sup>14</sup> State of California Office of Statewide Health Planning and Development *Proposal to Transfer Workforce Education and Training programs to OSHPD*. [cited 2013 October 4]; Retrieved from: <http://www.oshpd.ca.gov/LawsRegs/MHSAWET.html>

<sup>15</sup> Lok and Chapman. *The Mental Health Workforce in California: Trends in Employment, Education, and Diversity*. (2009, March). Retrieved from: [http://www.futurehealth.ucsf.edu/Content/29/2009-03\\_The\\_Mental\\_Health\\_Workforce\\_in\\_California\\_Trends\\_in\\_Employment\\_Education\\_and\\_Diversity.pdf](http://www.futurehealth.ucsf.edu/Content/29/2009-03_The_Mental_Health_Workforce_in_California_Trends_in_Employment_Education_and_Diversity.pdf)

<sup>16</sup> California Employment Development Department (2012). *Employment Projections, 2006-2016*.

**Table 4: Employment, Projected Growth, and Mean Wages for Selected Professions in California’s Mental Health Workforce**

Profession	Mean Hourly and Annual Wages	Current Employment, 2007	Percentage Growth (%), 2006- 2016	Ratio per 100,000 Population
<b>Mental Health and Substance Abuse Social Workers</b>	\$19.44/41,470	14,010	22.8%	38.4
<b>Clinical, Counseling, and School Psychologists</b>	\$36.67/78,213	12,560	20.1%	34.5
<b>Psychiatric Technicians</b>	\$19.89/42,434 10,390	10,390	15.1%	28.5
<b>Mental Health Counselors</b>	\$21.89/46,700	9,360	20.5%	25.7
<b>Substance Abuse and Behavioral Disorder Counselors</b>	\$16.96/36,189	8,300	35.4%	22.8
<b>Rehabilitation Counselors</b>	\$20.02/42,711	7,620	13.0%	20.9
<b>Marriage and Family Therapists</b>	\$20.50/43,716	6,130	21.9%	16.8
<b>Psychiatrists</b>	\$72.92/NA	2,480	16.4%	6.8

Source: California Employment Development Department (2012). *Employment Projections, 2006-2016*.

Table 5 shows that over half (54.5%) of all licensed mental health professionals in California either reside or practice in the Greater San Francisco Bay Area or Los Angeles regions, which comprise 47.4% of the state's population. Marriage and Family Therapists (37%) and Licensed Clinical Social Workers (21.5%) are the largest groups of licensed mental health professionals, whereas Psychiatrists comprise only 8.9%.<sup>17</sup>

NOTE: California Regions are listed according to Department of Consumer Affairs. Please refer to Appendix 1 for a breakdown of counties in each California Region as defined by the Department of Consumer Affairs.

<sup>17</sup> Lok and Chapman. *The Mental Health Workforce in California: Trends in Employment, Education, and Diversity*. (2009, March). Retrieved from: [http://www.futurehealth.ucsf.edu/Content/29/2009-03 The Mental Health Workforce in California Trends in Employment Education and Diversity.pdf](http://www.futurehealth.ucsf.edu/Content/29/2009-03%20The%20Mental%20Health%20Workforce%20in%20California%20Trends%20in%20Employment%20Education%20and%20Diversity.pdf); Original source of table: American Medical Association (2006). *AMA Physician Professional Data*.

**Table 5: Distribution of Selected Licensed Mental Health Professionals in California by Region: 2008**

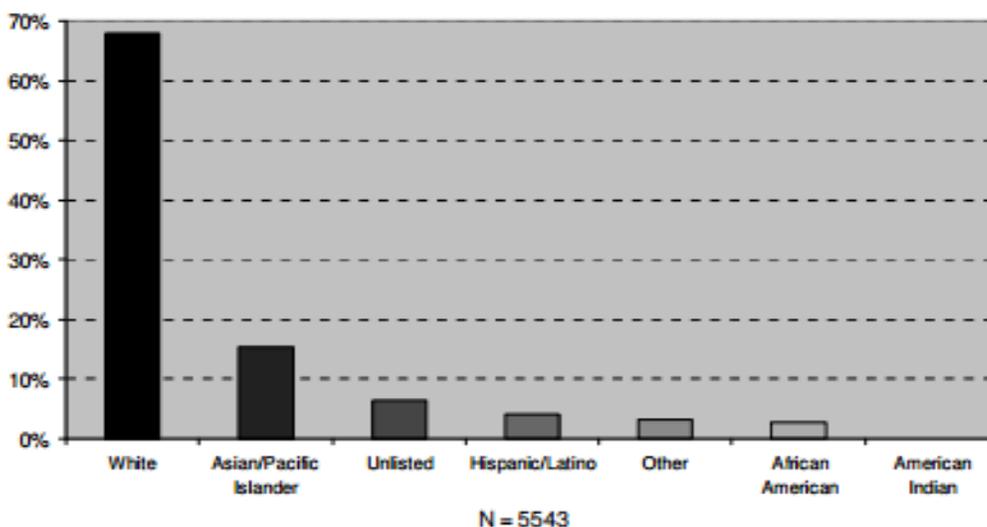
California Region	Licensed Clinical Social Workers	MFT	Psychologists	Psych Tech	Public Mental Health Nurses	Psychiatrist	Total	Regional %
<b>Bay Area</b>	4,517	8,501	4,454	1,916	129	2,103	21,620	29.8%
<b>North Valley/Sierra</b>	1,185	1,600	690	330	10	360	4,175	5.8%
<b>Central Valley/Sierra</b>	279	490	167	323	3	93	1,355	1.9%
<b>Inland Empire</b>	908	1,476	579	2,043	20	327	5,353	7.4%
<b>Orange</b>	1,115	2,279	1,141	857	28	496	5,916	8.2%
<b>Central Coast</b>	778	1,998	772	1,285	23	298	5,154	7.1%
<b>North Counties</b>	432	814	210	172	7	69	1,704	2.4%
<b>South Valley/Sierra</b>	630	792	437	1,377	4	205	3,445	4.8%
<b>Los Angeles</b>	4,238	6,798	3,882	1,012	100	1,852	17,882	24.7%
<b>San Diego</b>	1,477	2,022	1,513	137	44	636	5,829	8.0%
<b>Total</b>	15,559	26,770	13,845	9,452	368	6,439	72,433	100%
<b>Percent Total</b>	21.5%	37.0%	19.1%	13.0%	0.5%	8.9%	100.0 %	

Source: Lok and Chapman. (2009). *The Mental Health Workforce in California: Trends in Employment, Education, and Diversity*.

### Psychiatrists

The racial/ethnic makeup of California Psychiatrists did not change substantially between 2000 and 2004. Over that period, the majority of Psychiatrists were White. In 2000, 57% of California Psychiatrists who reported their race/ethnicity were White, 8% were Asian/Pacific Islander, and 5% were African American or Hispanic/Latino.<sup>18</sup> In 2004, the percentage of White Psychiatrists increased to approximately 68%, and the percentage of Asian/Pacific Islander Psychiatrists increased to 15%.<sup>19</sup>

**Figure 1: Psychiatrists in California by Race and Ethnicity: 2004**



Source: Lok and Chapman. (2009) *The Mental Health Workforce in California: Trends in Employment, Education, and Diversity*.

NOTE: This figure was taken directly from the Lok and Chapman, 2009 report cited here.

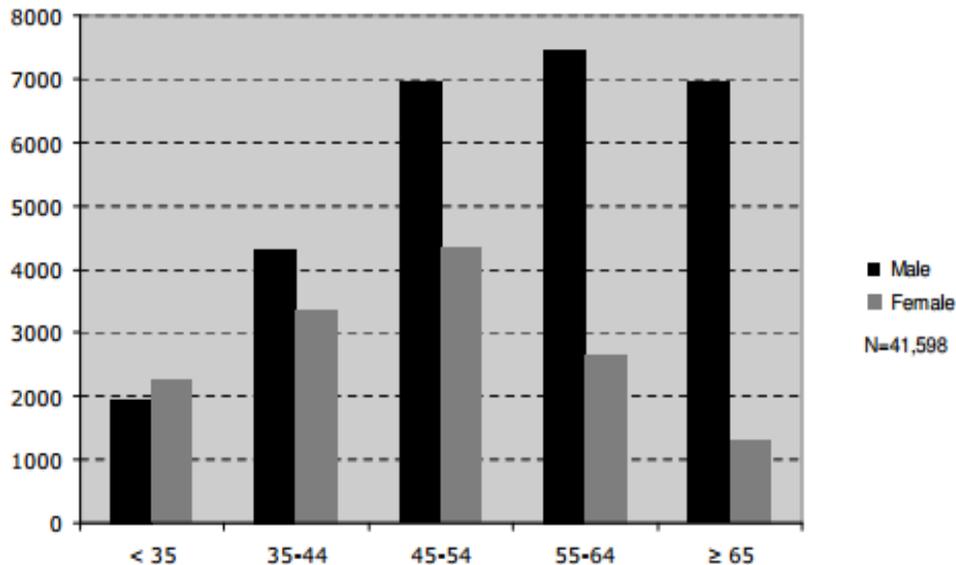
Figure 2 indicates a greater portion of Psychiatrists approaching retirement age. Psychiatrists over the age 45 are predominantly male, while Psychiatrists who are 35 years of age and under are nearly equal in gender representation.<sup>20</sup>

<sup>18</sup> McRee, T., Dower, C., Briggance, B., Vance, J., Keane, D., & O'Neil, E. (2003). *The Mental Health Workforce: Who's Meeting California's Needs*. Retrieved from: <http://nuhw.squarespace.com/storage/mentalhealth/McReeTetalTheMentalHealthWorkforceWhosMeetingCANeeds.pdf>

<sup>19</sup> Lok and Chapman. *The Mental Health Workforce in California: Trends in Employment, Education, and Diversity*. March 2009. Available from: [http://www.futurehealth.ucsf.edu/Content/29/2009-03\\_The\\_Mental\\_Health\\_Workforce\\_in\\_California\\_Trends\\_in\\_Employment\\_Education\\_and\\_Diversity.pdf](http://www.futurehealth.ucsf.edu/Content/29/2009-03_The_Mental_Health_Workforce_in_California_Trends_in_Employment_Education_and_Diversity.pdf); Original source of figure: American Medical Association (2004). *AMA Physician Professional Data*.

<sup>20</sup> Lok and Chapman. *The Mental Health Workforce in California: Trends in Employment, Education, and Diversity*. (2009, March). Retrieved from: [http://www.futurehealth.ucsf.edu/Content/29/2009-03\\_The\\_Mental\\_Health\\_Workforce\\_in\\_California\\_Trends\\_in\\_Employment\\_Education\\_and\\_Diversity.pdf](http://www.futurehealth.ucsf.edu/Content/29/2009-03_The_Mental_Health_Workforce_in_California_Trends_in_Employment_Education_and_Diversity.pdf); Original source of figure: American Medical Association (2007). *AMA Physician Professional Data*.

**Figure 2: Psychiatrists in the United States by Age and Gender: 2007**



Source: Lok and Chapman. (2009). *The Mental Health Workforce in California: Trends in Employment, Education, and Diversity*.

NOTE: This figure was taken directly from the Lok and Chapman, 2009 report cited here.

Table 6 indicates a shortage of Psychiatrists working in the Northern and Central Counties regions, 1.4% and 8.8%, respectively.<sup>21</sup> Another significant finding reports that one-third of Psychiatrists practice in the Greater Bay Area, despite only 20% of the population residing in this region.

**Table 6: Percentage of Psychiatrists Located in Each Region of California: 2006**

Counties	Percentage Psychiatrists
Greater Bay Area Counties	33.0%
Southern Counties	28.4%
LA County	28.4%
Central Counties	8.8%
Northern Counties	1.4%

Source: Lok and Chapman. (2009). *The Mental Health Workforce in California: Trends in Employment, Education, and Diversity*.

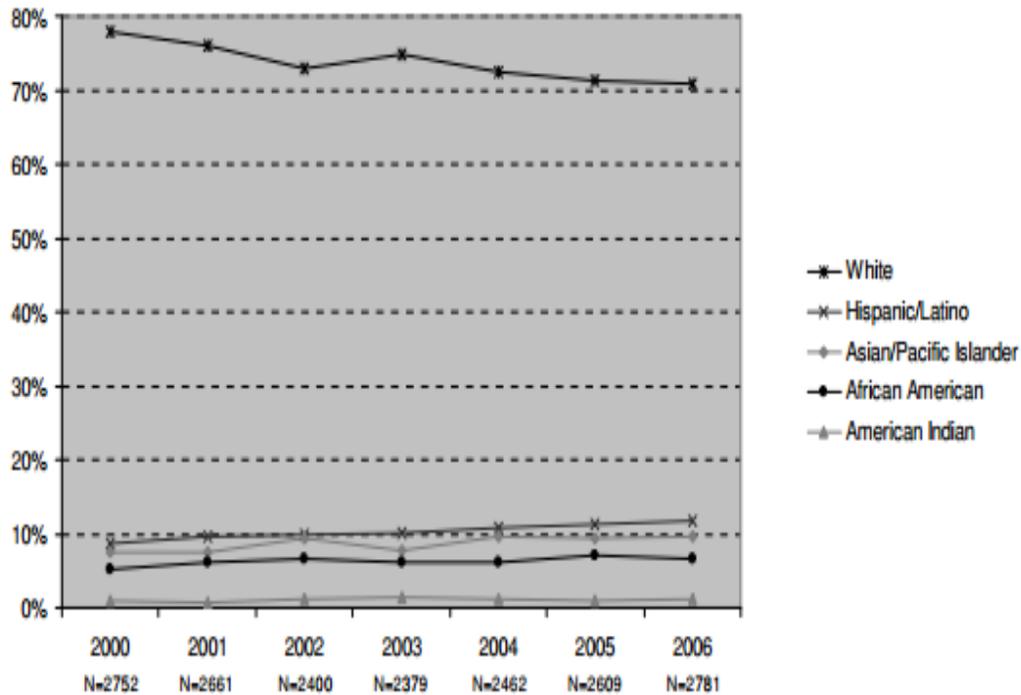
NOTE: This figure was taken directly from the Lok and Chapman, 2009 report cited here.

<sup>21</sup> California county population data from California State Association of Counties.

**Clinical, Counseling, and General Psychologists**

Psychologists constitute the second largest number of employed health professionals. Psychology graduate programs at both the doctoral and master’s level are primarily composed of White graduates. Foreign-born students composed 2.4%-3.8% of graduates. Hispanic/Latino graduates increased to 11.9%, and Asian/Pacific Islander graduates increased to 9.7% between 2000 and 2006.<sup>22</sup>

**Figure 3: Racial and Ethnic Composition for Reported Graduates of Doctorate and Master’s-Level Clinical, Counseling, and General Psychology Programs in California: 2000-2006**



Source: Lok and Chapman. (2009). *The Mental Health Workforce in California: Trends in Employment, Education, and Diversity*.

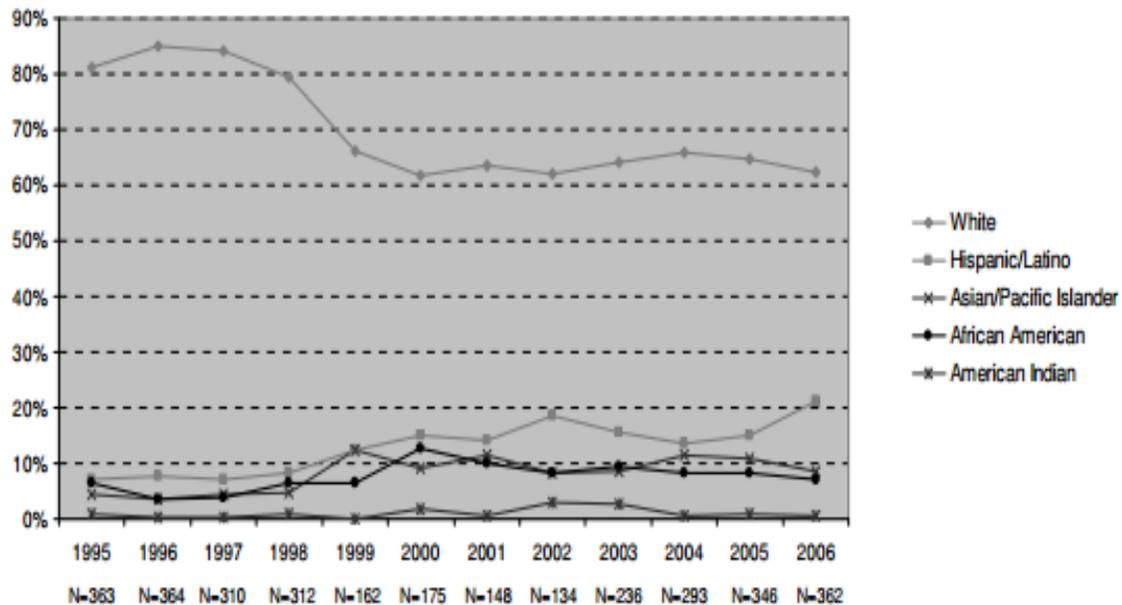
NOTE: This figure was taken directly from the Lok and Chapman, 2009 report cited here.

<sup>22</sup> Lok and Chapman. *The Mental Health Workforce in California: Trends in Employment, Education, and Diversity*. (2009, March). Retrieved from: [http://www.futurehealth.ucsf.edu/Content/29/2009-03\\_The\\_Mental\\_Health\\_Workforce\\_in\\_California\\_Trends\\_in\\_Employment\\_Education\\_and\\_Diversity.pdf](http://www.futurehealth.ucsf.edu/Content/29/2009-03_The_Mental_Health_Workforce_in_California_Trends_in_Employment_Education_and_Diversity.pdf); Original source of figure: U.S. Department of Education, & National Center for Education Statistics (2006). *Integrated Post-Secondary Education Data System (IPEDS): Awards & Degrees Conferred (2000-2006)*.

### Marriage and Family Therapists

A significant majority of Marriage and Family Therapy graduates were White between 1995 and 2006, though the percentage of White graduates decreased gradually over that time. There has been a gradual increase in non-White graduates in the last decade. The largest increase was Hispanic/Latino graduates: fewer than 10% of graduates were Hispanic/Latino in 1995, and more than 21% were Hispanic/Latino by 2006.

**Figure 4: Racial and Ethnic Composition for Reported Graduates of Master’s Level Marriage and Family Therapy Programs in California: 1995 - 2006**



Source: Lok and Chapman. (2009). *The Mental Health Workforce in California: Trends in Employment, Education, and Diversity*.

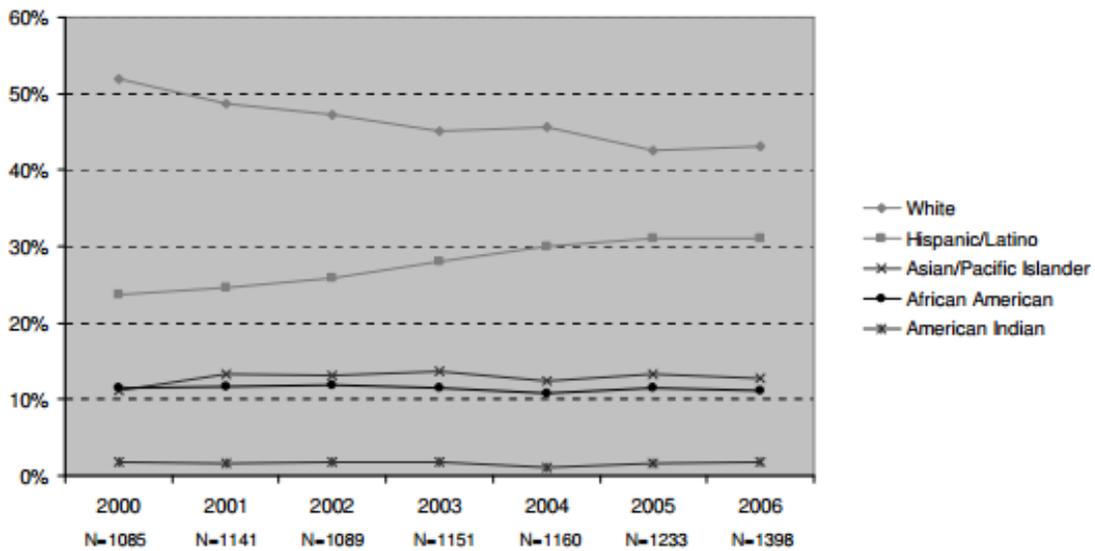
NOTE: This figure was taken directly from the Lok and Chapman, 2009 report cited here.

### Social Workers

The majority of graduates from Masters of Social Work programs are White. While the percentage of White graduates decreased to 43.1% by 2006, this reduction is paralleled with a corresponding increase in Hispanic/Latino graduates. The percentage of African American (0.3%), American Indian (0.0%), and Asian/Pacific Islander (1.8%) graduates remained consistent from 2000 to 2006.<sup>23</sup>

<sup>23</sup> Lok and Chapman. *The Mental Health Workforce in California: Trends in Employment, Education, and Diversity*. (2009, March). Retrieved from: [http://www.futurehealth.ucsf.edu/Content/29/2009-03\\_The\\_Mental\\_Health\\_Workforce\\_in\\_California\\_Trends\\_in\\_Employment\\_Education\\_and\\_Diversity.pdf](http://www.futurehealth.ucsf.edu/Content/29/2009-03_The_Mental_Health_Workforce_in_California_Trends_in_Employment_Education_and_Diversity.pdf); Original source of figure: U.S. Department of Education, & National Center for Education Statistics (2006). *Integrated Post-Secondary Education Data System (IPEDS): Awards & Degrees Conferred (2000-2006)*

**Figure 5: Racial and Ethnic Composition for Reported Graduates of Master’s-Level Social Work Programs in California: 2000 – 2006**



Source: Lok and Chapman. (2009). *The Mental Health Workforce in California: Trends in Employment, Education, and Diversity*.

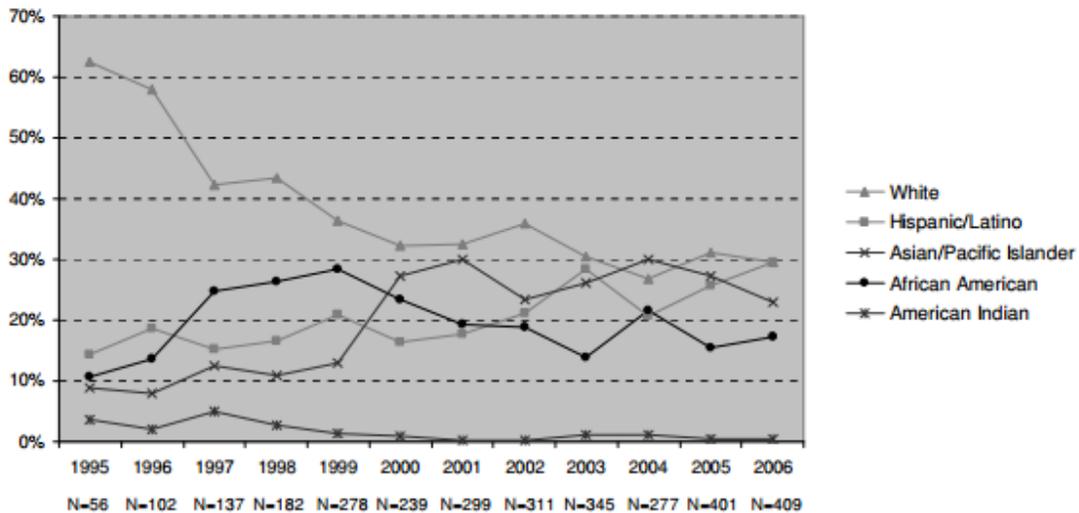
NOTE: This figure was taken directly from the Lok and Chapman, 2009 report cited here.

### Psychiatric Technicians

Psychiatric Technicians are one of the most diverse groups in mental healthcare. The percentage of White Psychiatric Technician graduates decreased by half, from over 60% in 1995 to 29.6% by 2006. However, this was matched by a corresponding increase in Hispanic/Latino graduates, who constituted approximately 15% of graduates in 1995, and doubled to 29.6% by 2006. African American and Asian/Pacific Islander graduates have alternately comprised the second largest group of Psychiatric Technicians.<sup>24</sup>

<sup>24</sup> Lok and Chapman. *The Mental Health Workforce in California: Trends in Employment, Education, and Diversity*. (2009, March). Retrieved from: [http://www.futurehealth.ucsf.edu/Content/29/2009-03\\_The\\_Mental\\_Health\\_Workforce\\_in\\_California\\_Trends\\_in\\_Employment\\_Education\\_and\\_Diversity.pdf](http://www.futurehealth.ucsf.edu/Content/29/2009-03_The_Mental_Health_Workforce_in_California_Trends_in_Employment_Education_and_Diversity.pdf); Original source of figure: U.S. Department of Education, & National Center for Education Statistics (2006). *Integrated Post-Secondary Education Data System (IPEDS): Awards & Degrees Conferred (2000-2006)*.

**Figure 6: Racial and Ethnic Composition for Reported Graduates of Associate Degree and 1 – 2 year Certificate Psychiatric Technician Programs in California: 1995-2006**



Source: Lok and Chapman. (2009). *The Mental Health Workforce in California: Trends in Employment, Education, and Diversity*.

NOTE: This figure was taken directly from the Lok and Chapman, 2009 report cited here.

### Types of Occupations

In addition to disaggregating supply by demographic indicators, workers also need to be categorized by their occupation. The mental health occupational categories are listed in Table 7.

**Table 7: OSHPD Mental Health Occupational Categories**

Occupational Category	Type of Professional	Ability to Prescribe
Benefits/Eligibility Specialist	Non-licensed	No
Case Manager/Service Coordinator	Non-licensed	No
Clinical Nurse Specialist	Licensed, Certified, Registered	No
Clinical Psychologist	Licensed, Certified, Registered	No
Designated Consumer/Family Member, Admin/Policy	Non-licensed	No
Designated Consumer/Family Member, Direct Service	Non-licensed	No
Designated Consumer/Family Member, Training/Ed	Non-licensed	No
Employment Service Staff	Non-licensed	No
Housing Support Services Staff	Non-licensed	No
Licensed Clinical Psychologist	Licensed, Certified, Registered	No

Occupational Category	Type of Professional	Ability to Prescribe
Licensed Clinical Social Worker	Licensed, Certified, Registered	No
Licensed Professional Clinical Counselors	Licensed, Certified, Registered	No
Licensed Psychiatric Technician	Licensed, Certified, Registered	No
Marriage and Family Therapist	Licensed, Certified, Registered	No
Mental Health Rehabilitation Specialist	Licensed, Certified, Registered	No
Nurse, Other	Licensed, Certified, Registered	No
Occupational Therapist	Licensed, Certified, Registered	No
Other Non-Licensed Mental Health Staff Not listed above	Non-licensed	No
Physician Assistant	Licensed, Certified, Registered	Yes
Promotora	Non-licensed	No
Psychiatric Mental Health Nurse Practitioner	Licensed, Certified, Registered	Yes
Psychiatrist	Licensed, Certified, Registered	Yes
Psychiatrist, Child/Adolescent	Licensed, Certified, Registered	Yes
Psychiatrist, Geriatric	Licensed, Certified, Registered	Yes
Psychologist	Licensed, Certified, Registered	No
School Psychologist	Licensed, Certified, Registered	No
Substance Abuse Counselor	Non-licensed	No

Source: California Office of Statewide Health Planning and Development.

## Wages

While the demand for public mental health services does not vary greatly by the capacity to pay for services, the supply of public mental health workers may be affected by wages. Wages in the public sector, if lower than in the private market, may influence certain professionals to work in private rather than public settings. Or, if wages are expected to increase for Nurses, increased wages may incentivize more students to choose nursing programs, and may provide an influx of Nurses to the system. These factors make tracing wages an important factor in supply.

## Education, Licensing, and Training Requirements

Requirements around education, licensing, and training are extensive in the public health context. It is important to understand the time it takes for each type of worker to become qualified to serve in the public mental health system, because advance planning must occur to address any shortages. Table 8 identifies the minimum number of years needed to meet the education, licensing, and training requirements for each of the OSHPD public mental health occupational categories. Psychiatrists, including Geriatric Psychiatrist Psychiatrists and Geriatric

Psychiatrists, must complete eight years of training, nearly twice that of any other specialty. Psychologists and Licensed Clinical Psychologists have the second-longest training programs at five years each, and Licensed Clinical Social Worker, Licensed Professional Clinical Counselors, and Marriage and Family Therapists must all complete four years of training.

**Table 8: Years Required for Education, Licensing, and Training for Mental Health Occupations**

Occupational Category	Minimum Years to Completion	Training and Education Required for Service Provision
Benefits/Eligibility Specialist	N/A	N/A
Case Manager/Service Coordinator	N/A	N/A
Clinical Nurse Specialist	2 years	2 year Master's Degree Program, Exam
Clinical Psychologist	5 years	4 year Doctorate Degree, 1 year Post-doctoral Training, Exam
Designated Consumer/Family Member	N/A	N/A
Employment Service Staff	N/A	N/A
Housing Support Services Staff	N/A	N/A
Licensed Clinical Psychologist	5 years	4 year Doctorate Degree, 1 year Post-doctoral Training, Exam
Licensed Clinical Social Worker	4 years	2 year Master's Degree Program, 2 years Post-graduate Training, Exam
Licensed Professional Clinical Counselors	4 years	2 year Master's Degree Program, 2 years Post-graduate Training, Exam
Licensed Psychiatric Technician	1 year	12 months, Exam
Marriage and Family Therapist	4 years	2 year Master's Degree Program, 2 years Post-graduate Training, Exam
Mental Health Rehabilitation Specialist	N/A	N/A
Nurse, Other	*	
Occupational Therapist	2 years	2 year Master's Degree Program, Exam
Other Non-Licensed Mental Health Staff	N/A	N/A
Physician Assistant	N/A	2 year Master's Degree Program, Exam
Promotora	N/A	N/A
Psychiatric Mental Health Nurse Practitioner	2 years	2 year Master's Degree Program, Exam
Psychiatrist	8 years	4 years Medical School, 4 years Post-graduate Training, Board and Specialty Board Exams
Psychiatrist, Child/Adolescent	8 years	4 years Medical School, 4 years Post-graduate Training, Board and Specialty Board Exams
Psychiatrist, Geriatric	8 years	4 years Medical School, 4 years Post-graduate Training, Board and Specialty Board Exams
Psychologist	5 years	4 year Doctorate Degree, 1 year Post-doctoral Training, Exam
School Psychologist	2 years	2 Year Master's Degree Program
Substance Abuse Counselor	**	

Source: Resource Development Associates

\*Registered Nurses may take one to four years to complete education and training. This includes a 1-year program for people with a Bachelor's Degree in another discipline, a two-year Associate's Degree program, or a four-year Bachelor's Degree program. Licensed Vocational Nurses are eligible for licensure after a 12-month program. All require a post-school exam.

## Skills Mix / Examining Provider Ratios

Skills mix refers to the relationship between the different professional groups in a system of care. Skills mix analyses examine the way in which a distribution of professionals (Nurses, Physicians, and Psychiatrists) is related to patient outcomes. Studies that incorporate skills mix analyses have been used to examine trends in the types of professions represented in an area and resulting patient outcomes. For example, one study identified a relationship between the proportion of Registered Nurses in a hospital and adverse patient events. In the case of public mental health services, there are limited examples of studies that have analyzed supply in this way. Studies have identified trends and demand by professional type (e.g. number of Psychiatrists supplied, number of patients seeing a Psychiatrist). Skills mix implies an analysis of the past and current trends across professional types, and could be a strong addition to the factors considered in the public mental health context.

Another way of conceiving of skills mixes is to frame them as a provider ratio. Provider ratios refer to the relation in number of providers to patients served. For example, if one Psychiatrist can see ten patients in a day, a Psychiatrist's provider ratio would be 10:1. Changing the skills mix of the workforce is closely related to changing provider ratios. A recent study on California public mental health workforce needs identified a common demand for Psychiatric Nurse Practitioners. Nurse Practitioners may be able to offload some of a Psychiatrist's responsibilities, and increase a Psychiatrist's provider ratio. Moreover, if more Nurse Practitioners were to enter the workforce, there might be a workforce shift in skills mixes. Their skill set might help to fill the demand for Psychiatrists. This is just one example of the importance of understanding skills mixes in the context of the public mental health workforce.

## State and Federal Policies

The Affordable Care Act (ACA) will spur a significant expansion of mental health services. Title V of the ACA makes provisions for "mental and behavioral health education and training grants to schools for the development, expansion, or enhancement of training programs in social work, graduate psychology, professional training in child and adolescent mental health, and training of non-licensed professionals in child and adolescent mental health."<sup>25</sup> ACA funding will provide scholarships and loan repayment programs incentivizing pursuit of careers in mental health and entry into the public mental health system. Additionally, ACA funding will support scholarships and loan repayments for disadvantaged students who commit to working in medically underserved areas of the country. Many of these programs are currently scheduled to be administered by the National Health Service and the Health Resources and Services Administration (HRSA). With its many postsecondary educational institutions, California is poised to benefit greatly from ACA provisions encouraging the development and expansion of the public mental health workforce.

---

<sup>25</sup> The White House. *Putting Americans In Control of Their Health Care*. Retrieved from: <http://www.whitehouse.gov/health-care-meeting/proposal/titlev/increasing-supply>

## Macroeconomic Conditions

Macroeconomic conditions such as the state of the U.S. economy, gross domestic product (GDP), and overall labor market participation may affect the supply of public mental health workers. Macroeconomic conditions are beyond the state's planning purview, but must be considered in workforce planning because of their potential effects. From 2010 to 2020, the GDP is anticipated to increase by 3% annually, which is an improvement from the 2000 to 2010 decade (although still slower than growth from 1990 to 2000).<sup>26</sup> Analysts examining recovery from 2010 to 2013 have found the GDP to be rising more slowly than the 3% estimate, but most believe that recovery will strengthen toward the latter end of the decade. Employment is also expected to increase from 2010 to 2020. Projections estimate a 1.1% annual growth for employment, which is a strong improvement from the 2000 to 2010 period (0.2% growth). Federal expenditures in aid, including Medicare and Medicaid, are projected to increase from the 2000 to 2010 period. Medicaid investments are anticipated to continue increasing by 1.5% annually from 2010 to 2020.

These conditions are not within the control of public mental health departments, but ultimately can affect individual decisions about participation in the labor force, as well as state and federal budgeting choices.

## Programs Enticing Entry into Public Mental Health System

OSHPD's Workforce Education and Training (WET) program provides stipend and residency programs to encourage the participation of emerging mental health professionals in the state's public mental health system. These programs include: 1) Stipend Programs for students obtaining graduate degrees in Master of Social Work, Marriage and Family Therapist, Clinical Psychologist, and Psychiatric Mental Health Nurse Practitioner; 2) the Mental Health Loan Assumption Program (MHLAP), 3) the Song-Brown Residency Program for Physician Assistants; and 4) Psychiatric Residency Programs.

HRSA offers similar scholarship and loan repayment programs to encourage and enable clinicians to work in underserved areas of the country. These programs include: 1) the National Health Service Corps; 2) the NURSE Corps Loan Repayment Program; 3) the NURSE Corps Scholarship Program; 4) the Faculty Loan Repayment Program; 5) scholarships for disadvantaged students; 6) loans for disadvantaged students; 7) health professions student loans; 8) nursing student loans; and 9) and primary care loans.<sup>27</sup>

## Aging of the Public Mental Health Workforce

Age is a particularly important indicator in analyzing supply because the public mental health workforce is getting older. The aging of health care professionals directly leads to their exit from the workforce. Public mental health professionals are also subject to retirement and aging-out of

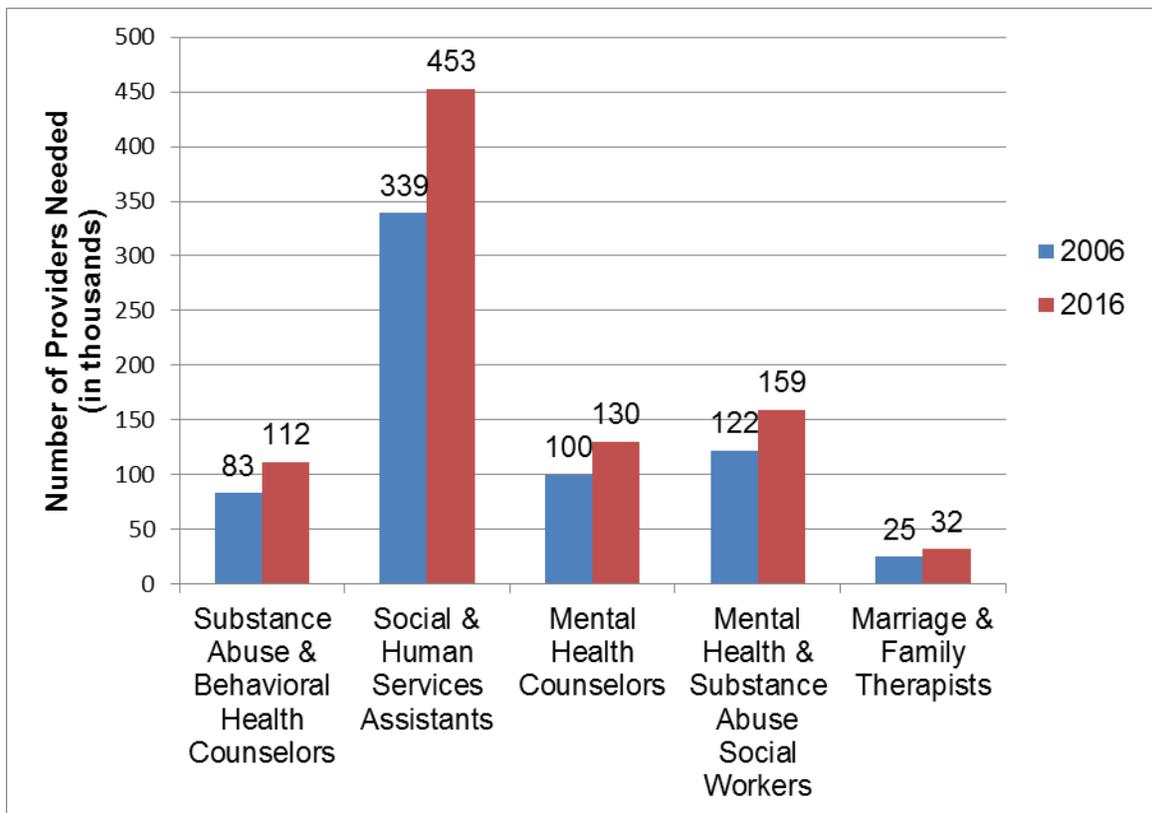
---

<sup>26</sup> Bureau of Labor Statistics. *The U.S. Economy in 2010: Recovery in Uncertain Times*. January 2012. Retrieved from: <http://www.bls.gov/opub/mlr/2012/01/art2full.pdf>

<sup>27</sup> U.S. Department of Health & Human Services. *Loans and Scholarships*. Retrieved from: <http://www.hrsa.gov/loanscholarships/index.html>

the workforce. In 2002, the percentages of clinically trained mental health professionals across the country over the age of 50 were 65.2% amongst Psychiatrists, 65.9% amongst Psychologists, and 58.2% amongst Social Workers.<sup>28</sup> In 2010, nearly 40% of Doctors were age 55 or older and approximately one-third of Nurses were age 50 or older. The same year, 55% of Nurses expressed plans to retire by 2020.<sup>29</sup> The projected increases in demand for several different mental health occupations between 2006 and 2016 resulting from the aging mental health workforce and workforce retention challenges are illustrated in Figure 16.<sup>30</sup>

**Figure 7: Changes in Need for Mental Health Occupations in United States from 2006 to 2016**



Source: Substance Abuse and Mental Health Services Administration. *How the Challenges of the Behavioral Health Workforce Affect Recruitment and Retention.*

<sup>28</sup> Annapolis Coalition on the Behavioral Health Workforce. (2007). *An Action Plan for Behavioral Health Workforce Development*. Retrieved from:

<http://www.samhsa.gov/workforce/annapolis/workforceactionplan.pdf>

<sup>29</sup> Fears, Darryl. (2010, June). *Retirements by Baby-Boomer Doctors, Nurses Could Strain Overhaul.*

Retrieved from: <http://www.washingtonpost.com/wp-dyn/content/article/2010/06/13/AR2010061304096.html?hpid=topnews>

<sup>30</sup> Substance Abuse and Mental Health Services Administration. *How the Challenges of the Behavioral Health Workforce Affect Recruitment and Retention*. Retrieved from: [http://toolkit.ahpnet.com/Building-a-Recruitment-and-Retention-Plan/How-Challenges-Affect-Recruitment-Retention.aspx#\\_edn2](http://toolkit.ahpnet.com/Building-a-Recruitment-and-Retention-Plan/How-Challenges-Affect-Recruitment-Retention.aspx#_edn2)

California's public mental health workforce will experience increased retirement rates in the coming years. Coupled with the increase in need for these positions, California's public mental health workforce will struggle to fill the large number of professional positions necessary to address the public mental health needs of the state.

The increasing population of older patients compounds the issues associated with an aging healthcare workforce. By 2030, the nation will need an additional 3.5 million "formal" healthcare providers to maintain the existing ratio of providers to total population, a 35% increase from current levels.<sup>31</sup>

From the perspective of workforce supply, the aging of healthcare professionals has significant implications. The healthcare industry will have to adapt to an aging workforce approaching retirement. As a result, it is recommended that public agencies and policymakers consider developing strategies to better support and meet the needs of an aging public mental health workforce.

### **Needs of Aging Workers**

Aging workers can be classified into four main groups: (1) those with no intellectual or physical disabilities, (2) those with lifelong or long-term disabilities, (3) those with acquired disabilities, and (4) those with changing intellectual abilities or mental health issues related to aging. Workers with lifelong or long-term disabilities tend to be familiar with existing support systems such as assistive technologies, available job accommodations, and the vocational rehabilitation system. However, they may still require guidance as they adapt to secondary conditions as a function of aging or a result of the progression of their original disability.

Workers with acquired disabilities related to aging, accident, onset of illness or chronic health conditions and those with changing intellectual abilities or mental health issues related to aging are less likely to see themselves as having a disability. They may, therefore, have minimal knowledge of available resources to help gain and maintain employment.<sup>32</sup>

### **Best Practices and Strategies to Support and Retain an Aging Public Mental Health Workforce**

The health care industry's older workers possess both institutional knowledge and experience. To retain the knowledge and skills of older workers, policymakers should consider strategies to support the needs of an aging workforce.

The prospect of losing experienced health care workers to retirement, age-related disabilities, and chronic health conditions gives employers incentive to reassess and re-strategize employment practices and policies. In anticipation of an aging healthcare workforce, employers are already implementing new approaches to meet the needs of this demographic and retain the

---

<sup>31</sup> Heidkamp, M., Mabe, W., & De graaf, B. (2013). *The Aging Workforce: Challenges for the Health Care Workforce Industry*. NTAR Leadership Center, Rutgers University.

<sup>32</sup> Heidkamp, M., Mabe, W., & De graaf, B. (2012). *The public workforce system: Serving Older Job Seekers and the Disability Implications of an Aging Workforce*. NTAR Leadership Center, Rutgers University.

workforce population necessary for future needs and growth. One study examines several approaches, which include: 1) conducting a needs assessment among healthcare professionals who are considering early retirement in order to identify how management can encourage employees to stay in the workforce; 2) expanding career opportunities and growth potential for certain healthcare professionals, such as nursing; and 3) implementing policies that foster a stronger employee work/life balance.<sup>33</sup>

Another study identifies several promising practices for employers and policymakers to better meet the needs of an aging healthcare workforce, including: 1) workforce assessment, 2) peer mentoring and job shadowing, 3) career development, and 4) visibility and accommodations.

- **Workforce Assessment:** This tool assesses the demographics and skill gaps of the current workforce to construct estimate projections of future skill gaps.
- **Peer Mentoring and Job Shadowing:** Peer mentoring and job shadowing increases skill levels of new health care workers through training and experiential knowledge transfer with older healthcare professionals.
- **Career Development:** Developing alternate career pathways in conjunction with labor market and workforce development experts encourages training of current and future health care workers, particularly in emerging fields (e.g. health care informatics, health information technology, medical coding, and health care administration).
- **Visibility and Accommodations:** Policymakers are key to raising the visibility of employees with disabilities employed in the healthcare system. By increasing exposure to older workers and workers with disabilities in healthcare, both employers and the workforce begin to think differently about older workers. Policymakers and managers also tend to lack knowledge about the range of often simple accommodations available for aging and disabled workers, and education on this subject can help inform decision-making.

Overall, there is limited data regarding the costs and benefits of employer initiatives to hire, train, and retain older healthcare workers, making it difficult to assess the impact of an aging healthcare work force. Allocating more resources to workforce research and analysis will allow for a more robust and comprehensive assessment of the aging mental health workforce and its impact on the public mental health system.

## Key Findings

**Key Finding 1: *Language and stigma are common barriers to mental health access and treatment in minority populations.*** These barriers can be addressed through development of a culturally and linguistically diverse workforce, as well as increased education regarding mental health disorders and mental health services.

---

<sup>33</sup> *Ibid.*

**Key Finding 2: *An estimated 20% of the geriatric mental health population suffers from more than one concurrent condition, and age-related issues can complicate treatment.*** Few professionals involved in serving the mental health needs of older adults have received cross education in both mental health and geriatrics.

**Key Finding 3: *An estimated 20% of children and adolescents have mental health disorders, and only 20% of these youth receive mental health services.*** There is a severe shortage of mental health practitioners specializing in child and adolescent care.

**Key Finding 4: *Over half (54.5%) of all licensed mental health professionals in California either reside or practice in the Greater San Francisco Bay Area or Los Angeles regions, which comprise 47.4% of the state's population.*** Marriage and Family Therapists (37%) and Licensed Clinical Social Workers (21.5%) are the largest groups of licensed mental health professionals, whereas Psychiatrists comprise only 8.9%

**Key Finding 5: *Age is a particularly important indicator in analyzing supply of mental health services because the public mental health workforce is getting older.*** In 2002, the percentages of clinically trained mental health professionals across the country over the age of 50 were 65.2% amongst Psychiatrists, 65.9% amongst Psychologists, and 58.2% amongst Social Workers.

## **Next Steps and Areas for Further Study**

Implementation of the Affordable Care Act (ACA), combined with significant population growth and changing demographics, is altering the public mental health services landscape in California in the coming decade. As these changes unfold, additional research should be conducted on the mental health services workforce and mental health services needs within the state. Apart from expected changes associated with the ACA, there are several existing gaps in research. For example, there is little California-specific data on the pediatric and geriatric mental health workforce, and little research at either the state or federal levels regarding mental health services for children under age six. Moreover, there is insufficient research on the level of care that minority populations receive in the mental health system, as well as on the specific strategies that improve retention rates minority populations. Additional findings on these subjects would further improve the understanding of public mental health workforce needs in California.

# Section 3: Public Mental Health Workforce Supply Projections Report

---

## Introduction & Methodology

This section of the report documents Resource Development Associates' (RDA) analysis of current and future trends in the supply of public mental health providers in California. The goals of this analysis are to: 1) aid the Office of Statewide Health Planning and Development (OSHPD) and policymakers in identifying any potential shortages and surpluses in public mental health providers, 2) shed light on trends of types of providers and skill sets available to serve in the state's public mental health system, and 3) bolster OSHPD's Mental Health Services Act (MHSA) Workforce Education and Training (WET) Five-Year Plan development efforts.

In order to fully achieve the goals of this analysis, particularly those related to the identification of shortages and surpluses, it is also necessary to analyze the demand for public mental health services. This demand analysis is in Report #6.

Any approach to estimating future workforce supply requires data regarding three fundamental elements: 1) the current workforce, 2) entry to the workforce, and 3) exit from the workforce. Having a clear understanding of these three elements will contribute to sound projections of future workforce supply.

RDA identified additional factors, or variables, which could help to strengthen an analysis of workforce supply, and particularly the analysis of the supply of public mental health providers in California. These variables relate to potential future demographic and/or policy changes. These efforts also suggested that more advanced methodological techniques, such as multivariate regression analysis, could provide more in-depth analysis of how specific variables or combinations of variables are related to workforce supply. These methods were proposed as additional levels of analysis that could build upon previous studies of California's public mental health workforce supply and draw from the advanced techniques described by researchers and thought leaders in the field.

The following section outlines the approach to this workforce supply analysis, including a detailed description of RDA's approach to analyzing the state's current public mental health workforce, entry and exit trends, and the more advanced questions of economics and policy that may influence workforce trends in the future. Because RDA's approach to this workforce supply forecasting was iterative and acutely influenced by available data, the following section discusses data sources, associated limitations, and methodology in tandem.

## Defining the Public Mental Health System (PMHS) Workforce

The first objective RDA undertook was to define the public mental health system workforce. To achieve this, RDA asked a series of questions:

- Which types of providers are in the PMHS workforce?
- How can “public” providers of mental health services be identified?
- Where can RDA access data and information on public mental health providers?

In order to obtain data that would answer these questions and provide the foundation for projecting the future supply of public mental health providers, RDA considered the following sources: 1) conducting a survey, 2) using California board licensure data, and 3) using National Provider Identification data.

### **Surveying State and County Public Agencies**

Surveying state and county public agencies regarding employees who provide mental health services is a direct method of determining the quantity and occupational distribution of public employees. This method inherently defines the public mental health workforce as employees of those select state and public agencies administering mental health services.

However, this method presented a variety of limitations. One limitation is that the survey method restricts the number of “counted” employees to those employees in surveyed agencies. For example, a previous survey effort was conducted in 2008 to collect data on these employees and was limited to county mental health departments.<sup>34</sup> If “public” mental health services include all services funded by public dollars, there may be additional services funded by Medicare and Medi-Cal that are not necessarily located in specific state and county agencies. Another important caveat to this survey approach is that in many counties public mental health services are administered through contractors. These contractors may not be reflected in survey-based instruments.

The method of surveying public agencies regarding their workforce is also extremely time and labor-intensive, both in determining and including the total universe, and for the agency representatives to complete. The latter contributes to a typically low response rate, making the interpretation and extrapolation of findings challenging. Given the difficulties of the survey method in assessing the workforce’s total counts and occupational distributions, RDA explored the usage of public and private datasets containing detailed information on the state’s public mental health workforce.

### **California Licensing Board Data Approach**

Occupational board licensure data provides a traditional source for mental health workforce supply studies. Board data represents the total pool of licensed providers of mental health services in the state. There are a variety of professional licensure boards that oversee the licensure procedures for their respective professions. In Table 9, RDA compiled a list of the

---

<sup>34</sup> Shea, J. (2009). *California’s Public Mental Health Workforce: A Needs Assessment*. California Department of Mental Health. Retrieved from:  
[http://oshpd.ca.gov/HPEF/Text\\_pdf\\_files/WET/NeedsAssessmentAugust2009.pdf](http://oshpd.ca.gov/HPEF/Text_pdf_files/WET/NeedsAssessmentAugust2009.pdf)

following California licensure boards that license various types of mental health providers to practice in the state:

**Table 9: Health Care Provider Licensure Boards in California**

Board	Licenses Overseen
Medical Board of California	Physicians(including Psychiatrists)
Board of Behavioral Sciences	Marriage and Family Therapists; Licensed Clinical Social Workers, Licensed Educational Psychologists; Licensed Professional Clinical Counselors and each profession's respective associate level (in-training)
Board of Registered Nursing	Registered Nurses Clinical Nurse Specialists Nurse Practitioners Nurse Practitioners, Furnishing Public Health Nurses Psychiatric Mental Health Nurses
Board of Occupational Therapy	Occupational Therapists
Board of Psychiatric Technicians and Vocational Nurses	Psychiatric Technicians and Vocational Nurses
Physician Assistant Committee	Physician Assistants
Board of Psychology	Psychologists

Board licensure data is administered and released through the California Department of Consumer Affairs (DCA). Board licensure data includes the following for each individual provider: (1) the individual provider’s license number, (2) the date the license was originally issued (Issue Date), and (3) an address associated with the license (assumed to represent practice location).

Utilizing board licensure data to describe the public mental health workforce presents a few key limitations. This data encompasses the total pool of licensed mental health providers, whereas this report is specifically interested in the supply of *public* mental health providers. Additionally, board licensure data only represents licensed providers, excluding analysis of non-licensed professions.

Finally, with the exception of the Medical Board of California (MBC), board licensure data does not include any demographic indicators and is not released for multiple time points. Unlike the other Board data sets surveyed, the Medical Board of California administers an optional demographic survey to Physicians, and published updated data as of October 2013.<sup>35</sup> Thus, using the results of the MBC’s optional demographic survey, RDA was able to analyze the composition of California’s Psychiatrists by race/ethnicity and gender; something that was not possible for other positions.

<sup>35</sup> Medical Board of California. (2013). *Physician Survey Data Collected*. Retrieved from <http://www.mbc.ca.gov/survey/>

For all of the Boards noted above, DCA released licensure data during the time period of October to December 2013.

### **National Provider Identification (NPI): Public Providers**

Board licensure data describes the universe of healthcare providers in the state of California. For the purposes of OSHPD's MHA WET Five-Year Plan development, the population of interest is specifically that of the state's *public* mental health system workforce. To this end, RDA identified a data source of particular interest, the National Provider Identification (NPI) dataset. Every medical and mental health provider in California who bills Medicare or Medi-Cal insurances must have a NPI number.<sup>36</sup> While additional providers may provide *pro-bono* services, it is extremely likely that most providers in the state's public mental health settings regularly bill Medicare and/or Medi-Cal for their services. For this reason, in an effort to provide the most reflective findings and forecasts, RDA prioritized the use of NPI data as the most accurate depiction of the state's public mental health workforce.

NPI began disseminating a public file of all NPI providers in 2007.<sup>37</sup> An updated file is released monthly, encompassing every provider's: (1) NPI number, (2) taxonomy code representing their profession, (3) business location, and (4) date that they became an active NPI provider (among other variables).

RDA accessed this NPI data file in November 2013. The data analyzed in this report reflects all providers who had active NPI numbers up to that data capture date. The NPI Registry is a dynamic data source that is continually updated and can be downloaded at any time. RDA narrowed the national NPI dataset to providers with business locations in the state of California. RDA then examined all NPI taxonomy codes<sup>38</sup> and identified 68 codes that represented professions pertinent to the mental health workforce.

Table 10 and Table 11 are charts with the selected taxonomy codes of mental health providers that are included in the analysis. The first column represents the NPI taxonomy code (updated to reflect taxonomy code changes in October 2008). NPI codes are hierarchical and indicate a primary provider type and sub-classifications, which are reported in the column "NPI Definition and Sub-Classification." For a synthesized analysis, the 68 NPI definitions are grouped into 19 categories, reported in the column "RDA Professional Category."

---

<sup>36</sup> Centers for Medicare and Medicaid Services. (2013). *Data Dissemination*. Retrieved from <http://www.cms.gov/Regulations-and-Guidance/HIPAA-Administrative-Simplification/NationalProvidentStand/DataDissemination.html>

<sup>37</sup>Centers for Medicare and Medicaid Services. (2013). *National Provider Identification Standard (NPI)*. Retrieved from

<http://www.cms.gov/Regulations-and-Guidance/HIPAA-Administrative-Simplification/NationalProvidentStand/index.html?redirect=/NationalProvidentStand/>

<sup>38</sup> (1) Centers for Medicare and Medicaid Services. (2012). *Taxonomy*. Retrieved from <http://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/MedicareProviderSupEnroll/Taxonomy.html>

(2) American Medical Association. (2013). *Health Care Provider Taxonomy*. Retrieved from: [https://www.secureedi.com/taxonomy\\_code.pdf](https://www.secureedi.com/taxonomy_code.pdf)

**Table 10: NPI Taxonomy Codes**

NPI Taxonomy Code	NPI Definition and Sub-Classification	RDA Professional Category
163W00000X	Registered Nurse	Registered Nurse
363A00000X	Physician Assistant	Physician Assistant
363AM0700X	Physician Assistant	Physician Assistant
101Y00000X	Counselor	Counselor
101YA0400X	Addiction (Substance Use Disorder) Counselor	AOD Counselor
101YM0800X	Mental Health Counselor	Mental Health Counselor
101YP2500X	Professional Counselor	Professional Counselor
103G00000X	Clinical NeuroPsychologist	Psychologist
103T00000X	Psychologist	Psychologist
103TA0400X	Psychologist, Addiction (Substance Use Disorder)	Psychologist
103TA0700X	Psychologist, Adult Development & Aging	Psychologist
103TB0200X	Psychologist, Cognitive & Behavioral	Psychologist
103TC0700X	Psychologist, Clinical	Psychologist
103TC1900X	Psychologist, Counseling	Psychologist
103TC2200X	Psychologist, Clinical Child & Adolescent	Psychologist
103TE1000X	Psychologist, Educational	Psychologist
103TE1100X	Psychologist, Exercise & Sports	Psychologist
103TF0000X	Psychologist, Family	Psychologist
103TF0200X	Psychologist, Forensic	Psychologist
103TH0004X	Psychologist, Health	Psychologist
103TH0100X	Psychologist, Health Service	Psychologist
103TM1700X	Psychologist, Men & Masculinity	Psychologist
103TP0016X	Psychologist, Prescribing (Medical)	Psychologist
103TP0814X	Psychologist, Psychoanalysis	Psychologist
103TP2700X	Psychologist, Psychotherapy	Psychologist
103TP2701X	Psychologist, Group Psychotherapy	Psychologist
103TR0400X	Psychologist, Rehabilitation	Psychologist
103TS0200X	Psychologist, School	Psychologist
103TW0100X	Psychologist, Women	Psychologist
104100000X	Social Worker	Social Worker
1041C0700X	Clinical Social Worker	Social Worker
106H00000X	Marriage & Family Therapist	Marriage & Family Therapist
163WA0400X	Registered Nurse, Addiction (Substance Use Disorder)	Registered Nurse
163WC0400X	Registered Nurse, Case Management	Registered Nurse
163WC1500X	Registered Nurse, Community Health	Registered Nurse
163WP0807X	Registered Nurse, Psychiatric/Mental Health, Child & Adolescent	Registered Nurse

**Table 11: NPI Taxonomy Codes (continued)**

NPI Taxonomy Code	NPI Definition & Sub-Classification	RDA Classification
163WP0808X	Registered Nurse, Psychiatric/Mental Health	Registered Nurse
163WP0809X	Registered Nurse, Psychiatric/Mental Health, Adult	Registered Nurse
163WR0006X	Registered Nurse, Registered Nurse First Assistant	Registered Nurse
163WS0200X	Registered Nurse, School	Registered Nurse
164W00000X	Licensed Practical Nurse	Licensed Practical Nurse
164X00000X	Licensed Vocational Nurse	Licensed Vocational Nurse
167G00000X	Licensed Psychiatric Technician	Licensed Psychiatric Technician
171M00000X	Other Services Provider, Case Manager/Care Coordinator	Case Manager/Care Coordinator
172V00000X	Other Services Provider, Community Health Worker	Community Health Worker
207LA0401X	Physician (Addiction Medicine)	Physician
207QA0401X	Physician (Addiction Medicine)	Physician
207RA0401X	Physician (Addiction Medicine)	Physician
2084A0401X	Psychiatrists & Neurologists, Addiction Medicine	Psychiatrist
2084B0040X	Psychiatrists & Neurologists, Behavioral Neurology & Neuropsychiatry	Psychiatrist
2084F0202X	Psychiatrists & Neurologists, Forensic Psychiatry	Psychiatrist
2084N0600X	Psychiatrists & Neurologists, Clinical Neurophysiology	Psychiatrist
2084P0015X	Psychiatrists & Neurologists, Psychosomatic Medicine	Psychiatrist
2084P0800X	Psychiatrist	Psychiatrist
2084P0802X	Psychiatrist, Addiction Psychiatry	Psychiatrist
2084P0804X	Psychiatrist, Child & Adolescent Psychiatry	Psychiatrist
2084P0805X	Psychiatrist, Geriatric Psychiatry	Psychiatrist
363LP0808X	Psychiatric Mental Health Nurse Practitioner	Psychiatric Mental Health Nurse Practitioner
364SC1501X	Clinical Nurse Specialist, Community Health/Public Health	Clinical Nurse Specialist
364SP0807X	Clinical Nurse Specialist, Psychiatric/Mental Health, Child & Adolescent	Clinical Nurse Specialist
364SP0808X	Clinical Nurse Specialist, Psychiatric/Mental Health	Clinical Nurse Specialist
364SP0809X	Clinical Nurse Specialist, Psychiatric/Mental Health, Adult	Clinical Nurse Specialist
364SP0810X	Clinical Nurse Specialist, Psychiatric/Mental Health, Child & Family	Clinical Nurse Specialist
364SP0811X	Clinical Nurse Specialist, Psychiatric/Mental Health, Chronically Ill	Clinical Nurse Specialist
364SP0812X	Clinical Nurse Specialist, Psychiatric/Mental Health, Community	Clinical Nurse Specialist
364SP0813X	Clinical Nurse Specialist, Psychiatric/Mental Health, Geropsychiatric	Clinical Nurse Specialist
364SR0400X	Clinical Nurse Specialist, Rehabilitation	Clinical Nurse Specialist
364SS0200X	Clinical Nurse Specialist, School	Clinical Nurse Specialist

Using NPI data, RDA was able to narrow the total provider pool to public providers, and then to further narrow the data to providers of mental health services. For providers with noted specialties in Addiction, Child & Adolescent, Adult, or Geriatric services, RDA included a separate analysis in the section titled “Specialty Providers.” Additionally, sub-analyses are provided for RNs and CNSs with Psychiatric Mental Health or Addiction Specialties.

## Entry to the Public Mental Health Workforce

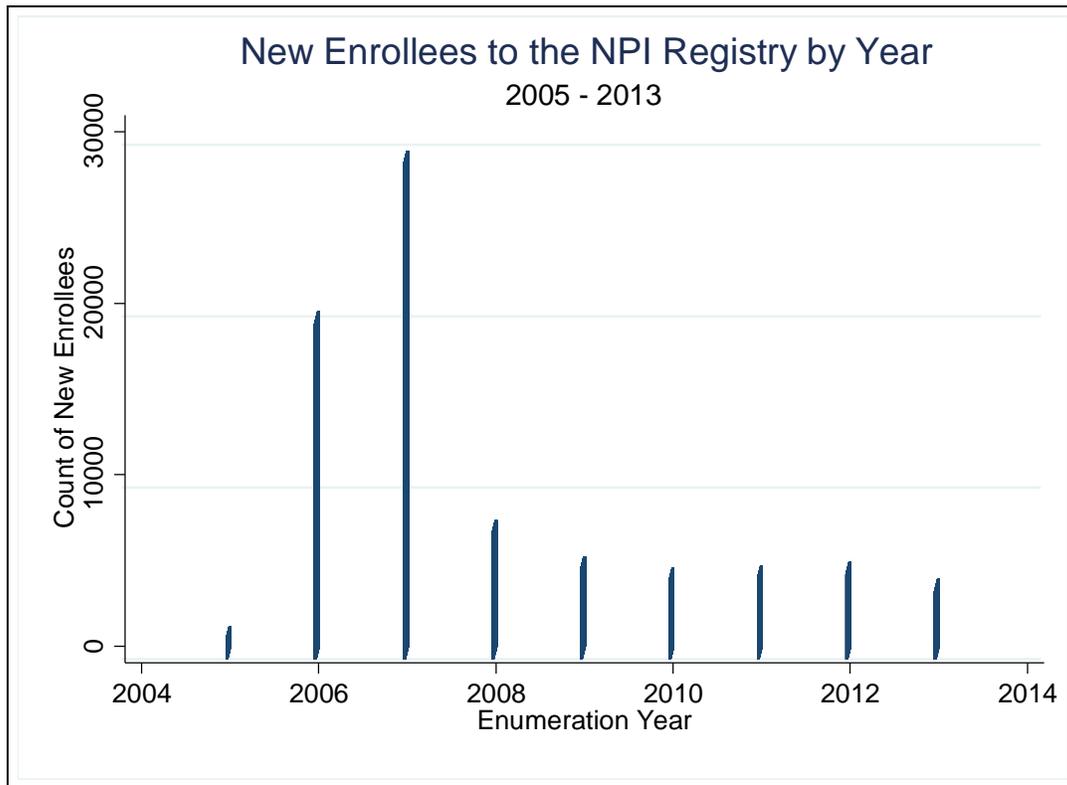
The following section outlines how RDA analyzed the entry and exit of the public mental health workforce using a combination of NPI and board licensure data.

### Establishing Entry Trends with NPI Data

Access to data for multiple previous time points is a necessary component of forecasting analysis – it is crucial to identifying and examining how trends have changed over time. In the NPI dataset discussed above, RDA was able to artificially create multiple time points by tracking entry of providers into the NPI Registry. Assuming that each provider established an NPI number when he/she began billing for public services, the date of his/her entry into the NPI Registry represents the beginning of his/her public practice.

There is one important caveat to this approach. Prior to 2004, providers could bill Medicare and Medi-Cal insurance through the “umbrella” NPI numbers held by their group clinics or companies. In 2004, NPI issued the “NPI Final Rule”, which established that every individual provider must have their own NPI number to bill Medicare or Medi-Cal insurance. This rule’s effect is depicted in Figure 8, as the total count of NPI providers increased drastically following the Final Rule in 2004. Given the effect of this policy change, analysis of NPI data was limited to 2008 and beyond, after the resulting spike appeared to even out and a normal trend of entry resumed.

**Figure 8: Effect of the NPI Final Rule on NPI Registry Enrollment**



Source: NPI Data Dissemination File (2013)

Additionally, it is important to note that NPI taxonomy codes do not define professions in exact correspondence with the California professional boards’ licensure definitions. NPI taxonomy codes span over multiple states, and thus specific taxonomy codes are not accountable to state licensing agencies. Therefore, in a number of cases, an NPI taxonomy code is assumed to represent the corresponding licensed position, but may not necessarily be defined exactly as such in the NPI definition. Footnotes in this report designate each of these cases and explain which NPI taxonomy codes are represented.

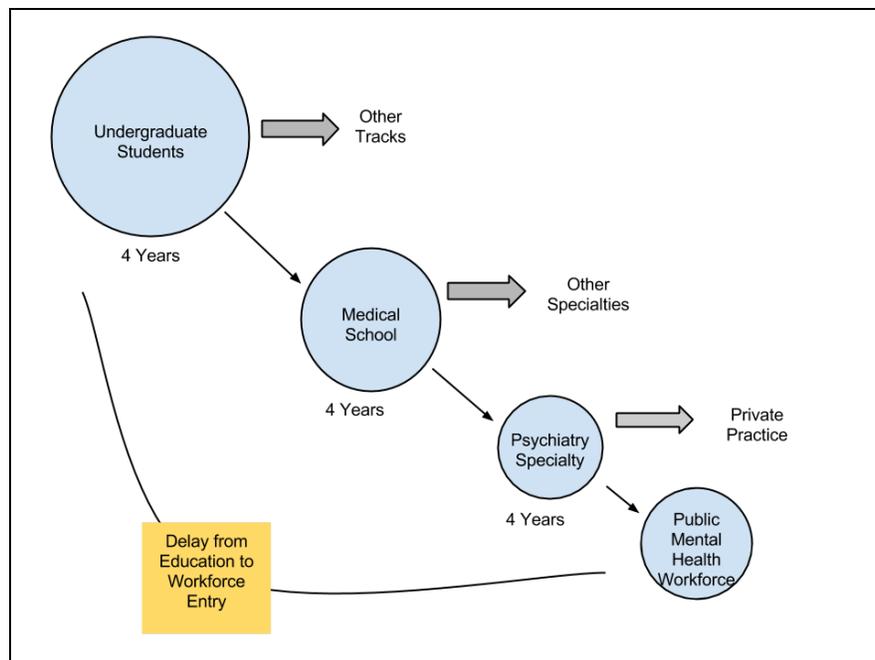
**Incorporating New Graduates: The Education Pipeline**

A number of previous efforts to estimate workforce supply discuss the need to incorporate educational pipeline information. Educational pathways are important from a policy perspective to understand how specific strategies may bolster efforts to prepare more professionals to enter a workforce.

It is important to identify educational trends far in advance, especially for specialized fields that require several years of training. For example, if the current supply of Psychiatric Resident students does not meet the need for psychiatry services, recruitment efforts could be initiated at multiple stages in the educational pipeline (see Figure 9). These interventions have the potential to help increase the number of eligible Psychiatrists. However, interventions could take as long as four to eight years to measurably affect the supply of qualified Psychiatrists or the number of

Psychiatrists providing services in the public mental health system. Figure 9 shows an example educational pipeline for a Psychiatrist training to enter the public mental health workforce.

**Figure 9: Educational Pipeline Example: Psychiatrist Training to Workforce Entry**



To this end, in previous work, RDA analyzed available educational trends in several mental health disciplines, relying on ten years of California Post-Secondary Education Commission data.

For the purposes of workforce projections, information on graduates was already embedded within RDA’s primary data source. Using the year of active NPI registration as the year of entry into the public mental health workforce, the NPI data set provided five consecutive years (2008 to 2013) of entry trends. Each year, newly qualified students entered the workforce and became part of the new provider count.

This approach relies on the assumption that trends among graduating students will continue as observed from 2008 to 2013. To identify potential changes that might affect projection models, RDA reviewed a series of studies on the educational pipeline for the mental health professions in this report.

**California, Out-of-State, and International Graduates**

Accurate educational pipeline trends must also incorporate out-of-state and international graduates represented in California’s public mental health workforce. Responses to the MBC optional addendum survey also shed some light on out-of-state and international graduates. In the MBC data, a high percentage of currently licensed Psychiatrists reported having international graduate training. This finding corresponds with a 2009 American Medical

Association study, which found that 32% of all Psychiatrists in the United States were international medical graduates.<sup>39</sup>

Similarly, the California Healthcare Foundation (CHCF) examined where currently licensed Registered Nurses received their initial RN training. In 2008, CHCF found that only 55% of all currently licensed Registered Nurses received their original training in California. Twenty-one percent of California RNs were trained in another U.S. state, and 24% received their training in another country.<sup>40</sup> These statistics imply that while examining trends amongst California graduates is a useful exercise, it provides a far from complete picture of the new graduates' impact on workforce supply.

Given these challenges and the constraints on data and time, RDA focused on utilizing multiple NPI "time points" to most closely and accurately depict trends in workforce entry. These multiple time points include the entry of new students into the public mental health workforce.

## Exit from the Public Mental Health Workforce

### Retirement

Identifying who exits the workforce and for what reason is an important element of estimating workforce supply. Of special concern is the impact of an aging workforce on workers' expressed plans to retire in the coming years.<sup>41</sup> For example, due to an aging workforce and projected retirement rates, by 2030, the nation will need an additional 3.5 million "formal" healthcare providers to maintain the existing ratio of providers to total population, a 35% increase from current levels.<sup>42</sup>

RDA, therefore, needed to identify which professions had significant anticipated exits or retirement. RDA was able to identify an observational study conducted by the California Department of Human Resources (CalHR) that matched public employee professions with the

---

<sup>39</sup> American Medical Association. (2009). *IMGs in the United States*. Retrieved from: : <http://www.ama-assn.org/ama/pub/about-ama/our-people/member-groups-sections/international-medical-graduates/imgs-in-united-states.page>

<sup>40</sup> California HealthCare Foundation. (2010). *California Health Care Almanac: California Nurses Facts and Figures*. Retrieved from: : <http://www.chcf.org/~media/MEDIA%20LIBRARY%20Files/PDF/C/PDF%20CaliforniaNursesFactsFigureS2010.pdf>

<sup>41</sup> (1) Fears, D. (2010). *Retirements by baby-boomer doctors, nurses could strain overhaul*. The Washington Post. Retrieved from: <http://www.washingtonpost.com/wp-dyn/content/article/2010/06/13/AR2010061304096.html?hpid=topnews>;  
(2) Substance Abuse and Mental Health Services Administration. (2013). *How the Challenges of the Behavioral Health Workforce Affect Recruitment and Retention*. Retrieved from: : [http://toolkit.ahpnet.com/Building-a-Recruitment-and-Retention-Plan/How-Challenges-Affect-Recruitment-Retention.aspx#\\_edn2](http://toolkit.ahpnet.com/Building-a-Recruitment-and-Retention-Plan/How-Challenges-Affect-Recruitment-Retention.aspx#_edn2)

<sup>42</sup> Heidkamp, M., Mabe, W., & De graaf, B. (2013). *The Aging Workforce: Challenges for the Health Care Workforce Industry*. NTAR Leadership Center, Rutgers University.

observed average age of retirement.<sup>43</sup> Unfortunately, none of the available data sets on professionals (neither board nor NPI data) provided information on provider age. Therefore, it was not possible to analyze the exact number or proportion of anticipated retirees. If any of the available datasets included data on the age of providers, the number of providers approaching retirement age could be estimated. However, neither board nor NPI data included provider age. Therefore, due to a lack of data on age in the board and NPI data, it was not possible to identify the exact number of providers who will retire.

