



# Environmental Scan of Region IX:

An Access to Health Care Report

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*This report is dedicated to Josh Huebner, a friend and colleague gone too soon, for his tireless efforts in preparing and compiling this report. He would want us all to think about what we're grateful for today.*

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## Introduction

### Purpose

Good health and well-being are fundamental to improving the outcomes of the nation. Achieving health equity, however, has proven challenging particularly among disadvantaged, vulnerable, and often underserved populations with disproportionate rates of illness, disability, and death.[1] Nearly 80 percent of *Healthy People 2010* objectives indicate that these disparities continue to persist [1], signifying that much more work has to be done. The *Healthy People 2020* objectives reflect the importance, of achieving health equity, eliminating disparities, and improving the health of all populations is one of their major goals.[2]

National data indicates that residents in predominately minority communities “continue to have lower socioeconomic status, greater barriers to health-care access, and greater risk for and burden of, disease compared to the rest of the population.”[1][3] Social determinants, including social conditions and psychosocial factors, have proven to be powerful mediators to achieving good health and well-being.[4]

A 2003 Institute of Medicine Report *Unequal Treatment* highlights that racial and ethnic minority communities are less likely to receive high-quality health care than non-minorities.[5] Such inequalities result from myriad factors that include the systems that administer and deliver healthcare services and how patients chose to engage in or disengage from the system. Achieving equity in access to health care is a necessity in reducing persistent health disparities today. In 1998 and again in 2003, the Institute of

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*“Inequalities in health status in the US are large, persistent, and increasing. Research documents that poverty, income and wealth inequality, poor quality of life, racism, sex discrimination, and low socioeconomic conditions are the major risk factors for ill health and health inequalities...conditions such as polluted environments, inadequate housing, absence of mass transportation, lack of educational and employment opportunities, and unsafe working conditions are implicated in producing inequitable health outcomes. These systematic, avoidable disadvantages are interconnected, cumulative, intergenerational, and associated with lower capacity for full participation in society....Great social costs arise from these inequities, including threats to economic development, democracy, and the social health of the nation.”*

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Source: Brennan Ramirez LK, Baker EA, Metzler M. Promoting Health Equity: A Resource to Help Communities Address Social Determinants of Health. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention; 2008.

Medicine *Future of Public Health* report defined public health as “what we as a society do to collectively assure the conditions in which people can be healthy.”<sup>[6][7]</sup>

This report explores access to care in states and territories in Region IX which includes Arizona, California, Hawaii, Nevada, and select U.S. Territories. Through this report, we aim to highlight the factors that promote and impede health equity within and unique to the region. With this charge in mind, this assessment will inform solutions, decisions, practices, and policies that can aid in reducing existing disparities in health.

## Methodology

### Collection and Synthesis of the Data

Data were collected from leading aggregators of health information and minority health disparities knowledge. To inform our understanding, we conducted literature searches to define and quantify access to care using the following keywords: minority health, access to health care, health care, affordability, health literacy, providers, and disparities in health care. Limited peer-reviewed work addresses the multiple influences or factors of access to health care. This report focuses on the work of Levesque and colleagues (2013), as their research highlights various domains that function as barriers within our structured system and are discussed in more detail below. Additionally, that research underscores the intrinsic difficulties vulnerable communities face when interacting with the healthcare system.

This report classifies minorities as groups of vulnerable populations facing significant barriers to access, rather than the traditional racial classification, and it highlights those inequities accordingly. Every effort to include diverse racial statistics was made; however, when individual race data were not extant, the available information was provided. Additionally, limited health and provider data were accessible for the outlying US Pacific territories, and what data were available are provided in a separate section at the end of this document.

## Regional Context

### Makeup of the Pacific & Southwestern US

The geographic landscape of Region IX, as well as the makeup of the population within it, is quite diverse. According to a recent report, populations that are predominantly affected by access to health care and healthcare quality are those of racial and ethnic minorities, lower socioeconomic status, and other vulnerable populations such as women, children, senior adults, and those with disabilities.<sup>[8]</sup>

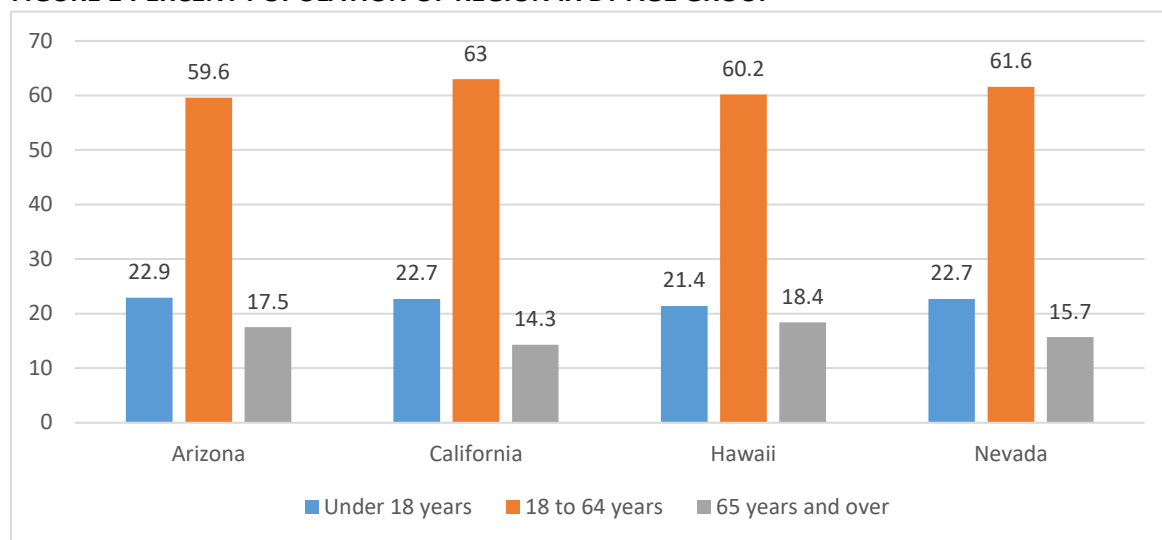
Understanding the region’s makeup is critical to identifying determinants that may interact with the ability of individuals to access healthcare services. This report focuses on the following demographic variables:

- Age, gender, race, and ethnicity
- Socioeconomic status
- Educational attainment
- Foreign-born and unauthorized immigrants
- Rural locales

## Demographic Profile – Age, Gender, Race & Ethnicity

Demographics play a vital role in understanding the makeup of the population. Specifically, they show how health determinants impact populations and are used to determine how key services or policies are needed, delivered, and implemented. The makeup by gender across Region IX closely resembles that of the US, representing approximately 50 percent males and 50 percent females.<sup>[9]</sup> Across Region IX, data by specific age groups show little variation from national figures (Figure 1). Within the entire region, over 26 percent of the population is comprised of 25-44 year olds, and 45-64 year olds account for over 25 percent of the region, followed by children under 18 years old making up less than 23 percent.<sup>[9]</sup>

**FIGURE 1 PERCENT POPULATION OF REGION IX BY AGE GROUP**



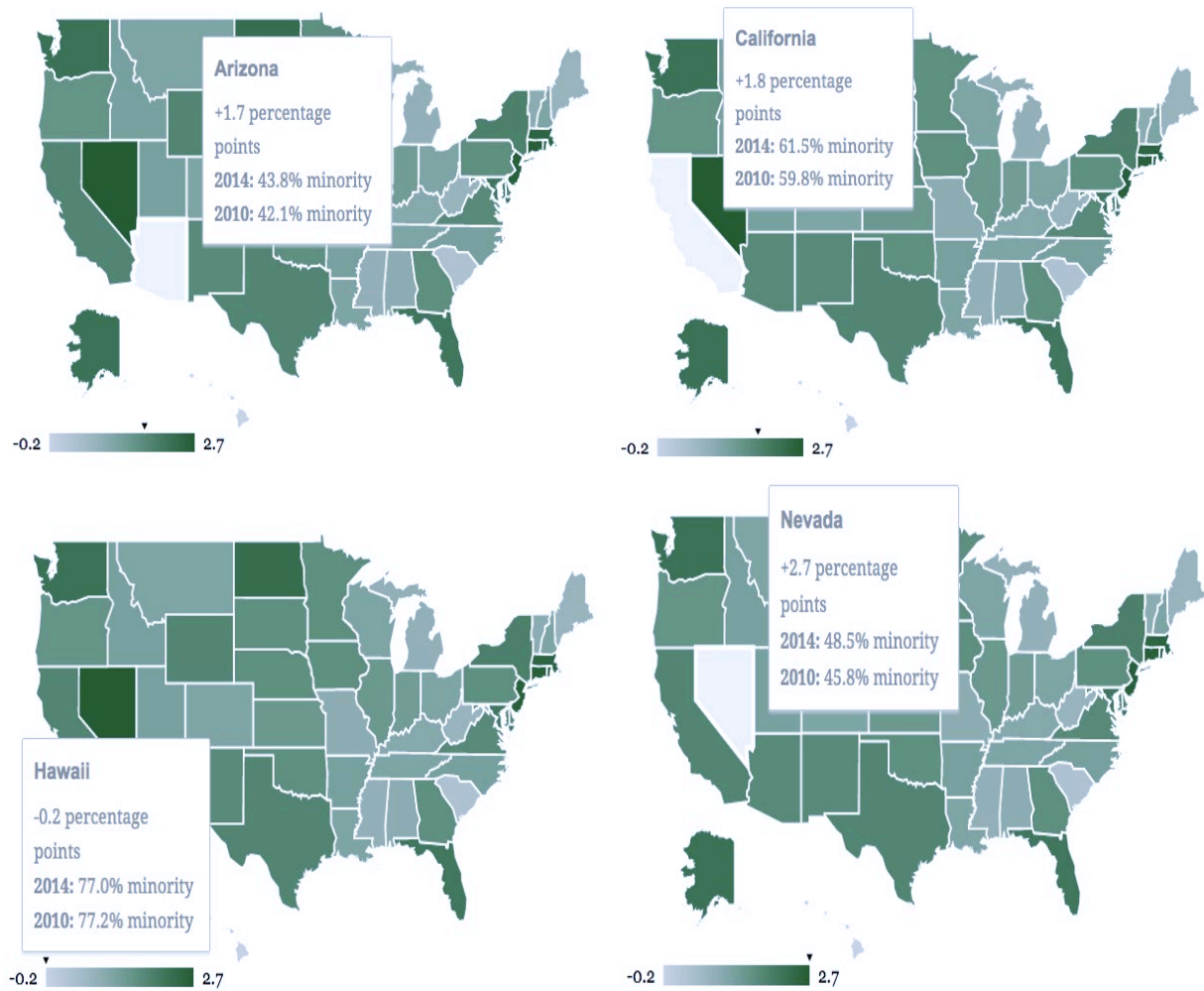
Source: 2018 Population Estimates, United States Census.

While some similarities exist among the states and US territories within the Pacific and Southwest Region (Region IX), geographic diversity is exhibited in its landscape and its people. Minority populations make up from 43 percent to as high as 77 percent of the populations within the region (Figure 2). In Arizona and Nevada, minority populations represent 43 percent and 48 percent of their residents, respectively. California and Hawaii have the highest minority population, representing 60 to 77 percent of residents.<sup>[10]</sup> While Caucasian populations comprise the largest majority across Region IX, with the



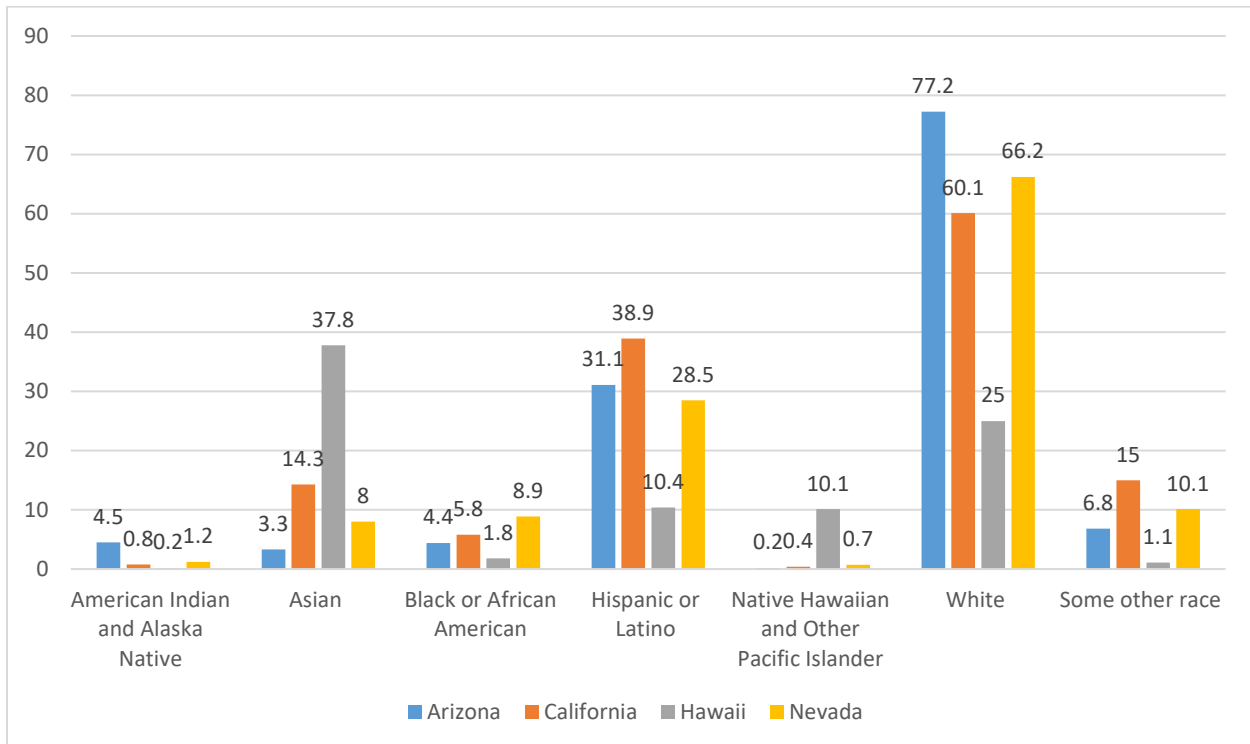
exception of Hawaii (Figure 3), each state in the region has experienced growth in its minority populations, with Nevada experiencing the highest percentage increase from 2010 to 2014.