However, acknowledging that retirement is a serious concern for workforce planning, a proxy indicator was developed to estimate approximate duration of practice from education to retirement. These calculations are shown in Table 12. The first column is the number of years of education or training required to meet the minimum requirements for the profession. For purposes of analysis, RDA inferred that these years were generally completed consecutively and immediately after a four-year undergraduate education. Additionally inferring that a provider generally gets their license immediately after completing the required education and training, License Issue dates from the available Board data sets were used to create a variable for the duration of practice. (This variable was created as the difference between the current year, 2013, and the year a license was issued).

Applying these considerations to the CalHR study on the observed age of retirement, RDA assumed that each provider began their practice at the age determined in the column titled “Estimated Start Age,” and then generated a variable for the estimated average length of practice per profession (“Estimated Duration of Practice”). Finally, RDA compared the average length of practice against the current duration of practice. RDA then created a “Years to Retirement” variable in each board licensure dataset. This variable represents the difference between the current duration of practice and the average retirement age. Using this variable, RDA estimated the current number of providers (with available data) set to retire by 2019. These dynamics are described in further depth as findings are presented in this report.

---

<sup>43</sup> CalHR. (2013). Average Age of Retirement by Class Title. Retrieved from:  
<https://www.calhr.ca.gov/Documents/wfp-2012-april-to-2013-november-average-age-of-retirement-by-class-title.pdf>

**Table 12: Estimations of Average Ages of Entry into and Retirement from Mental Health Occupations**

\* No data available.

Provider Type	Years of Training Required	Estimated Start Age (18+ Years of Training)	Observed Retirement Age (CalHR)	Estimated Duration of Practice (Retirement Age-Start Age)	Mean Duration of Practice at 2013 (2013-Issue Date)	Mean Years to Retirement	Count Estimated to Retire by 2019	Proportion of NPI Count Estimated to Retire By 2019	Average Retirement Per Year	% of Public Provider Type Estimated to Retire by 2019
<b>Psychiatrist</b>	12	30	65	35	24.37	10.62	4,029	<b>2,632</b>	<b>376</b>	40%
<b>Marriage &amp; Family Therapist</b>	8	26	70	44	15.61	28.39	1,477	<b>894</b>	<b>127</b>	4%
<b>Social Worker</b>	8	26	70	44	16.19	27.81	1,064	<b>630</b>	<b>90</b>	5%
<b>Licensed Vocational Nurse</b>	5	23	59.8	36.8	*	36.8	8,737	<b>248</b>	<b>35</b>	10%
<b>Physicians (Addiction Medicine)</b>	12	30	66.6	36.6	*	36.6	*	<b>6</b>	<b>&lt;1</b>	5%
<b>Licensed Psychiatric Technician</b>	5	23	59.8	36.8	*	36.8	1	<b>&lt;1</b>	<b>&lt;1</b>	0%

\*Necessary data to complete analysis was not available.

Sources: NPI Data Dissemination File (2013), CalHR Retirement by Age Class (2012-2013)

## Other Exit Influences

Retirement and aging are the primary factors, but not the only factors, influencing workforce exit trends. To understand other exit trends in more depth, RDA administered a survey of county mental health departments. Across the state, respondents identified pay, location, workload, and retirement as the top four reasons positions had been vacated. The following describes RDA's approach to analyzing the impact of pay and other economic issues on workforce supply.

## Economic and Policy Influences – Affordable Care Act

### Increases in Demand Pool

Previous work has noted that workforce projections must take into account the current changing healthcare landscape, with the Affordable Care Act (ACA) serving as a primary influence. One clearly anticipated effect of the ACA in California is the increase in the number of eligible consumers of public healthcare services. New enrollments to the state healthcare exchange, Covered California, are currently reportedly at 1,395,929 enrollees (consumers who have selected a plan).<sup>44</sup> While this count is lower than originally anticipated by some researchers, it still represents significant influxes in the pool of consumers.

### Demand on Primary Care Providers and Changing “Skills Mix”

Estimates of how the ACA will change the provision of healthcare services are difficult to disentangle. A commonly cited future change to the delivery of healthcare services due to the ACA is an increase in demand for primary care services. Primary Care providers are anticipated to take on a more substantive role in patient management and coordination. Apart from increasing demands on primary care providers, little research has been done to identify potential ways in which the ACA will affect mental health workforce supply.

This report attempts to provide meaningful groupings of providers by their occupations, so that as changes to certain provider types becomes more clear, a foundation exists to analyze effects by type of provider and type of services. For example, the ACA includes multiple provisions to boost the supply of primary care providers. Supporting training programs, expanding financial support, and reimbursements to primary care providers are a few of the ACA initiatives slated to boost the field of primary care services.<sup>45</sup> Despite the difficulty of estimating the effect of these programs on an individual profession within mental health, RDA created a class of “Licensed, Prescribing Providers” that may be impacted as a whole.

---

<sup>44</sup> (1) Covered California. (2014). *Individuals Enrolled from Oct. 1, 2013, Through March 31, 2014, with Subsidy Status, Across Region*. Retrieved from: [http://www.coveredca.com/news/PDFs/regional-stats-march/March\\_RegionalEnrollmentTables\\_forWeb\\_ss.pdf](http://www.coveredca.com/news/PDFs/regional-stats-march/March_RegionalEnrollmentTables_forWeb_ss.pdf)

(2) Covered California. (2014). *Enrollment Statistics*. Retrieved from:

<http://www.coveredca.com/news/PDFs/regional-stats-march/march-regionals-graphics.pdf>

NOTE: Enrollment data include individuals who finished their applications and selected plans through April 15, 2014.

<sup>45</sup> ASPA. (2013). *Creating Jobs by Addressing Primary Care Workforce Needs*. Retrieved from: <http://www.hhs.gov/healthcare/facts/factsheets/2013/06/jobs06212012.html>

## **RDA Occupational Skills Classifications**

From the 19 different mental health occupations analyzed for this report, RDA created five provider classes to summarize the needs and changing skills mix across the various mental health professions including: (1) licensed, prescribing providers; (2) for licensed, non-prescribing, nursing providers; (3) licensed non-prescribing, clinical providers; (4) Alcohol and other Drugs Counselors; and (5) non-licensed professional providers. This report addresses supply analysis and projections, organized by these provider classes.

## **Other Economic Influences**

RDA identified various macroeconomic factors that could influence the supply of public mental health providers, including gross domestic product, population growth, and wages.

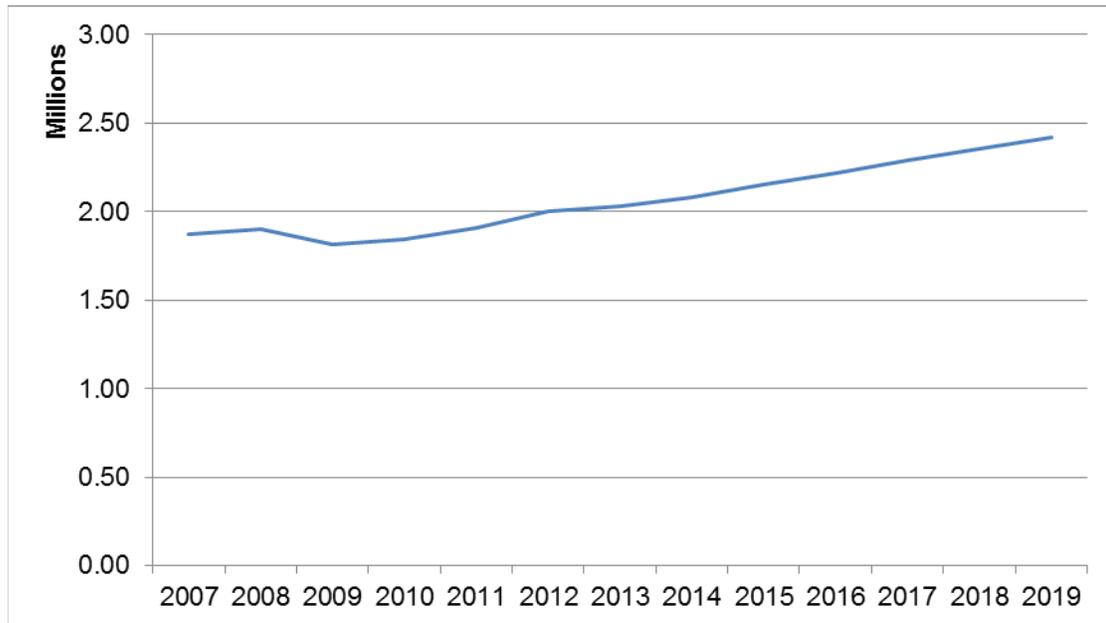
### **California Gross Domestic Product (GDP)**

RDA adopted the Bureau of Economic Analysis (BEA) estimates of California's observed GDP and projected GDP growth to 2019.<sup>46</sup> As displayed in Figure 10, California's GDP dipped from 2007 to 2009, which is likely a reflection of the Great Recession. However, the state's GDP is anticipated to grow steadily over the next decade.

---

<sup>46</sup> US Department of Commerce, B. E. A. (No Date). Bureau of Economic Analysis. Retrieved from: <http://bea.gov/iTable/iTable.cfm?reqid=70&step=1&isuri=1&acrdn=1#reqid=70&step=1&isuri=1&7036=-1&7007=2012,2011,2010,2009,2008,2007&7093=levels&7090=70&7006=06000&7001=1200&7002=1&7003=200&7004=naics&7005=-1&7035=-1>

**Figure 10: California GDP, 2007-2019**



Source: U.S. Bureau of Economic Analysis (2013)

RDA applied GDP as a controlling variable to the changes in its workforce supply projections. From a methodological perspective, controlling for GDP helps to mitigate some of the effects that the Great Recession had on fluctuations in the supply of providers. However, the recession effectively overlapped with the NPI Final Rule, meaning that the NPI data shows a huge influx of providers at the time of the recession.

In terms of the observed effects of the Great Recession, previous analyses have suggested that it actually helped to retain many healthcare workers that would have retired by disincentivizing early retirement. As the effects of the Great Recession wear off, further examination is warranted regarding mental health providers' decisions about their retirement and whether these decisions are affected by overall state economic trends.

In traditional workforce modeling procedures, GDP is either treated as an absolute value or transformed into a logarithm or natural logarithm (the logarithm to the base  $e$ ). In this analysis, RDA transformed the state's overall population into a natural log of the population in order to have more manageable coefficients. This transformation should have no effect on the relationship between the two data points, but rather is a change to manage results with clarity.

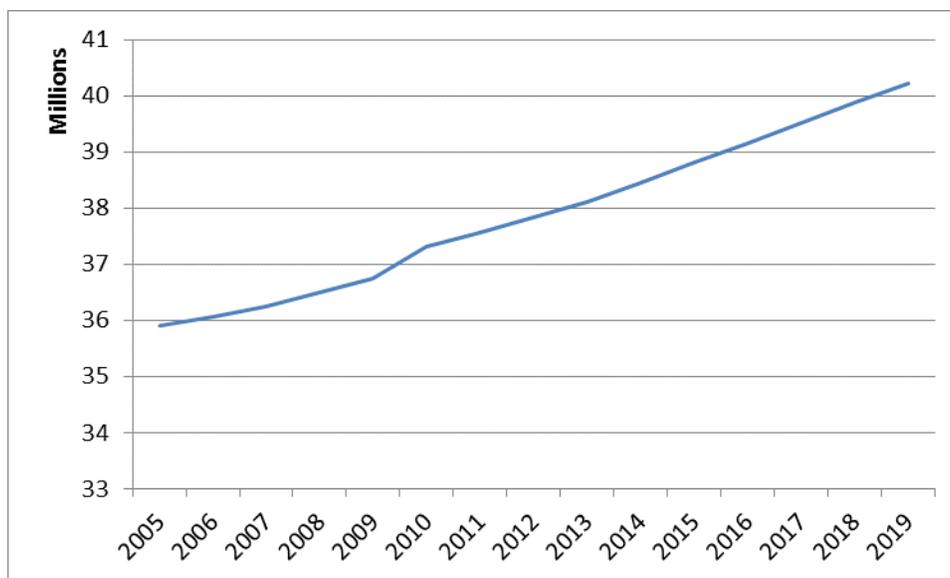
### Population Growth

Overall population growth can affect the supply of California's mental health providers in a number of ways. As the population grows, there are more potential providers and consumers of mental health services. Population growth can also serve as a proxy for other influences and economic conditions.

These workforce projections include a control for population growth. This control theoretically captures the effect on the count of providers due to population increases. As the forecast moves forward and population growth is assumed to be steady, the forecast of providers is also assumed to change in a similar ratio as in previous trends. The supply projections model controlled for population growth in each projection estimate. The results of the control can be interpreted as the extent of change in the supply of providers relative to population growth.

As described above, population growth is traditionally either treated as an absolute value or transformed into a logarithm or natural logarithm. Once again, as shown in Figure 11, RDA used a natural logarithm of the population, which should have no effect on the relationship between the two data points, but enabled RDA to manage results with clarity.

Figure 11: California Population, 2005-2019<sup>47</sup>



Source: California Department of Finance (2013)

## Wages

Wages were the final economic consideration that was incorporated into the projections modeling. Wages have theoretical and observed relationships with workforce supply. On a basic level, wage can serve as an incentive or disincentive to specialize in a particular mental health profession. If wages increase, there may be a resulting influx of interested candidates wanting to enter the industry or occupation due to the prospect of earning more income.

<sup>47</sup> (1) California Department of Finance. (2013). *E-2. California County Population Estimates and Components of Change by Year — July 1, 2010–2013*. Retrieved from: <http://www.dof.ca.gov/research/demographic/reports/estimates/e-2/>

(2) California Department of Finance. (2013). *New Population Projections: California to Surpass 50 Million in 2049*. Retrieved from: [http://www.dof.ca.gov/research/demographic/reports/projections/p-1/documents/Projections\\_Press\\_Release\\_2010-2060.pdf](http://www.dof.ca.gov/research/demographic/reports/projections/p-1/documents/Projections_Press_Release_2010-2060.pdf)

Moreover, as discussed in a previous report, counties reported that pay was among the top reasons that positions were vacated. For these reasons, RDA sought data on wage trends for each of the 19 occupations analyzed in this report.

The most reliable source of wage data is the Bureau of Labor Statistics (BLS). BLS produces an Occupational Handbook and administers the Occupational Employment Statistics (OES) Program. RDA identified four occupations relevant to the public mental health workforce for which OES had multiple time points from which to establish trends in wages:

- Psychiatric Technicians
- Physician Assistants
- Psychiatrists
- Registered Nurses

For these four occupations, data was retrieved annually from 2007 through 2012. Data on the salaries of Nurse Practitioners was reported for 2012 alone, which was not enough to establish a wage trend for forecasts. The distribution of Nurse Practitioner wages by MHSA Region is outlined in Figure 12, for reference.

OES reports on the mean and median hourly and annual wages. RDA explored these options and selected mean annual wage as a consistent control for the wage variable. OES also reports on data using census metropolitan areas. RDA matched these metropolitan areas with county designations, and then re-organized data based on the five MHSA Regions.

### **Limitations**

MHSA Regions comprised mostly of small counties (such as the Superior and Central regions) have little or no reported wage data. As a result, RDA could not conduct a statistical analysis of the distribution of providers by MHSA Region controlling for wage. Instead, RDA computed an average California wage per year for each occupation, and applied this wage and its projections as a control to the workforce forecasts.

Another key limitation with wage data is that the four professions with time-trends reported wages do not map directly to the 19 occupations that are analyzed in this report. Some projections, therefore, do not incorporate wage controls. In some other cases, RDA found that it could utilize some wage data as a proxy for unknown wages. For example, while RDA could not control for trends in Nurse Practitioner wages; it controlled instead by Physician Assistant wages in analyzing the supply of Nurse Practitioners. The shifts in controls and use of wage data are outlined in detail in each forecasting section of this report.

A final limitation in the wage data emerged as a result of how OES reports on wages above a certain threshold. For wages above a certain dollar amount, OES reports that data with “#” signs rather than the real values. In order to utilize the many counts of data with observed values over that amount, RDA assigned the maximum observed value to each of those wages. Therefore, it is assumed that the relationship between wage and the supply of providers is likely underestimated in this analysis.

**Summary of Wage Data**

Table 13 summarizes observed reported annual mean wages for Psychiatric Technicians. Most recently, in 2012, the Central region had the highest reported annual mean wage for Psychiatric Technicians, followed by the Bay Area region, Southern, and then Los Angeles regions. Between 2007 and 2012, Psychiatric Technicians from the Central region had the highest mean reported wages for three of the six years (2007, 2011, and 2012); the Bay Area region had the highest mean reported wages in the other three years (2008, 2009, and 2010). No data was reported for metropolitan areas in the Superior region. The overall California trend in wages did not consistently increase over the five-year period from 2007 to 2012, but the average wage did increase substantively over the same period.

**Table 13: Psychiatric Technician Annual Mean Reported Wage by MHSA Region (OES)**

MHSA Region	2007	2008	2009	2010	2011	2012
Bay Area	\$ 44,521.67	\$ 57,637.14	\$ 54,984.00	\$ 52,992.00	\$ 50,346.00	\$ 49,956.67
Central	\$ 47,894.00	\$ 49,290.00	\$ 54,450.00	\$ 50,780.00	\$ 55,200.00	\$ 54,310.00
Los Angeles	\$ 41,570.00	\$ 48,300.00	\$ 50,690.00	\$ 50,210.00	\$ 47,420.00	\$ 46,740.00
Southern	\$ 41,050.00	\$ 48,083.33	\$ 49,300.00	\$ 51,475.00	\$ 51,237.14	\$ 49,100.00
Superior	N/A	N/A	N/A	N/A	N/A	N/A
<b>California Average</b>	<b>\$ 43,828.50</b>	<b>\$ 52,078.89</b>	<b>\$ 52,900.71</b>	<b>\$ 52,004.76</b>	<b>\$ 51,379.09</b>	<b>\$ 50,347.14</b>

Source: U.S. Bureau of Labor Statistics (2013)

Table 14 summarizes observed reported annual mean wages for Physician Assistants. Physician Assistants in the Central region had the highest observed mean wages across most years. Central region wages were followed by Los Angeles or Bay Area regions' wages. Overall, the California average for annual mean Physician Assistant wages increased significantly from 2007 to 2012.

**Table 14: Physician Assistant Annual Mean Reported Wage by MHSA Region (OES)**

MHSA Region	2007	2008	2009	2010	2011	2012
Bay Area	\$ 81,432.50	\$ 91,045.83	\$ 95,912.50	\$ 92,724.00	\$ 92,273.63	\$ 101,369.17
Central	\$ 74,828.75	\$ 93,790.00	\$ 100,069.28	\$ 97,935.71	\$ 94,830.00	\$ 100,370.00
Los Angeles	\$ 82,340.00	\$ 84,590.00	\$ 87,880.00	\$ 91,540.00	\$ 97,850.00	\$ 105,720.00
Southern	\$ 72,273.64	\$ 84,055.39	\$ 91,038.46	\$ 96,028.18	\$ 94,645.83	\$ 100,973.33
Superior	\$ 79,913.00	\$ 81,518.00	\$ 86,528.00	\$ 85,163.00	\$ 81,090.00	\$ 86,185.00
<b>California Average</b>	<b>\$ 77,435.71</b>	<b>\$ 87,013.25</b>	<b>\$ 93,771.60</b>	<b>\$ 92,622.31</b>	<b>\$ 92,479.43</b>	<b>\$ 99,476.67</b>

Source: U.S. Bureau of Labor Statistics (2013)

Table 15 summarizes observed reported annual mean wages for Psychiatrists. This data does not include the Central or Superior regions for some years because specific Psychiatrist wage data were not available from those regions in those particular years. No single region had a consistently higher wage than the others, and the trends fluctuated annually. The California average wage for Psychiatrists peaked in 2009 and then dropped until 2012.

**Table 15: Psychiatrist Annual Mean Reported Wage by MHSA Region (OES)**

MHSA Region	2007	2008	2009	2010	2011	2012
Bay Area	\$ 169,827.14	\$ 182,978.89	\$ 194,758.33	\$ 162,956.67	\$ 163,368.75	\$ 175,526.25
Central	\$ 147,280.00	N/A	\$ 217,310.00	\$ 212,650.00	N/A	\$ 184,370.00
Los Angeles	\$ 141,960.00	\$ 127,720.00	\$ 151,790.00	\$ 154,800.00	\$ 201,060.00	\$ 174,150.00
Southern	\$ 172,902.00	\$ 182,556.67	\$ 206,374.00	\$ 178,450.00	\$ 173,292.00	\$ 151,512.50
Superior	N/A	N/A	N/A	N/A	N/A	N/A
<b>California Average</b>	<b>\$ 163,787.06</b>	<b>\$ 179,366.88</b>	<b>\$ 201,340.63</b>	<b>\$ 176,903.53</b>	<b>\$ 169,605.00</b>	<b>\$ 171,875.88</b>

Source: U.S. Bureau of Labor Statistics (2013)

Table 16 summarizes observed reported mean annual wages for Registered Nurses (RN). The overall salary for RNs increased, relatively consistently, in each region and across the state. Bay Area region RNs reported the highest mean annual wages each year. Regional trends fluctuated after the highest wage; for example, the Los Angeles region reported the second highest wage in 2007, while the Southern region reported the second highest wage in 2008. At the state level, wages for RNs increased each year from 2007 to 2012.

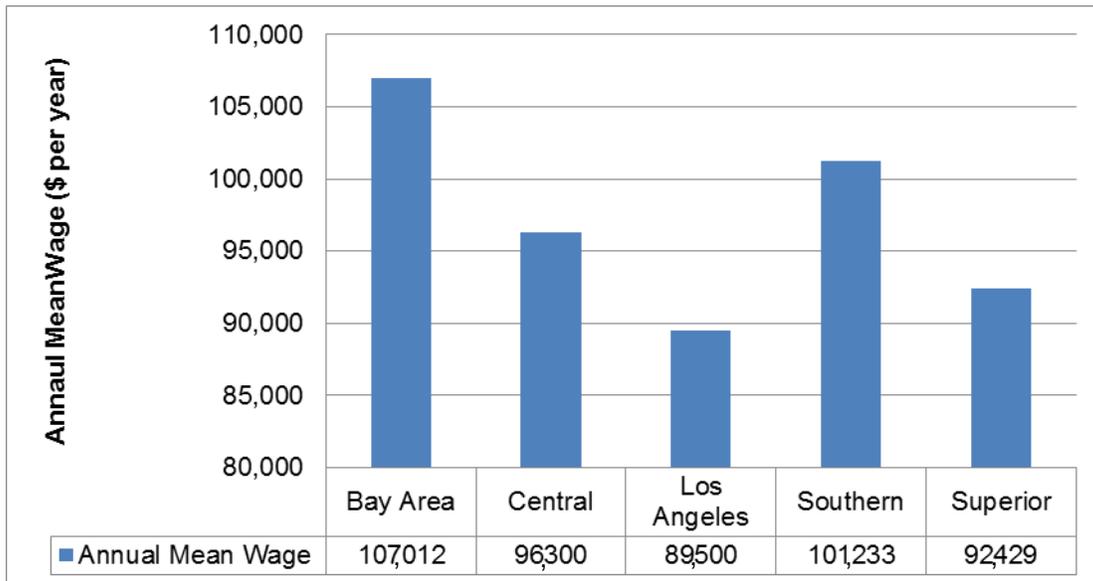
**Table 16: Registered Nurses Mean Annual Reported Wages by MHSA Region (OES)**

MHSA Region	2007	2008	2009	2010	2011	2012
Bay Area	\$ 82,987.86	\$ 88,850.00	\$ 90,702.86	\$ 94,725.00	\$ 100,207.10	\$ 105,035.40
Central	\$ 75,420.67	\$ 79,066.00	\$ 82,353.13	\$ 85,101.88	\$ 88,185.63	\$ 90,327.50
Los Angeles	\$ 76,270.00	\$ 79,710.00	\$ 81,100.00	\$ 82,590.00	\$ 85,340.00	\$ 86,990.00
Southern	\$ 72,484.29	\$ 78,949.33	\$ 81,636.00	\$ 83,623.08	\$ 84,412.14	\$ 85,464.29
Superior	\$ 72,951.67	\$ 73,632.50	\$ 78,767.50	\$ 80,795.00	\$ 87,694.17	\$ 81,814.00
<b>California Average</b>	<b>\$ 76,064.46</b>	<b>\$ 80,305.79</b>	<b>\$ 83,419.66</b>	<b>\$ 86,196.61</b>	<b>\$ 90,058.07</b>	<b>\$ 90,969.07</b>

Source: U.S. Bureau of Labor Statistics (2013)

Figure 12 summarizes Nurse Practitioner (NP) mean annual wages for 2012. The distribution of NP wages in 2012 across MHSA Regions is displayed. The Bay Area region had the highest reported mean annual wage, followed by the Southern, Central, Superior, and Los Angeles regions. Data was only available on NP wages for one time point, and therefore could not be integrated into the forecasting models as a control.

**Figure 12: Nurse Practitioner Mean Annual Wages by MHSA Region (OES)**



Source: U.S. Bureau of Labor Statistics (2013)

**Public and Private Settings: Quarterly Census of Employment and Wages (QCEW)**

Wages may also influence providers’ decisions to practice in public or private settings. RDA searched for information on wages of providers in public or private settings using the QCEW data. QCEW relies on North American Industry Classification System (NAICS) codes. RDA identified five industries of interest to the public mental health workforce, including:

- Offices of Mental Health Practitioners (except Physicians);
- Offices of Physicians, Mental Health Specialists;
- Outpatient Mental Health and Substance Abuse Centers;
- Psychiatric and Substance Abuse Hospitals; and
- Residential Mental Health and Substance Abuse Facilities.

However, only one industry, Psychiatric and Substance Abuse Hospitals, offered meaningful public employment to allow for comparison. Given the broad variation in the type of employment within a Psychiatric and Substance Abuse Hospital, RDA could not reasonably assign this difference to any particular occupation. Ultimately, RDA could not identify a data source that adequately reported on the variation of provider wages between public and private settings to incorporate into the projections.

**Analysis by Demographic Indicators**

In Section 1 of this report, RDA noted the importance of analyzing trends in mental health workforce supply by various demographic indicators, and suggested that a thorough analysis of supply would include analysis by race/ethnicity, language, gender, and age. As part of an ongoing effort to build a diverse and culturally competent public mental health workforce,

stakeholders, and state agencies alike are interested in understanding the current and incoming composition of the workforce.

However, the datasets discussed above generally do not disclose demographic indicators of interest. There are two exceptions: 1) NPI data reports on gender, described in-depth for each profession below; and 2) the MBC's addendum demographic survey on race/ethnicity and language. The results of these surveys are described in the section on Psychiatrists below.

Wherever demographic data was available, RDA provided descriptive analyses of providers by those demographic categories. Ultimately, demographic data was reported too sparsely to be meaningfully incorporated into thorough and consistent forecasts.

## Forecasting Method

There are many approaches to forecasting. After reviewing multiple studies outlining forecasting methods, models, and the reliability of each approach, RDA selected an approach based on multivariate regression analysis. With this method, RDA used the count of providers as the outcome of interest. For example, the forecasting method for Psychiatrists involved assessing the count of Psychiatrists in the NPI data for every observed year after 2008 (due to the NPI Final Rule limitation).

## Data Arrangement

RDA organized and analyzed the data for this report with Stata 13, a statistical analysis software program. In Stata, RDA fixed the data set as a "time-series," which allows for embedded time trend analysis within regressions, graphs, and additional functions.

RDA incorporated the population-level variables described above, such as California gross domestic product, California population, and wage (when available). The outcome of interest, such as the count of Psychiatrists, was regressed against the controls noted above. RDA then predicted (using Stata's *predict* command) the counts of each mental health provider type from 2014 through 2019. Fundamentally, this analysis takes a fitted line of values of the outcome, adjusts for the controls, and then projects out the predicted values based on the values of the other variables.

## Wages Method

In order to regress on wages and to conduct forecasts incorporating wages, RDA computed estimated wages for each of the available professions through 2019. For the available wage data, RDA computed average annual change, and then assumed that the past average annual change would occur each year until 2019. Thus, the forecasts are based on the assumptions that observed trends in wages are reliable on average, and that they would continue in a similar linear trend through 2019.

### California Population Method

RDA applied a similar method to estimating California population change through 2019. RDA adopted observed data from the Census Bureau American Community Survey (ACS) and used the Bureau of Labor Statistics projected population growth from 2010 to 2020 in order to forecast population values through 2019. The forecasts rely on the assumption that the California population will grow at a steady rate of change through 2019.

### California GDP Method

To control for economic variation captured in the state GDP, RDA adopted observed values of California GDP from the Bureau of Economic Analysis. Using five-year estimates of GDP through 2020, RDA computed an average annual increase in GDP and assigned annual projected values from 2014 to 2019. RDA transformed real GDP into the natural log of GDP and applied this value as a control in the following regression estimation.

### Regression Estimation

RDA's final regression estimation can be represented in the following equation:

$$Y_t = \alpha + \beta_1(\ln GDP_{t-5}) + \beta_2(\ln Population_{t-5}) + \beta_3(\omega_{t-5}) + -\sigma_t + \varepsilon_1 | \hat{\omega}$$

where  $Y_t$  is the outcome of interest: the count of a certain type of provider, at time  $t$ .  $\alpha$  represents the constant,  $\beta_1$  represents the relationship between the natural log of the California GDP and the outcome of providers by year,  $\beta_2$  represents the relationship between the natural log of the California population by year.  $\beta_3$  represents the relationship between wage (if wage is observed, represented by the conditional wage hat,  $\hat{\omega}$ ).

Note that estimates of GDP, population, and wage are all lagged by five years. This method uses data from five years prior to an outcome at time  $t$ . RDA applied this method from the theoretical perspective that GDP, population, and wage do not have immediate or instant effects on the supply of providers. Overall RDA found this relationship to be supported by statistical results, which showed stronger relationships for longer lag times.

Regressions were conducted using Stata's *Newey* command, with a lag of five years. The *Newey* command operates an Ordinary Least Squares regression but produces Newey-West standard errors. These standard errors were selected because errors were observed to be

heteroskedastic,<sup>48</sup> and as they are a traditional standard error approach when using lagged time data.

### Forecasting Estimation

Forecasted values for  $Y_t$  are the extended predicted values of the regression estimation. The forecasts reflect the county of provider estimates from the observed years 2008-2013, adjusted for fluctuations and trends in wage, GDP, and population. Using the Stata *Predict* command, RDA extended the regression estimates to the forecast period 2014-2019. The forecasting model results are described in each professional section below, and the individual statistical results of each forecasting model are detailed in Appendix 2.

## Data Sources

For this report, RDA relied on multiple data sources in order to yield the best information about workforce supply of mental health services in California and the factors that can affect it in the future. In particular, RDA used the following data sources:

- Occupational Employment Statistic Survey (OES)
- American Community Survey (ACS)
- Bureau of Labor Statistics (BLS) and Bureau of Economic Analysis (BEA)
- Integrated Postsecondary Education Data System (IPEDS)
- California Postsecondary Education Commission (CPEC)
- Quarterly Census of Employment and Wages (QCEW)
- Nation Provider Identification (NPI) Registry
- Board licensure data from the following California licensing boards
  - Board of Vocational Nurses and Psychiatric Technicians;
  - Board of Occupational Therapists;
  - Medical Board; and the
  - Board of Behavioral Sciences
- Certification agencies for Alcohol and other Drugs Counselors:
  - Addiction Counselor Certification Board of California, affiliated with California Association for Alcohol/Drug Educators (CAADE);
  - American Academy of Health Care Providers in the Addictive Disorders (AAHCPAD);
  - Board for Certification of Addiction Specialists, affiliated with the California Association of Addiction Recovery Resources (CAARR);
  - Breining Institute;
  - California Association of Drinking Driver Treatment Programs (CADDTP); and

---

<sup>48</sup> Heteroskedasticity refers to non-normal distribution of errors. In regression analysis, heteroskedasticity indicates potential violations of underlying model assumptions, usually that values and errors are uncorrelated and normally distributed. Using robust standard errors is one typical way to correct for potential heteroskedasticity.

- California Certification Board of Alcohol and Drug Counselors, affiliated with the California Association of Alcoholism and Drug Abuse Counselors (CAADAC).

## Occupational Employment Statistics Survey

The Occupational Employment Statistics (OES) Survey is produced by the Bureau of Labor Statistics in the U.S. Department of Labor. The OES program publishes employment and wage estimates annually for about 800 occupations spanning more than 450 industries. OES uses the North American Industry Classification System (NAICS) industrial groups.<sup>49</sup> Surveys are collected semi-annually via mail. The OES survey includes all full-time and part-time wage and salary workers in nonfarm (non-agricultural) industries. The survey does not include self-employed, owners and partners in unincorporated firms, household workers, or unpaid family workers.

The occupational estimates are produced not only for the nation as a whole, but also by state, by metropolitan or nonmetropolitan area, and by industry or ownership.<sup>50</sup> The most recent round of wage data was published in May 2012.

RDA applied annual average wage information for four types of providers: Psychiatrists, Physician Assistants, Registered Nurses, and Psychiatric Technicians.

### Limitations

Some counties do not have any data reported in the OES survey. There is also some misrepresentation across the MHSA Regions, because both the Central Region and Superior regions had few or no metropolitan areas with reported OES data.

## American Community Survey

The American Community Survey performed by the U.S. Census Bureau is an ongoing statistical survey administered annually.<sup>51</sup> RDA used the ACS as the data source for the California population counts, as well as population distributions across different age groups, races/ethnicities, and language groups.

### Limitations

Due to limited demographic data available on providers, RDA was not able to apply relevant demographic controls to supply projections. Specifically, data on population racial/ethnic composition, age distribution, and language did not enter in the projections models.

---

<sup>49</sup> Bureau of Labor Statistics. (No Date). *Overview*. Retrieved from:

[http://www.bls.gov/oes/oes\\_emp.htm#scope](http://www.bls.gov/oes/oes_emp.htm#scope)

<sup>50</sup> Ibid.

<sup>51</sup> Office, A. C. S. (No Date). *About the American Community Survey*. Retrieved from:

[https://www.census.gov/acs/www/about\\_the\\_survey/american\\_community\\_survey/](https://www.census.gov/acs/www/about_the_survey/american_community_survey/)

## Bureau of Economic Analysis

The Bureau of Economic Analysis (BEA) was the source of data on economic forecasts such as California's observed and projected GDP.

## Quarterly Census of Employment and Wages

The Quarterly Census of Employment and Wages (QCEW) program publishes counts of employment and wages reported by employers covering 98% of U.S. jobs, available at county, MSA, state, and national levels by industry.<sup>52</sup> QCEW is a program of the Bureau of Labor Statistics of the U.S. Department of Labor and of the State Employment Security Agencies. Represented workers are covered by State unemployment insurance laws, and federal workers are covered by the Unemployment Compensation for Federal Employees program. The available information includes: the number of establishments, monthly employment, and quarterly wages by NAICS industry (six-digits), by county, and by ownership sector for the entire United States.

## National Provider Identifier (NPI) Registry

The National Provider Identifier (NPI) Registry contains the information for each health provider included in the National Plan and Provider Enumeration System.<sup>53</sup> The NPI is a number assigned to each covered health provider. The NPI Registry includes information on each type of provider (individual or organization), the date when the provider joined the Registry (enumeration date), provider business location, provider credentials, the date of last update, the healthcare provider taxonomy code, and license number.

RDA narrowed the total set of national providers down to providers whose reported practice business locations and license locations were in California. California providers accounted for 348,991 providers in the NPI Registry from 2005 to 2013. RDA's methodology for narrowing down the providers by taxonomy codes is explained in detail in Table 3.

Using provider business location zip codes, RDA matched providers to counties, and their respective MHSA Regions and sizes.

Data from the NPI Registry will be referred to as "NPI data" in the remainder of the report.

### Limitations

#### *Representation of Public Mental Health Providers*

NPI Registry data includes information for public health care providers across the state, not specifically for public mental health providers. For the providers who traditionally provide services related to patient's physical health rather than traditionally mental health-related

---

<sup>52</sup> Bureau of Labor Statistics. (No Date). *Quarterly Census of Employment and Wages*. Retrieved from: <http://www.bls.gov/cew/>

<sup>53</sup> National Plan & Provider Enumeration System (NPPES). (No Date). *NPI Registry*. Retrieved from: <https://npiregistry.cms.hhs.gov/NPPESRegistry/NPIRegistryHome.do>

services, they could potentially be overrepresented in this analysis. For example, Nurses and Physician Assistants traditionally provide physical health care services more often than mental health services, but when including them in this project's analysis, their counts as "mental health" providers will be more than the true amount of Nurses and Physician Assistants who actually provide mental health services.

### **Demographics Data**

NPI data does not include information on provider demographics other than gender. NPI data is also self-reported and there is no mechanism to require providers to update information. Once a provider registers with NPI, that registration is regarded as a lifetime registration, with the exception of disbarment. The NPI data, therefore, is an excellent source of new entries, but does not reflect potential exits or necessarily present recent information on location.

### **Department of Consumer Affairs Board Licensure Data**

The California Department of Consumer Affairs (DCA) maintains the professional licensure boards, which oversee licensing and regulation for multiple professions. The following boards' data were analyzed in this report:

- Medical Board of California (MBC)
- Board of Registered Nurses
- Board of Psychology
- Committee on Physician Assistants
- Board of Behavioral Sciences
- Board of Vocational Nursing and Psychiatric Technicians
- Board of Occupational Therapy

Each board data set provides a standard set of information on each licensed professional: license number; license issue date; status of license (active, inactive, or expired); and a provider-reported address.

Each board data set was filtered to exclude inactive and expired licenses, and licenses attached to non-California addresses.

The provider-reported address was assumed to represent business location, and used in this report to analyze the distribution of providers in California counties, and by MHSR Regions and county sizes.

### **Data from Alcohol and other Drugs Counseling Certification Agencies**

There are six official certification bodies for AOD Counselors in California:

- Addiction Counselor Certification Board of California, affiliated with California Association for Alcohol/Drug Educators (CAADE)
- American Academy of Health Care Providers in the Addictive Disorders (AAHCPAD)

- Board for Certification of Addiction Specialists, affiliated with the California Association of Addiction Recovery Resources (CAARR)
- Breining Institute
- California Association of Drinking Driver Treatment Programs (CADDTP)
- California Certification Board of Alcohol and Drug Counselors, affiliated with the California Association of Alcoholism and Drug Abuse Counselors (CAADAC).

RDA received data from five of the six AOD Counselor certification organizations, except AAHCPAD. For the purpose of this report, certified AOD counseling providers were of interest in understanding the distribution of AOD Counselors across California that can provide AOD counseling services. Specific details on how the data collected from the AOD counseling certification organizations was used in this analysis are documented in the “Alcohol and other Drugs Counseling” section of this report.

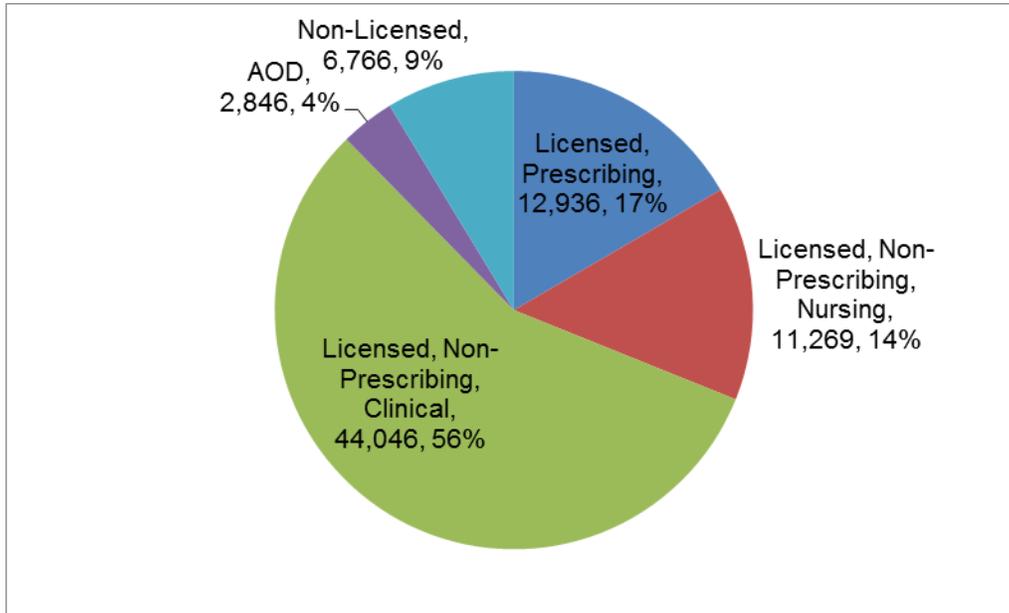
## Structure of the Report

The report is structured by five provider classes: 1) licensed prescribing; 2) licensed, non-prescribing, nursing; 3) licensed, non-prescribing, clinical; 4) AOD Counselors; and 5) non-licensed professionals. Under each of the five provider class headings, individual provider types (which are interchangeably referred to as provider categories) are analyzed. If board data was available, it is summarized and analyzed by distribution among the MHSA Regions. The goal was to use board data to provide a sense of the total pool of providers available. Then, narrowing to the providers likely to serve in the public mental health workforce, NPI data was analyzed for each provider type. The total statewide count of each NPI provider type was analyzed, and provider-to-population ratios per county are displayed in state maps in this report. NPI data is then analyzed by gender, MHSA Region, and county size. Finally, board and NPI data were analyzed together in examining provider-to-population ratios across MHSA Regions and county sizes. For each provider class, this report includes one set of forecasts and key findings.

## Public Mental Health System (PMHS) Workforce

There were 77,863 providers identified in NPI data which for the purposes of this analysis, we identify as public mental health system workforce. As displayed in Figure 13, among the five provider classes, licensed, non-prescribing, clinical providers constituted the largest share of providers (56%). Licensed, prescribing providers represented 17% of the PMHS workforce, followed closely by for licensed, non-prescribing, nursing providers (14%). Non-licensed and AOD Counselors each represented less than 10% of the total PMHS workforce.

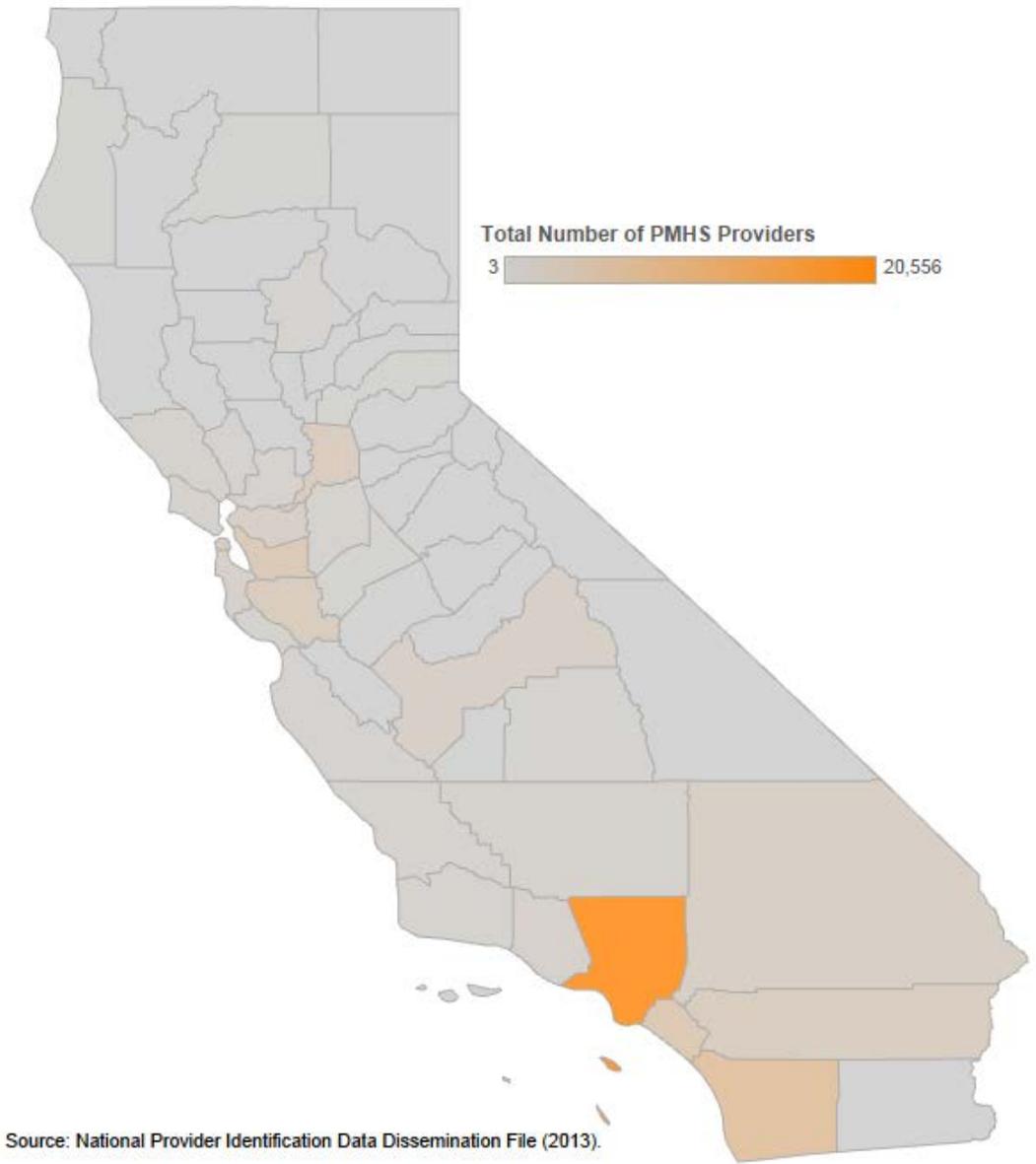
**Figure 13: Public Mental Health System Providers, by Provider Class, NPI Data, 2013 (n= 77,863)**



Source: NPI Data Dissemination File (2013)

Figure 14 presents the distribution of all PMHS providers by California county. Los Angeles County had the highest concentration of total providers, while counties in the Bay Area and Southern regions of the state also had more PMHS providers than counties in other MHA Regions.

**Figure 14: Total Number of Public Mental Health System Providers, by County, NPI Data, 2013**



Source: NPI Data Dissemination File (2013)

### Licensed, Prescribing Professions

In this analysis, the licensed, prescribing professionals include: (1) Psychiatrist; (2) Nurse Practitioner; (3) Physician Assistant; and (4) Physician with addiction specialties. These four professions will be grouped together when producing projections of the future total counts of licensed, prescribing professionals in California’s public mental health workforce. In regards to

skills mix, providers in these professions offer services that were relatively comparable, thus presenting potential labor substitution possibilities in the state’s mental health workforce. For each profession, this section of the report provides: 1) a description of the distribution of providers across California, using board data (if available) and NPI data; and 2) the current provider-to-population ratios across the different county sizes in the state. The forecast section of the report then describes the projected forecasts. Lastly, key findings were detailed regarding the observed and projected distributions of licensed, prescribing professionals.

Table 17 presents NPI data counts for each licensed, prescribing profession. There were 12,936 licensed, prescribing professionals in NPI data. Physician Assistants and Psychiatrists together represented almost 100% of the Licensed, Prescribing provider pool. Psychiatric Mental Health Nurse Practitioners and Physicians with addiction medicine specialties each composed approximately 1% of the Licensed, Prescribing provider pool.

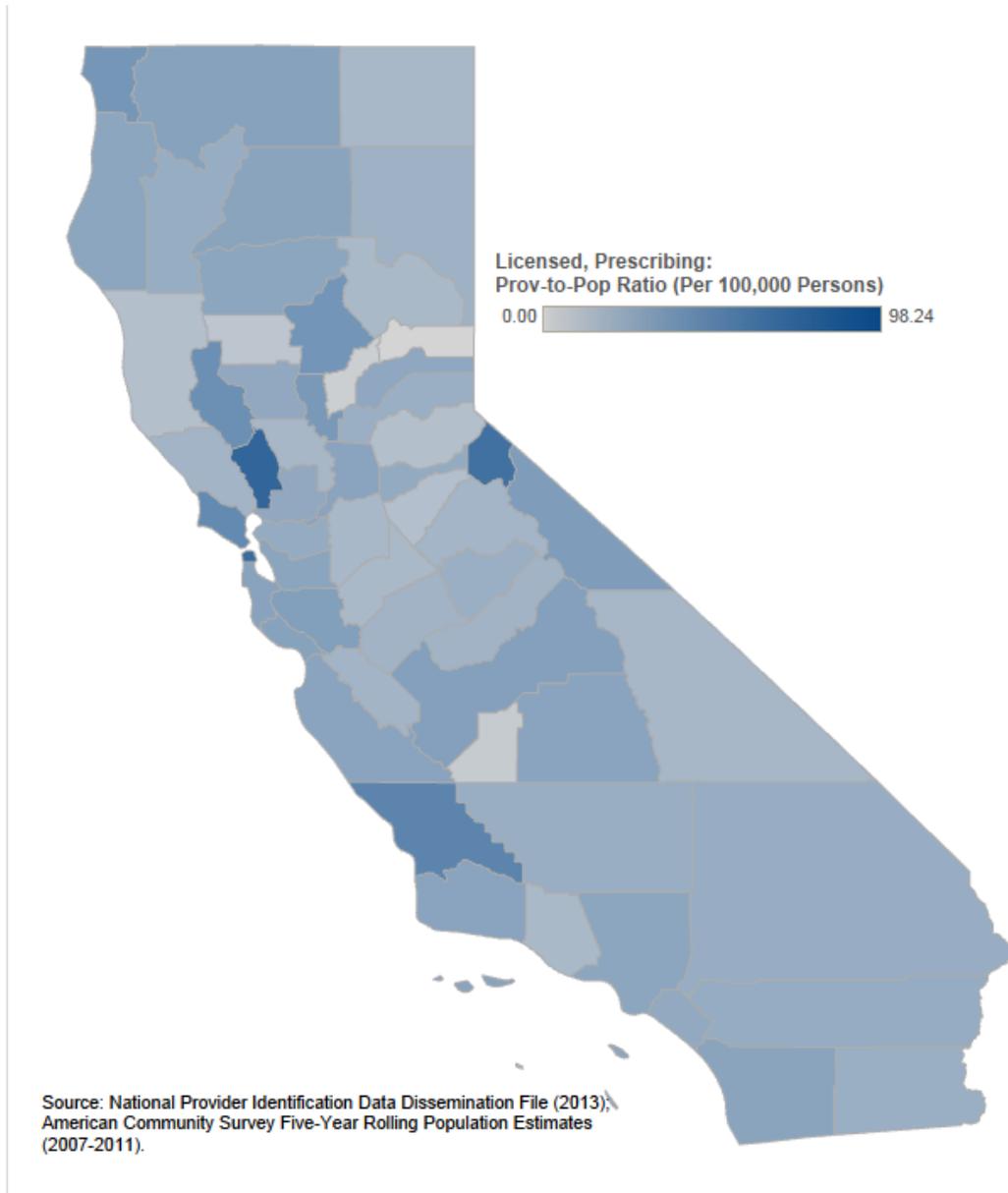
**Table 17: Licensed, Prescribing Professions, NPI Data, 2013**

<b>Occupation</b>	<b>Count</b>	<b>% of Total</b>
Psychiatrist	6,107	47%
Psychiatric Mental Health Nurse Practitioner	157	1%
Physician Assistant	6,565	51%
Physician (Addiction Medicine)	107	1%
<b>TOTAL</b>	<b>12,936</b>	<b>100%</b>

*Source: NPI Data Dissemination File (2013)*

Figure 15 on the following page shows the provider-to-population ratios of licensed, prescribing providers in the NPI data, by county. The highest provider-to-population ratios are displayed by darker color grades, located generally in the Bay Area and Southern region.

**Figure 15: Map of Licensed, Prescribing Professionals Provider-to-Population Ratios in California, NPI Data, 2013**



Source: NPI Data Dissemination File (2013)

## Psychiatrist

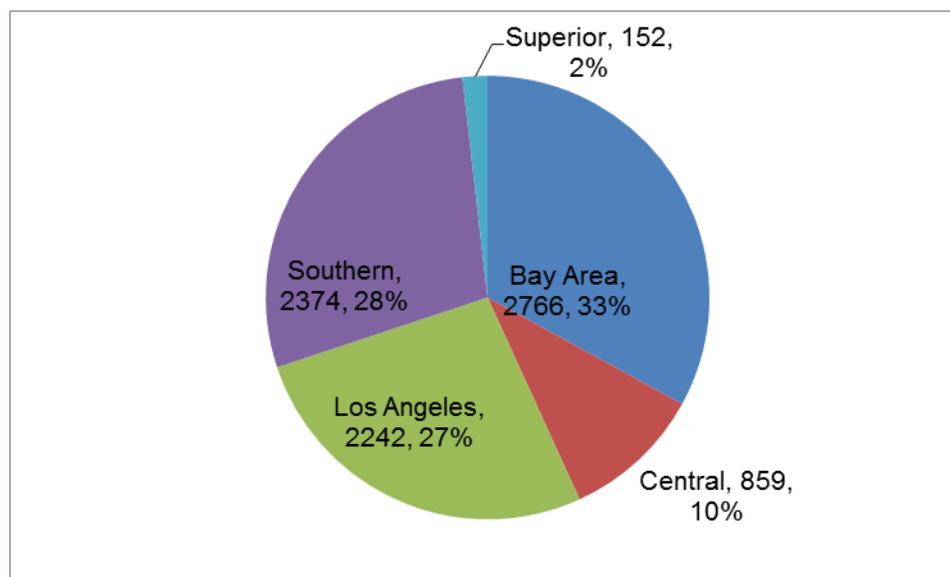
### Boards Licensure Data

Board data on Psychiatrists was derived from the Medical Board of California (MBC). Board data was used to determine the total pool of Board-licensed Psychiatrists available in California, the distribution of Psychiatrists across MHA Regions and by county sizes,<sup>54</sup> and demographic information on Psychiatrists.

According to Board data, there were 8,393 Board-licensed Psychiatrists in the state of California. A complete list of Board-licensed Psychiatrist counts by county is available in Table 80 in the Appendix.

Figure 16 shows the distribution of Psychiatrists across the state's MHA Regions. Of the five MHA Regions, the Bay Area region contained the most Board-licensed Psychiatrists (n=2,766). The Southern and Los Angeles regions each had 2,242 and 2,374 Board-licensed Psychiatrists, respectively. In comparison, the Central (n=859) and Superior (n=152) regions had considerably fewer Board-licensed Psychiatrists.

**Figure 16: Psychiatrists by MHA Region, Board Licensure Data, 2013 (n=8,393)**

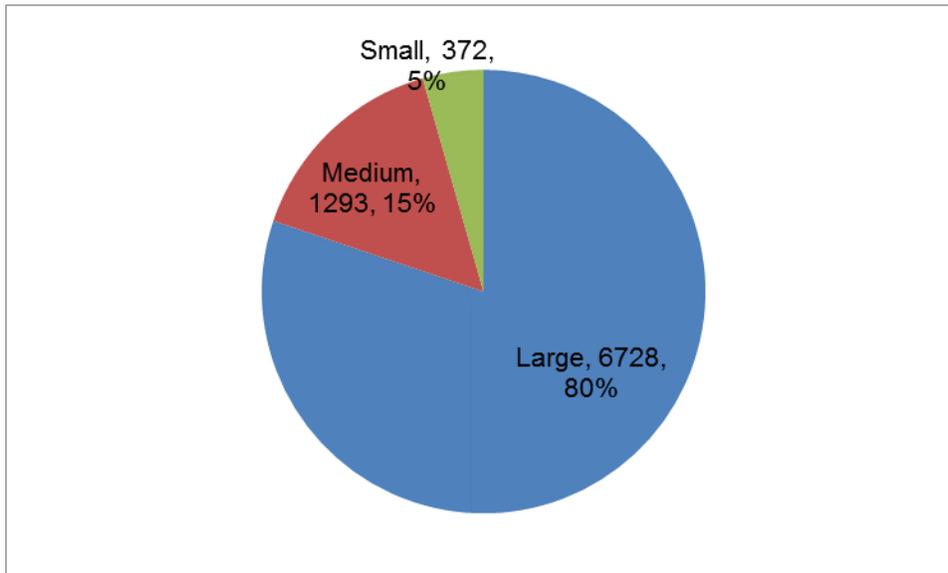


Source: Medical Board of California (2013)

<sup>54</sup> Addresses listed in the board data were assumed to represent the location of practice for each provider. Functionally, these addresses served as mailing addresses and could potentially be addresses of residence, practice, or any other that the licensee chose to provide. However, the following analysis assumes that the Board licensee listed their location of practice. This address was matched to its respective California county.

Figure 17 shows the distribution of Psychiatrists across the state's various county sizes. Large counties had the most Board-licensed Psychiatrists (n=6,728), followed by medium (n=1,293) and small counties (n=372). (Medium-sized counties will be referred to as medium counties in the remainder of the report.)

**Figure 17: Psychiatrists by County Size, Board Licensure Data, 2013 (n=8,393)**



Source: Medical Board of California (2013)

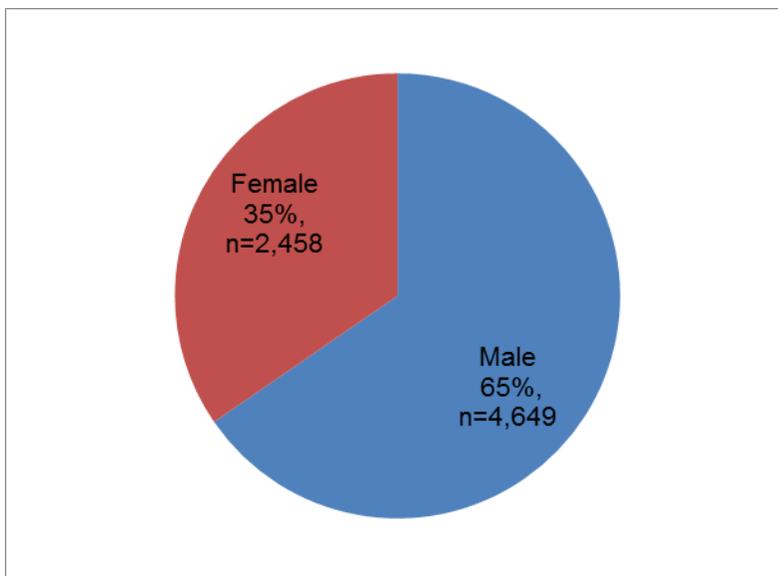
### Demographics

In 2013, the MBC distributed an optional survey to Physicians and Psychiatrists soliciting information on demographics and language capabilities. The following section describes the results of that survey, completed by a total of 7,058 Psychiatrists (the number of respondents varies by question). Overall, the survey sample represents approximately 70% of Psychiatrists in the MBC data. Information was not available on the demographic representativeness of that sample relative to the total sample of Psychiatrists.

## Gender

As represented in Figure 18, the field of psychiatry was comprised of more males than females. This is a trend that was different from the other professions discussed in this report, which were comprised by and large of female providers. In the MBC survey, nearly two-thirds (65%) of Psychiatrist respondents were male; the remaining 35% of Psychiatrists were female.<sup>55</sup>

**Figure 18: Psychiatrists by Gender, Board Licensure Data, 2013 (n=7,107)**



Source: Medical Board of California (2013)

While males represented an overall majority in total number of Psychiatrists, trends among newly-licensed Psychiatrists showed some reversals of that dynamic. As demonstrated in Figure 19, from 2000-2010, nearly the same number of Psychiatrist licenses was issued to females and males. In some years – including 2006, 2010, and 2011 – more new Psychiatrist licenses were issued to females than to males.

---

<sup>55</sup> Center for Workforce Studies at the Association of American Medical Colleges. (2012). *2012 Physician Specialty Data Book*. Retrieved from: [https://members.aamc.org/eweb/DynamicPage.aspx?Action=Add&ObjectKeyFrom=1A83491A-9853-4C87-86A4-F7D95601C2E2&WebCode=PubDetailAdd&DoNotSave=yes&ParentObject=CentralizedOrderEntry&ParentDataObject=Invoice%20Detail&ivd\\_formkey=69202792-63d7-4ba2-bf4e-a0da41270555&ivd\\_prc\\_prd\\_key=C7F68470-F2D7-45AA-BC1D-DB67C3F2D318](https://members.aamc.org/eweb/DynamicPage.aspx?Action=Add&ObjectKeyFrom=1A83491A-9853-4C87-86A4-F7D95601C2E2&WebCode=PubDetailAdd&DoNotSave=yes&ParentObject=CentralizedOrderEntry&ParentDataObject=Invoice%20Detail&ivd_formkey=69202792-63d7-4ba2-bf4e-a0da41270555&ivd_prc_prd_key=C7F68470-F2D7-45AA-BC1D-DB67C3F2D318)

**Figure 19: New Psychiatrists by Gender, Board Licensure Data, 2000-2013**



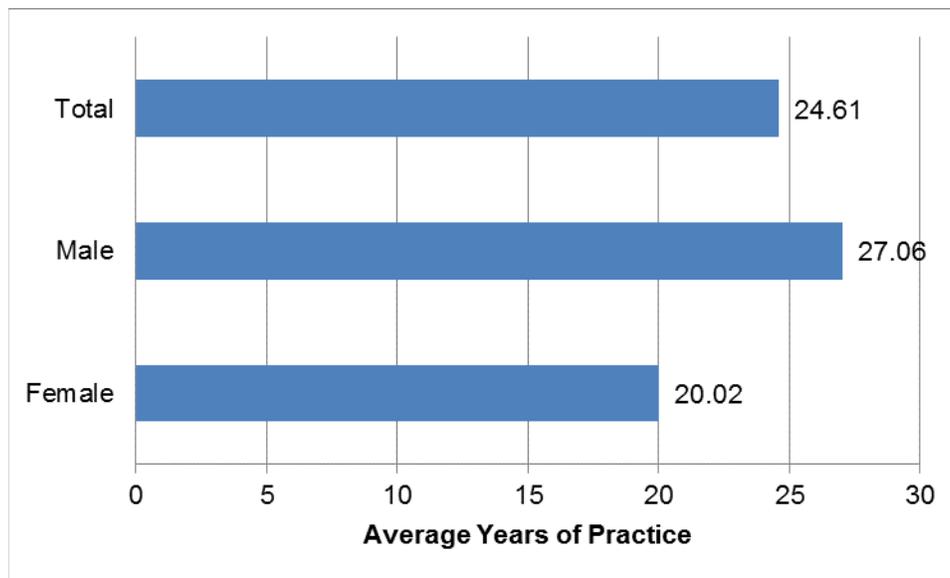
Source: Medical Board of California (2013)

In Figure 20, the average years of practice<sup>56</sup> for Psychiatrists are depicted by gender. Male Psychiatrists, on average, were in practice for approximately 27.06 years, while female Psychiatrists, on average were in practice for 20.02 years.<sup>57</sup> This difference can be interpreted as a lag in the entry of females to the field of psychiatry. The overall average years of practice were 24.61 years for all Psychiatrists.

<sup>56</sup> Calculated as the difference between 2013 and the original issue year of the license.

<sup>57</sup> This difference is also statistically significant at the  $p < .001$  level.

**Figure 20: Psychiatrists' Average Years in Practice by Gender, Board Licensure Data, 2013**

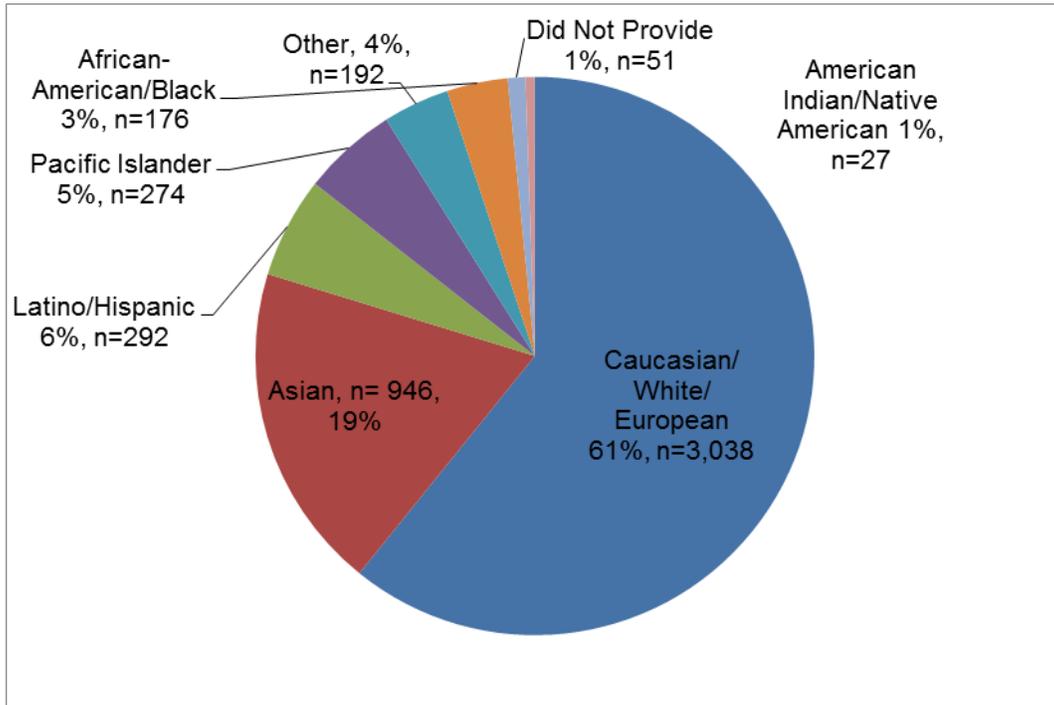


Source: Medical Board of California (2013)

### Race/Ethnicity

The majority of Board-licensed Psychiatrists reported their race/ethnicities as Caucasian/White/European (n=3,038). Asian (n=946) and Latino/Hispanic (n=292) were the second and third most highly represented race/s/ethnicities, followed by Pacific Islander (n=274), Other (n=192), African-American/Black (n=176), and American Indian/Native American (n=27). Figure 21 shows the distribution of Psychiatrist race/ethnicities across the state, as found in Board licensure data.

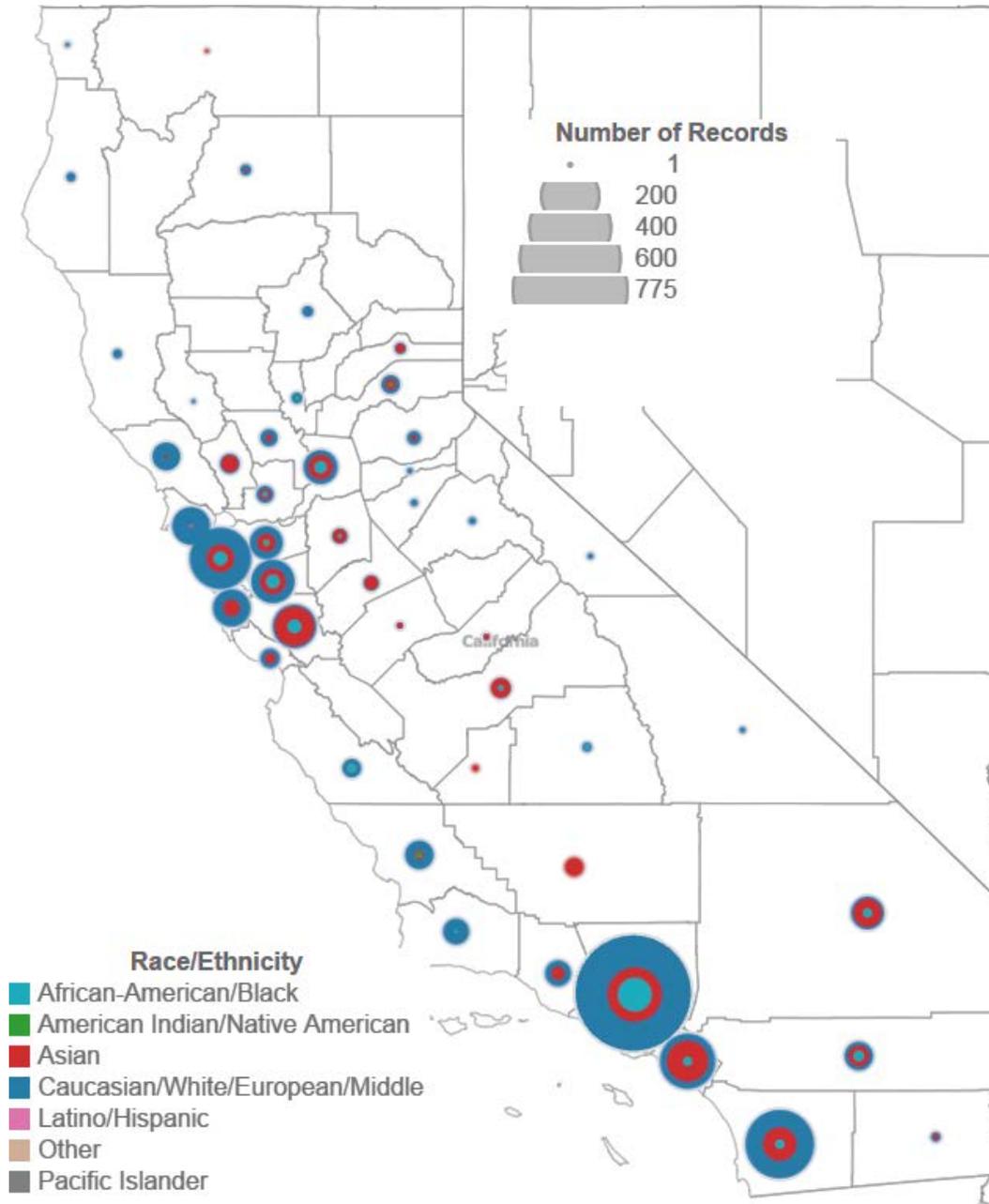
Figure 21: Psychiatrists by Race, Board Licensure Data, 2013 (n=4,000)



Source: Medical Board of California (2013)

Figure 22 shows the geographic distribution of Psychiatrists across the state of California, as found in Board licensure data. Additionally, Figure 22 visually represents the distribution of Psychiatrist race/ethnicities for each California county.

Figure 22: Psychiatrists by Race/Ethnicity by County, Board Licensure Data, 2013



Source: Medical Board of California (2013)

Table 18 lists the number of Psychiatrists for each California county, as found in Board licensure data, by race/ethnicity. The data presented in Table 18 corresponds with the map in Figure 22.