**FIGURE 1: PERCENT OF POPULATION IDENTIFIED AS MINORITY IN REGION IX**



Source: Maciag, M. (2015) A state-by-state look at growing minority populations. Urban. <http://www.governing.com/topics/urban/gov-majority-minority-populations-in-states.html>

**FIGURE 2: PERCENT OF POPULATION BY RACE AND ETHNICITY IN REGION IX**



Source: 2014-2018 American Community 5-Year Estimates - US Census.

### Socio-economic Status

Social and economic conditions function as determinants of health. Higher levels of economic security are correlated to better health. As we understand it today, the larger the gap between those who are well-off and those who are poor, the bigger the difference in corresponding health outcomes.<sup>[11]</sup> Table 1 displays the percentage of persons living below 125 percent of the federal poverty level by race. Across the region, American Indians and Alaska Natives are highly represented amongst those living in poverty, from 19.9 percent in California to as high as 41.4 percent for those living in Arizona.<sup>[9]</sup> In Nevada, African Americans and Hispanics also find themselves on the lower end of the socioeconomic ladder compared to their white counterparts. Similarly, a higher percentage of Native Hawaiians and other Pacific Islanders are living in poverty in Hawaii and Nevada.

**TABLE 1: PERCENT OF POVERTY BY RACE IN REGION IX**

	Arizona	California	Hawaii	Nevada
American Indian and Alaska Native	41.4%	19.9%	29.5%	30.5%
Asian	15.1%	13.3%	7.0%	13.0%
Black or African American	25.2%	21.2%	6.8%	28.6%
Hispanic or Latino origin	34.0%	22.9%	15.5%	23.8%
Native Hawaiian and Other Pacific Islander	13.3%	17.9%	23.4%	11.9%
White	16.6%	16%	12.8%	14.1%
Some other races	26.4%	24.1%	8.3%	27.4%
One race	18.7%	17.3%	11.1%	17.3%
Two or more races	21.5%	15.3%	14.0%	19.7%

Source: 2018 American Community Survey 1-Year Estimates. Selected Population Profile in the United States.

## Educational Attainment

Table 2 displays educational attainment by race across the region. A key indicator of economic success in the US is the ability to obtain a formal education. Educational attainment not only increases the ability to become self-sufficient but also is linked to positive health outcomes.<sup>[12]</sup> Mirowsky and Ross (2003, p 6) state, "...[E]ducation has an enduring, consistent, and growing effect on health."<sup>[13]</sup> Additional research concludes that the effect of education on health is protective and independent of socioeconomic status.<sup>[14]</sup> Among minority populations, educational attainment is largely diverse. Asian populations across the region seem to fare the best in achieving a four-year degree or higher compared to their white counterparts (Table 2). Hispanics face significant challenges across states in terms of graduating from high school and obtaining a four-year education degree.

**TABLE 2: EDUCATIONAL ATTAINMENT BY RACE ACROSS REGION IX**

		Arizona	California	Hawaii	Nevada	US
American Indian or Alaska Native alone	High school graduate or higher	78.0%	78.5%	95.4%	77.4%	80.8%
	Bachelor's degree or higher	10.2%	15.4%	45.1%	11.1%	15.2%
Asian	High school graduate or higher	88.1%	88.4%	88.8%	90.1%	87.6%
	Bachelor's degree or higher	56.9%	53.3%	34.4%	38.0%	55.0%
Black	High school graduate or higher	88.8%	90.6%	96.0%	88.5%	86.5%
	Bachelor's degree or higher	25.0%	26.6%	27.6%	16.8%	22.0%
Hispanic or Latino	High school graduate or higher	71.2%	65.7%	91.3%	67.8%	69.7%
	Bachelor's degree or higher	13.7%	13.6%	28.0%	11.5%	17.0%
Native Hawaiian and Other Pacific Islander	High school graduate or higher	86.6%	88.4%	86.9%	93.4%	87.2%
	Bachelor's degree or higher	25.7%	20.4%	13.0%	18.6%	18.5%
White	High school graduate or higher	94.5%	95.1%	97.5%	94.0%	93.1%
	Bachelor's degree or higher	36.1%	44.4%	44.1%	29.8%	36.3%
Some other race	High school graduate or higher	67.9%	61.9%	79.3%	62.8%	63.9%
	Bachelor's degree or higher	10.8%	10.7%	41.2%	9.3%	12.4%
Two or more races	High school graduate or higher	86.9%	88.8%	94.4%	89.30%	88.8%
	Bachelor's degree or higher	29.6%	34.8%	25.5%	22.90%	32.9%

Source: U.S. Census Bureau, 2018 American Community Survey 1-Year Estimates.

### Foreign-born and Unauthorized Immigrants

The number of foreign-born persons has significantly increased across the region over the last several decades. While all states experienced an increase, Nevada experienced the biggest percent change, from 2000 to 2017, at 88.3 percent (Table 3).[15] The number of foreign-born persons in the US is expected to increase by 1.2 million annually.[16] The projected growth highlights the importance of further assessment of health outcomes among this population. The literature has adequately documented that

the health of immigrants significantly changes through the “healthy immigrant effect”, which typically denotes a decline in health with time of residents in the country.[16] Data on the health of native-born populations, compared to foreign-born populations, indicate less access to care among non-natives, possibly due to a lack of health insurance, receipt of routine care, or access to sick care.[16][17].

**TABLE 3: PERCENT CHANGE OF FOREIGN-BORN POPULATION IN REGION IX**

	1990 Number (%)	2000 Number (%)	2015 Number (%)	2017 Number (%)	% Change 1990- 2000	% Change 2000- 2017
Arizona	278,205 (7.6)	656,183 (12.8)	914,400 (13.4)	924,900 (13.2)	135.9	41.0
California	6,458,825 (21.7)	8,864,255 (26.2)	10,688,336 (27.3)	10,653,414 (26.9)	37.2	20.2
Hawaii	162,704 (14.7)	212,229 (17.5)	253,414 (17.7)	265,565 (18.6)	30.4	25.1
Nevada	104,828 (8.7)	316, 593 (15.8)	558,170 (19.3)	596,019 (19.9)	202	88.3
United States	19,767,316 (7.9)	31,107,889 (11.1)	43,290,372 (13.5)	44,525,855 (13.7)	57.4	43.1

Source: Migration Policy Institute. (2017) State Immigration Data Profiles  
<http://www.migrationpolicy.org/data/state-profiles/state/demographics/HI/>

Another segment of immigrants in the US is unauthorized immigrants, defined as foreign-born non-citizens who are not legal residents. In the US, unauthorized immigrants do not have access to federally funded insurance plans. Table 4 identifies the number of unauthorized immigrants in the region. California has the largest unauthorized population, while Nevada has the largest percentage of uninsured unauthorized immigrants.[15]

**TABLE 4: UNAUTHORIZED IMMIGRANT POPULATION IN REGION IX**

	Number	Percent of population	Number of uninsured	Percent of uninsured
Arizona	244,000	3.8	160,000	66
California	3,019,000	8.1	1,660,000	55
Hawaii	21,000	1.5	5,000	22
Nevada	129,000	4.8	91,000	70

Source: Migration Policy Institute. (2014) Unauthorized Immigrant Populations Profiles  
<http://www.migrationpolicy.org/programs/us-immigration-policy-program-data-hub/unauthorized-immigrant-population-profile>

## Rural Locales

Geography plays an important role in the availability of healthcare services and the ease of accessing such services. Rural populations are traditionally less healthy, suffer from more chronic conditions, and report higher rates of limitations to complete major activities.[18] Those in rural communities also are less likely to be insured, have slightly higher healthcare expenditures, and have fewer healthcare providers.[18] The vast majority of the states in Region IX are comprised of rural areas. Rural populations make up 5-10 percent of the total population (Table 5).

**TABLE 5: RURAL CHARACTERISTICS**

	Rural Population	Percent Rural Population	Rural Area in Sq. Miles	Percent of Total Area that is Rural
Arizona	651,358	10.19	111,407.5	98.08
California	1,880,350	5.05	147,559.9	94.72
Hawaii	109,812	8.07	6,029.5	93.88
Nevada	156,754	5.8	109,013.8	99.30

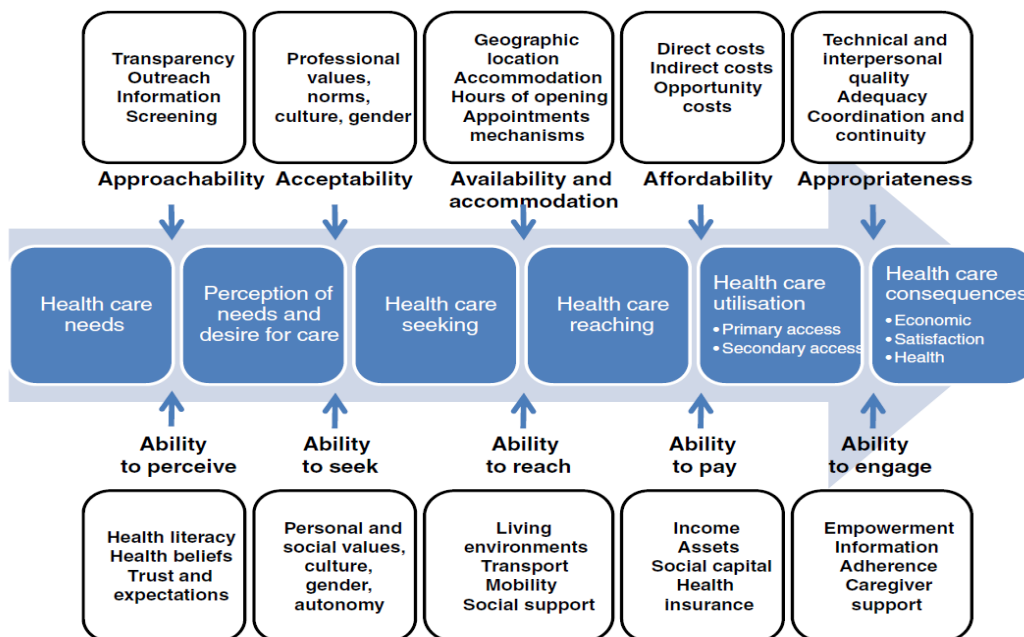
Source: U.S. Bureau of the Census, 2010 Census of Population. <http://www.census.gov/geo/www/ua/2010Urbanruralclass.html>

## Dimensions of Care

### Defining Access and Identifying Barriers

Existing literature has broadly defined healthcare access over the previous decades. Such access traditionally has been characterized by factors such as availability, affordability, and quality of health services.[19][20] However, scholars have expanded upon these concepts by incorporating how consumers interact with the broader healthcare system.[20] Levesque and colleagues. (2013) have augmented how access to health care is viewed by assessing the continuum of care through the accessibility of healthcare services and the abilities of individuals to interact with the healthcare system. Figure 4 depicts this continuum. The top part of the figure represents the domains of the healthcare system that can affect access to services, which include: 1) approachability; 2) acceptability; 3) availability and accommodation; 4) affordability; and 5) appropriateness of care. The bottom part of the figure reflects an individual's ability to participate in the system, which includes a person's ability to perceive, seek, reach, pay, and engage in the healthcare system. The center portion of the figure provides an assessment of how these factors may lead to healthcare consequences. Categorizing care within each of the domains offers opportunities to identify barriers to effective treatment and to address disparities in access to care as they exist today. However, measuring access to care is complex.[20] This report provides a review of components that affect access to health care for which data are more readily available in Region IX.