**Table 18: Psychiatrists by Race/Ethnicity by County, Board Licensure Data, 2013**

County	African-American / Black	American Indian / Native American	Asian	Caucasian / White	Latino / Hispanic	Other	Pacific Islander
Alameda	10	1	39	108	8	5	10
Alpine	*	*	*	*	*	*	*
Amador	0	0	0	8	0	0	0
Butte	0	0	0	6	0	0	2
Calaveras	0	0	0	14	0	0	0
Colusa	*	*	*	*	*	*	*
Contra Costa	2	2	20	62	2	5	1
Del Norte	0	0	0	1	0	2	0
El Dorado	0	0	2	11	0	0	0
Fresno	2	0	23	21	7	10	17
Glenn	*	*	*	*	*	*	*
Humboldt	0	0	0	4	1	0	1
Imperial	0	0	2	5	3	2	0
Inyo	0	0	0	2	0	0	0
Kern	0	0	24	9	0	2	5
Kings	0	0	3	0	1	1	0
Lake	0	0	0	1	0	0	0
Lassen	*	*	*	*	*	*	*
Los Angeles	69	4	174	775	131	47	113
Madera	0	0	2	2	0	2	1
Marin	1	0	2	82	1	0	0
Mariposa	*	*	*	*	*	*	*
Mendocino	0	0	0	5	1	0	0
Merced	0	0	2	8	0	0	2
Modoc	*	*	*	*	*	*	*
Mono	0	0	0	3	0	0	0
Monterey	4	0	4	18	1	2	5
Napa	0	0	17	22	0	1	6
Nevada	0	0	4	7	0	0	0
Orange	4	0	101	177	7	11	10
Placer	0	1	6	20	0	0	1
Plumas	0	0	1	0	0	0	0

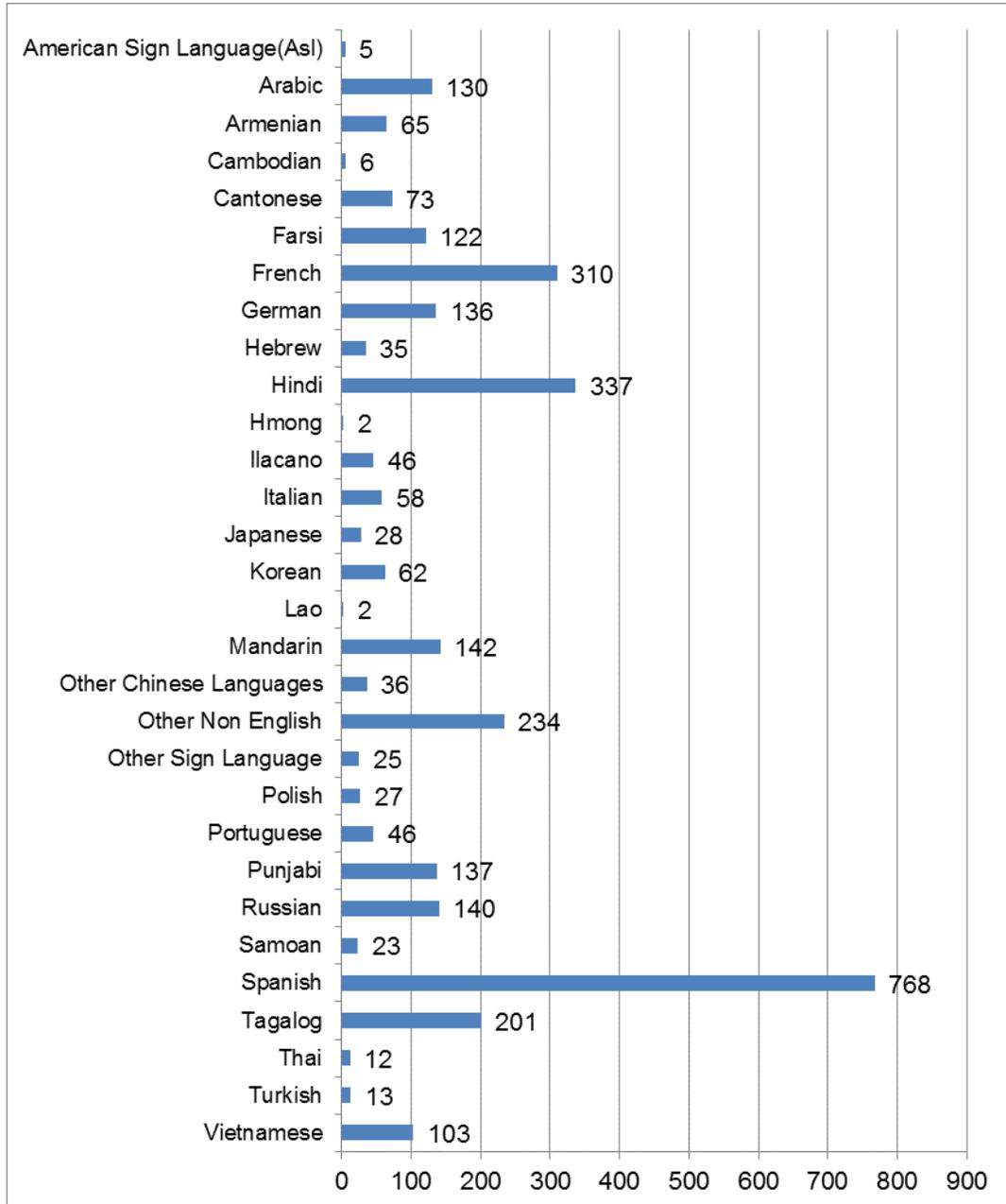
County	African- American / Black	American Indian / Native American	Asian	Caucasian / White	Latino / Hispanic	Other	Pacific Islander
Riverside	7	1	27	49	3	6	10
Sacramento	8	0	34	67	5	3	2
San Benito	*	*	*	*	*	*	*
San Bernardino	4	1	48	63	9	9	11
San Diego	5	3	66	274	36	12	7
San Francisco	10	1	43	220	11	4	4
San Joaquin	1	0	10	12	0	1	3
San Luis Obispo	0	2	4	50	2	0	1
San Mateo	0	0	15	81	4	2	5
Santa Barbara	1	0	0	37	5	0	0
Santa Clara	10	3	92	110	7	26	13
Santa Cruz	0	0	7	22	0	0	0
Shasta	0	0	1	6	2	0	0
Sierra	*	*	*	*	*	*	*
Siskiyou	0	0	1	0	0	0	0
Solano	2	0	6	16	1	0	6
Sonoma	0	0	1	45	1	0	0
Stanislaus	0	0	10	12	1	0	3
Sutter	1	1	0	7	0	0	1
Tehama	*	*	*	*	*	*	*
Trinity	*	*	*	*	*	*	*
Tulare	2	0	1	4	3	0	0
Tuolumne	0	0	0	3	0	0	1
Ventura	0	0	10	39	4	6	7
Yolo	0	0	3	16	2	0	0
Yuba	*	*	*	*	*	*	*
<b>TOTAL</b>	<b>143</b>	<b>20</b>	<b>805</b>	<b>2,504</b>	<b>259</b>	<b>159</b>	<b>248</b>

\* No data available.

**Language**

Figure 23 represents the numbers of Psychiatrists reporting language abilities other than English; 31 different languages were noted in Board licensure data. Of a total 3,324 Psychiatrists that reported a second language ability, the highest numbers of Psychiatrists spoke Spanish, Hindi, or French.

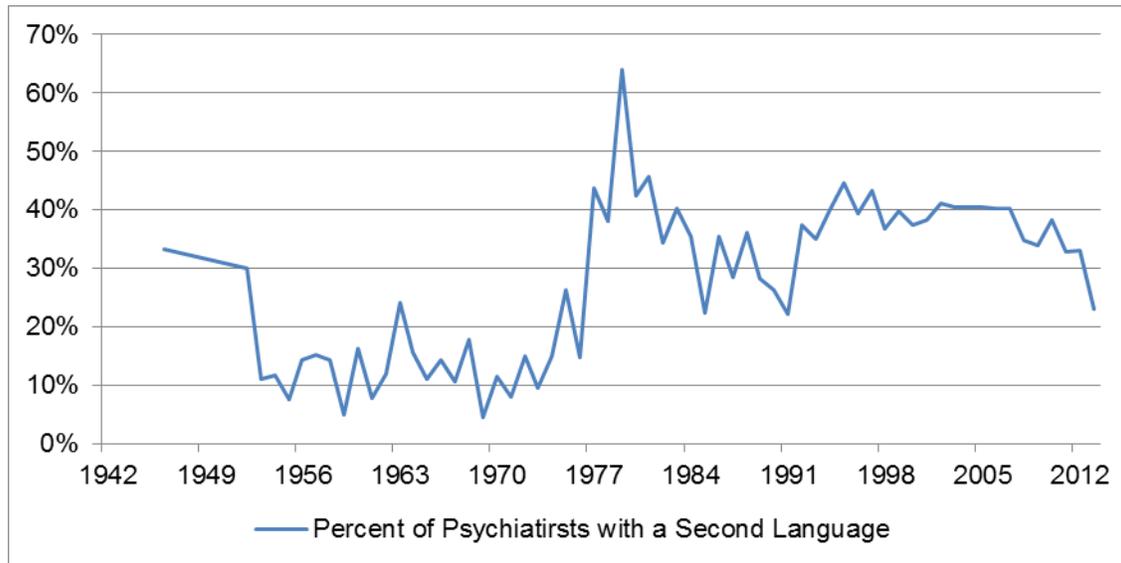
**Figure 23: Psychiatrist Second Languages, Board Licensure Data, 2013 (n=3,324)**



Source: Medical Board of California (2013)

Figure 24 depicts the percent of new Psychiatrists who reported speaking a second language, by license issue year. High percentages of Psychiatrists with a second language capability were issued licenses in the late 1970s; trends have been inconsistent following that late 1970s spike. In the recent 2000s, the percentages of Psychiatrists with a second language decreased.

**Figure 24: Percent of New Psychiatrists with a Second Language by Issue Year, Board Licensure Data, 2013**



Source: Medical Board of California (2013)

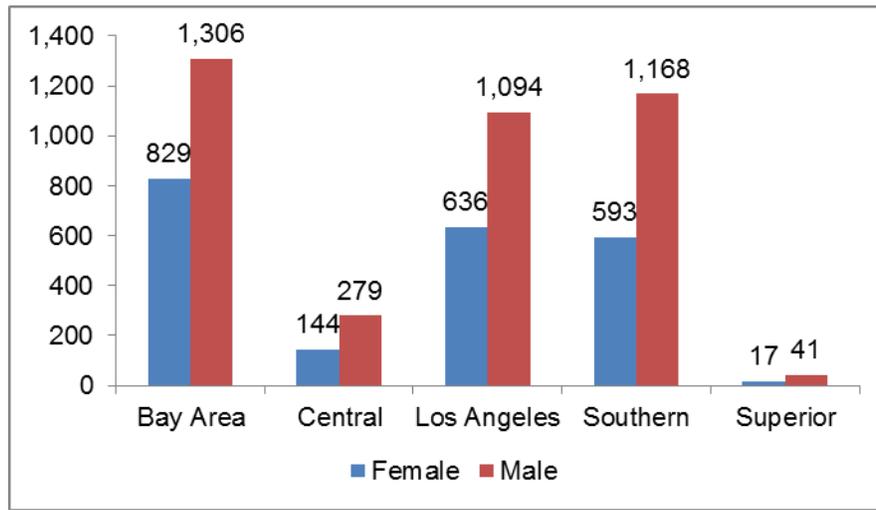
**NPI Data**

There were 6,107 Psychiatrists, across 51 counties, in NPI data. Psychiatrists in NPI data represented 72% of all Board-licensed Psychiatrists in California. This means that 72% of the state’s Board-licensed Psychiatrists had registered with NPI and were likely to provide Medicare- or Medi-Cal-funded services. A complete list of Psychiatrist counts by county is available in Table 80 in the Appendix.

**MHSA Region**

As Figure 25 shows, the Bay Area region contained the highest percentage of NPI-registered Psychiatrists (35%, n=2,135), and the Superior region contained the lowest (1%, n=58). Across all five MHSA Regions, males occupied a higher percentage of Psychiatrist positions (64%, n=3,888) than females (36%, n=2,219). While the Superior region presented Psychiatrist gender distributions similar to that of the other MHSA Regions, it contained significantly fewer Psychiatrists (n=58).

**Figure 25: Psychiatrists by MHSA Region and Gender, NPI Data, 2013 (n=6,107)**

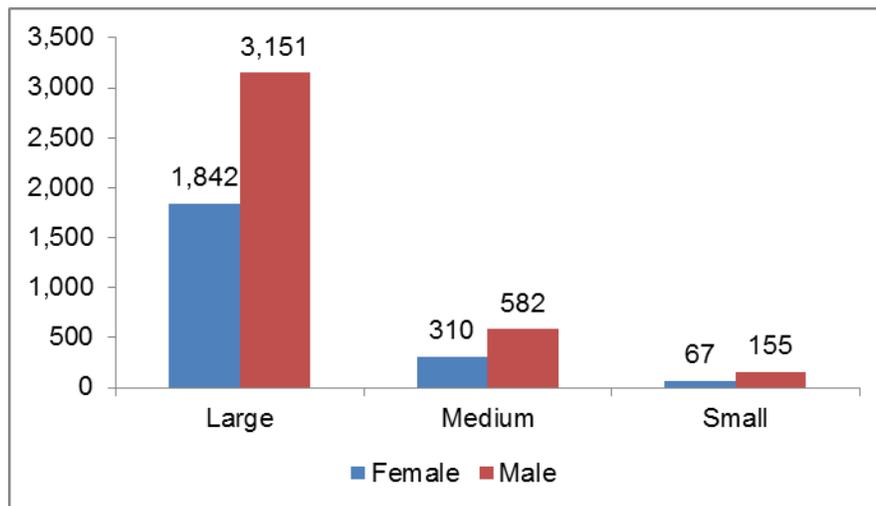


Source: NPI Data Dissemination File (2013)

**County Size**

As detailed in Figure 26, large counties contained 82% (n=4,993) of all Psychiatrist positions, with medium counties containing 15% (n=892), and small counties containing the remaining 4% (n=222). Consistent with the MHSA regional trend described above, males held larger numbers of Psychiatrist positions than females across all county sizes.

**Figure 26: Psychiatrists by County Size and Gender, NPI Data, 2013 (n=6,107)**

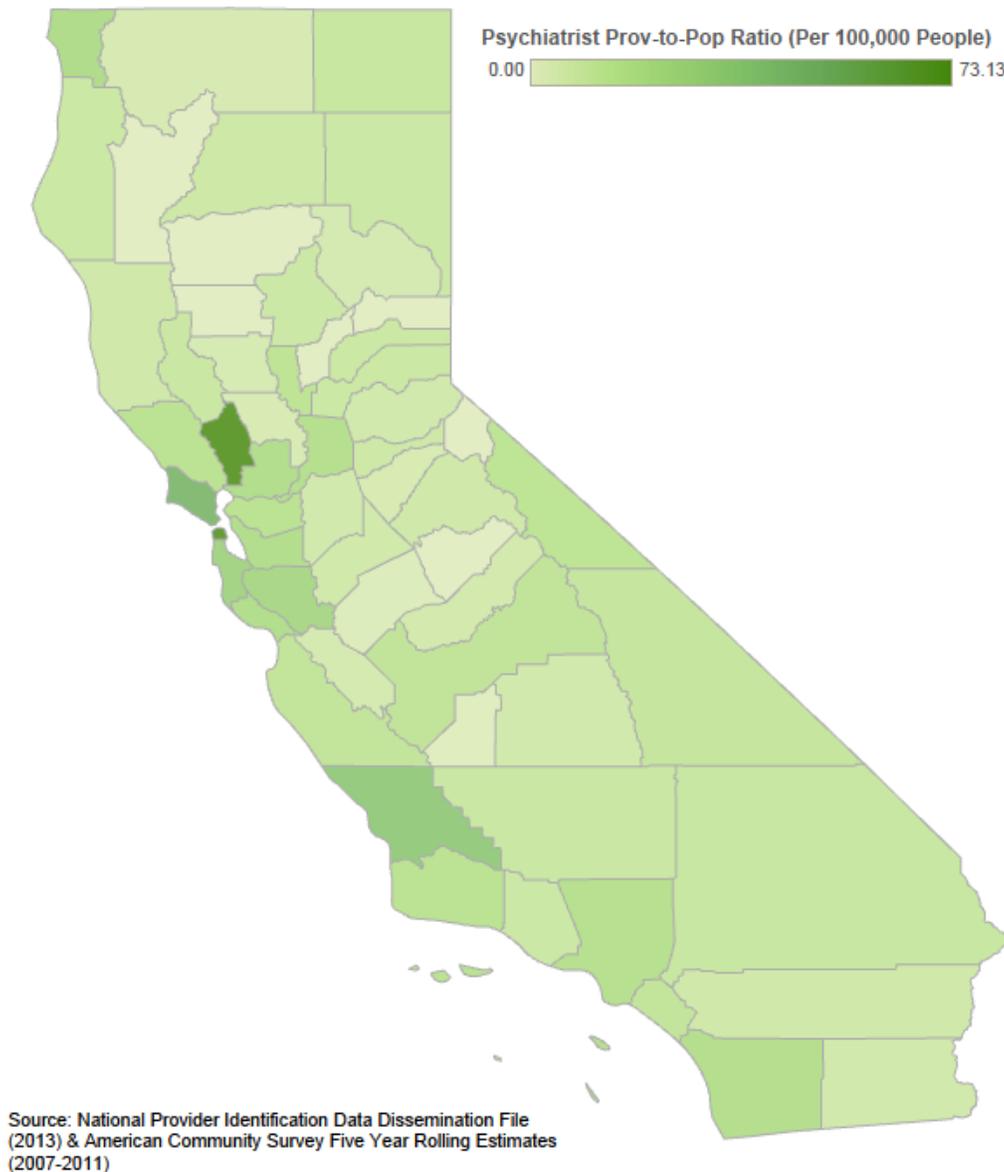


Source: NPI Data Dissemination File (2013)

### Provider-to-Population Ratios

Figure 27 visually represents the Psychiatrist-to-population ratios from NPI data. These ratios represent the number of Psychiatrists per 100,000 persons in the county. A complete list of Psychiatrist-to-population ratios by county is available in Table 80 in the Appendix.

**Figure 27: Map of Psychiatrists-to-Population Ratio by County, NPI Data, 2013**



Sources: NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 19 displays Psychiatrist-to-population ratios by MHA Region, by Board and NPI data. In Board data, there were 22.7 Board-licensed Psychiatrists for every 100,000 persons in the state. Across the MHA Regions, the Bay Area region had the greatest total Psychiatrist count and the highest Psychiatrist-to-population ratio. Despite large differences in total Psychiatrist

counts in the Central, Los Angeles, and Superior regions, Psychiatrist-to-population ratios were relatively similar.

In NPI data, there were 16.5 Psychiatrists per every 100,000 persons in the state. The Bay Area region had the highest total count and Psychiatrist-to-population ratio among all the MHSAs. While the total count of Psychiatrists in the Southern region was similar to the total count of Psychiatrists in the Los Angeles region, the Southern region Psychiatrist-to-population ratio was relatively lower. The Central and Superior regions had the lowest Psychiatrist-to-population ratios across the state.

**Table 19: Psychiatrist by MHSAs Region, Board Licensure and NPI Data, 2013**

MHSA Region	Board, Number of Psychiatrist	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Psychiatrist	NPI Prov-to-Pop Ratio (per 100,000 persons)
Bay Area	2,766	35.4	2,122	27.2
Central	859	15.4	571	10.2
Los Angeles	2,374	24.3	1,730	17.7
Southern	2,242	17.6	1,604	12.6
Superior	152	14.5	80	7.6
<b>TOTAL</b>	<b>8,393</b>	<b>22.7</b>	<b>6,107</b>	<b>16.5</b>

Sources: Medical Board of California (2013), NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 20 displays Psychiatrist-to-population ratios by county size, by Board and NPI data.<sup>58</sup> At the statewide level, there were 22.7 Board-licensed Psychiatrists per 100,000 persons, and 16.5 NPI Psychiatrists per 100,000 persons.

In Board data, the Psychiatrist-to-population ratio was higher in large counties, relative to medium and small counties. Thus, large counties had the highest total count of Psychiatrists and the largest concentration of Psychiatrists “(23.1) per 100,000 persons” in the state. The Psychiatrist-to-population ratio was lowest for small counties, where there were 18.3 Psychiatrists per 100,000 persons.

NPI data shows the pool of Psychiatrists who were likely to provide public services. NPI Psychiatrist-to-population ratios show the number of Psychiatrists likely to provide public services per 100,000 persons. In NPI data, large counties again had a higher Psychiatrist-to-population ratio relative to medium and small counties. The gap in Psychiatrist-to-population

<sup>58</sup> Populations in the provider-to-population ratios were calculated using the ACS Five-Year Rolling Average Population estimates per county (2007-2011). County populations were scaled by 100,000, in line with previous studies on healthcare provider-to-population ratios. County populations were used to create aggregate population measures by total persons in small, medium, and large counties; and by total persons in MHSAs regions. The reference file of county, county size, MHSAs region, and population is available in the Appendix.

ratios was greater in NPI data than in Board data, implying that smaller counties likely had lower proportions of Psychiatrists that serve in the public mental health system.

**Table 20: Psychiatrist by County Size, Board Licensure and NPI Data, 2013**

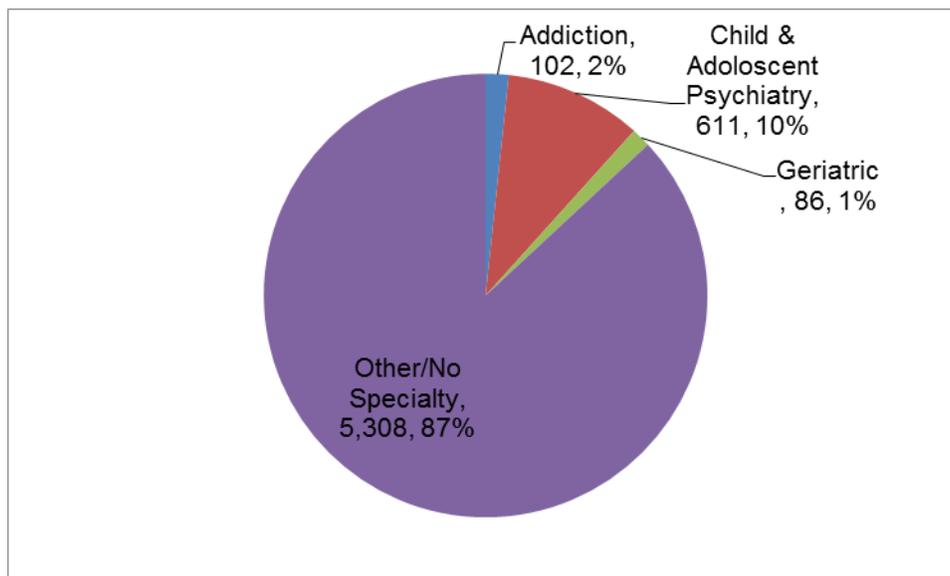
County Size	Board, Number of Psychiatrist	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Psychiatrist	NPI Prov-to-Pop Ratio (per 100,000 persons)
Large	6,728	23.1	4,993	17.2
Medium	1,293	22.1	892	15.2
Small	372	18.3	222	10.9
<b>TOTAL</b>	<b>8,393</b>	<b>22.7</b>	<b>6,107</b>	<b>16.5</b>

Sources: Medical Board of California (2013), NPI Data Dissemination File (2013), American Community Survey (2007-2011)

### Psychiatry Sub-Specialties

In NPI data, there were three Psychiatry sub-specialties of interests: 1) Addiction; 2) Child and Adolescent; and 3) Geriatric. Figure 28 shows the distribution of sub-specialist Psychiatrists across the state. The counts of providers in the Psychiatry sub-specialties were relatively low compared to the total count of all Psychiatrists, with 87% of Psychiatrists reporting no specific specialty.<sup>59</sup> All of the Psychiatrists and Psychiatry sub-specialists in NPI data were included together as “Psychiatrists” in this report’s analyses and forecasting procedures.

**Figure 28: Psychiatrist by Specialty Area, NPI Data, 2013 (n=6,107)**



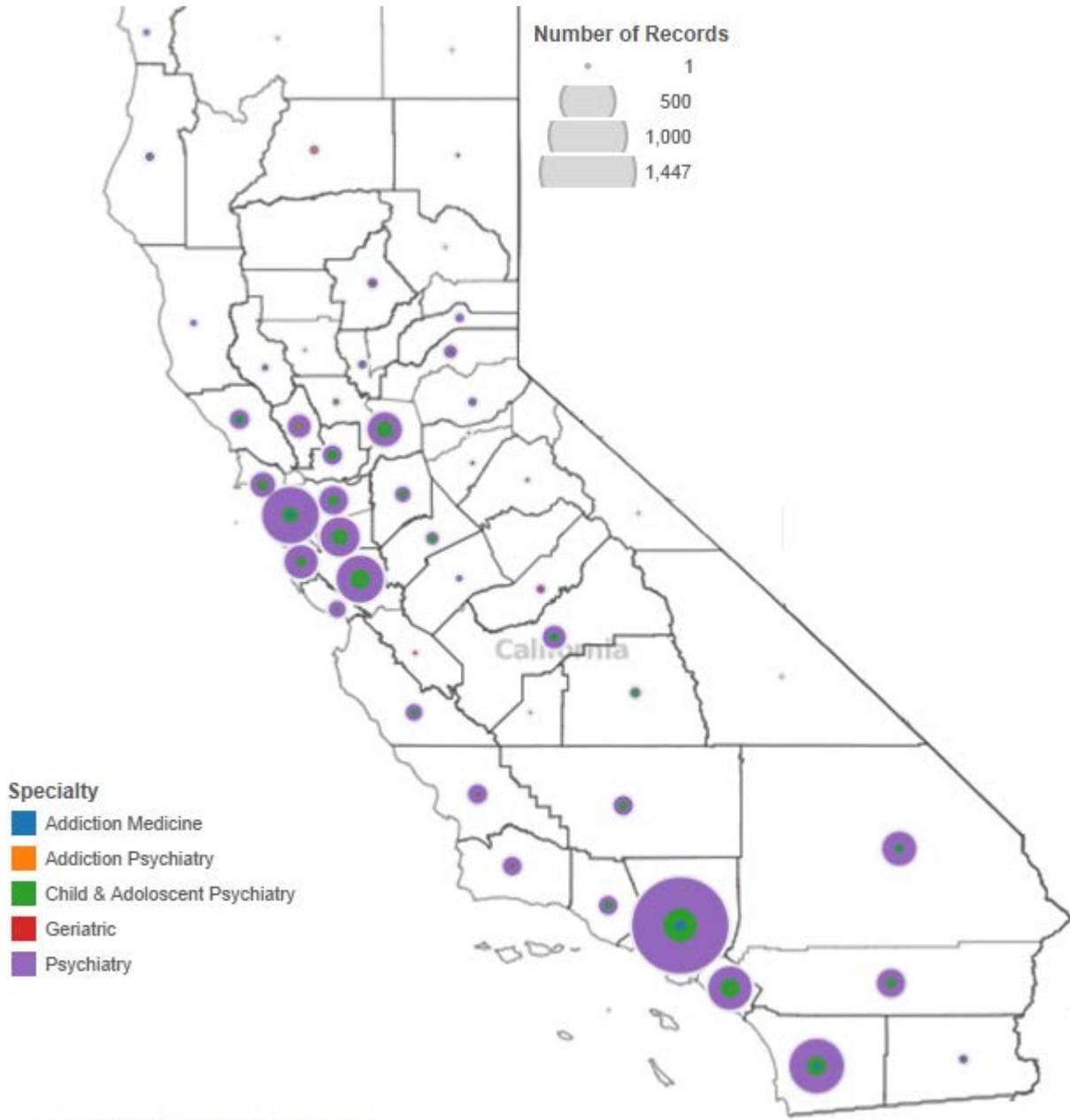
Source: NPI Data Dissemination File (2013)

<sup>59</sup> A complete list of the psychiatry sub-specialties is available in Table 2, which lists the NPI taxonomy code with a definition and sub-specialty.

Figure 29 visually represents the distribution of the four psychiatry sub-specialties in NPI data. Different colors represent the different types of Psychiatry sub-specialties, and sizes represent the number of Psychiatrists with that sub-specialty. The location of each dot represents the county in which the provider was registered with NPI.

The distribution of providers with child and adolescent psychiatry sub-specialties was concentrated in the Bay Area, Los Angeles, and Southern regions of the state. In the counties with low concentrations of Psychiatry sub-specialty providers, providers with Psychiatry specialties in children/adolescents were the most abundant. Lastly, providers with Psychiatry sub-specialties were almost exclusively located in the state's Bay Area, Los Angeles, and Southern regions.

Figure 29: Map of Distribution of Psychiatry Sub-Specialties in California, NPI Data, 2013



Source: National Provider Identification Data Dissemination File (2013).

Source: NPI Data Dissemination File (2013)

Table 21 lists the number of Psychiatrists across for each California county, as found in NPI data, by sub-specialty. The data presented in Table 21 corresponds with the map in Figure 29.

**Table 21: Distribution of Psychiatry Sub-Specialties in California, NPI Data, 2013**

County	Addiction Medicine	Addiction Psychiatry	Behavioral	Child & Adolescent Psychiatry	Clinical Neurophysiology	Forensic	Geriatric	Psychiatry
Alameda	4	3	0	32	4	5	3	239
Alpine	*	*	*	*	*	*	*	*
Amador	0	0	0	0	0	1	0	2
Butte	0	0	0	2	0	0	1	16
Calaveras	0	0	0	1	0	0	0	1
Colusa	0	0	0	0	0	0	0	1
Contra Costa	1	3	0	20	1	2	2	129
Del Norte	0	0	0	0	0	0	0	5
El Dorado	0	0	0	1	0	0	0	10
Fresno	2	0	1	11	2	3	0	92
Glenn	*	*	*	*	*	*	*	*
Humboldt	0	0	0	1	1	0	0	10
Imperial	1	0	0	1	0	0	1	8
Inyo	0	0	0	0	0	0	0	2
Kern	1	2	0	8	0	1	0	65
Kings	0	0	0	0	0	0	0	2
Lake	0	0	0	1	0	0	0	5
Lassen	0	0	0	1	0	0	0	2
Los Angeles	20	11	1	168	16	24	25	1,447
Madera	0	0	0	0	0	0	1	8
Marin	1	1	0	18	0	1	0	96
Mariposa	*	*	*	*	*	*	*	*
Mendocino	0	0	0	0	0	0	0	6
Merced	0	0	0	0	0	0	0	5
Modoc	0	0	0	0	0	0	0	1
Mono	0	0	0	0	0	0	0	2
Monterey	0	0	0	6	0	1	2	41
Napa	0	3	0	6	0	6	1	83
Nevada	0	0	0	0	0	0	0	9
Orange	2	4	2	53	4	5	5	294

County	Addiction Medicine	Addiction Psychiatry	Behavioral	Child & Adolescent Psychiatry	Clinical Neurophysiology	Forensic	Geriatric	Psychiatry
Placer	0	0	0	4	2	0	1	24
Plumas	0	0	0	0	0	0	0	1
Riverside	3	1	0	18	1	1	3	127
Sacramento	3	3	0	36	1	14	2	192
San Benito	0	0	0	0	0	0	1	2
San Bernardino	2	0	0	11	2	1	2	184
San Diego	6	3	0	55	6	13	11	465
San Francisco	5	4	0	34	5	12	8	501
San Joaquin	0	0	0	5	0	1	0	38
San Luis Obispo	0	0	0	4	1	26	3	60
San Mateo	0	0	0	13	0	7	0	172
Santa Barbara	0	0	0	1	0	1	1	58
Santa Clara	1	4	0	51	3	19	6	343
Santa Cruz	1	2	0	2	0	1	0	44
Shasta	0	1	0	0	0	1	0	12
Sierra	*	*	*	*	*	*	*	*
Siskiyou	0	0	0	0	0	0	0	2
Solano	0	0	0	13	1	6	1	60
Sonoma	1	0	0	8	0	1	2	59
Stanislaus	0	0	0	6	0	0	2	26
Sutter	0	0	0	1	0	0	0	12
Tehama	*	*	*	*	*	*	*	*
Trinity	*	*	*	*	*	*	*	*
Tulare	0	0	0	6	1	1	1	18
Tuolumne	0	0	0	2	0	0	0	2
Ventura	1	2	0	10	1	0	1	55
Yolo	0	0	0	1	0	0	0	7
Yuba	*	*	*	*	*	*	*	*
<b>TOTAL</b>	<b>55</b>	<b>47</b>	<b>4</b>	<b>611</b>	<b>52</b>	<b>154</b>	<b>86</b>	<b>5,045</b>

\* No data available.

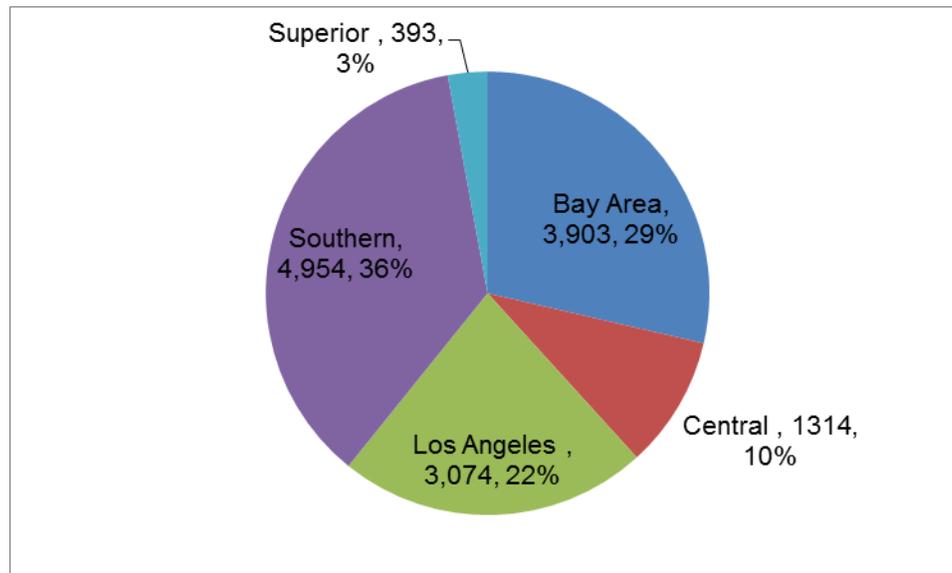
## Nurse Practitioner – Furnishing

### Board Licensure Data

Data on Board-licensed Nurse Practitioner furnishing (NP-F) providers was derived from the California Board of Registered Nurses. Figure 30 shows the distribution of NP-Fs across the state by MHSAs region. There were 13,638 Nurses in the Board of Registered Nurses data set with NP-F licenses.

Among these total 13,638 NP-Fs, the highest percentage was located in the Southern region of the state, followed by the Bay Area and Los Angeles regions. Consistent with overall provider trends, both the Central and Superior regions had the fewest overall NP-F counts and lowest percentage of NP-F providers. A complete list of Board-licensed NP-F counts by county is available in Table 83 in the Appendix.

**Figure 30: Nurse Practitioners, Furnishing by MHSAs Region, Board Licensure Data, 2013 (n=13,638)**



Source: California Board of Registered Nurses (2013)

### Provider-to-Population Ratios

Table 22 depicts the total counts and NP-F-to-population ratio of NP-F by MHSAs region and Board data. In Board data, the Bay Area region had a NP-F-to-population ratio of 50.0, the highest NP-F-to-population ratio relative to other MHSAs Regions. Despite major differences in total NP-F counts, the Southern and Superior regions had relatively similar NP-F-to-population ratios of 38.9 and 37.5, respectively. The Central region had the lowest NP-F-to-population ratio of 23.5 NP-Fs per 100,000 persons.

**Table 22: Nurse Practitioner-Furnishing by MHA Region, Board Licensure and NPI Data, 2013**

MHA Region	Board, Number of Nurse Practitioner Furnishing	Board Prov-to-Pop Ratio (per 100,00 persons)	NPI, Number of Nurse Practitioner Furnishing	NPI-Prov-to-Pop Ratio (per 100,000 persons)
Bay Area	3,903	50.0	*	*
Central	1,314	23.5	*	*
Los Angeles	3,074	31.4	*	*
Southern	4,954	38.9	*	*
Superior	393	37.5	*	*
<b>TOTAL</b>	<b>13,638</b>	<b>36.9</b>	*	*

\* No data available.

Sources: California Board of Registered Nurses (2013), American Community Survey (2007-2011)

Table 23 depicts the number of NP-Fs by county size and by Board data. In Board data, the highest NP-F-to-population ratio was in medium counties where there were 40.5 NP-Fs per 100,000 persons. Although there was substantial difference between the total NP-F counts in medium and small counties, small and medium counties had similar NP-F-to-population ratios. Despite having the highest total count of NP-Fs, large counties had the lowest the NP-F-to-population ratio.

**Table 23: Nurse Practitioner - Furnishing by County Size, Board Licensure and NPI Data, 2013**

County Size	Board, Number of Nurse Practitioner Furnishing	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Nurse Practitioner Furnishing	NPI-Prov-to-Pop Ratio (per 100,000 persons)
Large	10,471	36.0	*	*
Medium	2,370	40.5	*	*
Small	797	39.3	*	*
<b>TOTAL</b>	<b>13,638</b>	<b>36.9</b>	*	*

\* No data available.

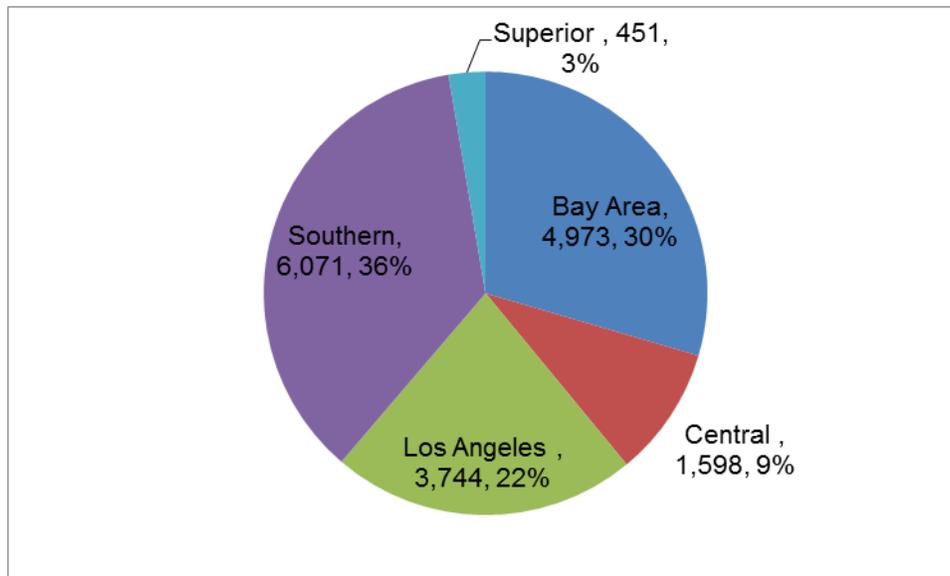
Sources: California Board of Registered Nurses (2013), American Community Survey (2007-2011)

## Nurse Practitioners

### Board Licensure Data

Data on Board-licensed Nurse Practitioners (NP) was derived from the California Board of Registered Nurses. Figure 31 shows the distribution of NPs across the state by MHSA region. There were 16,837 Nurses in the Board of Registered Nurses with a NP license. Among these 16,837 NPs, the largest percentage was concentrated in the Southern region, followed by the Bay Area and Los Angeles regions. A complete list of Board-licensed NP counts by county is available in Table 82 in the Appendix.

**Figure 31: Nurse Practitioners by MHSA Region, Board Licensure Data, 2013 (n=16,837)**



Source: California Board of Registered Nurses (2013)

### Provider-to-Population Ratios

Table 24 depicts the total count and NP-to-population ratios for NPs by MHSA Region and by Board data. The Bay Area region had the highest NP-to-population ratio. The Superior region had the lowest total count of NPs, but a higher NP-to-population relative to the Central and Los Angeles regions.

**Table 24: Nurse Practitioner by MHA Region, Board Licensure and NPI Data, 2013**

MHA Region	Board, Number of Nurse Practitioner	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Nurse Practitioner	NPI-Prov-to-Pop Ratio (per 100,000 persons)
Bay Area	4,973	63.7	*	*
Central	1,598	28.6	*	*
Los Angeles	3,744	38.3	*	*
Southern	6,071	47.7	*	*
Superior	451	43.0	*	*
<b>TOTAL</b>	<b>16,837</b>	<b>45.5</b>	*	*

\* No data available.

Sources: California Board of Registered Nurses (2013), American Community Survey (2007-2011)

Table 25 depicts the total counts and NP-to-population ratios of NPs by county size and by Board data. While large counties had the highest total count of NPs, large counties also had the lowest NP-to-population ratio.

**Table 25: Nurse Practitioner by County Size, Board Licensure and NPI Data, 2013**

County Size	Board, Number of Nurse Practitioner	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Nurse Practitioner	NPI-Prov-to-Pop Ratio (per 100,000 persons)
Large	12,894	44.3	*	*
Medium	2,982	50.9	*	*
Small	961	47.3	*	*
<b>TOTAL</b>	<b>16,837</b>	<b>45.5</b>	*	*

\* No data available.

Sources: California Board of Registered Nurses (2013), American Community Survey (2007-2011)

## Psychiatric Mental Health Nurse Practitioners

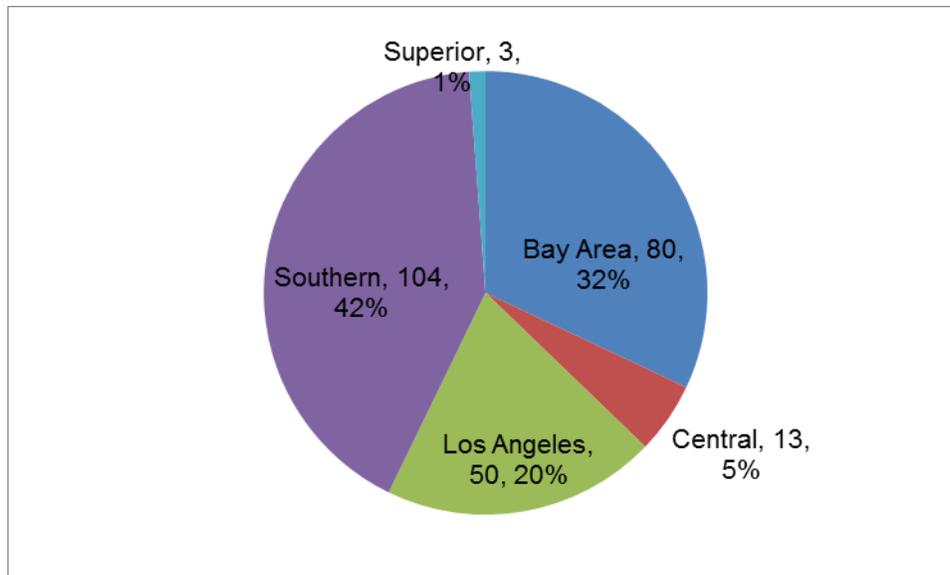
### Board Licensure Data

Data on Board-licensed Psychiatric Mental Health Nurse Practitioners (PMHNPs) was derived from the California Board of Registered Nurses. Board data was used to determine the total pool of Board-licensed PMHNP available in California, as well as their distribution across MHA Regions and county sizes.<sup>60</sup>

<sup>60</sup> Addresses listed in board data were assumed to represent the location of practice for each provider. Functionally, these addresses served as mailing addresses and could potentially be addresses of residence, practice, or any other that the licensee chose to provide. However, the following analysis assumes that the board licensee listed their location of practice. This address was matched to its respective California county.

PMHNPs were defined in Board data as Nurse Practitioners with psychiatric mental health specialties. Among the total 16,837 Board-licensed Nurse Practitioners, approximately 250, or 1.5%, had a psychiatric mental health specialty. In Board data, there were 250 PMHNPs located across 30 counties in California. Figure 32 shows the distribution of PMHNPs across the state. A complete list of Board-licensed PMHNP counts by county is available in Table 81 in the Appendix.

**Figure 32: Psychiatric Mental Health Nurse Practitioners by MHSAs Region, Board Licensure Data, 2013 (n=250)**



Source: California Board of Registered Nurses (2013)

Of the total 250 PMHNPs, 42% were associated with addresses in the Southern region (n=104). The next largest percentage of PMHNPs was in the Bay Area (32%, n=80). The Central and Superior regions had the smallest shares of PMHNPs in the state.

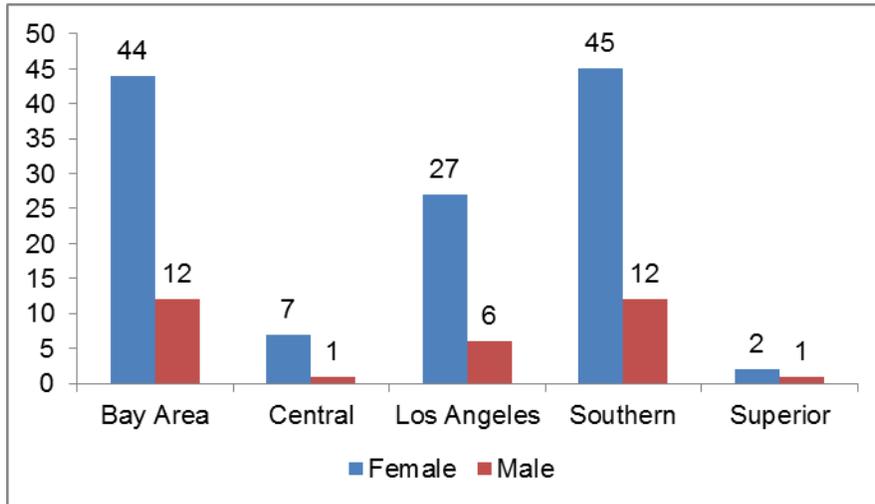
#### **NPI Data**

There were 157 PMHNPs, across 27 counties, in NPI data. PMHNPs in NPI data represented 65.2% of all Board-licensed PMHNPs in California. This means that 65.2% of the state’s Board-licensed PMHNPs had registered with NPI and were likely to provide Medicare or Medi-Cal-funded services. A complete list of PMHNP counts by county is available in Table 81 in the Appendix.

#### **MHSAs Region**

The Bay Area and Southern regions encompassed the greatest percentages of PMHNPs, 35% (n=156) and 34% (n=57), respectively. As detailed in Figure 33, the Superior region contained the smallest percentage (2%, n=3). More PMHNPs were females than males across all MHSAs regions. Overall, females comprised 80% (n=125) of all PMHNPs.

**Figure 33: Psychiatric Mental Health Nurse Practitioners by MHS Region and Gender, NPI Data, 2013 (n=157)**

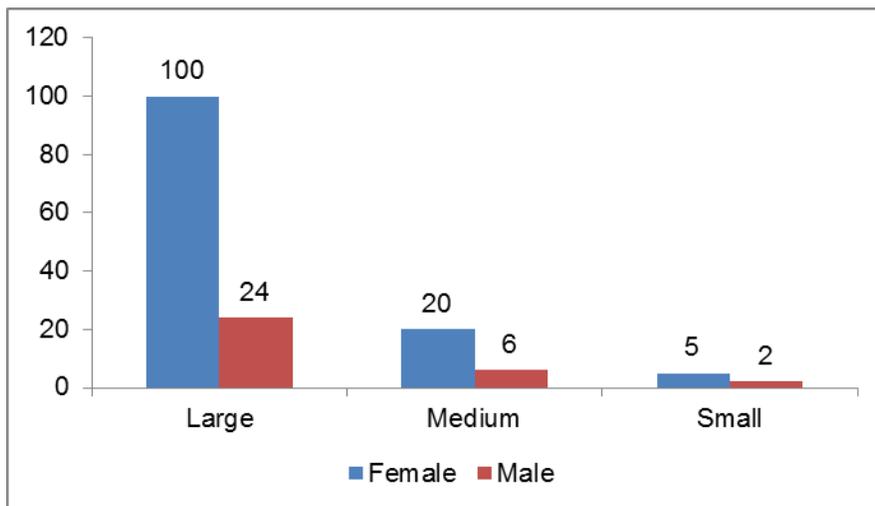


Source: NPI Data Dissemination File (2013)

### County Size

Large counties contained 79% (n=124) of PMHNPs. As outlined in Figure 34, females represented larger numbers of PMHNPs than males across all county sizes.

**Figure 34: Psychiatric Mental Health Nurse Practitioners by County Size and Gender, NPI Data, 2013 (n=157)**



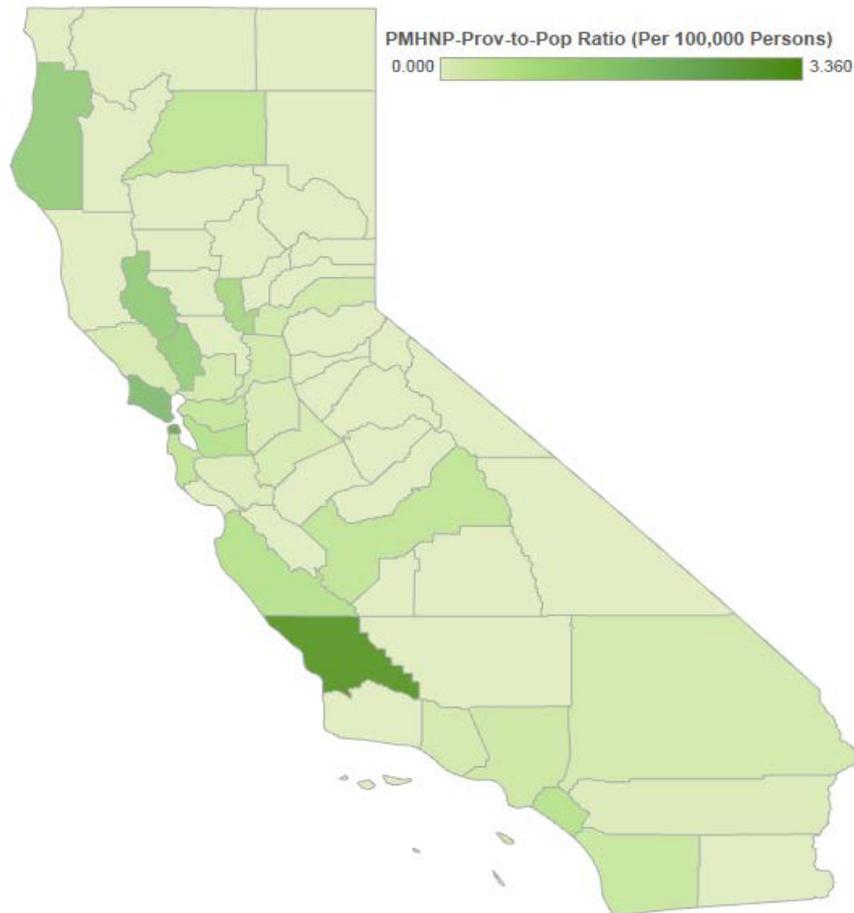
Source: NPI Data Dissemination File (2013)

### Provider-to-Population Ratios

Figure 35 visually represents the PMHNP-to-population ratios from NPI data. These ratios represent the number of PMHNPs per 100,000 persons in the county. A complete list of PMHNP-to-population ratios by county is available in Table 81 in the Appendix.

In alignment with the overall distribution of PMHNP counts, the highest PMHNP-to-population ratios were in the Bay Area and Southern regions of the state.

**Figure 35: Map of Psychiatric Mental Health Nurse Practitioner-to-Population Ratios by County, NPI Data, 2013**



Sources: NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 26 shows the total counts and PMHNP-to-population ratios by MHSA Region in Board and NPI data. In Board data, the Bay Area region had the highest PMHNP-to-population ratio among MHSA Regions. The Central and Superior regions had the lowest PMHNP-to-population ratios.

In NPI data, the Bay Area region again had the highest PMHNP-to-population ratio among all the MHSA Regions. While the total counts of PMHNPs in the Southern and Bay Area regions were similar, the Southern region had a lower PMHNP-to-population ratio. Similarly, the Los Angeles and Superior regions had disparate total PMHNP counts, but similar PMHNP-to-population ratios of 0.3 providers per 100,000 persons. The Central region had the lowest

PMHNP-to-population ratios in the state. Statewide, there were 0.4 PMHNPs per 100,000 persons.

**Table 26: Psychiatric Mental Health Nurse Practitioner by MHA Region, Board Licensure and NPI Data, 2013**

MHA Region	Board, Number of Psychiatric Mental Health Nurse Practitioner	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Psychiatric Mental Health Nurse Practitioner	NPI-Prov-to-Pop Ratio (per 100,000 persons)
Bay Area	80	1.0	56	0.7
Central	13	0.2	8	0.1
Los Angeles	50	0.5	33	0.3
Southern	104	0.8	57	0.4
Superior	3	0.3	3	0.3
<b>TOTAL</b>	<b>250</b>	<b>0.7</b>	<b>157</b>	<b>0.4</b>

Sources: California Board of Registered Nurses (2013), NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 27 displays PMHNP-to-population ratios by county size, by Board and NPI data. In Board data, the PMHNP-to-population ratio was higher in medium counties relative to large and small counties. NPI data showed the pool of PMHNPs who are likely to provide public services. In NPI data, overall, PMHNP-to-population ratios were low across all county sizes, despite variation in the total counts of PMHNPs by county size.

**Table 27: Psychiatric Mental Health Nurse Practitioner by County Size, Board Licensure and NPI Data, 2013**

County Size	Board, Number of Psychiatric Mental Health Nurse Practitioner	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Psychiatric Mental Health Nurse Practitioner	NPI-Prov-to-Pop Ratio (per 100,000 persons)
Large	193	0.7	124	0.4
Medium	52	0.9	26	0.4
Small	5	0.2	7	0.3
<b>TOTAL</b>	<b>250</b>	<b>0.7</b>	<b>157</b>	<b>0.4</b>

Sources: California Board of Registered Nurses (2013), NPI Data Dissemination File (2013), American Community Survey (2007-2011)

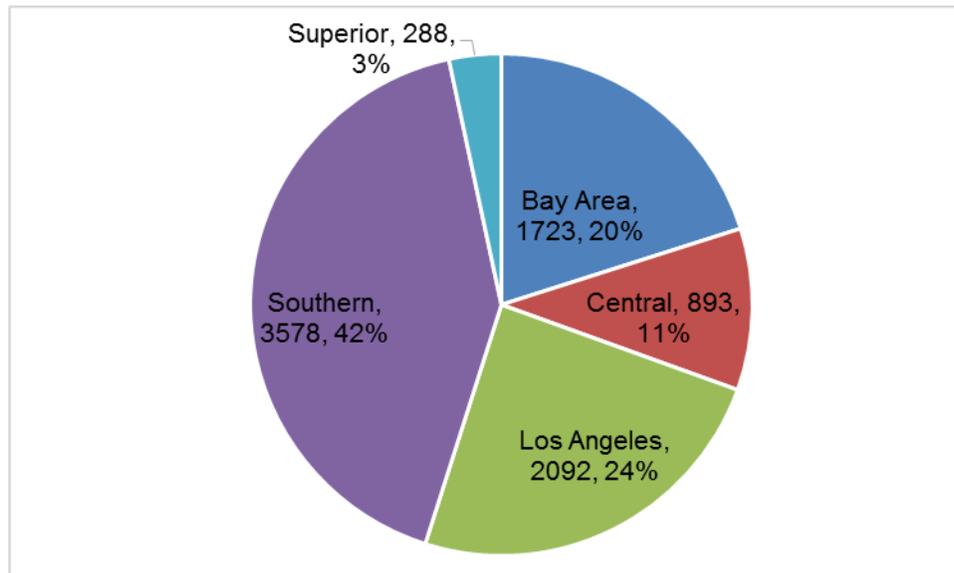
## Physician Assistant

### Physician Assistant Committee Data

Board data on Physician Assistants (PA) was derived from the Physician Assistant Committee of California.<sup>61</sup> Committee data was used to determine the total pool of Committee-licensed PAs available in California, and their distribution across MHSR Regions county sizes.<sup>62</sup>

According to Committee data, there were 8,574 licensed (currently active licenses) PAs in California. Figure 36 shows the distribution of Committee-licensed PAs across the state by MHSR region. The Southern region has the largest share of PAs across the state, accounting for 42% (n=3,578). The Central and Superior regions hold the smallest shares of the state's PAs. A complete list of Committee-licensed PA counts by county is available in Table 84 in the Appendix.

**Figure 36: Physician Assistant by MHSR Region, Committee Data, 2013 (n= 8,574)**



Source: California Physician Assistant Committee (2013)

<sup>61</sup> The Physician Assistant Committee of California does not issue a special license or specialty for physician assistants with psychiatric mental health specialties. Therefore, this data reflects a profession that can serve in the PMHS, but the counts do not reflect providers who necessarily serve in the PMHS.

<sup>62</sup> Addresses listed in Committee data were assumed to represent the location of practice for each provider. Functionally, these addresses served as mailing addresses and could potentially be addresses of residence, practice, or any other that the licensee chose to provide. However, the following analysis assumes that the Committee licensee listed their location of practice. This address was matched to its respective California county.

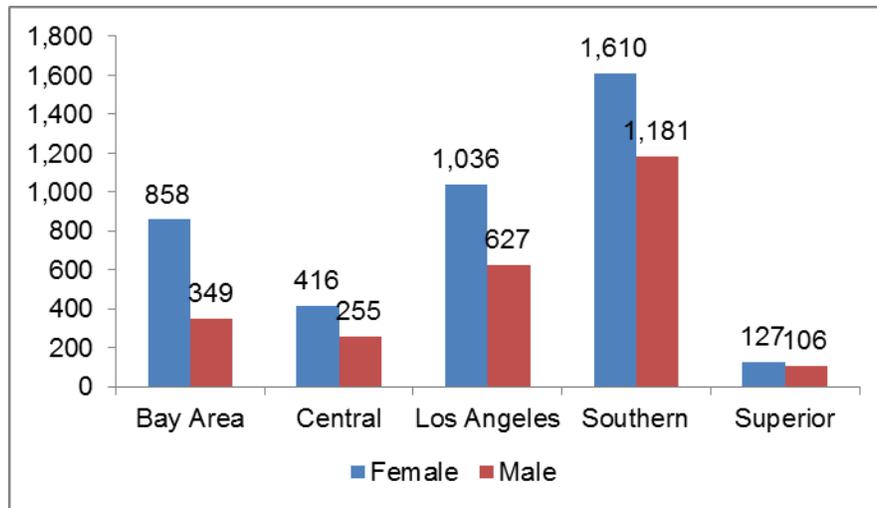
**NPI Data**

There were 6,599 PAs, across all 58 counties, in NPI data. PAs in NPI data represented 77% of all Board-licensed PA’s in California. This means that 77% of the state’s Board-licensed PAs had registered with NPI and were likely to provide Medicare- or Medi-Cal-funded services. A complete list of PA counts by county is available in Table 84 in the Appendix.

**MHSA Region**

As shown in Figure 37, across MHSA Regions, the percentages of the state’s total distribution of PAs ranged from 43% (n=2,791) in the Southern region to 4% (n=233) in the Superior region. Females occupied larger numbers of PA positions than males in all MHSA Regions. Overall, females comprised 62% (n=4,047) of all PA positions.

**Figure 37: Physician Assistants by MHSA Region and Gender, NPI Data, 2013 (n=6,565)**

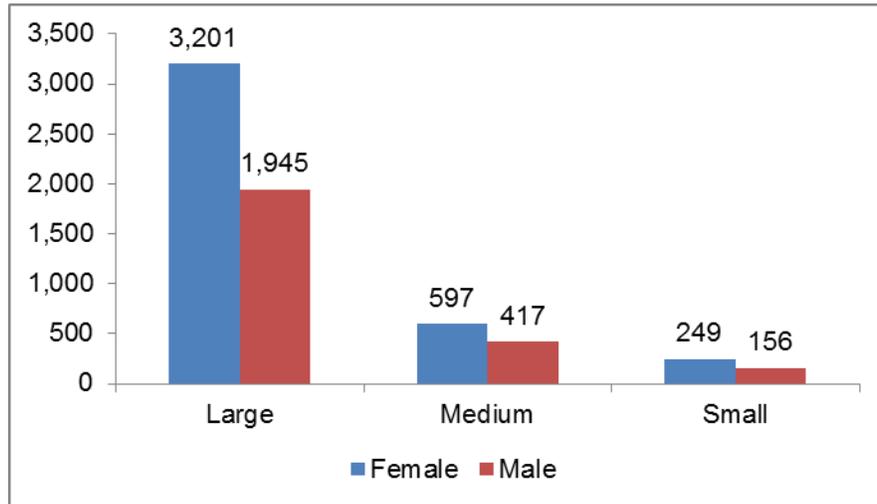


Source: NPI Data Dissemination File (2013)

### County Size

Large counties contained 78% (n=5,146) of PAs. Females represented larger numbers of PA positions than males across all county sizes, as outlined in Figure 38.

**Figure 38: Physician Assistants by County Size and Gender, NPI Data, 2013 (n=6,565)**

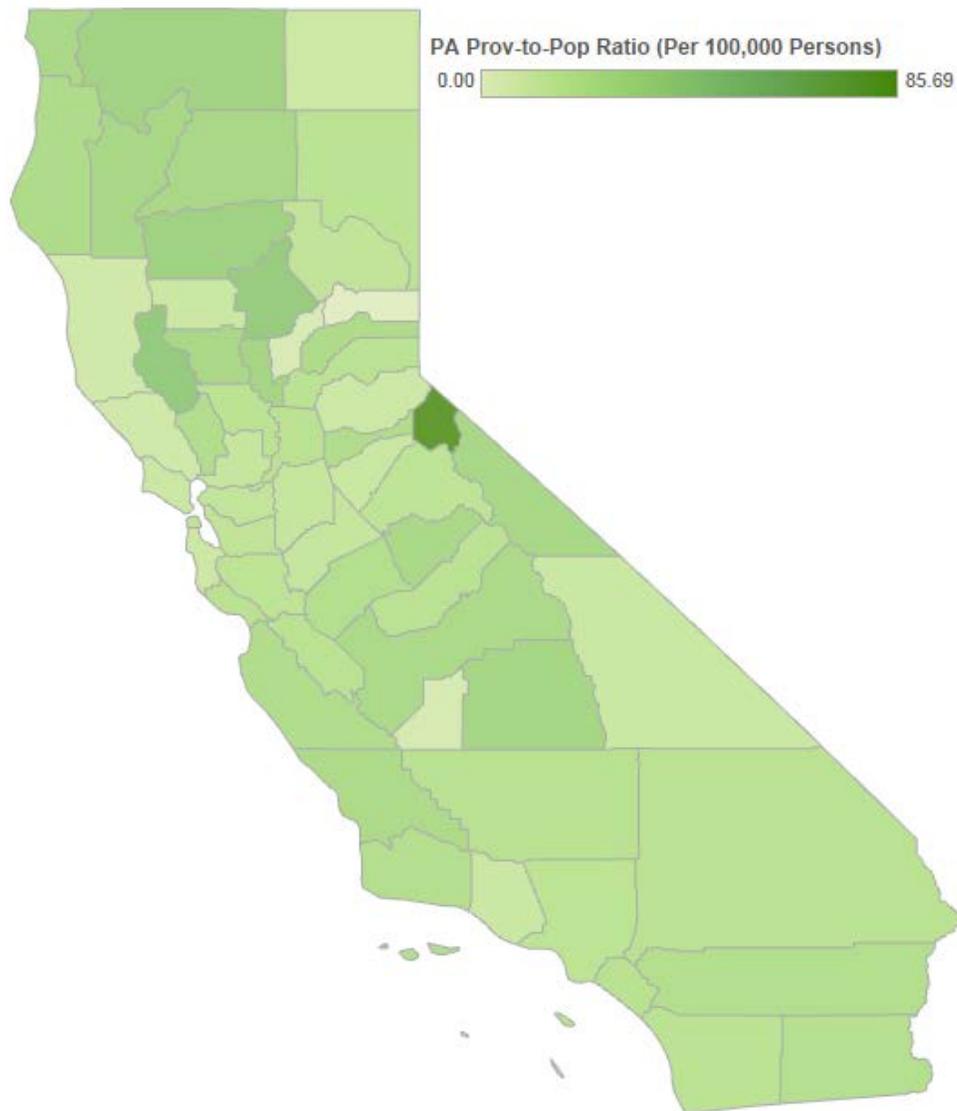


Source: NPI Data Dissemination File (2013)

### Provider-to-Population Ratios

Figure 39 visually represents the PA-to-population ratios from NPI data. These ratios represent the number of PAs per 100,000 persons in the county. A complete list of provider-to-population ratios by county is available in Table 84 in the Appendix.

Figure 39: Physician Assistant-to-Population Ratios by County, NPI Data, 2013



Sources: NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 28 depicts the total counts and PA-to-population ratio by MHSR Region, by Committee data, and by NPI data. In Committee data, statewide, there were 23.2 PAs per 100,000 persons. The PA-to-population ratio was high relative to many other Licensed, Prescribing professions (comparable only to the state Psychiatrist-to-population ratio).

Consistent with the regional distributions of Nurse Practitioners and Nurse Practitioners, Furnishing (depicted in Figure 31 and Figure 30, respectively), the Southern region had a larger total PA count than other MHSR Regions. The Southern region also had the highest PA-to-population ratio. The Superior region had a much smaller total count, but had a similarly high PA-to-population ratio.

NPI data depicts PAs who were likely to provide public services. Statewide, there were 17.8 PAs for every 100,000 persons. In NPI data, much like Committee data, the Southern region had the highest total count and nearly the highest PA-to-population ratio (21.9). The Superior region had the lowest total count but the highest PA-to-population ratio.

**Table 28: Physician Assistant by MHSA Region, Board Licensure and NPI Data, 2013**

MHSA Region	Committee, Number of Physician Assistant	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Physician Assistant	NPI-Prov-to-Pop Ratio (per 100,000 persons)
Bay Area	1,723	22.1	1,207	15.5
Central	893	16.0	671	12.0
Los Angeles	2,092	21.4	1,663	17.0
Southern	3,578	28.1	2,791	21.9
Superior	288	27.5	233	22.2
<b>TOTAL</b>	<b>8,574</b>	<b>23.2</b>	<b>6,565</b>	<b>17.8</b>

*Sources:* California Physician Assistant Committee (2013), NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 29 displays total counts and PA-to-population ratios for PAs by county size in Committee and NPI data. In Committee data, large counties had substantially larger total counts of PAs relative to medium and small counties. There was less disparity in the NPI PA-to-population ratios across county sizes. Small counties had the highest PA-to-population ratio (25.5), while large counties had the lowest PA-to-population ratio (22.9).

In NPI data, large counties have a substantially larger total count of PAs relative to medium and small counties, but less disparity among the PA-to-population ratios. Again, small counties had the highest PA-to-population ratio of 20.0 PAs per 100,000 persons. PA-to-population ratios were relatively similar among large and medium counties, despite large differences in total counts.

**Table 29: Physician Assistant by County Size Board Licensure and NPI Data, 2013**

County Size	Committee, Number of Physician Assistant	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Physician Assistant	NPI-Prov-to-Pop Ratio (per 100,000 persons)
Large	6,648	22.9	5,146	17.7
Medium	1,409	24.1	1,014	17.3
Small	517	25.5	405	20.0
<b>TOTAL</b>	<b>8,574</b>	<b>23.2</b>	<b>6,565</b>	<b>17.8</b>

*Sources:* California Physician Assistant Committee (2013), NPI Data Dissemination File (2013), American Community Survey (2007-2011)

## Physicians with Addiction Specialties

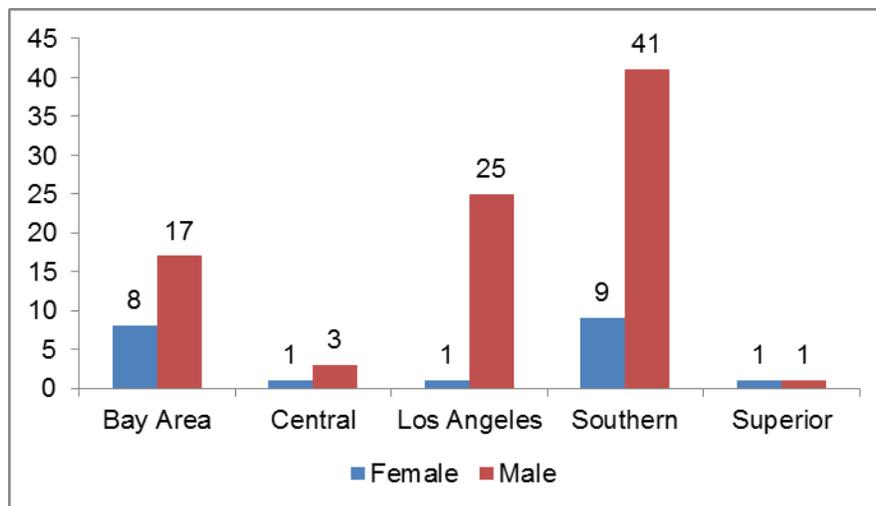
### NPI Data

There were 107 Physicians with Addiction Specialties, across 22 counties, in NPI data. A complete list of Physicians with Addiction Specialties by county is available in Table 85 in the Appendix.

### MHSA Region

The Southern region represented nearly half of all Physicians with Addiction Specialties (47%, n=50). As shown in Figure 40, males represented a larger number of Physicians with Addiction Specialties positions than females in all MHSA Regions except the Superior region, where there were one male and one female Physician with addiction specialties. Overall, males comprised 81% (n=87) of all Physicians in addiction specialties positions.

**Figure 40: Physicians with Addiction Specialties by MHSA Region and Gender, NPI Data, 2013 (n=107)**

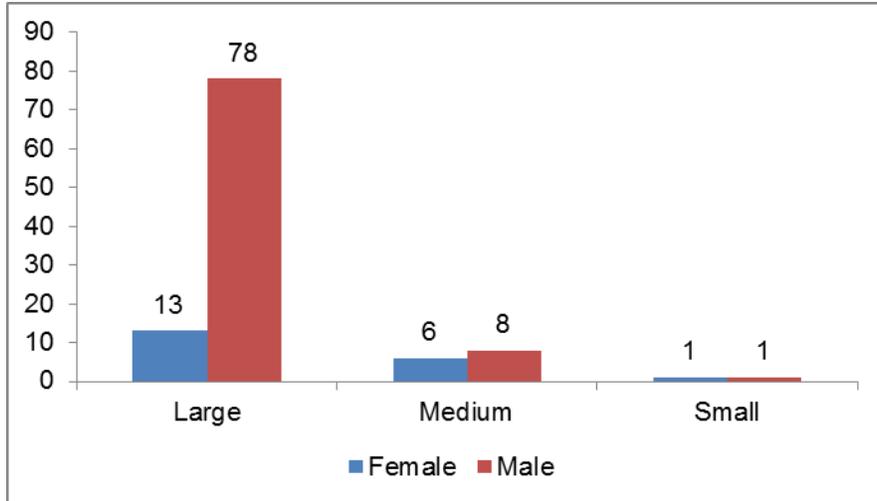


Source: NPI Data Dissemination File (2013)

### County Size

Large counties contained the majority of Physicians with Addiction Specialties (85%, n=92). As detailed in Figure 41, males represented larger numbers of Physician with addiction specialty positions than females across all county sizes, except for small counties where there were one male and one female Physician with addiction specialties. The total counts differ significantly across county sizes, with two total Physicians with Addiction Specialties in small counties and 91 in large counties.