**FIGURE 3: DOMAINS OF ACCESS TO CARE**



Source: Levesque, J., Harris, M., & Russell, G. (2013). Patient-centered access to healthcare: Conceptualizing access at the interface of health systems and populations. *International Journal for Equity in Health*. 12:18.

### Approachability/Ability to Perceive Need for Health Care

Approachability of healthcare systems is largely influenced by the ways in which those systems disseminate information, including transparency of the organization, how information is distributed regarding available treatment and services, and how outreach activities are implemented.<sup>[21]</sup> These factors, particularly in low-income and geographically isolated areas, greatly impact the ability of individuals to overcome perceptual barriers to receive treatment. Levesque and colleagues (2013) indicate that the ability to perceive the need for health services is influenced by one's own health literacy, health beliefs, trust, and expectations. The approachability of health services is paramount to ensuring that providers meet patients' needs.

Few sources of data exist to measure how individuals appraise their providers' approachability. However, supporting research correlates a person's poor health literacy to poor health outcomes. In addition, health literacy plays a clear and distinct role in one's ability to perceive a need for service and make decisions to seek care.<sup>[22]</sup> According to the Centers for Disease Control and Prevention (CDC), those persons with low health literacy are less likely to engage in preventative services compared to those with adequate health literacy. They are more likely to have chronic health conditions, experience higher rates of hospitalization, and report poorer health statuses. Higher rates of hospitalization and emergency room visits among this group result in higher healthcare costs.<sup>[22]</sup> The National Center for Education Statistics (NCES) has compiled *The Health Literacy of America's Adults*, a nationwide English literacy report that assessed the health literacy of 19,000 US residents. The effort was completed as part of the 2003 National Assessment of Adult Literacy (NAAL), a broader evaluation of English literacy. To gauge the country's health literacy, NAAL used a task-based assessment centered on the Institute of Medicine's Healthy People 2010

definition of health literacy, "...the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions".[23]

NCES aimed to quantify the variation of health literacy across different demographic and economic determinants. To complete the evaluation, participants were tasked with completing a range of common, everyday tasks. The evaluations included identifying and comprehending useful information from a page of organized text and from a page of non-continuous text, and performing simple math from health-related printed text. Participants were assigned scores corresponding to four categories of health literacy: Below Basic (0-184); Basic (185-225); Intermediate (226-309); and Proficient (310-500) skill levels (Figure 5).[24][25]

**FIGURE 4: HEALTH LITERACY SCORING**

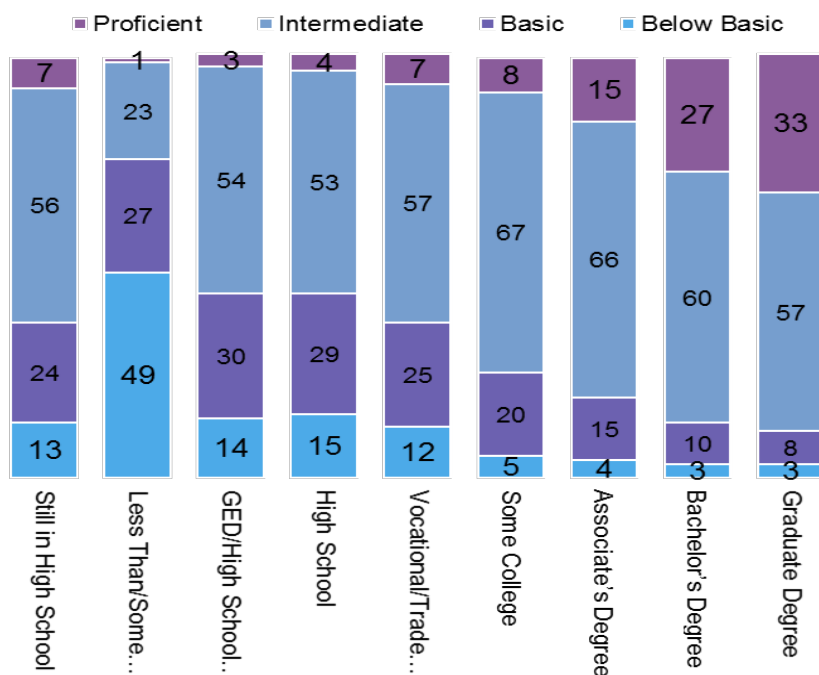
Below Basic	Basic	Intermediate	Proficient
<b>0-184</b>	<b>185-225</b>	<b>226-309</b>	<b>310-500</b>
<b>Lowest skill level; participants display no more than the most simple and concrete literacy skills.</b>	Consists of the necessary skills to perform simple, everyday literacy activities.	Individuals perform skills necessary to perform moderately challenging literacy activities.	Highest skill level participants demonstrate skills necessary to perform more complex and challenging literacy activities.

Source: National Assessment of Adult Literacy. (2003). The Health Literacy of America's Adults, Results From the 2003 National Assessment of Adult Literacy.

In Region IX, most communities of racial and ethnic minority reach less than a basic high school education compared to their white counterparts. Hispanics and those of some other race are by far faring the worst (see Table 2 on page 11). Lower educational attainment among racial and ethnic minority populations can put them at greater risk for lower health literacy (Figure 6). Lower health literacy impacts not only the ability of these populations to understand the information that is being provided by healthcare providers and systems, but also the ability of these populations to perceive a need for receiving healthcare services. The broader and more explicit implications of the approachability of healthcare services are the need to adapt how programs, services, and treatment modalities are made available to populations with diverse needs, particularly in low-income and geographically isolated areas, to overcome perceived barriers to treatment with susceptible populations.



**FIGURE 5: HEALTH LITERACY: HIGHEST EDUCATIONAL ATTAINMENT**



Source: National Assessment of Adult Literacy. (2003). The Health Literacy of America's Adults, Results From the 2003 National Assessment of Adult Literacy.

### Acceptability/Ability to Seek Care

Acceptability addresses health care in relation to social and cultural factors and how they might affect services obtained, as well as the ability to accept such services. The acceptability of services is determined by the adequacy of the healthcare system and how people might interact with that system. Adequacy of the system pertains to the effectiveness of providers relative to race, gender, and religion, whereas patient interaction is measured by one's trust in the system. Limitations to acceptable health care most notably include inherent forms of racism and bias, a lack of cultural competence, and the demographic breakdown of the medical workforce. These limitations affect care relative to the cultural acceptability of, for example, contact between unmarried men and women and the ability to seek adequate care given that providers are predominantly white and male. The challenge here is ensuring that access to care is effectively met despite differences in social and cultural values.

The ethnic and racial diversity of Region IX highlights the importance of understanding how biases and racism impact access to care (see Figure 3 on page 9). An area of growing research has found an association of racism with poorer mental, physical, and general health outcomes for Americans of color.<sup>[26]</sup> The domains of racism persist internally, interpersonally, and systemically, influencing negative health consequences in synergistic and compounding ways for those affected. With or without conscious intent, direct or institutional racism within health systems can create barriers to healthcare access, such as patients not seeking care when needed. Other access barriers created by racism may be less direct and more upstream, creating conditions such as inadequate or no insurance coverage, lack of availability of

services, and lack of culturally competent care.[27] These conditions are created or exacerbated by racism through the pathways of (1) reduced access to employment, housing, and education; and (2) cultural and provider mistrust.[26][28]

The conditions for bias and racism are created by the unequal demographic distribution of healthcare providers in Region IX. In 2015, the majority of medical school graduates were White in Arizona, California, and Nevada, similar to the national majority (Table 6). Hawaii was the only state in the region with a majority Asian graduating class, followed by White graduates. Also worth noting is the unequal distribution of healthcare providers by gender as it pertains to the cultural acceptability of contact between women and men. In 2019, only 36% of active physicians nationally were female. Arizona, California, and Hawaii came in with similar numbers: 34.0%; 37.0%; and 32.0%, respectively. Nevada came up short of the national percentage, with only 28% of the practicing physicians being female.[29]

Increasing the diversity of future medical providers certainly creates improved conditions for mitigating the adverse effects of implicit biases and racism, although it by no means guarantees improvements. Individuals in a diverse medical workforce, although representative of minority populations as a whole, may not always be sensitive to other minority populations. The future of ensuring acceptable care needs to include increasing cultural empathy alongside a representative group of medical providers.

**TABLE 6: DISTRIBUTION OF ALLOPATHIC MEDICAL SCHOOL GRADUATES BY RACE/ETHNICITY, 2018**

Location	White	Black	Asian	Hispanic	American Indian/Alaska Native	Native Hawaiian/Pacific Islander
United States	56.0%	6.0%	21%	5%	0.0%	0.0%
Arizona	58.0%	2.0%	20.0%	4%	0.0%	1.0%
California	35%	6.0%	34.0%	9.0%	0.0%	0.0%
Hawaii	8.0%	0.0%	67.0%	0.0%	0.0%	5.0%
Nevada	64.0%	1.0%	20.0%	1.0%	0.0%	0.0%

Source: The Henry J. Kaiser Family Foundation. (2018).

### Affordability/Ability to Pay

Measuring affordability includes the cost of care delivered by the health provider and the ability of the individual to pay and have time to undergo services.[30] People in need of care often are prohibited or

restricted from seeking services due to their socioeconomic status, individual isolation, and outstanding debt owed.[20] Since racial and ethnic minority populations are more likely to be uninsured, the affordability of health care is a key component in addressing racial and ethnic disparities.[31] The Patient Protection and Affordable Care Act of 2010, often referred to as Affordable Care Act (ACA), brought great promise in reducing some of these disparities in accessing healthcare services. Access to health insurance in Region IX broadly reflects many national trends. Since open enrollment began in October 2013 under the ACA, residents of Nevada, Arizona, California, and Hawaii have enjoyed higher levels of healthcare insurance attainment for those states’ residents over pre-ACA insurance attainment rates.[32]

Increases in the number of insured persons are due in part to all four states of the region choosing to expand Medicaid coverage under the ACA, effectively relaxing the qualification terms of Medicaid to allow a larger pool of uninsured residents’ access to the benefit. Medicaid is a federally and state-funded health insurance program for low-income, elderly, and disabled individuals.[33] Today, a participant with an income ceiling of 138 percent of the poverty line (approximately \$16,000 in annual income) can qualify for Medicaid coverage.[34] California and Arizona have the highest rates of Medicaid-qualified residents, with 26 percent and 22 percent, respectively, covered under the program (Table 7).[32] Despite higher rates of those persons covered under Medicaid in the region, many persons are still without healthcare coverage. Arizona and Nevada face the region’s highest rate of uninsured residents at 11 percent each, while Hawaii has the lowest rate of uninsured residents with just 5 percent lacking coverage. Private insurance rates mirror the national average of 49 percent and range from the lowest in Arizona at 44 percent to a high of 52 percent in Hawaii.[35] However, initial marketplace participation in Hawaii, was just 3 percent of Hawaiians compared to an average rate of 6 percent nationally.[32][36] Hawaii’s low initial participation may reflect the fact that the state enacted the Prepaid Health Care Act in 1975, which requires all employers to provide health insurance to their employees who work 20 hours or more.[37] As of 2018, Hawaii’s marketplace participation is on par with the other states in Region IX.

**TABLE 7. PERCENT HEALTH INSURANCE COVERAGE BY TYPE**

	Employer	Non-Group	Medicaid	Medicare	Military	Uninsured
United States	49.0%	6.0%	20.0%	14.0%	1.0%	9.0%
Arizona	44.0%	5.0%	22.0%	16.0%	1.0%	11.0%
California	47.0%	7.0%	26.0%	11.0%	1.0%	7.0%
Hawaii	55.0%	5.0%	18.0%	15.0%	8.0%	5.0%
Nevada	48.0%	5.0%	19.0%	14.0%	2.0%	11.0%
Region IX	47.8%	5.0%	21.3%	14.0%	3.0%	8.5%

Source: Kaiser Family Foundation – Health Insurance Coverage of the Total Population 2018.