**Figure 41: Physicians with Addiction Specialties by County Size and Gender, NPI Data, 2013 (n=107)**

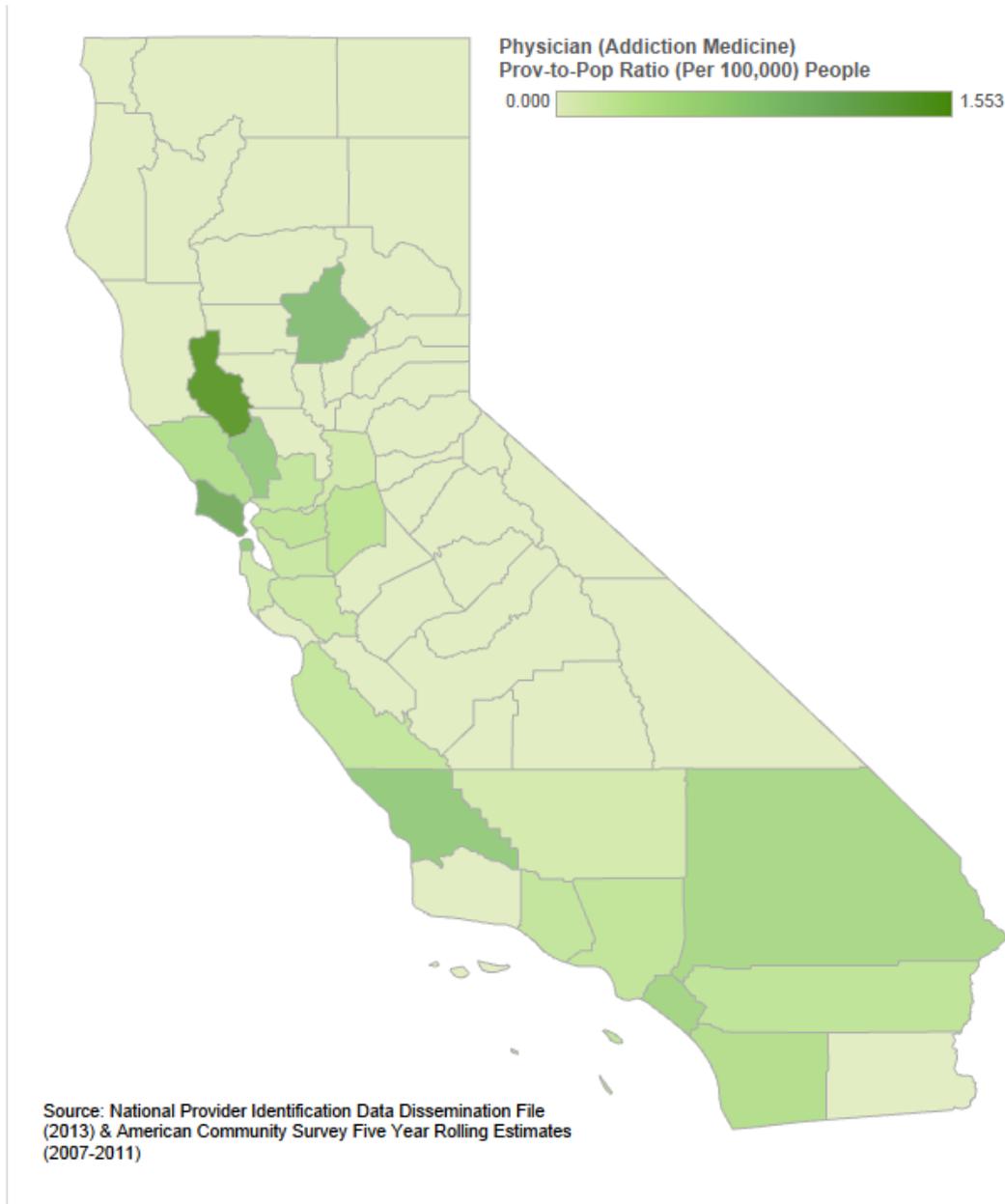


Source: NPI Data Dissemination File (2013)

### Provider-to-Population Ratios

Figure 42 visually represents the provider-to-population ratios of Physicians with Addiction Specialties working in the public system in California. These providers were all registered in NPI data. There were large concentrations of Physicians with Addiction Specialties in the Southern and Bay Area regions of the state.

Figure 42: Map of Physicians with Addiction Specialties-to-Population Ratios by County, NPI Data, 2013



Sources: NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 30 provides total counts and provider-to-population ratios for Physician-addiction by MHA region and by NPI data. In NPI data, there were 0.3 Physicians with Addiction Specialties per every 100,000 persons statewide.

The provider-to-population ratio of Physicians with Addiction Specialties slightly varied across all MHA Regions. The highest Physicians with Addiction Specialties provider-to-population ratio occurred in the Southern region (0.4), followed by a provider-to-population ratio of 0.3

Physicians with Addiction Specialties per 100,000 people in the Bay Area, Los Angeles, and Superior regions. The Central region had the smallest Physicians with Addiction Specialties provider-to-population ratio of 0.1 providers per 100,000 persons.

**Table 30: Physicians with Addiction Specialties by MHSA Region, Board Licensure and NPI Data, 2013**

MHSA Region	Board, Number of Physician-Addiction	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Physician-Addiction	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>Bay Area</b>	*	*	24	0.3
<b>Central</b>	*	*	4	0.1
<b>Los Angeles</b>	*	*	26	0.3
<b>Southern</b>	*	*	50	0.4
<b>Superior</b>	*	*	3	0.3
<b>TOTAL</b>	*	*	<b>107</b>	<b>0.3</b>

\* No data available.

Sources: NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 31 provides total counts and provider-to-population ratios of Physicians with Addiction Specialties by county size and by NPI data. In NPI data, the provider-to-population ratio for Physicians with Addiction Specialties was highest in the large counties where there were 0.3 Physician-addictions for every 100,000 persons. The Physicians with Addiction Specialties provider-to-population ratio in medium (0.2) and small counties (0.1) varied little relative to the same type of ratio in large counties.

**Table 31: Physicians with Addiction Specialties by County Size, Board Licensure and NPI Data, 2013**

County Size	Board, Number of Physician-Addiction	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Physician-Addiction	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>Large</b>	*	*	91	0.3
<b>Medium</b>	*	*	14	0.2
<b>Small</b>	*	*	2	0.1
<b>TOTAL</b>	*	*	<b>107</b>	<b>0.3</b>

\* No data available.

Sources: NPI Data Dissemination File (2013), American Community Survey (2007-2011)

## Forecasts

Figure 43 visually represents the observed values and projected trends of Licensed, Prescribing mental health providers. Observed counts of licensed, prescribing providers are depicted to the left of the red dotted line, from 2005 through 2013. These values were derived from the 2013 NPI data dissemination file. Projected trends are depicted to the right of the red dotted line from 2014 through 2019. Additionally, Figure 43 includes the combined observed values and

projected values of all the licensed, prescribing providers in total, depicted by the “Licensed, Prescribing Total” values.

Regressions were applied to the observed data from 2005 through 2013, controlling for California GDP and population size, in order to forecast the projected counts of each occupation from 2014 through 2019.

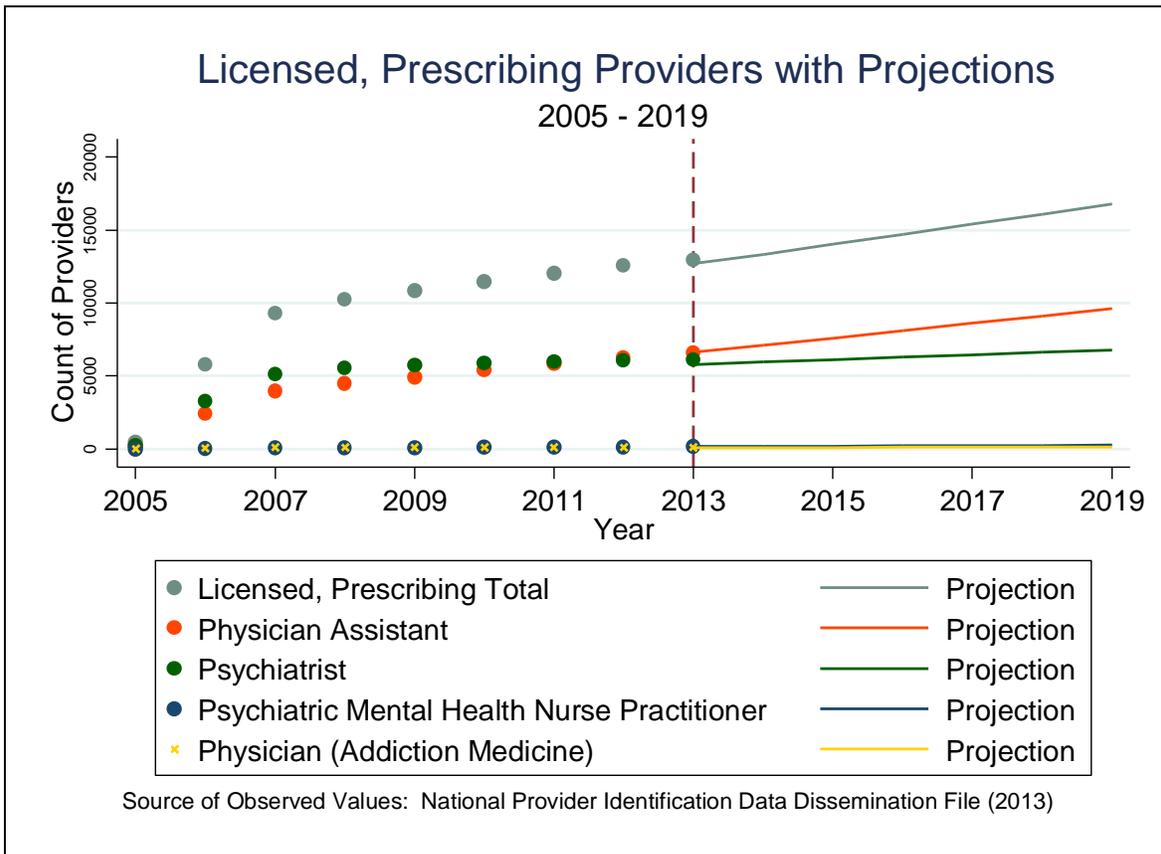
When available, additional controls for wages were also applied. In Figure 43, controls for Physician Assistant wages were applied to the Physician Assistant regression model and to the Psychiatric Mental Health Nurse Practitioner model (to serve as a proxy for unavailable Nurse Practitioner wage trends). Since data was also available for the Psychiatrist wages, Psychiatrist wages were applied as a control to the Psychiatrist regression model.

Further adjustments were made depending on available retirement data. Retirement counts could only be artificially constructed for Psychiatrists and Physicians with Addiction Specialties, but not for any other Licensed, Prescribing profession.<sup>63</sup> In Figure 43, projected trends for Psychiatrists and Physicians with Addiction Specialties were depressed each year by the average count of providers estimated to retire annually by 2019.

---

<sup>63</sup> Retirement counts could not be constructed for other professions due to a lack of data on age of providers and/or age of retirement. See pages 20-22 for the method used to construct retirement rates.

Figure 43: Licensed, Prescribing Providers with Projections



Overall, the total count of licensed, prescribing providers grew by approximately 27% from 2005 to 2013. As depicted by the projection “Licensed, Prescribing Total” in Figure 43, the total count of licensed, prescribing providers is anticipated to continue a trajectory of growth from 2014 to 2019. Among the total growth of licensed, prescribing providers, Physician Assistants (PA) represent the largest share of growth in this provider class.

The count of overall licensed, prescribing providers is projected to increase more rapidly than the state population as a whole, and the provider-to-population ratio is anticipated to increase by approximately seven providers per 100,000 persons across the state. The provider-to-population ratio is expected to be 41.7 licensed, prescribing providers per 100,000 persons in 2019 compared to 33.9 licensed, prescribing providers per 100,000 persons in 2013.

From 2014 to 2019, the counts of Psychiatrists in California are estimated to increase by approximately 2% per year and reach a total of 7,526 in 2019. The Psychiatrist-to-population ratios are estimated to increase from 16.9 in 2014 to 18.7 in 2019.

PAs represent the fastest growing occupation, and account for the largest share of the Licensed, Prescribing provider pool.<sup>64</sup> From 2014 to 2019, the counts of PAs in California are estimated to increase by 6-8% per year and reach a total of 9,632 PAs in 2019. The ratio of PAs to the California population is also anticipated to grow rapidly in the next five years, reflecting consistent growth trends from 2008 to 2013. From 2008 to 2019, the ratio is forecasted to double, going from 12.5 PAs to 23.9 PAs per 100,000 persons. Cumulatively over the 2014 to 2019 period, the total count of PAs is anticipated to increase by approximately 36%. This is a slight decrease from the observed change over the last five-year period (2008-2013), which saw 46% growth. Although the data indicates that the number of PAs will increase, this does not necessarily reflect that they will increase in the PMHS as the majority of PAs do not work in the mental healthcare sector.

PA growth is followed by the projected growth for Psychiatrists. The counts of Psychiatrists are slated to increase, although at slower rates than PAs and the overall pool of licensed, prescribing providers.

Slow to no growth is anticipated for PMHNPs and Physicians with Addiction Specialties. The overall counts for these providers are low, making it difficult to extrapolate projections or meaningful findings.

The counts of PMHNPs in California are estimated to increase by 7-10% per year and reach a total of 253 in 2019. The PMHNP-to-population ratios are estimated to increase from 0.4 in 2014 to 0.6 in 2019.

Additionally, the counts of Physicians with Addiction Specialties in California are estimated to increase by 4-5% per year and reach a total of 164 in 2019. The provider-to-population ratios of Physicians with Addiction Specialties are estimated to stay the same at 0.4 from 2014 to 2019.

Table 32 displays: (1) the observed values of mental health providers in the PMHS from 2008 through 2013 (derived from NPI data), and (2) the projected values of mental health providers from 2014 through 2019. Additionally, Table 32 includes the rate of change of providers for each year compared to the previous year, and the state provider-to-population ratios with the observed and projected counts.

---

<sup>64</sup> The NPI taxonomy codes for physician assistants do not distinguish between physician assistants in medical and surgical settings versus clinical and mental health settings. Therefore the counts and projections displayed above account for all physician assistants, and not only physician assistants serving in mental health settings.

**Table 32: Licensed, Prescribing Providers with Projections, Counts**

	Year	Psychiatrists			Psychiatric Mental Health Nurse Practitioners			Physician Assistant			Physician (Addiction Medicine)			Total		
		Number of Providers	Annual % Change	State Prov-to-Pop Ratio (per 100,000)	Number of Providers	Annual % Change	State Prov-to-Pop Ratio (per 100,000)	Number of Providers	Annual % Change	State Prov-to-Pop Ratio (per 100,000)	Number of Providers	Annual % Change	State Prov-to-Pop Ratio (per 100,000)	Number of Providers	Annual % Change	State Prov-to-Pop Ratio (per 100,000)
Observed	2008	5,537		15.4	97		0.3	4,499		12.5	92		0.3	10,225		28.5
	2009	5,736	4%	15.9	102	5%	0.3	4,920	9%	13.6	98	7%	0.3	10,856	6%	30.1
	2010	5,866	2%	15.7	112	10%	0.3	5,380	9%	14.4	101	3%	0.3	11,459	6%	30.7
	2011	5,973	2%	15.9	128	14%	0.3	5,820	8%	15.5	101	0%	0.3	12,022	5%	32.0
	2012	6,056	1%	16.0	143	12%	0.4	6,258	8%	16.5	105	4%	0.3	12,562	4%	33.2
	2013	6,107	1%	16.0	157	10%	0.4	6,565	5%	17.2	107	2%	0.3	12,936	3%	33.9
2008-2013 Overall Growth		570	10%	0.6	60	62%	0.1	2,066	46%	4.7	15	16%	0.0	2,711	27%	5.5
Projected	2014	5,960	-2%	15.5	171	9%	0.4	7,099	8%	18.5	110	3%	0.3	13,340	3%	34.7
	2015	6,123	3%	15.8	187	10%	0.5	7,595	7%	19.6	113	3%	0.3	14,019	5%	36.1
	2016	6,288	3%	16.1	204	9%	0.5	8,105	7%	20.7	117	3%	0.3	14,713	5%	37.6
	2017	6,456	3%	16.3	221	8%	0.6	8,622	6%	21.8	120	3%	0.3	15,419	5%	39.0
	2018	6,614	2%	16.6	237	7%	0.6	9,122	6%	22.9	123	3%	0.3	16,096	4%	40.4
	2019	6,774	2%	16.8	253	7%	0.6	9,632	6%	23.9	127	3%	0.3	16,786	4%	41.7
2014-2019 Overall Growth		814	14%	1.3	82	48%	0.2	2,534	36%	5.5	17	15%	0.0	3,446	26%	7.0

\*Source of Observed values: NPI Data Dissemination File (2013)

## Key Findings

- **The total count of licensed, prescribing providers (Psychiatrists, Psychiatric Mental Health Nurse Practitioners, Physician Assistants, and Physicians in Addiction Medicine) is anticipated to grow by 26% over the five-year period from 2014 to 2019.** From 2014 to 2019, the ratio of providers per 100,000 persons will increase by approximately 7 providers per 100,000 persons.
- **Most of the growth in the licensed, prescribing provider category can be attributed to the projected increases in the supply of Physician Assistants (PA).**<sup>65</sup> In 2013, PAs represented 51% of the total pool of licensed, prescribing providers in the NPI data. By 2019, PAs were projected to constitute approximately 57% of the pool of licensed, prescribing providers. It should be noted that most PAs do not work in PMHS settings.
- **As of 2013, Psychiatrists represented the second largest share of licensed, prescribing providers in the NPI data.** The remaining licensed, prescribing positions, in descending rank order, were Psychiatric Mental Health Nurse Practitioners (n=157) and Physicians with Addiction Specialties (n=107).
- **The MHSA Bay Area region and large counties contained the highest percentages of licensed, prescribing positions.** Los Angeles County specifically encompassed the greatest number of each of the Licensed, Prescribing positions.
- **The MHSA Superior region and small counties contained the lowest percentages of licensed, prescribing positions.** Half of the counties with licensed, prescribing professionals did not contain any Psychiatric Mental Health Nurse Practitioners or Physicians addiction specialties.
- **Psychiatrists and Physicians with Addiction Specialties were comprised by a majority of males.** Males filled 64% (NPI) to 65% (Board licensure) of Psychiatrist positions and 81% of Physician positions. Psychiatric Mental Health Nurse Practitioner and Physician Assistant were female-dominated positions (79% and 62% female, respectively).
- **The MHSA Superior region and small counties had provider-to-population ratios of licensed, prescribing providers that were neither the lowest nor highest across the state.** When examining provider counts across the state, the Superior region and small counties consistently had the fewest counts. However, when those provider counts were scaled according to county total populations, the Superior region and small counties did not have the lowest provider-to-population ratios.

---

<sup>65</sup> As previously discussed, NPI taxonomy codes do not distinguish PAs in mental health fields versus non-mental health PAs. Therefore the counts and projections of PAs in this report represent PAs that may not serve in mental health settings.

## Licensed, Non-Prescribing, Nursing Occupations

In this analysis, the licensed, non-prescribing, nursing professionals include: 1) Registered Nurse, 2) Clinical Nurse Specialist, 3) Licensed Practical Nurse, 4) Licensed Practical Technician, and 5) Licensed Vocational Nurse. These five professions will be grouped together when producing projections of the future total counts of licensed, non-prescribing, nursing professionals in California’s public mental health workforce. In regards to skills mix, providers in these professions offer a variety of nursing services and training backgrounds. These positions may represent potential labor substitution possibilities across the public mental health system workforce. For each profession, this section of the report provides: 1) a description of the distribution of providers across California, using boards (if available) and NPI data; and 2) the current provider-to-population ratios across the different county sizes in the state. The Forecasts section of the report then describes the projected forecasts for licensed, non-prescribing, nursing professions. Lastly, key findings are detailed regarding the observed and projected distributions of licensed, non-prescribing, nursing professionals.

Table 33 presents NPI data counts for each licensed, non-prescribing, nursing occupation. There were 11,269 licensed, non-prescribing, nursing professionals in 2013 NPI data. Registered Nurses constitute the largest share of licensed, non-prescribing, nursing occupations (n=7,520).

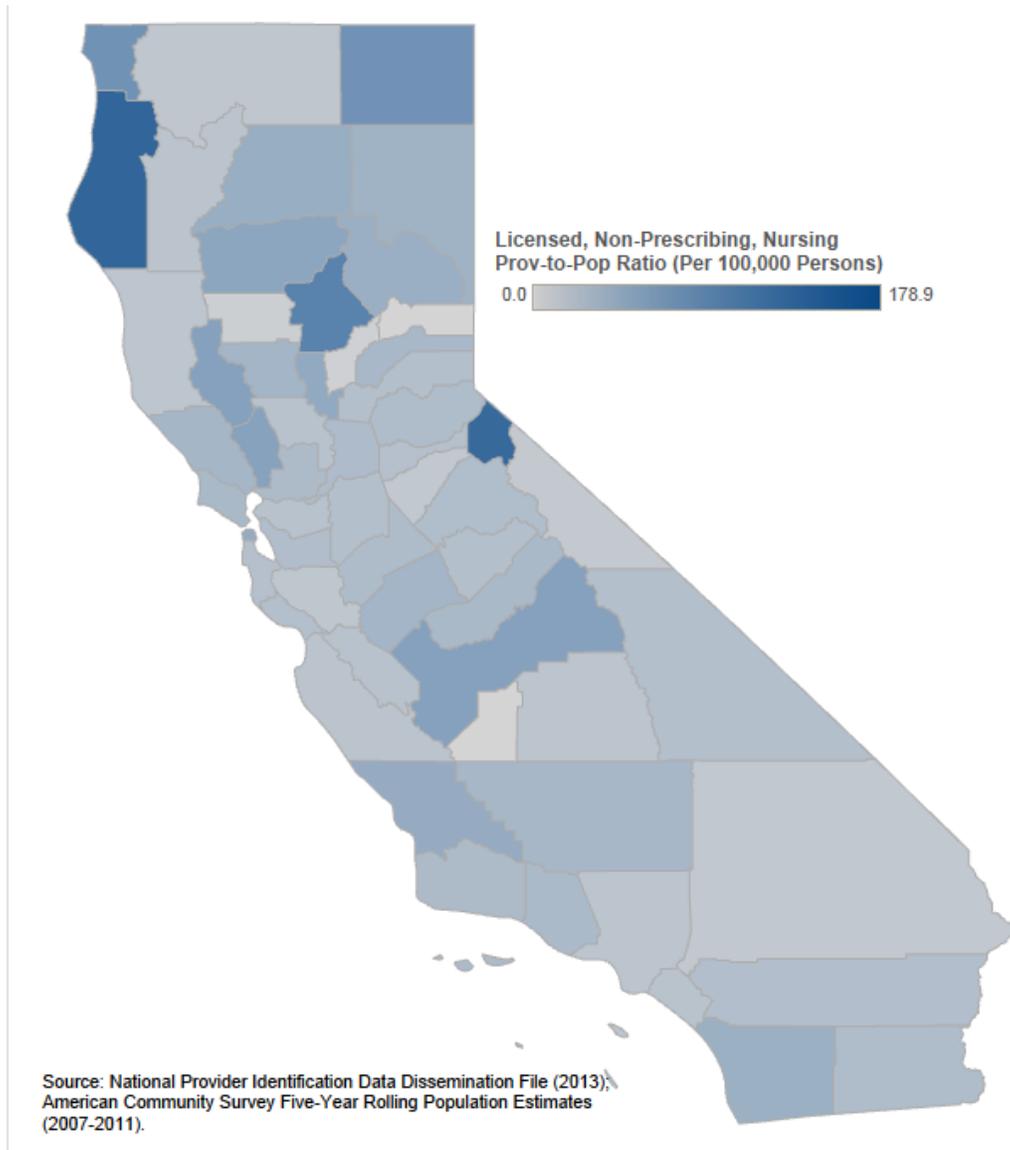
**Table 33: Licensed, Non-Prescribing, Nursing Occupations, NPI Data, 2013**

Occupation	Count	% of Total
Clinical Nurse Specialist	91	1%
Licensed Practical Nurse	209	2%
Licensed Psychiatric Technician	827	7%
Licensed Vocational Nurse	2,622	23%
Registered Nurse	7,520	67%
<b>TOTAL</b>	<b>11,269</b>	<b>100%</b>

Source: NPI Data Dissemination File (2013)

Figure 44 visually represents the distribution of licensed, non-prescribing, nursing professionals working in the public healthcare system in California as identified in the NPI data. Concentrations of licensed, prescribing professionals were distributed throughout the state.

**Figure 44: Map of Licensed, Non-Prescribing, Nursing Provider-to-Population Ratios by County, NPI Data, 2013**



Sources: NPI Data Dissemination File (2013), American Community Survey (2007-2011)

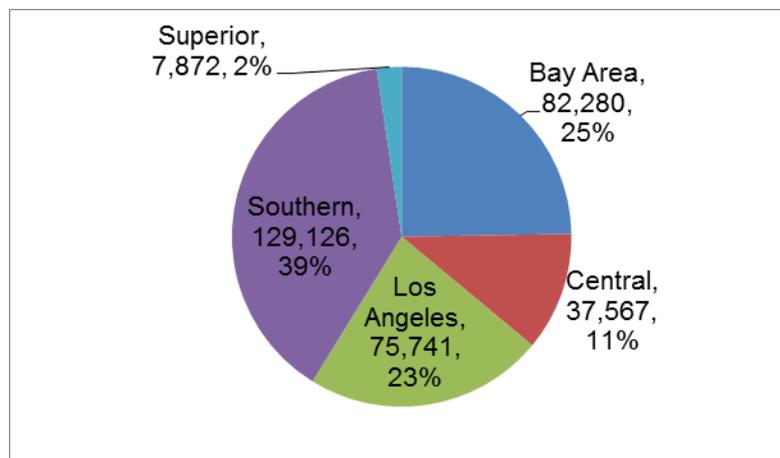
## Registered Nurse

### Board Licensure Data

Data on Board-licensed Registered Nurses (RN) was derived from the California Board of Registered Nurses. Board data was used to determine the total pool of Board-licensed RNs available in California and their distribution across MHPA Regions and county sizes.<sup>66</sup>

According to Board data, there were a total of 332,909 RNs with a currently active RN license associated with an address in California. Of the 332,909 RNs with addresses in California, 332,586 RNs reported counties that matched to California counties. Figure 45 shows the distribution of RNs across the state by MHPA Region. Across the state, 39% of the RNs in Board data were in the Southern region (n=129,126). The Bay Area region had the second largest concentration of RNs, representing 25% of the total RNs in California (n=82,280). A complete list of Board-licensed RN counts by county is available in Table 86 in the Appendix.

**Figure 45: Distribution of Registered Nurses in Board of Registered Nurses Data Set by MHPA Region (n=332,586)**



Source: California Board of Registered Nurses (2013)

### NPI Data

There were 7,520 RNs<sup>67</sup> across 57 counties in NPI data. RNs in NPI data represented 2.2% of all Board-licensed RNs in California. This means that 2.2% of the state's Board-licensed RNs

<sup>66</sup> Addresses listed in the board data were assumed to represent the location of practice for each provider. Functionally, these addresses served as mailing addresses and could potentially be addresses of residence, practice, or any other that the licensee chose to provide. However, the following analysis assumes that the Board licensee listed their location of practice. This address was matched to its respective California county.

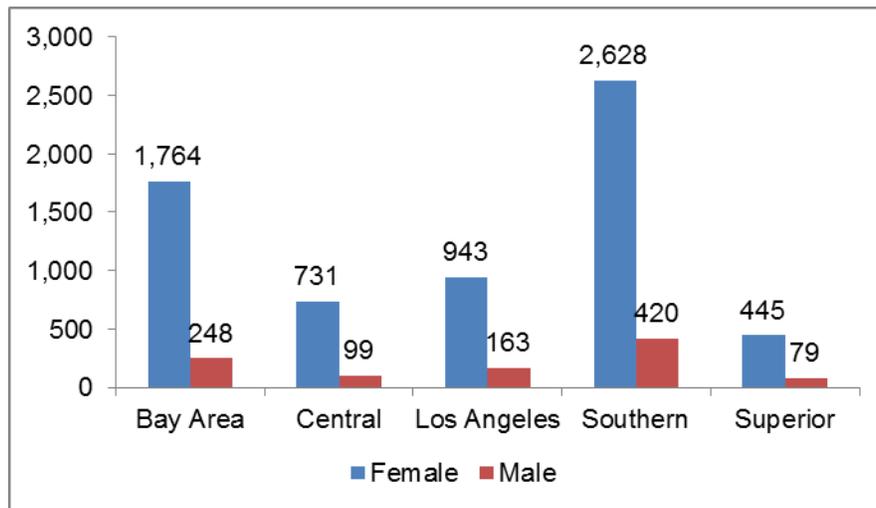
<sup>67</sup> This count of Registered Nurses includes taxonomy codes (cited in Table 2) for: Registered Nurse, Addiction; Registered Nurse, Case Management; Registered Nurse; Community Health; Registered

had registered with NPI and were likely to provide Medicare or Medi-Cal-funded services. A complete list of RN counts by county is available in Table 86 in the Appendix.

**MHSA Region**

As Figure 46 shows, the Southern region contained the highest percentage of RNs (41%, n=3,048) and the Superior region the lowest (7%, n=524). Females far exceeded males in the numbers of RN positions across all regions. Overall, females comprised 87% (n=1,009) of all RN positions.

**Figure 46: Registered Nurses by MHSA Region and Gender, NPI Data, 2013 (n=7,520)**



Source: NPI Data Dissemination File (2013)

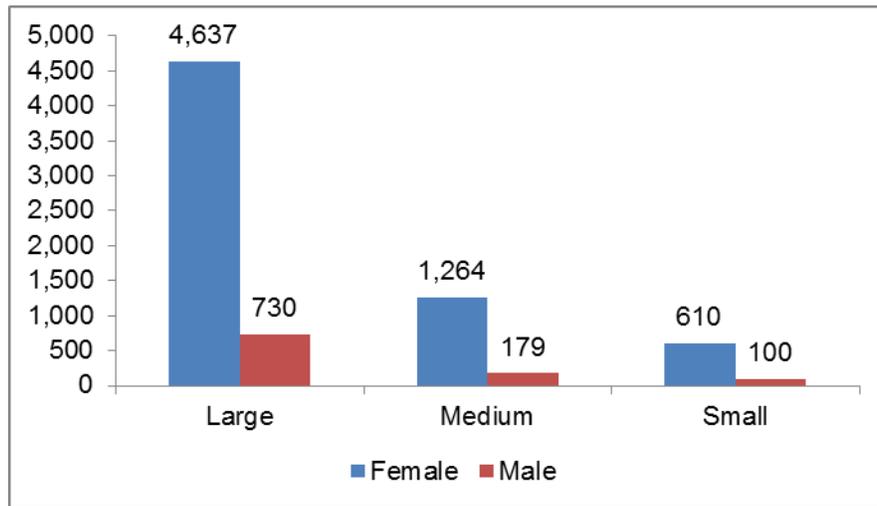
**County Size**

Large counties represented 71% (n=5,367) of RNs, followed by medium (19%, n=1,443) and small counties (9%, n=710), as detailed in Figure 47. Females contributed to larger numbers of RN positions than males across all county sizes.

---

Nurse Psychiatric Mental Health; Registered Nurse, Psychiatric Mental Health, Adult; Registered Nurse, Registered Nurse First Assistant; and Registered Nurse, School.

Figure 47: Registered Nurses by County Size and Gender, NPI Data, 2013 (n=7,520)

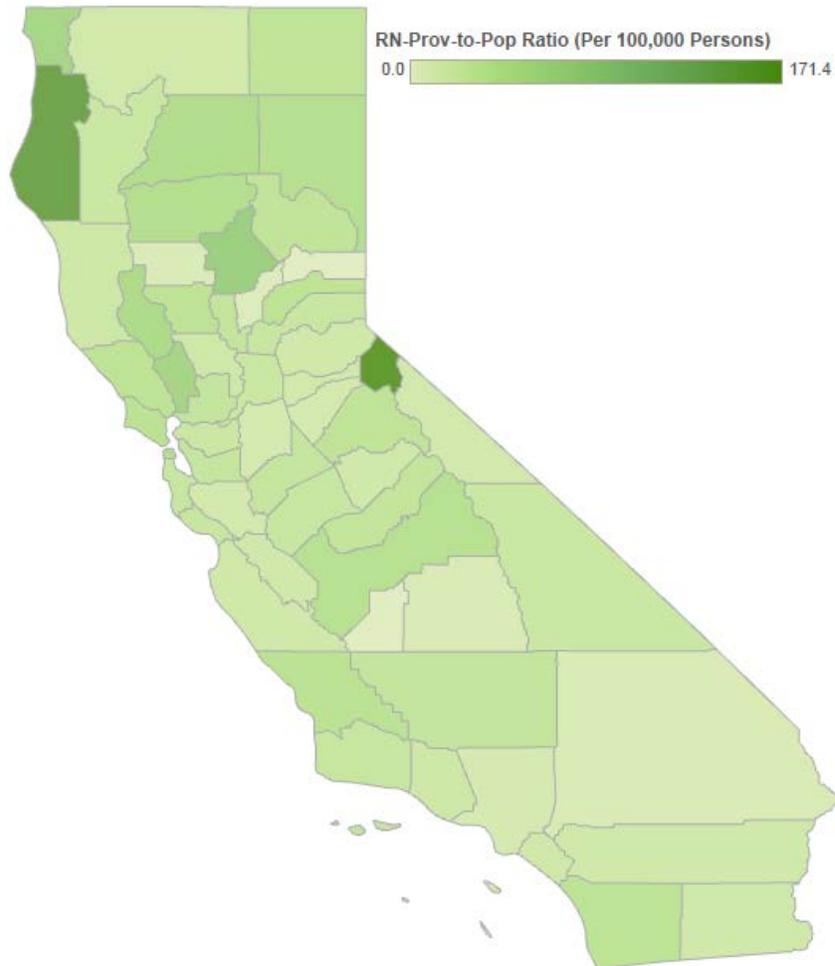


Source: NPI Data Dissemination File (2013)

#### Provider-to-Population Ratios

Figure 48 visually represents the provider-to-population ratios of RNs in NPI data. These ratios represent the number of RNs per 100,000 persons in the county. A complete list of RN-to-population ratios by county is available in Table 86 in the Appendix.

Figure 48: Registered Nurse-to-Population Ratios by County, NPI Data, 2013



Sources: NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 34 depicts the total counts and RN-to-population ratio by MHSR Region, by Board and NPI data. The statewide RN-to-population ratio was 899.6 RNs per 100,000 persons. The Bay Area region had the highest the RN-to-population ratio (1053.9), while the Southern region had a nearly similar the RN-to-population ratio of 1,014 RNs per 100,000 persons. Despite major disparity in the total counts, the RN-to-population ratio among the Los Angeles (773.8), Superior (751.3), and Central (671.6) regions had less variation.

Using NPI data, statewide, there were 20.3 NPI RNs per 100,000 persons. Additionally, the Superior region had the highest RN-to-population ratio (50.0) compared to the RN-to-population ratio in the Bay Area (25.8) and Southern (23.9) regions. The Central and Los Angeles regions had two of the lowest provider-to-population ratios of 14.8 and 11.3, respectively.

**Table 34: Registered Nurse by MHSA Region, Board Licensure and NPI Data, 2013**

MHSA Region	Board Number of Registered Nurse	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Registered Nurse	NPI-Prov-to-Pop Ratio (per 100,000 persons)
Bay Area	82,280	1,053.9	2,012	25.8
Central	37,567	671.6	830	14.8
Los Angeles	75,741	773.8	1,106	11.3
Southern	129,126	1,014.1	3,048	23.9
Superior	7,872	751.3	524	50.0
<b>TOTAL</b>	<b>332,586</b>	<b>899.6</b>	<b>7,520</b>	<b>20.3</b>

Sources: California Board of Registered Nurses (2013), NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 35 provides total counts and RN-to-population ratios of RNs by county size, by Board and NPI data. In Board data, the largest RN-to-population ratio was seen in medium counties where there were 1,007.9 RNs per 100,000 persons. Small counties had a RN-to-population ratio of 909.0 RNs per 100,000 persons. Large counties had the smallest RN-to-population ratio (877.2) despite accounting for over two-thirds of the statewide total count of board-licensed RNs.

In NPI data, much like Board data, the RN-to-population ratios were inconsistent with the differences in total counts across each of the three categories. Small counties had the largest RN-to-population ratio of 35.0 RNs per 100,000 persons. Medium counties followed with a RN-to-population ratio of 24.6. Despite having a substantially larger total count, large counties had the smallest RNs-to-population ratio of 18.5.

**Table 35: Registered Nurse by County Size, Board Licensure and NPI Data, 2013**

County Size	Board, Number of Registered Nurse	Board, Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Registered Nurse	NPI-Prov-to-Pop Ratio (per 100,000 persons)
Large	255,124	877.2	5,367	18.5
Medium	5,9014	1,007.9	1,443	24.6
Small	18,448	909.0	710	35.0
<b>TOTAL</b>	<b>332,586</b>	<b>899.6</b>	<b>7,520</b>	<b>20.3</b>

Sources: California Board of Registered Nurses (2013), NPI Data Dissemination File (2013), American Community Survey (2007-2011)

### Registered Nurses with Psychiatric Mental Health Nurse Specialties

Multiple NPI taxonomy codes for RNs were attached to specialty codes. Table 36 lists each specialty code for RNs, the count represented by that specialty, and percent of the total RN pool. Among the RN specialties, there were four with specific psychiatric mental health and addiction specialties, including: addiction; psychiatric/mental health; psychiatric/mental health adult; and psychiatric/mental health, child and adolescent.

Of a total of 7,520 RNs included in this analysis, RNs with a declared psychiatric mental health specialty represented a total of 1,330 RNs, or approximately 17.7% of RNs. Other specialties (not included in the count of psychiatric mental health specialties) included: case management (7%), community health (11%), first assistant (2%), and school (0%).

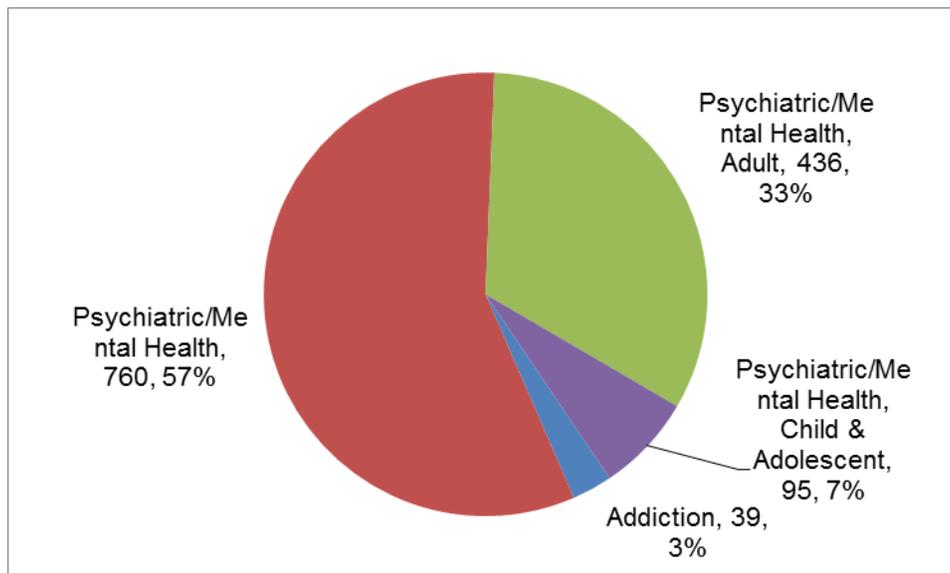
**Table 36: Registered Nurses by Specialty**

Registered Nurses Specialties	Count	% of Total RNs
Addiction	39	1%
Case Management	474	7%
Community Health	765	11%
First Assistant	170	2%
Psychiatric/Mental Health	760	10%
Psychiatric/Mental Health, Adult	436	6%
Psychiatric/Mental Health, Child & Adolescent	95	1%
School	18	0%
None	4,763	66%
<b>TOTAL</b>	<b>7,520</b>	<b>100%</b>

Source: California Board of Registered Nurses (2013)

Figure 49 depicts psychiatric mental health specialties held by RNs. Among a total of 1,330 RNs with the psychiatric mental health specialty, the largest percentage held a general “psychiatric mental health” specialty. Addiction specialties accounted for 3% of RNs with psychiatric mental health specialties.

**Figure 49: Registered Nurses with Psychiatric Mental Health/Addiction Specialties (n=1,330)**



Source: California Board of Registered Nurses (2013)

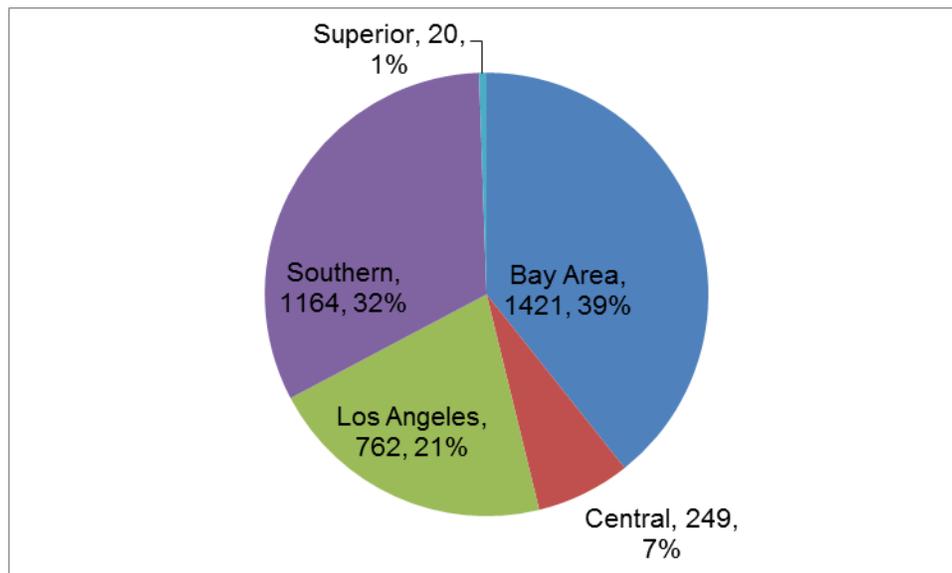
## Clinical Nurse Specialists and Other Advance Practice Nurses

### Board Licensure Data

Information on Board-registered Clinical Nurse Specialists (CNSs) and other Advanced Practice Nurses (APN) was derived from the California Board of Registered Nurses. Board data was used to determine the total pool of Board-licensed CNSs available in California, and their distribution across MHA regions and by county sizes.<sup>68</sup> According to the Board of Registered Nurses of California, there were a total of 3,616 Board-licensed CNSs with current licenses and addresses in a California county. A complete list of Board-licensed CNS-APN counts by county is available in Table 87 in the Appendix.

Figure 50 represents the distribution of CNS licenses by MHA RNs. The largest difference occurs in the Bay Area region; whereas approximately 25% of all RNs had addresses associated with the Bay Area region, 39% of CNSs were concentrated in the same region. The Southern and Los Angeles regions represented slightly smaller shares of the CNS pool relative to the RN pool, while the Superior and Central regions' shares of CNSs were nearly the same as RNs.

**Figure 50: Distribution of Board-Registered Clinical Nurse Specialists by MHA Region (n=3,616)**



Source: California Board of Registered Nurses (2013)

<sup>68</sup> Addresses listed in the board data were assumed to represent the location of practice for each provider. Functionally, these addresses served as mailing addresses and could potentially be addresses of residence, practice, or any other that the licensee chose to provide. However, the following analysis assumes that the Board licensee listed their location of practice. This address was matched to its respective California county.

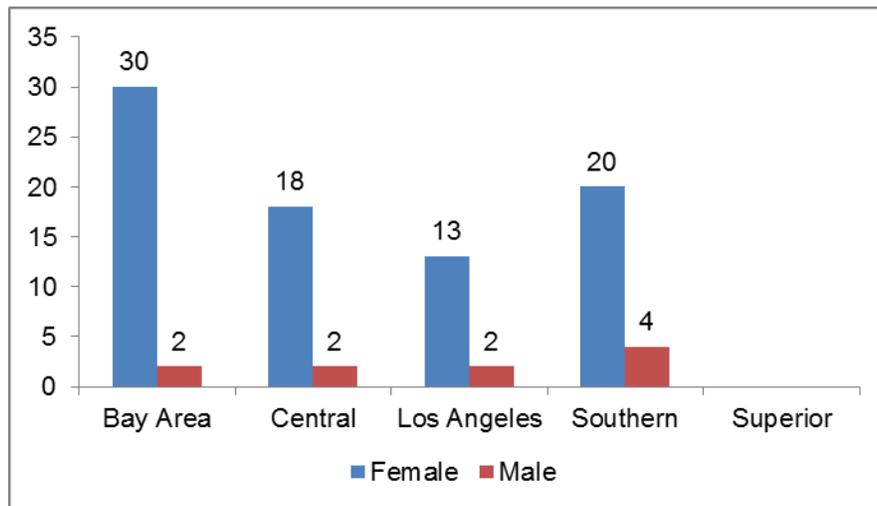
**NPI Data**

There were 91 CNSs, across 20 counties, in NPI data. CNSs in NPI data represented 78.3% of all Board-licensed CNSs in California. This means that 78.3% of the state’s Board-licensed CNSs had registered with NPI and were likely to provide Medicare or Medi-Cal-funded services. A complete list of CNS counts by county is available in Table 87 in the Appendix.

**MHSA Region**

As shown in Figure 51, the Bay Area region contained the greatest percentage of CNSs (35%, n=32). The Superior region contained the smallest percentage of CNSs (0%, n=0). Females occupied larger numbers of CNS positions than males across all MHSA Regions except for the Superior region, which did not contain any CNSs. Overall, females held 89% (n=81) of all of CNS positions.

**Figure 51: Clinical Nurse Specialists by MHSA Region and Gender, NPI Data, 2013 (n=91)**

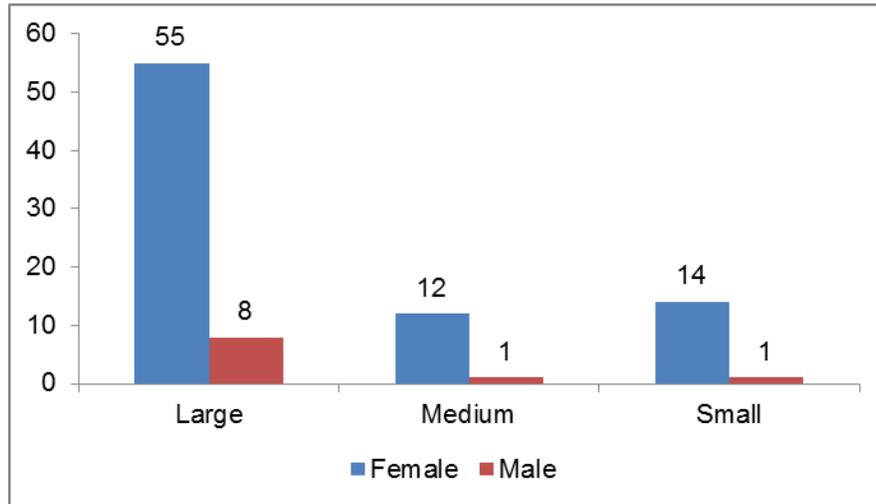


Source: NPI Data Dissemination File (2013)

### County Size

As detailed in Figure 52, large counties comprised 69% (n=63) of CNSs. Females represented larger numbers of CNS positions than males across all county sizes.

**Figure 52: Clinical Nurse Specialists by County Size and Gender, NPI Data, 2013 (n=91)**

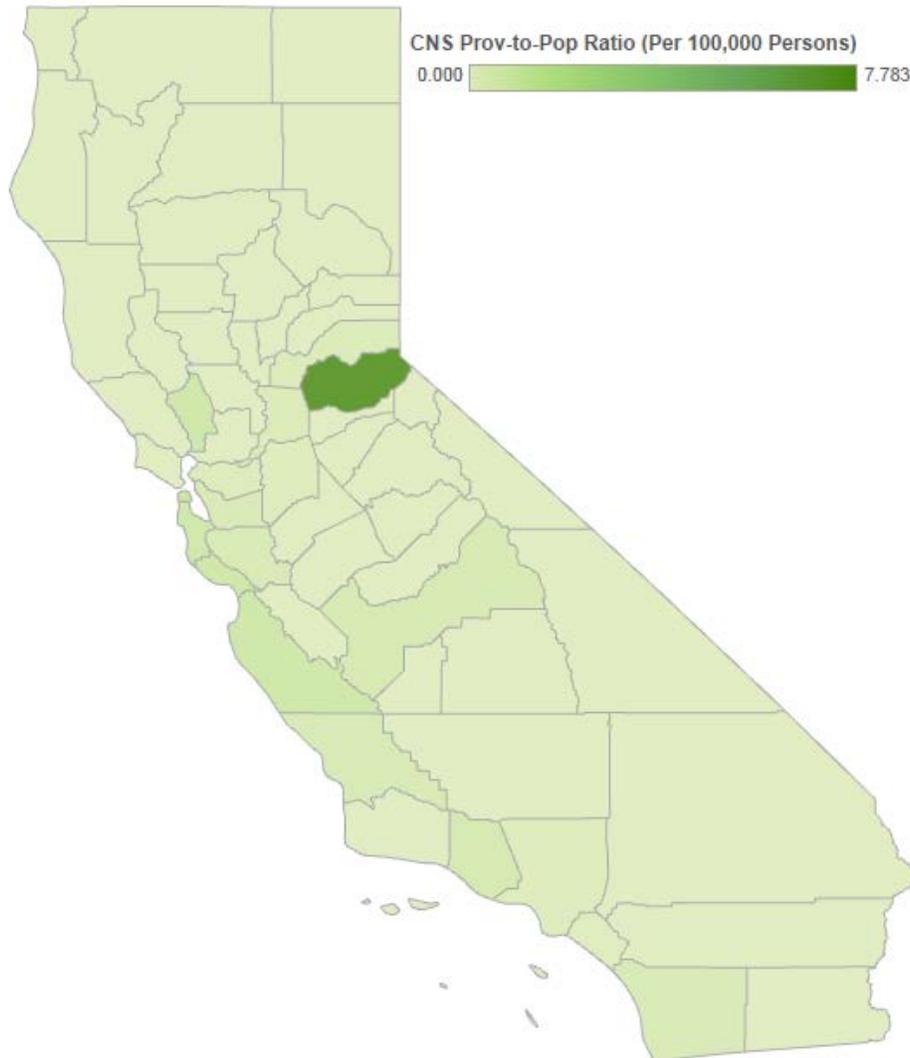


Source: NPI Data Dissemination File (2013)

### Provider-to-Population Ratios

Figure 53 visually represents the provider-to-population ratios of CNSs in NPI data. These ratios represent the number of CNSs per 100,000 persons in the county. A complete list of CNS-to-population ratios by county is available in Table 87 in the Appendix.

**Figure 53: Clinical Nurse Specialists-to-Population Ratios, by County, NPI Data, 2013**



Sources: NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 37 depicts the total counts and CNS-to-population ratios of by MHSR Region, by Board and NPI data. According to statewide Board data, there were 9.8 CNSs per 100,000 persons. The Bay Area region had the highest CNS-to-population ratio, followed by the Southern and Los Angeles regions. The Central and Superior region had the lowest CNS-to-population ratios.

NPI data showed the pool of CNSs who were likely to provide public services. According to statewide NPI data, there were 0.2 CNSs per 100,000 persons. While the Bay Area region had a markedly higher CNS-to-population ratio in Board data, the CNS-to-population ratio in the Bay Area was low overall and similar to other MHA Regions in the NPI data.

**Table 37: Clinical Nurse Specialists by MHA Region, Board Licensure and NPI Data, 2013**

MHA Region	Board, Number of CNS	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of CNS	NPI-Prov-to-Pop Ratio (per 100,000 persons)
<b>Bay Area</b>	1,421	18.2	32	0.4
<b>Central</b>	249	4.5	20	0.4
<b>Los Angeles</b>	762	7.8	15	0.2
<b>Southern</b>	1,164	9.1	24	0.2
<b>Superior</b>	20	1.9	*	*
<b>TOTAL</b>	<b>3,616</b>	<b>9.8</b>	<b>91</b>	<b>0.2</b>

\* No data available.

Sources: California Board of Registered Nurses (2013), NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 38 depicts the total counts and provider-to-population ratios for CNSs by county size, by Board and NPI data. The largest pool of Board-licensed CNSs is located in large counties, followed by medium and then small counties. Medium counties had the highest CNS-to-population ratio of 11.8 CNSs per 100,000 persons. Within large counties, the CNS-to-population ratio for Board-licensed CNSs was 9.8. Small counties had the lowest CNS-to-population ratio of 4.3 CNSs per 100,000 persons.

NPI data described the pool of CNSs that were likely to provide public services. Small counties had a slightly higher CNS-to-population ratio relative to large and medium counties.

**Table 38: Clinical Nurse Specialists by County Size, Board Licensure and NPI Data, 2013**

County Size	Board Number of CNS	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of CNS	NPI-Prov-to-Pop Ratio (per 100,000 persons)
<b>Large</b>	2,836	9.8	63	0.2
<b>Medium</b>	692	11.8	13	0.2
<b>Small</b>	88	4.3	15	0.7
<b>TOTAL</b>	<b>3,616</b>	<b>9.8</b>	<b>91</b>	<b>0.2</b>

Sources: California Board of Registered Nurses (2013), NPI Data Dissemination File (2013), American Community Survey (2007-2011)

### Clinical Nurse Specialists with Psychiatric Mental Health Specialties

As noted in Table 39, of the total 92 Clinical Nurse Specialists in NPI data, 60 had psychiatric mental health specialties. Forty-seven percent of these 60 CNSs were Psychiatric, Adult Specialists; 43% were General Psychiatric Mental Health Specialists; 7% were Psychiatric, Child and Adolescent Specialists; 2% were Geropsychiatric Specialists; and 2% were Child and Family Psychiatric Specialists.

**Table 39: Clinical Nurse Specialists by Psychiatric Mental Health Specialties, NPI Data, 2013**

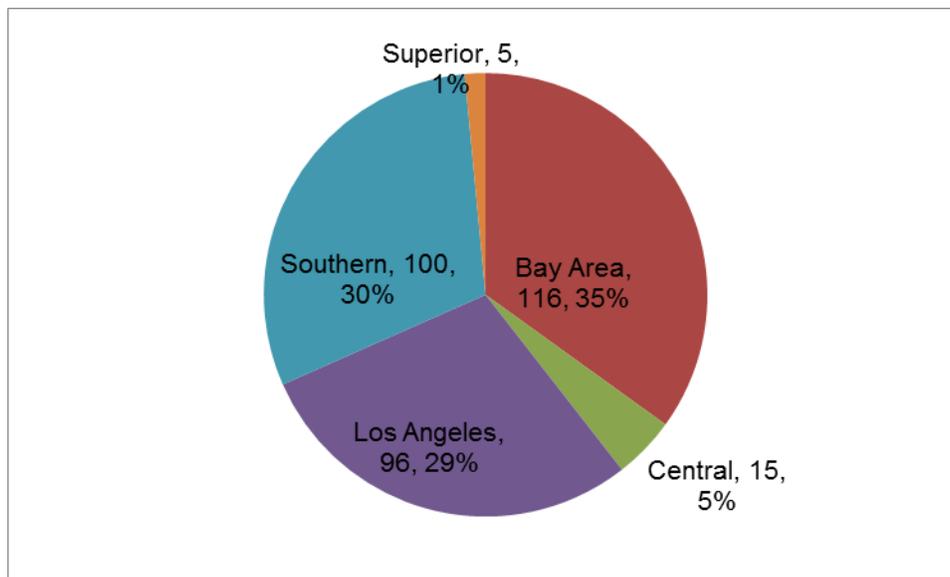
CNS Specialty	Count	% of Total
Geropsychiatric	1	2%
Psychiatric, Adult	28	47%
Psychiatric, Child & Adolescent	4	7%
Psychiatric, Child & Family	1	2%
Psychiatric/Mental Health	26	43%
<b>TOTAL</b>	<b>60</b>	<b>100%</b>

Source: NPI Data Dissemination File (2013)

### Psychiatric Mental Health Nurses

As shown in Figure 54, there were 332 Nurses in the Board of Registered Nurses dataset with psychiatric mental health Nurse (PMHN) licenses. Among these 332 Nurses, the Bay Area region had the highest percentage of PMHNs, and the Superior region had the lowest percentage.

**Figure 54: Board-Registered Psychiatric Mental Health Nurses by MHA Region (n=332)**



Source: California Board of Registered Nurses (2013)

**Provider-to-Population Ratios**

Table 40 depicts the total counts and provider-to-population ratios of PMHNs by MHSAs region and by Board data.

In the Board data, there were 0.9 PMHNs per 100,000 persons statewide. The Bay Area region had the highest total PMHN count and PMHN-to-population ratio. Other regions had one or less than one PMHN per 100,000 persons.

**Table 40: Psychiatric Mental Health Nurses by MHSAs Region, Board Licensure and NPI Data, 2013**

MHSA Region	Board, Number of Psychiatric Mental Health Nurse	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Psychiatric Mental Health Nurse	NPI-Prov-to-Pop Ratio (per 100,000 persons)
<b>Bay Area</b>	116	1.5	*	*
<b>Central</b>	15	0.3	*	*
<b>Los Angeles</b>	96	1.0	*	*
<b>Southern</b>	100	0.8	*	*
<b>Superior</b>	5	0.5	*	*
<b>TOTAL</b>	<b>332</b>	<b>0.9</b>	*	*

\* No data available.

Sources: California Board of Registered Nurses (2013), American Community Survey (2007-2011)

Table 41 depicts the total counts and PMHN-to-population ratios by county size and by Board data. Medium counties had the highest PMHN-to-population ratio of 1.2 PMHNs per 100,000 persons. PMHN-to-population ratios were relatively similar in large and small counties.

**Table 41: Psychiatric Mental Health Nurses by County Size, Board Licensure and NPI Data, 2013**

County Size	Board Number of Psychiatric Mental Health Nurse	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Psychiatric Mental Health Nurse	NPI-Prov-to-Pop Ratio (per 100,000 persons)
<b>Large</b>	247	0.8	*	*
<b>Medium</b>	72	1.2	*	*
<b>Small</b>	13	0.6	*	*
<b>TOTAL</b>	<b>332</b>	<b>0.9</b>	*	*

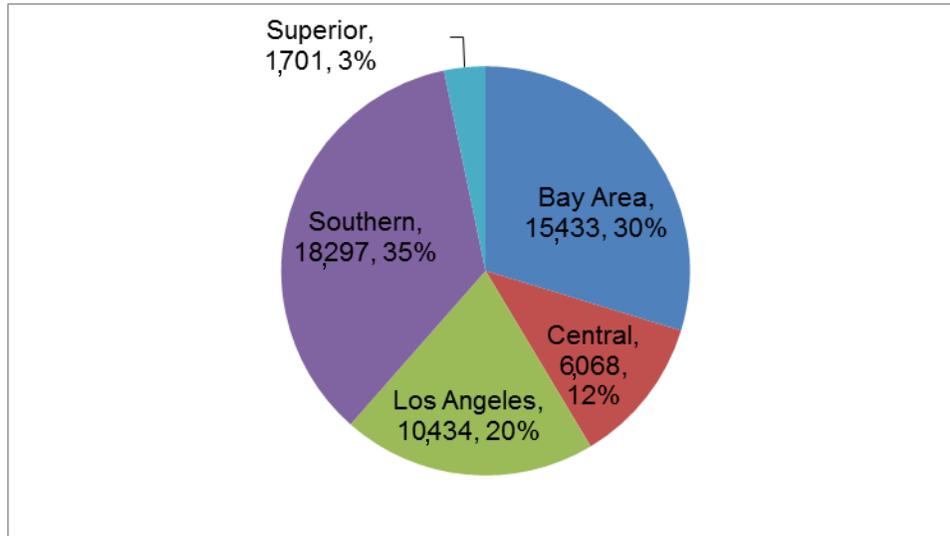
\* No data available.

Sources: California Board of Registered Nurses (2013), American Community Survey (2007-2011)

**Public Health Nurses**

As shown in Figure 55, there were 51,933 Nurses in the Board of Registered Nurses data set with a Public Health Nurse (PHN) license. The Southern region has the highest percentage of PHNs in the state.

**Figure 55: Board-Registered Public Health Nurses by MHSR Region (n=51,933)**



Source: California Board of Registered Nurses (2013)

**Provider-to-Population Ratios**

Table 42 depicts the total counts and PHN-to-population ratios by MHSR region and by Board data. Statewide, there were 140.5 PHNs per 100,000 persons. The region with the highest PHN-to-population ratio was the Bay Area region with 197.7 PHNs for every 100,000 persons. Despite having the lowest overall count of PHNs, the Superior region had the second highest PHN-to-population ratio.

**Table 42: Public Health Nurses by MHSR Region, Board Licensure and NPI Data, 2013**

MHSR Region	Board, Number of Public Health Nurse	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Public Health Nurse	NPI-Prov-to-Pop Ratio (per 100,000 persons)
<b>Bay Area</b>	15,433	197.7	*	*
<b>Central</b>	6,068	108.5	*	*
<b>Los Angeles</b>	10,434	106.6	*	*
<b>Southern</b>	18,297	143.7	*	*
<b>Superior</b>	1,701	162.3	*	*
<b>TOTAL</b>	<b>51,933</b>	<b>140.5</b>	*	*

\* No data available.

Sources: California Board of Registered Nurses (2013), American Community Survey (2007-2011)

Table 43 depicts the total counts and PHN-to-population ratios by county size and by Board data. Medium counties had the highest PHN-to-population ratio. Small counties had a relatively similar PHN-to-population ratio to medium counties of 165.7. Consistent with trends among other nursing categories, while the large counties had the highest total count of PHNs, small counties had the highest PHN-to-population ratios.

**Table 43: Public Health Nurses by County Size, Board Licensure and NPI Data, 2013**

County Size	Board, Number of Public Health Nurse	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Public Health Nurse	NPI-Prov-to-Pop Ratio (per 100,000 persons)
<b>Large</b>	38,602	132.7	*	*
<b>Medium</b>	9,969	170.3	*	*
<b>Small</b>	3,362	165.7	*	*
<b>TOTAL</b>	<b>51,933</b>	<b>140.5</b>	*	*

\* No data available.

Sources: California Board of Registered Nurses (2013), American Community Survey (2007-2011)

## Licensed Practical Nurse

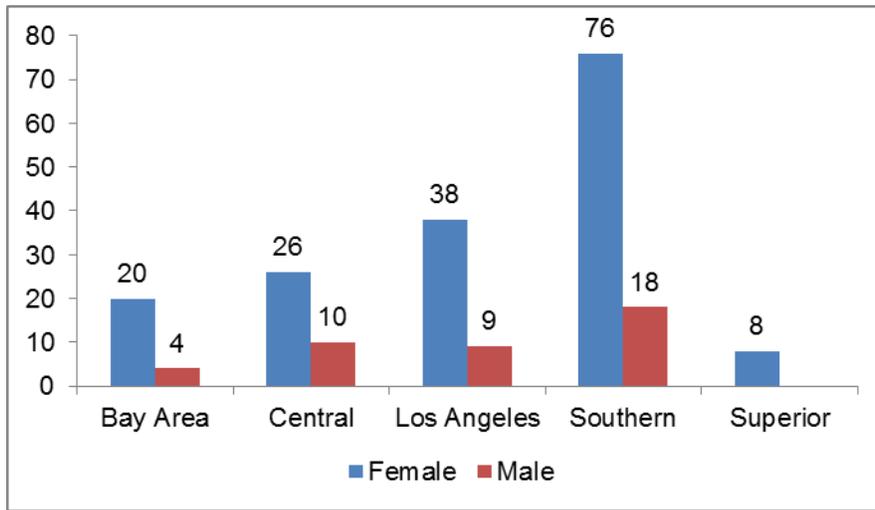
### NPI Data

There were 209 Licensed Practical Nurses (LPN) across 33 counties in the NPI data. A complete list of LPN counts by county is available in Table 90 of the Appendix.

### MHSA Region

As detailed in Figure 56, the Southern and Los Angeles regions encompassed the greatest percentages of LPNs, 45% (n=94) and 22% (n=37) respectively. The Superior region contained the smallest percentage (4%, n=8). Females held higher percentages of LPN positions than males across all MHSA regions. There were no male LPNs in the Superior region. Overall, females comprised 80% (n=168) of all LPN positions.

**Figure 56: Licensed Practical Nurses by MHSA Region and Gender, NPI Data, 2013 (n=209)**

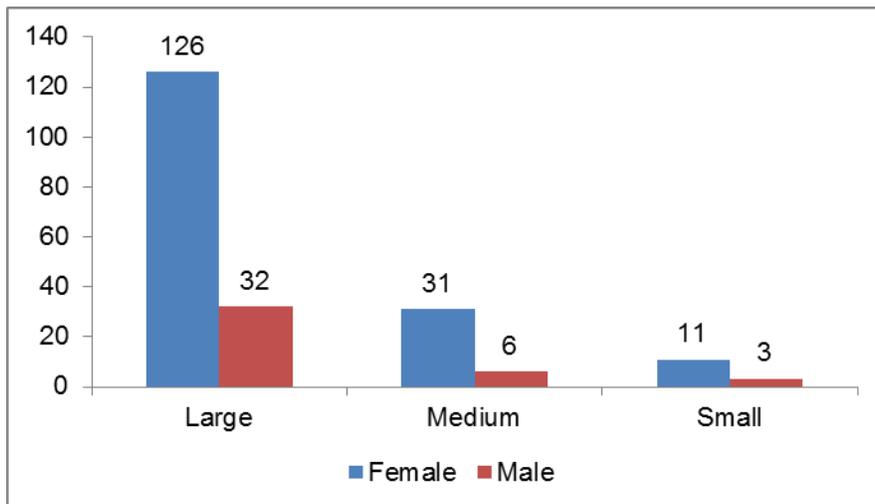


Source: NPI Data Dissemination File (2013)

### County Size

As shown in Figure 57, large counties contained 76% (n=158) of LPNs. Females represented larger numbers of LPN positions than males across all county sizes.

**Figure 57: Licensed Practical Nurses by County Size and Gender, NPI Data, 2013 (n=209)**

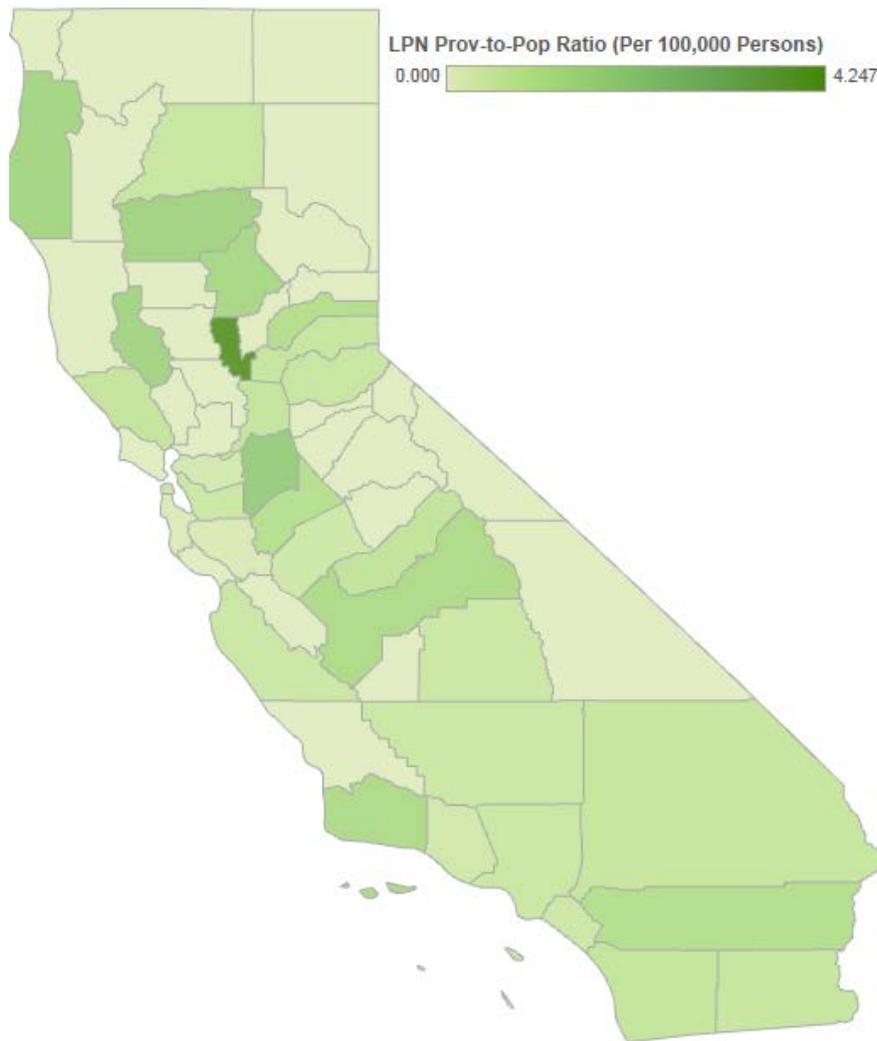


Source: NPI Data Dissemination File (2013)

### Provider-to-Population Ratios

Figure 58 visually represents the provider-to-population ratios of LPNs in NPI data. These ratios represent the number of LPNs per 100,000 persons in the county. A complete list of LPN-to-population ratios by county is available in Table 92 in the Appendix.

**Figure 58: Licensed Practical Nurse-to-Population Ratios, by County, NPI Data, 2013**



Sources: NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 44 depicts the LPN total counts and LPN-to-population ratios by MHSR Region and by NPI data. Statewide, there were 0.6 LPNs per 100,000 persons. Despite having the lowest total count of LPNs, the Superior region had the highest LPN-to-population ratio (0.8). The Bay Area region had the lowest LPN-to-population ratio with 0.3 LPNs for every 100,000 persons.

**Table 44: Licensed Practical Nurse by MHSA Region, Board Licensure and NPI Data, 2013**

MHSA Region	Board Number of Licensed Practical Nurse	Board Prov-to-Pop Ratio (per 100, 000 persons)	NPI, Number of Licensed Practical Nurse	NPI-Prov-to-Pop Ratio (per 100,000 persons)
Bay Area	*	*	24	0.3
Central	*	*	36	0.6
Los Angeles	*	*	47	0.5
Southern	*	*	94	0.7
Superior	*	*	8	0.8
<b>TOTAL</b>	*	*	<b>209</b>	<b>0.6</b>

\* No data available.

Sources: NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 45 depicts the total counts and LPN-to-population ratios of LPN by county size and by NPI data. There was slight variation among the LPN-to-population ratios for each county size, but overall LPN-to-population ratios were low. Small counties (0.7) had the largest LPN-to-population ratio, followed by medium (0.6) and large (0.5) counties.

**Table 45: Licensed Practical Nurses by County Size, Board Licensure and NPI Data, 2013**

County Size	Sum of Board Number of Licensed Practical Nurse	Board Prov-to-Pop Ratio (per 100,000 persons)	Sum of NPI, Number of Licensed Practical Nurse	NPI-Prov-to-Pop Ratio (per 100,000 persons)
Large	*	*	158	0.5
Medium	*	*	37	0.6
Small	*	*	14	0.7
<b>TOTAL</b>	*	*	<b>209</b>	<b>0.6</b>

\* No data available.

Sources: NPI Data Dissemination File (2013), American Community Survey (2007-2011)

## Licensed Psychiatric Technician

### Boards Licensure Data

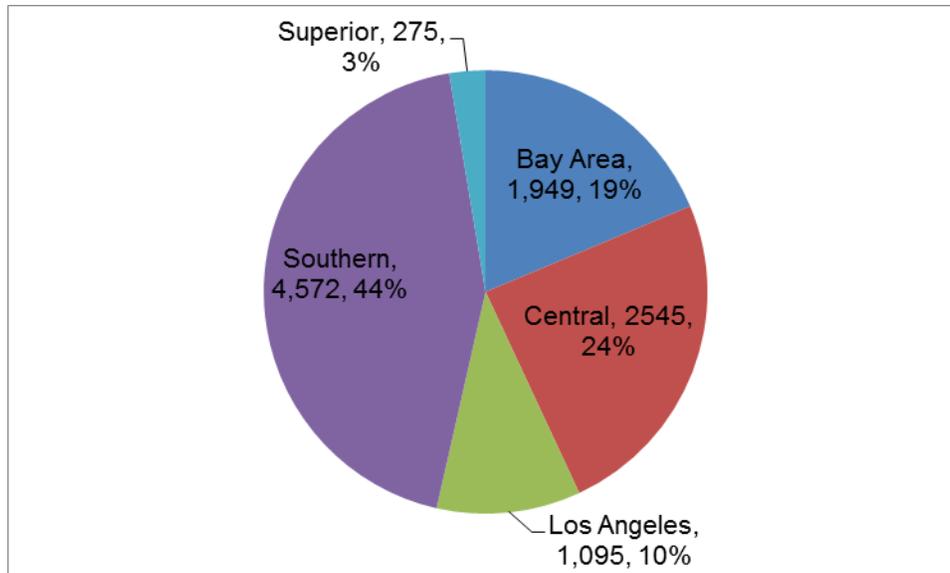
Data on Licensed Psychiatric Technicians (LPT) was derived from the California Board of Psychiatric Technicians and Vocational Nurses. Board data was used to determine the total pool of Board-licensed LPTs available in California, and the distributions of LPTs across MHSA Regions and county sizes.<sup>69</sup>

<sup>69</sup> Addresses listed in the board data set were assumed to represent the location of practice for each provider. Functionally these addresses serve as mailing addresses, and could potentially be addresses of residence, practice, or other. However, the following analysis assumes that the Board licensee listed their location of practice. This address was matched to a California county and its related county size and MHSA region.

According to Board data, there were 10,436 Board-LPTs in the state of California. A complete list of Board-Licensed Psychiatric Technicians by county is available in Table 91 in the Appendix. The average length of licensure of Board-licensed LPTs is 14.4 years.

As shown in Figure 59, the Southern region contained the majority of Board-licensed LPTs (n=4,572), while the Superior region had the least number of Board-licensed LPTs (n=275).

**Figure 59: Licensed Psychiatric Technicians by MHS Region, Board Licensure Data, 2013 (n=10,436)**



Source: California Board of Psychiatric Technicians and Vocational Nurses (2013)

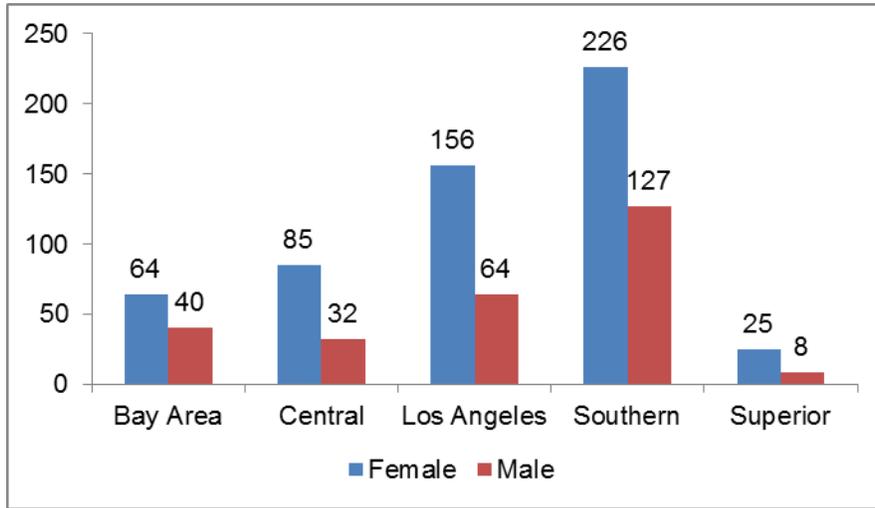
### NPI Data

There were 827 LPNs, across 43 counties, in NPI data. LPNs in NPI data represented 8% of all Board-licensed LPNs in California. This means that 8% of the state’s Board-licensed LPNs had registered with NPI and were likely to provide Medicare- or Medi-Cal-funded services. A complete list of LPN counts by county is available in Table 91 in the Appendix.

### MHS Region

As shown in Figure 60, the Southern region contained the highest percentage of LPTs (43%, n=353) and the Superior region contained the lowest percentage (4%, n=33). Females occupied larger numbers of LPT positions than males in all MHS Regions. Overall, females comprised 67% (n=556) of all LPT positions.

**Figure 60: Licensed Psychiatric Technicians by MHA Region and Gender, NPI Data, 2013 (n=827)**

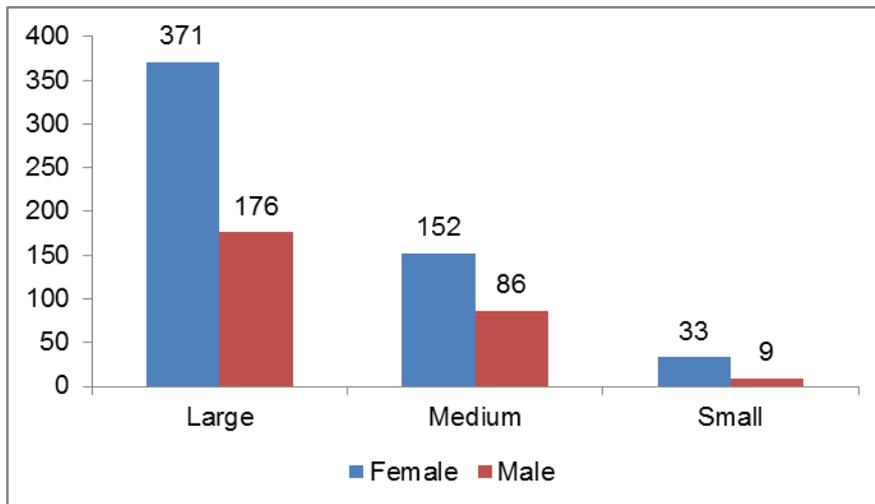


Source: NPI Data Dissemination File (2013)

**County Size**

As detailed in Figure 61, large counties contained 66% (n=547) of LPTs. Females represented larger numbers of LPT positions than males across all county sizes.

**Figure 61: Licensed Psychiatric Technicians by County Size and Gender, NPI Data, 2013 (n=827)**

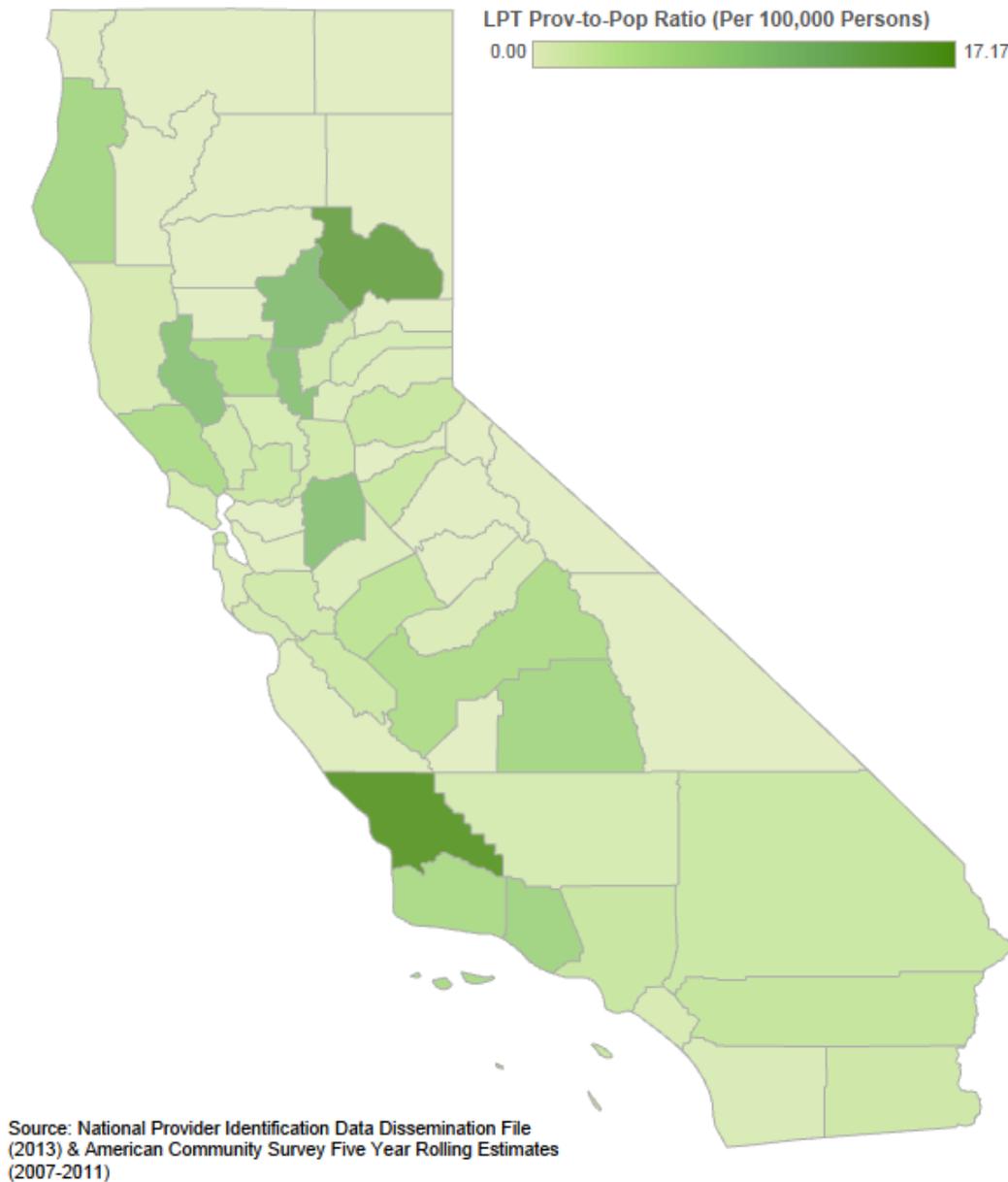


Source: NPI Data Dissemination File (2013)

### Provider-to-Population Ratios

Figure 62 visually represents the provider-to-population ratios of LPTs in NPI data. These ratios represent the number of LPTs per 100,000 persons in the county. A complete list of LPT-to-population ratios by county is available in Table 91 in the Appendix.

**Figure 62: Licensed Psychiatric Technician Provider-to-Provider Ratios, by County, NPI Data, 2013**



Sources: NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 46 depicts total LPT counts and LPT-to-population ratios by MHSA Region, by Board and NPI data.

In statewide Board data, there were 28.2 LPTs per 100,000 persons. The Central region had the highest LPT-to-population ratio of 45.5 LPTs for every 100,000 persons. The Superior and Bay Area regions had similar provider-to-population ratios, despite having disparate total counts. The Los Angeles region had the smallest LPT-to-population ratio.

NPI data reflects the total LPT counts and LPT-to-population ratios that are likely to provide public services. Statewide, the NPI LPT-to-population ratio was 2.2 LPTs per 100,000 persons. Despite having the smallest pool of LPTs, the Superior region had the highest LPT-to-population ratio of four LPTs for every 100,000 persons. The Bay Area region had the lowest LPT-to-population ratio of 1.2 LPTs per 100,000 persons.

**Table 46: Licensed Psychiatric Technicians by MHSA Region, Board Licensure and NPI Data, 2013**

MHSA Region	Board, Number of LPT	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of LPT	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>Bay Area</b>	1,949	25.0	96	1.2
<b>Central</b>	2,545	45.5	188	3.4
<b>Los Angeles</b>	1,095	11.2	220	2.2
<b>Southern</b>	4,572	35.9	281	2.2
<b>Superior</b>	275	26.2	42	4.0
<b>TOTAL</b>	<b>10,436</b>	<b>28.2</b>	<b>827</b>	<b>2.2</b>

*Sources:* California Board of Psychiatric Technicians and Vocational Nurses (2013), NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 47 depicts the total LPT counts and LPT-to-population ratios for LPTs by county size, by Board data and NPI data. In Board data, medium counties had the highest LPT-to-population ratio. Large counties had the lowest LPT-to-population ratio despite accounting for more than half of the statewide total count of Board-licensed LPTs.

NPI data trends reflect the same trends in Board data. Medium counties had the highest LPT-to-population ratio, followed by small counties. Large counties had the lowest LPT-to-population ratio.

**Table 47: Licensed Psychiatric Technicians by County Size, Board Licensure and NPI Data, 2013**

County Size	Board, Number of LPT	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of LPT	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>Large</b>	5,462	18.8	547	1.9
<b>Medium</b>	3,950	67.5	238	4.1
<b>Small</b>	1,024	50.5	42	2.1
<b>TOTAL</b>	<b>10,436</b>	<b>28.2</b>	<b>827</b>	<b>2.2</b>

Sources: California Board of Psychiatric Technicians and Vocational Nurses (2013), NPI Data Dissemination File (2013), American Community Survey (2007-2011)

## Licensed Vocational Nurse

### Boards Licensure Data

Data on Licensed Vocational Nurses (LVN) was derived from the California Board of Psychiatric Technicians and Vocational Nurses. Board data was used to determine the total pool of Board-licensed LVNs available in California, and the distributions of LVNs across MHSA Regions and county sizes.<sup>70</sup>

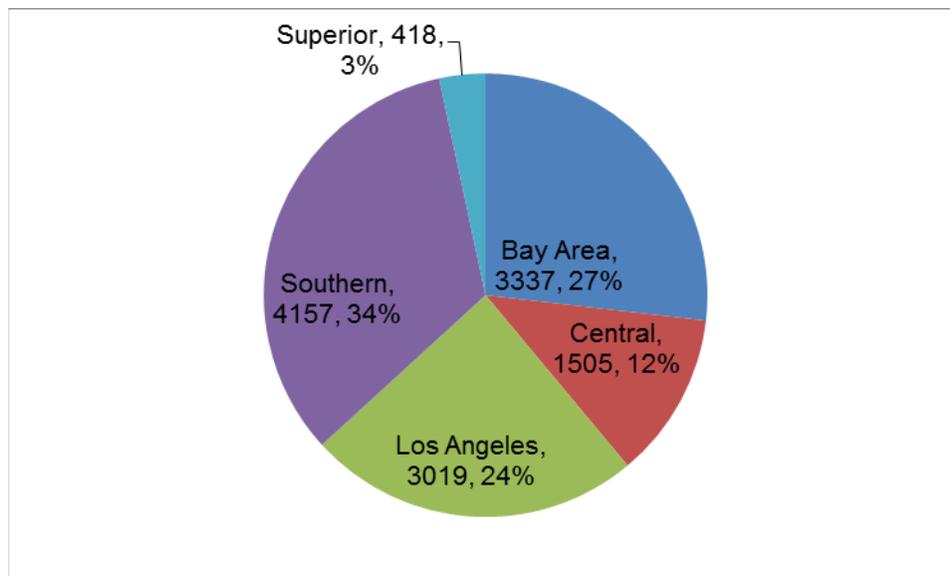
According to Board data, there are 12,436 Board-licensed LVNs in the state of California. The average length of licensure of Board-licensed LVNs is 10.8 years. A complete list of Board-licensed LVN counts by county is available in Table 92 of the Appendix.

As shown in Figure 63, the Southern region contained the highest number of Board-licensed LVNs (n=4,157), and the Superior region (n=418) had the lowest number of board-Licensed Vocational Nurses.

---

<sup>70</sup> Addresses listed in the board data set were assumed to represent the location of practice for each provider. Functionally these addresses serve as mailing addresses, and could potentially be addresses of residence, practice, or other. However, the following analysis assumes that the Board licensee listed their location of practice. This address was matched to a California county and its related county size and MHSA region.

**Figure 63: Licensed Vocational Nurses by MHSR Region, Board Licensure Data, 2013  
(n=12,436)**



Source: California Board of Psychiatric Technicians and Vocational Nurses (2013)

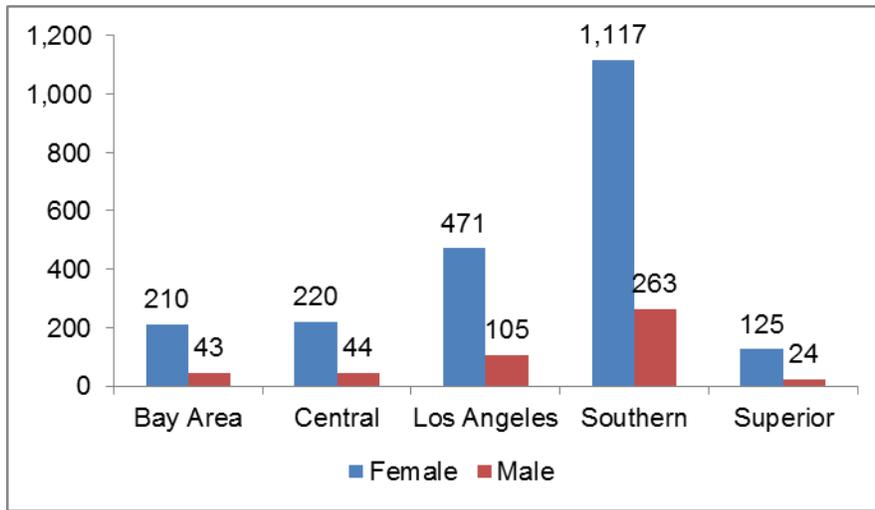
#### NPI Data

There were 2,622 LVNs, across 52 counties, in NPI data. LVNs in NPI data represented 21.1% of all Board-licensed LVNs in California. This means that 21.1% of the state’s Board-licensed LVNs had registered with NPI and were likely to provide Medicare- or Medi-Cal-funded services. A complete list of LVN counts by county is available in Table 92 in the Appendix.

#### MHSR Region

As shown in Figure 64, the Southern region comprised the greatest percentages of LVNs (53%, n=1,380). The Bay Area and Superior regions contained the smallest percentages of LVNs, 10% (n=253) and 6% (n= 264), respectively. Females occupied larger numbers of LVN positions than males across all MHSR Regions. Overall, females comprised 82% (n=2,143) of all LVN positions.

**Figure 64: Licensed Vocational Nurses by MHSA Region and Gender, NPI Data, 2013  
 (n=2,622)**

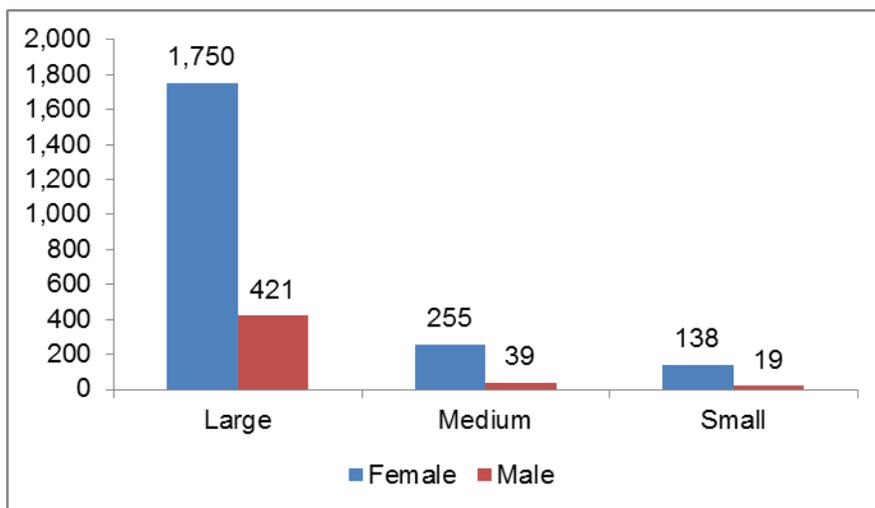


Source: NPI Data Dissemination File (2013)

### County Size

As detailed in Figure 65, large counties contained 83% (n=2,171) of LVNs. Females represented larger numbers of LVN positions than males across all county sizes.

**Figure 65: Licensed Vocational Nurses by County Size and Gender, NPI Data, 2013  
 (n=2,622)**

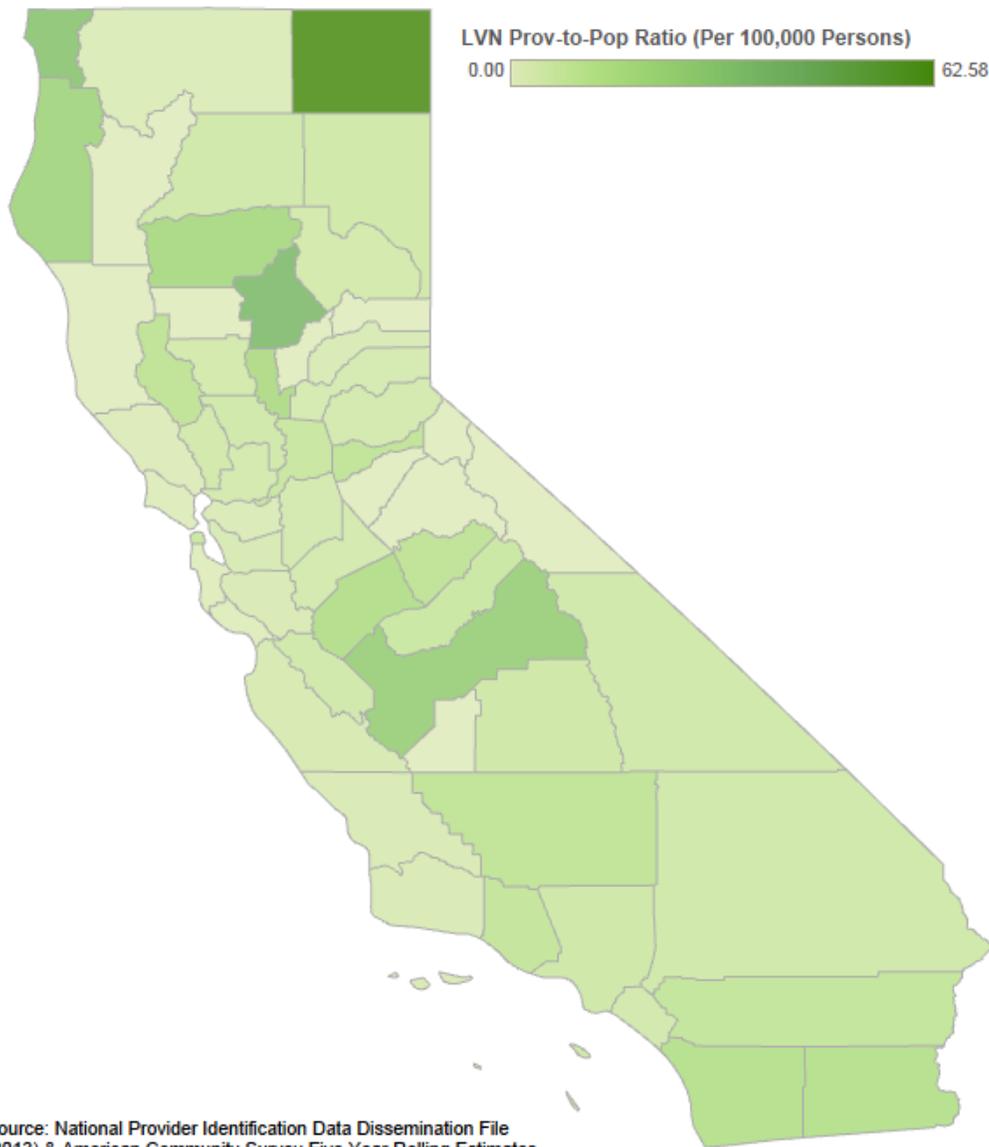


Source: NPI Data Dissemination File (2013)

### Provider-to-Population Ratios

Figure 66 visually represents the provider-to-population ratios of LVNs in NPI data. These ratios represent the number of LVNs per 100,000 persons in the county. A complete list of LVN-to-population ratios by county is available in Table 92 in the Appendix.

**Figure 66: Licensed Vocational Nurses Provider-to-Population Ratios, by County, NPI Data, 2013**



Sources: NPI Data Dissemination File (2013), American Community Survey (2007-2011)

As shown in Table 48, in Board data, the statewide LVN-to-population ratio was 33.6 LVNs per 100,000 persons. Overall, Board LVN-to-population ratios were high for LVNs. Among MHSA

Regions, the Bay Area region had the highest LVN-to-population ratio, followed closely by the Superior region.

NPI data depicts the total LVN counts and LVN-to-population ratio of LVNs that were likely to provide public services. While the Superior region had the lowest overall count of LVNs, it also had a substantially higher LVN-to-population ratio of 15.3 relative to other MHSA Regions. The Bay Area region had the lowest LVN-to-population ratio of 3.1 LVNs per 100,000 persons.

**Table 48: Licensed Vocational Nurses by MHSA Region, Board Licensure and NPI Data, 2013**

MHSA Region	Board, Number of LVN	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of LVN	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>Bay Area</b>	3,337	42.7	245	3.1
<b>Central</b>	1,505	26.9	531	9.5
<b>Los Angeles</b>	3,019	30.8	576	5.9
<b>Southern</b>	4,157	32.6	1,110	8.7
<b>Superior</b>	418	39.9	160	15.3
<b>TOTAL</b>	<b>12,436</b>	<b>33.6</b>	<b>2,622</b>	<b>7.1</b>

*Sources:* California Board of Psychiatric Technicians and Vocational Nurses (2013), NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 49 depicts the total LVN counts and LVN-to-population ratios by Board and NPI data. Large counties had the greatest total of Board-licensed LVN count (n=9,703), followed by the medium (n=2,098) and small (n=635) counties. Across county sizes, there was little variation among LVN-to-population ratios. Medium counties had the highest LVN-to-population ratio (35.8), followed by large counties (33.4).

NPI data showed the distribution of LVNs who were likely to provide public services. Small and large counties had similar LVN-to-population ratios, followed by medium counties.

**Table 49: Licensed Vocational Nurses by County Size, Board Licensure and NPI Data, 2013**

County Size	Board, Number of LVN	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of LVN	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>Large</b>	9,703	33.4	2,171	7.5
<b>Medium</b>	2,098	35.8	294	5.0
<b>Small</b>	635	31.3	157	7.7
<b>TOTAL</b>	<b>12,436</b>	<b>33.6</b>	<b>2,622</b>	<b>7.1</b>

*Sources:* California Board of Psychiatric Technicians and Vocational Nurses (2013), NPI Data Dissemination File (2013), American Community Survey (2007-2011)

## Forecasts

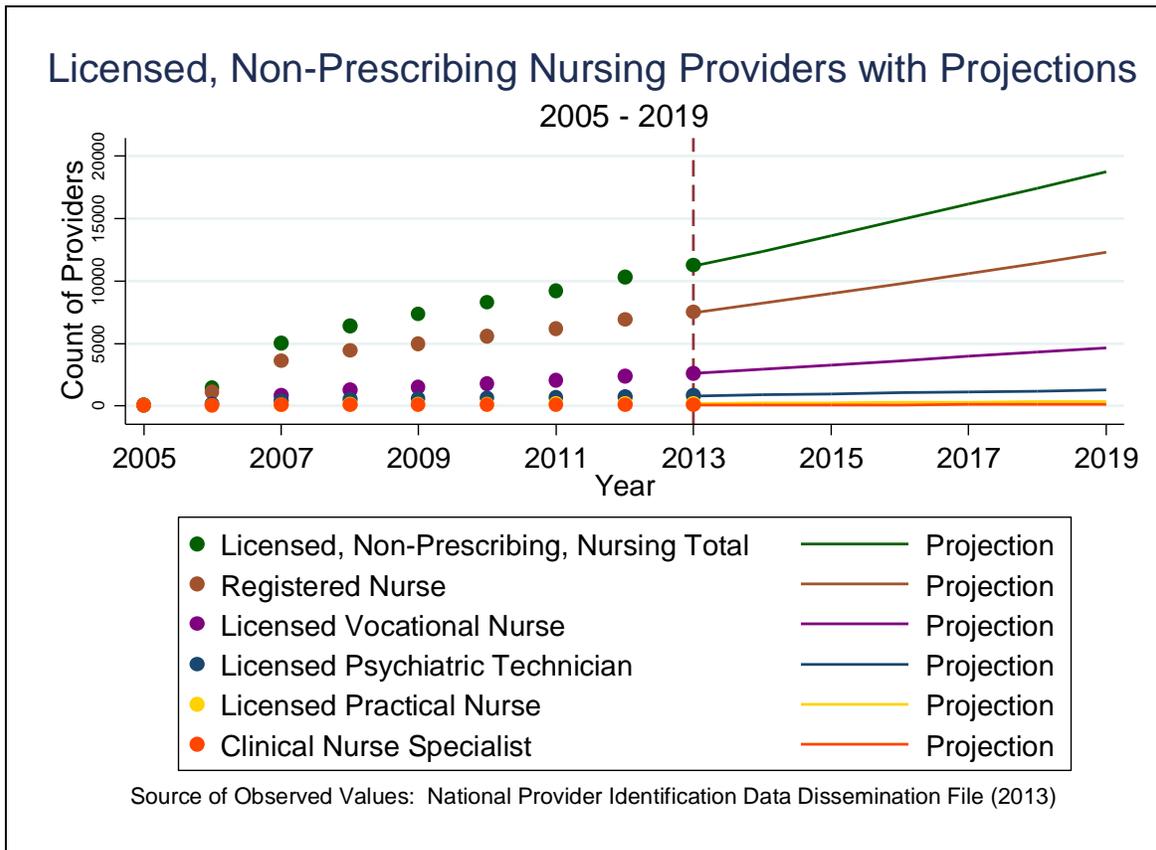
Figure 67 visually represents the observed values and projected trends of for licensed, non-prescribing, nursing providers. Observed counts of licensed, non-prescribing, nursing are depicted to the left of the red dotted line, from 2005 through 2013. These values were derived from the 2013 NPI data dissemination file. Projected trends are depicted to the right of the red dotted line from 2014 through 2019. Additionally, Figure 67 includes the combined observed values and projected values of all the licensed, non-prescribing, nursing in total, depicted by the “Licensed, Non-Prescribing, Nursing Total” values.

Regressions were applied to the observed data from 2005 through 2013, controlling for California GDP and population size, in order to forecast the projected counts of each occupation from 2014 through 2019.

Wage trend data was observed for Registered Nurses and Psychiatric Technicians. Registered Nurse wage controls were applied to the regression models for Registered Nurses and Clinical Nurse Specialists. Psychiatric Technician wage controls were applied to the regression models for Psychiatric Technicians, vocational Nurses, and practical Nurses.

Further adjustments were made depending on available retirement data for each occupation. As Figure 67 illustrates, RDA was able to artificially construct estimated retirement counts for Licensed Vocational Nurses and Licensed Psychiatric Technicians. The forecast models for these professions were therefore depressed by the average count of providers estimated to retire annually by 2019.

**Figure 67: Licensed, Non-Prescribing, Nursing Providers with Projections**



Overall, the total count of for licensed, non-prescribing, nursing providers grew by 75% from 2008 to 2013. As depicted in Figure 67, the total count is anticipated to continue on a trajectory of growth from 2014 to 2019. The largest share and the fastest growing occupation within this category were RNs. In 2013, RNs represented 67% of the total Licensed, Non-Prescribing Nurses in the NPI data. This share will remain relatively steady over the next five-year period.

From 2014 to 2019, the counts of Registered Nurses in California are estimated to increase by 9-10% per year and reach a total of 12,279 in 2019. The provider-to-population ratios (per 100,000 California residents) of Registered Nurses are estimated to increase from 21.4 in 2014 to 30.5 in 2019. Additionally, the counts of Clinical Nurse Specialists in California are estimated to increase by 5-6% per year and reach a total of 122 in 2019. The provider-to-population ratios (per 100,000 California residents) of Clinical Nurse Specialists are estimated to stay at 0.3 from 2014 to 2019.

Further, from 2014 to 2019, the counts of Licensed Practical Nurses in California are estimated to increase by 8-12% per year and reach a total of 369 in 2019. The provider-to-population ratios (per 100,000 California residents) of Licensed Practical Nurses are estimated to increase from 0.6 in 2014 to 0.9 in 2019. Moreover, the counts of Licensed Psychiatric Technicians in California are estimated to increase by 7-8% per year and reach a total of 1,287 in 2019. The provider-to-population ratios (per 100,000 California residents) of Licensed Psychiatric

Technicians are estimated to increase from 2.3 in 2014 to 3.2 in 2019. Lastly, the counts of Licensed Vocational Nurses in California are estimated to increase by 7-12% per year and reach a total of 4,650 in 2019. The provider-to-population ratios (per 100,000 California residents) of Licensed Vocational Nurses are estimated to increase from 7.6 in 2014 to 11.6 in 2019.

Table 50, which corresponds with Figure 67, displays: (1) the observed values of for licensed, non-prescribing, nursing providers in the public healthcare system from 2008 through 2013; and (2) the projected values of for licensed, non-prescribing, nursing providers from 2014 through 2019. Additionally, Table 50 includes the rate of change of providers for each year compared to the previous year, as well as the provider-to-population ratios with the observed and projected counts. The provider-to-population ratios were calculated by comparing the counts of providers to every 100,000 persons in the state of California for each year.

**Table 50: Licensed, Non-Prescribing, Nursing Providers with Projections, Counts**

Year	Registered Nurse			Clinical Nurse Specialist			Licensed Practical Nurse			Licensed Psychiatric Technician			Licensed Vocational Nurse			Total		
	# of Providers	Annual % Change	Prov-to-Pop Ratio	# of Providers	Annual % Change	Prov-to-Pop Ratio	# of Providers	Annual % Change	Prov-to-Pop Ratio	# of Providers	Annual % Change	Prov-to-Pop Ratio	# of Providers	Annual % Change	Prov-to-Pop Ratio	# of Providers	Annual % Change	Prov-to-Pop Ratio
2008	4,424		12.3	75		0.2	110		0.3	530		1.5	1,289		3.6	6,428		17.9
2009	5,000	13%	13.9	78	4%	0.2	133	21%	0.4	587	11%	1.6	1,529	19%	4.2	7,327	14%	20.3
2010	5,585	12%	15.0	80	3%	0.2	147	11%	0.4	638	9%	1.7	1,810	18%	4.9	8,260	13%	22.1
2011	6,170	10%	16.4	86	8%	0.2	166	13%	0.4	686	8%	1.8	2,086	15%	5.6	9,194	11%	24.5
2012	6,881	12%	18.2	88	2%	0.2	192	16%	0.5	752	10%	2.0	2,403	15%	6.4	10,316	12%	27.3
2013	7,520	9%	19.7	91	3%	0.2	209	9%	0.5	827	10%	2.2	2,622	9%	6.9	11,269	9%	29.6
2008-2013 Overall Growth	3,096	70%	7.4	16	21%	0.0	99	90%	0.2	297	56%	0.7	1,333	103%	3.3	4,841	75%	11.7
2014	8,205	9%	21.3	96	6%	0.3	234	12%	0.6	890	8%	2.3	2,921	11%	7.6	12,345	10%	32.1
2015	8,986	10%	23.2	101	5%	0.3	261	12%	0.7	970	9%	2.5	3,269	12%	8.4	13,587	10%	35.0
2016	9,789	9%	25.0	106	5%	0.3	289	11%	0.7	1,051	8%	2.7	3,623	11%	9.3	14,857	9%	37.9
2017	10,609	8%	26.8	111	5%	0.3	316	10%	0.8	1,132	8%	2.9	3,977	10%	10.1	16,145	9%	40.8
2018	11,435	8%	28.7	117	5%	0.3	342	8%	0.9	1,210	7%	3.0	4,313	8%	10.8	17,416	8%	43.7
2019	12,279	7%	30.5	122	5%	0.3	369	8%	0.9	1,287	6%	3.2	4,650	8%	11.6	18,708	7%	46.5
2014-2019 Overall Growth	4,075	50%	9.2	26	27%	0.1	135	58%	0.3	398	45%	0.9	1,729	59%	4.0	104,491	52%	14.4

Source of Observed Values: NPI Data Dissemination File 2013

## Key Findings

- **The category of licensed, non-prescribing, nursing occupations (Registered Nurses, Clinical Nurse Specialists, Licensed Practical Nurses, Licensed Psychiatric Technicians, and Licensed Vocational Nurses) is anticipated to grow by approximately 52% over the five-year period from 2014 to 2019.** The ratio of Licensed, Non-Prescribing Nurses to the overall population will grow slightly. From 2014 to 2019, projections anticipate that there will be approximately two additional Licensed, Non-Prescribing Nurses per every 100,000 persons.
- **In 2013, Registered Nurses represented 67% of Licensed, Non-Prescribing nursing occupations in the NPI data.** This share is anticipated to remain relatively constant over the next five year period. Registered Nurses were followed by Licensed Vocational Nurses (23%). Licensed Psychiatric Technicians, Clinical Nurse Specialists, and Licensed Practical Nurses each represented less than 10% of the total share of the Licensed, Non-Prescribing nursing category in the NPI data.
- **The MHSa Southern region and large counties contained the highest percentages of licensed, non-prescribing, nursing positions.** The MHSa Southern region had the most licensed, non-prescribing, nursing positions except for Clinical Nurse Specialist. As compared to small and medium counties, large counties contained the greatest number of all licensed, non-prescribing, nursing occupations.
- **The MHSa Superior region and small counties contained the lowest percentages of licensed, non-prescribing, nursing positions.** This trend was consistent with that of Licensed, Prescribing occupations.
- **Overall, the licensed, non-prescribing, nursing provider class was comprised of more females than males.** Females filled 89% of Clinical Nurse Specialist positions, 87% of Registered Nurse positions, 80% of Licensed Practical Nurse positions, 82% of Licensed Vocational Nurse positions, and 67% of Licensed Psychiatric Technician positions.
- **The MHSa Superior region and small counties had provider-to-population ratios of for licensed, non-prescribing, nursing providers that were not the lowest or highest across the state.** When examining provider counts across the state, the Superior region and small counties consistently had the fewest counts. However, when those provider counts were scaled according to county total populations, the Superior region and small counties did not have the lowest provider-to-population ratios.

## Licensed, Non-Prescribing, Clinical Occupations

In this analysis, the licensed, non-prescribing, clinical professionals include: (1) Psychologist, (2) Marriage and Family Therapist, (3) Licensed Clinical Social Worker, (4) Licensed Professional Clinical Counselor, and (5) Occupational Therapist. These five professions will be grouped together when producing projections of the future total counts of licensed, non-prescribing, clinical professionals in California’s public mental health workforce. In regards to skills mix, providers in these professions offer services that are relatively comparable, thus presenting potential labor substitution possibilities in the state’s mental health workforce. For each profession, this section of the report provides: (1) a description of the distribution of providers across California, using board data (if available) and NPI data; and (2) the current provider-to-population ratios across the different county sizes in the state. This section of the report also describes the projected forecasts for licensed, non-prescribing, clinical professions. Lastly, key findings are detailed regarding the observed and projected distributions of licensed, non-prescribing, clinical professionals.

Table 51 presents the NPI data counts for each licensed, non-prescribing, clinical occupation. There were 44,381 total licensed, non-prescribing, clinical providers in the NPI data. Professional Counselors and Occupational Therapists hold the smallest shares of licensed, non-prescribing, clinical professions at 1% and 0%, respectively.

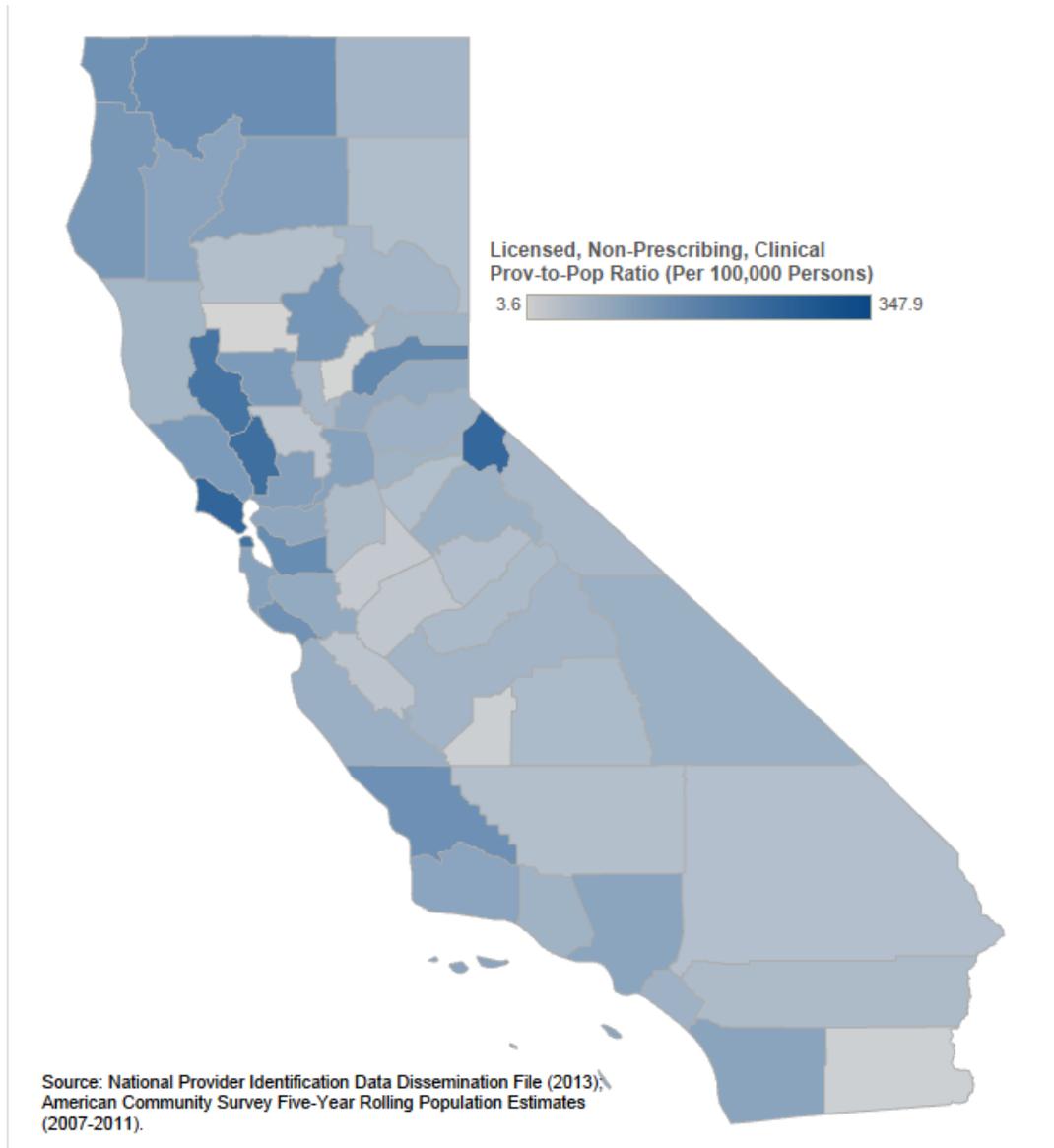
**Table 51: Licensed, Non-Prescribing, Clinical Occupations, NPI Data, 2013**

Occupation	Number in the NPI Data	% of Total
Psychologist	12,180	27%
Marriage & Family Therapist	20,119	45%
Clinical Social Worker	11,747	26%
Professional Counselor	325	1%
Occupational Therapist	10	0%
<b>TOTAL</b>	<b>44,381</b>	<b>100%</b>

Source: NPI Data Dissemination File (2013)

Figure 68 visually represents the provider-to-population ratios of licensed, non-prescribing, clinical professionals working in California’s public healthcare system as identified in the NPI data. The highest provider-to-population ratios were in the Bay Area and Los Angeles regions of the state.

Figure 68: Licensed, Non-Prescribing, Clinical Professionals Provider-to-Population Ratios, by County NPI Data, 2013



Sources: NPI Data Dissemination File (2013), American Community Survey (2007-2011)

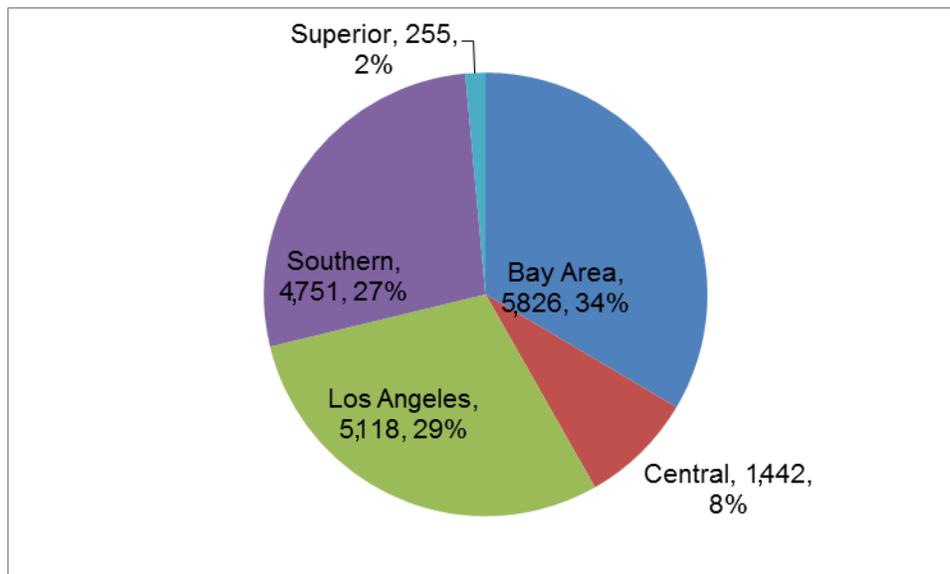
## Psychologist

### Boards Licensure Data

Data on board-licensed Psychologists was derived from the Board of Psychology of California. Board data was used to determine the total pool of board-licensed Psychologists available in California, and the distribution of Psychologists across MHSR Regions and by county sizes.<sup>71</sup>

According to the Board of Psychology data, there were a total of 17,392 board-licensed Psychologists in the state of California. Figure 69 shows the distribution of Psychologists by MHSR Region. The Bay Area region had the largest share of board-licensed Psychologists in the state, accounting for approximately 34% (n=5,826). Similar to other professions, the Central and Superior regions had far lower shares of the state's board-licensed Psychologists (8% and 2%, respectively).

**Figure 69: Psychologists by MHSR Region, Board Licensure Data, 2013 (n=17,392)**



Source: California Board of Psychology (2013)

### NPI Data

There were 12,180 Psychologists, across 54 counties, in NPI data. Psychologists in NPI data represented 70% of all Board-licensed Psychologists in California. This means that 70% of the state's Board-licensed Psychologists had registered with NPI and were likely to provide

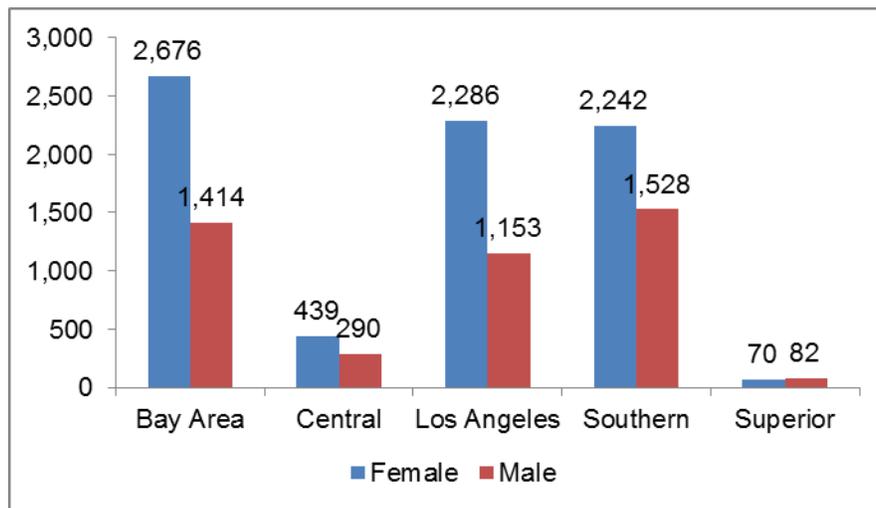
<sup>71</sup> Addresses listed in the board data were assumed to represent the location of practice for each provider. Functionally, these addresses served as mailing addresses and could potentially be addresses of residence, practice, or any other that the licensee chose to provide. However, the following analysis assumes that the Board licensee listed their location of practice. This address was matched to its respective California county.

Medicare- or Medi-Cal-funded services. A complete list of Psychologists counts by county is available in Table 93 in the Appendix.

**MHSA Region**

As shown in Figure 70, the Bay Area, Southern, and Los Angeles regions contained the highest percentages of Psychologists, at 34% (n=4,090), 31% (n=3,770), and 28% (3,439), respectively. The Superior region contained the smallest percentage (1%). Females occupied larger numbers of Psychologist positions than males in all MHSA Regions except the Superior region. Overall, females comprised 63% of all Psychologist positions.

**Figure 70: Psychologists by MHSA Region and Gender, NPI Data, 2013 (n=12,180)**

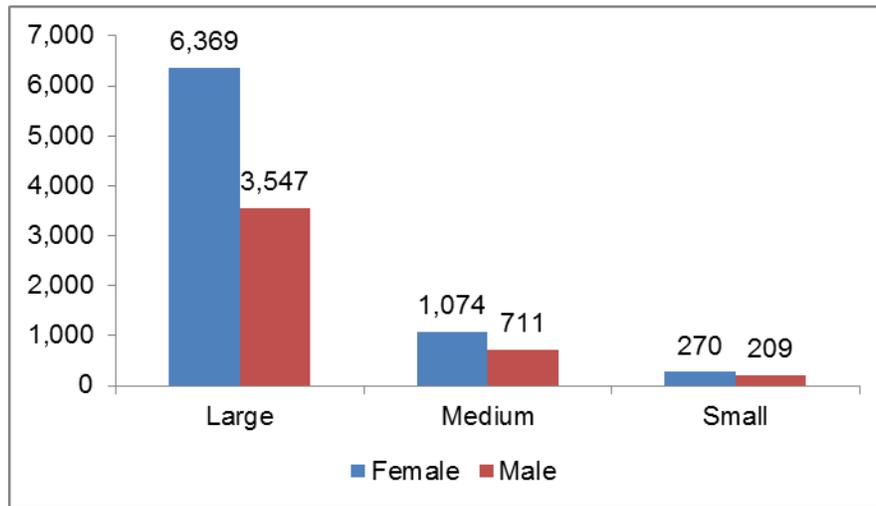


Source: NPI Data Dissemination File (2013)

**County Size**

As detailed in Figure 71, large counties contained 81% (n=9,916) of Psychologists. Females represented larger numbers of Psychologist positions than males across all county sizes.

Figure 71: Psychologists by County Size and Gender, NPI Data, 2013 (n=12,180)

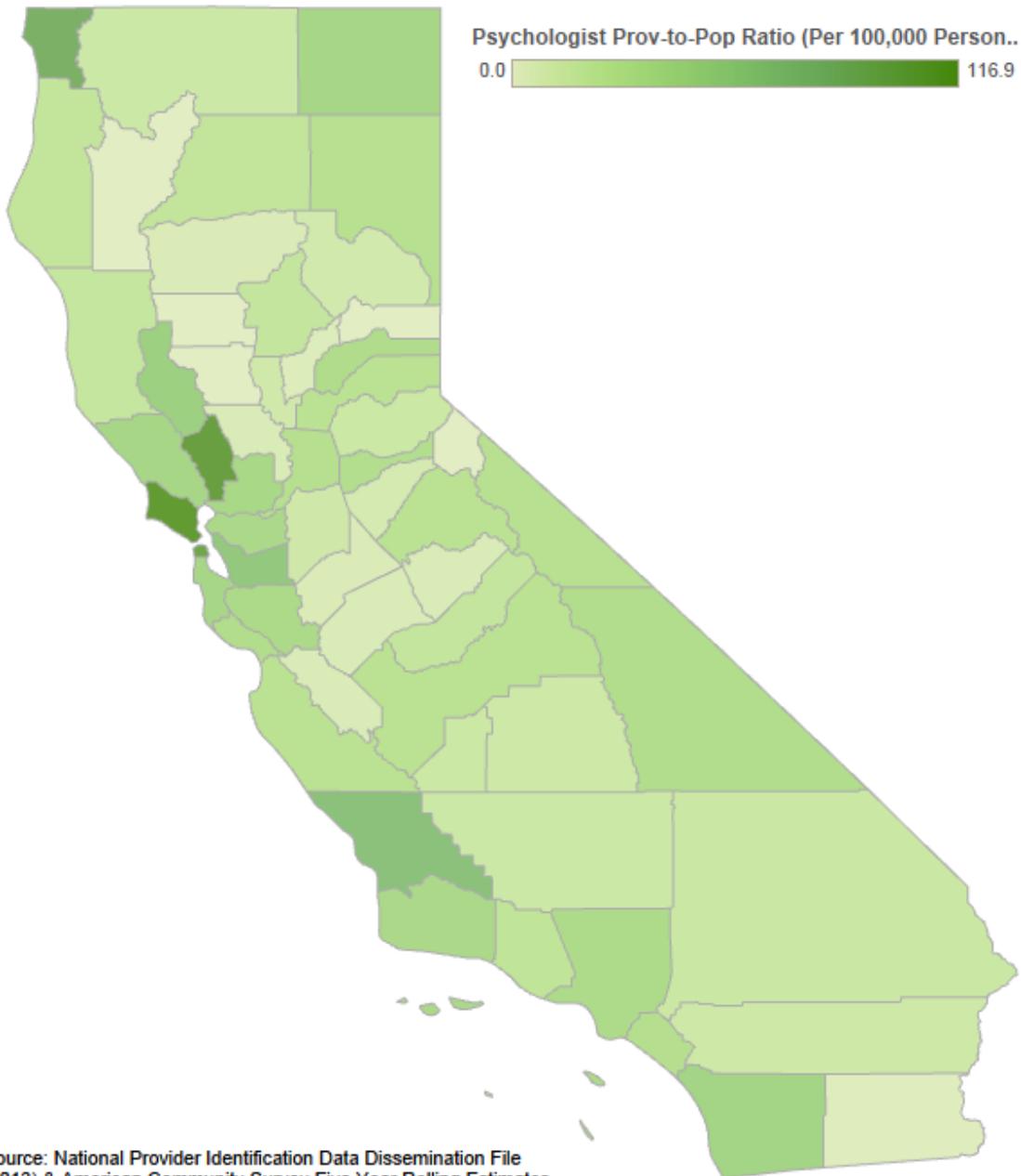


Source: NPI Data Dissemination File (2013)

### Provider-to-Population Ratios

Figure 72 displays the ratio of Psychologists per 100,000 persons, by county. Counties in the Bay Area region had the highest Psychologist-to-population ratios in the state.

Figure 72: Psychologist-to-Population Ratios by County, NPI Data, 2013



Sources: NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 52 depicts the total counts and Psychologist-to-population ratios by MHSA Region, by Board and NPI data. In the Board data, there were 47 Psychologists per 100,000 persons in the state. The Bay Area region had the highest Board-licensed Psychologist-to-population ratio of

74.6 Psychologists per 100,000 persons. Despite a large difference in total counts, Psychologist-to-population ratios in the Central and Superior regions were relatively similar.

In NPI data, there were 32.9 Psychologists per 100,000 persons in the state. Among MHSA Regions, the Bay Area region had the highest total count and Psychologist-to-population ratio.

**Table 52: Psychologist by MHSA Region, Board Licensure and NPI Data, 2013**

MHSA Region	Board, Number of Psychologist	Board Prov-to-Pop Ratio (per 100,00 persons)	NPI, Number of Psychologist	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>Bay Area</b>	5,826	74.6	4,042	51.8
<b>Central</b>	1,442	25.8	1,044	18.7
<b>Los Angeles</b>	5,118	52.3	3,439	35.1
<b>Southern</b>	4,751	37.3	3,422	26.9
<b>Superior</b>	255	24.3	233	22.2
<b>TOTAL</b>	<b>17,392</b>	<b>47.0</b>	<b>12,180</b>	<b>32.9</b>

Sources: California Board of Psychology (2013), NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 53 provides the total counts and Psychologist-to-population ratios by county size, by Board and NPI data. In Board data, large counties had the greatest total count and highest Psychologist-to-population ratio. Small counties had the lowest total count and Psychologist-to-population ratio.

NPI data shows the total count and Psychologist-to-population ratio for Psychologists who were likely to provide public services. Statewide, there were 32.9 Psychologists per 100,000 persons. Consistent with trends in the Board data, large counties had the highest total count and Psychologist-to-population ratio. Consistent with Board data, small counties had the lowest Psychologist-to-population ratio of 23.6 Psychologists per 100,000 persons.

**Table 53. Psychologist by County Size, Board Licensure and NPI Data, 2013**

County Size	Board, Number of Psychologist	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Psychologist	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>Large</b>	14,203	48.8	9,916	34.1
<b>Medium</b>	2,649	45.2	17,85	30.5
<b>Small</b>	540	26.6	479	23.6
<b>TOTAL</b>	<b>17,392</b>	<b>47.0</b>	<b>12,180</b>	<b>32.9</b>

Sources: California Board of Psychology (2013), NPI Data Dissemination File (2013), American Community Survey (2007-2011)

## Marriage and Family Therapist

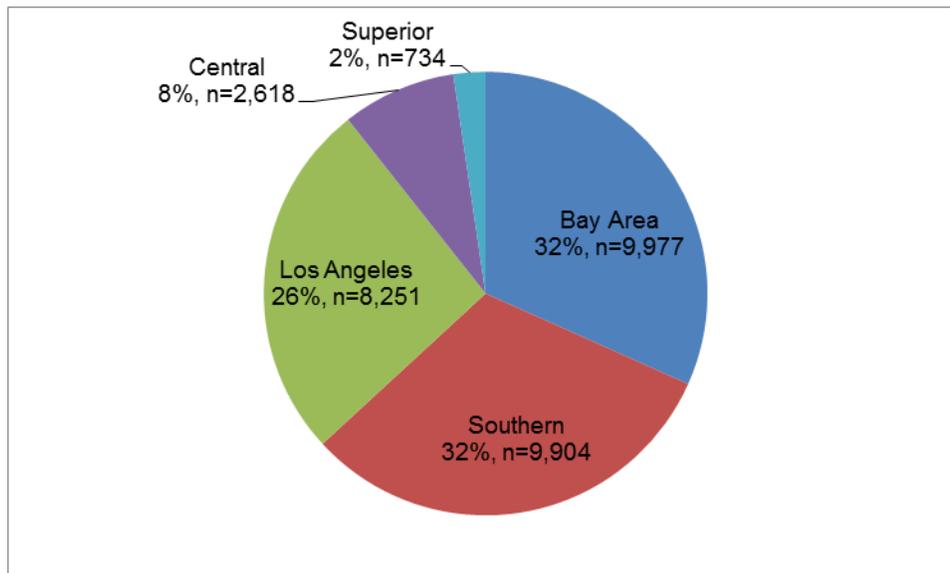
### Boards Licensure Data

Data on Board-licensed Marriage and Family Therapists was derived from the California Board of Behavioral Sciences. Board data was used to determine the total pool of Board-licensed MFTs available in California and their distribution across MHSA Regions and by county sizes.<sup>72</sup>

According to Board data, there were 31,484 Board-licensed MFTs located across all of California's 58 counties. A complete list of Board-licensed MFT counts by county is available in Table 94 in the Appendix.

The average length of licensure of Board-licensed Marriage and Family Therapists is 15.6 years. Additionally, the Bay Area region had the greatest number of Board-licensed Marriage and Family Therapists (n=9,977), while the Superior (n=734) region contained the lowest number of the state's MFTs. Figure 73 shows the distribution of MFTs across California, by MHSA Region.

**Figure 73: Marriage and Family Therapists by MHSA Region, Board Licensure Data, 2013 (n=31,484)**



Source: California Board of Behavioral Sciences (2013)

<sup>72</sup> Addresses listed in the board data were assumed to represent the location of practice for each provider. Functionally, these addresses served as mailing addresses and could potentially be addresses of residence, practice, or any other that the licensee chose to provide. However, the following analysis assumes that the Board licensee listed their location of practice. This address was matched to its respective California county.

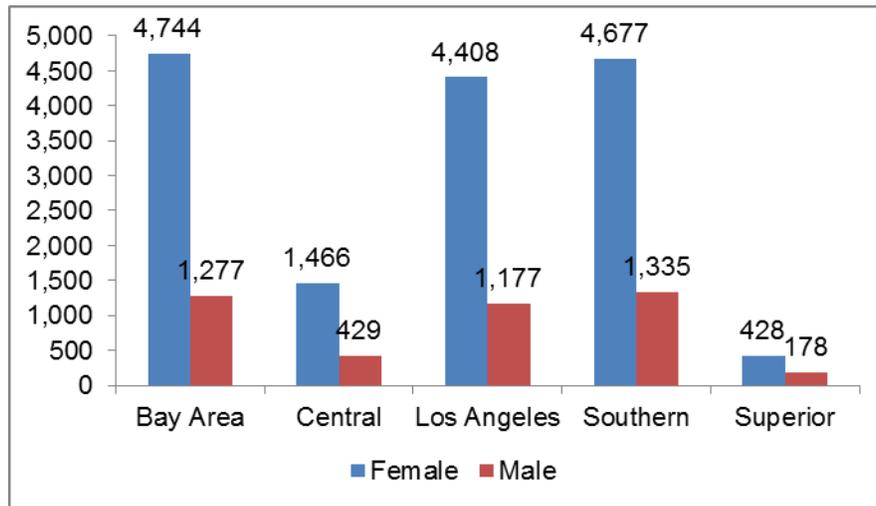
**NPI Data**

There were 20,119 MFTs, across 56 counties, in NPI data. MFTs in NPI data represented 64% of all Board-licensed MFTs in California. This means that 64% of the state’s Board-licensed MFTs had registered with NPI and were likely to provide Medicare- or Medi-Cal-funded services. A complete list of MFT counts by county is available in Table 94 in the Appendix.

**MHSA Region**

As shown in Figure 74, the Bay Area and Southern regions each comprised 30% (n=6,021 and n=6,012 respectively) of MFTs, followed by the Los Angeles region (28%, n=5,585). The Superior region contained the smallest percentage (3%, n=606) of the state’s MFTs. Females occupied larger numbers of MFT positions than males across all MHSA Regions. Overall, females comprised 78% (n=15,723) of all MFT positions.

**Figure 74: Marriage and Family Therapists by MHSA Region and Gender, NPI Data, 2013 (n=20,119)**

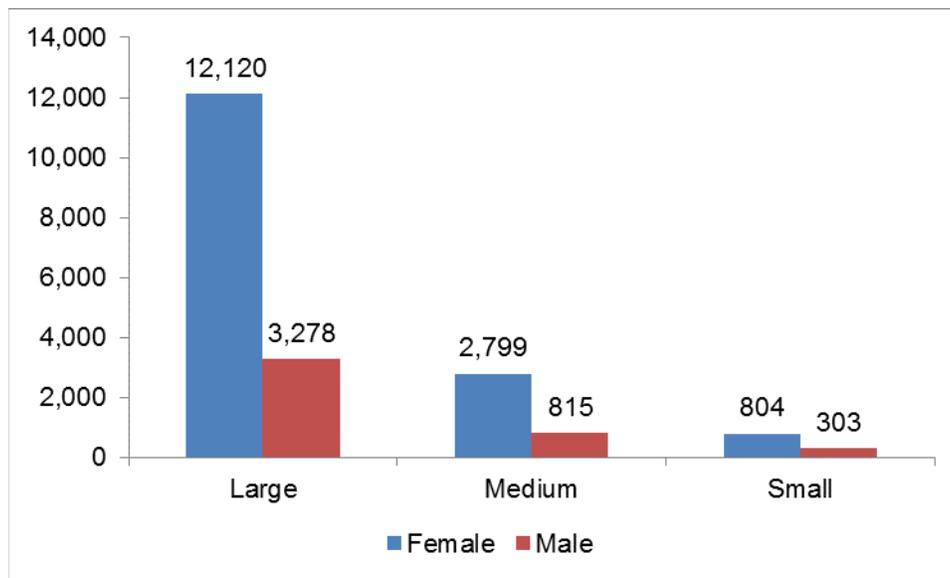


Source: NPI Data Dissemination File (2013)

**County Size**

As detailed in Figure 75, large counties contained 77% (n=15,398) of MFTs. Females represented larger numbers of MFTs than males across all county sizes.

**Figure 75: Marriage and Family Therapists by County Size and Gender, NPI Data, 2013  
(n=20,119)**

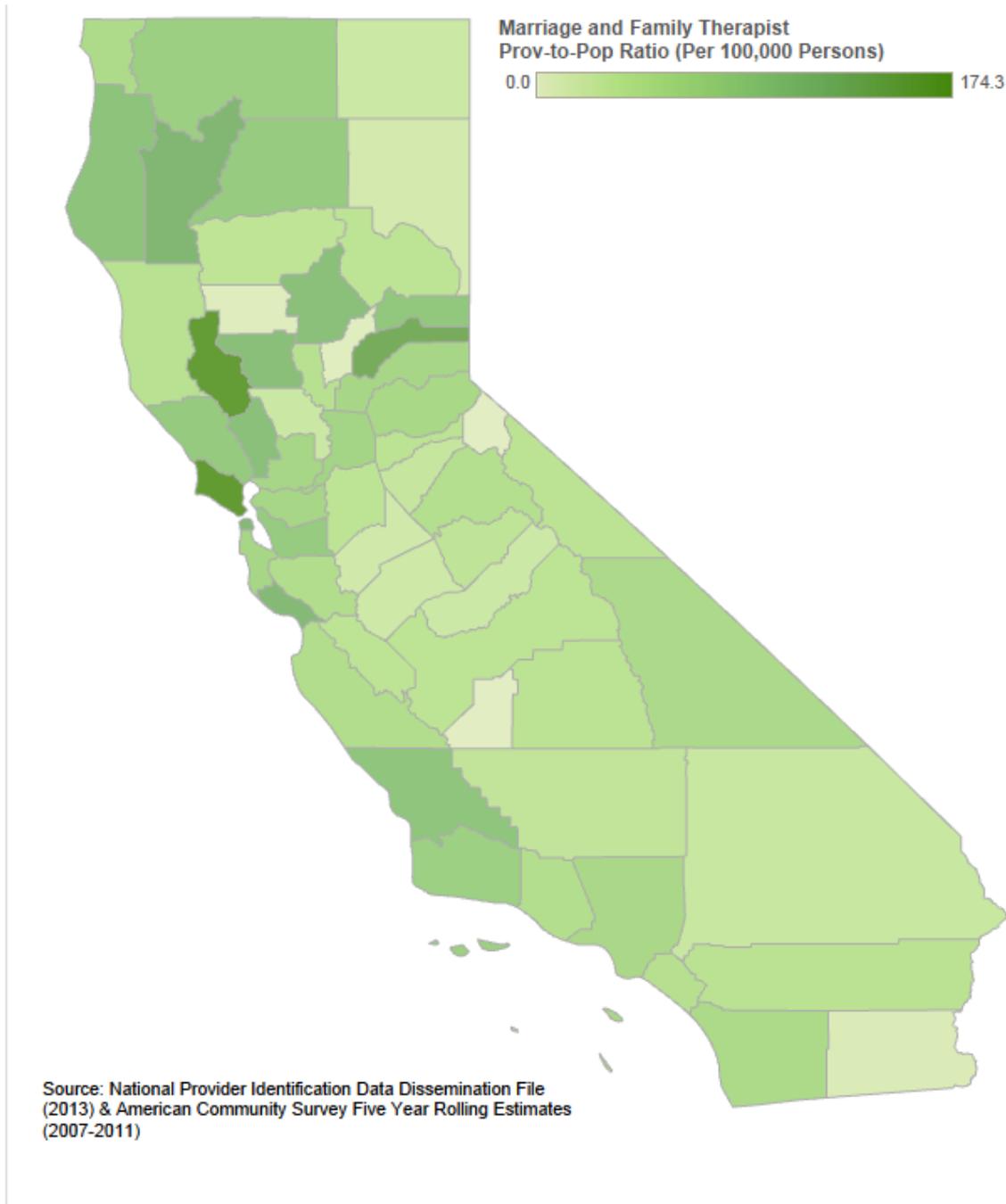


Source: NPI Data Dissemination File (2013)

#### Provider-to-Population Ratios

In Figure 76, the map displays the ratio of MFTs per 100,000 persons, by county. Counties in the Bay Area region had the highest MFT-to-population ratio.

**Figure 76: Marriage and Family Therapist-to-Population Ratios, by County, NPI Data, 2013**



Sources: NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 54 depicts the total counts and MFT-to-population ratios by MHS region, by Board and NPI data. In Board data, there were 85.2 MFTs per 100,000 persons across the state. The Bay Area region had the highest Board-licensed MFT-to-population ratio. The Superior region also had a high Board-licensed MFT-to-population ratio, despite having the lowest total count of Board-licensed MFTs.

In NPI data, there were 54.4 MFTs per 100,000 persons in the state. The Superior region had the highest MFT-to-population ratio, despite having the lowest overall count of MFTs. Consistent with Board data, the Bay Area region again had a high MFT-to-population ratio.

**Table 54: Marriage and Family Therapists by MHA Region, Board Licensure and NPI Data, 2013**

MHA Region	Board, Number of MFT	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of MFT	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>Bay Area</b>	10,098	129.3	5,853	75.0
<b>Central</b>	3,047	54.5	2,270	40.6
<b>Los Angeles</b>	8,251	84.3	5,585	57.1
<b>Southern</b>	8,984	70.6	5,500	43.2
<b>Superior</b>	1,104	105.4	911	86.9
<b>TOTAL</b>	<b>31,484</b>	<b>85.2</b>	<b>20,119</b>	<b>54.4</b>

Sources: California Board of Behavioral Sciences (2013), NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 55 depicts the total counts and MFT-to-population ratios by county size, by Board and NPI data. In Board data, while large counties had the highest total count of MFTs, medium counties had the highest Board-licensed MFT-to-population ratio. Small counties had the lowest Board-licensed MFT-to-population ratio.

In the NPI data, again large counties had the highest total share of MFTs, while medium counties had the highest MFT-to-population ratios. There were similar NPI MFT-to-population ratios in small and large counties, despite large differences in the total count of NPI MFTs.

**Table 55: Marriage and Family Therapists by County Size, Board Licensure and NPI Data, 2013**

County Size	Board, Number of MFT	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of MFT	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>Large</b>	23,695	81.5	15,398	52.9
<b>Medium</b>	6,289	107.4	3,614	61.7
<b>Small</b>	1,500	73.9	1,107	54.5
<b>TOTAL</b>	<b>31,484</b>	<b>85.2</b>	<b>20,119</b>	<b>54.4</b>

Sources: California Board of Behavioral Sciences (2013), NPI Data Dissemination File (2013), American Community Survey (2007-2011)

## Licensed Clinical Social Worker

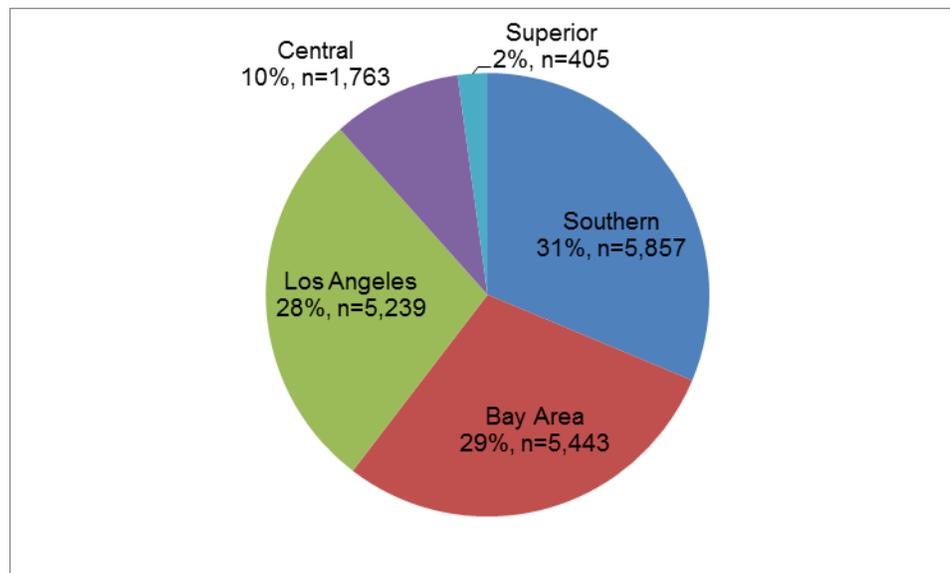
### Boards Licensure Data

Data on Board-Licensed Clinical Social Workers (CSW) was derived from the California Board of Behavioral Sciences. Board data was used to determine the total pool of Board-licensed CSWs available in California, and their distribution across MHSA Regions and county sizes.<sup>73</sup>

According to Board data, there were 18,707 Board-licensed CSWs, located across 57 counties. A complete list of Board-licensed CSWs is available in Table 95 in the Appendix.