However, among minorities, high rates of uninsured persist despite the expansion of Medicaid in all of the states in Region IX.[36] Hispanics endure the highest rate of lack of insurance, as 19 percent have no coverage, representing approximately 10,279,600 Hispanics nationally. This trend carries through to Region IX: The highest uninsured rate in the region is the vulnerable population of 171,500 Hispanic

Nevadans, totaling 21 percent of the Hispanic populations in the state.[38] While much work remains to protect vulnerable populations, the Medicaid expansion has also benefitted families across the region.[32]

Additional healthcare safety net programs that help make access to health care affordable include the Children’s Health Insurance Plan (CHIP) and Medicare. CHIP provides inexpensive or free coverage to the children of families that fall within the gap of families that earn too much to qualify for Medicaid but may not have access to employer-provided health insurance or cannot afford individually purchased health insurance from the ACA healthcare exchanges. Nationally, 74,531,002 children are enrolled in CHIP, a 29 percent increase from the pre-ACA average monthly enrollment of 56,803,091 children. In Region IX, CHIP provides coverage for 14,986,404 children bolstered by the large population of 12,264,071 Californians covered under the program, equating to 31.25 percent of that state’s eligible population. Before the enactment of the ACA, just 7,755,381 children were enrolled in CHIP in California.[32][34][39]

Medicare is a federally funded healthcare plan for Americans 65 years of age or older, younger disabled individuals, and those with end-stage renal disease. Medicare consists of four components of coverage – Parts A, B, C, and D. Medicare Part A provides coverage for home care, hospital services, care at a skilled nursing facility, and hospice. Medicare Part B covers doctors’ visits, outpatient procedures, medical devices and supplies, and preventive medical care. Part C Medicare Advantage Plans are private insurance contracts with Medicare to allocate all Part A and Part B services. Finally, Medicare Part D provides prescription drug coverage, often through private insurance companies.[40]

Across the region, persons over the age of 65 make up 11-14 percent of the population within each state. Nationally, 14 percent (43,308,400) of individuals receive some form of Medicare benefits, roughly similar to Region IX’s 13.2 percent (5,617,600). However, California sees low Medicare attainment, with just 10 percent of its population using the service, and Hawaii enjoys the region’s highest saturation at 15 percent. White Americans make up most of the benefit’s users at a rate of 75 percent nationally, while just 27 percent of Hawaiian Medicare beneficiaries are white. After Whites, Blacks (10%) and Hispanics (9%) make up the remaining national distribution of users. Region IX quantities are slightly more diverse. In the region, 57.5 percent of users are white, 21.8 percent other, 12.3 percent Hispanic, and 5.3 percent black (Table 8).[32][41]

Rates of health insurance status suggest that the number of uninsured minorities, who historically go without coverage, have significantly decreased.[41] However, according to the Kaiser Family Foundation, racial and ethnic minority populations continue to experience higher rates of uninsured status compared to their white counterparts.[41] Challenges persist for low-to-moderate income individuals and families. Families USA highlight barriers that exist post-ACA, including high premium, high deductible, high cost-sharing, and employment-based family plans ineligible for tax credits.[42]

**TABLE 8. MEDICARE COVERAGE BY RACE AND ETHNICITY**

	Black	Hispanic	White	Other
Arizona	3.0%	14.0%	78.0%	4.0%
California	6.0%	21.0%	55.0%	15.0%
Hawaii	N/A	3.0%	27.0%	59.0%
Nevada	7.0%	11.0%	70.0%	9.0%
Region IX	5.3%	12.3%	57.5%	21.8%
United States	10.0%	9.0%	75.0%	4.0%

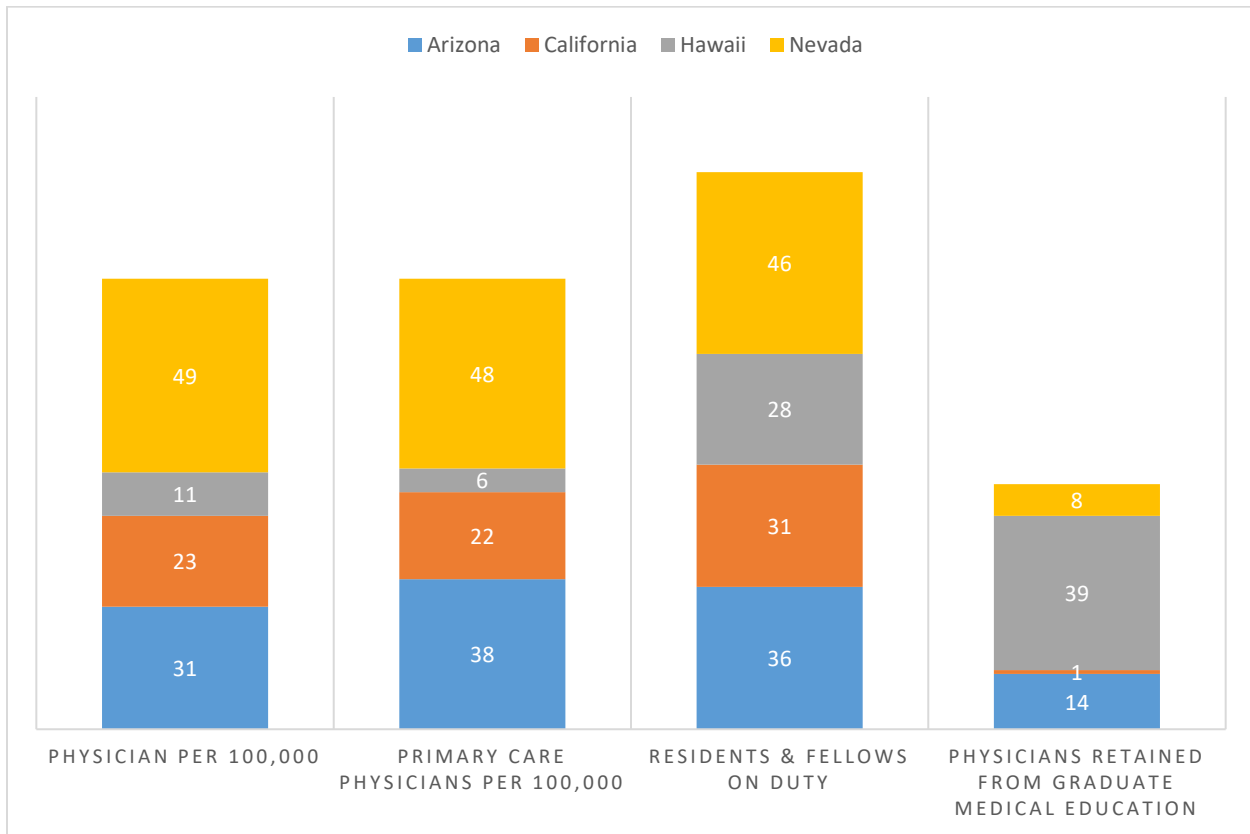
Source: Kaiser Family Foundation – Health Insurance Coverage of the Total Population 2018.

### Availability and Accommodation/Ability to Reach

The domains proposed by Levesque and colleagues (2013) together play an intricate role in access to health care and resulting health inequities, particularly among vulnerable populations based on race/ethnicity, sexual orientation, disability, socioeconomic status and those living in rural and urban areas. However, with all other domains in place, the lack of available healthcare providers to deliver affordable, quality healthcare services leave critical gaps in addressing existing health disparities. Today, the ACA has significantly decreased the number of Americans who are uninsured but does not address the supply of doctors needed to meet current and future demand.<sup>[43][44]</sup> This section examines the availability of providers and access to medically underserved areas in the region.

Where does Region IX stand regarding the supply of physicians? A report published by Merritt Hawkins ranks states based on physician shortages; lower rankings indicate more doctors per 100,000 residents (Figure 7). In almost all categories, Nevada ranks last in terms of the number of overall medical providers, primary care physicians, and residents and fellows on duty compared to other states represented in the region. Hawaii fares the best, with the highest rates of physicians and physicians in training per 100,000.

**FIGURE 6: PHYSICIAN SUPPLY RANKINGS PER 100,000 PERSONS BY STATE, 2015**



Source: Miller, P. & Klein, D. (2015). The physician shortage: Data points and state rankings. Merritt Hawkins.

Table 9 provides a more detailed look at the rates per 100,000 persons by type of selected medical specialty. Nevada, again, fares the worst in the quantity of primary care providers per 100,000 across all categories and as compared to the US overall except in regard to geriatrics, for which Hawaii’s quantity is slightly lower. Specialty providers are also found in lowest numbers in Nevada except for cardiology, oncology, and anesthesiology, for which Hawaii takes the last spot. The rate of oncology providers per 100,000 persons is highest in California and lowest in Hawaii and Nevada. The lack of oncology providers raises concern, given that cancer death rates among states in the region peak in Nevada at 155.3 per 100,000.[45] In comparison to the other specialties, endocrinologists are the least represented; this may be of particular concern, since 9-10 percent of adults in the region are diagnosed with diabetes.[46]

**TABLE 9. MEDICAL PROVIDERS PER 100,000 POPULATION BY STATE, 2019**

## Primary Care Providers

	Arizona	California	Hawaii	Nevada	US
Internal Medicine	45.68	56.60	53.32	45.81	60.17
Family Medicine/General Practice	36.94	38.46	34.61	29.25	42.47
Pediatrics	20.46	26.57	22.60	13.77	26.7
Obstetrics & Gynecology	13.62	15.07	20.41	10.49	16.42
Geriatrics	0.59	0.30	0.14	0.19	0.42

## Specialty Providers

	Arizona	California	Hawaii	Nevada	US
Endocrinology, Diabetes & Metabolism	1.39	1.89	1.40	1.09	2.45
Oncology (Cancer)	3.49	4.25	2.38	2.62	6.24
Cardiology	7.23	7.65	4.90	5.95	9.94
Radiology	11.86	11.89	10.29	8.64	14.57
Emergency Medicine	14.17	13.54	14.14	12.18	16.96
Anesthesiology	14.88	14.48	11.69	12.69	15.27
Surgery	13.13	12.65	10.92	9.29	16.74
Psychiatry	12.06	17.43	19.04	8.78	16.74
All Other Specialties	48.04	53.51	45.15	34.90	61.76

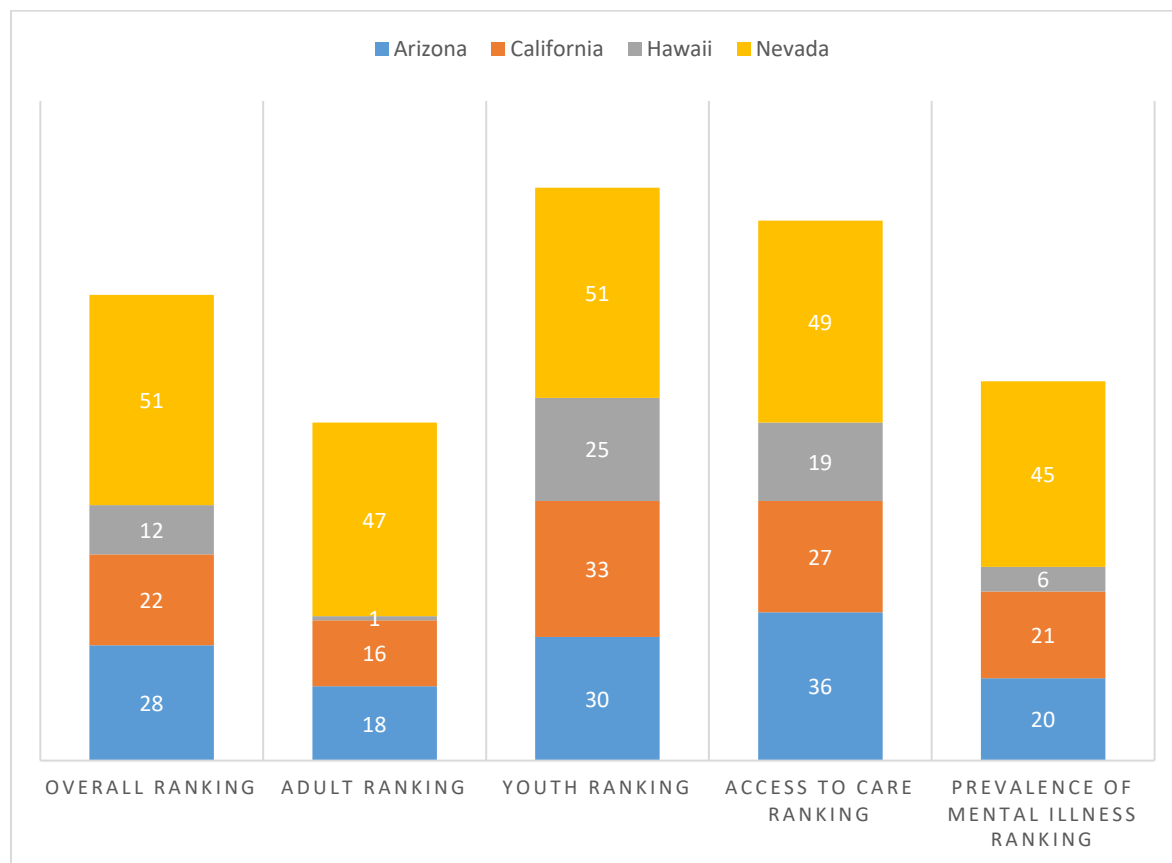
## Dentistry

	Arizona	California	Hawaii	Nevada	US
	Arizona	California	Hawaii	Nevada	US
Dentistry	50.90	74.78	67.94	50.65	57.34

Source: Kaiser Family Foundation. (2019). State health facts: Providers and service use.