The average length of licensure of Board-licensed CSWs is 16.2 years. Additionally, the Southern (n=5,857), Bay Area (n=5,443), and Los Angeles (n=5,239) regions contained comparable amounts of Board-licensed CSWs. The Central (n=1,763) and Superior (n=405) regions had significantly fewer Board-licensed CSWs. Figure 77 shows the distribution of CSWs across the state, by MHSA Region.

**Figure 77: Licensed Clinical Social Worker by MHSA Region, Board Licensure Data, 2013 (n=18,707)**



Source: California Board of Behavioral Sciences (2013)

<sup>73</sup> Addresses listed in the board data were assumed to represent the location of practice for each provider. Functionally, these addresses served as mailing addresses and could potentially be addresses of residence, practice, or any other that the licensee chose to provide. However, the following analysis assumes that the Board licensee listed their location of practice. This address was matched to its respective California county.

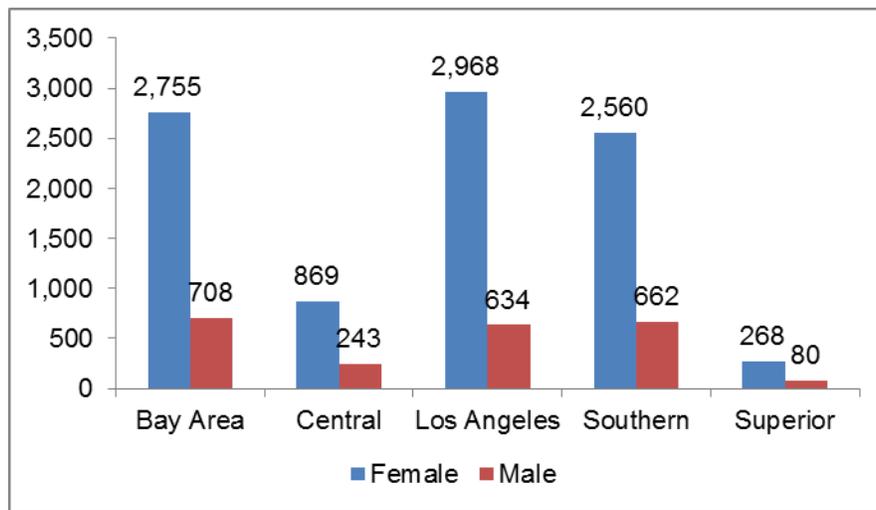
**NPI Data**

There were 11,747 CSWs<sup>74</sup> across 57 counties in NPI data. CSWs in NPI data represented 59% of all Board-licensed CSWs in California. This means that 62% of the state’s Board-licensed CSWs had registered with NPI and were likely to provide Medicare- or Medi-Cal-funded services. A complete list of CSW counts by county is available in Table 95 in the Appendix. Table 95 includes the complete distribution of each type of Social Worker, by county. Additionally, since NPI taxonomy codes do not distinguish specifically “Board-licensed” clinical Social Workers, when referring to NPI data this profession is called clinical Social Worker.

**MHSA Region**

As shown in Figure 78, the Los Angeles, Bay Area, and Southern regions contained 31% (n=3,602), 29% (n=3,463), and 27% (3,222), respectively, of CSWs, the highest of the five MHSA Regions. The Superior region contained the smallest percentage (3%, n=348). Females occupied larger numbers of CSW positions than males in all MHSA Regions. Overall, females comprised 80% (n=9,420) of all CSW positions.

**Figure 78: Clinical Social Workers by MHSA Region and Gender, NPI Data, 2013 (n=11,747)**



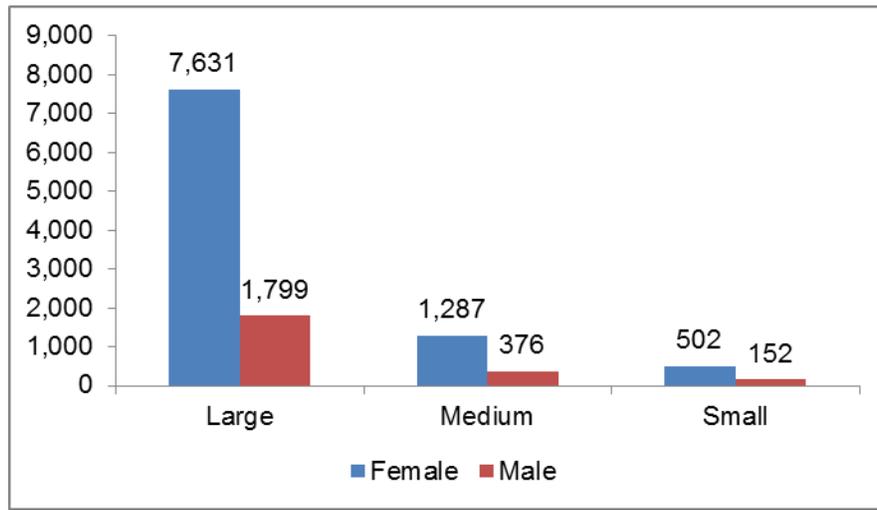
Source: NPI Data Dissemination File (2013)

**County Size**

As detailed in Figure 79, large counties contained 80% (n=9,430) of NPI CSWs. Females represented larger numbers of NPI CSWs positions than males across all county sizes.

<sup>74</sup> This count includes two types of NPI taxonomy codes: “clinical Social Worker” and “Social Worker.” Of the total 11,747 Social Workers included in the count above, 10,324 fell under the clinical Social Worker taxonomy code, and 1,423 fell under the “Social Worker” taxonomy code.

**Figure 79: Clinical Social Workers by County Size and Gender, NPI Data, 2013 (n=11,747)**

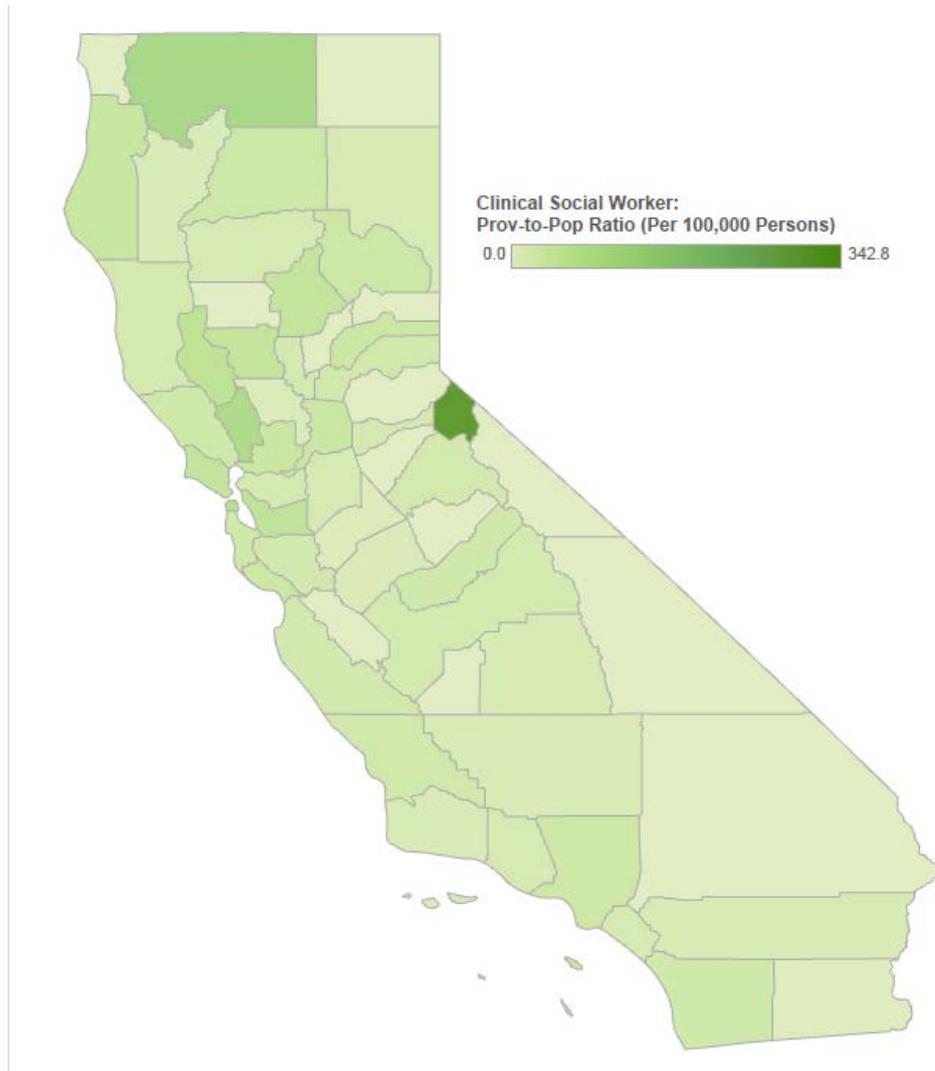


Source: NPI Data Dissemination File (2013)

### Provider-to-Population Ratios

Figure 80 displays the ratio of clinical Social Workers per 100,000 persons, by county. Most counties across the state have low provider-to-population ratios, with a few exceptions. A complete list of NPI CSW counts by county is available in Table 95 in the Appendix.

Figure 80: Clinical Social Worker Provider-to-Population Ratios, by County, NPI Data, 2013



Sources: NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 56 depicts the total counts and provider-to-population ratios of Board-licensed CSWs and NPI CSWs<sup>75</sup> by MHSA Region, by Board and NPI data.

<sup>75</sup> As previously described, board data refers to licensed, clinical Social Workers. NPI data represents a combination of clinical Social Workers and Social Workers, neither of which are defined by licensure status.

In Board data, there were 50.6 CSWs per 100,000 persons. The Bay Area had the highest total count and CSW-to-population ratio. The Los Angeles and Superior regions had similar CSW-to-population ratios, despite large differences in total counts. The Central and Southern region had similar CSW-to-population ratios.

The NPI data in Table 56 combines NPI data on CSWs and Social Workers. Statewide, there were 31.8 NPI CSWs per 100,000 persons. The Bay Area region had the highest CSW-to-population ratio of 44.4. The Los Angeles region had the next highest CSW-to-population ratio, followed by the Superior region.

**Table 56: Licensed Clinical Social Workers by MHSA Region, Board Licensure and NPI Data, 2013**

MHSA Region	Board, Number of LCSW	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Clinical Social Workers	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>Bay Area</b>	5,540	71.0	3,463	44.4
<b>Central</b>	2,279	40.7	1,112	19.9
<b>Los Angeles</b>	5,239	53.5	3,602	36.8
<b>Southern</b>	5,101	40.1	3,222	25.3
<b>Superior</b>	548	52.3	348	33.2
<b>TOTAL</b>	<b>18,707</b>	<b>50.6</b>	<b>11,747</b>	<b>31.8</b>

Sources: California Board of Behavioral Sciences (2013), NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 57 depicts the total counts and provider-to-population ratios of Board-licensed CSWs and NPI CSWs by county size. In Board data, Board-licensed CSW-to-population ratios were similar among large and medium counties. Small counties had the lowest Board-licensed CSW-to-population ratio.

NPI data shows the number of CSWs who are likely to provide public services. In NPI data, small counties almost had the highest CSW-to-population ratio, despite having the smallest total count of NPI CSWs.

**Table 57: Clinical Social Workers by County Size, Board Licensure and NPI Data, 2013**

County Size	Board, Number of LCSW	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Clinical Social Workers	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>Large</b>	14,927	51.3	9,430	32.4
<b>Medium</b>	2,956	50.5	1,663	28.4
<b>Small</b>	824	40.6	654	32.2
<b>TOTAL</b>	<b>18,707</b>	<b>50.6</b>	<b>11,747</b>	<b>31.8</b>

Sources: California Board of Behavioral Sciences (2013), NPI Data Dissemination File (2013), American Community Survey (2007-2011)

## Licensed Professional Clinical Counselor

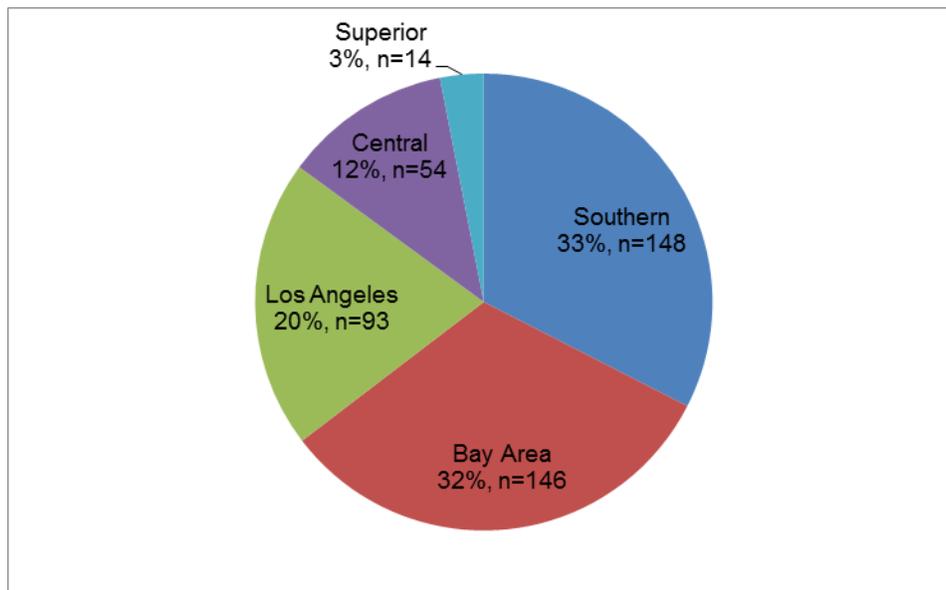
### Boards Licensure Data

Data on Board-Licensed Professional Clinical Counselors (LPCC) was derived from the Board of Behavioral Sciences of California. Board data was used to determine the total pool of LPCCs available in California, across MHSAs Regions, and by county sizes.<sup>76</sup>

According to Board data, there were 455 LPCCs, located across 41 counties. A complete list of LPCCs counts by county is available in Table 96 in the Appendix.

The Southern (n=148) and Bay Area (n=146) regions each contained approximately one-third of the state's Board-Licensed Professional Clinical Counselors; the Los Angeles (n=93), Central (n=54), and Superior (n=14) regions comprised the remaining one-third. Figure 81 shows the distribution of LPCCs across California, by MHSAs Region.

**Figure 81: LPCCs by MHSAs Region, Board Licensure Data, 2013 (n=455)**



Source: California Board of Behavioral Sciences (2013)

### NPI Data

In NPI data, "professional Counselors" is the designation used to categorize providers that are Licensed Professional Clinical Counselors (LPCC). There were 325 professional Counselors, across 38 counties, in NPI data. LPCCs in NPI data represented 71% of all Board-licensed

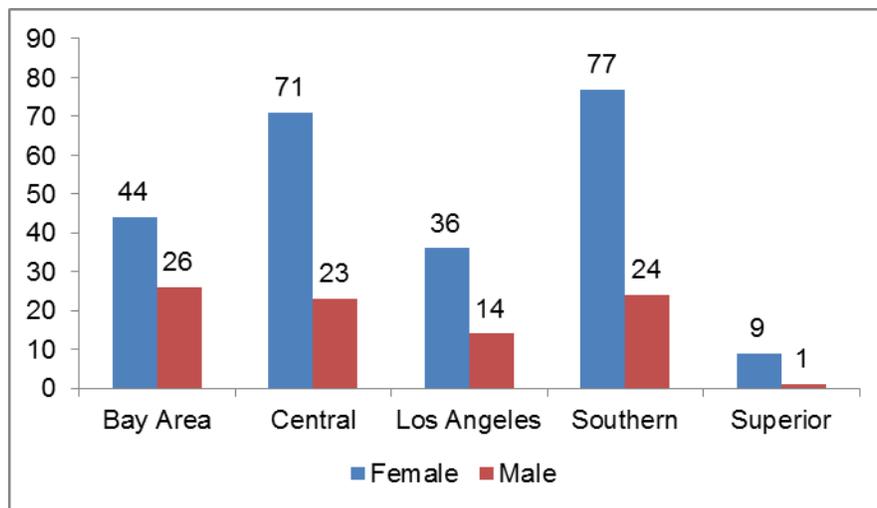
<sup>76</sup> Addresses listed in the board data were assumed to represent the location of practice for each provider. Functionally, these addresses served as mailing addresses and could potentially be addresses of residence, practice, or any other that the licensee chose to provide. However, the following analysis assumes that the Board licensee listed their location of practice. This address was matched to its respective California county.

professional Counselors in California. This means that 71% of the state's-LPCCs had registered with NPI and were likely to provide Medicare- or Medi-Cal-funded services. A complete list of professional Counselor counts by county is available in Table 96 in the Appendix.

**MHSA Region**

As shown in Figure 82, the Central and Southern regions encompassed the highest percentages of professional Counselors, 29% (n=94) and 31% (n=101), respectively. The Superior region contained the smallest percentage (3%, n=10) of professional Counselors. Females occupied larger numbers of professional Counselor positions than males in all MHSA Regions. Overall, females comprised 73% (n=228) of all professional Counselor positions.

**Figure 82: Professional Counselors by MHSA Region and Gender, NPI Data, 2013 (n= 325)**



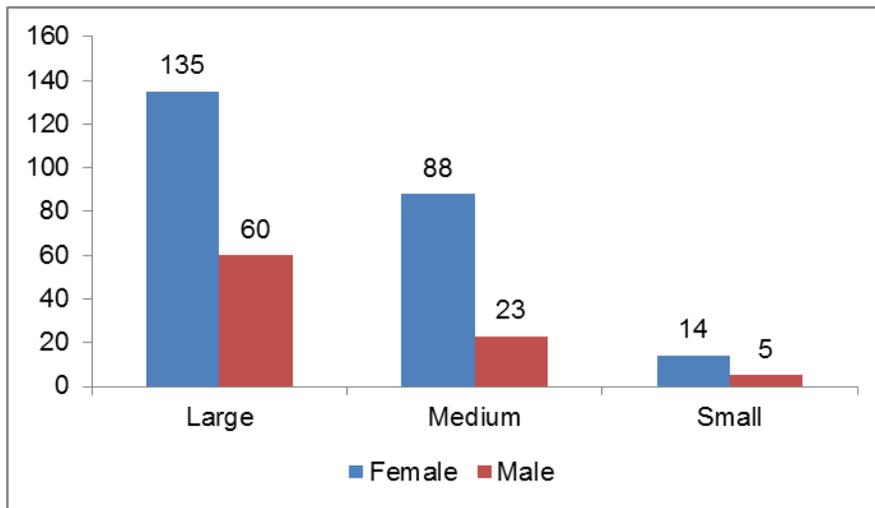
Source: NPI Data Dissemination File (2013)

NOTE: In NPI data, “professional Counselors” is the designation used to categorize providers that are Licensed Professional Clinical Counselors.

**County Size**

As detailed in Figure 83, large counties contained 60% (n=195) of professional Counselors, followed by medium (34%, n=101) and small counties (6%, n=19). Females represented larger numbers of professional Counselor positions than males across all county sizes.

**Figure 83: Professional Counselors by County Size and Gender, NPI Data, 2013 (n= 325)**



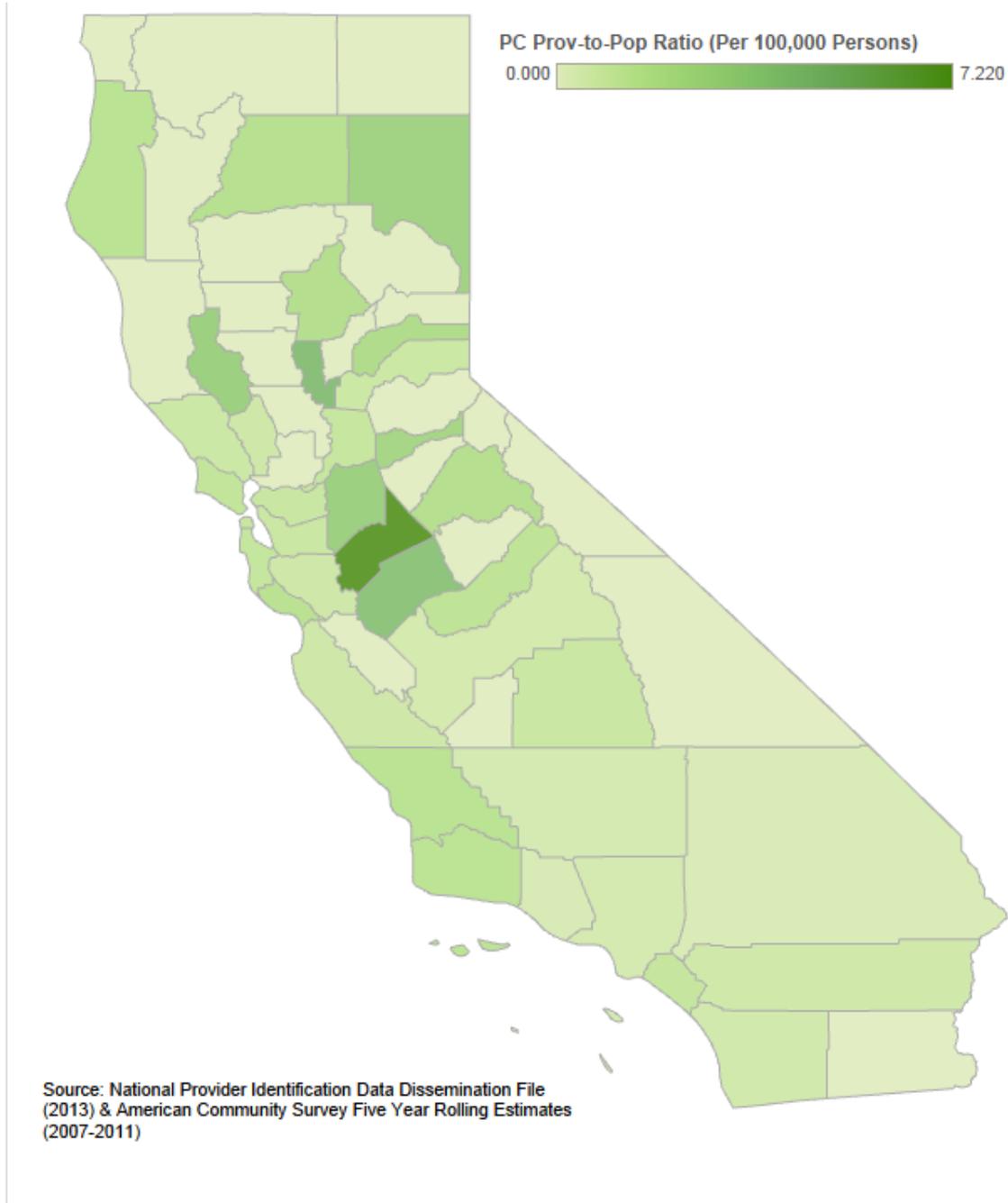
Source: NPI Data Dissemination File (2013)

NOTE: In NPI data, “professional Counselors” is the designation used to categorize providers that are Licensed Professional Clinical Counselors (LPCC).

**Provider-to-Population Ratios**

Figure 84 displays the ratio of professional Counselors per 100,000 persons, by county. A complete list of professional Counselor counts by county is available in Table 96 in the Appendix.

Figure 84: Professional Counselor Provider-to-Population Ratios, by County, NPI Data, 2013



Sources: NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 58 depicts the total counts and professional Counselor-to-population ratios by MHSR Region, and by Board and NPI data.

In Board data, there were 1.2 professional Counselors per 100,000 persons statewide. Among MHSA regions, the Bay Area and Superior region had the highest professional Counselor-to-population ratios. Overall professional Counselor-to-population ratios were low.

In NPI data, there were 0.9 professional Counselors per 100,000 persons. Among MHSA Regions, the Central region had the highest professional Counselor-to-population ratio of 1.8 NPI professional Counselors per 100,000 persons.

**Table 58: Professional Counselor by MHSA Region, Board Licensure and NPI Data, 2013**

MHSA Region	Board, Number of Licensed Professional Clinical Counselor	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Professional Counselor	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>Bay Area</b>	142	1.8	68	0.9
<b>Central</b>	63	1.1	103	1.8
<b>Los Angeles</b>	93	1.0	50	0.5
<b>Southern</b>	138	1.1	90	0.7
<b>Superior</b>	19	1.8	14	1.3
<b>TOTAL</b>	<b>455</b>	<b>1.2</b>	<b>325</b>	<b>0.9</b>

Sources: California Board of Behavioral Sciences (2013), NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 59 depicts the total counts and professional Counselor-to-population ratios by county size, by Board and NPI data. In Board data, medium counties had the highest professional Counselor-to-population ratio.

In NPI data, the professional Counselor-to-population ratio was highest in medium counties where there were 1.9 NPI professional Counselors per 100,000 persons. Small counties had a professional Counselor-to-population ratio of 0.9. Large counties had the lowest professional Counselor-to-population ratio of 0.7, despite having a larger total count.

**Table 59: Professional Counselor by County Size, Board Licensure and NPI Data, 2013**

County Size	Board, Number of Licensed Professional Clinical Counselor	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Professional Counselor	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>Large</b>	345	1.2	195	0.7
<b>Medium</b>	84	1.4	111	1.9
<b>Small</b>	26	1.3	19	0.9
<b>TOTAL</b>	<b>455</b>	<b>1.2</b>	<b>325</b>	<b>0.9</b>

Sources: California Board of Behavioral Sciences (2013), NPI Data Dissemination File (2013), American Community Survey (2007-2011)

## Forecasts

Figure 85 visually represents the observed values and projected trends of licensed, non-prescribing, clinical mental health providers. Observed counts of licensed, non-prescribing, clinical mental health providers are depicted to the left of the red dotted line, from 2005 through 2013. These values were derived from the 2013 NPI data dissemination file. Projected trends are depicted to the right of the red dotted line from 2014 through 2019. Additionally, Figure 85 includes the combined observed values and projected values of all the licensed, non-prescribing, clinical in total, depicted by the “Licensed, Non-Prescribing, Clinical Total” values.

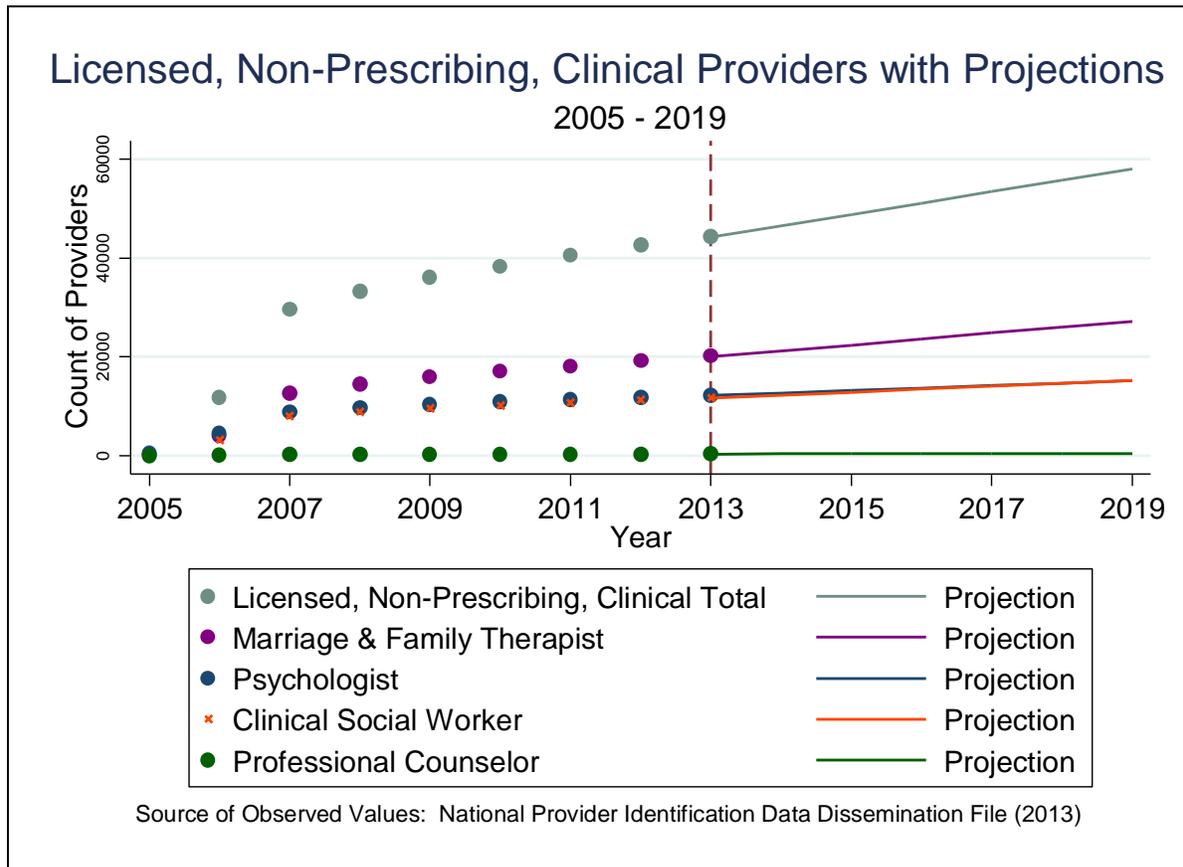
Regressions were applied to the observed data from 2005 through 2013, controlling for California GDP and population size, in order to forecast the projected counts of each occupation from 2014 through 2019.

No wage controls could be applied in these models, due to a lack of wage data for these occupations. Further adjustments were made depending on available retirement data. Retirement counts could only be artificially constructed for Marriage and Family Therapists, Social Workers, and professional Counselors, but not for Psychologists.<sup>77</sup> In Figure 85, projected trends for those three professions were depressed each year by the average count of providers estimated to retire annually by 2019.

---

<sup>77</sup> Retirement counts could not be constructed for other professions, due to a lack of data on age of providers and/or age of retirement. See pages 20-22 for the method used to construct retirement rates.

**Figure 85: Licensed, Non-Prescribing, Clinical Providers with Projections**



Overall, the total count of licensed, non-prescribing, clinical providers grew by approximately 33% from 2005 to 2013. As depicted by the projection, “Licensed, Non-Prescribing, Clinical Total,” in Figure 85, the provider class is anticipated to continue a trajectory of growth from 2014 to 2019. In total, the provider class is slated to grow by 25% from 2014 to 2019. Marriage and Family Therapists account for the greatest share of anticipated growth in this provider class.

From 2014 to 2019, the counts of Psychologists in California are estimated to increase by 4% per year and reach a total of 15,169 in 2019. The provider-to-population ratios (per 100,000 California residents) of Psychologists are estimated to increase from 33.0 in 2014 to 37.7 in 2019. Additionally, the counts of Marriage and Family Therapists in California are estimated to increase by 4-6% per year and reach a total of 27,142 in 2019. The provider-to-population ratios (per 100,000 California residents) of Marriage and Family Therapists are estimated to increase from 55.1 in 2014 to 67.5 in 2019.

Furthermore, from 2014 to 2019, the counts of clinical Social Workers in California are estimated to increase by 4-5% per year and reach a total of 15,237 in 2019. The provider-to-population ratios (per 100,000 California residents) of Licensed Clinical Social Workers are estimated to increase from 31.9 in 2014 to 37.9 in 2019.

Professional Counselors had the highest percentage growth from 2008 to 2013 (46%), and are anticipated to have the highest percentage growth from 2014 to 2019. Overall, though, the counts of professional Counselors in California represent the smallest share of licensed, non-prescribing, clinical providers. Counts of professional Counselors are estimated to increase by 4-7% per year and reach a total of 448 in 2019. The provider-to-population ratios (per 100,000 California residents) of Professional Counselors are estimated to increase from 0.9 in 2014 to 1.1 in 2019. In total, from 2014 to 2019, the counts of licensed, non-prescribing, clinical providers are estimated to increase by 4-5% per year and reach a total of 57,997 in 2019. The provider-to-population ratios (per 100,000 California residents) of licensed, non-prescribing, clinical providers are estimated to increase from 120.8 in 2014 to 144.2 in 2019. Table 60, which corresponds with Figure 85, displays: (1) the observed values of mental health providers in the public healthcare system from 2008 through 2013, and (2) the projected values of mental health providers from 2014 through 2019. Additionally, Table 60 includes the rate of change of providers for each year compared to the previous year, as well as the statewide provider-to-population ratios with the observed and projected counts. The provider-to-population ratios were calculated by comparing the counts of providers to every 100,000 persons in the state of California for each year.

**Table 60: Licensed, Non-Prescribing, Clinical Providers with Projections**

	Year	Psychologist			Marriage and Family Therapist			Clinical Social Worker			Professional Counselor			Total		
		# of Providers	Annual % Change	Prov-to-Pop Ratio	# of Providers	Annual % Change	Prov-to-Pop Ratio	# of Providers	Annual % Change	Prov-to-Pop Ratio	# of Providers	Annual % Change	Prov-to-Pop Ratio	# of Providers	Annual % Change	Prov-to-Pop Ratio
Observed	2008	9,702		27.0	14,486		40.4	8,918		24.8	222		0.6	33,328		92.8
	2009	10,417	7%	28.9	15,858	9%	44.0	9,605	8%	26.6	239	8%	0.7	36,119	8%	100.1
	2010	10,911	5%	29.2	16,978	7%	45.5	10,166	6%	27.2	258	8%	0.7	38,313	6%	102.7
	2011	11,369	4%	30.3	18,079	6%	48.1	10,738	6%	28.6	274	6%	0.7	40,460	6%	107.7
	2012	11,781	4%	31.1	19,246	6%	50.9	11,298	5%	29.9	297	8%	0.8	42,622	5%	112.7
	2013	12,180	3%	32.0	20,119	5%	52.8	11,747	4%	30.8	325	9%	0.9	44,371	4%	116.4
2008-2013 Overall Growth		2,478	26%	4.9	5,633	39%	12.4	2,829	32%	6.0	103	46%	0.2	11,043	33%	23.6
Projected	2014	12,683	4%	33.0	21,174	5%	55.1	12,247	4%	31.9	338	4%	0.9	46,443	5%	120.8
	2015	13,178	4%	34.0	22,371	6%	57.7	12,847	5%	33.1	361	7%	0.9	48,757	5%	125.7
	2016	13,684	4%	34.9	23,590	5%	60.2	13,458	5%	34.4	383	6%	1.0	51,115	5%	130.5
	2017	14,198	4%	35.9	24,822	5%	62.8	14,075	5%	35.6	406	6%	1.0	53,500	5%	135.4
	2018	14,678	3%	36.8	25,974	5%	65.1	14,652	4%	36.7	427	5%	1.1	55,731	4%	139.8
	2019	15,169	3%	37.7	27,142	4%	67.5	15,237	4%	37.9	448	5%	1.1	57,997	4%	144.2
2014-2019 Overall Growth		2,486	20%	4.7	5,968	28%	12.4	2,990	24%	6.0	110	32%	0.2	11,554	25%	23.4

Source of Observed Values: NPI Data Dissemination File 2013

## Key Findings

- **The total count of licensed, non-prescribing, clinical providers (Psychologists, Marriage and Family Therapists, Clinical Social Workers, and Professional Clinical Counselors) is anticipated to grow by approximately 20% over the five-year period from 2014 to 2019.** This rate of growth is slower than the previous period from 2008 to 2013, when licensed, non-prescribing, clinical providers grew by 26% over five years. Nevertheless, the total ratio of providers to the population will increase by 23.7 providers per 100,000 individuals. By 2019, projections anticipate that for every 100,000 individuals, there will be approximately 150 licensed, non-prescribing, clinical providers.
- **Marriage and Family Therapists represented 45% of Licensed, Non-Prescribing clinical providers in 2013.** By 2019, MFTs are anticipated to hold approximately 46% of the total share of licensed, non-prescribing, clinical providers. While MFTs experienced a 28% rate of growth from 2008 to 2013, growth is anticipated to slow by approximately 8% from 2014 to 2019. The overall provider-to-population ratio for MFTs will still increase. By 2019, projections anticipate that there will be 68.7 MFTs per 100,000 persons in California.
- **After Marriage and Family Therapists, the count of remaining licensed, non-prescribing, clinical occupations in descending rank order were: clinical Social Worker (n=18,707), Psychologist (n=12,180), professional Counselor (n=325), and Occupational Therapist (n=10).**
- **The MHSA Southern region and large counties contained the highest percentages of licensed, non-prescribing, clinical positions.** Based on Board data, the MHSA Southern region contained the highest percentages of licensed, non-prescribing, clinical occupations and tied with the Bay Area region for highest percentage of Marriage and Family Therapists. As compared to small and medium counties, large counties contained the greatest number of all four licensed, non-prescribing, clinical occupations.
- **The Superior MHSA region and small counties contained the lowest percentages of licensed, non-prescribing, clinical positions.** This trend was consistent with that of Licensed, Prescribing occupations and licensed, non-prescribing, nursing occupations.
- **Females held a large majority of licensed, non-prescribing, clinical positions.** Females filled 89% of Clinical Nurse Specialist positions, 87% of Registered Nurse positions, 80% of Licensed Clinical Social Worker positions, 78% of Marriage and Family Therapist positions, 73% of Licensed Professional Clinical Counselor positions, and 63% of Psychologist positions.

## Alcohol and other Drugs Counseling

### Certification Data

Alcohol and other Drugs (AOD) counseling occupations were not as closely linked to concrete postsecondary educational programs as other mental health related disciplines. AOD Counselors come from a wide variety of educational and experiential backgrounds. The common linkage between AOD Counselors is that they must be certified to provide AOD counseling services to consumers in order to do so. The six official certification bodies for AOD Counselors in the state of California are:

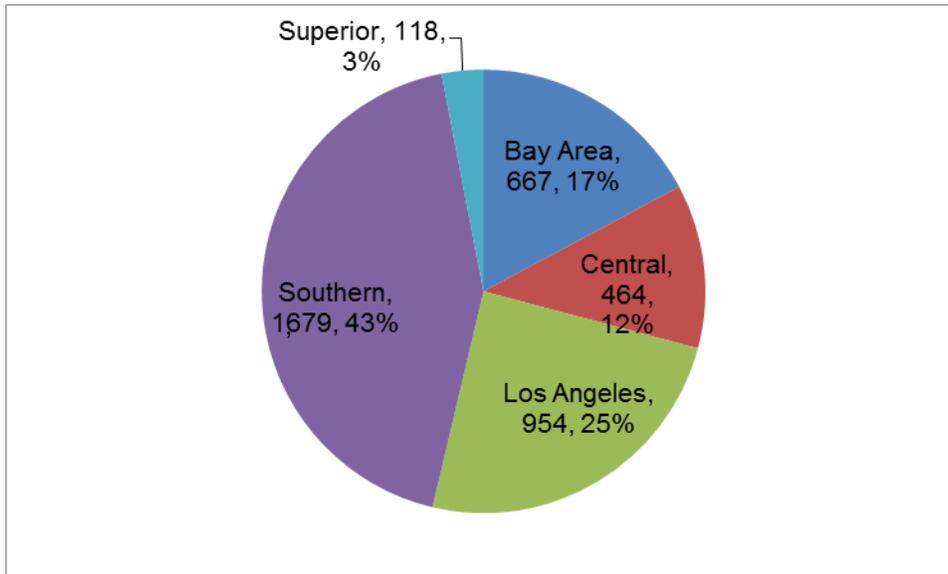
- Addiction Counselor Certification Board of California (affiliated with California Association for Alcohol/Drug Educators) [CAADE];
- American Academy of Health Care Providers in the Addictive Disorders [AAHCPAD];
- Board for Certification of Addiction Specialists, affiliated with the California Association of Addiction Recovery Resources [CAARR];
- Breining Institute;
- California Association of Drinking Driver Treatment Programs [CADDTP]; and
- California Certification Board of Alcohol and Drug Counselors (affiliated with the California Association of Alcoholism and Drug Abuse Counselors) [CAADAC].

RDA contacted all six AOD Counselor certification organizations and requested unidentified listings of their currently certified AOD Counselors. RDA received lists of total counts and residential zip codes of each AOD Counselor certified by CAADE and CAADAC. However, three organizations, CAARR, CADDTP, and the Breining Institute, did not provide information on the location of their certified AOD Counselors. Additionally, AAHCPAD did not provide any data to RDA. Therefore, the analysis below of certified AOD Counselors by location only includes AOD Counselors certified by CAADE and CAADAC, and does not reflect all certified AOD Counselors in the state. All of the data from AOD counseling certification organizations were obtained by RDA in October 2013.

As of October 2013, there were 9,888 certified AOD Counselors across California (not including the AOD Counselors certified by AAHCPAD). Of this count, RDA received location-specific data for 3,882 AOD Counselors (for those certified with CAADE or CAADAC). Across all six certification organizations, AOD Counselor certification lasts two years; AOD Counselors must renew their certification every two years. In California, an AOD Counselor can be certified by only one of the six certification organizations; given this, the total count of AOD Counselors provided here is mutually exclusive.

As shown in Figure 86, over 60% of California's AOD Counselors were located in either the Southern (n=1,679) or Los Angeles (n=954) regions of the state. The Superior region (n=118) had the fewest certified AOD Counselors.

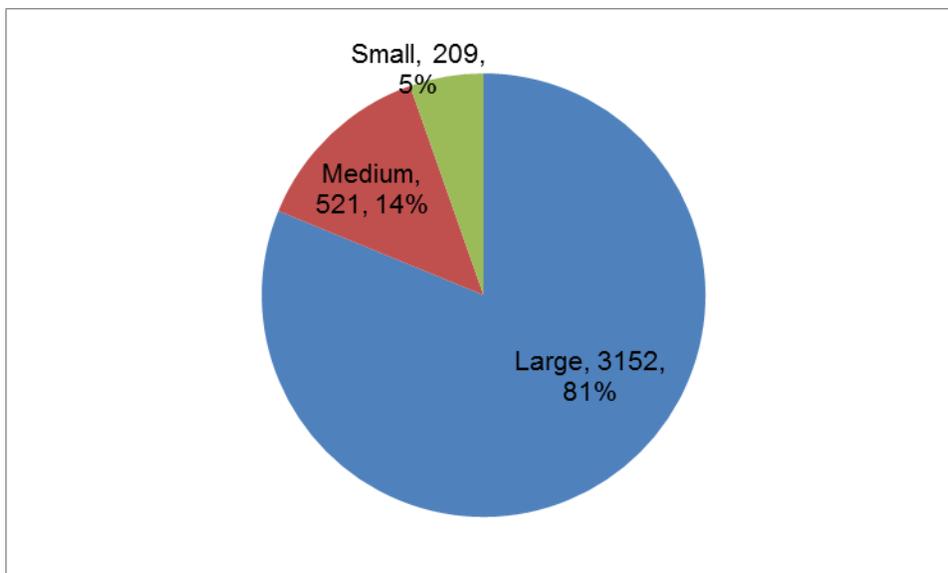
**Figure 86: Alcohol and other Drugs Counselors by MHSA Region, Certification Data, 2013 (n=3882)**



Sources: Addiction Counselor Certification Board of California (CAADE), California Certification Board of Alcohol and Drug Counselors (CAADAC)

As detailed in Figure 87, three-quarters of California’s AOD Counselors were located in large counties (n=3,152). Fifteen percent of the state’s certified AOD Counselors were located in medium counties (n=521), followed by 10% of AOD Counselors in small counties (n=209).

**Figure 87: Alcohol and other Drugs Counselors by County Size, Certification Data, 2013**



Sources: Addiction Counselor Certification Board of California (CAADE), California Certification Board of Alcohol and Drug Counselors (CAADAC)

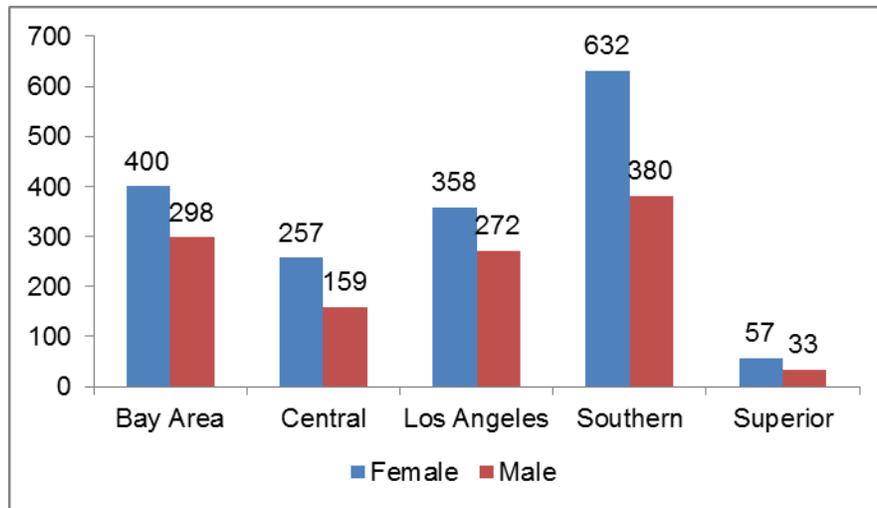
**NPI Data**

There were 2,846 AOD Counselors, located across 50 counties in the NPI data. A complete list of AOD Counselor counts by county is available in Table 97 in the Appendix.

**MHSA Region**

As shown in Figure 88, there were large concentrations of AOD Counselors in the Southern and Bay Area regions of the state. The Southern region comprised the highest percentage of AOD Counselors (36%, n=1,012) while the Superior region contained the smallest percentage (3%, n=90). Females occupied larger numbers of AOD Counselor positions than males in all MHSA Regions. Overall, females totaled 60% (n=1,704) of all AOD Counselors.

**Figure 88: Alcohol and other Drugs Counselors by MHSA Region and Gender, NPI Data, 2013 (n=2846)**

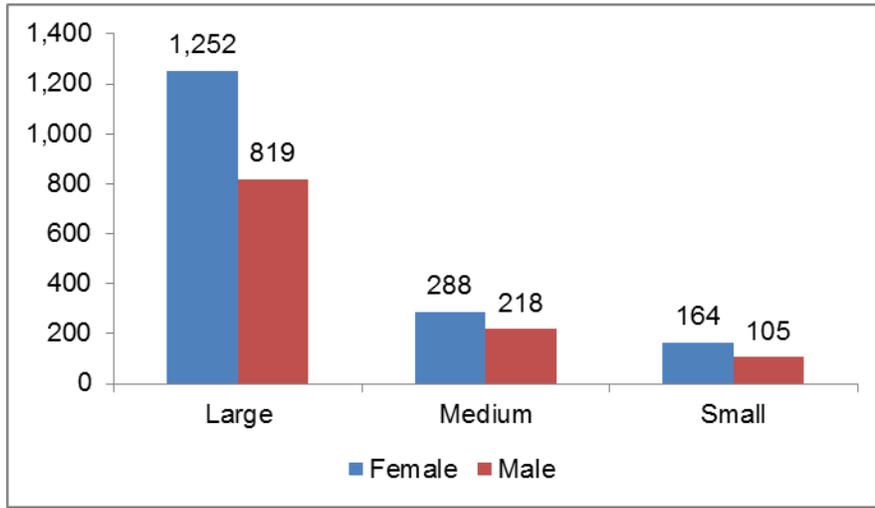


Source: NPI Data Dissemination File (2013)

**County Size**

As detailed in Figure 89, large counties contained 73% (n=2,071) of AOD Counselors. Females represented larger numbers of AOD Counselor positions than males across all county sizes.

**Figure 89: AOD Counselors by County Size and Gender, NPI Data, 2013 (n=2846)**

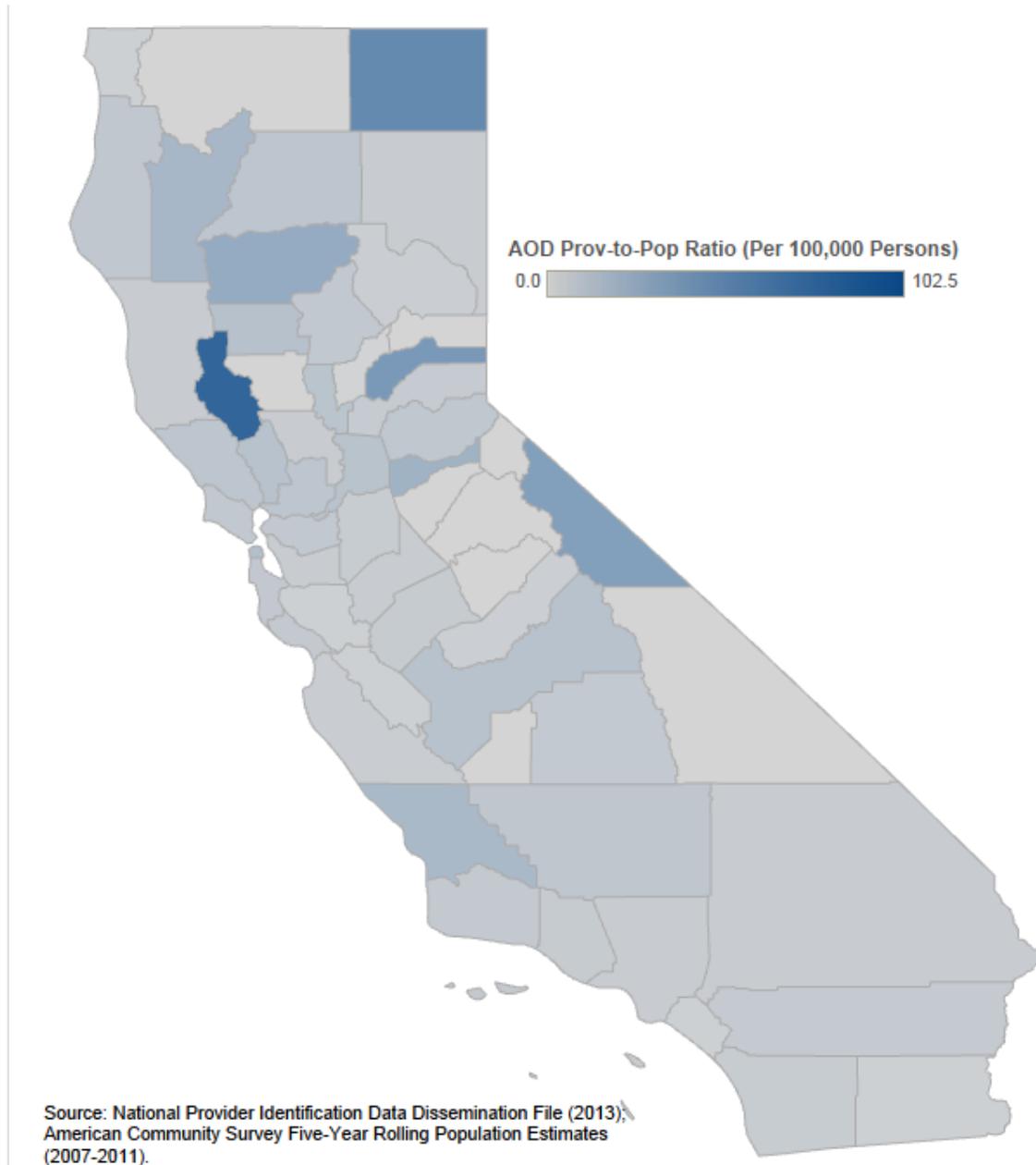


Source: NPI Data Dissemination File (2013)

#### Provider-to-Population Ratios

Figure 90 displays the ratio of AOD Counselors per 100,000 persons, by county. A complete list of AOD Counselor counts by county is available in Table 97 in the Appendix.

Figure 90: Map of AOD Counselors Provider-to-Population Ratios by County, NPI Data, 2013



Sources: NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 61 depicts the total counts and AOD Counselor-to-population ratios by MHSR region, by certification and NPI data. In certification data, there were 10.5 AOD Counselors per 100,000 persons in the state. Among the MHSR Regions, the Southern region had the greatest total count and highest AOD Counselor-to-population ratio. The Superior region, despite having the lowest total count, had the second highest AOD Counselor-to-population ratio.

NPI data shows the pool of AOD Counselors who are likely to provide public services. In statewide NPI data, there were 7.7 AOD Counselors per 100,000 persons. The Bay Area region had the highest AOD Counselor-to-population ratio, while the Los Angeles region had the lowest AOD Counselor-to-population ratio.

**Table 61: Alcohol and other Drugs Counselors by MHSA, Board Licensure and NPI Data, 2013**

MHSA Region	Certification, Number of AOD	Certification, Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of AOD	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>Bay Area</b>	667	8.5	698	8.9
<b>Central</b>	464	8.3	416	7.4
<b>Los Angeles</b>	954	9.7	630	6.4
<b>Southern</b>	1,679	13.2	1,012	7.9
<b>Superior</b>	118	11.3	90	8.6
<b>TOTAL</b>	<b>3,882</b>	<b>10.5</b>	<b>2,846</b>	<b>7.7</b>

Sources: Addiction Counselor Certification Board of California (CAADE), California Certification Board of Alcohol and Drug Counselors (CAADAC), NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 62 depicts the total counts and AOD Counselor-to-population ratios by county size, by certification and NPI data. In certification data, large counties had the highest total count and AOD Counselor-to-population ratio. The lowest AOD Counselor-to-population ratio of certified AOD Counselors was in medium counties.

In NPI data, large counties had greatest total count of AOD Counselors followed by medium and small counties. Small counties had a substantially higher AOD Counselor-to-population ratio than the other county sizes despite having a much smaller total count.

**Table 62: Alcohol and other Drugs Counselors by County Size, Board Licensure and NPI Data, 2013**

County Size	Certification, Number of AOD	Certification, Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of AOD	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>Large</b>	3,152	10.8	2,071	7.1
<b>Medium</b>	521	8.9	506	8.6
<b>Small</b>	209	10.3	269	13.3
<b>TOTAL</b>	<b>3,882</b>	<b>10.5</b>	<b>2,846</b>	<b>7.7</b>

Sources: Addiction Counselor Certification Board of California (CAADE), California Certification Board of Alcohol and Drug Counselors (CAADAC), NPI Data Dissemination File (2013), American Community Survey (2007-2011)

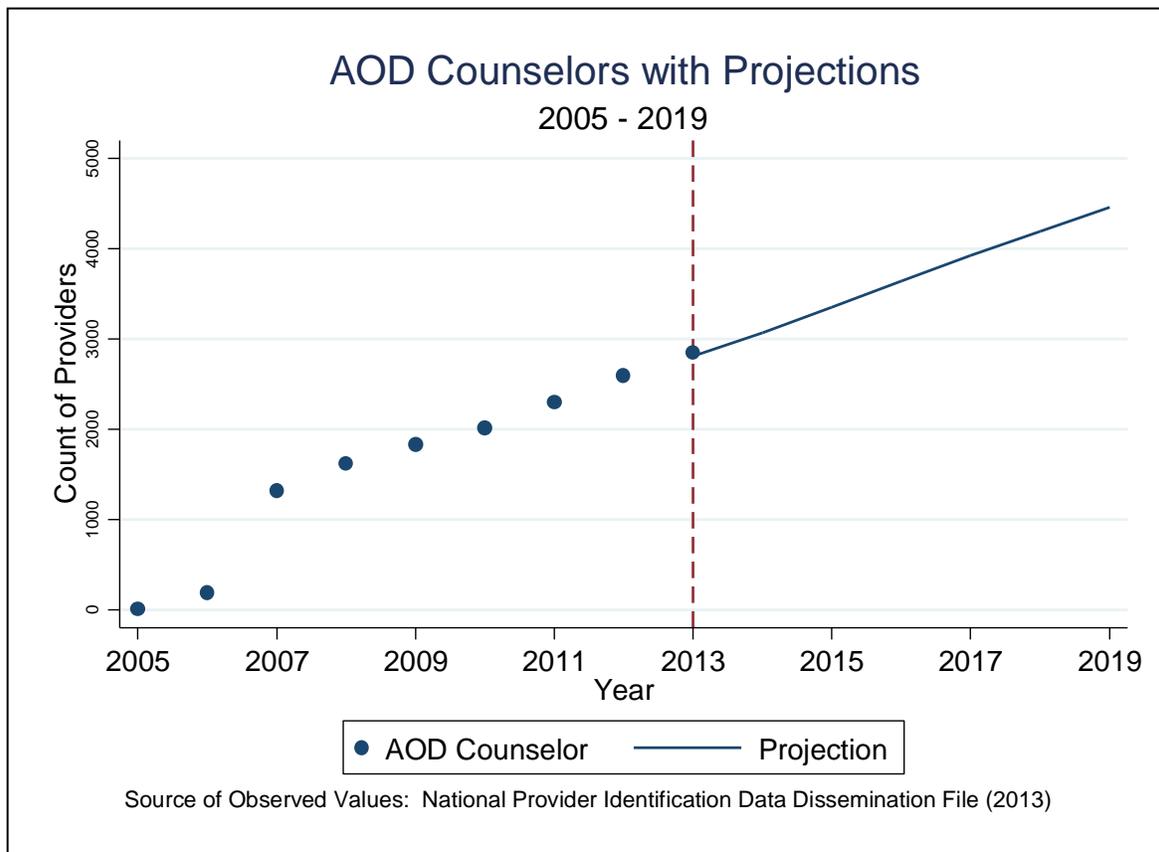
## Forecasts

Figure 91 visually represents the observed values and projected trends of AOD Counselors. Observed counts of AOD Counselors are depicted to the left of the red dotted line, from 2005 through 2013. These values were derived from the 2013 NPI data dissemination file. Projected trends are depicted to the right of the red dotted line from 2014 through 2019.

In order to forecast the projected counts of each occupation from 2014 through 2019, Regressions were applied to the observed data from 2005 through 2013, controlling for California GDP and population size.

No wage trend or retirement data was available for Alcohol and other Drugs Counselors.

**Figure 91: Alcohol and other Drugs Counseling Providers with Projections**



Overall, the total count of AOD Counselors grew by 76% from 2008 to 2013. From 2014 to 2019, the counts of AOD Counselors in California are estimated to increase by 6-9% per year and reach a total of 4,460 in 2019. The provider-to-population ratios (per 100,000 California residents) of AOD Counselors are estimated to increase from 8.0 in 2014 to 11.1 in 2019.

Table 63, which corresponds with Figure 91, displays: (1) the observed values of mental health providers in the public healthcare system from 2008 through 2013, and (2) the projected values

of mental health providers from 2014 through 2019. Additionally, Table 63 includes the rate of change of providers for each year compared to the previous year, as well as the provider-to-population ratios with the observed and projected counts. The provider-to-population ratios were calculated by comparing the counts of providers to every 100,000 persons in the state of California in each year.

**Table 63: Alcohol and other Drugs Counseling Providers with Projections, Counts**

		AOD Counselors			
		Year	Number of Providers	Annual % Change	State Prov-to-Pop Ratio
Observed	2008	1,615		4.5	
	2009	1,835	14%	5.1	
	2010	2,014	10%	5.4	
	2011	2,298	14%	6.1	
	2012	2,592	13%	6.9	
	2013	2,846	10%	7.5	
2008-2013 Overall Growth		1,231	76%	3.0	
Projected	2014	3,071	8%	8.0	
	2015	3,353	9%	8.6	
	2016	3,639	9%	9.3	
	2017	3,925	8%	9.9	
	2018	4,192	7%	10.5	
	2019	4,460	6%	11.1	
2014-2019 Overall Growth		1,389	45%	3.1	

Source of Observed Values: NPI Data Dissemination File 2013

## Key Findings

- **The MHSA Southern region and large counties contained the highest percentages of AOD Counselors.** The MHSA Southern region contained 35% of all AOD counseling positions. As compared to small and medium counties, large counties contained the greatest percentage of AOD Counselors (72%).
- **The MHSA Superior region and small counties contained the lowest percentages of licensed, non-prescribing, clinical positions.** This trend was consistent with that of Licensed, Prescribing occupations; licensed, non-prescribing, nursing occupations; and licensed, non-prescribing, clinical occupations.
- **Females filled the majority of AOD counseling positions.** Females comprised 60% of AOD counseling positions.
- **The total count of Alcohol and other Drugs Counseling public providers is slated to grow from 2014 through 2019** (Assuming population trends and GDP growth at

rates projected in this model). The annual percent change in growth is forecasted to slow from approximately 8% per year to 6% growth in 2019.

- **The ratio of AOD Counseling public providers to the total California population is expected to increase in the next five-year period**, despite some slowing down in the rate of growth. This trend reflects observed data from 2008 to 2013, when the provider-to-population (in 100,000) almost doubled.

## Non-Licensed Professionals

In this analysis, non-licensed professionals include: (1) Case Manager/Care Coordinator, (2) Community Health Worker, (3) Counselor, and (4) Mental Health Counselor. These four professions will be grouped together when producing projections of the future total counts of non-licensed professional in California’s public mental health workforce. In regards to skills mix, providers in these professions offer services that are relatively comparable, thus presenting potential labor substitution possibilities in the state’s mental health workforce. For each profession, this section of the report provides: (1) a description of the distribution of providers across California, using NPI data; and (2) the current provider-to-population ratios across the different county sizes in the state. There was no board licensure data available for non-licensed professionals. For the non-licensed professions, this section of the report then describes the projected forecasts. Lastly, key findings are detailed regarding the observed and projected distributions of non-licensed professionals.

Table 64 presents the NPI data counts for each non-licensed professional occupation. There are 6,441 non-licensed professionals in 2013 NPI data. Mental Health Counselors have the most NPI non-licensed professionals occupations (n=4,797).

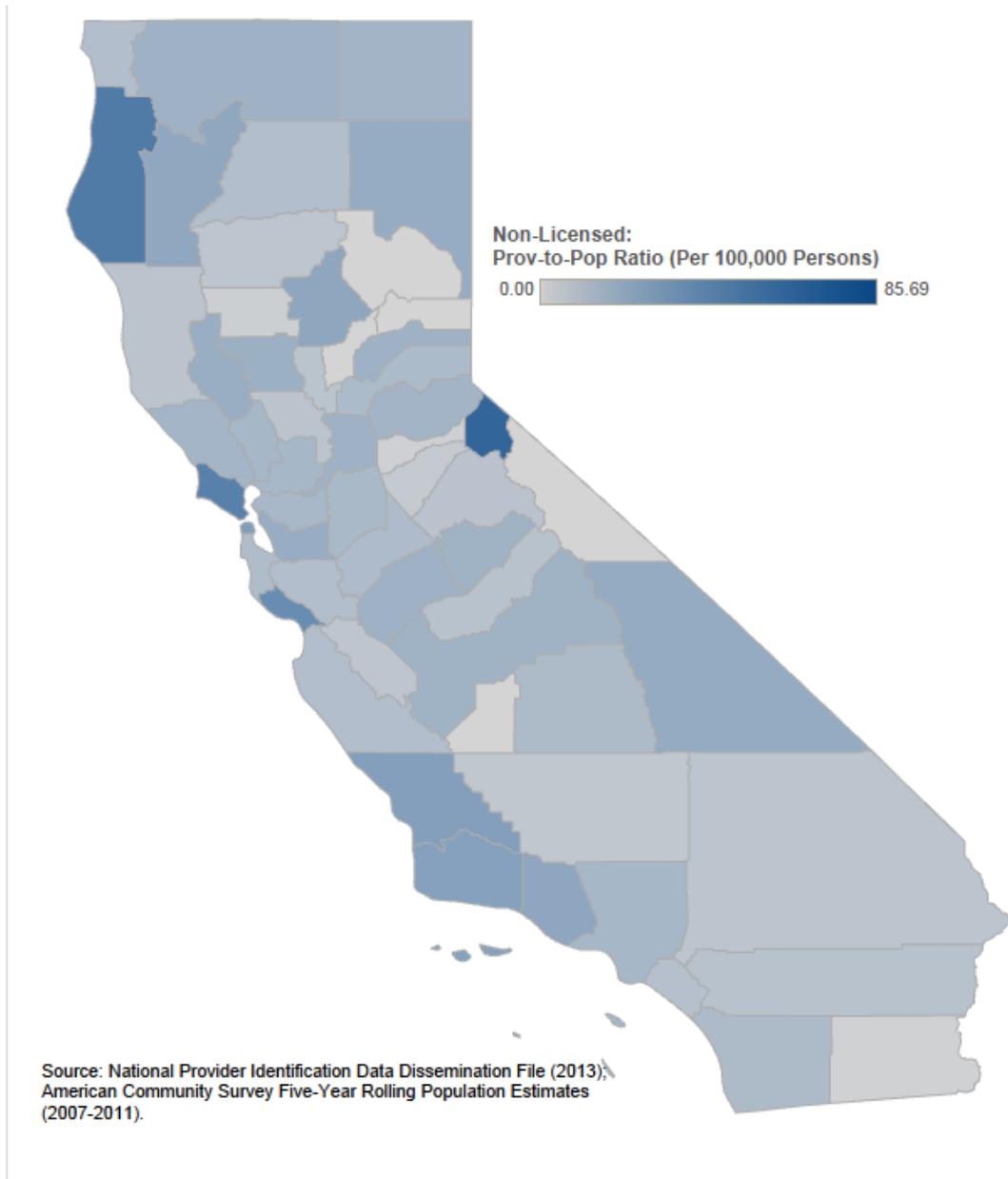
**Table 64: Non-Licensed Professionals by Category, NPI Data (2013)**

Occupation	Count	% of Total
Case Manager/Care Coordinator	736	11%
Community Health Worker	94	1%
Counselor	814	13%
Mental Health Counselor	4,797	74%
<b>TOTAL</b>	<b>6,441</b>	<b>100%</b>

*Source:* NPI Data Dissemination File (2013)

Figure 92 visually represents the distribution of non-licensed professionals working in the public healthcare system in California. These providers were all registered with NPI Data. There were large concentrations of non-licensed professionals in the Southern and Bay Area regions of the state.

**Figure 92: Map Non-Licensed Professionals-to-Population Ratios, by County, NPI Data, 2013**



Sources: NPI Data Dissemination File (2013), American Community Survey (2007-2011)

## Case Managers/Care Coordinators

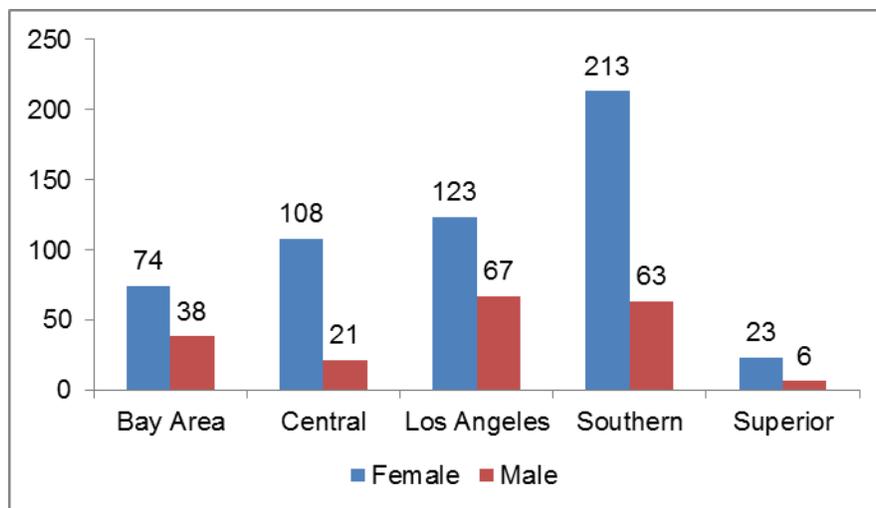
### NPI Data

There were 736 Case Managers/Care Coordinators, located across 41 counties, in the NPI data. A complete list of counts of Case Managers/Care Coordinators by county is available in Table 98 in the Appendix.

### MHSA Region

As shown in Figure 93, the Southern region had the highest percentage of Case Managers/Care Coordinators (38%, n=276), while the Superior region contained the lowest percentage (4%, n=29). Females occupied a larger number of Case Managers/Care Coordinator positions than males in all MHSA Regions. Overall, females comprised 74% (n=541) of all Case Managers/Care Coordinator positions.

**Figure 93: Case Managers/Care Coordinators by MHSA Region and Gender, NPI Data, 2013 (n=736)**

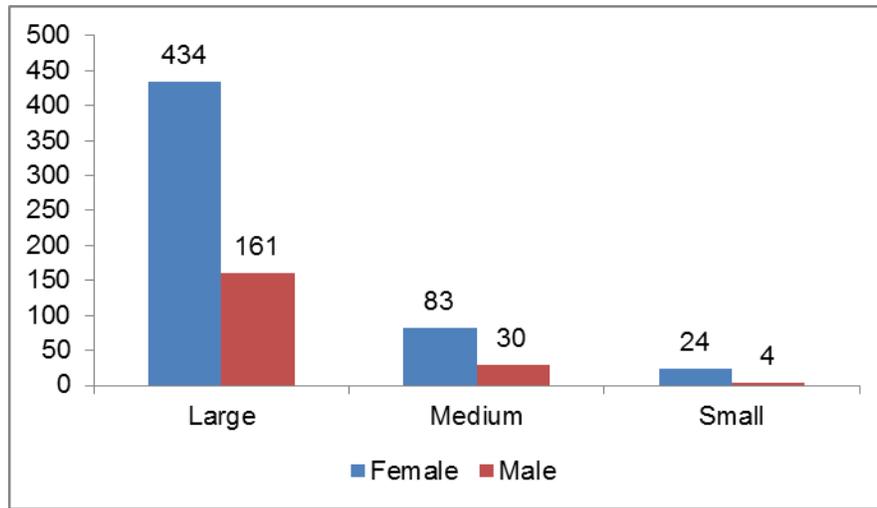


Source: NPI Data Dissemination File (2013)

### County Size

As detailed in Figure 94, large counties contained 81% (n=595) of Case Managers/Care Coordinators. Females represented larger numbers of Case Managers/Care Coordinator positions than males across all county sizes.

**Figure 94: Case Managers/Care Coordinators by County Size and Gender, NPI Data, 2013  
(n=736)**

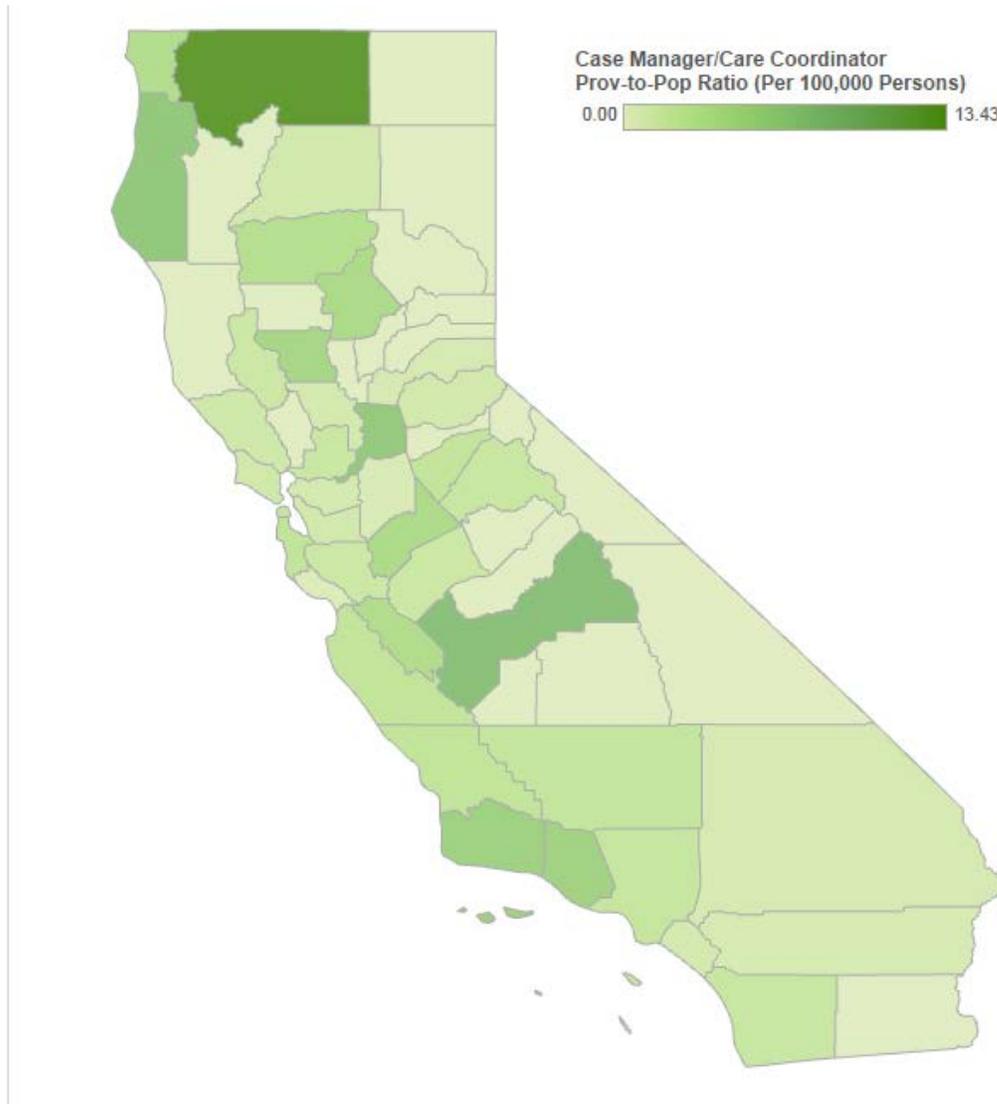


Source: NPI Data Dissemination File (2013)

#### Provider-to-Population Ratios

Figure 95 displays the ratio of Case Managers/Care Coordinators per 100,000 persons, by county. A complete list of Case Manager/Care Coordinator counts by county is available in Table 98 in the Appendix.

Figure 95: Case Manager/Care Coordinator Provider-to-Population Ratios, by County, NPI Data, 2013



Sources: NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 65 depicts the total counts and provider-to-population ratios of Case Managers/Care Coordinators by MHSR Region and by NPI data. Statewide, there were two Case Managers/Care Coordinators per 100,000 persons. Among the MHSR Regions, the Superior region had the highest provider-to-population ratio of Case Managers/Care Coordinators, despite having the smallest total count. The lowest provider-to-population ratio of Case Managers/Care Coordinators was in the Bay Area region.

**Table 65: Case Manager/Care Coordinator by MHSA Region, NPI Data, 2013**

MHSA Region	NPI, Number of Case Manager/Care Coordinator	NPI-Prov-to-Pop Ratio (per 100,000 persons)
Bay Area	112	1.4
Central	129	2.3
Los Angeles	190	1.9
Southern	276	2.2
Superior	29	2.8
<b>TOTAL</b>	<b>736</b>	<b>2.0</b>

Source: NPI Data Dissemination File (2013)

Table 66 depicts the total counts and provider-to-population ratios of Case Managers/Care Coordinators by county size and by NPI data. Large counties had the greatest total count of Case Managers/Care Coordinators and the highest provider-to-population ratio.

**Table 66: Case Manager/Care Coordinator by County Size, NPI Data, 2013**

County Size	NPI, Number of Case Manager/Care Coordinator	NPI-Pro-to-Pop Ratio (per 100,000 persons)
Large	595	2.0
Medium	113	1.9
Small	28	1.4
<b>TOTAL</b>	<b>736</b>	<b>2.0</b>

Source: NPI Data Dissemination File (2013)

## Community Health Worker

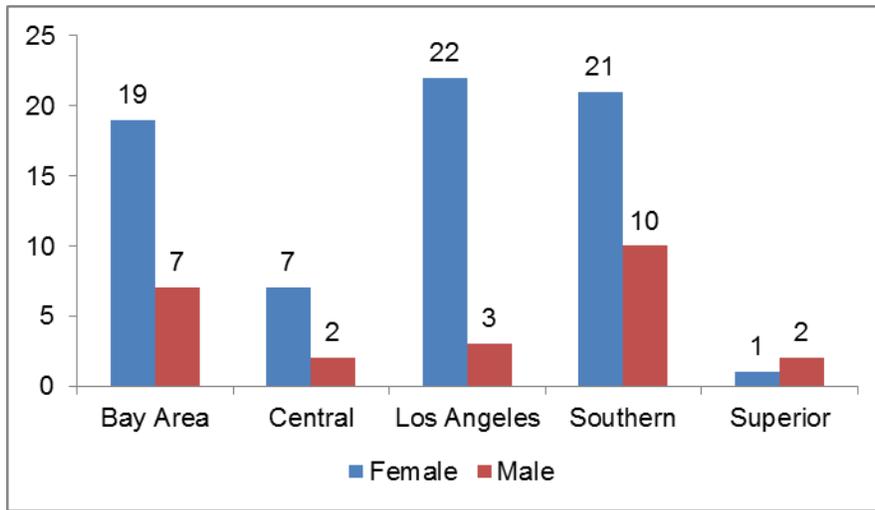
### NPI Data

There were 94 Community Health Workers (CHWs), located across 25 counties, in NPI data. A complete list of CHW counts by county is available in Table 99 in the Appendix.

### MHSA Region

As shown in Figure 96, the Southern, Bay Area, and Los Angeles regions represented the greatest percentages of CHWs, 33% (n=31), 28% (n=26), and 27% (n=25), respectively. The Central (10%, n=9) and Superior (3%, n=3) regions contained the lowest percentages of CHWs. Females occupied a larger number of CHW positions than males in all MHSA Regions except the Superior region, where the position was occupied by one female and two males. Overall, females comprised 74% (n=70) of all CHW positions.

**Figure 96: Community Health Workers by MHSR Region and Gender, NPI Data, 2013 (n=94)**

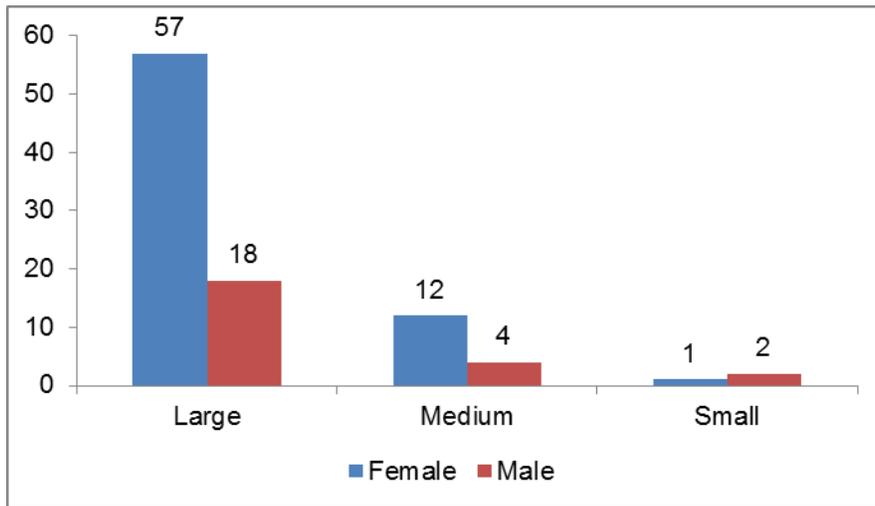


Source: NPI Data Dissemination File (2013)

### County Size

As detailed in Figure 97, large counties contained 80% (n=75) of CHWs. Females represented larger numbers of CHW positions than males across medium and large county sizes. Small counties contained one female and two male CHWs, representing 3% (n=3) of all CHWs.

**Figure 97: Community Health Workers by County Size and Gender, NPI Data, 2013 (n=94)**

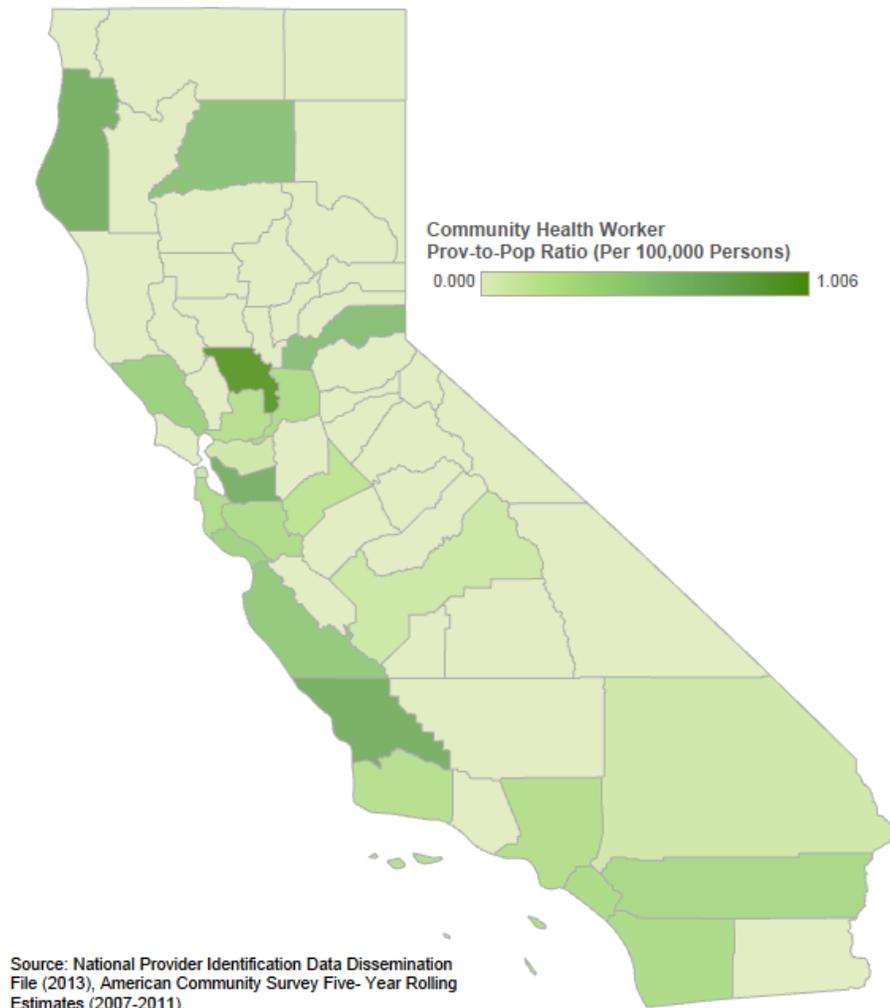


Source: NPI Data Dissemination File (2013)

### Provider-to-Population Ratios

Figure 98 displays the ratio of Case Managers/Care Coordinators per 100,000 persons, by county. A complete list of CHW counts by county is available in Table 99 in the Appendix.

Figure 98: Community Health Worker Provider-to-Population Ratios, by County, NPI Data, 2013



Sources: NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 67 depicts the total counts and CHW-to-population ratios by MHSR Region and by NPI data. Statewide, there were 0.3 CHWs per 100,000 persons. CHW-to-population ratios were overall low, with only slight variation by MHSR Region.

**Table 67: Community Health Worker by MHA Region, NPI Data, 2013**

MHA Region	NPI, Number of Community Health Worker	NPI-Pro-to-Pop Ratio (per 100,000 persons)
<b>Bay Area</b>	26	0.3
<b>Central</b>	9	0.2
<b>Los Angeles</b>	25	0.3
<b>Southern</b>	31	0.2
<b>Superior</b>	3	0.3
<b>TOTAL</b>	<b>94</b>	<b>0.3</b>

Sources: NPI Data Dissemination File (2013)

Table 68 depicts the total counts and CHW-to-population ratios by county size and by NPI data. Again, CHW-to-population ratios were overall low, with little to no variation by county size.

**Table 68: Community Health Worker by County Size, NPI Data, 2013**

County Size	NPI, Number of Community Health Worker	NPI-Pro-to-Pop Ratio (per 100,000 persons)
<b>Large</b>	75	0.3
<b>Medium</b>	16	0.3
<b>Small</b>	3	0.1
<b>TOTAL</b>	<b>94</b>	<b>0.3</b>

Sources: NPI Data Dissemination File (2013)

## Counselors

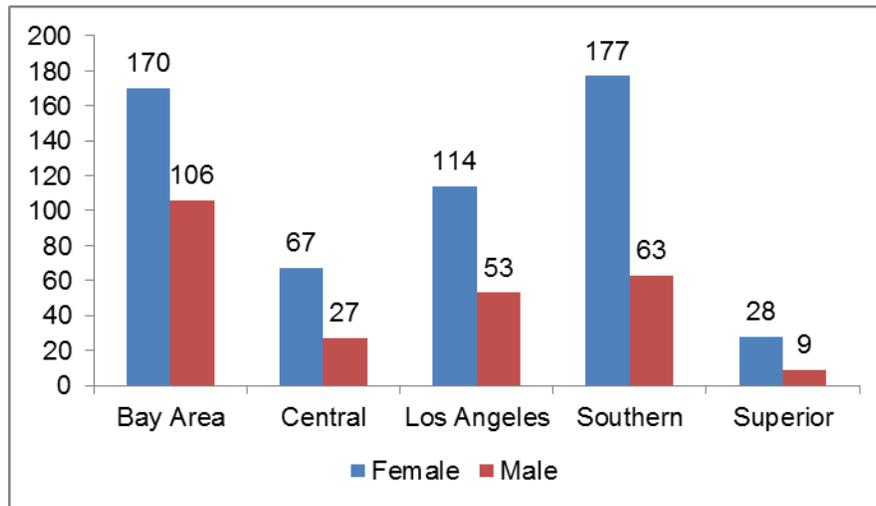
### NPI Data

There were 814 Counselors, located across 42 counties, in the NPI data. A complete list of NPI Counselor counts by county is available in Table 100 in the Appendix.

### MHA Region

As shown in Figure 99, the Bay Area region contained the greatest percentage of Counselors (34%, n=276) and the Superior region contained the smallest percentage (5%, n=37). Females occupied a larger number of Counselor positions than males in all MHA Regions. Overall, females comprised 68% (n=556) of all Counselor positions.

**Figure 99: Counselors by MHA Region and Gender, NPI Data, 2013 (n=814)**

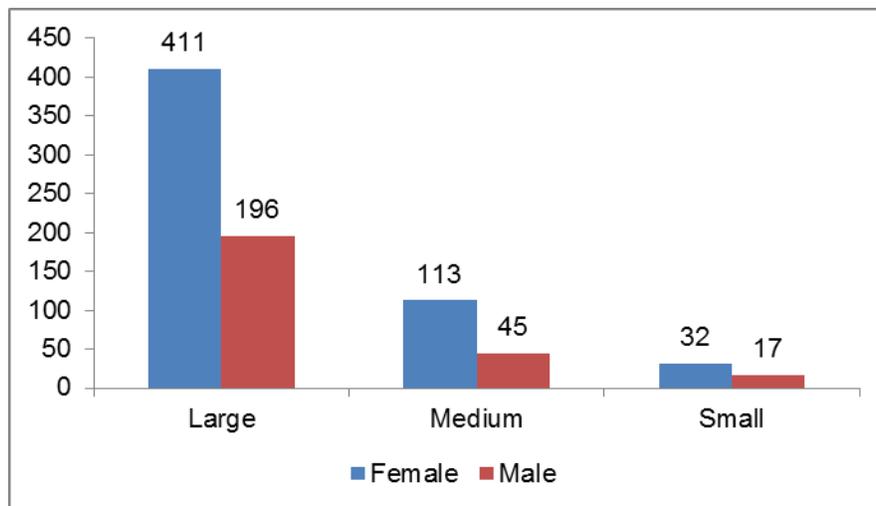


Source: NPI Data Dissemination File (2013)

**County Size**

As detailed in Figure 100, large counties contained 75% (n=617) of Counselors. Females represented larger numbers of Counselor positions than males across all county sizes.

**Figure 100: Counselors by County Size and Gender, NPI Data, 2013 (n=814)**

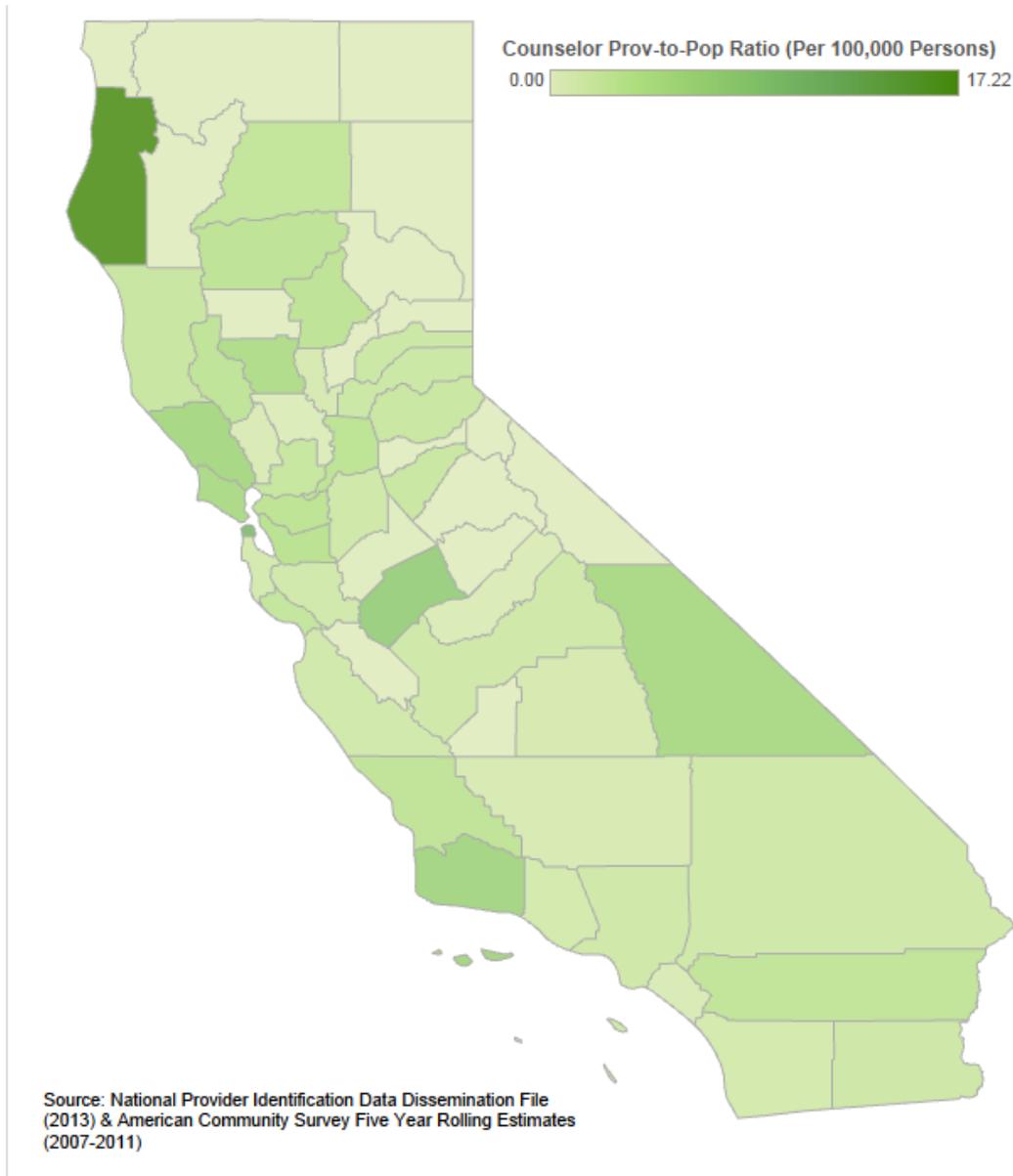


Source: NPI Data Dissemination File (2013)

**Provider-to-Population Ratios**

Figure 101 displays the ratio of Case Managers/Care Coordinators per 100,000 persons, by county. A complete list of Counselor counts by county is available in Table 100 in the Appendix.

Figure 101: Counselor Provider-to-Population Ratios, by County, NPI Data, 2013.



Sources: NPI Data Dissemination File (2013), American Community Survey (2007-2011)

Table 69 depicts the total counts and Counselor-to-population ratios by MHSA Region and by NPI data. Statewide, there were 2.2 Counselors per 100,000 persons. Among the MHSA Regions, the Superior region had the highest Counselor-to-population ratio, followed by the Bay Area region. Despite having different total counts, the Los Angeles and Southern regions both had Counselor-to-population ratios of 1.7 Counselors per 100,000 persons.

**Table 69: Counselor by MHSA Region, NPI Data, 2013**

MHSA Region	NPI, Number of Counselor	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>Bay Area</b>	271	3.5
<b>Central</b>	114	2.0
<b>Los Angeles</b>	167	1.7
<b>Southern</b>	218	1.7
<b>Superior</b>	44	4.2
<b>TOTAL</b>	<b>814</b>	<b>2.2</b>

Source: NPI Data Dissemination File (2013)

Table 70 depicts the total counts and Counselor-to-population ratios by county size and by NPI data. Medium counties had the highest Counselor-to-population ratio of 2.7 Counselors per 100,000 people followed by small counties where the Counselor-to-population ratio was 2.4. Large counties had the lowest Counselor-to-population ratio (2.1) despite representing large majority of total count of Counselors in the state.

**Table 70: Counselor by County Size, NPI Data, 2013**

County Size	NPI, Number of Counselor	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>Large</b>	607	2.1
<b>Medium</b>	158	2.7
<b>Small</b>	49	2.4
<b>TOTAL</b>	<b>814</b>	<b>2.2</b>

Source: NPI Data Dissemination File (2013)

## Mental Health Counselor

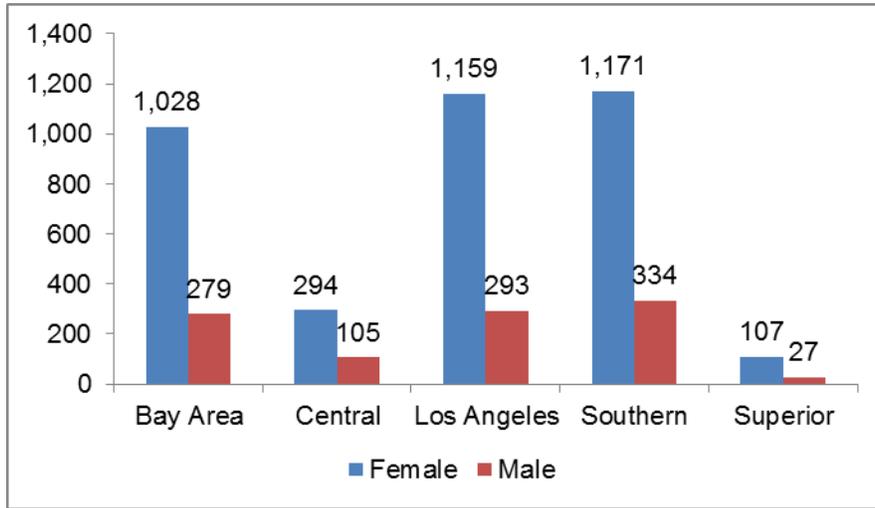
### NPI Data

There were 4,797 Mental Health Counselors (MHC), located across 54 counties, in the NPI data. A complete list of MHC counts by county is available in Table 101 in the Appendix.

### MHSA Region

As shown in Figure 102, the Bay Area region contained the greatest percentage of MHCs (31%, n=1,307) and the Superior region contained the smallest percentage (3%, n=134). Females occupied a larger number of Counselor positions than males in all MHSA Regions. Overall, females comprised 78% (n=3,759) of all MHC positions.

**Figure 102: Mental Health Counselors by MHSR Region and Gender, NPI Data, 2013  
 (n=4797)**

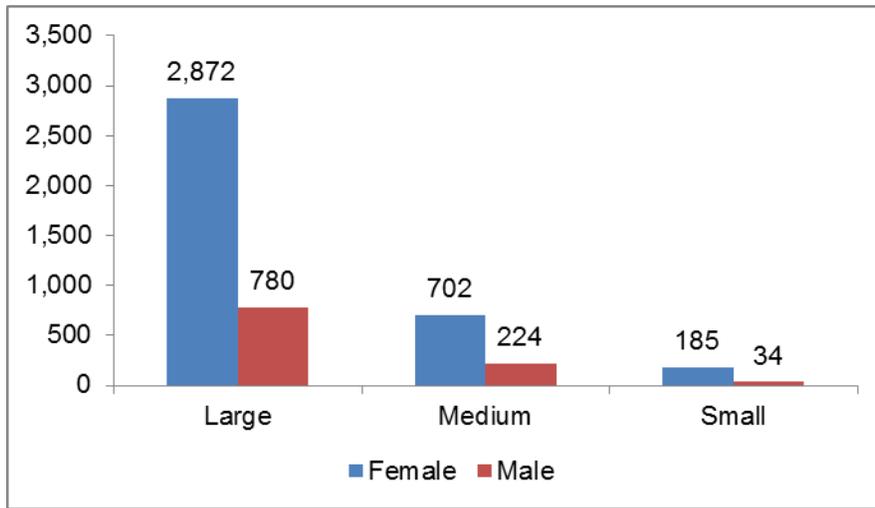


Source: NPI Data Dissemination File (2013)

### County Size

As detailed in Figure 103, large counties contained 76% (n=3,652) of MHCs. Females represented larger numbers of MHC positions than males across all county sizes.

Figure 103: Mental Health Counselors by County Size and Gender, NPI Data, 2013  
(n=4797)

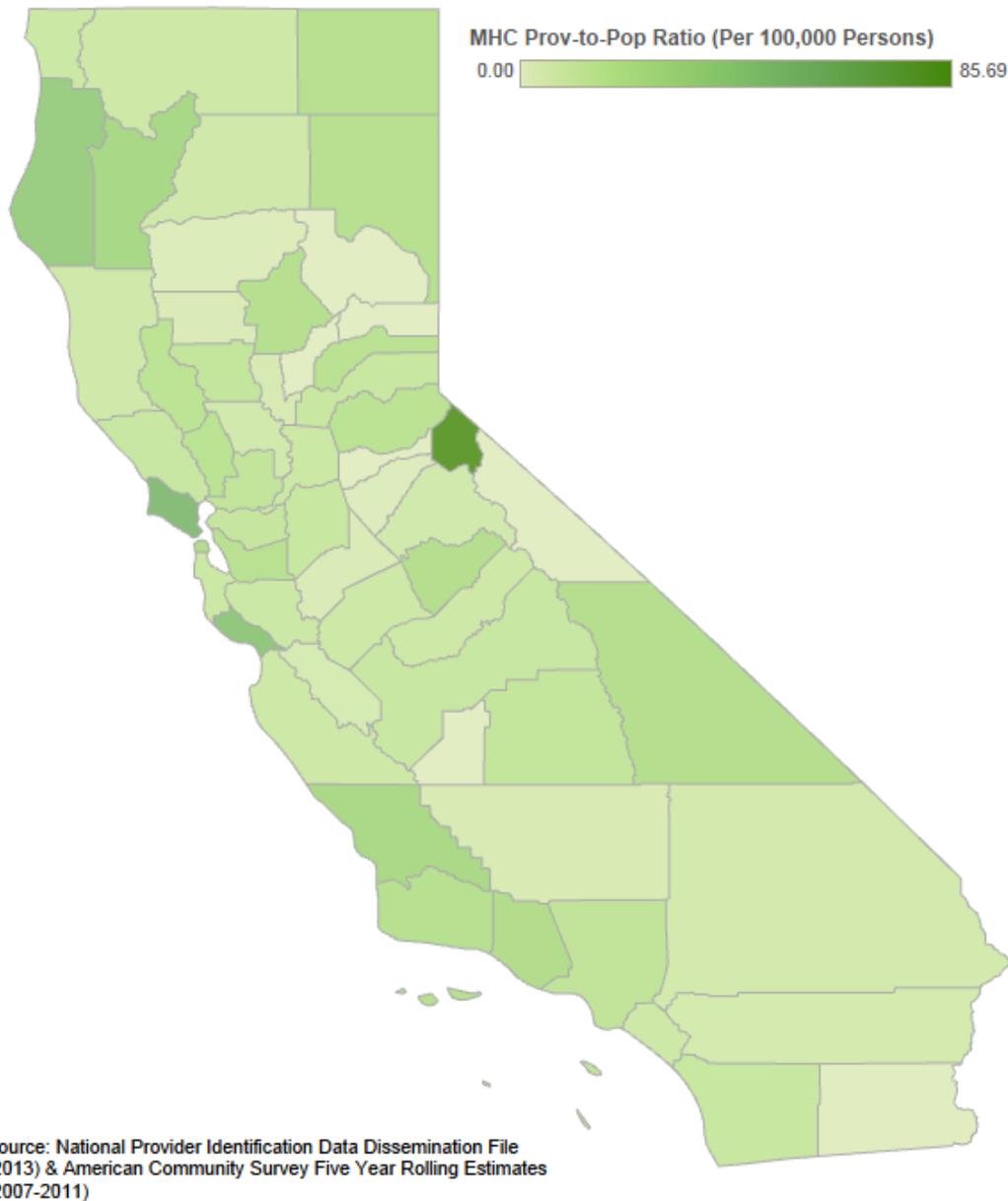


Source: NPI Data Dissemination File (2013)

#### Provider-to-Population Ratios

Figure 104 displays the ratio of MHCs per 100,000 persons, by county. A complete list of MHC counts by county is available in Figure 100 in the Appendix.

Figure 104: Mental Health Counselor Provider-to-Population Ratios, by County, NPI Data, 2013



Source: NPI Data Dissemination File (2013)

Table 71 depicts the total counts and MHC-to-population ratios by MHSAs Region and by NPI data. In NPI data, there were 13 MHCs per 100,000 persons. Among the MHSAs Regions, the Bay Area and Superior regions had the same provider-to-population ratios of 16.5 NPI MHCs per 100,000 persons. The Los Angeles region had a MHC-to-population ratio of 14.8, while similar MHC-to-population ratios occurred in the Southern (n=10.4) and Central (n=10.1) regions.

**Table 71: Mental Health Counselors by MHSR Region, NPI Data, 2013**

MHSR Region	NPI, Number of MHC	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>Bay Area</b>	1,286	16.5
<b>Central</b>	567	10.1
<b>Los Angeles</b>	1,452	14.8
<b>Southern</b>	1,319	10.4
<b>Superior</b>	173	16.5
<b>TOTAL</b>	<b>4,797</b>	<b>13.0</b>

Source: NPI Data Dissemination File (2013)

Table 72 depicts the total counts and MHC-to-population ratios of MHCs by county size and by NPI data. Medium counties had the highest MHC-to-population ratio, followed by the ratio in large and small counties, respectively.

**Table 72: Mental Health Counselors by County Size, NPI Data, 2013**

County Size	NPI, Number of MHC	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>Large</b>	3,652	12.6
<b>Medium</b>	926	15.8
<b>Small</b>	219	10.8
<b>TOTAL</b>	<b>4,797</b>	<b>13.0</b>

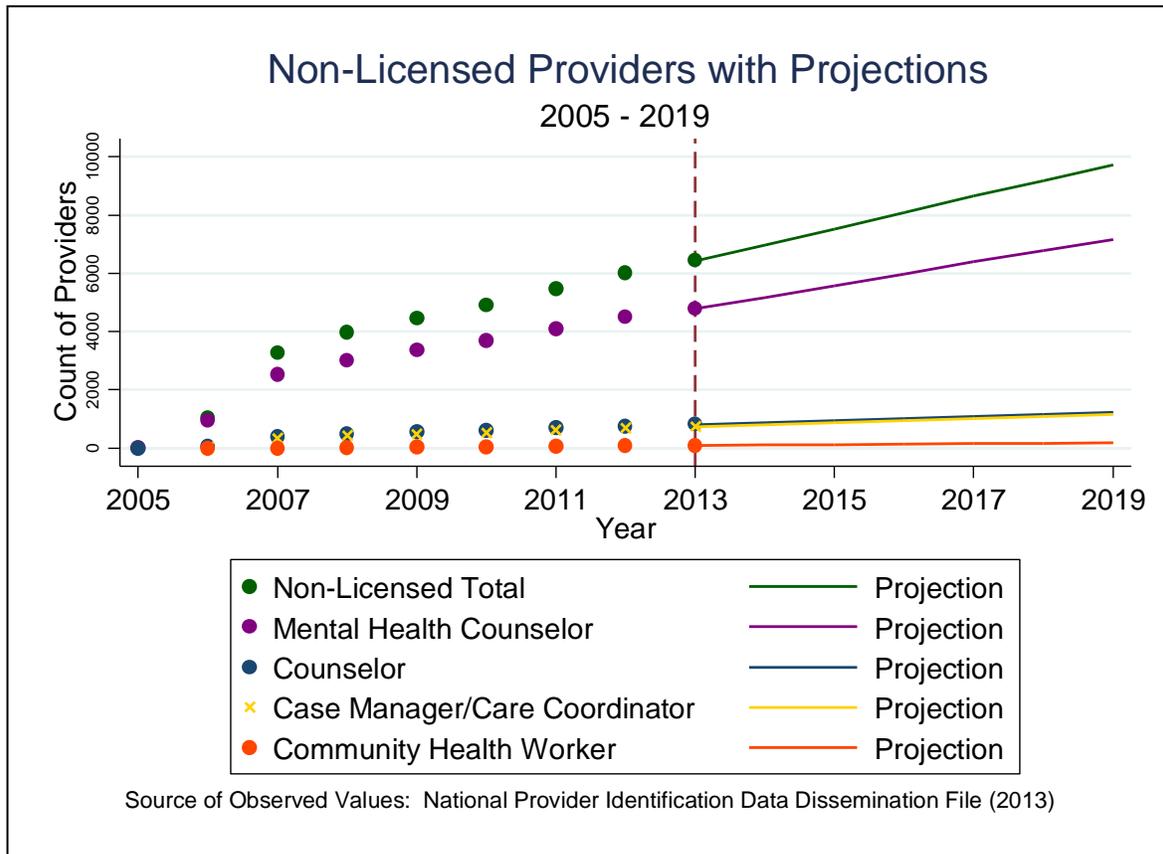
Source: NPI Data Dissemination File (2013)

## Forecasts

Figure 105 visually represents the observed values and projected trends of non-licensed providers. Observed counts of non-licensed providers are depicted to the left of the red dotted line, from 2005 through 2013. These values are derived from the 2013 NPI data dissemination file. Projected trends are depicted to the right of the red dotted line from 2014 through 2019. Additionally, Figure 105 includes the combined observed values and projected values of all the non-licensed providers in total, depicted by the “Non-Licensed Total” values.

RDA applied regressions to the observed data from 2005 through 2013, controlling for California GDP and population size, in order to forecast the projected counts of each occupation from 2014 through 2019. No wage trend or retirement data was available for non-licensed providers.

Figure 105: Non-Licensed Professional Providers with Projections



Overall, the total count of non-licensed professional providers grew by approximately 62% from 2005 to 2013, and is anticipated to grow by approximately 40% from 2014 to 2019. Among the total growth of non-licensed professional providers of public mental health services, Mental Health Counselors represent the largest share of the growth in this provider class. Community Health Workers are slated to grow by the largest percentage in the 2014 to 2019 period (total of 71%), but also represent the lowest actual count in this provider class.

From 2014 to 2019, the counts of Case Managers/Care Coordinators in California are estimated to increase by 6-10% per year and reach a total of 1,158 in 2019. The provider-to-population ratios (per 100,000 California residents) of Case Managers/Care Coordinators are estimated to increase from 2.1 in 2014 to 2.9 in 2019.

Additionally, the counts of Community Health Workers in California are estimated to increase by 9-14% per year and increase a total of 71% from 2014 to 2019. The provider-to-population ratios (per 100,000 California residents) of Community Health Workers are estimated to increase from 0.3 in 2014 to 0.5 in 2019.

Furthermore, from 2014 to 2019, the counts of Counselors in California are estimated to increase by 6-8% per year and reach a total of 1,270 in 2019. The provider-to-population ratios

(per 100,000 California residents) of Counselors are estimated to increase from 2.4 in 2014 to 3.2 in 2019.

The counts of Mental Health Counselors in California are estimated to increase by 6-8% per year and reach a total of 7,358 in 2019. In total, from 2014 to 2019, the count of Mental Health Counselors is anticipated to grow by 38%, which is a lower percentage growth relative to the other professions in this provider class. However, Mental Health Counselors represent the largest share of non-licensed professional providers analyzed in this report. The provider-to-population ratios (per 100,000 California residents) of Mental Health Counselors are estimated to increase from 13.5 in 2014 to 17.8 in 2019. Relative to each other professional category among the non-licensed providers, Mental Health Counselors have the highest provider-to-population ratios.

In total, from 2014 to 2019, the counts of non-licensed professional providers are estimated to increase by 6-8% per year (in 2014, the count of non-licensed professional providers is projected to increase by 24% from 2013) and reach a total of 9,719 in 2019. The provider-to-population ratios (per 100,000 California residents) of non-licensed professional providers are estimated to increase from 18.1 in 2014 to 24.2 in 2019. Overall from 2014 to 2019, the class of non-licensed providers is anticipated to grow by 40%, which is a slower rate of growth than observed from 2008 to 2013.

Table 73, which corresponds with Figure 105, displays: (1) the observed values of mental health providers in the public healthcare system from 2008 through 2013, and (2) the projected values of mental health providers from 2014 through 2019. Additionally, Table 73 includes the rate of change of providers for each year compared to the previous year, as well as the state provider-to-population ratios with the observed and projected counts. The provider-to-population ratios were calculated by comparing the counts of providers to every 100,000 persons in the state of California for each year.

**Table 73: Non-Licensed Professional Providers with Projections, Counts**

	Year	Case Manager/Care Coordinator			Community Health Worker			Counselor			Mental Health Counselor			Total		
		Num. of Providers	Annual % Change	Prov-to-Pop Ratio	Num. of Providers	Annual % Change	Prov-to-Pop Ratio	Num. of Providers	Annual % Change	Prov-to-Pop Ratio	Num. of Providers	Annual % Change	Prov-to-Pop Ratio	Num. of Providers	Annual % Change	Prov-to-Pop Ratio
Observed	2008	442		1.2	20		0.1	498		1.4	3,010		8.4	3,970		11.1
	2009	489	11%	1.4	38	90%	0.1	562	13%	1.6	3,357	12%	9.3	4,446	12%	12.3
	2010	540	10%	1.4	52	37%	0.1	610	9%	1.6	3,706	10%	9.9	4,908	10%	13.2
	2011	618	14%	1.6	62	19%	0.2	696	14%	1.9	4,103	11%	10.9	5,479	12%	14.6
	2012	691	12%	1.8	81	31%	0.2	747	7%	2.0	4,508	10%	11.9	6,027	10%	15.9
	2013	736	7%	1.9	94	16%	0.2	814	9%	2.1	4,797	6%	12.6	6,441	7%	16.9
2008-2013 Overall Growth		294	67%	0.7	74	370%	0.2	316	63%	0.7	1,787	59%	4.2	2,471	62%	5.8
Projected	2014	806	10%	2.1	107	13%	0.3	875	7%	2.3	5,174	8%	13.5	6,961	8%	18.1
	2015	877	9%	2.3	122	14%	0.3	945	8%	2.4	5,574	8%	14.4	7,518	8%	19.4
	2016	950	8%	2.4	138	13%	0.4	1,016	8%	2.6	5,981	7%	15.3	8,084	8%	20.6
	2017	1,022	8%	2.6	153	11%	0.4	1,087	7%	2.8	6,390	7%	16.2	8,652	7%	21.9
	2018	1,090	7%	2.7	168	10%	0.4	1,154	6%	2.9	6,772	6%	17.0	9,184	6%	23.0
	2019	1,158	6%	2.9	183	9%	0.5	1,222	6%	3.0	7,157	6%	17.8	9,719	6%	24.2
2014-2019 Overall Growth		352	44%	0.8	76	71%	0.2	347	40%	0.8	1,983	38%	4.3	2,758	40%	6.1

Source of Observed Values: NPI Data Dissemination File 2013

## Key Findings

- **Mental Health Counselors (Case Managers/Case Coordinators, Community Health Workers, Counselors, and Mental Health Counselors) represent the largest share of providers in the non-licensed professional category.** The largest non-licensed professional occupations in descending order were Mental Health Counselor (n=4,797), Counselor (n=814), Case Manager/Care Coordinator (n=736), and Community Health Worker (n=94).
- **The MHS Southern, Bay Area, and Los Angeles regions and large counties contained the highest percentages of non-licensed professionals.** The Southern region contained the greatest percentages of Case Managers/Care Coordinators and Community Health Workers, the Bay Area region contained the greatest percentage of Counselors, and the Los Angeles region contained the greatest percentage of Mental Health Counselors. As compared to small and medium counties, large counties contained the greatest number of all four paraprofessional professions.
- **The MHS Superior region and small counties contained the lowest percentages of licensed, non-prescribing, clinical occupations.** This trend was consistent with that of Licensed, Prescribing occupations; licensed, non-prescribing, nursing occupations; licensed, non-prescribing, clinical occupations; and AOD Counselors.
- **Females occupied a large majority of the non-licensed professional positions.** Females filled 78% of Mental Health Counselor positions, 75% of Community Health Worker positions, 74% of Case Manager/Care Coordinator positions, and 68% of Counselor positions.
- **The overall count of non-licensed professional providers is slated to grow by 73% from 2013 to 2019.** The fastest growing type of public mental health non-licensed professional providers is Mental Health Counselors, who also account both the largest total share of non-licensed professional providers.
- **While annual growth of non-licensed professional providers is anticipated to slow from 2013 to 2019, the number of providers relative to the California population is forecasted to increase.**

## Specialty Providers

Certain NPI taxonomy codes are classified with specialties. Psychiatric mental health specialties were coded for the purposes of this analysis, available in Table 74. The following analysis includes providers with specialties in: (1) Addiction, (2) Child and Adolescence (3) Adults, and (4) Geriatrics. There were a total of 4,851 specialty providers in the state of California in the NPI data. These specialty providers came from 55 of the state's 58 counties.

Forecasts for the counts of specialty providers are not included in this report because the extremely small counts in the NPI data for these specific professions do not lend to accurate or thorough projections. All of the specialty providers accounted for in this section are also included in one of the above-described occupational categories, according to the specific occupation of each specialty provider.

**Table 74: Mental Health Workforce with Psychiatric Mental Health Specialties, NPI Data, 2013**

Specialty	AOD Counselor	Clinical Nurse Specialist	Physician (Addiction Medicine)	Psychiatrist	Psychologist	Registered Nurse	Total
Addiction	2,846	†	107	102	108	39	3,202
Adult	†	28	†	†	63	436	527
Child & Adolescent	†	5	†	611	324	95	1,035
Geriatric	†	1	†	86	†	†	87
<b>TOTAL</b>	<b>2,846</b>	<b>34</b>	<b>107</b>	<b>799</b>	<b>495</b>	<b>570</b>	<b>4,851</b>

† Designation not present in NPI data

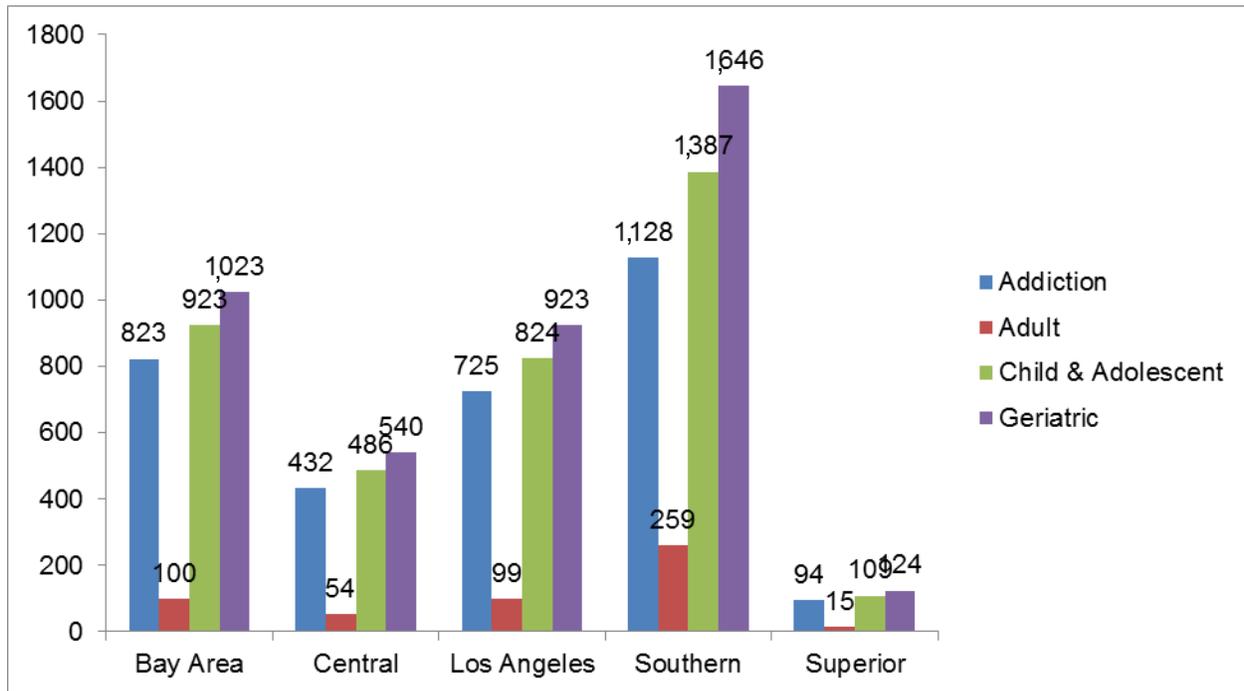
Source: NPI Data Dissemination File (2013)

Of those 4,851 specialty providers in the NPI data, 66% were Addiction Specialists, 11% were Adult Specialists, 21% were Child and Adolescent Specialists, and 2% were Geriatric Specialists. The occupational breakdowns for each of the four specialty categories are as follows:

- Addiction Specialists consisted of: AOD Counselors (88%), Psychiatrists (3%), Psychologists (4%), and Registered Nurses (1%).
- Adult Specialists were comprised of: Registered Nurses (83%), Psychologists (12%), and Clinical Nurse Specialists (5%).
- Child and Adolescent Specialists included: Psychiatrists (59%) and Psychologists (31%).
- Geriatric Specialists consisted of: Psychiatrists (99%) and Clinical Nurse Specialists (1%).

As shown in Figure 106, the Southern region contained the highest percentage of specialty providers (35%, n=4,420), followed by the Bay Area (26%, n=2,869), Los Angeles (24%, n=2,571), Central (12%, n=1,512), and Superior (2%, n=333) regions. Across all five MHSA Regions, Addiction Specialists comprised the highest percentages of specialty providers as compared to Adult, Child and Adolescent, and Geriatric Specialists.

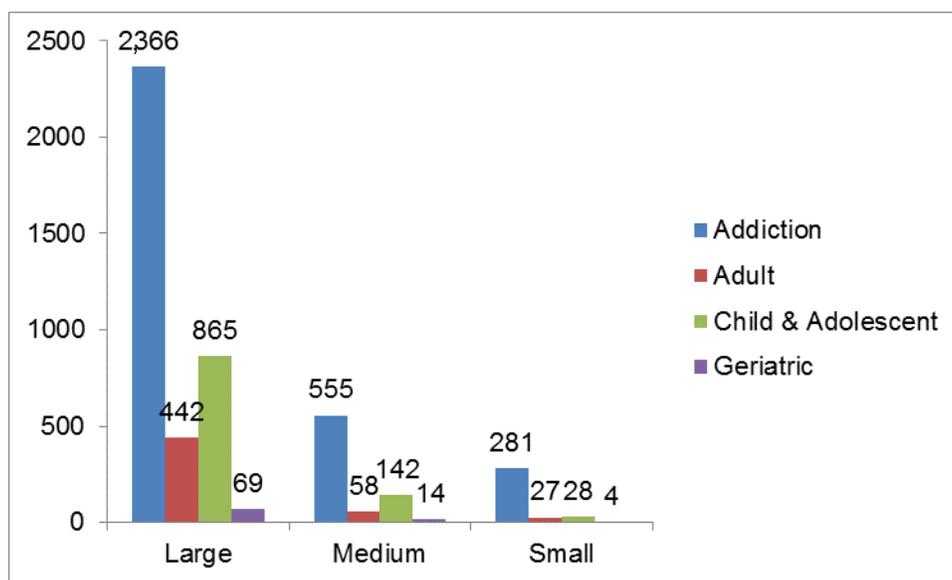
**Figure 106: Specialty Provider by MHSR Region, NPI Data, 2013**



Source: NPI Data Dissemination File (2013)

As detailed in Figure 107, large counties had the highest percentage of specialty providers (77%, n=3,742), followed by medium (16%, n=769) and small (7%, n=340) counties. There were significantly higher percentages of Addiction Specialists than Adult, Child and Adolescent, and Geriatric Specialists for each county size.

**Figure 107: Specialty Provider by County Size, NPI Data, 2013**

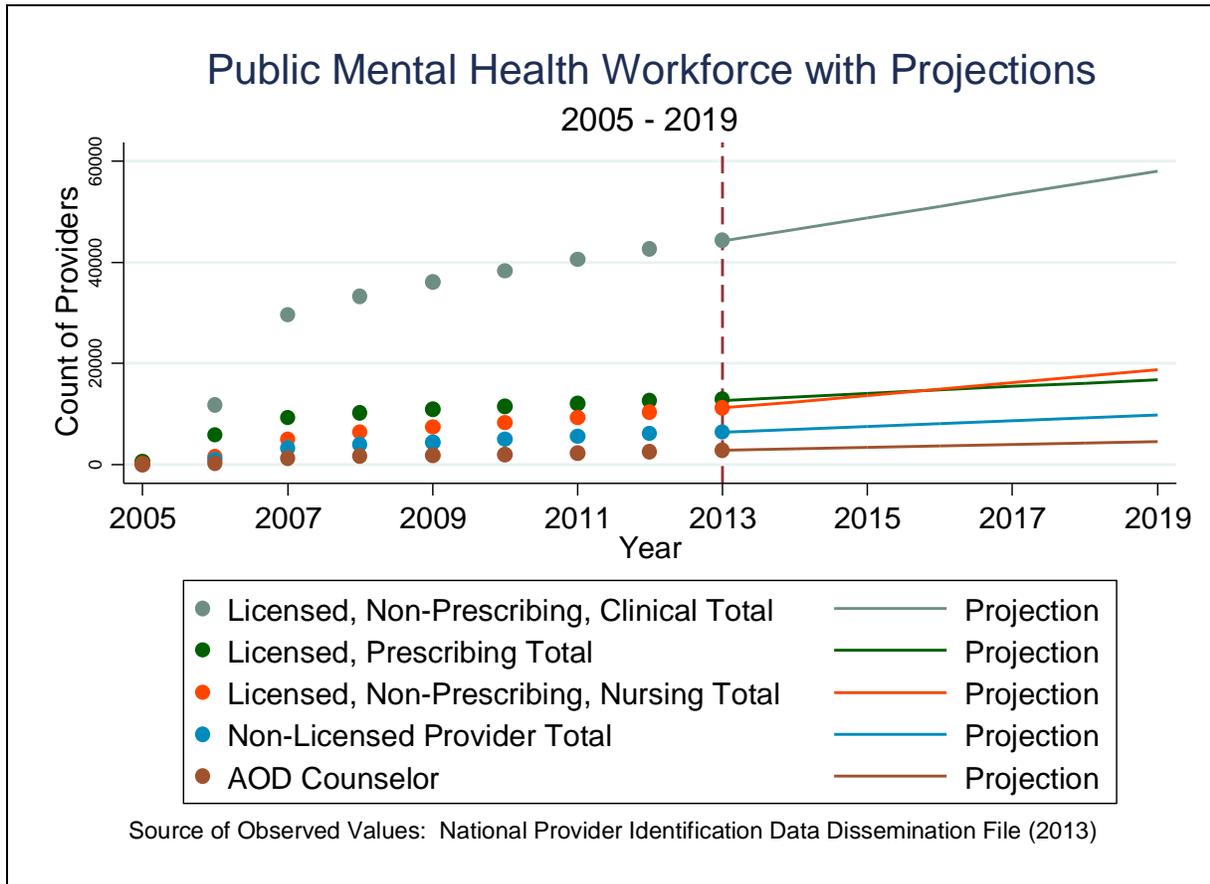


Source: NPI Data Dissemination File (2013)

## Concluding Findings

Figure 108 shows the counts of providers by provider class from 2005 through 2013. Additionally, Figure 108 includes the 2014-2019 projections lines, for each provider class, produced from the multivariate projection regressions conducted in this analysis.

**Figure 108: Public Mental Health Workforce with Projections<sup>78</sup>**



### Licensed, Non-Prescribing, Clinical Providers

- **Within the category of Licensed, Non-Prescribing clinical providers, Marriage and Family Therapists constituted the largest share of providers.** Licensed Clinical Social Workers represented the second highest proportion of provider, while Licensed Professional Clinical Counselors accounted for a very small share of this category of providers.

<sup>78</sup> NOTE: The counts of providers projected in this figure do not exclusively represent only those providers in California's public mental health system because NPI Registry data includes all providers in the state's public health care system

- **The current distribution of providers and the forecasts shed some light on how reported needs for Licensed, Non-Prescribing providers may be filled.** While Licensed Clinical Social Workers is a high need position according to county-reported needs, the overall count of Marriage and Family Therapists is much higher. The distribution of Marriage and Family Therapists across different county sizes does not appear to be as disproportionate as some other provider types. Future strategies could consider preparing counties to capitalize on the growing supply of Marriage and Family Therapists among the licensed, non-prescriber provider population.

### Licensed, Prescribing Providers

- **The most rapidly growing Licensed, Prescribing type of provider is Physician Assistants (PAs).** In 2013, PAs constituted a nearly equal share of the Licensed, Prescribing provider population as Psychiatrists. The forecasts presented in this report predict that PAs will grow in count and increase their share of the total Licensed, Prescribing provider population. It should be noted that most PAs do not work in PMHS settings.
- **The public mental health workforce forecasts presented in this report shed some light on the potential for labor substitutions within the Licensed, Prescribing provider pool.** In the County Needs Follow-Up Survey, counties reported that current labor substitution practices generally include shifting Psychiatrist responsibility to other types of providers, such as Psychiatric Mental Health Nurse Practitioners and non-prescribing providers such as Licensed Clinical Social Workers. Fewer counties reported using Physician Assistants as labor substitutes for Psychiatrists. Given the projected growth of the Physician Assistant pool, future strategies should consider how to capitalize on the increasing Physician Assistant supply to mitigate the needs for Psychiatrists and other hard-to-fill licensed, prescribing providers.
- **It appears too early to predict the effect of the Affordable Care Act (ACA) on any particular occupation of mental health providers.** Presumably, the public healthcare systems anticipate shifting responsibility for patient care and coordination to primary care providers, such as primary care Physicians, Physician Assistants, and Nurse Practitioners. The forecasts presented in this report predict significant increases in the Physician Assistant pool and have much more limited explanatory power for Psychiatric Mental Health Nurse Practitioners and Physicians with Addiction Specialties. Future strategies should consider the impact of the ACA on Physician Assistant and Nurse Practitioner responsibilities, especially given the limited supply of Psychiatric Mental Health Nurse Practitioners.
- **Throughout this report, gender distributions of each provider type are reported.** Overall, the population of public health care providers is predominantly female. The only occupations exempt from this pattern are licensed, prescribing providers: Psychiatrists and Physicians with Addiction Specialties; which are predominantly male.

## Licensed, Non-Prescribing, Nursing Providers

- **The category of licensed, non-prescribing, nursing occupations is anticipated to grow by approximately 33% over the five-year period from 2014 to 2019.** The ratio of Licensed, Non-Prescribing Nurses to the overall population will grow slightly. From 2014 to 2019, projections anticipate that there will be a growth of approximately two additional Licensed, Non-Prescribing Nurses per 100,000 individuals.
- **In 2013, Registered Nurses represented 67% of Licensed, Non-Prescribing nursing occupations in the NPI data.** This share is anticipated to remain relatively constant over the next five-year period. Licensed Psychiatric Technicians, Clinical Nurse Specialists, and Licensed Practical Nurses each represented less than 10% of the total share of the Licensed, Non-Prescribing nursing category in NPI data.
- **The Southern region and large counties contained the highest percentages of licensed, non-prescribing, nursing positions.** The Southern region had the most licensed, non-prescribing, nursing positions except for Clinical Nurse Specialist. As compared to small and medium counties, large counties contained the greatest number of all licensed, non-prescribing, nursing occupations. The Superior region and small counties contained the lowest percentages of licensed, non-prescribing, nursing positions. This geographic trend was consistent with that of Licensed, Prescribing occupations.
- **Females occupied all licensed, non-prescribing, nursing positions more than males.** Females filled 89% of Clinical Nurse Specialist positions, 87% of Registered Nurse positions, 80% of Licensed Practical Nurse positions, 82% of Licensed Vocational Nurse positions, and 67% of Licensed Psychiatric Technician positions.

## Non-Licensed Professional Providers

- **Mental Health Counselors represent the largest share of providers in the non-licensed professional category.** The largest non-licensed professional occupations in descending order were: Mental Health Counselor (n=4,935), Counselor (n=841), Case Manager/Care Coordinator (n=749), and Community Health Worker (n=102).
- **The Southern, Bay Area, and Los Angeles regions and large counties contained the highest percentages of non-licensed professionals.** The Southern region contained the greatest percentages of Case Managers/Care Coordinators and Community Health Workers, the Bay Area region contained the greatest percentage of Counselors, and the Los Angeles region contained the greatest percentage of Mental Health Counselors. As compared to small and medium counties, large counties contained the greatest number of all four non-licensed professions.
- **Females comprised a large majority of the non-licensed professional positions.** Females filled 78% of Mental Health Counselor positions, 75% of Community Health

Worker positions, 74% of Case Manager/Care Coordinator positions, and 68% of Counselor positions.

- **The overall count of non-licensed professional providers is slated to grow by 73% from 2013 to 2019.** The fastest growing profession type among public mental health non-licensed providers is Mental Health Counselors, who also account for the largest total proportion of non-licensed professional providers.

### Alcohol and other Drugs Counselors

- **Assuming population and Gross Domestic Product (GDP) grow at rates projected in this model, the total count of public Alcohol and other Drugs Counselors is slated to grow from 2014 through 2019.** The annual percent change in growth is forecasted to slow from approximately 8% per year to 6% growth in 2019.
- **The Southern region and large counties contained the highest percentages of Alcohol and other Drugs Counselors.** The Southern region contained 35% of all Alcohol and other Drugs counseling positions. As compared to small and medium counties, large counties contained the greatest percentage of Alcohol and other Drugs Counselors (72%).

### Other Findings

#### Aging and Retirement

- **Previous literature reviews have documented increasing concerns about aging and retirement.** These concerns are compounded, somewhat counter-intuitively, by a strengthening economy in California. The Great Recession likely influenced many older workers to delay retirement. As the economy recovers, workers may begin to withdraw from the workforce.
- **Limited data on providers' ages and lengths of practices prevented a complete analysis of how retirement will impact public mental health provider supply.** RDA was able to compute anticipated for a few of the professions, including Psychiatrists, Licensed Clinical Social Workers, Marriage and Family Therapists, Licensed Vocational Nurses, and Licensed Psychiatric Technicians.
- **Among the professions for which retirement rates were estimated, only psychiatry was estimated to have a significant proportion of providers estimated to retire by 2019.** According to the computations conducted for this report, assuming Psychiatrists would retire on average by 65 with average practice lengths of 35 years, 40% of the current Psychiatrist workforce would retire by 2019. However, even after adjusting for this rate of retirement, the incoming supply of Psychiatrists is still projected to increase (albeit at a slower pace) annually.

## Diversity

- **Overall, the majority of public mental health providers are females as identified in NPI data.** There are only two professions analyzed in this report for which females do not represent this trend including: Psychiatrists and Physicians with Addiction Specialties. The gender distributions amongst most other types of mental health providers – usually around 70% female and 30% male – are consistent with the findings from Report 5 – Education, specifically the report titled, “MHSA WET Five-Year Plan Assessment: Report on Educational Institutions.” As discussed in that report, the count of female graduates is projected to increase more rapidly than male graduates. Assuming the observed trends from 1999 to 2009 continue, future strategies should assume that an increasing share of providers in California’s public mental health workforce will be female.
- **Further analysis of other diversity characteristics, including race/ethnicity, cultural competency, sexual orientation, language, and age were limited by a lack of data for these elements.** Future efforts to collect this data would be valuable to assessments of diversity and cultural competence.

## Conclusion

The California public mental health workforce is comprised of an extremely diverse set of disciplines and professions that combine to provide a wide array of services and expertise for the state’s public mental health consumers. This report described the current (2013) distribution and quantity of California’s overall mental health workforce (through boards licensure data) and public mental health workforce (through NPI data), and provided demographic breakdowns of the information whenever data was available to do so. Additionally, this report presented projections of the future counts of the state’s public mental health workforce, from 2014 to 2019, by specific groupings of provider classes. All trends show increasing counts of each type of mental health provider over the next five years. Other than the Licensed, Prescribing professions of psychiatry and Physicians with Addiction Specialties, the public mental health workforce is comprised chiefly of females. The class of licensed, non-prescribing, nursing disciplines has the largest combined counts of projected professionals in the next five years. Lastly, most of the state’s public mental health providers are located in its Southern and Los Angeles regions. As California continues to improve the quantity and quality of its public mental health workforce, thorough consideration of the current variety and projected distributions of providers will inform the development of programming and funding streams to meet the needs of the state’s diverse and dynamic populations.

# Appendices

## Appendix 1: Counties in California Regions as defined by the Department of Consumer Affairs<sup>79</sup>

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

Source: Lok and Chapman. (2009). *The Mental Health Workforce in California: Trends in Employment, Education, and Diversity*.

<sup>79</sup> Lok and Chapman. (2009, March). *The Mental Health Workforce in California: Trends in Employment, Education, and Diversity*. Retrieved from: [http://www.futurehealth.ucsf.edu/Content/29/2009-03\\_The\\_Mental\\_Health\\_Workforce\\_in\\_California\\_Trends\\_in\\_Employment\\_Education\\_and\\_Diversity.pdf](http://www.futurehealth.ucsf.edu/Content/29/2009-03_The_Mental_Health_Workforce_in_California_Trends_in_Employment_Education_and_Diversity.pdf)

## Appendix 2. Regression Results and Interpretations

### I. Guide to the Statistical Findings

The following tables display results from the multivariate regression analyses examining the relationships between observed counts of mental health professionals, their wages (when available), California Gross Domestic Product, and California population size.

The multivariate regressions were constructed with two primary aims in mind:

- 1) To understand the economic and social factors related to the supply of mental health professionals; and
- 2) To control for economic and social influences on the projected supply of mental health professionals.

The outcome of interest in each regression is the annual supply of mental health professionals across California. Regression outcomes for each different mental health professionals are displayed below.

The purpose of this section is to provide a guide to the interpretation of different aspects of the regression outcomes. Sections II-IV introduce how to identify and interpret statistical significance, how to interpret coefficients, log-transformed coefficients, and causality.

Section V addresses the actual results of the regressions, grouped by the classes of providers used throughout the report: Licensed, Prescribing; licensed, non-prescribing, clinical; Licensed, Non-Prescribing, Nursing; and Non-Licensed providers. For the purpose of efficiency, only statistically significant findings are discussed in Section V.

### II. Interpreting Statistical Significance

It is common practice to use statistical significance to determine if estimates are reliable. Statistical significance is determined by the “p-value.” P-values are defined at different levels of probability; usually  $p < 0.05$ ,  $p < 0.01$ , and  $p < 0.001$ .<sup>80</sup> Every p-value represents a test of the relationship of the variables against a null hypothesis and an alternative hypothesis. The p-value is the probability that we would derive the estimated result if the “null hypothesis” were true.

To apply this example practically, we can use the results of the regression on Psychiatrists in Table 75 “Licensed, Prescribing Providers Regression Results.”

Null Hypothesis: California population is not related to the number of Psychiatrists.

---

<sup>80</sup> Kahn, Jeffrey. (2014). *Reporting Statistics in APA Style*. Retrieved from:  
<http://my.ilstu.edu/~jhkahn/apastats.html>

Alternative Hypothesis: California population is related to the number of Psychiatrists.

Note that the p-value of the coefficient “Natural Log of California Population” is highly statistically significant at  $p < 0.001$ . This p-value implies that if the *null* hypothesis were true, “California population is not related to the number of Psychiatrists,” the probability of obtaining the results that were shown was less than 0.1%. With a probability this low, we *reject the null hypothesis* that the California population is not related to the number of Psychiatrists, and accept the alternative that California population is indeed related to the number of Psychiatrists.

In colloquial terms, p-values and statistical significance have come to represent reliability of estimates. If an estimate is statistically significant, colloquially speaking, that estimate is probable and reliable.

Alternatively, the following is an example where we should accept the null hypothesis. Take the relationship between Average Psychiatrist wage and the count of Psychiatrists, presented in Table 75. The hypotheses are:

Null Hypothesis: Average Psychiatrist Wage is not related to the number of Psychiatrists.

Alternative Hypothesis: Average Psychiatrist Wage is related to the number of Psychiatrists.

Note that the result for Average Psychiatrist Wage, 18.286, is *not statistically significant*. A high p-value (defined in this report as  $p > .05$ ) implies that if average Psychiatrist wage is not related to the number of Psychiatrists, the probability of deriving this result is higher than 5% of the time. With probability higher than 5%, we cannot reject the null hypothesis and instead accept the null hypothesis: Average Psychiatrist Wage is not related to the number of Psychiatrists.

This result may be surprising, as conventional wisdom might imply that wages act as an incentive for employment or entry to the workforce. However, the section on wages (titled “Other Economic Influences”) provides the reason behind the null result. Average Psychiatrist wages fluctuate every year and do not exhibit a clear upward or downward trend. That relationship could be negative *or* positive, but if average Psychiatrist wage fluctuates *randomly*, it is not likely that it would be related to the count of Psychiatrists, which we observe to be non-random.

### III. Interpreting Coefficients

Statistical significance helps us determine which estimates are reliable and probable. The next step is to assess the value and meaning of the estimates. To understand the relationship, we use the values of the coefficients (also known as Betas).

In a straightforward regression result, a coefficient represents the change in the outcome for a one-unit change in the independent variable. Positive coefficients indicate that as one variable increases, so does the other. Negative relationships indicate that as the independent variable increases, the dependent variable decreases.

In the regression models used here, data lagged by five years, so that the observed outcome (such as the count of Physician Assistants), is regressed against control data five years prior. Thus, interpreting coefficients must incorporate the difference in data by five years. In creating the models, increasing the data lag also increased the strength of the variable relationships. This implies that the controls (such as wage, GDP, and Population) were more significantly related when the gap in years between the control and dependent variable increased. Wage, GDP, and Population thus appeared to have a more significant relationship with supply of mental health workers five years later. Five years was the maximum time to lag data because of the number of years of data available.

The following is a practical example: Take the average Physician Assistant wage variable for the number of Physician Assistants. The value of the coefficient is 47.01 (statistically significant at the  $p < 0.01$  level). This coefficient signifies that on average and controlling for GDP and

Population, for every one dollar increase in the average Physician Assistant wage, there were an observed additional 47.01 Physician Assistants five years later.

Note that many of the coefficients are transformed as natural logarithms. Transforming variables to their natural logarithms is a traditional approach to coping with large value variables with non-normal distributions. This approach is explained and justified in the section on GDP and Population under Forecasting Method.

One simple way to interpret a natural log-transformed coefficient is to interpret the impact of a 10% change in the control variable. To estimate the change ( $\Delta$ ) in the supply of a provider, we let  $\beta_1$  represent the coefficient of interest, and multiply  $\beta_1$  by the value of the natural logarithm of 1.1, which captures the 10% change.

$$\Delta(\text{ProviderSupply}) = \beta_1 * \ln(1.1)$$

To apply this example, we look to the coefficient on the natural log of California population on the count of Physician Assistants. For a 10% increase in California population, this model estimates an average increase of 3,668.6 Physician Assistants five years later, controlling for GDP and wage.

$$\Delta(\text{ProviderSupply}) = 38,491 * 0.0953$$

Throughout the results, the constants were usually very large negative numbers. The constant represents the supply of mental health professionals when all the variables are set to zero, including California population at zero, GDP at zero, and wages at zero. Thus, while the constants may be statistically significant, they have limited interpretability or meaning, and were left out of the results below.

#### IV. A Note on Causality

There is insufficient data to assume causal relationships in the results below. While we can infer statistical relationships from these regressions, we cannot derive which variables influence the other variables, or in what way they are related.

#### V. Results

In the following section, regression output is organized by provider classes: Licensed, Prescribing; licensed, non-prescribing, clinical; Licensed, Non-Prescribing, Nursing; and Non-Licensed providers. There is one table per provider class, which presents independent variables and their relationship to the supply of mental health providers in that provider class. Coefficients are bolded when they are statistically significant. Statistically significant coefficients are discussed for each table.

**Licensed, Prescribing Providers**

Table 75 includes the results produced from the regressions for licensed, prescribing providers.

**Table 75: Licensed, Prescribing Providers: Regression Results**

Controls	Psychiatry	PMHNP	Physician Assistant	Physician, Addiction Medicine
California GDP (natural log)	-754.8	<b>169.2**</b>	745.3	<b>-27.7*</b>
California Population (natural log)	<b>18,912.2**</b>	<b>806.0**</b>	<b>38,491.1***</b>	<b>253.7**</b>
Average Physician Assistant Wage		<b>1.4**</b>	<b>47.5*</b>	<b>0.6*</b>
Average Psychiatrist Wage	0			

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Psychiatrist**

The regression on Psychiatrists showed that the natural log of California population was statistically significant as it related to the supply of Psychiatrists. Following the example above, we apply an equation to transform the logged coefficient into an interpretable 10% increase. For every 10% increase in California population, there is a corresponding increase of approximately 1,802 Psychiatrists five years later ( $p < .001$ ).

As discussed in the section above, average Psychiatrist wage was not statistically significant, likely due to annual fluctuations in wage.

**Psychiatric Mental Health Nurse Practitioner**

The results for regression on the supply of Psychiatric Mental Health Nurse Practitioners (PMHNPs) shows three statistically significant controls: average Physician Assistant (PA) wage, natural log of California GDP, and natural log of California population.

Since PMHNP wages were not available at multiple time points, Physician Assistant wages were substituted as a proxy. Assuming the PA wages can serve as an appropriate indicator of wage trends among PMNHPs, the results show that a one dollar increase in PA wage corresponds with approximately 1.4 additional PMNHPs five years later ( $p < 0.01$ ), controlling for GDP and Population.

The supply of PMNHPs was also statistically significant as it related to GDP. Transforming the logged coefficients, we interpret that, on average, for a 10% increase in California GDP, there are approximately 16 additional PMNHPs. On average, controlling for wage and GDP, for a 10% increase in California population size, there are approximately 76.82 additional PMNHPs five years later ( $p < .001$ ).