One of the most concerning “workforce crises” noted by Congress is the mental health workforce.<sup>[47]</sup> Untreated mental health concerns can lead to serious individual and societal outcomes. The *State of Mental Health in America 2019* report ranks states on 15 distinct mental health measures. The overall rank across states in Region IX marks Nevada and Arizona as the worst states in the region, with Nevada ranking as worst in the nation (Figure 8).<sup>[48]</sup> Nevada and Arizona rank the worst in access to mental health care in Region IX. Adults with mental health concerns fair best in Hawaii and worst in Nevada. Youth with mental health concerns do best in California and worst in Nevada.

**FIGURE 7: MENTAL HEALTH RANKINGS BY STATE, 2020**



Source: MHA. (2019). Mental Health in America 2020. Mental Health America  
<http://www.mentalhealthamerica.net/issues/state-mental-health-america#Key>

The number of providers required to fill behavioral health needs is essential to the discussion, but a clear picture is not available unless an assessment of the distribution of those providers is conducted. The Health Resources and Services Administration (HRSA) determines which communities are designated as medically underserved areas and medically underserved populations in three primary categories: mental health; primary care; and dental health. These designations are provided based on four categories: 1) ratio of providers per 1,000 population; 2) infant mortality rate; 3) percentage of the population below the poverty level, and 4) percentage of the population age 65 and over.[49] Regional data indicate workforce shortages across all categories and states (table 10).[50] Arizona has the highest percent of unmet mental and primary health care need (nearly 90 percent for mental health)—a concerning shortage of health providers. Hawaii, while still needing to address healthcare workforce shortages, meets more than 50% of primary health care needs, but still falls behind in mental health care. Despite Nevada’s ranking as the worst in the region for mental health, Nevada meets the highest percentage of health care needs in Region IX.



**TABLE 10: HEALTH PROVIDER SHORTAGE AREAS (HPSAs) DESIGNATION FOR REGION IX, 2019****MENTAL HEALTH CARE HEALTH PROFESSIONAL SHORTAGE AREAS (HPSAs)**

	Arizona	California	Hawaii	Nevada
<b>Total Mental Health Care HPSA Designations</b>	219	544	27	59
<b>Population of Designated HPSAs</b>	2,862,704	7,904,862	523,039	2,445,591
<b>Percent of Need Met</b>	11.15%	29.20%	19.83%	35.39%
<b>Practitioners Needed to Remove HPSA Designation</b>	181	405	25	111

**PRIMARY CARE HEALTH PROFESSIONAL SHORTAGE AREAS (HPSAs)**

	Arizona	California	Hawaii	Nevada
<b>Total Primary Care HPSA Designations</b>	219	655	31	82
<b>Population of Designated HPSAs</b>	2,839,275	7,579,564	607,922	948,520
<b>Percent of Need Met</b>	40.76	42.55	56.36	47.60
<b>Practitioners Needed to Remove HPSA Designation</b>	558	1,443	77	170

**DENTAL CARE HEALTH PROFESSIONAL SHORTAGE AREAS (HPSAs)**

	Arizona	California	Hawaii	Nevada
<b>Total Dental Health Care HPSA Designations</b>	210	486	25	73
<b>Population of Designated HPSAs</b>	2,338,245	1,090,245	110,766	877,695
<b>Percent of Need Met</b>	34.50	22.29	55.05	32.99
<b>Practitioners Needed to Remove HPSA Designation</b>	380	214	12	152

Source: Kaiser Family Foundation. Health Professional Shortage Areas (HPSAs) – Providers and Service Use Indicators.  
<http://www.kff.org/state-category/providers-service-use/health-professional-shortage-areas/>

To address these workforce shortages, HRSA utilizes limited federal resources to enhance reimbursement rates to Federally Qualified Health Centers (FQHCs) to fill gaps in health services in designated underserved areas. FQHCs provide “safety net health care” to many vulnerable communities through community health centers, emergency departments, and free clinics.[51] FQHCs not only increase access to care but also improve health outcomes.[52] Table 11 identifies the number of community health centers within each state, as well as the number of service delivery sites and patient encounters or visits. In Region IX, patient encounters in community health centers totaled over 26 million in 2018 alone.[53] The distribution of selected FHQCs can be found in Figure 9.[54]

**TABLE 11: COMMUNITY HEALTH CENTERS IN REGION IX, 2018**

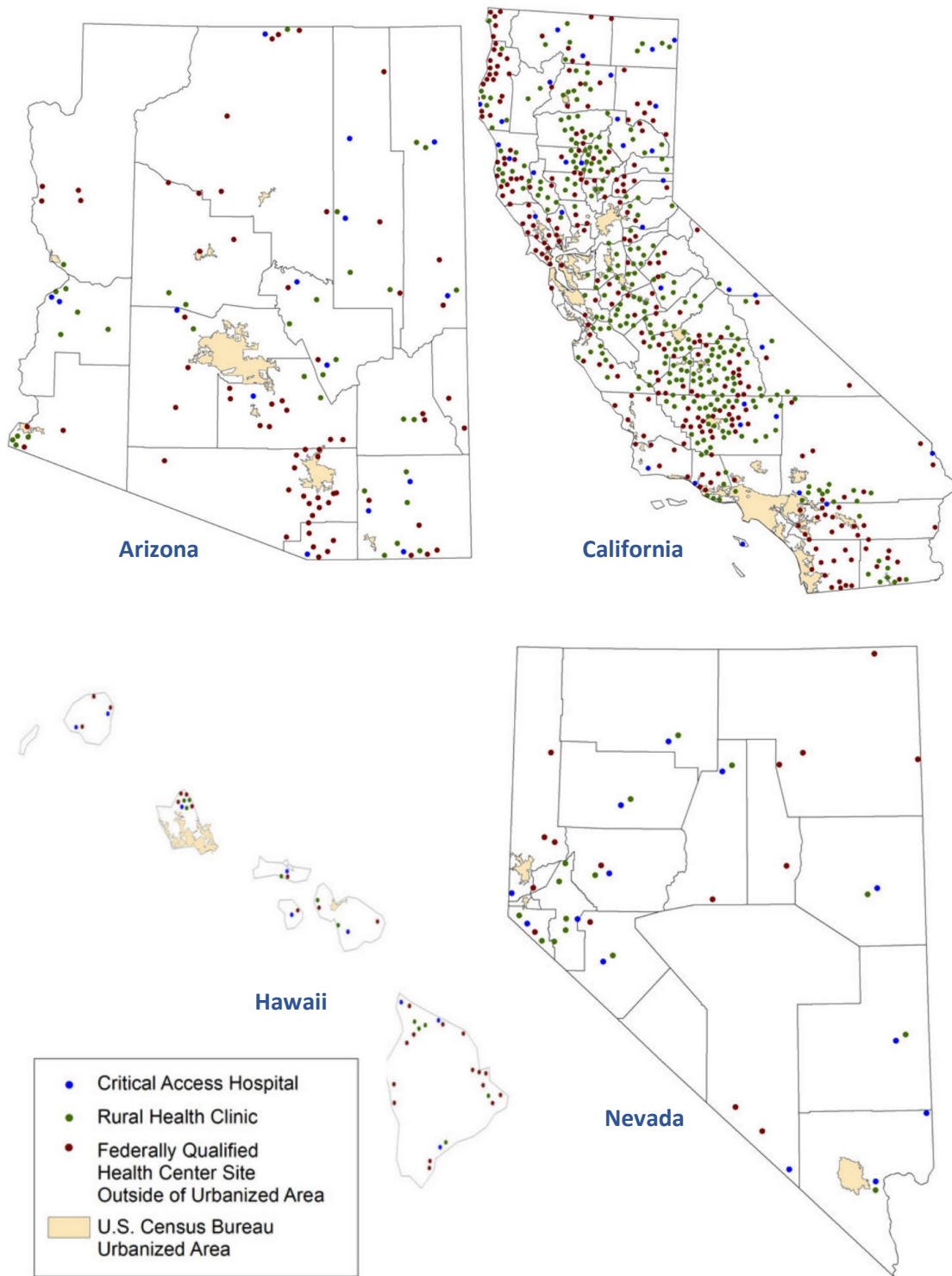
	Arizona	California	Hawaii	Nevada
Total CHCs	20	177	14	7
Service Delivery Sites	188	1,740	73	45
Patient Encounters or Visits	2,342,669	23,579,613	727,312	316,099

Source: Kaiser Family Foundation. (2018). Providers and Service Use – Community Health Centers. <http://www.kff.org/state-category/providers-service-use/community-health-centers/>

In summary, the numbers and distribution of the healthcare workforce in Region IX runs on a continuum, in which some states more effectively provide services to vulnerable populations while others are trailing behind. This continuum, however, provides an opportunity to learn from states that have garnered some gains. For instance, Hawaii is a national leader in terms of the number of overall physicians and primary care providers. We as a community must ask what that state is doing to attract and/or retain physicians. Similarly, California and Nevada have more effectively retained graduating medical students. Retention of physicians and diversifying the workforce is key to keeping up with projected needs for services. At present, the Association of American Medical Colleges estimates the need for 46,000 to 90,000 physicians by 2025.[43] The need for physicians are going to grossly impact every state in the region given the present workforce shortages.

In addition, the mental health crisis will continue to impact children, youth, adults, and seniors living in the region. The ACA filled a significant gap in the mental health arena by increasing the number of persons who have access to mental health services, including substance use disorder (SUD) treatment. However, despite these gains, the degree of unmet need in the region calls for considerable action. Each state in the region fell below the national average of 32 substance use disorder providers per 1,000 adults with addictions. Nevada falls short with 11 substance use providers per 1,000 adults with addictions, followed by Arizona and Hawaii.[55] Unless considerable planning and forethought are given to the distribution of medical providers to meet patients’ physical and behavioral health needs, health inequities will continue to persist in both urban and rural areas.

**FIGURE 8: SELECTED RURAL HEALTHCARE FACILITIES BY STATE, 2019**



Source: Rural Health Information Hub. (2019). State by state breakdown of rural health resources. <https://www.ruralhealthinfo.org/guides>

## Appropriateness of Care/Ability to Engage in Care

Appropriateness of care represents the fit between services and client needs as well as the timeliness and quality of services provided.[21] The evaluation of appropriateness of care is highly dependent on the context in which care is delivered and the conclusion that is subsequently drawn from that experience.[56] The fundamental questions to answer about the appropriateness of care include: What services are provided? In what ways are those services provided? How were services received by the patient? The patients' experiences should include consistency, understanding, respect, courtesy, and quality time spent with their provider. Ultimately, the manner in which healthcare services are rendered should do more good than harm.[57]

Levesque and colleagues (2013) indicate that the adequacy in which healthcare services are delivered is a fundamental component of the appropriateness of care. Adequacy relates to the quality of integration as well as the continuity of healthcare services provided.[21] Continuity is the degree to which a series of isolated healthcare events is experienced in a coherent, connected, and consistent way for the patient and her/his specific medical needs.[58] Three types of continuity exist in all healthcare settings: informational; management; and relational. "*Informational continuity* is the use of information of past events and personal circumstances to make current care appropriate for each individual. *Management continuity* is a consistent and coherent approach to the management of a health condition that is responsive to a patient's changing needs. *Relational continuity* is an ongoing therapeutic relationship between a patient and one or more providers." [58] The type and setting of care will determine how each type of continuity is implemented.[58]

Due to the intricate nature of the appropriateness of care, this assessment focuses on the continuity and timeliness of care. The Agency for Healthcare Research and Quality (AHRQ) 2016 *National Healthcare Quality and Disparities Report (QDR)* provides robust data for the examination of these two components of the appropriateness of care. With these data, we are able to assess continuity and timeliness of healthcare services provided in Region IX.

### Coordination and Continuity of Care

Coordinating basic patient information among providers is essential to ensure that important information is not ignored, lost, or never communicated.[59] Continuity implies a sense of affiliation between patients and their practitioners, which fosters improved communication, trust, and a sustained sense of responsibility.[58] Continuity is how individual patients experience the integration of services and coordination.[58] These patient experiences are reported in the *QDR* measures specific to patient-centeredness. These measures are compared to achievable benchmarks, which are derived from the top-performing states.[59] If a state's value for a measure is no worse than 90% of the benchmark value, the measure has achieved the benchmark. Table 12 shows five patient-centeredness quality measures that achieved the benchmark or better for states within Region IX. States in the region do well in terms of adult and hospice patients' and caregivers' receipt of their desired care, respect, and communication. The following percentages indicate that these measures are not too far from the benchmark and that patient-centered care has been achieved in these areas.