**Physician Assistant**

The regression on Physician Assistants (PA) showed that average PA wage and the natural log of California population were both statistically significant as it related to the supply of PAs.

A one dollar increase in average PA wage corresponds, on average and controlling for GDP and Population, approximately 48 additional PAs five years later ( $p < .05$ ).

A 10% increase in California population size corresponds to, on average and controlling for GDP and population, approximately 3,668 additional PAs five years later ( $p < .01$ ).

**Physician with Addiction Specialty**

The regression on Physicians with addiction specialty resulted in three statistically significant controls: average Physician Assistant (PA) wage, natural log of California GDP, and natural log of California population.

Average Physician Assistant wage serves as a proxy for wage trends among Physicians with addiction specialty. On average and controlling for GDP and California population, for every one dollar increase in PA wages, there was approximately 1 additional Physician with addiction specialty five years later ( $p < .01$ ).

For a 10% increase in California population, on average and controlling for wage and GDP, there were an additional 24 Physicians with addiction specialty five years later ( $p < .001$ ).

For a 10% increase in California GDP, on average and controlling for wage and population, there were 27 fewer Physicians with addiction specialty five years later ( $p < 0.024$ ).

**Alcohol and other Drugs Counselors**

As detailed in Table 76, the regression on Alcohol and other Drugs (AOD) Counselors showed that the natural log of California population was statistically significant as it related to the supply of AOD Counselors. On average and controlling for GDP, a 10% increase in California population size corresponded with approximately 2,427 additional AOD Counselors five years later ( $p < .001$ ).

**Table 76: Alcohol and other Drugs Counselors: Regression Results**

Controls	Alcohol and other Drugs Counselors
Natural Log of California Population	1,629.6
Natural Log of California GDP	25,462.9***
* $p < 0.05$ , ** $p < 0.01$ , *** $p < 0.001$	

**Licensed, Non-Prescribing, Clinical Providers**

Table 77 includes the results produced from the regressions for licensed, non-prescribing, clinical providers.

**Table 77: Licensed, Non-Prescribing, Clinical Provider Projections**

Controls	Psychologist	Marriage and Family Therapist	Clinical Social Worker	Professional Counselor
<b>California GDP (natural log)</b>	-3,956.4	-3,161.1	-1,589.5	149.7
<b>California Population (natural log)</b>	68,466.1***	143,264.6***	71,789.7***	1,939.4***
* p<0.05, ** p<0.01, *** p<0.001				

**Psychologist**

The regression on Psychologists showed that the natural log of California population was statistically significant as it related to the supply of Psychologists. On average and controlling for GDP, for a 10% increase in California population, there were approximately 6,526 additional Psychologists five years later (p<.001).

**Marriage and Family Therapist**

The regression on Marriage and Family Therapists (MFTs) showed that the natural log of California population was statistically significant as it related to the supply of MFTs. On average and controlling for GDP, for a 10% increase in California population, there were approximately 13,656 additional MFTs five years later (p<.001).

**Clinical Social Worker**

The regression on clinical Social Workers showed that the natural log of California population was statistically significant as it related to the supply of Social Workers. On average and controlling for GDP, for a 10% increase in California population size, there were approximately 6,842 additional Social Workers five years later (p<.001).

**Professional Counselor**

The regression on professional Counselors showed that the natural log of California population was statistically significant as it related to the supply of professional Counselors. On average and controlling for GDP, for a 10% increase in California population, there are approximately 184 additional professional Counselors five years later (p<.001).

**Licensed, Non-Prescribing, Nursing Providers**

Table 78 includes the results produced from the regressions for licensed, non-prescribing, nursing providers.

**Table 78: Licensed, Non-Prescribing, Nursing: Regression Results**

Controls	Registered Nurse	Clinical Nurse Specialist	Licensed Practical Nurse	Licensed Psychiatric Technician	Licensed Vocational Nurse
California GDP (natural log)	3,801.5	20.7**	162.7	531.1	2,018.3
California Population (natural log)	12,080.6	-215.9*	1,940.5**	5,554.8**	27,077.0***
Average Psychiatric Technician Wage			0.0**	0.0**	0.0**
Average Registered Nurse Wage	0.2*	0.0**			

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

**Registered Nurse**

The regression on Registered Nurses (RNs) showed that wages were statistically significant as it related to the supply of RNs. The coefficient size was small (0.20), demonstrating that on average and controlling for GDP and California population, one additional dollar in average RN wage corresponded with approximately 0.2 additional RNs five years later (p<.05).

**Clinical Nurse Specialist**

The supply of Clinical Nurse Specialists was statistically significant as it related to both average RN wage and the California GDP.

On average and controlling for average RN wage and California population, a 10% increase in California GDP corresponds to approximately 2 additional Clinical Nurse Specialists five years later (p<.05).

**Licensed Vocational Nurse**

The regression on Licensed Vocational Nurses (LVNs) showed that average Psychiatric Technician (PT) wage and the natural log of California population were statistically significant as it related to the supply of Licensed Vocational Nurses. While wage was statistically significant, the relationship was flat, indicating no change in the supply of LVNs for a one-unit increase in wage.

On average and controlling for average PT wage and GDP, for a 10% increase in California population, the model estimated approximately 2,580 additional LVNs five years later (p<.001).

**Licensed Psychiatric Technician**

The regression on Licensed Psychiatric Technicians showed that average LPT wage and California population were strongly statistically significant as it related to the supply of Licensed Psychiatric Technicians.

Average LPT wage had a coefficient of nearly 0, indicating a flat relationship between average LPT wage and the supply of Licensed Psychiatric Technicians five years later ( $p < .01$ ).

On average and controlling for average LPT wage and GDP, for a 10% increase in California population, the model estimated 529 additional Licensed Psychiatric Technicians five years later ( $p < .001$ ).

### *Licensed Practical Nurse*

The regression on Licensed Practical Nurses showed that average LPN wage and California population were both strongly statistically significant as it related to the supply of Licensed Practical Nurses ( $p < .001$ ). Average LPN wage had a coefficient of 0, indicating a flat relationship between wage and the supply of Licensed Practical Nurses.

On average and controlling for average LPN wage and GDP, for a 10% increase in California population size, the model estimated approximately 185 additional Licensed Practical Nurses five years later ( $p < .01$ ).

### **Non-Licensed Professionals**

Table 79 includes the results produced from the regressions for non-licensed professionals.

**Table 79: Non-Licensed Professionals: Regression Results**

Controls	Counselor	Mental Health Counselor	Community Health Worker	Case Manager/ Care Coordinator
California GDP (natural log)	105.3	1014	22.1	264.1
California Population (natural log)	7,370.3***	40,726.9***	1,615.7***	6,946.5***

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

### *Case Manager*

The regression on Case Managers showed that California population was statistically significant as it related to the supply of Case Managers. On average and controlling for GDP, for a 10% increase in California population, the model estimated an average increase of approximately 662 Case Managers five years later ( $p < .01$ ).

### *Community Health Worker*

The regression on Community Health Workers showed that California population was statistically significant as it related to the supply of Community Health Workers. On average and controlling for GDP, for a 10% increase in California population, the model estimated an average increase of approximately 153 Community Health Workers five years later ( $p < .001$ ).

### *Counselor*

The regression on Counselors showed that California population was statistically significant as it related to the supply of Counselors. On average and controlling for GDP, for a 10% increase in

California population, the model estimated an average increase of approximately 702 Counselors five years later ( $p < .001$ ).

### *Mental Health Counselor*

The regression on Mental Health Counselors showed that California population was statistically significant as it related to the supply of Mental Health Counselors. On average and controlling for GDP, for a 10% increase in California population, the model estimated an average increase of approximately 3,882 Mental Health Counselors five years later ( $p < .001$ ).

## Appendix 3. Number of Providers and Provider-to-Population Ratios by California County

**Table 80: Psychiatrist by County, Board Licensure and NPI Data, 2013**

County	Board, Number of Psychiatrist	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Psychiatrist	NPI Prov-to-Pop Ratio (per 100,000 persons)
Alameda	412	28.0	293	19.6
Alpine	*	*	*	*
Amador	12	31.0	3	7.8
Butte	22	10.0	19	8.7
Calaveras	15	33.0	2	4.4
Colusa	*	*	1	4.7
Contra Costa	212	20.0	159	15.3
Del Norte	4	14.0	6	21.0
El Dorado	26	14.0	11	6.1
Fresno	145	16.0	117	12.7
Glenn	*	*	*	*
Humboldt	26	19.0	12	9.0
Imperial	15	9.0	11	6.4
Inyo	4	22.0	2	10.8
Kern	76	9.0	77	9.3
Kings	10	7.0	2	1.3
Lake	12	19.0	6	9.3
Lassen	*	*	3	8.6
Los Angeles	2,374	24.0	1,730	17.7
Madera	16	11.0	9	6.0
Marin	199	79.0	117	46.7
Mariposa	4	22.0	*	*
Mendocino	19	22.0	6	6.9
Merced	17	7.0	5	2.0
Modoc	7	73.0	1	10.4
Mono	4	29.0	2	14.3
Monterey	70	17.0	51	12.4
Napa	103	76.0	99	73.1
Nevada	21	21.0	9	9.1
Orange	573	19.0	370	12.4
Placer	67	20.0	31	9.0
Plumas	*	*	1	5.0
Riverside	175	8.0	154	7.1

County	Board, Number of Psychiatrist	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Psychiatrist	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>Sacramento</b>	317	23.0	256	18.2
<b>San Benito</b>	4	7.0	3	5.5
<b>San Bernardino</b>	257	13.0	202	1*
<b>San Diego</b>	808	26.0	561	18.3
<b>San Francisco</b>	680	85.0	573	71.8
<b>San Joaquin</b>	61	9.0	45	6.6
<b>San Luis Obispo</b>	133	50.0	94	35.1
<b>San Mateo</b>	249	35.0	194	27.3
<b>Santa Barbara</b>	83	20.0	64	15.2
<b>Santa Clara</b>	577	33.0	430	24.4
<b>Santa Cruz</b>	69	27.0	51	19.7
<b>Shasta</b>	22	12.0	14	7.9
<b>Sierra</b>	*	*	*	*
<b>Siskiyou</b>	19	43.0	2	4.5
<b>Solano</b>	79	19.0	81	19.7
<b>Sonoma</b>	112	23.0	71	14.8
<b>Stanislaus</b>	49	10.0	34	6.6
<b>Sutter</b>	13	14.0	13	13.8
<b>Tehama</b>	*	*	*	*
<b>Trinity</b>	*	*	*	*
<b>Tulare</b>	29	7.0	27	6.2
<b>Tuolumne</b>	6	11.0	4	7.2
<b>Ventura</b>	122	15.0	71	8.7
<b>Yolo</b>	54	27.0	8	4.0
<b>Yuba</b>	10	14.0	*	*
<b>TOTAL</b>	<b>8,393</b>	<b>23.0</b>	<b>6,107</b>	<b>16.5</b>

\* No data available.

**Table 81: Psychiatric Mental Health Nurse Practitioner by County, Board Licensure and NPI Data, 2013**

County	Board Number of Psychiatric Mental Health Nurse Practitioner	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Psychiatric Mental Health Nurse Practitioner	NPI-Prov-to-Pop Ratio (per 100,000 persons)
Alameda	16	1.1	11	0.7
Alpine	*	*	*	*
Amador	*	*	*	*
Butte	2	0.9	*	*
Calaveras	*	*	*	*
Colusa	*	*	*	*
Contra Costa	5	0.5	5	0.5
Del Norte	*	*	*	*
El Dorado	*	*	*	*
Fresno	2	0.2	5	0.5
Glenn	*	*	*	*
Humboldt	*	*	2	1.5
Imperial	*	*	*	*
Inyo	*	*	*	*
Kern	1	0.1	*	*
Kings	*	*	*	*
Lake	*	*	1	1.6
Lassen	*	*	*	*
Los Angeles	50	0.5	33	0.3
Madera	*	*	*	*
Marin	10	4.0	5	2.0
Mariposa	*	*	*	*
Mendocino	1	1.1	*	*
Merced	1	0.4	*	*
Modoc	*	*	*	*
Mono	1	7.1	*	*
Monterey	2	0.5	3	0.7
Napa	1	0.7	2	1.5
Nevada	*	*	*	*
Orange	27	0.9	21	0.7
Placer	3	0.9	1	0.3
Plumas	*	*	*	*
Riverside	14	0.6	2	0.1
Sacramento	5	0.4	4	0.3
San Benito	*	*	*	*
San Bernardino	10	0.5	5	0.2
San Diego	27	0.9	13	0.4
San Francisco	27	3.4	21	2.6
San Joaquin	2	0.3	1	0.1
San Luis Obispo	16	6.0	9	3.4
San Mateo	7	1.0	4	0.6
Santa Barbara	3	0.7	*	*

County	Board Number of Psychiatric Mental Health Nurse Practitioner	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Psychiatric Mental Health Nurse Practitioner	NPI-Prov-to-Pop Ratio (per 100,000 persons)
Santa Clara	5	0.3	2	0.1
Santa Cruz	3	1.2	*	*
Shasta	*	*	1	0.6
Sierra	*	*	*	*
Siskiyou	*	*	*	*
Solano	2	0.5	1	0.2
Sonoma	1	0.2	1	0.2
Stanislaus	*	*	1	0.2
Sutter	*	*	1	1.1
Tehama	1	1.6	*	*
Trinity	*	*	*	*
Tulare	*	*	*	*
Tuolumne	*	*	*	*
Ventura	4	0.5	2	0.2
Yolo	*	*	*	*
Yuba	1	1.4	*	*
<b>TOTAL</b>	<b>250</b>	<b>0.7</b>	<b>157</b>	<b>0.4</b>

\* No data available.

**Table 82: Nurse Practitioner by County, Board Licensure and NPI Data, 2013**

County	Board Number of Nurse Practitioner	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Nurse Practitioner	NPI-Prov-to-Pop Ratio (per 100,000 persons)
Alameda	948	63.4	*	*
Alpine	*	*	*	*
Amador	13	34.0	*	*
Butte	143	65.2	*	*
Calaveras	21	45.9	*	*
Colusa	3	14.1	*	*
Contra Costa	606	58.4	*	*
Del Norte	11	38.5	*	*
El Dorado	116	64.5	*	*
Fresno	531	57.7	*	*
Glenn	1	3.6	*	*
Humboldt	97	72.6	*	*
Imperial	38	22.2	*	*
Inyo	14	75.9	*	*
Kern	225	27.1	*	*
Kings	45	29.5	*	*
Lake	28	43.5	*	*
Lassen	11	31.4	*	*
Los Angeles	3,744	38.3	*	*
Madera	39	26.1	*	*
Marin	366	146.0	*	*
Mariposa	7	38.3	*	*
Mendocino	65	74.3	*	*
Merced	62	24.4	*	*
Modoc	3	31.3	*	*
Mono	4	28.5	*	*
Monterey	100	24.3	*	*
Napa	105	77.6	*	*
Nevada	67	68.1	*	*
Orange	1,457	48.7	*	*
Placer	221	64.3	*	*
Plumas	14	69.3	*	*
Riverside	607	28.2	*	*
Sacramento	550	39.0	*	*
San Benito	13	23.7	*	*
San Bernardino	674	33.3	*	*
San Diego	1,667	54.5	*	*
San Francisco	884	110.8	*	*
San Joaquin	181	26.6	*	*
San Luis Obispo	159	59.4	*	*
San Mateo	526	73.9	*	*
Santa Barbara	140	33.3	*	*
Santa Clara	657	37.3	*	*

County	Board Number of Nurse Practitioner	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Nurse Practitioner	NPI-Prov-to-Pop Ratio (per 100,000 persons)
<b>Santa Cruz</b>	154	59.4	*	*
<b>Shasta</b>	117	66.0	*	*
<b>Sierra</b>	3	91.5	*	*
<b>Siskiyou</b>	26	58.2	*	*
<b>Solano</b>	164	39.8	*	*
<b>Sonoma</b>	354	74.0	*	*
<b>Stanislaus</b>	176	34.3	*	*
<b>Sutter</b>	29	30.8	*	*
<b>Tehama</b>	18	28.6	*	*
<b>Trinity</b>	7	51.1	*	*
<b>Tulare</b>	131	30.0	*	*
<b>Tuolumne</b>	34	61.0	*	*
<b>Ventura</b>	344	42.2	*	*
<b>Yolo</b>	105	52.8	*	*
<b>Yuba</b>	12	16.7	*	*
<b>TOTAL</b>	<b>16,837</b>	<b>45.5</b>	*	*

\* No data available.

**Table 83: Nurse Practitioner Furnishing by County, Board Licensure and NPI Data, 2013**

County	Board Number of Nurse Practitioner Furnishing	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Nurse Practitioner Furnishing	NPI-Prov-to-Pop Ratio (per 100,000 persons)
Alameda	753	50.4	*	*
Alpine	*	*	*	*
Amador	9	23.5	*	*
Butte	127	57.9	*	*
Calaveras	21	45.9	*	*
Colusa	2	9.4	*	*
Contra Costa	464	44.7	*	*
Del Norte	11	38.5	*	*
El Dorado	93	51.7	*	*
Fresno	446	48.4	*	*
Glenn	1	3.6	*	*
Humboldt	86	64.4	*	*
Imperial	30	17.5	*	*
Inyo	13	70.4	*	*
Kern	181	21.8	*	*
Kings	34	22.3	*	*
Lake	24	37.3	*	*
Lassen	9	25.7	*	*
Los Angeles	3,074	31.4	*	*
Madera	35	23.4	*	*
Marin	267	106.5	*	*
Mariposa	5	27.3	*	*
Mendocino	56	64.0	*	*
Merced	51	20.1	*	*
Modoc	2	20.9	*	*
Mono	3	21.4	*	*
Monterey	68	16.5	*	*
Napa	75	55.4	*	*
Nevada	56	56.9	*	*
Orange	1,171	39.2	*	*
Placer	177	51.5	*	*
Plumas	11	54.5	*	*
Riverside	505	23.4	*	*
Sacramento	459	32.6	*	*
San Benito	11	20.0	*	*
San Bernardino	562	27.8	*	*
San Diego	1,338	43.7	*	*
San Francisco	729	91.4	*	*
San Joaquin	154	22.6	*	*
San Luis Obispo	137	51.1	*	*
San Mateo	422	59.3	*	*
Santa Barbara	121	28.8	*	*

County	Board Number of Nurse Practitioner Furnishing	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Nurse Practitioner Furnishing	NPI-Prov-to-Pop Ratio (per 100,000 persons)
<b>Santa Clara</b>	518	29.4	*	*
<b>Santa Cruz</b>	107	41.2	*	*
<b>Shasta</b>	100	56.4	*	*
<b>Sierra</b>	3	91.5	*	*
<b>Siskiyou</b>	24	53.7	*	*
<b>Solano</b>	121	29.4	*	*
<b>Sonoma</b>	286	59.8	*	*
<b>Stanislaus</b>	140	27.3	*	*
<b>Sutter</b>	26	27.6	*	*
<b>Tehama</b>	13	20.6	*	*
<b>Trinity</b>	6	43.8	*	*
<b>Tulare</b>	110	25.2	*	*
<b>Tuolumne</b>	29	52.0	*	*
<b>Ventura</b>	271	33.2	*	*
<b>Yolo</b>	82	41.2	*	*
<b>Yuba</b>	9	12.5	*	*
<b>TOTAL</b>	<b>13,638</b>	<b>36.9</b>	*	*

\* No data available.

**Table 84: Physician Assistant by County, Board Licensure and NPI Data, 2013**

County	Board Number of Physician Assistant	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Physician Assistant	NPI-Prov-to-Pop Ratio (per 100,000 persons)
Alameda	332	22.2	228	15.3
Alpine	*	*	1	85.7
Amador	8	20.9	9	23.5
Butte	95	43.3	88	40.1
Calaveras	9	19.7	5	10.9
Colusa	1	4.7	6	28.2
Contra Costa	218	21.0	149	14.4
Del Norte	11	38.5	8	28.0
El Dorado	47	26.1	17	9.5
Fresno	255	27.7	246	26.7
Glenn	7	25.0	3	10.7
Humboldt	40	29.9	33	24.7
Imperial	24	14.0	36	21.0
Inyo	3	16.3	2	10.8
Kern	173	20.9	157	18.9
Kings	33	21.7	8	5.3
Lake	12	18.6	27	41.9
Lassen	10	28.6	6	17.1
Los Angeles	2,092	21.4	1,663	17.0
Madera	27	18.0	27	18.0
Marin	63	25.1	26	10.4
Mariposa	9	49.2	5	27.3
Mendocino	21	24.0	7	8.0
Merced	50	19.7	56	22.1
Modoc	2	20.9	1	10.4
Mono	7	49.9	4	28.5
Monterey	84	20.4	96	23.3
Napa	27	19.9	31	22.9
Nevada	33	33.5	24	24.4
Orange	809	27.1	563	18.8
Placer	109	31.7	61	17.8
Plumas	5	24.8	3	14.9
Riverside	496	23.0	475	22.0
Sacramento	317	22.5	256	18.2
San Benito	9	16.4	10	18.2
San Bernardino	507	25.1	367	18.1
San Diego	764	25.0	531	17.3
San Francisco	195	24.4	129	16.2
San Joaquin	67	9.8	90	13.2
San Luis Obispo	84	31.4	70	26.1
San Mateo	136	19.1	66	9.3
Santa Barbara	113	26.9	90	21.4
Santa Clara	340	19.3	294	16.7

County	Board Number of Physician Assistant	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Physician Assistant	NPI-Prov-to-Pop Ratio (per 100,000 persons)
<b>Santa Cruz</b>	123	47.4	48	18.5
<b>Shasta</b>	83	46.8	50	28.2
<b>Sierra</b>	*	*	*	*
<b>Siskiyou</b>	18	40.3	15	33.6
<b>Solano</b>	78	18.9	52	12.6
<b>Sonoma</b>	84	17.6	38	7.9
<b>Stanislaus</b>	115	22.4	67	13.1
<b>Sutter</b>	21	22.3	29	30.8
<b>Tehama</b>	14	22.2	22	34.9
<b>Trinity</b>	3	21.9	4	29.2
<b>Tulare</b>	140	32.1	131	3*
<b>Tuolumne</b>	16	28.7	9	16.1
<b>Ventura</b>	150	18.4	88	10.8
<b>Yolo</b>	68	34.2	35	17.6
<b>Yuba</b>	17	23.7	3	4.2
<b>TOTAL</b>	<b>8,574</b>	<b>23.2</b>	<b>6,565</b>	<b>17.8</b>

\* No data available.

**Table 85: Physician-Addiction Specialty by County, Board Licensure and NPI Data, 2013**

County	Board, Number of Physician-Addiction	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Physician-Addiction	NPI Prov-to-Pop Ratio (per 100,000 persons)
Alameda	*	*	3	0.2
Alpine	*	*	*	*
Amador	*	*	*	*
Butte	*	*	2	0.9
Calaveras	*	*	*	*
Colusa	*	*	*	*
Contra Costa	*	*	3	0.3
Del Norte	*	*	*	*
El Dorado	*	*	*	*
Fresno	*	*	*	*
Glenn	*	*	*	*
Humboldt	*	*	*	*
Imperial	*	*	*	*
Inyo	*	*	*	*
Kern	*	*	1	0.1
Kings	*	*	*	*
Lake	*	*	1	1.6
Lassen	*	*	*	*
Los Angeles	*	*	26	0.3
Madera	*	*	*	*
Marin	*	*	3	1.2
Mariposa	*	*	*	*
Mendocino	*	*	*	*
Merced	*	*	*	*
Modoc	*	*	*	*
Mono	*	*	*	*
Monterey	*	*	1	0.2
Napa	*	*	1	0.7
Nevada	*	*	*	*
Orange	*	*	17	0.6
Placer	*	*	*	*
Plumas	*	*	*	*
Riverside	*	*	6	0.3
Sacramento	*	*	2	0.1
San Benito	*	*	*	*
San Bernardino	*	*	10	0.5

County	Board, Number of Physician-Addiction	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Physician-Addiction	NPI Prov-to-Pop Ratio (per 100,000 persons)
San Diego	*	*	12	0.4
San Francisco	*	*	6	0.8
San Joaquin	*	*	2	0.3
San Luis Obispo	*	*	2	0.7
San Mateo	*	*	1	0.1
Santa Barbara	*	*	*	*
Santa Clara	*	*	3	0.2
Santa Cruz	*	*	*	*
Shasta	*	*	*	*
Sierra	*	*	*	*
Siskiyou	*	*	*	*
Solano	*	*	1	0.2
Sonoma	*	*	2	0.4
Stanislaus	*	*	*	*
Sutter	*	*	*	*
Tehama	*	*	*	*
Trinity	*	*	*	*
Tulare	*	*	*	*
Tuolumne	*	*	*	*
Ventura	*	*	2	0.2
Yolo	*	*	*	*
Yuba	*	*	*	*
<b>TOTAL</b>	*	*	<b>107</b>	<b>0.3</b>

\* No data available.

**Table 86: Registered Nurse by County, Board and NPI Data, 2013**

County	Board Number of Registered Nurse	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Registered Nurse	NPI-Prov-to-Pop Ratio (per 100,000 persons)
Alameda	14,181	948.6	387	25.9
Alpine	10	856.9	2	171.4
Amador	299	781.8	6	15.7
Butte	2,551	1,163.2	163	74.3
Calaveras	469	1,024.2	6	13.1
Colusa	55	258.3	7	32.9
Contra Costa	12,267	1,182.0	223	21.5
Del Norte	230	805.3	17	59.5
El Dorado	2334	1,297.5	30	16.7
Fresno	8,376	909.8	361	39.2
Glenn	106	378.2	2	7.1
Humboldt	1,439	1,077.2	200	149.7
Imperial	940	548.6	27	15.8
Inyo	191	1,034.8	4	21.7
Kern	5,577	672.5	224	27.0
Kings	931	611.2	1	0.7
Lake	465	722.1	32	49.7
Lassen	227	648.6	14	40.0
Los Angeles	75,741	773.8	1,106	11.3
Madera	916	612.3	42	28.1
Marin	3,518	1,403.5	86	34.3
Mariposa	131	716.2	3	16.4
Mendocino	762	870.6	16	18.3
Merced	1,258	496.0	59	23.3
Modoc	48	500.7	3	31.3
Mono	108	770.5	2	14.3
Monterey	2,981	724.6	69	16.8
Napa	2,276	1,681.2	84	62.0
Nevada	1097	1,114.9	32	32.5
Orange	27,180	909.0	498	16.7
Placer	5553	1,616.3	80	23.3
Plumas	165	817.2	6	29.7
Riverside	18,474	857.3	340	15.8
Sacramento	13,261	941.5	308	21.9
San Benito	361	657.9	9	16.4
San Bernardino	18,395	909.1	152	7.5
San Diego	31,244	1,020.8	1,021	33.4
San Francisco	7,798	977.2	351	44.0
San Joaquin	5,352	786.7	87	12.8
San Luis Obispo	3,070	1,146.1	93	34.7
San Mateo	8,634	11213.3	167	23.5
Santa Barbara	2,970	707.5	103	24.5
Santa Clara	14,963	848.8	248	14.1

County	Board Number of Registered Nurse	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Registered Nurse	NPI-Prov-to-Pop Ratio (per 100,000 persons)
<b>Santa Cruz</b>	2,864	1,104.1	62	23.9
<b>Shasta</b>	2,291	1,292.7	82	46.3
<b>Sierra</b>	27	823.9	*	*
<b>Siskiyou</b>	390	872.7	7	15.7
<b>Solano</b>	5,825	1,415.1	111	27.0
<b>Sonoma</b>	5,330	1,113.8	160	33.4
<b>Stanislaus</b>	4,447	867.8	134	26.1
<b>Sutter</b>	776	823.8	26	27.6
<b>Tehama</b>	330	523.9	27	42.9
<b>Trinity</b>	68	496.0	3	21.9
<b>Tulare</b>	3,195	732.4	34	7.8
<b>Tuolumne</b>	628	1,126.7	17	30.5
<b>Ventura</b>	7,667	939.9	148	18.1
<b>Yolo</b>	1,466	737.1	35	17.6
<b>Yuba</b>	378	526.3	3	4.2
<b>TOTAL</b>	<b>33,2586</b>	<b>899.6</b>	<b>7,520</b>	<b>20.3</b>

\* No data available.

**Table 87. Clinical Nurse Specialists by County, Board Licensure and NPI Data, 2013**

County	Board Number of CNS	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of CNS-APN	NPI-Prov-to-Pop Ratio (per 100,000 persons)
Alameda	5	0.3	5	0.3
Alpine	*	*	*	*
Amador	*	*	*	*
Butte	*	*	*	*
Calaveras	*	*	*	*
Colusa	*	*	*	*
Contra Costa	2	0.2	2	0.2
Del Norte	*	*	*	*
El Dorado	14	7.8	14	7.8
Fresno	4	0.4	4	0.4
Glenn	*	*	*	*
Humboldt	*	*	*	*
Imperial	*	*	*	*
Inyo	*	*	*	*
Kern	*	*	*	*
Kings	*	*	*	*
Lake	*	*	*	*
Lassen	*	*	*	*
Los Angeles	15	0.2	15	0.2
Madera	*	*	*	*
Marin	*	*	*	*
Mariposa	*	*	*	*
Mendocino	*	*	*	*
Merced	*	*	*	*
Modoc	*	*	*	*
Mono	*	*	*	*
Monterey	3	0.7	3	0.7
Napa	1	0.7	1	0.7
Nevada	*	*	*	*
Orange	3	0.1	3	0.1
Placer	1	0.3	1	0.3
Plumas	*	*	*	*
Riverside	1	0.0	1	*
Sacramento	4	0.3	4	0.3
San Benito	*	*	*	*
San Bernardino	1	0.0	*	*
San Diego	10	0.3	10	0.3
San Francisco	8	1.0	8	1.0
San Joaquin	1	0.1	1	0.1
San Luis Obispo	1	0.4	1	0.4
San Mateo	5	0.7	5	0.7
Santa Barbara	*	*	*	*
Santa Clara	6	0.3	6	0.3
Santa Cruz	2	0.8	2	0.8

County	Board Number of CNS	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of CNS-APN	NPI-Prov-to-Pop Ratio (per 100,000 persons)
<b>Shasta</b>	*	*	*	*
<b>Sierra</b>	*	*	*	*
<b>Siskiyou</b>	*	*	*	*
<b>Solano</b>	*	*	*	*
<b>Sonoma</b>	*	*	*	*
<b>Stanislaus</b>	*	*	*	*
<b>Sutter</b>	*	*	*	*
<b>Tehama</b>	*	*	*	*
<b>Trinity</b>	*	*	*	*
<b>Tulare</b>	*	*	*	*
<b>Tuolumne</b>	*	*	*	*
<b>Ventura</b>	4	0.5	4	0.5
<b>Yolo</b>	*	*	*	*
<b>Yuba</b>	*	*	*	*
<b>TOTAL</b>	<b>91</b>	<b>0.2</b>	<b>90</b>	<b>0.2</b>

\* No data available.

**Table 88: Public Health Nurse by County, Board Licensure and NPI Data, 2013**

County	Board Number of Public Health Nurse	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Public Health Nurse	NPI-Prov-to-Pop Ratio (per 100,000 persons)
Alameda	2,922	195.5	*	*
Alpine	4	*	*	*
Amador	57	*	*	*
Butte	558	254.4	*	*
Calaveras	87	19*	*	*
Colusa	10	*	*	*
Contra Costa	2,529	243.7	*	*
Del Norte	24	*	*	*
El Dorado	419	232.9	*	*
Fresno	1,478	160.5	*	*
Glenn	21	*	*	*
Humboldt	399	298.7	*	*
Imperial	105	61.3	*	*
Inyo	31	168.0	*	*
Kern	848	102.3	*	*
Kings	126	82.7	*	*
Lake	87	135.1	*	*
Lassen	30	*	*	*
Los Angeles	1,0434	106.6	*	*
Madera	174	116.3	*	*
Marin	824	328.7	*	*
Mariposa	24	*	*	*
Mendocino	159	181.7	*	*
Merced	173	68.2	*	*
Modoc	13	*	*	*
Mono	19	135.6	*	*
Monterey	327	79.5	*	*
Napa	374	276.3	*	*
Nevada	231	234.8	*	*
Orange	4,132	138.2	*	*
Placer	937	272.7	*	*
Plumas	32	*	*	*
Riverside	2,211	102.6	*	*
Sacramento	2,171	154.1	*	*
San Benito	43	78.4	*	*
San Bernardino	2,430	120.1	*	*
San Diego	4,279	139.8	*	*
San Francisco	1,563	195.9	*	*
San Joaquin	743	109.2	*	*
San Luis Obispo	455	169.9	*	*
San Mateo	1,596	224.3	*	*
Santa Barbara	416	99.1	*	*
Santa Clara	2,474	140.3	*	*
Santa Cruz	520	200.5	*	*

County	Board Number of Public Health Nurse	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Public Health Nurse	NPI-Prov-to-Pop Ratio (per 100,000 persons)
<b>Shasta</b>	433	244.3	*	*
<b>Sierra</b>	7	213.6	*	*
<b>Siskiyou</b>	86	192.4	*	*
<b>Solano</b>	858	208.4	*	*
<b>Sonoma</b>	1,147	239.7	*	*
<b>Stanislaus</b>	635	123.9	*	*
<b>Sutter</b>	123	130.6	*	*
<b>Tehama</b>	82	*	*	*
<b>Trinity</b>	16	*	*	*
<b>Tulare</b>	481	110.3	*	*
<b>Tuolumne</b>	107	192.0	*	*
<b>Ventura</b>	1,131	138.6	*	*
<b>Yolo</b>	299	150.3	*	*
<b>Yuba</b>	39	54.3	*	*
<b>TOTAL</b>	<b>51,933</b>	<b>140.5</b>	*	*

\* No data available.

**Table 89: Psychiatric Mental Health Nurse by County, Board Licensure and NPI Data, 2013**

County	Board Number of Psychiatric Mental Health Nurse	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Psychiatric Mental Health Nurse	NPI-Prov-to-Pop Ratio (per 100,000 persons)
Alameda	10	0.7	*	*
Alpine	*	*	*	*
Amador	1	*	*	*
Butte	2	0.9	*	*
Calaveras	*	*	*	*
Colusa	*	*	*	*
Contra Costa	11	1.1	*	*
Del Norte	*	*	*	*
El Dorado	*	*	*	*
Fresno	1	0.1	*	*
Glenn	*	*	*	*
Humboldt	2	1.5	*	*
Imperial	*	*	*	*
Inyo	1	5.4	*	*
Kern	1	0.1	*	*
Kings	*	*	*	*
Lake	2	3.1	*	*
Lassen	*	*	*	*
Los Angeles	96	1.0	*	*
Madera	*	*	*	*
Marin	20	8.0	*	*
Mariposa	*	*	*	*
Mendocino	1	1.1	*	*
Merced	*	*	*	*
Modoc	*	*	*	*
Mono	*	*	*	*
Monterey	4	1.0	*	*
Napa	3	2.2	*	*
Nevada	2	2.0	*	*
Orange	21	0.7	*	*
Placer	3	0.9	*	*
Plumas	*	*	*	*
Riverside	9	0.4	*	*
Sacramento	6	0.4	*	*
San Benito	*	*	*	*
San Bernardino	9	0.4	*	*
San Diego	40	1.3	*	*
San Francisco	17	2.1	*	*
San Joaquin	2	0.3	*	*
San Luis Obispo	3	1.1	*	*
San Mateo	14	2.0	*	*
Santa Barbara	4	1.0	*	*

County	Board Number of Psychiatric Mental Health Nurse	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Psychiatric Mental Health Nurse	NPI-Prov-to-Pop Ratio (per 100,000 persons)
Santa Clara	15	0.9	*	*
Santa Cruz	6	2.3	*	*
Shasta	*	*	*	*
Sierra	*	*	*	*
Siskiyou	1	2.2	*	*
Solano	4	1.0	*	*
Sonoma	9	1.9	*	*
Stanislaus	1	0.2	*	*
Sutter	*	*	*	*
Tehama	*	*	*	*
Trinity	*	*	*	*
Tulare	*	*	*	*
Tuolumne	*	*	*	*
Ventura	11	1.3	*	*
Yolo	*	*	*	*
Yuba	*	*	*	*
<b>TOTAL</b>	<b>332</b>	<b>0.9</b>	*	*

\* No data available.

**Table 90: Licensed Practical Nurse by County, Board Licensure and NPI Data, 2013**

County	Board Number of Licensed Practical Nurse	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Licensed Practical Nurse	NPI-Prov-to-Pop Ratio (per 100,000 persons)
Alameda	*	*	7	0.5
Alpine	*	*	*	*
Amador	*	*	*	*
Butte	*	*	3	1.4
Calaveras	*	*	*	*
Colusa	*	*	*	*
Contra Costa	*	*	3	0.3
Del Norte	*	*	1	*
El Dorado	*	*	1	0.6
Fresno	*	*	11	1.2
Glenn	*	*	*	*
Humboldt	*	*	2	1.5
Imperial	*	*	1	0.6
Inyo	*	*	*	*
Kern	*	*	4	0.5
Kings	*	*	*	*
Lake	*	*	1	1.6
Lassen	*	*	*	*
Los Angeles	*	*	47	0.5
Madera	*	*	1	0.7
Marin	*	*	*	*
Mariposa	*	*	*	*
Mendocino	*	*	*	*
Merced	*	*	1	0.4
Modoc	*	*	*	*
Mono	*	*	*	*
Monterey	*	*	2	0.5
Napa	*	*	*	*
Nevada	*	*	1	1.0
Orange	*	*	13	0.4
Placer	*	*	2	0.6
Plumas	*	*	*	*
Riverside	*	*	22	1.0
Sacramento	*	*	9	0.6
San Benito	*	*	*	*
San Bernardino	*	*	12	0.6
San Diego	*	*	20	0.7
San Francisco	*	*	4	0.5
San Joaquin	*	*	13	1.9
San Luis Obispo	*	*	*	*
San Mateo	*	*	1	0.1
Santa Barbara	*	*	5	1.2
Santa Clara	*	*	3	0.2

County	Board Number of Licensed Practical Nurse	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Licensed Practical Nurse	NPI-Prov-to-Pop Ratio (per 100,000 persons)
<b>Santa Cruz</b>	*	*	*	*
<b>Shasta</b>	*	*	1	0.6
<b>Sierra</b>	*	*	*	*
<b>Siskiyou</b>	*	*	*	*
<b>Solano</b>	*	*	*	*
<b>Sonoma</b>	*	*	3	0.6
<b>Stanislaus</b>	*	*	5	1.0
<b>Sutter</b>	*	*	4	4.2
<b>Tehama</b>	*	*	1	1.6
<b>Trinity</b>	*	*	*	*
<b>Tulare</b>	*	*	2	0.5
<b>Tuolumne</b>	*	*	*	*
<b>Ventura</b>	*	*	3	0.4
<b>Yolo</b>	*	*	*	*
<b>Yuba</b>	*	*	*	*
<b>TOTAL</b>	*	*	<b>209</b>	<b>0.6</b>

\* No data available.

**Table 91: Licensed Psychiatric Technicians by County, Board Licensure and NPI Data, 2013**

County	Board, Number of LPT	Board Prov-to-Pop Ratio (per 100,000 person)	NPI, Number of LPT	NPI Prov-to-Pop Ratio (per 100,000 persons)
Alameda	107	7.2	4	0.3
Alpine	2	171.4	*	*
Amador	13	34	*	*
Butte	35	16	22	10.0
Calaveras	18	39.3	1	2.2
Colusa	5	23.5	1	4.7
Contra Costa	78	7.5	1	0.1
Del Norte	30	105	*	*
El Dorado	35	19.5	4	2.2
Fresno	374	40.6	45	4.9
Glenn	6	21.4	*	*
Humboldt	31	23.2	8	6.0
Imperial	26	15.2	3	1.8
Inyo	4	21.7	*	*
Kern	106	12.8	9	1.1
Kings	303	198.9	*	*
Lake	29	45	6	9.3
Lassen	15	42.9	*	*
Los Angeles	1,095	11.2	220	2.2
Madera	24	16	1	0.7
Marin	32	12.8	3	1.2
Mariposa	4	21.9	*	*
Mendocino	24	27.4	1	1.1
Merced	23	9.1	8	3.2
Modoc	7	73	*	*
Mono	4	28.5	*	*
Monterey	64	15.6	1	0.2
Napa	256	189.1	2	1.5
Nevada	15	15.2	1	1.0
Orange	782	26.2	28	0.9
Placer	69	20.1	2	0.6
Plumas	12	59.4	3	14.9
Riverside	476	22.1	55	2.6
Sacramento	188	13.3	22	1.6
San Benito	4	7.3	1	1.8
San Bernardino	1,676	82.8	40	2.0

County	Board, Number of LPT	Board Prov-to-Pop Ratio (per 100,000 person)	NPI, Number of LPT	NPI Prov-to-Pop Ratio (per 100,000 persons)
San Diego	138	4.5	25	0.8
San Francisco	31	3.9	19	2.4
San Joaquin	335	49.2	64	9.4
San Luis Obispo	1,128	421.1	46	17.2
San Mateo	40	5.6	4	0.6
Santa Barbara	65	15.5	22	5.2
Santa Clara	236	13.4	26	1.5
Santa Cruz	23	8.9	3	1.2
Shasta	27	15.2	*	*
Sierra	3	91.5	*	*
Siskiyou	19	42.5	*	*
Solano	598	145.3	8	1.9
Sonoma	480	100.3	24	5.0
Stanislaus	69	13.5	3	0.6
Sutter	52	55.2	9	9.6
Tehama	10	15.9	*	*
Trinity	7	51.1	*	*
Tulare	963	220.8	26	6.0
Tuolumne	5	9	*	*
Ventura	175	21.5	53	6.5
Yolo	26	13.1	2	1.0
Yuba	34	47.3	1	1.4
<b>TOTAL</b>	<b>10,436</b>	<b>28.2</b>	<b>827</b>	<b>2.2</b>

\* No data available.

**Table 92: Licensed Vocational Nurses by County, Board Licensure and NPI Data, 2013**

County	Board, Number of LVN	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of LVN	NPI Prov-to-Pop Ratio (per 100,000 persons)
Alameda	569	38.1	49	3.3
Alpine	*	*	*	*
Amador	20	52.3	4	10.5
Butte	105	47.9	79	36.0
Calaveras	31	67.7	*	*
Colusa	4	18.8	1	4.7
Contra Costa	415	40	26	2.5
Del Norte	6	21	9	31.5
El Dorado	64	35.6	8	4.4
Fresno	186	20.2	231	25.1
Glenn	8	28.5	*	*
Humboldt	55	41.2	29	21.7
Imperial	23	13.4	24	14.0
Inyo	7	37.9	1	5.4
Kern	143	17.2	89	10.7
Kings	18	11.8	*	*
Lake	18	28	7	10.9
Lassen	11	31.4	2	5.7
Los Angeles	3,019	30.8	576	5.9
Madera	22	14.7	11	7.4
Marin	168	67	3	1.2
Mariposa	4	21.9	2	10.9
Mendocino	38	43.4	*	*
Merced	42	16.6	39	15.4
Modoc	7	73	6	62.6
Mono	4	28.5	*	*
Monterey	128	31.1	14	3.4
Napa	71	52.4	7	5.2
Nevada	45	45.7	3	3.0
Orange	1,220	40.8	152	5.1
Placer	201	58.5	14	4.1
Plumas	14	69.3	1	5.0
Riverside	500	23.2	211	9.8
Sacramento	455	32.3	114	8.1
San Benito	15	27.3	3	5.5
San Bernardino	490	24.2	113	5.6

County	Board, Number of LVN	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of LVN	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>San Diego</b>	1,267	41.4	426	13.9
<b>San Francisco</b>	359	45	57	7.1
<b>San Joaquin</b>	134	19.7	29	4.3
<b>San Luis Obispo</b>	114	42.6	7	2.6
<b>San Mateo</b>	301	42.3	8	1.1
<b>Santa Barbara</b>	120	28.6	11	2.6
<b>Santa Clara</b>	800	45.4	50	2.8
<b>Santa Cruz</b>	143	55.1	3	1.2
<b>Shasta</b>	66	37.2	10	5.6
<b>Sierra</b>	3	91.5	*	*
<b>Siskiyou</b>	20	44.8	1	2.2
<b>Solano</b>	126	30.6	18	4.4
<b>Sonoma</b>	242	50.6	7	1.5
<b>Stanislaus</b>	112	21.9	24	4.7
<b>Sutter</b>	25	26.5	16	17.0
<b>Tehama</b>	10	15.9	12	19.1
<b>Trinity</b>	8	58.3	*	*
<b>Tulare</b>	90	20.6	27	6.2
<b>Tuolumne</b>	6	10.8	*	*
<b>Ventura</b>	280	34.3	77	9.4
<b>Yolo</b>	72	36.2	11	5.5
<b>Yuba</b>	12	16.7	*	*
<b>TOTAL</b>	<b>12,436</b>	<b>33.6</b>	<b>2622</b>	<b>7.1</b>

\* No data available.

**Table 93: Psychologist by County, Board Licensure and NPI Data, 2013**

County	Board, Number of Psychologist	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Psychologist	NPI Prov-to-Pop Ratio (per 100,000 persons)
Alameda	1,444	96.6	896	59.9
Alpine	*	*	*	*
Amador	19	49.7	12	31.4
Butte	44	20.1	41	18.7
Calaveras	11	24	4	8.7
Colusa	*	*	*	*
Contra Costa	548	52.8	389	37.5
Del Norte	21	73.5	25	87.5
El Dorado	51	28.4	26	14.5
Fresno	275	29.9	235	25.5
Glenn	1	3.6	*	*
Humboldt	33	24.7	26	19.5
Imperial	8	4.7	4	2.3
Inyo	7	37.9	6	32.5
Kern	121	14.6	112	13.5
Kings	44	28.9	22	14.4
Lake	10	15.5	32	49.7
Lassen	10	28.6	10	28.6
Los Angeles	5,118	97.9	3,439	35.1
Madera	31	20.7	28	18.7
Marin	429	171.1	293	116.9
Mariposa	2	10.9	1	5.5
Mendocino	31	35.4	16	18.3
Merced	15	5.9	14	5.5
Modoc	4	41.7	4	41.7
Mono	5	35.7	4	28.5
Monterey	130	31.6	104	25.3
Napa	125	92.3	149	110.1
Nevada	42	42.7	33	33.5
Orange	1,288	43.1	882	29.5
Placer	118	34.3	85	24.7
Plumas	4	19.8	2	9.9
Riverside	309	14.3	264	12.3
Sacramento	527	37.4	404	28.7
San Benito	3	5.5	3	5.5
San Bernardino	414	20.5	299	14.8

County	Board, Number of Psychologist	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Psychologist	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>San Diego</b>	1,861	60.8	1,352	44.2
<b>San Francisco</b>	1,175	147.2	821	102.9
<b>San Joaquin</b>	90	13.2	80	11.8
<b>San Luis Obispo</b>	257	95.9	179	66.8
<b>San Mateo</b>	453	63.7	292	41.0
<b>Santa Barbara</b>	229	54.6	157	37.4
<b>Santa Clara</b>	859	48.7	650	36.9
<b>Santa Cruz</b>	132	50.9	84	32.4
<b>Shasta</b>	49	27.6	35	19.7
<b>Sierra</b>	*	*	*	*
<b>Siskiyou</b>	4	9	6	13.4
<b>Solano</b>	157	38.1	164	39.8
<b>Sonoma</b>	371	77.5	197	41.2
<b>Stanislaus</b>	49	9.6	27	5.3
<b>Sutter</b>	8	8.5	11	11.7
<b>Tehama</b>	1	1.6	3	4.8
<b>Trinity</b>	1	7.3	*	*
<b>Tulare</b>	69	15.8	57	13.1
<b>Tuolumne</b>	13	23.3	14	25.1
<b>Ventura</b>	264	32.4	173	21.2
<b>Yolo</b>	106	53.3	11	5.5
<b>Yuba</b>	2	2.8	3	4.2
<b>TOTAL</b>	<b>17,392</b>	<b>47.0</b>	<b>12,180</b>	<b>32.9</b>

\* No data available.

**Table 94: Marriage and Family Therapists by County, Board Licensure and NPI Data, 2013**

County	Board, Number of MFT	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of MFT	NPI Prov-to-Pop Ratio (per 100,000 persons)
Alameda	2,014	134.7	1245	83.3
Alpine	1	85.7	*	*
Amador	19	49.7	14	36.6
Butte	260	118.6	223	101.7
Calaveras	33	72.1	12	26.2
Colusa	2	9.4	22	103.3
Contra Costa	1,187	114.4	652	62.8
Del Norte	18	63	15	52.5
El Dorado	182	101.2	107	59.5
Fresno	380	41.3	316	34.3
Glenn	11	39.2	1	3.6
Humboldt	171	128	131	98.1
Imperial	15	8.8	13	7.6
Inyo	16	86.7	10	54.2
Kern	310	37.4	251	30.3
Kings	31	20.3	*	*
Lake	33	51.2	111	172.4
Lassen	9	25.7	5	14.3
Los Angeles	8,251	84.3	5,585	57.1
Madera	52	34.8	30	20.1
Marin	937	373.8	437	174.3
Mariposa	5	27.3	6	32.8
Mendocino	130	148.5	35	40.0
Merced	47	18.5	49	19.3
Modoc	3	31.3	2	20.9
Mono	11	78.5	5	35.7
Monterey	286	69.5	198	48.1
Napa	150	110.8	137	101.2
Nevada	205	208.4	137	139.2
Orange	2,602	87	1296	43.3
Placer	378	110	211	61.4
Plumas	14	69.3	7	34.7
Riverside	991	46	798	37.0
Sacramento	993	70.5	924	65.6
San Benito	25	45.6	19	34.6
San Bernardino	772	38.2	497	24.6
San Diego	2,462	80.4	1,693	55.3

County	Board, Number of MFT	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of MFT	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>San Francisco</b>	1,331	166.8	901	112.9
<b>San Joaquin</b>	203	29.8	237	34.8
<b>San Luis Obispo</b>	411	153.4	252	94.1
<b>San Mateo</b>	763	107.2	449	63.1
<b>Santa Barbara</b>	641	152.7	319	76.0
<b>Santa Clara</b>	1,622	92	859	48.7
<b>Santa Cruz</b>	564	217.4	291	112.2
<b>Shasta</b>	161	90.8	148	83.5
<b>Sierra</b>	2	61	3	91.5
<b>Siskiyou</b>	41	91.7	34	76.1
<b>Solano</b>	225	54.7	255	62.0
<b>Sonoma</b>	994	207.7	410	85.7
<b>Stanislaus</b>	256	50	83	16.2
<b>Sutter</b>	41	43.5	39	41.4
<b>Tehama</b>	28	44.5	21	33.3
<b>Trinity</b>	16	116.7	16	116.7
<b>Tulare</b>	155	35.5	156	35.8
<b>Tuolumne</b>	50	89.7	25	44.9
<b>Ventura</b>	780	95.6	381	46.7
<b>Yolo</b>	169	85	44	22.1
<b>Yuba</b>	25	34.8	2	2.8
<b>TOTAL</b>	<b>31,484</b>	<b>85.2</b>	<b>20,119</b>	<b>54.4</b>

\* No data available.

**Table 95: Licensed Clinical Social Workers and Clinical Social Workers by County, Board Licensure and NPI Data, 2013**

County	Board, Number of LCSW	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of CSW	NPI Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of CSW	NPI Prov-to-Pop Ratio (per 100,000 persons)
Alameda	1,324	88.6	140	9.4	765	51.2
Alpine	*	*	1	85.7	3	257.1
Amador	10	26.1	2	5.2	7	18.3
Butte	140	63.8	29	13.2	91	41.5
Calaveras	16	34.9	*	*	12	26.2
Colusa	1	4.7	2	9.4	10	47.0
Contra Costa	493	47.5	29	2.8	211	20.3
Del Norte	16	56	*	*	14	49.0
El Dorado	77	42.8	*	*	37	20.6
Fresno	395	42.9	19	2.1	230	25.0
Glenn	4	14.3	*	*	*	*
Humboldt	103	77.1	2	1.5	63	47.2
Imperial	16	9.3	1	0.6	10	5.8
Inyo	3	16.3	*	*	2	10.8
Kern	137	16.5	28	3.4	98	11.8
Kings	23	15.1	*	*	5	3.3
Lake	13	20.2	1	1.6	41	63.7
Lassen	12	34.3	1	2.9	6	17.1
Los Angeles	5,239	53.5	393	4.0	3,209	32.8
Madera	39	26.1	2	1.3	47	31.4
Marin	328	130.9	6	2.4	136	54.3
Mariposa	7	38.3	*	*	4	21.9
Mendocino	57	65.1	2	2.3	19	21.7
Merced	45	17.7	2	0.8	33	13.0
Modoc	2	20.9	*	*	2	20.9
Mono	2	14.3	*	*	2	14.3
Monterey	169	41.1	28	6.8	86	20.9
Napa	150	110.8	4	3.0	129	95.3
Nevada	73	74.2	8	8.1	34	34.6
Orange	1,351	45.2	56	1.9	572	19.1
Placer	196	57.1	13	3.8	94	27.4
Plumas	9	44.6	1	5.0	7	34.7
Riverside	533	24.7	50	2.3	347	16.1
Sacramento	890	63.2	122	8.7	480	34.1

County	Board, Number of LCSW	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of CSW	NPI Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of CSW	NPI Prov-to-Pop Ratio (per 100,000 persons)
San Benito	12	21.9	*	*	3	5.5
San Bernardino	656	32.4	48	2.4	302	14.9
San Diego	1,757	57.4	99	3.2	885	28.9
San Francisco	971	121.7	83	10.4	592	74.2
San Joaquin	158	23.2	19	2.8	124	18.2
San Luis Obispo	190	70.9	9	3.4	75	28.0
San Mateo	451	63.4	44	6.2	195	27.4
Santa Barbara	132	31.4	10	2.4	60	14.3
Santa Clara	852	48.3	59	3.3	432	24.5
Santa Cruz	234	90.2	16	6.2	88	33.9
Shasta	78	44	8	4.5	60	33.9
Sierra	2	61	*	*	*	*
Siskiyou	20	44.8	26	58.2	23	51.5
Solano	204	49.6	12	2.9	169	41.1
Sonoma	352	73.6	17	3.6	144	30.1
Stanislaus	115	22.4	4	0.8	47	9.2
Sutter	30	31.8	2	2.1	21	22.3
Tehama	15	23.8	1	1.6	12	19.1
Trinity	3	21.9	1	7.3	1	7.3
Tulare	129	29.6	8	1.8	78	17.9
Tuolumne	22	39.5	2	3.6	13	23.3
Ventura	329	40.3	10	1.2	171	21.0
Yolo	113	56.8	3	1.5	23	11.6
Yuba	9	12.5	*	*	*	*
<b>TOTAL</b>	<b>18,707</b>	<b>50.6</b>	<b>1423</b>	<b>3.8</b>	<b>10,324</b>	<b>27.9</b>

\* No data available.

**Table 96: Professional Counselor by County, Board Licensure and NPI Data, 2013**

County	Board, Number of Licensed Professional Counselor	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Professional Counselor	NPI Prov-to-Pop Ratio (per 100,000 persons)
Alameda	23	1.5	14	0.9
Alpine	*	*	*	*
Amador	*	*	1	2.6
Butte	5	2.3	4	1.8
Calaveras	1	2.2	*	*
Colusa	*	*	*	*
Contra Costa	25	2.4	10	1.0
Del Norte	*	*	*	*
El Dorado	4	2.2	*	*
Fresno	2	0.2	5	0.5
Glenn	*	*	*	*
Humboldt	2	1.5	2	1.5
Imperial	1	0.6	*	*
Inyo	*	*	*	*
Kern	4	0.5	4	0.5
Kings	*	*	*	*
Lake	*	*	2	3.1
Lassen	*	*	1	2.9
Los Angeles	93	1.0	50	0.5
Madera	2	1.3	2	1.3
Marin	8	3.2	3	1.2
Mariposa	*	*	*	*
Mendocino	4	4.6	*	*
Merced	3	1.2	10	3.9
Modoc	*	*	*	*
Mono	*	*	*	*
Monterey	*	*	3	0.7
Napa	2	1.5	1	0.7
Nevada	1	1.0	2	2.0
Orange	36	1.2	32	1.1
Placer	5	1.5	3	0.9
Plumas	1	5.0	*	*
Riverside	22	1.0	15	0.7
Sacramento	32	2.3	15	1.1
San Benito	0	0.0	*	*
San Bernardino	10	.49	7	0.3

County	Board, Number of Licensed Professional Counselor	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Professional Counselor	NPI Prov-to-Pop Ratio (per 100,000 persons)
San Diego	46	1.5	19	0.6
San Francisco	18	2.3	8	1.0
San Joaquin	2	0.3	21	3.1
San Luis Obispo	4	1.5	4	1.5
San Mateo	18	2.5	8	1.1
Santa Barbara	8	1.9	6	1.4
Santa Clara	27	1.5	13	0.7
Santa Cruz	6	2.3	4	1.5
Shasta	3	1.7	3	1.7
Sierra	*	*	*	*
Siskiyou	1	2.2	*	*
Solano	4	1.0	*	*
Sonoma	11	2.3	4	0.8
Stanislaus	*	*	37	7.2
Sutter	*	*	4	4.2
Tehama	1	1.6	*	*
Trinity	1	7.3	*	*
Tulare	6	1.4	4	0.9
Tuolumne	1	1.8	1	1.8
Ventura	7	0.9	3	0.4
Yolo	4	2.0	*	*
Yuba	1	1.4	*	*
<b>TOTAL</b>	<b>455</b>	<b>1.2</b>	<b>325</b>	<b>0.9</b>

\* No data available.

**Table 97: Alcohol and other Drugs Counselors by County, Board Licensure and NPI Data, 2013**

County	Board, Number of AOD	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of AOD	NPI Prov-to-Pop Ratio (per 100,000 persons)
Alameda	85	5.7	91	6.1
Alpine	*	*	*	*
Amador	4	10.5	10	26.1
Butte	29	13.2	20	9.1
Calaveras	4	8.7	*	*
Colusa	2	9.4	*	*
Contra Costa	54	5.2	95	9.2
Del Norte	4	14.0	1	3.5
El Dorado	18	10.0	18	10.0
Fresno	99	10.8	126	13.7
Glenn	1	3.6	4	14.3
Humboldt	13	9.7	13	9.7
Imperial	3	1.8	6	3.5
Inyo	8	43.3	*	*
Kern	100	12.1	85	10.3
Kings	3	2.0	*	*
Lake	4	6.2	66	102.5
Lassen	1	2.9	2	5.7
Los Angeles	954	9.7	630	6.4
Madera	15	10.0	7	4.7
Marin	25	10.0	22	8.8
Mariposa	2	10.9	*	*
Mendocino	13	14.9	5	5.7
Merced	3	1.2	18	7.1
Modoc	*	*	6	62.6
Mono	*	*	6	42.8
Monterey	18	4.4	23	5.6
Napa	22	16.3	19	14.0
Nevada	20	20.3	47	47.8
Orange	366	12.2	109	3.6
Placer	32	9.3	25	7.3
Plumas	*	*	1	5.0
Riverside	275	12.8	169	7.8
Sacramento	155	11.0	189	13.4
San Benito	3	5.5	2	3.6
San Bernardino	211	10.4	*	*
San Diego	480	15.7	201	6.6
San Francisco	66	8.3	129	16.2
San Joaquin	14	2.1	45	6.6
San Luis Obispo	33	12.3	55	20.5
San Mateo	68	9.6	61	8.6
Santa Barbara	68	16.2	34	8.1

County	Board, Number of AOD	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of AOD	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>Santa Clara</b>	164	9.3	64	3.6
<b>Santa Cruz</b>	47	18.1	21	8.1
<b>Shasta</b>	14	7.9	20	11.3
<b>Sierra</b>	*	*	*	*
<b>Siskiyou</b>	7	15.7	*	*
<b>Solano</b>	48	11.7	46	11.2
<b>Sonoma</b>	67	14.0	54	11.3
<b>Stanislaus</b>	21	4.1	33	6.4
<b>Sutter</b>	15	15.9	12	12.7
<b>Tehama</b>	10	15.9	20	31.8
<b>Trinity</b>	*	*	3	21.9
<b>Tulare</b>	38	8.7	37	8.5
<b>Tuolumne</b>	8	14.4	*	*
<b>Ventura</b>	143	17.5	56	6.9
<b>Yolo</b>	10	5.0	12	6.0
<b>Yuba</b>	15	20.9	1	1.4
<b>TOTAL</b>	<b>3,882</b>	<b>10.5</b>	<b>2846</b>	<b>7.7</b>

\* No data available.

**Table 98: Case Manager/ Care Coordinator by County, Board Licensure and NPI Data, 2013**

County	Board Number of Case Manager/Care Coordinator	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Case Manager/Care Coordinator	NPI-Prov-to-Pop Ratio (per 100,000 persons)
Alameda	*	*	16	1.1
Alpine	*	*	*	*
Amador	*	*	*	*
Butte	*	*	9	4.1
Calaveras	*	*	1	2.2
Colusa	*	*	1	4.7
Contra Costa	*	*	10	1.0
Del Norte	*	*	1	3.5
El Dorado	*	*	2	1.1
Fresno	*	*	71	7.7
Glenn	*	*	*	*
Humboldt	*	*	9	6.7
Imperial	*	*	*	*
Inyo	*	*	*	*
Kern	*	*	17	2.1
Kings	*	*	*	*
Lake	*	*	1	1.6
Lassen	*	*	*	*
Los Angeles	*	*	190	1.9
Madera	*	*	*	*
Marin	*	*	3	1.2
Mariposa	*	*	*	*
Mendocino	*	*	*	*
Merced	*	*	4	1.6
Modoc	*	*	*	*
Mono	*	*	*	*
Monterey	*	*	9	2.2
Napa	*	*	*	*
Nevada	*	*	*	*
Orange	*	*	28	0.9
Placer	*	*	3	0.9
Plumas	*	*	*	*
Riverside	*	*	17	0.8
Sacramento	*	*	92	6.5
San Benito	*	*	2	3.6
San Bernardino	*	*	17	0.8
San Diego	*	*	54	1.8
San Francisco	*	*	14	1.8
San Joaquin	*	*	4	0.6
San Luis Obispo	*	*	6	2.2
San Mateo	*	*	16	2.2

County	Board Number of Case Manager/Care Coordinator	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Case Manager/Care Coordinator	NPI-Prov-to-Pop Ratio (per 100,000 persons)
<b>Santa Barbara</b>	*	*	23	5.5
<b>Santa Clara</b>	*	*	26	1.5
<b>Santa Cruz</b>	*	*	1	0.4
<b>Shasta</b>	*	*	2	1.1
<b>Sierra</b>	*	*	*	*
<b>Siskiyou</b>	*	*	6	13.4
<b>Solano</b>	*	*	7	1.7
<b>Sonoma</b>	*	*	6	1.3
<b>Stanislaus</b>	*	*	20	3.9
<b>Sutter</b>	*	*	*	*
<b>Tehama</b>	*	*	2	3.2
<b>Trinity</b>	*	*	*	*
<b>Tulare</b>	*	*	*	*
<b>Tuolumne</b>	*	*	1	1.8
<b>Ventura</b>	*	*	43	5.3
<b>Yolo</b>	*	*	2	1.0
<b>Yuba</b>	*	*	*	*
<b>TOTAL</b>	*	*	<b>736</b>	<b>2.0</b>

\* No data available.

**Table 99: Community Health Worker by County, Board Licensure and NPI Data, 2013**

County	Board Number of Community Health Worker	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Community Health Worker	NPI-Prov-to-Pop Ratio (per 100,000 persons)
Alameda	*	*	11	0.7
Alpine	*	*	*	*
Amador	*	*	*	*
Butte	*	*	*	*
Calaveras	*	*	*	*
Colusa	*	*	*	*
Contra Costa	*	*	1	0.1
Del Norte	*	*	*	*
El Dorado	*	*	*	*
Fresno	*	*	1	0.1
Glenn	*	*	*	*
Humboldt	*	*	1	0.7
Imperial	*	*	*	*
Inyo	*	*	*	*
Kern	*	*	*	*
Kings	*	*	*	*
Lake	*	*	*	*
Lassen	*	*	1	*
Los Angeles	*	*	25	0.3
Madera	*	*	*	*
Marin	*	*	*	*
Mariposa	*	*	*	*
Mendocino	*	*	*	*
Merced	*	*	*	*
Modoc	*	*	*	*
Mono	*	*	*	*
Monterey	*	*	2	0.5
Napa	*	*	*	*
Nevada	*	*	*	*
Orange	*	*	9	0.3
Placer	*	*	2	0.6
Plumas	*	*	*	*
Riverside	*	*	7	0.3
Sacramento	*	*	4	0.3
San Benito	*	*	*	*
San Bernardino	*	*	2	0.1
San Diego	*	*	9	0.3
San Francisco	*	*	1	0.1
San Joaquin	*	*	*	*
San Luis Obispo	*	*	2	0.7
San Mateo	*	*	2	0.3
Santa Barbara	*	*	1	0.2
Santa Clara	*	*	5	0.3

County	Board Number of Community Health Worker	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Community Health Worker	NPI-Prov-to-Pop Ratio (per 100,000 persons)
<b>Santa Cruz</b>	*	*	1	0.4
<b>Shasta</b>	*	*	1	0.6
<b>Sierra</b>	*	*	*	*
<b>Siskiyou</b>	*	*	*	*
<b>Solano</b>	*	*	1	0.2
<b>Sonoma</b>	*	*	2	0.4
<b>Stanislaus</b>	*	*	1	0.2
<b>Sutter</b>	*	*	*	*
<b>Tehama</b>	*	*	*	*
<b>Trinity</b>	*	*	*	*
<b>Tulare</b>	*	*	*	*
<b>Tuolumne</b>	*	*	*	*
<b>Ventura</b>	*	*	*	*
<b>Yolo</b>	*	*	2	1.0
<b>Yuba</b>	*	*	*	*
<b>TOTAL</b>	*	*	<b>94</b>	<b>0.3</b>

\* No data available.

**Table 100: Counselor by County, Board Licensure and NPI Data, 2013**

County	Board, Number of Counselor	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Counselor	NPI Prov-to-Pop Ratio (per 100,000 persons)
Alameda	*	*	54	3.6
Alpine	*	*	*	*
Amador	*	*	*	*
Butte	*	*	7	3.2
Calaveras	*	*	1	2.2
Colusa	*	*	1	4.7
Contra Costa	*	*	34	3.3
Del Norte	*	*	*	*
El Dorado	*	*	4	2.2
Fresno	*	*	15	1.6
Glenn	*	*	*	*
Humboldt	*	*	23	17.2
Imperial	*	*	3	1.8
Inyo	*	*	1	5.4
Kern	*	*	8	1.0
Kings	*	*	*	*
Lake	*	*	2	3.1
Lassen	*	*	*	*
Los Angeles	*	*	167	1.7
Madera	*	*	1	0.7
Marin	*	*	13	5.2
Mariposa	*	*	*	*
Mendocino	*	*	2	2.3
Merced	*	*	19	7.5
Modoc	*	*	*	*
Mono	*	*	*	*
Monterey	*	*	6	1.5
Napa	*	*	1	0.7
Nevada	*	*	2	2.0
Orange	*	*	25	0.8
Placer	*	*	7	2.0
Plumas	*	*	*	*
Riverside	*	*	64	3.0
Sacramento	*	*	47	3.3
San Benito	*	*	*	*
San Bernardino	*	*	32	1.6
San Diego	*	*	41	1.3

County	Board, Number of Counselor	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of Counselor	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>San Francisco</b>	*	*	82	10.3
<b>San Joaquin</b>	*	*	11	1.6
<b>San Luis Obispo</b>	*	*	8	3.0
<b>San Mateo</b>	*	*	9	1.3
<b>Santa Barbara</b>	*	*	26	6.2
<b>Santa Clara</b>	*	*	27	1.5
<b>Santa Cruz</b>	*	*	7	2.7
<b>Shasta</b>	*	*	5	2.8
<b>Sierra</b>	*	*	*	*
<b>Siskiyou</b>	*	*	*	*
<b>Solano</b>	*	*	10	2.4
<b>Sonoma</b>	*	*	28	5.9
<b>Stanislaus</b>	*	*	1	0.2
<b>Sutter</b>	*	*	1	1.1
<b>Tehama</b>	*	*	2	3.2
<b>Trinity</b>	*	*	*	*
<b>Tulare</b>	*	*	5	1.1
<b>Tuolumne</b>	*	*	*	*
<b>Ventura</b>	*	*	11	1.3
<b>Yolo</b>	*	*	1	0.5
<b>Yuba</b>	*	*	*	*
<b>TOTAL</b>	*	*	<b>814</b>	<b>2.2</b>

\* No data available.

**Table 101: Mental Health Counselors by County, Board Licensure and NPI Data, 2013**

County	Board, Number of MHC	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of MHC	NPI Prov-to-Pop Ratio (per 100,000 persons)
Alameda	*	*	283	18.9
Alpine	*	*	1	85.7
Amador	*	*	*	*
Butte	*	*	46	21.0
Calaveras	*	*	1	2.2
Colusa	*	*	3	14.1
Contra Costa	*	*	133	12.8
Del Norte	*	*	3	10.5
El Dorado	*	*	31	17.2
Fresno	*	*	107	11.6
Glenn	*	*	1	3.6
Humboldt	*	*	51	38.2
Imperial	*	*	1	0.6
Inyo	*	*	4	21.7
Kern	*	*	39	4.7
Kings	*	*	*	*
Lake	*	*	11	17.1
Lassen	*	*	7	20.0
Los Angeles	*	*	1,452	14.8
Madera	*	*	14	9.4
Marin	*	*	131	52.3
Mariposa	*	*	4	21.9
Mendocino	*	*	7	8.0
Merced	*	*	23	9.1
Modoc	*	*	2	20.9
Mono	*	*	*	*
Monterey	*	*	38	9.2
Napa	*	*	24	17.7
Nevada	*	*	18	18.3
Orange	*	*	275	9.2
Placer	*	*	41	11.9
Plumas	*	*	*	*
Riverside	*	*	143	6.6
Sacramento	*	*	152	10.8
San Benito	*	*	3	5.5
San Bernardino	*	*	142	7.0
San Diego	*	*	368	12.0

County	Board, Number of MHC	Board Prov-to-Pop Ratio (per 100,000 persons)	NPI, Number of MHC	NPI Prov-to-Pop Ratio (per 100,000 persons)
<b>San Francisco</b>	*	*	190	23.8
<b>San Joaquin</b>	*	*	83	12.2
<b>San Luis Obispo</b>	*	*	75	28.0
<b>San Mateo</b>	*	*	74	10.4
<b>Santa Barbara</b>	*	*	86	20.5
<b>Santa Clara</b>	*	*	178	10.1
<b>Santa Cruz</b>	*	*	116	44.7
<b>Shasta</b>	*	*	14	7.9
<b>Sierra</b>	*	*	*	*
<b>Siskiyou</b>	*	*	4	9.0
<b>Solano</b>	*	*	60	14.6
<b>Sonoma</b>	*	*	56	11.7
<b>Stanislaus</b>	*	*	21	4.1
<b>Sutter</b>	*	*	5	5.3
<b>Tehama</b>	*	*	2	3.2
<b>Trinity</b>	*	*	4	29.2
<b>Tulare</b>	*	*	61	14.0
<b>Tuolumne</b>	*	*	4	7.2
<b>Ventura</b>	*	*	190	23.3
<b>Yolo</b>	*	*	15	7.5
<b>Yuba</b>	*	*	*	*
<b>TOTAL</b>	*	*	<b>4,797</b>	<b>13.0</b>

\* No data available.