**TABLE 12. PATIENT-CENTEREDNESS QUALITY MEASURES THAT ACHIEVED BENCHMARK OR BETTER BY STATE, 2016**

MEASURE	Nevada	Arizona	California	Hawaii
Hospice patients who received care consistent with their stated end-of-life wishes	1%	1%	1%	6%
Hospice patient caregivers who perceived patient was referred to hospice at the right time	2%	2%	3%	3%
Adults who reported that home health providers always treated them with courtesy and respect in the previous two months of care	3%	2%	3%	3%
Adults who reported that home health providers always explained things in a way that was easy to understand in the previous two months of care	7%	5%	7%	3%
Adults who reported that home health providers always listen carefully to them in the previous two months of care	7%	6%	7%	4%

*Note: The percentages in this table represent the distance from the benchmark.*

Source: Agency for Healthcare Research and Quality. (2017). 2016 National Healthcare Quality and Disparities Reports

However, some improvements need to be made in the region. If a state's value for a measure has not achieved 50% of the benchmark, then it is considered far away from the benchmark. Table 13 shows five patient-centeredness quality measures that are below the benchmark for the states within Region IX. Overall, states in the region are performing poorly in terms of provider-patient communication for adults who had doctor visits in the previous 12 months. An appropriate service is highly dependent on the care that is delivered and is expected to do more good than harm for a patient. However, when a lack of fundamental provider-patient communication exists, inappropriate services are rendered, and continuity and coordination of care is ultimately compromised.

**TABLE 13. PATIENT-CENTEREDNESS QUALITY MEASURES THAT ARE FAR FROM BENCHMARK BY STATE, 2016**

MEASURE	Nevada	Arizona	California	Hawaii
Adults who had a doctor's office or clinic visit in the last 12 months whose health providers sometimes or never explained things in a way they could understand; Medicare managed care	140%	188%	155%	163%
Adults who had a doctor's office or clinic visit in the last 12 months whose health providers sometimes or never spent enough time with them; Medicare managed care	164%	164%	115%	113%
Adults who had a doctor's office or clinic visit in the last 12 months whose health providers sometimes or never showed respect for what they had to say; Medicare managed care	186%	171%	148%	161%
Adults who had a doctor's office or clinic visit in the last 12 months whose health providers sometimes or never listened carefully to them; Medicare managed care	203%	155%	109%	120%
Rating of health care 0-6 on a scale from 0 to 10 (best grade) by adults who had a doctor's office or clinic visit in the last 12 months, Medicare managed care	220%	130%	63%	106%

*Note: percentages represent distance from benchmark*

Source: Agency for Healthcare Research and Quality. (2017). 2016 National Healthcare Quality and Disparities Reports

### Timeliness

Timeliness, in this context, is the healthcare system's ability to provide health care quickly after a need is recognized. Timeliness can be measured by the availability of appointments and care for illness or injury when it is needed, as well as the time spent waiting in doctors' offices and emergency departments (EDs).<sup>[59]</sup> The delay in time between identifying a need for a specific test or treatment and actually receiving those services can negatively impact health and costs of care. Delays in obtaining care can lead to increased emotional distress, increased complications, higher treatment costs, and increased hospitalizations.<sup>[59]</sup>

Actual and perceived difficulties or delays in getting care when patients are ill or injured likely will reflect significant barriers to care.<sup>[59]</sup> These difficulties in obtaining timely care can be viewed in the NHQR quality measures specific to structural access. If a state's value for a measure is between 50% and 90% of a benchmark (i.e. has achieved at least half of but not as much as 90% of a benchmark), then it is considered close to the benchmark. Table 14 shows one structural access quality measure that is close to the benchmark for the states in Region IX. States in the region have achieved at least half of the benchmark

with regard to patients receiving the help or advice they needed the same day they contacted their home health provider, which is essential for the timely provision of healthcare services after a need is recognized.

**TABLE 14: STRUCTURAL ACCESS QUALITY MEASURES THAT REPRESENT THE DISTANCE FROM BENCHMARK**

MEASURE	Nevada	Arizona	California	Hawaii
Adults who reported getting the help or advice they needed the same day they contacted their home health provider	32%	33%	28%	37%

*Note: Percentages represent distance from benchmark.*

Source: Agency for Healthcare Research and Quality. (2017). 2016 National Healthcare Quality and Disparities Reports.

Table 15 shows the difficulties patients whose payer source is Medicaid or Medicare have encountered when seeking routine care, urgent care, or specialty care. All three measures highlight a significant barrier to receiving timely care, particularly in Nevada, which is furthest from benchmark in all categories.

**TABLE 15: STRUCTURAL ACCESS QUALITY MEASURES THAT ARE FAR FROM BENCHMARK BY STATE, 2016**

MEASURE	Nevada	Arizona	California	Hawaii
Adults who had an appointment for routine health care in the last 12 months who sometimes or never got an appointment for routine care as soon as wanted.	163%	84%	78%	92%
Adults who needed care right away for an illness, injury, or condition in the last 12 months who sometimes or never got care as soon as wanted.	288%	212%	79%	147%
Adults who needed to see a specialist in the last 12 months who sometimes or never found it easy to see a specialist.	280%	210%	219%	260%

*Note: Percentage represents distance from benchmark.*

Source: Agency for Healthcare Research and Quality (2017). 2016 National Healthcare Quality and Disparities Report.

Prolonged emergency department (ED) wait time decreases patient satisfaction, increases the number of patients who leave before being seen, and is associated with clinically significant delays in care.<sup>[60]</sup> In the ED, waiting room time, treatment time, and boarding time (time between decision to admit and in-bed placement) are major phases of emergency care. Building accurate models of ED service completion times is a critical first step to identifying barriers to patient flow, beginning the process of reengineering the system to reduce variability, and improving the timeliness of care provided.<sup>[61]</sup> Although the total number of EDs in the US has decreased, the number of individuals seeking ED care remains high, resulting

in increased wait times. Often, these wait times are a result of visits from patients who are less acutely ill.[60] Table 16 shows the average time spent waiting in an ED in states in Region IX.[62] Hawaii appears to have the shortest waiting time in an ED, while Arizona has the longest.

**TABLE 16: AVERAGE EMERGENCY DEPARTMENT WAIT TIMES IN MINUTES, BY STATE, 2019**

MEASURE	Arizona	California	Hawaii	Nevada
Average time patient spent in the emergency room before being seen by a doctor <sup>1</sup>	27	26	20	20
Average time patient spent in the emergency room before being sent home <sup>2</sup>	169	160	130	147
Average time patients spend in the emergency room before being admitted to the hospital <sup>2</sup>	294	334	286	280

Source:

<sup>1</sup>Pro Publica. (2017). Data from Centers of Medicaid and Medicare – ER wait watcher. <https://projects.propublica.org/emergency>

<sup>2</sup>Pro Publica. (2019). Data from Centers of Medicaid and Medicare – ER Inspector. <https://projects.propublica.org/emergency>

The appropriateness of care in the region has room for improvement. The adequacy of services is not robust in terms of care coordination and timeliness, which are major components of appropriateness and therefore impede the region’s quality of services. Priority should be given to developing more responsive healthcare services that are appropriate for patients and their underlying needs.

## US Territories

### Diverse Peoples with Diverse Care Needs

The United States Pacific Territories, presented below in alphabetical order, have complex relationships and histories with the US. As many as 471,845 people occupy just 1,318 square miles of land secluded in the 62-million-square-mile Pacific Ocean. Their racially and culturally diverse populations face unique barriers to treatment and access that are further compounded by segmentation of their individually administered and regulated healthcare systems. Moreover, data and information characterizing these islands’ healthcare systems are remarkable for their scarcity, due in part to wide variation in administration and the lack of support programs in these systems. These barriers further complicate efforts to study and characterize the realities individuals in these territories face when seeking care. Though no data were available to illustrate these islanders’ health with significant detail, broad descriptive data is compiled below to help create a snapshot of these most remote members of Region IX.

These remote outposts of US expansion suffer from low health insurance rates, low median household income, and poor health outcomes from their hospitals. Individuals admitted to territorial care facilities for myocardial infarction, heart failure, and pneumonia faced significantly higher mortality rates and higher rates of hospital readmission than those treated at stateside hospitals. Researchers from the National Institutes of Health found that for every 100 myocardial infarction cases treated, two additional deaths occur in territorial hospitals compared to their US counterparts; for every 100 pneumonia patients



treated, three additional deaths occur in the territories.[62] Despite increased reporting rates and a new policy standardizing hospital performance, residents of these islands face markedly significant health challenges.[62]

## American Samoa

American Samoa is inhabited by 51,504 individuals who are largely homogenous, as 88.9 percent are Samoan and 2.9 percent Tongan, totaling 92.5 percent Pacific Islander. The remaining population is 3.6 percent Asian, 2.7 percent combination of more than one race, and 1.2 percent other.[63] High school GED attainment sits at 82.1 percent, while 8.4 percent of American Samoans have completed their bachelor's degree.[64] Though 4.8 percent of residents are unemployed, median household income in 2010 was low at \$23,892, compared to the US national median of \$44,306 for that same year; this leaves 91.5 percent of families living below the federal poverty level.[65]

Administratively, the islands are an unincorporated territory with the capital located in Pago Pago. American Samoa has two healthcare centers: the Lyndon B. Johnson Tropical Medical Center and the supplemental American Samoa Community-Based Outpatient Clinic. According to Medicaid data, 40,515 of the islands' residents are enrolled in Medicaid and CHIP.[66]

## Commonwealth of Northern Mariana Islands

In 1975, the Commonwealth of Northern Mariana Islands entered a covenant to establish the commonwealth in political union with the US to develop a closer relationship with the federal government. Despite this improved relationship of 42 years, important health indicators still lag behind the mainland, though in some areas, the Marianas perform better than their territorial neighbors.[67]

The Northern Mariana Islands are home to 53,883 residents occupying the 179 square miles of land with their capital in Saipan. Largely of Asian descent, 35.3 percent are Filipino, 6.8 percent Chinese, 4.2 percent Korean, and 3.7 percent other Asian. Native Hawaiian and Pacific Islanders are the second largest demographic at 34.9 percent, 2.5 percent are of another race, and 12.7 percent are of two or more ethnicities or races.[68]

The islands struggle economically. Approximately 46 percent of people live below the US national poverty level, and the median household income for the islands as of the last census in 2010 was just \$19,958, compared to the US national median income that year of \$49,445.[69] The educational attainment of the island stands at 37 percent completing a high school diploma or equivalent while individuals completing a bachelor's degree is 16.5 percent.[70]

The islands have a single hospital to serve local residents on the island of Saipan, with over 60,000 outpatient visits each year.[67] In 2015, 19,076 people in the commonwealth were insured through Medicaid or CHIP.[71]

## Federated States of Micronesia

The Federated States of Micronesia has a diverse population of 104,719 Micronesians, made up of 49.3 percent Chuukese/Mortlockese, 29.8 percent Pohnpeian, 6.3 percent Kosraean, 5.7 percent Yapese, 5.1 percent Yap Outer Islander, 1.6 percent Polynesian, 1.4 percent Asian, and 0.8 percent of other race or ethnicity.[72]

The Micronesian capital is in Palikir, which governs a nation with many challenges. Data for this country are scarce and primarily come from the most recent Micronesian national census, completed in 2010. According to the World Bank, 41.2 percent of the population falls below the Federated States of Micronesia's poverty line.[73] However, economic conditions have improved slightly; though 15.4 percent of individuals live on less than \$1.90 a day, the rate was much higher in 2000, topping out at 46 percent of the population subsisting on that amount or less.[73] Unemployment rates reached 16.2 percent during the last census in 2010.[74] Educational attainment rates reflect the disparities plaguing the islands: Only 40.9 percent of individuals earned a high school diploma, and bachelor's degrees were achieved by just 11.8 percent.[74] Each of the states operates its own hospital (four in total), equaling one hospital per 26,179 Micronesians.[75]

## Guam

Guam is the largest island of the Mariana Islands Archipelago, totaling 544 square miles of volcanically formed terrain. The capital of Hagatna, located in the center of the island, is where lawmakers govern an estimated population of 167,772 Guamanians.[76] The island's strategic location in the Western Pacific Ocean helped earn the island US territory status following World War II. Since, Guam has hosted approximately 7,000 US military members and has bustling US Air Force and Navy bases that occupy 27 percent of the island's land.[77]

Guam is home to a large population of foreign-born residents—50,062, or about 30.8 percent of the total population, as of 2010. Demographically, the island is largely inhabited by the indigenous Chamorro population, which makes up 37.3 percent of the residents. Asians are the next largest group (32.2 percent of inhabitants), with a large population of Filipinos (26.3 percent) among other Asian subgroups such as Chinese (1.5 percent) and Japanese (1.5 percent). Further, Whites are 7.1 percent of the island's inhabitants, while Blacks and Hispanic or Latinos make up just 1.0 percent and 0.8 percent, respectively.[76]

The island is economically healthy compared to its neighbors. Guam enjoys a relatively low unemployment rate of 4.6 percent [78], with a median family income of \$50,607 in 2010. [79] The poverty count for families with children is down to 19.05 percent, lower than in other US territories.[80] Few Guamanians pursue academic achievement, as only 33.81 percent of residents earn a high school diploma, and even fewer earn their bachelor's degree—just 15.14 percent, about half of the mainland US rate of 33.4 percent.[80]

Turning to health, levels of insurance saturation in Guam are lower than in the US, where 91.2 percent of Americans have insurance for all or part of the year. On the island, only roughly 79 percent of Guamanians have some type of insurance.[81] The health care available on the island is advanced for the Oceania region. Guam operates two hospitals, providing access to one hospital per 83,886 residents. Additionally, there are 91 clinics on the island, up from 77 for the majority of the last decade. In 2016, care facilities treated 9,965 patients, including 320 for infectious and parasitic diseases, 203 for neoplasm, 182 for diabetes, and 674 for heart diseases.[82]

## Republic of the Marshall Islands

The Republic of the Marshall Islands is made up of 1,225 islands and 29 low-lying coral limestone and sand islands, located east of the Federated States of Micronesia and spread across an area of 4,507 square miles.[83][84] The islands were once the location of fierce fighting during World War II and nuclear testing, but today they are a tourist destination and a tuna processing site. Inhabiting the 70 square miles of land are 73,376 Marshallese, who are largely homogenous. Their demographic representation is monolithic: 92.1 percent of residents are Marshallese, and the remaining population is 5.9 percent mixed Marshallese and 2 percent other races.[85] This large, indigenous population ensures its national language, Marshallese, stays alive, as 98.2 percent of the people speak it; English is a second language spoken by a large proportion of the population.[85] The national capital is seated at Majuro, an atoll of 64 islands. The Marshallese are highly urbanized; approximately 70 percent of inhabitants reside in the two largest cities of Majuro and Ebeye, while 30 percent are scattered across the small outer islands of the territory.[84]

No data are available regarding Marshall Islands poverty rate or residents' income. However, other indicators illustrate the economic development of the nation. The United Nations pegs the islands' gross domestic product (GDP) in 2018 at \$183 million, compared to \$20.58 trillion for the US that same year and \$6.56 billion for neighboring Guam in 2017.[86] The nation's 2011 census reports unemployment as 4.7 percent. Educational attainment is equally as bleak: Only 24.8 percent of Marshallese complete high school, and just 9.0 percent have earned a bachelor's degree.[84]

Access to health care in the Marshall Islands is largely government organized, and only 1 percent of Marshallese health workers are in the private sector. The healthcare landscape is comprised of two hospitals, one each in Majuro and Ebeye, augmented by 56 health care centers spread among urban centers and outlying islands that offer primary care services.[87]

## The Republic of Palau

The Republic of Palau is a group of 340 islands in Oceania southeast of the Philippines. In 1993, the islands signed a Compact of Free Association with the United States, which provides the nation with economic and military benefits. The Palauan capital is in Melekeok, which has a population of just 277. The greater population of the islands sits at 17,661 of mainly indigenous individuals inhabiting the islands' 177 square miles.[88] Palauans, a mix of Micronesian with Malayan and Melanesian admixtures, make up the largest share of the population at 73 percent. At 21.7 percent, Asians are the second largest demographic,

followed by other races or race mixtures (2.1 percent), Carolinian (2 percent), and a small minority of Whites (1.2 percent).[89]

The country's economic development is middling for the region. Unemployment is low at 1.7 percent, .52 percent of which are female and 1.28 percent are male.[89] Recently declining population over the last decade may be related to the stagnant household income, growing slowly with an average of \$25,600 in 2014.[90] The World Bank reports that the average household income may not be growing fast enough to keep up with expenses. According to the World Bank, as many as 24.9 percent of Palauans fall below the poverty line for that country. However, Palau's GDP has skyrocketed to a new all-time high of 293 million in 2016 after bottoming out in 2010 at approximately 184 million.[91] Rates of high school graduation trail the US national rate of 88 percent in 2015; 72.5 percent of Palauans earn their diplomas. Despite having their own community college, the island residents earn their four-year bachelor's degrees at less than one-third the rate of the mainland US, at 12.2 percent and 33.4 percent, respectively.[92]

Palauans have one 80-bed major hospital for intensive treatment but may seek primary and family medical services at nine supplemental medical clinics and a dispensary. Since 2010, all Palauans are entitled to universal health care through the Palau Health Care Fund created by the National Healthcare Financing Act funded in Palau.[93] The fund provides for medical savings accounts and a universal social health insurance fund called National Health Insurance. Palauans make mandatory contributions to health services through the Social Security Trust Fund in order to sustain the insurance program.[93]

## Analysis of Region IX Access to Care Landscape

This document lays a strong foundation for understanding access to care within Region IX. The below section identifies some challenges, opportunities, and next steps moving forward to address access to health care for residents of this region. Not all challenges, opportunities, and next steps are unique to the region, and addressing them may involve stakeholders from outside of the region.

### Challenges

A challenge in completing this document is the limited availability of data related to access to health care across the region, particularly related to the model of access to care presented by Levesque and colleagues (2013). Data tend to be available at a national or statewide level and are not readily available to examine the constructs of the model by racial and ethnic persons as well as vulnerable and underserved populations. The diversity of the people within Region IX warrants having data that examine these issues and others among these subpopulations. In addition, while the data for the states are limited, the data examining the constructs of the model are basically non-existent for the Pacific Territories, which comprise a significant part of the region.

This report highlights the diversity of the region in terms of people, resources, access to providers, and more. The availability of resources and providers across the region facilitates or hinders access to health care, location depending. Such diversity in the availability of resources and providers makes it difficult to

make a singular statement about their impact on access to health care. While some states are doing well on selected measures, others are not.

The diversity of geography within the region has a tremendous impact on access to health care. Region IX includes islands within the Pacific Ocean as well as rural/frontier and tribal lands. As highlighted in the discussion regarding the Pacific territories, the availability of hospitals is limited, which often means that availability of specialty care is even scarcer. A real challenge is accessing specialty care when such care is available only thousands of miles away from home. Similar situations can be cited for rural/frontier and tribal lands in the region.

This report highlights the lack of health insurance coverage for unauthorized citizens in the region. Related is that some residents of the region have tribal affiliations or reside in areas that are governed by treaties and relationships with the US government, which impact ability to access health insurance. For example, the residents of Palau do not have access to Medicaid and Medicare due to the relationship between Palau and the US. Instead, Palau has universal health care provided by its government.

## Opportunities

This document is the first of its kind to examine the issues around access to health care across the Region IX. As such, the School of Public Health at the University of Nevada, Las Vegas is now in a position to educate stakeholders on the issues related to access to health care in the region. This document allows for the discussion of what issues face the region and how individual states and territories compare with each other within the region, among other issues.

In addition, this document sets a baseline so that, as strategies to address issues related to access to care are implemented throughout the region, progress can be measured against this baseline document. This document could be used as background for agencies seeking funding related to the issues raised herein. A hope is that this document will encourage collaboration among stakeholders to improve access to health care.

## Next Steps

This document provides a foundation that can be used to advocate for aspects of the ACA and CHIP. To start, stakeholders are encouraged to share this document. Those persons and agencies then can learn about the issues outlined herein and advocate for policies and strategies that improve access to health care. To support these education and advocacy efforts, this document can be used to help convene stakeholders around the region and country to discuss issues related to access to health care and health equity.

## References

- [1] Centers for Disease Control and Prevention. CDC Health Disparities and Inequalities Report – United States, 2013. MMWR 2013;62 (Suppl 3):1-189.
- [2] Centers for Disease Control and Prevention. (2019). Healthy People 2020.
- [3] CDC. Surveillance of health status in minority communities—Racial and Ethnic Approaches to Community Health Across the U.S. (REACH U.S.) Risk Factor Survey, United States, 2009. MMWR 2011;60 (No. SS-6).
- [4] Brennan Ramirez LK, Baker EA, Metzler M. Promoting Health Equity: A Resource to Help Communities Address Social Determinants of Health. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention; 2008.
- [5] Smedley, B., Stith, A., & Nelson, A. (2003). Unequal treatment confronting racial and ethnic disparities in health care. Institute of Medicine of the National Academies. Washington. D.C. ISBN 0-309-08532-2
- [6] Institute of Medicine. The Future of the Public's Health in the 21st Century. Washington, DC: The National Academies Press; 2003. Page XI
- [7] Institute of Medicine. The Future of Public Health. Washington, DC: National Academies Press; 1988.
- [8] Disparities in Health Care Quality among Racial and Ethnic Minority Groups: Selected Findings from the AHRQ 2010 NHQR and NHDR. Agency for Healthcare Research and Quality, Rockville, MD. <http://www.ahrq.gov/qual/nhqrdr10/nhqrdrminority10.htm>.
- [9] 2018 American Community Survey 1-Year Estimates. Selected Population Profile in the United States. <https://data.census.gov/cedsci/table?q=S0101&g=&table=S0101&tid=ACSST1Y2018.S0101&lastDisplaydRow=22>
- [10] Maciag, M. (2015) A state-by-state look at growing minority populations. Urban. <http://www.governing.com/topics/urban/gov-majority-minority-populations-in-states.html>
- [11] World Health Organization. Health Impact Assessment – the Determinants of Health. <http://www.who.int/hia/evidence/doh/en/>
- [12] Baker, D., Leon, J., Greenway, E., Collins, J., Movit, M. (2011). The education effect on population health: A reassessment. Population Dev REV. 37(2): 307–332. doi:10.1111/j.1728-4457.2011.00412.x.
- [13] Mirowsky, J.; Ross, CE. (2003). Education, Social Status, and Health. New York: Aldine de Gruyter. Page 6
- [14] Feinstein, J. NBER Working Papers 4572. National Bureau of Economic Research; 1993. Elderly health, housing, and mobility.
- [15] Migration Policy Institute. (2017) State Immigration Data Profiles. <http://www.migrationpolicy.org/data/state-profiles/state/>
- [16] Lebrun, L. & Dubay, L. (2010). Access to primary and preventive care among foreign-born adults in Canada and the United States. Health Research and Educational Trust. 45:6 DOI: 10.1111/j.1475-6773.2010.01163.x
- [17] Ye, J., Mack, D., Fry-Johnson, Y., and Parker, K. (2012). Health care access and utilization among US-born and Foreign-born Asian Americans. Journal of Immigrant Minority Health. 14(5): 731–737. doi:10.1007/s10903-011-9543-9.
- [18] Centers for Disease Control and Prevention. (2017). About Rural Health. <https://www.cdc.gov/ruralhealth/about.html>
- [19] Millman, M. (Editor). (1993). Access to Health Care in America. Washington, DC: Institute of Medicine.

- [20] Levesque, J., Harris, M., & Russell, G. (2013). Patient-centered access to healthcare: Conceptualizing access at the interface of health systems and populations. *International Journal for Equity in Health*. 12:18.
- [21] de Wit, L., Fenenga, C., Giammarchi, C., di Furia, L., Hutter, I., de Winter, A., & Meijering, L. (2018). Community-based initiatives improving critical health literacy: a systematic review and meta-synthesis of qualitative evidence. *BMC Public Health*. 18(40), 1-11. DOI 10.1186/s12889-017-4570-7
- [22] Centers for Disease Control and Prevention. (2019). Understanding Health Literacy. <https://www.cdc.gov/healthliteracy/learn/Understanding.html>
- [23] Department of Health and Human Services. Guide to Health Literacy – Fact Sheet. Page 1 <https://health.gov/communication/literacy/quickguide/factsbasic.htm>
- [24] Baker, D. (2006). The meaning and the measure of health literacy. *Journal of General Internal Medicine*. 21:878-883. DOI: 10.1111/j.1525-1497.2006.00540.x
- [25] National Assessment of Adult Literacy. (2003). The Health Literacy of America’s Adults, Results From the 2003 National Assessment of Adult Literacy.
- [26] Paradies Y, Ben J, Denson N, Elias A, Priest N, Pieterse A, et al. (2015). Racism as a Determinant of Health: A Systematic Review and Meta-Analysis. *PLoS ONE* 10(9): e0138511. <https://doi.org/10.1371/journal.pone.0138511>
- [27] Office of Disease Prevention and Health Promotion. Access to Health Services. September 2019. <https://www.healthypeople.gov/2020/topics-objectives/topic/Access-to-Health-Services>. Accessed December 28, 2019.
- [28] Benkert, R., Peters, R. M., Clark, R., & Keves-Foster, K. (2006). Effects of perceived racism, cultural mistrust and trust in providers on satisfaction with care. *Journal of the National Medical Association*, 98(9), 1532–1540
- [29] Kaiser Family Foundation. (2019). Professionally Active Physicians by Gender. <https://kff.org/other/state-indicator/physicians-by-gender/>
- [30] Marmot, M. 2015. The health gap: the challenge of an unequal world.
- [31] Chen, J., Vargas-Bustamante, A., Mortensen, K., & Ortega, A. (2016). Racial and ethnic disparities in health care access and utilization under the affordable care act. *Medical Care*. 54(2):140-146.
- [32] Kaiser Family Foundation Health Coverage & Uninsured Data <http://www.kff.org/state-category/health-coverage-uninsured/>
- [33] Millman, M. (Editor). (1993). *Access to Health Care in America*. Washington, DC: Institute of Medicine.
- [34] Centers for Disease Control and Prevention. CDC Health Disparities and Inequalities Report – United States, 2013. *MMWR* 2013;62(Suppl 3):1-189.
- [35] (n.d.). American FactFinder - Census Bureau. Retrieved July 9, 2017, from <https://factfinder.census.gov/>
- [36] CDC. Surveillance of health status in minority communities—Racial and Ethnic Approaches to Community Health Across the U.S. (REACH U.S.) Risk Factor Survey, United States, 2009. *MMWR* 2011;60 (No. SS-6).
- [37] State of Hawaii. HIGHLIGHTS OF THE HAWAII PREPAID HEALTH CARE LAW. <https://labor.hawaii.gov/dcd/files/2013/01/PHC-highlights.pdf>
- [38] Kaiser Family Foundation. (2018). Uninsured Rates of the Nonelderly by Race/Ethnicity. <https://www.kff.org/uninsured/state-indicator/rate-by-raceethnicity/>
- [39] Brennan Ramirez LK, Baker EA, Metzler M. Promoting Health Equity: A Resource to Help Communities Address Social Determinants of Health. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention; 2008.

- [40] Medicare.gov What's Medicare <https://www.medicare.gov/sign-up-change-plans/decide-how-to-get-medicare/whats-medicare/what-is-medicare.html>
- [41] Kasier Family Foundation. (2018). Disparities in health and health care. <http://www.kff.org/disparities-policy/issue-brief/disparities-in-health-and-health-care-five-key-questions-and-answers/>
- [42] Fish-Parcham, C. (2014). Trending: Tackling affordability barriers in the affordable care act. Families USA.
- [43] Miller, P. & Klein, D. (2015). The physician shortage: Data points and state rankings. Meritt Hawkins.
- [44] AAMC. (2015). 2015 State physician workforce data book. Association of American Medical Colleges. Center for Workforce Studies.
- [45] CDC. (2017). Cancer prevention and control: Cancer rates by U.S. state. [https://www.cdc.gov/nchs/pressroom/sosmap/cancer\\_mortality/cancer.htm](https://www.cdc.gov/nchs/pressroom/sosmap/cancer_mortality/cancer.htm)
- [46] CDC. (2016). Age-adjusted percentage, adults with diabetes. Centers for Disease Control and Prevention. <https://gis.cdc.gov/grasp/diabetes/DiabetesAtlas.html>
- [47] SAMHSA. (2014). Building the behavioral health workforce. Substance Abuse and Mental Health Services Administration. 22(4). [https://www.samhsa.gov/samhsaNewsLetter/Volume\\_22\\_Number\\_4/building\\_the\\_behavioral\\_health\\_workforce/](https://www.samhsa.gov/samhsaNewsLetter/Volume_22_Number_4/building_the_behavioral_health_workforce/)
- [48] MHA. (2017). Mental Health in America 2017. Mental Health America. <http://www.mentalhealthamerica.net/issues/state-mental-health-america#Key>
- [49] Morelli, V. (2017). An introduction to primary care in underserved populations – definitions, scope and challenges. Primary Care: Clinics in Office Practice. 44(1): 1-9.
- [50] Kaiser Family Foundation. Health Professional Shortage Areas (HPSAs) – Providers and Service Use Indicators. <http://www.kff.org/state-category/providers-service-use/health-professional-shortage-areas/>
- [51] Pigoga, J., Kibria, F., Pinilla, M., Bicki, A., Joseph, V., De Groot, A. (2015). Barriers to health insurance pre- and post – affordable care act implementation in Providence, RI. Rhode Island Medical Journal.
- [52] Saloner, B., Kenney, G., Polsky, D., Rhodes, K., Wissoker, D., & Zuckerman, S. (2014). The availability of new patient appointments for primary care at federally qualified health centers: Findings from an audit study. Urban Insititute- Healthy Policy Center.
- [53] Kaiser Family Foundation. (2018). Providers and Service Use – Community Health Centers. <http://www.kff.org/state-category/providers-service-use/community-health-centers/>
- [54] Rural Health Information Hub. (2016). State by state breakdown of rural health resources. <https://www.ruralhealthinfo.org/guides>
- [55] Vestal, C. (2015). How severe is the shortage of substance abuse specialist? The Pew Charitable Trusts.
- [56] Hicks, N. R. (1994). Some observations on attempts to measure appropriateness of care. BMJ: British Medical Journal, 309(6956), 730.
- [57] Lavis, J. N., & Anderson, G. M. (1996). Appropriateness in health care delivery: definitions, measurement and policy implications. CMAJ: Canadian Medical Association Journal, 154(3), 321.
- [58] Haggerty, J. L., Reid, R. J., Freeman, G. K., Starfield, B. H., Adair, C. E., & McKendry, R. (2003). Continuity of care: a multidisciplinary review. BMJ: British Medical Journal, 327(7425), 1219.
- [59] AHRQ. (2017). 2016 National Healthcare Quality and Disparities Report (AHRQ Pub. No. 17-0001). Retrieved from Rockville, MD: <https://www.ahrq.gov/sites/default/files/wysiwyg/research/findings/nhqdr/nhqdr16/2016qdr.pdf>



- [60] Ding, R., McCarthy, M. L., Desmond, J. S., Lee, J. S., Aronsky, D. and Zeger, S. L. (2010), Characterizing Waiting Room Time, Treatment Time, and Boarding Time in the Emergency Department Using Quantile Regression. *Academic Emergency Medicine*, 17: 813–823. doi:10.1111/j.1553-2712.2010.00812.x
- [61] Pro Publica. (2017) Data from center of Medicaid- ER wait watcher. Pro Publica. <https://projects.propublica.org/emergency>
- [62] Quality of Care in the US Territories, Nunez-Smith et al., <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3251926/pdf/nihms343073.pdf>
- [63] CIA Fact Book. (2018). American Samoa. <https://www.cia.gov/library/publications/the-world-factbook/geos/aq.html>
- [64] Source: U.S. Census Bureau, 2010 Census American Samoa. (2010) [https://www2.census.gov/census\\_2010/10-Island\\_Areas\\_Detailed\\_Cross\\_Tabulations/American\\_Samoa/AS\\_2010\\_Census\\_Detailed\\_Crosstabulations\\_Part1\\_v3.xlsx](https://www2.census.gov/census_2010/10-Island_Areas_Detailed_Cross_Tabulations/American_Samoa/AS_2010_Census_Detailed_Crosstabulations_Part1_v3.xlsx)
- [65] US Census. (2010). American Samoa. [https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC\\_10\\_DPAS\\_ASDP3&prodType=table](https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC_10_DPAS_ASDP3&prodType=table)
- [66] Medicaid (2019). American Samoa. <https://www.medicaid.gov/medicaid/by-state/American-Samoa.html>
- [67] World Health Organization. (2011). [http://www.wpro.who.int/countries/mnp/23MAIpro2011\\_finaldraft.pdf](http://www.wpro.who.int/countries/mnp/23MAIpro2011_finaldraft.pdf)
- [68] CIA Fact Book. (2018). Commonwealth of the Northern Mariana Islands <https://www.cia.gov/library/publications/the-world-factbook/geos/cq.html>
- [69] US Census (2010). 2010 Commonwealth of the Northern Mariana Islands. Profile of Select Economic Characteristics. [https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC\\_10\\_DPMP\\_MPDP3&prodType=table](https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC_10_DPMP_MPDP3&prodType=table)
- [70] US Census (2010). 2010 Commonwealth of the Northern Mariana Islands. Educational Attainment. [https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC\\_10\\_DPMP\\_MPDP2&prodType=table](https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC_10_DPMP_MPDP2&prodType=table)
- [71] Medicaid Overview. (2015). <https://www.medicaid.gov/medicaid/by-state/cnmi.html>
- [72] CIA Fact Book (2018). Micronesia. <https://www.cia.gov/library/publications/the-world-factbook/geos/fm.html>
- [73] World Bank Poverty and Equity, Country Dashboard: Micronesia, Fed. Sts. [povertydata.worldbank.org/poverty/country/FSM](http://povertydata.worldbank.org/poverty/country/FSM)
- [74] Government of Micronesia, Fed. Sts 2010 Micronesia Census. <http://catalog.ihsn.org/index.php/catalog/4155/download/55446>
- [75] World Health Organization Country Cooperation Strategy, Micronesia, Federated States of. [http://apps.who.int/iris/bitstream/10665/136945/1/ccsbrief\\_fsm\\_en.pdf](http://apps.who.int/iris/bitstream/10665/136945/1/ccsbrief_fsm_en.pdf)
- [76] CIA Factbook (2018). Guam <https://www.cia.gov/library/publications/the-world-factbook/geos/gq.html>
- [77] Global Security Profile: Guam <http://www.globalsecurity.org/military/facility/guam.htm>
- [78] Bureau of Labor Statistics. (2019). Guam <http://bls.guam.gov/>
- [79] 2010 Guam Demographic Profile Data. [https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC\\_10\\_DPGU\\_GUDP3&prodType=table](https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC_10_DPGU_GUDP3&prodType=table).

- [80] Bureau of Statistics and Plans. 2016 Guam Statistical Yearbook. [https://bsp.guam.gov/wp-bsp-content/uploads/2018/01/GuamStatiscalYearbook\\_2016.pdf](https://bsp.guam.gov/wp-bsp-content/uploads/2018/01/GuamStatiscalYearbook_2016.pdf)
- [81] The Office of Senator Dennis G. Rodriguez, Jr. (2016) Guam Health Insurance Expansion Program. <http://toduguam.com/special/docs/paratodu.pdf>
- [82] Bureau of Statistics and Plans. 2016 Guam Statistical Yearbook [https://bsp.guam.gov/wp-bsp-content/uploads/2018/01/GuamStatiscalYearbook\\_2016.pdf](https://bsp.guam.gov/wp-bsp-content/uploads/2018/01/GuamStatiscalYearbook_2016.pdf)
- [83] World Health Organization Human Resources for Health Country Profiles: Marshall Islands [http://www.wpro.who.int/hrh/documents/publications/wpr\\_hrh\\_country\\_profiles\\_marshall\\_islands\\_upload2.pdf](http://www.wpro.who.int/hrh/documents/publications/wpr_hrh_country_profiles_marshall_islands_upload2.pdf)
- [84] CIA World Factbook Marshall Islands <https://www.cia.gov/library/publications/the-world-factbook/geos/rm.html>
- [85] Marshall Islands Census <https://www.doi.gov/sites/doi.gov/files/migrated/oia/reports/upload/RMI-2011-Census-Summary-Report-on-Population-and-Housing.pdf>
- [86] UN Data World Statistics Pocketbook, UN Statistics Division, <http://data.un.org/CountryProfile.aspx?crName=marshall%20islands>
- [87] WHO Country Cooperation Strategy for Marshall Islands 2018-2022 <https://iris.wpro.who.int/bitstream/handle/10665.1/13946/WPRO-2017-DPM-012-mhl-eng.pdf>
- [88] Palau 2018 Statistical Yearbook <https://www.palau.gov.pw/wp-content/uploads/2019/07/2018-Statistical-Yearbook.pdf>
- [89] CIA World Factbook Palau <https://www.cia.gov/library/publications/the-world-factbook/geos/ps.html>
- [90] 2014 Republic of Palau Household Income and Expenditures Survey Report, Ministry of Finance. <https://www.palau.gov.pw/wp-content/uploads/2016/04/2014-ROP-HIES.pdf>
- [91] World Bank Country Profiles. [Palau | Data] <http://data.worldbank.org/country/palau>
- [92] Republic of Palau 2002-2003 Statistical Yearbook [www.paddle.usp.ac.fj/collect/paddle/index/assoc/pal005.dir/doc.pdf](http://www.paddle.usp.ac.fj/collect/paddle/index/assoc/pal005.dir/doc.pdf)
- [93] Republic of Palau Social Security Administration, About the Health Care Fund, <http://www.ropssa.org/hcf-about.html>